









TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: **Ellicott City, Concept 2, DA2-5a**  
 Proposed Tc BY: **ADM**

OVERLAND FLOW

Flow Segment Name	<b>AB</b>
Surface Description	<b>GRASS DEI</b>
Roughness Coefficient	<b>0.24</b>
Land Slope (ft/ft)	<b>0.170</b>
Flow Length (ft) [100' max]	<b>100</b>
Two-Year Rainfall (in.)	<b>3.20</b>
Flow Time (hr.)	<b>0.101</b>

SHALLOW CONCENTRATED FLOW

Flow Segment Name	<b>BC</b>
Flow Length (ft)	<b>290</b>
Paved or Unpaved	<b>unpaved</b>
Land Slope (ft/ft)	<b>0.017</b>
Flow Velocity (ft/sec.)	<b>2.119</b>
Flow Time (hr.)	<b>0.0380</b>

CHANNEL FLOW

Flow Segment Name	<b>DE</b>
Flow Depth (ft)	<b>0.5</b>
Bottom Width (ft)	<b>0</b>
Side Slope (Z1)	<b>3</b>
Side Slope (Z2)	<b>3</b>
Manning's Coefficient	<b>0.045</b>
Flow Length (ft)	<b>411</b>
Channel Slope (ft/ft)	<b>0.019</b>
Flow Velocity (ft/sec.)	<b>1.765</b>
Flow Time (hr.)	<b>0.0647</b>

PIPE FLOW (Assuming full flow)

Flow Segment Name	<b>CD</b>	<b>EF</b>
Pipe Diameter (ft)	<b>2.00</b>	<b>4.00</b>
Manning's Coefficient	<b>0.013</b>	<b>0.013</b>
Pipe Slope (ft/ft)	<b>0.005</b>	<b>0.040</b>
Pipe Length (ft)	<b>190.00</b>	<b>757.00</b>
Flow Velocity (ft/sec.)	<b>5.224</b>	<b>22.756</b>
Flow Time (hr.)	<b>0.0101</b>	<b>0.0092</b>

TIME OF CONCENTRATION (hr.)/(min)

Total time	<b>0.223 hr</b>
------------	-----------------

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: **Ellicott City, Concept 2, DA2-5b**  
 Proposed Tc BY: **ADM**

OVERLAND FLOW

Flow Segment Name	AB
Surface Description	woods, light
Roughness Coefficient	0.40
Land Slope (ft/ft)	0.167
Flow Length (ft) [100' max]	64
Two-Year Rainfall (in.)	3.20
Flow Time (hr.)	0.107

SHALLOW CONCENTRATED FLOW

Flow Segment Name	BC
Flow Length (ft)	322
Paved or Unpaved	unpaved
Land Slope (ft/ft)	0.037
Flow Velocity (ft/sec.)	3.099
Flow Time (hr.)	0.0289

CHANNEL FLOW

Flow Segment Name	
Flow Depth (ft)	
Bottom Width (ft)	
Side Slope (Z1)	
Side Slope (Z2)	
Manning's Coefficient	
Flow Length (ft)	
Channel Slope (ft/ft)	
Flow Velocity (ft/sec.)	
Flow Time (hr.)	0.0000

PIPE FLOW (Assuming full flow)

Flow Segment Name	
Pipe Diameter (ft)	
Manning's Coefficient	
Pipe Slope (ft/ft)	
Pipe Length (ft)	
Flow Velocity (ft/sec.)	
Flow Time (hr.)	0.000

TIME OF CONCENTRATION (hr.)/(min)

Total time	0.136 hr
------------	----------

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: **Ellicott City, Concept 4, DA3-7a**  
 Proposed Tc BY: **ADM**

OVERLAND FLOW

Flow Segment Name	<b>AB</b>
Surface Description	<b>woods, light</b>
Roughness Coefficient	<b>0.40</b>
Land Slope (ft/ft)	<b>0.560</b>
Flow Length (ft) [100' max]	<b>52</b>
Two-Year Rainfall (in.)	<b>3.20</b>
Flow Time (hr.)	<b>0.056</b>

SHALLOW CONCENTRATED FLOW

Flow Segment Name	<b>BC</b>
Flow Length (ft)	<b>300</b>
Paved or Unpaved	<b>unpaved</b>
Land Slope (ft/ft)	<b>0.037</b>
Flow Velocity (ft/sec.)	<b>3.099</b>
Flow Time (hr.)	<b>0.0269</b>

CHANNEL FLOW

Flow Segment Name	<b>CD</b>	<b>EF</b>	<b>HI</b>
Flow Depth (ft)	<b>0.75</b>	<b>1</b>	<b>1</b>
Bottom Width (ft)	<b>0</b>	<b>2</b>	<b>2.5</b>
Side Slope (Z1)	<b>4</b>	<b>3</b>	<b>3</b>
Side Slope (Z2)	<b>4</b>	<b>3</b>	<b>3</b>
Manning's Coefficient	<b>0.045</b>	<b>0.045</b>	<b>0.045</b>
Flow Length (ft)	<b>400</b>	<b>310</b>	<b>102</b>
Channel Slope (ft/ft)	<b>0.053</b>	<b>0.052</b>	<b>0.020</b>
Flow Velocity (ft/sec.)	<b>3.856</b>	<b>5.341</b>	<b>3.374</b>
Flow Time (hr.)	<b>0.0288</b>	<b>0.0161</b>	<b>0.0084</b>

PIPE FLOW (Assuming full flow)

Flow Segment Name	<b>DE</b>	<b>FG</b>	<b>GH</b>
Pipe Diameter (ft)	<b>1.50</b>	<b>3.50</b>	<b>3.50</b>
Manning's Coefficient	<b>0.024</b>	<b>0.024</b>	<b>0.024</b>
Pipe Slope (ft/ft)	<b>0.040</b>	<b>0.016</b>	<b>0.014</b>
Pipe Length (ft)	<b>200.00</b>	<b>85.00</b>	<b>167.00</b>
Flow Velocity (ft/sec.)	<b>6.440</b>	<b>7.269</b>	<b>6.790</b>
Flow Time (hr.)	<b>0.0086</b>	<b>0.0032</b>	<b>0.0068</b>

TIME OF CONCENTRATION (hr.)/(min)

Total time	<b>0.155 hr</b>
------------	-----------------

TR-55 TIME OF CONCENTRATION WORKSHEET

DRAINAGE AREA: **Ellicott City, Concept 4, DA3-7b**  
 Proposed Tc BY: **ADM**

OVERLAND FLOW

Flow Segment Name	<b>AB</b>
Surface Description	<b>GRASS DEI</b>
Roughness Coefficient	<b>0.24</b>
Land Slope (ft/ft)	<b>0.140</b>
Flow Length (ft) [100' max]	<b>50</b>
Two-Year Rainfall (in.)	<b>3.20</b>
Flow Time (hr.)	<b>0.063</b>

SHALLOW CONCENTRATED FLOW

Flow Segment Name	<b>BC</b>
Flow Length (ft)	<b>300</b>
Paved or Unpaved	<b>unpaved</b>
Land Slope (ft/ft)	<b>0.030</b>
Flow Velocity (ft/sec.)	<b>2.795</b>
Flow Time (hr.)	<b>0.0298</b>

CHANNEL FLOW

Flow Segment Name	<b>CD</b>
Flow Depth (ft)	<b>0.5</b>
Bottom Width (ft)	<b>0</b>
Side Slope (Z1)	<b>4.5</b>
Side Slope (Z2)	<b>4</b>
Manning's Coefficient	<b>0.035</b>
Flow Length (ft)	<b>474</b>
Channel Slope (ft/ft)	<b>0.055</b>
Flow Velocity (ft/sec.)	<b>3.877</b>
Flow Time (hr.)	<b>0.0340</b>

PIPE FLOW (Assuming full flow)

Flow Segment Name	
Pipe Diameter (ft)	
Manning's Coefficient	
Pipe Slope (ft/ft)	
Pipe Length (ft)	
Flow Velocity (ft/sec.)	
Flow Time (hr.)	<b>0.000</b>

TIME OF CONCENTRATION (hr.)/(min)

Total time	<b>0.126 hr</b>
------------	-----------------



1

\*\*\*\*\*80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY\*\*\*\*\*

JOB	TR-20	TITLE	Level	MGMT	w/o	CNCPT	1,2,4
9	ENDTBL						
2	XSECTN	002	1.0	389.50			
8			389.00	0.00			0.00
8			389.25	1.65			1.06
8			389.50	6.25			2.75
8			389.75	14.40			5.06
8			390.00	26.75			8.00
8			390.25	45.54			14.33
8			390.50	68.67			15.00
8			390.75	96.11			18.88
8			391.00	127.89			23.00
8			391.25	164.08			27.38
8			391.50	204.77			32.00
8			391.75	250.06			36.88
9	ENDTBL						
2	XSECTN	005	1.0	367.00			
8			366.00	0.00			0.00
8			366.50	3.51			1.5
8			367.00	13.55			4.00
8			367.50	30.53			9.00
8			367.75	47.87			13.00
8			368.00	72.23			18.00
8			368.25	104.79			23.98
8			368.50	146.13			30.94
8			368.75	197.14			38.86
8			369.00	258.63			47.75
8			369.25	331.41			57.61
8			369.50	416.25			68.44
9	ENDTBL						
3	STRUCT	11					
8			380.00	0.00			0.00
8			381.00	2.70			0.53
8			382.20	53.00			1.16
8			383.80	186.80			1.40
9	ENDTBL						
2	XSECTN	008	1.0	330.00			
8			356.00	0.00			0.00
8			356.50	20.21			6.94
8			357.00	68.51			15.75
8			357.50	144.11			26.44
8			358.00	248.93			39.00
8			358.50	389.07			53.25
8			359.00	561.31			69.00
8			359.50	767.14			86.25
8			360.00	1008.16			105.00
8			361.00	1375.68			147.50
8			361.50	1604.19			171.38
9	ENDTBL						

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

2	XSECTN	016	1.0	333.08			
---	--------	-----	-----	--------	--	--	--

BASE124.OUT

8			331.08	0.00	0.00
8			332.08	80.21	8.00
8			333.08	225.50	16.00
8			333.58	310.09	20.00
8			334.08	399.94	24.00
8			334.58	493.86	28.00
8			335.08	590.97	32.00
8			335.58	690.67	36.00
8			336.08	792.47	40.00
8			336.58	896.02	44.00
9	ENDTBL				
2	XSECTN	023	1.0	314.40	
8			313.22	0.00	0.00
8			313.51	1.10	0.89
8			313.81	3.51	1.84
8			314.10	16.22	5.61
8			314.40	34.66	9.74
8			314.68	48.28	24.71
8			314.96	79.66	42.09
8			315.24	126.64	61.87
8			315.52	189.07	84.06
8			315.80	267.27	108.64
8			316.08	361.75	135.63
8			316.36	473.14	165.02
8			316.64	602.11	196.81
8			316.92	749.37	231.00
8			317.20	878.70	277.25
8			317.48	1103.89	329.14
8			317.76	1358.10	382.70
8			318.04	1640.58	437.94
8			318.32	1950.87	494.86
8			318.60	2288.69	553.45
9	ENDTBL				
3	STRUCT	21			
8			364.00	0.00	0.00
8			366.00	0.30	0.55
8			368.00	0.50	1.31
8			369.00	3.20	1.80
8			370.00	5.20	2.29
8			372.00	7.80	3.48
8			374.00	9.60	5.00
8			375.00	10.40	5.86
8			376.00	45.30	6.79
8			376.50	74.10	7.31
8			377.00	106.80	7.83
8			378.00	149.80	8.90
8			379.00	155.60	10.06
8			380.00	162.00	11.29
9	ENDTBL				

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

3	STRUCT	22			
8			352.50	0.00	0.00
8			358.65	100.00	0.91
8			361.76	140.00	3.28
8			363.64	160.00	5.47
8			366.18	180.00	9.58
8			368.71	200.00	14.77
8			370.61	250.00	19.31

BASE124.OUT

```

9 ENDTBL
3 STRUCT      23
9 ENDTBL
3 STRUCT      24
9 ENDTBL
2 XSECTN      027
      1.0      317.00
8      316.00      0.00      0.00
8      316.50      2.68      2.59
8      317.00      10.37      6.88
8      317.50      24.26      12.84
8      318.00      45.55      20.50
8      318.50      70.64      34.75
8      319.00     137.01      60.50
8      319.25     200.57      76.25
8      319.50     273.06      92.00
8      319.75     353.76     107.75
8      320.00     442.13     123.50
8      320.50     640.03     155.00
8      321.00     863.72     186.50
9 ENDTBL
2 XSECTN      032
      1.0      313.00
8      310.00      0.00      0.00
8      311.00      12.25      5.50
8      312.00      52.16     16.00
8      312.50      83.38     23.13
8      313.00     123.94     31.50
8      313.25     148.02     36.16
8      313.50     174.79     41.13
8      313.75     204.34     46.41
8      314.00     236.81     52.00
8      314.50     278.65     65.75
8      315.00     353.72     84.00
9 ENDTBL
2 XSECTN      034
      1.0      338.50
8      338.00      0.00      0.00
8      338.10      4.87      2.46
8      338.25     22.73      6.38
8      338.50     73.99     13.53
8      338.75    149.34     21.45
8      339.00    247.95     30.13
8      339.50    515.65     49.78
9 ENDTBL
1

```

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

```

2 XSECTN      037
      1.0      331.00
8      330.00      0.00      0.00
8      330.25     14.29      3.25
8      330.50     46.85      7.00
8      330.75     95.34     11.25
8      331.00    159.64     16.00
8      331.25    240.13     21.25
8      331.50    337.44     27.00
8      331.75    452.26     33.25
8      332.00    585.36     40.00
8      332.50    875.33     55.81
8      333.00   1272.05     75.25
9 ENDTBL
2 XSECTN      044
      1.0      288.90
8      287.68      0.00      0.00

```

BASE124.OUT

8			287.99	1.15	0.94
8			288.29	3.69	1.95
8			288.60	17.06	5.98
8			288.90	36.44	10.37
8			289.19	63.07	39.25
8			289.47	121.85	69.50
8			289.76	206.05	101.12
8			290.05	313.23	134.09
8			290.33	442.07	168.42
8			290.62	591.78	204.12
8			290.91	761.87	241.18
8			291.19	952.02	279.60
8			291.48	1162.04	319.38
8			291.77	1391.84	360.52
8			292.05	1641.40	403.02
8			292.34	1910.74	446.89
8			292.63	2199.92	492.11
8			292.91	2509.04	538.70
8			293.20	2838.22	586.65
9	ENDTBL				
3	STRUCT	31			
8			356.38	0.0	0.00
8			357.26	10.90	0.02
8			357.50	12.30	0.03
8			358.00	14.70	0.05
8			359.00	18.70	0.10
8			360.00	22.00	0.16
8			361.00	24.90	0.25
8			361.50	26.20	0.30
8			362.00	27.50	0.36
8			362.50	28.70	0.43
8			362.90	29.60	0.49
8			363.50	51.30	0.60
8			363.75	65.70	0.67
8			364.00	82.60	0.72

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

8			364.20	83.30	0.83
8			364.60	100.00	0.88
8			366.80	260.00	1.47
8			366.92	340.00	1.49
8			366.98	380.00	1.50
9	ENDTBL				
3	STRUCT	32			
8			375.40	0.00	0.00
8			379.36	1.00	0.74
8			380.00	5.00	0.89
8			380.20	10.00	0.94
8			380.33	15.00	0.98
8			380.45	20.00	1.01
8			380.55	25.00	1.04
8			380.65	30.00	1.06
8			381.19	40.00	1.21
8			381.78	44.00	1.39
8			382.59	66.00	1.66
8			382.79	88.00	1.75
8			382.89	110.00	1.79
8			382.97	132.00	1.83
9	ENDTBL				

BASE124.OUT

3	STRUCT	33			
8			350.00	0.00	0.00
8			354.30	1.00	1.08
8			354.47	2.00	1.15
8			354.87	5.00	1.30
8			355.38	10.00	1.50
8			356.18	20.00	1.84
8			356.88	40.00	2.15
8			357.27	60.00	2.33
8			357.46	80.00	2.42
8			358.08	100.00	2.73
8			358.14	120.00	2.76
8			358.19	140.00	2.78
8			358.25	171.00	2.81
8			358.27	180.00	2.82
9	ENDTBL				
3	STRUCT	34			
9	ENDTBL				
3	STRUCT	35			
9	ENDTBL				
2	XSECTN	051	1.0	282.40	
8			281.10	0.00	0.00
8			281.42	1.24	1.09
8			281.75	3.96	2.26
8			282.07	18.30	6.92
8			282.40	39.09	12.00
8			282.88	67.33	37.27
8			283.36	131.17	65.87

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

8			283.84	225.10	97.78
8			284.32	348.01	133.01
8			284.80	499.91	171.56
8			285.28	681.29	213.43
8			285.76	892.92	258.61
8			286.24	1135.70	307.11
8			286.72	1410.63	358.94
8			287.20	1718.74	414.08
8			287.68	2061.13	472.54
8			288.16	2438.87	534.31
8			288.64	2853.08	599.41
8			289.12	3301.76	667.84
8			289.60	3785.91	739.78
9	ENDTBL				
2	XSECTN	053	1.0	289.00	
8			288.00	0.00	0.00
8			288.50	9.00	2.88
8			289.00	34.26	7.50
8			289.50	79.27	13.88
8			290.00	147.75	22.00
8			290.50	227.49	31.94
8			291.00	332.02	43.75
8			291.50	463.75	57.44
8			291.75	540.56	64.98
8			292.00	625.07	73.00
9	ENDTBL				
2	XSECTN	063	1.0	248.40	
8			247.07	0.00	0.00
8			247.41	1.85	1.14

BASE124.OUT

8		247.74	5.93	2.35
8		248.07	27.43	7.18
8		248.40	58.61	12.46
8		248.67	89.70	40.04
8		248.95	158.39	68.99
8		249.22	256.90	99.30
8		249.49	382.40	130.99
8		249.77	533.43	164.04
8		250.04	709.09	198.46
8		250.31	908.86	234.24
8		250.59	1132.40	271.40
8		250.86	1379.55	309.92
8		251.13	1650.25	349.81
8		251.41	1944.49	391.07
8		251.68	2262.35	433.69
8		251.95	2603.94	477.69
8		252.23	2969.40	523.05
8		252.50	3358.93	569.78
9	ENDTBL			
3	STRUCT	61		
8		329.75	0.00	0.00

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

8		330.00	1.56	0.01
8		332.00	4.37	0.13
8		334.00	5.96	0.39
8		334.10	6.01	0.40
8		334.50	10.20	0.47
8		335.00	16.10	0.56
8		336.00	28.91	0.75
8		337.00	40.10	0.97
9	ENDTBL			
3	STRUCT	62		
8		287.30	0.00	0.00
8		288.00	5.45	0.01
8		289.00	9.05	0.05
8		290.00	11.60	0.13
8		292.00	15.35	0.50
8		294.00	18.40	1.19
8		294.30	18.92	1.26
8		294.50	20.73	1.40
8		295.00	36.40	1.60
8		295.40	38.00	1.80
8		296.00	51.10	2.15
8		297.00	69.60	2.75
8		298.00	86.80	3.44
8		298.68	98.50	3.91
8		298.80	107.56	4.00
9	ENDTBL			
3	STRUCT	63		
8		259.43	0.00	0.00
8		260.00	1.30	0.026
8		260.50	1.70	0.050
8		261.00	2.10	0.075
8		261.50	2.40	0.095
8		262.00	2.70	0.119
8		262.50	2.90	0.160
8		263.00	3.20	0.205
8		263.50	3.40	0.245

BASE124.OUT				
8		264.00	3.60	0.285
8		264.50	3.80	0.360
8		265.00	3.90	0.415
8		265.50	4.10	0.480
8		266.00	11.00	0.537
8		266.50	15.40	0.620
8		267.00	16.00	0.709
8		267.50	30.30	0.798
8		268.00	56.00	0.887
8		268.50	145.68	0.976
9	ENDTBL			
2	XSECTN	065	1.0	300.50
8			300.00	0.00
8			300.10	0.29

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

8		300.25	1.47	0.69
8		300.40	3.55	1.28
8		300.50	5.48	1.75
8		300.60	7.88	2.28
8		300.75	12.45	3.19
8		300.90	18.28	4.23
8		301.00	22.91	5.00
8		301.10	28.18	5.83
8		301.25	37.36	7.19
8		301.40	48.14	8.68
8		301.50	56.26	9.75
9	ENDTBL			
2	XSECTN	070	1.0	248.40
8			247.07	0.00
8			247.41	1.85
8			247.74	5.93
8			248.07	27.43
8			248.40	58.61
8			248.67	89.70
8			248.95	158.39
8			249.22	256.90
8			249.49	382.40
8			249.77	533.43
8			250.04	709.09
8			250.31	908.86
8			250.59	1132.40
8			250.86	1379.55
8			251.13	1650.25
8			251.41	1944.49
8			251.68	2262.35
8			251.95	2603.94
8			252.23	2969.40
8			252.50	3358.93
9	ENDTBL			
2	XSECTN	072	1.0	248.40
8			247.07	0.00
8			247.41	1.85
8			247.74	5.93
8			248.07	27.43
8			248.40	58.61
8			248.67	89.70
8			248.95	158.39
8			249.22	256.90

BASE124.OUT

8	249.49	382.40	130.99
8	249.77	533.43	164.04
8	250.04	709.09	198.46
8	250.31	908.86	234.24
8	250.59	1132.40	271.40
8	250.86	1379.55	309.92
8	251.13	1650.25	349.81

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

8	251.41	1944.49	391.07
8	251.68	2262.35	433.69
8	251.95	2603.94	477.69
8	252.23	2969.40	523.05
8	252.50	3358.93	569.78

9 ENDTBL  
2 XSECTN 077

8	1.0	229.00	
8	226.00	0.00	0.00
8	226.50	11.73	5.31
8	227.00	42.97	13.25
8	227.50	96.50	23.81
8	228.00	175.93	37.00
8	228.50	258.13	54.25
8	229.00	385.22	77.00
8	229.50	561.82	105.25
8	230.00	793.74	139.00
8	230.50	1079.38	179.94
8	231.00	1462.49	229.75
8	231.50	1953.75	288.44
8	232.00	2564.16	356.00
8	232.50	3408.70	429.13
8	233.00	4351.01	504.50

9 ENDTBL  
2 XSECTN 080

8	1.0	212.00	
8	210.50	0.00	0.00
8	210.75	4.72	2.23
8	211.00	15.68	4.92
8	211.25	32.36	8.06
8	211.50	54.93	11.67
8	211.75	83.70	15.73
8	212.00	119.05	20.25
8	212.25	163.87	25.14
8	212.50	215.35	30.31
8	212.75	273.55	35.77
8	213.00	338.57	41.50
8	214.00	669.42	67.25
8	215.00	806.07	99.00
8	216.00	1088.03	138.25
8	217.00	1451.30	187.50
8	218.00	1978.93	249.25
8	219.00	2262.06	340.00
8	220.00	3115.20	476.25
8	221.00	4892.67	639.25

9 ENDTBL								
6 RUNOFF	1	001		1	0.0336	79.478	0.4051	DA1
6 REACH	3	002	1	2	1170.0		1	
6 RUNOFF	1	003		1	0.0580	80.559	0.3751	DA2
6 ADDHYD	4	004	1	2	3		1	DA1+2
6 RESVOR	2		11	3	1		1	1 SWMF10
6 REACH	3	005	1	2	797.0		1	



1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

6	RUNOFF	1	006		3	0.0798	75.926	0.3921		DA3	
6	ADDHYD	4	007	2	3			1		DA12+3	
6	REACH	3	008	4	7	1221.0		1	1	SA1-SA2	
6	RUNOFF	1	009		1	0.0734	88.594	0.4221		DA1	
6	RESVOR	2		21	1			1	1	SWMF13	
6	RUNOFF	1	010		3	0.0097	72.249	0.1281		DA7	
6	RESVOR	2		22	2			1	1	HWY STOR	
6	RUNOFF	1	011		2	0.0569	73.123	0.2201		DA2	
6	ADDHYD	4	012	7	2			1		SA1+DA2	
6	RUNOFF	1	013		5	0.0193	79.025	0.2481		DA3	
6	ADDHYD	4	014	4	3			1		DA17+2	
6	ADDHYD	4	015	6	5			1		DA172+3	
6	RESVOR	2		23	3			1	1	1	CNCPT 1
6	REACH	3	016	1	2	920.0		1		1	
6	RUNOFF	1	017		3	0.0211	87.900	0.1641			DA4
6	RUNOFF	1	118		1	0.0253	93.221	0.2231			DA5A
6	RESVOR	2		24	1			1	1	1	CNCPT 2
6	RUNOFF	1	119		5	0.0059	86.148	0.1361			DA5B
6	ADDHYD	4	120	4	5			1			DA5a+5b
6	ADDHYD	4	020	3	6			1		1	DA4+5
6	RUNOFF	1	019		5	0.0404	84.513	0.1681			DA6
6	ADDHYD	4	022	4	5			1			DA45+6
6	ADDHYD	4	021	2	3			1			DA123+45
6	REACH	3	023	1	7	1379.0		1		1	SA2-SA3
6	RUNOFF	1	024		1	0.0505	76.581	0.3401			DA1
6	RESVOR	2		31	1			1		1	SWMF3
6	RUNOFF	1	025		3	0.0748	75.950	0.3581			DA2
6	ADDHYD	4	026	2	3			1			DA1+2
6	REACH	3	027	4	1	1021.0		1			
6	RUNOFF	1	028		2	0.0599	71.428	0.3231			DA3
6	ADDHYD	4	029	7	2			1			SA2+DA3
6	ADDHYD	4	030	1	3			1			DA12+3
6	RUNOFF	1	031		1	0.0692	82.378	0.2761			DA4
6	REACH	3	032	1	6	1603.0		1			
6	RUNOFF	1	033		2	0.0084	95.000	0.1921			DA5
6	RESVOR	2		32	2			1		1	SWMF11
6	REACH	3	034	3	7	583.0		1			
6	RUNOFF	1	035		1	0.0275	94.963	0.2481			DA6
6	RESVOR	2		33	1			1		1	SWMF8
6	ADDHYD	4	036	7	2			1			DA5+6
6	RESVOR	2		34	1			1		1	HWYSTOR3
6	REACH	3	037	2	4	934.0		1			
6	RUNOFF	1	138		1	0.0280	89.879	0.1551			DA7a
6	ADDHYD	4	139	4	1			1			DA56+7a
6	RESVOR	2		35	3			1	1	1	CNCPT 4
6	RUNOFF	1	140		3	0.0048	64.133	0.1261			DA7b
6	ADDHYD	4	141	2	3			1		1	DA7a+7b
6	RUNOFF	1	040		2	0.0393	80.617	0.3671			DA8
6	ADDHYD	4	041	5	2			1			DA3+8
6	ADDHYD	4	042	6	1			1			DA4+8

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

6	ADDHYD	4	043	4	2				1		DA7+8
---	--------	---	-----	---	---	--	--	--	---	--	-------

BASE124.OUT

6	REACH	3	044	1	7	1428.0			1				1	SA3-SA4	
6	RUNOFF	1	045		1	0.0477	75.971		0.4121					DA1	
6	RUNOFF	1	046		2	0.0628	73.766		0.4401					DA2	
6	ADDHYD	4	047	1	2	3			1					DA1+2	
6	RUNOFF	1	048		1	0.0469	79.166		0.2491					DA3	
6	ADDHYD	4	049	7	1	2			1					SA3+DA3	
6	ADDHYD	4	050	2	3	4			1					DA12+3	
6	REACH	3	051	4	7	1275.0			1				1	SA4-SA5	
6	RUNOFF	1	052		1	0.0087	56.108		0.1631					DA1	
6	REACH	3	053	1	5	652.0			1						
6	RUNOFF	1	054		1	0.0072	55.000		0.2561					DA2	
6	RUNOFF	1	055		2	0.0322	74.166		0.2491					DA3	
6	ADDHYD	4	056	7	2	4			1					SA4+DA3	
6	ADDHYD	4	057	5	1	3			1					DA1+2	
6	ADDHYD	4	058	4	3	5			1					DA12+3	
6	RUNOFF	1	059		1	0.0266	72.902		0.2611					DA4	
6	ADDHYD	4	060	5	1	2			1					DA123+4	
6	RUNOFF	1	061		3	0.0173	72.707		0.2971					DA5	
6	ADDHYD	4	062	2	3	6			1					DA1234+5	
6	REACH	3	063	6	7	1959.0			1	1	1	1	1	SA5-SA6	
6	RUNOFF	1	064		1	0.0110	88.119		0.5211					DA1	
6	RESVOR	2		61	1	2			1					1	SWMF19
6	REACH	3	065	2	3	1283.0			1						
6	RUNOFF	1	066		1	0.0458	80.006		0.2391					DA2	
6	RESVOR	2		62	1	2			1					1	SWMF18
6	ADDHYD	4	067	3	2	4			1					DA1+2	
6	RUNOFF	1	068		5	0.0778	79.468		0.2281					DA3	
6	ADDHYD	4	069	4	5	1			1					DA12+3	
6	REACH	3	070	1	2	2166.0			1						
6	RUNOFF	1	071		1	0.0119	85.744		0.1221					DA4	
6	RESVOR	2		63	1	3			1					1	SWMF2
6	REACH	3	072	3	4	1081.0			1						
6	RUNOFF	1	073		5	0.1100	66.708		0.2051					DA5	
6	ADDHYD	4	074	7	5	1			1					SA5+DA5	
6	ADDHYD	4	075	2	4	6			1	1	1	1	1	DA123+4	
6	ADDHYD	4	076	1	6	2			1	1	1	1	1	DA12345	
6	REACH	3	077	2	7	884.0			1					1	SA6-SA7
6	RUNOFF	1	078		2	0.0510	73.827		0.1971					DA1	
6	ADDHYD	4	079	7	2	1			1	1	1	1	1	1	SA6+DA1
6	REACH	3	080	1	2	1296.0			1						
6	RUNOFF	1	081		3	0.0513	78.929		0.1621					DA3	
6	ADDHYD	4	082	2	3	4			1					DA1+3	
6	RUNOFF	1	083		1	0.0313	70.330		0.1861	1	1	1		DA2	
6	ADDHYD	4	084	4	1	2			1					DA13+2	
6	RUNOFF	1	085		3	0.1187	72.091		0.3211	1	1	1		DA4	
6	ADDHYD	4	086	2	3	1			1					DA123+4	
6	RUNOFF	1	087		4	0.0159	87.661		0.1421					DA5	
6	ADDHYD	4	088	1	4	7			1					1	DA1234+5
	ENDATA														

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

7	INCREM	6				.06										
7	COMPUT	7	001	088		0.0	2.66		1.02	2	1	1				
	ENDCMP	1														
7	COMPUT	7	001	088		0.0	3.21		1.02	2	1	2				
	ENDCMP	1														
7	COMPUT	7	001	088		0.0	4.94		1.02	2	1	10				
	ENDCMP	1														
7	COMPUT	7	001	088		0.0	7.28		1.02	2	1	50				

BASE124.OUT

ENDCMP 1  
7 COMPUT 7 001 088 0.0 8.53 1.02 2 1 99  
ENDCMP 1  
ENDJOB 2

\*\*\*\*\*END OF 80-80 LIST\*\*\*\*\*

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 1 JOB NO. 1 PAGE 1

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .060 HOURS

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 88  
STARTING TIME = .00 RAIN DEPTH = 2.66 RAIN DURATION = 1.00  
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS  
ALTERNATE NO. = 1 STORM NO. = 1 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1  
PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 19.2 PEAK ELEVATION(FEET) (RUNOFF)  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.97 WATERSHED INCHES; 21 CFS-HRS; 1.7 ACRE-FEET.

OPERATION REACH XSECTION 2  
PEAK TIME(HRS) 12.25 PEAK DISCHARGE(CFS) 18.0 PEAK ELEVATION(FEET) 389.82  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.97 WATERSHED INCHES; 21 CFS-HRS; 1.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 3  
PEAK TIME(HRS) 12.12 PEAK DISCHARGE(CFS) 37.4 PEAK ELEVATION(FEET) (RUNOFF)  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.03 WATERSHED INCHES; 39 CFS-HRS; 3.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 4  
PEAK TIME(HRS) 12.16 PEAK DISCHARGE(CFS) 52.5 PEAK ELEVATION(FEET) (NULL)  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.01 WATERSHED INCHES; 60 CFS-HRS; 4.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 11  
1  
TR20 ----- SCS -  
Ellicott City Flood study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
Page 11

PEAK TIME(HRS) 12.32 PEAK DISCHARGE(CFS) 40.4 PEAK ELEVATION(FEET) 381.90

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.01 WATERSHED INCHES; 60 CFS-HRS; 4.9 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS) 12.40 PEAK DISCHARGE(CFS) 39.5 PEAK ELEVATION(FEET) 367.63

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.01 WATERSHED INCHES; 60 CFS-HRS; 4.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 36.1 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) .79 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS) 12.31 PEAK DISCHARGE(CFS) 61.6 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) .91 WATERSHED INCHES; 100 CFS-HRS; 8.3 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS) 12.39 PEAK DISCHARGE(CFS) 60.5 PEAK ELEVATION(FEET) 356.92

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) .91 WATERSHED INCHES; 100 CFS-HRS; 8.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 68.3 PEAK ELEVATION(FEET) (RUNOFF)

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 3

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.56 WATERSHED INCHES; 74 CFS-HRS; 6.1 ACRE-FEET.

\*\*\* MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00.

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 13.17                                      7.5    371.80

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.27 WATERSHED INCHES;                      60 CFS-HRS;                      5.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 11.99                                      5.1    (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .62 WATERSHED INCHES;                      4 CFS-HRS;                      .3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 13.31                                      7.5    352.96

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.26 WATERSHED INCHES;                      60 CFS-HRS;                      5.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.05                                      27.6    (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .66 WATERSHED INCHES;                      24 CFS-HRS;                      2.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.37                                      67.8    (NULL)

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4                      VERSION  
 07/05/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 08:44:52                      PASS 1 JOB NO. 1                      PAGE 4

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .84 WATERSHED INCHES;                      124 CFS-HRS;                      10.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.05                                      13.7    (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .95 WATERSHED INCHES;                      12 CFS-HRS;                      1.0 ACRE-FEET.

BASE124.OUT

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS) 12.38 PEAK DISCHARGE(CFS) 72.9 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) .95 WATERSHED INCHES; 184 CFS-HRS; 15.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS) 12.37 PEAK DISCHARGE(CFS) 76.6 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) .95 WATERSHED INCHES; 196 CFS-HRS; 16.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS) 12.37 PEAK DISCHARGE(CFS) 76.6 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1									
HRS	MAIN	TIME	INCREMENT = .060 hr,	DRAINAGE AREA = .32 SQ.MI.					
8.40	CFS	.00	.01	.01	.01	.01	.01	.01	.01
8.88	CFS	.01	.01	.02	.02	.02	.02	.02	.02
9.36	CFS	.02	.03	.03	.03	.03	.03	.04	.04
9.84	CFS	.04	.04	.04	.05	.05	.05	.06	.06
10.32	CFS	.06	.07	.07	.07	.08	.09	.10	.12
10.80	CFS	.14	.17	.20	.23	.26	.30	.34	.40
11.28	CFS	.47	.56	.67	.82	1.02	1.38	2.14	3.75
11.76	CFS	6.83	12.43	22.67	38.11	53.81	64.68	67.00	67.23
12.24	CFS	70.88	74.88	76.56	75.52	72.49	68.05	62.80	57.32
12.72	CFS	52.04	47.21	42.93	39.22	36.04	33.34	31.06	29.14
13.20	CFS	27.53	26.18	25.05	24.09	23.26	22.54	21.90	21.32
13.68	CFS	20.81	20.33	19.90	19.49	19.11	18.74	18.39	18.06

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 5

14.16	CFS	17.75	17.46	17.19	16.94	16.71	16.49	16.29	16.11
14.64	CFS	15.94	15.77	15.62	15.47	15.33	15.19	15.05	14.92
15.12	CFS	14.78	14.65	14.52	14.39	14.26	14.13	13.99	13.86
15.60	CFS	13.73	13.60	13.46	13.33	13.19	13.06	12.92	12.79
16.08	CFS	12.65	12.52	12.40	12.29	12.20	12.13	12.05	11.99
16.56	CFS	11.92	11.86	11.79	11.73	11.66	11.60	11.54	11.47
17.04	CFS	11.41	11.35	11.29	11.22	11.16	11.10	11.04	10.97
17.52	CFS	10.91	10.85	10.77	10.69	10.61	10.52	10.44	10.35
18.00	CFS	10.26	10.18	10.09	10.00	9.92	9.83	9.75	9.66
18.48	CFS	9.58	9.50	9.41	9.33	9.25	9.17	9.09	9.01
18.96	CFS	8.93	8.85	8.77	8.70	8.62	8.54	8.47	8.39
19.44	CFS	8.31	8.24	8.16	8.09	8.01	7.94	7.87	7.79
19.92	CFS	7.72	7.65	7.57	7.50	7.44	7.37	7.30	7.23
20.40	CFS	7.17	7.10	7.04	6.98	6.92	6.86	6.80	6.75
20.88	CFS	6.69	6.64	6.59	6.54	6.49	6.44	6.39	6.35
21.36	CFS	6.30	6.26	6.21	6.17	6.13	6.09	6.05	6.01
21.84	CFS	5.97	5.93	5.90	5.86	5.82	5.79	5.75	5.72
22.32	CFS	5.69	5.66	5.62	5.59	5.56	5.53	5.50	5.47
22.80	CFS	5.45	5.42	5.39	5.36	5.33	5.31	5.28	5.26
23.28	CFS	5.23	5.21	5.18	5.16	5.14	5.11	5.09	5.07

				BASE124.OUT					
23.76	CFS	5.04	5.02	5.00	4.98	4.96	4.87	4.64	4.33
24.24	CFS	4.03	3.77	3.54	3.34	3.18	3.03	2.93	2.83
24.72	CFS	2.74	2.66	2.59	2.51	2.45	2.38	2.32	2.25
25.20	CFS	2.20	2.14	2.08	2.03	1.98	1.92	1.87	1.83
25.68	CFS	1.78	1.73	1.69	1.64	1.60	1.56	1.52	1.48
26.16	CFS	1.44	1.40	1.37	1.33	1.30	1.26	1.23	1.20
26.64	CFS	1.17	1.14	1.11	1.08	1.05	1.03	1.01	.99
27.12	CFS	.98	.96	.95	.94	.93	.92	.90	.89
27.60	CFS	.88	.87	.86	.85	.84	.83	.82	.81
28.08	CFS	.81	.80	.79	.78	.77	.76	.76	.75
28.56	CFS	.74	.74	.73	.72	.72	.71	.70	.70
29.04	CFS	.69	.68	.68	.67	.67	.66	.66	.65
29.52	CFS	.65	.64	.64	.63	.63	.62	.62	.61
30.00	CFS	.61	.61	.60	.60	.59	.59	.59	.58
30.48	CFS	.58	.57	.57	.57	.56			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.95 WATERSHED INCHES; 196 CFS-HRS; 16.2 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	19	13	11	8	6	5	2	1

DURATION(HRS)	18	19
FLOW(CFS)	1	1 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. \*\*\*

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 1 JOB NO. 1 PAGE 6

\*\*\* WARNING - XSECTION 16, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN  
2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,  
UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.37	76.6	332.03

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.95 WATERSHED INCHES; 196 CFS-HRS; 16.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	27.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.51 WATERSHED INCHES; 21 CFS-HRS; 1.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 118

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.02	38.5	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
Page 15

BASE124.OUT  
 1.95 WATERSHED INCHES;      32 CFS-HRS;      2.6 ACRE-FEET.

OPERATION RESVOR      STRUCTURE 24

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.02                                      38.5                                      (NULL)

		HYDROGRAPH POINTS FOR				ALTERNATE = 1,		STORM = 1	
HRS		MAIN	TIME	INCREMENT =	.060 hr,		DRAINAGE AREA =		
						.03		SQ.MI.	
4.68	CFS	.00	.01	.01	.02	.02	.03	.03	.03
5.16	CFS	.04	.04	.05	.05	.06	.06	.07	.07
5.64	CFS	.08	.08	.09	.09	.10	.11	.11	.12
6.12	CFS	.12	.13	.13	.14	.14	.15	.16	.16
6.60	CFS	.17	.17	.18	.19	.19	.20	.20	.21
7.08	CFS	.22	.22	.23	.23	.24	.25	.25	.26
7.56	CFS	.27	.27	.28	.28	.29	.30	.30	.31
8.04	CFS	.32	.33	.33	.35	.36	.37	.39	.40
8.52	CFS	.42	.43	.45	.47	.48	.50	.52	.54
9.00	CFS	.56	.57	.59	.61	.62	.63	.64	.64
9.48	CFS	.65	.66	.67	.69	.71	.73	.76	.78
9.96	CFS	.81	.84	.88	.91	.95	.99	1.03	1.08

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 7

10.44	CFS	1.12	1.17	1.22	1.27	1.33	1.40	1.48	1.55
10.92	CFS	1.63	1.71	1.80	1.90	2.02	2.17	2.33	2.51
11.40	CFS	2.71	2.91	3.16	3.80	5.24	7.84	11.63	16.71
11.88	CFS	23.96	32.90	38.19	36.72	28.97	19.98	13.60	10.06
12.36	CFS	7.97	6.62	5.67	4.91	4.31	3.87	3.56	3.35
12.84	CFS	3.18	3.03	2.90	2.77	2.65	2.54	2.45	2.37
13.32	CFS	2.30	2.23	2.16	2.09	2.02	1.96	1.90	1.85
13.80	CFS	1.80	1.75	1.70	1.65	1.60	1.56	1.53	1.50
14.28	CFS	1.47	1.45	1.43	1.42	1.40	1.38	1.37	1.35
14.76	CFS	1.33	1.32	1.30	1.28	1.27	1.25	1.23	1.22
15.24	CFS	1.20	1.18	1.17	1.15	1.13	1.12	1.10	1.08
15.72	CFS	1.06	1.05	1.03	1.01	1.00	.98	.96	.95
16.20	CFS	.94	.93	.92	.92	.91	.90	.90	.89
16.68	CFS	.89	.88	.87	.87	.86	.86	.85	.84
17.16	CFS	.84	.83	.83	.82	.81	.81	.80	.80
17.64	CFS	.79	.78	.78	.77	.77	.76	.75	.75
18.12	CFS	.74	.74	.73	.72	.72	.71	.71	.70
18.60	CFS	.69	.69	.68	.68	.67	.66	.66	.65
19.08	CFS	.64	.64	.63	.63	.62	.61	.61	.60
19.56	CFS	.60	.59	.58	.58	.57	.57	.56	.55
20.04	CFS	.55	.54	.54	.53	.53	.53	.53	.53
20.52	CFS	.53	.53	.52	.52	.52	.52	.52	.52
21.00	CFS	.52	.52	.51	.51	.51	.51	.51	.51
21.48	CFS	.51	.51	.51	.50	.50	.50	.50	.50
21.96	CFS	.50	.50	.50	.49	.49	.49	.49	.49
22.44	CFS	.49	.49	.49	.48	.48	.48	.48	.48
22.92	CFS	.48	.48	.48	.47	.47	.47	.47	.47
23.40	CFS	.47	.47	.47	.47	.46	.46	.46	.46
23.88	CFS	.46	.46	.46	.42	.32	.19	.09	.05
24.36	CFS	.03	.01	.01	.00				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.95 WATERSHED INCHES;      32 CFS-HRS;      2.6 ACRE-FEET.

DURATION(HRS)      2      4      6      8      10      12      13



FLOW(CFS) 2 1 1 BASE124.OUT 1 1 1 0

OPERATION RUNOFF XSECTION 119

PEAK TIME(HRS) 11.97 PEAK DISCHARGE(CFS) 7.5 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.38 WATERSHED INCHES; 5 CFS-HRS; .4 ACRE-FEET.

OPERATION ADDHYD XSECTION 120

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 1 JOB NO. 1 PAGE 8

PEAK TIME(HRS) 12.01 PEAK DISCHARGE(CFS) 45.5 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.84 WATERSHED INCHES; 37 CFS-HRS; 3.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS) 12.00 PEAK DISCHARGE(CFS) 73.0 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.71 WATERSHED INCHES; 58 CFS-HRS; 4.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS) 11.99 PEAK DISCHARGE(CFS) 44.7 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.27 WATERSHED INCHES; 33 CFS-HRS; 2.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS) 12.00 PEAK DISCHARGE(CFS) 117.7 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.52 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS) 12.03 PEAK DISCHARGE(CFS) 174.4 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.07 WATERSHED INCHES; 285 CFS-HRS; 23.6 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.17 134.1 315.27

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 9

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.07 WATERSHED INCHES; 285 CFS-HRS; 23.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.11 26.2 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .82 WATERSHED INCHES; 27 CFS-HRS; 2.2 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
 TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
 FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.22 21.0 359.71

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .82 WATERSHED INCHES; 27 CFS-HRS; 2.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.12 35.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .79 WATERSHED INCHES; 38 CFS-HRS; 3.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.14 55.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .80 WATERSHED INCHES; 65 CFS-HRS; 5.4 ACRE-FEET.

OPERATION REACH XSECTION 27

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 10

BASE124.OUT

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.26                                      50.5    318.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .80 WATERSHED INCHES;                      65 CFS-HRS;                      5.4 ACRE-FEET.

OPERATION RUNOFF    XSECTION    28

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.11                                      20.7    (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .59 WATERSHED INCHES;                      23 CFS-HRS;                      1.9 ACRE-FEET.

OPERATION ADDHYD    XSECTION    29

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.16                                      153.6    (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.01 WATERSHED INCHES;                      308 CFS-HRS;                      25.4 ACRE-FEET.

OPERATION ADDHYD    XSECTION    30

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.19                                      199.5    (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .96 WATERSHED INCHES;                      373 CFS-HRS;                      30.8 ACRE-FEET.

OPERATION RUNOFF    XSECTION    31

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.06                                      57.7    (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.14 WATERSHED INCHES;                      51 CFS-HRS;                      4.2 ACRE-FEET.

OPERATION REACH      XSECTION    32

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.17                                      50.5    311.96

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4    VERSION  
 07/05/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 08:44:52                      PASS 1    JOB NO. 1                      PAGE 11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.14 WATERSHED INCHES;                      51 CFS-HRS;                      4.2 ACRE-FEET.

OPERATION RUNOFF    XSECTION    33

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)



BASE124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.62 WATERSHED INCHES; 38 CFS-HRS; 3.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.32 13.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.62 WATERSHED INCHES; 38 CFS-HRS; 3.1 ACRE-FEET.

\*\*\* WARNING - XSECTION 37, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN  
 2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,  
 UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

OPERATION REACH XSECTION 37

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.40 12.9 330.23

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.62 WATERSHED INCHES; 38 CFS-HRS; 3.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 138

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.98 40.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.66 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 13

OPERATION ADDHYD XSECTION 139

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.98 41.8 (NULL)  
 12.28 19.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.64 WATERSHED INCHES; 68 CFS-HRS; 5.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 35

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.98 41.8 (NULL)  
 12.28 19.3 (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1											
HRS	MAIN	TIME	INCREMENT	=	.060	hr,	DRAINAGE	AREA	=	.06	SQ.MI.
5.10	CFS	.00	.01	.01	.01	.01	.01	.01	.01	.01	.01
5.58	CFS	.01	.01	.01	.01	.01	.01	.02	.02	.02	.02
6.06	CFS	.02	.02	.02	.02	.02	.02	.02	.03	.03	.03
6.54	CFS	.04	.05	.05	.06	.07	.08	.09	.10	.10	.10

BASE124.OUT									
7.02	CFS	.10	.11	.12	.13	.13	.14	.15	.16
7.50	CFS	.17	.17	.18	.19	.20	.21	.21	.22
7.98	CFS	.23	.24	.25	.26	.27	.29	.30	.31
8.46	CFS	.33	.34	.36	.37	.39	.41	.43	.44
8.94	CFS	.46	.48	.50	.52	.53	.55	.56	.58
9.42	CFS	.59	.60	.62	.64	.66	.68	.71	.74
9.90	CFS	.77	.80	.83	.86	.90	.94	.98	1.03
10.38	CFS	1.08	1.12	1.17	1.23	1.28	1.35	1.42	1.50
10.86	CFS	1.58	1.66	1.75	1.84	1.95	2.09	2.25	2.43
11.34	CFS	2.62	2.82	3.02	3.30	4.33	6.23	9.60	14.04
11.82	CFS	20.01	29.96	40.27	41.28	34.81	24.78	19.98	19.26
12.30	CFS	19.29	19.00	18.32	17.39	16.36	15.32	14.36	13.57
12.78	CFS	12.85	12.16	11.51	10.91	10.33	9.81	9.32	8.89
13.26	CFS	8.49	8.12	7.82	7.54	7.27	7.02	6.78	6.56
13.74	CFS	6.35	6.15	5.96	5.78	5.60	5.44	5.28	5.14
14.22	CFS	5.02	4.90	4.79	4.69	4.59	4.50	4.42	4.33
14.70	CFS	4.26	4.18	4.11	4.05	4.00	3.95	3.90	3.85
15.18	CFS	3.80	3.75	3.70	3.66	3.61	3.56	3.52	3.47
15.66	CFS	3.43	3.38	3.34	3.29	3.25	3.21	3.16	3.12
16.14	CFS	3.09	3.05	3.02	2.99	2.96	2.94	2.91	2.88
16.62	CFS	2.86	2.83	2.81	2.78	2.76	2.74	2.71	2.69
17.10	CFS	2.67	2.65	2.63	2.61	2.59	2.57	2.55	2.53
17.58	CFS	2.51	2.49	2.48	2.46	2.44	2.43	2.42	2.41
18.06	CFS	2.40	2.39	2.38	2.37	2.36	2.36	2.35	2.34
18.54	CFS	2.33	2.32	2.31	2.30	2.29	2.28	2.27	2.26
19.02	CFS	2.25	2.24	2.23	2.22	2.21	2.20	2.19	2.18
19.50	CFS	2.17	2.16	2.15	2.14	2.13	2.12	2.11	2.10

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 14

19.98	CFS	2.09	2.08	2.07	2.06	2.06	2.05	2.04	2.04
20.46	CFS	2.03	2.03	2.02	2.02	2.01	2.01	2.00	2.00
20.94	CFS	1.99	1.99	1.98	1.98	1.97	1.97	1.96	1.96
21.42	CFS	1.95	1.95	1.94	1.94	1.93	1.93	1.92	1.92
21.90	CFS	1.91	1.91	1.90	1.90	1.89	1.89	1.88	1.88
22.38	CFS	1.87	1.87	1.86	1.86	1.85	1.85	1.84	1.84
22.86	CFS	1.83	1.83	1.83	1.82	1.82	1.81	1.81	1.80
23.34	CFS	1.80	1.79	1.79	1.78	1.78	1.77	1.77	1.76
23.82	CFS	1.76	1.75	1.75	1.74	1.67	1.47	1.34	1.28
24.30	CFS	1.26	1.24	1.24	1.23	1.23	1.22	1.21	1.21
24.78	CFS	1.20	1.20	1.19	1.18	1.18	1.17	1.16	1.16
25.26	CFS	1.15	1.15	1.14	1.13	1.13	1.12	1.12	1.11
25.74	CFS	1.11	1.10	1.09	1.09	1.08	1.08	1.07	1.07
26.22	CFS	1.06	1.05	1.05	1.04	1.04	1.03	1.03	1.02
26.70	CFS	1.01	1.01	1.00	1.00	.99	.99	.98	.98
27.18	CFS	.97	.97	.96					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.64 WATERSHED INCHES; 68 CFS-HRS; 5.6 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	6	3	3	2	2	2	1	1
DURATION(HRS)	18	18						
FLOW(CFS)	1	1	TRUNCATED					

OPERATION RUNOFF XSECTION 140

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.02 BASE124.OUT (RUNOFF)  
1.0

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.33 WATERSHED INCHES; 1 CFS-HRS; .1 ACRE-FEET.

OPERATION ADDHYD XSECTION 141

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.98 42.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.55 WATERSHED INCHES; 69 CFS-HRS; 5.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 25.6 (RUNOFF)

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 1 JOB NO. 1 PAGE 15

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.04 WATERSHED INCHES; 26 CFS-HRS; 2.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.18 223.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.97 WATERSHED INCHES; 399 CFS-HRS; 33.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.17 273.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.99 WATERSHED INCHES; 450 CFS-HRS; 37.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.16 294.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.03 WATERSHED INCHES; 518 CFS-HRS; 42.8 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.33 259.6 289.90

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
Page 23

BASE124.OUT  
1.03 WATERSHED INCHES; 517 CFS-HRS; 42.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.15 20.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.79 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 1 JOB NO. 1 PAGE 16

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.18 22.5 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.69 WATERSHED INCHES; 28 CFS-HRS; 2.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.17 43.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.73 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 33.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.95 WATERSHED INCHES; 29 CFS-HRS; 2.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.32 270.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.03 WATERSHED INCHES; 546 CFS-HRS; 45.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.29 305.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.99 WATERSHED INCHES; 598 CFS-HRS; 49.5 ACRE-FEET.



OPERATION REACH XSECTION 51

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	287.2	284.08

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .99 WATERSHED INCHES; 598 CFS-HRS; 49.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

\*\*\* MESSAGE - XSECTION 52, NO PEAK COMPUTED (ONLY 1 HYDROGRAPH POINT(S)). \*\*\*

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .99 WATERSHED INCHES; 212 CFS-HRS; 49.4 ACRE-FEET.

\*\*\* WARNING - XSECTION 53, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN  
 2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,  
 UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

OPERATION REACH XSECTION 53

\*\*\* MESSAGE - XSECTION 53, NO PEAK COMPUTED (ONLY 1 HYDROGRAPH POINT(S)). \*\*\*

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .99 WATERSHED INCHES; 209 CFS-HRS; 49.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

\*\*\* MESSAGE - XSECTION 54, NO PEAK COMPUTED (ONLY 1 HYDROGRAPH POINT(S)). \*\*\*

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .99 WATERSHED INCHES; 217 CFS-HRS; 49.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.06	16.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .71 WATERSHED INCHES; 15 CFS-HRS; 1.2 ACRE-FEET.

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 18

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	291.3	(NULL)

BASE124.OUT  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.98 WATERSHED INCHES; 613 CFS-HRS; 50.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

\*\*\* MESSAGE - XSECTION 57, NO PEAK COMPUTED (ONLY 1 HYDROGRAPH POINT(S)). \*\*\*

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.98 WATERSHED INCHES; 217 CFS-HRS; 50.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.43 291.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.97 WATERSHED INCHES; 614 CFS-HRS; 50.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.07 11.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.65 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.43 294.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.96 WATERSHED INCHES; 625 CFS-HRS; 51.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 1 JOB NO. 1 PAGE 19

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.09 7.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.64 WATERSHED INCHES; 7 CFS-HRS; .6 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.43 297.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.96 WATERSHED INCHES; 632 CFS-HRS; 52.3 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS) 12.63 PEAK DISCHARGE(CFS) 269.9 PEAK ELEVATION(FEET) 249.25

Table with columns: HRS, CFS, ELEV, MAIN TIME, INCREMENT, ALTERNATE, STORM, DRAINAGE AREA. Contains hydrograph data points from 8.28 to 14.52 hours.

1

TR20 ----- SCS -
07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION
08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST
PASS 1 JOB NO. 1 PAGE 20

Table with columns: HRS, CFS, ELEV. Contains hydrograph data points from 14.52 to 19.80 hours.

BASE124.OUT

20.28	CFS	20.19	20.01	19.83	19.67	19.50	19.34	19.19	19.05
20.28	ELEV	247.96	247.96	247.95	247.95	247.95	247.95	247.94	247.94
20.76	CFS	18.92	18.79	18.67	18.55	18.44	18.34	18.24	18.15
20.76	ELEV	247.94	247.94	247.94	247.93	247.93	247.93	247.93	247.93
21.24	CFS	18.05	17.96	17.88	17.79	17.71	17.63	17.56	17.48
21.24	ELEV	247.93	247.92	247.92	247.92	247.92	247.92	247.92	247.92
21.72	CFS	17.40	17.33	17.26	17.19	17.12	17.05	16.98	16.91
21.72	ELEV	247.92	247.91	247.91	247.91	247.91	247.91	247.91	247.91
22.20	CFS	16.85	16.78	16.72	16.65	16.59	16.53	16.47	16.41
22.20	ELEV	247.91	247.91	247.91	247.90	247.90	247.90	247.90	247.90
22.68	CFS	16.35	16.29	16.23	16.17	16.11	16.06	16.00	15.95
22.68	ELEV	247.90	247.90	247.90	247.90	247.90	247.90	247.89	247.89
23.16	CFS	15.89	15.84	15.78	15.73	15.68	15.63	15.57	15.52
23.16	ELEV	247.89	247.89	247.89	247.89	247.89	247.89	247.89	247.89
23.64	CFS	15.47	15.42	15.37	15.32	15.27	15.22	15.17	15.13
23.64	ELEV	247.89	247.89	247.88	247.88	247.88	247.88	247.88	247.88
24.12	CFS	15.06	14.95	14.77	14.49	14.10	13.62	13.02	12.33
24.12	ELEV	247.88	247.88	247.88	247.87	247.87	247.86	247.85	247.84
24.60	CFS	11.56	10.76	9.94	9.15	8.40	7.71	7.08	6.53
24.60	ELEV	247.83	247.81	247.80	247.79	247.78	247.77	247.76	247.75
25.08	CFS	6.04	5.62	5.26	4.95	4.68	4.46	4.26	4.10
25.08	ELEV	247.74	247.71	247.69	247.66	247.64	247.62	247.61	247.59
25.56	CFS	3.96	3.83	3.72	3.62	3.53	3.44	3.37	3.29
25.56	ELEV	247.58	247.57	247.56	247.55	247.55	247.54	247.53	247.53
26.04	CFS	3.22	3.16	3.10	3.04	2.98	2.92	2.87	2.82
26.04	ELEV	247.52	247.52	247.51	247.51	247.50	247.50	247.49	247.49

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 21

26.52	CFS	2.76	2.71	2.66	2.62	2.57	2.53	2.48	2.44
26.52	ELEV	247.48	247.48	247.48	247.47	247.47	247.46	247.46	247.46
27.00	CFS	2.40	2.36	2.32	2.28	2.24	2.20		
27.00	ELEV	247.45	247.45	247.45	247.44	247.44	247.44		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .95 WATERSHED INCHES; 632 CFS-HRS; 52.2 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	66	37	27	21	17	15	5	3

DURATION(HRS) 16  
 FLOW(CFS) 2 TRUNCATED

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS) 12.19 PEAK DISCHARGE(CFS) 9.0 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.53 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS) 12.51 PEAK DISCHARGE(CFS) 4.7 PEAK ELEVATION(FEET) 332.38

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.53 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

BASE124.OUT

OPERATION REACH XSECTION 65

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.64 4.6 300.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.52 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.05 35.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.00 WATERSHED INCHES; 30 CFS-HRS; 2.4 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 22

\*\*\* WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
 TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
 FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.25 15.0 291.84  
 13.27 3.0 287.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.00 WATERSHED INCHES; 30 CFS-HRS; 2.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.36 19.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.10 WATERSHED INCHES; 40 CFS-HRS; 3.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.04 59.2 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .97 WATERSHED INCHES; 49 CFS-HRS; 4.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.05 BASE124.OUT (NULL)  
 74.1  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.03 WATERSHED INCHES; 89 CFS-HRS; 7.4 ACRE-FEET.

OPERATION REACH XSECTION 70  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.16 63.4 248.44

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 23

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.03 WATERSHED INCHES; 89 CFS-HRS; 7.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 71  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.96 15.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.36 WATERSHED INCHES; 10 CFS-HRS; .9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.19 3.6 263.96

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.36 WATERSHED INCHES; 10 CFS-HRS; .9 ACRE-FEET.

OPERATION REACH XSECTION 72  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.37 3.5 247.55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.35 WATERSHED INCHES; 10 CFS-HRS; .9 ACRE-FEET.

OPERATION RUNOFF XSECTION 73  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.06 29.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .41 WATERSHED INCHES; 29 CFS-HRS; 2.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 74  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.63 275.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 Page 30

BASE124.OUT  
 .90 WATERSHED INCHES; 661 CFS-HRS; 54.7 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 24

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS) 12.17 PEAK DISCHARGE(CFS) 66.7 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .15 SQ.MI.

HRS	CFS	.43	.50	.59	.68	.79	.90	1.03	1.18
10.62	CFS	.43	.50	.59	.68	.79	.90	1.03	1.18
11.10	CFS	1.33	1.50	1.70	1.92	2.18	2.48	2.81	3.19
11.58	CFS	3.62	4.31	5.65	8.18	12.44	18.51	28.34	41.77
12.06	CFS	55.47	64.85	66.49	61.93	55.17	49.02	44.03	40.14
12.54	CFS	37.08	34.60	32.53	30.80	29.34	28.13	27.08	25.88
13.02	CFS	24.58	23.05	21.18	19.24	17.00	15.63	14.62	13.83
13.50	CFS	13.14	12.53	11.97	11.46	10.98	10.52	10.09	9.69
13.98	CFS	9.29	8.85	8.43	8.04	7.71	7.44	7.18	6.91
14.46	CFS	6.66	6.45	6.27	6.12	5.99	5.88	5.78	5.69
14.94	CFS	5.61	5.53	5.46	5.39	5.31	5.25	5.18	5.11
15.42	CFS	5.04	4.98	4.91	4.84	4.78	4.71	4.64	4.57
15.90	CFS	4.50	4.44	4.37	4.30	4.23	4.17	4.11	4.06
16.38	CFS	4.02	3.98	3.94	3.91	3.88	3.86	3.83	3.81
16.86	CFS	3.78	3.75	3.73	3.71	3.68	3.66	3.63	3.61
17.34	CFS	3.59	3.56	3.54	3.51	3.49	3.47	3.44	3.42
17.82	CFS	3.39	3.37	3.35	3.32	3.30	3.27	3.25	3.22
18.30	CFS	3.20	3.17	3.15	3.13	3.10	3.08	3.05	3.03
18.78	CFS	3.00	2.98	2.95	2.92	2.90	2.88	2.85	2.83
19.26	CFS	2.80	2.77	2.75	2.72	2.70	2.67	2.65	2.62
19.74	CFS	2.60	2.57	2.55	2.52	2.49	2.47	2.44	2.42
20.22	CFS	2.39	2.38	2.36	2.35	2.34	2.33	2.32	2.31
20.70	CFS	2.30	2.30	2.29	2.29	2.28	2.28	2.27	2.27
21.18	CFS	2.26	2.26	2.25	2.25	2.24	2.24	2.24	2.23
21.66	CFS	2.23	2.22	2.22	2.21	2.21	2.20	2.20	2.19
22.14	CFS	2.19	2.18	2.18	2.17	2.17	2.16	2.16	2.15
22.62	CFS	2.15	2.14	2.14	2.13	2.13	2.13	2.12	2.12
23.10	CFS	2.11	2.11	2.10	2.10	2.09	2.09	2.08	2.08
23.58	CFS	2.07	2.07	2.06	2.06	2.05	2.05	2.04	2.04
24.06	CFS	2.03	1.98	1.81	1.50	1.15	.85	.62	.45

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.05 WATERSHED INCHES; 99 CFS-HRS; 8.2 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14
FLOW(CFS)	10	5	3	3	2	2	0

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS) 12.61 PEAK DISCHARGE(CFS) 309.4 PEAK ELEVATION(FEET) (NULL)

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 25

BASE124.OUT

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.28 SQ.MI.

HRS	CFS	MAIN TIME	INCREMENT	.060 hr,	DRAINAGE AREA	= 1.28	SQ.MI.		
8.28	CFS	.49	.51	.53	.55	.58	.60	.63	.65
8.76	CFS	.68	.72	.76	.80	.84	.88	.93	.98
9.24	CFS	1.03	1.08	1.13	1.19	1.25	1.30	1.36	1.42
9.72	CFS	1.48	1.53	1.59	1.65	1.71	1.78	1.85	1.93
10.20	CFS	2.01	2.11	2.21	2.32	2.45	2.60	2.76	2.96
10.68	CFS	3.18	3.42	3.69	3.99	4.32	4.69	5.09	5.52
11.16	CFS	5.99	6.52	7.11	7.76	8.50	9.33	10.27	11.36
11.64	CFS	13	15	19	27	42	69	104	140
12.12	CFS	170	194	216	239	262	282	297	306
12.60	CFS	309	307	301	291	279	265	250	234
13.08	CFS	218	203	188	173	161	149	139	130
13.56	CFS	122	115	108	102	97	92	88	84
14.04	CFS	80.58	77.39	74.52	71.93	69.60	67.47	65.47	63.64
14.52	CFS	61.98	60.46	59.07	57.81	56.66	55.60	54.62	53.71
15.00	CFS	52.87	52.08	51.34	50.63	49.96	49.32	48.70	48.11
15.48	CFS	47.52	46.96	46.39	45.84	45.30	44.75	44.22	43.68
15.96	CFS	43.15	42.61	42.08	41.56	41.04	40.54	40.05	39.57
16.44	CFS	39.12	38.67	38.24	37.84	37.45	37.08	36.74	36.41
16.92	CFS	36.10	35.81	35.54	35.27	35.02	34.78	34.55	34.32
17.40	CFS	34.09	33.87	33.65	33.44	33.23	33.01	32.80	32.59
17.88	CFS	32.38	32.17	31.96	31.75	31.54	31.33	31.11	30.90
18.36	CFS	30.68	30.46	30.24	30.02	29.80	29.58	29.36	29.13
18.84	CFS	28.91	28.68	28.46	28.23	28.01	27.79	27.56	27.34
19.32	CFS	27.11	26.89	26.66	26.44	26.22	25.99	25.77	25.55
19.80	CFS	25.32	25.10	24.88	24.65	24.43	24.21	24.00	23.79
20.28	CFS	23.58	23.38	23.19	23.01	22.84	22.67	22.51	22.36
20.76	CFS	22.22	22.08	21.95	21.83	21.72	21.61	21.50	21.40
21.24	CFS	21.30	21.21	21.11	21.02	20.94	20.85	20.77	20.68
21.72	CFS	20.60	20.52	20.44	20.37	20.29	20.21	20.14	20.07
22.20	CFS	20.00	19.92	19.85	19.78	19.71	19.64	19.58	19.51
22.68	CFS	19.44	19.38	19.31	19.25	19.18	19.12	19.06	19.00
23.16	CFS	18.94	18.87	18.81	18.75	18.69	18.64	18.58	18.52
23.64	CFS	18.46	18.40	18.35	18.29	18.24	18.18	18.13	17.99
24.12	CFS	17.63	17.07	16.41	15.71	14.99	14.25	13.48	12.66
24.60	CFS	11.81	10.93	10.07	9.24	8.46	7.75	7.12	6.55
25.08	CFS	6.06	5.63	5.26	4.95	4.68	4.46	4.26	4.10
25.56	CFS	3.96	3.83	3.72	3.62	3.53	3.44	3.37	3.29
26.04	CFS	3.22	3.16	3.10	3.04	2.98	2.92	2.87	2.82
26.52	CFS	2.76	2.71	2.66	2.62	2.57	2.53	2.48	2.44
27.00	CFS	2.40	2.36	2.32	2.28	2.24	2.20		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .92 WATERSHED INCHES; 761 CFS-HRS; 62.9 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 26

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	83	43	32	25	20	18	6	3
DURATION(HRS)	16							
FLOW(CFS)	2 TRUNCATED							

OPERATION REACH XSECTION 77

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)



12.68

BASE124.OUT  
308.9

228.70

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.92 WATERSHED INCHES; 761 CFS-HRS; 62.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.03 27.4 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.69 WATERSHED INCHES; 23 CFS-HRS; 1.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.67 312.5 (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1									
HRS	MAIN	TIME	INCREMENT = .060 hr,	DRAINAGE AREA = 1.33 SQ.MI.					
8.34	CFS	.48	.50	.53	.55	.57	.60	.62	.65
8.82	CFS	.68	.71	.75	.79	.83	.88	.92	.97
9.30	CFS	1.02	1.07	1.12	1.18	1.23	1.29	1.35	1.41
9.78	CFS	1.47	1.52	1.58	1.64	1.70	1.77	1.84	1.91
10.26	CFS	2.00	2.09	2.19	2.30	2.42	2.57	2.73	2.92
10.74	CFS	3.14	3.38	3.64	3.94	4.27	4.62	5.01	5.44
11.22	CFS	5.91	6.43	7.01	7.65	8.39	9.26	10.34	11.77
11.70	CFS	14	18	25	38	60	91	125	154
12.18	CFS	178	199	220	242	264	283	299	308
12.66	CFS	312	311	305	296	284	270	255	239
13.14	CFS	224	208	193	178	165	154	143	134
13.62	CFS	125	118	111	105	100	95	90	86
14.10	CFS	82.88	79.61	76.65	73.99	71.60	69.41	67.38	65.50
14.58	CFS	63.79	62.23	60.80	59.50	58.31	57.22	56.21	55.28
15.06	CFS	54.41	53.59	52.82	52.09	51.40	50.74	50.10	49.48
15.54	CFS	48.88	48.29	47.71	47.14	46.57	46.01	45.46	44.90
16.02	CFS	44.35	43.80	43.26	42.72	42.19	41.68	41.18	40.70
16.50	CFS	40.23	39.78	39.34	38.93	38.53	38.15	37.80	37.46

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 27

16.98	CFS	37.15	36.85	36.56	36.29	36.03	35.78	35.54	35.30
17.46	CFS	35.07	34.84	34.62	34.40	34.18	33.96	33.74	33.52
17.94	CFS	33.31	33.09	32.88	32.66	32.44	32.22	32.00	31.78
18.42	CFS	31.56	31.33	31.11	30.88	30.65	30.42	30.19	29.96
18.90	CFS	29.73	29.50	29.27	29.04	28.81	28.58	28.35	28.11
19.38	CFS	27.88	27.65	27.42	27.19	26.96	26.73	26.50	26.27
19.86	CFS	26.04	25.81	25.58	25.35	25.12	24.90	24.68	24.46
20.34	CFS	24.25	24.05	23.86	23.68	23.50	23.33	23.17	23.01
20.82	CFS	22.87	22.73	22.60	22.48	22.36	22.25	22.14	22.04
21.30	CFS	21.94	21.84	21.75	21.66	21.57	21.48	21.39	21.31
21.78	CFS	21.23	21.15	21.07	20.99	20.91	20.83	20.76	20.68
22.26	CFS	20.61	20.53	20.46	20.39	20.32	20.25	20.18	20.11
22.74	CFS	20.04	19.98	19.91	19.85	19.78	19.72	19.65	19.59
23.22	CFS	19.53	19.47	19.40	19.34	19.28	19.22	19.16	19.10
23.70	CFS	19.04	18.98	18.93	18.87	18.81	18.75	18.64	18.36
24.18	CFS	17.87	17.25	16.56	15.85	15.12	14.38	13.61	12.80
24.66	CFS	11.96	11.09	10.22	9.38	8.60	7.88	7.23	6.65

BASE124.OUT

25.14 CFS	6.15	5.71	5.33	5.00	4.73	4.50	4.30	4.13
25.62 CFS	3.98	3.85	3.74	3.64	3.54	3.46	3.38	3.30
26.10 CFS	3.23	3.17	3.11	3.05	2.99	2.93	2.88	2.82
26.58 CFS	2.77	2.72	2.67	2.63	2.58	2.53	2.49	2.45
27.06 CFS	2.40	2.36	2.32	2.28	2.25			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .91 WATERSHED INCHES; 784 CFS-HRS; 64.7 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	89	45	34	26	21	19	6	3

DURATION(HRS) 16  
 FLOW(CFS) 2 TRUNCATED

OPERATION REACH XSECTION 80

PEAK TIME(HRS) 12.74 PEAK DISCHARGE(CFS) 312.4 PEAK ELEVATION(FEET) 212.90

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .91 WATERSHED INCHES; 783 CFS-HRS; 64.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS) 12.00 PEAK DISCHARGE(CFS) 41.5 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .94 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 28

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS) 12.73 PEAK DISCHARGE(CFS) 316.6 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .91 WATERSHED INCHES; 815 CFS-HRS; 67.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS) 12.04 PEAK DISCHARGE(CFS) 12.6 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.

HRS									
11.70 CFS	.14	.62	1.86	4.79	9.00	12.05	12.35	9.40	
12.18 CFS	6.23	4.52	3.64	3.13	2.76	2.47	2.21	1.99	
12.66 CFS	1.84	1.73	1.65	1.59	1.53	1.48	1.42	1.37	
13.14 CFS	1.32	1.28	1.25	1.21	1.18	1.15	1.12	1.09	
13.62 CFS	1.06	1.03	1.01	.98	.96	.93	.91	.89	
14.10 CFS	.87	.85	.84	.83	.82	.81	.80	.80	
14.58 CFS	.79	.78	.77	.76	.76	.75	.74	.73	

BASE124.OUT  
 15.06 CFS .72 .72 .71 .70 .69 .68 .67 .66  
 15.54 CFS .65 .65 .64 .63 .62 .61 .60 .59  
 16.02 CFS .58 .57 .57 .56 .56 .55 .55 .55  
 16.50 CFS .55 .54 .54 .54 .53 .53 .53 .52  
 16.98 CFS .52 .52 .52 .51 .51 .51 .50 .50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .55 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

DURATION(HRS) 2 4 6  
 FLOW(CFS) 1 1 0

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS) 12.73 PEAK DISCHARGE(CFS) 318.3 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .90 WATERSHED INCHES; 826 CFS-HRS; 68.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS) 12.11 PEAK DISCHARGE(CFS) 43.8 PEAK ELEVATION(FEET) (RUNOFF)

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 29

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .12 SQ.MI.  
 HRS CFS  
 11.64 CFS .16 .66 1.95 4.91 10.68 20.72 32.52 41.65  
 12.12 CFS 43.74 39.42 32.17 25.37 20.39 17.10 14.58 12.66  
 12.60 CFS 11.10 9.85 8.89 8.14 7.58 7.12 6.74 6.43  
 13.08 CFS 6.16 5.92 5.70 5.51 5.34 5.18 5.04 4.89  
 13.56 CFS 4.76 4.62 4.50 4.38 4.26 4.16 4.05 3.95  
 14.04 CFS 3.85 3.75 3.66 3.59 3.52 3.47 3.43 3.39  
 14.52 CFS 3.35 3.32 3.28 3.25 3.21 3.18 3.15 3.11  
 15.00 CFS 3.08 3.04 3.01 2.97 2.94 2.90 2.87 2.83  
 15.48 CFS 2.80 2.76 2.72 2.69 2.65 2.61 2.57 2.54  
 15.96 CFS 2.50 2.46 2.42 2.39 2.36 2.33 2.31 2.29  
 16.44 CFS 2.28 2.26 2.25 2.24 2.22 2.21 2.20 2.19  
 16.92 CFS 2.17 2.16 2.15 2.14 2.12 2.11 2.10 2.08  
 17.40 CFS 2.07 2.06 2.04 2.03 2.02 2.00 1.99 1.98  
 17.88 CFS 1.96 1.95 1.94 1.92 1.91 1.90 1.88 1.87  
 18.36 CFS 1.86 1.84 1.83 1.81 1.80 1.79 1.77 1.76  
 18.84 CFS 1.74 1.73 1.71 1.70 1.69 1.67 1.66 1.64  
 19.32 CFS 1.63 1.61 1.60 1.58 1.57 1.55 1.54 1.52  
 19.80 CFS 1.51 1.49 1.48 1.46 1.45 1.43 1.42 1.41  
 20.28 CFS 1.40 1.40 1.39 1.39 1.39 1.38 1.38 1.38  
 20.76 CFS 1.38 1.37 1.37 1.37 1.37 1.36 1.36 1.36  
 21.24 CFS 1.36 1.35 1.35 1.35 1.35 1.34 1.34 1.34  
 21.72 CFS 1.34 1.33 1.33 1.33 1.33 1.32 1.32 1.32  
 22.20 CFS 1.32 1.31 1.31 1.31 1.31 1.30 1.30 1.30  
 22.68 CFS 1.30 1.29 1.29 1.29 1.29 1.28 1.28 1.28  
 23.16 CFS 1.28 1.27 1.27 1.27 1.27 1.26 1.26 1.26  
 23.64 CFS 1.25 1.25 1.25 1.25 1.24 1.24 1.24 1.19  
 24.12 CFS 1.06 .82 .57 .36

BASE124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .62 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	13
FLOW(CFS)	4	3	2	2	1	1	0

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS) 12.72 PEAK DISCHARGE(CFS) 327.1 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .88 WATERSHED INCHES; 873 CFS-HRS; 72.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS) 11.97 PEAK DISCHARGE(CFS) 21.6 PEAK ELEVATION(FEET) (RUNOFF)

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 1 JOB NO. 1 PAGE 30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.49 WATERSHED INCHES; 15 CFS-HRS; 1.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS) 12.72 PEAK DISCHARGE(CFS) 328.9 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .89 WATERSHED INCHES; 888 CFS-HRS; 73.4 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 88  
 STARTING TIME = .00 RAIN DEPTH = 3.21 RAIN DURATION = 1.00  
 ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS  
 ALTERNATE NO. = 1 STORM NO. = 2 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 27.7 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.37 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS) 12.23 PEAK DISCHARGE(CFS) 26.2 PEAK ELEVATION(FEET) 389.99

BASE124.OUT  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.37 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 53.2 (RUNOFF)

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 2 JOB NO. 1 PAGE 31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.45 WATERSHED INCHES; 54 CFS-HRS; 4.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.15 76.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.42 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.24 73.7 382.45

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.42 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.31 70.4 367.98

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.41 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.14 55.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.15 WATERSHED INCHES; 59 CFS-HRS; 4.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.29 109.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.29 WATERSHED INCHES; 143 CFS-HRS; 11.8 ACRE-FEET.

1

TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 2 JOB NO. 1 PAGE 32

OPERATION REACH XSECTION 8  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.36 107.0 357.25  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.29 WATERSHED INCHES; 143 CFS-HRS; 11.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 9  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.13 89.9 (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.05 WATERSHED INCHES; 97 CFS-HRS; 8.0 ACRE-FEET.

\*\*\* MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE  
 STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00. \*\*\*  
 THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME.

OPERATION RESVOR STRUCTURE 21  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 13.20 9.1 \* 373.41  
 \* FIRST POINT OF FLAT PEAK  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.74 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 10  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.98 8.1 (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .95 WATERSHED INCHES; 6 CFS-HRS; .5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 13.36 9.1 353.06

1

TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 2 JOB NO. 1 PAGE 33

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.74 WATERSHED INCHES; 82 CFS-HRS; 6.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 11  
 PEAK TIME(HRS) 12.04 PEAK DISCHARGE(CFS) 43.5 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) .99 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 12  
 PEAK TIME(HRS) 12.35 PEAK DISCHARGE(CFS) 118.4 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.22 WATERSHED INCHES; 180 CFS-HRS; 14.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 13  
 PEAK TIME(HRS) 12.05 PEAK DISCHARGE(CFS) 19.8 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.34 WATERSHED INCHES; 17 CFS-HRS; 1.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 14  
 PEAK TIME(HRS) 12.35 PEAK DISCHARGE(CFS) 125.2 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.34 WATERSHED INCHES; 262 CFS-HRS; 21.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 15  
 PEAK TIME(HRS) 12.35 PEAK DISCHARGE(CFS) 130.9 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.34 WATERSHED INCHES; 279 CFS-HRS; 23.0 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 34

OPERATION RESVOR STRUCTURE 23  
 PEAK TIME(HRS) 12.35 PEAK DISCHARGE(CFS) 130.9 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2									
DRAINAGE AREA = .32 SQ.MI.									
HRS	MAIN	TIME	INCREMENT	=	.060	hr,			
7.38	CFS	.00	.01	.01	.01	.01	.01	.01	.01
7.86	CFS	.01	.01	.01	.02	.02	.02	.02	.02
8.34	CFS	.02	.02	.02	.03	.03	.03	.03	.03
8.82	CFS	.04	.04	.04	.04	.04	.05	.05	.05
9.30	CFS	.06	.06	.06	.07	.07	.07	.08	.08

BASE124.OUT

9.78	CFS	.09	.10	.11	.13	.15	.16	.18	.20
10.26	CFS	.23	.25	.28	.31	.34	.38	.42	.48
10.74	CFS	.55	.64	.74	.85	.97	1.13	1.32	1.54
11.22	CFS	1.81	2.12	2.48	2.88	3.34	3.89	4.77	6.47
11.70	CFS	10	15	25	41	65	88	104	115
12.18	CFS	120	123	126	130	119	104	94	85
12.66	CFS	77.02	69.46	62.70	56.78	51.70	47.38	43.74	40.69
13.14	CFS	38.13	35.98	34.19	32.69	31.42	30.33	29.37	28.53
13.62	CFS	27.77	27.09	26.47	25.89	25.36	24.86	24.38	23.92
14.10	CFS	23.48	23.08	22.70	22.36	22.04	21.75	21.49	21.24
14.58	CFS	21.02	20.81	20.61	20.42	20.25	20.07	19.91	19.75
15.06	CFS	19.58	19.43	19.27	19.11	18.95	18.80	18.64	18.48
15.54	CFS	18.32	18.16	18.00	17.84	17.68	17.52	17.36	17.20
16.02	CFS	17.04	16.87	16.72	16.57	16.43	16.30	16.17	16.06
16.50	CFS	15.95	15.84	15.75	15.65	15.56	15.46	15.36	15.26
16.98	CFS	15.16	15.06	14.96	14.86	14.77	14.67	14.57	14.47
17.46	CFS	14.38	14.28	14.19	14.09	13.99	13.90	13.80	13.71
17.94	CFS	13.62	13.52	13.43	13.33	13.24	13.16	13.08	13.01
18.42	CFS	12.93	12.85	12.78	12.70	12.62	12.55	12.47	12.39
18.90	CFS	12.31	12.24	12.16	12.08	12.00	11.92	11.84	11.77
19.38	CFS	11.69	11.61	11.53	11.45	11.37	11.29	11.21	11.13
19.86	CFS	11.05	10.97	10.89	10.81	10.73	10.66	10.59	10.52
20.34	CFS	10.44	10.36	10.28	10.19	10.11	10.03	9.95	9.87
20.82	CFS	9.79	9.71	9.64	9.56	9.49	9.42	9.35	9.28
21.30	CFS	9.21	9.15	9.08	9.01	8.95	8.89	8.83	8.77
21.78	CFS	8.71	8.65	8.59	8.53	8.48	8.42	8.37	8.31
22.26	CFS	8.26	8.21	8.16	8.11	8.06	8.01	7.96	7.91
22.74	CFS	7.87	7.82	7.77	7.72	7.67	7.61	7.56	7.51
23.22	CFS	7.46	7.41	7.36	7.32	7.27	7.22	7.18	7.13
23.70	CFS	7.09	7.05	7.01	6.97	6.93	6.88	6.76	6.44
24.18	CFS	6.00	5.58	5.22	4.90	4.62	4.39	4.20	4.06
24.66	CFS	3.92	3.80	3.69	3.59	3.49	3.40	3.30	3.21
25.14	CFS	3.13	3.05	2.97	2.89	2.81	2.74	2.67	2.60
25.62	CFS	2.53	2.47	2.40	2.34	2.28	2.22	2.16	2.11
26.10	CFS	2.05	2.00	1.95	1.89	1.84	1.80	1.75	1.71
26.58	CFS	1.66	1.62	1.57	1.53	1.49	1.45	1.42	1.38
27.06	CFS	1.34	1.31	1.28	1.24	1.21	1.18	1.15	1.12

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 35

27.54	CFS	1.09	1.06	1.03	1.01	.98	.96	.94	.93
28.02	CFS	.92	.90	.89	.88	.87	.86	.85	.84
28.50	CFS	.83	.82	.81	.81	.80	.79	.78	.77
28.98	CFS	.76	.76	.75	.74	.74	.73	.72	.72
29.46	CFS	.71	.70	.70	.69	.68	.68	.67	.67
29.94	CFS	.66							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.34 WATERSHED INCHES; 279 CFS-HRS; 23.0 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	25	18	14	11	9	7	3	1

DURATION(HRS)	18	19
FLOW(CFS)	1	1 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. \*\*\*



BASE124.OUT

OPERATION REACH XSECTION 16

PEAK TIME(HRS) 12.35 PEAK DISCHARGE(CFS) 130.9 PEAK ELEVATION(FEET) 332.43

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.34 WATERSHED INCHES; 279 CFS-HRS; 23.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 36.5 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.99 WATERSHED INCHES; 27 CFS-HRS; 2.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 118

PEAK TIME(HRS) 12.02 PEAK DISCHARGE(CFS) 48.4 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.47 WATERSHED INCHES; 40 CFS-HRS; 3.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 24

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 36

PEAK TIME(HRS) 12.02 PEAK DISCHARGE(CFS) 48.4 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2										
DRAINAGE AREA = .03 SQ.MI.										
HRS	MAIN	TIME	INCREMENT =	.060 hr,						
3.96 CFS	.00	.01	.01	.01	.02	.02	.03	.04		
4.44 CFS	.04	.05	.05	.06	.07	.07	.08	.08		
4.92 CFS	.09	.10	.10	.11	.12	.12	.13	.14		
5.40 CFS	.14	.15	.16	.16	.17	.18	.18	.19		
5.88 CFS	.20	.20	.21	.22	.23	.23	.24	.25		
6.36 CFS	.26	.26	.27	.28	.29	.29	.30	.31		
6.84 CFS	.32	.33	.33	.34	.35	.36	.37	.37		
7.32 CFS	.38	.39	.40	.41	.41	.42	.43	.44		
7.80 CFS	.45	.46	.46	.47	.48	.49	.50	.52		
8.28 CFS	.54	.56	.58	.60	.62	.64	.66	.68		
8.76 CFS	.71	.73	.75	.78	.80	.83	.85	.87		
9.24 CFS	.88	.89	.90	.91	.92	.93	.94	.96		
9.72 CFS	.99	1.02	1.06	1.09	1.13	1.17	1.21	1.26		
10.20 CFS	1.31	1.36	1.42	1.48	1.54	1.60	1.66	1.73		
10.68 CFS	1.81	1.90	1.99	2.09	2.20	2.30	2.41	2.54		
11.16 CFS	2.69	2.88	3.10	3.33	3.58	3.83	4.14	4.96		
11.64 CFS	6.85	10.19	14.98	21.36	30.43	41.62	48.11	46.15		
12.12 CFS	36.21	24.84	16.84	12.46	9.86	8.19	7.01	6.06		
12.60 CFS	5.32	4.77	4.39	4.13	3.92	3.74	3.58	3.42		
13.08 CFS	3.27	3.14	3.02	2.92	2.83	2.74	2.66	2.57		
13.56 CFS	2.49	2.41	2.34	2.28	2.21	2.15	2.09	2.03		
14.04 CFS	1.97	1.92	1.88	1.84	1.81	1.79	1.76	1.74		
14.52 CFS	1.72	1.70	1.68	1.66	1.64	1.62	1.60	1.58		

			BASE124.OUT						
15.00	CFS	1.56	1.54	1.52	1.50	1.47	1.45	1.43	1.41
15.48	CFS	1.39	1.37	1.35	1.33	1.31	1.29	1.27	1.25
15.96	CFS	1.23	1.20	1.18	1.17	1.15	1.14	1.13	1.13
16.44	CFS	1.12	1.11	1.10	1.10	1.09	1.08	1.07	1.07
16.92	CFS	1.06	1.05	1.04	1.04	1.03	1.02	1.01	1.01
17.40	CFS	1.00	.99	.98	.98	.97	.96	.95	.95
17.88	CFS	.94	.93	.92	.92	.91	.90	.89	.89
18.36	CFS	.88	.87	.87	.86	.85	.84	.84	.83
18.84	CFS	.82	.81	.81	.80	.79	.78	.78	.77
19.32	CFS	.76	.75	.75	.74	.73	.72	.72	.71
19.80	CFS	.70	.69	.69	.68	.67	.66	.66	.66
20.28	CFS	.65	.65	.65	.65	.65	.64	.64	.64
20.76	CFS	.64	.64	.64	.63	.63	.63	.63	.63
21.24	CFS	.63	.63	.62	.62	.62	.62	.62	.62
21.72	CFS	.62	.61	.61	.61	.61	.61	.61	.61
22.20	CFS	.60	.60	.60	.60	.60	.60	.60	.59
22.68	CFS	.59	.59	.59	.59	.59	.58	.58	.58
23.16	CFS	.58	.58	.58	.58	.57	.57	.57	.57
23.64	CFS	.57	.57	.57	.56	.56	.56	.56	.52
24.12	CFS	.39	.23	.12	.06	.03	.02	.01	.00

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 37

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.47 WATERSHED INCHES; 40 CFS-HRS; 3.3 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	3	2	1	1	1	1	1	0

OPERATION RUNOFF XSECTION 119

PEAK TIME(HRS) 11.97 PEAK DISCHARGE(CFS) 10.0 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.86 WATERSHED INCHES; 7 CFS-HRS; .6 ACRE-FEET.

OPERATION ADDHYD XSECTION 120

PEAK TIME(HRS) 12.01 PEAK DISCHARGE(CFS) 57.8 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.36 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS) 12.00 PEAK DISCHARGE(CFS) 94.0 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.21 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 19



BASE124.OUT

OPERATION RUNOFF XSECTION 25

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 39

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.11 54.5 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.16 WATERSHED INCHES; 56 CFS-HRS; 4.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.13 79.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.17 WATERSHED INCHES; 95 CFS-HRS; 7.8 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.27 70.2 318.49

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.17 WATERSHED INCHES; 95 CFS-HRS; 7.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.10 34.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .91 WATERSHED INCHES; 35 CFS-HRS; 2.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.15 234.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.41 WATERSHED INCHES; 431 CFS-HRS; 35.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.18 298.0 (NULL)

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 40

BASE124.OUT  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.36 WATERSHED INCHES; 526 CFS-HRS; 43.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.06 80.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.57 WATERSHED INCHES; 70 CFS-HRS; 5.8 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.16 71.3 312.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.57 WATERSHED INCHES; 70 CFS-HRS; 5.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.00 17.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.65 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS  
WITH .28 AC-FT ( .05 WATERSHED INCHES) FLOOD STORAGE REMAINING IN RESERVOIR AT ELEV. 376.89. \*\*\*

OPERATION RESVOR STRUCTURE 32

\*\*\* MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS,  
AT STRUCTURE 32 \*\*\*

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
13.26 1.0 379.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.03 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

\*\*\* WARNING - XSECTION 34, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN  
2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,  
UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 2 JOB NO. 1 PAGE 41

OPERATION REACH XSECTION 34

\*\*\* MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS,  
AT XSECTION 34 \*\*\*

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

13.38 BASE124.OUT 338.02  
1.0

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.02 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.03 53.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.65 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.25 20.8 356.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.10 WATERSHED INCHES; 37 CFS-HRS; 3.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.26 21.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.08 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.26 21.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.08 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 2 JOB NO. 1 PAGE 42

OPERATION REACH XSECTION 37

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.32 21.4 330.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.08 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 138

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.98 52.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
Page 46

BASE124.OUT  
 2.17 WATERSHED INCHES; 39 CFS-HRS; 3.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 139

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.99 53.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.12 WATERSHED INCHES; 87 CFS-HRS; 7.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 35

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.99 53.8 (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2									
DRAINAGE AREA = .06 SQ.MI.									
HRS	MAIN	TIME	INCREMENT = .060 hr,						
4.32	CFS	.00	.01	.01	.01	.01	.01	.01	.01
4.80	CFS	.01	.01	.01	.01	.01	.02	.02	.02
5.28	CFS	.02	.02	.02	.02	.02	.03	.03	.04
5.76	CFS	.05	.06	.07	.08	.09	.10	.11	.12
6.24	CFS	.12	.13	.14	.15	.16	.17	.18	.19
6.72	CFS	.20	.21	.22	.23	.24	.25	.26	.27
7.20	CFS	.28	.29	.30	.31	.32	.33	.34	.35
7.68	CFS	.36	.38	.39	.40	.41	.42	.43	.45
8.16	CFS	.46	.48	.50	.52	.54	.56	.58	.60
8.64	CFS	.63	.65	.68	.70	.73	.75	.78	.81
9.12	CFS	.83	.85	.87	.89	.90	.92	.94	.96
9.60	CFS	.98	1.01	1.04	1.08	1.12	1.16	1.20	1.25
10.08	CFS	1.30	1.34	1.40	1.46	1.52	1.58	1.65	1.72
10.56	CFS	1.79	1.87	1.96	2.06	2.16	2.27	2.38	2.50
11.04	CFS	2.62	2.77	2.95	3.17	3.41	3.66	3.93	4.19

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 43

11.52	CFS	4.55	5.95	8.46	13.05	18.93	26.75	39.33	52.10
12.00	CFS	53.67	49.17	38.42	32.54	30.98	30.30	28.72	26.97
12.48	CFS	25.17	23.36	21.62	20.04	18.63	17.36	16.19	15.12
12.96	CFS	14.20	13.41	12.68	12.02	11.42	10.87	10.37	9.90
13.44	CFS	9.47	9.06	8.69	8.36	8.09	7.83	7.58	7.35
13.92	CFS	7.12	6.91	6.70	6.52	6.34	6.19	6.05	5.91
14.40	CFS	5.79	5.67	5.56	5.45	5.35	5.26	5.16	5.08
14.88	CFS	4.99	4.91	4.84	4.76	4.69	4.62	4.55	4.49
15.36	CFS	4.43	4.37	4.32	4.27	4.22	4.17	4.12	4.07
15.84	CFS	4.01	3.97	3.92	3.86	3.82	3.77	3.74	3.70
16.32	CFS	3.67	3.63	3.60	3.57	3.54	3.51	3.48	3.45
16.80	CFS	3.42	3.39	3.37	3.34	3.31	3.29	3.26	3.24
17.28	CFS	3.21	3.19	3.17	3.14	3.12	3.10	3.07	3.05
17.76	CFS	3.03	3.01	2.99	2.97	2.94	2.92	2.90	2.88
18.24	CFS	2.86	2.84	2.82	2.80	2.78	2.76	2.74	2.72
18.72	CFS	2.70	2.68	2.66	2.64	2.62	2.60	2.58	2.56
19.20	CFS	2.54	2.53	2.52	2.51	2.50	2.49	2.47	2.46
19.68	CFS	2.45	2.44	2.43	2.41	2.40	2.39	2.38	2.37
20.16	CFS	2.36	2.35	2.35	2.34	2.34	2.33	2.32	2.32
20.64	CFS	2.31	2.31	2.30	2.30	2.29	2.29	2.28	2.27
21.12	CFS	2.27	2.26	2.26	2.25	2.25	2.24	2.23	2.23
21.60	CFS	2.22	2.22	2.21	2.21	2.20	2.20	2.19	2.18
22.08	CFS	2.18	2.18	2.17	2.16	2.16	2.15	2.15	2.14

	22.56	23.04	23.52	24.00	24.48	24.96	25.44	25.92	26.40
CFS	2.14	2.10	2.05	2.01	1.38	1.32	1.27	1.22	1.16
	2.13	2.09	2.05	1.92	1.37	1.32	1.26	1.21	1.16
	2.13	2.08	2.04	1.67	1.37	1.31	1.25	1.20	1.15
	2.12	2.08	2.04	1.51	1.36	1.30	1.25	1.20	1.15
	2.12	2.07	2.03	1.44	1.35	1.30	1.24	1.19	1.14
	2.11	2.07	2.03	1.41	1.35	1.29	1.24	1.18	1.13
	2.11	2.06	2.02	1.40	1.34	1.28	1.23	1.18	1.13
	2.10	2.06	2.02	1.39	1.33	1.27	1.22	1.17	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.12 WATERSHED INCHES; 87 CFS-HRS; 7.2 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14
FLOW(CFS)	8	4	3	3	2	2	1 TRUNCATED

OPERATION RUNOFF XSECTION 140

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	2.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .57 WATERSHED INCHES; 2 CFS-HRS; .1 ACRE-FEET.

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 44

OPERATION ADDHYD XSECTION 141

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	55.9	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.01 WATERSHED INCHES; 89 CFS-HRS; 7.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.11	36.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.45 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	332.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.37 WATERSHED INCHES; 563 CFS-HRS; 46.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.17	403.2	(NULL)



BASE124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.39 WATERSHED INCHES; 633 CFS-HRS; 52.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.16 437.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.44 WATERSHED INCHES; 720 CFS-HRS; 59.5 ACRE-FEET.

OPERATION REACH XSECTION 44

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 2 JOB NO. 1 PAGE 45

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.30 399.1 290.24

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.44 WATERSHED INCHES; 720 CFS-HRS; 59.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.14 32.2 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.16 WATERSHED INCHES; 36 CFS-HRS; 2.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.17 35.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.03 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.16 67.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.08 WATERSHED INCHES; 77 CFS-HRS; 6.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 48.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.35 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

BASE124.OUT

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.29 416.2 (NULL)

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 2 JOB NO. 1 PAGE 46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.43 WATERSHED INCHES; 761 CFS-HRS; 62.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.26 473.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.39 WATERSHED INCHES; 838 CFS-HRS; 69.3 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.39 450.1 284.64

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.39 WATERSHED INCHES; 838 CFS-HRS; 69.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.06 1.2 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.29 WATERSHED INCHES; 2 CFS-HRS; .1 ACRE-FEET.

\*\*\* WARNING - XSECTION 53, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN  
2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,  
UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

OPERATION REACH XSECTION 53

\*\*\* MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS,  
AT XSECTION 53 \*\*\*

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 .9 288.05

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.28 WATERSHED INCHES; 2 CFS-HRS; .1 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

1 TR20 ----- SCS -

\*\*\* MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS, \*\*\*  
 AT XSECTION 54

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.12 .6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .25 WATERSHED INCHES; 1 CFS-HRS; .1 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.05 25.4 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.05 WATERSHED INCHES; 22 CFS-HRS; 1.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.39 457.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.38 WATERSHED INCHES; 860 CFS-HRS; 71.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.14 1.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .27 WATERSHED INCHES; 3 CFS-HRS; .2 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.39 458.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.36 WATERSHED INCHES; 863 CFS-HRS; 71.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.06 18.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 Page 51

BASE124.OUT  
 .98 WATERSHED INCHES; 17 CFS-HRS; 1.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS) 12.38 PEAK DISCHARGE(CFS) 463.8 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.35 WATERSHED INCHES; 879 CFS-HRS; 72.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS) 12.08 PEAK DISCHARGE(CFS) 11.3 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .97 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS) 12.38 PEAK DISCHARGE(CFS) 467.8 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.35 WATERSHED INCHES; 890 CFS-HRS; 73.6 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS) 12.55 PEAK DISCHARGE(CFS) 434.4 PEAK ELEVATION(FEET) 249.59

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.03 SQ.MI.

7.14 CFS	.48	.50	.52	.55	.57	.59	.61	.64
7.14 ELEV	247.16	247.16	247.17	247.17	247.17	247.18	247.18	247.19
7.62 CFS	.66	.68	.71	.73	.76	.78	.81	.83
7.62 ELEV	247.19	247.20	247.20	247.20	247.21	247.21	247.22	247.22
8.10 CFS	.86	.89	.92	.94	.98	1.01	1.04	1.08
8.10 ELEV	247.23	247.23	247.24	247.24	247.25	247.26	247.26	247.27
8.58 CFS	1.12	1.17	1.22	1.27	1.32	1.38	1.45	1.51
8.58 ELEV	247.28	247.28	247.29	247.30	247.31	247.32	247.34	247.35
9.06 CFS	1.58	1.66	1.74	1.82	1.91	2.01	2.10	2.20

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 49

9.06 ELEV	247.36	247.37	247.39	247.41	247.42	247.42	247.43	247.44
9.54 CFS	2.30	2.40	2.49	2.59	2.69	2.79	2.89	3.00
9.54 ELEV	247.45	247.45	247.46	247.47	247.48	247.49	247.49	247.50
10.02 CFS	3.12	3.26	3.40	3.56	3.74	3.93	4.14	4.36
10.02 ELEV	247.51	247.52	247.54	247.55	247.56	247.58	247.59	247.61
10.50 CFS	4.60	4.86	5.14	5.44	5.77	6.12	6.50	6.92
10.50 ELEV	247.63	247.65	247.68	247.70	247.73	247.74	247.75	247.76
10.98 CFS	7.39	7.91	8.49	9.14	9.88	10.70	11.64	12.70
10.98 ELEV	247.76	247.77	247.78	247.79	247.80	247.81	247.83	247.84
11.46 CFS	13.91	15.30	16.90	18.79	21.20	24.65	30.11	39.15
11.46 ELEV	247.86	247.88	247.91	247.94	247.97	248.03	248.10	248.19

BASE124.OUT									
11.94	CFS	54	79	115	162	215	271	325	371
11.94	ELEV	248.36	248.58	248.77	248.96	249.11	249.25	249.37	249.46
12.42	CFS	405	427	434	431	418	400	377	352
12.42	ELEV	249.53	249.57	249.59	249.58	249.56	249.52	249.48	249.42
12.90	CFS	326	300	275	251	229	209	190	174
12.90	ELEV	249.37	249.31	249.26	249.20	249.14	249.09	249.04	248.99
13.38	CFS	160	148	137	127	119	112	106	101
13.38	ELEV	248.95	248.91	248.86	248.82	248.79	248.76	248.74	248.71
13.86	CFS	96.03	91.89	88.22	84.93	81.98	79.29	76.84	74.59
13.86	ELEV	248.70	248.68	248.66	248.63	248.60	248.58	248.56	248.54
14.34	CFS	72.51	70.59	68.82	67.18	65.68	64.30	63.03	61.87
14.34	ELEV	248.52	248.50	248.49	248.47	248.46	248.45	248.44	248.43
14.82	CFS	60.81	59.82	58.91	58.06	57.27	56.52	55.80	55.12
14.82	ELEV	248.42	248.41	248.40	248.39	248.39	248.38	248.37	248.36
15.30	CFS	54.46	53.83	53.21	52.60	52.00	51.41	50.83	50.26
15.30	ELEV	248.36	248.35	248.34	248.34	248.33	248.32	248.32	248.31
15.78	CFS	49.69	49.12	48.55	47.99	47.43	46.86	46.30	45.74
15.78	ELEV	248.31	248.30	248.29	248.29	248.28	248.28	248.27	248.26
16.26	CFS	45.19	44.63	44.10	43.58	43.07	42.59	42.14	41.71
16.26	ELEV	248.26	248.25	248.25	248.24	248.24	248.23	248.23	248.22
16.74	CFS	41.31	40.93	40.58	40.24	39.93	39.63	39.34	39.06
16.74	ELEV	248.22	248.21	248.21	248.21	248.20	248.20	248.20	248.19
17.22	CFS	38.79	38.53	38.27	38.01	37.76	37.51	37.26	37.01
17.22	ELEV	248.19	248.19	248.18	248.18	248.18	248.18	248.17	248.17
17.70	CFS	36.76	36.51	36.27	36.02	35.77	35.53	35.28	35.04
17.70	ELEV	248.17	248.17	248.16	248.16	248.16	248.16	248.15	248.15
18.18	CFS	34.79	34.55	34.31	34.06	33.82	33.58	33.33	33.09
18.18	ELEV	248.15	248.15	248.14	248.14	248.14	248.14	248.13	248.13
18.66	CFS	32.85	32.62	32.38	32.15	31.92	31.69	31.46	31.23
18.66	ELEV	248.13	248.12	248.12	248.12	248.12	248.12	248.11	248.11
19.14	CFS	31.00	30.77	30.54	30.31	30.08	29.86	29.63	29.40
19.14	ELEV	248.11	248.11	248.10	248.10	248.10	248.10	248.09	248.09
19.62	CFS	29.18	28.95	28.73	28.51	28.28	28.06	27.83	27.61
19.62	ELEV	248.09	248.09	248.08	248.08	248.08	248.08	248.07	248.07
20.10	CFS	27.39	27.16	26.94	26.72	26.50	26.29	26.09	25.90
20.10	ELEV	248.07	248.07	248.06	248.06	248.06	248.05	248.05	248.05
20.58	CFS	25.72	25.55	25.39	25.24	25.09	24.95	24.82	24.70
20.58	ELEV	248.04	248.04	248.04	248.04	248.03	248.03	248.03	248.03

1

TR20 ----- SCS -----									
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION									
07/05/** Run for 1,2,10,50,100YR STORMS 2.04TEST									
08:44:52 PASS 2 JOB NO. 1 PAGE 50									
21.06	CFS	24.58	24.45	24.34	24.23	24.11	24.00	23.89	23.79
21.06	ELEV	248.03	248.02	248.02	248.02	248.02	248.02	248.02	248.01
21.54	CFS	23.68	23.58	23.48	23.37	23.27	23.17	23.08	22.98
21.54	ELEV	248.01	248.01	248.01	248.01	248.01	248.00	248.00	248.00
22.02	CFS	22.88	22.79	22.69	22.60	22.51	22.42	22.33	22.24
22.02	ELEV	248.00	248.00	248.00	248.00	247.99	247.99	247.99	247.99
22.50	CFS	22.16	22.07	21.98	21.90	21.81	21.73	21.65	21.56
22.50	ELEV	247.99	247.99	247.99	247.99	247.98	247.98	247.98	247.98
22.98	CFS	21.48	21.40	21.32	21.24	21.16	21.08	21.00	20.92
22.98	ELEV	247.98	247.98	247.98	247.98	247.97	247.97	247.97	247.97
23.46	CFS	20.84	20.76	20.68	20.60	20.52	20.44	20.36	20.28
23.46	ELEV	247.97	247.97	247.97	247.97	247.96	247.96	247.96	247.96
23.94	CFS	20.20	20.13	20.05	19.95	19.77	19.46	18.99	18.34
23.94	ELEV	247.96	247.96	247.96	247.96	247.95	247.95	247.94	247.93
24.42	CFS	17.52	16.53	15.40	14.19	12.97	11.78	10.68	9.69
24.42	ELEV	247.92	247.90	247.89	247.87	247.85	247.83	247.81	247.80
24.90	CFS	8.82	8.06	7.43	6.89	6.45	6.08	5.77	5.51
24.90	ELEV	247.78	247.77	247.76	247.75	247.75	247.74	247.73	247.71
25.38	CFS	5.29	5.11	4.95	4.80	4.68	4.56	4.45	4.35

BASE124.OUT

25.38 ELEV	247.69	247.67	247.66	247.65	247.64	247.63	247.62	247.61
25.86 CFS	4.26	4.17	4.09	4.00	3.92	3.85	3.77	3.70
25.86 ELEV	247.60	247.60	247.59	247.58	247.58	247.57	247.57	247.56
26.34 CFS	3.62	3.55	3.49	3.42	3.36	3.29	3.23	
26.34 ELEV	247.55	247.55	247.54	247.54	247.53	247.53	247.52	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.34 WATERSHED INCHES; 890 CFS-HRS; 73.5 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	84	48	36	28	23	21	7	4

DURATION(HRS) 16  
 FLOW(CFS) 3 TRUNCATED

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	12.19	PEAK DISCHARGE(CFS)	11.9	PEAK ELEVATION(FEET)	(RUNOFF)
----------------	-------	---------------------	------	----------------------	----------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.01 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	12.56	PEAK DISCHARGE(CFS)	5.3	PEAK ELEVATION(FEET)	333.13
----------------	-------	---------------------	-----	----------------------	--------

1

TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 2 JOB NO. 1 PAGE 51

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.01 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	12.68	PEAK DISCHARGE(CFS)	5.2	PEAK ELEVATION(FEET)	300.49
----------------	-------	---------------------	-----	----------------------	--------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.01 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	12.04	PEAK DISCHARGE(CFS)	50.3	PEAK ELEVATION(FEET)	(RUNOFF)
----------------	-------	---------------------	------	----------------------	----------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.41 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
 TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
 FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

BASE124.OUT

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.30	16.8	292.96
13.74	3.1	287.70

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.41 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.45	21.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.52 WATERSHED INCHES; 56 CFS-HRS; 4.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 52

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	84.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.37 WATERSHED INCHES; 69 CFS-HRS; 5.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.04	101.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.44 WATERSHED INCHES; 125 CFS-HRS; 10.3 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	76.9	248.56

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.44 WATERSHED INCHES; 125 CFS-HRS; 10.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	20.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.82 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

BASE124.OUT

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.22                                      3.9    264.92

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.82 WATERSHED INCHES;                      14 CFS-HRS;                      1.2 ACRE-FEET.

OPERATION REACH      XSECTION 72

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.42                                      3.9    247.57

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4      VERSION  
 07/05/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 08:44:52                      PASS 2      JOB NO. 1                      PAGE 53

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.82 WATERSHED INCHES;                      14 CFS-HRS;                      1.2 ACRE-FEET.

OPERATION RUNOFF      XSECTION 73

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.05                                      53.7    (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .68 WATERSHED INCHES;                      48 CFS-HRS;                      4.0 ACRE-FEET.

OPERATION ADDHYD      XSECTION 74

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.55                                      444.3    (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.28 WATERSHED INCHES;                      938 CFS-HRS;                      77.5 ACRE-FEET.

OPERATION ADDHYD      XSECTION 75

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.25                                      80.7    (NULL)

		HYDROGRAPH POINTS FOR      ALTERNATE = 1,      STORM = 2							
		MAIN TIME INCREMENT = .060 hr,				DRAINAGE AREA = .15 SQ.MI.			
HRS	CFS	1.05	1.15	1.26	1.37	1.50	1.63	1.78	1.94
9.96	CFS	.47	.52	.58	.64	.71	.78	.86	.95
10.44	CFS	2.11	2.30	2.51	2.73	2.97	3.23	3.53	3.87
10.92	CFS	4.25	4.69	5.18	5.73	6.39	7.37	9.06	12.16
11.40	CFS	16.87	24.06	34.54	48.95	64.32	76.15	80.60	78.34
11.88	CFS	72.63	66.25	60.32	55.18	50.85	47.20	44.13	41.54
12.36	CFS	39.40	37.64	36.17	34.84	33.64	32.51	31.44	30.43
12.84	CFS	29.48	28.58	27.72	26.70	25.54	24.13	22.48	20.70
13.32	CFS	18.81	17.40	16.26	15.33	14.55	13.85	13.21	12.62
13.80	CFS	12.08	11.60	11.16	10.71	10.27	9.86	9.51	9.21
14.28	CFS	8.95	8.73	8.53	8.35	8.19	7.99	7.77	7.56
14.76	CFS	7.37	7.20	7.06	6.92	6.80	6.69	6.58	6.48
15.24	CFS	6.38	6.29	6.19	6.10	6.01	5.91	5.82	5.73
15.72	CFS	5.64	5.56	5.48	5.40	5.34	5.28	5.23	5.19
16.20	CFS	5.14	5.10	5.06	5.03	4.99	4.96	4.92	4.89
16.68	CFS								



				BASE124.OUT					
17.16	CFS	4.86	4.82	4.79	4.76	4.73	4.70	4.66	4.63
17.64	CFS	4.60	4.57	4.54	4.50	4.47	4.44	4.41	4.37
18.12	CFS	4.34	4.31	4.28	4.24	4.21	4.18	4.15	4.11
18.60	CFS	4.08	4.05	4.01	3.98	3.95	3.92	3.88	3.85
19.08	CFS	3.82	3.78	3.75	3.72	3.68	3.65	3.62	3.58
19.56	CFS	3.55	3.52	3.48	3.45	3.42	3.38	3.35	3.31

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 54

20.04	CFS	3.28	3.25	3.21	3.18	3.15	3.12	3.10	3.08
20.52	CFS	3.06	3.05	3.03	3.02	3.01	3.00	3.00	2.99
21.00	CFS	2.98	2.97	2.96	2.96	2.95	2.94	2.94	2.93
21.48	CFS	2.93	2.92	2.91	2.91	2.90	2.89	2.89	2.88
21.96	CFS	2.88	2.87	2.86	2.86	2.85	2.84	2.84	2.83
22.44	CFS	2.83	2.82	2.81	2.80	2.80	2.79	2.79	2.78
22.92	CFS	2.77	2.77	2.76	2.76	2.75	2.74	2.74	2.73
23.40	CFS	2.72	2.72	2.71	2.70	2.70	2.69	2.68	2.68
23.88	CFS	2.67	2.66	2.66	2.65	2.64	2.58	2.39	2.08
24.36	CFS	1.71	1.36	1.07	.83	.65	.50		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.47 WATERSHED INCHES; 139 CFS-HRS; 11.5 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	15
FLOW(CFS)	17	6	5	4	3	3	1	0

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS) 12.52 PEAK DISCHARGE(CFS) 500.1 PEAK ELEVATION(FEET) (NULL)

HRS	MAIN	TIME	INCREMENT = .060 hr,	ALTERNATE = 1,	STORM = 2	DRAINAGE AREA = 1.28 SQ.MI.			
7.14	CFS	.48	.50	.52	.55	.57	.59	.62	.65
7.62	CFS	.67	.70	.73	.75	.79	.82	.85	.89
8.10	CFS	.92	.95	.98	1.02	1.06	1.09	1.14	1.18
8.58	CFS	1.23	1.28	1.34	1.40	1.46	1.53	1.60	1.68
9.06	CFS	1.76	1.84	1.93	2.03	2.13	2.24	2.34	2.45
9.54	CFS	2.56	2.67	2.79	2.91	3.03	3.16	3.31	3.47
10.02	CFS	3.64	3.83	4.04	4.27	4.52	4.79	5.09	5.41
10.50	CFS	5.75	6.12	6.52	6.94	7.40	7.90	8.44	9.03
10.98	CFS	9.69	10.42	11.22	12.11	13.11	14.23	15.50	16.95
11.46	CFS	18.60	20.49	22.63	25.28	29.30	36.45	50.02	75.16
11.94	CFS	115	163	217	270	322	373	420	458
12.42	CFS	484	498	499	490	474	452	426	399
12.90	CFS	371	343	316	291	267	246	226	209
13.38	CFS	194	180	168	158	148	139	131	124
13.86	CFS	118	112	108	103	100	96	93	90
14.34	CFS	87.66	85.27	83.01	80.90	78.96	77.19	75.59	74.14
14.82	CFS	72.81	71.60	70.48	69.43	68.40	67.39	66.43	65.52
15.30	CFS	64.66	63.84	63.04	62.28	61.53	60.80	60.07	59.36
15.78	CFS	58.66	57.96	57.26	56.56	55.87	55.18	54.49	53.82
16.26	CFS	53.16	52.51	51.89	51.29	50.72	50.17	49.66	49.17
16.74	CFS	48.72	48.29	47.89	47.50	47.14	46.79	46.46	46.14
17.22	CFS	45.82	45.51	45.21	44.90	44.60	44.31	44.01	43.72
17.70	CFS	43.42	43.13	42.83	42.54	42.25	41.96	41.67	41.38
18.18	CFS	41.08	40.79	40.50	40.21	39.92	39.63	39.34	39.05
18.66	CFS	38.76	38.48	38.20	37.91	37.64	37.36	37.08	36.80
19.14	CFS	36.53	36.25	35.97	35.69	35.42	35.14	34.86	34.59

BASE124.OUT

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 55

19.62	CFS	34.31	34.04	33.77	33.49	33.22	32.95	32.67	32.40
20.10	CFS	32.13	31.86	31.60	31.34	31.09	30.86	30.63	30.42
20.58	CFS	30.22	30.04	29.86	29.70	29.54	29.40	29.26	29.12
21.06	CFS	28.99	28.86	28.73	28.61	28.49	28.37	28.25	28.13
21.54	CFS	28.02	27.91	27.80	27.69	27.58	27.47	27.36	27.26
22.02	CFS	27.15	27.05	26.95	26.85	26.74	26.65	26.55	26.45
22.50	CFS	26.35	26.26	26.16	26.07	25.97	25.88	25.79	25.70
22.98	CFS	25.61	25.52	25.43	25.34	25.25	25.16	25.07	24.98
23.46	CFS	24.89	24.80	24.71	24.62	24.53	24.45	24.36	24.27
23.94	CFS	24.18	24.09	23.89	23.42	22.80	22.07	21.17	20.11
24.42	CFS	18.91	17.61	16.23	14.84	13.47	12.17	10.97	9.90
24.90	CFS	8.98	8.19	7.53	6.97	6.50	6.12	5.80	5.53
25.38	CFS	5.31	5.11	4.95	4.80	4.68	4.56	4.45	4.35
25.86	CFS	4.26	4.17	4.09	4.00	3.92	3.85	3.77	3.70
26.34	CFS	3.62	3.55	3.49	3.42	3.36	3.29	3.23	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.30 WATERSHED INCHES; 1077 CFS-HRS; 89.0 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	111	57	43	34	28	25	9	4

DURATION(HRS) 16  
 FLOW(CFS) 3 TRUNCATED

OPERATION REACH XSECTION 77

PEAK TIME(HRS) 12.59 PEAK DISCHARGE(CFS) 499.2 PEAK ELEVATION(FEET) 229.32

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.30 WATERSHED INCHES; 1076 CFS-HRS; 89.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS) 12.03 PEAK DISCHARGE(CFS) 42.3 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.03 WATERSHED INCHES; 34 CFS-HRS; 2.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS) 12.58 PEAK DISCHARGE(CFS) 505.1 PEAK ELEVATION(FEET) (NULL)

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 56

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.33 SQ.MI.  
 Page 58

BASE124.OUT									
7.20	CFS	.48	.50	.52	.54	.56	.59	.61	.64
7.68	CFS	.67	.70	.72	.75	.79	.82	.85	.88
8.16	CFS	.91	.95	.98	1.01	1.05	1.09	1.13	1.17
8.64	CFS	1.22	1.27	1.33	1.39	1.45	1.52	1.59	1.67
9.12	CFS	1.75	1.83	1.92	2.02	2.12	2.22	2.33	2.43
9.60	CFS	2.55	2.66	2.77	2.89	3.01	3.14	3.29	3.44
10.08	CFS	3.62	3.80	4.01	4.24	4.48	4.75	5.04	5.36
10.56	CFS	5.70	6.07	6.46	6.88	7.34	7.83	8.38	9.00
11.04	CFS	9.69	10.46	11.32	12.28	13.36	14.57	15.95	17.51
11.52	CFS	19	22	25	29	36	48	70	106
12.00	CFS	151	198	241	283	329	377	423	460
12.48	CFS	488	502	505	497	481	459	434	407
12.96	CFS	379	351	324	298	274	252	232	215
13.44	CFS	199	185	173	162	152	143	135	127
13.92	CFS	121	115	111	106	102	99	96	93
14.40	CFS	90.21	87.77	85.47	83.31	81.32	79.51	77.86	76.37
14.88	CFS	75.00	73.74	72.59	71.50	70.44	69.41	68.42	67.48
15.36	CFS	66.59	65.73	64.91	64.12	63.34	62.58	61.84	61.10
15.84	CFS	60.37	59.64	58.92	58.19	57.47	56.76	56.06	55.38
16.32	CFS	54.70	54.05	53.41	52.80	52.22	51.66	51.14	50.64
16.80	CFS	50.17	49.73	49.31	48.92	48.54	48.19	47.84	47.51
17.28	CFS	47.18	46.86	46.55	46.24	45.93	45.62	45.32	45.01
17.76	CFS	44.71	44.41	44.11	43.80	43.50	43.20	42.90	42.60
18.24	CFS	42.30	42.00	41.70	41.40	41.10	40.80	40.50	40.20
18.72	CFS	39.91	39.61	39.32	39.03	38.74	38.45	38.17	37.88
19.20	CFS	37.59	37.30	37.02	36.73	36.44	36.16	35.87	35.59
19.68	CFS	35.30	35.02	34.74	34.45	34.17	33.89	33.61	33.32
20.16	CFS	33.05	32.77	32.51	32.25	32.00	31.76	31.53	31.32
20.64	CFS	31.11	30.92	30.75	30.58	30.42	30.27	30.13	29.99
21.12	CFS	29.85	29.72	29.60	29.47	29.35	29.23	29.11	28.99
21.60	CFS	28.87	28.76	28.64	28.53	28.42	28.31	28.20	28.10
22.08	CFS	27.99	27.88	27.78	27.68	27.57	27.47	27.37	27.27
22.56	CFS	27.17	27.08	26.98	26.88	26.79	26.69	26.60	26.51
23.04	CFS	26.41	26.32	26.23	26.14	26.05	25.96	25.87	25.78
23.52	CFS	25.69	25.59	25.50	25.41	25.32	25.23	25.14	25.05
24.00	CFS	24.96	24.79	24.39	23.73	23.00	22.22	21.32	20.26
24.48	CFS	19.07	17.79	16.43	15.04	13.66	12.35	11.14	10.06
24.96	CFS	9.11	8.31	7.62	7.05	6.57	6.17	5.84	5.57
25.44	CFS	5.34	5.14	4.97	4.82	4.69	4.58	4.47	4.37
25.92	CFS	4.27	4.18	4.10	4.01	3.93	3.86	3.78	3.71
26.40	CFS	3.63	3.56	3.50	3.43	3.37	3.30		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.29 WATERSHED INCHES; 1110 CFS-HRS; 91.8 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 57

DURATION(HRS)	2	4	6	8	10	12	14	16	
FLOW(CFS)	114	60	44	35	29	25	9	4	
DURATION(HRS)	16								
FLOW(CFS)	3 TRUNCATED								

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 80. \*\*\*

OPERATION REACH XSECTION 80

BASE124.OUT  
 PEAK TIME(HRS) 12.58 PEAK DISCHARGE(CFS) 505.1 PEAK ELEVATION(FEET) 213.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.29 WATERSHED INCHES; 1110 CFS-HRS; 91.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS) 12.00 PEAK DISCHARGE(CFS) 59.9 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.34 WATERSHED INCHES; 44 CFS-HRS; 3.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS) 12.58 PEAK DISCHARGE(CFS) 511.9 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.29 WATERSHED INCHES; 1155 CFS-HRS; 95.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS) 12.03 PEAK DISCHARGE(CFS) 21.0 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.

HRS	CFS	20.21	15.07	9.84	7.01	5.57	4.74	4.15	3.69
11.58	CFS	.23	.55	1.29	2.67	5.12	10.00	16.50	20.58
12.06	CFS	3.29	2.96	2.72	2.56	2.44	2.35	2.26	2.17
12.54	CFS	2.08	2.00	1.93	1.87	1.82	1.77	1.72	1.68
13.02	CFS	1.63	1.58	1.54	1.50	1.46	1.42	1.39	1.35
13.50	CFS	1.32	1.28	1.25	1.23	1.21	1.19	1.18	1.17

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 58

14.46	CFS	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.07
14.94	CFS	1.06	1.05	1.04	1.02	1.01	1.00	.99	.97
15.42	CFS	.96	.95	.94	.92	.91	.90	.88	.87
15.90	CFS	.86	.84	.83	.82	.81	.80	.79	.79
16.38	CFS	.78	.78	.77	.77	.77	.76	.76	.75
16.86	CFS	.75	.74	.74	.73	.73	.73	.72	.72
17.34	CFS	.71	.71	.70	.70	.69	.69	.68	.68
17.82	CFS	.67	.67	.67	.66	.66	.65	.65	.64
18.30	CFS	.64	.63	.63	.62	.62	.61	.61	.60
18.78	CFS	.60	.59	.59	.58	.58	.57	.57	.56
19.26	CFS	.56	.55	.55	.54	.54	.53	.53	.52
19.74	CFS	.52	.51	.50	.50				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .85 WATERSHED INCHES; 17 CFS-HRS; 1.4 ACRE-FEET.

DURATION(HRS) 2 4 6 8 8  
 FLOW(CFS) 1 1 1 1 0

BASE124.OUT

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS) 12.58 PEAK DISCHARGE(CFS) 514.9 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 1.28 WATERSHED INCHES; 1172 CFS-HRS; 96.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS) 12.10 PEAK DISCHARGE(CFS) 71.5 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .12 SQ.MI.

HRS	CFS	11.40	11.88	12.36	12.84	13.32	13.80	14.28	14.76	15.24	15.72	16.20	16.68	17.16	17.64	18.12	
		.34	.53	.79	1.21	2.00	3.75	7.07	12.99	23.59	39.12	56.62	69.02	70.93	62.37	50.27	39.32
		31.32	25.87	21.92	18.83	16.44	14.51	13.01	11.88	11.00	10.32	9.75	9.28	8.88	8.52	8.20	7.91
		7.66	7.43	7.22	7.01	6.80	6.61	6.42	6.25	6.08	5.92	5.77	5.62	5.47	5.33	5.20	5.09
		5.00	4.92	4.86	4.80	4.74	4.69	4.64	4.59	4.54	4.49	4.44	4.39	4.34	4.29	4.24	4.19
		4.14	4.09	4.04	3.98	3.93	3.88	3.83	3.77	3.72	3.67	3.61	3.56	3.51	3.45	3.40	3.35
		3.30	3.27	3.24	3.21	3.19	3.17	3.15	3.13	3.11	3.09	3.07	3.06	3.04	3.02	3.00	2.98
		2.96	2.94	2.93	2.91	2.89	2.87	2.85	2.83	2.81	2.79	2.77	2.75	2.74	2.72	2.70	2.68
		2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52								

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 2 JOB NO. 1 PAGE 59

18.60	CFS	2.50	2.48	2.46	2.44	2.42	2.40	2.38	2.36
19.08	CFS	2.34	2.32	2.30	2.28	2.26	2.24	2.21	2.19
19.56	CFS	2.17	2.15	2.13	2.11	2.09	2.07	2.05	2.03
20.04	CFS	2.01	1.99	1.97	1.95	1.94	1.93	1.93	1.92
20.52	CFS	1.92	1.91	1.91	1.90	1.90	1.90	1.89	1.89
21.00	CFS	1.89	1.88	1.88	1.88	1.87	1.87	1.87	1.86
21.48	CFS	1.86	1.85	1.85	1.85	1.84	1.84	1.84	1.83
21.96	CFS	1.83	1.83	1.82	1.82	1.81	1.81	1.81	1.80
22.44	CFS	1.80	1.80	1.79	1.79	1.78	1.78	1.78	1.77
22.92	CFS	1.77	1.77	1.76	1.76	1.75	1.75	1.75	1.74
23.40	CFS	1.74	1.74	1.73	1.73	1.72	1.72	1.72	1.71
23.88	CFS	1.71	1.70	1.70	1.64	1.45	1.13	.79	.51
24.36	CFS	.32							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) .94 WATERSHED INCHES; 72 CFS-HRS; 6.0 ACRE-FEET.

DURATION(HRS) 2 4 6 8 10 12 13  
 FLOW(CFS) 6 4 3 2 2 2 0

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS) 12.56 PEAK DISCHARGE(CFS) 532.7 PEAK ELEVATION(FEET) (NULL)

BASE124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.26 WATERSHED INCHES; 1244 CFS-HRS; 102.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.97 28.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.98 WATERSHED INCHES; 20 CFS-HRS; 1.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.56 535.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.26 WATERSHED INCHES; 1264 CFS-HRS; 104.5 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 3 JOB NO. 1 PAGE 60

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 88  
STARTING TIME = .00 RAIN DEPTH = 4.94 RAIN DURATION = 1.00  
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS  
ALTERNATE NO. = 1 STORM NO. =10 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.13 57.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.79 WATERSHED INCHES; 61 CFS-HRS; 5.0 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.20 57.0 390.37

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.79 WATERSHED INCHES; 61 CFS-HRS; 5.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.11 107.5 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.89 WATERSHED INCHES; 108 CFS-HRS; 8.9 ACRE-FEET.

BASE124.OUT

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.14 160.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.85 WATERSHED INCHES; 169 CFS-HRS; 13.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 11

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 61

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.16 158.7 383.46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.85 WATERSHED INCHES; 168 CFS-HRS; 13.9 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.23 157.8 368.56

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.85 WATERSHED INCHES; 168 CFS-HRS; 13.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.12 123.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.48 WATERSHED INCHES; 128 CFS-HRS; 10.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.18 270.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.68 WATERSHED INCHES; 296 CFS-HRS; 24.5 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.25 268.7 358.07

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.68 WATERSHED INCHES; 296 CFS-HRS; 24.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

BASE124.OUT

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	158.1	(RUNOFF)

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 3 JOB NO. 1 PAGE 62

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.67 WATERSHED INCHES; 174 CFS-HRS; 14.4 ACRE-FEET.

\*\*\* MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE  
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00. \*\*\*  
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME.

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.50	57.6	376.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.31 WATERSHED INCHES; 157 CFS-HRS; 12.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.97	19.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.17 WATERSHED INCHES; 14 CFS-HRS; 1.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.63	52.7	355.74

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.30 WATERSHED INCHES; 156 CFS-HRS; 12.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	102.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.24 WATERSHED INCHES; 82 CFS-HRS; 6.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	311.3	(NULL)

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 3 JOB NO. 1 PAGE 63



BASE124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.57 WATERSHED INCHES; 378 CFS-HRS; 31.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.04 41.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.75 WATERSHED INCHES; 34 CFS-HRS; 2.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.21 318.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.74 WATERSHED INCHES; 534 CFS-HRS; 44.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.20 342.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.74 WATERSHED INCHES; 568 CFS-HRS; 46.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.20 342.8 (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10									
HRS	MAIN	TIME	INCREMENT =	.060	hr,	DRAINAGE	AREA =	.32	SQ.MI.
5.46	CFS	.00	.01	.01	.01	.01	.01	.01	.01
5.94	CFS	.01	.02	.02	.02	.02	.02	.02	.03
6.42	CFS	.03	.03	.03	.03	.04	.04	.04	.04
6.90	CFS	.05	.05	.05	.05	.06	.06	.06	.07
7.38	CFS	.07	.07	.08	.08	.09	.10	.11	.13
7.86	CFS	.14	.15	.17	.19	.20	.22	.24	.26
8.34	CFS	.28	.31	.33	.36	.39	.43	.47	.52
8.82	CFS	.58	.65	.72	.80	.88	.96	1.06	1.16
9.30	CFS	1.27	1.39	1.50	1.62	1.74	1.87	2.00	2.13
9.78	CFS	2.28	2.43	2.59	2.77	2.95	3.14	3.35	3.57
10.26	CFS	3.81	4.06	4.33	4.62	4.92	5.24	5.59	5.97
10.74	CFS	6.37	6.82	7.30	7.81	8.36	8.95	9.60	10.33

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 64

11.22	CFS	11.17	12.14	13.32	14.69	16.22	18.00	22.66	29.93
11.70	CFS	41	59	86	128	186	243	283	320
12.18	CFS	342	335	319	293	261	231	203	180
12.66	CFS	160	147	136	126	116	107	98	91
13.14	CFS	84.28	78.44	73.31	68.81	64.86	61.37	58.27	55.49

BASE124.OUT

13.62	CFS	52.99	50.74	48.69	46.82	45.10	43.50	42.01	40.60
14.10	CFS	39.30	38.09	36.98	35.98	35.16	34.50	33.94	33.47
14.58	CFS	33.06	32.68	32.34	32.02	31.71	31.42	31.14	30.86
15.06	CFS	30.58	30.31	30.04	29.77	29.51	29.24	28.97	28.70
15.54	CFS	28.43	28.16	27.89	27.62	27.35	27.07	26.80	26.53
16.02	CFS	26.25	25.98	25.72	25.47	25.24	25.02	24.83	24.64
16.50	CFS	24.47	24.31	24.16	24.02	23.89	23.76	23.64	23.52
16.98	CFS	23.40	23.28	23.16	23.04	22.92	22.80	22.69	22.57
17.46	CFS	22.45	22.33	22.21	22.09	21.97	21.85	21.73	21.61
17.94	CFS	21.49	21.37	21.24	21.12	21.00	20.88	20.76	20.64
18.42	CFS	20.52	20.40	20.27	20.15	20.03	19.91	19.79	19.66
18.90	CFS	19.54	19.42	19.30	19.17	19.05	18.93	18.80	18.68
19.38	CFS	18.56	18.43	18.31	18.19	18.06	17.94	17.81	17.69
19.86	CFS	17.57	17.44	17.32	17.19	17.07	16.96	16.85	16.75
20.34	CFS	16.65	16.57	16.49	16.42	16.35	16.29	16.23	16.16
20.82	CFS	16.09	16.02	15.95	15.88	15.81	15.74	15.67	15.60
21.30	CFS	15.54	15.47	15.40	15.34	15.27	15.21	15.14	15.08
21.78	CFS	15.01	14.95	14.88	14.82	14.76	14.70	14.64	14.58
22.26	CFS	14.51	14.45	14.39	14.33	14.27	14.22	14.16	14.10
22.74	CFS	14.04	13.98	13.93	13.87	13.81	13.76	13.70	13.64
23.22	CFS	13.59	13.53	13.48	13.42	13.37	13.32	13.26	13.21
23.70	CFS	13.16	13.11	13.05	13.00	12.95	12.89	12.69	12.10
24.18	CFS	11.30	10.51	9.78	9.22	8.77	8.41	8.12	7.86
24.66	CFS	7.64	7.45	7.26	7.09	6.93	6.77	6.62	6.47
25.14	CFS	6.33	6.19	6.05	5.92	5.79	5.67	5.55	5.43
25.62	CFS	5.31	5.19	5.08	4.97	4.87	4.76	4.65	4.53
26.10	CFS	4.42	4.30	4.19	4.08	3.98	3.87	3.77	3.67
26.58	CFS	3.57	3.48	3.39	3.30	3.21	3.13	3.04	2.96
27.06	CFS	2.89	2.81	2.74	2.66	2.59	2.53	2.46	2.39
27.54	CFS	2.33	2.27	2.21	2.15	2.10	2.04	1.99	1.93
28.02	CFS	1.88	1.83	1.79					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.74 WATERSHED INCHES; 568 CFS-HRS; 46.9 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	48	28	22	18	15	13	7	4

DURATION(HRS)	18	19
FLOW(CFS)	2	2 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. \*\*\*

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 65

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.20	342.8	333.76

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.74 WATERSHED INCHES; 568 CFS-HRS; 46.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

11.98

BASE124.OUT  
64.5

(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.60 WATERSHED INCHES; 49 CFS-HRS; 4.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 118

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.01 79.2 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.16 WATERSHED INCHES; 68 CFS-HRS; 5.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 24

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.01 79.2 (NULL)

		HYDROGRAPH POINTS FOR				ALTERNATE = 1,		STORM = 10	
HRS	CFS	MAIN TIME	INCREMENT =	.060 hr,	DRAINAGE AREA =		.03 SQ.MI.		
2.70	CFS	.00	.01	.01	.02	.03	.04	.05	.06
3.18	CFS	.07	.08	.09	.10	.11	.12	.13	.14
3.66	CFS	.15	.16	.17	.18	.19	.20	.21	.22
4.14	CFS	.23	.24	.25	.27	.28	.29	.30	.31
4.62	CFS	.32	.33	.35	.36	.37	.38	.39	.41
5.10	CFS	.42	.43	.44	.46	.47	.48	.49	.51
5.58	CFS	.52	.53	.54	.56	.57	.58	.60	.61
6.06	CFS	.62	.63	.65	.66	.67	.69	.70	.71
6.54	CFS	.73	.74	.75	.77	.78	.79	.81	.82
7.02	CFS	.83	.85	.86	.87	.89	.90	.91	.93
7.50	CFS	.94	.95	.97	.98	.99	1.01	1.02	1.04
7.98	CFS	1.05	1.06	1.08	1.10	1.13	1.16	1.20	1.24
8.46	CFS	1.28	1.32	1.36	1.40	1.44	1.48	1.52	1.56
8.94	CFS	1.61	1.65	1.69	1.73	1.76	1.78	1.80	1.81
9.42	CFS	1.82	1.84	1.85	1.87	1.90	1.94	2.00	2.06

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 66

9.90	CFS	2.12	2.19	2.26	2.33	2.41	2.50	2.59	2.69
10.38	CFS	2.79	2.89	3.00	3.11	3.23	3.36	3.52	3.68
10.86	CFS	3.85	4.02	4.20	4.39	4.60	4.86	5.19	5.55
11.34	CFS	5.95	6.36	6.78	7.30	8.70	11.89	17.48	25.46
11.82	CFS	36.22	50.98	68.77	78.79	75.10	58.57	40.05	27.11
12.30	CFS	20.01	15.80	13.09	11.18	9.67	8.49	7.60	6.98
12.78	CFS	6.57	6.23	5.95	5.68	5.43	5.19	4.98	4.79
13.26	CFS	4.63	4.48	4.35	4.21	4.08	3.95	3.82	3.71
13.74	CFS	3.60	3.50	3.41	3.31	3.22	3.12	3.04	2.97
14.22	CFS	2.91	2.87	2.83	2.79	2.76	2.72	2.69	2.66
14.70	CFS	2.62	2.59	2.56	2.52	2.49	2.46	2.43	2.39
15.18	CFS	2.36	2.33	2.29	2.26	2.23	2.20	2.16	2.13
15.66	CFS	2.10	2.06	2.03	2.00	1.97	1.93	1.90	1.87
16.14	CFS	1.84	1.82	1.80	1.79	1.78	1.76	1.75	1.74
16.62	CFS	1.73	1.71	1.70	1.69	1.68	1.67	1.66	1.64
17.10	CFS	1.63	1.62	1.61	1.60	1.59	1.57	1.56	1.55
17.58	CFS	1.54	1.53	1.51	1.50	1.49	1.48	1.47	1.46
18.06	CFS	1.44	1.43	1.42	1.41	1.40	1.39	1.37	1.36
18.54	CFS	1.35	1.34	1.33	1.31	1.30	1.29	1.28	1.27
19.02	CFS	1.26	1.24	1.23	1.22	1.21	1.20	1.19	1.17

				BASE124.OUT					
19.50	CFS	1.16	1.15	1.14	1.13	1.11	1.10	1.09	1.08
19.98	CFS	1.07	1.06	1.04	1.04	1.03	1.03	1.02	1.02
20.46	CFS	1.02	1.01	1.01	1.01	1.01	1.01	1.00	1.00
20.94	CFS	1.00	1.00	.99	.99	.99	.99	.98	.98
21.42	CFS	.98	.98	.97	.97	.97	.97	.97	.96
21.90	CFS	.96	.96	.96	.95	.95	.95	.95	.94
22.38	CFS	.94	.94	.94	.93	.93	.93	.93	.93
22.86	CFS	.92	.92	.92	.92	.91	.91	.91	.91
23.34	CFS	.90	.90	.90	.90	.89	.89	.89	.89
23.82	CFS	.89	.88	.88	.88	.81	.61	.36	.18
24.30	CFS	.09	.05	.02	.01	.01	.00		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.16 WATERSHED INCHES; 68 CFS-HRS; 5.6 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	5	3	2	2	1	1	1	1

DURATION(HRS)	18	19
FLOW(CFS)	1	0

OPERATION RUNOFF XSECTION 119

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	18.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.42 WATERSHED INCHES; 13 CFS-HRS; 1.1 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 67

OPERATION ADDHYD XSECTION 120

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	96.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.02 WATERSHED INCHES; 81 CFS-HRS; 6.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	160.0	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.85 WATERSHED INCHES; 130 CFS-HRS; 10.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.99	113.0	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.26 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

BASE124.OUT

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.99 272.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.59 WATERSHED INCHES; 215 CFS-HRS; 17.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.04 524.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.92 WATERSHED INCHES; 779 CFS-HRS; 64.3 ACRE-FEET.

OPERATION REACH XSECTION 23

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 68

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.18 473.3 316.36

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.92 WATERSHED INCHES; 778 CFS-HRS; 64.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.09 85.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.53 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
 TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
 FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.16 80.3 363.97

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.53 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.11 121.4 (RUNOFF)

BASE124.OUT  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.48 WATERSHED INCHES; 120 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.13 199.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.50 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 3 JOB NO. 1 PAGE 69

OPERATION REACH XSECTION 27

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.24 180.2 319.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.50 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.09 85.5 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.10 WATERSHED INCHES; 81 CFS-HRS; 6.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.15 553.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.81 WATERSHED INCHES; 860 CFS-HRS; 71.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.19 716.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.75 WATERSHED INCHES; 1062 CFS-HRS; 87.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 156.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.06 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

BASE124.OUT

OPERATION REACH XSECTION 32

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 70

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.15 142.1 313.19  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.06 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.99 28.1 (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.35 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS  
 WITH .38 AC-FT ( .07 WATERSHED INCHES) FLOOD STORAGE \*\*\*  
 REMAINING IN RESERVOIR AT ELEV. 377.43.

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.18 12.8 380.27  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.51 WATERSHED INCHES; 19 CFS-HRS; 1.6 ACRE-FEET.

OPERATION REACH XSECTION 34

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.24 12.7 338.17  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.50 WATERSHED INCHES; 19 CFS-HRS; 1.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.03 84.6 (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.35 WATERSHED INCHES; 77 CFS-HRS; 6.4 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 71

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS  
 WITH .95 AC-FT ( .05 WATERSHED INCHES) FLOOD STORAGE  
 Page 71

BASE124.OUT  
REMAINING IN RESERVOIR AT ELEV. 353.80.

\*\*\*

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 64.4 PEAK ELEVATION(FEET) 357.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.70 WATERSHED INCHES; 66 CFS-HRS; 5.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS) 12.17 PEAK DISCHARGE(CFS) 71.6 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.66 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS) 12.17 PEAK DISCHARGE(CFS) 71.6 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.66 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. \*\*\*

OPERATION REACH XSECTION 37

PEAK TIME(HRS) 12.17 PEAK DISCHARGE(CFS) 71.6 PEAK ELEVATION(FEET) 330.63

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.66 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 138

PEAK TIME(HRS) 11.97 PEAK DISCHARGE(CFS) 91.1 PEAK ELEVATION(FEET) (RUNOFF)

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 3 JOB NO. 1 PAGE 72

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.80 WATERSHED INCHES; 69 CFS-HRS; 5.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 139

PEAK TIME(HRS) 12.04 PEAK DISCHARGE(CFS) 127.1 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
Page 72



BASE124.OUT  
 3.72 WATERSHED INCHES; 153 CFS-HRS; 12.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 35

PEAK TIME(HRS) 12.04 PEAK DISCHARGE(CFS) 127.1 PEAK ELEVATION(FEET) (NULL)

		HYDROGRAPH POINTS FOR				ALTERNATE = 1,		STORM =10		
HRS		MAIN	TIME	INCREMENT =	.060 hr,		DRAINAGE AREA =			
									.06 SQ.MI.	
2.88	CFS	.00	.01	.01	.01	.01	.01	.01	.01	
3.36	CFS	.01	.01	.01	.02	.02	.03	.03	.03	
3.84	CFS	.03	.03	.04	.05	.06	.07	.09	.10	
4.32	CFS	.11	.12	.13	.15	.16	.17	.19	.20	
4.80	CFS	.22	.23	.24	.26	.27	.29	.30	.32	
5.28	CFS	.33	.35	.36	.38	.40	.41	.43	.44	
5.76	CFS	.46	.48	.50	.51	.53	.55	.56	.58	
6.24	CFS	.60	.62	.64	.66	.67	.69	.71	.73	
6.72	CFS	.75	.77	.79	.81	.83	.85	.86	.88	
7.20	CFS	.90	.92	.95	.97	.98	1.01	1.03	1.05	
7.68	CFS	1.07	1.09	1.11	1.13	1.15	1.17	1.20	1.22	
8.16	CFS	1.25	1.29	1.33	1.38	1.42	1.46	1.51	1.56	
8.64	CFS	1.60	1.65	1.70	1.75	1.80	1.85	1.91	1.96	
9.12	CFS	2.00	2.04	2.07	2.10	2.12	2.15	2.18	2.21	
9.60	CFS	2.25	2.30	2.37	2.44	2.52	2.60	2.68	2.76	
10.08	CFS	2.85	2.95	3.05	3.17	3.28	3.40	3.52	3.65	
10.56	CFS	3.78	3.93	4.10	4.28	4.48	4.68	4.88	5.09	
11.04	CFS	5.31	5.60	5.93	6.34	6.78	7.23	7.71	8.19	
11.52	CFS	9	11	17	26	38	54	80	108	
12.00	CFS	123	126	113	98	84	69	58	50	
12.48	CFS	42.98	36.95	32.59	30.28	28.27	26.45	24.78	23.25	
12.96	CFS	21.84	20.53	19.33	18.26	17.35	16.55	15.80	15.10	
13.44	CFS	14.45	13.83	13.26	12.72	12.22	11.76	11.32	10.91	
13.92	CFS	10.52	10.14	9.79	9.50	9.24	9.00	8.79	8.59	
14.40	CFS	8.40	8.22	8.05	7.89	7.74	7.59	7.45	7.32	
14.88	CFS	7.19	7.09	6.98	6.88	6.79	6.69	6.60	6.51	
15.36	CFS	6.42	6.33	6.24	6.16	6.07	5.99	5.91	5.82	
15.84	CFS	5.74	5.66	5.58	5.50	5.43	5.36	5.30	5.25	
16.32	CFS	5.20	5.15	5.10	5.05	5.01	4.97	4.92	4.89	
16.80	CFS	4.85	4.81	4.77	4.74	4.70	4.67	4.64	4.61	

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 73

17.28	CFS	4.58	4.56	4.52	4.50	4.47	4.44	4.41	4.38
17.76	CFS	4.35	4.32	4.29	4.27	4.24	4.21	4.18	4.15
18.24	CFS	4.12	4.10	4.07	4.04	4.01	3.98	3.95	3.92
18.72	CFS	3.90	3.87	3.84	3.81	3.78	3.75	3.72	3.70
19.20	CFS	3.67	3.64	3.61	3.58	3.55	3.52	3.50	3.47
19.68	CFS	3.44	3.41	3.38	3.35	3.32	3.30	3.27	3.24
20.16	CFS	3.22	3.20	3.18	3.16	3.15	3.13	3.12	3.10
20.64	CFS	3.09	3.07	3.06	3.04	3.03	3.02	3.01	3.00
21.12	CFS	2.98	2.97	2.96	2.95	2.94	2.93	2.92	2.91
21.60	CFS	2.90	2.89	2.88	2.87	2.86	2.85	2.84	2.84
22.08	CFS	2.83	2.82	2.81	2.80	2.79	2.78	2.77	2.77
22.56	CFS	2.76	2.75	2.74	2.74	2.73	2.72	2.71	2.70
23.04	CFS	2.69	2.69	2.68	2.67	2.66	2.66	2.65	2.64
23.52	CFS	2.63	2.63	2.62	2.61	2.60	2.59	2.59	2.58
24.00	CFS	2.57	2.42	2.03	1.77	1.67	1.62	1.60	1.58
24.48	CFS	1.57	1.57	1.56	1.55	1.54	1.53	1.52	1.52
24.96	CFS	1.51	1.50	1.49	1.48	1.48	1.47	1.46	1.45

BASE124.OUT  
 25.44 CFS      1.44      1.44      1.43      1.42      1.41      1.41      1.40  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                          3.72 WATERSHED INCHES;      153 CFS-HRS;      12.7 ACRE-FEET.  
 DURATION(HRS)    2      4      6      8      10      12      14      16  
 FLOW(CFS)        13      7      5      4      3      3      3      2  
 DURATION(HRS)    17  
 FLOW(CFS)        1 TRUNCATED

OPERATION RUNOFF    XSECTION 140

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
                          11.98                                      6.6                                      (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                          1.55 WATERSHED INCHES;      5 CFS-HRS;      .4 ACRE-FEET.

OPERATION ADDHYD    XSECTION 141

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
                          12.04                                      133.0                                      (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                          3.57 WATERSHED INCHES;      158 CFS-HRS;      13.1 ACRE-FEET.

OPERATION RUNOFF    XSECTION 40

1  
 TR20 ----- SCS -  
                          Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4      VERSION  
 07/05/\*\*                                      Run for 1,2,10,50,100YR STORMS      2.04TEST  
 08:44:52                                      PASS 3      JOB NO. 1      PAGE 74

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
                          12.11                                      73.3                                      (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                          2.89 WATERSHED INCHES;      73 CFS-HRS;      6.1 ACRE-FEET.

OPERATION ADDHYD    XSECTION 41

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
                          12.18                                      783.1                                      (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                          2.76 WATERSHED INCHES;      1135 CFS-HRS;      93.8 ACRE-FEET.

OPERATION ADDHYD    XSECTION 42

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
                          12.17                                      924.1                                      (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                          2.79 WATERSHED INCHES;      1272 CFS-HRS;      105.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 43  
 PEAK TIME(HRS) 12.16 PEAK DISCHARGE(CFS) 1028.0 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.85 WATERSHED INCHES; 1427 CFS-HRS; 117.9 ACRE-FEET.

OPERATION REACH XSECTION 44  
 PEAK TIME(HRS) 12.26 PEAK DISCHARGE(CFS) 979.8 PEAK ELEVATION(FEET) 291.23  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.85 WATERSHED INCHES; 1426 CFS-HRS; 117.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45  
 PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 71.1 PEAK ELEVATION(FEET) (RUNOFF)

1 TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 3 JOB NO. 1 PAGE 75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.48 WATERSHED INCHES; 76 CFS-HRS; 6.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 46  
 PEAK TIME(HRS) 12.15 PEAK DISCHARGE(CFS) 83.5 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.30 WATERSHED INCHES; 93 CFS-HRS; 7.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 47  
 PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 154.6 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.37 WATERSHED INCHES; 169 CFS-HRS; 14.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 48  
 PEAK TIME(HRS) 12.04 PEAK DISCHARGE(CFS) 99.6 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.76 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 49  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.25 BASE124.OUT (NULL)  
1019.6

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.84 WATERSHED INCHES; 1510 CFS-HRS; 124.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.23 1156.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.79 WATERSHED INCHES; 1679 CFS-HRS; 138.7 ACRE-FEET.

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 3 JOB NO. 1 PAGE 76

OPERATION REACH XSECTION 51

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.33 1120.0 286.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.79 WATERSHED INCHES; 1678 CFS-HRS; 138.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.02 6.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.02 WATERSHED INCHES; 6 CFS-HRS; .5 ACRE-FEET.

\*\*\* WARNING - XSECTION 53, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN  
2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,  
UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

OPERATION REACH XSECTION 53

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.10 6.6 288.36

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.02 WATERSHED INCHES; 6 CFS-HRS; .5 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.08 4.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.95 WATERSHED INCHES; 4 CFS-HRS; .4 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

BASE124.OUT  
PEAK TIME(HRS) 12.05 PEAK DISCHARGE(CFS) 57.7 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.33 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 3 JOB NO. 1 PAGE 77

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS) 12.33 PEAK DISCHARGE(CFS) 1138.3 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.77 WATERSHED INCHES; 1727 CFS-HRS; 142.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS) 12.09 PEAK DISCHARGE(CFS) 10.8 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.99 WATERSHED INCHES; 10 CFS-HRS; .8 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS) 12.33 PEAK DISCHARGE(CFS) 1142.0 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.74 WATERSHED INCHES; 1737 CFS-HRS; 143.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS) 12.05 PEAK DISCHARGE(CFS) 44.7 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.22 WATERSHED INCHES; 38 CFS-HRS; 3.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS) 12.33 PEAK DISCHARGE(CFS) 1156.5 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.73 WATERSHED INCHES; 1775 CFS-HRS; 146.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
Page 77

08:44:52

BASE124.OUT  
PASS 3 JOB NO. 1

PAGE 78

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
12.07    27.2    (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.21 WATERSHED INCHES;                      25 CFS-HRS;                      2.0 ACRE-FEET.

OPERATION ADDHYD    XSECTION 62

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
12.32    1167.5    (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.72 WATERSHED INCHES;                      1799 CFS-HRS;                      148.7 ACRE-FEET.

OPERATION REACH    XSECTION 63

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
12.44    1116.5    250.57

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 10  
DRAINAGE AREA = 1.03 SQ.MI.

HRS	MAIN TIME	INCREMENT = .060 hr,							
4.98	CFS	.48	.51	.54	.57	.60	.63	.66	.70
4.98	ELEV	247.16	247.16	247.17	247.17	247.18	247.19	247.19	247.20
5.46	CFS	.73	.76	.80	.83	.87	.91	.94	.98
5.46	ELEV	247.20	247.21	247.22	247.22	247.23	247.24	247.24	247.25
5.94	CFS	1.02	1.06	1.10	1.15	1.19	1.24	1.29	1.34
5.94	ELEV	247.26	247.27	247.27	247.28	247.29	247.30	247.31	247.32
6.42	CFS	1.39	1.45	1.50	1.56	1.61	1.67	1.73	1.79
6.42	ELEV	247.33	247.34	247.35	247.36	247.37	247.38	247.39	247.40
6.90	CFS	1.85	1.92	1.99	2.06	2.14	2.22	2.30	2.38
6.90	ELEV	247.41	247.42	247.42	247.43	247.43	247.44	247.45	247.45
7.38	CFS	2.47	2.56	2.65	2.74	2.84	2.94	3.05	3.15
7.38	ELEV	247.46	247.47	247.47	247.48	247.49	247.50	247.51	247.52
7.86	CFS	3.27	3.38	3.50	3.62	3.75	3.88	4.01	4.14
7.86	ELEV	247.52	247.53	247.54	247.55	247.56	247.57	247.58	247.60
8.34	CFS	4.28	4.43	4.59	4.77	4.96	5.17	5.40	5.65
8.34	ELEV	247.61	247.62	247.63	247.65	247.66	247.68	247.70	247.72
8.82	CFS	5.91	6.21	6.52	6.85	7.21	7.60	8.01	8.44
8.82	ELEV	247.74	247.74	247.75	247.75	247.76	247.77	247.77	247.78
9.30	CFS	8.90	9.37	9.86	10.35	10.83	11.31	11.79	12.27
9.30	ELEV	247.79	247.79	247.80	247.81	247.82	247.82	247.83	247.84
9.78	CFS	12.75	13.24	13.77	14.34	14.96	15.64	16.40	17.21
9.78	ELEV	247.84	247.85	247.86	247.87	247.88	247.89	247.90	247.91
10.26	CFS	18.09	19.04	20.06	21.15	22.32	23.57	24.90	26.32
10.26	ELEV	247.93	247.94	247.96	247.97	247.99	248.01	248.03	248.05
10.74	CFS	27.82	29.43	31.15	32.99	34.98	37.13	39.45	41.94
10.74	ELEV	248.07	248.09	248.11	248.13	248.15	248.17	248.20	248.22
11.22	CFS	44.63	47.56	50.78	54.37	58.39	62.92	68.04	74.14

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4    VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 08:44:52                      PASS 3 JOB NO. 1                      PAGE 79

11.22	ELEV	248.25	248.28	248.32	248.36	248.40	248.44	248.48	248.53
11.70	CFS	82	94	114	147	201	285	402	546
11.70	ELEV	248.60	248.69	248.77	248.90	249.07	249.28	249.53	249.79
12.18	CFS	703	855	982	1072	1113	1106	1060	987

BASE124.OUT

12.18	ELEV	250.03	250.24	250.40	250.51	250.57	250.56	250.50	250.41
12.66	CFS	900	809	720	638	565	502	449	405
12.66	ELEV	250.30	250.17	250.05	249.93	249.82	249.71	249.61	249.53
13.14	CFS	367	335	308	284	263	245	228	214
13.14	ELEV	249.46	249.39	249.33	249.28	249.23	249.19	249.14	249.10
13.62	CFS	201	190	181	172	164	157	151	145
13.62	ELEV	249.07	249.04	249.01	248.99	248.97	248.95	248.92	248.90
14.10	CFS	140	135	130	126	122	119	115	112
14.10	ELEV	248.88	248.85	248.84	248.82	248.80	248.79	248.77	248.76
14.58	CFS	109	107	105	103	101	99	98	96
14.58	ELEV	248.75	248.74	248.73	248.72	248.72	248.71	248.70	248.70
15.06	CFS	94.96	93.75	92.59	91.47	90.38	89.32	88.28	87.24
15.06	ELEV	248.69	248.69	248.68	248.68	248.67	248.67	248.66	248.65
15.54	CFS	86.22	85.20	84.18	83.17	82.16	81.15	80.14	79.13
15.54	ELEV	248.64	248.63	248.62	248.61	248.60	248.60	248.59	248.58
16.02	CFS	78.11	77.10	76.09	75.08	74.09	73.12	72.18	71.28
16.02	ELEV	248.57	248.56	248.55	248.54	248.53	248.53	248.52	248.51
16.50	CFS	70.44	69.65	68.93	68.26	67.65	67.08	66.55	66.06
16.50	ELEV	248.50	248.50	248.49	248.48	248.48	248.47	248.47	248.46
16.98	CFS	65.58	65.13	64.70	64.28	63.86	63.46	63.06	62.67
16.98	ELEV	248.46	248.46	248.45	248.45	248.45	248.44	248.44	248.44
17.46	CFS	62.28	61.90	61.52	61.13	60.75	60.37	59.98	59.60
17.46	ELEV	248.43	248.43	248.43	248.42	248.42	248.42	248.41	248.41
17.94	CFS	59.22	58.83	58.45	58.06	57.68	57.29	56.90	56.52
17.94	ELEV	248.41	248.40	248.40	248.39	248.39	248.39	248.38	248.38
18.42	CFS	56.13	55.74	55.35	54.97	54.58	54.19	53.80	53.41
18.42	ELEV	248.37	248.37	248.37	248.36	248.36	248.35	248.35	248.34
18.90	CFS	53.02	52.63	52.24	51.85	51.46	51.06	50.67	50.28
18.90	ELEV	248.34	248.34	248.33	248.33	248.32	248.32	248.32	248.31
19.38	CFS	49.88	49.49	49.10	48.70	48.31	47.91	47.52	47.12
19.38	ELEV	248.31	248.30	248.30	248.30	248.29	248.29	248.28	248.28
19.86	CFS	46.72	46.33	45.93	45.53	45.14	44.74	44.35	43.97
19.86	ELEV	248.27	248.27	248.27	248.26	248.26	248.25	248.25	248.24
20.34	CFS	43.59	43.24	42.90	42.59	42.31	42.06	41.83	41.62
20.34	ELEV	248.24	248.24	248.23	248.23	248.23	248.22	248.22	248.22
20.82	CFS	41.44	41.27	41.11	40.96	40.83	40.69	40.56	40.43
20.82	ELEV	248.22	248.22	248.21	248.21	248.21	248.21	248.21	248.21
21.30	CFS	40.30	40.17	40.05	39.92	39.79	39.67	39.54	39.42
21.30	ELEV	248.21	248.20	248.20	248.20	248.20	248.20	248.20	248.20
21.78	CFS	39.29	39.17	39.05	38.92	38.80	38.68	38.56	38.44
21.78	ELEV	248.20	248.19	248.19	248.19	248.19	248.19	248.19	248.19
22.26	CFS	38.32	38.20	38.08	37.97	37.85	37.73	37.62	37.50
22.26	ELEV	248.19	248.18	248.18	248.18	248.18	248.18	248.18	248.18
22.74	CFS	37.38	37.27	37.15	37.04	36.92	36.81	36.70	36.58
22.74	ELEV	248.18	248.17	248.17	248.17	248.17	248.17	248.17	248.17

1

TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 3 JOB NO. 1 PAGE 80

23.22	CFS	36.47	36.36	36.25	36.13	36.02	35.91	35.80	35.69
23.22	ELEV	248.17	248.16	248.16	248.16	248.16	248.16	248.16	248.16
23.70	CFS	35.58	35.47	35.36	35.25	35.14	35.03	34.92	34.76
23.70	ELEV	248.16	248.16	248.15	248.15	248.15	248.15	248.15	248.15
24.18	CFS	34.38	33.65	32.49	30.88	28.79	26.33	23.67	21.04
24.18	ELEV	248.14	248.14	248.12	248.11	248.08	248.05	248.01	247.97
24.66	CFS	18.61	16.48	14.70	13.27	12.13	11.24	10.55	10.00
24.66	ELEV	247.93	247.90	247.87	247.85	247.84	247.82	247.81	247.80
25.14	CFS	9.57	9.22	8.92	8.67	8.46	8.26	8.09	7.92
25.14	ELEV	247.80	247.79	247.79	247.78	247.78	247.78	247.77	247.77
25.62	CFS	7.76	7.62	7.47	7.33				
25.62	ELEV	247.77	247.77	247.76	247.76				

BASE124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.72 WATERSHED INCHES; 1799 CFS-HRS; 148.6 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	155	83	62	50	41	37	23	9

DURATION(HRS) 17  
 FLOW(CFS) 7 TRUNCATED

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.19	21.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.44	12.9	334.73

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.55	12.5	300.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 81

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	101.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.84 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
 TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
 FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	42.6	295.61





BASE124.OUT  
 3.37 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.24 15.5 247.89

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.39 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.03 153.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.74 WATERSHED INCHES; 123 CFS-HRS; 10.2 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 83

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.44 1145.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.62 WATERSHED INCHES; 1922 CFS-HRS; 158.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.28 152.7 (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .15 SQ.MI.

HRS	CFS	.46	.50	.54	.59	.63	.68	.73	.79
7.86	CFS	.46	.50	.54	.59	.63	.68	.73	.79
8.34	CFS	.84	.90	.96	1.03	1.10	1.18	1.26	1.34
8.82	CFS	1.43	1.52	1.62	1.72	1.83	1.93	2.05	2.16
9.30	CFS	2.27	2.39	2.49	2.60	2.70	2.80	2.90	3.00
9.78	CFS	3.11	3.22	3.34	3.48	3.62	3.78	3.95	4.13
10.26	CFS	4.32	4.53	4.76	5.00	5.26	5.53	5.82	6.13
10.74	CFS	6.46	6.81	7.20	7.61	8.06	8.55	9.06	9.59
11.22	CFS	10.14	10.75	11.43	12.22	13.11	14.10	15.13	16.28
11.70	CFS	18	21	26	34	45	61	90	118
12.18	CFS	139	151	152	146	136	126	116	107
12.66	CFS	99.40	91.66	84.07	77.18	71.25	66.09	61.62	57.72
13.14	CFS	54.33	51.44	48.98	46.88	45.07	43.51	42.14	40.92
13.62	CFS	39.82	38.81	37.88	37.02	36.21	35.42	34.62	33.80
14.10	CFS	32.97	32.15	31.33	30.50	29.66	28.83	27.91	26.90
14.58	CFS	25.84	24.59	23.28	22.04	20.69	19.59	18.67	17.89
15.06	CFS	17.20	16.57	16.00	15.49	15.02	14.57	14.13	13.72
15.54	CFS	13.33	12.98	12.66	12.38	12.12	11.88	11.66	11.44
16.02	CFS	11.23	11.02	10.82	10.63	10.40	10.16	9.93	9.74
16.50	CFS	9.58	9.44	9.32	9.21	9.11	9.03	8.95	8.87
16.98	CFS	8.80	8.73	8.67	8.60	8.54	8.48	8.42	8.36

BASE124.OUT									
17.46	CFS	8.30	8.24	8.18	8.12	8.06	8.01	7.95	7.89
17.94	CFS	7.83	7.77	7.71	7.66	7.60	7.54	7.48	7.42
18.42	CFS	7.37	7.31	7.25	7.19	7.13	7.07	7.01	6.95
18.90	CFS	6.90	6.84	6.78	6.72	6.66	6.60	6.54	6.48
19.38	CFS	6.42	6.36	6.31	6.25	6.19	6.13	6.07	6.01
19.86	CFS	5.95	5.89	5.83	5.77	5.71	5.65	5.59	5.54
20.34	CFS	5.49	5.45	5.41	5.37	5.34	5.31	5.29	5.27
20.82	CFS	5.25	5.23	5.22	5.20	5.18	5.17	5.16	5.14
21.30	CFS	5.13	5.12	5.11	5.09	5.08	5.07	5.06	5.05
21.78	CFS	5.03	5.02	5.01	5.00	4.99	4.98	4.97	4.95
22.26	CFS	4.94	4.93	4.92	4.91	4.90	4.89	4.87	4.86
22.74	CFS	4.85	4.84	4.83	4.82	4.81	4.79	4.78	4.77
23.22	CFS	4.76	4.75	4.74	4.72	4.71	4.70	4.69	4.68

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 84

23.70	CFS	4.67	4.65	4.64	4.63	4.62	4.61	4.60	4.57
24.18	CFS	4.48	4.21	3.76	3.22	2.70	2.23	1.83	1.49
24.66	CFS	1.21	.98	.79	.63	.50			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.92 WATERSHED INCHES; 276 CFS-HRS; 22.8 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	35	13	9	7	5	5	4	1

DURATION(HRS) 17  
 FLOW(CFS) 0

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS) 12.42 PEAK DISCHARGE(CFS) 1279.8 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10										
DRAINAGE AREA = 1.28 SQ.MI.										
HRS	MAIN	TIME	INCREMENT = .060	hr,						
4.98	CFS	.48	.51	.54	.57	.60	.63	.66	.70	
5.46	CFS	.73	.76	.80	.84	.88	.93	.98	1.02	
5.94	CFS	1.07	1.12	1.17	1.22	1.27	1.33	1.39	1.44	
6.42	CFS	1.50	1.57	1.63	1.70	1.76	1.83	1.89	1.96	
6.90	CFS	2.04	2.11	2.19	2.28	2.36	2.45	2.54	2.64	
7.38	CFS	2.73	2.83	2.94	3.05	3.17	3.30	3.43	3.57	
7.86	CFS	3.72	3.88	4.04	4.21	4.38	4.56	4.74	4.93	
8.34	CFS	5.12	5.33	5.55	5.80	6.06	6.35	6.66	6.99	
8.82	CFS	7.35	7.73	8.14	8.57	9.04	9.53	10.06	10.61	
9.30	CFS	11.17	11.76	12.35	12.95	13.53	14.12	14.69	15.27	
9.78	CFS	15.85	16.46	17.11	17.81	18.58	19.42	20.35	21.34	
10.26	CFS	22.42	23.57	24.81	26.15	27.58	29.12	30.79	32.60	
10.74	CFS	34.55	36.64	38.90	41.33	43.96	46.80	49.87	53.17	
11.22	CFS	57	61	65	70	75	82	89	100	
11.70	CFS	117	144	187	259	368	496	641	781	
12.18	CFS	921	1061	1177	1252	1280	1258	1199	1115	
12.66	CFS	1018	918	820	731	652	583	525	476	
13.14	CFS	434	399	369	343	320	299	281	265	
13.62	CFS	251	239	228	218	210	202	194	188	
14.10	CFS	181	175	170	165	160	155	151	147	
14.58	CFS	143	139	135	132	129	126	123	121	
15.06	CFS	119	117	115	113	112	110	109	107	
15.54	CFS	106	104	103	101	100	99	97	96	

BASE124.OUT

16.02	CFS	94.73	93.43	92.15	90.89	89.63	88.37	87.18	86.06
16.50	CFS	85.02	84.07	83.19	82.39	81.66	80.97	80.33	79.73
16.98	CFS	79.15	78.60	78.07	77.56	77.05	76.55	76.07	75.59
17.46	CFS	75.11	74.63	74.16	73.68	73.21	72.74	72.27	71.79
17.94	CFS	71.32	70.85	70.37	69.90	69.42	68.94	68.47	67.99
18.42	CFS	67.51	67.03	66.56	66.08	65.60	65.12	64.64	64.15
18.90	CFS	63.67	63.19	62.71	62.22	61.74	61.26	60.77	60.29

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 85

19.38	CFS	59.80	59.31	58.83	58.34	57.85	57.36	56.88	56.39
19.86	CFS	55.90	55.41	54.92	54.43	53.95	53.47	53.00	52.55
20.34	CFS	52.12	51.71	51.33	50.99	50.67	50.38	50.12	49.89
20.82	CFS	49.68	49.48	49.31	49.14	48.98	48.82	48.67	48.52
21.30	CFS	48.38	48.23	48.09	47.94	47.80	47.65	47.51	47.37
21.78	CFS	47.23	47.08	46.94	46.80	46.66	46.53	46.39	46.25
22.26	CFS	46.11	45.98	45.84	45.71	45.57	45.44	45.30	45.17
22.74	CFS	45.04	44.90	44.77	44.63	44.50	44.37	44.24	44.11
23.22	CFS	43.98	43.85	43.72	43.59	43.46	43.33	43.20	43.07
23.70	CFS	42.95	42.82	42.69	42.56	42.44	42.30	41.95	41.03
24.18	CFS	39.77	38.30	36.47	34.20	31.54	28.58	25.51	22.53
24.66	CFS	19.82	17.46	15.49	13.90	12.63	11.64	10.87	10.26
25.14	CFS	9.77	9.38	9.05	8.77	8.53	8.32	8.13	7.96
25.62	CFS	7.79	7.64	7.49	7.34				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.66 WATERSHED INCHES; 2197 CFS-HRS; 181.6 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	207	102	75	61	49	44	27	10

DURATION(HRS) 17  
 FLOW(CFS) 7 TRUNCATED

OPERATION REACH XSECTION 77

PEAK TIME(HRS) 12.49 PEAK DISCHARGE(CFS) 1278.8 PEAK ELEVATION(FEET) 230.76

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.66 WATERSHED INCHES; 2197 CFS-HRS; 181.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS) 12.01 PEAK DISCHARGE(CFS) 97.9 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.30 WATERSHED INCHES; 76 CFS-HRS; 6.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS) 12.48 PEAK DISCHARGE(CFS) 1293.4 PEAK ELEVATION(FEET) (NULL)

HRS MAIN TIME INCREMENT = .060 hr, HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10  
 DRAINAGE AREA = 1.33 SQ.MI.  
 Page 84

1 5.04 CFS .48 .51 BASE124.OUT .54 .57 .60 .63 .66 .69

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 86

5.52	CFS	.73	.76	.80	.84	.88	.93	.97	1.02
6.00	CFS	1.07	1.12	1.17	1.22	1.27	1.33	1.38	1.44
6.48	CFS	1.50	1.57	1.63	1.69	1.76	1.83	1.89	1.96
6.96	CFS	2.03	2.11	2.19	2.27	2.36	2.45	2.54	2.63
7.44	CFS	2.73	2.83	2.93	3.04	3.16	3.29	3.42	3.57
7.92	CFS	3.72	3.87	4.04	4.20	4.38	4.55	4.73	4.92
8.40	CFS	5.11	5.32	5.54	5.79	6.05	6.34	6.64	6.97
8.88	CFS	7.33	7.71	8.13	8.58	9.06	9.58	10.12	10.70
9.36	CFS	11.29	11.90	12.52	13.14	13.76	14.37	14.98	15.59
9.84	CFS	16.22	16.87	17.55	18.30	19.12	20.01	20.99	22.04
10.32	CFS	23.18	24.41	25.72	27.13	28.64	30.28	32.05	33.97
10.80	CFS	36.04	38.26	40.66	43.24	46.03	49.05	52.34	55.92
11.28	CFS	60	64	69	74	80	88	98	115
11.76	CFS	140	179	242	339	461	584	704	820
12.24	CFS	946	1079	1191	1266	1293	1272	1213	1129
12.72	CFS	1032	931	833	743	663	594	535	485
13.20	CFS	443	408	377	350	327	306	288	272
13.68	CFS	257	245	234	224	215	207	199	192
14.16	CFS	186	180	174	169	164	159	155	151
14.64	CFS	147	143	139	136	133	130	127	125
15.12	CFS	123	121	119	117	115	114	112	111
15.60	CFS	109	107	106	105	103	102	100	99
16.08	CFS	97.67	96.34	95.03	93.75	92.46	91.19	89.97	88.83
16.56	CFS	87.78	86.80	85.91	85.09	84.33	83.63	82.96	82.34
17.04	CFS	81.75	81.18	80.64	80.10	79.58	79.06	78.56	78.06
17.52	CFS	77.56	77.07	76.58	76.09	75.60	75.11	74.62	74.13
18.00	CFS	73.64	73.14	72.65	72.16	71.67	71.17	70.68	70.18
18.48	CFS	69.68	69.19	68.69	68.19	67.70	67.20	66.70	66.20
18.96	CFS	65.70	65.20	64.70	64.20	63.70	63.19	62.69	62.19
19.44	CFS	61.68	61.18	60.67	60.17	59.66	59.16	58.65	58.14
19.92	CFS	57.64	57.13	56.62	56.12	55.62	55.13	54.66	54.21
20.40	CFS	53.77	53.36	52.97	52.62	52.30	52.00	51.74	51.51
20.88	CFS	51.29	51.09	50.91	50.74	50.57	50.42	50.26	50.11
21.36	CFS	49.96	49.81	49.66	49.51	49.37	49.22	49.07	48.93
21.84	CFS	48.78	48.64	48.49	48.35	48.21	48.06	47.92	47.78
22.32	CFS	47.64	47.50	47.36	47.22	47.09	46.95	46.81	46.67
22.80	CFS	46.54	46.40	46.26	46.13	45.99	45.85	45.72	45.59
23.28	CFS	45.45	45.32	45.19	45.05	44.92	44.79	44.65	44.52
23.76	CFS	44.39	44.26	44.13	44.00	43.86	43.60	42.83	41.52
24.24	CFS	40.03	38.46	36.59	34.32	31.65	28.70	25.63	22.65
24.72	CFS	19.93	17.56	15.57	13.96	12.68	11.68	10.90	10.28
25.20	CFS	9.79	9.39	9.06	8.79	8.54	8.33	8.14	7.96
25.68	CFS	7.80	7.64	7.49					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.64 WATERSHED INCHES; 2273 CFS-HRS; 187.8 ACRE-FEET.

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 87

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	221	106	78	63	50	46	28	10

BASE124.OUT

DURATION(HRS) 17  
 FLOW(CFS) 7 TRUNCATED

OPERATION REACH XSECTION 80

PEAK TIME(HRS) 12.55 PEAK DISCHARGE(CFS) 1288.3 PEAK ELEVATION(FEET) 216.55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.64 WATERSHED INCHES; 2272 CFS-HRS; 187.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS) 11.99 PEAK DISCHARGE(CFS) 123.3 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.74 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS) 12.55 PEAK DISCHARGE(CFS) 1301.8 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.64 WATERSHED INCHES; 2363 CFS-HRS; 195.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS) 12.01 PEAK DISCHARGE(CFS) 53.0 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.

HRS	CFS	.47	.53	.60	.67	.74	.82	.92	1.03
10.74	CFS	.47	.53	.60	.67	.74	.82	.92	1.03
11.22	CFS	1.17	1.32	1.49	1.69	1.89	2.16	2.90	4.48
11.70	CFS	7.47	12.02	19.02	30.75	45.41	52.82	49.51	35.87
12.18	CFS	22.77	16.01	12.46	10.44	9.07	7.99	7.09	6.35
12.66	CFS	5.82	5.46	5.20	4.98	4.78	4.59	4.39	4.22
13.14	CFS	4.06	3.93	3.81	3.70	3.60	3.49	3.39	3.29
13.62	CFS	3.19	3.10	3.02	2.94	2.87	2.79	2.71	2.64
14.10	CFS	2.57	2.52	2.48	2.45	2.42	2.39	2.37	2.34
14.58	CFS	2.32	2.29	2.26	2.24	2.21	2.18	2.16	2.13

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 88

15.06	CFS	2.11	2.08	2.05	2.03	2.00	1.97	1.94	1.92
15.54	CFS	1.89	1.86	1.83	1.81	1.78	1.75	1.72	1.70
16.02	CFS	1.67	1.64	1.62	1.61	1.59	1.58	1.57	1.56
16.50	CFS	1.55	1.54	1.53	1.52	1.52	1.51	1.50	1.49
16.98	CFS	1.48	1.47	1.46	1.45	1.44	1.43	1.42	1.41
17.46	CFS	1.40	1.39	1.38	1.37	1.36	1.35	1.34	1.33
17.94	CFS	1.32	1.31	1.30	1.29	1.28	1.27	1.26	1.25
18.42	CFS	1.24	1.23	1.22	1.21	1.20	1.19	1.18	1.17
18.90	CFS	1.16	1.15	1.14	1.13	1.12	1.11	1.10	1.09
19.38	CFS	1.08	1.07	1.06	1.05	1.03	1.02	1.01	1.00

BASE124.OUT									
19.86 CFS	.99	.98	.97	.96	.95	.95	.94	.94	
20.34 CFS	.94	.94	.93	.93	.93	.93	.93	.92	
20.82 CFS	.92	.92	.92	.92	.91	.91	.91	.91	
21.30 CFS	.91	.91	.90	.90	.90	.90	.89	.89	
21.78 CFS	.89	.89	.89	.89	.88	.88	.88	.88	
22.26 CFS	.88	.87	.87	.87	.87	.87	.86	.86	
22.74 CFS	.86	.86	.86	.85	.85	.85	.85	.85	
23.22 CFS	.84	.84	.84	.84	.84	.84	.83	.83	
23.70 CFS	.83	.83	.83	.82	.82	.82	.73	.47	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.02 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	13
FLOW(CFS)	3	2	1	1	1	1	0

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS) 12.55 PEAK DISCHARGE(CFS) 1308.7 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.63 WATERSHED INCHES; 2404 CFS-HRS; 198.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS) 12.09 PEAK DISCHARGE(CFS) 174.9 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10									
HRS	MAIN TIME INCREMENT = .060 hr,				DRAINAGE AREA = .12 SQ.MI.				
9.96 CFS	.45	.54	.63	.72	.82	.93	1.05	1.19	
10.44 CFS	1.32	1.47	1.63	1.80	1.99	2.20	2.42	2.67	
10.92 CFS	2.93	3.22	3.53	3.87	4.26	4.72	5.26	5.87	
11.40 CFS	6.55	7.30	8.21	9.82	13.08	19.02	29.84	46.57	
11.88 CFS	73.71	110.81	149.41	172.25	171.75	147.29	116.26	88.83	
12.36 CFS	70.12	57.05	47.68	40.58	34.99	30.71	27.32	24.80	
12.84 CFS	22.86	21.33	20.11	19.08	18.22	17.45	16.75	16.15	
13.32 CFS	15.61	15.11	14.65	14.21	13.79	13.37	12.98	12.61	

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 89

13.80 CFS	12.26	11.93	11.61	11.30	10.99	10.70	10.43	10.20	
14.28 CFS	10.01	9.84	9.71	9.58	9.46	9.35	9.24	9.14	
14.76 CFS	9.03	8.93	8.82	8.72	8.61	8.51	8.40	8.30	
15.24 CFS	8.19	8.08	7.98	7.87	7.76	7.65	7.55	7.44	
15.72 CFS	7.33	7.22	7.11	7.00	6.89	6.78	6.67	6.57	
16.20 CFS	6.48	6.41	6.35	6.29	6.25	6.20	6.16	6.12	
16.68 CFS	6.08	6.04	6.00	5.97	5.93	5.89	5.85	5.81	
17.16 CFS	5.77	5.74	5.70	5.66	5.62	5.58	5.54	5.50	
17.64 CFS	5.46	5.43	5.39	5.35	5.31	5.27	5.23	5.19	
18.12 CFS	5.15	5.11	5.07	5.03	4.99	4.95	4.91	4.87	
18.60 CFS	4.83	4.79	4.75	4.71	4.67	4.63	4.59	4.55	
19.08 CFS	4.51	4.47	4.43	4.39	4.35	4.31	4.26	4.22	
19.56 CFS	4.18	4.14	4.10	4.06	4.02	3.98	3.94	3.89	
20.04 CFS	3.85	3.81	3.78	3.75	3.73	3.71	3.70	3.69	
20.52 CFS	3.68	3.67	3.66	3.65	3.64	3.63	3.63	3.62	
21.00 CFS	3.61	3.60	3.60	3.59	3.58	3.57	3.57	3.56	

BASE124.OUT

21.48 CFS	3.55	3.54	3.54	3.53	3.52	3.51	3.51	3.50
21.96 CFS	3.49	3.48	3.48	3.47	3.46	3.45	3.45	3.44
22.44 CFS	3.43	3.42	3.42	3.41	3.40	3.39	3.38	3.38
22.92 CFS	3.37	3.36	3.35	3.35	3.34	3.33	3.32	3.31
23.40 CFS	3.31	3.30	3.29	3.28	3.27	3.27	3.26	3.25
23.88 CFS	3.24	3.24	3.22	3.11	2.74	2.14	1.49	.96
24.36 CFS	.60	.38						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.16 WATERSHED INCHES; 165 CFS-HRS; 13.7 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	14
FLOW(CFS)	13	8	6	4	4	3	1	0

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	12.54	PEAK DISCHARGE(CFS)	1348.5	PEAK ELEVATION(FEET)	(NULL)
----------------	-------	---------------------	--------	----------------------	--------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.59 WATERSHED INCHES; 2569 CFS-HRS; 212.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	11.96	PEAK DISCHARGE(CFS)	50.3	PEAK ELEVATION(FEET)	(RUNOFF)
----------------	-------	---------------------	------	----------------------	----------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.58 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 3 JOB NO. 1 PAGE 90

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	12.54	PEAK DISCHARGE(CFS)	1353.3	PEAK ELEVATION(FEET)	(NULL)
----------------	-------	---------------------	--------	----------------------	--------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.60 WATERSHED INCHES; 2605 CFS-HRS; 215.3 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3

EXECUTIVE CONTROL COMPUT	FROM XSECTION 1 TO XSECTION 88
STARTING TIME = .00	RAIN DEPTH = 7.28 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2	MAIN TIME INCREMENT = .060 HOURS
ALTERNATE NO. = 1	STORM NO. =50 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	12.12	PEAK DISCHARGE(CFS)	99.6	PEAK ELEVATION(FEET)	(RUNOFF)
----------------	-------	---------------------	------	----------------------	----------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 Page 88



BASE124.OUT  
4.89 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.18 99.4 390.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.89 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.10 184.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.01 WATERSHED INCHES; 188 CFS-HRS; 15.5 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 4 JOB NO. 1 PAGE 91

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.13 278.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.96 WATERSHED INCHES; 293 CFS-HRS; 24.3 ACRE-FEET.

\*\*\* WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 11, \*\*\*  
VALUE EXTRAPOLATED.

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.15 275.5 384.86

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.95 WATERSHED INCHES; 293 CFS-HRS; 24.2 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.21 275.2 369.06

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.95 WATERSHED INCHES; 292 CFS-HRS; 24.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 223.5 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
Page 89

BASE124.OUT  
4.49 WATERSHED INCHES; 231 CFS-HRS; 19.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.17 481.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.74 WATERSHED INCHES; 524 CFS-HRS; 43.3 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 4 JOB NO. 1 PAGE 92

OPERATION REACH XSECTION 8

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.23 481.5 358.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.74 WATERSHED INCHES; 524 CFS-HRS; 43.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 252.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.94 WATERSHED INCHES; 281 CFS-HRS; 23.2 ACRE-FEET.

\*\*\* MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE  
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00. \*\*\*  
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME.

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.34 150.2 378.07

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.44 WATERSHED INCHES; 258 CFS-HRS; 21.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.96 36.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.09 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.62 115.2 359.83

BASE124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.42 WATERSHED INCHES; 257 CFS-HRS; 21.2 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 93

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.02 191.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.19 WATERSHED INCHES; 154 CFS-HRS; 12.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.18 566.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.60 WATERSHED INCHES; 678 CFS-HRS; 56.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.04 71.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.84 WATERSHED INCHES; 60 CFS-HRS; 5.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.23 643.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.79 WATERSHED INCHES; 933 CFS-HRS; 77.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.21 676.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.80 WATERSHED INCHES; 994 CFS-HRS; 82.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 94

BASE124.OUT  
 PEAK TIME(HRS) 12.21 PEAK DISCHARGE(CFS) 676.0 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 50  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .32 SQ.MI.

4.08	CFS	.00	.01	.01	.01	.01	.01	.01	.02
4.56	CFS	.02	.02	.02	.02	.03	.03	.03	.03
5.04	CFS	.04	.04	.04	.04	.05	.05	.05	.06
5.52	CFS	.06	.07	.07	.07	.08	.09	.11	.12
6.00	CFS	.14	.16	.18	.20	.22	.25	.27	.30
6.48	CFS	.33	.35	.39	.43	.48	.53	.59	.65
6.96	CFS	.72	.79	.86	.94	1.02	1.11	1.21	1.31
7.44	CFS	1.42	1.53	1.65	1.76	1.88	2.00	2.12	2.24
7.92	CFS	2.36	2.48	2.60	2.73	2.86	3.00	3.15	3.32
8.40	CFS	3.49	3.67	3.86	4.06	4.28	4.49	4.72	4.96
8.88	CFS	5.20	5.46	5.72	5.99	6.26	6.52	6.78	7.02
9.36	CFS	7.26	7.50	7.72	7.94	8.18	8.44	8.78	9.20
9.84	CFS	9.68	10.20	10.75	11.33	11.94	12.58	14.23	15.78
10.32	CFS	17.15	18.41	19.61	20.79	21.97	23.16	24.40	25.71
10.80	CFS	27.10	28.57	30.13	31.77	33.53	35.44	37.54	39.88
11.28	CFS	42.49	45.38	48.54	51.98	55.98	62.62	74.89	96.73
11.76	CFS	131	182	259	364	483	592	644	673
12.24	CFS	672	630	561	486	419	365	323	290
12.72	CFS	264	243	225	213	203	182	158	141
13.20	CFS	128	118	110	103	98	93	88	84
13.68	CFS	80.78	77.56	74.61	71.90	69.37	67.01	64.78	62.70
14.16	CFS	60.78	59.02	57.40	55.93	54.58	53.35	52.23	51.21
14.64	CFS	50.27	49.39	48.58	47.82	47.09	46.40	45.73	45.08
15.12	CFS	44.46	43.84	43.24	42.64	42.06	41.47	40.89	40.33
15.60	CFS	39.81	39.33	38.87	38.43	37.99	37.56	37.13	36.70
16.08	CFS	36.27	35.86	35.49	35.13	34.81	34.51	34.23	33.98
16.56	CFS	33.75	33.53	33.32	33.13	32.94	32.76	32.59	32.42
17.04	CFS	32.25	32.08	31.91	31.75	31.58	31.42	31.25	31.09
17.52	CFS	30.92	30.76	30.59	30.42	30.26	30.09	29.93	29.76
18.00	CFS	29.59	29.42	29.26	29.09	28.92	28.75	28.59	28.42
18.48	CFS	28.25	28.08	27.91	27.74	27.57	27.40	27.23	27.06
18.96	CFS	26.89	26.71	26.54	26.37	26.19	26.01	25.83	25.66
19.44	CFS	25.48	25.30	25.12	24.94	24.76	24.59	24.41	24.22
19.92	CFS	24.05	23.87	23.69	23.51	23.35	23.19	23.05	22.92
20.40	CFS	22.81	22.70	22.61	22.52	22.44	22.36	22.29	22.23
20.88	CFS	22.16	22.10	22.04	21.98	21.93	21.87	21.81	21.75
21.36	CFS	21.70	21.64	21.59	21.53	21.48	21.42	21.37	21.31
21.84	CFS	21.26	21.20	21.15	21.09	21.04	20.98	20.93	20.87
22.32	CFS	20.82	20.77	20.71	20.66	20.60	20.55	20.49	20.44
22.80	CFS	20.39	20.33	20.28	20.23	20.17	20.12	20.07	20.01
23.28	CFS	19.96	19.90	19.83	19.76	19.70	19.63	19.56	19.48
23.76	CFS	19.42	19.35	19.27	19.21	19.12	18.80	17.87	16.57
24.24	CFS	15.27	14.07	12.91	11.80	10.79	10.19	9.89	9.65
24.72	CFS	9.44	9.26	9.10	8.95	8.80	8.67	8.53	8.41
25.20	CFS	8.28	8.16	8.04	7.93	7.82	7.70	7.60	7.49

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 95

25.68	CFS	7.38	7.28	7.18	7.08	6.98	6.88	6.79	6.68
26.16	CFS	6.57	6.45	6.32	6.19	6.07	5.94	5.82	5.69
26.64	CFS	5.57	5.46	5.34	5.23	5.12	5.01		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.80 WATERSHED INCHES; 994 CFS-HRS; 82.1 ACRE-FEET.

BASE124.OUT  
 DURATION(HRS) 2 4 6 8 10 12 14 16  
 FLOW(CFS) 80 43 32 27 22 21 15 8  
 DURATION(HRS) 18  
 FLOW(CFS) 5 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. \*\*\*

OPERATION REACH XSECTION 16

PEAK TIME(HRS) 12.21 PEAK DISCHARGE(CFS) 676.0 PEAK ELEVATION(FEET) 335.51  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.80 WATERSHED INCHES; 994 CFS-HRS; 82.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 102.0 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.84 WATERSHED INCHES; 80 CFS-HRS; 6.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 118

PEAK TIME(HRS) 12.01 PEAK DISCHARGE(CFS) 120.4 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.47 WATERSHED INCHES; 106 CFS-HRS; 8.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 24

PEAK TIME(HRS) 12.01 PEAK DISCHARGE(CFS) 120.4 PEAK ELEVATION(FEET) (NULL)

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 96

HRS	MAIN	TIME	INCREMENT =	HYDROGRAPH POINTS FOR	ALTERNATE = 1,	STORM =50	DRAINAGE AREA = .03 SQ.MI.		
1.92 CFS	.00	.01	.02	.04	.05	.07	.09	.11	
2.40 CFS	.13	.15	.17	.19	.20	.22	.24	.26	
2.88 CFS	.28	.30	.31	.33	.35	.37	.39	.40	
3.36 CFS	.42	.44	.45	.47	.49	.51	.52	.54	
3.84 CFS	.56	.57	.59	.61	.62	.64	.66	.68	
4.32 CFS	.69	.71	.73	.75	.77	.79	.81	.83	
4.80 CFS	.85	.87	.89	.91	.93	.95	.97	.99	
5.28 CFS	1.01	1.03	1.05	1.07	1.09	1.11	1.13	1.14	
5.76 CFS	1.16	1.18	1.20	1.22	1.24	1.26	1.28	1.30	
6.24 CFS	1.32	1.34	1.36	1.38	1.40	1.42	1.44	1.46	
6.72 CFS	1.48	1.50	1.52	1.54	1.56	1.58	1.60	1.62	
7.20 CFS	1.64	1.66	1.68	1.70	1.72	1.74	1.76	1.78	
7.68 CFS	1.80	1.82	1.84	1.86	1.88	1.90	1.92	1.94	

				BASE124.OUT					
8.16	CFS	1.98	2.02	2.08	2.14	2.20	2.26	2.33	2.39
8.64	CFS	2.46	2.52	2.59	2.66	2.72	2.79	2.86	2.93
9.12	CFS	2.98	3.03	3.06	3.08	3.10	3.11	3.12	3.14
9.60	CFS	3.16	3.21	3.27	3.36	3.46	3.56	3.66	3.77
10.08	CFS	3.88	4.01	4.14	4.29	4.44	4.60	4.76	4.93
10.56	CFS	5.10	5.28	5.49	5.73	5.98	6.24	6.51	6.78
11.04	CFS	7.07	7.40	7.81	8.31	8.88	9.49	10.13	10.77
11.52	CFS	12	14	19	27	40	56	78	105
12.00	CFS	120	114	89	60	41	30	24	20
12.48	CFS	16.74	14.48	12.70	11.37	10.44	9.82	9.32	8.89
12.96	CFS	8.49	8.11	7.76	7.44	7.16	6.92	6.70	6.49
13.44	CFS	6.29	6.09	5.90	5.71	5.54	5.38	5.23	5.09
13.92	CFS	4.94	4.80	4.66	4.54	4.43	4.34	4.28	4.22
14.40	CFS	4.16	4.11	4.06	4.01	3.96	3.91	3.86	3.81
14.88	CFS	3.76	3.72	3.67	3.62	3.57	3.52	3.47	3.42
15.36	CFS	3.37	3.32	3.27	3.22	3.18	3.13	3.08	3.03
15.84	CFS	2.98	2.93	2.88	2.83	2.78	2.74	2.71	2.69
16.32	CFS	2.66	2.64	2.63	2.61	2.59	2.57	2.55	2.54
16.80	CFS	2.52	2.50	2.48	2.47	2.45	2.43	2.41	2.40
17.28	CFS	2.38	2.36	2.34	2.33	2.31	2.29	2.27	2.26
17.76	CFS	2.24	2.22	2.20	2.19	2.17	2.15	2.13	2.12
18.24	CFS	2.10	2.08	2.06	2.05	2.03	2.01	1.99	1.97
18.72	CFS	1.96	1.94	1.92	1.90	1.89	1.87	1.85	1.83
19.20	CFS	1.82	1.80	1.78	1.76	1.75	1.73	1.71	1.69
19.68	CFS	1.68	1.66	1.64	1.62	1.60	1.59	1.57	1.55
20.16	CFS	1.54	1.53	1.53	1.52	1.52	1.51	1.51	1.51
20.64	CFS	1.50	1.50	1.50	1.49	1.49	1.48	1.48	1.48
21.12	CFS	1.47	1.47	1.47	1.46	1.46	1.46	1.45	1.45
21.60	CFS	1.45	1.44	1.44	1.44	1.43	1.43	1.43	1.42
22.08	CFS	1.42	1.41	1.41	1.41	1.40	1.40	1.40	1.39
22.56	CFS	1.39	1.39	1.38	1.38	1.38	1.37	1.37	1.37
23.04	CFS	1.36	1.36	1.36	1.35	1.35	1.34	1.34	1.34
23.52	CFS	1.33	1.33	1.33	1.32	1.32	1.32	1.31	1.31
24.00	CFS	1.30	1.20	.90	.53	.27	.14	.07	.04
24.48	CFS	.02	.01	.00					

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4      VERSION  
 07/05/\*\*      Run for 1,2,10,50,100YR STORMS      2.04TEST  
 08:44:52      PASS 4      JOB NO. 1      PAGE 97

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.47 WATERSHED INCHES;      106 CFS-HRS;      8.7 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	7	4	3	3	2	2	1	1
DURATION(HRS)	18	20	21					
FLOW(CFS)	1	1	0					

OPERATION RUNOFF XSECTION 119

PEAK TIME(HRS)      PEAK DISCHARGE(CFS)      PEAK ELEVATION(FEET)  
 11.96      29.3      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.64 WATERSHED INCHES;      21 CFS-HRS;      1.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 120

BASE124.OUT  
 PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.00                                      147.4                                      (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                     6.32 WATERSHED INCHES;                      127 CFS-HRS;                      10.5 ACRE-FEET.

OPERATION ADDHYD    XSECTION    20

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     11.99                                      248.5                                      (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                     6.13 WATERSHED INCHES;                      207 CFS-HRS;                      17.1 ACRE-FEET.

OPERATION RUNOFF    XSECTION    19

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     11.98                                      185.0                                      (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                     5.47 WATERSHED INCHES;                      143 CFS-HRS;                      11.8 ACRE-FEET.

OPERATION ADDHYD    XSECTION    22

1  
 TR20 ----- SCS -  
                     Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4                      VERSION  
 07/05/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 08:44:52                      PASS 4    JOB NO. 1                      PAGE 98

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     11.99                                      433.2                                      (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                     5.84 WATERSHED INCHES;                      349 CFS-HRS;                      28.9 ACRE-FEET.

OPERATION ADDHYD    XSECTION    21

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.06                                      968.3                                      (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                     5.00 WATERSHED INCHES;                      1336 CFS-HRS;                      110.4 ACRE-FEET.

OPERATION REACH    XSECTION    23

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.18                                      878.0                                      317.20  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                     5.00 WATERSHED INCHES;                      1334 CFS-HRS;                      110.3 ACRE-FEET.

OPERATION RUNOFF    XSECTION    24

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.09                                      154.3                                      (RUNOFF)

BASE124.OUT  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.57 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.13 149.0 365.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.56 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 4 JOB NO. 1 PAGE 99

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.10 220.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.50 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.11 367.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.52 WATERSHED INCHES; 366 CFS-HRS; 30.2 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.20 352.5 319.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.53 WATERSHED INCHES; 366 CFS-HRS; 30.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.08 165.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.00 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 29





1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 101

OPERATION REACH XSECTION 34

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.09 33.1 338.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.60 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.03 126.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.67 WATERSHED INCHES; 118 CFS-HRS; 9.8 ACRE-FEET.

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS  
 WITH 1.02 AC-FT ( .06 WATERSHED INCHES) FLOOD STORAGE \*\*\*  
 REMAINING IN RESERVOIR AT ELEV. 354.09.

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.12 104.8 358.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.99 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.11 137.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.90 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.11 137.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.90 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 102

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 Page 98

OPERATION REACH XSECTION 37

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.11                                      137.5                                      330.91

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.90 WATERSHED INCHES;              137 CFS-HRS;                      11.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 138

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 11.97                                      141.8                                      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.07 WATERSHED INCHES;              110 CFS-HRS;                      9.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 139

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.02                                      255.8                                      (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.97 WATERSHED INCHES;              246 CFS-HRS;                      20.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 35

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.02                                      255.8                                      (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 50									
HRS	MAIN TIME INCREMENT = .060 hr,					DRAINAGE AREA = .06 SQ.MI.			
2.04 CFS	.00	.01	.01	.01	.01	.01	.02	.02	.02
2.52 CFS	.02	.02	.03	.03	.03	.03	.04	.05	.07
3.00 CFS	.09	.11	.13	.15	.17	.19	.21	.23	
3.48 CFS	.25	.27	.30	.32	.34	.36	.38	.40	
3.96 CFS	.42	.44	.47	.49	.51	.53	.56	.58	
4.44 CFS	.61	.63	.66	.68	.71	.73	.76	.78	
4.92 CFS	.81	.84	.86	.89	.92	.95	.97	1.00	
5.40 CFS	1.03	1.06	1.09	1.11	1.14	1.17	1.20	1.23	
5.88 CFS	1.26	1.29	1.32	1.35	1.38	1.41	1.44	1.47	
6.36 CFS	1.50	1.53	1.56	1.59	1.63	1.66	1.69	1.72	
6.84 CFS	1.75	1.78	1.82	1.85	1.88	1.91	1.94	1.98	
7.32 CFS	2.01	2.04	2.07	2.11	2.14	2.17	2.21	2.24	

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 103

7.80 CFS	2.27	2.31	2.34	2.37	2.41	2.46	2.51	2.58	
8.28 CFS	2.65	2.72	2.80	2.88	2.95	3.03	3.11	3.20	
8.76 CFS	3.28	3.37	3.45	3.54	3.63	3.71	3.78	3.83	
9.24 CFS	3.88	3.92	3.96	3.99	4.03	4.07	4.13	4.22	
9.72 CFS	4.33	4.45	4.58	4.71	4.84	4.97	5.12	5.28	
10.20 CFS	5.46	5.64	5.83	6.03	6.47	6.95	7.42	7.97	
10.68 CFS	8.59	9.22	9.87	10.50	11.14	11.78	12.44	13.20	
11.16 CFS	14.11	15.15	16.27	17.42	18.63	19.86	21.39	26.22	

BASE124.OUT									
11.64	CFS	35	50	69	95	142	206	253	242
12.12	CFS	206	166	135	106	81	66	58	50
12.60	CFS	44.24	39.20	35.48	33.56	31.85	30.22	28.70	27.25
13.08	CFS	25.90	24.68	23.56	22.54	21.59	20.70	19.87	19.10
13.56	CFS	18.42	17.77	17.16	16.60	16.05	15.53	15.03	14.55
14.04	CFS	14.09	13.66	13.28	12.94	12.63	12.35	12.07	11.82
14.52	CFS	11.59	11.37	11.15	10.95	10.76	10.58	10.42	10.27
15.00	CFS	10.11	9.96	9.82	9.67	9.53	9.39	9.25	9.11
15.48	CFS	8.98	8.85	8.71	8.58	8.45	8.32	8.18	8.06
15.96	CFS	7.93	7.80	7.68	7.57	7.47	7.38	7.31	7.24
16.44	CFS	7.17	7.11	7.05	6.99	6.93	6.88	6.82	6.77
16.92	CFS	6.72	6.67	6.62	6.57	6.52	6.47	6.43	6.38
17.40	CFS	6.34	6.29	6.25	6.20	6.16	6.12	6.08	6.03
17.88	CFS	5.99	5.95	5.91	5.86	5.82	5.78	5.74	5.70
18.36	CFS	5.66	5.61	5.57	5.53	5.49	5.45	5.41	5.37
18.84	CFS	5.33	5.29	5.25	5.20	5.16	5.12	5.08	5.04
19.32	CFS	5.00	4.96	4.92	4.88	4.84	4.79	4.75	4.71
19.80	CFS	4.67	4.64	4.60	4.57	4.53	4.50	4.47	4.44
20.28	CFS	4.42	4.40	4.38	4.36	4.34	4.33	4.31	4.29
20.76	CFS	4.27	4.26	4.24	4.23	4.21	4.20	4.18	4.17
21.24	CFS	4.15	4.14	4.13	4.11	4.10	4.09	4.08	4.06
21.72	CFS	4.05	4.04	4.03	4.02	4.01	3.99	3.98	3.97
22.20	CFS	3.96	3.95	3.94	3.93	3.92	3.91	3.90	3.88
22.68	CFS	3.87	3.86	3.85	3.84	3.83	3.82	3.81	3.80
23.16	CFS	3.79	3.78	3.77	3.76	3.75	3.74	3.73	3.72
23.64	CFS	3.71	3.70	3.69	3.68	3.67	3.66	3.65	3.41
24.12	CFS	2.82	2.39	2.18	2.05	1.94	1.85	1.77	1.71
24.60	CFS	1.70	1.69	1.68	1.67	1.66	1.65	1.64	1.63
25.08	CFS	1.62	1.62	1.61					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.97 WATERSHED INCHES; 246 CFS-HRS; 20.4 ACRE-FEET.

DURATION(HRS) 2 4 6 8 10 12 14 16  
FLOW(CFS) 20 10 7 6 5 4 4 2

DURATION(HRS) 18 19  
FLOW(CFS) 2 2 TRUNCATED

OPERATION RUNOFF XSECTION 140

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 4 JOB NO. 1 PAGE 104

PEAK TIME(HRS) 11.97 PEAK DISCHARGE(CFS) 14.4 PEAK ELEVATION(FEET) (RUNOFF)  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.22 WATERSHED INCHES; 10 CFS-HRS; .8 ACRE-FEET.

OPERATION ADDHYD XSECTION 141

PEAK TIME(HRS) 12.02 PEAK DISCHARGE(CFS) 269.0 PEAK ELEVATION(FEET) (NULL)  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.78 WATERSHED INCHES; 256 CFS-HRS; 21.2 ACRE-FEET.

BASE124.OUT

OPERATION RUNOFF XSECTION 40  
 PEAK TIME(HRS) 12.10 PEAK DISCHARGE(CFS) 126.4 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 5.02 WATERSHED INCHES; 127 CFS-HRS; 10.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 41  
 PEAK TIME(HRS) 12.16 PEAK DISCHARGE(CFS) 1482.4 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 4.81 WATERSHED INCHES; 1982 CFS-HRS; 163.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 42  
 PEAK TIME(HRS) 12.16 PEAK DISCHARGE(CFS) 1722.9 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 4.85 WATERSHED INCHES; 2215 CFS-HRS; 183.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 43  
 PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 1921.4 PEAK ELEVATION(FEET) (NULL)

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 105

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 4.93 WATERSHED INCHES; 2468 CFS-HRS; 203.9 ACRE-FEET.

OPERATION REACH XSECTION 44  
 PEAK TIME(HRS) 12.24 PEAK DISCHARGE(CFS) 1849.5 PEAK ELEVATION(FEET) 292.27  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 4.92 WATERSHED INCHES; 2466 CFS-HRS; 203.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 45  
 PEAK TIME(HRS) 12.13 PEAK DISCHARGE(CFS) 130.9 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 4.51 WATERSHED INCHES; 139 CFS-HRS; 11.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

BASE124.OUT  
 PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.15                                      157.7                                      (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                     4.26 WATERSHED INCHES;                      173 CFS-HRS;                      14.3 ACRE-FEET.

OPERATION ADDHYD    XSECTION    47

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.14                                      288.3                                      (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                     4.37 WATERSHED INCHES;                      311 CFS-HRS;                      25.7 ACRE-FEET.

OPERATION RUNOFF    XSECTION    48

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.04                                      173.6                                      (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                     4.85 WATERSHED INCHES;                      147 CFS-HRS;                      12.1 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4    VERSION  
 07/05/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 08:44:52                      PASS 4    JOB NO. 1                      PAGE 106

OPERATION ADDHYD    XSECTION    49

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.23                                      1927.0                                      (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                     4.92 WATERSHED INCHES;                      2613 CFS-HRS;                      215.9 ACRE-FEET.

OPERATION ADDHYD    XSECTION    50

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.21                                      2196.0                                      (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                     4.85 WATERSHED INCHES;                      2924 CFS-HRS;                      241.7 ACRE-FEET.

OPERATION REACH    XSECTION    51

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.30                                      2141.2                                      287.78  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                     4.85 WATERSHED INCHES;                      2924 CFS-HRS;                      241.6 ACRE-FEET.

OPERATION RUNOFF    XSECTION    52

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.00                                      17.8                                      (RUNOFF)

BASE124.OUT  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.41 WATERSHED INCHES; 14 CFS-HRS; 1.1 ACRE-FEET.

OPERATION REACH XSECTION 53

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.07 17.7 288.67

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.41 WATERSHED INCHES; 14 CFS-HRS; 1.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 4 JOB NO. 1 PAGE 107

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.06 12.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.30 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.04 106.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.30 WATERSHED INCHES; 89 CFS-HRS; 7.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.30 2175.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.83 WATERSHED INCHES; 3013 CFS-HRS; 249.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.06 29.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.36 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.30 2185.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.79 WATERSHED INCHES; 3037 CFS-HRS; 251.0 ACRE-FEET.

BASE124.OUT

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.05                                      83.9                                      (RUNOFF)

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4      VERSION  
 07/05/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 08:44:52                      PASS 4      JOB NO. 1                      PAGE 108

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.16 WATERSHED INCHES;                      71 CFS-HRS;                      5.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.29                                      2215.7                                      (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.78 WATERSHED INCHES;                      3109 CFS-HRS;                      256.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.07                                      51.4                                      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.14 WATERSHED INCHES;                      46 CFS-HRS;                      3.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.29                                      2238.9                                      (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.77 WATERSHED INCHES;                      3155 CFS-HRS;                      260.7 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.39                                      2169.5                                      251.60

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =50  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.03 SQ.MI.

HRS	MAIN	TIME	INCREMENT	=	.060	hr,	DRAINAGE	AREA	=	1.03	SQ.MI.
3.48	CFS	.49	.53	.56	.60	.64	.69	.73	.78		
3.48	ELEV	247.16	247.17	247.17	247.18	247.19	247.20	247.20	247.21		
3.96	CFS	.83	.88	.93	.97	1.02	1.07	1.13	1.18		
3.96	ELEV	247.22	247.23	247.24	247.25	247.26	247.27	247.28	247.29		
4.44	CFS	1.23	1.29	1.35	1.41	1.48	1.55	1.62	1.70		
4.44	ELEV	247.30	247.31	247.32	247.33	247.34	247.35	247.37	247.38		
4.92	CFS	1.78	1.86	1.94	2.02	2.11	2.20	2.30	2.40		
4.92	ELEV	247.40	247.41	247.42	247.42	247.43	247.44	247.45	247.45		
5.40	CFS	2.51	2.62	2.74	2.86	2.98	3.12	3.25	3.39		
5.40	ELEV	247.46	247.47	247.48	247.49	247.50	247.51	247.52	247.53		
5.88	CFS	3.54	3.69	3.85	4.02	4.19	4.37	4.55	4.74		
5.88	ELEV	247.55	247.56	247.57	247.59	247.60	247.61	247.63	247.64		

1



BASE124.OUT

TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 4 JOB NO. 1 PAGE 109

6.36	CFS	4.93	5.12	5.32	5.52	5.72	5.92	6.14	6.36
6.36	ELEV	247.66	247.67	247.69	247.71	247.72	247.74	247.74	247.75
6.84	CFS	6.59	6.84	7.10	7.37	7.67	7.98	8.31	8.65
6.84	ELEV	247.75	247.75	247.76	247.76	247.77	247.77	247.78	247.78
7.32	CFS	9.00	9.37	9.75	10.15	10.56	10.99	11.43	11.87
7.32	ELEV	247.79	247.79	247.80	247.80	247.81	247.82	247.82	247.83
7.80	CFS	12.33	12.79	13.27	13.75	14.24	14.74	15.25	15.77
7.80	ELEV	247.84	247.85	247.85	247.86	247.87	247.88	247.88	247.89
8.28	CFS	16.31	16.87	17.47	18.12	18.83	19.60	20.44	21.33
8.28	ELEV	247.90	247.91	247.92	247.93	247.94	247.95	247.96	247.98
8.76	CFS	22.28	23.27	24.30	25.38	26.49	27.64	28.83	30.04
8.76	ELEV	247.99	248.01	248.02	248.04	248.06	248.07	248.08	248.10
9.24	CFS	31.28	32.52	33.75	34.95	36.09	37.17	38.19	39.15
9.24	ELEV	248.11	248.12	248.14	248.15	248.16	248.17	248.18	248.19
9.72	CFS	40.08	41.00	41.96	43.00	44.17	45.52	47.05	48.77
9.72	ELEV	248.20	248.21	248.22	248.23	248.25	248.26	248.28	248.30
10.20	CFS	50.67	52.73	54.95	57.33	60.00	63.02	66.35	70.00
10.20	ELEV	248.32	248.34	248.36	248.39	248.41	248.44	248.47	248.50
10.68	CFS	74	78	82	87	92	97	102	108
10.68	ELEV	248.53	248.57	248.61	248.64	248.68	248.70	248.72	248.74
11.16	CFS	114	120	127	135	143	152	163	175
11.16	ELEV	248.77	248.79	248.82	248.85	248.89	248.93	248.96	248.99
11.64	CFS	189	208	236	283	359	480	664	913
11.64	ELEV	249.03	249.08	249.16	249.28	249.44	249.67	249.97	250.32
12.12	CFS	1213	1534	1823	2043	2156	2154	2054	1890
12.12	ELEV	250.68	251.01	251.29	251.49	251.59	251.59	251.50	251.36
12.60	CFS	1697	1499	1310	1139	989	863	759	676
12.60	ELEV	251.17	250.98	250.78	250.60	250.41	250.25	250.11	249.99
13.08	CFS	609	556	513	477	444	413	384	358
13.08	ELEV	249.89	249.80	249.73	249.67	249.60	249.55	249.49	249.44
13.56	CFS	335	314	296	280	267	255	244	234
13.56	ELEV	249.39	249.34	249.30	249.27	249.24	249.21	249.18	249.16
14.04	CFS	225	217	210	203	197	191	185	180
14.04	ELEV	249.13	249.11	249.09	249.07	249.05	249.04	249.02	249.01
14.52	CFS	176	171	168	164	161	158	156	153
14.52	ELEV	249.00	248.99	248.98	248.97	248.96	248.95	248.94	248.93
15.00	CFS	151	149	146	144	142	140	138	136
15.00	ELEV	248.92	248.91	248.90	248.89	248.88	248.88	248.87	248.86
15.48	CFS	135	133	131	129	127	125	124	122
15.48	ELEV	248.85	248.85	248.84	248.83	248.82	248.82	248.81	248.80
15.96	CFS	120	118	117	115	113	112	110	109
15.96	ELEV	248.79	248.79	248.78	248.77	248.77	248.76	248.75	248.75
16.44	CFS	107	106	105	104	103	102	101	100
16.44	ELEV	248.74	248.74	248.73	248.73	248.72	248.72	248.72	248.71
16.92	CFS	99.51	98.81	98.13	97.47	96.83	96.20	95.58	94.97
16.92	ELEV	248.71	248.71	248.70	248.70	248.70	248.70	248.69	248.69
17.40	CFS	94.36	93.76	93.15	92.55	91.95	91.36	90.76	90.16
17.40	ELEV	248.69	248.69	248.68	248.68	248.68	248.68	248.67	248.67
17.88	CFS	89.57	88.97	88.37	87.78	87.18	86.58	85.98	85.39

1 TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 4 JOB NO. 1 PAGE 110

17.88	ELEV	248.67	248.66	248.66	248.65	248.65	248.64	248.64	248.63
18.36	CFS	84.79	84.19	83.59	82.99	82.39	81.79	81.18	80.58
18.36	ELEV	248.63	248.62	248.62	248.61	248.61	248.60	248.60	248.59

BASE124.OUT

18.84	CFS	79.98	79.38	78.78	78.17	77.57	76.96	76.36	75.75
18.84	ELEV	248.59	248.58	248.58	248.57	248.56	248.56	248.55	248.55
19.32	CFS	75.15	74.54	73.93	73.32	72.71	72.10	71.49	70.87
19.32	ELEV	248.54	248.54	248.53	248.53	248.52	248.52	248.51	248.51
19.80	CFS	70.26	69.64	69.03	68.41	67.80	67.18	66.57	65.97
19.80	ELEV	248.50	248.50	248.49	248.49	248.48	248.47	248.47	248.46
20.28	CFS	65.39	64.82	64.29	63.80	63.36	62.97	62.62	62.31
20.28	ELEV	248.46	248.45	248.45	248.45	248.44	248.44	248.43	248.43
20.76	CFS	62.04	61.79	61.57	61.36	61.17	60.99	60.81	60.65
20.76	ELEV	248.43	248.43	248.43	248.42	248.42	248.42	248.42	248.42
21.24	CFS	60.48	60.33	60.17	60.02	59.87	59.72	59.57	59.43
21.24	ELEV	248.42	248.41	248.41	248.41	248.41	248.41	248.41	248.41
21.72	CFS	59.28	59.13	58.99	58.84	58.70	58.56	58.41	58.27
21.72	ELEV	248.41	248.40	248.40	248.40	248.40	248.40	248.40	248.40
22.20	CFS	58.12	57.98	57.84	57.69	57.55	57.41	57.26	57.12
22.20	ELEV	248.39	248.39	248.39	248.39	248.39	248.39	248.39	248.38
22.68	CFS	56.98	56.84	56.70	56.55	56.41	56.27	56.13	55.99
22.68	ELEV	248.38	248.38	248.38	248.38	248.38	248.38	248.37	248.37
23.16	CFS	55.84	55.70	55.56	55.42	55.28	55.14	55.00	54.85
23.16	ELEV	248.37	248.37	248.37	248.37	248.36	248.36	248.36	248.36
23.64	CFS	54.71	54.56	54.41	54.26	54.11	53.95	53.80	53.63
23.64	ELEV	248.36	248.36	248.36	248.35	248.35	248.35	248.35	248.35
24.12	CFS	53.36	52.67	51.27	49.04	45.89	41.87	37.25	32.48
24.12	ELEV	248.34	248.34	248.32	248.30	248.27	248.22	248.17	248.12
24.60	CFS	27.99	24.03	20.70	18.02	15.96	14.43	13.32	12.51
24.60	ELEV	248.08	248.02	247.97	247.93	247.89	247.87	247.85	247.84
25.08	CFS	11.92	11.48	11.14					
25.08	ELEV	247.83	247.83	247.82					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.77 WATERSHED INCHES; 3154 CFS-HRS; 260.6 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	263	137	98	80	63	58	51	21

DURATION(HRS) 17  
 FLOW(CFS) 11 TRUNCATED

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS) 12.18 PEAK DISCHARGE(CFS) 33.4 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.87 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 111

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS) 12.37 PEAK DISCHARGE(CFS) 25.1 PEAK ELEVATION(FEET) 335.70

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.88 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION REACH XSECTION 65  
 PEAK TIME(HRS) 12.46 PEAK DISCHARGE(CFS) 24.6 PEAK ELEVATION(FEET) 301.03

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.87 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 66  
 PEAK TIME(HRS) 12.03 PEAK DISCHARGE(CFS) 175.3 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.95 WATERSHED INCHES; 146 CFS-HRS; 12.1 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
 TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
 FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 62  
 PEAK TIME(HRS) 12.22 PEAK DISCHARGE(CFS) 82.5 PEAK ELEVATION(FEET) 297.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.95 WATERSHED INCHES; 146 CFS-HRS; 12.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 67  
 PEAK TIME(HRS) 12.32 PEAK DISCHARGE(CFS) 99.3 PEAK ELEVATION(FEET) (NULL)

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 112

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.13 WATERSHED INCHES; 188 CFS-HRS; 15.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 68  
 PEAK TIME(HRS) 12.02 PEAK DISCHARGE(CFS) 299.8 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.89 WATERSHED INCHES; 246 CFS-HRS; 20.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 69  
 PEAK TIME(HRS) 12.04 PEAK DISCHARGE(CFS) 363.1 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 Page 107

BASE124.OUT  
4.99 WATERSHED INCHES; 433 CFS-HRS; 35.8 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.25 273.1 249.25

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.99 WATERSHED INCHES; 433 CFS-HRS; 35.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.95 59.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.59 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.03 50.9 267.90

\*\*\* WARNING - STRUCTURE 63, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK  
( 50.93) EXCEEDS ADJACENT COORDINATE ( 48.04) BY 6 %. \*\*\*

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 4 JOB NO. 1 PAGE 113

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.61 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.11 46.5 248.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.58 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.02 316.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.49 WATERSHED INCHES; 248 CFS-HRS; 20.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.38 2230.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
Page 108

BASE124.OUT  
 4.64 WATERSHED INCHES; 3402 CFS-HRS; 281.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS) 12.23 PEAK DISCHARGE(CFS) 299.0 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 50  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .15 SQ.MI.

HRS	CFS	MAIN	TIME	INCREMENT	.50	.55	.61	.68	.74	.82	.89	.96
5.94	CFS		.50		.55	.61	.68	.74	.82	.89	.96	
6.42	CFS	1.04		1.12		1.19	1.27	1.35	1.43	1.52	1.60	
6.90	CFS	1.68		1.77		1.85	1.94	2.02	2.11	2.19	2.28	
7.38	CFS	2.37		2.46		2.55	2.64	2.73	2.82	2.91	3.01	
7.86	CFS	3.10		3.19		3.29	3.38	3.48	3.57	3.67	3.78	
8.34	CFS	3.90		4.03		4.18	4.34	4.51	4.69	4.88	5.07	
8.82	CFS	5.28		5.49		5.71	5.94	6.18	6.42	6.66	6.90	
9.30	CFS	7.14		7.36		7.57	7.76	7.94	8.10	8.26	8.43	
9.78	CFS	8.60		8.81		9.04	9.31	9.61	9.94	10.29	10.66	
10.26	CFS	11.06		11.47		11.90	12.37	12.88	13.41	13.97	14.56	
10.74	CFS	15.18		15.86		16.55	17.26	18.01	18.82	19.71	20.66	
11.22	CFS	21.70		22.86		24.17	25.66	27.33	29.09	30.94	32.95	

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 114

11.70	CFS	36	42	51	67	96	139	205	261
12.18	CFS	293	299	285	266	246	226	207	189
12.66	CFS	171	155	141	128	116	106	98	90
13.14	CFS	81.95	74.51	68.36	63.35	59.24	55.92	53.26	51.10
13.62	CFS	49.31	47.80	46.49	45.35	44.32	43.39	42.53	41.71
14.10	CFS	40.94	40.19	39.47	38.79	38.14	37.55	36.99	36.46
14.58	CFS	35.90	35.31	34.67	33.98	33.27	32.55	31.85	31.15
15.06	CFS	30.47	29.81	29.13	28.34	27.48	26.61	25.66	24.61
15.54	CFS	23.60	22.69	21.89	21.18	20.56	20.01	19.45	18.98
16.02	CFS	18.51	18.06	17.65	17.26	16.89	16.53	16.20	15.88
16.50	CFS	15.60	15.35	15.13	14.94	14.76	14.61	14.47	14.33
16.98	CFS	14.20	14.08	13.96	13.85	13.73	13.62	13.51	13.41
17.46	CFS	13.30	13.19	13.09	12.98	12.85	12.70	12.56	12.44
17.94	CFS	12.32	12.21	12.11	12.01	11.91	11.81	11.71	11.62
18.42	CFS	11.52	11.43	11.33	11.24	11.15	11.05	10.96	10.86
18.90	CFS	10.77	10.68	10.58	10.49	10.39	10.30	10.21	10.11
19.38	CFS	10.02	9.93	9.83	9.74	9.64	9.55	9.45	9.36
19.86	CFS	9.27	9.17	9.08	8.98	8.89	8.79	8.70	8.62
20.34	CFS	8.54	8.48	8.42	8.37	8.33	8.29	8.26	8.23
20.82	CFS	8.20	8.18	8.16	8.13	8.11	8.09	8.07	8.05
21.30	CFS	8.03	8.01	7.99	7.97	7.96	7.94	7.92	7.90
21.78	CFS	7.88	7.86	7.85	7.83	7.81	7.79	7.77	7.75
22.26	CFS	7.73	7.72	7.70	7.68	7.66	7.64	7.62	7.61
22.74	CFS	7.59	7.57	7.55	7.53	7.51	7.49	7.48	7.46
23.22	CFS	7.44	7.42	7.40	7.38	7.36	7.34	7.33	7.31
23.70	CFS	7.29	7.27	7.25	7.23	7.21	7.20	7.18	7.14
24.18	CFS	6.97	6.46	5.61	4.62	3.69	2.90	2.26	1.75
24.66	CFS	1.35	1.04	.79	.61	.46			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.04 WATERSHED INCHES; 477 CFS-HRS; 39.4 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	45	26	15	12	9	8	7	4

DURATION(HRS) 18 19  
 FLOW(CFS) 1 0

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS) 12.37 PEAK DISCHARGE(CFS) 2490.9 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 50  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.28 SQ.MI.

3.48 CFS	.49	.53	.56	.60	.64	.69	.73	.78
3.96 CFS	.83	.88	.93	.98	1.04	1.10	1.16	1.23
4.44 CFS	1.30	1.36	1.43	1.51	1.59	1.67	1.75	1.84
4.92 CFS	1.93	2.03	2.12	2.22	2.32	2.42	2.54	2.65
5.40 CFS	2.77	2.90	3.03	3.16	3.31	3.46	3.62	3.79

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 115

5.88 CFS	3.98	4.19	4.40	4.63	4.87	5.11	5.37	5.63
6.36 CFS	5.89	6.16	6.44	6.71	6.99	7.28	7.57	7.87
6.84 CFS	8.19	8.52	8.86	9.22	9.61	10.00	10.42	10.84
7.32 CFS	11.28	11.74	12.21	12.70	13.20	13.72	14.25	14.79
7.80 CFS	15.34	15.89	16.46	17.04	17.63	18.22	18.83	19.45
8.28 CFS	20.09	20.77	21.50	22.30	23.17	24.11	25.13	26.21
8.76 CFS	27.36	28.59	29.88	31.25	32.66	34.13	35.65	37.19
9.24 CFS	38.76	40.33	41.87	43.35	44.77	46.12	47.39	48.61
9.72 CFS	49.82	51.04	52.33	53.76	55.35	57.15	59.18	61.43
10.20 CFS	63.90	66.57	69.43	72.49	75.88	79.68	83.83	88.35
10.68 CFS	93	98	104	109	115	122	128	136
11.16 CFS	143	152	161	171	182	194	208	227
11.64 CFS	253	293	355	452	607	842	1117	1420
12.12 CFS	1706	1980	2228	2409	2488	2456	2329	2140
12.60 CFS	1924	1705	1498	1310	1146	1007	892	800
13.08 CFS	724	661	611	568	529	493	460	431
13.56 CFS	405	382	362	344	329	316	303	292
14.04 CFS	282	273	265	257	249	243	236	231
14.52 CFS	225	221	216	212	208	204	201	197
15.00 CFS	194	191	188	185	182	179	176	173
15.48 CFS	170	167	164	161	159	156	154	151
15.96 CFS	149	146	144	142	140	138	136	134
16.44 CFS	132	130	129	128	126	125	124	123
16.92 CFS	122	121	121	120	119	118	117	117
17.40 CFS	116	115	114	113	113	112	111	110
17.88 CFS	110	109	108	107	106	106	105	104
18.36 CFS	103	103	102	101	100	100	99	98
18.84 CFS	97.46	96.71	95.95	95.20	94.44	93.68	92.93	92.17
19.32 CFS	91.41	90.65	89.89	89.12	88.36	87.59	86.82	86.06
19.80 CFS	85.29	84.52	83.75	82.98	82.21	81.45	80.71	79.99
20.28 CFS	79.30	78.65	78.04	77.48	76.98	76.53	76.13	75.78
20.76 CFS	75.47	75.19	74.92	74.69	74.46	74.24	74.04	73.84
21.24 CFS	73.65	73.46	73.28	73.10	72.91	72.74	72.56	72.38
21.72 CFS	72.21	72.03	71.86	71.68	71.51	71.33	71.16	70.99
22.20 CFS	70.81	70.64	70.47	70.30	70.12	69.95	69.78	69.61
22.68 CFS	69.43	69.26	69.09	68.92	68.75	68.58	68.40	68.23
23.16 CFS	68.06	67.89	67.72	67.55	67.38	67.20	67.03	66.86
23.64 CFS	66.68	66.51	66.33	66.15	65.96	65.78	65.57	64.99
24.12 CFS	63.43	61.20	58.49	55.02	50.69	45.65	40.19	34.76
24.60 CFS	29.74	25.39	21.74	18.82	16.57	14.89	13.66	12.77
25.08 CFS	12.12	11.63	11.26					

BASE124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.69 WATERSHED INCHES; 3878 CFS-HRS; 320.5 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 116

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	339	174	121	98	77	70	61	25
DURATION(HRS)	18							
FLOW(CFS)	11 TRUNCATED							

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. \*\*\*

OPERATION REACH XSECTION 77

PEAK TIME(HRS) 12.37 PEAK DISCHARGE(CFS) 2490.9 PEAK ELEVATION(FEET) 231.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.69 WATERSHED INCHES; 3878 CFS-HRS; 320.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS) 12.01 PEAK DISCHARGE(CFS) 181.3 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.26 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS) 12.37 PEAK DISCHARGE(CFS) 2523.9 PEAK ELEVATION(FEET) (NULL)

HRS	MAIN	HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =50							
		TIME INCREMENT = .060 hr,				DRAINAGE AREA = 1.33 SQ.MI.			
3.48 CFS	.49	.53	.56	.60	.64	.69	.73	.78	
3.96 CFS	.83	.88	.93	.98	1.04	1.10	1.16	1.23	
4.44 CFS	1.30	1.36	1.43	1.51	1.59	1.67	1.75	1.84	
4.92 CFS	1.93	2.03	2.12	2.22	2.32	2.42	2.54	2.65	
5.40 CFS	2.77	2.90	3.03	3.16	3.31	3.46	3.62	3.79	
5.88 CFS	3.98	4.19	4.40	4.63	4.87	5.11	5.37	5.63	
6.36 CFS	5.89	6.16	6.44	6.71	6.99	7.28	7.57	7.87	
6.84 CFS	8.19	8.52	8.86	9.23	9.62	10.04	10.47	10.92	
7.32 CFS	11.38	11.86	12.36	12.87	13.40	13.94	14.49	15.06	
7.80 CFS	15.63	16.22	16.81	17.42	18.03	18.66	19.29	19.95	
8.28 CFS	20.63	21.35	22.13	22.97	23.89	24.88	25.95	27.09	
8.76 CFS	28.29	29.58	30.94	32.36	33.84	35.37	36.95	38.55	
9.24 CFS	40.17	41.78	43.36	44.90	46.36	47.75	49.08	50.36	
9.72 CFS	51.65	52.96	54.35	55.88	57.58	59.49	61.63	64.02	
10.20 CFS	66.63	69.46	72.48	75.70	79.27	83.25	87.60	92.34	

1

TR20 ----- SCS -  
 Ellicott City Flood study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 Page 111

07/05/\*\*  
08:44:52

BASE124.OUT  
Run for 1,2,10,50,100YR STORMS  
PASS 4 JOB NO. 1

2.04TEST  
PAGE 117

10.68	CFS	97	103	108	114	121	127	134	142
11.16	CFS	150	159	169	180	192	205	220	241
11.64	CFS	274	327	406	527	721	1001	1298	1587
12.12	CFS	1830	2060	2283	2451	2523	2485	2355	2163
12.60	CFS	1944	1723	1514	1326	1162	1022	906	813
13.08	CFS	736	674	622	579	540	504	471	441
13.56	CFS	415	391	371	353	338	324	312	300
14.04	CFS	290	281	272	264	257	250	244	238
14.52	CFS	232	227	223	219	215	211	207	204
15.00	CFS	200	197	194	191	188	185	182	179
15.48	CFS	176	173	170	167	164	161	159	156
15.96	CFS	154	151	149	147	144	142	140	138
16.44	CFS	137	135	133	132	131	130	129	128
16.92	CFS	127	126	125	124	123	122	121	121
17.40	CFS	120	119	118	117	117	116	115	114
17.88	CFS	113	113	112	111	110	109	109	108
18.36	CFS	107	106	106	105	104	103	102	102
18.84	CFS	101	100	99	98	98	97	96	95
19.32	CFS	94.54	93.75	92.95	92.16	91.37	90.57	89.77	88.98
19.80	CFS	88.17	87.37	86.57	85.78	84.98	84.19	83.43	82.69
20.28	CFS	81.99	81.33	80.72	80.15	79.64	79.19	78.79	78.43
20.76	CFS	78.12	77.82	77.56	77.31	77.08	76.86	76.65	76.45
21.24	CFS	76.25	76.05	75.87	75.68	75.49	75.31	75.12	74.94
21.72	CFS	74.76	74.58	74.39	74.21	74.04	73.86	73.67	73.50
22.20	CFS	73.32	73.14	72.96	72.78	72.60	72.42	72.25	72.07
22.68	CFS	71.89	71.71	71.54	71.35	71.18	71.00	70.82	70.64
23.16	CFS	70.47	70.29	70.11	69.94	69.76	69.58	69.41	69.23
23.64	CFS	69.05	68.86	68.68	68.49	68.30	68.11	67.90	67.10
24.12	CFS	64.85	61.92	58.83	55.18	50.77	45.68	40.20	34.76
24.60	CFS	29.74	25.39	21.74	18.82	16.57	14.89	13.66	12.77
25.08	CFS	12.12	11.63	11.26					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.67 WATERSHED INCHES; 4019 CFS-HRS; 332.1 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	348	181	126	102	80	73	63	26

DURATION(HRS) 18  
FLOW(CFS) 11 TRUNCATED

OPERATION REACH XSECTION 80

PEAK TIME(HRS) 12.45 PEAK DISCHARGE(CFS) 2495.2 PEAK ELEVATION(FEET) 219.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.67 WATERSHED INCHES; 4018 CFS-HRS; 332.0 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 4 JOB NO. 1 PAGE 118

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)



11.98 BASE124.OUT (RUNOFF)  
213.9

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.82 WATERSHED INCHES; 160 CFS-HRS; 13.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.45 2522.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.68 WATERSHED INCHES; 4178 CFS-HRS; 345.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.00 103.0 (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 50									
HRS	MAIN	TIME	INCREMENT = .060 hr,	DRAINAGE AREA = .03 SQ.MI.					
9.18	CFS	.48	.51	.53	.56	.58	.61	.64	.67
9.66	CFS	.70	.74	.79	.84	.89	.94	1.00	1.06
10.14	CFS	1.13	1.20	1.28	1.36	1.45	1.54	1.64	1.74
10.62	CFS	1.85	1.98	2.12	2.27	2.43	2.60	2.78	2.97
11.10	CFS	3.19	3.47	3.80	4.17	4.57	5.01	5.46	6.03
11.58	CFS	8	12	18	28	42	65	92	103
12.06	CFS	94.04	67.33	42.64	29.33	22.68	18.82	16.25	14.26
12.54	CFS	12.61	11.28	10.32	9.66	9.18	8.78	8.42	8.07
13.02	CFS	7.72	7.40	7.12	6.88	6.67	6.48	6.28	6.10
13.50	CFS	5.91	5.73	5.56	5.40	5.26	5.11	4.98	4.84
13.98	CFS	4.71	4.58	4.46	4.37	4.29	4.24	4.19	4.14
14.46	CFS	4.09	4.04	4.00	3.95	3.90	3.86	3.81	3.76
14.94	CFS	3.72	3.67	3.62	3.58	3.53	3.48	3.43	3.39
15.42	CFS	3.34	3.29	3.24	3.19	3.14	3.10	3.05	3.00
15.90	CFS	2.95	2.90	2.85	2.81	2.77	2.75	2.72	2.70
16.38	CFS	2.69	2.67	2.65	2.64	2.62	2.60	2.59	2.57
16.86	CFS	2.55	2.53	2.52	2.50	2.48	2.47	2.45	2.43
17.34	CFS	2.42	2.40	2.38	2.36	2.35	2.33	2.31	2.29
17.82	CFS	2.28	2.26	2.24	2.22	2.21	2.19	2.17	2.15
18.30	CFS	2.14	2.12	2.10	2.08	2.07	2.05	2.03	2.01
18.78	CFS	2.00	1.98	1.96	1.94	1.93	1.91	1.89	1.87
19.26	CFS	1.85	1.84	1.82	1.80	1.78	1.77	1.75	1.73
19.74	CFS	1.71	1.69	1.68	1.66	1.64	1.62	1.61	1.60
20.22	CFS	1.59	1.58	1.58	1.58	1.57	1.57	1.57	1.56

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 4 JOB NO. 1 PAGE 119

20.70	CFS	1.56	1.56	1.55	1.55	1.55	1.54	1.54	1.54
21.18	CFS	1.53	1.53	1.53	1.52	1.52	1.52	1.51	1.51
21.66	CFS	1.50	1.50	1.50	1.49	1.49	1.49	1.48	1.48
22.14	CFS	1.48	1.48	1.47	1.47	1.47	1.46	1.46	1.46
22.62	CFS	1.45	1.45	1.44	1.44	1.44	1.43	1.43	1.43
23.10	CFS	1.42	1.42	1.42	1.41	1.41	1.41	1.40	1.40
23.58	CFS	1.40	1.39	1.39	1.39	1.38	1.38	1.38	1.37
24.06	CFS	1.22	.79	.38					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.89 WATERSHED INCHES; 79 CFS-HRS; 6.5 ACRE-FEET.

BASE124.OUT

DURATION(HRS) 2 4 6 8 10 12 14 15  
 FLOW(CFS) 6 3 3 2 2 1 1 0

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS) 12.45 PEAK DISCHARGE(CFS) 2538.0 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.66 WATERSHED INCHES; 4256 CFS-HRS; 351.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS) 12.08 PEAK DISCHARGE(CFS) 334.3 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =50  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .12 SQ.MI.

8.10 CFS	.46	.52	.58	.65	.73	.81	.90	.98
8.58 CFS	1.08	1.18	1.28	1.39	1.50	1.62	1.74	1.87
9.06 CFS	2.00	2.13	2.25	2.38	2.49	2.60	2.71	2.81
9.54 CFS	2.92	3.02	3.14	3.28	3.43	3.61	3.81	4.01
10.02 CFS	4.23	4.46	4.71	4.98	5.27	5.58	5.90	6.26
10.50 CFS	6.62	7.01	7.42	7.86	8.36	8.91	9.50	10.12
10.98 CFS	10.78	11.49	12.26	13.15	14.19	15.39	16.79	18.31
11.46 CFS	20	22	25	33	46	69	104	154
11.94 CFS	224	293	332	323	276	216	164	128
12.42 CFS	103	85	72	62	54	48	43	40
12.90 CFS	37.08	34.87	33.06	31.53	30.16	28.92	27.85	26.89
13.38 CFS	26.02	25.21	24.43	23.67	22.95	22.26	21.61	21.00
13.86 CFS	20.42	19.86	19.32	18.78	18.27	17.80	17.40	17.06
14.34 CFS	16.78	16.53	16.31	16.11	15.91	15.72	15.53	15.34
14.82 CFS	15.16	14.98	14.79	14.61	14.42	14.24	14.06	13.87
15.30 CFS	13.68	13.50	13.31	13.13	12.94	12.75	12.56	12.38
15.78 CFS	12.19	12.00	11.81	11.62	11.43	11.25	11.08	10.92
16.26 CFS	10.79	10.69	10.60	10.51	10.44	10.37	10.30	10.23
16.74 CFS	10.16	10.09	10.03	9.96	9.89	9.83	9.76	9.69

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 4 JOB NO. 1 PAGE 120

17.22 CFS	9.63	9.56	9.49	9.43	9.36	9.29	9.23	9.16
17.70 CFS	9.09	9.02	8.96	8.89	8.82	8.75	8.69	8.62
18.18 CFS	8.55	8.48	8.41	8.35	8.28	8.21	8.14	8.07
18.66 CFS	8.00	7.94	7.87	7.80	7.73	7.66	7.59	7.52
19.14 CFS	7.45	7.39	7.32	7.25	7.18	7.11	7.04	6.97
19.62 CFS	6.90	6.83	6.76	6.69	6.62	6.55	6.48	6.41
20.10 CFS	6.35	6.29	6.24	6.20	6.17	6.15	6.13	6.11
20.58 CFS	6.10	6.08	6.07	6.06	6.04	6.03	6.01	6.00
21.06 CFS	5.99	5.98	5.96	5.95	5.94	5.92	5.91	5.90
21.54 CFS	5.88	5.87	5.86	5.84	5.83	5.82	5.80	5.79
22.02 CFS	5.78	5.76	5.75	5.74	5.72	5.71	5.70	5.68
22.50 CFS	5.67	5.66	5.64	5.63	5.62	5.60	5.59	5.58
22.98 CFS	5.56	5.55	5.54	5.52	5.51	5.50	5.48	5.47
23.46 CFS	5.46	5.44	5.43	5.41	5.40	5.39	5.37	5.36
23.94 CFS	5.35	5.32	5.13	4.56	3.54	2.47	1.58	.99
24.42 CFS	.62	.39						

BASE124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.07 WATERSHED INCHES; 312 CFS-HRS; 25.8 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	23	14	10	8	6	6	5	1

DURATION(HRS) 16  
 FLOW(CFS) 0

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS) 12.44                      PEAK DISCHARGE(CFS) 2633.9                      PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.61 WATERSHED INCHES; 4568 CFS-HRS; 377.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS) 11.96                      PEAK DISCHARGE(CFS) 80.0                      PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.81 WATERSHED INCHES; 60 CFS-HRS; 4.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS) 12.44                      PEAK DISCHARGE(CFS) 2643.0                      PEAK ELEVATION(FEET) (NULL)

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4      VERSION  
 07/05/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 08:44:52                      PASS 4      JOB NO. 1                      PAGE 121

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.63 WATERSHED INCHES; 4628 CFS-HRS; 382.4 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP      COMPUTATIONS COMPLETED FOR PASS 4

EXECUTIVE CONTROL COMPUT      FROM XSECTION 1 TO XSECTION 88  
 STARTING TIME = .00                      RAIN DEPTH = 8.53                      RAIN DURATION = 1.00  
 ANT. RUNOFF COND. = 2                      MAIN TIME INCREMENT = .060 HOURS  
 ALTERNATE NO. = 1                      STORM NO. =99                      RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS) 12.12                      PEAK DISCHARGE(CFS) 122.5                      PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.05 WATERSHED INCHES; 131 CFS-HRS; 10.8 ACRE-FEET.

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 2.                      \*\*\*

BASE124.OUT

OPERATION REACH XSECTION 2  
 PEAK TIME(HRS) 12.12 PEAK DISCHARGE(CFS) 122.5 PEAK ELEVATION(FEET) 390.96  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.05 WATERSHED INCHES; 131 CFS-HRS; 10.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 3  
 PEAK TIME(HRS) 12.10 PEAK DISCHARGE(CFS) 226.4 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.19 WATERSHED INCHES; 232 CFS-HRS; 19.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 4  
 1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 122

PEAK TIME(HRS) 12.11 PEAK DISCHARGE(CFS) 348.4 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.14 WATERSHED INCHES; 363 CFS-HRS; 30.0 ACRE-FEET.

\*\*\* WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 11,  
 VALUE EXTRAPOLATED. \*\*\*

OPERATION RESVOR STRUCTURE 11  
 PEAK TIME(HRS) 12.13 PEAK DISCHARGE(CFS) 346.0 PEAK ELEVATION(FEET) 385.70  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.12 WATERSHED INCHES; 362 CFS-HRS; 29.9 ACRE-FEET.

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 5. \*\*\*

OPERATION REACH XSECTION 5  
 PEAK TIME(HRS) 12.13 PEAK DISCHARGE(CFS) 346.0 PEAK ELEVATION(FEET) 369.29  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.12 WATERSHED INCHES; 362 CFS-HRS; 29.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6  
 PEAK TIME(HRS) 12.12 PEAK DISCHARGE(CFS) 277.6 PEAK ELEVATION(FEET) (RUNOFF)

BASE124.OUT  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.63 WATERSHED INCHES; 290 CFS-HRS; 23.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 623.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.89 WATERSHED INCHES; 651 CFS-HRS; 53.8 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 5 JOB NO. 1 PAGE 123

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 8. \*\*\*

OPERATION REACH XSECTION 8

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 623.2 359.15

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.89 WATERSHED INCHES; 651 CFS-HRS; 53.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 300.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
7.15 WATERSHED INCHES; 339 CFS-HRS; 28.0 ACRE-FEET.

\*\*\* MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE  
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00. \*\*\*  
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME.

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 21, TRUNCATED AT 400 POINTS  
WITH 2.39 AC-FT ( .05 WATERSHED INCHES) FLOOD STORAGE \*\*\*  
REMAINING IN RESERVOIR AT ELEV. 370.17.

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.38 157.4 379.28

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.54 WATERSHED INCHES; 310 CFS-HRS; 25.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.96 46.5 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
Page 117

BASE124.OUT  
5.20 WATERSHED INCHES; 33 CFS-HRS; 2.7 ACRE-FEET.

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 5 JOB NO. 1 PAGE 124

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.78 129.4 360.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.53 WATERSHED INCHES; 309 CFS-HRS; 25.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.02 241.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.29 WATERSHED INCHES; 194 CFS-HRS; 16.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.08 823.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.74 WATERSHED INCHES; 846 CFS-HRS; 69.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.03 87.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.00 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.11 879.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.92 WATERSHED INCHES; 1153 CFS-HRS; 95.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 5 JOB NO. 1 PAGE 125

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
Page 118

12.10

BASE124.OUT  
956.7

(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.93 WATERSHED INCHES; 1228 CFS-HRS; 101.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS) 12.10 PEAK DISCHARGE(CFS) 956.7 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99									
DRAINAGE AREA = .32 SQ.MI.									
HRS	MAIN	TIME	INCREMENT =	.060 hr,					
3.60	CFS	.00	.01	.01	.01	.01	.01	.01	.02
4.08	CFS	.02	.02	.02	.03	.03	.03	.03	.04
4.56	CFS	.04	.04	.05	.05	.05	.06	.06	.07
5.04	CFS	.08	.08	.10	.12	.14	.16	.18	.21
5.52	CFS	.23	.26	.29	.32	.35	.39	.44	.49
6.00	CFS	.55	.61	.69	.77	.85	.94	1.02	1.11
6.48	CFS	1.22	1.33	1.45	1.58	1.71	1.84	1.98	2.11
6.96	CFS	2.25	2.39	2.53	2.67	2.82	2.96	3.11	3.25
7.44	CFS	3.40	3.55	3.70	3.86	4.01	4.17	4.33	4.49
7.92	CFS	4.65	4.81	4.98	5.15	5.34	5.54	5.77	6.01
8.40	CFS	6.26	6.53	6.82	7.11	7.41	7.73	8.06	8.39
8.88	CFS	8.74	9.14	9.60	10.10	10.62	11.14	11.64	13.16
9.36	CFS	14.46	15.48	16.32	17.02	17.67	18.29	18.93	19.61
9.84	CFS	20.34	21.10	21.89	22.73	23.61	24.56	25.56	26.64
10.32	CFS	27.79	29.01	30.29	31.63	33.03	34.51	36.08	37.76
10.80	CFS	39.57	41.50	43.54	45.68	47.96	50.45	53.26	56.50
11.28	CFS	60	64	69	74	80	90	110	146
11.76	CFS	203	309	469	653	830	942	950	874
12.24	CFS	743	620	519	444	390	349	318	293
12.72	CFS	275	260	250	241	231	221	211	201
13.20	CFS	192	183	159	138	124	114	106	100
13.68	CFS	95.47	91.28	87.60	84.29	81.27	78.46	75.83	73.38
14.16	CFS	71.14	69.11	67.28	65.65	64.18	62.83	61.60	60.48
14.64	CFS	59.42	58.44	57.51	56.63	55.78	54.97	54.19	53.41
15.12	CFS	52.67	51.93	51.20	50.49	49.78	49.08	48.38	47.69
15.60	CFS	47.00	46.31	45.63	44.95	44.27	43.58	42.91	42.23
16.08	CFS	41.56	40.92	40.34	39.84	39.43	39.09	38.79	38.52
16.56	CFS	38.28	38.05	37.83	37.63	37.42	37.22	37.03	36.84
17.04	CFS	36.64	36.45	36.26	36.07	35.88	35.69	35.50	35.30
17.52	CFS	35.11	34.92	34.73	34.53	34.34	34.15	33.95	33.76
18.00	CFS	33.57	33.37	33.18	32.98	32.79	32.59	32.40	32.20
18.48	CFS	32.00	31.80	31.61	31.41	31.21	31.01	30.81	30.61
18.96	CFS	30.41	30.21	30.01	29.81	29.61	29.41	29.21	29.01
19.44	CFS	28.81	28.61	28.41	28.20	28.00	27.80	27.60	27.39
19.92	CFS	27.19	26.98	26.78	26.58	26.40	26.24	26.09	25.96
20.40	CFS	25.85	25.75	25.66	25.58	25.50	25.43	25.36	25.30

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 126

20.88	CFS	25.23	25.17	25.11	25.04	24.98	24.92	24.86	24.80
21.36	CFS	24.74	24.68	24.62	24.56	24.50	24.44	24.38	24.32
21.84	CFS	24.26	24.20	24.14	24.08	24.02	23.96	23.90	23.84
22.32	CFS	23.78	23.72	23.66	23.60	23.55	23.49	23.43	23.37
22.80	CFS	23.31	23.25	23.19	23.13	23.07	23.01	22.96	22.90
23.28	CFS	22.84	22.78	22.72	22.66	22.60	22.55	22.49	22.43
23.76	CFS	22.37	22.31	22.25	22.20	22.12	21.65	20.25	18.20
24.24	CFS	16.16	14.37	12.82	11.67	11.23	10.91	10.64	10.40

	10.21	10.03	9.86	9.71	9.56	9.42	9.28	9.14
24.72 CFS	10.21	10.03	9.86	9.71	9.56	9.42	9.28	9.14
25.20 CFS	9.02	8.89	8.77	8.65	8.53	8.41	8.29	8.18
25.68 CFS	8.07	7.96	7.85	7.74	7.64	7.54	7.43	7.33
26.16 CFS	7.24	7.14	7.04	6.95	6.86	6.77	6.68	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.93 WATERSHED INCHES; 1228 CFS-HRS; 101.5 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	99	52	38	32	26	24	22	9

DURATION(HRS)	18	18
FLOW(CFS)	7	7 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. \*\*\*

\*\*\* WARNING - XSECTION 16, INFLOW EXCEEDS MAX TABLE DISCHARGE,  
 EXTRAPOLATION USED. \*\*\*

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.10	956.7	336.87

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.93 WATERSHED INCHES; 1228 CFS-HRS; 101.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	122.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.08 WATERSHED INCHES; 96 CFS-HRS; 8.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 118

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 127

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	141.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.71 WATERSHED INCHES; 126 CFS-HRS; 10.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	141.8	(NULL)

HRS	MAIN	HYDROGRAPH POINTS FOR	ALTERNATE = 1,	STORM = 99	DRAINAGE AREA =	.03 SQ.MI.
1.68 CFS	.00	.01	.03	.05	.07	.10
2.16 CFS	.17	.20	.22	.24	.27	.29
						.32
						.34



BASE124.OUT

2.64	CFS	.36	.39	.41	.43	.45	.48	.50	.52
3.12	CFS	.54	.56	.58	.61	.63	.65	.67	.69
3.60	CFS	.71	.73	.75	.77	.79	.81	.83	.85
4.08	CFS	.87	.89	.91	.93	.95	.98	1.00	1.02
4.56	CFS	1.05	1.07	1.09	1.12	1.14	1.16	1.19	1.21
5.04	CFS	1.23	1.26	1.28	1.30	1.33	1.35	1.37	1.40
5.52	CFS	1.42	1.44	1.47	1.49	1.51	1.54	1.56	1.58
6.00	CFS	1.61	1.63	1.65	1.68	1.70	1.72	1.75	1.77
6.48	CFS	1.79	1.82	1.84	1.86	1.89	1.91	1.93	1.95
6.96	CFS	1.98	2.00	2.02	2.05	2.07	2.09	2.11	2.14
7.44	CFS	2.16	2.18	2.20	2.23	2.25	2.27	2.29	2.32
7.92	CFS	2.34	2.36	2.38	2.41	2.45	2.51	2.58	2.65
8.40	CFS	2.72	2.79	2.87	2.95	3.03	3.11	3.19	3.27
8.88	CFS	3.35	3.43	3.51	3.59	3.66	3.71	3.74	3.77
9.36	CFS	3.78	3.80	3.81	3.83	3.86	3.91	3.99	4.09
9.84	CFS	4.20	4.33	4.45	4.58	4.71	4.86	5.02	5.20
10.32	CFS	5.38	5.57	5.76	5.95	6.15	6.37	6.62	6.90
10.80	CFS	7.21	7.51	7.83	8.15	8.49	8.89	9.36	9.96
11.28	CFS	10.64	11.37	12.12	12.87	13.81	16.40	22.28	32.56
11.76	CFS	47.09	66.45	92.71	124.07	141.32	134.12	104.29	71.18
12.24	CFS	48.08	35.43	27.92	23.10	19.71	17.04	14.95	13.37
12.72	CFS	12.28	11.55	10.97	10.46	9.99	9.54	9.12	8.75
13.20	CFS	8.42	8.14	7.88	7.63	7.40	7.16	6.93	6.71
13.68	CFS	6.51	6.33	6.15	5.98	5.81	5.65	5.48	5.33
14.16	CFS	5.21	5.11	5.03	4.96	4.89	4.83	4.77	4.72
14.64	CFS	4.66	4.60	4.54	4.48	4.42	4.37	4.31	4.25
15.12	CFS	4.19	4.14	4.08	4.02	3.96	3.90	3.85	3.79
15.60	CFS	3.73	3.67	3.61	3.56	3.50	3.44	3.38	3.33
16.08	CFS	3.27	3.22	3.19	3.16	3.13	3.11	3.09	3.06
16.56	CFS	3.04	3.02	3.00	2.98	2.96	2.94	2.92	2.90
17.04	CFS	2.88	2.86	2.84	2.82	2.79	2.77	2.75	2.73
17.52	CFS	2.71	2.69	2.67	2.65	2.63	2.61	2.59	2.57
18.00	CFS	2.55	2.53	2.51	2.49	2.46	2.44	2.42	2.40
18.48	CFS	2.38	2.36	2.34	2.32	2.30	2.28	2.26	2.24

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 128

18.96	CFS	2.22	2.20	2.17	2.15	2.13	2.11	2.09	2.07
19.44	CFS	2.05	2.03	2.01	1.99	1.97	1.95	1.93	1.91
19.92	CFS	1.88	1.86	1.84	1.83	1.81	1.80	1.79	1.79
20.40	CFS	1.78	1.78	1.77	1.77	1.76	1.76	1.76	1.75
20.88	CFS	1.75	1.74	1.74	1.74	1.73	1.73	1.72	1.72
21.36	CFS	1.72	1.71	1.71	1.70	1.70	1.69	1.69	1.69
21.84	CFS	1.68	1.68	1.67	1.67	1.67	1.66	1.66	1.65
22.32	CFS	1.65	1.65	1.64	1.64	1.63	1.63	1.62	1.62
22.80	CFS	1.62	1.61	1.61	1.60	1.60	1.59	1.59	1.59
23.28	CFS	1.58	1.58	1.57	1.57	1.57	1.56	1.56	1.55
23.76	CFS	1.55	1.55	1.54	1.54	1.53	1.42	1.06	.62
24.24	CFS	.32	.16	.08	.04	.02	.01	.00	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.71 WATERSHED INCHES; 126 CFS-HRS; 10.4 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	9	5	4	3	2	2	2	2
DURATION(HRS)	18	20	21					
FLOW(CFS)	2	1	0					

OPERATION RUNOFF XSECTION 119

PEAK TIME(HRS) 11.96 PEAK DISCHARGE(CFS) 35.3 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 6.85 WATERSHED INCHES; 26 CFS-HRS; 2.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 120

PEAK TIME(HRS) 12.00 PEAK DISCHARGE(CFS) 174.3 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 7.54 WATERSHED INCHES; 152 CFS-HRS; 12.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS) 11.99 PEAK DISCHARGE(CFS) 295.2 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 7.35 WATERSHED INCHES; 248 CFS-HRS; 20.5 ACRE-FEET.

1

TR20 ----- SCS - Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST 08:44:52 PASS 5 JOB NO. 1 PAGE 129

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 223.9 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 6.66 WATERSHED INCHES; 174 CFS-HRS; 14.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS) 11.99 PEAK DISCHARGE(CFS) 518.9 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 7.05 WATERSHED INCHES; 422 CFS-HRS; 34.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS) 12.04 PEAK DISCHARGE(CFS) 1396.1 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 6.15 WATERSHED INCHES; 1641 CFS-HRS; 135.6 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.15 BASE124.OUT 317.68  
1287.5

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.15 WATERSHED INCHES; 1641 CFS-HRS; 135.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.09 192.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.71 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
TIME INCREMENT OF .043 HOURS. \*\*\*

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 5 JOB NO. 1 PAGE 130

\*\*\* WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.13 185.8 365.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.70 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.10 273.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.63 WATERSHED INCHES; 272 CFS-HRS; 22.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.11 457.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.19 444.6 320.01

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 28  
 PEAK TIME(HRS) 12.08 PEAK DISCHARGE(CFS) 209.7 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.09 WATERSHED INCHES; 197 CFS-HRS; 16.3 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 131

OPERATION ADDHYD XSECTION 29  
 PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 1483.6 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.01 WATERSHED INCHES; 1838 CFS-HRS; 151.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 30  
 PEAK TIME(HRS) 12.15 PEAK DISCHARGE(CFS) 1910.1 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.94 WATERSHED INCHES; 2296 CFS-HRS; 189.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 31  
 PEAK TIME(HRS) 12.05 PEAK DISCHARGE(CFS) 318.5 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.40 WATERSHED INCHES; 286 CFS-HRS; 23.6 ACRE-FEET.

OPERATION REACH XSECTION 32  
 PEAK TIME(HRS) 12.15 PEAK DISCHARGE(CFS) 288.6 PEAK ELEVATION(FEET) 314.57  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.40 WATERSHED INCHES; 286 CFS-HRS; 23.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 33  
 PEAK TIME(HRS) 11.99 PEAK DISCHARGE(CFS) 49.7 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.92 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS  
 WITH .53 AC-FT ( .10 WATERSHED INCHES) FLOOD STORAGE  
 REMAINING IN RESERVOIR AT ELEV. 378.25. \*\*\*

1

TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 5 JOB NO. 1 PAGE 132

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.09 38.7 381.12

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.74 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. \*\*\*

OPERATION REACH XSECTION 34

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.09 38.7 338.33

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.74 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.03 149.4 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.92 WATERSHED INCHES; 141 CFS-HRS; 11.6 ACRE-FEET.

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS  
 WITH 1.05 AC-FT ( .06 WATERSHED INCHES) FLOOD STORAGE  
 REMAINING IN RESERVOIR AT ELEV. 354.18. \*\*\*

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.07 148.8 358.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.24 WATERSHED INCHES; 128 CFS-HRS; 10.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.07 187.4 (NULL)

1  
 TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 5 JOB NO. 1 PAGE 133

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.12 WATERSHED INCHES; 165 CFS-HRS; 13.6 ACRE-FEET.

BASE124.OUT

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.07                                      187.4                                      (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.12 WATERSHED INCHES;              165 CFS-HRS;              13.6 ACRE-FEET.

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37.              \*\*\*

OPERATION REACH XSECTION 37

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.07                                      187.4                                      331.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.12 WATERSHED INCHES;              165 CFS-HRS;              13.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 138

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 11.97                                      168.1                                      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.31 WATERSHED INCHES;              132 CFS-HRS;              10.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 139

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.05                                      321.0                                      (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.20 WATERSHED INCHES;              297 CFS-HRS;              24.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 35

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.05                                      321.0                                      (NULL)

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4      VERSION  
 07/05/\*\*                      Run for 1,2,10,50,100YR STORMS              2.04TEST  
 08:44:52                      PASS 5 JOB NO. 1                      PAGE 134

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99									
HRS	MAIN	TIME	INCREMENT =	.060 hr,		DRAINAGE AREA = .06 SQ.MI.			
1.80 CFS	.00	.01	.01	.01	.01	.02	.02	.02	.02
2.28 CFS	.03	.03	.03	.04	.06	.08	.10	.13	.13
2.76 CFS	.15	.18	.21	.23	.26	.28	.31	.34	.34
3.24 CFS	.36	.39	.42	.44	.47	.50	.52	.55	.55
3.72 CFS	.58	.60	.63	.66	.68	.71	.74	.76	.76
4.20 CFS	.79	.82	.85	.89	.92	.95	.98	1.01	1.01
4.68 CFS	1.04	1.07	1.11	1.14	1.17	1.20	1.24	1.27	1.27
5.16 CFS	1.30	1.34	1.37	1.41	1.44	1.48	1.51	1.55	1.55
5.64 CFS	1.58	1.62	1.65	1.69	1.72	1.76	1.80	1.83	1.83

BASE124.OUT

6.12	CFS	1.87	1.91	1.94	1.98	2.02	2.05	2.09	2.13
6.60	CFS	2.17	2.20	2.24	2.28	2.32	2.36	2.39	2.43
7.08	CFS	2.47	2.51	2.55	2.59	2.63	2.66	2.70	2.74
7.56	CFS	2.78	2.82	2.86	2.90	2.94	2.98	3.02	3.06
8.04	CFS	3.10	3.16	3.22	3.30	3.39	3.48	3.58	3.67
8.52	CFS	3.77	3.87	3.96	4.07	4.17	4.27	4.37	4.48
9.00	CFS	4.59	4.68	4.77	4.83	4.88	4.93	4.97	5.01
9.48	CFS	5.05	5.10	5.17	5.33	5.68	6.04	6.39	6.75
9.96	CFS	7.16	7.58	8.00	8.42	8.86	9.30	9.74	10.18
10.44	CFS	10.62	11.07	11.53	12.02	12.58	13.19	13.83	14.48
10.92	CFS	15.14	15.81	16.50	17.34	18.29	19.40	20.61	21.87
11.40	CFS	23	25	26	32	42	61	85	121
11.88	CFS	183	273	293	318	247	182	155	126
12.36	CFS	92.50	76.22	64.81	57.10	50.40	44.83	40.35	37.01
12.84	CFS	35.21	33.59	32.06	30.58	29.19	27.92	26.75	25.68
13.32	CFS	24.68	23.73	22.83	21.97	21.16	20.39	19.70	19.09
13.80	CFS	18.50	17.93	17.38	16.85	16.34	15.87	15.44	15.06
14.28	CFS	14.71	14.40	14.09	13.81	13.54	13.29	13.05	12.82
14.76	CFS	12.60	12.39	12.19	11.99	11.80	11.62	11.44	11.26
15.24	CFS	11.09	10.92	10.76	10.60	10.46	10.31	10.16	10.01
15.72	CFS	9.87	9.72	9.57	9.42	9.28	9.13	8.99	8.86
16.20	CFS	8.75	8.65	8.55	8.46	8.37	8.28	8.20	8.12
16.68	CFS	8.05	7.98	7.90	7.83	7.77	7.70	7.63	7.57
17.16	CFS	7.51	7.45	7.40	7.35	7.29	7.24	7.19	7.14
17.64	CFS	7.09	7.04	6.99	6.94	6.89	6.85	6.80	6.75
18.12	CFS	6.70	6.65	6.60	6.56	6.51	6.46	6.41	6.37
18.60	CFS	6.32	6.27	6.23	6.18	6.13	6.08	6.04	5.99
19.08	CFS	5.94	5.90	5.85	5.80	5.75	5.71	5.66	5.61
19.56	CFS	5.57	5.52	5.47	5.42	5.37	5.33	5.28	5.23
20.04	CFS	5.18	5.14	5.11	5.07	5.05	5.02	4.99	4.97
20.52	CFS	4.95	4.93	4.91	4.89	4.87	4.85	4.83	4.82
21.00	CFS	4.80	4.79	4.78	4.76	4.75	4.74	4.72	4.71
21.48	CFS	4.70	4.69	4.67	4.66	4.65	4.64	4.62	4.61
21.96	CFS	4.60	4.59	4.58	4.57	4.55	4.54	4.53	4.52
22.44	CFS	4.51	4.50	4.49	4.47	4.46	4.45	4.44	4.43
22.92	CFS	4.42	4.41	4.39	4.38	4.37	4.36	4.35	4.34
23.40	CFS	4.33	4.31	4.31	4.29	4.28	4.27	4.26	4.25
23.88	CFS	4.24	4.23	4.22	3.95	3.23	2.73	2.49	2.33
24.36	CFS	2.21	2.10	2.01	1.92	1.84	1.76	1.74	1.73

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 135

24.84	CFS	1.72	1.71	1.70	1.69						
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)											
7.20 WATERSHED INCHES;				297 CFS-HRS;		24.6 ACRE-FEET.					
DURATION(HRS)	2	4	6	8	10	12	14	16			
FLOW(CFS)	23	13	9	7	5	5	4	3			
DURATION(HRS)	18	20									
FLOW(CFS)	2	2 TRUNCATED									

OPERATION RUNOFF XSECTION 140

PEAK TIME(HRS) 11.96 PEAK DISCHARGE(CFS) 18.8 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 Page 127

BASE124.OUT  
4.23 WATERSHED INCHES; 13 CFS-HRS; 1.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 141

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.04 336.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
7.00 WATERSHED INCHES; 310 CFS-HRS; 25.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.10 154.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.19 WATERSHED INCHES; 157 CFS-HRS; 13.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.14 2059.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.95 WATERSHED INCHES; 2453 CFS-HRS; 202.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 5 JOB NO. 1 PAGE 136

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.15 2347.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.00 WATERSHED INCHES; 2739 CFS-HRS; 226.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.13 2581.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.08 WATERSHED INCHES; 3045 CFS-HRS; 251.6 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.22 2494.7 292.90

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.07 WATERSHED INCHES; 3043 CFS-HRS; 251.4 ACRE-FEET.



OPERATION RUNOFF XSECTION 45  
 PEAK TIME(HRS) 12.13 PEAK DISCHARGE(CFS) 161.8 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 5.63 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 46  
 PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 195.7 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 5.37 WATERSHED INCHES; 218 CFS-HRS; 18.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 47  
 PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 357.2 PEAK ELEVATION(FEET) (NULL)

1 TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 5 JOB NO. 1 PAGE 137

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 5.48 WATERSHED INCHES; 391 CFS-HRS; 32.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 48  
 PEAK TIME(HRS) 12.03 PEAK DISCHARGE(CFS) 214.0 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 6.02 WATERSHED INCHES; 182 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 49  
 PEAK TIME(HRS) 12.20 PEAK DISCHARGE(CFS) 2610.0 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 6.07 WATERSHED INCHES; 3225 CFS-HRS; 266.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 50  
 PEAK TIME(HRS) 12.20 PEAK DISCHARGE(CFS) 2948.7 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 6.00 WATERSHED INCHES; 3616 CFS-HRS; 298.8 ACRE-FEET.

OPERATION REACH XSECTION 51  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)



BASE124.OUT  
3.22 WATERSHED INCHES; 33 CFS-HRS; 2.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

1  
TR20 ----- SCS -  
07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
PASS 5 JOB NO. 1 PAGE 139

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.28 2938.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.94 WATERSHED INCHES; 3761 CFS-HRS; 310.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.04 105.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.27 WATERSHED INCHES; 90 CFS-HRS; 7.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.27 2979.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.92 WATERSHED INCHES; 3851 CFS-HRS; 318.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.06 65.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.24 WATERSHED INCHES; 59 CFS-HRS; 4.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.27 3015.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.91 WATERSHED INCHES; 3910 CFS-HRS; 323.1 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.36 2924.9 252.20

1  
TR20 ----- SCS -  
07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
PASS 5 JOB NO. 1 PAGE 140

BASE124.OUT

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.03 SQ.MI.

3.00	CFS	.50	.54	.59	.64	.69	.75	.80	.86
3.00	ELEV	247.16	247.17	247.18	247.19	247.20	247.21	247.22	247.23
3.48	CFS	.92	.98	1.04	1.10	1.16	1.23	1.29	1.36
3.48	ELEV	247.24	247.25	247.26	247.27	247.28	247.30	247.31	247.32
3.96	CFS	1.43	1.50	1.57	1.64	1.73	1.81	1.89	1.98
3.96	ELEV	247.33	247.34	247.36	247.37	247.39	247.40	247.41	247.42
4.44	CFS	2.08	2.17	2.27	2.37	2.48	2.60	2.72	2.85
4.44	ELEV	247.43	247.44	247.44	247.45	247.46	247.47	247.48	247.49
4.92	CFS	2.99	3.13	3.28	3.43	3.60	3.76	3.94	4.13
4.92	ELEV	247.50	247.51	247.53	247.54	247.55	247.56	247.58	247.59
5.40	CFS	4.33	4.53	4.74	4.96	5.18	5.40	5.63	5.86
5.40	ELEV	247.61	247.63	247.64	247.66	247.68	247.70	247.72	247.73
5.88	CFS	6.10	6.34	6.59	6.84	7.12	7.41	7.72	8.06
5.88	ELEV	247.74	247.75	247.75	247.75	247.76	247.76	247.77	247.77
6.36	CFS	8.41	8.79	9.18	9.59	10.02	10.46	10.93	11.40
6.36	ELEV	247.78	247.78	247.79	247.80	247.80	247.81	247.82	247.82
6.84	CFS	11.90	12.41	12.94	13.48	14.02	14.58	15.15	15.73
6.84	ELEV	247.83	247.84	247.85	247.86	247.86	247.87	247.88	247.89
7.32	CFS	16.33	16.92	17.53	18.14	18.76	19.38	20.00	20.64
7.32	ELEV	247.90	247.91	247.92	247.93	247.94	247.95	247.96	247.97
7.80	CFS	21.27	21.91	22.56	23.20	23.86	24.51	25.18	25.85
7.80	ELEV	247.98	247.99	248.00	248.01	248.02	248.03	248.04	248.05
8.28	CFS	26.55	27.30	28.10	28.99	29.96	31.04	32.20	33.44
8.28	ELEV	248.06	248.07	248.08	248.09	248.10	248.11	248.12	248.13
8.76	CFS	34.75	36.13	37.56	39.04	40.57	42.14	43.74	45.40
8.76	ELEV	248.15	248.16	248.18	248.19	248.21	248.23	248.24	248.26
9.24	CFS	47.08	48.79	50.50	52.17	53.77	55.44	57.22	59.06
9.24	ELEV	248.28	248.30	248.31	248.33	248.35	248.37	248.39	248.40
9.72	CFS	60.88	62.65	64.43	66.32	68.39	70.65	73.12	75.81
9.72	ELEV	248.42	248.44	248.45	248.47	248.48	248.50	248.53	248.55
10.20	CFS	79	82	85	89	92	96	100	105
10.20	ELEV	248.57	248.60	248.63	248.66	248.68	248.70	248.71	248.73
10.68	CFS	109	114	119	125	131	137	144	151
10.68	ELEV	248.75	248.77	248.79	248.81	248.84	248.86	248.89	248.92
11.16	CFS	159	167	176	186	197	209	223	238
11.16	ELEV	248.95	248.97	249.00	249.03	249.05	249.09	249.13	249.17
11.64	CFS	257	282	321	385	489	657	911	1257
11.64	ELEV	249.22	249.27	249.36	249.49	249.69	249.96	250.31	250.73
12.12	CFS	1683	2129	2537	2820	2924	2850	2629	2321
12.12	ELEV	251.16	251.57	251.90	252.12	252.20	252.14	251.97	251.73
12.60	CFS	1990	1683	1420	1204	1031	896	790	709
12.60	ELEV	251.45	251.16	250.90	250.67	250.46	250.29	250.15	250.04
13.08	CFS	647	600	563	532	505	481	459	439
13.08	ELEV	249.94	249.87	249.81	249.77	249.72	249.67	249.63	249.60
13.56	CFS	418	395	371	348	327	309	293	279
13.56	ELEV	249.56	249.51	249.46	249.41	249.37	249.33	249.30	249.27
14.04	CFS	268	257	248	240	232	225	218	212
14.04	ELEV	249.24	249.22	249.20	249.17	249.15	249.13	249.11	249.10

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 141

14.52	CFS	207	202	198	194	191	188	185	182
14.52	ELEV	249.08	249.07	249.06	249.05	249.04	249.03	249.02	249.01
15.00	CFS	179	177	174	172	169	167	165	162
15.00	ELEV	249.01	249.00	248.99	248.99	248.98	248.97	248.97	248.96
15.48	CFS	160	158	156	154	151	149	147	145

BASE124.OUT

15.48	ELEV	248.95	248.95	248.94	248.93	248.92	248.91	248.90	248.89
15.96	CFS	143	141	138	136	134	132	130	128
15.96	ELEV	248.89	248.88	248.87	248.86	248.85	248.84	248.83	248.83
16.44	CFS	126	125	123	122	121	120	119	118
16.44	ELEV	248.82	248.81	248.81	248.80	248.80	248.79	248.79	248.78
16.92	CFS	117	116	115	114	114	113	112	111
16.92	ELEV	248.78	248.78	248.77	248.77	248.77	248.76	248.76	248.76
17.40	CFS	111	110	109	109	108	107	106	106
17.40	ELEV	248.76	248.75	248.75	248.75	248.74	248.74	248.74	248.74
17.88	CFS	105	104	104	103	102	102	101	100
17.88	ELEV	248.73	248.73	248.73	248.72	248.72	248.72	248.72	248.71
18.36	CFS	99.37	98.66	97.95	97.23	96.52	95.80	95.08	94.37
18.36	ELEV	248.71	248.71	248.70	248.70	248.70	248.69	248.69	248.69
18.84	CFS	93.65	92.93	92.21	91.49	90.77	90.05	89.33	88.61
18.84	ELEV	248.69	248.68	248.68	248.68	248.67	248.67	248.67	248.66
19.32	CFS	87.89	87.17	86.44	85.72	85.00	84.27	83.55	82.82
19.32	ELEV	248.65	248.65	248.64	248.64	248.63	248.62	248.62	248.61
19.80	CFS	82.10	81.37	80.65	79.92	79.19	78.46	77.74	77.02
19.80	ELEV	248.60	248.60	248.59	248.59	248.58	248.57	248.57	248.56
20.28	CFS	76.33	75.66	75.04	74.48	73.98	73.54	73.16	72.83
20.28	ELEV	248.55	248.55	248.54	248.54	248.53	248.53	248.53	248.52
20.76	CFS	72.54	72.28	72.05	71.83	71.63	71.43	71.25	71.07
20.76	ELEV	248.52	248.52	248.52	248.51	248.51	248.51	248.51	248.51
21.24	CFS	70.89	70.72	70.54	70.38	70.21	70.04	69.87	69.71
21.24	ELEV	248.51	248.51	248.50	248.50	248.50	248.50	248.50	248.50
21.72	CFS	69.54	69.37	69.21	69.04	68.88	68.71	68.55	68.38
21.72	ELEV	248.49	248.49	248.49	248.49	248.49	248.49	248.49	248.48
22.20	CFS	68.22	68.05	67.89	67.72	67.56	67.39	67.23	67.07
22.20	ELEV	248.48	248.48	248.48	248.48	248.48	248.48	248.47	248.47
22.68	CFS	66.90	66.74	66.57	66.41	66.25	66.08	65.92	65.75
22.68	ELEV	248.47	248.47	248.47	248.47	248.47	248.46	248.46	248.46
23.16	CFS	65.59	65.43	65.26	65.10	64.93	64.77	64.61	64.44
23.16	ELEV	248.46	248.46	248.46	248.46	248.45	248.45	248.45	248.45
23.64	CFS	64.28	64.12	63.95	63.79	63.62	63.46	63.30	63.13
23.64	ELEV	248.45	248.45	248.45	248.44	248.44	248.44	248.44	248.44
24.12	CFS	62.82	61.97	60.22	57.33	53.17	47.81	41.67	35.45
24.12	ELEV	248.44	248.43	248.41	248.39	248.34	248.29	248.22	248.15
24.60	CFS	29.72	24.87	21.05	18.21	16.16	14.72	13.73	13.02
24.60	ELEV	248.09	248.03	247.97	247.93	247.90	247.87	247.86	247.85

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.91 WATERSHED INCHES; 3908 CFS-HRS; 323.0 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 142

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	325	168	119	97	77	69	64	30

DURATION(HRS) 18  
 FLOW(CFS) 13 TRUNCATED

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS) 12.18 PEAK DISCHARGE(CFS) 40.0 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.10 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

BASE124.OUT

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.36 30.8 336.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.10 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.44 30.4 301.14

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.09 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.03 215.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.12 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

\*\*\* WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 62,  
 VALUE EXTRAPOLATED. \*\*\*

\*\*\* WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
 TIME INCREMENT OF .043 HOURS. \*\*\*

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 143

\*\*\* WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
 FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.20 109.4 298.82

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.12 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.24 127.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.31 WATERSHED INCHES; 231 CFS-HRS; 19.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

BASE124.OUT

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
12.02                                      367.7                                      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.06 WATERSHED INCHES;                      304 CFS-HRS;                      25.1 ACRE-FEET.

OPERATION ADDHYD    XSECTION    69

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
12.04                                      447.1                                      (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.16 WATERSHED INCHES;                      535 CFS-HRS;                      44.2 ACRE-FEET.

OPERATION REACH    XSECTION    70

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
12.25                                      350.7                                      249.42

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.16 WATERSHED INCHES;                      535 CFS-HRS;                      44.2 ACRE-FEET.

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4    VERSION  
07/05/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
08:44:52                      PASS 5    JOB NO. 1                      PAGE 144

OPERATION RUNOFF    XSECTION    71

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
11.95                                      71.8                                      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.79 WATERSHED INCHES;                      52 CFS-HRS;                      4.3 ACRE-FEET.

OPERATION RESVOR    STRUCTURE    63

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
12.00                                      71.9                                      268.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.81 WATERSHED INCHES;                      52 CFS-HRS;                      4.3 ACRE-FEET.

OPERATION REACH    XSECTION    72

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
12.08                                      64.0                                      248.45

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.80 WATERSHED INCHES;                      52 CFS-HRS;                      4.3 ACRE-FEET.

OPERATION RUNOFF    XSECTION    73

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
12.02                                      410.3                                      (RUNOFF)

BASE124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.53 WATERSHED INCHES; 321 CFS-HRS; 26.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.36 3007.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.77 WATERSHED INCHES; 4230 CFS-HRS; 349.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 145

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.22 382.5 (NULL)

		HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99							
		MAIN TIME INCREMENT = .060 hr,				DRAINAGE AREA = .15 SQ.MI.			
HRS	CFS	MAIN	TIME	INCREMENT					
5.22	CFS	.47	.53	.59	.66	.74	.82	.91	.99
5.70	CFS	1.08	1.17	1.26	1.35	1.45	1.54	1.64	1.73
6.18	CFS	1.83	1.93	2.03	2.13	2.23	2.33	2.44	2.54
6.66	CFS	2.64	2.75	2.86	2.96	3.07	3.18	3.29	3.40
7.14	CFS	3.51	3.62	3.73	3.84	3.95	4.07	4.18	4.29
7.62	CFS	4.41	4.53	4.64	4.76	4.88	4.99	5.11	5.23
8.10	CFS	5.35	5.47	5.60	5.74	5.89	6.07	6.26	6.48
8.58	CFS	6.71	6.95	7.20	7.47	7.75	8.03	8.33	8.63
9.06	CFS	8.94	9.26	9.58	9.89	10.20	10.48	10.73	10.96
9.54	CFS	11.18	11.37	11.56	11.75	11.95	12.18	12.46	12.78
10.02	CFS	13.15	13.54	13.97	14.43	14.93	15.47	16.05	16.65
10.50	CFS	17.24	17.85	18.49	19.18	19.93	20.75	21.64	22.63
10.98	CFS	23.68	24.80	25.97	27.22	28.52	29.90	31.44	33.12
11.46	CFS	34.99	37.06	39.29	41.76	45.55	52.63	65.33	89.91
11.94	CFS	125	194	280	340	378	381	363	334
12.42	CFS	303	276	250	227	206	186	168	153
12.90	CFS	139	126	115	105	97	90	83	76
13.38	CFS	69.38	64.40	60.45	57.34	54.82	52.77	51.06	49.63
13.86	CFS	48.40	47.32	46.35	45.45	44.60	43.79	43.03	42.30
14.34	CFS	41.63	41.01	40.44	39.91	39.40	38.92	38.46	38.00
14.82	CFS	37.56	37.05	36.46	35.83	35.16	34.47	33.78	33.10
15.30	CFS	32.44	31.79	31.16	30.55	29.96	29.25	28.47	27.66
15.78	CFS	26.85	25.95	24.98	24.05	23.21	22.47	21.82	21.25
16.26	CFS	20.75	20.31	19.93	19.60	19.25	18.91	18.62	18.36
16.74	CFS	18.12	17.89	17.66	17.44	17.22	17.01	16.82	16.64
17.22	CFS	16.47	16.30	16.15	16.01	15.88	15.75	15.62	15.49
17.70	CFS	15.36	15.24	15.12	14.99	14.87	14.75	14.63	14.51
18.18	CFS	14.39	14.27	14.15	14.03	13.91	13.80	13.67	13.52
18.66	CFS	13.37	13.23	13.10	12.97	12.85	12.73	12.61	12.49
19.14	CFS	12.37	12.26	12.15	12.03	11.92	11.81	11.69	11.58
19.62	CFS	11.47	11.35	11.24	11.13	11.02	10.90	10.79	10.68
20.10	CFS	10.56	10.45	10.34	10.24	10.15	10.07	10.01	9.95
20.58	CFS	9.91	9.87	9.83	9.80	9.77	9.74	9.71	9.68
21.06	CFS	9.66	9.64	9.61	9.59	9.57	9.55	9.52	9.50
21.54	CFS	9.48	9.45	9.43	9.41	9.39	9.37	9.34	9.32
22.02	CFS	9.30	9.28	9.26	9.23	9.21	9.19	9.17	9.14



			BASE124.OUT							
22.50	CFS	9.12	9.10	9.08	9.06	9.03	9.01	8.99	8.97	
22.98	CFS	8.94	8.92	8.90	8.88	8.85	8.83	8.81	8.79	
23.46	CFS	8.76	8.74	8.72	8.70	8.68	8.65	8.63	8.61	
23.94	CFS	8.59	8.56	8.54	8.49	8.27	7.63	6.55	5.30	
24.42	CFS	4.15	3.19	2.43	1.84	1.39	1.05	.79	.59	
24.90	CFS	.44								

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.21 WATERSHED INCHES; 588 CFS-HRS; 48.6 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 146

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	51	32	18	14	11	10	9	6
DURATION(HRS)	18	20						
FLOW(CFS)	2	0						

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS) 12.35 PEAK DISCHARGE(CFS) 3344.3 PEAK ELEVATION(FEET) (NULL)

		HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99							
		MAIN TIME INCREMENT = .060 hr,				DRAINAGE AREA = 1.28 SQ.MI.			
HRS									
3.00	CFS	.50	.54	.59	.64	.69	.75	.80	.86
3.48	CFS	.92	.98	1.05	1.11	1.19	1.27	1.35	1.42
3.96	CFS	1.50	1.59	1.67	1.76	1.86	1.96	2.06	2.16
4.44	CFS	2.27	2.38	2.49	2.61	2.74	2.87	3.01	3.15
4.92	CFS	3.30	3.46	3.63	3.82	4.02	4.23	4.47	4.72
5.40	CFS	4.99	5.27	5.56	5.86	6.17	6.48	6.80	7.12
5.88	CFS	7.45	7.78	8.13	8.48	8.85	9.24	9.65	10.09
6.36	CFS	10.54	11.02	11.52	12.03	12.56	13.11	13.68	14.26
6.84	CFS	14.86	15.48	16.12	16.76	17.42	18.09	18.77	19.46
7.32	CFS	20.17	20.88	21.59	22.32	23.05	23.79	24.53	25.28
7.80	CFS	26.03	26.79	27.55	28.33	29.13	29.95	30.79	31.66
8.28	CFS	32.56	33.53	34.59	35.76	37.04	38.43	39.93	41.53
8.76	CFS	43.22	44.98	46.82	48.72	50.67	52.68	54.74	56.83
9.24	CFS	58.95	61.08	63.17	65.20	67.13	69.12	71.23	73.39
9.72	CFS	75.56	77.72	79.93	82.31	84.91	87.77	90.88	94.26
10.20	CFS	98	102	106	110	115	120	125	131
10.68	CFS	137	143	149	156	164	172	181	190
11.16	CFS	200	211	222	235	250	266	284	308
11.64	CFS	342	396	480	610	824	1131	1512	1926
12.12	CFS	2319	2704	3053	3286	3342	3224	2966	2625
12.60	CFS	2265	1932	1647	1411	1220	1069	950	856
13.08	CFS	783	726	681	642	608	577	549	524
13.56	CFS	499	472	446	420	397	378	360	345
14.04	CFS	332	320	310	300	292	284	276	270
14.52	CFS	264	258	253	249	245	241	237	234
15.00	CFS	230	227	223	220	217	214	210	207
15.48	CFS	204	201	198	195	192	189	185	182
15.96	CFS	179	176	172	170	167	164	161	159
16.44	CFS	157	155	153	151	150	148	147	146
16.92	CFS	145	144	143	141	140	139	139	138
17.40	CFS	137	136	135	134	133	132	131	130
17.88	CFS	129	128	128	127	126	125	124	123
18.36	CFS	122	121	120	119	118	118	117	116

BASE124.OUT  
 18.84 CFS 115 114 113 112 111 110 109 108  
 19.32 CFS 107 107 106 105 104 103 102 101  
 19.80 CFS 100 99 98 97 97 96 95 94

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 147

20.28	CFS	93.08	92.31	91.60	90.95	90.38	89.89	89.45	89.07
20.76	CFS	88.73	88.43	88.15	87.90	87.65	87.42	87.19	86.98
21.24	CFS	86.76	86.55	86.35	86.14	85.93	85.73	85.53	85.33
21.72	CFS	85.12	84.92	84.72	84.52	84.32	84.12	83.91	83.71
22.20	CFS	83.51	83.31	83.11	82.91	82.71	82.51	82.31	82.11
22.68	CFS	81.90	81.71	81.50	81.30	81.10	80.90	80.70	80.50
23.16	CFS	80.30	80.10	79.90	79.70	79.50	79.30	79.10	78.90
23.64	CFS	78.70	78.50	78.30	78.10	77.90	77.70	77.48	76.81
24.12	CFS	74.91	72.18	68.77	64.33	58.68	52.05	44.91	37.90
24.60	CFS	31.57	26.26	22.10	18.99	16.74	15.16	14.04	13.26

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.82 WATERSHED INCHES; 4817 CFS-HRS; 398.1 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	413	215	147	120	94	84	78	37

DURATION(HRS)	18	18
FLOW(CFS)	15	13 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. \*\*\*

OPERATION REACH XSECTION 77

PEAK TIME(HRS)	12.35	PEAK DISCHARGE(CFS)	3344.3	PEAK ELEVATION(FEET)	232.46
----------------	-------	---------------------	--------	----------------------	--------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.82 WATERSHED INCHES; 4817 CFS-HRS; 398.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)	12.01	PEAK DISCHARGE(CFS)	227.4	PEAK ELEVATION(FEET)	(RUNOFF)
----------------	-------	---------------------	-------	----------------------	----------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.37 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)	12.35	PEAK DISCHARGE(CFS)	3387.9	PEAK ELEVATION(FEET)	(NULL)
----------------	-------	---------------------	--------	----------------------	--------

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.33 SQ.MI.  
 3.00 CFS .50 .54 .59 .64 .69 .75 .80 .86  
 3.48 CFS .92 .98 1.05 1.11 1.19 1.27 1.35 1.42

1

TR20 ----- SCS -  
 Ellicott City Flood study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 Page 138

07/05/\*\*  
08:44:52

BASE124.OUT  
Run for 1,2,10,50,100YR STORMS  
PASS 5 JOB NO. 1

2.04TEST  
PAGE 148

3.96	CFS	1.50	1.59	1.67	1.76	1.86	1.96	2.06	2.16
4.44	CFS	2.27	2.38	2.49	2.61	2.74	2.87	3.01	3.15
4.92	CFS	3.30	3.46	3.63	3.82	4.02	4.23	4.47	4.72
5.40	CFS	4.99	5.27	5.56	5.86	6.17	6.48	6.80	7.12
5.88	CFS	7.45	7.78	8.13	8.48	8.85	9.24	9.65	10.10
6.36	CFS	10.57	11.07	11.59	12.13	12.69	13.26	13.86	14.48
6.84	CFS	15.11	15.76	16.42	17.10	17.78	18.49	19.20	19.92
7.32	CFS	20.66	21.40	22.15	22.91	23.67	24.44	25.22	26.00
7.80	CFS	26.79	27.58	28.37	29.19	30.03	30.89	31.77	32.69
8.28	CFS	33.66	34.69	35.81	37.04	38.39	39.86	41.43	43.11
8.76	CFS	44.87	46.72	48.64	50.62	52.67	54.76	56.90	59.07
9.24	CFS	61.25	63.43	65.58	67.67	69.65	71.69	73.86	76.11
9.72	CFS	78.39	80.67	83.01	85.53	88.28	91.29	94.56	98.11
10.20	CFS	102	106	110	115	120	125	131	136
10.68	CFS	143	149	156	163	171	180	189	199
11.16	CFS	210	221	234	248	263	280	300	328
11.64	CFS	371	441	547	708	968	1332	1739	2136
12.12	CFS	2473	2804	3121	3337	3384	3260	2997	2652
12.60	CFS	2289	1955	1667	1430	1239	1087	967	872
13.08	CFS	799	741	696	656	621	590	562	537
13.56	CFS	511	484	457	431	408	388	370	355
14.04	CFS	342	330	319	309	301	293	285	278
14.52	CFS	272	267	262	257	253	249	245	241
15.00	CFS	238	234	231	227	224	221	217	214
15.48	CFS	211	208	205	201	198	195	192	188
15.96	CFS	185	181	178	175	172	170	167	165
16.44	CFS	162	160	158	157	155	154	152	151
16.92	CFS	150	149	148	147	146	145	144	143
17.40	CFS	142	141	140	139	138	137	136	135
17.88	CFS	134	133	132	131	130	129	128	127
18.36	CFS	127	126	125	124	123	122	121	120
18.84	CFS	119	118	117	116	115	114	113	112
19.32	CFS	111	110	109	108	107	107	106	105
19.80	CFS	104	103	102	101	100	99	98	97
20.28	CFS	96.33	95.56	94.84	94.18	93.61	93.10	92.66	92.27
20.76	CFS	91.93	91.62	91.33	91.07	90.82	90.57	90.35	90.12
21.24	CFS	89.90	89.68	89.47	89.25	89.04	88.83	88.62	88.41
21.72	CFS	88.20	88.00	87.78	87.58	87.37	87.16	86.95	86.74
22.20	CFS	86.53	86.32	86.12	85.91	85.70	85.49	85.29	85.08
22.68	CFS	84.87	84.66	84.45	84.24	84.04	83.83	83.62	83.41
23.16	CFS	83.21	83.00	82.79	82.59	82.38	82.17	81.96	81.76
23.64	CFS	81.55	81.34	81.14	80.92	80.71	80.51	80.28	79.34
24.12	CFS	76.63	73.06	69.19	64.52	58.77	52.10	44.93	37.91
24.60	CFS	31.57	26.26	22.10	18.99	16.74	15.16	14.04	13.26

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.81 WATERSHED INCHES; 4994 CFS-HRS; 412.7 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 PASS 5 JOB NO. 1 PAGE 149

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	438	222	152	124	98	87	81	38
DURATION(HRS)	18	18						
FLOW(CFS)	15	13 TRUNCATED						

BASE124.OUT

OPERATION REACH XSECTION 80

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.43 3348.8 220.13

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.80 WATERSHED INCHES; 4993 CFS-HRS; 412.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.98 263.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.98 WATERSHED INCHES; 198 CFS-HRS; 16.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.42 3383.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.81 WATERSHED INCHES; 5191 CFS-HRS; 429.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.00 131.1 (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99											
HRS	MAIN	TIME	INCREMENT =	.060 hr,						DRAINAGE AREA =	SQ.MI.
8.52	CFS	.49	.53	.57	.60	.64	.68	.73	.77		
9.00	CFS	.82	.86	.90	.94	.98	1.01	1.04	1.08		
9.48	CFS	1.11	1.14	1.18	1.22	1.28	1.35	1.42	1.49		
9.96	CFS	1.57	1.65	1.73	1.82	1.93	2.04	2.15	2.27		
10.44	CFS	2.40	2.53	2.67	2.82	3.00	3.19	3.40	3.62		
10.92	CFS	3.84	4.08	4.33	4.64	5.00	5.45	5.95	6.49		
11.40	CFS	7.07	7.66	8.46	10.87	15.91	25.08	37.97	56.14		
11.88	CFS	84.35	117.59	131.11	119.25	84.83	53.27	36.77	28.25		
12.36	CFS	23.41	20.17	17.66	15.61	13.95	12.77	11.94	11.34		

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 150

12.84	CFS	10.85	10.39	9.96	9.53	9.13	8.78	8.48	8.22
13.32	CFS	7.97	7.74	7.51	7.27	7.05	6.84	6.64	6.46
13.80	CFS	6.29	6.12	5.95	5.78	5.62	5.48	5.36	5.27
14.28	CFS	5.20	5.14	5.08	5.02	4.96	4.91	4.85	4.79
14.76	CFS	4.73	4.67	4.61	4.56	4.50	4.44	4.38	4.32
15.24	CFS	4.26	4.20	4.15	4.09	4.03	3.97	3.91	3.85
15.72	CFS	3.79	3.73	3.67	3.61	3.55	3.49	3.44	3.39
16.20	CFS	3.36	3.33	3.31	3.29	3.26	3.24	3.22	3.20
16.68	CFS	3.18	3.16	3.14	3.12	3.10	3.08	3.05	3.03
17.16	CFS	3.01	2.99	2.97	2.95	2.93	2.91	2.89	2.86
17.64	CFS	2.84	2.82	2.80	2.78	2.76	2.74	2.71	2.69
18.12	CFS	2.67	2.65	2.63	2.61	2.59	2.56	2.54	2.52
18.60	CFS	2.50	2.48	2.46	2.43	2.41	2.39	2.37	2.35

			BASE124.OUT						
19.08	CFS	2.32	2.30	2.28	2.26	2.24	2.22	2.19	2.17
19.56	CFS	2.15	2.13	2.11	2.09	2.06	2.04	2.02	2.00
20.04	CFS	1.98	1.96	1.95	1.94	1.93	1.92	1.92	1.91
20.52	CFS	1.91	1.91	1.90	1.90	1.90	1.89	1.89	1.88
21.00	CFS	1.88	1.87	1.87	1.87	1.86	1.86	1.85	1.85
21.48	CFS	1.84	1.84	1.84	1.83	1.83	1.82	1.82	1.81
21.96	CFS	1.81	1.81	1.80	1.80	1.79	1.79	1.79	1.78
22.44	CFS	1.78	1.77	1.77	1.76	1.76	1.76	1.75	1.75
22.92	CFS	1.74	1.74	1.73	1.73	1.73	1.72	1.72	1.71
23.40	CFS	1.71	1.70	1.70	1.70	1.69	1.69	1.68	1.68
23.88	CFS	1.67	1.67	1.66	1.49	.96	.46		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.96 WATERSHED INCHES; 100 CFS-HRS; 8.3 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	7	4	3	3	2	2	2	0

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS) 12.42 PEAK DISCHARGE(CFS) 3403.0 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.79 WATERSHED INCHES; 5291 CFS-HRS; 437.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS) 12.08 PEAK DISCHARGE(CFS) 423.9 PEAK ELEVATION(FEET) (RUNOFF)

		HYDROGRAPH POINTS FOR				ALTERNATE = 1,		STORM = 99	
HRS	MAIN	TIME	INCREMENT	=	.060	hr,	DRAINAGE AREA =		.12
							SQ.MI.		
7.26	CFS	.47	.54	.61	.68	.75	.82	.89	.96
7.74	CFS	1.04	1.11	1.18	1.26	1.33	1.41	1.49	1.58
8.22	CFS	1.67	1.77	1.88	2.00	2.13	2.27	2.41	2.55

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 PASS 5 JOB NO. 1 PAGE 151

8.70	CFS	2.70	2.86	3.02	3.19	3.36	3.54	3.73	3.91
9.18	CFS	4.08	4.25	4.40	4.54	4.67	4.79	4.92	5.05
9.66	CFS	5.20	5.38	5.60	5.83	6.10	6.39	6.69	7.01
10.14	CFS	7.34	7.71	8.11	8.54	8.99	9.46	9.95	10.48
10.62	CFS	11.03	11.64	12.30	13.04	13.83	14.67	15.55	16.48
11.10	CFS	17.51	18.68	20.08	21.69	23.51	25.53	27.69	30.33
11.58	CFS	35	44	63	93	138	203	289	373
12.06	CFS	422	408	346	271	206	159	129	106
12.54	CFS	89.65	76.88	66.76	59.18	53.43	49.03	45.61	42.83
13.02	CFS	40.59	38.70	37.01	35.49	34.14	32.97	31.90	30.89
13.50	CFS	29.93	28.99	28.10	27.25	26.45	25.70	24.98	24.29
13.98	CFS	23.62	22.97	22.34	21.76	21.27	20.85	20.50	20.20
14.46	CFS	19.92	19.67	19.43	19.19	18.96	18.73	18.50	18.28
14.94	CFS	18.05	17.82	17.60	17.37	17.14	16.92	16.69	16.46
15.42	CFS	16.23	16.00	15.77	15.54	15.31	15.08	14.85	14.62
15.90	CFS	14.39	14.15	13.92	13.70	13.49	13.30	13.14	13.01
16.38	CFS	12.90	12.80	12.70	12.62	12.53	12.45	12.36	12.28
16.86	CFS	12.20	12.12	12.04	11.95	11.87	11.79	11.71	11.63
17.34	CFS	11.54	11.46	11.38	11.30	11.22	11.13	11.05	10.97

	BASE124.OUT								
17.82 CFS	10.88	10.80	10.72	10.64	10.55	10.47	10.39	10.30	
18.30 CFS	10.22	10.14	10.05	9.97	9.89	9.80	9.72	9.64	
18.78 CFS	9.55	9.47	9.38	9.30	9.22	9.13	9.05	8.96	
19.26 CFS	8.88	8.80	8.71	8.63	8.54	8.46	8.37	8.29	
19.74 CFS	8.20	8.12	8.03	7.95	7.87	7.78	7.70	7.63	
20.22 CFS	7.57	7.52	7.49	7.46	7.43	7.41	7.39	7.38	
20.70 CFS	7.36	7.34	7.33	7.31	7.29	7.28	7.26	7.24	
21.18 CFS	7.23	7.21	7.20	7.18	7.16	7.15	7.13	7.11	
21.66 CFS	7.10	7.08	7.07	7.05	7.03	7.02	7.00	6.98	
22.14 CFS	6.97	6.95	6.93	6.92	6.90	6.89	6.87	6.85	
22.62 CFS	6.84	6.82	6.80	6.79	6.77	6.75	6.74	6.72	
23.10 CFS	6.70	6.69	6.67	6.65	6.64	6.62	6.61	6.59	
23.58 CFS	6.57	6.56	6.54	6.52	6.51	6.49	6.47	6.45	
24.06 CFS	6.21	5.50	4.30	2.99	1.90	1.19	.76	.47	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.17 WATERSHED INCHES; 396 CFS-HRS; 32.7 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	30	17	12	10	8	7	6	2

DURATION(HRS) 17  
 FLOW(CFS) 0

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	3532.5	(NULL)

1  
 TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 08:44:52 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 5 JOB NO. 1 PAGE 152

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.74 WATERSHED INCHES; 5687 CFS-HRS; 470.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.96	95.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.05 WATERSHED INCHES; 72 CFS-HRS; 6.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.41	3543.7	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.76 WATERSHED INCHES; 5760 CFS-HRS; 476.0 ACRE-FEET.

1  
 EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 5  
 TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 Page 142

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

RAINFALL OF 2.66 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.  
RAINTABLE NUMBER 2, ARC 2  
MAIN TIME INCREMENT .060 HOURS

ALTERNATE 1 STORM 1

STRUCTURE 11	RESVOR	.09	1.01	381.90	12.32	40	444.4
XSECTION 8	REACH	.17	.91	356.92	12.39	60	352.9
STRUCTURE 21	RESVOR	.07	1.27	371.80	13.17	8	114.3
STRUCTURE 22	RESVOR	.07	1.26	352.96	13.31	8	114.3
STRUCTURE 23	RESVOR	.32	.95	---	12.37	77	240.6
XSECTION 16	REACH	.32	.95	332.03	12.37	77	240.6
STRUCTURE 24	RESVOR	.03	1.95	---	12.02	38	1266.7
XSECTION 20	ADDHYD	.05	1.71	---	12.00	73	1460.0
XSECTION 23	REACH	.41	1.07	315.27	12.17	134	326.8
STRUCTURE 31	RESVOR	.05	.82	359.71	12.22	21	420.0
STRUCTURE 32	RESVOR	.01	1.64	378.51	13.32R	1R	100.0
STRUCTURE 33	RESVOR	.03	1.62	355.57	12.32	12	400.0
STRUCTURE 34	RESVOR	.04	1.62	---	12.32	13	325.0
STRUCTURE 35	RESVOR	.06	1.64	---	11.98	42	700.0
XSECTION 141	ADDHYD	.07	1.55	---	11.98	43	614.3
XSECTION 44	REACH	.78	1.03	289.90	12.33	260	333.3
XSECTION 51	REACH	.93	.99	284.08	12.44	287	308.6
XSECTION 63	REACH	1.03	.95	249.25	12.63	270	262.1
STRUCTURE 61	RESVOR	.01	1.53	332.38	12.51	5	500.0
STRUCTURE 62	RESVOR	.05	1.00	291.84	12.25	15	300.0
STRUCTURE 63	RESVOR	.01	1.36	263.96	12.19	4	400.0
XSECTION 75	ADDHYD	.15	1.05	---	12.17	67	446.7
XSECTION 76	ADDHYD	1.28	.92	---	12.61	309	241.4
XSECTION 77	REACH	1.28	.92	228.70	12.68	309	241.4
XSECTION 79	ADDHYD	1.33	.91	---	12.67	312	234.6
XSECTION 88	ADDHYD	1.55	.89	---	12.72	329	212.3

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
08:44:52 SUMMARY, JOB NO. 1 PAGE 154

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

BASE124.OUT

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 3.21 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 2							
STRUCTURE 11	RESVOR	.09	1.42	382.45	12.24	74	822.2
XSECTION 8	REACH	.17	1.29	357.25	12.36	107	629.4
STRUCTURE 21	RESVOR	.07	1.74	373.41	13.20F	9F	128.6
STRUCTURE 22	RESVOR	.07	1.74	353.06	13.36	9	128.6
STRUCTURE 23	RESVOR	.32	1.34	---	12.35	131	409.4
XSECTION 16	REACH	.32	1.34	332.43	12.35	131	409.4
STRUCTURE 24	RESVOR	.03	2.47	---	12.02	48	1600.0
XSECTION 20	ADDHYD	.05	2.21	---	12.00	94	1880.0
XSECTION 23	REACH	.41	1.48	315.57	12.17	203	495.1
STRUCTURE 31	RESVOR	.05	1.19	361.75	12.26	27	540.0
STRUCTURE 32	RESVOR	.01	2.03	379.31	13.26R	1R	100.0
STRUCTURE 33	RESVOR	.03	2.10	356.21	12.25	21	700.0
STRUCTURE 34	RESVOR	.04	2.08	---	12.26	21	525.0
STRUCTURE 35	RESVOR	.06	2.12	---	11.99	54	900.0
XSECTION 141	ADDHYD	.07	2.01	---	11.99	56	800.0
XSECTION 44	REACH	.78	1.44	290.24	12.30	399	511.5
XSECTION 51	REACH	.93	1.39	284.64	12.39	450	483.9
XSECTION 63	REACH	1.03	1.34	249.59	12.55	434	421.4
STRUCTURE 61	RESVOR	.01	2.01	333.13	12.56	5	500.0
STRUCTURE 62	RESVOR	.05	1.41	292.96	12.30	17	340.0
STRUCTURE 63	RESVOR	.01	1.82	264.92	12.22	4	400.0
XSECTION 75	ADDHYD	.15	1.47	---	12.25	81	540.0
XSECTION 76	ADDHYD	1.28	1.30	---	12.52	500	390.6
XSECTION 77	REACH	1.28	1.30	229.32	12.59	499	389.8

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 SUMMARY, JOB NO. 1 PAGE 155

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 1 STORM 2							
XSECTION 79	ADDHYD	1.33	1.29	---	12.58	505	379.7
XSECTION 88	ADDHYD	1.55	1.26	---	12.56	535	345.2



BASE124.OUT

RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 10

STRUCTURE 11	RESVOR	.09	2.85	383.46	12.16	159	1766.7
XSECTION 8	REACH	.17	2.68	358.07	12.25	269	1582.4
STRUCTURE 21	RESVOR	.07	3.31	376.21	12.50	58	828.6
STRUCTURE 22	RESVOR	.07	3.30	355.74	12.63	53	757.1
STRUCTURE 23	RESVOR	.32	2.74	---	12.20	343	1071.9
XSECTION 16	REACH	.32	2.74	333.76	12.20	343	1071.9
STRUCTURE 24	RESVOR	.03	4.16	---	12.01	79	2633.3
XSECTION 20	ADDHYD	.05	3.85	---	11.99	160	3200.0
XSECTION 23	REACH	.41	2.92	316.36	12.18	473	1153.7
STRUCTURE 31	RESVOR	.05	2.53	363.97	12.16	80	1600.0
STRUCTURE 32	RESVOR	.01	3.51	380.27	12.18	13	1300.0
STRUCTURE 33	RESVOR	.03	3.70	357.31	12.14	64	2133.3
STRUCTURE 34	RESVOR	.04	3.66	---	12.17	72	1800.0
STRUCTURE 35	RESVOR	.06	3.72	---	12.04	127	2116.7
XSECTION 141	ADDHYD	.07	3.57	---	12.04	133	1900.0
XSECTION 44	REACH	.78	2.85	291.23	12.26	980	1256.4
XSECTION 51	REACH	.93	2.79	286.21	12.33	1120	1204.3
XSECTION 63	REACH	1.03	2.72	250.57	12.44	1117	1084.5
STRUCTURE 61	RESVOR	.01	3.62	334.73	12.44	13	1300.0
STRUCTURE 62	RESVOR	.05	2.83	295.61	12.25	43	860.0
STRUCTURE 63	RESVOR	.01	3.37	266.88	12.11	16	1600.0
XSECTION 75	ADDHYD	.15	2.92	---	12.28	153	1020.0
XSECTION 76	ADDHYD	1.28	2.66	---	12.42	1280	1000.0
XSECTION 77	REACH	1.28	2.66	230.76	12.49	1279	999.2

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 SUMMARY, JOB NO. 1 PAGE 156

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 1 STORM 10

XSECTION 79	ADDHYD	1.33	2.64	---	12.48	1293	972.2
XSECTION 88	ADDHYD	1.55	2.60	---	12.54	1353	872.9

RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 50

STRUCTURE 11	RESVOR	.09	4.95	384.86	12.15	276	3066.7
--------------	--------	-----	------	--------	-------	-----	--------

BASE124.OUT

XSECTION	8	REACH	.17	4.74	358.77	12.23	481	2829.4
STRUCTURE	21	RESVOR	.07	5.44	378.07	12.34	150	2142.9
STRUCTURE	22	RESVOR	.07	5.42	359.83	12.62	115	1642.9
STRUCTURE	23	RESVOR	.32	4.80	---	12.21	676	2112.5
XSECTION	16	REACH	.32	4.80	335.51	12.21	676	2112.5
STRUCTURE	24	RESVOR	.03	6.47	---	12.01	120	4000.0
XSECTION	20	ADDHYD	.05	6.13	---	11.99	248	4960.0
XSECTION	23	REACH	.41	5.00	317.20	12.18	878	2141.5
STRUCTURE	31	RESVOR	.05	4.56	365.27	12.13	149	2980.0
STRUCTURE	32	RESVOR	.01	5.60	380.82	12.09	33	3300.0
STRUCTURE	33	RESVOR	.03	5.99	358.09	12.12	105	3500.0
STRUCTURE	34	RESVOR	.04	5.90	---	12.11	137	3425.0
STRUCTURE	35	RESVOR	.06	5.97	---	12.02	256	4266.7
XSECTION	141	ADDHYD	.07	5.78	---	12.02	269	3842.9
XSECTION	44	REACH	.78	4.92	292.27	12.24	1850	2371.8
XSECTION	51	REACH	.93	4.85	287.78	12.30	2141	2302.2
XSECTION	63	REACH	1.03	4.77	251.60	12.39	2170	2106.8
STRUCTURE	61	RESVOR	.01	5.88	335.70	12.37	25	2500.0
STRUCTURE	62	RESVOR	.05	4.95	297.75	12.22	83	1660.0
STRUCTURE	63	RESVOR	.01	5.61	267.90	12.03	51	5100.0
XSECTION	75	ADDHYD	.15	5.04	---	12.23	299	1993.3
XSECTION	76	ADDHYD	1.28	4.69	---	12.37	2491	1946.1
XSECTION	77	REACH	1.28	4.69	231.94	12.37	2491	1946.1

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 SUMMARY, JOB NO. 1 PAGE 157

SUMMARY TABLE 1

-----  
 SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 1 STORM 50

XSECTION	79	ADDHYD	1.33	4.67	---	12.37	2524	1897.7
XSECTION	88	ADDHYD	1.55	4.63	---	12.44	2643	1705.2

RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.

ALTERNATE 1 STORM 99

STRUCTURE	11	RESVOR	.09	6.12	385.70	12.13	346	3844.4
XSECTION	8	REACH	.17	5.89	359.15	12.12	623	3664.7
STRUCTURE	21	RESVOR	.07	6.54	379.28	12.38	157	2242.9
STRUCTURE	22	RESVOR	.07	6.53	360.94	12.78	129	1842.9
STRUCTURE	23	RESVOR	.32	5.93	---	12.10	957	2990.6
XSECTION	16	REACH	.32	5.93	336.87	12.10	957	2990.6

BASE124.OUT							
STRUCTURE 24	RESVOR	.03	7.71	---	12.01	142	4733.3
XSECTION 20	ADDHYD	.05	7.35	---	11.99	295	5900.0
XSECTION 23	REACH	.41	6.15	317.68	12.15	1287	3139.0
STRUCTURE 31	RESVOR	.05	5.70	365.78	12.13	186	3720.0
STRUCTURE 32	RESVOR	.01	6.74	381.12	12.09	39	3900.0
STRUCTURE 33	RESVOR	.03	7.24	358.21	12.07	149	4966.7
STRUCTURE 34	RESVOR	.04	7.12	---	12.07	187	4675.0
STRUCTURE 35	RESVOR	.06	7.20	---	12.05	321	5350.0
XSECTION 141	ADDHYD	.07	7.00	---	12.04	336	4800.0
XSECTION 44	REACH	.78	6.07	292.90	12.22	2495	3198.7
XSECTION 51	REACH	.93	6.00	288.67	12.28	2877	3093.5
XSECTION 63	REACH	1.03	5.91	252.20	12.36	2925	2839.8
STRUCTURE 61	RESVOR	.01	7.10	336.17	12.36	31	3100.0
STRUCTURE 62	RESVOR	.05	6.12	298.82	12.20	109	2180.0
STRUCTURE 63	RESVOR	.01	6.81	268.09	12.00	72	7200.0
XSECTION 75	ADDHYD	.15	6.21	---	12.22	383	2553.3
XSECTION 76	ADDHYD	1.28	5.82	---	12.35	3344	2612.5
XSECTION 77	REACH	1.28	5.82	232.46	12.35	3344	2612.5

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 SUMMARY, JOB NO. 1 PAGE 158

SUMMARY TABLE 1

-----  
 SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE	1	STORM	99				
XSECTION 79	ADDHYD	1.33	5.81	---	12.35	3388	2547.4
XSECTION 88	ADDHYD	1.55	5.76	---	12.41	3544	2286.5

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 SUMMARY, JOB NO. 1 PAGE 159

SUMMARY TABLE 2

-----  
 MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.  
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;  
 LENGTH FACTOR - VALUE K\* GREATER THAN 1.0;  
 ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC REACH	FLOOD PLAIN	HYDROGRAPH INFORMATION		ROUTING PARAMETERS		
		INFLOW	OUTFLOW	Q-A EQ.	PEAK LENGTH	ATT- RATIO KIN
		-----	-----	-----		

BASE124.OUT											
ID	LENGTH (FT)	LENGTH (FT)	PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)	FACTOR (k*)	Q/I (Q*)	COEFF (C)
BASEFLOW IS			.0 CFS								
ALTERNATE		1	STORM		1						
2	1170		19	12.1	18	12.2	1.54	1.38	.040	.945	.56
5	797		40	12.3	39	12.4	2.30	1.18	.024	.979	.73?
8	1221		62	12.3	60	12.4	1.13	1.49	.011	.978	.71?
16	920		77	12.4	77	12.4	3.61	1.49	.001	1.000	1.00?
23	1379		172	12.0	134	12.2	1.26	1.12	.082	.781	.32
27	1021		55	12.1	50	12.2	.84	1.30	.058	.907	.46
32	1603		58	12.1	50	12.2	1.23	1.35	.078	.874	.47
34	583		1	13.3	1	13.4	1.14	1.62	.001	.998	.46
37	934		13	12.3	13	12.4	2.31	1.55	.003	.995	.86?
44	1428		294	12.2	258	12.3	.62	1.27	.053	.878	.36
51	1275		305	12.3	287	12.4	.74	1.26	.036	.940	.42
53	652		0	12.1	0	12.4	2.05	1.40	.012	.846	.39
63	1959		297	12.4	270	12.7	1.18	1.17	.063	.907	.30
65	1283		5	12.5	5	12.7	2.47	1.43	.014	.994	.53
70	2166		74	12.1	63	12.2	1.65	1.32	.061	.856	.43
72	1081		4	12.2	4	12.4	1.50	1.61	.008	.986	.50
77	884		309	12.6	309	12.7	1.77	1.24	.008	.998	.85?
80	1296		312	12.7	312	12.7	1.55	1.45	.003	1.000	.98?

ALTERNATE		1	STORM		2						
2	1170		28	12.1	26	12.2	1.57	1.36	.038	.949	.59
5	797		74	12.2	70	12.3	2.16	1.22	.025	.950	.80?
8	1221		109	12.3	107	12.4	1.17	1.47	.013	.983	.79?
16	920		130	12.4	130	12.4	3.61	1.49	.001	1.000	1.00?
23	1379		243	12.0	203	12.2	.97	1.19	.063	.834	.36
27	1021		79	12.1	70	12.2	1.10	1.17	.079	.881	.41
32	1603		81	12.1	71	12.2	1.29	1.33	.076	.881	.48
34	583		1	13.3	1	13.4	1.14	1.62	.001	.999	.49

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 SUMMARY, JOB NO. 1 PAGE 160

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.  
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;  
 LENGTH FACTOR - VALUE K\* GREATER THAN 1.0;  
 ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

HYDROGRAPH INFORMATION							ROUTING PARAMETERS				
XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	INFLOW		OUTFLOW		Q-A EQ.		LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT- KIN COEFF (C)
			PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)			
ALTERNATE		1	STORM		2						

BASE124.OUT

37	934	21	12.2	21	12.3	2.31	1.55	.003	.996	.95?
44	1428	436	12.2	399	12.3	.42	1.36	.039	.915	.42
51	1275	472	12.2	448	12.4	.57	1.32	.030	.949	.48
53	652	1	12.1	1	12.1	2.05	1.40	.027	.795	.58
63	1959	467	12.4	434	12.5	.75	1.28	.046	.930	.36
65	1283	5	12.5	5	12.7	2.47	1.43	.011	.995	.54
70	2166	101	12.1	77	12.2	1.68	1.16	.123	.762	.29
72	1081	4	12.2	4	12.4	1.50	1.61	.005	.995	.51
77	884	499	12.5	499	12.6	1.93	1.22	.009	.999	.88?
80	1296	505	12.6	505	12.6	1.60	1.44	.003	1.000	1.00?

ALTERNATE 1 STORM 10

2	1170	58	12.1	57	12.2	.27	2.00	.006	.985	.84?
5	797	158	12.2	157	12.2	1.93	1.26	.019	.997	.90?
8	1221	270	12.2	268	12.2	1.28	1.44	.012	.994	.91?
16	920	342	12.2	342	12.2	3.81	1.47	.001	1.000	1.00?
23	1379	522	12.1	473	12.2	.65	1.29	.043	.907	.46
27	1021	198	12.1	180	12.2	.69	1.31	.054	.908	.53
32	1603	156	12.1	140	12.2	1.36	1.31	.064	.900	.53
34	583	13	12.2	13	12.2	1.14	1.62	.005	.988	.92?
37	934	71	12.2	71	12.2	2.35	1.53	.004	1.000	1.00?
44	1428	1023	12.2	974	12.2	.28	1.45	.027	.953	.55
51	1275	1156	12.2	1115	12.4	.44	1.37	.024	.965	.60
53	652	7	12.0	6	12.1	2.05	1.40	.026	.964	.80?
63	1959	1163	12.3	1113	12.4	.42	1.41	.030	.957	.49
65	1283	13	12.4	12	12.5	2.48	1.39	.013	.974	.63
70	2166	194	12.1	137	12.3	1.85	1.05	.184	.705	.22

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 SUMMARY, JOB NO. 1 PAGE 161

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.  
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;  
 LENGTH FACTOR - VALUE K\* GREATER THAN 1.0;  
 ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
			INFLOW		OUTFLOW		Q-A COEFF (X)	EQ. POWER (M)	LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
ALTERNATE	1	STORM	10								
72	1081	16	12.1	15	12.2	1.53	1.49	.014	.977	.66	
77	884	1280	12.4	1279	12.5	1.92	1.22	.010	.999	.96?	
80	1296	1293	12.5	1287	12.5	3.85	1.14	.016	.995	.85?	
ALTERNATE	1	STORM	50								
2	1170	100	12.1	99	12.2	.27	2.00	.004	.998	.97?	
5	797	273	12.2	273	12.2	1.80	1.29	.015	1.000	.98?	

BASE124.OUT										
8	1221	481	12.2	481	12.2	1.30	1.43	.010	1.000	.99?
16	920	673	12.2	673	12.2	4.39	1.41	.001	1.000	1.00?
23	1379	968	12.1	878	12.2	.75	1.26	.045	.907	.48
27	1021	367	12.1	350	12.2	.37	1.47	.027	.954	.68?
32	1603	263	12.1	241	12.1	1.45	1.28	.059	.915	.57
34	583	33	12.1	33	12.1	1.15	1.61	.006	1.000	1.00?
37	934	137	12.1	137	12.1	2.47	1.51	.004	1.000	1.00?
44	1428	1908	12.1	1849	12.2	.25	1.46	.021	.969	.64
51	1275	2175	12.2	2141	12.3	.43	1.38	.021	.985	.68?
53	652	18	12.0	18	12.1	2.05	1.40	.021	.991	.93?
63	1959	2237	12.3	2156	12.4	.36	1.44	.024	.964	.58
65	1283	25	12.4	25	12.5	2.51	1.37	.014	.979	.70?
70	2166	361	12.1	272	12.2	1.13	1.18	.132	.755	.28
72	1081	48	12.0	46	12.1	1.70	1.41	.026	.962	.77?
77	884	2488	12.4	2488	12.4	1.68	1.25	.009	1.000	1.00?
80	1296	2523	12.4	2484	12.5	5.99	1.02	.032	.985	.72?

ALTERNATE 1 STORM 99

2	1170	122	12.1	122	12.1	.25	2.00	.003	1.000	1.00?
5	797	345	12.1	345	12.1	1.76	1.29	.014	1.000	1.00?

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 SUMMARY, JOB NO. 1 PAGE 162

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.  
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;  
 LENGTH FACTOR - VALUE K\* GREATER THAN 1.0;  
 ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
			INFLOW		OUTFLOW		Q-A EQ.		LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
			PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)			
ALTERNATE 1 STORM 99											
8	1221		623	12.1	623	12.1	1.33	1.43	.010	1.000	1.00?
16	920		950	12.1	950	12.1	4.86	1.38	.002	1.000	1.00?
23	1379		1390	12.1	1274	12.1	.64	1.29	.045	.917	.53
27	1021		457	12.1	444	12.2	.32	1.50	.022	.971	.73?
32	1603		317	12.1	285	12.1	1.84	1.20	.076	.897	.51
34	583		38	12.1	38	12.1	1.15	1.60	.006	1.000	1.00?
37	934		185	12.1	185	12.1	2.54	1.49	.005	1.000	1.00?
44	1428		2579	12.1	2481	12.2	.26	1.46	.021	.962	.68?
51	1275		2938	12.2	2868	12.3	.44	1.37	.021	.976	.72?
53	652		25	12.0	25	12.1	2.05	1.40	.019	.998	.98?
63	1959		2991	12.2	2924	12.4	.35	1.44	.023	.978	.62
65	1283		31	12.4	30	12.4	2.52	1.37	.014	.985	.73?
70	2166		443	12.1	350	12.2	.91	1.24	.109	.791	.31
72	1081		72	12.0	63	12.1	1.66	1.33	.045	.876	.72?

77	884	3342	12.4	3342	12.4	1.19	1.31	.007	1.000	1.00?
80	1296	3384	12.4	3348	12.4	5.38	1.04	.032	.989	.74?

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 SUMMARY, JOB NO. 1 PAGE 163

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES  
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS.....				
		1	2	10	50	99
STRUCTURE 63	.01					
ALTERNATE 1		4	4	16	51	72
STRUCTURE 62	.05					
ALTERNATE 1		15	17	43	83	109
STRUCTURE 61	.01					
ALTERNATE 1		5	5	13	25	31
STRUCTURE 35	.06					
ALTERNATE 1		42	54	127	256	321
STRUCTURE 34	.04					
ALTERNATE 1		13	21	72	137	187
STRUCTURE 33	.03					
ALTERNATE 1		12	21	64	105	149
STRUCTURE 32	.01					
ALTERNATE 1		1?	1?	13	33	39
STRUCTURE 31	.05					
ALTERNATE 1		21	27	80	149	186
STRUCTURE 24	.03					
ALTERNATE 1		38	48	79	120	142
STRUCTURE 23	.32					
ALTERNATE 1		77	131	343	676	957
STRUCTURE 22	.07					
ALTERNATE 1		8	9	53	115	129

BASE124.OUT

STRUCTURE	21	.07					
ALTERNATE	1		8	9	58	150	157
STRUCTURE	11	.09					
ALTERNATE	1		40	74	159	276	346
XSECTION	8	.17					

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 07/05/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 08:44:52 SUMMARY, JOB NO. 1 PAGE 164

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES  
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS.....				
		1	2	10	50	99
XSECTION 8	.17					
ALTERNATE 1		60	107	269	481	623
XSECTION 16	.32					
ALTERNATE 1		77	131	343	676	957
XSECTION 20	.05					
ALTERNATE 1		73	94	160	248	295
XSECTION 23	.41					
ALTERNATE 1		134	203	473	878	1287
XSECTION 44	.78					
ALTERNATE 1		260	399	980	1850	2495
XSECTION 51	.93					
ALTERNATE 1		287	450	1120	2141	2877
XSECTION 63	1.03					
ALTERNATE 1		270	434	1117	2170	2925
XSECTION 75	.15					
ALTERNATE 1		67	81	153	299	383
XSECTION 76	1.28					
ALTERNATE 1		309	500	1280	2491	3344



BASE124.OUT

XSECTION	77	1.28					
-----							
ALTERNATE	1		309	499	1279	2491	3344
XSECTION	79	1.33					
-----							
ALTERNATE	1		312	505	1293	2524	3388
XSECTION	88	1.55					
-----							
ALTERNATE	1		329	535	1353	2643	3544
XSECTION	141	.07					
-----							
ALTERNATE	1		43	56	133	269	336

1  
 TR20 ----- SCS -  
 07/05/\*\* Ellicott City Flood Study- Base Level MGMT w/o CNCPT 1,2,4 VERSION  
 Run for 1,2,10,50,100YR STORMS 2.04TEST

END OF 1 JOBS IN THIS RUN

SCS TR-20, VERSION 2.04TEST  
 FILES

INPUT = base124.dat , GIVEN DATA FILE  
 OUTPUT = base124.OUT , DATED 07/05/\*\*,08:44:52

FILES GENERATED - DATED 07/05/\*\*,08:44:52

NONE!

TOTAL NUMBER OF WARNINGS = 48, MESSAGES = 23

\*\*\* TR-20 RUN COMPLETED \*\*\*

1

\*\*\*\*\*80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY\*\*\*\*\*

JOB TR-20	TITLE	Level	MGMT w/CNCPT	NO PLOTS
	Ellicott City Flood Study- Base Level			1,2,3
	Run for 1,2,10,50,100YR STORMS			
2	XSECTN 002	1.0	389.50	
8		389.00	0.00	0.00
8		389.25	1.65	1.06
8		389.50	6.25	2.75
8		389.75	14.40	5.06
8		390.00	26.75	8.00
8		390.25	45.54	14.33
8		390.50	68.67	15.00
8		390.75	96.11	18.88
8		391.00	127.89	23.00
8		391.25	164.08	27.38
8		391.50	204.77	32.00
8		391.75	250.06	36.88
9	ENDTBL			
2	XSECTN 005	1.0	367.00	
8		366.00	0.00	0.00
8		366.50	3.51	1.5
8		367.00	13.55	4.00
8		367.50	30.53	9.00
8		367.75	47.87	13.00
8		368.00	72.23	18.00
8		368.25	104.79	23.98
8		368.50	146.13	30.94
8		368.75	197.14	38.86
8		369.00	258.63	47.75
8		369.25	331.41	57.61
8		369.50	416.25	68.44
9	ENDTBL			
3	STRUCT 11			
8		380.00	0.00	0.00
8		381.00	2.70	0.53
8		382.20	53.00	1.16
8		383.80	186.80	1.40
9	ENDTBL			
2	XSECTN 008	1.0	330.00	
8		356.00	0.00	0.00
8		356.50	20.21	6.94
8		357.00	68.51	15.75
8		357.50	144.11	26.44
8		358.00	248.93	39.00
8		358.50	389.07	53.25
8		359.00	561.31	69.00
8		359.50	767.14	86.25
8		360.00	1008.16	105.00
8		361.00	1375.68	147.50
8		361.50	1604.19	171.38
9	ENDTBL			

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

2	XSECTN 016	1.0	333.08	
---	------------	-----	--------	--

CNCPT124.OUT

8			331.08	0.00	0.00
8			332.08	80.21	8.00
8			333.08	225.50	16.00
8			333.58	310.09	20.00
8			334.08	399.94	24.00
8			334.58	493.86	28.00
8			335.08	590.97	32.00
8			335.58	690.67	36.00
8			336.08	792.47	40.00
8			336.58	896.02	44.00
9	ENDTBL				
2	XSECTN	023	1.0	314.40	
8			313.22	0.00	0.00
8			313.51	1.10	0.89
8			313.81	3.51	1.84
8			314.10	16.22	5.61
8			314.40	34.66	9.74
8			314.68	48.28	24.71
8			314.96	79.66	42.09
8			315.24	126.64	61.87
8			315.52	189.07	84.06
8			315.80	267.27	108.64
8			316.08	361.75	135.63
8			316.36	473.14	165.02
8			316.64	602.11	196.81
8			316.92	749.37	231.00
8			317.20	878.70	277.25
8			317.48	1103.89	329.14
8			317.76	1358.10	382.70
8			318.04	1640.58	437.94
8			318.32	1950.87	494.86
8			318.60	2288.69	553.45
9	ENDTBL				
3	STRUCT	21			
8			364.00	0.00	0.00
8			366.00	0.30	0.55
8			368.00	0.50	1.31
8			369.00	3.20	1.80
8			370.00	5.20	2.29
8			372.00	7.80	3.48
8			374.00	9.60	5.00
8			375.00	10.40	5.86
8			376.00	45.30	6.79
8			376.50	74.10	7.31
8			377.00	106.80	7.83
8			378.00	149.80	8.90
8			379.00	155.60	10.06
8			380.00	162.00	11.29
9	ENDTBL				

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

3	STRUCT	22			
8			352.50	0.00	0.00
8			358.65	100.00	0.91
8			361.76	140.00	3.28
8			363.64	160.00	5.47
8			366.18	180.00	9.58
8			368.71	200.00	14.77
8			370.61	250.00	19.31

CNCPT124.OUT

9	ENDTBL				
3	STRUCT	23			
8			333.08	0.00	0.00
8			336.97	100.00	0.03
8			338.11	125.00	0.68
8			339.41	150.00	2.19
8			342.51	200.00	6.68
8			346.05	250.00	12.84
8			346.50	300.00	13.70
8			347.05	400.00	14.76
8			347.50	500.00	15.64
8			347.91	600.00	16.47
8			348.31	700.00	17.30
8			349.01	850.00	18.76
8			350.42	900.00	21.84
8			352.03	1112.97	25.53
9	ENDTBL				
3	STRUCT	24			
8			345.00	0.00	0.00
8			346.82	10.00	1.08
8			353.59	25.00	5.89
8			357.97	50.00	10.61
8			358.32	75.00	11.05
8			358.61	100.00	11.43
8			358.87	125.00	11.77
8			359.11	150.00	12.09
8			359.35	175.00	12.41
8			360.02	205.00	13.34
8			360.74	209.00	14.40
8			361.38	352.23	15.42
9	ENDTBL				
2	XSECTN	027	1.0	317.00	
8			316.00	0.00	0.00
8			316.50	2.68	2.59
8			317.00	10.37	6.88
8			317.50	24.26	12.84
8			318.00	45.55	20.50
8			318.50	70.64	34.75
8			319.00	137.01	60.50
8			319.25	200.57	76.25
8			319.50	273.06	92.00
8			319.75	353.76	107.75

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

8			320.00	442.13	123.50
8			320.50	640.03	155.00
8			321.00	863.72	186.50
9	ENDTBL				
2	XSECTN	032	1.0	313.00	
8			310.00	0.00	0.00
8			311.00	12.25	5.50
8			312.00	52.16	16.00
8			312.50	83.38	23.13
8			313.00	123.94	31.50
8			313.25	148.02	36.16
8			313.50	174.79	41.13
8			313.75	204.34	46.41
8			314.00	236.81	52.00
8			314.50	278.65	65.75

				CNCPT124.OUT		
8				315.00	353.72	84.00
9	ENDTBL					
2	XSECTN	034		1.0	338.50	
8				338.00	0.00	0.00
8				338.10	4.87	2.46
8				338.25	22.73	6.38
8				338.50	73.99	13.53
8				338.75	149.34	21.45
8				339.00	247.95	30.13
8				339.50	515.65	49.78
9	ENDTBL					
2	XSECTN	037		1.0	331.00	
8				330.00	0.00	0.00
8				330.25	14.29	3.25
8				330.50	46.85	7.00
8				330.75	95.34	11.25
8				331.00	159.64	16.00
8				331.25	240.13	21.25
8				331.50	337.44	27.00
8				331.75	452.26	33.25
8				332.00	585.36	40.00
8				332.50	875.33	55.81
8				333.00	1272.05	75.25
9	ENDTBL					
2	XSECTN	044		1.0	288.90	
8				287.68	0.00	0.00
8				287.99	1.15	0.94
8				288.29	3.69	1.95
8				288.60	17.06	5.98
8				288.90	36.44	10.37
8				289.19	63.07	39.25
8				289.47	121.85	69.50
8				289.76	206.05	101.12
8				290.05	313.23	134.09
8				290.33	442.07	168.42

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

8				290.62	591.78	204.12
8				290.91	761.87	241.18
8				291.19	952.02	279.60
8				291.48	1162.04	319.38
8				291.77	1391.84	360.52
8				292.05	1641.40	403.02
8				292.34	1910.74	446.89
8				292.63	2199.92	492.11
8				292.91	2509.04	538.70
8				293.20	2838.22	586.65
9	ENDTBL					
3	STRUCT	31				
8				356.38	0.0	0.00
8				357.26	10.90	0.02
8				357.50	12.30	0.03
8				358.00	14.70	0.05
8				359.00	18.70	0.10
8				360.00	22.00	0.16
8				361.00	24.90	0.25
8				361.50	26.20	0.30
8				362.00	27.50	0.36
8				362.50	28.70	0.43

				CNCPT124.OUT		
8				362.90	29.60	0.49
8				363.50	51.30	0.60
8				363.75	65.70	0.67
8				364.00	82.60	0.72
8				364.20	83.30	0.83
8				364.60	100.00	0.88
8				366.80	260.00	1.47
8				366.92	340.00	1.49
8				366.98	380.00	1.50
9	ENDTBL					
3	STRUCT	32				
8				375.40	0.00	0.00
8				379.36	1.00	0.74
8				380.00	5.00	0.89
8				380.20	10.00	0.94
8				380.33	15.00	0.98
8				380.45	20.00	1.01
8				380.55	25.00	1.04
8				380.65	30.00	1.06
8				381.19	40.00	1.21
8				381.78	44.00	1.39
8				382.59	66.00	1.66
8				382.79	88.00	1.75
8				382.89	110.00	1.79
8				382.97	132.00	1.83
9	ENDTBL					
3	STRUCT	33				
8				350.00	0.00	0.00

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

8				354.30	1.00	1.08
8				354.47	2.00	1.15
8				354.87	5.00	1.30
8				355.38	10.00	1.50
8				356.18	20.00	1.84
8				356.88	40.00	2.15
8				357.27	60.00	2.33
8				357.46	80.00	2.42
8				358.08	100.00	2.73
8				358.14	120.00	2.76
8				358.19	140.00	2.78
8				358.25	171.00	2.81
8				358.27	180.00	2.82
9	ENDTBL					
3	STRUCT	34				
9	ENDTBL					
3	STRUCT	35				
8				326.00	0.00	0.00
8				330.20	10.00	3.69
8				330.31	15.00	3.81
8				330.40	20.00	3.91
8				330.57	30.00	4.09
8				330.71	40.00	4.24
8				330.83	50.00	4.39
8				331.09	80.00	4.68
8				332.62	100.00	6.56
8				334.97	125.00	9.87
8				335.52	135.00	10.75
8				336.10	157.48	11.70

				CNCPT124.OUT		
8				336.22	166.53	11.89
8				336.45	252.42	12.28
9	ENDTBL					
2	XSECTN	051		1.0	282.40	
8				281.10	0.00	0.00
8				281.42	1.24	1.09
8				281.75	3.96	2.26
8				282.07	18.30	6.92
8				282.40	39.09	12.00
8				282.88	67.33	37.27
8				283.36	131.17	65.87
8				283.84	225.10	97.78
8				284.32	348.01	133.01
8				284.80	499.91	171.56
8				285.28	681.29	213.43
8				285.76	892.92	258.61
8				286.24	1135.70	307.11
8				286.72	1410.63	358.94
8				287.20	1718.74	414.08
8				287.68	2061.13	472.54
8				288.16	2438.87	534.31

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

8				288.64	2853.08	599.41
8				289.12	3301.76	667.84
8				289.60	3785.91	739.78
9	ENDTBL					
2	XSECTN	053		1.0	289.00	
8				288.00	0.00	0.00
8				288.50	9.00	2.88
8				289.00	34.26	7.50
8				289.50	79.27	13.88
8				290.00	147.75	22.00
8				290.50	227.49	31.94
8				291.00	332.02	43.75
8				291.50	463.75	57.44
8				291.75	540.56	64.98
8				292.00	625.07	73.00
9	ENDTBL					
2	XSECTN	063		1.0	248.40	
8				247.07	0.00	0.00
8				247.41	1.85	1.14
8				247.74	5.93	2.35
8				248.07	27.43	7.18
8				248.40	58.61	12.46
8				248.67	89.70	40.04
8				248.95	158.39	68.99
8				249.22	256.90	99.30
8				249.49	382.40	130.99
8				249.77	533.43	164.04
8				250.04	709.09	198.46
8				250.31	908.86	234.24
8				250.59	1132.40	271.40
8				250.86	1379.55	309.92
8				251.13	1650.25	349.81
8				251.41	1944.49	391.07
8				251.68	2262.35	433.69
8				251.95	2603.94	477.69
8				252.23	2969.40	523.05

			CNCPT124.OUT	
8			252.50	3358.93
9	ENDTBL			569.78
3	STRUCT	61		
8			329.75	0.00
8			330.00	1.56
8			332.00	4.37
8			334.00	5.96
8			334.10	6.01
8			334.50	10.20
8			335.00	16.10
8			336.00	28.91
8			337.00	40.10
9	ENDTBL			0.97
3	STRUCT	62		

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

8			287.30	0.00	0.00
8			288.00	5.45	0.01
8			289.00	9.05	0.05
8			290.00	11.60	0.13
8			292.00	15.35	0.50
8			294.00	18.40	1.19
8			294.30	18.92	1.26
8			294.50	20.73	1.40
8			295.00	36.40	1.60
8			295.40	38.00	1.80
8			296.00	51.10	2.15
8			297.00	69.60	2.75
8			298.00	86.80	3.44
8			298.68	98.50	3.91
8			298.80	107.56	4.00
9	ENDTBL				
3	STRUCT	63			
8			259.43	0.00	0.00
8			260.00	1.30	0.026
8			260.50	1.70	0.050
8			261.00	2.10	0.075
8			261.50	2.40	0.095
8			262.00	2.70	0.119
8			262.50	2.90	0.160
8			263.00	3.20	0.205
8			263.50	3.40	0.245
8			264.00	3.60	0.285
8			264.50	3.80	0.360
8			265.00	3.90	0.415
8			265.50	4.10	0.480
8			266.00	11.00	0.537
8			266.50	15.40	0.620
8			267.00	16.00	0.709
8			267.50	30.30	0.798
8			268.00	56.00	0.887
8			268.50	145.68	0.976
9	ENDTBL				
2	XSECTN	065	1.0	300.50	
8			300.00	0.00	0.00
8			300.10	0.29	0.23
8			300.25	1.47	0.69
8			300.40	3.55	1.28
8			300.50	5.48	1.75



CNCPT124.OUT

8	300.60	7.88	2.28
8	300.75	12.45	3.19
8	300.90	18.28	4.23
8	301.00	22.91	5.00
8	301.10	28.18	5.83
8	301.25	37.36	7.19
8	301.40	48.14	8.68

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

8		301.50	56.26	9.75
9	ENDTBL			
2	XSECTN	070	1.0	248.40
8		247.07	0.00	0.00
8		247.41	1.85	1.14
8		247.74	5.93	2.35
8		248.07	27.43	7.18
8		248.40	58.61	12.46
8		248.67	89.70	40.04
8		248.95	158.39	68.99
8		249.22	256.90	99.30
8		249.49	382.40	130.99
8		249.77	533.43	164.04
8		250.04	709.09	198.46
8		250.31	908.86	234.24
8		250.59	1132.40	271.40
8		250.86	1379.55	309.92
8		251.13	1650.25	349.81
8		251.41	1944.49	391.07
8		251.68	2262.35	433.69
8		251.95	2603.94	477.69
8		252.23	2969.40	523.05
8		252.50	3358.93	569.78
9	ENDTBL			
2	XSECTN	072	1.0	248.40
8		247.07	0.00	0.00
8		247.41	1.85	1.14
8		247.74	5.93	2.35
8		248.07	27.43	7.18
8		248.40	58.61	12.46
8		248.67	89.70	40.04
8		248.95	158.39	68.99
8		249.22	256.90	99.30
8		249.49	382.40	130.99
8		249.77	533.43	164.04
8		250.04	709.09	198.46
8		250.31	908.86	234.24
8		250.59	1132.40	271.40
8		250.86	1379.55	309.92
8		251.13	1650.25	349.81
8		251.41	1944.49	391.07
8		251.68	2262.35	433.69
8		251.95	2603.94	477.69
8		252.23	2969.40	523.05
8		252.50	3358.93	569.78
9	ENDTBL			
2	XSECTN	077	1.0	229.00
8		226.00	0.00	0.00
8		226.50	11.73	5.31
8		227.00	42.97	13.25

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

8				227.50	96.50	23.81	
8				228.00	175.93	37.00	
8				228.50	258.13	54.25	
8				229.00	385.22	77.00	
8				229.50	561.82	105.25	
8				230.00	793.74	139.00	
8				230.50	1079.38	179.94	
8				231.00	1462.49	229.75	
8				231.50	1953.75	288.44	
8				232.00	2564.16	356.00	
8				232.50	3408.70	429.13	
8				233.00	4351.01	504.50	
9	ENDTBL						
2	XSECTN	080		1.0	212.00		
8				210.50	0.00	0.00	
8				210.75	4.72	2.23	
8				211.00	15.68	4.92	
8				211.25	32.36	8.06	
8				211.50	54.93	11.67	
8				211.75	83.70	15.73	
8				212.00	119.05	20.25	
8				212.25	163.87	25.14	
8				212.50	215.35	30.31	
8				212.75	273.55	35.77	
8				213.00	338.57	41.50	
8				214.00	669.42	67.25	
8				215.00	806.07	99.00	
8				216.00	1088.03	138.25	
8				217.00	1451.30	187.50	
8				218.00	1978.93	249.25	
8				219.00	2262.06	340.00	
8				220.00	3115.20	476.25	
8				221.00	4892.67	639.25	
9	ENDTBL						
6	RUNOFF	1 001	1	0.0336	79.478	0.4051	DA1
6	REACH	3 002	1 2	1170.0		1	
6	RUNOFF	1 003	1	0.0580	80.559	0.3751	DA2
6	ADDHYD	4 004	1 2 3			1	DA1+2
6	RESVOR	2 11 3	1			1	1 SWMF10
6	REACH	3 005	1 2	797.0		1	
6	RUNOFF	1 006	3	0.0798	75.926	0.3921	DA3
6	ADDHYD	4 007	2 3 4			1	DA12+3
6	REACH	3 008	4 7	1221.0		1	1 SA1-SA2
6	RUNOFF	1 009	1	0.0734	88.594	0.4221	DA1
6	RESVOR	2 21 1	2			1	1 SWMF13
6	RUNOFF	1 010	3	0.0097	72.249	0.1281	DA7
6	RESVOR	2 22 2 3 4				1	1 HWY STOR
6	RUNOFF	1 011	2	0.0569	73.123	0.2201	DA2
6	ADDHYD	4 012	7 2 3			1	SA1+DA2
6	RUNOFF	1 013	5	0.0193	79.025	0.2481	DA3

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

6 ADDHYD 4 014 4 3 6 1 DA17+2



CNCPT124.OUT

6	RUNOFF	1	061		3	0.0173	72.707	0.2971		DA5			
6	ADDHYD	4	062	2	3			1		DA1234+5			
6	REACH	3	063	6		1959.0		1	1	1	1	1	SA5-SA6
6	RUNOFF	1	064		1	0.0110	88.119	0.5211			DA1		
6	RESVOR	2		61	1			1		1	SWMF19		
6	REACH	3	065	2	3	1283.0		1			DA2		
6	RUNOFF	1	066		1	0.0458	80.006	0.2391			DA2		
6	RESVOR	2		62	1			1		1	SWMF18		
6	ADDHYD	4	067	3	2			1			DA1+2		
6	RUNOFF	1	068		5	0.0778	79.468	0.2281			DA3		
6	ADDHYD	4	069	4	5			1			DA12+3		
6	REACH	3	070	1	2	2166.0		1			DA4		
6	RUNOFF	1	071		1	0.0119	85.744	0.1221			DA4		
6	RESVOR	2		63	1			1		1	SWMF2		
6	REACH	3	072	3	4	1081.0		1			DA5		
6	RUNOFF	1	073		5	0.1100	66.708	0.2051			SA5+DA5		
6	ADDHYD	4	074	7	5			1			DA123+4		
6	ADDHYD	4	075	2	4			1	1	1	1	DA12345	
6	ADDHYD	4	076	1	6			1	1	1	1	SA6-SA7	
6	REACH	3	077	2	7	884.0		1			DA1		
6	RUNOFF	1	078		2	0.0510	73.827	0.1971			SA6+DA1		
6	ADDHYD	4	079	7	2			1	1	1	1	DA3	
6	REACH	3	080	1	2	1296.0		1			DA1+3		
6	RUNOFF	1	081		3	0.0513	78.929	0.1621			DA21		
6	ADDHYD	4	082	2	3			1			DA13+2		
6	RUNOFF	1	083		1	0.0313	70.330	0.1861	1	1	1	DA4	
6	ADDHYD	4	084	4	1			1			DA123+4		
6	RUNOFF	1	085		3	0.1187	72.091	0.3211	1	1	1	DA5	
6	ADDHYD	4	086	2	3			1			DA1234+5		
6	RUNOFF	1	087		4	0.0159	87.661	0.1421			DA5		
6	ADDHYD	4	088	1	4			1		1	DA1234+5		
ENDATA													
7	INCREM	6				.06							
7	COMPUT	7	001		088	0.0	2.66	1.02	2	1	1		
ENDCMP													
7	COMPUT	7	001		088	0.0	3.21	1.02	2	1	2		
ENDCMP													
7	COMPUT	7	001		088	0.0	4.94	1.02	2	1	10		
ENDCMP													
7	COMPUT	7	001		088	0.0	7.28	1.02	2	1	50		
ENDCMP													
7	COMPUT	7	001		088	0.0	8.53	1.02	2	1	99		

1

\*\*\*\*\*80-80 LIST OF INPUT DATA (CONTINUED)\*\*\*\*\*

ENDCMP 1  
ENDJOB 2

\*\*\*\*\*END OF 80-80 LIST\*\*\*\*\*

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 1 JOB NO. 1 PAGE 1

EXECUTIVE CONTROL INCREM MAIN TIME INCREMENT = .060 HOURS

CNCPT124.OUT

EXECUTIVE CONTROL COMPUT	FROM XSECTION 1 TO XSECTION 88	
STARTING TIME = .00	RAIN DEPTH = 2.66	RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2	MAIN TIME INCREMENT = .060 HOURS	
ALTERNATE NO. = 1	STORM NO. = 1	RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.14	19.2	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.97 WATERSHED INCHES; 21 CFS-HRS; 1.7 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.25	18.0	389.82

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.97 WATERSHED INCHES; 21 CFS-HRS; 1.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	37.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.03 WATERSHED INCHES; 39 CFS-HRS; 3.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.16	52.5	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.01 WATERSHED INCHES; 60 CFS-HRS; 4.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 11

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 1 JOB NO. 1 PAGE 2

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.32	40.4	381.90

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.01 WATERSHED INCHES; 60 CFS-HRS; 4.9 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	39.5	367.63

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)

CNCPT124.OUT  
1.01 WATERSHED INCHES; 60 CFS-HRS; 4.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.14 36.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.79 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.31 61.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.91 WATERSHED INCHES; 100 CFS-HRS; 8.3 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.39 60.5 356.92

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.91 WATERSHED INCHES; 100 CFS-HRS; 8.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.14 68.3 (RUNOFF)

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 1 JOB NO. 1 PAGE 3

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.56 WATERSHED INCHES; 74 CFS-HRS; 6.1 ACRE-FEET.

\*\*\* MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE  
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00. \*\*\*  
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME.

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
13.17 7.5 371.80

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.27 WATERSHED INCHES; 60 CFS-HRS; 5.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.99 5.1 (RUNOFF)

CNCPT124.OUT  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.62 WATERSHED INCHES; 4 CFS-HRS; .3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
13.31 7.5 352.96

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.26 WATERSHED INCHES; 60 CFS-HRS; 5.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 27.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.66 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.37 67.8 (NULL)

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 1 JOB NO. 1 PAGE 4

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.84 WATERSHED INCHES; 124 CFS-HRS; 10.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 13.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.95 WATERSHED INCHES; 12 CFS-HRS; 1.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.38 72.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.95 WATERSHED INCHES; 184 CFS-HRS; 15.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.37 76.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.95 WATERSHED INCHES; 196 CFS-HRS; 16.2 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 23, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE TIME INCREMENT OF .006 HOURS. \*\*\*

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS) 12.37 PEAK DISCHARGE(CFS) 76.6 PEAK ELEVATION(FEET) 336.06

Table with 10 columns: HRS, MAIN TIME, INCREMENT, and 8 unlabeled columns. Rows show hydrograph points for alternate = 1, storm = 1, with drainage area = .32 sq. mi. Values range from 8.40 to 10.32 hours and 333.08 to 336.06 feet.

1

TR20 ----- SCS ----- Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION 2.04TEST 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST 15:05:46 PASS 1 JOB NO. 1 PAGE 5

Large data table with 10 columns: HRS, MAIN TIME, INCREMENT, and 8 unlabeled columns. Rows show hydrograph points for alternate = 1, storm = 1, with drainage area = .32 sq. mi. Values range from 10.32 to 18.96 hours and 333.43 to 336.06 feet.



CNCPT124.OUT

19.44	CFS	8.32	8.24	8.17	8.09	8.02	7.94	7.87	7.80
19.44	ELEV	333.40	333.40	333.40	333.39	333.39	333.39	333.39	333.38
19.92	CFS	7.72	7.65	7.58	7.51	7.44	7.37	7.30	7.24
19.92	ELEV	333.38	333.38	333.37	333.37	333.37	333.37	333.36	333.36
20.40	CFS	7.17	7.10	7.04	6.98	6.92	6.86	6.81	6.75
20.40	ELEV	333.36	333.36	333.35	333.35	333.35	333.35	333.34	333.34
20.88	CFS	6.70	6.64	6.59	6.54	6.49	6.44	6.40	6.35
20.88	ELEV	333.34	333.34	333.34	333.33	333.33	333.33	333.33	333.33
21.36	CFS	6.30	6.26	6.22	6.17	6.13	6.09	6.05	6.01
21.36	ELEV	333.33	333.32	333.32	333.32	333.32	333.32	333.32	333.31
21.84	CFS	5.97	5.93	5.90	5.86	5.83	5.79	5.76	5.72
21.84	ELEV	333.31	333.31	333.31	333.31	333.31	333.31	333.30	333.30

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 6

22.32	CFS	5.69	5.66	5.63	5.59	5.56	5.53	5.50	5.48
22.32	ELEV	333.30	333.30	333.30	333.30	333.30	333.30	333.29	333.29
22.80	CFS	5.45	5.42	5.39	5.36	5.34	5.31	5.28	5.26
22.80	ELEV	333.29	333.29	333.29	333.29	333.29	333.29	333.29	333.28
23.28	CFS	5.23	5.21	5.18	5.16	5.14	5.11	5.09	5.07
23.28	ELEV	333.28	333.28	333.28	333.28	333.28	333.28	333.28	333.28
23.76	CFS	5.05	5.02	5.00	4.98	4.96	4.88	4.66	4.35
23.76	ELEV	333.28	333.28	333.27	333.27	333.27	333.27	333.26	333.25
24.24	CFS	4.05	3.79	3.56	3.35	3.19	3.04	2.93	2.84
24.24	ELEV	333.24	333.23	333.22	333.21	333.20	333.20	333.19	333.19
24.72	CFS	2.75	2.67	2.59	2.52	2.45	2.39	2.32	2.26
24.72	ELEV	333.19	333.18	333.18	333.18	333.18	333.17	333.17	333.17
25.20	CFS	2.20	2.14	2.09	2.03	1.98	1.93	1.88	1.83
25.20	ELEV	333.17	333.16	333.16	333.16	333.16	333.15	333.15	333.15
25.68	CFS	1.78	1.74	1.69	1.65	1.60	1.56	1.52	1.48
25.68	ELEV	333.15	333.15	333.15	333.14	333.14	333.14	333.14	333.14
26.16	CFS	1.44	1.41	1.37	1.33	1.30	1.26	1.23	1.20
26.16	ELEV	333.14	333.13	333.13	333.13	333.13	333.13	333.13	333.13
26.64	CFS	1.17	1.14	1.11	1.08	1.05	1.03	1.01	.99
26.64	ELEV	333.13	333.12	333.12	333.12	333.12	333.12	333.12	333.12
27.12	CFS	.98	.97	.95	.94	.93	.92	.91	.89
27.12	ELEV	333.12	333.12	333.12	333.12	333.12	333.12	333.12	333.11
27.60	CFS	.88	.87	.86	.85	.84	.83	.82	.82
27.60	ELEV	333.11	333.11	333.11	333.11	333.11	333.11	333.11	333.11
28.08	CFS	.81	.80	.79	.78	.77	.77	.76	.75
28.08	ELEV	333.11	333.11	333.11	333.11	333.11	333.11	333.11	333.11
28.56	CFS	.74	.74	.73	.72	.72	.71	.70	.70
28.56	ELEV	333.11	333.11	333.11	333.11	333.11	333.11	333.11	333.11
29.04	CFS	.69	.68	.68	.67	.67	.66	.66	.65
29.04	ELEV	333.11	333.11	333.11	333.11	333.11	333.11	333.11	333.11
29.52	CFS	.65	.64	.64	.63	.63	.62	.62	.61
29.52	ELEV	333.11	333.10	333.10	333.10	333.10	333.10	333.10	333.10
30.00	CFS	.61	.61	.60	.60	.59	.59	.59	.58
30.00	ELEV	333.10	333.10	333.10	333.10	333.10	333.10	333.10	333.10
30.48	CFS	.58	.57	.57	.57	.56			
30.48	ELEV	333.10	333.10	333.10	333.10	333.10			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .95 WATERSHED INCHES; 196 CFS-HRS; 16.2 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	19	13	11	8	6	5	2	1
DURATION(HRS)	18	19						
FLOW(CFS)	1	1 TRUNCATED						

CNCPT124.OUT

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. \*\*\*

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 1 JOB NO. 1 PAGE 7

\*\*\* WARNING - XSECTION 16, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN  
2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,  
UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

OPERATION REACH XSECTION 16

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.37 76.6 332.03  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.95 WATERSHED INCHES; 196 CFS-HRS; 16.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.99 27.8 (RUNOFF)  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.51 WATERSHED INCHES; 21 CFS-HRS; 1.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 118

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.02 38.5 (RUNOFF)  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.95 WATERSHED INCHES; 32 CFS-HRS; 2.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 24

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.32 9.7 346.77

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1  
MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.

HRS	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV
5.04	.00	345.00	.01	345.00	.01	345.00	.01	345.00	.01	345.00
5.04		345.00		345.00		345.00		345.00		345.00
5.52	.02	345.00	.02	345.00	.02	345.00	.03	345.01	.03	345.01
5.52		345.00		345.00		345.00		345.01		345.01
6.00	.04	345.01	.04	345.01	.05	345.01	.05	345.01	.06	345.01
6.00		345.01		345.01		345.01		345.01		345.01
6.48	.07	345.01	.07	345.01	.08	345.01	.08	345.02	.09	345.02
6.48		345.01		345.01		345.01		345.02		345.02
6.96	.10	345.02	.11	345.02	.11	345.02	.12	345.02	.13	345.02
6.96		345.02		345.02		345.02		345.02		345.02
7.44	.14	345.03	.15	345.03	.15	345.03	.16	345.03	.17	345.03
7.44		345.03		345.03		345.03		345.03		345.03

1  
TR20 ----- SCS -

7.92	CFS	.18	.19	.20	.20	.21	.21	.22	.23
7.92	ELEV	345.03	345.03	345.04	345.04	345.04	345.04	345.04	345.04
8.40	CFS	.23	.24	.25	.26	.26	.27	.28	.29
8.40	ELEV	345.04	345.04	345.05	345.05	345.05	345.05	345.05	345.05
8.88	CFS	.30	.31	.32	.33	.34	.36	.37	.38
8.88	ELEV	345.05	345.06	345.06	345.06	345.06	345.06	345.07	345.07
9.36	CFS	.39	.40	.41	.42	.43	.45	.46	.47
9.36	ELEV	345.07	345.07	345.08	345.08	345.08	345.08	345.08	345.09
9.84	CFS	.48	.49	.51	.52	.54	.55	.57	.59
9.84	ELEV	345.09	345.09	345.09	345.09	345.10	345.10	345.10	345.11
10.32	CFS	.61	.63	.65	.67	.69	.72	.74	.77
10.32	ELEV	345.11	345.11	345.12	345.12	345.13	345.13	345.14	345.14
10.80	CFS	.80	.83	.87	.90	.94	.98	1.03	1.07
10.80	ELEV	345.15	345.15	345.16	345.16	345.17	345.18	345.19	345.20
11.28	CFS	1.13	1.19	1.25	1.32	1.40	1.49	1.63	1.85
11.28	ELEV	345.21	345.22	345.23	345.24	345.25	345.27	345.30	345.34
11.76	CFS	2.20	2.74	3.53	4.64	6.03	7.44	8.58	9.30
11.76	ELEV	345.40	345.50	345.64	345.85	346.10	346.35	346.56	346.69
12.24	CFS	9.63	9.73	9.70	9.59	9.44	9.25	9.04	8.82
12.24	ELEV	346.75	346.77	346.77	346.75	346.72	346.68	346.65	346.61
12.72	CFS	8.59	8.36	8.13	7.90	7.68	7.47	7.25	7.04
12.72	ELEV	346.56	346.52	346.48	346.44	346.40	346.36	346.32	346.28
13.20	CFS	6.84	6.64	6.45	6.26	6.08	5.90	5.73	5.56
13.20	ELEV	346.24	346.21	346.17	346.14	346.11	346.07	346.04	346.01
13.68	CFS	5.40	5.24	5.09	4.94	4.79	4.65	4.52	4.39
13.68	ELEV	345.98	345.95	345.93	345.90	345.87	345.85	345.82	345.80
14.16	CFS	4.26	4.13	4.02	3.90	3.79	3.68	3.58	3.48
14.16	ELEV	345.77	345.75	345.73	345.71	345.69	345.67	345.65	345.63
14.64	CFS	3.39	3.30	3.21	3.13	3.04	2.97	2.89	2.82
14.64	ELEV	345.62	345.60	345.58	345.57	345.55	345.54	345.53	345.51
15.12	CFS	2.75	2.68	2.61	2.55	2.49	2.43	2.37	2.31
15.12	ELEV	345.50	345.49	345.48	345.46	345.45	345.44	345.43	345.42
15.60	CFS	2.26	2.21	2.16	2.11	2.06	2.01	1.97	1.92
15.60	ELEV	345.41	345.40	345.39	345.38	345.37	345.37	345.36	345.35
16.08	CFS	1.88	1.84	1.80	1.76	1.72	1.69	1.65	1.62
16.08	ELEV	345.34	345.33	345.33	345.32	345.31	345.31	345.30	345.29
16.56	CFS	1.59	1.56	1.53	1.50	1.47	1.44	1.42	1.39
16.56	ELEV	345.29	345.28	345.28	345.27	345.27	345.26	345.26	345.25
17.04	CFS	1.37	1.34	1.32	1.30	1.28	1.26	1.24	1.22
17.04	ELEV	345.25	345.24	345.24	345.24	345.23	345.23	345.23	345.22
17.52	CFS	1.20	1.18	1.16	1.15	1.13	1.12	1.10	1.08
17.52	ELEV	345.22	345.22	345.21	345.21	345.21	345.20	345.20	345.20
18.00	CFS	1.07	1.06	1.04	1.03	1.01	1.00	.99	.98
18.00	ELEV	345.19	345.19	345.19	345.19	345.18	345.18	345.18	345.18
18.48	CFS	.96	.95	.94	.93	.92	.91	.90	.89
18.48	ELEV	345.18	345.17	345.17	345.17	345.17	345.17	345.16	345.16
18.96	CFS	.88	.87	.86	.85	.84	.83	.82	.81
18.96	ELEV	345.16	345.16	345.16	345.15	345.15	345.15	345.15	345.15
19.44	CFS	.80	.79	.78	.78	.77	.76	.75	.74

1

TR20 ----- SCS -----

Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4  
 Run for 1,2,10,50,100YR STORMS  
 PASS 1 JOB NO. 1

06/30/\*\*  
 15:05:46

VERSION  
 2.04TEST  
 PAGE 9

19.44	ELEV	345.15	345.14	345.14	345.14	345.14	345.14	345.14	345.14
19.92	CFS	.73	.73	.72	.71	.70	.70	.69	.68
19.92	ELEV	345.13	345.13	345.13	345.13	345.13	345.13	345.13	345.12
20.40	CFS	.67	.67	.66	.66	.65	.64	.64	.63

CNCPT124.OUT

20.40	ELEV	345.12	345.12	345.12	345.12	345.12	345.12	345.12	345.12
20.88	CFS	.63	.62	.62	.61	.61	.61	.60	.60
20.88	ELEV	345.11	345.11	345.11	345.11	345.11	345.11	345.11	345.11
21.36	CFS	.59	.59	.59	.58	.58	.58	.57	.57
21.36	ELEV	345.11	345.11	345.11	345.11	345.11	345.10	345.10	345.10
21.84	CFS	.57	.56	.56	.56	.55	.55	.55	.55
21.84	ELEV	345.10	345.10	345.10	345.10	345.10	345.10	345.10	345.10
22.32	CFS	.54	.54	.54	.54	.53	.53	.53	.53
22.32	ELEV	345.10	345.10	345.10	345.10	345.10	345.10	345.10	345.10
22.80	CFS	.53	.52	.52	.52	.52	.52	.51	.51
22.80	ELEV	345.10	345.10	345.10	345.09	345.09	345.09	345.09	345.09
23.28	CFS	.51	.51	.51	.51	.50	.50	.50	.50
23.28	ELEV	345.09	345.09	345.09	345.09	345.09	345.09	345.09	345.09
23.76	CFS	.50	.50	.49	.49	.49	.49	.48	.47
23.76	ELEV	345.09	345.09	345.09	345.09	345.09	345.09	345.09	345.09
24.24	CFS	.46	.44	.42	.40	.39	.37	.35	.34
24.24	ELEV	345.08	345.08	345.08	345.07	345.07	345.07	345.06	345.06
24.72	CFS	.32	.31	.29	.28	.27	.26	.24	.23
24.72	ELEV	345.06	345.06	345.05	345.05	345.05	345.05	345.04	345.04
25.20	CFS	.22	.21	.20	.19	.19	.18	.17	.16
25.20	ELEV	345.04	345.04	345.04	345.04	345.03	345.03	345.03	345.03
25.68	CFS	.15	.15	.14	.13	.13	.12	.12	.11
25.68	ELEV	345.03	345.03	345.03	345.02	345.02	345.02	345.02	345.02
26.16	CFS	.11	.10	.10	.09	.09	.08	.08	.08
26.16	ELEV	345.02	345.02	345.02	345.02	345.02	345.02	345.01	345.01
26.64	CFS	.07	.07	.07	.06	.06	.06	.06	.05
26.64	ELEV	345.01	345.01	345.01	345.01	345.01	345.01	345.01	345.01
27.12	CFS	.05	.05	.05	.04	.04	.04	.04	.04
27.12	ELEV	345.01	345.01	345.01	345.01	345.01	345.01	345.01	345.01
27.60	CFS	.04	.03	.03	.03	.03	.03	.03	.03
27.60	ELEV	345.01	345.01	345.01	345.01	345.01	345.01	345.00	345.00
28.08	CFS	.02	.02	.02	.02	.02			
28.08	ELEV	345.00	345.00	345.00	345.00	345.00			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.95 WATERSHED INCHES; 32 CFS-HRS; 2.6 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14
FLOW(CFS)	5	2	1	1	1	1	0

OPERATION RUNOFF XSECTION 119

PEAK TIME(HRS) 11.97 PEAK DISCHARGE(CFS) 7.5 PEAK ELEVATION(FEET) (RUNOFF)

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.38 WATERSHED INCHES; 5 CFS-HRS; .4 ACRE-FEET.

OPERATION ADDHYD XSECTION 120

PEAK TIME(HRS) 12.03 PEAK DISCHARGE(CFS) 13.4 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.84 WATERSHED INCHES; 37 CFS-HRS; 3.1 ACRE-FEET.

CNCPT124.OUT

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.00 40.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.71 WATERSHED INCHES; 58 CFS-HRS; 4.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.99 44.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.27 WATERSHED INCHES; 33 CFS-HRS; 2.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.00 85.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.52 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.04 142.5 (NULL)  
 12.29 100.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.07 WATERSHED INCHES; 285 CFS-HRS; 23.6 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 11

OPERATION REACH XSECTION 23

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.26 109.0 315.13

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.07 WATERSHED INCHES; 285 CFS-HRS; 23.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.11 26.2 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .82 WATERSHED INCHES; 27 CFS-HRS; 2.2 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE

CNCPT124.OUT  
TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.22 21.0 359.71

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.82 WATERSHED INCHES; 27 CFS-HRS; 2.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 35.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.79 WATERSHED INCHES; 38 CFS-HRS; 3.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.14 55.7 (NULL)

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 1 JOB NO. 1 PAGE 12

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.80 WATERSHED INCHES; 65 CFS-HRS; 5.4 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.26 50.5 318.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.80 WATERSHED INCHES; 65 CFS-HRS; 5.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.11 20.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.59 WATERSHED INCHES; 23 CFS-HRS; 1.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.23 124.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
Page 21

CNCPT124.OUT  
 1.01 WATERSHED INCHES; 308 CFS-HRS; 25.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.24 174.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .96 WATERSHED INCHES; 373 CFS-HRS; 30.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.06 57.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.14 WATERSHED INCHES; 51 CFS-HRS; 4.2 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 13

OPERATION REACH XSECTION 32

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.17 50.5 311.96

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.14 WATERSHED INCHES; 51 CFS-HRS; 4.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.00 14.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.12 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 32

\*\*\* MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS, \*\*\*  
 AT STRUCTURE 32

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 13.32 .8 378.51

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .01 SQ.MI.

HRS	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV
5.40	.00	375.40	.01	375.42	.01	375.42	.01	375.42	.01	375.43
5.40		375.40		375.42		375.42		375.43		375.43
5.88	.01	375.43	.01	375.43	.01	375.44	.01	375.44	.01	375.44
5.88		375.43		375.43		375.44		375.44		375.44
6.36	.01	375.45	.01	375.45	.01	375.45	.01	375.46	.01	375.46
6.36		375.45		375.45		375.45		375.46		375.46
6.84	.02	375.46	.02	375.47	.02	375.47	.02	375.48	.02	375.48
6.84		375.46		375.47		375.47		375.48		375.48

CNCPT124.OUT

7.32	CFS	.02	.02	.02	.02	.02	.02	.03	.03
7.32	ELEV	375.48	375.49	375.49	375.49	375.50	375.50	375.50	375.50
7.80	CFS	.03	.03	.03	.03	.03	.03	.03	.03
7.80	ELEV	375.51	375.51	375.51	375.52	375.52	375.52	375.53	375.53
8.28	CFS	.03	.03	.04	.04	.04	.04	.04	.04
8.28	ELEV	375.53	375.54	375.54	375.55	375.55	375.55	375.56	375.56
8.76	CFS	.04	.04	.04	.05	.05	.05	.05	.05
8.76	ELEV	375.57	375.57	375.58	375.58	375.59	375.59	375.60	375.60
9.24	CFS	.05	.05	.06	.06	.06	.06	.06	.06
9.24	ELEV	375.61	375.62	375.62	375.63	375.63	375.64	375.64	375.65
9.72	CFS	.06	.07	.07	.07	.07	.07	.08	.08
9.72	ELEV	375.66	375.66	375.67	375.68	375.68	375.69	375.70	375.71
10.20	CFS	.08	.08	.08	.09	.09	.09	.09	.10

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 14

10.20	ELEV	375.71	375.72	375.73	375.74	375.75	375.76	375.77	375.78
10.68	CFS	.10	.10	.11	.11	.11	.12	.12	.12
10.68	ELEV	375.79	375.81	375.82	375.83	375.85	375.86	375.88	375.89
11.16	CFS	.13	.13	.14	.14	.15	.16	.16	.17
11.16	ELEV	375.91	375.93	375.95	375.97	375.99	376.02	376.05	376.08
11.64	CFS	.18	.20	.23	.26	.32	.39	.48	.57
11.64	ELEV	376.12	376.19	376.29	376.44	376.65	376.94	377.29	377.64
12.12	CFS	.63	.68	.71	.73	.74	.75	.76	.76
12.12	ELEV	377.91	378.09	378.20	378.27	378.33	378.37	378.40	378.42
12.60	CFS	.77	.77	.77	.78	.78	.78	.78	.78
12.60	ELEV	378.44	378.45	378.47	378.48	378.48	378.49	378.50	378.50
13.08	CFS	.78	.78	.79	.79	.79	.79	.78	.78
13.08	ELEV	378.51	378.51	378.51	378.51	378.51	378.51	378.51	378.51
13.56	CFS	.78	.78	.78	.78	.78	.78	.78	.78
13.56	ELEV	378.50	378.50	378.50	378.49	378.49	378.48	378.48	378.47
14.04	CFS	.77	.77	.77	.77	.77	.77	.76	.76
14.04	ELEV	378.47	378.46	378.45	378.45	378.44	378.43	378.43	378.42
14.52	CFS	.76	.76	.76	.75	.75	.75	.75	.75
14.52	ELEV	378.41	378.40	378.40	378.39	378.38	378.37	378.36	378.36
15.00	CFS	.74	.74	.74	.74	.74	.73	.73	.73
15.00	ELEV	378.35	378.34	378.33	378.32	378.31	378.31	378.30	378.29
15.48	CFS	.73	.72	.72	.72	.72	.72	.71	.71
15.48	ELEV	378.28	378.27	378.26	378.25	378.24	378.23	378.22	378.21
15.96	CFS	.71	.71	.70	.70	.70	.70	.69	.69
15.96	ELEV	378.20	378.19	378.18	378.17	378.16	378.15	378.14	378.13
16.44	CFS	.69	.69	.68	.68	.68	.67	.67	.67
16.44	ELEV	378.12	378.11	378.10	378.09	378.08	378.07	378.06	378.05
16.92	CFS	.67	.66	.66	.66	.66	.65	.65	.65
16.92	ELEV	378.04	378.03	378.02	378.01	378.00	377.99	377.98	377.97
17.40	CFS	.65	.64	.64	.64	.64	.64	.63	.63
17.40	ELEV	377.96	377.95	377.94	377.93	377.92	377.91	377.90	377.90
17.88	CFS	.63	.63	.62	.62	.62	.62	.61	.61
17.88	ELEV	377.89	377.88	377.87	377.86	377.85	377.84	377.83	377.82
18.36	CFS	.61	.61	.60	.60	.60	.60	.59	.59
18.36	ELEV	377.81	377.80	377.79	377.78	377.77	377.76	377.75	377.74
18.84	CFS	.59	.59	.58	.58	.58	.58	.57	.57
18.84	ELEV	377.73	377.72	377.71	377.70	377.69	377.68	377.67	377.66
19.32	CFS	.57	.57	.56	.56	.56	.56	.55	.55
19.32	ELEV	377.65	377.64	377.64	377.63	377.62	377.61	377.60	377.59
19.80	CFS	.55	.55	.55	.54	.54	.54	.54	.53
19.80	ELEV	377.58	377.57	377.56	377.55	377.54	377.53	377.52	377.51
20.28	CFS	.53	.53	.53	.52	.52	.52	.52	.51
20.28	ELEV	377.50	377.49	377.48	377.48	377.47	377.46	377.45	377.44
20.76	CFS	.51	.51	.51	.51	.50	.50	.50	.50



CNCPT124.OUT									
20.76	ELEV	377.43	377.42	377.41	377.40	377.39	377.39	377.38	377.37
21.24	CFS	.50	.49	.49	.49	.49	.48	.48	.48
21.24	ELEV	377.36	377.35	377.34	377.34	377.33	377.32	377.31	377.30
21.72	CFS	.48	.48	.47	.47	.47	.47	.47	.46
21.72	ELEV	377.29	377.29	377.28	377.27	377.26	377.25	377.25	377.24

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 15

22.20	CFS	.46	.46	.46	.46	.45	.45	.45	.45
22.20	ELEV	377.23	377.22	377.21	377.21	377.20	377.19	377.18	377.18
22.68	CFS	.45	.44	.44	.44	.44	.44	.44	.43
22.68	ELEV	377.17	377.16	377.15	377.15	377.14	377.13	377.12	377.12
23.16	CFS	.43	.43	.43	.43	.42	.42	.42	.42
23.16	ELEV	377.11	377.10	377.10	377.09	377.08	377.07	377.07	377.06
23.64	CFS	.42	.42	.41	.41	.41	.41	.41	.41
23.64	ELEV	377.05	377.05	377.04	377.03	377.03	377.02	377.01	377.01
24.12	CFS	.40	.40	.40	.40	.39	.39	.39	.39
24.12	ELEV	377.00	376.99	376.98	376.97	376.96	376.95	376.94	376.93
24.60	CFS	.38	.38	.38	.38	.37	.37	.37	.37
24.60	ELEV	376.92	376.91	376.90	376.89	376.88	376.87	376.86	376.85
25.08	CFS	.36	.36	.36	.36	.35	.35	.35	.35
25.08	ELEV	376.84	376.83	376.82	376.81	376.80	376.79	376.78	376.77
25.56	CFS	.34	.34	.34	.34	.33	.33	.33	.33
25.56	ELEV	376.76	376.75	376.75	376.74	376.73	376.72	376.71	376.70
26.04	CFS	.33	.32	.32	.32	.32	.32	.31	.31
26.04	ELEV	376.69	376.68	376.68	376.67	376.66	376.65	376.64	376.63
26.52	CFS	.31	.31	.31	.30	.30	.30	.30	.30
26.52	ELEV	376.62	376.62	376.61	376.60	376.59	376.58	376.58	376.57
27.00	CFS	.29	.29	.29	.29	.29			
27.00	ELEV	376.56	376.55	376.55	376.54	376.53			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.64 WATERSHED INCHES; 9 CFS-HRS; .7 ACRE-FEET.

DURATION(HRS)	2	4	6	8	9
FLOW(CFS)	1	1	1	1	0

\*\*\* WARNING - XSECTION 34, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN 2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT, UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

OPERATION REACH XSECTION 34

\*\*\* MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS, AT XSECTION 34 \*\*\*

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.44	.8	338.02

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.63 WATERSHED INCHES; 9 CFS-HRS; .7 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	43.2	(RUNOFF)

1

TR20 ----- SCS -

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.11 WATERSHED INCHES; 38 CFS-HRS; 3.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS) 12.32 PEAK DISCHARGE(CFS) 12.4 PEAK ELEVATION(FEET) 355.57

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.

HRS	MAIN TIME	INCREMENT	.01	.01	.01	.01	.01	.01	.01
4.80	CFS	.00	.01	.01	.01	.01	.01	.01	.01
4.80	ELEV	350.00	350.02	350.02	350.03	350.03	350.03	350.03	350.04
5.28	CFS	.01	.01	.01	.01	.01	.01	.01	.01
5.28	ELEV	350.04	350.04	350.05	350.05	350.05	350.06	350.06	350.06
5.76	CFS	.02	.02	.02	.02	.02	.02	.02	.02
5.76	ELEV	350.07	350.07	350.07	350.08	350.08	350.09	350.09	350.10
6.24	CFS	.02	.02	.03	.03	.03	.03	.03	.03
6.24	ELEV	350.10	350.11	350.11	350.12	350.12	350.13	350.13	350.14
6.72	CFS	.03	.03	.04	.04	.04	.04	.04	.04
6.72	ELEV	350.14	350.15	350.16	350.16	350.17	350.17	350.18	350.19
7.20	CFS	.04	.05	.05	.05	.05	.05	.05	.06
7.20	ELEV	350.19	350.20	350.21	350.21	350.22	350.23	350.24	350.24
7.68	CFS	.06	.06	.06	.06	.07	.07	.07	.07
7.68	ELEV	350.25	350.26	350.27	350.27	350.28	350.29	350.30	350.31
8.16	CFS	.07	.08	.08	.08	.08	.08	.09	.09
8.16	ELEV	350.31	350.32	350.33	350.34	350.35	350.36	350.37	350.38
8.64	CFS	.09	.09	.10	.10	.10	.11	.11	.11
8.64	ELEV	350.39	350.40	350.42	350.43	350.44	350.45	350.47	350.48
9.12	CFS	.12	.12	.12	.13	.13	.13	.14	.14
9.12	ELEV	350.50	350.51	350.52	350.54	350.55	350.57	350.58	350.60
9.60	CFS	.14	.15	.15	.15	.16	.16	.17	.17
9.60	ELEV	350.61	350.63	350.65	350.66	350.68	350.70	350.71	350.73
10.08	CFS	.17	.18	.18	.19	.19	.20	.21	.21
10.08	ELEV	350.75	350.77	350.79	350.81	350.84	350.86	350.89	350.91
10.56	CFS	.22	.22	.23	.24	.25	.25	.26	.27
10.56	ELEV	350.94	350.96	350.99	351.02	351.05	351.09	351.12	351.16
11.04	CFS	.28	.29	.30	.31	.32	.33	.35	.36
11.04	ELEV	351.20	351.24	351.28	351.33	351.38	351.43	351.48	351.55
11.52	CFS	.37	.39	.41	.45	.49	.56	.66	.80
11.52	ELEV	351.61	351.69	351.78	351.92	352.12	352.41	352.84	353.43
12.00	CFS	.97	3.94	7.75	10.44	11.95	12.41	12.29	11.87
12.00	ELEV	354.18	354.73	355.15	355.41	355.54	355.57	355.56	355.53
12.48	CFS	11.29	10.63	9.95	9.36	8.78	8.22	7.70	7.22
12.48	ELEV	355.48	355.43	355.38	355.31	355.26	355.20	355.15	355.10
12.96	CFS	6.77	6.36	5.98	5.63	5.30	5.00	4.78	4.57
12.96	ELEV	355.05	355.01	354.97	354.93	354.90	354.87	354.84	354.81
13.44	CFS	4.37	4.19	4.01	3.85	3.69	3.54	3.40	3.27
13.44	ELEV	354.79	354.76	354.74	354.72	354.70	354.68	354.66	354.64
13.92	CFS	3.15	3.03	2.92	2.81	2.71	2.61	2.52	2.44

13.92	ELEV	354.62	354.61	354.59	354.58	354.56	354.55	354.54	354.53
14.40	CFS	2.36	2.29	2.23	2.16	2.10	2.05	2.00	1.96

CNCPT124.OUT

14.40	ELEV	354.52	354.51	354.50	354.49	354.48	354.48	354.47	354.46
14.88	CFS	1.93	1.90	1.87	1.83	1.80	1.77	1.75	1.72
14.88	ELEV	354.46	354.45	354.45	354.44	354.44	354.43	354.43	354.42
15.36	CFS	1.69	1.66	1.64	1.61	1.59	1.56	1.54	1.51
15.36	ELEV	354.42	354.41	354.41	354.40	354.40	354.40	354.39	354.39
15.84	CFS	1.49	1.47	1.44	1.42	1.40	1.38	1.35	1.33
15.84	ELEV	354.38	354.38	354.38	354.37	354.37	354.36	354.36	354.36
16.32	CFS	1.31	1.29	1.28	1.26	1.24	1.22	1.21	1.19
16.32	ELEV	354.35	354.35	354.35	354.34	354.34	354.34	354.34	354.33
16.80	CFS	1.18	1.16	1.15	1.14	1.13	1.11	1.10	1.09
16.80	ELEV	354.33	354.33	354.33	354.32	354.32	354.32	354.32	354.32
17.28	CFS	1.08	1.07	1.06	1.05	1.04	1.03	1.02	1.01
17.28	ELEV	354.31	354.31	354.31	354.31	354.31	354.30	354.30	354.30
17.76	CFS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
17.76	ELEV	354.30	354.30	354.29	354.29	354.29	354.29	354.28	354.28
18.24	CFS	.99	.99	.99	.99	.99	.99	.99	.99
18.24	ELEV	354.28	354.27	354.27	354.26	354.26	354.26	354.25	354.25
18.72	CFS	.99	.99	.98	.98	.98	.98	.98	.98
18.72	ELEV	354.24	354.24	354.23	354.23	354.22	354.22	354.21	354.21
19.20	CFS	.98	.98	.98	.97	.97	.97	.97	.97
19.20	ELEV	354.20	354.20	354.19	354.19	354.18	354.18	354.17	354.16
19.68	CFS	.97	.97	.96	.96	.96	.96	.96	.96
19.68	ELEV	354.16	354.15	354.14	354.14	354.13	354.13	354.12	354.11
20.16	CFS	.95	.95	.95	.95	.95	.95	.94	.94
20.16	ELEV	354.10	354.10	354.09	354.08	354.08	354.07	354.06	354.06
20.64	CFS	.94	.94	.94	.94	.93	.93	.93	.93
20.64	ELEV	354.05	354.04	354.03	354.03	354.02	354.01	354.01	354.00
21.12	CFS	.93	.93	.93	.92	.92	.92	.92	.92
21.12	ELEV	353.99	353.98	353.98	353.97	353.96	353.96	353.95	353.94
21.60	CFS	.92	.91	.91	.91	.91	.91	.91	.90
21.60	ELEV	353.94	353.93	353.92	353.91	353.91	353.90	353.89	353.89
22.08	CFS	.90	.90	.90	.90	.90	.89	.89	.89
22.08	ELEV	353.88	353.87	353.87	353.86	353.85	353.85	353.84	353.83
22.56	CFS	.89	.89	.89	.88	.88	.88	.88	.88
22.56	ELEV	353.82	353.82	353.81	353.80	353.80	353.79	353.78	353.78
23.04	CFS	.88	.88	.87	.87	.87	.87	.87	.87
23.04	ELEV	353.77	353.76	353.76	353.75	353.74	353.74	353.73	353.72
23.52	CFS	.86	.86	.86	.86	.86	.86	.85	.85
23.52	ELEV	353.72	353.71	353.70	353.69	353.69	353.68	353.67	353.67
24.00	CFS	.85	.85	.85	.85	.84	.84	.84	.83
24.00	ELEV	353.66	353.65	353.65	353.63	353.62	353.61	353.59	353.58
24.48	CFS	.83	.82	.82	.82	.81	.81	.81	.80
24.48	ELEV	353.56	353.54	353.53	353.51	353.50	353.48	353.46	353.45
24.96	CFS	.80	.79	.79	.79	.78	.78	.78	.77
24.96	ELEV	353.43	353.42	353.40	353.39	353.37	353.35	353.34	353.32
25.44	CFS	.77	.77	.76	.76	.76	.75	.75	.75
25.44	ELEV	353.31	353.29	353.28	353.26	353.25	353.23	353.22	353.20

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 18

25.92	CFS	.74	.74	.73	.73	.73	.72	.72	.72
25.92	ELEV	353.19	353.17	353.16	353.15	353.13	353.12	353.10	353.09
26.40	CFS	.71	.71	.71	.71	.70	.70	.70	.69
26.40	ELEV	353.07	353.06	353.05	353.03	353.02	353.00	352.99	352.98
26.88	CFS	.69	.69	.68	.68	.68	.67	.67	.67
26.88	ELEV	352.96	352.95	352.94	352.92	352.91	352.90	352.88	352.87

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.62 WATERSHED INCHES; 29 CFS-HRS; 2.4 ACRE-FEET.

CNCPT124.OUT  
 DURATION(HRS) 2 4 6 8 10 12 14 16  
 FLOW(CFS) 3 1 1 1 1 1 1 1 TRUNCATED

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS) 12.32 PEAK DISCHARGE(CFS) 13.0 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.62 WATERSHED INCHES; 38 CFS-HRS; 3.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS) 12.32 PEAK DISCHARGE(CFS) 13.0 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.62 WATERSHED INCHES; 38 CFS-HRS; 3.1 ACRE-FEET.

\*\*\* WARNING - XSECTION 37, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN  
 2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,  
 UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

OPERATION REACH XSECTION 37

PEAK TIME(HRS) 12.40 PEAK DISCHARGE(CFS) 12.9 PEAK ELEVATION(FEET) 330.23

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.62 WATERSHED INCHES; 38 CFS-HRS; 3.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 138

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 40.9 PEAK ELEVATION(FEET) (RUNOFF)

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 19

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.66 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 139

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 41.8 PEAK ELEVATION(FEET) (NULL)  
 12.28 19.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.64 WATERSHED INCHES; 68 CFS-HRS; 5.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 35

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

13.86

CNCPT124.OUT

5.9 \*

328.49

\* FIRST POINT OF FLAT PEAK

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1									
HRS	MAIN TIME	INCREMENT = .060 hr,				DRAINAGE AREA = .06 SQ.MI.			
6.54	CFS	.00	.01	.01	.01	.01	.01	.01	.01
6.54	ELEV	326.00	326.00	326.00	326.00	326.00	326.00	326.00	326.00
7.02	CFS	.01	.01	.01	.02	.02	.02	.02	.02
7.02	ELEV	326.00	326.01	326.01	326.01	326.01	326.01	326.01	326.01
7.50	CFS	.02	.03	.03	.03	.03	.03	.04	.04
7.50	ELEV	326.01	326.01	326.01	326.01	326.01	326.01	326.02	326.02
7.98	CFS	.04	.04	.05	.05	.05	.06	.06	.06
7.98	ELEV	326.02	326.02	326.02	326.02	326.02	326.02	326.02	326.03
8.46	CFS	.07	.07	.07	.08	.08	.09	.09	.09
8.46	ELEV	326.03	326.03	326.03	326.03	326.03	326.04	326.04	326.04
8.94	CFS	.10	.10	.11	.11	.12	.13	.13	.14
8.94	ELEV	326.04	326.04	326.05	326.05	326.05	326.05	326.06	326.06
9.42	CFS	.14	.15	.16	.16	.17	.17	.18	.19
9.42	ELEV	326.06	326.06	326.07	326.07	326.07	326.07	326.08	326.08
9.90	CFS	.20	.20	.21	.22	.23	.24	.25	.26
9.90	ELEV	326.08	326.09	326.09	326.09	326.10	326.10	326.10	326.11
10.38	CFS	.27	.28	.29	.30	.32	.33	.34	.36
10.38	ELEV	326.11	326.12	326.12	326.13	326.13	326.14	326.14	326.15
10.86	CFS	.37	.39	.41	.43	.45	.47	.49	.52
10.86	ELEV	326.16	326.16	326.17	326.18	326.19	326.20	326.21	326.22
11.34	CFS	.54	.57	.60	.64	.68	.74	.84	.98
11.34	ELEV	326.23	326.24	326.25	326.27	326.29	326.31	326.35	326.41
11.82	CFS	1.20	1.51	1.96	2.48	2.96	3.31	3.57	3.78
11.82	ELEV	326.50	326.64	326.82	327.04	327.24	327.39	327.50	327.59
12.30	CFS	3.99	4.19	4.39	4.57	4.73	4.88	5.01	5.13
12.30	ELEV	327.68	327.76	327.84	327.92	327.99	328.05	328.10	328.15
12.78	CFS	5.24	5.34	5.42	5.50	5.57	5.63	5.68	5.73

1

TR20

SCS -

Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 20

12.78	ELEV	328.20	328.24	328.28	328.31	328.34	328.36	328.39	328.40
13.26	CFS	5.77	5.80	5.83	5.85	5.87	5.89	5.90	5.91
13.26	ELEV	328.42	328.44	328.45	328.46	328.47	328.47	328.48	328.48
13.74	CFS	5.92	5.93	5.93	5.93	5.92	5.92	5.91	5.90
13.74	ELEV	328.49	328.49	328.49	328.49	328.49	328.49	328.48	328.48
14.22	CFS	5.89	5.88	5.86	5.85	5.83	5.82	5.80	5.78
14.22	ELEV	328.47	328.47	328.46	328.46	328.45	328.44	328.44	328.43
14.70	CFS	5.76	5.74	5.72	5.70	5.67	5.65	5.63	5.60
14.70	ELEV	328.42	328.41	328.40	328.39	328.38	328.37	328.36	328.35
15.18	CFS	5.58	5.56	5.53	5.51	5.48	5.46	5.43	5.41
15.18	ELEV	328.34	328.33	328.32	328.31	328.30	328.29	328.28	328.27
15.66	CFS	5.38	5.35	5.33	5.30	5.27	5.25	5.22	5.19
15.66	ELEV	328.26	328.25	328.24	328.23	328.21	328.20	328.19	328.18
16.14	CFS	5.16	5.13	5.11	5.08	5.05	5.02	4.99	4.97
16.14	ELEV	328.17	328.16	328.14	328.13	328.12	328.11	328.10	328.09
16.62	CFS	4.94	4.91	4.88	4.85	4.83	4.80	4.77	4.74
16.62	ELEV	328.07	328.06	328.05	328.04	328.03	328.02	328.00	327.99
17.10	CFS	4.72	4.69	4.66	4.63	4.61	4.58	4.55	4.53
17.10	ELEV	327.98	327.97	327.96	327.95	327.93	327.92	327.91	327.90
17.58	CFS	4.50	4.47	4.45	4.42	4.39	4.37	4.34	4.32
17.58	ELEV	327.89	327.88	327.87	327.86	327.85	327.83	327.82	327.81
18.06	CFS	4.29	4.26	4.24	4.21	4.19	4.17	4.14	4.12
18.06	ELEV	327.80	327.79	327.78	327.77	327.76	327.75	327.74	327.73
18.54	CFS	4.09	4.07	4.05	4.02	4.00	3.98	3.95	3.93
18.54	ELEV	327.72	327.71	327.70	327.69	327.68	327.67	327.66	327.65

CNCPT124.OUT

19.02	CFS	3.91	3.89	3.87	3.84	3.82	3.80	3.78	3.76
19.02	ELEV	327.64	327.63	327.62	327.61	327.61	327.60	327.59	327.58
19.50	CFS	3.74	3.72	3.69	3.67	3.65	3.63	3.61	3.59
19.50	ELEV	327.57	327.56	327.55	327.54	327.53	327.53	327.52	327.51
19.98	CFS	3.57	3.55	3.53	3.51	3.49	3.47	3.46	3.44
19.98	ELEV	327.50	327.49	327.48	327.48	327.47	327.46	327.45	327.44
20.46	CFS	3.42	3.40	3.38	3.36	3.34	3.33	3.31	3.29
20.46	ELEV	327.44	327.43	327.42	327.41	327.40	327.40	327.39	327.38
20.94	CFS	3.27	3.26	3.24	3.22	3.21	3.19	3.17	3.16
20.94	ELEV	327.38	327.37	327.36	327.35	327.35	327.34	327.33	327.33
21.42	CFS	3.14	3.13	3.11	3.09	3.08	3.06	3.05	3.03
21.42	ELEV	327.32	327.31	327.31	327.30	327.29	327.29	327.28	327.27
21.90	CFS	3.02	3.00	2.99	2.97	2.96	2.95	2.93	2.92
21.90	ELEV	327.27	327.26	327.26	327.25	327.24	327.24	327.23	327.23
22.38	CFS	2.90	2.89	2.88	2.86	2.85	2.84	2.82	2.81
22.38	ELEV	327.22	327.21	327.21	327.20	327.20	327.19	327.19	327.18
22.86	CFS	2.80	2.78	2.77	2.76	2.75	2.73	2.72	2.71
22.86	ELEV	327.17	327.17	327.16	327.16	327.15	327.15	327.14	327.14
23.34	CFS	2.70	2.68	2.67	2.66	2.65	2.64	2.63	2.61
23.34	ELEV	327.13	327.13	327.12	327.12	327.11	327.11	327.10	327.10
23.82	CFS	2.60	2.59	2.58	2.57	2.56	2.54	2.53	2.51
23.82	ELEV	327.09	327.09	327.08	327.08	327.07	327.07	327.06	327.06
24.30	CFS	2.50	2.48	2.46	2.45	2.43	2.41	2.40	2.38
24.30	ELEV	327.05	327.04	327.03	327.03	327.02	327.01	327.01	327.00

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 21

24.78	CFS	2.37	2.35	2.34	2.32	2.31	2.29	2.28	2.26
24.78	ELEV	326.99	326.99	326.98	326.97	326.97	326.96	326.96	326.95
25.26	CFS	2.25	2.23	2.22	2.20	2.19	2.17	2.16	2.15
25.26	ELEV	326.94	326.94	326.93	326.92	326.92	326.91	326.91	326.90
25.74	CFS	2.13	2.12	2.10	2.09	2.08	2.06	2.05	2.04
25.74	ELEV	326.90	326.89	326.88	326.88	326.87	326.87	326.86	326.86
26.22	CFS	2.02	2.01	2.00	1.99	1.97	1.96	1.95	1.94
26.22	ELEV	326.85	326.84	326.84	326.83	326.83	326.82	326.82	326.81
26.70	CFS	1.92	1.91	1.90	1.89	1.88	1.86	1.85	1.84
26.70	ELEV	326.81	326.80	326.80	326.79	326.79	326.78	326.78	326.77
27.18	CFS	1.83	1.82	1.81					
27.18	ELEV	326.77	326.76	326.76					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.44 WATERSHED INCHES; 60 CFS-HRS; 4.9 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	15	
FLOW(CFS)	6	5	4	4	3	3	2	2 TRUNCATED	

OPERATION RUNOFF XSECTION 140

PEAK TIME(HRS) 12.02 PEAK DISCHARGE(CFS) 1.0 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .33 WATERSHED INCHES; 1 CFS-HRS; .1 ACRE-FEET.

\*\*\* WARNING - XSECTION 141  
 VOLUME TRUNCATED AT 30.% IN LOCATION 2 ADDING HYDROGRAPHS. \*\*\*

OPERATION ADDHYD XSECTION 141

CNCPT124.OUT

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.80	6.0 *	(NULL)
	* FIRST POINT OF FLAT PEAK	

\*\*\* WARNING - XSECTION 141, HYDROGRAPH VOLUME TRUNCATED AT 2 CFS  
 ADDHYD ( 30. % OF MAX. HYDROGRAPH COORDINATE)  
 MAIN TIME INCREMENT TOO SMALL. \*\*\*

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.37 WATERSHED INCHES; 61 CFS-HRS; 5.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 40  
 1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	25.6	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.04 WATERSHED INCHES; 26 CFS-HRS; 2.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.22	195.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .97 WATERSHED INCHES; 399 CFS-HRS; 33.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	245.1	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .99 WATERSHED INCHES; 450 CFS-HRS; 37.2 ACRE-FEET.

\*\*\* WARNING - XSECTION 43  
 VOLUME TRUNCATED AT 30.% AND 0.% WHEN ADDING HYDROGRAPHS  
 IN LOCATIONS 4 AND 2. \*\*\*

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.21	249.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.02 WATERSHED INCHES; 509 CFS-HRS; 42.1 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.39	212.1	289.78

CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.02 WATERSHED INCHES; 509 CFS-HRS; 42.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 1 JOB NO. 1 PAGE 23

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.15 20.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.79 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.18 22.5 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.69 WATERSHED INCHES; 28 CFS-HRS; 2.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.17 43.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.73 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 33.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.95 WATERSHED INCHES; 29 CFS-HRS; 2.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.38 221.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.01 WATERSHED INCHES; 538 CFS-HRS; 44.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.34 250.5 (NULL)

1 TR20 ----- SCS -  
Ellicott City Flood study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
Page 31



06/30/\*\*  
15:05:46

CNCPT124.OUT  
Run for 1,2,10,50,100YR STORMS  
PASS 1 JOB NO. 1

2.04TEST  
PAGE 24

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.98 WATERSHED INCHES; 590 CFS-HRS; 48.8 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.50 235.1 283.88

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.98 WATERSHED INCHES; 589 CFS-HRS; 48.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

\*\*\* MESSAGE - XSECTION 52, NO PEAK COMPUTED (ONLY 1 HYDROGRAPH POINT(S)). \*\*\*

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.98 WATERSHED INCHES; 212 CFS-HRS; 48.7 ACRE-FEET.

\*\*\* WARNING - XSECTION 53, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN  
2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,  
UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

OPERATION REACH XSECTION 53

\*\*\* MESSAGE - XSECTION 53, NO PEAK COMPUTED (ONLY 1 HYDROGRAPH POINT(S)). \*\*\*

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.98 WATERSHED INCHES; 209 CFS-HRS; 48.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

\*\*\* MESSAGE - XSECTION 54, NO PEAK COMPUTED (ONLY 1 HYDROGRAPH POINT(S)). \*\*\*

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.98 WATERSHED INCHES; 217 CFS-HRS; 48.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 1 JOB NO. 1 PAGE 25

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.06 16.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.71 WATERSHED INCHES; 15 CFS-HRS; 1.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.50 CNCPT124.OUT (NULL)  
238.6  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.97 WATERSHED INCHES; 604 CFS-HRS; 49.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

\*\*\* MESSAGE - XSECTION 57, NO PEAK COMPUTED (ONLY 1 HYDROGRAPH POINT(S)). \*\*\*

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.97 WATERSHED INCHES; 217 CFS-HRS; 49.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.50 238.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.96 WATERSHED INCHES; 605 CFS-HRS; 50.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.07 11.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.65 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.50 241.7 (NULL)

1 TR20 ----- SCS -  
06/30/\*\* Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
15:05:46 Run for 1,2,10,50,100YR STORMS 2.04TEST  
PASS 1 JOB NO. 1 PAGE 26

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.95 WATERSHED INCHES; 617 CFS-HRS; 51.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.09 7.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.64 WATERSHED INCHES; 7 CFS-HRS; .6 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.49 243.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.94 WATERSHED INCHES; 624 CFS-HRS; 51.6 ACRE-FEET.

CNCPT124.OUT

OPERATION REACH XSECTION 63

PEAK TIME(HRS) 12.73 PEAK DISCHARGE(CFS) 221.7 PEAK ELEVATION(FEET) 249.12

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1  
 INCREMENT = .060 hr, DRAINAGE AREA = 1.03 SQ.MI.

HRS	MAIN TIME	INCREMENT	.51	.54	.56	.60	.63	.67	.70
9.42	CFS	.48	.51	.54	.56	.60	.63	.67	.70
9.42	ELEV	247.16	247.16	247.17	247.17	247.18	247.19	247.19	247.20
9.90	CFS	.74	.77	.81	.86	.90	.95	1.00	1.06
9.90	ELEV	247.21	247.21	247.22	247.23	247.24	247.24	247.25	247.26
10.38	CFS	1.12	1.19	1.26	1.34	1.42	1.52	1.63	1.74
10.38	ELEV	247.28	247.29	247.30	247.32	247.33	247.35	247.37	247.39
10.86	CFS	1.87	2.01	2.17	2.34	2.53	2.73	2.96	3.20
10.86	ELEV	247.41	247.42	247.44	247.45	247.46	247.48	247.50	247.52
11.34	CFS	3.47	3.78	4.12	4.51	4.96	5.50	6.22	7.30
11.34	ELEV	247.54	247.57	247.59	247.62	247.66	247.71	247.74	247.76
11.82	CFS	9	12	18	27	40	58	78	100
11.82	ELEV	247.79	247.83	247.92	248.06	248.21	248.40	248.57	248.71
12.30	CFS	123	146	168	188	203	214	220	222
12.30	ELEV	248.81	248.90	248.98	249.03	249.07	249.10	249.12	249.12
12.78	CFS	220	216	210	202	193	184	174	165
12.78	ELEV	249.12	249.11	249.09	249.07	249.05	249.02	248.99	248.97
13.26	CFS	155	146	137	129	122	115	108	102
13.26	ELEV	248.94	248.90	248.86	248.83	248.80	248.77	248.74	248.72
13.74	CFS	96.76	91.85	87.42	83.41	79.79	76.52	73.55	70.87
13.74	ELEV	248.70	248.68	248.65	248.62	248.58	248.56	248.53	248.51
14.22	CFS	68.43	66.20	64.17	62.31	60.61	59.04	57.60	56.27

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 27

14.22	ELEV	248.49	248.47	248.45	248.43	248.42	248.40	248.39	248.38
14.70	CFS	55.04	53.91	52.86	51.89	50.99	50.15	49.37	48.63
14.70	ELEV	248.36	248.35	248.34	248.33	248.32	248.31	248.30	248.29
15.18	CFS	47.93	47.27	46.64	46.04	45.46	44.91	44.37	43.84
15.18	ELEV	248.29	248.28	248.27	248.27	248.26	248.25	248.25	248.24
15.66	CFS	43.33	42.82	42.33	41.84	41.35	40.88	40.40	39.93
15.66	ELEV	248.24	248.23	248.23	248.22	248.22	248.21	248.21	248.20
16.14	CFS	39.46	39.00	38.54	38.08	37.64	37.20	36.77	36.35
16.14	ELEV	248.20	248.19	248.19	248.18	248.18	248.17	248.17	248.16
16.62	CFS	35.94	35.55	35.18	34.82	34.48	34.16	33.86	33.56
16.62	ELEV	248.16	248.16	248.15	248.15	248.14	248.14	248.14	248.13
17.10	CFS	33.29	33.02	32.77	32.52	32.29	32.06	31.83	31.61
17.10	ELEV	248.13	248.13	248.13	248.12	248.12	248.12	248.12	248.11
17.58	CFS	31.40	31.18	30.98	30.77	30.57	30.36	30.16	29.96
17.58	ELEV	248.11	248.11	248.11	248.11	248.10	248.10	248.10	248.10
18.06	CFS	29.76	29.56	29.36	29.16	28.95	28.75	28.54	28.34
18.06	ELEV	248.09	248.09	248.09	248.09	248.09	248.08	248.08	248.08
18.54	CFS	28.13	27.92	27.71	27.50	27.29	27.07	26.86	26.65
18.54	ELEV	248.08	248.08	248.07	248.07	248.07	248.06	248.06	248.06
19.02	CFS	26.44	26.23	26.02	25.81	25.60	25.39	25.18	24.98
19.02	ELEV	248.05	248.05	248.05	248.05	248.04	248.04	248.04	248.03
19.50	CFS	24.77	24.57	24.36	24.16	23.95	23.75	23.55	23.34
19.50	ELEV	248.03	248.03	248.02	248.02	248.02	248.01	248.01	248.01
19.98	CFS	23.14	22.94	22.74	22.54	22.34	22.14	21.95	21.76
19.98	ELEV	248.00	248.00	248.00	247.99	247.99	247.99	247.99	247.98
20.46	CFS	21.57	21.39	21.22	21.05	20.88	20.73	20.58	20.43
20.46	ELEV	247.98	247.98	247.97	247.97	247.97	247.97	247.96	247.96

CNCPT124.OUT

20.94	CFS	20.30	20.16	20.04	19.91	19.80	19.68	19.57	19.47
20.94	ELEV	247.96	247.96	247.96	247.95	247.95	247.95	247.95	247.95
21.42	CFS	19.36	19.26	19.16	19.06	18.97	18.88	18.78	18.69
21.42	ELEV	247.95	247.94	247.94	247.94	247.94	247.94	247.94	247.94
21.90	CFS	18.60	18.52	18.43	18.35	18.27	18.18	18.10	18.03
21.90	ELEV	247.93	247.93	247.93	247.93	247.93	247.93	247.93	247.93
22.38	CFS	17.95	17.87	17.80	17.72	17.65	17.57	17.50	17.43
22.38	ELEV	247.92	247.92	247.92	247.92	247.92	247.92	247.92	247.92
22.86	CFS	17.36	17.29	17.22	17.16	17.09	17.02	16.96	16.89
22.86	ELEV	247.92	247.91	247.91	247.91	247.91	247.91	247.91	247.91
23.34	CFS	16.83	16.77	16.70	16.64	16.58	16.52	16.46	16.40
23.34	ELEV	247.91	247.91	247.91	247.90	247.90	247.90	247.90	247.90
23.82	CFS	16.34	16.28	16.23	16.17	16.11	16.05	15.93	15.75
23.82	ELEV	247.90	247.90	247.90	247.90	247.90	247.90	247.89	247.89
24.30	CFS	15.50	15.18	14.80	14.34	13.80	13.20	12.54	11.86
24.30	ELEV	247.89	247.88	247.88	247.87	247.86	247.85	247.84	247.83
24.78	CFS	11.17	10.49	9.84	9.23	8.67	8.16	7.70	7.29
24.78	ELEV	247.82	247.81	247.80	247.79	247.78	247.77	247.77	247.76
25.26	CFS	6.92	6.61	6.32	6.08	5.86	5.67	5.49	5.34
25.26	ELEV	247.76	247.75	247.75	247.74	247.73	247.72	247.70	247.69
25.74	CFS	5.20	5.07	4.95	4.84	4.74	4.65	4.56	4.47
25.74	ELEV	247.68	247.67	247.66	247.65	247.64	247.64	247.63	247.62

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 28

26.22	CFS	4.39	4.31	4.23	4.16	4.08	4.01	3.94	3.88
26.22	ELEV	247.62	247.61	247.60	247.60	247.59	247.58	247.58	247.57
26.70	CFS	3.82	3.75	3.69	3.63	3.58	3.52	3.46	3.41
26.70	ELEV	247.57	247.56	247.56	247.55	247.55	247.55	247.54	247.54
27.18	CFS	3.36	3.31	3.26					
27.18	ELEV	247.53	247.53	247.52					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .94 WATERSHED INCHES; 623 CFS-HRS; 51.5 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16	
FLOW(CFS)	70	40	30	23	18	16	5	3	TRUNCATED

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS) 12.19 PEAK DISCHARGE(CFS) 9.0 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.53 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS) 12.51 PEAK DISCHARGE(CFS) 4.7 PEAK ELEVATION(FEET) 332.38

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.53 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.64 CNCPT124.OUT 300.46  
4.6

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.52 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 35.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.00 WATERSHED INCHES; 30 CFS-HRS; 2.4 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 1 JOB NO. 1 PAGE 29

\*\*\* WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.25 15.0 291.84  
13.27 3.0 287.68

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.00 WATERSHED INCHES; 30 CFS-HRS; 2.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.36 19.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.10 WATERSHED INCHES; 40 CFS-HRS; 3.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.04 59.2 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.97 WATERSHED INCHES; 49 CFS-HRS; 4.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 74.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.03 WATERSHED INCHES; 89 CFS-HRS; 7.4 ACRE-FEET.

CNCPT124.OUT

OPERATION REACH XSECTION 70

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.16 63.4 248.44

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 1 JOB NO. 1 PAGE 30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.03 WATERSHED INCHES; 89 CFS-HRS; 7.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.96 15.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.36 WATERSHED INCHES; 10 CFS-HRS; .9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.19 3.6 263.96

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.36 WATERSHED INCHES; 10 CFS-HRS; .9 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.37 3.5 247.55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.35 WATERSHED INCHES; 10 CFS-HRS; .9 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.06 29.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.41 WATERSHED INCHES; 29 CFS-HRS; 2.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.72 226.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.89 WATERSHED INCHES; 653 CFS-HRS; 53.9 ACRE-FEET.

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
Page 37

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS) 12.17 PEAK DISCHARGE(CFS) 66.7 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .15 SQ.MI.

HRS	CFS	MAIN	TIME	INCREMENT	.060	hr,	DRAINAGE	AREA	=	.15	SQ.MI.
10.62	CFS	.43	.50	.59	.68	.79	.90	1.03	1.18		
11.10	CFS	1.33	1.50	1.70	1.92	2.18	2.48	2.81	3.19		
11.58	CFS	3.62	4.31	5.65	8.18	12.44	18.51	28.34	41.77		
12.06	CFS	55.47	64.85	66.49	61.93	55.17	49.02	44.03	40.14		
12.54	CFS	37.08	34.60	32.53	30.80	29.34	28.13	27.08	25.88		
13.02	CFS	24.58	23.05	21.18	19.24	17.00	15.63	14.62	13.83		
13.50	CFS	13.14	12.53	11.97	11.46	10.98	10.52	10.09	9.69		
13.98	CFS	9.29	8.85	8.43	8.04	7.71	7.44	7.18	6.91		
14.46	CFS	6.66	6.45	6.27	6.12	5.99	5.88	5.78	5.69		
14.94	CFS	5.61	5.53	5.46	5.39	5.31	5.25	5.18	5.11		
15.42	CFS	5.04	4.98	4.91	4.84	4.78	4.71	4.64	4.57		
15.90	CFS	4.50	4.44	4.37	4.30	4.23	4.17	4.11	4.06		
16.38	CFS	4.02	3.98	3.94	3.91	3.88	3.86	3.83	3.81		
16.86	CFS	3.78	3.75	3.73	3.71	3.68	3.66	3.63	3.61		
17.34	CFS	3.59	3.56	3.54	3.51	3.49	3.47	3.44	3.42		
17.82	CFS	3.39	3.37	3.35	3.32	3.30	3.27	3.25	3.22		
18.30	CFS	3.20	3.17	3.15	3.13	3.10	3.08	3.05	3.03		
18.78	CFS	3.00	2.98	2.95	2.92	2.90	2.88	2.85	2.83		
19.26	CFS	2.80	2.77	2.75	2.72	2.70	2.67	2.65	2.62		
19.74	CFS	2.60	2.57	2.55	2.52	2.49	2.47	2.44	2.42		
20.22	CFS	2.39	2.38	2.36	2.35	2.34	2.33	2.32	2.31		
20.70	CFS	2.30	2.30	2.29	2.29	2.28	2.28	2.27	2.27		
21.18	CFS	2.26	2.26	2.25	2.25	2.24	2.24	2.24	2.23		
21.66	CFS	2.23	2.22	2.22	2.21	2.21	2.20	2.20	2.19		
22.14	CFS	2.19	2.18	2.18	2.17	2.17	2.16	2.16	2.15		
22.62	CFS	2.15	2.14	2.14	2.13	2.13	2.13	2.12	2.12		
23.10	CFS	2.11	2.11	2.10	2.10	2.09	2.09	2.08	2.08		
23.58	CFS	2.07	2.07	2.06	2.06	2.05	2.05	2.04	2.04		
24.06	CFS	2.03	1.98	1.81	1.50	1.15	.85	.62	.45		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.05 WATERSHED INCHES; 99 CFS-HRS; 8.2 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14
FLOW(CFS)	10	5	3	3	2	2	0

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS) 12.69 PEAK DISCHARGE(CFS) 257.8 PEAK ELEVATION(FEET) (NULL)

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 32

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.28 SQ.MI.

HRS	CFS	MAIN	TIME	INCREMENT	.060	hr,	DRAINAGE	AREA	=	1.28	SQ.MI.
9.24	CFS	.50	.53	.56	.59	.63	.66	.70	.74		
9.72	CFS	.78	.82	.87	.91	.96	1.01	1.06	1.12		

CNCPT124.OUT									
10.20	CFS	1.18	1.25	1.32	1.40	1.49	1.59	1.71	1.86
10.68	CFS	2.02	2.21	2.42	2.66	2.91	3.20	3.51	3.86
11.16	CFS	4.24	4.66	5.13	5.66	6.26	6.93	7.69	8.58
11.64	CFS	10	12	16	23	37	62	94	125
12.12	CFS	147	162	175	189	204	220	235	246
12.60	CFS	254	257	257	254	249	241	232	222
13.08	CFS	211	199	188	176	165	155	146	138
13.56	CFS	130	123	117	111	105	100	96	92
14.04	CFS	87.93	84.48	81.36	78.55	76.03	73.72	71.56	69.59
14.52	CFS	67.79	66.15	64.65	63.27	62.01	60.84	59.76	58.75
15.00	CFS	57.81	56.93	56.10	55.31	54.55	53.83	53.14	52.47
15.48	CFS	51.82	51.19	50.57	49.96	49.37	48.78	48.19	47.62
15.96	CFS	47.05	46.48	45.91	45.36	44.82	44.29	43.77	43.27
16.44	CFS	42.79	42.31	41.86	41.41	40.99	40.58	40.19	39.81
16.92	CFS	39.46	39.12	38.80	38.49	38.19	37.90	37.63	37.36
17.40	CFS	37.09	36.84	36.58	36.34	36.09	35.85	35.61	35.37
17.88	CFS	35.13	34.90	34.67	34.43	34.20	33.96	33.73	33.49
18.36	CFS	33.25	33.01	32.77	32.53	32.28	32.04	31.79	31.55
18.84	CFS	31.30	31.05	30.80	30.56	30.31	30.07	29.82	29.58
19.32	CFS	29.33	29.09	28.85	28.60	28.36	28.12	27.88	27.64
19.80	CFS	27.40	27.16	26.92	26.68	26.45	26.21	25.98	25.75
20.28	CFS	25.53	25.32	25.12	24.92	24.73	24.54	24.36	24.19
20.76	CFS	24.03	23.87	23.72	23.57	23.44	23.30	23.18	23.05
21.24	CFS	22.93	22.81	22.70	22.59	22.48	22.38	22.27	22.17
21.72	CFS	22.07	21.98	21.88	21.78	21.69	21.60	21.51	21.42
22.20	CFS	21.33	21.25	21.16	21.08	20.99	20.91	20.83	20.75
22.68	CFS	20.67	20.59	20.51	20.44	20.36	20.29	20.21	20.14
23.16	CFS	20.07	20.00	19.92	19.85	19.78	19.72	19.65	19.58
23.64	CFS	19.51	19.45	19.38	19.31	19.25	19.19	19.12	18.98
24.12	CFS	18.61	18.05	17.40	16.72	16.06	15.43	14.79	14.13
24.60	CFS	13.44	12.72	11.98	11.26	10.56	9.89	9.27	8.70
25.08	CFS	8.18	7.71	7.30	6.92	6.61	6.32	6.08	5.86
25.56	CFS	5.67	5.49	5.34	5.20	5.07	4.95	4.84	4.74
26.04	CFS	4.65	4.56	4.47	4.39	4.31	4.23	4.16	4.08
26.52	CFS	4.01	3.94	3.88	3.82	3.75	3.69	3.63	3.58
27.00	CFS	3.52	3.46	3.41	3.36	3.31	3.26		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .91 WATERSHED INCHES; 752 CFS-HRS; 62.1 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	90	47	35	27	22	19	6	3

DURATION(HRS) 16  
 FLOW(CFS) 3 TRUNCATED

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 33

OPERATION REACH XSECTION 77

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.76	257.4	228.50

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .91 WATERSHED INCHES; 752 CFS-HRS; 62.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 78



CNCPT124.OUT

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.03                                      27.4                                      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .69 WATERSHED INCHES;                      23 CFS-HRS;                      1.9 ACRE-FEET.

OPERATION ADDHYD    XSECTION    79

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.76                                      260.7                                      (NULL)

HYDROGRAPH POINTS FOR    ALTERNATE = 1,    STORM = 1  
 MAIN TIME INCREMENT = .060 hr,    DRAINAGE AREA = 1.33 SQ.MI.

HRS	CFS	MAIN TIME	INCREMENT	.55	.59	.62	.66	.69	.73
9.30	CFS	.49	.52	.55	.59	.62	.66	.69	.73
9.78	CFS	.77	.82	.86	.90	.95	1.00	1.05	1.11
10.26	CFS	1.17	1.24	1.30	1.38	1.47	1.57	1.69	1.83
10.74	CFS	1.99	2.18	2.38	2.61	2.87	3.15	3.46	3.80
11.22	CFS	4.17	4.58	5.04	5.56	6.17	6.89	7.79	9.02
11.70	CFS	11	15	21	34	55	84	115	140
12.18	CFS	157	169	180	193	207	222	237	248
12.66	CFS	256	260	261	258	253	246	237	227
13.14	CFS	216	204	192	180	170	160	150	142
13.62	CFS	134	126	120	114	108	103	98	94
14.10	CFS	90.30	86.76	83.56	80.67	78.07	75.71	73.51	71.48
14.58	CFS	69.64	67.95	66.41	64.99	63.69	62.49	61.38	60.34
15.06	CFS	59.37	58.46	57.60	56.79	56.01	55.27	54.55	53.86
15.54	CFS	53.19	52.54	51.90	51.27	50.66	50.05	49.44	48.85
16.02	CFS	48.26	47.67	47.10	46.53	45.97	45.44	44.91	44.41
16.50	CFS	43.91	43.43	42.96	42.51	42.08	41.66	41.26	40.88
16.98	CFS	40.51	40.17	39.83	39.51	39.21	38.91	38.63	38.35
17.46	CFS	38.08	37.82	37.56	37.30	37.05	36.80	36.55	36.31
17.94	CFS	36.07	35.83	35.58	35.34	35.10	34.86	34.62	34.38
18.42	CFS	34.13	33.89	33.64	33.39	33.14	32.88	32.63	32.38
18.90	CFS	32.13	31.87	31.62	31.37	31.12	30.86	30.61	30.36
19.38	CFS	30.11	29.86	29.61	29.36	29.11	28.86	28.61	28.37
19.86	CFS	28.12	27.87	27.63	27.38	27.14	26.90	26.66	26.43
20.34	CFS	26.21	26.00	25.79	25.59	25.39	25.21	25.03	24.85

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4    VERSION  
 06/30/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 15:05:46                      PASS 1    JOB NO. 1                      PAGE 34

20.82	CFS	24.69	24.53	24.37	24.23	24.09	23.95	23.82	23.69
21.30	CFS	23.57	23.45	23.34	23.23	23.12	23.01	22.90	22.80
21.78	CFS	22.70	22.60	22.50	22.41	22.31	22.22	22.13	22.04
22.26	CFS	21.95	21.86	21.78	21.69	21.60	21.52	21.44	21.35
22.74	CFS	21.28	21.20	21.12	21.04	20.96	20.89	20.81	20.74
23.22	CFS	20.66	20.59	20.52	20.44	20.37	20.30	20.23	20.16
23.70	CFS	20.10	20.03	19.96	19.89	19.83	19.76	19.64	19.35
24.18	CFS	18.85	18.23	17.55	16.86	16.19	15.55	14.91	14.25
24.66	CFS	13.56	12.85	12.12	11.39	10.68	10.01	9.38	8.80
25.14	CFS	8.27	7.80	7.37	6.99	6.66	6.38	6.12	5.90
25.62	CFS	5.70	5.53	5.37	5.22	5.09	4.97	4.86	4.76
26.10	CFS	4.66	4.57	4.48	4.40	4.32	4.24	4.17	4.10
26.58	CFS	4.03	3.96	3.89	3.83	3.77	3.70	3.64	3.59
27.06	CFS	3.53	3.47	3.42	3.37	3.32			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .90 WATERSHED INCHES;                      775 CFS-HRS;                      64.0 ACRE-FEET.

CNCPT124.OUT  
 DURATION(HRS) 2 4 6 8 10 12 14 16  
 FLOW(CFS) 93 49 36 28 23 20 6 3 TRUNCATED

OPERATION REACH XSECTION 80

PEAK TIME(HRS) 12.82 PEAK DISCHARGE(CFS) 260.6 PEAK ELEVATION(FEET) 212.69

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .90 WATERSHED INCHES; 774 CFS-HRS; 64.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS) 12.00 PEAK DISCHARGE(CFS) 41.5 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .94 WATERSHED INCHES; 31 CFS-HRS; 2.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS) 12.82 PEAK DISCHARGE(CFS) 264.6 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .90 WATERSHED INCHES; 806 CFS-HRS; 66.6 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 35

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS) 12.04 PEAK DISCHARGE(CFS) 12.6 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 1  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.  

HRS	CFS	.14	.62	1.86	4.79	9.00	12.05	12.35	9.40
11.70	CFS	6.23	4.52	3.64	3.13	2.76	2.47	2.21	1.99
12.18	CFS	1.84	1.73	1.65	1.59	1.53	1.48	1.42	1.37
12.66	CFS	1.32	1.28	1.25	1.21	1.18	1.15	1.12	1.09
13.14	CFS	1.06	1.03	1.01	.98	.96	.93	.91	.89
13.62	CFS	.87	.85	.84	.83	.82	.81	.80	.80
14.10	CFS	.79	.78	.77	.76	.76	.75	.74	.73
14.58	CFS	.72	.72	.71	.70	.69	.68	.67	.66
15.06	CFS	.65	.65	.64	.63	.62	.61	.60	.59
15.54	CFS	.58	.57	.57	.56	.56	.55	.55	.55
16.02	CFS	.55	.54	.54	.54	.53	.53	.53	.52
16.50	CFS	.52	.52	.52	.51	.51	.51	.50	.50
16.98	CFS								

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .55 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

DURATION(HRS) 2 4 6  
 FLOW(CFS) 1 1 0

CNCPT124.OUT

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS) 12.82 PEAK DISCHARGE(CFS) 266.2 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) .89 WATERSHED INCHES; 817 CFS-HRS; 67.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS) 12.11 PEAK DISCHARGE(CFS) 43.8 PEAK ELEVATION(FEET) (RUNOFF)

HRS	MAIN	TIME	INCREMENT	HYDROGRAPH POINTS FOR		ALTERNATE = 1,		STORM = 1	
				= .060 hr,		DRAINAGE AREA =		.12 SQ.MI.	
11.64	CFS	.16	.66	1.95	4.91	10.68	20.72	32.52	41.65
12.12	CFS	43.74	39.42	32.17	25.37	20.39	17.10	14.58	12.66
12.60	CFS	11.10	9.85	8.89	8.14	7.58	7.12	6.74	6.43
13.08	CFS	6.16	5.92	5.70	5.51	5.34	5.18	5.04	4.89
13.56	CFS	4.76	4.62	4.50	4.38	4.26	4.16	4.05	3.95
14.04	CFS	3.85	3.75	3.66	3.59	3.52	3.47	3.43	3.39
14.52	CFS	3.35	3.32	3.28	3.25	3.21	3.18	3.15	3.11
15.00	CFS	3.08	3.04	3.01	2.97	2.94	2.90	2.87	2.83

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 1 JOB NO. 1 PAGE 36

15.48	CFS	2.80	2.76	2.72	2.69	2.65	2.61	2.57	2.54
15.96	CFS	2.50	2.46	2.42	2.39	2.36	2.33	2.31	2.29
16.44	CFS	2.28	2.26	2.25	2.24	2.22	2.21	2.20	2.19
16.92	CFS	2.17	2.16	2.15	2.14	2.12	2.11	2.10	2.08
17.40	CFS	2.07	2.06	2.04	2.03	2.02	2.00	1.99	1.98
17.88	CFS	1.96	1.95	1.94	1.92	1.91	1.90	1.88	1.87
18.36	CFS	1.86	1.84	1.83	1.81	1.80	1.79	1.77	1.76
18.84	CFS	1.74	1.73	1.71	1.70	1.69	1.67	1.66	1.64
19.32	CFS	1.63	1.61	1.60	1.58	1.57	1.55	1.54	1.52
19.80	CFS	1.51	1.49	1.48	1.46	1.45	1.43	1.42	1.41
20.28	CFS	1.40	1.40	1.39	1.39	1.39	1.38	1.38	1.38
20.76	CFS	1.38	1.37	1.37	1.37	1.37	1.36	1.36	1.36
21.24	CFS	1.36	1.35	1.35	1.35	1.35	1.34	1.34	1.34
21.72	CFS	1.34	1.33	1.33	1.33	1.33	1.32	1.32	1.32
22.20	CFS	1.32	1.31	1.31	1.31	1.31	1.30	1.30	1.30
22.68	CFS	1.30	1.29	1.29	1.29	1.29	1.28	1.28	1.28
23.16	CFS	1.28	1.27	1.27	1.27	1.27	1.26	1.26	1.26
23.64	CFS	1.25	1.25	1.25	1.25	1.24	1.24	1.24	1.19
24.12	CFS	1.06	.82	.57	.36				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) .62 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

DURATION(HRS) 2 4 6 8 10 12 13  
 FLOW(CFS) 4 3 2 2 1 1 0

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS) 12.81 PEAK DISCHARGE(CFS) 274.1 PEAK ELEVATION(FEET) (NULL)

CNCPT124.OUT  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.87 WATERSHED INCHES; 864 CFS-HRS; 71.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.97 21.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.49 WATERSHED INCHES; 15 CFS-HRS; 1.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.81 275.7 (NULL)

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 1 JOB NO. 1 PAGE 37

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.88 WATERSHED INCHES; 879 CFS-HRS; 72.7 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 1

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 88  
STARTING TIME = .00 RAIN DEPTH = 3.21 RAIN DURATION = 1.00  
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS  
ALTERNATE NO. = 1 STORM NO. = 2 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.14 27.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.37 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.23 26.2 389.99

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.37 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 53.2 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.45 WATERSHED INCHES; 54 CFS-HRS; 4.5 ACRE-FEET.

CNCPT124.OUT

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.15 76.0 (NULL)

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 2 JOB NO. 1 PAGE 38

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.42 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.24 73.7 382.45

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.42 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.31 70.4 367.98

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.41 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.14 55.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.15 WATERSHED INCHES; 59 CFS-HRS; 4.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.29 109.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.29 WATERSHED INCHES; 143 CFS-HRS; 11.8 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.36 107.0 357.25

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.29 WATERSHED INCHES; 143 CFS-HRS; 11.8 ACRE-FEET.

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
Page 44

OPERATION RUNOFF XSECTION 9  
PEAK TIME(HRS) 12.13 PEAK DISCHARGE(CFS) 89.9 PEAK ELEVATION(FEET) (RUNOFF)  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.05 WATERSHED INCHES; 97 CFS-HRS; 8.0 ACRE-FEET.

\*\*\* MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE  
STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00. \*\*\*  
THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME.

OPERATION RESVOR STRUCTURE 21  
PEAK TIME(HRS) 13.20 PEAK DISCHARGE(CFS) 9.1 \* PEAK ELEVATION(FEET) 373.41  
\* FIRST POINT OF FLAT PEAK  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.74 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 10  
PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 8.1 PEAK ELEVATION(FEET) (RUNOFF)  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.95 WATERSHED INCHES; 6 CFS-HRS; .5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22  
PEAK TIME(HRS) 13.36 PEAK DISCHARGE(CFS) 9.1 PEAK ELEVATION(FEET) 353.06  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.74 WATERSHED INCHES; 82 CFS-HRS; 6.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 11  
PEAK TIME(HRS) 12.04 PEAK DISCHARGE(CFS) 43.5 PEAK ELEVATION(FEET) (RUNOFF)

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 2 JOB NO. 1 PAGE 40

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.99 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 12  
PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
Page 45

12.35 CNCPT124.OUT  
118.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.22 WATERSHED INCHES; 180 CFS-HRS; 14.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 19.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.34 WATERSHED INCHES; 17 CFS-HRS; 1.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.35 125.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.34 WATERSHED INCHES; 262 CFS-HRS; 21.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.35 130.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.34 WATERSHED INCHES; 279 CFS-HRS; 23.0 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 23, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
TIME INCREMENT OF .006 HOURS. \*\*\*

OPERATION RESVOR STRUCTURE 23

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 2 JOB NO. 1 PAGE 41

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	115.7	337.69
12.83	65.0	335.61
12.95	52.6	335.12
13.07	44.0	334.79
13.19	38.1	334.56
13.30	34.0	334.40
13.42	31.2	334.29
13.53	29.1	334.21

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .32 SQ.MI.

7.44 CFS	.00	.01	.01	.01	.01	.01	.01	.01	.01
7.44 ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
7.92 CFS	.01	.01	.02	.02	.02	.02	.02	.02	.02
7.92 ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
8.40 CFS	.02	.02	.03	.03	.03	.03	.03	.03	.04
8.40 ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
8.88 CFS	.04	.04	.04	.04	.05	.05	.05	.05	.06

CNCPT124.OUT									
8.88	ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
9.36	CFS	.06	.06	.07	.07	.07	.08	.08	.09
9.36	ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
9.84	CFS	.10	.11	.13	.14	.16	.18	.20	.23
9.84	ELEV	333.08	333.08	333.09	333.09	333.09	333.09	333.09	333.09
10.32	CFS	.25	.28	.31	.34	.37	.42	.48	.55
10.32	ELEV	333.09	333.09	333.09	333.09	333.09	333.10	333.10	333.10
10.80	CFS	.63	.73	.84	.96	1.12	1.31	1.53	1.79
10.80	ELEV	333.10	333.11	333.11	333.12	333.12	333.13	333.14	333.15
11.28	CFS	2.10	2.45	2.86	3.31	3.85	4.71	6.34	9.48
11.28	ELEV	333.16	333.18	333.19	333.21	333.23	333.26	333.33	333.45
11.76	CFS	15	24	40	63	87	100	102	105
11.76	ELEV	333.66	334.02	334.63	335.54	336.46	336.98	337.06	337.18
12.24	CFS	108	111	114	116	115	112	108	104
12.24	ELEV	337.31	337.45	337.59	337.68	337.65	337.53	337.35	337.13
12.72	CFS	82.34	53.33	64.77	45.99	52.33	40.26	43.75	36.00
12.72	ELEV	336.28	335.15	335.60	334.87	335.12	334.65	334.78	334.48
13.20	CFS	37.88	32.90	33.87	30.63	31.06	28.90	28.99	27.49
13.20	ELEV	334.55	334.36	334.40	334.27	334.29	334.20	334.21	334.15
13.68	CFS	27.38	26.30	26.08	25.27	24.98	24.33	24.00	23.46
13.68	ELEV	334.15	334.10	334.09	334.06	334.05	334.03	334.01	333.99
14.16	CFS	23.14	22.70	22.40	22.05	21.79	21.49	21.27	21.03
14.16	ELEV	333.98	333.96	333.95	333.94	333.93	333.92	333.91	333.90
14.64	CFS	20.83	20.62	20.44	20.25	20.09	19.92	19.76	19.59
14.64	ELEV	333.89	333.88	333.88	333.87	333.86	333.85	333.85	333.84
15.12	CFS	19.44	19.28	19.12	18.96	18.81	18.65	18.49	18.33
15.12	ELEV	333.84	333.83	333.82	333.82	333.81	333.81	333.80	333.79
15.60	CFS	18.17	18.01	17.85	17.69	17.53	17.37	17.21	17.05
15.60	ELEV	333.79	333.78	333.77	333.77	333.76	333.76	333.75	333.74
16.08	CFS	16.88	16.73	16.58	16.44	16.30	16.18	16.06	15.95
16.08	ELEV	333.74	333.73	333.72	333.72	333.71	333.71	333.70	333.70

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 42

16.56	CFS	15.85	15.75	15.66	15.56	15.47	15.37	15.27	15.17
16.56	ELEV	333.70	333.69	333.69	333.69	333.68	333.68	333.67	333.67
17.04	CFS	15.07	14.97	14.87	14.77	14.67	14.58	14.48	14.38
17.04	ELEV	333.67	333.66	333.66	333.65	333.65	333.65	333.64	333.64
17.52	CFS	14.29	14.19	14.10	14.00	13.91	13.81	13.72	13.62
17.52	ELEV	333.64	333.63	333.63	333.62	333.62	333.62	333.61	333.61
18.00	CFS	13.53	13.43	13.34	13.25	13.16	13.09	13.01	12.93
18.00	ELEV	333.61	333.60	333.60	333.60	333.59	333.59	333.59	333.58
18.48	CFS	12.86	12.78	12.70	12.63	12.55	12.47	12.40	12.32
18.48	ELEV	333.58	333.58	333.57	333.57	333.57	333.57	333.56	333.56
18.96	CFS	12.24	12.16	12.08	12.01	11.93	11.85	11.77	11.69
18.96	ELEV	333.56	333.55	333.55	333.55	333.54	333.54	333.54	333.53
19.44	CFS	11.61	11.53	11.46	11.38	11.30	11.22	11.14	11.06
19.44	ELEV	333.53	333.53	333.53	333.52	333.52	333.52	333.51	333.51
19.92	CFS	10.98	10.90	10.82	10.74	10.66	10.59	10.52	10.45
19.92	ELEV	333.51	333.50	333.50	333.50	333.49	333.49	333.49	333.49
20.40	CFS	10.37	10.28	10.20	10.12	10.03	9.95	9.87	9.80
20.40	ELEV	333.48	333.48	333.48	333.47	333.47	333.47	333.46	333.46
20.88	CFS	9.72	9.64	9.57	9.50	9.42	9.35	9.29	9.22
20.88	ELEV	333.46	333.46	333.45	333.45	333.45	333.44	333.44	333.44
21.36	CFS	9.15	9.08	9.02	8.96	8.89	8.83	8.77	8.71
21.36	ELEV	333.44	333.43	333.43	333.43	333.43	333.42	333.42	333.42
21.84	CFS	8.65	8.59	8.54	8.48	8.42	8.37	8.32	8.26
21.84	ELEV	333.42	333.41	333.41	333.41	333.41	333.41	333.40	333.40
22.32	CFS	8.21	8.16	8.11	8.06	8.01	7.97	7.92	7.87
22.32	ELEV	333.40	333.40	333.40	333.39	333.39	333.39	333.39	333.39



CNCPT124.OUT									
22.80	CFS	7.82	7.77	7.72	7.67	7.62	7.57	7.51	7.46
22.80	ELEV	333.38	333.38	333.38	333.38	333.38	333.37	333.37	333.37
23.28	CFS	7.41	7.37	7.32	7.27	7.23	7.18	7.14	7.09
23.28	ELEV	333.37	333.37	333.36	333.36	333.36	333.36	333.36	333.36
23.76	CFS	7.05	7.01	6.97	6.93	6.88	6.77	6.47	6.03
23.76	ELEV	333.35	333.35	333.35	333.35	333.35	333.34	333.33	333.31
24.24	CFS	5.61	5.24	4.91	4.63	4.41	4.22	4.06	3.93
24.24	ELEV	333.30	333.28	333.27	333.26	333.25	333.24	333.24	333.23
24.72	CFS	3.81	3.70	3.59	3.50	3.40	3.31	3.22	3.13
24.72	ELEV	333.23	333.22	333.22	333.22	333.21	333.21	333.21	333.20
25.20	CFS	3.05	2.97	2.89	2.82	2.75	2.67	2.60	2.54
25.20	ELEV	333.20	333.20	333.19	333.19	333.19	333.18	333.18	333.18
25.68	CFS	2.47	2.41	2.34	2.28	2.22	2.16	2.11	2.05
25.68	ELEV	333.18	333.17	333.17	333.17	333.17	333.16	333.16	333.16
26.16	CFS	2.00	1.95	1.90	1.85	1.80	1.75	1.71	1.66
26.16	ELEV	333.16	333.16	333.15	333.15	333.15	333.15	333.15	333.14
26.64	CFS	1.62	1.58	1.54	1.50	1.46	1.42	1.38	1.35
26.64	ELEV	333.14	333.14	333.14	333.14	333.14	333.14	333.13	333.13
27.12	CFS	1.31	1.28	1.24	1.21	1.18	1.15	1.12	1.09
27.12	ELEV	333.13	333.13	333.13	333.13	333.13	333.12	333.12	333.12
27.60	CFS	1.06	1.03	1.01	.98	.96	.94	.93	.92
27.60	ELEV	333.12	333.12	333.12	333.12	333.12	333.12	333.12	333.12
28.08	CFS	.90	.89	.88	.87	.86	.85	.84	.83

1

TR20 ----- SCS -----  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 43

28.08	ELEV	333.12	333.11	333.11	333.11	333.11	333.11	333.11	333.11
28.56	CFS	.82	.82	.81	.80	.79	.78	.77	.77
28.56	ELEV	333.11	333.11	333.11	333.11	333.11	333.11	333.11	333.11
29.04	CFS	.76	.75	.74	.74	.73	.72	.72	.71
29.04	ELEV	333.11	333.11	333.11	333.11	333.11	333.11	333.11	333.11
29.52	CFS	.70	.70	.69	.68	.68	.67	.67	.66
29.52	ELEV	333.11	333.11	333.11	333.11	333.11	333.11	333.11	333.11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.34 WATERSHED INCHES; 278 CFS-HRS; 23.0 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	25	18	14	11	9	7	3	1

DURATION(HRS)	18	19
FLOW(CFS)	1	1 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. \*\*\*

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	115.7	332.32
12.83	65.0	331.89
12.95	52.6	331.74
13.07	44.0	331.63
13.19	38.1	331.55
13.30	34.0	331.50
13.42	31.2	331.47
13.53	29.1	331.44

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 Page 48

CNCPT124.OUT  
 1.34 WATERSHED INCHES; 278 CFS-HRS; 23.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 36.5 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.99 WATERSHED INCHES; 27 CFS-HRS; 2.2 ACRE-FEET.

1 OPERATION RUNOFF XSECTION 118

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 44

PEAK TIME(HRS) 12.02 PEAK DISCHARGE(CFS) 48.4 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.47 WATERSHED INCHES; 40 CFS-HRS; 3.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 24

PEAK TIME(HRS) 12.34 PEAK DISCHARGE(CFS) 10.9 PEAK ELEVATION(FEET) 347.21

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.

HRS	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV
4.32	.00	345.00	.01	345.00	.01	345.00	.01	345.00	.01	345.00
4.32	.02	345.01	.02	345.01	.02	345.01	.02	345.01	.02	345.01
4.80	.03	345.01	.03	345.01	.03	345.01	.03	345.01	.03	345.01
4.80	.04	345.01	.04	345.01	.04	345.01	.04	345.01	.04	345.01
5.28	.05	345.01	.05	345.01	.05	345.01	.05	345.01	.05	345.01
5.28	.06	345.01	.06	345.01	.06	345.01	.06	345.01	.06	345.01
5.76	.07	345.01	.07	345.01	.07	345.01	.07	345.01	.07	345.01
5.76	.08	345.01	.08	345.01	.08	345.01	.08	345.01	.08	345.01
5.76	.09	345.01	.09	345.01	.09	345.01	.09	345.01	.09	345.01
5.76	.10	345.01	.10	345.01	.10	345.01	.10	345.01	.10	345.01
6.24	.11	345.01	.11	345.01	.11	345.01	.11	345.01	.11	345.01
6.24	.12	345.01	.12	345.01	.12	345.01	.12	345.01	.12	345.01
6.24	.13	345.01	.13	345.01	.13	345.01	.13	345.01	.13	345.01
6.24	.14	345.01	.14	345.01	.14	345.01	.14	345.01	.14	345.01
6.24	.15	345.01	.15	345.01	.15	345.01	.15	345.01	.15	345.01
6.24	.16	345.01	.16	345.01	.16	345.01	.16	345.01	.16	345.01
6.24	.17	345.01	.17	345.01	.17	345.01	.17	345.01	.17	345.01
6.24	.18	345.01	.18	345.01	.18	345.01	.18	345.01	.18	345.01
6.24	.19	345.01	.19	345.01	.19	345.01	.19	345.01	.19	345.01
6.24	.20	345.01	.20	345.01	.20	345.01	.20	345.01	.20	345.01
6.24	.21	345.01	.21	345.01	.21	345.01	.21	345.01	.21	345.01
6.24	.22	345.01	.22	345.01	.22	345.01	.22	345.01	.22	345.01
6.24	.23	345.01	.23	345.01	.23	345.01	.23	345.01	.23	345.01
6.24	.24	345.01	.24	345.01	.24	345.01	.24	345.01	.24	345.01
6.24	.25	345.01	.25	345.01	.25	345.01	.25	345.01	.25	345.01
6.24	.26	345.01	.26	345.01	.26	345.01	.26	345.01	.26	345.01
6.24	.27	345.01	.27	345.01	.27	345.01	.27	345.01	.27	345.01
6.24	.28	345.01	.28	345.01	.28	345.01	.28	345.01	.28	345.01
6.24	.29	345.01	.29	345.01	.29	345.01	.29	345.01	.29	345.01
6.24	.30	345.01	.30	345.01	.30	345.01	.30	345.01	.30	345.01
6.24	.31	345.01	.31	345.01	.31	345.01	.31	345.01	.31	345.01
6.24	.32	345.01	.32	345.01	.32	345.01	.32	345.01	.32	345.01
6.24	.33	345.01	.33	345.01	.33	345.01	.33	345.01	.33	345.01
6.24	.34	345.01	.34	345.01	.34	345.01	.34	345.01	.34	345.01
6.24	.35	345.01	.35	345.01	.35	345.01	.35	345.01	.35	345.01
6.24	.36	345.01	.36	345.01	.36	345.01	.36	345.01	.36	345.01
6.24	.37	345.01	.37	345.01	.37	345.01	.37	345.01	.37	345.01
6.24	.38	345.01	.38	345.01	.38	345.01	.38	345.01	.38	345.01
6.24	.39	345.01	.39	345.01	.39	345.01	.39	345.01	.39	345.01
6.24	.40	345.01	.40	345.01	.40	345.01	.40	345.01	.40	345.01
6.24	.41	345.01	.41	345.01	.41	345.01	.41	345.01	.41	345.01
6.24	.42	345.01	.42	345.01	.42	345.01	.42	345.01	.42	345.01
6.24	.43	345.01	.43	345.01	.43	345.01	.43	345.01	.43	345.01
6.24	.44	345.01	.44	345.01	.44	345.01	.44	345.01	.44	345.01
6.24	.45	345.01	.45	345.01	.45	345.01	.45	345.01	.45	345.01
6.24	.46	345.01	.46	345.01	.46	345.01	.46	345.01	.46	345.01
6.24	.47	345.01	.47	345.01	.47	345.01	.47	345.01	.47	345.01
6.24	.48	345.01	.48	345.01	.48	345.01	.48	345.01	.48	345.01
6.24	.49	345.01	.49	345.01	.49	345.01	.49	345.01	.49	345.01
6.24	.50	345.01	.50	345.01	.50	345.01	.50	345.01	.50	345.01
6.24	.51	345.01	.51	345.01	.51	345.01	.51	345.01	.51	345.01
6.24	.52	345.01	.52	345.01	.52	345.01	.52	345.01	.52	345.01
6.24	.53	345.01	.53	345.01	.53	345.01	.53	345.01	.53	345.01
6.24	.54	345.01	.54	345.01	.54	345.01	.54	345.01	.54	345.01
6.24	.55	345.01	.55	345.01	.55	345.01	.55	345.01	.55	345.01
6.24	.56	345.01	.56	345.01	.56	345.01	.56	345.01	.56	345.01
6.24	.57	345.01	.57	345.01	.57	345.01	.57	345.01	.57	345.01
6.24	.58	345.01	.58	345.01	.58	345.01	.58	345.01	.58	345.01
6.24	.59	345.01	.59	345.01	.59	345.01	.59	345.01	.59	345.01
6.24	.60	345.01	.60	345.01	.60	345.01	.60	345.01	.60	345.01
6.24	.61	345.01	.61	345.01	.61	345.01	.61	345.01	.61	345.01
6.24	.62	345.01	.62	345.01	.62	345.01	.62	345.01	.62	345.01
6.24	.63	345.01	.63	345.01	.63	345.01	.63	345.01	.63	345.01
6.24	.64	345.01	.64	345.01	.64	345.01	.64	345.01	.64	345.01
6.24	.65	345.01	.65	345.01	.65	345.01	.65	345.01	.65	345.01
6.24	.66	345.01	.66	345.01	.66	345.01	.66	345.01	.66	345.01
6.24	.67	345.01	.67	345.01	.67	345.01	.67	345.01	.67	345.01
6.24	.68	345.01	.68	345.01	.68	345.01	.68	345.01	.68	345.01
6.24	.69	345.01	.69	345.01	.69	345.01	.69	345.01	.69	345.01
6.24	.70	345.01	.70	345.01	.70	345.01	.70	345.01	.70	345.01
6.24	.71	345.01	.71	345.01	.71	345.01	.71	345.01	.71	345.01
6.24	.72	345.01	.72	345.01	.72	345.01	.72	345.01	.72	345.01
6.24	.73	345.01	.73	345.01	.73	345.01	.73	345.01	.73	345.01
6.24	.74	345.01	.74	345.01	.74	345.01	.74	345.01	.74	345.01
6.24	.75	345.01	.75	345.01	.75	345.01	.75	345.01	.75	345.01
6.24	.76	345.01	.76	345.01	.76	345.01	.76	345.01	.76	345.01
6.24	.77	345.01	.77	345.01	.77	345.01	.77	345.01	.77	345.01
6.24	.78	345.01	.78	345.01	.78	345.01	.78	345.01	.78	345.01
6.24	.79	345.01	.79	345.01	.79	345.01	.79	345.01	.79	345.01
6.24	.80	345.01	.80	345.01	.80	345.01	.80	345.01	.80	345.01
6.24	.81	345.01	.81	345.01	.81	345.01	.81	345.01	.81	345.01
6.24	.82	345.01	.82	345.01	.82	345.01	.82	345.01	.82	345.01
6.24	.83	345.01	.83	345.01	.83	345.01	.83	345.01	.83	345.01
6.24	.84	345.01	.84	345.01	.84	345.01	.84	345.01	.84	345.01
6.24	.85	345.01	.85	345.01	.85	345.01	.85	345.01	.85	345.01
6.24	.86	345.01	.86	345.01	.86	345.01	.86	345.01	.86	345.01
6.24	.87	345.01	.87	345.01	.87	345.01	.87	345.01	.87	345.01
6.24	.88	345.01	.88	345.01	.88	345.01	.88	345.01	.88	345.01
6.24	.89	345.01	.89	345.01	.89	345.01	.89	345.01	.89	345.01
6.24	.90	345.01	.90	345.01	.90	345.01	.90	345.01	.90	345.01
6.24	.91	345.01	.91	345.01	.91	345.01	.91	345.01	.91	345.01
6.24	.92	345.01	.92	345.01	.92	345.01	.92	345.01	.92	345.01
6.24	.93	345.01	.93	345.01	.93	345.01	.93	345.01	.93	345.01
6.24	.94	345.01	.94	345.01	.94	345.01	.94	345.01	.94	345.01
6.24	.95	345.01	.95	345.01	.95	345.01	.95	345.01	.95	345.01
6.24	.96	345.01	.96	345.01	.96	345.01	.96	345.01	.96	345.01
6.24	.97	345.01	.97	345.01	.97	345.01	.97	345.01	.97	345.01
6.24	.98	345.01	.98	345.01	.98	345.01	.98	345.01	.98	345.01
6.24	.99	345.01	.99	345.01	.99	345.01	.99	345.01	.99	345.01
6.24	1.00	345.01	1.00	345.01	1.00	345.01	1.00	345.01	1.00	345.01
6.24	1.01	345.01	1.01	345.01	1.01	345.01	1.01	345.01	1.01	345.01
6.24	1.02	345.01	1.02	345.01	1.02	345.01	1.02	345.01	1.02	345.01
6.24	1.03	345.01	1.03	345.01	1.03	345.01	1.03	345.01	1.03	345.01
6.24	1.04	345.01	1.04	345.01	1.04	345.01	1.04	345.01	1.04	345.01
6.24	1.05	345.01	1.05	345.01	1.05	345.01	1.05	345.01	1.05	345.01
6.24	1.06	345.01	1.06	345.01	1.06	345.01	1.06	345.01	1.06	345.01
6.24	1.07	345.01	1.07	345.01	1.07	345.01	1.07	345.01	1.07	345.01
6.24	1.08	345.01	1.08	345.01	1.08	345.01	1.08	345.01	1.08	345.01
6.24	1.09	345.01	1.09	345.01	1.09	345.01	1.09	345.01	1.09	345.01
6.24										

CNCPT124.OUT									
11.04	ELEV	345.24	345.25	345.26	345.27	345.28	345.29	345.31	345.33
11.52	CFS	1.89	2.01	2.18	2.46	2.92	3.60	4.60	6.01
11.52	ELEV	345.34	345.36	345.40	345.45	345.53	345.66	345.84	346.09
12.00	CFS	7.76	9.53	10.32	10.63	10.79	10.85	10.85	10.83
12.00	ELEV	346.41	346.73	346.97	347.11	347.18	347.20	347.21	347.19
12.48	CFS	10.78	10.71	10.63	10.55	10.46	10.36	10.26	10.17
12.48	ELEV	347.17	347.14	347.11	347.07	347.03	346.98	346.94	346.89

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 45

12.96	CFS	10.07	9.90	9.60	9.32	9.04	8.77	8.50	8.24
12.96	ELEV	346.85	346.80	346.75	346.70	346.64	346.60	346.55	346.50
13.44	CFS	8.00	7.75	7.52	7.29	7.07	6.86	6.65	6.45
13.44	ELEV	346.46	346.41	346.37	346.33	346.29	346.25	346.21	346.17
13.92	CFS	6.26	6.07	5.89	5.71	5.54	5.37	5.21	5.06
13.92	ELEV	346.14	346.10	346.07	346.04	346.01	345.98	345.95	345.92
14.40	CFS	4.91	4.77	4.63	4.50	4.38	4.26	4.14	4.03
14.40	ELEV	345.89	345.87	345.84	345.82	345.80	345.77	345.75	345.73
14.88	CFS	3.92	3.81	3.71	3.61	3.52	3.43	3.34	3.26
14.88	ELEV	345.71	345.69	345.68	345.66	345.64	345.62	345.61	345.59
15.36	CFS	3.18	3.10	3.02	2.95	2.88	2.81	2.74	2.68
15.36	ELEV	345.58	345.56	345.55	345.54	345.52	345.51	345.50	345.49
15.84	CFS	2.61	2.55	2.49	2.44	2.38	2.33	2.27	2.22
15.84	ELEV	345.48	345.46	345.45	345.44	345.43	345.42	345.41	345.40
16.32	CFS	2.17	2.13	2.08	2.04	2.00	1.96	1.92	1.88
16.32	ELEV	345.40	345.39	345.38	345.37	345.36	345.36	345.35	345.34
16.80	CFS	1.84	1.81	1.78	1.74	1.71	1.68	1.65	1.63
16.80	ELEV	345.34	345.33	345.32	345.32	345.31	345.31	345.30	345.30
17.28	CFS	1.60	1.57	1.55	1.52	1.50	1.47	1.45	1.43
17.28	ELEV	345.29	345.29	345.28	345.28	345.27	345.27	345.26	345.26
17.76	CFS	1.41	1.39	1.37	1.35	1.33	1.31	1.29	1.28
17.76	ELEV	345.26	345.25	345.25	345.25	345.24	345.24	345.24	345.23
18.24	CFS	1.26	1.24	1.23	1.21	1.20	1.18	1.17	1.15
18.24	ELEV	345.23	345.23	345.22	345.22	345.22	345.21	345.21	345.21
18.72	CFS	1.14	1.12	1.11	1.10	1.08	1.07	1.06	1.05
18.72	ELEV	345.21	345.20	345.20	345.20	345.20	345.20	345.19	345.19
19.20	CFS	1.03	1.02	1.01	1.00	.99	.98	.97	.96
19.20	ELEV	345.19	345.19	345.18	345.18	345.18	345.18	345.18	345.17
19.68	CFS	.95	.93	.92	.91	.90	.89	.88	.87
19.68	ELEV	345.17	345.17	345.17	345.17	345.16	345.16	345.16	345.16
20.16	CFS	.87	.86	.85	.84	.83	.82	.81	.81
20.16	ELEV	345.16	345.16	345.15	345.15	345.15	345.15	345.15	345.15
20.64	CFS	.80	.79	.78	.78	.77	.77	.76	.75
20.64	ELEV	345.15	345.14	345.14	345.14	345.14	345.14	345.14	345.14
21.12	CFS	.75	.74	.74	.73	.73	.72	.72	.71
21.12	ELEV	345.14	345.14	345.13	345.13	345.13	345.13	345.13	345.13
21.60	CFS	.71	.71	.70	.70	.69	.69	.69	.68
21.60	ELEV	345.13	345.13	345.13	345.13	345.13	345.13	345.13	345.12
22.08	CFS	.68	.68	.67	.67	.67	.66	.66	.66
22.08	ELEV	345.12	345.12	345.12	345.12	345.12	345.12	345.12	345.12
22.56	CFS	.66	.65	.65	.65	.64	.64	.64	.64
22.56	ELEV	345.12	345.12	345.12	345.12	345.12	345.12	345.12	345.12
23.04	CFS	.64	.63	.63	.63	.63	.62	.62	.62
23.04	ELEV	345.12	345.12	345.11	345.11	345.11	345.11	345.11	345.11
23.52	CFS	.62	.62	.61	.61	.61	.61	.60	.60
23.52	ELEV	345.11	345.11	345.11	345.11	345.11	345.11	345.11	345.11
24.00	CFS	.60	.60	.59	.58	.56	.54	.52	.49
24.00	ELEV	345.11	345.11	345.11	345.11	345.10	345.10	345.09	345.09
24.48	CFS	.47	.45	.43	.41	.39	.38	.36	.34

1

CNCPT124.OUT

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 46

24.48	ELEV	345.09	345.08	345.08	345.08	345.07	345.07	345.07	345.06
24.96	CFS	.33	.31	.30	.29	.27	.26	.25	.24
24.96	ELEV	345.06	345.06	345.05	345.05	345.05	345.05	345.05	345.04
25.44	CFS	.23	.22	.21	.20	.19	.18	.17	.16
25.44	ELEV	345.04	345.04	345.04	345.04	345.03	345.03	345.03	345.03
25.92	CFS	.16	.15	.14	.14	.13	.13	.12	.11
25.92	ELEV	345.03	345.03	345.03	345.02	345.02	345.02	345.02	345.02
26.40	CFS	.11	.10	.10	.09	.09	.09	.08	.08
26.40	ELEV	345.02	345.02	345.02	345.02	345.02	345.02	345.02	345.01
26.88	CFS	.08	.07	.07	.07	.06	.06	.06	.05
26.88	ELEV	345.01	345.01	345.01	345.01	345.01	345.01	345.01	345.01
27.36	CFS	.05	.05	.05	.05	.04	.04	.04	
27.36	ELEV	345.01	345.01	345.01	345.01	345.01	345.01	345.01	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.47 WATERSHED INCHES; 40 CFS-HRS; 3.3 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	15
FLOW(CFS)	6	3	2	1	1	1	1	0

OPERATION RUNOFF XSECTION 119

PEAK TIME(HRS) 11.97 PEAK DISCHARGE(CFS) 10.0 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.86 WATERSHED INCHES; 7 CFS-HRS; .6 ACRE-FEET.

OPERATION ADDHYD XSECTION 120

PEAK TIME(HRS) 12.02 PEAK DISCHARGE(CFS) 17.5 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.35 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS) 11.99 PEAK DISCHARGE(CFS) 53.7 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.21 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 47

PEAK TIME(HRS) 11.99 PEAK DISCHARGE(CFS) 60.8 PEAK ELEVATION(FEET) (RUNOFF)

CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.73 WATERSHED INCHES; 45 CFS-HRS; 3.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.99 114.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.00 WATERSHED INCHES; 120 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.03 205.2 (NULL)  
12.35 141.8 (NULL)  
12.83 83.9 (NULL)  
12.95 70.5 (NULL)  
13.07 60.9 (NULL)  
13.18 53.9 (NULL)  
13.30 49.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.49 WATERSHED INCHES; 397 CFS-HRS; 32.8 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.18 163.7 315.41

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.48 WATERSHED INCHES; 396 CFS-HRS; 32.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.10 39.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.19 WATERSHED INCHES; 39 CFS-HRS; 3.2 ACRE-FEET.

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 2 JOB NO. 1 PAGE 48

\*\*\* WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.26 26.8 361.75

CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.19 WATERSHED INCHES; 39 CFS-HRS; 3.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.11 54.5 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.16 WATERSHED INCHES; 56 CFS-HRS; 4.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.13 79.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.17 WATERSHED INCHES; 95 CFS-HRS; 7.8 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.27 70.2 318.49

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.17 WATERSHED INCHES; 95 CFS-HRS; 7.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.10 34.3 (RUNOFF)

1 TR20 ----- SCS -  
 06/30/\*\* Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 15:05:46 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 2 JOB NO. 1 PAGE 49

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .91 WATERSHED INCHES; 35 CFS-HRS; 2.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.15 195.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.41 WATERSHED INCHES; 431 CFS-HRS; 35.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.19 259.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.36 WATERSHED INCHES; 526 CFS-HRS; 43.4 ACRE-FEET.

CNCPT124.OUT

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.06 80.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.57 WATERSHED INCHES; 70 CFS-HRS; 5.8 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.16 71.3 312.31

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.57 WATERSHED INCHES; 70 CFS-HRS; 5.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.00 17.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.65 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 50

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS  
 WITH .28 AC-FT ( .05 WATERSHED INCHES) FLOOD STORAGE  
 REMAINING IN RESERVOIR AT ELEV. 376.89. \*\*\*

OPERATION RESVOR STRUCTURE 32

\*\*\* MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS,  
 AT STRUCTURE 32 \*\*\*

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 13.26 1.0 379.31

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .01 SQ.MI.

HRS	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV
4.62	.00	375.40	.01	375.42	.01	375.42	.01	375.42	.01	375.43
4.62	ELEV	375.40	375.42	375.42	375.42	375.42	375.43	375.43	375.43	375.43
5.10	.01	375.43	.01	375.43	.01	375.44	.01	375.44	.01	375.45
5.10	ELEV	375.43	375.43	375.44	375.44	375.44	375.44	375.44	375.44	375.45
5.58	.01	375.45	.01	375.45	.01	375.46	.02	375.46	.02	375.47
5.58	ELEV	375.45	375.45	375.45	375.46	375.46	375.46	375.46	375.46	375.47
6.06	.02	375.47	.02	375.47	.02	375.48	.02	375.48	.02	375.49
6.06	ELEV	375.47	375.47	375.47	375.48	375.48	375.48	375.48	375.49	375.49
6.54	.02	375.49	.02	375.50	.03	375.50	.03	375.51	.03	375.52
6.54	ELEV	375.49	375.50	375.50	375.50	375.50	375.51	375.51	375.51	375.52
7.02	.03	375.52	.03	375.52	.03	375.53	.03	375.54	.04	375.55
7.02	ELEV	375.52	375.52	375.53	375.53	375.53	375.54	375.54	375.54	375.55
7.50	.04	375.55	.04	375.55	.04	375.56	.04	375.57	.04	375.58
7.50	ELEV	375.55	375.55	375.56	375.56	375.57	375.57	375.57	375.57	375.58

CNCPT124.OUT

7.98	CFS	.05	.05	.05	.05	.05	.05	.05	.05
7.98	ELEV	375.58	375.59	375.59	375.60	375.60	375.61	375.61	375.62
8.46	CFS	.06	.06	.06	.06	.06	.06	.06	.07
8.46	ELEV	375.62	375.63	375.63	375.64	375.64	375.65	375.66	375.66
8.94	CFS	.07	.07	.07	.07	.08	.08	.08	.08
8.94	ELEV	375.67	375.68	375.68	375.69	375.70	375.71	375.72	375.72
9.42	CFS	.08	.09	.09	.09	.09	.09	.10	.10
9.42	ELEV	375.73	375.74	375.75	375.75	375.76	375.77	375.78	375.79
9.90	CFS	.10	.10	.10	.11	.11	.11	.12	.12
9.90	ELEV	375.80	375.80	375.81	375.82	375.83	375.85	375.86	375.87
10.38	CFS	.12	.12	.13	.13	.13	.14	.14	.15
10.38	ELEV	375.88	375.89	375.91	375.92	375.93	375.95	375.96	375.98
10.86	CFS	.15	.16	.16	.17	.17	.18	.18	.19
10.86	ELEV	376.00	376.02	376.03	376.05	376.08	376.10	376.12	376.15
11.34	CFS	.20	.20	.21	.22	.23	.24	.27	.30
11.34	ELEV	376.17	376.20	376.24	376.27	376.31	376.37	376.45	376.58
11.82	CFS	.35	.41	.50	.61	.72	.81	.86	.90
11.82	ELEV	376.77	377.03	377.39	377.83	378.25	378.59	378.81	378.94
12.30	CFS	.92	.93	.95	.95	.96	.97	.97	.98
12.30	ELEV	379.03	379.10	379.14	379.18	379.21	379.23	379.25	379.26
12.78	CFS	.98	.98	.98	.98	.99	.99	.99	.99

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 51

12.78	ELEV	379.27	379.28	379.29	379.30	379.30	379.31	379.31	379.31
13.26	CFS	.99	.99	.99	.99	.99	.98	.98	.98
13.26	ELEV	379.31	379.31	379.31	379.31	379.30	379.30	379.29	379.29
13.74	CFS	.98	.98	.98	.98	.97	.97	.97	.97
13.74	ELEV	379.28	379.28	379.27	379.26	379.26	379.25	379.24	379.23
14.22	CFS	.97	.96	.96	.96	.96	.95	.95	.95
14.22	ELEV	379.22	379.21	379.20	379.19	379.18	379.18	379.17	379.16
14.70	CFS	.95	.94	.94	.94	.94	.93	.93	.93
14.70	ELEV	379.14	379.13	379.12	379.11	379.10	379.09	379.08	379.07
15.18	CFS	.92	.92	.92	.92	.91	.91	.91	.90
15.18	ELEV	379.06	379.05	379.04	379.03	379.01	379.00	378.99	378.98
15.66	CFS	.90	.90	.89	.89	.89	.89	.88	.88
15.66	ELEV	378.97	378.95	378.94	378.93	378.92	378.91	378.89	378.88
16.14	CFS	.88	.87	.87	.87	.86	.86	.86	.85
16.14	ELEV	378.87	378.85	378.84	378.83	378.82	378.80	378.79	378.78
16.62	CFS	.85	.85	.84	.84	.84	.83	.83	.83
16.62	ELEV	378.76	378.75	378.74	378.73	378.71	378.70	378.69	378.68
17.10	CFS	.82	.82	.82	.81	.81	.81	.81	.80
17.10	ELEV	378.66	378.65	378.64	378.63	378.61	378.60	378.59	378.58
17.58	CFS	.80	.80	.79	.79	.79	.78	.78	.78
17.58	ELEV	378.56	378.55	378.54	378.53	378.51	378.50	378.49	378.48
18.06	CFS	.77	.77	.77	.76	.76	.76	.76	.75
18.06	ELEV	378.46	378.45	378.44	378.43	378.41	378.40	378.39	378.38
18.54	CFS	.75	.75	.74	.74	.74	.73	.73	.73
18.54	ELEV	378.37	378.35	378.34	378.33	378.32	378.31	378.29	378.28
19.02	CFS	.72	.72	.72	.72	.71	.71	.71	.70
19.02	ELEV	378.27	378.26	378.24	378.23	378.22	378.21	378.20	378.18
19.50	CFS	.70	.70	.69	.69	.69	.69	.68	.68
19.50	ELEV	378.17	378.16	378.15	378.14	378.12	378.11	378.10	378.09
19.98	CFS	.68	.67	.67	.67	.66	.66	.66	.66
19.98	ELEV	378.08	378.07	378.05	378.04	378.03	378.02	378.01	377.99
20.46	CFS	.65	.65	.65	.64	.64	.64	.64	.63
20.46	ELEV	377.98	377.97	377.96	377.95	377.94	377.93	377.92	377.90
20.94	CFS	.63	.63	.62	.62	.62	.62	.61	.61
20.94	ELEV	377.89	377.88	377.87	377.86	377.85	377.84	377.83	377.82
21.42	CFS	.61	.61	.60	.60	.60	.59	.59	.59



CNCPT124.OUT

21.42	ELEV	377.81	377.80	377.79	377.78	377.76	377.75	377.74	377.73
21.90	CFS	.59	.58	.58	.58	.58	.57	.57	.57
21.90	ELEV	377.72	377.71	377.70	377.69	377.68	377.67	377.66	377.65
22.38	CFS	.57	.56	.56	.56	.56	.55	.55	.55
22.38	ELEV	377.65	377.64	377.63	377.62	377.61	377.60	377.59	377.58
22.86	CFS	.55	.55	.54	.54	.54	.54	.53	.53
22.86	ELEV	377.57	377.56	377.55	377.54	377.53	377.52	377.51	377.51
23.34	CFS	.53	.53	.52	.52	.52	.52	.52	.51
23.34	ELEV	377.50	377.49	377.48	377.47	377.46	377.45	377.44	377.44
23.82	CFS	.51	.51	.51	.51	.50	.50	.50	.49
23.82	ELEV	377.43	377.42	377.41	377.40	377.39	377.38	377.37	377.36
24.30	CFS	.49	.49	.49	.48	.48	.48	.47	.47
24.30	ELEV	377.35	377.33	377.32	377.31	377.30	377.28	377.27	377.26

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 52

24.78	CFS	.47	.46	.46	.46	.45	.45	.45	.44
24.78	ELEV	377.25	377.23	377.22	377.21	377.20	377.19	377.17	377.16
25.26	CFS	.44	.44	.44	.43	.43	.43	.42	.42
25.26	ELEV	377.15	377.14	377.13	377.11	377.10	377.09	377.08	377.07
25.74	CFS	.42	.42	.41	.41	.41	.40	.40	.40
25.74	ELEV	377.06	377.05	377.04	377.03	377.01	377.00	376.99	376.98
26.22	CFS	.40	.39	.39	.39	.39	.38	.38	.38
26.22	ELEV	376.97	376.96	376.95	376.94	376.93	376.92	376.91	376.90
26.70	CFS	.38							
26.70	ELEV	376.89							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.03 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	12
FLOW(CFS)	1	1	1	1	1	1	0

\*\*\* WARNING - XSECTION 34, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN  
 2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,  
 UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

OPERATION REACH XSECTION 34

\*\*\* MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS,  
 AT XSECTION 34 \*\*\*

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 13.38 1.0 338.02

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.02 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.03 53.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.65 WATERSHED INCHES; 47 CFS-HRS; 3.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 33

CNCPT124.OUT

PEAK TIME(HRS) 12.25 PEAK DISCHARGE(CFS) 20.8 PEAK ELEVATION(FEET) 356.21

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.  
 4.14 CFS .00 .01 .01 .01 .01 .01 .01 .01 .01  
 4.14 ELEV 350.00 350.02 350.03 350.03 350.03 350.03 350.04 350.04

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 53

4.62	CFS	.01	.01	.01	.01	.01	.01	.02	.02
4.62	ELEV	350.04	350.05	350.05	350.05	350.06	350.06	350.07	350.07
5.10	CFS	.02	.02	.02	.02	.02	.02	.02	.03
5.10	ELEV	350.07	350.08	350.08	350.09	350.09	350.10	350.10	350.11
5.58	CFS	.03	.03	.03	.03	.03	.03	.04	.04
5.58	ELEV	350.11	350.12	350.13	350.13	350.14	350.14	350.15	350.16
6.06	CFS	.04	.04	.04	.04	.04	.05	.05	.05
6.06	ELEV	350.16	350.17	350.18	350.19	350.19	350.20	350.21	350.22
6.54	CFS	.05	.05	.06	.06	.06	.06	.06	.07
6.54	ELEV	350.22	350.23	350.24	350.25	350.26	350.27	350.27	350.28
7.02	CFS	.07	.07	.07	.07	.08	.08	.08	.08
7.02	ELEV	350.29	350.30	350.31	350.32	350.33	350.34	350.35	350.36
7.50	CFS	.09	.09	.09	.09	.10	.10	.10	.10
7.50	ELEV	350.37	350.38	350.39	350.40	350.41	350.42	350.43	350.44
7.98	CFS	.11	.11	.11	.11	.12	.12	.12	.13
7.98	ELEV	350.46	350.47	350.48	350.49	350.50	350.51	350.53	350.54
8.46	CFS	.13	.13	.14	.14	.14	.15	.15	.15
8.46	ELEV	350.55	350.57	350.58	350.60	350.61	350.63	350.65	350.66
8.94	CFS	.16	.16	.17	.17	.18	.18	.18	.19
8.94	ELEV	350.68	350.70	350.72	350.74	350.75	350.77	350.79	350.81
9.42	CFS	.19	.20	.20	.21	.21	.22	.22	.23
9.42	ELEV	350.83	350.85	350.87	350.90	350.92	350.94	350.96	350.98
9.90	CFS	.23	.24	.24	.25	.26	.26	.27	.28
9.90	ELEV	351.00	351.03	351.05	351.08	351.10	351.13	351.16	351.19
10.38	CFS	.28	.29	.30	.31	.31	.32	.33	.34
10.38	ELEV	351.22	351.25	351.28	351.32	351.35	351.39	351.43	351.47
10.86	CFS	.35	.36	.37	.38	.40	.41	.42	.44
10.86	ELEV	351.51	351.56	351.60	351.65	351.71	351.76	351.82	351.88
11.34	CFS	.45	.47	.49	.51	.53	.56	.60	.66
11.34	ELEV	351.95	352.02	352.10	352.18	352.28	352.40	352.57	352.83
11.82	CFS	.74	.87	1.58	6.01	11.63	16.54	19.37	20.73
11.82	ELEV	353.20	353.73	354.40	354.97	355.51	355.90	356.13	356.21
12.30	CFS	20.23	19.29	18.20	17.00	15.76	14.55	13.39	12.30
12.30	ELEV	356.19	356.12	356.04	355.94	355.84	355.74	355.65	355.56
12.78	CFS	11.29	10.38	9.63	8.99	8.40	7.86	7.37	6.91
12.78	ELEV	355.48	355.41	355.34	355.28	355.22	355.16	355.11	355.07
13.26	CFS	6.50	6.12	5.77	5.45	5.16	4.91	4.71	4.51
13.26	ELEV	355.02	354.98	354.95	354.92	354.89	354.86	354.83	354.81
13.74	CFS	4.33	4.16	4.00	3.85	3.70	3.56	3.43	3.31
13.74	ELEV	354.78	354.76	354.74	354.72	354.70	354.68	354.66	354.64
14.22	CFS	3.20	3.09	2.98	2.89	2.80	2.72	2.64	2.57
14.22	ELEV	354.63	354.61	354.60	354.59	354.58	354.57	354.56	354.55
14.70	CFS	2.50	2.44	2.38	2.33	2.27	2.22	2.18	2.13
14.70	ELEV	354.54	354.53	354.52	354.51	354.51	354.50	354.49	354.49
15.18	CFS	2.09	2.05	2.01	1.98	1.95	1.93	1.90	1.87
15.18	ELEV	354.48	354.48	354.47	354.47	354.46	354.46	354.45	354.45
15.66	CFS	1.85	1.82	1.80	1.77	1.74	1.72	1.69	1.67
15.66	ELEV	354.44	354.44	354.44	354.43	354.43	354.42	354.42	354.41
16.14	CFS	1.65	1.62	1.60	1.57	1.55	1.53	1.51	1.49

CNCPT124.OUT

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 54

16.14	ELEV	354.41	354.41	354.40	354.40	354.39	354.39	354.39	354.38
16.62	CFS	1.47	1.46	1.44	1.42	1.41	1.39	1.38	1.36
16.62	ELEV	354.38	354.38	354.37	354.37	354.37	354.37	354.36	354.36
17.10	CFS	1.35	1.33	1.32	1.31	1.29	1.28	1.27	1.26
17.10	ELEV	354.36	354.36	354.35	354.35	354.35	354.35	354.35	354.34
17.58	CFS	1.25	1.23	1.22	1.21	1.20	1.19	1.18	1.17
17.58	ELEV	354.34	354.34	354.34	354.34	354.33	354.33	354.33	354.33
18.06	CFS	1.16	1.15	1.14	1.13	1.12	1.11	1.10	1.09
18.06	ELEV	354.33	354.33	354.32	354.32	354.32	354.32	354.32	354.32
18.54	CFS	1.08	1.07	1.06	1.06	1.05	1.04	1.03	1.02
18.54	ELEV	354.31	354.31	354.31	354.31	354.31	354.31	354.30	354.30
19.02	CFS	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
19.02	ELEV	354.30	354.30	354.30	354.30	354.29	354.29	354.29	354.28
19.50	CFS	1.00	.99	.99	.99	.99	.99	.99	.99
19.50	ELEV	354.28	354.28	354.27	354.27	354.26	354.26	354.26	354.25
19.98	CFS	.99	.99	.99	.98	.98	.98	.98	.98
19.98	ELEV	354.25	354.24	354.24	354.23	354.23	354.22	354.22	354.21
20.46	CFS	.98	.98	.98	.97	.97	.97	.97	.97
20.46	ELEV	354.21	354.20	354.20	354.19	354.19	354.18	354.18	354.17
20.94	CFS	.97	.97	.97	.97	.96	.96	.96	.96
20.94	ELEV	354.17	354.16	354.15	354.15	354.14	354.14	354.13	354.13
21.42	CFS	.96	.96	.96	.96	.95	.95	.95	.95
21.42	ELEV	354.12	354.12	354.11	354.11	354.10	354.10	354.09	354.09
21.90	CFS	.95	.95	.95	.95	.94	.94	.94	.94
21.90	ELEV	354.08	354.07	354.07	354.06	354.06	354.05	354.05	354.04
22.38	CFS	.94	.94	.94	.94	.93	.93	.93	.93
22.38	ELEV	354.04	354.03	354.03	354.02	354.02	354.01	354.00	354.00
22.86	CFS	.93	.93	.93	.92	.92	.92	.92	.92
22.86	ELEV	353.99	353.99	353.98	353.98	353.97	353.97	353.96	353.95
23.34	CFS	.92	.92	.92	.91	.91	.91	.91	.91
23.34	ELEV	353.95	353.94	353.94	353.93	353.93	353.92	353.92	353.91
23.82	CFS	.91	.91	.91	.90	.90	.90	.90	.90
23.82	ELEV	353.90	353.90	353.89	353.89	353.88	353.87	353.86	353.85
24.30	CFS	.89	.89	.88	.88	.88	.87	.87	.86
24.30	ELEV	353.84	353.82	353.80	353.79	353.77	353.75	353.73	353.72
24.78	CFS	.86	.86	.85	.85	.84	.84	.84	.83
24.78	ELEV	353.70	353.68	353.67	353.65	353.63	353.62	353.60	353.58
25.26	CFS	.83	.83	.82	.82	.81	.81	.81	.80
25.26	ELEV	353.57	353.55	353.53	353.52	353.50	353.49	353.47	353.45
25.74	CFS	.80	.80	.79	.79	.78	.78	.78	.77
25.74	ELEV	353.44	353.42	353.41	353.39	353.38	353.36	353.34	353.33
26.22	CFS	.77	.77	.76	.76	.76	.75	.75	.75
26.22	ELEV	353.31	353.30	353.28	353.27	353.25	353.24	353.22	353.21
26.70	CFS	.74							
26.70	ELEV	353.19							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.10 WATERSHED INCHES; 37 CFS-HRS; 3.1 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 55

DURATION(HRS)	2	4	6	8	10	12	14	15	
FLOW(CFS)	4	2	1	1	1	1	1	1	TRUNCATED

CNCPT124.OUT

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS) 12.26 PEAK DISCHARGE(CFS) 21.4 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.08 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS) 12.26 PEAK DISCHARGE(CFS) 21.4 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.08 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

OPERATION REACH XSECTION 37

PEAK TIME(HRS) 12.32 PEAK DISCHARGE(CFS) 21.4 PEAK ELEVATION(FEET) 330.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.08 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 138

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 52.7 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.17 WATERSHED INCHES; 39 CFS-HRS; 3.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 139

PEAK TIME(HRS) 11.99 PEAK DISCHARGE(CFS) 53.8 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.12 WATERSHED INCHES; 87 CFS-HRS; 7.2 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 56

OPERATION RESVOR STRUCTURE 35

PEAK TIME(HRS) 13.66 PEAK DISCHARGE(CFS) 8.2 PEAK ELEVATION(FEET) 329.44

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .06 SQ.MI.  
 5.76 CFS .00 .01 .01 .01 .01 .01 .01 .01 .01  
 5.76 ELEV 326.00 326.00 326.00 326.00 326.00 326.00 326.00 326.01  
 6.24 CFS .01 .01 .02 .02 .02 .02 .02 .03

CNCPT124.OUT

6.24	ELEV	326.01	326.01	326.01	326.01	326.01	326.01	326.01	326.01
6.72	CFS	.03	.03	.03	.04	.04	.04	.04	.05
6.72	ELEV	326.01	326.01	326.01	326.01	326.02	326.02	326.02	326.02
7.20	CFS	.05	.05	.06	.06	.06	.07	.07	.07
7.20	ELEV	326.02	326.02	326.02	326.02	326.03	326.03	326.03	326.03
7.68	CFS	.08	.08	.09	.09	.09	.10	.10	.11
7.68	ELEV	326.03	326.03	326.04	326.04	326.04	326.04	326.04	326.04
8.16	CFS	.11	.12	.12	.13	.13	.14	.14	.15
8.16	ELEV	326.05	326.05	326.05	326.05	326.06	326.06	326.06	326.06
8.64	CFS	.16	.16	.17	.18	.18	.19	.20	.21
8.64	ELEV	326.07	326.07	326.07	326.07	326.08	326.08	326.08	326.09
9.12	CFS	.21	.22	.23	.24	.25	.26	.27	.28
9.12	ELEV	326.09	326.09	326.10	326.10	326.10	326.11	326.11	326.12
9.60	CFS	.28	.29	.30	.31	.32	.34	.35	.36
9.60	ELEV	326.12	326.12	326.13	326.13	326.14	326.14	326.15	326.15
10.08	CFS	.37	.38	.40	.41	.42	.44	.46	.47
10.08	ELEV	326.16	326.16	326.17	326.17	326.18	326.18	326.19	326.20
10.56	CFS	.49	.51	.53	.55	.57	.59	.61	.64
10.56	ELEV	326.21	326.21	326.22	326.23	326.24	326.25	326.26	326.27
11.04	CFS	.66	.69	.72	.75	.78	.82	.86	.90
11.04	ELEV	326.28	326.29	326.30	326.31	326.33	326.34	326.36	326.38
11.52	CFS	.95	1.01	1.09	1.22	1.41	1.70	2.12	2.70
11.52	ELEV	326.40	326.42	326.46	326.51	326.59	326.71	326.89	327.13
12.00	CFS	3.37	4.01	4.54	4.96	5.31	5.65	5.97	6.26
12.00	ELEV	327.42	327.69	327.91	328.08	328.23	328.37	328.51	328.63
12.48	CFS	6.53	6.76	6.97	7.16	7.32	7.46	7.59	7.70
12.48	ELEV	328.74	328.84	328.93	329.01	329.07	329.13	329.19	329.23
12.96	CFS	7.79	7.87	7.94	8.00	8.05	8.09	8.12	8.15
12.96	ELEV	329.27	329.30	329.33	329.36	329.38	329.40	329.41	329.42
13.44	CFS	8.17	8.18	8.19	8.20	8.20	8.19	8.19	8.18
13.44	ELEV	329.43	329.44	329.44	329.44	329.44	329.44	329.44	329.43
13.92	CFS	8.17	8.15	8.13	8.11	8.09	8.07	8.04	8.01
13.92	ELEV	329.43	329.42	329.42	329.41	329.40	329.39	329.38	329.36
14.40	CFS	7.98	7.95	7.92	7.89	7.86	7.82	7.79	7.75
14.40	ELEV	329.35	329.34	329.33	329.31	329.30	329.29	329.27	329.26
14.88	CFS	7.72	7.68	7.64	7.60	7.56	7.53	7.49	7.45
14.88	ELEV	329.24	329.23	329.21	329.19	329.18	329.16	329.14	329.13
15.36	CFS	7.41	7.37	7.33	7.29	7.25	7.20	7.16	7.12
15.36	ELEV	329.11	329.09	329.08	329.06	329.04	329.03	329.01	328.99

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 57

15.84	CFS	7.08	7.04	7.00	6.96	6.92	6.87	6.83	6.79
15.84	ELEV	328.97	328.96	328.94	328.92	328.90	328.89	328.87	328.85
16.32	CFS	6.75	6.71	6.67	6.63	6.58	6.54	6.50	6.46
16.32	ELEV	328.83	328.82	328.80	328.78	328.77	328.75	328.73	328.71
16.80	CFS	6.42	6.38	6.34	6.30	6.26	6.22	6.18	6.14
16.80	ELEV	328.70	328.68	328.66	328.65	328.63	328.61	328.60	328.58
17.28	CFS	6.11	6.07	6.03	5.99	5.95	5.91	5.88	5.84
17.28	ELEV	328.56	328.55	328.53	328.52	328.50	328.48	328.47	328.45
17.76	CFS	5.80	5.76	5.73	5.69	5.65	5.62	5.58	5.55
17.76	ELEV	328.44	328.42	328.41	328.39	328.37	328.36	328.34	328.33
18.24	CFS	5.51	5.47	5.44	5.40	5.37	5.33	5.30	5.26
18.24	ELEV	328.31	328.30	328.28	328.27	328.25	328.24	328.23	328.21
18.72	CFS	5.23	5.20	5.16	5.13	5.10	5.06	5.03	5.00
18.72	ELEV	328.20	328.18	328.17	328.15	328.14	328.13	328.11	328.10
19.20	CFS	4.96	4.93	4.90	4.87	4.84	4.81	4.77	4.74
19.20	ELEV	328.08	328.07	328.06	328.04	328.03	328.02	328.01	327.99
19.68	CFS	4.71	4.68	4.65	4.62	4.59	4.56	4.53	4.51
19.68	ELEV	327.98	327.97	327.95	327.94	327.93	327.92	327.90	327.89

CNCPT124.OUT

20.16	CFS	4.48	4.45	4.42	4.39	4.37	4.34	4.31	4.29
20.16	ELEV	327.88	327.87	327.86	327.85	327.83	327.82	327.81	327.80
20.64	CFS	4.26	4.23	4.21	4.18	4.16	4.13	4.11	4.08
20.64	ELEV	327.79	327.78	327.77	327.76	327.75	327.74	327.72	327.71
21.12	CFS	4.06	4.03	4.01	3.99	3.96	3.94	3.92	3.90
21.12	ELEV	327.70	327.69	327.68	327.67	327.66	327.66	327.65	327.64
21.60	CFS	3.87	3.85	3.83	3.81	3.79	3.77	3.74	3.72
21.60	ELEV	327.63	327.62	327.61	327.60	327.59	327.58	327.57	327.56
22.08	CFS	3.70	3.68	3.66	3.64	3.62	3.60	3.58	3.56
22.08	ELEV	327.56	327.55	327.54	327.53	327.52	327.51	327.51	327.50
22.56	CFS	3.55	3.53	3.51	3.49	3.47	3.45	3.44	3.42
22.56	ELEV	327.49	327.48	327.47	327.47	327.46	327.45	327.44	327.44
23.04	CFS	3.40	3.38	3.36	3.35	3.33	3.31	3.30	3.28
23.04	ELEV	327.43	327.42	327.41	327.41	327.40	327.39	327.38	327.38
23.52	CFS	3.26	3.25	3.23	3.22	3.20	3.19	3.17	3.15
23.52	ELEV	327.37	327.36	327.36	327.35	327.34	327.34	327.33	327.32
24.00	CFS	3.14	3.12	3.11	3.09	3.06	3.04	3.02	3.00
24.00	ELEV	327.32	327.31	327.30	327.30	327.29	327.28	327.27	327.26
24.48	CFS	2.98	2.96	2.93	2.91	2.89	2.87	2.85	2.83
24.48	ELEV	327.25	327.24	327.23	327.22	327.21	327.21	327.20	327.19
24.96	CFS	2.81	2.79	2.77	2.75	2.73	2.71	2.69	2.68
24.96	ELEV	327.18	327.17	327.16	327.16	327.15	327.14	327.13	327.12
25.44	CFS	2.66	2.64	2.62	2.60	2.58	2.57	2.55	2.53
25.44	ELEV	327.12	327.11	327.10	327.09	327.09	327.08	327.07	327.06
25.92	CFS	2.51	2.50	2.48	2.46	2.44	2.43	2.41	2.39
25.92	ELEV	327.06	327.05	327.04	327.03	327.03	327.02	327.01	327.01
26.40	CFS	2.38	2.36	2.35	2.33	2.31	2.30		
26.40	ELEV	327.00	326.99	326.99	326.98	326.97	326.97		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.87 WATERSHED INCHES; 77 CFS-HRS; 6.4 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 58

DURATION(HRS)	2	4	6	8	10	12	14	14
FLOW(CFS)	8	7	5	4	4	3	3	2 TRUNCATED

OPERATION RUNOFF XSECTION 140

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	2.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .57 WATERSHED INCHES; 2 CFS-HRS; .1 ACRE-FEET.

\*\*\* WARNING - XSECTION 141  
 VOLUME TRUNCATED AT 28.% IN LOCATION 2 ADDING HYDROGRAPHS. \*\*\*

OPERATION ADDHYD XSECTION 141

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
13.56	8.4 *	(NULL)
	* FIRST POINT OF FLAT PEAK	

\*\*\* WARNING - XSECTION 141, HYDROGRAPH VOLUME TRUNCATED AT 2 CFS  
 ADDHYD ( 27. % OF MAX. HYDROGRAPH COORDINATE)  
 MAIN TIME INCREMENT TOO SMALL. \*\*\*

CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.78 WATERSHED INCHES; 79 CFS-HRS; 6.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.11 36.4 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.45 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.17 292.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.37 WATERSHED INCHES; 562 CFS-HRS; 46.5 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 2 JOB NO. 1 PAGE 59

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.17 364.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.39 WATERSHED INCHES; 633 CFS-HRS; 52.3 ACRE-FEET.

\*\*\* WARNING - XSECTION 43  
VOLUME TRUNCATED AT 27.% AND 0.% WHEN ADDING HYDROGRAPHS \*\*\*  
IN LOCATIONS 4 AND 2.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.17 369.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.42 WATERSHED INCHES; 710 CFS-HRS; 58.7 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.33 329.2 290.08

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.42 WATERSHED INCHES; 709 CFS-HRS; 58.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

12.14 CNCPT124.OUT (RUNOFF)  
32.2

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.16 WATERSHED INCHES; 36 CFS-HRS; 2.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.17 35.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.03 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 2 JOB NO. 1 PAGE 60

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.16 67.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.08 WATERSHED INCHES; 77 CFS-HRS; 6.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 48.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.35 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.31 344.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.41 WATERSHED INCHES; 750 CFS-HRS; 62.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.28 398.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.37 WATERSHED INCHES; 828 CFS-HRS; 68.4 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.42 377.2 284.41

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
Page 63



CNCPT124.OUT  
1.37 WATERSHED INCHES; 827 CFS-HRS; 68.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 2 JOB NO. 1 PAGE 61

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.06 1.2 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.29 WATERSHED INCHES; 2 CFS-HRS; .1 ACRE-FEET.

\*\*\* WARNING - XSECTION 53, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN  
2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,  
UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

OPERATION REACH XSECTION 53

\*\*\* MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS,  
AT XSECTION 53 \*\*\*

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 .9 288.05

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.28 WATERSHED INCHES; 2 CFS-HRS; .1 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

\*\*\* MESSAGE - NO SIGNIFICANT PEAK FOUND, MAX. DISCHARGE 1 CFS,  
AT XSECTION 54 \*\*\*

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 .6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.25 WATERSHED INCHES; 1 CFS-HRS; .1 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 25.4 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.05 WATERSHED INCHES; 22 CFS-HRS; 1.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.41 383.5 (NULL)

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
Page 64



CNCPT124.OUT  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.33 WATERSHED INCHES; 879 CFS-HRS; 72.7 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS) 12.59 PEAK DISCHARGE(CFS) 363.7 PEAK ELEVATION(FEET) 249.45

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.03 SQ.MI.

HRS	MAIN TIME	INCREMENT	.49	.51	.53	.56	.59	.61	.64	.68
8.34	CFS		.49	.51	.53	.56	.59	.61	.64	.68
8.34	ELEV	247.16	247.16	247.16	247.17	247.17	247.18	247.18	247.19	247.19
8.82	CFS		.71	.75	.78	.82	.87	.91	.96	1.02
8.82	ELEV	247.20	247.21	247.21	247.22	247.22	247.23	247.24	247.25	247.26
9.30	CFS		1.08	1.14	1.21	1.28	1.35	1.43	1.51	1.59
9.30	ELEV	247.27	247.28	247.29	247.30	247.32	247.33	247.33	247.35	247.36
9.78	CFS		1.67	1.76	1.85	1.94	2.04	2.15	2.27	2.39
9.78	ELEV	247.38	247.39	247.41	247.42	247.43	247.43	247.43	247.44	247.45
10.26	CFS		2.53	2.68	2.83	3.00	3.18	3.38	3.59	3.82
10.26	ELEV	247.46	247.48	247.49	247.50	247.52	247.53	247.53	247.55	247.57
10.74	CFS		4.06	4.33	4.62	4.94	5.30	5.71	6.16	6.68
10.74	ELEV	247.59	247.61	247.63	247.66	247.69	247.72	247.74	247.74	247.75
11.22	CFS		7.26	7.93	8.68	9.55	10.53	11.66	12.95	14.50
11.22	ELEV	247.76	247.77	247.78	247.80	247.81	247.83	247.83	247.85	247.87
11.70	CFS		17	19	24	31	43	63	92	128
11.70	ELEV	247.90	247.95	248.02	248.11	248.24	248.44	248.68	248.83	248.83
12.18	CFS		170	213	256	295	327	349	361	364
12.18	ELEV	248.98	249.10	249.22	249.30	249.37	249.42	249.44	249.44	249.45
12.66	CFS		359	349	335	320	303	287	269	251
12.66	ELEV	249.44	249.42	249.39	249.35	249.32	249.28	249.25	249.25	249.20
13.14	CFS		233	216	199	184	170	158	147	137
13.14	ELEV	249.15	249.11	249.06	249.02	248.98	248.95	248.90	248.86	248.86
13.62	CFS		129	121	115	109	104	100	96	92
13.62	ELEV	248.83	248.80	248.77	248.75	248.73	248.71	248.70	248.70	248.68
14.10	CFS		89.29	86.49	83.94	81.60	79.46	77.48	75.64	73.95
14.10	ELEV	248.67	248.64	248.62	248.60	248.58	248.56	248.55	248.55	248.53
14.58	CFS		72.38	70.93	69.59	68.35	67.20	66.14	65.14	64.21
14.58	ELEV	248.52	248.51	248.50	248.48	248.47	248.47	248.46	248.46	248.45
15.06	CFS		63.33	62.50	61.71	60.95	60.22	59.51	58.82	58.15
15.06	ELEV	248.44	248.43	248.43	248.42	248.41	248.41	248.40	248.40	248.40
15.54	CFS		57.49	56.85	56.21	55.58	54.95	54.33	53.71	53.10
15.54	ELEV	248.39	248.38	248.37	248.37	248.36	248.35	248.35	248.35	248.34
16.02	CFS		52.49	51.88	51.27	50.67	50.07	49.48	48.90	48.33

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 64

16.02	ELEV	248.34	248.33	248.32	248.32	248.31	248.30	248.30	248.29
16.50	CFS	47.79	47.26	46.76	46.27	45.82	45.38	44.97	44.58
16.50	ELEV	248.29	248.28	248.27	248.27	248.26	248.26	248.26	248.25
16.98	CFS	44.21	43.85	43.51	43.18	42.86	42.54	42.24	41.93
16.98	ELEV	248.25	248.24	248.24	248.24	248.23	248.23	248.23	248.22
17.46	CFS	41.64	41.34	41.05	40.76	40.47	40.19	39.90	39.62
17.46	ELEV	248.22	248.22	248.21	248.21	248.21	248.21	248.20	248.20
17.94	CFS	39.34	39.06	38.78	38.50	38.23	37.95	37.68	37.40
17.94	ELEV	248.20	248.19	248.19	248.19	248.18	248.18	248.18	248.18
18.42	CFS	37.13	36.86	36.59	36.32	36.05	35.79	35.53	35.27
18.42	ELEV	248.17	248.17	248.17	248.16	248.16	248.16	248.16	248.15
18.90	CFS	35.01	34.76	34.50	34.25	34.00	33.75	33.50	33.25
18.90	ELEV	248.15	248.15	248.14	248.14	248.14	248.14	248.13	248.13

CNCPT124.OUT

19.38	CFS	33.00	32.75	32.50	32.26	32.01	31.76	31.51	31.26
19.38	ELEV	248.13	248.13	248.12	248.12	248.12	248.12	248.11	248.11
19.86	CFS	31.02	30.77	30.52	30.27	30.03	29.78	29.54	29.29
19.86	ELEV	248.11	248.11	248.10	248.10	248.10	248.09	248.09	248.09
20.34	CFS	29.06	28.82	28.60	28.38	28.17	27.97	27.78	27.60
20.34	ELEV	248.09	248.08	248.08	248.08	248.08	248.08	248.07	248.07
20.82	CFS	27.43	27.26	27.10	26.95	26.80	26.65	26.50	26.36
20.82	ELEV	248.07	248.07	248.06	248.06	248.06	248.06	248.06	248.05
21.30	CFS	26.23	26.09	25.95	25.82	25.69	25.57	25.44	25.31
21.30	ELEV	248.05	248.05	248.05	248.05	248.04	248.04	248.04	248.04
21.78	CFS	25.19	25.07	24.95	24.83	24.71	24.60	24.48	24.37
21.78	ELEV	248.04	248.03	248.03	248.03	248.03	248.03	248.02	248.02
22.26	CFS	24.26	24.15	24.04	23.93	23.83	23.72	23.62	23.52
22.26	ELEV	248.02	248.02	248.02	248.02	248.01	248.01	248.01	248.01
22.74	CFS	23.42	23.31	23.22	23.12	23.02	22.92	22.83	22.73
22.74	ELEV	248.01	248.01	248.01	248.00	248.00	248.00	248.00	248.00
23.22	CFS	22.64	22.55	22.45	22.36	22.26	22.17	22.08	21.98
23.22	ELEV	248.00	248.00	247.99	247.99	247.99	247.99	247.99	247.99
23.70	CFS	21.89	21.79	21.70	21.61	21.52	21.43	21.34	21.23
23.70	ELEV	247.98	247.98	247.98	247.98	247.98	247.98	247.98	247.97
24.18	CFS	21.05	20.75	20.32	19.77	19.08	18.25	17.30	16.26
24.18	ELEV	247.97	247.97	247.96	247.95	247.94	247.93	247.91	247.90
24.66	CFS	15.18	14.10	13.08	12.12	11.26	10.49	9.82	9.24
24.66	ELEV	247.88	247.87	247.85	247.84	247.82	247.81	247.80	247.79
25.14	CFS	8.74	8.31	7.94	7.63	7.35	7.12	6.91	6.72
25.14	ELEV	247.78	247.78	247.77	247.77	247.76	247.76	247.76	247.75
25.62	CFS	6.56	6.41	6.26	6.13	6.01	5.89	5.78	5.67
25.62	ELEV	247.75	247.75	247.75	247.74	247.74	247.74	247.73	247.72
26.10	CFS	5.56	5.46	5.36	5.27	5.17	5.08	4.99	4.91
26.10	ELEV	247.71	247.70	247.69	247.69	247.68	247.67	247.66	247.66
26.58	CFS	4.82	4.74	4.66					
26.58	ELEV	247.65	247.64	247.64					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.33 WATERSHED INCHES; 879 CFS-HRS; 72.6 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 65

DURATION(HRS)	2	4	6	8	10	12	14	16	
FLOW(CFS)	91	53	39	31	25	22	8	5	TRUNCATED

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS) 12.19 PEAK DISCHARGE(CFS) 11.9 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.01 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS) 12.56 PEAK DISCHARGE(CFS) 5.3 PEAK ELEVATION(FEET) 333.13

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.01 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

CNCPT124.OUT

OPERATION REACH XSECTION 65

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.68 5.2 300.49

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.01 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.04 50.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.41 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
 TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
 FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 62

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 66

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.30 16.8 292.96  
 13.74 3.1 287.70

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.41 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.45 21.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.52 WATERSHED INCHES; 56 CFS-HRS; 4.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.04 84.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.37 WATERSHED INCHES; 69 CFS-HRS; 5.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.04 101.5 (NULL)

CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.44 WATERSHED INCHES; 125 CFS-HRS; 10.3 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.25 76.9 248.56

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.44 WATERSHED INCHES; 125 CFS-HRS; 10.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.96 20.3 (RUNOFF)

1

TR20 ----- SCS -  
06/30/\*\* Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
15:05:46 Run for 1,2,10,50,100YR STORMS 2.04TEST  
PASS 2 JOB NO. 1 PAGE 67

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.82 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.22 3.9 264.92

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.82 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.42 3.9 247.57

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.82 WATERSHED INCHES; 14 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 53.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.68 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.58 372.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.26 WATERSHED INCHES; 927 CFS-HRS; 76.6 ACRE-FEET.

CNCPT124.OUT

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS) 12.25 PEAK DISCHARGE(CFS) 80.7 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .15 SQ.MI.  
 9.96 CFS .47 .52 .58 .64 .71 .78 .86 .95  
 10.44 CFS 1.05 1.15 1.26 1.37 1.50 1.63 1.78 1.94  
 10.92 CFS 2.11 2.30 2.51 2.73 2.97 3.23 3.53 3.87

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 68

11.40	CFS	4.25	4.69	5.18	5.73	6.39	7.37	9.06	12.16
11.88	CFS	16.87	24.06	34.54	48.95	64.32	76.15	80.60	78.34
12.36	CFS	72.63	66.25	60.32	55.18	50.85	47.20	44.13	41.54
12.84	CFS	39.40	37.64	36.17	34.84	33.64	32.51	31.44	30.43
13.32	CFS	29.48	28.58	27.72	26.70	25.54	24.13	22.48	20.70
13.80	CFS	18.81	17.40	16.26	15.33	14.55	13.85	13.21	12.62
14.28	CFS	12.08	11.60	11.16	10.71	10.27	9.86	9.51	9.21
14.76	CFS	8.95	8.73	8.53	8.35	8.19	7.99	7.77	7.56
15.24	CFS	7.37	7.20	7.06	6.92	6.80	6.69	6.58	6.48
15.72	CFS	6.38	6.29	6.19	6.10	6.01	5.91	5.82	5.73
16.20	CFS	5.64	5.56	5.48	5.40	5.34	5.28	5.23	5.19
16.68	CFS	5.14	5.10	5.06	5.03	4.99	4.96	4.92	4.89
17.16	CFS	4.86	4.82	4.79	4.76	4.73	4.70	4.66	4.63
17.64	CFS	4.60	4.57	4.54	4.50	4.47	4.44	4.41	4.37
18.12	CFS	4.34	4.31	4.28	4.24	4.21	4.18	4.15	4.11
18.60	CFS	4.08	4.05	4.01	3.98	3.95	3.92	3.88	3.85
19.08	CFS	3.82	3.78	3.75	3.72	3.68	3.65	3.62	3.58
19.56	CFS	3.55	3.52	3.48	3.45	3.42	3.38	3.35	3.31
20.04	CFS	3.28	3.25	3.21	3.18	3.15	3.12	3.10	3.08
20.52	CFS	3.06	3.05	3.03	3.02	3.01	3.00	3.00	2.99
21.00	CFS	2.98	2.97	2.96	2.96	2.95	2.94	2.94	2.93
21.48	CFS	2.93	2.92	2.91	2.91	2.90	2.89	2.89	2.88
21.96	CFS	2.88	2.87	2.86	2.86	2.85	2.84	2.84	2.83
22.44	CFS	2.83	2.82	2.81	2.80	2.80	2.79	2.79	2.78
22.92	CFS	2.77	2.77	2.76	2.76	2.75	2.74	2.74	2.73
23.40	CFS	2.72	2.72	2.71	2.70	2.70	2.69	2.68	2.68
23.88	CFS	2.67	2.66	2.66	2.65	2.64	2.58	2.39	2.08
24.36	CFS	1.71	1.36	1.07	.83	.65	.50		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.47 WATERSHED INCHES; 139 CFS-HRS; 11.5 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	15
FLOW(CFS)	17	6	5	4	3	3	1	0

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS) 12.55 PEAK DISCHARGE(CFS) 426.4 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.28 SQ.MI.  
 8.16 CFS .49 .52 .54 .57 .60 .63 .66 .69  
 8.64 CFS .73 .76 .80 .85 .89 .94 .99 1.04

CNCPT124.OUT									
9.12	CFS	1.10	1.16	1.22	1.29	1.37	1.45	1.53	1.61
9.60	CFS	1.70	1.80	1.90	2.01	2.13	2.26	2.41	2.56
10.08	CFS	2.73	2.91	3.10	3.31	3.54	3.78	4.05	4.33
10.56	CFS	4.64	4.96	5.31	5.70	6.11	6.56	7.06	7.61
11.04	CFS	8.22	8.89	9.65	10.50	11.45	12.55	13.80	15.22
11.52	CFS	17	19	21	25	31	44	67	104

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 69

12.00	CFS	148	194	236	276	316	352	383	406
12.48	CFS	421	426	423	414	400	384	366	348
12.96	CFS	329	310	291	271	253	235	219	204
13.44	CFS	190	178	167	157	148	140	132	126
13.92	CFS	120	115	111	107	103	100	97	95
14.40	CFS	92.16	89.84	87.67	85.66	83.83	82.15	80.62	79.21
14.88	CFS	77.91	76.71	75.58	74.46	73.37	72.33	71.35	70.41
15.36	CFS	69.52	68.66	67.83	67.02	66.23	65.45	64.68	63.92
15.84	CFS	63.17	62.42	61.67	60.93	60.19	59.46	58.74	58.04
16.32	CFS	57.36	56.69	56.05	55.43	54.84	54.28	53.74	53.23
16.80	CFS	52.74	52.28	51.84	51.42	51.02	50.63	50.25	49.88
17.28	CFS	49.53	49.17	48.83	48.48	48.14	47.80	47.47	47.13
17.76	CFS	46.80	46.47	46.14	45.82	45.49	45.16	44.84	44.52
18.24	CFS	44.19	43.87	43.55	43.23	42.91	42.59	42.28	41.96
18.72	CFS	41.65	41.34	41.04	40.73	40.43	40.13	39.83	39.53
19.20	CFS	39.23	38.93	38.63	38.33	38.03	37.74	37.44	37.14
19.68	CFS	36.85	36.55	36.25	35.95	35.66	35.36	35.06	34.77
20.16	CFS	34.48	34.19	33.92	33.65	33.39	33.14	32.90	32.68
20.64	CFS	32.46	32.26	32.07	31.88	31.70	31.53	31.37	31.21
21.12	CFS	31.05	30.90	30.75	30.60	30.46	30.31	30.17	30.03
21.60	CFS	29.90	29.76	29.63	29.50	29.36	29.23	29.11	28.98
22.08	CFS	28.86	28.74	28.61	28.49	28.37	28.26	28.14	28.03
22.56	CFS	27.91	27.80	27.69	27.58	27.47	27.36	27.25	27.15
23.04	CFS	27.04	26.94	26.83	26.73	26.62	26.52	26.42	26.31
23.52	CFS	26.21	26.11	26.00	25.90	25.80	25.70	25.60	25.50
24.00	CFS	25.39	25.19	24.71	24.08	23.36	22.51	21.53	20.46
24.48	CFS	19.33	18.13	16.91	15.68	14.49	13.37	12.34	11.42
24.96	CFS	10.62	9.91	9.31	8.79	8.35	7.97	7.65	7.37
25.44	CFS	7.13	6.92	6.72	6.56	6.41	6.26	6.13	6.01
25.92	CFS	5.89	5.78	5.67	5.56	5.46	5.36	5.27	5.17
26.40	CFS	5.08	4.99	4.91	4.82	4.74	4.66		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.29 WATERSHED INCHES; 1066 CFS-HRS; 88.1 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	114	63	46	36	30	26	9	5

DURATION(HRS) 16  
 FLOW(CFS) 5 TRUNCATED

OPERATION REACH XSECTION 77

PEAK TIME(HRS) 12.62 PEAK DISCHARGE(CFS) 425.6 PEAK ELEVATION(FEET) 229.11

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.29 WATERSHED INCHES; 1065 CFS-HRS; 88.0 ACRE-FEET.

1

TR20 ----- SCS -



OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.03                                      42.3                                      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.03 WATERSHED INCHES;                      34 CFS-HRS;                      2.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.61                                      431.2                                      (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.33 SQ.MI.

HRS	CFS	.49	.51	.54	.56	.59	.62	.65	.69
8.22	CFS	.49	.51	.54	.56	.59	.62	.65	.69
8.70	CFS	.72	.76	.80	.84	.88	.93	.98	1.03
9.18	CFS	1.09	1.15	1.21	1.28	1.36	1.43	1.51	1.60
9.66	CFS	1.69	1.78	1.89	2.00	2.12	2.24	2.38	2.54
10.14	CFS	2.70	2.88	3.07	3.28	3.50	3.74	4.01	4.29
10.62	CFS	4.59	4.91	5.26	5.64	6.04	6.51	7.03	7.61
11.10	CFS	8.27	9.00	9.82	10.75	11.80	13.00	14.36	15.94
11.58	CFS	18	21	25	31	43	63	98	140
12.06	CFS	182	218	250	284	321	355	386	410
12.54	CFS	425	431	429	420	407	391	373	355
13.02	CFS	336	317	297	278	259	241	225	209
13.50	CFS	196	183	172	162	152	144	136	129
13.98	CFS	123	118	114	110	106	103	100	97
14.46	CFS	94.70	92.34	90.13	88.07	86.18	84.46	82.89	81.43
14.94	CFS	80.09	78.85	77.68	76.54	75.42	74.35	73.33	72.37
15.42	CFS	71.44	70.55	69.69	68.86	68.04	67.23	66.44	65.65
15.90	CFS	64.87	64.09	63.32	62.55	61.80	61.05	60.32	59.61
16.38	CFS	58.91	58.23	57.58	56.95	56.35	55.77	55.22	54.70
16.86	CFS	54.20	53.72	53.27	52.84	52.42	52.03	51.64	51.26
17.34	CFS	50.89	50.53	50.17	49.82	49.47	49.12	48.78	48.43
17.82	CFS	48.09	47.75	47.42	47.08	46.74	46.41	46.07	45.74
18.30	CFS	45.41	45.08	44.75	44.42	44.09	43.77	43.44	43.12
18.78	CFS	42.80	42.48	42.16	41.85	41.53	41.22	40.91	40.60
19.26	CFS	40.29	39.98	39.68	39.37	39.06	38.75	38.45	38.14
19.74	CFS	37.83	37.53	37.22	36.91	36.61	36.30	36.00	35.70
20.22	CFS	35.40	35.11	34.83	34.56	34.30	34.04	33.80	33.58
20.70	CFS	33.36	33.15	32.95	32.77	32.59	32.41	32.24	32.08
21.18	CFS	31.92	31.77	31.62	31.47	31.32	31.17	31.03	30.89
21.66	CFS	30.75	30.61	30.48	30.34	30.21	30.08	29.95	29.82
22.14	CFS	29.70	29.57	29.45	29.33	29.21	29.09	28.97	28.85
22.62	CFS	28.74	28.62	28.51	28.40	28.28	28.17	28.06	27.96
23.10	CFS	27.85	27.74	27.64	27.53	27.43	27.32	27.22	27.11
23.58	CFS	27.01	26.90	26.79	26.69	26.59	26.48	26.38	26.28

24.06	CFS	26.10	25.69	25.02	24.28	23.52	22.66	21.69	20.63
24.54	CFS	19.51	18.32	17.10	15.87	14.68	13.55	12.50	11.57

CNCPT124.OUT  
 25.02 CFS 10.75 10.03 9.41 8.88 8.42 8.03 7.70 7.41  
 25.50 CFS 7.17 6.95 6.76 6.58 6.43 6.29 6.15 6.03  
 25.98 CFS 5.91 5.79 5.68 5.58 5.48 5.38 5.28 5.19  
 26.46 CFS 5.10 5.01 4.92 4.84 4.76

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.28 WATERSHED INCHES; 1099 CFS-HRS; 90.8 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	122	64	48	37	31	27	9	5

DURATION(HRS) 16  
 FLOW(CFS) 5 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 80. \*\*\*

OPERATION REACH XSECTION 80

PEAK TIME(HRS) 12.61 PEAK DISCHARGE(CFS) 431.2 PEAK ELEVATION(FEET) 213.28

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.28 WATERSHED INCHES; 1099 CFS-HRS; 90.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS) 12.00 PEAK DISCHARGE(CFS) 59.9 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.34 WATERSHED INCHES; 44 CFS-HRS; 3.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS) 12.61 PEAK DISCHARGE(CFS) 437.7 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.28 WATERSHED INCHES; 1144 CFS-HRS; 94.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 72

PEAK TIME(HRS) 12.03 PEAK DISCHARGE(CFS) 21.0 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.  

HRS	11.58	12.06	12.54	13.02	13.50	CFS	.23	.55	1.29	2.67	5.12	10.00	16.50	20.58
						CFS	20.21	15.07	9.84	7.01	5.57	4.74	4.15	3.69
						CFS	3.29	2.96	2.72	2.56	2.44	2.35	2.26	2.17
						CFS	2.08	2.00	1.93	1.87	1.82	1.77	1.72	1.68
						CFS	1.63	1.58	1.54	1.50	1.46	1.42	1.39	1.35

CNCPT124.OUT									
13.98	CFS	1.32	1.28	1.25	1.23	1.21	1.19	1.18	1.17
14.46	CFS	1.16	1.14	1.13	1.12	1.11	1.10	1.09	1.07
14.94	CFS	1.06	1.05	1.04	1.02	1.01	1.00	.99	.97
15.42	CFS	.96	.95	.94	.92	.91	.90	.88	.87
15.90	CFS	.86	.84	.83	.82	.81	.80	.79	.79
16.38	CFS	.78	.78	.77	.77	.77	.76	.76	.75
16.86	CFS	.75	.74	.74	.73	.73	.73	.72	.72
17.34	CFS	.71	.71	.70	.70	.69	.69	.68	.68
17.82	CFS	.67	.67	.67	.66	.66	.65	.65	.64
18.30	CFS	.64	.63	.63	.62	.62	.61	.61	.60
18.78	CFS	.60	.59	.59	.58	.58	.57	.57	.56
19.26	CFS	.56	.55	.55	.54	.54	.53	.53	.52
19.74	CFS	.52	.51	.50	.50				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .85 WATERSHED INCHES; 17 CFS-HRS; 1.4 ACRE-FEET.

DURATION(HRS)	2	4	6	8	8
FLOW(CFS)	1	1	1	1	0

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS) 12.61 PEAK DISCHARGE(CFS) 440.6 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.27 WATERSHED INCHES; 1161 CFS-HRS; 95.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS) 12.10 PEAK DISCHARGE(CFS) 71.5 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 2									
HRS	MAIN TIME INCREMENT = .060 hr,				DRAINAGE AREA = .12 SQ.MI.				
11.40	CFS	.34	.53	.79	1.21	2.00	3.75	7.07	12.99
11.88	CFS	23.59	39.12	56.62	69.02	70.93	62.37	50.27	39.32
12.36	CFS	31.32	25.87	21.92	18.83	16.44	14.51	13.01	11.88
12.84	CFS	11.00	10.32	9.75	9.28	8.88	8.52	8.20	7.91
13.32	CFS	7.66	7.43	7.22	7.01	6.80	6.61	6.42	6.25

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 73

13.80	CFS	6.08	5.92	5.77	5.62	5.47	5.33	5.20	5.09
14.28	CFS	5.00	4.92	4.86	4.80	4.74	4.69	4.64	4.59
14.76	CFS	4.54	4.49	4.44	4.39	4.34	4.29	4.24	4.19
15.24	CFS	4.14	4.09	4.04	3.98	3.93	3.88	3.83	3.77
15.72	CFS	3.72	3.67	3.61	3.56	3.51	3.45	3.40	3.35
16.20	CFS	3.30	3.27	3.24	3.21	3.19	3.17	3.15	3.13
16.68	CFS	3.11	3.09	3.07	3.06	3.04	3.02	3.00	2.98
17.16	CFS	2.96	2.94	2.93	2.91	2.89	2.87	2.85	2.83
17.64	CFS	2.81	2.79	2.77	2.75	2.74	2.72	2.70	2.68
18.12	CFS	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52
18.60	CFS	2.50	2.48	2.46	2.44	2.42	2.40	2.38	2.36
19.08	CFS	2.34	2.32	2.30	2.28	2.26	2.24	2.21	2.19
19.56	CFS	2.17	2.15	2.13	2.11	2.09	2.07	2.05	2.03
20.04	CFS	2.01	1.99	1.97	1.95	1.94	1.93	1.93	1.92
20.52	CFS	1.92	1.91	1.91	1.90	1.90	1.90	1.89	1.89

CNCPT124.OUT

21.00 CFS	1.89	1.88	1.88	1.88	1.87	1.87	1.87	1.86
21.48 CFS	1.86	1.85	1.85	1.85	1.84	1.84	1.84	1.83
21.96 CFS	1.83	1.83	1.82	1.82	1.81	1.81	1.81	1.80
22.44 CFS	1.80	1.80	1.79	1.79	1.78	1.78	1.78	1.77
22.92 CFS	1.77	1.77	1.76	1.76	1.75	1.75	1.75	1.74
23.40 CFS	1.74	1.74	1.73	1.73	1.72	1.72	1.72	1.71
23.88 CFS	1.71	1.70	1.70	1.64	1.45	1.13	.79	.51
24.36 CFS	.32							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 .94 WATERSHED INCHES; 72 CFS-HRS; 6.0 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	13
FLOW(CFS)	6	4	3	2	2	2	0

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS)	12.59	PEAK DISCHARGE(CFS)	457.0	PEAK ELEVATION(FEET)	(NULL)
----------------	-------	---------------------	-------	----------------------	--------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.24 WATERSHED INCHES; 1233 CFS-HRS; 101.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS)	11.97	PEAK DISCHARGE(CFS)	28.3	PEAK ELEVATION(FEET)	(RUNOFF)
----------------	-------	---------------------	------	----------------------	----------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.98 WATERSHED INCHES; 20 CFS-HRS; 1.7 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 2 JOB NO. 1 PAGE 74

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS)	12.59	PEAK DISCHARGE(CFS)	459.7	PEAK ELEVATION(FEET)	(NULL)
----------------	-------	---------------------	-------	----------------------	--------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.25 WATERSHED INCHES; 1253 CFS-HRS; 103.6 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 2

EXECUTIVE CONTROL COMPUT	FROM XSECTION 1 TO XSECTION 88
STARTING TIME = .00	RAIN DEPTH = 4.94 RAIN DURATION = 1.00
ANT. RUNOFF COND. = 2	MAIN TIME INCREMENT = .060 HOURS
ALTERNATE NO. = 1	STORM NO. =10 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS)	12.13	PEAK DISCHARGE(CFS)	57.7	PEAK ELEVATION(FEET)	(RUNOFF)
----------------	-------	---------------------	------	----------------------	----------

CNCPT124.OUT  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.79 WATERSHED INCHES; 61 CFS-HRS; 5.0 ACRE-FEET.

OPERATION REACH XSECTION 2  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.20 57.0 390.37  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.79 WATERSHED INCHES; 61 CFS-HRS; 5.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 3  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.11 107.5 (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.89 WATERSHED INCHES; 108 CFS-HRS; 8.9 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 75

OPERATION ADDHYD XSECTION 4  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.14 160.1 (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.85 WATERSHED INCHES; 169 CFS-HRS; 13.9 ACRE-FEET.

OPERATION RESVOR STRUCTURE 11  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.16 158.7 383.46  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.85 WATERSHED INCHES; 168 CFS-HRS; 13.9 ACRE-FEET.

OPERATION REACH XSECTION 5  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.23 157.8 368.56  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.85 WATERSHED INCHES; 168 CFS-HRS; 13.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 6  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.12 123.6 (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.48 WATERSHED INCHES; 128 CFS-HRS; 10.6 ACRE-FEET.

CNCPT124.OUT

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.18 270.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.68 WATERSHED INCHES; 296 CFS-HRS; 24.5 ACRE-FEET.

OPERATION REACH XSECTION 8

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 76

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.25 268.7 358.07

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.68 WATERSHED INCHES; 296 CFS-HRS; 24.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.13 158.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.67 WATERSHED INCHES; 174 CFS-HRS; 14.4 ACRE-FEET.

\*\*\* MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE  
 STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00. \*\*\*  
 THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME.

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.50 57.6 376.21

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.31 WATERSHED INCHES; 157 CFS-HRS; 12.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.97 19.4 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.17 WATERSHED INCHES; 14 CFS-HRS; 1.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.63 52.7 355.74

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.30 WATERSHED INCHES; 156 CFS-HRS; 12.9 ACRE-FEET.

CNCPT124.OUT

OPERATION RUNOFF XSECTION 11

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 77

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.03 102.2 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.24 WATERSHED INCHES; 82 CFS-HRS; 6.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.21 311.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.57 WATERSHED INCHES; 378 CFS-HRS; 31.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.04 41.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.75 WATERSHED INCHES; 34 CFS-HRS; 2.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.21 318.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.74 WATERSHED INCHES; 534 CFS-HRS; 44.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.20 342.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.74 WATERSHED INCHES; 568 CFS-HRS; 46.9 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 23, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
 TIME INCREMENT OF .006 HOURS. \*\*\*

OPERATION RESVOR STRUCTURE 23

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 78

CNCPT124.OUT

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.56	194.4	342.16
13.85	47.7	334.93
13.97	43.7	334.78
14.08	40.4	334.65
14.19	37.8	334.55

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10									
HRS	MAIN TIME	INCREMENT = .060 hr,				DRAINAGE AREA = .32 SQ.MI.			
5.52	CFS	.00	.01	.01	.01	.01	.01	.01	.01
5.52	ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
6.00	CFS	.02	.02	.02	.02	.02	.02	.03	.03
6.00	ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
6.48	CFS	.03	.03	.03	.04	.04	.04	.04	.05
6.48	ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
6.96	CFS	.05	.05	.05	.06	.06	.06	.07	.07
6.96	ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
7.44	CFS	.07	.08	.08	.09	.10	.11	.13	.14
7.44	ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.09
7.92	CFS	.15	.17	.18	.20	.22	.24	.26	.28
7.92	ELEV	333.09	333.09	333.09	333.09	333.09	333.09	333.09	333.09
8.40	CFS	.30	.33	.35	.39	.42	.47	.52	.58
8.40	ELEV	333.09	333.09	333.09	333.10	333.10	333.10	333.10	333.10
8.88	CFS	.64	.72	.79	.87	.96	1.05	1.15	1.26
8.88	ELEV	333.11	333.11	333.11	333.11	333.12	333.12	333.12	333.13
9.36	CFS	1.38	1.50	1.62	1.74	1.86	1.99	2.12	2.27
9.36	ELEV	333.13	333.14	333.14	333.15	333.15	333.16	333.16	333.17
9.84	CFS	2.42	2.58	2.76	2.94	3.13	3.34	3.56	3.79
9.84	ELEV	333.17	333.18	333.19	333.19	333.20	333.21	333.22	333.23
10.32	CFS	4.05	4.31	4.60	4.90	5.22	5.57	5.94	6.35
10.32	ELEV	333.24	333.25	333.26	333.27	333.28	333.30	333.31	333.33
10.80	CFS	6.79	7.27	7.78	8.33	8.91	9.56	10.28	11.11
10.80	ELEV	333.34	333.36	333.38	333.40	333.43	333.45	333.48	333.51
11.28	CFS	12.08	13.24	14.61	16.13	17.88	22.25	29.47	40.53
11.28	ELEV	333.55	333.60	333.65	333.71	333.78	333.95	334.23	334.66
11.76	CFS	58	84	102	112	127	138	150	160
11.76	ELEV	335.32	336.34	337.08	337.51	338.22	338.78	339.44	340.04
12.24	CFS	170	178	185	190	193	194	194	193
12.24	ELEV	340.64	341.16	341.58	341.89	342.08	342.16	342.15	342.07
12.72	CFS	191	188	185	182	178	174	169	165
12.72	ELEV	341.94	341.77	341.58	341.37	341.13	340.88	340.62	340.34
13.20	CFS	161	156	151	145	139	133	127	116
13.20	ELEV	340.07	339.78	339.50	339.17	338.84	338.51	338.20	337.71
13.68	CFS	105	53	44	48	42	44	40	40
13.68	ELEV	337.20	335.13	334.79	334.93	334.70	334.78	334.62	334.65
14.16	CFS	37.44	37.60	35.60	35.55	34.26	34.19	33.33	33.21
14.16	ELEV	334.54	334.54	334.46	334.46	334.41	334.41	334.38	334.37
14.64	CFS	32.60	32.44	31.97	31.78	31.40	31.18	30.85	30.62
14.64	ELEV	334.35	334.34	334.32	334.32	334.30	334.29	334.28	334.27
15.12	CFS	30.31	30.07	29.78	29.53	29.25	28.99	28.71	28.45

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 79

15.12	ELEV	334.26	334.25	334.24	334.23	334.22	334.21	334.20	334.19
15.60	CFS	28.18	27.91	27.63	27.36	27.09	26.82	26.54	26.27
15.60	ELEV	334.18	334.17	334.15	334.14	334.13	334.12	334.11	334.10
16.08	CFS	25.99	25.73	25.48	25.25	25.04	24.84	24.65	24.48
16.08	ELEV	334.09	334.08	334.07	334.06	334.05	334.05	334.04	334.03
16.56	CFS	24.32	24.17	24.03	23.90	23.77	23.64	23.52	23.41



CNCPT124.OUT

16.56	ELEV	334.03	334.02	334.01	334.01	334.00	334.00	334.00	333.99
17.04	CFS	23.29	23.17	23.05	22.93	22.81	22.69	22.57	22.45
17.04	ELEV	333.99	333.98	333.98	333.97	333.97	333.96	333.96	333.95
17.52	CFS	22.33	22.22	22.09	21.98	21.86	21.73	21.61	21.49
17.52	ELEV	333.95	333.94	333.94	333.93	333.93	333.93	333.92	333.92
18.00	CFS	21.37	21.25	21.13	21.01	20.89	20.77	20.65	20.53
18.00	ELEV	333.91	333.91	333.90	333.90	333.89	333.89	333.88	333.88
18.48	CFS	20.40	20.28	20.16	20.04	19.92	19.79	19.67	19.55
18.48	ELEV	333.87	333.87	333.86	333.86	333.85	333.85	333.85	333.84
18.96	CFS	19.43	19.30	19.18	19.06	18.94	18.81	18.69	18.57
18.96	ELEV	333.84	333.83	333.83	333.82	333.82	333.81	333.81	333.80
19.44	CFS	18.44	18.32	18.19	18.07	17.95	17.82	17.70	17.57
19.44	ELEV	333.80	333.79	333.79	333.78	333.78	333.77	333.77	333.76
19.92	CFS	17.45	17.32	17.20	17.08	16.96	16.85	16.75	16.66
19.92	ELEV	333.76	333.75	333.75	333.74	333.74	333.74	333.73	333.73
20.40	CFS	16.58	16.49	16.42	16.35	16.29	16.23	16.17	16.10
20.40	ELEV	333.72	333.72	333.72	333.72	333.71	333.71	333.71	333.71
20.88	CFS	16.03	15.96	15.89	15.81	15.75	15.68	15.61	15.54
20.88	ELEV	333.70	333.70	333.70	333.70	333.69	333.69	333.69	333.68
21.36	CFS	15.47	15.41	15.34	15.27	15.21	15.14	15.08	15.02
21.36	ELEV	333.68	333.68	333.68	333.67	333.67	333.67	333.67	333.66
21.84	CFS	14.95	14.89	14.83	14.76	14.70	14.64	14.58	14.52
21.84	ELEV	333.66	333.66	333.66	333.65	333.65	333.65	333.65	333.64
22.32	CFS	14.46	14.40	14.34	14.28	14.22	14.16	14.10	14.04
22.32	ELEV	333.64	333.64	333.64	333.64	333.63	333.63	333.63	333.63
22.80	CFS	13.99	13.93	13.87	13.82	13.76	13.70	13.65	13.59
22.80	ELEV	333.62	333.62	333.62	333.62	333.62	333.61	333.61	333.61
23.28	CFS	13.54	13.48	13.43	13.37	13.32	13.27	13.21	13.16
23.28	ELEV	333.61	333.60	333.60	333.60	333.60	333.60	333.59	333.59
23.76	CFS	13.11	13.06	13.00	12.95	12.90	12.71	12.15	11.35
23.76	ELEV	333.59	333.59	333.59	333.58	333.58	333.57	333.55	333.52
24.24	CFS	10.55	9.82	9.25	8.79	8.43	8.13	7.87	7.66
24.24	ELEV	333.49	333.46	333.44	333.42	333.41	333.40	333.39	333.38
24.72	CFS	7.46	7.27	7.10	6.94	6.78	6.63	6.48	6.34
24.72	ELEV	333.37	333.36	333.36	333.35	333.34	333.34	333.33	333.33
25.20	CFS	6.19	6.06	5.93	5.80	5.68	5.55	5.43	5.32
25.20	ELEV	333.32	333.32	333.31	333.31	333.30	333.30	333.29	333.29
25.68	CFS	5.20	5.09	4.98	4.87	4.76	4.65	4.54	4.42
25.68	ELEV	333.28	333.28	333.27	333.27	333.27	333.26	333.26	333.25
26.16	CFS	4.31	4.20	4.09	3.98	3.88	3.78	3.68	3.58
26.16	ELEV	333.25	333.24	333.24	333.23	333.23	333.23	333.22	333.22
26.64	CFS	3.48	3.39	3.30	3.22	3.13	3.05	2.97	2.89
26.64	ELEV	333.22	333.21	333.21	333.21	333.20	333.20	333.20	333.19

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 80

27.12	CFS	2.81	2.74	2.67	2.60	2.53	2.46	2.40	2.33
27.12	ELEV	333.19	333.19	333.18	333.18	333.18	333.18	333.17	333.17
27.60	CFS	2.27	2.21	2.16	2.10	2.04	1.99	1.94	1.89
27.60	ELEV	333.17	333.17	333.16	333.16	333.16	333.16	333.16	333.15
28.08	CFS	1.84	1.79						
28.08	ELEV	333.15	333.15						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.74 WATERSHED INCHES; 568 CFS-HRS; 46.9 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	51	28	22	18	15	13	7	4
DURATION(HRS)	18	19						

FLOW(CFS) 2 2 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0, CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. \*\*\*

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.56	194.4	332.87
13.85	47.7	331.67
13.97	43.7	331.62
14.08	40.4	331.58
14.19	37.8	331.55

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.74 WATERSHED INCHES; 568 CFS-HRS; 46.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET) (RUNOFF)
11.98	64.5	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 3.60 WATERSHED INCHES; 49 CFS-HRS; 4.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 118

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET) (RUNOFF)
12.01	79.2	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 4.16 WATERSHED INCHES; 68 CFS-HRS; 5.6 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 81

OPERATION RESVOR STRUCTURE 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.40	14.0	348.64

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.

HRS	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV
3.00	.00	345.00	.01	345.00	.01	345.00	.01	345.00	.02	345.00
3.48	.03	345.01	.03	345.01	.04	345.01	.04	345.01	.05	345.01
3.96	.07	345.01	.08	345.01	.08	345.01	.09	345.02	.10	345.02
4.44	.12	345.02	.13	345.02	.14	345.03	.15	345.03	.16	345.03
4.92	.19	345.03	.20	345.04	.21	345.04	.22	345.04	.23	345.04
5.40	.26	345.05	.27	345.05	.28	345.05	.30	345.06	.31	345.06
5.88	.35	345.06	.36	345.06	.37	345.06	.38	345.06	.39	345.06
									.40	345.06

CNCPT124.OUT

5.88	ELEV	345.06	345.07	345.07	345.07	345.07	345.07	345.08	345.08
6.36	CFS	.44	.45	.46	.47	.48	.50	.51	.52
6.36	ELEV	345.08	345.08	345.08	345.09	345.09	345.09	345.09	345.09
6.84	CFS	.53	.54	.56	.57	.58	.59	.60	.62
6.84	ELEV	345.10	345.10	345.10	345.10	345.11	345.11	345.11	345.11
7.32	CFS	.63	.64	.65	.67	.68	.69	.70	.72
7.32	ELEV	345.11	345.12	345.12	345.12	345.12	345.13	345.13	345.13
7.80	CFS	.73	.74	.76	.77	.78	.79	.81	.82
7.80	ELEV	345.13	345.14	345.14	345.14	345.14	345.14	345.15	345.15
8.28	CFS	.84	.85	.87	.89	.90	.92	.94	.97
8.28	ELEV	345.15	345.16	345.16	345.16	345.16	345.17	345.17	345.18
8.76	CFS	.99	1.01	1.03	1.06	1.08	1.11	1.14	1.17
8.76	ELEV	345.18	345.18	345.19	345.19	345.20	345.20	345.21	345.21
9.24	CFS	1.19	1.22	1.25	1.27	1.30	1.32	1.35	1.37
9.24	ELEV	345.22	345.22	345.23	345.23	345.24	345.24	345.24	345.25
9.72	CFS	1.39	1.42	1.45	1.48	1.51	1.54	1.57	1.61
9.72	ELEV	345.25	345.26	345.26	345.27	345.27	345.28	345.29	345.29
10.20	CFS	1.65	1.69	1.73	1.77	1.82	1.87	1.93	1.98
10.20	ELEV	345.30	345.31	345.31	345.32	345.33	345.34	345.35	345.36
10.68	CFS	2.04	2.10	2.17	2.24	2.32	2.40	2.48	2.57
10.68	ELEV	345.37	345.38	345.40	345.41	345.42	345.44	345.45	345.47
11.16	CFS	2.67	2.78	2.89	3.02	3.16	3.32	3.48	3.69
11.16	ELEV	345.49	345.51	345.53	345.55	345.58	345.60	345.63	345.67
11.64	CFS	3.98	4.46	5.23	6.38	8.05	10.13	11.10	12.11
11.64	ELEV	345.72	345.81	345.95	346.16	346.46	346.88	347.32	347.77
12.12	CFS	12.95	13.51	13.82	13.97	14.03	14.04	14.01	13.95
12.12	ELEV	348.15	348.40	348.54	348.61	348.64	348.64	348.63	348.60
12.60	CFS	13.88	13.79	13.69	13.58	13.47	13.36	13.24	13.12
12.60	ELEV	348.57	348.53	348.48	348.44	348.39	348.34	348.28	348.23

1

TR20

SCS

Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS VERSION  
 15:05:46 PASS 3 JOB NO. 1 2.04TEST  
 PAGE 82

13.08	CFS	13.00	12.88	12.76	12.64	12.51	12.39	12.26	12.14
13.08	ELEV	348.18	348.12	348.07	348.01	347.95	347.90	347.84	347.79
13.56	CFS	12.01	11.89	11.77	11.64	11.52	11.39	11.27	11.15
13.56	ELEV	347.73	347.67	347.62	347.56	347.50	347.45	347.39	347.34
14.04	CFS	11.02	10.90	10.78	10.66	10.54	10.42	10.31	10.19
14.04	ELEV	347.28	347.23	347.17	347.12	347.06	347.01	346.96	346.91
14.52	CFS	10.08	9.89	9.57	9.26	8.96	8.67	8.40	8.13
14.52	ELEV	346.85	346.80	346.74	346.69	346.63	346.58	346.53	346.48
15.00	CFS	7.88	7.64	7.40	7.18	6.96	6.75	6.55	6.36
15.00	ELEV	346.43	346.39	346.35	346.31	346.27	346.23	346.19	346.16
15.48	CFS	6.17	5.99	5.82	5.65	5.49	5.34	5.19	5.04
15.48	ELEV	346.12	346.09	346.06	346.03	346.00	345.97	345.94	345.92
15.96	CFS	4.91	4.77	4.64	4.52	4.40	4.28	4.17	4.06
15.96	ELEV	345.89	345.87	345.84	345.82	345.80	345.78	345.76	345.74
16.44	CFS	3.96	3.86	3.76	3.67	3.59	3.50	3.42	3.34
16.44	ELEV	345.72	345.70	345.69	345.67	345.65	345.64	345.62	345.61
16.92	CFS	3.27	3.20	3.13	3.06	3.00	2.93	2.87	2.82
16.92	ELEV	345.59	345.58	345.57	345.56	345.55	345.53	345.52	345.51
17.40	CFS	2.76	2.71	2.66	2.61	2.56	2.51	2.47	2.42
17.40	ELEV	345.50	345.49	345.48	345.47	345.47	345.46	345.45	345.44
17.88	CFS	2.38	2.34	2.30	2.26	2.23	2.19	2.15	2.12
17.88	ELEV	345.43	345.43	345.42	345.41	345.40	345.40	345.39	345.39
18.36	CFS	2.09	2.06	2.03	2.00	1.97	1.94	1.91	1.88
18.36	ELEV	345.38	345.37	345.37	345.36	345.36	345.35	345.35	345.34
18.84	CFS	1.86	1.83	1.81	1.78	1.76	1.73	1.71	1.69
18.84	ELEV	345.34	345.33	345.33	345.32	345.32	345.32	345.31	345.31
19.32	CFS	1.67	1.65	1.63	1.60	1.58	1.56	1.55	1.53
19.32	ELEV	345.30	345.30	345.30	345.29	345.29	345.28	345.28	345.28

CNCPT124.OUT

19.80	CFS	1.51	1.49	1.47	1.45	1.44	1.42	1.40	1.38
19.80	ELEV	345.27	345.27	345.27	345.26	345.26	345.26	345.25	345.25
20.28	CFS	1.37	1.35	1.34	1.32	1.31	1.30	1.28	1.27
20.28	ELEV	345.25	345.25	345.24	345.24	345.24	345.24	345.23	345.23
20.76	CFS	1.26	1.25	1.24	1.23	1.22	1.21	1.20	1.19
20.76	ELEV	345.23	345.23	345.23	345.22	345.22	345.22	345.22	345.22
21.24	CFS	1.18	1.17	1.16	1.15	1.15	1.14	1.13	1.12
21.24	ELEV	345.21	345.21	345.21	345.21	345.21	345.21	345.21	345.20
21.72	CFS	1.12	1.11	1.10	1.10	1.09	1.08	1.08	1.07
21.72	ELEV	345.20	345.20	345.20	345.20	345.20	345.20	345.20	345.20
22.20	CFS	1.07	1.06	1.06	1.05	1.05	1.04	1.04	1.03
22.20	ELEV	345.19	345.19	345.19	345.19	345.19	345.19	345.19	345.19
22.68	CFS	1.03	1.02	1.02	1.01	1.01	1.01	1.00	1.00
22.68	ELEV	345.19	345.19	345.19	345.18	345.18	345.18	345.18	345.18
23.16	CFS	.99	.99	.99	.98	.98	.98	.97	.97
23.16	ELEV	345.18	345.18	345.18	345.18	345.18	345.18	345.18	345.18
23.64	CFS	.97	.96	.96	.96	.95	.95	.95	.94
23.64	ELEV	345.18	345.18	345.17	345.17	345.17	345.17	345.17	345.17
24.12	CFS	.93	.91	.88	.85	.81	.78	.74	.71
24.12	ELEV	345.17	345.17	345.16	345.15	345.15	345.14	345.14	345.13
24.60	CFS	.68	.65	.62	.59	.57	.54	.52	.49

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 83

24.60	ELEV	345.12	345.12	345.11	345.11	345.10	345.10	345.09	345.09
25.08	CFS	.47	.45	.43	.41	.39	.37	.36	.34
25.08	ELEV	345.09	345.08	345.08	345.07	345.07	345.07	345.07	345.06
25.56	CFS	.33	.31	.30	.28	.27	.26	.25	.24
25.56	ELEV	345.06	345.06	345.05	345.05	345.05	345.05	345.05	345.04
26.04	CFS	.23	.22	.21	.20	.19	.18	.17	.16
26.04	ELEV	345.04	345.04	345.04	345.04	345.03	345.03	345.03	345.03
26.52	CFS	.16							
26.52	ELEV	345.03							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.15 WATERSHED INCHES; 68 CFS-HRS; 5.6 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	11	5	3	2	1	1	1	1

DURATION(HRS)	18	18
FLOW(CFS)	1	0

OPERATION RUNOFF XSECTION 119

PEAK TIME(HRS) 11.96 PEAK DISCHARGE(CFS) 18.2 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.42 WATERSHED INCHES; 13 CFS-HRS; 1.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 120

PEAK TIME(HRS) 11.97 PEAK DISCHARGE(CFS) 28.5 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.01 WATERSHED INCHES; 81 CFS-HRS; 6.7 ACRE-FEET.

CNCPT124.OUT

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.98 93.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.84 WATERSHED INCHES; 130 CFS-HRS; 10.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 84

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.99 113.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.26 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.98 206.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.59 WATERSHED INCHES; 215 CFS-HRS; 17.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.00 331.8 (NULL)  
 12.45 230.3 (NULL)  
 13.85 67.3 (NULL)  
 13.97 62.6 (NULL)  
 14.08 58.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.92 WATERSHED INCHES; 779 CFS-HRS; 64.3 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.13 289.4 315.87

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.91 WATERSHED INCHES; 778 CFS-HRS; 64.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.09 85.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 Page 84

CNCPT124.OUT  
2.53 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
TIME INCREMENT OF .043 HOURS. \*\*\*

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 3 JOB NO. 1 PAGE 85

\*\*\* WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.16 80.3 363.97

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.53 WATERSHED INCHES; 83 CFS-HRS; 6.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.11 121.4 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.48 WATERSHED INCHES; 120 CFS-HRS; 9.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.13 199.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.50 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.24 180.2 319.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.50 WATERSHED INCHES; 202 CFS-HRS; 16.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.09 85.5 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.10 WATERSHED INCHES; 81 CFS-HRS; 6.7 ACRE-FEET.

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 3 JOB NO. 1 PAGE 86  
Page 85

CNCPT124.OUT

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.12 372.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.81 WATERSHED INCHES; 859 CFS-HRS; 71.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.17 524.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.75 WATERSHED INCHES; 1062 CFS-HRS; 87.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.05 156.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.06 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

OPERATION REACH XSECTION 32

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.15 142.1 313.19

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.06 WATERSHED INCHES; 137 CFS-HRS; 11.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 33

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.99 28.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.35 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS  
 WITH .38 AC-FT ( .07 WATERSHED INCHES) FLOOD STORAGE \*\*\*  
 REMAINING IN RESERVOIR AT ELEV. 377.43.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 87

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.18 12.8 380.27

CNCPT124.OUT

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10

HRS	MAIN TIME	INCREMENT = .060 hr,				DRAINAGE AREA = .01 SQ.MI.			
3.24	CFS	.00	.01	.01	.01	.01	.01	.01	.01
3.24	ELEV	375.40	375.42	375.42	375.43	375.43	375.43	375.43	375.44
3.72	CFS	.01	.01	.01	.01	.01	.01	.01	.01
3.72	ELEV	375.44	375.44	375.44	375.45	375.45	375.45	375.45	375.46
4.20	CFS	.02	.02	.02	.02	.02	.02	.02	.02
4.20	ELEV	375.46	375.46	375.47	375.47	375.47	375.48	375.48	375.49
4.68	CFS	.02	.02	.02	.03	.03	.03	.03	.03
4.68	ELEV	375.49	375.49	375.50	375.50	375.51	375.51	375.52	375.52
5.16	CFS	.03	.03	.03	.04	.04	.04	.04	.04
5.16	ELEV	375.52	375.53	375.53	375.54	375.54	375.55	375.55	375.56
5.64	CFS	.04	.04	.04	.05	.05	.05	.05	.05
5.64	ELEV	375.56	375.57	375.58	375.58	375.59	375.59	375.60	375.60
6.12	CFS	.05	.05	.06	.06	.06	.06	.06	.06
6.12	ELEV	375.61	375.62	375.62	375.63	375.63	375.64	375.65	375.65
6.60	CFS	.07	.07	.07	.07	.07	.07	.08	.08
6.60	ELEV	375.66	375.67	375.67	375.68	375.69	375.69	375.70	375.71
7.08	CFS	.08	.08	.08	.09	.09	.09	.09	.09
7.08	ELEV	375.72	375.72	375.73	375.74	375.75	375.75	375.76	375.77
7.56	CFS	.09	.10	.10	.10	.10	.10	.11	.11
7.56	ELEV	375.78	375.78	375.79	375.80	375.81	375.82	375.82	375.83
8.04	CFS	.11	.11	.12	.12	.12	.12	.12	.13
8.04	ELEV	375.84	375.85	375.86	375.86	375.87	375.88	375.89	375.90
8.52	CFS	.13	.13	.13	.14	.14	.14	.15	.15
8.52	ELEV	375.91	375.92	375.93	375.94	375.96	375.97	375.98	375.99
9.00	CFS	.15	.16	.16	.16	.17	.17	.17	.18
9.00	ELEV	376.01	376.02	376.03	376.04	376.06	376.07	376.09	376.10
9.48	CFS	.18	.18	.19	.19	.19	.20	.20	.21
9.48	ELEV	376.11	376.13	376.14	376.15	376.17	376.18	376.20	376.21
9.96	CFS	.21	.21	.22	.22	.23	.23	.24	.24
9.96	ELEV	376.23	376.24	376.26	376.28	376.30	376.32	376.34	376.36
10.44	CFS	.25	.25	.26	.26	.27	.28	.28	.29
10.44	ELEV	376.38	376.40	376.42	376.45	376.47	376.50	376.53	376.56
10.92	CFS	.30	.31	.32	.33	.33	.34	.36	.37
10.92	ELEV	376.59	376.62	376.65	376.69	376.72	376.76	376.81	376.85
11.40	CFS	.38	.39	.41	.42	.45	.48	.54	.61
11.40	ELEV	376.90	376.96	377.01	377.08	377.17	377.31	377.52	377.83
11.88	CFS	.72	.87	1.79	4.85	11.32	12.85	11.23	9.21
11.88	ELEV	378.25	378.84	379.49	379.98	380.23	380.27	380.23	380.17
12.36	CFS	7.61	6.29	5.26	4.83	4.58	4.33	4.08	3.85
12.36	ELEV	380.10	380.05	380.01	379.97	379.93	379.89	379.85	379.82
12.84	CFS	3.63	3.43	3.24	3.07	2.90	2.75	2.61	2.48
12.84	ELEV	379.78	379.75	379.72	379.69	379.66	379.64	379.62	379.60

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 88

13.32	CFS	2.36	2.25	2.15	2.05	1.96	1.88	1.80	1.73
13.32	ELEV	379.58	379.56	379.54	379.53	379.51	379.50	379.49	379.48
13.80	CFS	1.66	1.60	1.54	1.48	1.43	1.38	1.33	1.29
13.80	ELEV	379.47	379.46	379.45	379.44	379.43	379.42	379.41	379.41
14.28	CFS	1.25	1.21	1.18	1.14	1.12	1.09	1.06	1.04
14.28	ELEV	379.40	379.39	379.39	379.38	379.38	379.37	379.37	379.37
14.76	CFS	1.02	1.00	1.00	1.00	1.00	1.00	.99	.99
14.76	ELEV	379.36	379.36	379.36	379.35	379.35	379.34	379.34	379.33
15.24	CFS	.99	.99	.99	.99	.99	.98	.98	.98
15.24	ELEV	379.33	379.32	379.31	379.31	379.30	379.29	379.29	379.28
15.72	CFS	.98	.98	.97	.97	.97	.97	.97	.96
15.72	ELEV	379.27	379.26	379.26	379.25	379.24	379.23	379.22	379.21
16.20	CFS	.96	.96	.96	.95	.95	.95	.95	.94



CNCPT124.OUT									
16.20	ELEV	379.20	379.19	379.18	379.18	379.17	379.16	379.15	379.14
16.68	CFS	.94	.94	.94	.93	.93	.93	.93	.92
16.68	ELEV	379.13	379.12	379.11	379.10	379.09	379.08	379.07	379.06
17.16	CFS	.92	.92	.92	.91	.91	.91	.91	.90
17.16	ELEV	379.05	379.04	379.03	379.02	379.01	379.00	378.99	378.98
17.64	CFS	.90	.90	.90	.89	.89	.89	.88	.88
17.64	ELEV	378.97	378.96	378.95	378.93	378.92	378.91	378.90	378.89
18.12	CFS	.88	.88	.87	.87	.87	.87	.86	.86
18.12	ELEV	378.88	378.87	378.86	378.85	378.84	378.83	378.82	378.81
18.60	CFS	.86	.85	.85	.85	.85	.84	.84	.84
18.60	ELEV	378.80	378.78	378.77	378.76	378.75	378.74	378.73	378.72
19.08	CFS	.84	.83	.83	.83	.82	.82	.82	.82
19.08	ELEV	378.71	378.70	378.69	378.67	378.66	378.65	378.64	378.63
19.56	CFS	.81	.81	.81	.80	.80	.80	.80	.79
19.56	ELEV	378.62	378.61	378.59	378.58	378.57	378.56	378.55	378.54
20.04	CFS	.79	.79	.78	.78	.78	.77	.77	.77
20.04	ELEV	378.53	378.51	378.50	378.49	378.48	378.47	378.46	378.44
20.52	CFS	.77	.76	.76	.76	.75	.75	.75	.75
20.52	ELEV	378.43	378.42	378.41	378.40	378.39	378.38	378.37	378.36
21.00	CFS	.74	.74	.74	.74	.73	.73	.73	.72
21.00	ELEV	378.34	378.33	378.32	378.31	378.30	378.29	378.28	378.27
21.48	CFS	.72	.72	.72	.71	.71	.71	.71	.70
21.48	ELEV	378.26	378.25	378.24	378.23	378.22	378.21	378.20	378.19
21.96	CFS	.70	.70	.70	.69	.69	.69	.69	.68
21.96	ELEV	378.18	378.17	378.16	378.15	378.14	378.13	378.12	378.11
22.44	CFS	.68	.68	.68	.67	.67	.67	.67	.66
22.44	ELEV	378.10	378.09	378.08	378.07	378.06	378.05	378.04	378.03
22.92	CFS	.66	.66	.66	.65	.65	.65	.65	.65
22.92	ELEV	378.02	378.01	378.00	377.99	377.98	377.97	377.97	377.96
23.40	CFS	.64	.64	.64	.64	.63	.63	.63	.63
23.40	ELEV	377.95	377.94	377.93	377.92	377.91	377.90	377.89	377.88
23.88	CFS	.63	.62	.62	.62	.62	.61	.61	.60
23.88	ELEV	377.88	377.87	377.86	377.85	377.84	377.83	377.81	377.80
24.36	CFS	.60	.60	.59	.59	.59	.58	.58	.57
24.36	ELEV	377.78	377.76	377.75	377.73	377.72	377.70	377.69	377.67
24.84	CFS	.57	.57	.56	.56	.55	.55	.55	.54

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 89

24.84	ELEV	377.66	377.64	377.63	377.61	377.60	377.58	377.57	377.55
25.32	CFS	.54	.54	.53	.53	.53	.52	.52	.52
25.32	ELEV	377.54	377.52	377.51	377.50	377.48	377.47	377.45	377.44
25.80	CFS	.51							
25.80	ELEV	377.43							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.51 WATERSHED INCHES; 19 CFS-HRS; 1.6 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	14
FLOW(CFS)	1	1	1	1	1	1	1	1 TRUNCATED

OPERATION REACH XSECTION 34

PEAK TIME(HRS) 12.24 PEAK DISCHARGE(CFS) 12.7 PEAK ELEVATION(FEET) 338.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.50 WATERSHED INCHES; 19 CFS-HRS; 1.6 ACRE-FEET.

CNCPT124.OUT

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.03                                      84.6                                      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.35 WATERSHED INCHES;                      77 CFS-HRS;                      6.4 ACRE-FEET.

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS  
 WITH .95 AC-FT ( .05 WATERSHED INCHES) FLOOD STORAGE  
 REMAINING IN RESERVOIR AT ELEV. 353.80.                      \*\*\*

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.14                                      64.4                                      357.31

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10  
 DRAINAGE AREA = .03 SQ.MI.

HRS	MAIN TIME	INCREMENT = .060 hr,							
2.88 CFS	.00	.01	.01	.01	.01	.01	.01	.01	.01
2.88 ELEV	350.00	350.02	350.03	350.03	350.03	350.04	350.04	350.04	350.05
3.36 CFS	.01	.01	.01	.02	.02	.02	.02	.02	.02
3.36 ELEV	350.05	350.06	350.06	350.07	350.07	350.08	350.09	350.09	350.09
3.84 CFS	.02	.02	.03	.03	.03	.03	.03	.03	.04
3.84 ELEV	350.10	350.11	350.11	350.12	350.13	350.14	350.14	350.15	350.15
4.32 CFS	.04	.04	.04	.04	.05	.05	.05	.05	.05
4.32 ELEV	350.16	350.17	350.18	350.19	350.20	350.21	350.22	350.23	350.23
4.80 CFS	.05	.06	.06	.06	.06	.07	.07	.07	.07

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4                      VERSION  
 06/30/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 15:05:46                      PASS 3                      JOB NO. 1                      PAGE 90

4.80 ELEV	350.24	350.25	350.26	350.27	350.28	350.29	350.30	350.31	350.31
5.28 CFS	.08	.08	.08	.08	.09	.09	.09	.10	.10
5.28 ELEV	350.33	350.34	350.35	350.36	350.38	350.39	350.40	350.42	350.42
5.76 CFS	.10	.10	.11	.11	.11	.12	.12	.12	.12
5.76 ELEV	350.43	350.45	350.46	350.47	350.49	350.50	350.52	350.53	350.53
6.24 CFS	.13	.13	.14	.14	.14	.15	.15	.15	.15
6.24 ELEV	350.55	350.57	350.58	350.60	350.61	350.63	350.65	350.67	350.67
6.72 CFS	.16	.16	.17	.17	.18	.18	.18	.19	.19
6.72 ELEV	350.68	350.70	350.72	350.74	350.75	350.77	350.79	350.81	350.81
7.20 CFS	.19	.20	.20	.21	.21	.22	.22	.23	.23
7.20 ELEV	350.83	350.85	350.87	350.89	350.91	350.93	350.95	350.97	350.97
7.68 CFS	.23	.23	.24	.24	.25	.25	.26	.26	.26
7.68 ELEV	350.99	351.01	351.03	351.05	351.07	351.09	351.12	351.14	351.14
8.16 CFS	.27	.28	.28	.29	.29	.30	.30	.31	.31
8.16 ELEV	351.16	351.18	351.21	351.23	351.26	351.28	351.31	351.33	351.33
8.64 CFS	.32	.32	.33	.34	.34	.35	.36	.37	.37
8.64 ELEV	351.36	351.39	351.42	351.45	351.48	351.51	351.55	351.58	351.58
9.12 CFS	.38	.38	.39	.40	.41	.42	.43	.43	.43
9.12 ELEV	351.61	351.65	351.68	351.72	351.76	351.79	351.83	351.86	351.86
9.60 CFS	.44	.45	.46	.47	.48	.49	.50	.51	.51
9.60 ELEV	351.90	351.94	351.97	352.01	352.05	352.09	352.13	352.17	352.17
10.08 CFS	.52	.53	.54	.55	.56	.57	.59	.60	.60
10.08 ELEV	352.22	352.26	352.31	352.36	352.41	352.46	352.52	352.58	352.58
10.56 CFS	.61	.63	.64	.66	.67	.69	.71	.73	.73
10.56 ELEV	352.64	352.70	352.76	352.83	352.90	352.97	353.05	353.13	353.13
11.04 CFS	.75	.77	.79	.81	.84	.86	.89	.92	.92
11.04 ELEV	353.21	353.30	353.39	353.49	353.59	353.71	353.83	353.96	353.96

CNCPT124.OUT

11.52	CFS	.95	.99	1.54	2.69	4.57	7.69	12.40	19.13
11.52	ELEV	354.10	354.25	354.39	354.56	354.81	355.14	355.57	356.11
12.00	CFS	34.21	52.01	63.76	60.63	52.46	42.77	36.18	31.12
12.00	ELEV	356.68	357.11	357.31	357.28	357.12	356.93	356.75	356.57
12.48	CFS	26.59	22.69	19.70	18.31	16.96	15.70	14.55	13.50
12.48	ELEV	356.41	356.27	356.16	356.04	355.94	355.84	355.74	355.66
12.96	CFS	12.55	11.69	10.91	10.20	9.62	9.11	8.64	8.20
12.96	ELEV	355.58	355.52	355.45	355.40	355.34	355.29	355.24	355.20
13.44	CFS	7.80	7.43	7.08	6.76	6.46	6.18	5.92	5.68
13.44	ELEV	355.16	355.12	355.08	355.05	355.02	354.99	354.96	354.94
13.92	CFS	5.45	5.23	5.03	4.88	4.73	4.59	4.46	4.33
13.92	ELEV	354.92	354.89	354.87	354.85	354.83	354.82	354.80	354.78
14.40	CFS	4.22	4.11	4.01	3.91	3.82	3.73	3.65	3.57
14.40	ELEV	354.77	354.75	354.74	354.72	354.71	354.70	354.69	354.68
14.88	CFS	3.50	3.43	3.37	3.30	3.24	3.18	3.13	3.07
14.88	ELEV	354.67	354.66	354.65	354.64	354.64	354.63	354.62	354.61
15.36	CFS	3.02	2.97	2.92	2.87	2.82	2.78	2.73	2.69
15.36	ELEV	354.61	354.60	354.59	354.59	354.58	354.57	354.57	354.56
15.84	CFS	2.64	2.60	2.56	2.52	2.47	2.43	2.39	2.36
15.84	ELEV	354.56	354.55	354.54	354.54	354.53	354.53	354.52	354.52
16.32	CFS	2.32	2.29	2.25	2.22	2.20	2.17	2.14	2.12
16.32	ELEV	354.51	354.51	354.50	354.50	354.50	354.49	354.49	354.49

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 91

16.80	CFS	2.09	2.07	2.05	2.03	2.01	1.99	1.98	1.96
16.80	ELEV	354.48	354.48	354.48	354.47	354.47	354.47	354.47	354.46
17.28	CFS	1.95	1.94	1.92	1.91	1.90	1.88	1.87	1.86
17.28	ELEV	354.46	354.46	354.46	354.45	354.45	354.45	354.45	354.45
17.76	CFS	1.84	1.83	1.82	1.80	1.79	1.78	1.76	1.75
17.76	ELEV	354.44	354.44	354.44	354.44	354.43	354.43	354.43	354.43
18.24	CFS	1.74	1.72	1.71	1.70	1.68	1.67	1.66	1.64
18.24	ELEV	354.43	354.42	354.42	354.42	354.42	354.41	354.41	354.41
18.72	CFS	1.63	1.62	1.60	1.59	1.58	1.57	1.55	1.54
18.72	ELEV	354.41	354.40	354.40	354.40	354.40	354.40	354.39	354.39
19.20	CFS	1.53	1.51	1.50	1.49	1.47	1.46	1.45	1.43
19.20	ELEV	354.39	354.39	354.39	354.38	354.38	354.38	354.38	354.37
19.68	CFS	1.42	1.41	1.40	1.38	1.37	1.36	1.34	1.33
19.68	ELEV	354.37	354.37	354.37	354.37	354.36	354.36	354.36	354.36
20.16	CFS	1.32	1.31	1.29	1.28	1.27	1.26	1.25	1.24
20.16	ELEV	354.35	354.35	354.35	354.35	354.35	354.34	354.34	354.34
20.64	CFS	1.23	1.22	1.22	1.21	1.20	1.19	1.19	1.18
20.64	ELEV	354.34	354.34	354.34	354.34	354.33	354.33	354.33	354.33
21.12	CFS	1.17	1.17	1.16	1.16	1.15	1.15	1.14	1.14
21.12	ELEV	354.33	354.33	354.33	354.33	354.33	354.32	354.32	354.32
21.60	CFS	1.13	1.13	1.12	1.12	1.11	1.11	1.11	1.10
21.60	ELEV	354.32	354.32	354.32	354.32	354.32	354.32	354.32	354.32
22.08	CFS	1.10	1.09	1.09	1.09	1.08	1.08	1.08	1.07
22.08	ELEV	354.32	354.32	354.32	354.31	354.31	354.31	354.31	354.31
22.56	CFS	1.07	1.07	1.06	1.06	1.06	1.05	1.05	1.05
22.56	ELEV	354.31	354.31	354.31	354.31	354.31	354.31	354.31	354.31
23.04	CFS	1.05	1.04	1.04	1.04	1.03	1.03	1.03	1.03
23.04	ELEV	354.31	354.31	354.31	354.31	354.31	354.31	354.30	354.30
23.52	CFS	1.02	1.02	1.02	1.01	1.01	1.01	1.01	1.00
23.52	ELEV	354.30	354.30	354.30	354.30	354.30	354.30	354.30	354.30
24.00	CFS	1.00	1.00	1.00	1.00	.99	.99	.99	.98
24.00	ELEV	354.30	354.30	354.30	354.29	354.27	354.26	354.24	354.22
24.48	CFS	.98	.97	.97	.96	.96	.96	.95	.95
24.48	ELEV	354.21	354.19	354.17	354.15	354.13	354.11	354.09	354.07
24.96	CFS	.94	.94	.93	.93	.93	.92	.92	.91

CNCPT124.OUT  
 24.96 ELEV 354.05 354.04 354.02 354.00 353.98 353.96 353.94 353.93  
 25.44 CFS .91 .90 .90 .90 .89 .89 .88  
 25.44 ELEV 353.91 353.89 353.87 353.85 353.84 353.82 353.80

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.70 WATERSHED INCHES; 66 CFS-HRS; 5.4 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	6	3	2	1	1	1	1	1 TRUNCATED

OPERATION ADDHYD XSECTION 36

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 92

PEAK TIME(HRS)	12.17	PEAK DISCHARGE(CFS)	71.6	PEAK ELEVATION(FEET)	(NULL)
----------------	-------	---------------------	------	----------------------	--------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.66 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS)	12.17	PEAK DISCHARGE(CFS)	71.6	PEAK ELEVATION(FEET)	(NULL)
----------------	-------	---------------------	------	----------------------	--------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.66 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. \*\*\*

OPERATION REACH XSECTION 37

PEAK TIME(HRS)	12.17	PEAK DISCHARGE(CFS)	71.6	PEAK ELEVATION(FEET)	330.63
----------------	-------	---------------------	------	----------------------	--------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.66 WATERSHED INCHES; 85 CFS-HRS; 7.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 138

PEAK TIME(HRS)	11.97	PEAK DISCHARGE(CFS)	91.1	PEAK ELEVATION(FEET)	(RUNOFF)
----------------	-------	---------------------	------	----------------------	----------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.80 WATERSHED INCHES; 69 CFS-HRS; 5.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 139

PEAK TIME(HRS)	12.04	PEAK DISCHARGE(CFS)	127.1	PEAK ELEVATION(FEET)	(NULL)
----------------	-------	---------------------	-------	----------------------	--------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.72 WATERSHED INCHES; 153 CFS-HRS; 12.7 ACRE-FEET.

CNCPT124.OUT

OPERATION RESVOR STRUCTURE 35

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 93

PEAK TIME(HRS) 12.35 PEAK DISCHARGE(CFS) 62.2 PEAK ELEVATION(FEET) 330.94

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .06 SQ.MI.

4.02	CFS	.00	.01	.01	.01	.01	.01	.01	.01
4.02	ELEV	326.00	326.00	326.00	326.00	326.00	326.00	326.00	326.01
4.50	CFS	.01	.02	.02	.02	.02	.03	.03	.03
4.50	ELEV	326.01	326.01	326.01	326.01	326.01	326.01	326.01	326.01
4.98	CFS	.03	.04	.04	.04	.05	.05	.05	.06
4.98	ELEV	326.01	326.02	326.02	326.02	326.02	326.02	326.02	326.02
5.46	CFS	.06	.07	.07	.08	.08	.09	.09	.10
5.46	ELEV	326.03	326.03	326.03	326.03	326.03	326.04	326.04	326.04
5.94	CFS	.10	.11	.11	.12	.12	.13	.14	.14
5.94	ELEV	326.04	326.05	326.05	326.05	326.05	326.06	326.06	326.06
6.42	CFS	.15	.16	.16	.17	.18	.19	.19	.20
6.42	ELEV	326.06	326.07	326.07	326.07	326.08	326.08	326.08	326.08
6.90	CFS	.21	.22	.23	.23	.24	.25	.26	.27
6.90	ELEV	326.09	326.09	326.10	326.10	326.10	326.11	326.11	326.11
7.38	CFS	.28	.29	.30	.31	.32	.33	.34	.35
7.38	ELEV	326.12	326.12	326.13	326.13	326.13	326.14	326.14	326.15
7.86	CFS	.36	.37	.38	.39	.40	.41	.42	.43
7.86	ELEV	326.15	326.15	326.16	326.16	326.17	326.17	326.18	326.18
8.34	CFS	.45	.46	.47	.49	.50	.51	.53	.54
8.34	ELEV	326.19	326.19	326.20	326.20	326.21	326.22	326.22	326.23
8.82	CFS	.56	.58	.59	.61	.63	.65	.66	.68
8.82	ELEV	326.24	326.24	326.25	326.26	326.26	326.27	326.28	326.29
9.30	CFS	.70	.72	.74	.76	.78	.80	.82	.84
9.30	ELEV	326.29	326.30	326.31	326.32	326.33	326.33	326.34	326.35
9.78	CFS	.86	.88	.90	.93	.95	.97	1.00	1.03
9.78	ELEV	326.36	326.37	326.38	326.39	326.40	326.41	326.42	326.43
10.26	CFS	1.05	1.08	1.11	1.14	1.18	1.21	1.25	1.28
10.26	ELEV	326.44	326.45	326.47	326.48	326.49	326.51	326.52	326.54
10.74	CFS	1.32	1.36	1.41	1.45	1.50	1.55	1.60	1.66
10.74	ELEV	326.56	326.57	326.59	326.61	326.63	326.65	326.67	326.70
11.22	CFS	1.72	1.78	1.85	1.92	2.01	2.09	2.20	2.36
11.22	ELEV	326.72	326.75	326.78	326.81	326.84	326.88	326.92	326.99
11.70	CFS	2.61	3.01	3.58	4.44	5.63	7.11	8.68	12.25
11.70	ELEV	327.10	327.26	327.51	327.86	328.37	328.98	329.64	330.25
12.18	CFS	34.15	50.35	61.00	62.10	58.89	53.86	48.74	44.77
12.18	ELEV	330.63	330.83	330.93	330.93	330.91	330.86	330.81	330.77
12.66	CFS	40.99	37.67	34.74	32.15	29.87	28.09	26.42	24.85
12.66	ELEV	330.72	330.68	330.64	330.60	330.57	330.54	330.51	330.48
13.14	CFS	23.38	22.03	20.80	19.71	18.77	17.89	17.06	16.29
13.14	ELEV	330.46	330.43	330.41	330.39	330.38	330.36	330.35	330.33
13.62	CFS	15.56	14.90	14.35	13.83	13.32	12.83	12.36	11.91
13.62	ELEV	330.32	330.31	330.30	330.28	330.27	330.26	330.25	330.24
14.10	CFS	11.49	11.09	10.72	10.38	10.06	9.98	9.96	9.94
14.10	ELEV	330.23	330.22	330.22	330.21	330.20	330.19	330.18	330.17
14.58	CFS	9.91	9.88	9.85	9.82	9.79	9.76	9.72	9.68

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 Page 92

06/30/\*\*  
15:05:46

CNCPT124.OUT  
Run for 1,2,10,50,100YR STORMS  
PASS 3 JOB NO. 1

2.04TEST  
PAGE 94

14.58	ELEV	330.16	330.15	330.14	330.13	330.11	330.10	330.08	330.07
15.06	CFS	9.65	9.61	9.57	9.53	9.49	9.45	9.41	9.37
15.06	ELEV	330.05	330.04	330.02	330.00	329.99	329.97	329.95	329.94
15.54	CFS	9.33	9.28	9.24	9.20	9.15	9.11	9.06	9.02
15.54	ELEV	329.92	329.90	329.88	329.86	329.84	329.83	329.81	329.79
16.02	CFS	8.97	8.92	8.88	8.83	8.78	8.73	8.69	8.64
16.02	ELEV	329.77	329.75	329.73	329.71	329.69	329.67	329.65	329.63
16.50	CFS	8.59	8.54	8.50	8.45	8.40	8.35	8.31	8.26
16.50	ELEV	329.61	329.59	329.57	329.55	329.53	329.51	329.49	329.47
16.98	CFS	8.21	8.17	8.12	8.07	8.03	7.98	7.94	7.89
16.98	ELEV	329.45	329.43	329.41	329.39	329.37	329.35	329.33	329.31
17.46	CFS	7.85	7.80	7.76	7.71	7.67	7.62	7.58	7.54
17.46	ELEV	329.30	329.28	329.26	329.24	329.22	329.20	329.18	329.17
17.94	CFS	7.49	7.45	7.41	7.36	7.32	7.28	7.24	7.19
17.94	ELEV	329.15	329.13	329.11	329.09	329.07	329.06	329.04	329.02
18.42	CFS	7.15	7.11	7.07	7.03	6.99	6.95	6.90	6.86
18.42	ELEV	329.00	328.99	328.97	328.95	328.93	328.92	328.90	328.88
18.90	CFS	6.82	6.78	6.74	6.70	6.66	6.62	6.58	6.54
18.90	ELEV	328.87	328.85	328.83	328.81	328.80	328.78	328.76	328.75
19.38	CFS	6.50	6.46	6.43	6.39	6.35	6.31	6.27	6.23
19.38	ELEV	328.73	328.72	328.70	328.68	328.67	328.65	328.63	328.62
19.86	CFS	6.19	6.16	6.12	6.08	6.04	6.00	5.97	5.93
19.86	ELEV	328.60	328.59	328.57	328.55	328.54	328.52	328.51	328.49
20.34	CFS	5.89	5.86	5.82	5.78	5.75	5.71	5.68	5.64
20.34	ELEV	328.48	328.46	328.44	328.43	328.41	328.40	328.38	328.37
20.82	CFS	5.61	5.57	5.54	5.51	5.47	5.44	5.41	5.37
20.82	ELEV	328.36	328.34	328.33	328.31	328.30	328.28	328.27	328.26
21.30	CFS	5.34	5.31	5.28	5.25	5.22	5.19	5.15	5.12
21.30	ELEV	328.24	328.23	328.22	328.20	328.19	328.18	328.17	328.15
21.78	CFS	5.09	5.06	5.04	5.01	4.98	4.95	4.92	4.89
21.78	ELEV	328.14	328.13	328.11	328.10	328.09	328.08	328.07	328.05
22.26	CFS	4.86	4.84	4.81	4.78	4.76	4.73	4.70	4.68
22.26	ELEV	328.04	328.03	328.02	328.01	328.00	327.99	327.98	327.96
22.74	CFS	4.65	4.62	4.60	4.57	4.55	4.52	4.50	4.48
22.74	ELEV	327.95	327.94	327.93	327.92	327.91	327.90	327.89	327.88
23.22	CFS	4.45	4.43	4.40	4.38	4.36	4.34	4.31	4.29
23.22	ELEV	327.87	327.86	327.85	327.84	327.83	327.82	327.81	327.80
23.70	CFS	4.27	4.25	4.22	4.20	4.18	4.16	4.14	4.11
23.70	ELEV	327.79	327.78	327.77	327.76	327.76	327.75	327.74	327.73
24.18	CFS	4.08	4.05	4.02	3.99	3.95	3.92	3.89	3.86
24.18	ELEV	327.71	327.70	327.69	327.67	327.66	327.65	327.63	327.62
24.66	CFS	3.83	3.80	3.77	3.74	3.71	3.68	3.65	3.62
24.66	ELEV	327.61	327.60	327.58	327.57	327.56	327.55	327.53	327.52
25.14	CFS	3.59	3.56	3.54	3.51	3.48	3.45	3.43	3.40
25.14	ELEV	327.51	327.50	327.49	327.47	327.46	327.45	327.44	327.43
25.62	CFS	3.37	3.35	3.32	3.30				
25.62	ELEV	327.42	327.41	327.40	327.38				

1

TR20

Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4

SCS -

06/30/\*\*  
15:05:46

Run for 1,2,10,50,100YR STORMS  
PASS 3 JOB NO. 1

VERSION  
2.04TEST  
PAGE 95

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.36 WATERSHED INCHES; 139 CFS-HRS; 11.5 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	
FLOW(CFS)	11	9	7	6	5	4	3	TRUNCATED

CNCPT124.OUT

OPERATION RUNOFF XSECTION 140

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 11.98                                      6.6    (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 1.55 WATERSHED INCHES;                      5 CFS-HRS;                      .4 ACRE-FEET.

OPERATION ADDHYD XSECTION 141

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.34                                      63.4    (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.23 WATERSHED INCHES;                      143 CFS-HRS;                      11.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.11                                      73.3    (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.89 WATERSHED INCHES;                      73 CFS-HRS;                      6.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.16                                      593.3    (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.76 WATERSHED INCHES;                      1135 CFS-HRS;                      93.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.16                                      735.4    (NULL)

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4                      VERSION  
 06/30/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 15:05:46                      PASS 3 JOB NO. 1                      PAGE 96

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.79 WATERSHED INCHES;                      1271 CFS-HRS;                      105.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.18                                      767.0    (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.82 WATERSHED INCHES;                      1411 CFS-HRS;                      116.6 ACRE-FEET.

OPERATION REACH XSECTION 44

CNCPT124.OUT  
PEAK TIME(HRS) 12.29                      PEAK DISCHARGE(CFS) 721.1                      PEAK ELEVATION(FEET) 290.84

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.82 WATERSHED INCHES; 1410 CFS-HRS; 116.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

PEAK TIME(HRS) 12.14                      PEAK DISCHARGE(CFS) 71.1                      PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.48 WATERSHED INCHES; 76 CFS-HRS; 6.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS) 12.15                      PEAK DISCHARGE(CFS) 83.5                      PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.30 WATERSHED INCHES; 93 CFS-HRS; 7.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS) 12.14                      PEAK DISCHARGE(CFS) 154.6                      PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.37 WATERSHED INCHES; 169 CFS-HRS; 14.0 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4                      VERSION  
06/30/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
15:05:46                      PASS 3 JOB NO. 1                      PAGE 97

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS) 12.04                      PEAK DISCHARGE(CFS) 99.6                      PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.76 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS) 12.27                      PEAK DISCHARGE(CFS) 757.1                      PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.81 WATERSHED INCHES; 1494 CFS-HRS; 123.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS) 12.24                      PEAK DISCHARGE(CFS) 890.3                      PEAK ELEVATION(FEET) (NULL)



CNCPT124.OUT  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.76 WATERSHED INCHES; 1663 CFS-HRS; 137.5 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.35 860.7 285.69

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.76 WATERSHED INCHES; 1662 CFS-HRS; 137.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.02 6.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.02 WATERSHED INCHES; 6 CFS-HRS; .5 ACRE-FEET.

\*\*\* WARNING - XSECTION 53, INSUFFICIENT LOW FLOW RATING, PEAK FLOW LESS THAN  
2ND TABLE VALUE. THIS REACH ROUTING MAY BE INCORRECT,  
UNLESS NEW RATING TABLE VALUES ARE INSERTED. \*\*\*

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 3 JOB NO. 1 PAGE 98

OPERATION REACH XSECTION 53

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.10 6.6 288.36

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.02 WATERSHED INCHES; 6 CFS-HRS; .5 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.08 4.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.95 WATERSHED INCHES; 4 CFS-HRS; .4 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 57.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.33 WATERSHED INCHES; 48 CFS-HRS; 4.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.34 876.9 (NULL)

CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.74 WATERSHED INCHES; 1711 CFS-HRS; 141.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.09 10.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
.99 WATERSHED INCHES; 10 CFS-HRS; .8 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 3 JOB NO. 1 PAGE 99

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.34 880.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.72 WATERSHED INCHES; 1721 CFS-HRS; 142.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.05 44.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.22 WATERSHED INCHES; 38 CFS-HRS; 3.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.34 894.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.70 WATERSHED INCHES; 1759 CFS-HRS; 145.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.07 27.2 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.21 WATERSHED INCHES; 25 CFS-HRS; 2.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.33 904.9 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.69 WATERSHED INCHES; 1784 CFS-HRS; 147.4 ACRE-FEET.

CNCPT124.OUT

OPERATION REACH XSECTION 63

PEAK TIME(HRS) 12.46 PEAK DISCHARGE(CFS) 864.1 PEAK ELEVATION(FEET) 250.25

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 100

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.03 SQ.MI.

6.06	CFS	.49	.52	.55	.58	.62	.65	.69	.73
6.06	ELEV	247.16	247.17	247.17	247.18	247.18	247.19	247.20	247.20
6.54	CFS	.77	.81	.85	.90	.94	.99	1.03	1.09
6.54	ELEV	247.21	247.22	247.23	247.23	247.24	247.25	247.26	247.27
7.02	CFS	1.14	1.20	1.27	1.33	1.40	1.47	1.54	1.62
7.02	ELEV	247.28	247.29	247.30	247.31	247.33	247.34	247.35	247.37
7.50	CFS	1.69	1.77	1.86	1.94	2.03	2.13	2.23	2.33
7.50	ELEV	247.38	247.40	247.41	247.42	247.42	247.43	247.44	247.45
7.98	CFS	2.43	2.55	2.66	2.77	2.89	3.01	3.13	3.26
7.98	ELEV	247.46	247.47	247.48	247.48	247.49	247.50	247.51	247.52
8.46	CFS	3.39	3.54	3.69	3.85	4.03	4.23	4.44	4.67
8.46	ELEV	247.53	247.55	247.56	247.57	247.59	247.60	247.62	247.64
8.94	CFS	4.92	5.19	5.49	5.81	6.16	6.53	6.92	7.33
8.94	ELEV	247.66	247.68	247.70	247.73	247.74	247.75	247.76	247.76
9.42	CFS	7.77	8.21	8.67	9.13	9.60	10.07	10.54	11.02
9.42	ELEV	247.77	247.78	247.78	247.79	247.80	247.80	247.81	247.82
9.90	CFS	11.53	12.06	12.63	13.24	13.91	14.63	15.41	16.24
9.90	ELEV	247.83	247.83	247.84	247.85	247.86	247.87	247.89	247.90
10.38	CFS	17.13	18.09	19.11	20.21	21.38	22.63	23.96	25.38
10.38	ELEV	247.91	247.93	247.94	247.96	247.98	248.00	248.02	248.04
10.86	CFS	26.90	28.52	30.28	32.17	34.20	36.40	38.77	41.36
10.86	ELEV	248.06	248.08	248.10	248.12	248.14	248.16	248.19	248.22
11.34	CFS	44.20	47.34	50.83	54.75	59.17	64.47	71.52	81.98
11.34	ELEV	248.25	248.28	248.32	248.36	248.40	248.45	248.51	248.60
11.82	CFS	98	125	168	236	329	440	557	664
11.82	ELEV	248.71	248.81	248.98	249.16	249.38	249.60	249.81	249.97
12.30	CFS	754	820	857	863	840	797	743	685
12.30	ELEV	250.10	250.19	250.24	250.25	250.22	250.16	250.09	250.00
12.78	CFS	629	578	533	495	463	436	413	393
12.78	ELEV	249.92	249.84	249.77	249.70	249.64	249.59	249.55	249.51
13.26	CFS	376	360	345	332	319	308	297	287
13.26	ELEV	249.48	249.44	249.41	249.38	249.35	249.33	249.31	249.28
13.74	CFS	277	267	257	247	235	219	202	186
13.74	ELEV	249.26	249.24	249.22	249.19	249.16	249.12	249.07	249.03
14.22	CFS	172	159	149	141	134	128	124	120
14.22	ELEV	248.99	248.95	248.91	248.88	248.85	248.83	248.81	248.79
14.70	CFS	117	114	112	110	108	107	105	104
14.70	ELEV	248.78	248.77	248.76	248.75	248.75	248.74	248.73	248.73
15.18	CFS	102	101	100	99	97	96	95	94
15.18	ELEV	248.72	248.72	248.71	248.71	248.70	248.70	248.69	248.69
15.66	CFS	92.60	91.45	90.30	89.16	88.03	86.90	85.78	84.67
15.66	ELEV	248.68	248.68	248.67	248.67	248.66	248.65	248.64	248.63
16.14	CFS	83.55	82.45	81.36	80.30	79.27	78.27	77.32	76.43
16.14	ELEV	248.62	248.61	248.60	248.59	248.58	248.57	248.56	248.55
16.62	CFS	75.59	74.80	74.07	73.38	72.73	72.12	71.54	70.98
16.62	ELEV	248.55	248.54	248.53	248.53	248.52	248.52	248.51	248.51
17.10	CFS	70.45	69.93	69.42	68.93	68.45	67.98	67.51	67.05
17.10	ELEV	248.50	248.50	248.49	248.49	248.49	248.48	248.48	248.47

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 101

17.58	CFS	66.59	66.13	65.68	65.23	64.79	64.34	63.90	63.46
17.58	ELEV	248.47	248.47	248.46	248.46	248.45	248.45	248.45	248.44
18.06	CFS	63.02	62.58	62.14	61.71	61.28	60.84	60.41	59.98
18.06	ELEV	248.44	248.43	248.43	248.43	248.42	248.42	248.42	248.41
18.54	CFS	59.55	59.13	58.70	58.27	57.85	57.42	57.00	56.58
18.54	ELEV	248.41	248.40	248.40	248.40	248.39	248.39	248.38	248.38
19.02	CFS	56.15	55.73	55.31	54.89	54.47	54.05	53.63	53.21
19.02	ELEV	248.37	248.37	248.37	248.36	248.36	248.35	248.35	248.34
19.50	CFS	52.79	52.38	51.96	51.54	51.13	50.71	50.29	49.88
19.50	ELEV	248.34	248.33	248.33	248.33	248.32	248.32	248.31	248.31
19.98	CFS	49.46	49.05	48.63	48.22	47.81	47.41	47.01	46.63
19.98	ELEV	248.30	248.30	248.29	248.29	248.29	248.28	248.28	248.27
20.46	CFS	46.27	45.93	45.62	45.32	45.05	44.81	44.58	44.37
20.46	ELEV	248.27	248.27	248.26	248.26	248.26	248.25	248.25	248.25
20.94	CFS	44.17	43.98	43.81	43.64	43.47	43.31	43.15	42.99
20.94	ELEV	248.25	248.25	248.24	248.24	248.24	248.24	248.24	248.23
21.42	CFS	42.83	42.67	42.52	42.36	42.21	42.06	41.90	41.75
21.42	ELEV	248.23	248.23	248.23	248.23	248.23	248.22	248.22	248.22
21.90	CFS	41.60	41.45	41.30	41.16	41.01	40.86	40.72	40.58
21.90	ELEV	248.22	248.22	248.22	248.22	248.21	248.21	248.21	248.21
22.38	CFS	40.43	40.29	40.15	40.01	39.87	39.73	39.59	39.46
22.38	ELEV	248.21	248.21	248.20	248.20	248.20	248.20	248.20	248.20
22.86	CFS	39.32	39.18	39.05	38.91	38.78	38.65	38.51	38.38
22.86	ELEV	248.20	248.19	248.19	248.19	248.19	248.19	248.19	248.19
23.34	CFS	38.25	38.12	37.99	37.86	37.73	37.60	37.47	37.35
23.34	ELEV	248.18	248.18	248.18	248.18	248.18	248.18	248.18	248.17
23.82	CFS	37.22	37.10	36.97	36.84	36.72	36.54	36.17	35.49
23.82	ELEV	248.17	248.17	248.17	248.17	248.17	248.17	248.16	248.16
24.30	CFS	34.49	33.17	31.47	29.43	27.16	24.81	22.55	20.49
24.30	ELEV	248.14	248.13	248.11	248.09	248.07	248.03	248.00	247.96
24.78	CFS	18.68	17.15	15.89	14.86	14.03	13.36	12.81	12.35
24.78	ELEV	247.94	247.91	247.89	247.88	247.86	247.85	247.85	247.84
25.26	CFS	11.97	11.63	11.34	11.08	10.85	10.63	10.42	10.22
25.26	ELEV	247.83	247.83	247.82	247.82	247.82	247.81	247.81	247.81
25.74	CFS	10.03	9.85						
25.74	ELEV	247.80	247.80						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.69 WATERSHED INCHES; 1782 CFS-HRS; 147.3 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	229	90	66	53	43	39	22	10

DURATION(HRS) 16  
 FLOW(CFS) 10 TRUNCATED

OPERATION RUNOFF XSECTION 64

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 102

PEAK TIME(HRS) 12.19 PEAK DISCHARGE(CFS) 21.1 PEAK ELEVATION(FEET) (RUNOFF)

CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.44 12.9 334.73

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.55 12.5 300.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.62 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.03 101.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.84 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.25 42.6 295.61  
14.73 4.1 287.82

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.83 WATERSHED INCHES; 84 CFS-HRS; 6.9 ACRE-FEET.

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 3 JOB NO. 1 PAGE 103

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.46 49.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.99 WATERSHED INCHES; 110 CFS-HRS; 9.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 68  
 PEAK TIME(HRS) 12.03 PEAK DISCHARGE(CFS) 173.0 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.79 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 69  
 PEAK TIME(HRS) 12.04 PEAK DISCHARGE(CFS) 195.3 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.88 WATERSHED INCHES; 250 CFS-HRS; 20.6 ACRE-FEET.

OPERATION REACH XSECTION 70  
 PEAK TIME(HRS) 12.28 PEAK DISCHARGE(CFS) 137.2 PEAK ELEVATION(FEET) 248.86  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 2.87 WATERSHED INCHES; 250 CFS-HRS; 20.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 71  
 PEAK TIME(HRS) 11.95 PEAK DISCHARGE(CFS) 37.1 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 3.39 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63  
 1 TR20 ----- SCS -  
 06/30/\*\* Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 15:05:46 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 3 JOB NO. 1 PAGE 104

PEAK TIME(HRS) 12.11 PEAK DISCHARGE(CFS) 15.9 PEAK ELEVATION(FEET) 266.88  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 3.37 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION REACH XSECTION 72  
 PEAK TIME(HRS) 12.24 PEAK DISCHARGE(CFS) 15.5 PEAK ELEVATION(FEET) 247.89  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 3.39 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 73  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 Page 101

12.03 CNCPT124.OUT (RUNOFF)  
153.3

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
1.74 WATERSHED INCHES; 123 CFS-HRS; 10.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.45 891.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.60 WATERSHED INCHES; 1906 CFS-HRS; 157.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.28 152.7 (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10									
HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .15 SQ.MI.									
7.86	CFS	.46	.50	.54	.59	.63	.68	.73	.79
8.34	CFS	.84	.90	.96	1.03	1.10	1.18	1.26	1.34
8.82	CFS	1.43	1.52	1.62	1.72	1.83	1.93	2.05	2.16
9.30	CFS	2.27	2.39	2.49	2.60	2.70	2.80	2.90	3.00
9.78	CFS	3.11	3.22	3.34	3.48	3.62	3.78	3.95	4.13
10.26	CFS	4.32	4.53	4.76	5.00	5.26	5.53	5.82	6.13
10.74	CFS	6.46	6.81	7.20	7.61	8.06	8.55	9.06	9.59
11.22	CFS	10.14	10.75	11.43	12.22	13.11	14.10	15.13	16.28
11.70	CFS	18	21	26	34	45	61	90	118

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 3 JOB NO. 1 PAGE 105

12.18	CFS	139	151	152	146	136	126	116	107
12.66	CFS	99.40	91.66	84.07	77.18	71.25	66.09	61.62	57.72
13.14	CFS	54.33	51.44	48.98	46.88	45.07	43.51	42.14	40.92
13.62	CFS	39.82	38.81	37.88	37.02	36.21	35.42	34.62	33.80
14.10	CFS	32.97	32.15	31.33	30.50	29.66	28.83	27.91	26.90
14.58	CFS	25.84	24.59	23.28	22.04	20.69	19.59	18.67	17.89
15.06	CFS	17.20	16.57	16.00	15.49	15.02	14.57	14.13	13.72
15.54	CFS	13.33	12.98	12.66	12.38	12.12	11.88	11.66	11.44
16.02	CFS	11.23	11.02	10.82	10.63	10.40	10.16	9.93	9.74
16.50	CFS	9.58	9.44	9.32	9.21	9.11	9.03	8.95	8.87
16.98	CFS	8.80	8.73	8.67	8.60	8.54	8.48	8.42	8.36
17.46	CFS	8.30	8.24	8.18	8.12	8.06	8.01	7.95	7.89
17.94	CFS	7.83	7.77	7.71	7.66	7.60	7.54	7.48	7.42
18.42	CFS	7.37	7.31	7.25	7.19	7.13	7.07	7.01	6.95
18.90	CFS	6.90	6.84	6.78	6.72	6.66	6.60	6.54	6.48
19.38	CFS	6.42	6.36	6.31	6.25	6.19	6.13	6.07	6.01
19.86	CFS	5.95	5.89	5.83	5.77	5.71	5.65	5.59	5.54
20.34	CFS	5.49	5.45	5.41	5.37	5.34	5.31	5.29	5.27
20.82	CFS	5.25	5.23	5.22	5.20	5.18	5.17	5.16	5.14
21.30	CFS	5.13	5.12	5.11	5.09	5.08	5.07	5.06	5.05
21.78	CFS	5.03	5.02	5.01	5.00	4.99	4.98	4.97	4.95
22.26	CFS	4.94	4.93	4.92	4.91	4.90	4.89	4.87	4.86
22.74	CFS	4.85	4.84	4.83	4.82	4.81	4.79	4.78	4.77
23.22	CFS	4.76	4.75	4.74	4.72	4.71	4.70	4.69	4.68
23.70	CFS	4.67	4.65	4.64	4.63	4.62	4.61	4.60	4.57
24.18	CFS	4.48	4.21	3.76	3.22	2.70	2.23	1.83	1.49

CNCPT124.OUT  
 24.66 CFS      1.21      .98      .79      .63      .50  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.92 WATERSHED INCHES;      276 CFS-HRS;      22.8 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	35	13	9	7	5	5	4	1
DURATION(HRS)	17							
FLOW(CFS)	0							

OPERATION ADDHYD      XSECTION      76

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	1024.4	(NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.28 SQ.MI.  
 HRS      CFS      .49      .52      .56      .59      .63      .67      .71      .76  
 5.94 CFS      .80      .85      .90      .95      1.00      1.06      1.11      1.16  
 6.42 CFS      1.22      1.28      1.35      1.42      1.49      1.57      1.64      1.72  
 6.90 CFS      1.80      1.89      1.98      2.08      2.18      2.30      2.42      2.55  
 7.38 CFS      2.69      2.83      2.98      3.13      3.29      3.46      3.62      3.80  
 7.86 CFS      3.97      4.16      4.36      4.57      4.79      5.03      5.29      5.57  
 8.34 CFS

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4      VERSION  
 06/30/\*\*      Run for 1,2,10,50,100YR STORMS      2.04TEST  
 15:05:46      PASS      3      JOB NO.      1      PAGE 106

8.82 CFS	5.87	6.19	6.54	6.91	7.32	7.75	8.20	8.69
9.30 CFS	9.19	9.72	10.26	10.81	11.37	11.94	12.50	13.07
9.78 CFS	13.64	14.24	14.87	15.53	16.25	17.02	17.86	18.76
10.26 CFS	19.73	20.77	21.89	23.09	24.37	25.77	27.27	28.91
10.74 CFS	30.68	32.59	34.65	36.86	39.25	41.83	44.62	47.63
11.22 CFS	50.89	54.46	58.42	62.84	67.77	73.35	80.47	90.50
11.70 CFS	106	131	171	238	335	448	568	675
12.18 CFS	774	870	948	1001	1024	1015	979	925
12.66 CFS	861	794	730	671	620	576	539	508
13.14 CFS	481	457	437	419	402	387	372	359
13.62 CFS	347	335	324	314	303	292	278	261
14.10 CFS	243	226	211	198	187	177	169	163
14.58 CFS	157	152	147	143	140	137	134	131
15.06 CFS	129	127	125	123	121	119	118	116
15.54 CFS	114	113	111	110	108	107	105	104
16.02 CFS	102	101	100	98	97	96	94	93
16.50 CFS	91.91	90.85	89.85	88.93	88.07	87.27	86.51	85.79
16.98 CFS	85.11	84.45	83.82	83.21	82.61	82.03	81.45	80.89
17.46 CFS	80.33	79.78	79.23	78.68	78.14	77.61	77.07	76.53
17.94 CFS	76.00	75.47	74.94	74.41	73.89	73.36	72.84	72.32
18.42 CFS	71.79	71.27	70.75	70.23	69.72	69.20	68.68	68.17
18.90 CFS	67.65	67.14	66.62	66.11	65.60	65.09	64.57	64.06
19.38 CFS	63.55	63.04	62.53	62.02	61.51	61.00	60.49	59.98
19.86 CFS	59.47	58.96	58.45	57.94	57.44	56.95	56.46	55.99
20.34 CFS	55.54	55.11	54.71	54.33	53.97	53.65	53.35	53.07
20.82 CFS	52.82	52.58	52.36	52.16	51.96	51.77	51.58	51.40
21.30 CFS	51.22	51.05	50.87	50.70	50.52	50.35	50.18	50.00
21.78 CFS	49.83	49.67	49.50	49.33	49.17	49.00	48.84	48.67
22.26 CFS	48.51	48.35	48.19	48.03	47.87	47.71	47.56	47.40
22.74 CFS	47.25	47.09	46.93	46.78	46.63	46.47	46.32	46.17
23.22 CFS	46.02	45.87	45.73	45.58	45.43	45.28	45.13	44.99
23.70 CFS	44.84	44.70	44.55	44.41	44.26	44.11	43.74	42.82



CNCPT124.OUT  
 24.18 CFS 41.56 40.14 38.47 36.49 34.22 31.68 28.99 26.30  
 24.66 CFS 23.76 21.46 19.47 17.78 16.39 15.26 14.35 13.61  
 25.14 CFS 13.01 12.51 12.09 11.73 11.42 11.14 10.89 10.66  
 25.62 CFS 10.45 10.24 10.05 9.86

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.64 WATERSHED INCHES; 2181 CFS-HRS; 180.3 ACRE-FEET.

DURATION(HRS) 2 4 6 8 10 12 14 16  
 FLOW(CFS) 287 109 79 63 51 46 26 11

DURATION(HRS) 17  
 FLOW(CFS) 10 TRUNCATED

OPERATION REACH XSECTION 77

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 107

PEAK TIME(HRS) 12.50 PEAK DISCHARGE(CFS) 1023.3 PEAK ELEVATION(FEET) 230.40

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.64 WATERSHED INCHES; 2181 CFS-HRS; 180.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS) 12.01 PEAK DISCHARGE(CFS) 97.9 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.30 WATERSHED INCHES; 76 CFS-HRS; 6.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS) 12.49 PEAK DISCHARGE(CFS) 1037.6 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.33 SQ.MI.  
 6.00 CFS .49 .52 .56 .59 .63 .67 .71 .76  
 6.48 CFS .80 .85 .90 .95 1.00 1.05 1.10 1.16  
 6.96 CFS 1.22 1.28 1.34 1.41 1.49 1.56 1.64 1.72  
 7.44 CFS 1.80 1.88 1.98 2.07 2.18 2.29 2.41 2.54  
 7.92 CFS 2.68 2.82 2.97 3.12 3.28 3.44 3.61 3.78  
 8.40 CFS 3.96 4.15 4.34 4.55 4.78 5.02 5.27 5.55  
 8.88 CFS 5.85 6.17 6.53 6.91 7.33 7.78 8.26 8.77  
 9.36 CFS 9.30 9.85 10.42 11.00 11.59 12.18 12.77 13.38  
 9.84 CFS 13.99 14.63 15.30 16.01 16.77 17.60 18.49 19.45  
 10.32 CFS 20.48 21.59 22.78 24.05 25.42 26.90 28.50 30.25  
 10.80 CFS 32.14 34.18 36.37 38.73 41.27 44.03 47.04 50.31  
 11.28 CFS 54 58 62 67 72 79 89 105  
 11.76 CFS 129 166 226 316 426 533 629 713  
 12.24 CFS 799 887 962 1014 1037 1028 993 939  
 12.72 CFS 875 808 743 683 631 587 549 517  
 13.20 CFS 489 466 445 426 409 394 379 366  
 13.68 CFS 353 341 330 319 308 297 283 267

CNCPT124.OUT									
14.16	CFS	249	232	216	203	192	182	174	167
14.64	CFS	161	156	152	147	144	141	138	135
15.12	CFS	133	131	129	127	125	123	121	119
15.60	CFS	118	116	114	113	111	110	108	107
16.08	CFS	105	104	103	101	100	98	97	96
16.56	CFS	94.70	93.61	92.60	91.65	90.77	89.95	89.17	88.43
17.04	CFS	87.73	87.05	86.40	85.77	85.16	84.55	83.96	83.38
17.52	CFS	82.80	82.23	81.67	81.10	80.54	79.99	79.43	78.88
18.00	CFS	78.33	77.78	77.24	76.69	76.15	75.60	75.06	74.52
18.48	CFS	73.98	73.44	72.91	72.37	71.83	71.30	70.76	70.23

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 108

18.96	CFS	69.69	69.16	68.63	68.10	67.57	67.04	66.51	65.98
19.44	CFS	65.45	64.92	64.39	63.86	63.33	62.80	62.28	61.75
19.92	CFS	61.22	60.69	60.16	59.64	59.13	58.62	58.13	57.66
20.40	CFS	57.20	56.77	56.36	55.97	55.61	55.28	54.98	54.70
20.88	CFS	54.44	54.20	53.98	53.76	53.56	53.37	53.18	52.99
21.36	CFS	52.81	52.63	52.45	52.27	52.10	51.92	51.74	51.57
21.84	CFS	51.39	51.22	51.05	50.88	50.71	50.54	50.38	50.21
22.32	CFS	50.04	49.88	49.72	49.55	49.39	49.23	49.07	48.91
22.80	CFS	48.75	48.59	48.43	48.28	48.12	47.96	47.81	47.65
23.28	CFS	47.50	47.34	47.19	47.04	46.89	46.74	46.59	46.44
23.76	CFS	46.29	46.14	45.99	45.84	45.69	45.41	44.64	43.32
24.24	CFS	41.85	40.33	38.62	36.64	34.37	31.85	29.17	26.48
24.72	CFS	23.93	21.61	19.60	17.90	16.48	15.34	14.41	13.66
25.20	CFS	13.05	12.54	12.12	11.76	11.44	11.16	10.91	10.68
25.68	CFS	10.46	10.26	10.06					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.62 WATERSHED INCHES; 2256 CFS-HRS; 186.5 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	305	113	82	65	53	48	27	11

DURATION(HRS) 16  
 FLOW(CFS) 10 TRUNCATED

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.56	1035.1	215.81

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.62 WATERSHED INCHES; 2256 CFS-HRS; 186.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET) (RUNOFF)
11.99	123.3	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.74 WATERSHED INCHES; 91 CFS-HRS; 7.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)

12.56

CNCPT124.OUT  
1048.4

(NULL)

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 109

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.63 WATERSHED INCHES; 2346 CFS-HRS; 193.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.01 53.0 (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10									
MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.									
HRS	CFS	MAIN	TIME	INCREMENT	ALTERNATE	DISCHARGE	STORM	ELEVATION	FEET
10.74	CFS	.47	.53	.60	.67	.74	.82	.92	1.03
11.22	CFS	1.17	1.32	1.49	1.69	1.89	2.16	2.90	4.48
11.70	CFS	7.47	12.02	19.02	30.75	45.41	52.82	49.51	35.87
12.18	CFS	22.77	16.01	12.46	10.44	9.07	7.99	7.09	6.35
12.66	CFS	5.82	5.46	5.20	4.98	4.78	4.59	4.39	4.22
13.14	CFS	4.06	3.93	3.81	3.70	3.60	3.49	3.39	3.29
13.62	CFS	3.19	3.10	3.02	2.94	2.87	2.79	2.71	2.64
14.10	CFS	2.57	2.52	2.48	2.45	2.42	2.39	2.37	2.34
14.58	CFS	2.32	2.29	2.26	2.24	2.21	2.18	2.16	2.13
15.06	CFS	2.11	2.08	2.05	2.03	2.00	1.97	1.94	1.92
15.54	CFS	1.89	1.86	1.83	1.81	1.78	1.75	1.72	1.70
16.02	CFS	1.67	1.64	1.62	1.61	1.59	1.58	1.57	1.56
16.50	CFS	1.55	1.54	1.53	1.52	1.52	1.51	1.50	1.49
16.98	CFS	1.48	1.47	1.46	1.45	1.44	1.43	1.42	1.41
17.46	CFS	1.40	1.39	1.38	1.37	1.36	1.35	1.34	1.33
17.94	CFS	1.32	1.31	1.30	1.29	1.28	1.27	1.26	1.25
18.42	CFS	1.24	1.23	1.22	1.21	1.20	1.19	1.18	1.17
18.90	CFS	1.16	1.15	1.14	1.13	1.12	1.11	1.10	1.09
19.38	CFS	1.08	1.07	1.06	1.05	1.03	1.02	1.01	1.00
19.86	CFS	.99	.98	.97	.96	.95	.95	.94	.94
20.34	CFS	.94	.94	.93	.93	.93	.93	.93	.92
20.82	CFS	.92	.92	.92	.92	.91	.91	.91	.91
21.30	CFS	.91	.91	.90	.90	.90	.90	.89	.89
21.78	CFS	.89	.89	.89	.89	.88	.88	.88	.88
22.26	CFS	.88	.87	.87	.87	.87	.87	.86	.86
22.74	CFS	.86	.86	.86	.85	.85	.85	.85	.85
23.22	CFS	.84	.84	.84	.84	.84	.84	.83	.83
23.70	CFS	.83	.83	.83	.82	.82	.82	.73	.47

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.02 WATERSHED INCHES; 41 CFS-HRS; 3.4 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	13
FLOW(CFS)	3	2	1	1	1	1	0

OPERATION ADDHYD XSECTION 84

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 3 JOB NO. 1 PAGE 110

CNCPT124.OUT  
 PEAK TIME(HRS) 12.56      PEAK DISCHARGE(CFS) 1055.2      PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.61 WATERSHED INCHES;      2387 CFS-HRS;      197.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS) 12.09      PEAK DISCHARGE(CFS) 174.9      PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =10  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .12 SQ.MI.

HRS	CFS	MAIN	TIME	INCREMENT	=	.060	hr,	DRAINAGE	AREA	=	.12	SQ.MI.
9.96	CFS	.45	.54	.63	.72	.82	.93	1.05	1.19			
10.44	CFS	1.32	1.47	1.63	1.80	1.99	2.20	2.42	2.67			
10.92	CFS	2.93	3.22	3.53	3.87	4.26	4.72	5.26	5.87			
11.40	CFS	6.55	7.30	8.21	9.82	13.08	19.02	29.84	46.57			
11.88	CFS	73.71	110.81	149.41	172.25	171.75	147.29	116.26	88.83			
12.36	CFS	70.12	57.05	47.68	40.58	34.99	30.71	27.32	24.80			
12.84	CFS	22.86	21.33	20.11	19.08	18.22	17.45	16.75	16.15			
13.32	CFS	15.61	15.11	14.65	14.21	13.79	13.37	12.98	12.61			
13.80	CFS	12.26	11.93	11.61	11.30	10.99	10.70	10.43	10.20			
14.28	CFS	10.01	9.84	9.71	9.58	9.46	9.35	9.24	9.14			
14.76	CFS	9.03	8.93	8.82	8.72	8.61	8.51	8.40	8.30			
15.24	CFS	8.19	8.08	7.98	7.87	7.76	7.65	7.55	7.44			
15.72	CFS	7.33	7.22	7.11	7.00	6.89	6.78	6.67	6.57			
16.20	CFS	6.48	6.41	6.35	6.29	6.25	6.20	6.16	6.12			
16.68	CFS	6.08	6.04	6.00	5.97	5.93	5.89	5.85	5.81			
17.16	CFS	5.77	5.74	5.70	5.66	5.62	5.58	5.54	5.50			
17.64	CFS	5.46	5.43	5.39	5.35	5.31	5.27	5.23	5.19			
18.12	CFS	5.15	5.11	5.07	5.03	4.99	4.95	4.91	4.87			
18.60	CFS	4.83	4.79	4.75	4.71	4.67	4.63	4.59	4.55			
19.08	CFS	4.51	4.47	4.43	4.39	4.35	4.31	4.26	4.22			
19.56	CFS	4.18	4.14	4.10	4.06	4.02	3.98	3.94	3.89			
20.04	CFS	3.85	3.81	3.78	3.75	3.73	3.71	3.70	3.69			
20.52	CFS	3.68	3.67	3.66	3.65	3.64	3.63	3.63	3.62			
21.00	CFS	3.61	3.60	3.60	3.59	3.58	3.57	3.57	3.56			
21.48	CFS	3.55	3.54	3.54	3.53	3.52	3.51	3.51	3.50			
21.96	CFS	3.49	3.48	3.48	3.47	3.46	3.45	3.45	3.44			
22.44	CFS	3.43	3.42	3.42	3.41	3.40	3.39	3.38	3.38			
22.92	CFS	3.37	3.36	3.35	3.35	3.34	3.33	3.32	3.31			
23.40	CFS	3.31	3.30	3.29	3.28	3.27	3.27	3.26	3.25			
23.88	CFS	3.24	3.24	3.22	3.11	2.74	2.14	1.49	.96			
24.36	CFS	.60	.38									

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.16 WATERSHED INCHES;      165 CFS-HRS;      13.7 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4      VERSION  
 06/30/\*\*      Run for 1,2,10,50,100YR STORMS      2.04TEST  
 15:05:46      PASS 3      JOB NO. 1      PAGE 111

DURATION(HRS)	2	4	6	8	10	12	14	14
FLOW(CFS)	13	8	6	4	4	3	1	0

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS) 12.55      PEAK DISCHARGE(CFS) 1094.6      PEAK ELEVATION(FEET) (NULL)

CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.58 WATERSHED INCHES; 2552 CFS-HRS; 210.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.96 50.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.58 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.54 1099.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
2.59 WATERSHED INCHES; 2589 CFS-HRS; 213.9 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 3

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 88  
STARTING TIME = .00 RAIN DEPTH = 7.28 RAIN DURATION = 1.00  
ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS  
ALTERNATE NO. = 1 STORM NO. =50 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 99.6 (RUNOFF)

1 TR20 ----- SCS -  
06/30/\*\* Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
15:05:46 Run for 1,2,10,50,100YR STORMS 2.04TEST  
PASS 4 JOB NO. 1 PAGE 112

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.89 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.

OPERATION REACH XSECTION 2

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.18 99.4 390.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.89 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.10 184.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.01 WATERSHED INCHES; 188 CFS-HRS; 15.5 ACRE-FEET.

CNCPT124.OUT

OPERATION ADDHYD XSECTION 4

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.13 278.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.96 WATERSHED INCHES; 293 CFS-HRS; 24.3 ACRE-FEET.

\*\*\* WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 11,  
 VALUE EXTRAPOLATED. \*\*\*

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.15 275.5 384.86

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.95 WATERSHED INCHES; 293 CFS-HRS; 24.2 ACRE-FEET.

OPERATION REACH XSECTION 5

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.21 275.2 369.06

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 113

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.95 WATERSHED INCHES; 292 CFS-HRS; 24.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 6

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.12 223.5 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.49 WATERSHED INCHES; 231 CFS-HRS; 19.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 7

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.17 481.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.74 WATERSHED INCHES; 524 CFS-HRS; 43.3 ACRE-FEET.

OPERATION REACH XSECTION 8

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.23 481.5 358.77

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.74 WATERSHED INCHES; 524 CFS-HRS; 43.3 ACRE-FEET.

CNCPT124.OUT

OPERATION RUNOFF XSECTION 9

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.12 252.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.94 WATERSHED INCHES; 281 CFS-HRS; 23.2 ACRE-FEET.

\*\*\* MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE  
 STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00. \*\*\*  
 THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME.

OPERATION RESVOR STRUCTURE 21

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.34 150.2 378.07

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 114

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.44 WATERSHED INCHES; 258 CFS-HRS; 21.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.96 36.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.09 WATERSHED INCHES; 26 CFS-HRS; 2.1 ACRE-FEET.

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.62 115.2 359.83

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.42 WATERSHED INCHES; 257 CFS-HRS; 21.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.02 191.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.19 WATERSHED INCHES; 154 CFS-HRS; 12.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.18 566.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 Page 110

CNCPT124.OUT  
 4.60 WATERSHED INCHES; 678 CFS-HRS; 56.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.04 71.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.84 WATERSHED INCHES; 60 CFS-HRS; 5.0 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 115

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.23 643.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.79 WATERSHED INCHES; 933 CFS-HRS; 77.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.21 676.0 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.80 WATERSHED INCHES; 994 CFS-HRS; 82.1 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 23, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
 TIME INCREMENT OF .006 HOURS. \*\*\*

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	451.9	347.28
14.70	51.3	335.08
14.81	49.0	334.99
14.93	47.2	334.92
15.04	45.6	334.86

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 50  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .32 SQ.MI.

4.08 CFS	.00	.01	.01	.01	.01	.01	.01	.01	.01
4.08 ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
4.56 CFS	.02	.02	.02	.02	.03	.03	.03	.03	.03
4.56 ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
5.04 CFS	.04	.04	.04	.04	.05	.05	.05	.05	.06
5.04 ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
5.52 CFS	.06	.07	.07	.07	.08	.09	.11	.12	.12
5.52 ELEV	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08	333.08
6.00 CFS	.14	.16	.18	.20	.22	.25	.27	.30	.30
6.00 ELEV	333.09	333.09	333.09	333.09	333.09	333.09	333.09	333.09	333.09
6.48 CFS	.32	.35	.39	.43	.47	.52	.58	.65	.65
6.48 ELEV	333.09	333.09	333.10	333.10	333.10	333.10	333.10	333.11	333.11
6.96 CFS	.72	.79	.86	.94	1.02	1.11	1.20	1.31	1.31



CNCPT124.OUT									
6.96	ELEV	333.11	333.11	333.11	333.12	333.12	333.12	333.13	333.13
7.44	CFS	1.42	1.53	1.64	1.76	1.87	1.99	2.11	2.23
7.44	ELEV	333.14	333.14	333.14	333.15	333.15	333.16	333.16	333.17
7.92	CFS	2.35	2.47	2.59	2.72	2.85	2.99	3.14	3.31

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 116

7.92	ELEV	333.17	333.18	333.18	333.19	333.19	333.20	333.20	333.21
8.40	CFS	3.48	3.66	3.85	4.05	4.26	4.48	4.71	4.94
8.40	ELEV	333.22	333.22	333.23	333.24	333.25	333.25	333.26	333.27
8.88	CFS	5.19	5.44	5.70	5.97	6.24	6.51	6.76	7.01
8.88	ELEV	333.28	333.29	333.30	333.31	333.32	333.33	333.34	333.35
9.36	CFS	7.25	7.48	7.71	7.93	8.16	8.42	8.76	9.17
9.36	ELEV	333.36	333.37	333.38	333.39	333.40	333.41	333.42	333.44
9.84	CFS	9.65	10.16	10.71	11.29	11.90	12.54	14.08	15.72
9.84	ELEV	333.46	333.48	333.50	333.52	333.54	333.57	333.63	333.69
10.32	CFS	17.04	18.36	19.52	20.73	21.89	23.10	24.32	25.63
10.32	ELEV	333.74	333.79	333.84	333.89	333.93	333.98	334.03	334.08
10.80	CFS	27.01	28.48	30.03	31.67	33.41	35.32	37.40	39.73
10.80	ELEV	334.13	334.19	334.25	334.31	334.38	334.45	334.53	334.63
11.28	CFS	42.32	45.19	48.34	51.76	55.72	62.11	73.96	95.09
11.28	ELEV	334.73	334.84	334.96	335.09	335.25	335.50	335.96	336.78
11.76	CFS	103	112	128	142	160	180	203	221
11.76	ELEV	337.10	337.52	338.25	339.01	340.02	341.28	342.70	343.97
12.24	CFS	238	280	390	447	450	424	391	359
12.24	ELEV	345.23	346.32	347.00	347.26	347.27	347.16	347.00	346.82
12.72	CFS	328	300	283	267	252	248	245	241
12.72	ELEV	346.65	346.50	346.35	346.20	346.07	345.91	345.69	345.42
13.20	CFS	237	232	228	223	218	213	208	204
13.20	ELEV	345.13	344.81	344.48	344.14	343.80	343.45	343.11	342.77
13.68	CFS	198	192	186	180	174	168	163	157
13.68	ELEV	342.42	342.02	341.63	341.26	340.89	340.54	340.20	339.87
14.16	CFS	152	146	139	133	127	116	105	54
14.16	ELEV	339.55	339.21	338.85	338.51	338.19	337.69	337.19	335.19
14.64	CFS	47.93	51.32	47.16	49.02	46.23	47.15	45.21	45.56
14.64	ELEV	334.94	335.08	334.91	334.99	334.88	334.91	334.84	334.85
15.12	CFS	44.15	44.15	43.06	42.84	41.96	41.61	40.85	40.43
15.12	ELEV	334.80	334.80	334.76	334.75	334.71	334.70	334.67	334.65
15.60	CFS	39.79	39.40	38.87	38.48	38.00	37.60	37.14	36.73
15.60	ELEV	334.63	334.61	334.59	334.58	334.56	334.54	334.52	334.51
16.08	CFS	36.29	35.89	35.50	35.16	34.82	34.53	34.25	33.99
16.08	ELEV	334.49	334.48	334.46	334.45	334.43	334.42	334.41	334.40
16.56	CFS	33.76	33.54	33.33	33.14	32.95	32.77	32.60	32.43
16.56	ELEV	334.39	334.38	334.38	334.37	334.36	334.35	334.35	334.34
17.04	CFS	32.26	32.09	31.92	31.76	31.59	31.43	31.26	31.10
17.04	ELEV	334.33	334.33	334.32	334.32	334.31	334.30	334.30	334.29
17.52	CFS	30.93	30.77	30.60	30.43	30.27	30.10	29.94	29.77
17.52	ELEV	334.28	334.28	334.27	334.26	334.26	334.25	334.24	334.24
18.00	CFS	29.60	29.44	29.27	29.10	28.93	28.76	28.60	28.43
18.00	ELEV	334.23	334.23	334.22	334.21	334.21	334.20	334.19	334.19
18.48	CFS	28.26	28.09	27.92	27.75	27.58	27.41	27.24	27.07
18.48	ELEV	334.18	334.17	334.17	334.16	334.15	334.15	334.14	334.13
18.96	CFS	26.90	26.72	26.55	26.38	26.20	26.02	25.85	25.67
18.96	ELEV	334.13	334.12	334.11	334.11	334.10	334.09	334.09	334.08
19.44	CFS	25.49	25.31	25.13	24.95	24.77	24.60	24.42	24.24
19.44	ELEV	334.07	334.06	334.06	334.05	334.04	334.04	334.03	334.02

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 Page 112

19.92	CFS	24.06	23.88	23.70	23.52	23.36	23.20	23.06	22.93
19.92	ELEV	334.02	334.01	334.00	334.00	333.99	333.98	333.98	333.97
20.40	CFS	22.81	22.71	22.61	22.52	22.44	22.37	22.30	22.23
20.40	ELEV	333.97	333.96	333.96	333.96	333.95	333.95	333.95	333.94
20.88	CFS	22.17	22.11	22.05	21.99	21.93	21.87	21.81	21.76
20.88	ELEV	333.94	333.94	333.94	333.94	333.93	333.93	333.93	333.93
21.36	CFS	21.70	21.65	21.59	21.53	21.48	21.42	21.37	21.32
21.36	ELEV	333.92	333.92	333.92	333.92	333.92	333.91	333.91	333.91
21.84	CFS	21.26	21.20	21.15	21.10	21.04	20.99	20.93	20.88
21.84	ELEV	333.91	333.90	333.90	333.90	333.90	333.90	333.89	333.89
22.32	CFS	20.82	20.77	20.71	20.66	20.61	20.55	20.50	20.44
22.32	ELEV	333.89	333.89	333.89	333.88	333.88	333.88	333.88	333.88
22.80	CFS	20.39	20.34	20.28	20.23	20.17	20.12	20.07	20.02
22.80	ELEV	333.87	333.87	333.87	333.87	333.86	333.86	333.86	333.86
23.28	CFS	19.96	19.90	19.84	19.77	19.70	19.63	19.56	19.49
23.28	ELEV	333.86	333.85	333.85	333.85	333.85	333.84	333.84	333.84
23.76	CFS	19.42	19.35	19.28	19.21	19.13	18.83	17.95	16.65
23.76	ELEV	333.84	333.83	333.83	333.83	333.82	333.81	333.78	333.73
24.24	CFS	15.35	14.14	12.98	11.86	10.85	10.21	9.91	9.66
24.24	ELEV	333.68	333.63	333.58	333.54	333.50	333.48	333.47	333.46
24.72	CFS	9.46	9.27	9.11	8.96	8.81	8.67	8.54	8.41
24.72	ELEV	333.45	333.44	333.43	333.43	333.42	333.42	333.41	333.41
25.20	CFS	8.29	8.17	8.05	7.93	7.82	7.71	7.60	7.49
25.20	ELEV	333.40	333.40	333.39	333.39	333.38	333.38	333.38	333.37
25.68	CFS	7.39	7.29	7.18	7.08	6.98	6.89	6.79	6.69
25.68	ELEV	333.37	333.36	333.36	333.36	333.35	333.35	333.34	333.34
26.16	CFS	6.58	6.46	6.33	6.20	6.07	5.95	5.82	5.70
26.16	ELEV	333.34	333.33	333.33	333.32	333.32	333.31	333.31	333.30
26.64	CFS	5.58	5.46	5.35	5.24	5.13	5.02		
26.64	ELEV	333.30	333.29	333.29	333.28	333.28	333.28		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.79 WATERSHED INCHES; 993 CFS-HRS; 82.1 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	162	42	32	27	22	21	15	8

DURATION(HRS) 18  
 FLOW(CFS) 5 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. \*\*\*

OPERATION REACH XSECTION 16

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 118

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	451.9	334.36
14.70	51.3	331.72
14.81	49.0	331.69
14.93	47.2	331.67
15.04	45.6	331.65

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.79 WATERSHED INCHES; 993 CFS-HRS; 82.1 ACRE-FEET.

CNCPT124.OUT

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 102.0 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 5.84 WATERSHED INCHES; 80 CFS-HRS; 6.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 118

PEAK TIME(HRS) 12.01 PEAK DISCHARGE(CFS) 120.4 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 6.47 WATERSHED INCHES; 106 CFS-HRS; 8.7 ACRE-FEET.

OPERATION RESVOR STRUCTURE 24

PEAK TIME(HRS) 12.45 PEAK DISCHARGE(CFS) 18.4 PEAK ELEVATION(FEET) 350.63

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =50

HRS	MAIN TIME	INCREMENT = .060 hr,	DRAINAGE AREA = .03 SQ.MI.						
2.16 CFS	.00	.01	.01	.01	.02	.02	.03	.04	
2.16 ELEV	345.00	345.00	345.00	345.00	345.00	345.00	345.01	345.01	
2.64 CFS	.04	.05	.06	.07	.08	.09	.10	.11	
2.64 ELEV	345.01	345.01	345.01	345.01	345.01	345.02	345.02	345.02	
3.12 CFS	.12	.13	.14	.15	.16	.17	.19	.20	
3.12 ELEV	345.02	345.02	345.03	345.03	345.03	345.03	345.03	345.04	
3.60 CFS	.21	.22	.24	.25	.26	.28	.29	.30	
3.60 ELEV	345.04	345.04	345.04	345.05	345.05	345.05	345.05	345.06	
4.08 CFS	.32	.33	.35	.36	.38	.39	.41	.42	
4.08 ELEV	345.06	345.06	345.06	345.07	345.07	345.07	345.07	345.08	
4.56 CFS	.44	.45	.47	.48	.50	.51	.53	.55	
4.56 ELEV	345.08	345.08	345.08	345.09	345.09	345.09	345.10	345.10	
5.04 CFS	.56	.58	.60	.61	.63	.65	.67	.68	
5.04 ELEV	345.10	345.11	345.11	345.11	345.11	345.12	345.12	345.12	

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 119

5.52 CFS	.70	.72	.74	.75	.77	.79	.81	.83
5.52 ELEV	345.13	345.13	345.13	345.14	345.14	345.14	345.15	345.15
6.00 CFS	.85	.86	.88	.90	.92	.94	.96	.98
6.00 ELEV	345.15	345.16	345.16	345.16	345.17	345.17	345.17	345.18
6.48 CFS	.99	1.01	1.03	1.05	1.07	1.09	1.11	1.13
6.48 ELEV	345.18	345.18	345.19	345.19	345.19	345.20	345.20	345.21
6.96 CFS	1.15	1.17	1.18	1.20	1.22	1.24	1.26	1.28
6.96 ELEV	345.21	345.21	345.22	345.22	345.22	345.23	345.23	345.23
7.44 CFS	1.30	1.32	1.34	1.36	1.38	1.40	1.42	1.44
7.44 ELEV	345.24	345.24	345.24	345.25	345.25	345.25	345.26	345.26
7.92 CFS	1.46	1.47	1.49	1.51	1.53	1.55	1.58	1.60
7.92 ELEV	345.26	345.27	345.27	345.28	345.28	345.28	345.29	345.29
8.40 CFS	1.63	1.65	1.68	1.71	1.74	1.78	1.81	1.85
8.40 ELEV	345.30	345.30	345.31	345.31	345.32	345.32	345.33	345.34
8.88 CFS	1.89	1.93	1.97	2.01	2.05	2.09	2.14	2.18
8.88 ELEV	345.34	345.35	345.36	345.37	345.37	345.38	345.39	345.40

CNCPT124.OUT

9.36	CFS	2.22	2.26	2.30	2.33	2.37	2.41	2.44	2.48
9.36	ELEV	345.40	345.41	345.42	345.42	345.43	345.44	345.44	345.45
9.84	CFS	2.52	2.57	2.62	2.67	2.72	2.77	2.83	2.89
9.84	ELEV	345.46	345.47	345.48	345.49	345.49	345.50	345.52	345.53
10.32	CFS	2.96	3.03	3.10	3.18	3.26	3.35	3.44	3.54
10.32	ELEV	345.54	345.55	345.56	345.58	345.59	345.61	345.63	345.64
10.80	CFS	3.64	3.75	3.87	4.00	4.13	4.27	4.42	4.58
10.80	ELEV	345.66	345.68	345.70	345.73	345.75	345.78	345.80	345.83
11.28	CFS	4.76	4.96	5.18	5.41	5.67	5.98	6.44	7.19
11.28	ELEV	345.87	345.90	345.94	345.99	346.03	346.09	346.17	346.31
11.76	CFS	8.37	10.05	10.92	12.16	13.70	15.28	16.60	17.49
11.76	ELEV	346.52	346.84	347.24	347.79	348.49	349.20	349.80	350.20
12.24	CFS	18.00	18.26	18.39	18.44	18.44	18.40	18.32	18.23
12.24	ELEV	350.43	350.55	350.61	350.63	350.63	350.61	350.58	350.53
12.72	CFS	18.11	17.99	17.86	17.73	17.59	17.45	17.30	17.15
12.72	ELEV	350.48	350.43	350.37	350.31	350.25	350.18	350.12	350.05
13.20	CFS	17.00	16.85	16.69	16.54	16.38	16.23	16.07	15.91
13.20	ELEV	349.98	349.91	349.84	349.77	349.70	349.63	349.56	349.49
13.68	CFS	15.75	15.60	15.44	15.28	15.12	14.97	14.81	14.65
13.68	ELEV	349.42	349.35	349.27	349.20	349.13	349.06	348.99	348.92
14.16	CFS	14.50	14.34	14.19	14.03	13.88	13.73	13.59	13.44
14.16	ELEV	348.85	348.78	348.71	348.64	348.57	348.51	348.44	348.37
14.64	CFS	13.29	13.15	13.01	12.87	12.73	12.59	12.45	12.32
14.64	ELEV	348.31	348.24	348.18	348.11	348.05	347.99	347.93	347.87
15.12	CFS	12.19	12.05	11.92	11.79	11.66	11.53	11.41	11.28
15.12	ELEV	347.81	347.75	347.69	347.63	347.57	347.51	347.46	347.40
15.60	CFS	11.16	11.04	10.91	10.79	10.67	10.56	10.44	10.32
15.60	ELEV	347.34	347.29	347.23	347.18	347.12	347.07	347.02	346.97
16.08	CFS	10.21	10.09	9.94	9.61	9.30	9.00	8.72	8.45
16.08	ELEV	346.91	346.86	346.81	346.75	346.69	346.64	346.59	346.54
16.56	CFS	8.18	7.93	7.69	7.46	7.24	7.03	6.82	6.63
16.56	ELEV	346.49	346.44	346.40	346.36	346.32	346.28	346.24	346.21
17.04	CFS	6.44	6.26	6.09	5.92	5.76	5.61	5.47	5.33

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 120

17.04	ELEV	346.17	346.14	346.11	346.08	346.05	346.02	345.99	345.97
17.52	CFS	5.19	5.06	4.94	4.82	4.70	4.59	4.48	4.38
17.52	ELEV	345.94	345.92	345.90	345.88	345.86	345.84	345.82	345.80
18.00	CFS	4.28	4.19	4.09	4.01	3.92	3.84	3.76	3.68
18.00	ELEV	345.78	345.76	345.75	345.73	345.71	345.70	345.68	345.67
18.48	CFS	3.61	3.54	3.47	3.40	3.34	3.28	3.21	3.16
18.48	ELEV	345.66	345.64	345.63	345.62	345.61	345.60	345.59	345.57
18.96	CFS	3.10	3.04	2.99	2.94	2.89	2.84	2.79	2.75
18.96	ELEV	345.56	345.55	345.54	345.54	345.53	345.52	345.51	345.50
19.44	CFS	2.70	2.66	2.62	2.58	2.54	2.50	2.46	2.42
19.44	ELEV	345.49	345.48	345.48	345.47	345.46	345.45	345.45	345.44
19.92	CFS	2.39	2.35	2.32	2.28	2.25	2.22	2.19	2.16
19.92	ELEV	345.43	345.43	345.42	345.42	345.41	345.40	345.40	345.39
20.40	CFS	2.13	2.10	2.07	2.05	2.02	2.00	1.98	1.96
20.40	ELEV	345.39	345.38	345.38	345.37	345.37	345.36	345.36	345.36
20.88	CFS	1.94	1.92	1.90	1.88	1.86	1.84	1.83	1.81
20.88	ELEV	345.35	345.35	345.35	345.34	345.34	345.34	345.33	345.33
21.36	CFS	1.79	1.78	1.76	1.75	1.74	1.72	1.71	1.70
21.36	ELEV	345.33	345.32	345.32	345.32	345.32	345.31	345.31	345.31
21.84	CFS	1.69	1.67	1.66	1.65	1.64	1.63	1.62	1.61
21.84	ELEV	345.31	345.30	345.30	345.30	345.30	345.30	345.30	345.29
22.32	CFS	1.60	1.59	1.59	1.58	1.57	1.56	1.55	1.55
22.32	ELEV	345.29	345.29	345.29	345.29	345.29	345.28	345.28	345.28
22.80	CFS	1.54	1.53	1.52	1.52	1.51	1.50	1.50	1.49

CNCPT124.OUT

22.80	ELEV	345.28	345.28	345.28	345.28	345.27	345.27	345.27	345.27
23.28	CFS	1.48	1.48	1.47	1.47	1.46	1.45	1.45	1.44
23.28	ELEV	345.27	345.27	345.27	345.27	345.27	345.26	345.26	345.26
23.76	CFS	1.44	1.43	1.43	1.42	1.42	1.41	1.39	1.36
23.76	ELEV	345.26	345.26	345.26	345.26	345.26	345.26	345.25	345.25
24.24	CFS	1.32	1.27	1.22	1.16	1.11	1.06	1.02	.97
24.24	ELEV	345.24	345.23	345.22	345.21	345.20	345.19	345.19	345.18
24.72	CFS	.93	.89	.85	.81	.77	.74	.70	.67
24.72	ELEV	345.17	345.16	345.15	345.15	345.14	345.13	345.13	345.12
25.20	CFS	.64	.61	.59	.56	.53	.51	.49	.47
25.20	ELEV	345.12	345.11	345.11	345.10	345.10	345.09	345.09	345.08
25.68	CFS	.44	.42						
25.68	ELEV	345.08	345.08						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.44 WATERSHED INCHES; 105 CFS-HRS; 8.7 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	15	11	5	3	2	2	2	1

DURATION(HRS)	18	20	21
FLOW(CFS)	1	1	0

OPERATION RUNOFF XSECTION 119

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 4 JOB NO. 1 PAGE 121

PEAK TIME(HRS) 11.96 PEAK DISCHARGE(CFS) 29.3 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.64 WATERSHED INCHES; 21 CFS-HRS; 1.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 120

PEAK TIME(HRS) 11.97 PEAK DISCHARGE(CFS) 41.7 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.29 WATERSHED INCHES; 127 CFS-HRS; 10.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 143.7 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.11 WATERSHED INCHES; 206 CFS-HRS; 17.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 185.0 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
Page 116

CNCPT124.OUT  
5.47 WATERSHED INCHES; 143 CFS-HRS; 11.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	328.6	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.83 WATERSHED INCHES; 349 CFS-HRS; 28.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 4 JOB NO. 1 PAGE 122

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.00	485.0	(NULL)
12.45	511.9	(NULL)
14.69	74.4	(NULL)
14.81	71.6	(NULL)
14.92	69.3	(NULL)
15.03	67.2	(NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.00 WATERSHED INCHES; 1334 CFS-HRS; 110.3 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.12	437.6	316.27
12.57	476.3	316.37

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.00 WATERSHED INCHES; 1334 CFS-HRS; 110.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	154.3	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.57 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.13	149.0	365.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
Page 117

CNCPT124.OUT  
4.56 WATERSHED INCHES; 149 CFS-HRS; 12.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 4 JOB NO. 1 PAGE 123

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.10 220.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.50 WATERSHED INCHES; 217 CFS-HRS; 17.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.11 367.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.52 WATERSHED INCHES; 366 CFS-HRS; 30.2 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.20 352.5 319.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.53 WATERSHED INCHES; 366 CFS-HRS; 30.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 28

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.08 165.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.00 WATERSHED INCHES; 155 CFS-HRS; 12.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 29

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.10 600.0 (NULL)  
12.56 511.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.87 WATERSHED INCHES; 1488 CFS-HRS; 123.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 30

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 4 JOB NO. 1 PAGE 124

CNCPT124.OUT  
 PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.14                                      919.0                                      (NULL)  
     12.46                                      660.5                                      (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
     4.80 WATERSHED INCHES;      1854 CFS-HRS;      153.2 ACRE-FEET.

OPERATION RUNOFF    XSECTION    31

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.05                                      263.9                                      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
     5.22 WATERSHED INCHES;      233 CFS-HRS;      19.3 ACRE-FEET.

OPERATION REACH    XSECTION    32

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.14                                      243.1                                      314.08

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
     5.22 WATERSHED INCHES;      233 CFS-HRS;      19.3 ACRE-FEET.

OPERATION RUNOFF    XSECTION    33

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     11.99                                      42.3                                      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
     6.68 WATERSHED INCHES;      36 CFS-HRS;      3.0 ACRE-FEET.

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS  
                   WITH                      .48 AC-FT ( .09 WATERSHED INCHES) FLOOD STORAGE  
                   REMAINING IN RESERVOIR AT ELEV.      378.00.                      \*\*\*

OPERATION RESVOR    STRUCTURE    32

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.09                                      33.1                                      380.82

HYDROGRAPH POINTS FOR    ALTERNATE = 1,    STORM =50										
HRS	MAIN	TIME	INCREMENT =	.060 hr,				DRAINAGE AREA =		.01 SQ.MI.
2.28	CFS	.00	.01	.01	.01	.01	.01	.01	.01	.01
2.28	ELEV	375.40	375.42	375.42	375.43	375.43	375.43	375.44	375.44	375.44
2.76	CFS	.01	.01	.01	.01	.02	.02	.02	.02	.02
2.76	ELEV	375.44	375.45	375.45	375.46	375.46	375.46	375.47	375.47	375.47

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4    VERSION  
 06/30/\*\*                      Run for 1,2,10,50,100YR STORMS    2.04TEST  
 15:05:46                      PASS    4    JOB NO.    1                      PAGE 125

3.24	CFS	.02	.02	.02	.02	.03	.03	.03	.03
3.24	ELEV	375.48	375.48	375.49	375.49	375.50	375.50	375.51	375.52
3.72	CFS	.03	.03	.03	.04	.04	.04	.04	.04
3.72	ELEV	375.52	375.53	375.53	375.54	375.55	375.55	375.56	375.57
4.20	CFS	.04	.05	.05	.05	.05	.05	.05	.06
4.20	ELEV	375.57	375.58	375.59	375.59	375.60	375.61	375.62	375.62
4.68	CFS	.06	.06	.06	.06	.07	.07	.07	.07



CNCPT124.OUT

4.68	ELEV	375.63	375.64	375.65	375.66	375.66	375.67	375.68	375.69
5.16	CFS	.08	.08	.08	.08	.08	.09	.09	.09
5.16	ELEV	375.70	375.71	375.72	375.72	375.73	375.74	375.75	375.76
5.64	CFS	.09	.10	.10	.10	.10	.11	.11	.11
5.64	ELEV	375.77	375.78	375.79	375.80	375.81	375.82	375.83	375.84
6.12	CFS	.11	.12	.12	.12	.13	.13	.13	.13
6.12	ELEV	375.85	375.86	375.87	375.88	375.90	375.91	375.92	375.93
6.60	CFS	.14	.14	.14	.15	.15	.15	.15	.16
6.60	ELEV	375.94	375.95	375.96	375.97	375.99	376.00	376.01	376.02
7.08	CFS	.16	.16	.17	.17	.17	.18	.18	.18
7.08	ELEV	376.03	376.05	376.06	376.07	376.08	376.09	376.11	376.12
7.56	CFS	.18	.19	.19	.19	.20	.20	.20	.21
7.56	ELEV	376.13	376.15	376.16	376.17	376.18	376.20	376.21	376.22
8.04	CFS	.21	.21	.22	.22	.23	.23	.23	.24
8.04	ELEV	376.24	376.25	376.26	376.28	376.29	376.31	376.32	376.34
8.52	CFS	.24	.25	.25	.25	.26	.26	.27	.27
8.52	ELEV	376.35	376.37	376.39	376.41	376.42	376.44	376.46	376.48
9.00	CFS	.28	.28	.29	.29	.30	.30	.31	.32
9.00	ELEV	376.50	376.52	376.54	376.56	376.58	376.61	376.63	376.65
9.48	CFS	.32	.33	.33	.34	.34	.35	.35	.36
9.48	ELEV	376.67	376.69	376.71	376.73	376.76	376.78	376.80	376.83
9.96	CFS	.37	.37	.38	.39	.39	.40	.41	.42
9.96	ELEV	376.85	376.88	376.90	376.93	376.96	376.99	377.02	377.05
10.44	CFS	.43	.43	.44	.45	.46	.47	.48	.49
10.44	ELEV	377.08	377.12	377.15	377.19	377.23	377.27	377.31	377.36
10.92	CFS	.51	.52	.53	.54	.56	.57	.59	.61
10.92	ELEV	377.40	377.45	377.50	377.56	377.61	377.67	377.74	377.81
11.40	CFS	.63	.65	.67	.70	.73	.79	.87	.98
11.40	ELEV	377.89	377.97	378.05	378.16	378.30	378.51	378.83	379.29
11.88	CFS	3.68	13.49	30.09	32.86	32.62	28.64	19.18	13.98
11.88	ELEV	379.79	380.29	380.65	380.80	380.79	380.62	380.43	380.30
12.36	CFS	11.01	9.01	7.61	6.48	5.58	4.96	4.78	4.59
12.36	ELEV	380.23	380.16	380.10	380.06	380.02	379.99	379.96	379.93
12.84	CFS	4.41	4.23	4.06	3.89	3.73	3.58	3.43	3.29
12.84	ELEV	379.91	379.88	379.85	379.82	379.80	379.77	379.75	379.73
13.32	CFS	3.16	3.04	2.92	2.81	2.71	2.61	2.52	2.43
13.32	ELEV	379.71	379.69	379.67	379.65	379.63	379.62	379.60	379.59
13.80	CFS	2.34	2.27	2.19	2.12	2.05	1.98	1.92	1.86
13.80	ELEV	379.58	379.56	379.55	379.54	379.53	379.52	379.51	379.50
14.28	CFS	1.81	1.76	1.71	1.67	1.63	1.60	1.56	1.53
14.28	ELEV	379.49	379.48	379.47	379.47	379.46	379.46	379.45	379.44
14.76	CFS	1.50	1.47	1.45	1.42	1.40	1.37	1.35	1.33

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 126

14.76	ELEV	379.44	379.44	379.43	379.43	379.42	379.42	379.42	379.41
15.24	CFS	1.31	1.29	1.27	1.25	1.23	1.21	1.19	1.17
15.24	ELEV	379.41	379.41	379.40	379.40	379.40	379.39	379.39	379.39
15.72	CFS	1.16	1.14	1.12	1.10	1.09	1.07	1.05	1.03
15.72	ELEV	379.38	379.38	379.38	379.38	379.37	379.37	379.37	379.37
16.20	CFS	1.02	1.00	1.00	1.00	1.00	1.00	1.00	1.00
16.20	ELEV	379.36	379.36	379.36	379.35	379.35	379.35	379.34	379.34
16.68	CFS	.99	.99	.99	.99	.99	.99	.99	.99
16.68	ELEV	379.34	379.33	379.33	379.32	379.32	379.32	379.31	379.31
17.16	CFS	.99	.98	.98	.98	.98	.98	.98	.98
17.16	ELEV	379.30	379.30	379.29	379.29	379.28	379.28	379.27	379.27
17.64	CFS	.97	.97	.97	.97	.97	.97	.97	.96
17.64	ELEV	379.26	379.25	379.25	379.24	379.24	379.23	379.22	379.22
18.12	CFS	.96	.96	.96	.96	.96	.95	.95	.95
18.12	ELEV	379.21	379.20	379.20	379.19	379.18	379.17	379.17	379.16

CNCPT124.OUT

18.60	CFS	.95	.95	.94	.94	.94	.94	.94	.93
18.60	ELEV	379.15	379.14	379.14	379.13	379.12	379.11	379.11	379.10
19.08	CFS	.93	.93	.93	.92	.92	.92	.92	.92
19.08	ELEV	379.09	379.08	379.07	379.06	379.05	379.05	379.04	379.03
19.56	CFS	.91	.91	.91	.91	.90	.90	.90	.90
19.56	ELEV	379.02	379.01	379.00	378.99	378.98	378.97	378.96	378.95
20.04	CFS	.89	.89	.89	.89	.88	.88	.88	.88
20.04	ELEV	378.94	378.93	378.92	378.91	378.90	378.89	378.88	378.87
20.52	CFS	.87	.87	.87	.87	.86	.86	.86	.86
20.52	ELEV	378.86	378.85	378.84	378.83	378.82	378.81	378.80	378.79
21.00	CFS	.85	.85	.85	.85	.85	.84	.84	.84
21.00	ELEV	378.78	378.77	378.77	378.76	378.75	378.74	378.73	378.72
21.48	CFS	.84	.83	.83	.83	.83	.82	.82	.82
21.48	ELEV	378.71	378.70	378.69	378.68	378.67	378.66	378.65	378.64
21.96	CFS	.82	.81	.81	.81	.81	.81	.80	.80
21.96	ELEV	378.64	378.63	378.62	378.61	378.60	378.59	378.58	378.57
22.44	CFS	.80	.80	.79	.79	.79	.79	.79	.78
22.44	ELEV	378.56	378.55	378.55	378.54	378.53	378.52	378.51	378.50
22.92	CFS	.78	.78	.78	.77	.77	.77	.77	.77
22.92	ELEV	378.49	378.48	378.48	378.47	378.46	378.45	378.44	378.43
23.40	CFS	.76	.76	.76	.76	.76	.75	.75	.75
23.40	ELEV	378.43	378.42	378.41	378.40	378.39	378.38	378.38	378.37
23.88	CFS	.75	.75	.74	.74	.74	.73	.73	.73
23.88	ELEV	378.36	378.35	378.34	378.33	378.32	378.31	378.29	378.27
24.36	CFS	.72	.72	.71	.71	.70	.70	.69	.69
24.36	ELEV	378.25	378.24	378.22	378.20	378.18	378.16	378.14	378.12
24.84	CFS	.68	.68	.67	.67	.67	.66	.66	.66
24.84	ELEV	378.11	378.09	378.07	378.05	378.03	378.02	378.00	

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.60 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	14	
FLOW(CFS)	2	1	1	1	1	1	1	1	TRUNCATED

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 127

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. \*\*\*

OPERATION REACH XSECTION 34

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.09 33.1 338.30

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.60 WATERSHED INCHES; 30 CFS-HRS; 2.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.03 126.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.67 WATERSHED INCHES; 118 CFS-HRS; 9.8 ACRE-FEET.

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS  
 Page 121

CNCPT124.OUT  
 WITH 1.02 AC-FT ( .06 WATERSHED INCHES) FLOOD STORAGE  
 REMAINING IN RESERVOIR AT ELEV. 354.09. \*\*\*

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS) 12.12                      PEAK DISCHARGE(CFS) 104.8                      PEAK ELEVATION(FEET) 358.09

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =50  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.

2.04	CFS	.00	.01	.01	.01	.01	.01	.01	.01
2.04	ELEV	350.00	350.02	350.03	350.03	350.04	350.04	350.05	350.06
2.52	CFS	.01	.02	.02	.02	.02	.02	.03	.03
2.52	ELEV	350.06	350.07	350.08	350.09	350.10	350.11	350.12	350.13
3.00	CFS	.03	.03	.04	.04	.04	.05	.05	.05
3.00	ELEV	350.14	350.15	350.16	350.17	350.18	350.20	350.21	350.22
3.48	CFS	.05	.06	.06	.06	.07	.07	.07	.08
3.48	ELEV	350.23	350.25	350.26	350.28	350.29	350.31	350.32	350.34
3.96	CFS	.08	.09	.09	.09	.10	.10	.11	.11
3.96	ELEV	350.35	350.37	350.38	350.40	350.42	350.44	350.45	350.47
4.44	CFS	.11	.12	.12	.13	.13	.14	.14	.15
4.44	ELEV	350.49	350.51	350.53	350.55	350.57	350.59	350.61	350.63
4.92	CFS	.15	.16	.16	.17	.17	.18	.18	.19
4.92	ELEV	350.65	350.67	350.69	350.71	350.73	350.76	350.78	350.80
5.40	CFS	.19	.20	.20	.21	.21	.22	.23	.23
5.40	ELEV	350.83	350.85	350.87	350.90	350.92	350.95	350.97	351.00
5.88	CFS	.24	.24	.25	.26	.26	.27	.28	.28

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4                      VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 15:05:46 PASS 4 JOB NO. 1                      PAGE 128

5.88	ELEV	351.03	351.05	351.08	351.11	351.13	351.16	351.19	351.22
6.36	CFS	.29	.30	.30	.31	.32	.32	.33	.34
6.36	ELEV	351.25	351.27	351.30	351.33	351.36	351.39	351.42	351.45
6.84	CFS	.34	.35	.36	.37	.37	.38	.39	.40
6.84	ELEV	351.48	351.51	351.55	351.58	351.61	351.64	351.67	351.71
7.32	CFS	.40	.41	.42	.43	.44	.44	.45	.46
7.32	ELEV	351.74	351.77	351.80	351.84	351.87	351.91	351.94	351.97
7.80	CFS	.47	.48	.48	.49	.50	.51	.52	.53
7.80	ELEV	352.01	352.04	352.08	352.11	352.15	352.19	352.22	352.26
8.28	CFS	.53	.54	.55	.56	.57	.58	.59	.60
8.28	ELEV	352.30	352.34	352.38	352.42	352.46	352.50	352.55	352.60
8.76	CFS	.61	.63	.64	.65	.66	.67	.69	.70
8.76	ELEV	352.64	352.69	352.74	352.79	352.85	352.90	352.96	353.01
9.24	CFS	.71	.73	.74	.75	.77	.78	.79	.81
9.24	ELEV	353.07	353.12	353.18	353.24	353.30	353.35	353.41	353.47
9.72	CFS	.82	.83	.85	.86	.88	.89	.91	.93
9.72	ELEV	353.52	353.58	353.65	353.71	353.77	353.84	353.91	353.98
10.20	CFS	.94	.96	.98	1.00	1.27	1.56	1.84	2.16
10.20	ELEV	354.05	354.13	354.21	354.29	354.35	354.39	354.44	354.49
10.68	CFS	2.53	2.89	3.24	3.59	3.93	4.26	4.59	4.93
10.68	ELEV	354.54	354.59	354.64	354.68	354.73	354.77	354.82	354.86
11.16	CFS	5.33	5.75	6.20	6.66	7.15	7.67	8.21	8.87
11.16	ELEV	354.90	354.95	354.99	355.04	355.09	355.14	355.20	355.26
11.64	CFS	9.85	11.74	14.82	19.47	32.43	54.44	85.65	96.35
11.64	ELEV	355.36	355.52	355.77	356.14	356.62	357.16	357.64	357.97
12.12	CFS	105	97	87	69	50	40	35	30
12.12	ELEV	358.09	357.98	357.69	357.35	357.08	356.88	356.70	356.55
12.60	CFS	26.46	23.03	20.13	18.89	17.78	16.74	15.78	14.89
12.60	ELEV	356.41	356.29	356.18	356.09	356.00	355.92	355.84	355.77

CNCPT124.OUT

13.08	CFS	14.07	13.30	12.60	11.94	11.35	10.79	10.29	9.85
13.08	ELEV	355.71	355.64	355.59	355.54	355.49	355.44	355.40	355.36
13.56	CFS	9.47	9.11	8.78	8.46	8.15	7.87	7.59	7.33
13.56	ELEV	355.33	355.29	355.26	355.22	355.19	355.16	355.13	355.11
14.04	CFS	7.09	6.85	6.63	6.42	6.23	6.04	5.88	5.72
14.04	ELEV	355.08	355.06	355.04	355.01	354.99	354.98	354.96	354.94
14.52	CFS	5.58	5.44	5.32	5.20	5.09	4.99	4.91	4.84
14.52	ELEV	354.93	354.92	354.90	354.89	354.88	354.87	354.86	354.85
15.00	CFS	4.76	4.69	4.62	4.55	4.48	4.42	4.35	4.29
15.00	ELEV	354.84	354.83	354.82	354.81	354.80	354.79	354.78	354.78
15.48	CFS	4.22	4.16	4.10	4.04	3.98	3.92	3.86	3.80
15.48	ELEV	354.77	354.76	354.75	354.74	354.73	354.73	354.72	354.71
15.96	CFS	3.75	3.69	3.63	3.58	3.52	3.47	3.42	3.37
15.96	ELEV	354.70	354.70	354.69	354.68	354.67	354.67	354.66	354.65
16.44	CFS	3.32	3.28	3.24	3.20	3.16	3.13	3.09	3.06
16.44	ELEV	354.65	354.64	354.64	354.63	354.63	354.62	354.62	354.61
16.92	CFS	3.03	3.00	2.97	2.94	2.91	2.89	2.86	2.84
16.92	ELEV	354.61	354.60	354.60	354.60	354.59	354.59	354.58	354.58
17.40	CFS	2.81	2.79	2.76	2.74	2.72	2.70	2.67	2.65
17.40	ELEV	354.58	354.58	354.57	354.57	354.57	354.56	354.56	354.56

1

TR20

SCS

Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 129

17.88	CFS	2.63	2.61	2.59	2.57	2.55	2.52	2.50	2.48
17.88	ELEV	354.55	354.55	354.55	354.55	354.54	354.54	354.54	354.53
18.36	CFS	2.46	2.44	2.42	2.40	2.38	2.36	2.34	2.32
18.36	ELEV	354.53	354.53	354.53	354.52	354.52	354.52	354.52	354.51
18.84	CFS	2.30	2.28	2.26	2.24	2.22	2.21	2.19	2.17
18.84	ELEV	354.51	354.51	354.51	354.50	354.50	354.50	354.49	354.49
19.32	CFS	2.15	2.13	2.11	2.09	2.07	2.05	2.03	2.01
19.32	ELEV	354.49	354.49	354.48	354.48	354.48	354.48	354.47	354.47
19.80	CFS	1.99	1.98	1.97	1.95	1.94	1.92	1.90	1.89
19.80	ELEV	354.47	354.47	354.46	354.46	354.46	354.46	354.45	354.45
20.28	CFS	1.87	1.86	1.85	1.83	1.82	1.81	1.80	1.79
20.28	ELEV	354.45	354.45	354.44	354.44	354.44	354.44	354.44	354.43
20.76	CFS	1.78	1.77	1.76	1.75	1.74	1.73	1.72	1.71
20.76	ELEV	354.43	354.43	354.43	354.43	354.43	354.42	354.42	354.42
21.24	CFS	1.71	1.70	1.69	1.69	1.68	1.67	1.67	1.66
21.24	ELEV	354.42	354.42	354.42	354.42	354.42	354.41	354.41	354.41
21.72	CFS	1.65	1.65	1.64	1.64	1.63	1.63	1.62	1.62
21.72	ELEV	354.41	354.41	354.41	354.41	354.41	354.41	354.41	354.40
22.20	CFS	1.61	1.61	1.60	1.60	1.59	1.59	1.58	1.58
22.20	ELEV	354.40	354.40	354.40	354.40	354.40	354.40	354.40	354.40
22.68	CFS	1.57	1.57	1.56	1.56	1.56	1.55	1.55	1.54
22.68	ELEV	354.40	354.40	354.40	354.40	354.39	354.39	354.39	354.39
23.16	CFS	1.54	1.53	1.53	1.53	1.52	1.52	1.51	1.51
23.16	ELEV	354.39	354.39	354.39	354.39	354.39	354.39	354.39	354.39
23.64	CFS	1.51	1.50	1.50	1.49	1.49	1.49	1.48	1.47
23.64	ELEV	354.39	354.39	354.38	354.38	354.38	354.38	354.38	354.38
24.12	CFS	1.46	1.42	1.36	1.29	1.21	1.13	1.06	1.00
24.12	ELEV	354.38	354.37	354.36	354.35	354.34	354.32	354.31	354.30
24.60	CFS	.99	.99	.99	.98	.98	.97	.97	.96
24.60	ELEV	354.28	354.26	354.24	354.22	354.20	354.18	354.16	354.14
25.08	CFS	.96	.95	.95					
25.08	ELEV	354.12	354.10	354.09					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.99 WATERSHED INCHES; 106 CFS-HRS; 8.8 ACRE-FEET.  
 DURATION(HRS) 2 4 6 8 10 12 14 16

FLOW(CFS)            9        5        3        CNCPT124.OUT        2        2        1        1  
 DURATION(HRS)    17  
 FLOW(CFS)        1 TRUNCATED

OPERATION ADDHYD    XSECTION    36

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.11                                      137.5                                      (NULL)

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4    VERSION  
 06/30/\*\*                      Run for 1,2,10,50,100YR STORMS    2.04TEST  
 15:05:46                      PASS    4    JOB NO.    1                      PAGE 130

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                                  5.90 WATERSHED INCHES;        137 CFS-HRS;                      11.3 ACRE-FEET.

OPERATION RESVOR    STRUCTURE    34

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.11                                      137.5                                      (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                                  5.90 WATERSHED INCHES;        137 CFS-HRS;                      11.3 ACRE-FEET.

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
                                  CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION    37.                      \*\*\*

OPERATION REACH     XSECTION    37

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.11                                      137.5                                      330.91

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                                  5.90 WATERSHED INCHES;        137 CFS-HRS;                      11.3 ACRE-FEET.

OPERATION RUNOFF    XSECTION    138

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     11.97                                      141.8                                      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                                  6.07 WATERSHED INCHES;        110 CFS-HRS;                      9.1 ACRE-FEET.

OPERATION ADDHYD    XSECTION    139

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
     12.02                                      255.8                                      (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
                                  5.97 WATERSHED INCHES;        246 CFS-HRS;                      20.4 ACRE-FEET.

OPERATION RESVOR    STRUCTURE    35

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 4 JOB NO. 1 PAGE 131

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =50  
HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .06 SQ.MI.

2.94	CFS	.00	.01	.01	.01	.01	.01	.01	.02
2.94	ELEV	326.00	326.00	326.00	326.00	326.00	326.01	326.01	326.01
3.42	CFS	.02	.02	.03	.03	.03	.04	.04	.05
3.42	ELEV	326.01	326.01	326.01	326.01	326.01	326.02	326.02	326.02
3.90	CFS	.05	.05	.06	.07	.07	.08	.08	.09
3.90	ELEV	326.02	326.02	326.03	326.03	326.03	326.03	326.03	326.04
4.38	CFS	.09	.10	.11	.12	.12	.13	.14	.15
4.38	ELEV	326.04	326.04	326.05	326.05	326.05	326.05	326.06	326.06
4.86	CFS	.16	.16	.17	.18	.19	.20	.21	.22
4.86	ELEV	326.07	326.07	326.07	326.08	326.08	326.08	326.09	326.09
5.34	CFS	.23	.24	.25	.26	.27	.29	.30	.31
5.34	ELEV	326.10	326.10	326.11	326.11	326.11	326.12	326.12	326.13
5.82	CFS	.32	.33	.35	.36	.37	.38	.40	.41
5.82	ELEV	326.13	326.14	326.15	326.15	326.16	326.16	326.17	326.17
6.30	CFS	.43	.44	.45	.47	.48	.50	.51	.53
6.30	ELEV	326.18	326.18	326.19	326.20	326.20	326.21	326.22	326.22
6.78	CFS	.55	.56	.58	.59	.61	.63	.64	.66
6.78	ELEV	326.23	326.24	326.24	326.25	326.26	326.26	326.27	326.28
7.26	CFS	.68	.70	.71	.73	.75	.77	.79	.81
7.26	ELEV	326.28	326.29	326.30	326.31	326.31	326.32	326.33	326.34
7.74	CFS	.82	.84	.86	.88	.90	.92	.94	.96
7.74	ELEV	326.35	326.35	326.36	326.37	326.38	326.39	326.40	326.40
8.22	CFS	.98	1.01	1.03	1.05	1.07	1.10	1.12	1.15
8.22	ELEV	326.41	326.42	326.43	326.44	326.45	326.46	326.47	326.48
8.70	CFS	1.18	1.20	1.23	1.26	1.29	1.32	1.35	1.39
8.70	ELEV	326.49	326.51	326.52	326.53	326.54	326.56	326.57	326.58
9.18	CFS	1.42	1.45	1.48	1.52	1.55	1.58	1.61	1.65
9.18	ELEV	326.60	326.61	326.62	326.64	326.65	326.66	326.68	326.69
9.66	CFS	1.68	1.72	1.75	1.79	1.83	1.87	1.91	1.95
9.66	ELEV	326.71	326.72	326.74	326.75	326.77	326.78	326.80	326.82
10.14	CFS	1.99	2.04	2.08	2.13	2.18	2.24	2.30	2.36
10.14	ELEV	326.84	326.86	326.88	326.90	326.92	326.94	326.96	326.99
10.62	CFS	2.43	2.51	2.60	2.69	2.79	2.90	3.01	3.13
10.62	ELEV	327.02	327.05	327.09	327.13	327.17	327.22	327.26	327.32
11.10	CFS	3.26	3.40	3.55	3.71	3.89	4.08	4.28	4.50
11.10	ELEV	327.37	327.43	327.49	327.56	327.63	327.71	327.80	327.89
11.58	CFS	4.76	5.10	5.60	6.32	7.33	8.81	26.59	82.31
11.58	ELEV	328.00	328.14	328.35	328.65	329.08	329.70	330.51	331.27
12.06	CFS	.91	.98	1.02	1.03	1.04	1.04	1.02	1.01
12.06	ELEV	331.92	332.44	332.77	332.93	332.99	332.96	332.85	332.71
12.54	CFS	98.95	96.30	93.49	90.61	87.73	84.90	82.13	75.42
12.54	ELEV	332.54	332.34	332.12	331.90	331.68	331.46	331.25	331.05
13.02	CFS	56.05	45.84	40.01	35.50	31.97	29.28	27.31	25.61
13.02	ELEV	330.88	330.78	330.71	330.65	330.60	330.56	330.52	330.50
13.50	CFS	24.13	22.83	21.68	20.66	19.77	19.01	18.30	17.63
13.50	ELEV	330.47	330.45	330.43	330.41	330.40	330.38	330.37	330.36
13.98	CFS	17.01	16.41	15.85	15.33	14.86	14.47	14.10	13.75
13.98	ELEV	330.35	330.34	330.33	330.32	330.31	330.30	330.29	330.28

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 4 JOB NO. 1 PAGE 132

CNCPT124.OUT

14.46	CFS	13.41	13.09	12.79	12.50	12.23	11.97	11.73	11.50
14.46	ELEV	330.28	330.27	330.26	330.26	330.25	330.24	330.24	330.23
14.94	CFS	11.28	11.08	10.88	10.70	10.52	10.35	10.18	10.02
14.94	ELEV	330.23	330.22	330.22	330.22	330.21	330.21	330.20	330.20
15.42	CFS	9.99	9.98	9.96	9.95	9.93	9.91	9.89	9.87
15.42	ELEV	330.20	330.19	330.18	330.18	330.17	330.16	330.15	330.15
15.90	CFS	9.85	9.82	9.79	9.77	9.74	9.71	9.68	9.65
15.90	ELEV	330.14	330.12	330.11	330.10	330.09	330.08	330.07	330.05
16.38	CFS	9.62	9.58	9.55	9.52	9.48	9.45	9.42	9.38
16.38	ELEV	330.04	330.03	330.01	330.00	329.98	329.97	329.96	329.94
16.86	CFS	9.35	9.31	9.28	9.24	9.21	9.17	9.14	9.10
16.86	ELEV	329.93	329.91	329.90	329.88	329.87	329.85	329.84	329.82
17.34	CFS	9.06	9.03	8.99	8.96	8.92	8.88	8.85	8.81
17.34	ELEV	329.81	329.79	329.78	329.76	329.75	329.73	329.72	329.70
17.82	CFS	8.77	8.74	8.70	8.66	8.62	8.59	8.55	8.51
17.82	ELEV	329.68	329.67	329.65	329.64	329.62	329.61	329.59	329.58
18.30	CFS	8.48	8.44	8.40	8.36	8.33	8.29	8.25	8.21
18.30	ELEV	329.56	329.54	329.53	329.51	329.50	329.48	329.47	329.45
18.78	CFS	8.18	8.14	8.10	8.06	8.02	7.99	7.95	7.91
18.78	ELEV	329.43	329.42	329.40	329.39	329.37	329.35	329.34	329.32
19.26	CFS	7.87	7.83	7.80	7.76	7.72	7.68	7.64	7.61
19.26	ELEV	329.31	329.29	329.27	329.26	329.24	329.23	329.21	329.19
19.74	CFS	7.57	7.53	7.49	7.45	7.41	7.38	7.34	7.30
19.74	ELEV	329.18	329.16	329.15	329.13	329.11	329.10	329.08	329.07
20.22	CFS	7.26	7.22	7.19	7.15	7.11	7.07	7.04	7.00
20.22	ELEV	329.05	329.03	329.02	329.00	328.99	328.97	328.96	328.94
20.70	CFS	6.97	6.93	6.89	6.86	6.82	6.79	6.75	6.72
20.70	ELEV	328.93	328.91	328.90	328.88	328.87	328.85	328.84	328.82
21.18	CFS	6.69	6.65	6.62	6.59	6.55	6.52	6.49	6.46
21.18	ELEV	328.81	328.79	328.78	328.77	328.75	328.74	328.73	328.71
21.66	CFS	6.42	6.39	6.36	6.33	6.30	6.27	6.24	6.21
21.66	ELEV	328.70	328.69	328.67	328.66	328.65	328.63	328.62	328.61
22.14	CFS	6.18	6.15	6.12	6.09	6.06	6.03	6.01	5.98
22.14	ELEV	328.60	328.58	328.57	328.56	328.55	328.53	328.52	328.51
22.62	CFS	5.95	5.92	5.89	5.87	5.84	5.81	5.79	5.76
22.62	ELEV	328.50	328.49	328.48	328.46	328.45	328.44	328.43	328.42
23.10	CFS	5.73	5.71	5.68	5.66	5.63	5.61	5.58	5.56
23.10	ELEV	328.41	328.40	328.39	328.38	328.37	328.36	328.34	328.33
23.58	CFS	5.53	5.51	5.49	5.46	5.44	5.41	5.39	5.37
23.58	ELEV	328.32	328.31	328.30	328.29	328.28	328.27	328.26	328.25
24.06	CFS	5.34	5.31	5.28	5.24	5.20	5.15	5.11	5.07
24.06	ELEV	328.24	328.23	328.22	328.20	328.18	328.16	328.15	328.13
24.54	CFS	5.02	4.98	4.93	4.89	4.85	4.80	4.76	4.72
24.54	ELEV	328.11	328.09	328.07	328.05	328.04	328.02	328.00	327.98
25.02	CFS	4.68	4.64	4.60	4.56				
25.02	ELEV	327.97	327.95	327.93	327.91				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.49 WATERSHED INCHES; 226 CFS-HRS; 18.7 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 133

DURATION(HRS)	2	4	6	8	10	12	14
FLOW(CFS)	17	10	9	7	6	5	5 TRUNCATED

OPERATION RUNOFF XSECTION 140

CNCPT124.OUT  
 PEAK TIME(HRS) 11.97 PEAK DISCHARGE(CFS) 14.4 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 3.22 WATERSHED INCHES; 10 CFS-HRS; .8 ACRE-FEET.

OPERATION ADDHYD XSECTION 141

PEAK TIME(HRS) 12.29 PEAK DISCHARGE(CFS) 106.4 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 5.33 WATERSHED INCHES; 236 CFS-HRS; 19.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS) 12.10 PEAK DISCHARGE(CFS) 126.4 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 5.02 WATERSHED INCHES; 127 CFS-HRS; 10.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 1042.0 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 4.81 WATERSHED INCHES; 1982 CFS-HRS; 163.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 1285.1 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 4.85 WATERSHED INCHES; 2215 CFS-HRS; 183.0 ACRE-FEET.

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 134

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS) 12.14 PEAK DISCHARGE(CFS) 1389.1 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 4.88 WATERSHED INCHES; 2446 CFS-HRS; 202.2 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS) 12.24 PEAK DISCHARGE(CFS) 1322.2 PEAK ELEVATION(FEET) 291.68



CNCPT124.OUT  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.88 WATERSHED INCHES; 2444 CFS-HRS; 202.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 45  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.13 130.9 (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.51 WATERSHED INCHES; 139 CFS-HRS; 11.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 46  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.15 157.7 (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.26 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 47  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.14 288.3 (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.37 WATERSHED INCHES; 311 CFS-HRS; 25.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 48  
 1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 135

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.04 173.6 (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.85 WATERSHED INCHES; 147 CFS-HRS; 12.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 49  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.22 1399.9 (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.88 WATERSHED INCHES; 2591 CFS-HRS; 214.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 50  
 PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.20 1669.3 (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.82 WATERSHED INCHES; 2903 CFS-HRS; 239.9 ACRE-FEET.

CNCPT124.OUT

OPERATION REACH XSECTION 51

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.30 1620.0 287.05

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.82 WATERSHED INCHES; 2902 CFS-HRS; 239.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.00 17.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.41 WATERSHED INCHES; 14 CFS-HRS; 1.1 ACRE-FEET.

OPERATION REACH XSECTION 53

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.07 17.7 288.67

1 TR20 ----- SCS -  
 06/30/\*\* Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 15:05:46 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 PASS 4 JOB NO. 1 PAGE 136

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.41 WATERSHED INCHES; 14 CFS-HRS; 1.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 54

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.06 12.1 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.30 WATERSHED INCHES; 11 CFS-HRS; .9 ACRE-FEET.

OPERATION RUNOFF XSECTION 55

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.04 106.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.30 WATERSHED INCHES; 89 CFS-HRS; 7.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 56

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.29 1655.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.80 WATERSHED INCHES; 2991 CFS-HRS; 247.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 57

CNCPT124.OUT  
 PEAK TIME(HRS) 12.06 PEAK DISCHARGE(CFS) 29.8 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 2.36 WATERSHED INCHES; 24 CFS-HRS; 2.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 58

PEAK TIME(HRS) 12.29 PEAK DISCHARGE(CFS) 1665.1 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.76 WATERSHED INCHES; 3015 CFS-HRS; 249.2 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 137

OPERATION RUNOFF XSECTION 59

PEAK TIME(HRS) 12.05 PEAK DISCHARGE(CFS) 83.9 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.16 WATERSHED INCHES; 71 CFS-HRS; 5.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

PEAK TIME(HRS) 12.29 PEAK DISCHARGE(CFS) 1696.2 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.74 WATERSHED INCHES; 3087 CFS-HRS; 255.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

PEAK TIME(HRS) 12.07 PEAK DISCHARGE(CFS) 51.4 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.14 WATERSHED INCHES; 46 CFS-HRS; 3.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS) 12.28 PEAK DISCHARGE(CFS) 1720.2 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.73 WATERSHED INCHES; 3133 CFS-HRS; 258.9 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS) 12.39 PEAK DISCHARGE(CFS) 1658.9 PEAK ELEVATION(FEET) 251.14

CNCPT124.OUT

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =50

HRS	MAIN TIME	INCREMENT = .060 hr,	DRAINAGE AREA = 1.03 SQ.MI.						
4.44	CFS	.49	.53	.57	.61	.65	.70	.75	.80
4.44	ELEV	247.16	247.17	247.17	247.18	247.19	247.20	247.21	247.22
4.92	CFS	.86	.92	.98	1.04	1.10	1.17	1.25	1.33
4.92	ELEV	247.23	247.24	247.25	247.26	247.27	247.29	247.30	247.31
5.40	CFS	1.41	1.50	1.60	1.70	1.80	1.91	2.02	2.14
5.40	ELEV	247.33	247.35	247.36	247.38	247.40	247.41	247.42	247.43

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 138

5.88	CFS	2.27	2.40	2.54	2.68	2.83	2.99	3.15	3.32
5.88	ELEV	247.44	247.45	247.47	247.48	247.49	247.50	247.52	247.53
6.36	CFS	3.49	3.66	3.84	4.02	4.20	4.39	4.58	4.78
6.36	ELEV	247.54	247.56	247.57	247.59	247.60	247.62	247.63	247.65
6.84	CFS	4.99	5.22	5.46	5.71	5.99	6.28	6.58	6.90
6.84	ELEV	247.66	247.68	247.70	247.72	247.74	247.75	247.75	247.75
7.32	CFS	7.23	7.58	7.94	8.32	8.71	9.12	9.54	9.96
7.32	ELEV	247.76	247.77	247.77	247.78	247.78	247.79	247.80	247.80
7.80	CFS	10.40	10.85	11.31	11.77	12.24	12.73	13.22	13.72
7.80	ELEV	247.81	247.82	247.82	247.83	247.84	247.84	247.85	247.86
8.28	CFS	14.23	14.77	15.33	15.93	16.57	17.26	18.00	18.80
8.28	ELEV	247.87	247.88	247.88	247.89	247.90	247.91	247.93	247.94
8.76	CFS	19.64	20.53	21.46	22.44	23.45	24.50	25.58	26.69
8.76	ELEV	247.95	247.96	247.98	247.99	248.01	248.02	248.04	248.06
9.24	CFS	27.83	28.99	30.15	31.29	32.40	33.47	34.49	35.47
9.24	ELEV	248.07	248.09	248.10	248.11	248.12	248.13	248.14	248.16
9.72	CFS	36.42	37.36	38.32	39.33	40.43	41.67	43.05	44.60
9.72	ELEV	248.17	248.18	248.19	248.20	248.21	248.22	248.24	248.25
10.20	CFS	46.31	48.17	50.19	52.35	54.76	57.47	60.48	63.74
10.20	ELEV	248.27	248.29	248.31	248.33	248.36	248.39	248.42	248.44
10.68	CFS	67.19	70.81	74.57	78.51	82.64	87.01	91.64	96.58
10.68	ELEV	248.47	248.51	248.54	248.57	248.61	248.65	248.68	248.70
11.16	CFS	102	107	114	120	128	136	145	155
11.16	ELEV	248.72	248.74	248.77	248.79	248.82	248.86	248.90	248.94
11.64	CFS	168	184	209	249	313	413	563	758
11.64	ELEV	248.98	249.02	249.09	249.20	249.34	249.55	249.82	250.11
12.12	CFS	981	1214	1420	1573	1651	1645	1568	1447
12.12	ELEV	250.40	250.68	250.90	251.05	251.13	251.13	251.05	250.93
12.60	CFS	1321	1211	1120	1043	972	906	843	784
12.60	ELEV	250.80	250.68	250.58	250.48	250.39	250.31	250.22	250.14
13.08	CFS	730	682	635	592	555	524	498	477
13.08	ELEV	250.07	250.00	249.93	249.86	249.80	249.75	249.70	249.66
13.56	CFS	458	443	428	415	403	391	380	370
13.56	ELEV	249.63	249.60	249.57	249.55	249.53	249.51	249.49	249.46
14.04	CFS	360	349	339	329	320	310	302	293
14.04	ELEV	249.44	249.42	249.40	249.38	249.36	249.34	249.32	249.30
14.52	CFS	284	276	268	259	250	236	219	202
14.52	ELEV	249.28	249.26	249.24	249.22	249.20	249.16	249.12	249.07
15.00	CFS	188	177	168	162	157	153	150	148
15.00	ELEV	249.03	249.00	248.98	248.96	248.94	248.93	248.92	248.91
15.48	CFS	145	143	141	139	137	135	134	132
15.48	ELEV	248.90	248.89	248.88	248.87	248.86	248.86	248.85	248.84
15.96	CFS	130	129	127	125	124	122	120	119
15.96	ELEV	248.84	248.83	248.82	248.81	248.81	248.80	248.80	248.79
16.44	CFS	117	116	115	114	112	111	110	109
16.44	ELEV	248.78	248.78	248.77	248.77	248.76	248.76	248.75	248.75
16.92	CFS	108	107	106	105	105	104	103	102
16.92	ELEV	248.75	248.74	248.74	248.73	248.73	248.73	248.72	248.72
17.40	CFS	101	101	100	99	98	98	97	96

CNCPT124.OUT

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 139

17.40	ELEV	248.72	248.71	248.71	248.71	248.71	248.70	248.70	248.70
17.88	CFS	95.53	94.82	94.11	93.42	92.72	92.03	91.34	90.66
17.88	ELEV	248.69	248.69	248.69	248.69	248.68	248.68	248.68	248.67
18.36	CFS	89.98	89.30	88.63	87.95	87.29	86.62	85.96	85.30
18.36	ELEV	248.67	248.67	248.66	248.65	248.65	248.64	248.64	248.63
18.84	CFS	84.64	83.98	83.33	82.68	82.03	81.38	80.73	80.08
18.84	ELEV	248.63	248.62	248.61	248.61	248.60	248.60	248.59	248.59
19.32	CFS	79.44	78.80	78.15	77.51	76.87	76.23	75.59	74.95
19.32	ELEV	248.58	248.58	248.57	248.56	248.56	248.55	248.55	248.54
19.80	CFS	74.31	73.67	73.03	72.39	71.75	71.11	70.48	69.86
19.80	ELEV	248.54	248.53	248.53	248.52	248.51	248.51	248.50	248.50
20.28	CFS	69.25	68.65	68.09	67.56	67.08	66.63	66.23	65.87
20.28	ELEV	248.49	248.49	248.48	248.48	248.47	248.47	248.47	248.46
20.76	CFS	65.54	65.24	64.97	64.71	64.47	64.25	64.03	63.82
20.76	ELEV	248.46	248.46	248.46	248.45	248.45	248.45	248.45	248.45
21.24	CFS	63.62	63.42	63.23	63.04	62.85	62.67	62.48	62.30
21.24	ELEV	248.44	248.44	248.44	248.44	248.44	248.44	248.43	248.43
21.72	CFS	62.12	61.95	61.77	61.59	61.42	61.24	61.07	60.90
21.72	ELEV	248.43	248.43	248.43	248.43	248.42	248.42	248.42	248.42
22.20	CFS	60.72	60.56	60.38	60.21	60.05	59.88	59.71	59.54
22.20	ELEV	248.42	248.42	248.42	248.41	248.41	248.41	248.41	248.41
22.68	CFS	59.38	59.21	59.04	58.88	58.72	58.55	58.39	58.22
22.68	ELEV	248.41	248.41	248.40	248.40	248.40	248.40	248.40	248.40
23.16	CFS	58.06	57.90	57.74	57.58	57.42	57.26	57.10	56.94
23.16	ELEV	248.39	248.39	248.39	248.39	248.39	248.39	248.38	248.38
23.64	CFS	56.78	56.61	56.44	56.28	56.11	55.94	55.76	55.59
23.64	ELEV	248.38	248.38	248.38	248.38	248.37	248.37	248.37	248.37
24.12	CFS	55.31	54.63	53.35	51.46	48.87	45.55	41.61	37.40
24.12	ELEV	248.37	248.36	248.34	248.32	248.30	248.26	248.22	248.18
24.60	CFS	33.27	29.49	26.20	23.44	21.22	19.49	18.17	17.17
24.60	ELEV	248.13	248.09	248.05	248.01	247.97	247.95	247.93	247.91
25.08	CFS	16.41	15.82	15.35					
25.08	ELEV	247.90	247.89	247.88					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.73 WATERSHED INCHES; 3131 CFS-HRS; 258.7 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	377	144	104	83	66	60	50	21

DURATION(HRS) 17  
 FLOW(CFS) 15 TRUNCATED

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS) 12.18 PEAK DISCHARGE(CFS) 33.4 PEAK ELEVATION(FEET) (RUNOFF)

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 140

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.87 WATERSHED INCHES; 42 CFS-HRS; 3.4 ACRE-FEET.

CNCPT124.OUT

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.37                                      25.1                                      335.70

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.88 WATERSHED INCHES;                      42 CFS-HRS;                      3.4 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.46                                      24.6                                      301.03

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.87 WATERSHED INCHES;                      42 CFS-HRS;                      3.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.03                                      175.3                                      (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.95 WATERSHED INCHES;                      146 CFS-HRS;                      12.1 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
 TIME INCREMENT OF .043 HOURS.                      \*\*\*

\*\*\* WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
 FIRST NEGATIVE VALUE IS 0 CFS.                      \*\*\*

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.22                                      82.5                                      297.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.95 WATERSHED INCHES;                      146 CFS-HRS;                      12.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4                      VERSION  
 06/30/\*\*                      Run for 1,2,10,50,100YR STORMS                      2.04TEST  
 15:05:46                      PASS 4 JOB NO. 1                      PAGE 141

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.32                                      99.3                                      (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.13 WATERSHED INCHES;                      188 CFS-HRS;                      15.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS)                      PEAK DISCHARGE(CFS)                      PEAK ELEVATION(FEET)  
 12.02                                      299.8                                      (RUNOFF)

CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.89 WATERSHED INCHES; 246 CFS-HRS; 20.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.04 363.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.99 WATERSHED INCHES; 433 CFS-HRS; 35.8 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.25 273.1 249.25

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.99 WATERSHED INCHES; 433 CFS-HRS; 35.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.95 59.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.59 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.03 50.9 267.90

1 TR20 ----- SCS -  
06/30/\*\* Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
15:05:46 Run for 1,2,10,50,100YR STORMS 2.04TEST  
PASS 4 JOB NO. 1 PAGE 142

\*\*\* WARNING - STRUCTURE 63, MAIN TIME INCREMENT TOO LARGE, COMPUTED PEAK  
( 50.93) EXCEEDS ADJACENT COORDINATE ( 48.04) BY 6 %. \*\*\*

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.61 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.11 46.5 248.27

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.58 WATERSHED INCHES; 43 CFS-HRS; 3.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.02 316.8 (RUNOFF)

CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.49 WATERSHED INCHES; 248 CFS-HRS; 20.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.38 1720.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.61 WATERSHED INCHES; 3379 CFS-HRS; 279.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.23 299.0 (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =50  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .15 SQ.MI.

HRS	MAIN	TIME	INCREMENT	= .060	hr,	DRAINAGE	AREA	=	.15	SQ.MI.
5.94	CFS	.50	.55	.61	.68	.74	.82	.89	.96	
6.42	CFS	1.04	1.12	1.19	1.27	1.35	1.43	1.52	1.60	
6.90	CFS	1.68	1.77	1.85	1.94	2.02	2.11	2.19	2.28	
7.38	CFS	2.37	2.46	2.55	2.64	2.73	2.82	2.91	3.01	
7.86	CFS	3.10	3.19	3.29	3.38	3.48	3.57	3.67	3.78	
8.34	CFS	3.90	4.03	4.18	4.34	4.51	4.69	4.88	5.07	
8.82	CFS	5.28	5.49	5.71	5.94	6.18	6.42	6.66	6.90	
9.30	CFS	7.14	7.36	7.57	7.76	7.94	8.10	8.26	8.43	
9.78	CFS	8.60	8.81	9.04	9.31	9.61	9.94	10.29	10.66	

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 143

10.26	CFS	11.06	11.47	11.90	12.37	12.88	13.41	13.97	14.56	
10.74	CFS	15.18	15.86	16.55	17.26	18.01	18.82	19.71	20.66	
11.22	CFS	21.70	22.86	24.17	25.66	27.33	29.09	30.94	32.95	
11.70	CFS	36	42	51	67	96	139	205	261	
12.18	CFS	293	299	285	266	246	226	207	189	
12.66	CFS	171	155	141	128	116	106	98	90	
13.14	CFS	81.95	74.51	68.36	63.35	59.24	55.92	53.26	51.10	
13.62	CFS	49.31	47.80	46.49	45.35	44.32	43.39	42.53	41.71	
14.10	CFS	40.94	40.19	39.47	38.79	38.14	37.55	36.99	36.46	
14.58	CFS	35.90	35.31	34.67	33.98	33.27	32.55	31.85	31.15	
15.06	CFS	30.47	29.81	29.13	28.34	27.48	26.61	25.66	24.61	
15.54	CFS	23.60	22.69	21.89	21.18	20.56	20.01	19.45	18.98	
16.02	CFS	18.51	18.06	17.65	17.26	16.89	16.53	16.20	15.88	
16.50	CFS	15.60	15.35	15.13	14.94	14.76	14.61	14.47	14.33	
16.98	CFS	14.20	14.08	13.96	13.85	13.73	13.62	13.51	13.41	
17.46	CFS	13.30	13.19	13.09	12.98	12.85	12.70	12.56	12.44	
17.94	CFS	12.32	12.21	12.11	12.01	11.91	11.81	11.71	11.62	
18.42	CFS	11.52	11.43	11.33	11.24	11.15	11.05	10.96	10.86	
18.90	CFS	10.77	10.68	10.58	10.49	10.39	10.30	10.21	10.11	
19.38	CFS	10.02	9.93	9.83	9.74	9.64	9.55	9.45	9.36	
19.86	CFS	9.27	9.17	9.08	8.98	8.89	8.79	8.70	8.62	
20.34	CFS	8.54	8.48	8.42	8.37	8.33	8.29	8.26	8.23	
20.82	CFS	8.20	8.18	8.16	8.13	8.11	8.09	8.07	8.05	
21.30	CFS	8.03	8.01	7.99	7.97	7.96	7.94	7.92	7.90	
21.78	CFS	7.88	7.86	7.85	7.83	7.81	7.79	7.77	7.75	
22.26	CFS	7.73	7.72	7.70	7.68	7.66	7.64	7.62	7.61	
22.74	CFS	7.59	7.57	7.55	7.53	7.51	7.49	7.48	7.46	



CNCPT124.OUT  
 23.22 CFS 7.44 7.42 7.40 7.38 7.36 7.34 7.33 7.31  
 23.70 CFS 7.29 7.27 7.25 7.23 7.21 7.20 7.18 7.14  
 24.18 CFS 6.97 6.46 5.61 4.62 3.69 2.90 2.26 1.75  
 24.66 CFS 1.35 1.04 .79 .61 .46

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.04 WATERSHED INCHES; 477 CFS-HRS; 39.4 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	45	26	15	12	9	8	7	4
DURATION(HRS)	18	19						
FLOW(CFS)	1	0						

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS) 12.36 PEAK DISCHARGE(CFS) 1983.4 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 50  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.28 SQ.MI.  
 HRS 4.32 CFS .47 .51 .56 .60 .65 .70 .76 .82  
 4.80 CFS .88 .95 1.02 1.09 1.16 1.24 1.31 1.39

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 144

5.28 CFS	1.48	1.58	1.67	1.78	1.89	2.00	2.12	2.25
5.76 CFS	2.39	2.54	2.71	2.89	3.09	3.30	3.51	3.73
6.24 CFS	3.97	4.21	4.45	4.70	4.96	5.21	5.48	5.74
6.72 CFS	6.01	6.30	6.59	6.90	7.23	7.56	7.92	8.30
7.20 CFS	8.69	9.10	9.52	9.95	10.40	10.87	11.35	11.85
7.68 CFS	12.36	12.88	13.41	13.95	14.50	15.06	15.63	16.20
8.16 CFS	16.79	17.40	18.02	18.67	19.36	20.11	20.91	21.77
8.64 CFS	22.69	23.67	24.73	25.85	27.04	28.30	29.62	30.99
9.12 CFS	32.40	33.85	35.32	36.80	38.26	39.69	41.08	42.41
9.60 CFS	43.70	44.94	46.16	47.40	48.70	50.08	51.61	53.30
10.08 CFS	55.18	57.26	59.54	62.02	64.67	67.52	70.64	74.13
10.56 CFS	78	82	86	91	96	101	106	112
11.04 CFS	118	125	131	139	147	157	167	178
11.52 CFS	190	207	231	270	328	418	561	775
12.00 CFS	1016	1265	1474	1660	1824	1939	1983	1948
12.48 CFS	1843	1697	1548	1417	1308	1214	1129	1050
12.96 CFS	976	908	845	787	733	683	640	604
13.44 CFS	574	550	529	510	494	479	465	452
13.92 CFS	440	428	416	405	394	383	373	362
14.40 CFS	353	343	334	325	316	307	296	282
14.88 CFS	264	247	231	219	210	203	197	192
15.36 CFS	188	184	181	178	174	172	169	166
15.84 CFS	164	161	159	157	154	152	150	148
16.32 CFS	146	144	142	141	139	137	136	135
16.80 CFS	133	132	131	130	129	128	127	126
17.28 CFS	125	124	123	122	121	120	119	118
17.76 CFS	117	116	116	115	114	113	112	111
18.24 CFS	110	110	109	108	107	106	105	105
18.72 CFS	104	103	102	101	101	100	99	98
19.20 CFS	97.30	96.50	95.70	94.90	94.11	93.31	92.52	91.72
19.68 CFS	90.93	90.13	89.34	88.54	87.75	86.96	86.17	85.39
20.16 CFS	84.62	83.88	83.16	82.48	81.84	81.24	80.69	80.20
20.64 CFS	79.75	79.34	78.98	78.64	78.33	78.04	77.77	77.50

CNCPT124.OUT									
21.12	CFS	77.26	77.02	76.78	76.55	76.33	76.11	75.90	75.68
21.60	CFS	75.47	75.26	75.05	74.84	74.64	74.43	74.23	74.02
22.08	CFS	73.82	73.62	73.42	73.21	73.01	72.82	72.62	72.42
22.56	CFS	72.22	72.03	71.83	71.63	71.44	71.24	71.05	70.86
23.04	CFS	70.66	70.47	70.28	70.09	69.89	69.70	69.51	69.32
23.52	CFS	69.13	68.94	68.75	68.56	68.36	68.16	67.96	67.76
24.00	CFS	67.54	66.94	65.37	63.17	60.57	57.44	53.67	49.32
24.48	CFS	44.55	39.67	35.02	30.85	27.24	24.23	21.82	19.95
24.96	CFS	18.51	17.43	16.60	15.97	15.46			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.66 WATERSHED INCHES; 3855 CFS-HRS; 318.6 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 145

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	448	179	127	101	80	72	60	24

DURATION(HRS) 17  
 FLOW(CFS) 15 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. \*\*\*

OPERATION REACH XSECTION 77

PEAK TIME(HRS) 12.36 PEAK DISCHARGE(CFS) 1983.4 PEAK ELEVATION(FEET) 231.52

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.66 WATERSHED INCHES; 3855 CFS-HRS; 318.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS) 12.01 PEAK DISCHARGE(CFS) 181.3 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.26 WATERSHED INCHES; 140 CFS-HRS; 11.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS) 12.36 PEAK DISCHARGE(CFS) 2017.4 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =50									
MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.33 SQ.MI.									
HRS	4.32	4.80	5.28	5.76	6.24	6.72	7.20	7.68	8.16
CFS	.47	.88	1.48	2.39	3.97	6.01	8.74	12.60	17.26
	.51	.95	1.58	2.54	4.21	6.30	9.17	13.15	17.90
	.56	1.02	1.67	2.71	4.45	6.59	9.61	13.71	18.56
	.60	1.09	1.78	2.89	4.70	6.90	10.07	14.27	19.25
	.65	1.16	1.89	3.09	4.96	7.23	10.55	14.85	19.99
	.70	1.24	2.00	3.30	5.21	7.57	11.04	15.43	20.78
	.76	1.31	2.12	3.51	5.48	7.94	11.55	16.03	21.63
	.82	1.39	2.25	3.73	5.74	8.33	12.07	16.64	22.54

CNCPT124.OUT									
8.64	CFS	23.51	24.55	25.66	26.84	28.10	29.42	30.80	32.23
9.12	CFS	33.70	35.20	36.73	38.25	39.76	41.24	42.67	44.05
9.60	CFS	45.38	46.68	47.99	49.32	50.71	52.21	53.83	55.64
10.08	CFS	57.63	59.85	62.28	64.91	67.72	70.73	74.03	77.70
10.56	CFS	82	86	91	96	101	106	112	118
11.04	CFS	124	131	139	147	156	166	177	189

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 146

11.52	CFS	202	222	253	303	379	494	674	934
12.00	CFS	1197	1432	1598	1740	1879	1981	2017	1977
12.48	CFS	1868	1719	1568	1435	1325	1230	1144	1064
12.96	CFS	990	921	858	800	744	694	651	615
13.44	CFS	585	560	539	520	503	488	474	461
13.92	CFS	448	436	424	413	401	390	380	370
14.40	CFS	360	350	341	332	323	313	303	288
14.88	CFS	270	253	238	226	216	209	203	198
15.36	CFS	194	190	187	183	180	177	174	171
15.84	CFS	169	166	164	161	159	157	155	153
16.32	CFS	151	149	147	145	143	142	140	139
16.80	CFS	138	136	135	134	133	132	131	130
17.28	CFS	129	128	127	126	125	124	123	122
17.76	CFS	121	120	119	118	118	117	116	115
18.24	CFS	114	113	112	111	111	110	109	108
18.72	CFS	107	106	105	105	104	103	102	101
19.20	CFS	100	100	99	98	97	96	96	95
19.68	CFS	93.87	93.05	92.22	91.40	90.57	89.75	88.93	88.12
20.16	CFS	87.34	86.58	85.85	85.17	84.52	83.91	83.36	82.86
20.64	CFS	82.40	81.99	81.62	81.28	80.96	80.67	80.39	80.12
21.12	CFS	79.86	79.62	79.38	79.15	78.92	78.69	78.47	78.25
21.60	CFS	78.03	77.81	77.60	77.39	77.17	76.96	76.76	76.54
22.08	CFS	76.33	76.13	75.92	75.71	75.51	75.30	75.10	74.89
22.56	CFS	74.69	74.49	74.29	74.09	73.88	73.68	73.48	73.29
23.04	CFS	73.08	72.88	72.69	72.49	72.29	72.09	71.90	71.70
23.52	CFS	71.50	71.31	71.11	70.91	70.71	70.51	70.30	70.09
24.00	CFS	69.87	69.05	66.80	63.89	60.91	57.60	53.75	49.36
24.48	CFS	44.57	39.68	35.02	30.85	27.24	24.23	21.82	19.95
24.96	CFS	18.51	17.43	16.60	15.97	15.46			

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.64 WATERSHED INCHES; 3996 CFS-HRS; 330.2 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	470	187	131	105	83	75	62	25

DURATION(HRS) 17  
 FLOW(CFS) 15 TRUNCATED

OPERATION REACH XSECTION 80

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.43	2008.2	218.10

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.64 WATERSHED INCHES; 3995 CFS-HRS; 330.1 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 Page 138

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 213.9 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 4.82 WATERSHED INCHES; 160 CFS-HRS; 13.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS) 12.43 PEAK DISCHARGE(CFS) 2036.3 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 4.65 WATERSHED INCHES; 4155 CFS-HRS; 343.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS) 12.00 PEAK DISCHARGE(CFS) 103.0 PEAK ELEVATION(FEET) (RUNOFF)

Table with 10 columns: HRS, MAIN, TIME, INCREMENT, ALTERNATE, STORM, DRAINAGE AREA, and 3 unlabeled columns. It contains hydrograph data points for various times from 9.18 to 20.22 hours.

1

TR20 ----- SCS - Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION 2.04TEST 06/30/\*\* Run for 1,2,10,50,100YR STORMS PAGE 148 15:05:46 PASS 4 JOB NO. 1

Table with 10 columns: HRS, CFS, and 8 unlabeled columns. It contains data points for times 20.70, 21.18, 21.66, and 22.14 hours.

CNCPT124.OUT  
 22.62 CFS 1.45 1.45 1.44 1.44 1.44 1.43 1.43 1.43  
 23.10 CFS 1.42 1.42 1.42 1.41 1.41 1.41 1.40 1.40  
 23.58 CFS 1.40 1.39 1.39 1.39 1.38 1.38 1.38 1.37  
 24.06 CFS 1.22 .79 .38

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.89 WATERSHED INCHES; 79 CFS-HRS; 6.5 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	15
FLOW(CFS)	6	3	3	2	2	1	1	0

OPERATION ADDHYD XSECTION 84

PEAK TIME(HRS) 12.42 PEAK DISCHARGE(CFS) 2052.4 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.63 WATERSHED INCHES; 4233 CFS-HRS; 349.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS) 12.08 PEAK DISCHARGE(CFS) 334.3 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM = 50  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .12 SQ.MI.  
 8.10 CFS .46 .52 .58 .65 .73 .81 .90 .98  
 8.58 CFS 1.08 1.18 1.28 1.39 1.50 1.62 1.74 1.87  
 9.06 CFS 2.00 2.13 2.25 2.38 2.49 2.60 2.71 2.81  
 9.54 CFS 2.92 3.02 3.14 3.28 3.43 3.61 3.81 4.01  
 10.02 CFS 4.23 4.46 4.71 4.98 5.27 5.58 5.90 6.26  
 10.50 CFS 6.62 7.01 7.42 7.86 8.36 8.91 9.50 10.12  
 10.98 CFS 10.78 11.49 12.26 13.15 14.19 15.39 16.79 18.31  
 11.46 CFS 20 22 25 33 46 69 104 154  
 11.94 CFS 224 293 332 323 276 216 164 128  
 12.42 CFS 103 85 72 62 54 48 43 40  
 12.90 CFS 37.08 34.87 33.06 31.53 30.16 28.92 27.85 26.89  
 13.38 CFS 26.02 25.21 24.43 23.67 22.95 22.26 21.61 21.00  
 13.86 CFS 20.42 19.86 19.32 18.78 18.27 17.80 17.40 17.06  
 14.34 CFS 16.78 16.53 16.31 16.11 15.91 15.72 15.53 15.34  
 14.82 CFS 15.16 14.98 14.79 14.61 14.42 14.24 14.06 13.87  
 15.30 CFS 13.68 13.50 13.31 13.13 12.94 12.75 12.56 12.38  
 15.78 CFS 12.19 12.00 11.81 11.62 11.43 11.25 11.08 10.92  
 16.26 CFS 10.79 10.69 10.60 10.51 10.44 10.37 10.30 10.23  
 16.74 CFS 10.16 10.09 10.03 9.96 9.89 9.83 9.76 9.69

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 149

17.22 CFS 9.63 9.56 9.49 9.43 9.36 9.29 9.23 9.16  
 17.70 CFS 9.09 9.02 8.96 8.89 8.82 8.75 8.69 8.62  
 18.18 CFS 8.55 8.48 8.41 8.35 8.28 8.21 8.14 8.07  
 18.66 CFS 8.00 7.94 7.87 7.80 7.73 7.66 7.59 7.52  
 19.14 CFS 7.45 7.39 7.32 7.25 7.18 7.11 7.04 6.97  
 19.62 CFS 6.90 6.83 6.76 6.69 6.62 6.55 6.48 6.41  
 20.10 CFS 6.35 6.29 6.24 6.20 6.17 6.15 6.13 6.11  
 20.58 CFS 6.10 6.08 6.07 6.06 6.04 6.03 6.01 6.00  
 21.06 CFS 5.99 5.98 5.96 5.95 5.94 5.92 5.91 5.90  
 21.54 CFS 5.88 5.87 5.86 5.84 5.83 5.82 5.80 5.79

CNCPT124.OUT

22.02 CFS	5.78	5.76	5.75	5.74	5.72	5.71	5.70	5.68
22.50 CFS	5.67	5.66	5.64	5.63	5.62	5.60	5.59	5.58
22.98 CFS	5.56	5.55	5.54	5.52	5.51	5.50	5.48	5.47
23.46 CFS	5.46	5.44	5.43	5.41	5.40	5.39	5.37	5.36
23.94 CFS	5.35	5.32	5.13	4.56	3.54	2.47	1.58	.99
24.42 CFS	.62	.39						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.07 WATERSHED INCHES; 312 CFS-HRS; 25.8 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	23	14	10	8	6	6	5	1

DURATION(HRS) 16  
 FLOW(CFS) 0

OPERATION ADDHYD XSECTION 86

PEAK TIME(HRS) 12.41 PEAK DISCHARGE(CFS) 2157.3 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.59 WATERSHED INCHES; 4545 CFS-HRS; 375.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS) 11.96 PEAK DISCHARGE(CFS) 80.0 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.81 WATERSHED INCHES; 60 CFS-HRS; 4.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS) 12.41 PEAK DISCHARGE(CFS) 2166.9 PEAK ELEVATION(FEET) (NULL)

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 4 JOB NO. 1 PAGE 150

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.60 WATERSHED INCHES; 4605 CFS-HRS; 380.6 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 4

EXECUTIVE CONTROL COMPUT FROM XSECTION 1 TO XSECTION 88  
 STARTING TIME = .00 RAIN DEPTH = 8.53 RAIN DURATION = 1.00  
 ANT. RUNOFF COND. = 2 MAIN TIME INCREMENT = .060 HOURS  
 ALTERNATE NO. = 1 STORM NO. =99 RAIN TABLE NO. = 2

OPERATION RUNOFF XSECTION 1

PEAK TIME(HRS) 12.12 PEAK DISCHARGE(CFS) 122.5 PEAK ELEVATION(FEET) (RUNOFF)

CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.05 WATERSHED INCHES; 131 CFS-HRS; 10.8 ACRE-FEET.

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 2. \*\*\*

OPERATION REACH XSECTION 2

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.12 122.5 390.96

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.05 WATERSHED INCHES; 131 CFS-HRS; 10.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 3

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.10 226.4 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.19 WATERSHED INCHES; 232 CFS-HRS; 19.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 4

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 5 JOB NO. 1 PAGE 151

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.11 348.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.14 WATERSHED INCHES; 363 CFS-HRS; 30.0 ACRE-FEET.

\*\*\* WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 11,  
VALUE EXTRAPOLATED. \*\*\*

OPERATION RESVOR STRUCTURE 11

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.13 346.0 385.70

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.12 WATERSHED INCHES; 362 CFS-HRS; 29.9 ACRE-FEET.

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 5. \*\*\*

OPERATION REACH XSECTION 5

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.13 346.0 369.29

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.12 WATERSHED INCHES; 362 CFS-HRS; 29.9 ACRE-FEET.

CNCPT124.OUT

OPERATION RUNOFF XSECTION 6  
 PEAK TIME(HRS) 12.12 PEAK DISCHARGE(CFS) 277.6 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.63 WATERSHED INCHES; 290 CFS-HRS; 23.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 7  
 PEAK TIME(HRS) 12.12 PEAK DISCHARGE(CFS) 623.2 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.89 WATERSHED INCHES; 651 CFS-HRS; 53.8 ACRE-FEET.

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 152

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 8. \*\*\*

OPERATION REACH XSECTION 8  
 PEAK TIME(HRS) 12.12 PEAK DISCHARGE(CFS) 623.2 PEAK ELEVATION(FEET) 359.15  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.89 WATERSHED INCHES; 651 CFS-HRS; 53.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 9  
 PEAK TIME(HRS) 12.12 PEAK DISCHARGE(CFS) 300.1 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.15 WATERSHED INCHES; 339 CFS-HRS; 28.0 ACRE-FEET.

\*\*\* MESSAGE - STRUCTURE 21, USER ENTERED STARTING ELEVATION OR STRUCTURE TABLE  
 STARTS 4.00 FEET BELOW ASSUMED CREST ELEVATION AT 368.00. \*\*\*  
 THIS CAN DECREASE OUTFLOW HYDROGRAPH VOLUME.

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 21, TRUNCATED AT 400 POINTS  
 WITH 2.39 AC-FT ( .05 WATERSHED INCHES) FLOOD STORAGE \*\*\*  
 REMAINING IN RESERVOIR AT ELEV. 370.17.

OPERATION RESVOR STRUCTURE 21  
 PEAK TIME(HRS) 12.38 PEAK DISCHARGE(CFS) 157.4 PEAK ELEVATION(FEET) 379.28  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.54 WATERSHED INCHES; 310 CFS-HRS; 25.6 ACRE-FEET.



CNCPT124.OUT

OPERATION RUNOFF XSECTION 10

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 11.96 46.5 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.20 WATERSHED INCHES; 33 CFS-HRS; 2.7 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 153

OPERATION RESVOR STRUCTURE 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.78 129.4 360.94

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.53 WATERSHED INCHES; 309 CFS-HRS; 25.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 11

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.02 241.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.29 WATERSHED INCHES; 194 CFS-HRS; 16.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 12

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.08 823.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.74 WATERSHED INCHES; 846 CFS-HRS; 69.9 ACRE-FEET.

OPERATION RUNOFF XSECTION 13

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.03 87.6 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.00 WATERSHED INCHES; 75 CFS-HRS; 6.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 14

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.11 879.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.92 WATERSHED INCHES; 1153 CFS-HRS; 95.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 15

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 154

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.10 956.7 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.93 WATERSHED INCHES; 1228 CFS-HRS; 101.5 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 23, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
 TIME INCREMENT OF .006 HOURS. \*\*\*

OPERATION RESVOR STRUCTURE 23

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.27 682.5 348.24  
 14.92 55.7 335.25  
 15.03 54.0 335.18

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .32 SQ.MI.

HRS	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV
3.60	.00	333.08	.01	333.08	.01	333.08	.01	333.08	.01	333.08
3.60	.01	333.08	.02	333.08	.03	333.08	.03	333.08	.04	333.08
4.08	.02	333.08	.04	333.08	.05	333.08	.06	333.08	.07	333.08
4.08	.03	333.08	.05	333.08	.06	333.08	.07	333.08	.08	333.08
4.56	.04	333.08	.06	333.08	.08	333.08	.10	333.08	.12	333.08
4.56	.05	333.08	.08	333.08	.10	333.08	.12	333.08	.14	333.08
5.04	.06	333.08	.10	333.08	.12	333.08	.14	333.08	.16	333.08
5.04	.07	333.08	.12	333.08	.14	333.08	.16	333.08	.18	333.08
5.52	.08	333.08	.14	333.08	.16	333.08	.18	333.08	.21	333.08
5.52	.09	333.08	.16	333.08	.18	333.08	.21	333.08	.24	333.08
5.52	.10	333.08	.18	333.08	.21	333.08	.24	333.08	.27	333.08
6.00	.12	333.08	.21	333.08	.24	333.08	.27	333.08	.30	333.08
6.00	.14	333.08	.24	333.08	.27	333.08	.30	333.08	.33	333.08
6.48	.16	333.08	.27	333.08	.30	333.08	.33	333.08	.36	333.08
6.48	.18	333.08	.30	333.08	.33	333.08	.36	333.08	.39	333.08
6.96	.21	333.08	.33	333.08	.36	333.08	.39	333.08	.42	333.08
6.96	.23	333.08	.36	333.08	.39	333.08	.42	333.08	.45	333.08
7.44	.26	333.08	.39	333.08	.42	333.08	.45	333.08	.48	333.08
7.44	.28	333.08	.42	333.08	.45	333.08	.48	333.08	.51	333.08
7.92	.31	333.08	.45	333.08	.48	333.08	.51	333.08	.54	333.08
7.92	.33	333.08	.48	333.08	.51	333.08	.54	333.08	.57	333.08
8.40	.36	333.08	.51	333.08	.54	333.08	.57	333.08	.60	333.08
8.40	.38	333.08	.54	333.08	.57	333.08	.60	333.08	.63	333.08
8.88	.41	333.08	.57	333.08	.60	333.08	.63	333.08	.66	333.08
8.88	.43	333.08	.60	333.08	.63	333.08	.66	333.08	.69	333.08
9.36	.46	333.08	.63	333.08	.66	333.08	.69	333.08	.72	333.08
9.36	.48	333.08	.66	333.08	.69	333.08	.72	333.08	.75	333.08
9.84	.51	333.08	.69	333.08	.72	333.08	.75	333.08	.78	333.08
9.84	.53	333.08	.72	333.08	.75	333.08	.78	333.08	.81	333.08
10.32	.56	333.08	.75	333.08	.78	333.08	.81	333.08	.84	333.08
10.32	.58	333.08	.78	333.08	.81	333.08	.84	333.08	.87	333.08
10.80	.61	333.08	.81	333.08	.84	333.08	.87	333.08	.90	333.08
10.80	.63	333.08	.84	333.08	.87	333.08	.90	333.08	.93	333.08

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 155

10.80 ELEV 334.61 334.69 334.77 334.85 334.94 335.04 335.14 335.27

CNCPT124.OUT

11.28	CFS	60	64	69	73	79	89	101	106
11.28	ELEV	335.41	335.57	335.75	335.94	336.16	336.54	337.01	337.22
11.76	CFS	117	133	152	174	203	230	305	559
11.76	ELEV	337.77	338.50	339.53	340.89	342.74	344.64	346.53	347.74
12.24	CFS	674	678	628	561	495	440	394	360
12.24	ELEV	348.21	348.22	348.02	347.75	347.48	347.23	347.02	346.83
12.72	CFS	331	307	292	280	269	258	250	248
12.72	ELEV	346.67	346.54	346.42	346.32	346.22	346.12	346.02	345.90
13.20	CFS	246	244	241	237	233	228	224	219
13.20	ELEV	345.76	345.59	345.39	345.13	344.84	344.52	344.19	343.85
13.68	CFS	214	209	205	200	194	188	182	176
13.68	ELEV	343.51	343.18	342.84	342.51	342.12	341.74	341.37	341.02
14.16	CFS	170	165	160	155	150	143	137	131
14.16	ELEV	340.67	340.34	340.01	339.70	339.40	339.05	338.72	338.41
14.64	CFS	125	114	104	58	55	56	54	54
14.64	ELEV	338.12	337.60	337.15	335.32	335.22	335.24	335.17	335.17
15.12	CFS	52.44	52.19	51.08	50.66	49.72	49.20	48.36	47.78
15.12	ELEV	335.12	335.11	335.07	335.05	335.01	334.99	334.96	334.94
15.60	CFS	47.01	46.39	45.65	45.01	44.29	43.64	42.94	42.28
15.60	ELEV	334.91	334.88	334.86	334.83	334.80	334.78	334.75	334.72
16.08	CFS	41.59	40.96	40.37	39.87	39.45	39.11	38.81	38.54
16.08	ELEV	334.70	334.67	334.65	334.63	334.61	334.60	334.59	334.58
16.56	CFS	38.30	38.07	37.85	37.64	37.44	37.24	37.04	36.85
16.56	ELEV	334.57	334.56	334.55	334.54	334.54	334.53	334.52	334.51
17.04	CFS	36.65	36.46	36.27	36.08	35.89	35.70	35.51	35.31
17.04	ELEV	334.51	334.50	334.49	334.48	334.48	334.47	334.46	334.45
17.52	CFS	35.12	34.93	34.74	34.54	34.35	34.16	33.97	33.77
17.52	ELEV	334.45	334.44	334.43	334.42	334.42	334.41	334.40	334.39
18.00	CFS	33.58	33.38	33.19	32.99	32.80	32.60	32.41	32.21
18.00	ELEV	334.39	334.38	334.37	334.36	334.36	334.35	334.34	334.33
18.48	CFS	32.01	31.82	31.62	31.42	31.22	31.02	30.82	30.62
18.48	ELEV	334.33	334.32	334.31	334.30	334.29	334.29	334.28	334.27
18.96	CFS	30.43	30.23	30.03	29.83	29.63	29.42	29.22	29.02
18.96	ELEV	334.26	334.26	334.25	334.24	334.23	334.22	334.22	334.21
19.44	CFS	28.82	28.62	28.42	28.22	28.01	27.81	27.61	27.40
19.44	ELEV	334.20	334.19	334.19	334.18	334.17	334.16	334.15	334.15
19.92	CFS	27.20	27.00	26.79	26.59	26.41	26.24	26.10	25.97
19.92	ELEV	334.14	334.13	334.12	334.11	334.11	334.10	334.10	334.09
20.40	CFS	25.86	25.76	25.67	25.59	25.51	25.43	25.37	25.30
20.40	ELEV	334.09	334.08	334.08	334.08	334.07	334.07	334.07	334.06
20.88	CFS	25.23	25.17	25.11	25.04	24.98	24.92	24.86	24.80
20.88	ELEV	334.06	334.06	334.06	334.05	334.05	334.05	334.05	334.04
21.36	CFS	24.74	24.68	24.62	24.56	24.50	24.44	24.38	24.32
21.36	ELEV	334.04	334.04	334.04	334.04	334.03	334.03	334.03	334.03
21.84	CFS	24.26	24.20	24.14	24.08	24.02	23.96	23.90	23.84
21.84	ELEV	334.02	334.02	334.02	334.02	334.01	334.01	334.01	334.01
22.32	CFS	23.78	23.73	23.67	23.61	23.55	23.49	23.43	23.37
22.32	ELEV	334.01	334.00	334.00	334.00	334.00	333.99	333.99	333.99

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 156

22.80	CFS	23.31	23.25	23.19	23.14	23.08	23.02	22.96	22.90
22.80	ELEV	333.99	333.98	333.98	333.98	333.98	333.98	333.97	333.97
23.28	CFS	22.84	22.78	22.73	22.67	22.61	22.55	22.49	22.43
23.28	ELEV	333.97	333.97	333.96	333.96	333.96	333.96	333.95	333.95
23.76	CFS	22.38	22.32	22.26	22.20	22.13	21.70	20.36	18.33
23.76	ELEV	333.95	333.95	333.95	333.94	333.94	333.92	333.87	333.79
24.24	CFS	16.27	14.47	12.91	11.72	11.24	10.94	10.64	10.43
24.24	ELEV	333.71	333.64	333.58	333.54	333.52	333.51	333.49	333.49
24.72	CFS	10.21	10.05	9.87	9.72	9.57	9.43	9.29	9.15

CNCPT124.OUT  
 24.72 ELEV 333.48 333.47 333.46 333.46 333.45 333.45 333.44 333.44  
 25.20 CFS 9.02 8.90 8.77 8.66 8.53 8.42 8.30 8.19  
 25.20 ELEV 333.43 333.43 333.42 333.42 333.41 333.41 333.40 333.40  
 25.68 CFS 8.08 7.97 7.86 7.75 7.65 7.54 7.44 7.34  
 25.68 ELEV 333.39 333.39 333.39 333.38 333.38 333.37 333.37 333.37  
 26.16 CFS 7.24 7.15 7.05 6.96 6.86 6.77 6.68  
 26.16 ELEV 333.36 333.36 333.35 333.35 333.35 333.34 333.34

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.93 WATERSHED INCHES; 1228 CFS-HRS; 101.4 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	186	52	38	32	26	24	22	9

DURATION(HRS)	18	18
FLOW(CFS)	7	7 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 16. \*\*\*

OPERATION REACH XSECTION 16

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.27	682.5	335.54
14.92	55.7	331.77
15.03	54.0	331.75

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.93 WATERSHED INCHES; 1228 CFS-HRS; 101.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 17

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
11.98	122.1	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.08 WATERSHED INCHES; 96 CFS-HRS; 8.0 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 157

OPERATION RUNOFF XSECTION 118

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.01	141.8	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.71 WATERSHED INCHES; 126 CFS-HRS; 10.4 ACRE-FEET.

OPERATION RESVOR STRUCTURE 24

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.46	20.8	351.70

HRS HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.  
 Page 147

CNCPT124.OUT

1.86	CFS	.00	.01	.01	.01	.02	.03	.03	.04
1.86	ELEV	345.00	345.00	345.00	345.00	345.00	345.00	345.01	345.01
2.34	CFS	.05	.06	.07	.08	.09	.10	.11	.13
2.34	ELEV	345.01	345.01	345.01	345.01	345.02	345.02	345.02	345.02
2.82	CFS	.14	.15	.17	.18	.20	.21	.23	.24
2.82	ELEV	345.03	345.03	345.03	345.03	345.04	345.04	345.04	345.04
3.30	CFS	.26	.27	.29	.31	.32	.34	.36	.37
3.30	ELEV	345.05	345.05	345.05	345.06	345.06	345.06	345.07	345.07
3.78	CFS	.39	.41	.43	.44	.46	.48	.50	.52
3.78	ELEV	345.07	345.07	345.08	345.08	345.08	345.09	345.09	345.09
4.26	CFS	.53	.55	.57	.59	.61	.63	.65	.67
4.26	ELEV	345.10	345.10	345.10	345.11	345.11	345.11	345.12	345.12
4.74	CFS	.69	.71	.73	.75	.77	.79	.81	.83
4.74	ELEV	345.12	345.13	345.13	345.14	345.14	345.14	345.15	345.15
5.22	CFS	.85	.87	.89	.91	.93	.95	.98	1.00
5.22	ELEV	345.15	345.16	345.16	345.17	345.17	345.17	345.18	345.18
5.70	CFS	1.02	1.04	1.06	1.08	1.11	1.13	1.15	1.17
5.70	ELEV	345.19	345.19	345.19	345.20	345.20	345.21	345.21	345.21
6.18	CFS	1.19	1.22	1.24	1.26	1.28	1.31	1.33	1.35
6.18	ELEV	345.22	345.22	345.23	345.23	345.23	345.24	345.24	345.25
6.66	CFS	1.37	1.40	1.42	1.44	1.46	1.49	1.51	1.53
6.66	ELEV	345.25	345.25	345.26	345.26	345.27	345.27	345.27	345.28
7.14	CFS	1.55	1.58	1.60	1.62	1.64	1.67	1.69	1.71
7.14	ELEV	345.28	345.29	345.29	345.30	345.30	345.30	345.31	345.31
7.62	CFS	1.73	1.76	1.78	1.80	1.82	1.85	1.87	1.89
7.62	ELEV	345.32	345.32	345.32	345.33	345.33	345.34	345.34	345.34
8.10	CFS	1.91	1.94	1.96	1.99	2.02	2.05	2.08	2.11
8.10	ELEV	345.35	345.35	345.36	345.36	345.37	345.37	345.38	345.38
8.58	CFS	2.15	2.19	2.23	2.27	2.31	2.36	2.40	2.45
8.58	ELEV	345.39	345.40	345.41	345.41	345.42	345.43	345.44	345.45
9.06	CFS	2.50	2.55	2.60	2.65	2.70	2.75	2.80	2.84
9.06	ELEV	345.45	345.46	345.47	345.48	345.49	345.50	345.51	345.52
9.54	CFS	2.88	2.93	2.97	3.01	3.06	3.11	3.16	3.22

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 158

9.54	ELEV	345.52	345.53	345.54	345.55	345.56	345.57	345.58	345.59
10.02	CFS	3.27	3.34	3.40	3.47	3.54	3.62	3.70	3.79
10.02	ELEV	345.60	345.61	345.62	345.63	345.64	345.66	345.67	345.69
10.50	CFS	3.89	3.98	4.08	4.19	4.31	4.43	4.56	4.70
10.50	ELEV	345.71	345.72	345.74	345.76	345.78	345.81	345.83	345.86
10.98	CFS	4.85	5.01	5.17	5.35	5.54	5.76	5.99	6.25
10.98	ELEV	345.88	345.91	345.94	345.97	346.01	346.05	346.09	346.14
11.46	CFS	6.53	6.84	7.21	7.75	8.63	10.01	10.73	11.79
11.46	ELEV	346.19	346.24	346.31	346.41	346.57	346.83	347.15	347.63
11.94	CFS	13.27	15.10	16.98	18.55	19.61	20.23	20.56	20.73
11.94	ELEV	348.30	349.12	349.97	350.68	351.16	351.44	351.58	351.66
12.42	CFS	20.80	20.81	20.77	20.70	20.60	20.48	20.35	20.21
12.42	ELEV	351.69	351.70	351.68	351.65	351.60	351.55	351.49	351.43
12.90	CFS	20.06	19.91	19.76	19.60	19.43	19.27	19.10	18.93
12.90	ELEV	351.36	351.29	351.22	351.15	351.08	351.00	350.93	350.85
13.38	CFS	18.76	18.58	18.41	18.24	18.06	17.89	17.71	17.53
13.38	ELEV	350.77	350.69	350.62	350.54	350.46	350.38	350.30	350.22
13.86	CFS	17.36	17.18	17.01	16.83	16.65	16.48	16.31	16.13
13.86	ELEV	350.14	350.06	349.98	349.90	349.82	349.74	349.67	349.59
14.34	CFS	15.96	15.79	15.63	15.46	15.30	15.13	14.97	14.81
14.34	ELEV	349.51	349.43	349.36	349.28	349.21	349.14	349.06	348.99
14.82	CFS	14.65	14.50	14.34	14.19	14.04	13.89	13.74	13.59
14.82	ELEV	348.92	348.85	348.78	348.71	348.64	348.57	348.51	348.44
15.30	CFS	13.44	13.30	13.15	13.01	12.87	12.73	12.59	12.45

CNCPT124.OUT

15.30	ELEV	348.37	348.31	348.24	348.18	348.12	348.05	347.99	347.93
15.78	CFS	12.32	12.18	12.05	11.92	11.79	11.66	11.53	11.40
15.78	ELEV	347.87	347.81	347.75	347.69	347.63	347.57	347.51	347.45
16.26	CFS	11.27	11.15	11.02	10.90	10.78	10.66	10.55	10.43
16.26	ELEV	347.39	347.34	347.28	347.23	347.17	347.12	347.07	347.01
16.74	CFS	10.32	10.20	10.09	9.95	9.64	9.33	9.04	8.76
16.74	ELEV	346.96	346.91	346.86	346.81	346.75	346.70	346.65	346.60
17.22	CFS	8.50	8.24	8.00	7.76	7.54	7.32	7.11	6.92
17.22	ELEV	346.55	346.50	346.46	346.41	346.37	346.33	346.29	346.26
17.70	CFS	6.72	6.54	6.36	6.20	6.03	5.88	5.73	5.58
17.70	ELEV	346.22	346.19	346.16	346.13	346.10	346.07	346.04	346.02
18.18	CFS	5.44	5.31	5.18	5.06	4.94	4.83	4.72	4.61
18.18	ELEV	345.99	345.97	345.94	345.92	345.90	345.88	345.86	345.84
18.66	CFS	4.51	4.41	4.31	4.22	4.13	4.05	3.97	3.89
18.66	ELEV	345.82	345.80	345.79	345.77	345.75	345.74	345.72	345.71
19.14	CFS	3.81	3.73	3.66	3.59	3.52	3.46	3.39	3.33
19.14	ELEV	345.69	345.68	345.67	345.65	345.64	345.63	345.62	345.61
19.62	CFS	3.27	3.21	3.16	3.10	3.05	3.00	2.95	2.90
19.62	ELEV	345.60	345.59	345.57	345.56	345.56	345.55	345.54	345.53
20.10	CFS	2.85	2.80	2.76	2.72	2.67	2.64	2.60	2.56
20.10	ELEV	345.52	345.51	345.50	345.49	345.49	345.48	345.47	345.47
20.58	CFS	2.52	2.49	2.46	2.43	2.40	2.37	2.34	2.31
20.58	ELEV	345.46	345.45	345.45	345.44	345.44	345.43	345.43	345.42
21.06	CFS	2.29	2.26	2.24	2.21	2.19	2.17	2.15	2.13
21.06	ELEV	345.42	345.41	345.41	345.40	345.40	345.40	345.39	345.39

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 159

21.54	CFS	2.11	2.09	2.08	2.06	2.04	2.03	2.01	2.00
21.54	ELEV	345.38	345.38	345.38	345.37	345.37	345.37	345.37	345.36
22.02	CFS	1.98	1.97	1.95	1.94	1.93	1.91	1.90	1.89
22.02	ELEV	345.36	345.36	345.36	345.35	345.35	345.35	345.35	345.34
22.50	CFS	1.88	1.87	1.86	1.85	1.84	1.83	1.82	1.81
22.50	ELEV	345.34	345.34	345.34	345.34	345.33	345.33	345.33	345.33
22.98	CFS	1.80	1.79	1.78	1.77	1.77	1.76	1.75	1.74
22.98	ELEV	345.33	345.33	345.32	345.32	345.32	345.32	345.32	345.32
23.46	CFS	1.73	1.73	1.72	1.71	1.70	1.70	1.69	1.68
23.46	ELEV	345.32	345.31	345.31	345.31	345.31	345.31	345.31	345.31
23.94	CFS	1.68	1.67	1.66	1.64	1.61	1.56	1.50	1.44
23.94	ELEV	345.31	345.30	345.30	345.30	345.29	345.28	345.27	345.26
24.42	CFS	1.37	1.31	1.26	1.20	1.15	1.09	1.05	1.00
24.42	ELEV	345.25	345.24	345.23	345.22	345.21	345.20	345.19	345.18
24.90	CFS	.95	.91	.87	.83	.79	.76	.72	.69
24.90	ELEV	345.17	345.17	345.16	345.15	345.14	345.14	345.13	345.13
25.38	CFS	.66	.63						
25.38	ELEV	345.12	345.11						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.66 WATERSHED INCHES; 125 CFS-HRS; 10.3 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	17	12	7	4	3	2	2	2
DURATION(HRS)	18	20	21					
FLOW(CFS)	1	1	1	TRUNCATED				

OPERATION RUNOFF XSECTION 119

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)

11.96 CNCPT124.OUT 35.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.85 WATERSHED INCHES; 26 CFS-HRS; 2.2 ACRE-FEET.

OPERATION ADDHYD XSECTION 120

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.97 49.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
7.51 WATERSHED INCHES; 151 CFS-HRS; 12.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 20

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 5 JOB NO. 1 PAGE 160

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.97 170.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
7.33 WATERSHED INCHES; 247 CFS-HRS; 20.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 19

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.98 223.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.66 WATERSHED INCHES; 174 CFS-HRS; 14.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 22

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
11.98 394.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
7.03 WATERSHED INCHES; 421 CFS-HRS; 34.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 21

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.00 593.7 (NULL)  
12.26 783.7 (NULL)  
14.91 81.3 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.14 WATERSHED INCHES; 1640 CFS-HRS; 135.5 ACRE-FEET.

OPERATION REACH XSECTION 23

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.13 543.0 316.51

12.37 CNCPT124.OUT 316.88  
730.7

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.14 WATERSHED INCHES; 1640 CFS-HRS; 135.5 ACRE-FEET.

OPERATION RUNOFF XSECTION 24

1 TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 5 JOB NO. 1 PAGE 161

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.09 192.3 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.71 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

\*\*\* WARNING - STRUCTURE 31, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 31, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 31

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.13 185.8 365.78

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.70 WATERSHED INCHES; 186 CFS-HRS; 15.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 25

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.10 273.9 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.63 WATERSHED INCHES; 272 CFS-HRS; 22.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 26

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.11 457.4 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

OPERATION REACH XSECTION 27

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.19 444.6 320.01

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.66 WATERSHED INCHES; 458 CFS-HRS; 37.8 ACRE-FEET.

1 TR20 ----- SCS -





CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.92 WATERSHED INCHES; 43 CFS-HRS; 3.6 ACRE-FEET.

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 32, TRUNCATED AT 400 POINTS  
 WITH .53 AC-FT ( .10 WATERSHED INCHES) FLOOD STORAGE  
 REMAINING IN RESERVOIR AT ELEV. 378.25. \*\*\*

OPERATION RESVOR STRUCTURE 32

PEAK TIME(HRS) 12.09 PEAK DISCHARGE(CFS) 38.7 PEAK ELEVATION(FEET) 381.12

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = .01 SQ.MI.

HRS	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV
1.98	CFS	.00	.01	.01	.01	.01	.01	.01	.01	.01
1.98	ELEV	375.40	375.42	375.42	375.43	375.43	375.43	375.44	375.44	375.44
2.46	CFS	.01	.01	.01	.02	.02	.02	.02	.02	.02
2.46	ELEV	375.45	375.45	375.46	375.46	375.47	375.47	375.48	375.48	375.48
2.94	CFS	.02	.02	.03	.03	.03	.03	.03	.03	.03
2.94	ELEV	375.49	375.50	375.50	375.51	375.51	375.52	375.53	375.54	375.54
3.42	CFS	.04	.04	.04	.04	.04	.05	.05	.05	.05
3.42	ELEV	375.54	375.55	375.56	375.56	375.57	375.58	375.59	375.60	375.60
3.90	CFS	.05	.05	.06	.06	.06	.06	.06	.06	.07
3.90	ELEV	375.60	375.61	375.62	375.63	375.64	375.65	375.66	375.66	375.66
4.38	CFS	.07	.07	.07	.08	.08	.08	.08	.08	.09
4.38	ELEV	375.67	375.68	375.69	375.70	375.71	375.72	375.73	375.74	375.74
4.86	CFS	.09	.09	.09	.10	.10	.10	.11	.11	.11
4.86	ELEV	375.75	375.76	375.77	375.78	375.79	375.81	375.82	375.83	375.83
5.34	CFS	.11	.11	.12	.12	.12	.13	.13	.13	.13
5.34	ELEV	375.84	375.85	375.86	375.87	375.89	375.90	375.91	375.92	375.92
5.82	CFS	.13	.14	.14	.14	.15	.15	.15	.15	.16
5.82	ELEV	375.93	375.95	375.96	375.97	375.98	376.00	376.01	376.02	376.02
6.30	CFS	.16	.16	.17	.17	.17	.18	.18	.18	.18
6.30	ELEV	376.04	376.05	376.06	376.08	376.09	376.10	376.12	376.13	376.13
6.78	CFS	.19	.19	.20	.20	.20	.21	.21	.21	.21
6.78	ELEV	376.15	376.16	376.17	376.19	376.20	376.22	376.23	376.25	376.25
7.26	CFS	.22	.22	.23	.23	.23	.24	.24	.24	.24
7.26	ELEV	376.26	376.28	376.29	376.31	376.32	376.34	376.35	376.37	376.37
7.74	CFS	.25	.25	.26	.26	.26	.27	.27	.27	.28
7.74	ELEV	376.38	376.40	376.41	376.43	376.45	376.46	376.48	376.49	376.49
8.22	CFS	.28	.28	.29	.29	.30	.30	.31	.31	.31
8.22	ELEV	376.51	376.53	376.55	376.56	376.58	376.60	376.62	376.64	376.64
8.70	CFS	.32	.32	.33	.34	.34	.35	.35	.35	.36

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 164

8.70	ELEV	376.66	376.69	376.71	376.73	376.75	376.78	376.80	376.83	376.83
9.18	CFS	.37	.37	.38	.39	.39	.40	.41	.41	.41
9.18	ELEV	376.85	376.88	376.90	376.93	376.95	376.98	377.00	377.03	377.03
9.66	CFS	.42	.42	.43	.44	.45	.45	.46	.46	.47
9.66	ELEV	377.05	377.08	377.11	377.13	377.16	377.19	377.22	377.25	377.25
10.14	CFS	.48	.48	.49	.50	.51	.52	.53	.54	.54
10.14	ELEV	377.29	377.32	377.36	377.39	377.43	377.47	377.51	377.55	377.55
10.62	CFS	.55	.57	.58	.59	.60	.62	.63	.65	.65
10.62	ELEV	377.59	377.64	377.69	377.74	377.79	377.85	377.90	377.96	377.96
11.10	CFS	.66	.68	.70	.72	.74	.76	.79	.81	.81
11.10	ELEV	378.03	378.10	378.17	378.24	378.33	378.42	378.51	378.62	378.62
11.58	CFS	.84	.88	.95	1.81	4.24	13.26	29.81	35.02	35.02

CNCPT124.OUT

11.58	ELEV	378.74	378.90	379.16	379.49	379.88	380.28	380.65	380.92
12.06	CFS	38.38	38.18	34.58	28.50	17.81	13.13	10.47	8.79
12.06	ELEV	381.10	381.09	380.90	380.62	380.40	380.28	380.21	380.15
12.54	CFS	7.53	6.51	5.69	5.06	4.87	4.72	4.57	4.41
12.54	ELEV	380.10	380.06	380.03	380.00	379.98	379.96	379.93	379.91
13.02	CFS	4.26	4.11	3.97	3.82	3.69	3.56	3.43	3.31
13.02	ELEV	379.88	379.86	379.83	379.81	379.79	379.77	379.75	379.73
13.50	CFS	3.20	3.09	2.98	2.88	2.79	2.70	2.61	2.53
13.50	ELEV	379.71	379.69	379.68	379.66	379.65	379.63	379.62	379.60
13.98	CFS	2.45	2.37	2.30	2.23	2.16	2.10	2.05	2.00
13.98	ELEV	379.59	379.58	379.57	379.56	379.55	379.54	379.53	379.52
14.46	CFS	1.95	1.90	1.86	1.82	1.79	1.76	1.72	1.69
14.46	ELEV	379.51	379.50	379.50	379.49	379.49	379.48	379.48	379.47
14.94	CFS	1.66	1.64	1.61	1.58	1.56	1.53	1.51	1.49
14.94	ELEV	379.47	379.46	379.46	379.45	379.45	379.45	379.44	379.44
15.42	CFS	1.46	1.44	1.42	1.40	1.38	1.36	1.33	1.31
15.42	ELEV	379.43	379.43	379.43	379.42	379.42	379.42	379.41	379.41
15.90	CFS	1.29	1.27	1.25	1.23	1.21	1.19	1.18	1.16
15.90	ELEV	379.41	379.40	379.40	379.40	379.39	379.39	379.39	379.39
16.38	CFS	1.14	1.13	1.12	1.10	1.09	1.08	1.07	1.06
16.38	ELEV	379.38	379.38	379.38	379.38	379.37	379.37	379.37	379.37
16.86	CFS	1.05	1.04	1.03	1.02	1.01	1.01	1.00	1.00
16.86	ELEV	379.37	379.37	379.36	379.36	379.36	379.36	379.36	379.36
17.34	CFS	1.00	1.00	1.00	1.00	1.00	1.00	1.00	.99
17.34	ELEV	379.36	379.35	379.35	379.35	379.35	379.34	379.34	379.34
17.82	CFS	.99	.99	.99	.99	.99	.99	.99	.99
17.82	ELEV	379.33	379.33	379.33	379.32	379.32	379.32	379.31	379.31
18.30	CFS	.99	.98	.98	.98	.98	.98	.98	.98
18.30	ELEV	379.30	379.30	379.29	379.29	379.28	379.28	379.27	379.27
18.78	CFS	.97	.97	.97	.97	.97	.97	.97	.96
18.78	ELEV	379.26	379.25	379.25	379.24	379.24	379.23	379.22	379.22
19.26	CFS	.96	.96	.96	.96	.95	.95	.95	.95
19.26	ELEV	379.21	379.20	379.20	379.19	379.18	379.17	379.17	379.16
19.74	CFS	.95	.94	.94	.94	.94	.94	.93	.93
19.74	ELEV	379.15	379.14	379.13	379.12	379.12	379.11	379.10	379.09
20.22	CFS	.93	.93	.93	.92	.92	.92	.92	.91
20.22	ELEV	379.08	379.07	379.06	379.06	379.05	379.04	379.03	379.02

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 165

20.70	CFS	.91	.91	.91	.91	.90	.90	.90	.90
20.70	ELEV	379.01	379.00	378.99	378.99	378.98	378.97	378.96	378.95
21.18	CFS	.89	.89	.89	.89	.89	.88	.88	.88
21.18	ELEV	378.94	378.93	378.93	378.92	378.91	378.90	378.89	378.88
21.66	CFS	.88	.88	.87	.87	.87	.87	.87	.86
21.66	ELEV	378.88	378.87	378.86	378.85	378.84	378.83	378.83	378.82
22.14	CFS	.86	.86	.86	.85	.85	.85	.85	.85
22.14	ELEV	378.81	378.80	378.79	378.79	378.78	378.77	378.76	378.75
22.62	CFS	.84	.84	.84	.84	.84	.83	.83	.83
22.62	ELEV	378.74	378.74	378.73	378.72	378.71	378.70	378.70	378.69
23.10	CFS	.83	.83	.82	.82	.82	.82	.82	.81
23.10	ELEV	378.68	378.67	378.67	378.66	378.65	378.64	378.63	378.63
23.58	CFS	.81	.81	.81	.81	.80	.80	.80	.80
23.58	ELEV	378.62	378.61	378.60	378.60	378.59	378.58	378.57	378.56
24.06	CFS	.80	.79	.79	.79	.78	.78	.77	.77
24.06	ELEV	378.56	378.55	378.53	378.51	378.49	378.47	378.45	378.43
24.54	CFS	.76	.76	.75	.75	.74	.74	.73	.73
24.54	ELEV	378.41	378.39	378.37	378.35	378.33	378.31	378.29	378.27
25.02	CFS	.72							
25.02	ELEV	378.25							

CNCPT124.OUT

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.74 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	15
FLOW(CFS)	3	1	1	1	1	1	1	1 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 34. \*\*\*

OPERATION REACH XSECTION 34

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.09	38.7	338.33

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.74 WATERSHED INCHES; 37 CFS-HRS; 3.0 ACRE-FEET.

OPERATION RUNOFF XSECTION 35

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.03	149.4	(RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
7.92 WATERSHED INCHES; 141 CFS-HRS; 11.6 ACRE-FEET.

1  
TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 5 JOB NO. 1 PAGE 166

\*\*\* MESSAGE - RESERVOIR ROUTING, STRUCTURE 33, TRUNCATED AT 400 POINTS  
WITH 1.05 AC-FT ( .06 WATERSHED INCHES) FLOOD STORAGE  
REMAINING IN RESERVOIR AT ELEV. 354.18. \*\*\*

OPERATION RESVOR STRUCTURE 33

PEAK TIME(HRS)	PEAK DISCHARGE(CFS)	PEAK ELEVATION(FEET)
12.07	148.8	358.21

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99									
HRS	MAIN TIME	INCREMENT = .060 hr, DRAINAGE AREA = .03 SQ.MI.							
1.80 CFS	.00	.01	.01	.01	.01	.01	.01	.01	.02
1.80 ELEV	350.00	350.02	350.03	350.04	350.04	350.05	350.06	350.07	
2.28 CFS	.02	.02	.02	.02	.03	.03	.03	.03	.04
2.28 ELEV	350.08	350.09	350.10	350.11	350.12	350.13	350.14	350.15	
2.76 CFS	.04	.04	.05	.05	.05	.06	.06	.06	.06
2.76 ELEV	350.17	350.18	350.19	350.21	350.22	350.24	350.25	350.27	
3.24 CFS	.07	.07	.07	.08	.08	.09	.09	.10	
3.24 ELEV	350.29	350.30	350.32	350.34	350.36	350.38	350.39	350.41	
3.72 CFS	.10	.11	.11	.11	.12	.12	.13	.13	.13
3.72 ELEV	350.43	350.45	350.47	350.49	350.51	350.53	350.56	350.58	
4.20 CFS	.14	.14	.15	.16	.16	.17	.17	.18	
4.20 ELEV	350.60	350.62	350.64	350.67	350.69	350.72	350.74	350.76	
4.68 CFS	.18	.19	.20	.20	.21	.21	.22	.23	
4.68 ELEV	350.79	350.82	350.84	350.87	350.89	350.92	350.95	350.98	
5.16 CFS	.23	.24	.25	.25	.26	.27	.27	.28	
5.16 ELEV	351.00	351.03	351.06	351.09	351.12	351.15	351.18	351.21	
5.64 CFS	.29	.30	.30	.31	.32	.33	.33	.34	

CNCPT124.OUT

5.64	ELEV	351.24	351.27	351.31	351.34	351.37	351.40	351.44	351.47
6.12	CFS	.35	.36	.37	.37	.38	.39	.40	.41
6.12	ELEV	351.50	351.54	351.57	351.61	351.64	351.68	351.71	351.75
6.60	CFS	.41	.42	.43	.44	.45	.46	.47	.48
6.60	ELEV	351.78	351.82	351.86	351.89	351.93	351.97	352.01	352.05
7.08	CFS	.48	.49	.50	.51	.52	.53	.54	.55
7.08	ELEV	352.09	352.12	352.16	352.20	352.24	352.28	352.32	352.36
7.56	CFS	.56	.57	.58	.59	.60	.61	.62	.63
7.56	ELEV	352.40	352.45	352.49	352.53	352.57	352.61	352.66	352.70
8.04	CFS	.64	.65	.66	.67	.68	.69	.70	.71
8.04	ELEV	352.74	352.78	352.83	352.87	352.92	352.97	353.01	353.06
8.52	CFS	.72	.74	.75	.76	.78	.79	.80	.82
8.52	ELEV	353.11	353.17	353.22	353.28	353.33	353.39	353.45	353.51
9.00	CFS	.83	.85	.86	.88	.89	.91	.92	.94
9.00	ELEV	353.58	353.64	353.71	353.77	353.84	353.91	353.98	354.05
9.48	CFS	.96	.97	.99	1.06	1.30	1.52	1.74	1.96
9.48	ELEV	354.11	354.18	354.25	354.31	354.35	354.39	354.43	354.46
9.96	CFS	2.22	2.50	2.76	3.01	3.25	3.49	3.73	3.96
9.96	ELEV	354.50	354.54	354.57	354.60	354.64	354.67	354.70	354.73
10.44	CFS	4.18	4.41	4.64	4.86	5.11	5.40	5.69	5.98
10.44	ELEV	354.76	354.79	354.82	354.85	354.88	354.91	354.94	354.97

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 167

10.92	CFS	6.28	6.59	6.90	7.22	7.56	7.92	8.32	8.76
10.92	ELEV	355.00	355.03	355.06	355.10	355.13	355.17	355.21	355.25
11.40	CFS	9.25	9.77	10.39	11.21	12.46	14.62	18.17	27.25
11.40	ELEV	355.30	355.36	355.41	355.48	355.58	355.75	356.03	356.43
11.88	CFS	43.15	79.77	95.59	146.96	127.63	99.49	92.51	81.49
11.88	ELEV	356.94	357.46	357.94	358.20	358.16	358.06	357.85	357.51
12.36	CFS	56.32	45.48	38.05	33.57	29.49	25.89	22.80	20.23
12.36	ELEV	357.20	356.99	356.81	356.65	356.51	356.39	356.28	356.19
12.84	CFS	19.08	18.11	17.19	16.33	15.52	14.75	14.04	13.38
12.84	ELEV	356.11	356.03	355.96	355.89	355.82	355.76	355.70	355.65
13.32	CFS	12.76	12.19	11.66	11.17	10.71	10.28	9.89	9.56
13.32	ELEV	355.60	355.56	355.51	355.47	355.44	355.40	355.37	355.34
13.80	CFS	9.25	8.95	8.66	8.39	8.13	7.87	7.63	7.40
13.80	ELEV	355.30	355.27	355.24	355.22	355.19	355.16	355.14	355.12
14.28	CFS	7.19	6.99	6.80	6.63	6.47	6.32	6.18	6.05
14.28	ELEV	355.09	355.07	355.05	355.04	355.02	355.00	354.99	354.98
14.76	CFS	5.93	5.82	5.71	5.60	5.50	5.41	5.32	5.23
14.76	ELEV	354.97	354.95	354.94	354.93	354.92	354.91	354.90	354.89
15.24	CFS	5.15	5.06	4.99	4.92	4.86	4.80	4.73	4.67
15.24	ELEV	354.88	354.88	354.87	354.86	354.85	354.84	354.83	354.83
15.72	CFS	4.60	4.54	4.48	4.41	4.35	4.29	4.22	4.16
15.72	ELEV	354.82	354.81	354.80	354.79	354.78	354.78	354.77	354.76
16.20	CFS	4.10	4.04	3.98	3.93	3.88	3.83	3.78	3.74
16.20	ELEV	354.75	354.74	354.73	354.73	354.72	354.71	354.71	354.70
16.68	CFS	3.70	3.66	3.62	3.58	3.55	3.51	3.48	3.45
16.68	ELEV	354.70	354.69	354.69	354.68	354.68	354.67	354.67	354.66
17.16	CFS	3.41	3.38	3.35	3.32	3.30	3.27	3.24	3.21
17.16	ELEV	354.66	354.65	354.65	354.65	354.64	354.64	354.64	354.63
17.64	CFS	3.19	3.16	3.13	3.11	3.08	3.06	3.03	3.01
17.64	ELEV	354.63	354.62	354.62	354.62	354.61	354.61	354.61	354.60
18.12	CFS	2.99	2.96	2.94	2.91	2.89	2.87	2.84	2.82
18.12	ELEV	354.60	354.60	354.59	354.59	354.59	354.59	354.58	354.58
18.60	CFS	2.80	2.77	2.75	2.73	2.70	2.68	2.66	2.63
18.60	ELEV	354.58	354.57	354.57	354.57	354.56	354.56	354.56	354.55
19.08	CFS	2.61	2.59	2.56	2.54	2.52	2.50	2.47	2.45
19.08	ELEV	354.55	354.55	354.55	354.54	354.54	354.54	354.53	354.53

CNCPT124.OUT									
19.56	CFS	2.43	2.40	2.38	2.36	2.34	2.31	2.29	2.27
19.56	ELEV	354.53	354.52	354.52	354.52	354.51	354.51	354.51	354.51
20.04	CFS	2.25	2.22	2.20	2.18	2.16	2.14	2.12	2.11
20.04	ELEV	354.50	354.50	354.50	354.49	354.49	354.49	354.49	354.48
20.52	CFS	2.09	2.07	2.06	2.05	2.04	2.02	2.01	2.00
20.52	ELEV	354.48	354.48	354.48	354.48	354.47	354.47	354.47	354.47
21.00	CFS	2.00	1.99	1.98	1.98	1.97	1.96	1.96	1.95
21.00	ELEV	354.47	354.47	354.47	354.47	354.46	354.46	354.46	354.46
21.48	CFS	1.94	1.94	1.93	1.93	1.92	1.92	1.91	1.91
21.48	ELEV	354.46	354.46	354.46	354.46	354.46	354.46	354.45	354.45
21.96	CFS	1.90	1.90	1.89	1.88	1.88	1.87	1.87	1.86
21.96	ELEV	354.45	354.45	354.45	354.45	354.45	354.45	354.45	354.45
22.44	CFS	1.86	1.85	1.85	1.85	1.84	1.84	1.83	1.83

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 168

22.44	ELEV	354.45	354.45	354.44	354.44	354.44	354.44	354.44	354.44
22.92	CFS	1.82	1.82	1.81	1.81	1.80	1.80	1.79	1.79
22.92	ELEV	354.44	354.44	354.44	354.44	354.44	354.44	354.43	354.43
23.40	CFS	1.78	1.78	1.77	1.77	1.76	1.76	1.76	1.75
23.40	ELEV	354.43	354.43	354.43	354.43	354.43	354.43	354.43	354.43
23.88	CFS	1.75	1.74	1.74	1.73	1.71	1.66	1.59	1.51
23.88	ELEV	354.43	354.43	354.43	354.42	354.42	354.41	354.40	354.39
24.36	CFS	1.42	1.33	1.24	1.16	1.08	1.01	1.00	.99
24.36	ELEV	354.37	354.36	354.34	354.33	354.31	354.30	354.28	354.26
24.84	CFS	.99	.98	.98	.97				
24.84	ELEV	354.24	354.22	354.20	354.18				

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.24 WATERSHED INCHES; 128 CFS-HRS; 10.6 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	11	6	4	3	2	2	2	1

DURATION(HRS) 18  
 FLOW(CFS) 1 TRUNCATED

OPERATION ADDHYD XSECTION 36

PEAK TIME(HRS) 12.07 PEAK DISCHARGE(CFS) 187.4 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.12 WATERSHED INCHES; 165 CFS-HRS; 13.6 ACRE-FEET.

OPERATION RESVOR STRUCTURE 34

PEAK TIME(HRS) 12.07 PEAK DISCHARGE(CFS) 187.4 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.12 WATERSHED INCHES; 165 CFS-HRS; 13.6 ACRE-FEET.

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 37. \*\*\*

OPERATION REACH XSECTION 37



7.38	ELEV	326.41	326.42	326.43	326.44	326.45	326.46	326.47	326.48
7.86	CFS	1.17	1.20	1.22	1.25	1.27	1.30	1.32	1.35
7.86	ELEV	326.49	326.50	326.51	326.52	326.53	326.55	326.56	326.57
8.34	CFS	1.38	1.41	1.44	1.47	1.50	1.53	1.56	1.60
8.34	ELEV	326.58	326.59	326.60	326.62	326.63	326.64	326.66	326.67
8.82	CFS	1.63	1.67	1.71	1.74	1.78	1.82	1.86	1.90
8.82	ELEV	326.69	326.70	326.72	326.73	326.75	326.77	326.78	326.80
9.30	CFS	1.94	1.98	2.02	2.06	2.10	2.14	2.18	2.23
9.30	ELEV	326.82	326.83	326.85	326.87	326.88	326.90	326.92	326.94
9.78	CFS	2.28	2.33	2.39	2.45	2.51	2.58	2.66	2.74
9.78	ELEV	326.96	326.98	327.00	327.03	327.06	327.09	327.12	327.15
10.26	CFS	2.82	2.91	3.01	3.11	3.21	3.32	3.43	3.55
10.26	ELEV	327.19	327.22	327.26	327.30	327.35	327.39	327.44	327.49
10.74	CFS	3.67	3.80	3.94	4.09	4.24	4.40	4.57	4.74
10.74	ELEV	327.54	327.60	327.66	327.72	327.78	327.85	327.92	327.99
11.22	CFS	4.93	5.13	5.35	5.58	5.82	6.08	6.39	6.81
11.22	ELEV	328.07	328.16	328.25	328.34	328.44	328.55	328.68	328.86
11.70	CFS	7	8	10	35	83	94	103	110
11.70	ELEV	329.11	329.47	330.00	330.64	331.35	332.14	332.93	333.55
12.18	CFS	114	116	117	116	115	114	112	110
12.18	ELEV	333.91	334.10	334.19	334.16	334.05	333.90	333.71	333.51
12.66	CFS	107	105	102	100	97	93	90	87
12.66	ELEV	333.30	333.08	332.85	332.62	332.36	332.11	331.87	331.63
13.14	CFS	84.04	81.13	66.54	49.76	42.51	37.05	32.90	29.73
13.14	ELEV	331.40	331.18	330.97	330.83	330.74	330.67	330.61	330.57
13.62	CFS	27.56	25.74	24.20	22.89	21.76	20.77	19.89	19.17
13.62	ELEV	330.53	330.50	330.47	330.45	330.43	330.41	330.40	330.38
14.10	CFS	18.49	17.86	17.29	16.76	16.27	15.82	15.41	15.03
14.10	ELEV	330.37	330.36	330.35	330.34	330.33	330.32	330.32	330.31
14.58	CFS	14.72	14.43	14.15	13.88	13.62	13.37	13.13	12.90
14.58	ELEV	330.30	330.30	330.29	330.29	330.28	330.27	330.27	330.26
15.06	CFS	12.68	12.46	12.25	12.05	11.86	11.66	11.48	11.30
15.06	ELEV	330.26	330.25	330.25	330.25	330.24	330.24	330.23	330.23
15.54	CFS	11.13	10.96	10.80	10.64	10.48	10.32	10.17	10.01
15.54	ELEV	330.22	330.22	330.22	330.21	330.21	330.21	330.20	330.20
16.02	CFS	9.99	9.98	9.96	9.95	9.93	9.91	9.89	9.88
16.02	ELEV	330.20	330.19	330.18	330.18	330.17	330.16	330.16	330.15
16.50	CFS	9.85	9.83	9.81	9.79	9.76	9.74	9.71	9.69
16.50	ELEV	330.14	330.13	330.12	330.11	330.10	330.09	330.08	330.07
16.98	CFS	9.66	9.64	9.61	9.58	9.55	9.53	9.50	9.47
16.98	ELEV	330.06	330.05	330.04	330.02	330.01	330.00	329.99	329.98
17.46	CFS	9.44	9.41	9.38	9.35	9.32	9.29	9.26	9.22
17.46	ELEV	329.96	329.95	329.94	329.93	329.91	329.90	329.89	329.87
17.94	CFS	9.19	9.16	9.13	9.10	9.07	9.03	9.00	8.97
17.94	ELEV	329.86	329.85	329.83	329.82	329.81	329.79	329.78	329.77
18.42	CFS	8.93	8.90	8.87	8.83	8.80	8.77	8.73	8.70
18.42	ELEV	329.75	329.74	329.72	329.71	329.70	329.68	329.67	329.65
18.90	CFS	8.66	8.63	8.59	8.56	8.52	8.49	8.45	8.42
18.90	ELEV	329.64	329.62	329.61	329.59	329.58	329.56	329.55	329.53

1

19.38	CFS	8.38	8.34	8.31	8.27	8.24	8.20	8.16	8.12
19.38	ELEV	329.52	329.50	329.49	329.47	329.46	329.44	329.43	329.41
19.86	CFS	8.09	8.05	8.01	7.98	7.94	7.90	7.86	7.83
19.86	ELEV	329.40	329.38	329.37	329.35	329.33	329.32	329.30	329.29
20.34	CFS	7.79	7.75	7.71	7.68	7.64	7.60	7.57	7.53



CNCPT124.OUT

20.34	ELEV	329.27	329.26	329.24	329.22	329.21	329.19	329.18	329.16
20.82	CFS	7.50	7.46	7.43	7.39	7.36	7.32	7.29	7.25
20.82	ELEV	329.15	329.13	329.12	329.10	329.09	329.08	329.06	329.05
21.30	CFS	7.22	7.19	7.15	7.12	7.09	7.06	7.03	6.99
21.30	ELEV	329.03	329.02	329.01	328.99	328.98	328.96	328.95	328.94
21.78	CFS	6.96	6.93	6.90	6.87	6.84	6.81	6.78	6.75
21.78	ELEV	328.92	328.91	328.90	328.89	328.87	328.86	328.85	328.83
22.26	CFS	6.72	6.69	6.66	6.63	6.61	6.58	6.55	6.52
22.26	ELEV	328.82	328.81	328.80	328.79	328.77	328.76	328.75	328.74
22.74	CFS	6.49	6.47	6.44	6.41	6.39	6.36	6.33	6.31
22.74	ELEV	328.73	328.72	328.70	328.69	328.68	328.67	328.66	328.65
23.22	CFS	6.28	6.25	6.23	6.20	6.18	6.15	6.13	6.10
23.22	ELEV	328.64	328.63	328.62	328.61	328.60	328.58	328.57	328.56
23.70	CFS	6.08	6.06	6.03	6.01	5.98	5.96	5.94	5.90
23.70	ELEV	328.55	328.54	328.53	328.52	328.51	328.50	328.49	328.48
24.18	CFS	5.87	5.82	5.78	5.73	5.68	5.63	5.58	5.53
24.18	ELEV	328.46	328.45	328.43	328.41	328.39	328.37	328.35	328.32
24.66	CFS	5.49	5.44	5.39	5.34	5.29	5.24	5.19	
24.66	ELEV	328.30	328.28	328.26	328.24	328.22	328.20		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.63 WATERSHED INCHES; 273 CFS-HRS; 22.6 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	13	
FLOW(CFS)	21	10	9	8	7	6	5	TRUNCATED

OPERATION RUNOFF XSECTION 140

PEAK TIME(HRS)	11.96	PEAK DISCHARGE(CFS)	18.8	PEAK ELEVATION(FEET)	(RUNOFF)
----------------	-------	---------------------	------	----------------------	----------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
4.23 WATERSHED INCHES; 13 CFS-HRS; 1.1 ACRE-FEET.

OPERATION ADDHYD XSECTION 141

PEAK TIME(HRS)	12.29	PEAK DISCHARGE(CFS)	119.7	PEAK ELEVATION(FEET)	(NULL)
----------------	-------	---------------------	-------	----------------------	--------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.46 WATERSHED INCHES; 286 CFS-HRS; 23.7 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 5 JOB NO. 1 PAGE 172

OPERATION RUNOFF XSECTION 40

PEAK TIME(HRS)	12.10	PEAK DISCHARGE(CFS)	154.1	PEAK ELEVATION(FEET)	(RUNOFF)
----------------	-------	---------------------	-------	----------------------	----------

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.19 WATERSHED INCHES; 157 CFS-HRS; 13.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 41

PEAK TIME(HRS)		PEAK DISCHARGE(CFS)		PEAK ELEVATION(FEET)	
----------------	--	---------------------	--	----------------------	--

12.14 CNCPT124.OUT (NULL)  
 12.22 1314.2 (NULL)  
 1295.8 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.95 WATERSHED INCHES; 2452 CFS-HRS; 202.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 42

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.14 1602.5 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.00 WATERSHED INCHES; 2738 CFS-HRS; 226.3 ACRE-FEET.

OPERATION ADDHYD XSECTION 43

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.14 1720.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.03 WATERSHED INCHES; 3019 CFS-HRS; 249.5 ACRE-FEET.

OPERATION REACH XSECTION 44

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.27 1665.1 292.08

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.03 WATERSHED INCHES; 3018 CFS-HRS; 249.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 45

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 173

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.13 161.8 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.63 WATERSHED INCHES; 173 CFS-HRS; 14.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 46

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.14 195.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.37 WATERSHED INCHES; 218 CFS-HRS; 18.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 47

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
 12.14 357.2 (NULL)

CNCPT124.OUT  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.48 WATERSHED INCHES; 391 CFS-HRS; 32.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 48

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.03 214.0 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.02 WATERSHED INCHES; 182 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 49

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.24 1747.2 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.02 WATERSHED INCHES; 3200 CFS-HRS; 264.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 50

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.20 2087.6 (NULL)

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 5 JOB NO. 1 PAGE 174

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.96 WATERSHED INCHES; 3591 CFS-HRS; 296.8 ACRE-FEET.

OPERATION REACH XSECTION 51

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.31 2036.9 287.65

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.96 WATERSHED INCHES; 3589 CFS-HRS; 296.6 ACRE-FEET.

OPERATION RUNOFF XSECTION 52

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.00 24.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.28 WATERSHED INCHES; 18 CFS-HRS; 1.5 ACRE-FEET.

OPERATION REACH XSECTION 53

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.06 24.7 288.81

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
3.27 WATERSHED INCHES; 18 CFS-HRS; 1.5 ACRE-FEET.

CNCPT124.OUT

OPERATION RUNOFF XSECTION 54  
 PEAK TIME(HRS) 12.06 PEAK DISCHARGE(CFS) 16.9 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.15 WATERSHED INCHES; 15 CFS-HRS; 1.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 55  
 PEAK TIME(HRS) 12.04 PEAK DISCHARGE(CFS) 133.4 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.42 WATERSHED INCHES; 113 CFS-HRS; 9.3 ACRE-FEET.

1  
 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 175

OPERATION ADDHYD XSECTION 56  
 PEAK TIME(HRS) 12.30 PEAK DISCHARGE(CFS) 2079.2 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.94 WATERSHED INCHES; 3702 CFS-HRS; 305.9 ACRE-FEET.

OPERATION ADDHYD XSECTION 57  
 PEAK TIME(HRS) 12.06 PEAK DISCHARGE(CFS) 41.6 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 3.22 WATERSHED INCHES; 33 CFS-HRS; 2.7 ACRE-FEET.

OPERATION ADDHYD XSECTION 58  
 PEAK TIME(HRS) 12.29 PEAK DISCHARGE(CFS) 2092.2 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.90 WATERSHED INCHES; 3735 CFS-HRS; 308.7 ACRE-FEET.

OPERATION RUNOFF XSECTION 59  
 PEAK TIME(HRS) 12.04 PEAK DISCHARGE(CFS) 105.8 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.27 WATERSHED INCHES; 90 CFS-HRS; 7.5 ACRE-FEET.

OPERATION ADDHYD XSECTION 60

CNCPT124.OUT  
 PEAK TIME(HRS) 12.28 PEAK DISCHARGE(CFS) 2130.7 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.88 WATERSHED INCHES; 3825 CFS-HRS; 316.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 61

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 176

PEAK TIME(HRS) 12.06 PEAK DISCHARGE(CFS) 65.0 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.24 WATERSHED INCHES; 59 CFS-HRS; 4.8 ACRE-FEET.

OPERATION ADDHYD XSECTION 62

PEAK TIME(HRS) 12.27 PEAK DISCHARGE(CFS) 2161.1 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.87 WATERSHED INCHES; 3884 CFS-HRS; 321.0 ACRE-FEET.

OPERATION REACH XSECTION 63

PEAK TIME(HRS) 12.39 PEAK DISCHARGE(CFS) 2109.8 PEAK ELEVATION(FEET) 251.55

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99  
 MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.03 SQ.MI.

HRS	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV	CFS	ELEV
3.84	.47	247.16	.51	247.16	.55	247.17	.60	247.18	.64	247.19
3.84	.88	247.23	.94	247.24	1.01	247.26	1.08	247.27	1.15	247.28
4.32	1.50	247.35	1.61	247.36	1.71	247.38	1.83	247.41	1.95	247.42
4.80	2.51	247.46	2.67	247.48	2.84	247.49	3.02	247.50	3.20	247.52
5.28	3.99	247.58	4.20	247.60	4.41	247.62	4.63	247.63	4.85	247.65
5.76	5.88	247.74	6.19	247.74	6.52	247.75	6.86	247.75	7.23	247.76
6.24	8.87	247.79	9.33	247.79	9.80	247.80	10.29	247.81	10.79	247.81
6.72	12.91	247.85	13.47	247.86	14.04	247.86	14.62	247.87	15.20	247.88
7.20	17.60	247.92	18.22	247.93	18.84	247.94	19.46	247.95	20.08	247.96
7.68	22.64	248.00	23.30	248.01	23.97	248.02	24.68	248.03	25.43	248.04
8.16	29.12	248.09	30.23	248.10	31.41	248.11	32.65	248.13	33.96	248.14
8.64	39.64	248.20	41.17	248.22	42.73	248.23	44.33	248.25	45.95	248.27
9.12	52.46	248.30	54.26	248.32	56.08	248.32	57.88	248.32	59.66	248.28
9.60										

CNCPT124.OUT

9.60	ELEV	248.33	248.35	248.37	248.39	248.41	248.42	248.44	248.46
10.08	CFS	67.41	69.70	72.16	74.79	77.61	80.61	83.82	87.26

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 177

10.08	ELEV	248.48	248.50	248.52	248.54	248.56	248.59	248.62	248.65
10.56	CFS	91	95	99	103	108	113	118	124
10.56	ELEV	248.67	248.69	248.71	248.73	248.74	248.76	248.79	248.81
11.04	CFS	130	136	143	150	158	167	177	188
11.04	ELEV	248.83	248.86	248.89	248.92	248.95	248.97	249.00	249.03
11.52	CFS	200	213	230	252	286	340	426	559
11.52	ELEV	249.06	249.10	249.15	249.21	249.28	249.40	249.57	249.81
12.00	CFS	754	1010	1309	1604	1853	2025	2101	2100
12.00	ELEV	250.10	250.44	250.78	251.08	251.32	251.48	251.54	251.54
12.48	CFS	2040	1936	1800	1648	1492	1340	1200	1076
12.48	ELEV	251.49	251.40	251.27	251.13	250.97	250.82	250.66	250.52
12.96	CFS	970	881	808	749	701	661	628	601
12.96	ELEV	250.39	250.27	250.17	250.09	250.03	249.97	249.92	249.87
13.44	CFS	575	549	525	504	486	469	454	441
13.44	ELEV	249.83	249.79	249.76	249.72	249.68	249.65	249.62	249.60
13.92	CFS	428	416	405	394	383	373	363	353
13.92	ELEV	249.57	249.55	249.53	249.51	249.49	249.47	249.45	249.43
14.40	CFS	343	333	325	316	308	300	292	285
14.40	ELEV	249.40	249.38	249.37	249.35	249.33	249.31	249.30	249.28
14.88	CFS	277	268	259	245	228	213	200	190
14.88	ELEV	249.26	249.24	249.23	249.19	249.14	249.10	249.06	249.04
15.36	CFS	183	178	174	171	168	165	163	160
15.36	ELEV	249.02	249.00	248.99	248.98	248.98	248.97	248.96	248.96
15.84	CFS	158	156	153	151	149	147	145	142
15.84	ELEV	248.95	248.94	248.93	248.92	248.91	248.90	248.89	248.88
16.32	CFS	140	138	137	135	133	132	131	130
16.32	ELEV	248.88	248.87	248.86	248.85	248.85	248.84	248.84	248.83
16.80	CFS	128	127	127	126	125	124	123	122
16.80	ELEV	248.83	248.82	248.82	248.82	248.81	248.81	248.81	248.80
17.28	CFS	122	121	120	119	118	117	116	115
17.28	ELEV	248.80	248.80	248.79	248.79	248.78	248.78	248.78	248.77
17.76	CFS	114	113	112	111	111	110	109	108
17.76	ELEV	248.77	248.77	248.76	248.76	248.76	248.75	248.75	248.74
18.24	CFS	107	106	105	105	104	103	102	101
18.24	ELEV	248.74	248.74	248.73	248.73	248.73	248.72	248.72	248.72
18.72	CFS	101	100	99	98	97	97	96	95
18.72	ELEV	248.71	248.71	248.71	248.70	248.70	248.70	248.69	248.69
19.20	CFS	94.21	93.43	92.65	91.88	91.11	90.34	89.57	88.80
19.20	ELEV	248.69	248.69	248.68	248.68	248.68	248.67	248.67	248.66
19.68	CFS	88.04	87.28	86.51	85.75	85.00	84.24	83.48	82.73
19.68	ELEV	248.66	248.65	248.64	248.64	248.63	248.62	248.62	248.61
20.16	CFS	81.98	81.24	80.52	79.82	79.16	78.55	77.99	77.49
20.16	ELEV	248.60	248.60	248.59	248.58	248.58	248.57	248.57	248.56
20.64	CFS	77.05	76.65	76.29	75.97	75.68	75.40	75.15	74.90
20.64	ELEV	248.56	248.56	248.55	248.55	248.55	248.55	248.54	248.54
21.12	CFS	74.66	74.43	74.21	73.99	73.77	73.56	73.35	73.14
21.12	ELEV	248.54	248.54	248.54	248.53	248.53	248.53	248.53	248.53
21.60	CFS	72.93	72.72	72.52	72.32	72.11	71.91	71.71	71.51
21.60	ELEV	248.52	248.52	248.52	248.52	248.52	248.52	248.51	248.51

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 178

CNCPT124.OUT

22.08	CFS	71.32	71.12	70.92	70.73	70.53	70.34	70.14	69.95
22.08	ELEV	248.51	248.51	248.51	248.51	248.50	248.50	248.50	248.50
22.56	CFS	69.76	69.57	69.38	69.19	69.00	68.81	68.62	68.44
22.56	ELEV	248.50	248.50	248.49	248.49	248.49	248.49	248.49	248.49
23.04	CFS	68.25	68.06	67.88	67.69	67.51	67.32	67.14	66.96
23.04	ELEV	248.48	248.48	248.48	248.48	248.48	248.48	248.47	248.47
23.52	CFS	66.77	66.59	66.41	66.23	66.05	65.87	65.69	65.50
23.52	ELEV	248.47	248.47	248.47	248.47	248.46	248.46	248.46	248.46
24.00	CFS	65.32	65.14	64.82	64.01	62.42	60.03	56.69	52.31
24.00	ELEV	248.46	248.46	248.45	248.45	248.43	248.41	248.38	248.33
24.48	CFS	47.11	41.57	36.23	31.48	27.54	24.47	22.15	20.45
24.48	ELEV	248.28	248.22	248.16	248.11	248.07	248.02	247.99	247.96
24.96	CFS	19.20	18.28						
24.96	ELEV	247.94	247.93						

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.87 WATERSHED INCHES; 3882 CFS-HRS; 320.8 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	427	177	125	100	79	71	65	29

DURATION(HRS) 17  
FLOW(CFS) 18 TRUNCATED

OPERATION RUNOFF XSECTION 64

PEAK TIME(HRS) 12.18 PEAK DISCHARGE(CFS) 40.0 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
7.10 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION RESVOR STRUCTURE 61

PEAK TIME(HRS) 12.36 PEAK DISCHARGE(CFS) 30.8 PEAK ELEVATION(FEET) 336.17

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
7.10 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION REACH XSECTION 65

PEAK TIME(HRS) 12.44 PEAK DISCHARGE(CFS) 30.4 PEAK ELEVATION(FEET) 301.14

1 TR20 ----- SCS -  
06/30/\*\* Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
15:05:46 Run for 1,2,10,50,100YR STORMS 2.04TEST  
PASS 5 JOB NO. 1 PAGE 179

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
7.09 WATERSHED INCHES; 50 CFS-HRS; 4.2 ACRE-FEET.

OPERATION RUNOFF XSECTION 66

PEAK TIME(HRS) 12.03 PEAK DISCHARGE(CFS) 215.6 PEAK ELEVATION(FEET) (RUNOFF)

CNCPT124.OUT  
RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.12 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

\*\*\* WARNING - DISCHARGE EXCEEDS HIGHEST RATING POINT FOR STRUCTURE 62,  
VALUE EXTRAPOLATED. \*\*\*

\*\*\* WARNING - STRUCTURE 62, MAIN TIME INCREMENT EXCEEDS MAXIMUM ALLOWABLE  
TIME INCREMENT OF .043 HOURS. \*\*\*

\*\*\* WARNING - STRUCTURE 62, RESERVOIR ROUTING HAS NEGATIVE DISCHARGES  
FIRST NEGATIVE VALUE IS 0 CFS. \*\*\*

OPERATION RESVOR STRUCTURE 62

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.20 109.4 298.82

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.12 WATERSHED INCHES; 181 CFS-HRS; 15.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 67

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.24 127.6 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.31 WATERSHED INCHES; 231 CFS-HRS; 19.1 ACRE-FEET.

OPERATION RUNOFF XSECTION 68

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.02 367.7 (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.06 WATERSHED INCHES; 304 CFS-HRS; 25.1 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 5 JOB NO. 1 PAGE 180

OPERATION ADDHYD XSECTION 69

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.04 447.1 (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.16 WATERSHED INCHES; 535 CFS-HRS; 44.2 ACRE-FEET.

OPERATION REACH XSECTION 70

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)  
12.25 350.7 249.42

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
6.16 WATERSHED INCHES; 535 CFS-HRS; 44.2 ACRE-FEET.



CNCPT124.OUT

OPERATION RUNOFF XSECTION 71

PEAK TIME(HRS) 11.95 PEAK DISCHARGE(CFS) 71.8 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 6.79 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION RESVOR STRUCTURE 63

PEAK TIME(HRS) 12.00 PEAK DISCHARGE(CFS) 71.9 PEAK ELEVATION(FEET) 268.09

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 6.81 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION REACH XSECTION 72

PEAK TIME(HRS) 12.08 PEAK DISCHARGE(CFS) 64.0 PEAK ELEVATION(FEET) 248.45

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 6.80 WATERSHED INCHES; 52 CFS-HRS; 4.3 ACRE-FEET.

OPERATION RUNOFF XSECTION 73

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 181

PEAK TIME(HRS) 12.02 PEAK DISCHARGE(CFS) 410.3 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 4.53 WATERSHED INCHES; 321 CFS-HRS; 26.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 74

PEAK TIME(HRS) 12.38 PEAK DISCHARGE(CFS) 2187.2 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS) 5.74 WATERSHED INCHES; 4203 CFS-HRS; 347.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 75

PEAK TIME(HRS) 12.22 PEAK DISCHARGE(CFS) 382.5 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99											
HRS	MAIN	TIME	INCREMENT	=	.060	hr,	DRAINAGE	AREA	=	.15	SQ.MI.
5.22	CFS	.47	.53	.59	.66	.74	.82	.91	.99		
5.70	CFS	1.08	1.17	1.26	1.35	1.45	1.54	1.64	1.73		
6.18	CFS	1.83	1.93	2.03	2.13	2.23	2.33	2.44	2.54		
6.66	CFS	2.64	2.75	2.86	2.96	3.07	3.18	3.29	3.40		

CNCPT124.OUT

7.14	CFS	3.51	3.62	3.73	3.84	3.95	4.07	4.18	4.29
7.62	CFS	4.41	4.53	4.64	4.76	4.88	4.99	5.11	5.23
8.10	CFS	5.35	5.47	5.60	5.74	5.89	6.07	6.26	6.48
8.58	CFS	6.71	6.95	7.20	7.47	7.75	8.03	8.33	8.63
9.06	CFS	8.94	9.26	9.58	9.89	10.20	10.48	10.73	10.96
9.54	CFS	11.18	11.37	11.56	11.75	11.95	12.18	12.46	12.78
10.02	CFS	13.15	13.54	13.97	14.43	14.93	15.47	16.05	16.65
10.50	CFS	17.24	17.85	18.49	19.18	19.93	20.75	21.64	22.63
10.98	CFS	23.68	24.80	25.97	27.22	28.52	29.90	31.44	33.12
11.46	CFS	34.99	37.06	39.29	41.76	45.55	52.63	65.33	89.91
11.94	CFS	125	194	280	340	378	381	363	334
12.42	CFS	303	276	250	227	206	186	168	153
12.90	CFS	139	126	115	105	97	90	83	76
13.38	CFS	69.38	64.40	60.45	57.34	54.82	52.77	51.06	49.63
13.86	CFS	48.40	47.32	46.35	45.45	44.60	43.79	43.03	42.30
14.34	CFS	41.63	41.01	40.44	39.91	39.40	38.92	38.46	38.00
14.82	CFS	37.56	37.05	36.46	35.83	35.16	34.47	33.78	33.10
15.30	CFS	32.44	31.79	31.16	30.55	29.96	29.25	28.47	27.66
15.78	CFS	26.85	25.95	24.98	24.05	23.21	22.47	21.82	21.25
16.26	CFS	20.75	20.31	19.93	19.60	19.25	18.91	18.62	18.36
16.74	CFS	18.12	17.89	17.66	17.44	17.22	17.01	16.82	16.64
17.22	CFS	16.47	16.30	16.15	16.01	15.88	15.75	15.62	15.49
17.70	CFS	15.36	15.24	15.12	14.99	14.87	14.75	14.63	14.51

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 182

18.18	CFS	14.39	14.27	14.15	14.03	13.91	13.80	13.67	13.52
18.66	CFS	13.37	13.23	13.10	12.97	12.85	12.73	12.61	12.49
19.14	CFS	12.37	12.26	12.15	12.03	11.92	11.81	11.69	11.58
19.62	CFS	11.47	11.35	11.24	11.13	11.02	10.90	10.79	10.68
20.10	CFS	10.56	10.45	10.34	10.24	10.15	10.07	10.01	9.95
20.58	CFS	9.91	9.87	9.83	9.80	9.77	9.74	9.71	9.68
21.06	CFS	9.66	9.64	9.61	9.59	9.57	9.55	9.52	9.50
21.54	CFS	9.48	9.45	9.43	9.41	9.39	9.37	9.34	9.32
22.02	CFS	9.30	9.28	9.26	9.23	9.21	9.19	9.17	9.14
22.50	CFS	9.12	9.10	9.08	9.06	9.03	9.01	8.99	8.97
22.98	CFS	8.94	8.92	8.90	8.88	8.85	8.83	8.81	8.79
23.46	CFS	8.76	8.74	8.72	8.70	8.68	8.65	8.63	8.61
23.94	CFS	8.59	8.56	8.54	8.49	8.27	7.63	6.55	5.30
24.42	CFS	4.15	3.19	2.43	1.84	1.39	1.05	.79	.59
24.90	CFS	.44							

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 6.21 WATERSHED INCHES; 588 CFS-HRS; 48.6 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	51	32	18	14	11	10	9	6
DURATION(HRS)	18	20						
FLOW(CFS)	2	0						

OPERATION ADDHYD XSECTION 76

PEAK TIME(HRS) 12.35 PEAK DISCHARGE(CFS) 2518.6 PEAK ELEVATION(FEET) (NULL)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99  
 HRS MAIN TIME INCREMENT = .060 hr, DRAINAGE AREA = 1.28 SQ.MI.  
 3.78 CFS .47 .52 .57 .63 .69 .75 .82 .89

CNCPT124.OUT									
4.26	CFS	.96	1.04	1.12	1.20	1.29	1.37	1.47	1.57
4.74	CFS	1.67	1.79	1.91	2.03	2.16	2.31	2.46	2.63
5.22	CFS	2.83	3.03	3.26	3.50	3.76	4.02	4.30	4.58
5.70	CFS	4.87	5.16	5.46	5.76	6.07	6.39	6.72	7.07
6.18	CFS	7.43	7.81	8.22	8.65	9.10	9.57	10.05	10.56
6.66	CFS	11.08	11.62	12.18	12.76	13.36	13.97	14.59	15.22
7.14	CFS	15.87	16.53	17.20	17.88	18.57	19.27	19.98	20.69
7.62	CFS	21.41	22.13	22.86	23.59	24.33	25.08	25.84	26.63
8.10	CFS	27.43	28.25	29.10	29.98	30.92	31.92	33.01	34.19
8.58	CFS	35.47	36.85	38.32	39.88	41.51	43.21	44.99	46.82
9.06	CFS	48.70	50.63	52.60	54.60	56.61	58.61	60.58	62.48
9.54	CFS	64.42	66.46	68.59	70.77	72.95	75.16	77.44	79.84
10.02	CFS	82	85	88	91	95	98	102	107
10.50	CFS	111	116	121	126	132	138	144	151
10.98	CFS	158	166	175	184	194	205	217	230
11.46	CFS	244	261	283	315	367	445	566	760
11.94	CFS	1033	1355	1679	1945	2178	2369	2491	2518

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 183

12.42	CFS	2474	2377	2240	2075	1898	1719	1547	1389
12.90	CFS	1250	1130	1028	944	875	820	772	731
13.38	CFS	696	665	634	607	582	561	542	525
13.86	CFS	510	495	482	469	457	445	434	422
14.34	CFS	412	401	391	381	372	363	355	346
14.82	CFS	338	329	320	310	295	277	261	247
15.30	CFS	237	229	223	218	214	210	207	203
15.78	CFS	200	196	193	189	186	183	180	177
16.26	CFS	174	172	169	167	165	163	161	160
16.74	CFS	158	157	156	154	153	152	151	150
17.22	CFS	149	148	147	146	144	143	142	141
17.70	CFS	140	139	138	137	136	135	133	132
18.18	CFS	131	130	129	128	127	126	125	124
18.66	CFS	123	122	121	120	119	118	117	116
19.14	CFS	115	114	113	112	111	110	109	108
19.62	CFS	107	107	106	105	104	103	102	101
20.10	CFS	99.91	99.00	98.12	97.27	96.47	95.72	95.02	94.40
20.58	CFS	93.84	93.33	92.89	92.49	92.12	91.78	91.47	91.17
21.06	CFS	90.88	90.61	90.34	90.08	89.82	89.57	89.32	89.07
21.54	CFS	88.83	88.59	88.34	88.10	87.86	87.62	87.39	87.15
22.02	CFS	86.92	86.68	86.45	86.22	85.98	85.75	85.52	85.29
22.50	CFS	85.06	84.84	84.61	84.38	84.16	83.93	83.70	83.48
22.98	CFS	83.26	83.03	82.81	82.59	82.37	82.15	81.93	81.71
23.46	CFS	81.49	81.27	81.05	80.83	80.61	80.40	80.18	79.96
23.94	CFS	79.74	79.51	78.82	76.92	74.22	70.98	67.02	62.20
24.42	CFS	56.56	50.34	44.02	38.08	32.87	28.59	25.25	22.74
24.90	CFS	20.89	19.52	18.52					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.79 WATERSHED INCHES; 4791 CFS-HRS; 395.9 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	520	225	153	123	97	86	80	36

DURATION(HRS)	18
FLOW(CFS)	19 TRUNCATED

\*\*\* WARNING - ROUTING COEFFICIENT (C) EQUALS 1.0,  
 CONSIDER SMALLER MAIN TIME INCREMENT FOR XSECTION 77. \*\*\*

CNCPT124.OUT

OPERATION REACH XSECTION 77

PEAK TIME(HRS) 12.35 PEAK DISCHARGE(CFS) 2518.6 PEAK ELEVATION(FEET) 231.96

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.79 WATERSHED INCHES; 4791 CFS-HRS; 395.9 ACRE-FEET.

1

TR20 ----- SCS -  
Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
15:05:46 PASS 5 JOB NO. 1 PAGE 184

OPERATION RUNOFF XSECTION 78

PEAK TIME(HRS) 12.01 PEAK DISCHARGE(CFS) 227.4 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
5.37 WATERSHED INCHES; 177 CFS-HRS; 14.6 ACRE-FEET.

OPERATION ADDHYD XSECTION 79

PEAK TIME(HRS) 12.35 PEAK DISCHARGE(CFS) 2562.1 PEAK ELEVATION(FEET) (NULL)

ALTERNATE = 1, STORM = 99  
DRAINAGE AREA = 1.33 SQ.MI.

HRS	MAIN	TIME	INCREMENT = .060 hr,						
3.78 CFS	.47	.52	.57	.63	.69	.75	.82	.89	
4.26 CFS	.96	1.04	1.12	1.20	1.29	1.37	1.47	1.57	
4.74 CFS	1.67	1.79	1.91	2.03	2.16	2.31	2.46	2.63	
5.22 CFS	2.83	3.03	3.26	3.50	3.76	4.02	4.30	4.58	
5.70 CFS	4.87	5.16	5.46	5.76	6.07	6.39	6.72	7.07	
6.18 CFS	7.43	7.81	8.23	8.67	9.14	9.64	10.15	10.69	
6.66 CFS	11.24	11.81	12.40	13.01	13.63	14.27	14.92	15.59	
7.14 CFS	16.27	16.96	17.66	18.37	19.10	19.83	20.57	21.31	
7.62 CFS	22.06	22.82	23.58	24.35	25.12	25.90	26.70	27.52	
8.10 CFS	28.37	29.23	30.13	31.07	32.07	33.14	34.29	35.54	
8.58 CFS	36.90	38.35	39.90	41.53	43.25	45.03	46.89	48.81	
9.06 CFS	50.78	52.80	54.84	56.90	58.97	61.02	63.04	65.00	
9.54 CFS	66.98	69.10	71.31	73.59	75.90	78.24	80.66	83.20	
10.02 CFS	86	89	92	95	99	103	107	112	
10.50 CFS	116	121	126	132	138	144	151	159	
10.98 CFS	166	175	184	194	204	216	229	243	
11.46 CFS	259	277	303	344	411	512	664	904	
11.94 CFS	1234	1582	1889	2099	2278	2437	2542	2560	
12.42 CFS	2510	2408	2267	2100	1920	1739	1567	1408	
12.90 CFS	1268	1147	1044	959	890	834	786	745	
13.38 CFS	709	678	647	619	594	572	553	536	
13.86 CFS	520	505	492	479	466	454	443	431	
14.34 CFS	420	410	399	390	380	372	363	354	
14.82 CFS	346	337	328	318	303	285	268	255	
15.30 CFS	244	236	230	225	221	217	213	210	
15.78 CFS	206	203	199	195	192	189	186	183	
16.26 CFS	180	177	175	173	171	169	167	165	
16.74 CFS	164	162	161	160	158	157	156	155	
17.22 CFS	154	153	152	151	149	148	147	146	
17.70 CFS	145	144	142	141	140	139	138	137	
18.18 CFS	136	135	134	133	132	130	129	128	

CNCPT124.OUT

18.66 CFS	127	126	125	124	123	122	121	120
19.14 CFS	119	118	117	116	115	114	113	112

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 185

19.62 CFS	111	110	109	108	107	106	105	104
20.10 CFS	103	102	101	101	100	99	98	98
20.58 CFS	97.05	96.54	96.09	95.68	95.31	94.96	94.64	94.34
21.06 CFS	94.04	93.76	93.49	93.22	92.95	92.70	92.44	92.18
21.54 CFS	91.93	91.68	91.43	91.18	90.94	90.69	90.44	90.20
22.02 CFS	89.96	89.72	89.48	89.24	89.00	88.76	88.53	88.28
22.50 CFS	88.05	87.82	87.58	87.35	87.12	86.88	86.65	86.42
22.98 CFS	86.19	85.95	85.73	85.50	85.27	85.04	84.81	84.58
23.46 CFS	84.35	84.13	83.91	83.68	83.45	83.23	83.00	82.78
23.94 CFS	82.56	82.30	81.35	78.64	75.10	71.40	67.22	62.29
24.42 CFS	56.60	50.36	44.03	38.08	32.87	28.59	25.25	22.74
24.90 CFS	20.89	19.52	18.52					

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.77 WATERSHED INCHES; 4968 CFS-HRS; 410.6 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	531	232	159	127	100	89	82	37

DURATION(HRS) 18  
 FLOW(CFS) 19 TRUNCATED

OPERATION REACH XSECTION 80

PEAK TIME(HRS) 12.43 PEAK DISCHARGE(CFS) 2542.5 PEAK ELEVATION(FEET) 219.33

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.77 WATERSHED INCHES; 4966 CFS-HRS; 410.4 ACRE-FEET.

OPERATION RUNOFF XSECTION 81

PEAK TIME(HRS) 11.98 PEAK DISCHARGE(CFS) 263.1 PEAK ELEVATION(FEET) (RUNOFF)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.98 WATERSHED INCHES; 198 CFS-HRS; 16.4 ACRE-FEET.

OPERATION ADDHYD XSECTION 82

PEAK TIME(HRS) 12.43 PEAK DISCHARGE(CFS) 2576.5 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.78 WATERSHED INCHES; 5164 CFS-HRS; 426.8 ACRE-FEET.

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 186

CNCPT124.OUT

OPERATION RUNOFF XSECTION 83

PEAK TIME(HRS) 12.00 PEAK DISCHARGE(CFS) 131.1 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99  
 DRAINAGE AREA = .03 SQ.MI.  
 MAIN TIME INCREMENT = .060 hr,

HRS	CFS	MAIN	TIME	INCREMENT	ALTERNATE	DISCHARGE	STORM	ELEVATION	AREA
8.52	CFS	.49	.53	.57	.60	.64	.68	.73	.77
9.00	CFS	.82	.86	.90	.94	.98	1.01	1.04	1.08
9.48	CFS	1.11	1.14	1.18	1.22	1.28	1.35	1.42	1.49
9.96	CFS	1.57	1.65	1.73	1.82	1.93	2.04	2.15	2.27
10.44	CFS	2.40	2.53	2.67	2.82	3.00	3.19	3.40	3.62
10.92	CFS	3.84	4.08	4.33	4.64	5.00	5.45	5.95	6.49
11.40	CFS	7.07	7.66	8.46	10.87	15.91	25.08	37.97	56.14
11.88	CFS	84.35	117.59	131.11	119.25	84.83	53.27	36.77	28.25
12.36	CFS	23.41	20.17	17.66	15.61	13.95	12.77	11.94	11.34
12.84	CFS	10.85	10.39	9.96	9.53	9.13	8.78	8.48	8.22
13.32	CFS	7.97	7.74	7.51	7.27	7.05	6.84	6.64	6.46
13.80	CFS	6.29	6.12	5.95	5.78	5.62	5.48	5.36	5.27
14.28	CFS	5.20	5.14	5.08	5.02	4.96	4.91	4.85	4.79
14.76	CFS	4.73	4.67	4.61	4.56	4.50	4.44	4.38	4.32
15.24	CFS	4.26	4.20	4.15	4.09	4.03	3.97	3.91	3.85
15.72	CFS	3.79	3.73	3.67	3.61	3.55	3.49	3.44	3.39
16.20	CFS	3.36	3.33	3.31	3.29	3.26	3.24	3.22	3.20
16.68	CFS	3.18	3.16	3.14	3.12	3.10	3.08	3.05	3.03
17.16	CFS	3.01	2.99	2.97	2.95	2.93	2.91	2.89	2.86
17.64	CFS	2.84	2.82	2.80	2.78	2.76	2.74	2.71	2.69
18.12	CFS	2.67	2.65	2.63	2.61	2.59	2.56	2.54	2.52
18.60	CFS	2.50	2.48	2.46	2.43	2.41	2.39	2.37	2.35
19.08	CFS	2.32	2.30	2.28	2.26	2.24	2.22	2.19	2.17
19.56	CFS	2.15	2.13	2.11	2.09	2.06	2.04	2.02	2.00
20.04	CFS	1.98	1.96	1.95	1.94	1.93	1.92	1.92	1.91
20.52	CFS	1.91	1.91	1.90	1.90	1.90	1.89	1.89	1.88
21.00	CFS	1.88	1.87	1.87	1.87	1.86	1.86	1.85	1.85
21.48	CFS	1.84	1.84	1.84	1.83	1.83	1.82	1.82	1.81
21.96	CFS	1.81	1.81	1.80	1.80	1.79	1.79	1.79	1.78
22.44	CFS	1.78	1.77	1.77	1.76	1.76	1.76	1.75	1.75
22.92	CFS	1.74	1.74	1.73	1.73	1.73	1.72	1.72	1.71
23.40	CFS	1.71	1.70	1.70	1.70	1.69	1.69	1.68	1.68
23.88	CFS	1.67	1.67	1.66	1.49	.96	.46		

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 4.96 WATERSHED INCHES; 100 CFS-HRS; 8.3 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	7	4	3	3	2	2	2	0

OPERATION ADDHYD XSECTION 84

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 187

PEAK TIME(HRS) 12.42 PEAK DISCHARGE(CFS) 2596.4 PEAK ELEVATION(FEET) (NULL)

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.76 WATERSHED INCHES; 5265 CFS-HRS; 435.1 ACRE-FEET.

CNCPT124.OUT

OPERATION RUNOFF XSECTION 85

PEAK TIME(HRS) 12.08 PEAK DISCHARGE(CFS) 423.9 PEAK ELEVATION(FEET) (RUNOFF)

HYDROGRAPH POINTS FOR ALTERNATE = 1, STORM =99  
 DRAINAGE AREA = .12 SQ.MI.  
 MAIN TIME INCREMENT = .060 hr,

HRS	CFS	MAIN	TIME	INCREMENT	=	.060	hr,	DRAINAGE	AREA	=	.12	SQ.MI.
7.26	CFS	.47	.54	.61	.68	.75	.82	.89	.96			
7.74	CFS	1.04	1.11	1.18	1.26	1.33	1.41	1.49	1.58			
8.22	CFS	1.67	1.77	1.88	2.00	2.13	2.27	2.41	2.55			
8.70	CFS	2.70	2.86	3.02	3.19	3.36	3.54	3.73	3.91			
9.18	CFS	4.08	4.25	4.40	4.54	4.67	4.79	4.92	5.05			
9.66	CFS	5.20	5.38	5.60	5.83	6.10	6.39	6.69	7.01			
10.14	CFS	7.34	7.71	8.11	8.54	8.99	9.46	9.95	10.48			
10.62	CFS	11.03	11.64	12.30	13.04	13.83	14.67	15.55	16.48			
11.10	CFS	17.51	18.68	20.08	21.69	23.51	25.53	27.69	30.33			
11.58	CFS	35	44	63	93	138	203	289	373			
12.06	CFS	422	408	346	271	206	159	129	106			
12.54	CFS	89.65	76.88	66.76	59.18	53.43	49.03	45.61	42.83			
13.02	CFS	40.59	38.70	37.01	35.49	34.14	32.97	31.90	30.89			
13.50	CFS	29.93	28.99	28.10	27.25	26.45	25.70	24.98	24.29			
13.98	CFS	23.62	22.97	22.34	21.76	21.27	20.85	20.50	20.20			
14.46	CFS	19.92	19.67	19.43	19.19	18.96	18.73	18.50	18.28			
14.94	CFS	18.05	17.82	17.60	17.37	17.14	16.92	16.69	16.46			
15.42	CFS	16.23	16.00	15.77	15.54	15.31	15.08	14.85	14.62			
15.90	CFS	14.39	14.15	13.92	13.70	13.49	13.30	13.14	13.01			
16.38	CFS	12.90	12.80	12.70	12.62	12.53	12.45	12.36	12.28			
16.86	CFS	12.20	12.12	12.04	11.95	11.87	11.79	11.71	11.63			
17.34	CFS	11.54	11.46	11.38	11.30	11.22	11.13	11.05	10.97			
17.82	CFS	10.88	10.80	10.72	10.64	10.55	10.47	10.39	10.30			
18.30	CFS	10.22	10.14	10.05	9.97	9.89	9.80	9.72	9.64			
18.78	CFS	9.55	9.47	9.38	9.30	9.22	9.13	9.05	8.96			
19.26	CFS	8.88	8.80	8.71	8.63	8.54	8.46	8.37	8.29			
19.74	CFS	8.20	8.12	8.03	7.95	7.87	7.78	7.70	7.63			
20.22	CFS	7.57	7.52	7.49	7.46	7.43	7.41	7.39	7.38			
20.70	CFS	7.36	7.34	7.33	7.31	7.29	7.28	7.26	7.24			
21.18	CFS	7.23	7.21	7.20	7.18	7.16	7.15	7.13	7.11			
21.66	CFS	7.10	7.08	7.07	7.05	7.03	7.02	7.00	6.98			
22.14	CFS	6.97	6.95	6.93	6.92	6.90	6.89	6.87	6.85			
22.62	CFS	6.84	6.82	6.80	6.79	6.77	6.75	6.74	6.72			
23.10	CFS	6.70	6.69	6.67	6.65	6.64	6.62	6.61	6.59			
23.58	CFS	6.57	6.56	6.54	6.52	6.51	6.49	6.47	6.45			
24.06	CFS	6.21	5.50	4.30	2.99	1.90	1.19	.76	.47			

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 PASS 5 JOB NO. 1 PAGE 188

RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.17 WATERSHED INCHES; 396 CFS-HRS; 32.7 ACRE-FEET.

DURATION(HRS)	2	4	6	8	10	12	14	16
FLOW(CFS)	30	17	12	10	8	7	6	2
DURATION(HRS)	17							
FLOW(CFS)	0							

OPERATION ADDHYD XSECTION 86

CNCPT124.OUT  
 PEAK TIME(HRS) 12.40 PEAK DISCHARGE(CFS) 2728.8 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.72 WATERSHED INCHES; 5661 CFS-HRS; 467.8 ACRE-FEET.

OPERATION RUNOFF XSECTION 87

PEAK TIME(HRS) 11.96 PEAK DISCHARGE(CFS) 95.6 PEAK ELEVATION(FEET) (RUNOFF)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 7.05 WATERSHED INCHES; 72 CFS-HRS; 6.0 ACRE-FEET.

OPERATION ADDHYD XSECTION 88

PEAK TIME(HRS) 12.40 PEAK DISCHARGE(CFS) 2740.3 PEAK ELEVATION(FEET) (NULL)  
 RUNOFF ABOVE BASEFLOW (BASEFLOW = .00 CFS)  
 5.73 WATERSHED INCHES; 5733 CFS-HRS; 473.8 ACRE-FEET.

EXECUTIVE CONTROL ENDCMP COMPUTATIONS COMPLETED FOR PASS 5  
 1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 SUMMARY, JOB NO. 1 PAGE 189

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

RAINFALL OF 2.66 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.  
 RAINFALL NUMBER 2, ARC 2  
 MAIN TIME INCREMENT .060 HOURS

ALTERNATE	1	STORM	1					
STRUCTURE 11	RESVOR	.09	1.01	381.90	12.32	40	444.4	
XSECTION 8	REACH	.17	.91	356.92	12.39	60	352.9	
STRUCTURE 21	RESVOR	.07	1.27	371.80	13.17	8	114.3	
STRUCTURE 22	RESVOR	.07	1.26	352.96	13.31	8	114.3	
STRUCTURE 23	RESVOR	.32	.95	336.06	12.37	77	240.6	
XSECTION 16	REACH	.32	.95	332.03	12.37	77	240.6	
STRUCTURE 24	RESVOR	.03	1.95	346.77	12.32	10	333.3	
XSECTION 20	ADDHYD	.05	1.71	---	12.00	41	820.0	
XSECTION 23	REACH	.41	1.07	315.13	12.26	109	265.9	
STRUCTURE 31	RESVOR	.05	.82	359.71	12.22	21	420.0	
STRUCTURE 32	RESVOR	.01	1.64	378.51	13.32R	1R	100.0	



CNCPT124.OUT

STRUCTURE 33	RESVOR	.03	1.62	355.57	12.32	12	400.0
STRUCTURE 34	RESVOR	.04	1.62	---	12.32	13	325.0
STRUCTURE 35	RESVOR	.06	1.44	328.49	13.86F	6F	100.0
XSECTION 141	ADDHYD	.07	1.37	---	13.80F	6F	85.7
XSECTION 44	REACH	.78	1.02	289.78	12.39	212	271.8
XSECTION 51	REACH	.93	.98	283.88	12.50	235	252.7
XSECTION 63	REACH	1.03	.94	249.12	12.73	222	215.5
STRUCTURE 61	RESVOR	.01	1.53	332.38	12.51	5	500.0
STRUCTURE 62	RESVOR	.05	1.00	291.84	12.25	15	300.0
STRUCTURE 63	RESVOR	.01	1.36	263.96	12.19	4	400.0
XSECTION 75	ADDHYD	.15	1.05	---	12.17	67	446.7
XSECTION 76	ADDHYD	1.28	.91	---	12.69	258	201.6
XSECTION 77	REACH	1.28	.91	228.50	12.76	257	200.8
XSECTION 79	ADDHYD	1.33	.90	---	12.76	261	196.2
XSECTION 88	ADDHYD	1.55	.88	---	12.81	276	178.1

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 SUMMARY, JOB NO. 1 PAGE 190

SUMMARY TABLE 1

-----  
 SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
RAINFALL OF 3.21 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 2							
STRUCTURE 11	RESVOR	.09	1.42	382.45	12.24	74	822.2
XSECTION 8	REACH	.17	1.29	357.25	12.36	107	629.4
STRUCTURE 21	RESVOR	.07	1.74	373.41	13.20F	9F	128.6
STRUCTURE 22	RESVOR	.07	1.74	353.06	13.36	9	128.6
STRUCTURE 23	RESVOR	.32	1.34	337.69	12.43	116	362.5
XSECTION 16	REACH	.32	1.34	332.32	12.43	116	362.5
STRUCTURE 24	RESVOR	.03	2.47	347.21	12.34	11	366.7
XSECTION 20	ADDHYD	.05	2.21	---	11.99	54	1080.0
XSECTION 23	REACH	.41	1.48	315.41	12.18	164	400.0
STRUCTURE 31	RESVOR	.05	1.19	361.75	12.26	27	540.0
STRUCTURE 32	RESVOR	.01	2.03	379.31	13.26R	1R	100.0
STRUCTURE 33	RESVOR	.03	2.10	356.21	12.25	21	700.0
STRUCTURE 34	RESVOR	.04	2.08	---	12.26	21	525.0
STRUCTURE 35	RESVOR	.06	1.87	329.44	13.66T	8T	133.3
XSECTION 141	ADDHYD	.07	1.78	---	13.56F	8F	114.3
XSECTION 44	REACH	.78	1.42	290.08	12.33	329	421.8
XSECTION 51	REACH	.93	1.37	284.41	12.42	377	405.4
XSECTION 63	REACH	1.03	1.33	249.45	12.59	364	353.4
STRUCTURE 61	RESVOR	.01	2.01	333.13	12.56	5	500.0

STRUCTURE 62	RESVOR	.05	1.41	292.96	12.30	17	340.0
STRUCTURE 63	RESVOR	.01	1.82	264.92	12.22	4	400.0
XSECTION 75	ADDHYD	.15	1.47	---	12.25	81	540.0
XSECTION 76	ADDHYD	1.28	1.29	---	12.55	426	332.8
XSECTION 77	REACH	1.28	1.29	229.11	12.62	426	332.8

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 SUMMARY, JOB NO. 1 PAGE 191

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F-FLAT TOP HYDROGRAPH T-TRUNCATED HYDROGRAPH R-RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 1 STORM 2		-----					
XSECTION 79	ADDHYD	1.33	1.28	---	12.61	431	324.1
XSECTION 88	ADDHYD	1.55	1.25	---	12.59	460	296.8
RAINFALL OF 4.94 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 10		-----					
STRUCTURE 11	RESVOR	.09	2.85	383.46	12.16	159	1766.7
XSECTION 8	REACH	.17	2.68	358.07	12.25	269	1582.4
STRUCTURE 21	RESVOR	.07	3.31	376.21	12.50	58	828.6
STRUCTURE 22	RESVOR	.07	3.30	355.74	12.63	53	757.1
STRUCTURE 23	RESVOR	.32	2.74	342.16	12.56	194	606.3
XSECTION 16	REACH	.32	2.74	332.87	12.56	194	606.3
STRUCTURE 24	RESVOR	.03	4.15	348.64	12.40	14	466.7
XSECTION 20	ADDHYD	.05	3.84	---	11.98	93	1860.0
XSECTION 23	REACH	.41	2.91	315.87	12.13	289	704.9
STRUCTURE 31	RESVOR	.05	2.53	363.97	12.16	80	1600.0
STRUCTURE 32	RESVOR	.01	3.51	380.27	12.18	13	1300.0
STRUCTURE 33	RESVOR	.03	3.70	357.31	12.14	64	2133.3
STRUCTURE 34	RESVOR	.04	3.66	---	12.17	72	1800.0
STRUCTURE 35	RESVOR	.06	3.36	330.94	12.35	62	1033.3
XSECTION 141	ADDHYD	.07	3.23	---	12.34	63	900.0
XSECTION 44	REACH	.78	2.82	290.84	12.29	721	924.4
XSECTION 51	REACH	.93	2.76	285.69	12.35	861	925.8
XSECTION 63	REACH	1.03	2.69	250.25	12.46	864	838.8
STRUCTURE 61	RESVOR	.01	3.62	334.73	12.44	13	1300.0
STRUCTURE 62	RESVOR	.05	2.83	295.61	12.25	43	860.0
STRUCTURE 63	RESVOR	.01	3.37	266.88	12.11	16	1600.0
XSECTION 75	ADDHYD	.15	2.92	---	12.28	153	1020.0
XSECTION 76	ADDHYD	1.28	2.64	---	12.43	1024	800.0
XSECTION 77	REACH	1.28	2.64	230.40	12.50	1023	799.2

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 SUMMARY, JOB NO. 1 PAGE 192

SUMMARY TABLE 1

-----  
 SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F--FLAT TOP HYDROGRAPH T--TRUNCATED HYDROGRAPH R--RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 1 STORM 10		-----					
XSECTION 79	ADDHYD	1.33	2.62	---	12.49	1038	780.5
XSECTION 88	ADDHYD	1.55	2.59	---	12.54	1099	709.0
RAINFALL OF 7.28 inches AND 24.00 hr DURATION, BEGINS AT							.0 hrs.
ALTERNATE 1 STORM 50		-----					
STRUCTURE 11	RESVOR	.09	4.95	384.86	12.15	276	3066.7
XSECTION 8	REACH	.17	4.74	358.77	12.23	481	2829.4
STRUCTURE 21	RESVOR	.07	5.44	378.07	12.34	150	2142.9
STRUCTURE 22	RESVOR	.07	5.42	359.83	12.62	115	1642.9
STRUCTURE 23	RESVOR	.32	4.79	347.28	12.46	452	1412.5
XSECTION 16	REACH	.32	4.79	334.36	12.46	452	1412.5
STRUCTURE 24	RESVOR	.03	6.44	350.63	12.45	18	600.0
XSECTION 20	ADDHYD	.05	6.11	---	11.98	144	2880.0
XSECTION 23	REACH	.41	5.00	316.37	12.57	476	1161.0
STRUCTURE 31	RESVOR	.05	4.56	365.27	12.13	149	2980.0
STRUCTURE 32	RESVOR	.01	5.60	380.82	12.09	33	3300.0
STRUCTURE 33	RESVOR	.03	5.99	358.09	12.12	105	3500.0
STRUCTURE 34	RESVOR	.04	5.90	---	12.11	137	3425.0
STRUCTURE 35	RESVOR	.06	5.49	332.99	12.31	104	1733.3
XSECTION 141	ADDHYD	.07	5.33	---	12.29	106	1514.3
XSECTION 44	REACH	.78	4.88	291.68	12.24	1322	1694.9
XSECTION 51	REACH	.93	4.82	287.05	12.30	1620	1741.9
XSECTION 63	REACH	1.03	4.73	251.14	12.39	1659	1610.7
STRUCTURE 61	RESVOR	.01	5.88	335.70	12.37	25	2500.0
STRUCTURE 62	RESVOR	.05	4.95	297.75	12.22	83	1660.0
STRUCTURE 63	RESVOR	.01	5.61	267.90	12.03	51	5100.0
XSECTION 75	ADDHYD	.15	5.04	---	12.23	299	1993.3
XSECTION 76	ADDHYD	1.28	4.66	---	12.36	1983	1549.2
XSECTION 77	REACH	1.28	4.66	231.52	12.36	1983	1549.2

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 SUMMARY, JOB NO. 1 PAGE 193

CNCPT124.OUT

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F--FLAT TOP HYDROGRAPH T--TRUNCATED HYDROGRAPH R--RISING TRUNCATED HYDROGRAPH

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)
ALTERNATE 1 STORM 50							
XSECTION 79	ADDHYD	1.33	4.64	---	12.36	2017	1516.5
XSECTION 88	ADDHYD	1.55	4.60	---	12.41	2167	1398.1
RAINFALL OF 8.53 inches AND 24.00 hr DURATION, BEGINS AT .0 hrs.							
ALTERNATE 1 STORM 99							
STRUCTURE 11	RESVOR	.09	6.12	385.70	12.13	346	3844.4
XSECTION 8	REACH	.17	5.89	359.15	12.12	623	3664.7
STRUCTURE 21	RESVOR	.07	6.54	379.28	12.38	157	2242.9
STRUCTURE 22	RESVOR	.07	6.53	360.94	12.78	129	1842.9
STRUCTURE 23	RESVOR	.32	5.93	348.24	12.27	682	2131.3
XSECTION 16	REACH	.32	5.93	335.54	12.27	682	2131.3
STRUCTURE 24	RESVOR	.03	7.66	351.70	12.46	21	700.0
XSECTION 20	ADDHYD	.05	7.33	---	11.97	171	3420.0
XSECTION 23	REACH	.41	6.14	316.88	12.37	731	1782.9
STRUCTURE 31	RESVOR	.05	5.70	365.78	12.13	186	3720.0
STRUCTURE 32	RESVOR	.01	6.74	381.12	12.09	39	3900.0
STRUCTURE 33	RESVOR	.03	7.24	358.21	12.07	149	4966.7
STRUCTURE 34	RESVOR	.04	7.12	---	12.07	187	4675.0
STRUCTURE 35	RESVOR	.06	6.63	334.19	12.32	117	1950.0
XSECTION 141	ADDHYD	.07	6.46	---	12.29	120	1714.3
XSECTION 44	REACH	.78	6.03	292.08	12.27	1665	2134.6
XSECTION 51	REACH	.93	5.96	287.65	12.31	2037	2190.3
XSECTION 63	REACH	1.03	5.87	251.55	12.39	2110	2048.5
STRUCTURE 61	RESVOR	.01	7.10	336.17	12.36	31	3100.0
STRUCTURE 62	RESVOR	.05	6.12	298.82	12.20	109	2180.0
STRUCTURE 63	RESVOR	.01	6.81	268.09	12.00	72	7200.0
XSECTION 75	ADDHYD	.15	6.21	---	12.22	383	2553.3
XSECTION 76	ADDHYD	1.28	5.79	---	12.35	2519	1968.0
XSECTION 77	REACH	1.28	5.79	231.96	12.35	2519	1968.0

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 SUMMARY, JOB NO. 1 PAGE 194

SUMMARY TABLE 1

SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL IN ORDER PERFORMED.  
 A CHARACTER FOLLOWING THE PEAK DISCHARGE TIME AND RATE (CFS) INDICATES:  
 F--FLAT TOP HYDROGRAPH T--TRUNCATED HYDROGRAPH R--RISING TRUNCATED HYDROGRAPH

CNCPT124.OUT

XSECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RUNOFF AMOUNT (IN)	PEAK DISCHARGE			
				ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)

ALTERNATE 1 STORM 99

XSECTION	79	ADDHYD	1.33	5.77	---	12.35	2562	1926.3
XSECTION	88	ADDHYD	1.55	5.73	---	12.40	2740	1767.7

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 SUMMARY, JOB NO. 1 PAGE 195

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.  
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;  
 LENGTH FACTOR - VALUE K\* GREATER THAN 1.0;  
 ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

HYDROGRAPH INFORMATION

ROUTING PARAMETERS

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	INFLOW		OUTFLOW		Q-A EQ.		LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT- KIN COEFF (C)
			PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)			

BASEFLOW IS .0 CFS

ALTERNATE 1 STORM 1

2	1170		19	12.1	18	12.2	1.54	1.38	.040	.945	.56
5	797		40	12.3	39	12.4	2.30	1.18	.024	.979	.73?
8	1221		62	12.3	60	12.4	1.13	1.49	.011	.978	.71?
16	920		77	12.4	77	12.4	3.61	1.49	.001	1.000	1.00?
23	1379		141	12.1	109	12.2	1.36	1.10	.072	.772	.30
27	1021		55	12.1	50	12.2	.84	1.30	.058	.907	.46
32	1603		58	12.1	50	12.2	1.23	1.35	.078	.874	.47
34	583		1	13.3	1	13.4	1.14	1.62	.001	.998	.46
37	934		13	12.3	13	12.4	2.31	1.55	.003	.995	.86?
44	1428		247	12.2	211	12.4	.73	1.23	.052	.855	.33
51	1275		250	12.4	235	12.5	.84	1.22	.034	.939	.39
53	652		0	12.1	0	12.4	2.05	1.40	.012	.846	.39
63	1959		244	12.5	222	12.7	1.41	1.13	.061	.910	.27
65	1283		5	12.5	5	12.7	2.47	1.43	.014	.994	.53
70	2166		74	12.1	63	12.2	1.65	1.32	.061	.856	.43
72	1081		4	12.2	4	12.4	1.50	1.61	.008	.986	.50
77	884		257	12.7	257	12.8	1.67	1.26	.006	1.000	.85?
80	1296		261	12.8	261	12.8	1.54	1.45	.003	1.000	.95?

ALTERNATE 1 STORM 2

2	1170		28	12.1	26	12.2	1.57	1.36	.038	.949	.59
---	------	--	----	------	----	------	------	------	------	------	-----

CNCPT124.OUT											
5	797		74	12.2	70	12.3	2.16	1.22	.025	.950	.80?
8	1221		109	12.3	107	12.4	1.17	1.47	.013	.983	.79?
16	920		116	12.4	116	12.4	3.61	1.49	.001	1.000	1.00?
23	1379		202	12.1	164	12.2	1.09	1.16	.058	.812	.34
27	1021		79	12.1	70	12.2	1.10	1.17	.079	.881	.41
32	1603		81	12.1	71	12.2	1.29	1.33	.076	.881	.48
34	583		1	13.3	1	13.4	1.14	1.62	.001	.999	.49

1

TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 SUMMARY, JOB NO. 1 PAGE 196

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.  
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;  
 LENGTH FACTOR - VALUE K\* GREATER THAN 1.0;  
 ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
			INFLOW		OUTFLOW		Q-A EQ.		LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT- KIN COEFF (C)
			PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)			
ALTERNATE		1	STORM	2							
37	934		21	12.2	21	12.3	2.31	1.55	.003	.996	.95?
44	1428		369	12.2	328	12.3	.50	1.32	.038	.886	.39
51	1275		397	12.3	377	12.4	.62	1.30	.028	.950	.46
53	652		1	12.1	1	12.1	2.05	1.40	.027	.795	.58
63	1959		393	12.4	364	12.6	.87	1.25	.044	.926	.34
65	1283		5	12.5	5	12.7	2.47	1.43	.011	.995	.54
70	2166		101	12.1	77	12.2	1.68	1.16	.123	.762	.29
72	1081		4	12.2	4	12.4	1.50	1.61	.005	.995	.51
77	884		426	12.5	425	12.6	1.91	1.22	.008	.997	.86?
80	1296		431	12.6	431	12.6	1.58	1.44	.003	1.000	1.00?
ALTERNATE		1	STORM	10							
2	1170		58	12.1	57	12.2	.27	2.00	.006	.985	.84?
5	797		158	12.2	157	12.2	1.93	1.26	.019	.997	.90?
8	1221		270	12.2	268	12.2	1.28	1.44	.012	.994	.91?
16	920		194	12.5	194	12.5	3.61	1.49	.001	1.000	1.00?
23	1379		332	12.0	289	12.1	.78	1.25	.031	.871	.41
27	1021		198	12.1	180	12.2	.69	1.31	.054	.908	.53
32	1603		156	12.1	140	12.2	1.36	1.31	.064	.900	.53
34	583		13	12.2	13	12.2	1.14	1.62	.005	.988	.92?
37	934		71	12.2	71	12.2	2.35	1.53	.004	1.000	1.00?
44	1428		767	12.2	720	12.3	.31	1.43	.022	.939	.51
51	1275		890	12.2	860	12.4	.46	1.36	.019	.966	.57
53	652		7	12.0	6	12.1	2.05	1.40	.026	.964	.80?
63	1959		902	12.4	863	12.5	.47	1.39	.026	.957	.46
65	1283		13	12.4	12	12.5	2.48	1.39	.013	.974	.63
70	2166		194	12.1	137	12.3	1.85	1.05	.184	.705	.22

1

TR20 ----- SCS -  
 06/30/\*\* Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 15:05:46 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 SUMMARY, JOB NO. 1 PAGE 197

SUMMARY TABLE 2

MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.  
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;  
 LENGTH FACTOR - VALUE K\* GREATER THAN 1.0;  
 ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
			INFLOW		OUTFLOW		Q-A EQ.		LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
			PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)			
ALTERNATE 1			STORM 10								
72	1081		16	12.1	15	12.2	1.53	1.49	.014	.977	.66
77	884		1024	12.4	1022	12.5	1.94	1.22	.008	.998	.94?
80	1296		1037	12.5	1033	12.5	3.18	1.19	.010	.996	.88?
ALTERNATE 1			STORM 50								
2	1170		100	12.1	99	12.2	.27	2.00	.004	.998	.97?
5	797		273	12.2	273	12.2	1.80	1.29	.015	1.000	.98?
8	1221		481	12.2	481	12.2	1.30	1.43	.010	1.000	.99?
16	920		450	12.5	450	12.5	4.00	1.45	.001	1.000	1.00?
23	1379		506	12.4	474	12.6	.66	1.29	.021	.937	.46
27	1021		367	12.1	350	12.2	.37	1.47	.027	.954	.68?
32	1603		263	12.1	241	12.1	1.45	1.28	.059	.915	.57
34	583		33	12.1	33	12.1	1.15	1.61	.006	1.000	1.00?
37	934		137	12.1	137	12.1	2.47	1.51	.004	1.000	1.00?
44	1428		1381	12.1	1322	12.2	.26	1.46	.016	.957	.60
51	1275		1658	12.2	1620	12.3	.43	1.38	.016	.977	.65
53	652		18	12.0	18	12.1	2.05	1.40	.021	.991	.93?
63	1959		1715	12.3	1651	12.4	.37	1.43	.019	.962	.55
65	1283		25	12.4	25	12.5	2.51	1.37	.014	.979	.70?
70	2166		361	12.1	272	12.2	1.13	1.18	.132	.755	.28
72	1081		48	12.0	46	12.1	1.70	1.41	.026	.962	.77?
77	884		1983	12.4	1983	12.4	1.78	1.24	.007	1.000	1.00?
80	1296		2017	12.4	2007	12.4	4.54	1.10	.016	.995	.83?
ALTERNATE 1			STORM 99								
2	1170		122	12.1	122	12.1	.25	2.00	.003	1.000	1.00?
5	797		345	12.1	345	12.1	1.76	1.29	.014	1.000	1.00?

1 TR20 ----- SCS -  
 06/30/\*\* Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 15:05:46 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 SUMMARY, JOB NO. 1 PAGE 198

SUMMARY TABLE 2

CNCPT124.OUT  
 MODIFIED ATT-KIN REACH ROUTING IN ORDER PERFORMED.  
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - MAX. NUMBER ROUTING ITERATIONS USED;  
 LENGTH FACTOR - VALUE K\* GREATER THAN 1.0;  
 ATT-KIN COEFF - VALUE C GREATER THAN 0.667.

XSEC ID	REACH LENGTH (FT)	FLOOD PLAIN LENGTH (FT)	HYDROGRAPH INFORMATION				ROUTING PARAMETERS				
			INFLOW		OUTFLOW		Q-A EQ.		LENGTH FACTOR (k*)	PEAK RATIO Q/I (Q*)	ATT-KIN COEFF (C)
			PEAK (CFS)	TIME (HR)	PEAK (CFS)	TIME (HR)	COEFF (X)	POWER (M)			
	ALTERNATE	1	STORM	99							
8	1221		623	12.1	623	12.1	1.33	1.43	.010	1.000	1.00?
16	920		678	12.3	678	12.3	4.40	1.41	.001	1.000	1.00?
23	1379		778	12.2	730	12.4	.62	1.30	.024	.938	.49
27	1021		457	12.1	444	12.2	.32	1.50	.022	.971	.73?
32	1603		317	12.1	285	12.1	1.84	1.20	.076	.897	.51
34	583		38	12.1	38	12.1	1.15	1.60	.006	1.000	1.00?
37	934		185	12.1	185	12.1	2.54	1.49	.005	1.000	1.00?
44	1428		1709	12.1	1660	12.3	.25	1.46	.014	.971	.63
51	1275		2077	12.2	2037	12.3	.43	1.38	.015	.981	.67?
53	652		25	12.0	25	12.1	2.05	1.40	.019	.998	.98?
63	1959		2156	12.3	2101	12.4	.36	1.44	.017	.975	.58
65	1283		31	12.4	30	12.4	2.52	1.37	.014	.985	.73?
70	2166		443	12.1	350	12.2	.91	1.24	.109	.791	.31
72	1081		72	12.0	63	12.1	1.66	1.33	.045	.876	.72?
77	884		2518	12.4	2518	12.4	1.68	1.25	.007	1.000	1.00?
80	1296		2560	12.4	2541	12.4	6.02	1.02	.027	.993	.72?

1 TR20 ----- SCS -  
 Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 06/30/\*\* Run for 1,2,10,50,100YR STORMS 2.04TEST  
 15:05:46 SUMMARY, JOB NO. 1 PAGE 199

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES  
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS.....				
		1	2	10	50	99
STRUCTURE 63	.01					
ALTERNATE 1		4	4	16	51	72
STRUCTURE 62	.05					
ALTERNATE 1		15	17	43	83	109
STRUCTURE 61	.01					
ALTERNATE 1		5	5	13	25	31
STRUCTURE 35	.06					



CNCPT124.OUT

-----	ALTERNATE	1		6	8	62	104	117
-----	STRUCTURE	34	.04					
-----	ALTERNATE	1		13	21	72	137	187
-----	STRUCTURE	33	.03					
-----	ALTERNATE	1		12	21	64	105	149
-----	STRUCTURE	32	.01					
-----	ALTERNATE	1		1?	1?	13	33	39
-----	STRUCTURE	31	.05					
-----	ALTERNATE	1		21	27	80	149	186
-----	STRUCTURE	24	.03					
-----	ALTERNATE	1		10	11	14	18	21
-----	STRUCTURE	23	.32					
-----	ALTERNATE	1		77	116	194	452	682
-----	STRUCTURE	22	.07					
-----	ALTERNATE	1		8	9	53	115	129
-----	STRUCTURE	21	.07					
-----	ALTERNATE	1		8	9	58	150	157
-----	STRUCTURE	11	.09					
-----	ALTERNATE	1		40	74	159	276	346
-----	XSECTION	8	.17					

1

TR20 ----- SCS -  
 06/30/\*\* Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 15:05:46 Run for 1,2,10,50,100YR STORMS 2.04TEST  
 SUMMARY, JOB NO. 1 PAGE 200

SUMMARY TABLE 3

STORM DISCHARGES (CFS) AT XSECTIONS AND STRUCTURES FOR ALL ALTERNATES  
 QUESTION MARK (?) AFTER: OUTFLOW PEAK - RISING TRUNCATED HYDROGRAPH.

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS.....					
		1	2	10	50	99	
XSECTION	8	.17					
-----	ALTERNATE	1	60	107	269	481	623
XSECTION	16	.32					

CNCPT124.OUT

-----	ALTERNATE	1		77	116	194	452	682
XSECTION	20		.05					
-----	ALTERNATE	1		41	54	93	144	171
XSECTION	23		.41					
-----	ALTERNATE	1		109	164	289	476	731
XSECTION	44		.78					
-----	ALTERNATE	1		212	329	721	1322	1665
XSECTION	51		.93					
-----	ALTERNATE	1		235	377	861	1620	2037
XSECTION	63		1.03					
-----	ALTERNATE	1		222	364	864	1659	2110
XSECTION	75		.15					
-----	ALTERNATE	1		67	81	153	299	383
XSECTION	76		1.28					
-----	ALTERNATE	1		258	426	1024	1983	2519
XSECTION	77		1.28					
-----	ALTERNATE	1		257	426	1023	1983	2519
XSECTION	79		1.33					
-----	ALTERNATE	1		261	431	1038	2017	2562
XSECTION	88		1.55					
-----	ALTERNATE	1		276	460	1099	2167	2740
XSECTION	141		.07					
-----	ALTERNATE	1		6	8	63	106	120

1

TR20 ----- SCS -  
 06/30/\*\* Ellicott City Flood Study- Base Level MGMT w/CNCPT 1,2,4 VERSION  
 Run for 1,2,10,50,100YR STORMS 2.04TEST

END OF 1 JOBS IN THIS RUN

CNCPT124.OUT

SCS TR-20, VERSION 2.04TEST  
FILES

INPUT = cncpt124.dat , GIVEN DATA FILE  
OUTPUT = cncpt124.OUT , DATED 06/30/\*\*,15:05:46

FILES GENERATED - DATED 06/30/\*\*,15:05:46

NONE!

TOTAL NUMBER OF WARNINGS = 58, MESSAGES = 23

\*\*\* TR-20 RUN COMPLETED \*\*\*

# HY-8 Analysis Results

## Culvert Summary Table - 6X6 BOX(XS016=D/S)

Culvert Crossing: SWM-Cncpt1- HWY STOR2

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	330.31	0.00	0.0	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
90.00	90.00	333.56	3.25	0.00	1-S2n	1.34	1.91	1.37	2.86	10.96	5.50
180.00	180.00	335.42	5.11	1.73	1-S2n	2.20	3.03	2.27	4.24	13.23	6.63
270.00	270.00	337.11	6.80	3.69	5-S2n	2.96	3.98	3.07	5.56	14.66	7.24
360.00	360.00	338.98	8.67	5.97	5-S2n	3.68	4.82	3.82	7.50	15.69	7.16
400.00	400.00	339.93	9.62	7.47	5-S2n	4.00	5.17	4.15	7.50	16.07	7.16
540.00	540.00	344.04	13.73	11.16	5-S2n	5.06	6.00	5.24	7.50	17.19	7.16
630.00	630.00	347.39	17.08	13.79	6-FFc	6.00	6.00	6.00	7.50	17.50	7.16
720.00	720.00	351.57	21.26	16.82	6-FFc	6.00	6.00	6.00	7.50	20.00	7.16
810.00	740.64	352.64	22.33	17.58	6-FFc	6.00	6.00	6.00	7.50	20.57	7.16
900.00	748.47	353.05	22.74	17.87	6-FFc	6.00	6.00	6.00	7.50	20.79	7.16

# HY-8 Analysis Results

## Culvert Summary Table - 8x6 BOX(6X6BOX=D/S)

Culvert Crossing: SWM-Cncpt1-HWY STOR2

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	333.08	0.00	0.0	0-NF	0.00	0.00	0.01	0.00	0.00	0.00
120.00	120.00	335.97	2.89	0.02	1-S2n	1.01	1.91	1.10	2.63	13.70	11.72
240.00	240.00	337.72	4.64	2.06	1-S2n	1.61	3.03	1.84	4.17	16.29	14.18
360.00	360.00	339.26	6.18	3.40	5-S2n	2.13	3.98	2.52	4.68	17.85	15.69
480.00	480.00	340.96	7.88	5.48	5-S2n	2.61	4.82	3.16	5.61	19.01	16.71
600.00	600.00	343.04	9.96	8.05	5-S2n	3.06	5.59	3.76	6.69	19.95	17.40
700.00	700.00	345.14	12.06	9.86	5-S2n	3.43	6.00	4.24	7.00	20.64	19.44
840.00	840.00	348.69	15.61	12.33	5-S2n	3.93	6.00	4.81	7.00	21.81	20.79
960.00	930.48	351.37	18.29	14.17	4-FFf	4.24	6.00	7.01	7.00	19.38	20.79
1080.00	948.28	351.96	18.88	14.55	4-FFf	4.30	6.00	7.01	7.00	19.76	20.79
1200.00	961.33	352.40	19.32	14.84	4-FFf	4.35	6.00	7.01	7.00	20.03	20.79

# HY-8 Analysis Results

## Culvert Summary Table - Culvert 1

Culvert Crossing: SWM-Cncpt 2- D/S pipe

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	338.70	0.00	0.0	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
30.00	30.00	340.93	2.23	0.0*	1-S2n	0.82	1.62	0.84	0.74	15.59	7.78
60.00	60.00	342.16	3.46	0.0*	1-S2n	1.18	2.33	1.20	1.04	18.85	9.40
90.00	90.00	343.36	4.66	0.0*	5-S2n	1.46	2.87	1.49	1.27	21.05	10.46
120.00	120.00	344.90	6.20	0.0*	5-S2n	1.71	3.30	1.76	1.45	22.55	11.27
150.00	150.00	346.93	8.23	0.0*	5-S2n	1.94	3.60	2.01	1.61	23.71	11.94
180.00	180.00	349.44	10.74	0.0*	5-S2n	2.17	3.77	2.26	1.75	24.66	12.52
210.00	210.00	352.50	13.80	2.58	5-S2n	2.39	3.87	2.49	1.87	25.49	13.02
240.00	240.00	356.11	17.41	6.57	5-S2n	2.62	4.00	2.88	1.99	24.78	13.48
268.56	268.56	360.00	21.30	10.80	5-S2n	2.85	4.00	3.11	2.09	25.64	13.87
300.00	270.06	360.22	21.51	11.03	5-S2n	2.86	4.00	3.12	2.19	25.71	14.27

# HY-8 Analysis Results

## Culvert Summary Table - Culvert 2

Culvert Crossing: SWM-Cncp 2- U/S pipe

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	345.00	0.00	0.0	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
30.00	30.00	347.21	2.21	0.0*	1-S2n	0.79	1.62	0.85	2.23	15.12	15.59
60.00	60.00	348.45	3.45	0.0*	1-S2n	1.14	2.33	1.26	3.46	17.55	18.85
90.00	90.00	349.65	4.65	0.0*	5-S2n	1.40	2.87	1.61	4.66	18.96	21.05
120.00	120.00	351.19	6.19	2.81	5-S2n	1.64	3.30	1.93	6.36	20.04	22.49
150.00	150.00	353.21	8.21	6.22	5-JS1f	1.86	3.60	4.00	8.23	12.50	23.71
180.00	180.00	355.73	10.73**	10.63	5-FFf	2.07	3.77	4.00	10.74	14.32	24.66
210.00	210.00	360.92	13.78	15.92	4-FFf	2.28	3.87	4.00	13.80	16.71	25.49
240.00	217.90	365.18	14.69	20.18	4-FFf	2.33	3.88	4.00	17.41	17.34	24.78
270.00	180.25	365.45	10.75	21.20	4-FFf	2.07	3.77	4.00	21.30	14.34	25.64
300.00	170.77	365.57	9.91	10.05	4-FFf	2.01	3.73	4.00	21.30	13.59	25.64

# HY-8 Analysis Results

## Culvert Summary Table - Principle Spillway

Culvert Crossing: SWM-Cncp 3- P.S.

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	326.00	0.00	0.0	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
100.00	100.00	332.53	6.53	0.97	5-S2n	1.63	3.07	1.80	1.12	19.99	10.17
126.62	126.62	335.14	9.14	3.31	5-S2n	1.87	3.29	2.09	1.26	21.09	10.85
300.00	139.76	336.66	10.66	4.59	5-S2n	1.99	3.28	2.23	1.90	21.59	13.63
400.00	141.60	336.90	10.90	4.76	5-S2n	2.01	3.23	2.25	2.18	21.66	14.60
500.00	143.18	337.10	11.10	4.91	5-S2n	2.02	3.20	2.26	2.41	21.74	15.37
600.00	144.62	337.29	11.29	5.05	5-S2n	2.03	3.18	2.28	2.62	21.82	16.04
700.00	145.98	337.47	11.47	5.18	5-S2n	2.05	3.16	2.29	2.81	21.91	16.63
800.00	147.25	337.64	11.64	5.28	5-S2n	2.06	3.08	2.30	2.97	22.02	17.16
900.00	148.46	337.81	11.81	5.25	5-S2n	2.07	3.11	2.31	3.13	22.07	17.65
1000.00	149.60	337.96	11.96	5.69	5-S2n	2.08	3.38	2.33	3.27	22.00	18.10



# HY-8 Analysis Results

## Customized Table

Culvert Crossing: SD-Cncpt 4

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	254.25	0.00	0.0	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
15.00	15.00	255.78	1.53	0.0*	1-S2n	0.66	1.13	0.66	0.99	10.89	3.43
30.00	30.00	256.51	2.26	0.0*	1-S2n	0.94	1.62	0.94	1.36	13.29	3.48
45.00	45.00	257.17	2.92	0.0*	1-S2n	1.16	2.01	1.16	1.54	14.81	3.68
60.00	60.00	257.74	3.49	0.0*	1-S2n	1.35	2.33	1.35	1.64	16.05	4.11
75.00	75.00	258.32	4.07	0.0*	5-S2n	1.52	2.62	1.52	1.73	17.03	4.47
80.00	80.00	258.52	4.27	0.0*	5-S2n	1.58	2.71	1.58	1.76	17.34	4.58
105.00	105.00	259.66	5.41	0.0*	5-S2n	1.84	3.10	1.84	1.90	18.59	5.08
120.00	120.00	260.48	6.23	0.0*	5-S2n	1.99	3.30	1.99	1.98	19.25	5.34
135.00	135.00	261.43	7.18	0.0*	5-S2n	2.13	3.46	2.13	2.05	19.80	5.58
150.00	144.63	262.11	7.86	0.0*	5-S2n	2.23	3.55	2.23	2.12	20.11	5.80

# HY-8 Analysis Results

## Customized Table

Culvert Crossing: SD-Cncpt5

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	221.50	0.00	0.0	0-NF	0.00	0.00	4.00	15.32	0.00	0.00
20.00	20.00	223.27	1.77	0.0*	1-JS1f	0.74	1.31	4.00	15.32	1.67	8.13
40.00	40.00	224.20	2.70	0.0*	1-JS1f	1.05	1.89	4.00	15.32	3.33	11.07
60.00	60.00	224.99	3.49	0.0*	1-JS1f	1.29	2.33	4.00	15.32	5.00	12.09
80.00	80.00	225.76	4.26	0.0*	5-JS1f	1.51	2.71	4.00	15.32	6.67	12.90
100.00	100.00	226.65	5.15	0.0*	5-JS1f	1.70	3.03	4.00	15.32	8.33	13.66
120.00	120.00	227.72	6.22	1.79	5-JS1f	1.89	3.30	4.00	15.32	10.00	14.40
140.00	140.00	229.02	7.52	3.95	5-JS1f	2.07	3.51	4.00	15.32	11.67	15.19
160.00	154.64	230.11	8.61	5.75	5-JS1f	2.20	3.63	4.00	15.32	12.89	15.81
165.00	155.31	230.16	8.66	5.83	5-JS1f	2.21	3.63	4.00	15.32	12.95	15.84
200.00	158.58	230.42	8.92	6.26	5-JS1f	2.24	3.66	4.00	15.32	13.22	15.99

# HY-8 Analysis Results

## Customized Table

Culvert Crossing: SD-Cncpt 6

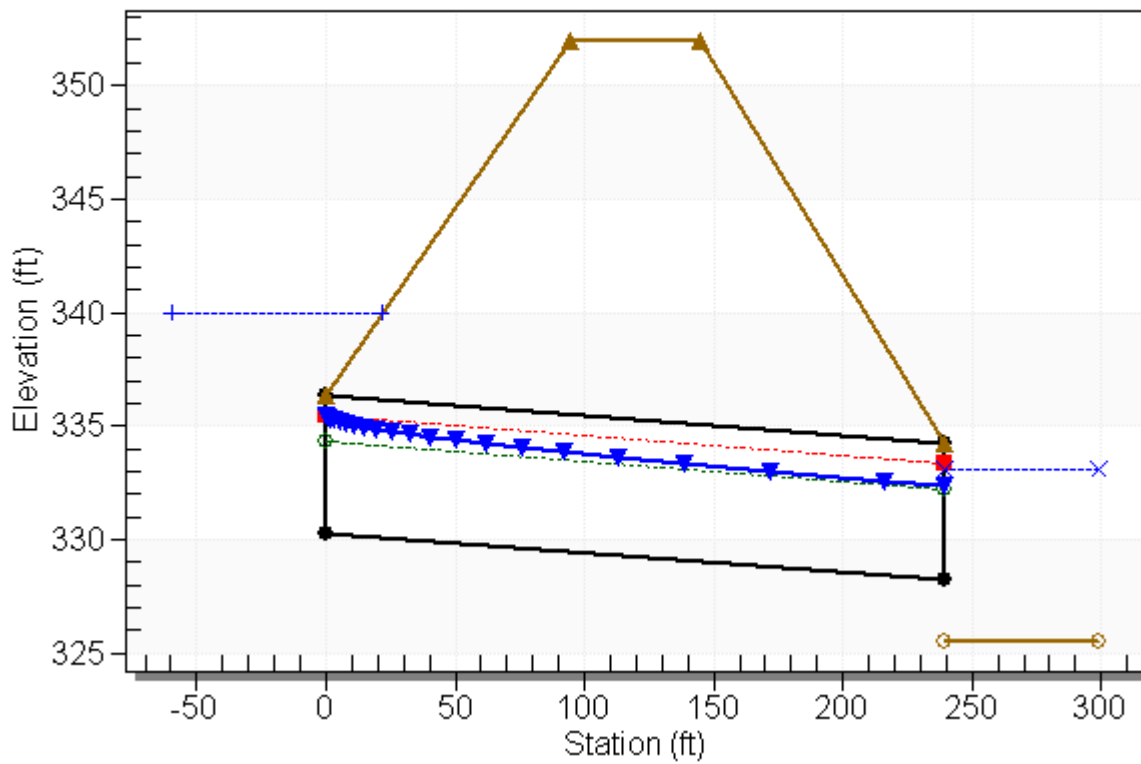
Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
0.00	0.00	172.50	0.00	0.0	0-NF	0.00	0.00	0.00	0.00	0.00	0.00
25.00	25.00	174.52	2.02	0.0*	1-S2n	0.89	1.48	0.89	0.53	11.97	4.57
50.00	50.00	175.62	3.12	0.0*	1-S2n	1.27	2.12	1.29	0.82	14.15	5.89
75.00	75.00	176.57	4.07	0.0*	5-S2n	1.59	2.62	1.59	1.05	16.13	6.81
90.00	90.00	177.20	4.70	0.0*	5-S2n	1.76	2.87	1.76	1.17	16.90	7.26
125.00	125.00	179.04	6.54	0.0*	5-S2n	2.13	3.35	2.13	1.43	18.35	8.14
150.00	150.00	180.77	8.27	1.30	5-S2n	2.39	3.60	2.43	1.61	18.81	8.65
175.00	167.06	182.14	9.64	3.28	5-S2n	2.57	3.71	2.61	1.77	19.27	9.11
200.00	169.46	182.35	9.85	3.58	5-S2n	2.60	3.73	2.63	1.92	19.37	9.51
225.00	171.25	182.50	10.00	3.80	5-S2n	2.62	3.73	2.65	2.06	19.36	9.88
250.00	172.80	182.64	10.14	3.99	5-S2n	2.64	3.74	2.67	2.20	19.38	10.22

# HY-8 Culvert Analysis Report

### Water Surface Profile Plot for Culvert: 6X6 BOX(XS016=D/S)

Crossing - SWM-Cncpt1- HWY STOR2, Design Discharge - 400.0 cfs

Culvert - 6X6 BOX(XS016=D/S), Culvert Discharge - 400.0 cfs



**Table 1 - Culvert Summary Table: 6X6 BOX(XS016=D/S)**

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
	0.00	0.00	330.31	0.000	0.000	0-NF	0.000	0.000	0.000	0.000	0.000
	90.00	90.00	333.56	3.247	0.004	1-S2n	1.340	1.912	1.369	2.859	10.960
	180.00	180.00	335.42	5.108	1.733	1-S2n	2.197	3.035	2.267	4.245	13.235
	270.00	270.00	337.11	6.799	3.685	5-S2n	2.958	3.977	3.070	5.559	14.657
	360.00	360.00	338.98	8.670	5.973	5-S2n	3.682	4.817	3.825	7.500	15.688
	400.00	400.00	339.93	9.622	7.466	5-S2n	3.995	5.168	4.150	7.500	16.065
	540.00	540.00	344.04	13.731	11.165	5-S2n	5.064	6.000	5.236	7.500	17.190
	630.00	630.00	347.39	17.076	13.792	6-FFc	6.000	6.000	6.000	7.500	17.500
	720.00	720.00	351.57	21.263	16.823	6-FFc	6.000	6.000	6.000	7.500	20.000
	810.00	740.64	352.64	22.325	17.575	6-FFc	6.000	6.000	6.000	7.500	20.573
	900.00	748.47	353.05	22.736	17.866	6-FFc	6.000	6.000	6.000	7.500	20.791

\*\*\*\*\*

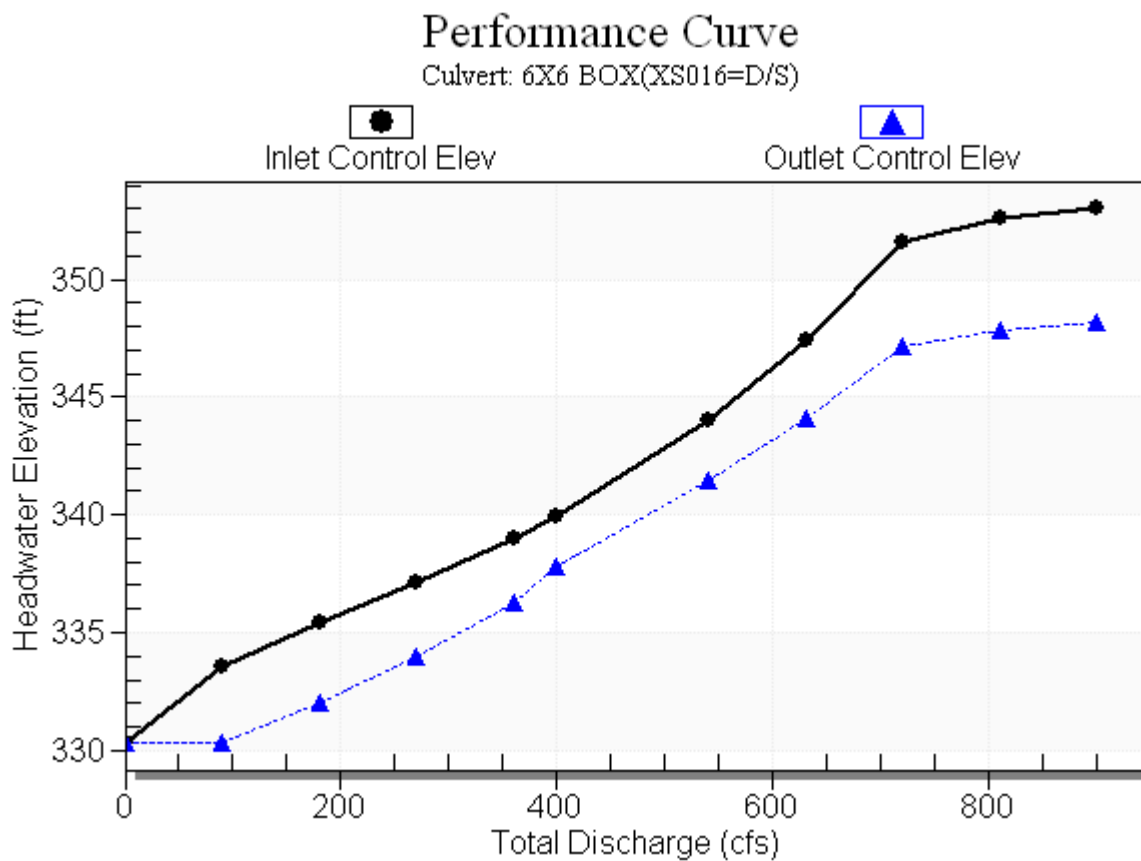
Straight Culvert

Inlet Elevation (invert): 330.31 ft, Outlet Elevation (invert): 328.20 ft

Culvert Length: 239.40 ft, Culvert Slope: 0.0088

\*\*\*\*\*

### Culvert Performance Curve Plot: 6X6 BOX(XS016=D/S)



### Site Data - 6X6 BOX(XS016=D/S)

Site Data Option: Culvert Invert Data  
Inlet Station: 0.00 ft  
Inlet Elevation: 330.31 ft  
Outlet Station: 239.39 ft  
Outlet Elevation: 328.20 ft  
Number of Barrels: 1

### Culvert Data Summary - 6X6 BOX(XS016=D/S)

Barrel Shape: Concrete Box  
Barrel Span: 6.00 ft  
Barrel Rise: 6.00 ft  
Barrel Material: Concrete  
Embedment: 0.00 in  
Barrel Manning's n: 0.0120  
Culvert Type: Straight  
Inlet Configuration: Square Edge (90°) Headwall  
Inlet Depression: NONE

### Crossing Discharge Data



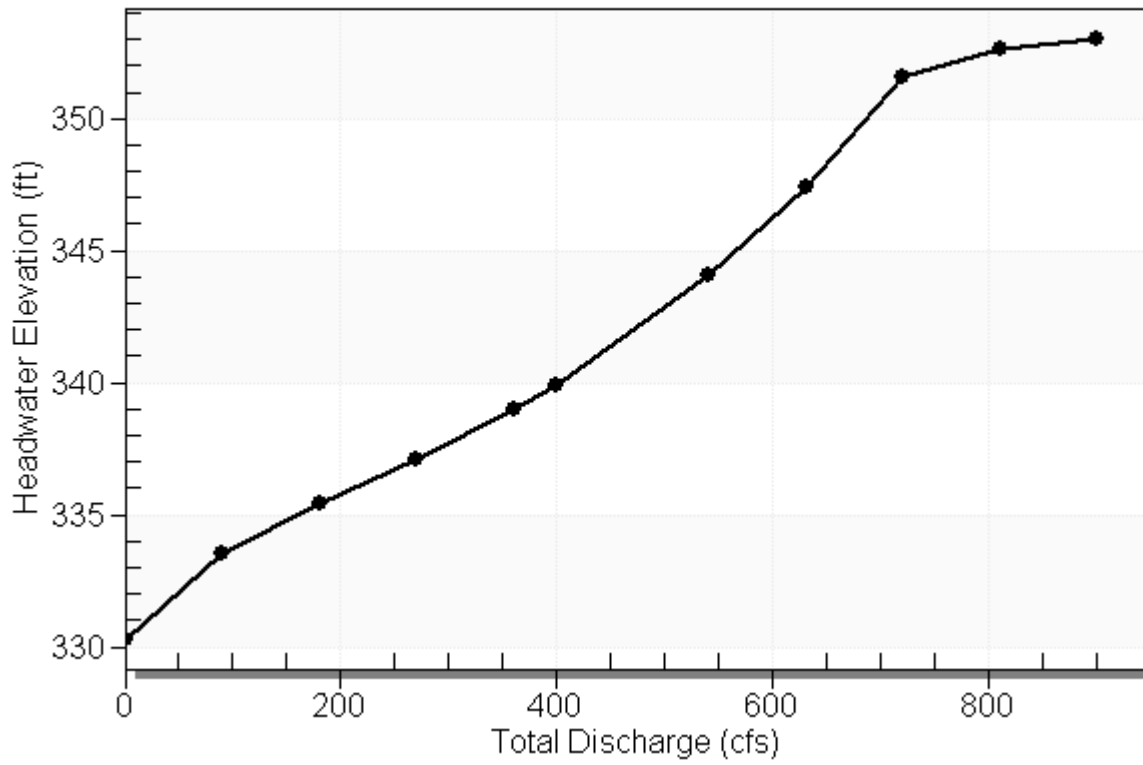
**Table 2 - Summary of Culvert Flows at Crossing: SWM-Cncpt1- HWY STOR2**

Headwater Elevation (ft)	Total Discharge (cfs)	6X6 BOX(XS016=D/S) Discharge (cfs)	Roadway Discharge (cfs)	Iterations
330.31	0.00	0.00	0.00	1
333.56	90.00	90.00	0.00	1
335.42	180.00	180.00	0.00	1
337.11	270.00	270.00	0.00	1
338.98	360.00	360.00	0.00	1
339.93	400.00	400.00	0.00	1
344.04	540.00	540.00	0.00	1
347.39	630.00	630.00	0.00	1
351.57	720.00	720.00	0.00	1
352.64	810.00	740.64	69.17	5
353.05	900.00	748.47	151.29	4
352.00	728.36	728.36	0.00	Overtopping

# Rating Curve Plot for Crossing: SWM-Cncpt1- HWY STOR2

## Total Rating Curve

Crossing: SWM-Cncpt1- HWY STOR2



**Table 3 - Downstream Channel Rating Curve (Crossing: SWM-Cncpt1- HWY STOR2)**

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)
0.00	325.55	325.55	0.00
10.85	326.55	326.55	2.99
44.63	327.55	327.55	4.54
97.47	328.55	328.55	5.66
162.90	329.55	329.55	6.48
197.85	330.05	330.05	6.79
232.77	330.55	330.55	7.04
266.35	331.05	331.05	7.23
297.06	331.55	331.55	7.35
323.21	332.05	332.05	7.39
342.33	332.55	332.55	7.34
350.47	333.05	333.05	7.16

**Tailwater Channel Data - SWM-Cncpt1- HWY STOR2**

Tailwater Channel Option: Enter Rating Curve

Channel Invert Elevation: 325.55 ft

**Roadway Data for Crossing: SWM-Cncpt1- HWY STOR2**

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 50.00 ft

Crest Elevation: 352.00 ft

Roadway Surface: Gravel

Roadway Top Width: 50.00 ft



**Water Surface Profile Plot for Culvert: 8x6 BOX(6X6BOX=D/S)**

**Table 4 - Culvert Summary Table: 8x6 BOX(6X6BOX=D/S)**

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
	0.00	0.00	333.08	0.000	0.000	0-NF	0.000	0.000	0.010	0.000	0.000
	120.00	120.00	335.97	2.887	0.022	1-S2n	1.008	1.912	1.095	2.627	13.697
	240.00	240.00	337.72	4.637	2.065	1-S2n	1.612	3.035	1.842	4.173	16.290
	360.00	360.00	339.26	6.181	3.398	5-S2n	2.130	3.977	2.521	4.680	17.849
	480.00	480.00	340.96	7.880	5.481	5-S2n	2.608	4.817	3.157	5.606	19.008
	600.00	600.00	343.04	9.956	8.050	5-S2n	3.063	5.590	3.759	6.687	19.950
	700.00	700.00	345.14	12.057	9.856	5-S2n	3.430	6.000	4.239	7.000	20.641
	840.00	840.00	348.69	15.606	12.332	5-S2n	3.928	6.000	4.815	7.000	21.807
	960.00	930.48	351.37	18.286	14.171	4-FFf	4.242	6.000	7.010	7.000	19.385
	1080.00	948.28	351.96	18.877	14.555	4-FFf	4.303	6.000	7.010	7.000	19.756
	1200.00	961.33	352.40	19.317	14.841	4-FFf	4.349	6.000	7.010	7.000	20.028

\*\*\*\*\*

Straight Culvert

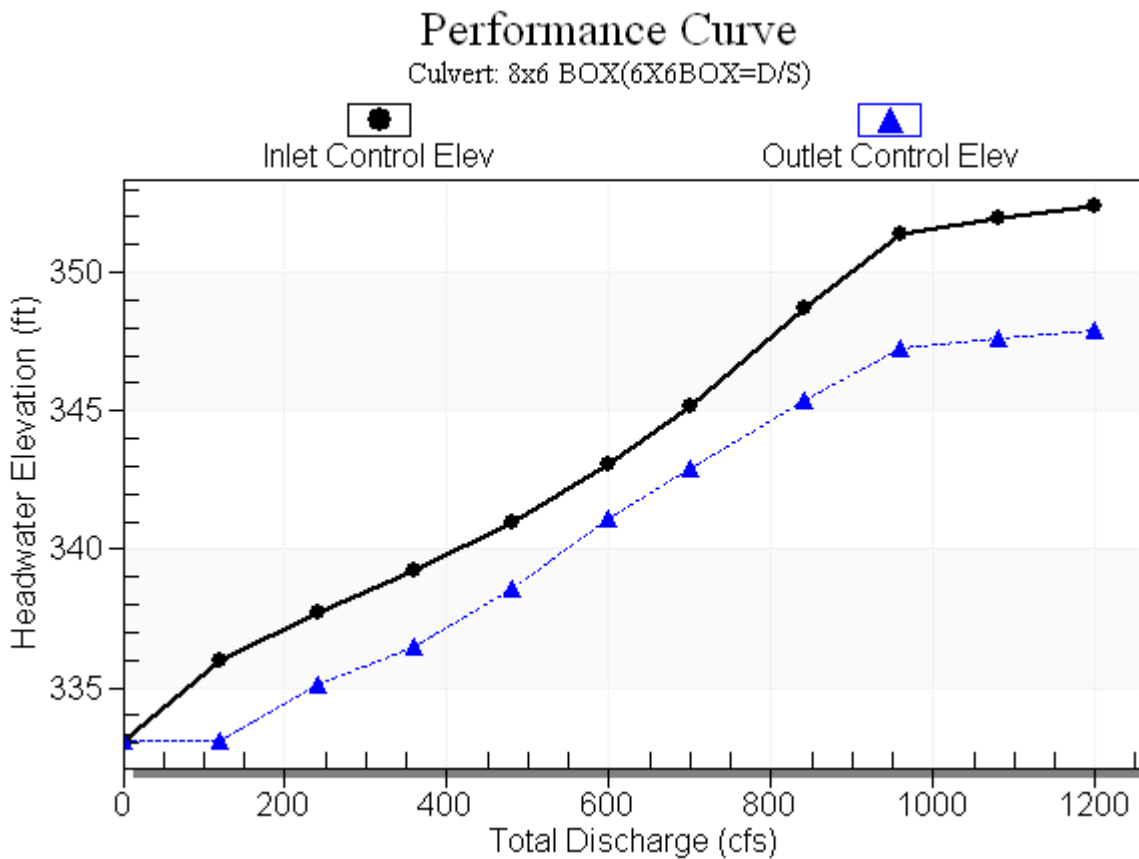
Inlet Elevation (invert): 333.08 ft, Outlet Elevation (invert): 330.30 ft

Culvert Length: 149.23 ft, Culvert Slope: 0.0186

\*\*\*\*\*



## Culvert Performance Curve Plot: 8x6 BOX(6X6BOX=D/S)



### Site Data - 8x6 BOX(6X6BOX=D/S)

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 333.08 ft

Outlet Station: 149.20 ft

Outlet Elevation: 330.30 ft

Number of Barrels: 1

### Culvert Data Summary - 8x6 BOX(6X6BOX=D/S)

Barrel Shape: Concrete Box

Barrel Span: 8.00 ft

Barrel Rise: 6.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge (30-75° flare) Wingwall

Inlet Depression: NONE

### Crossing Discharge Data

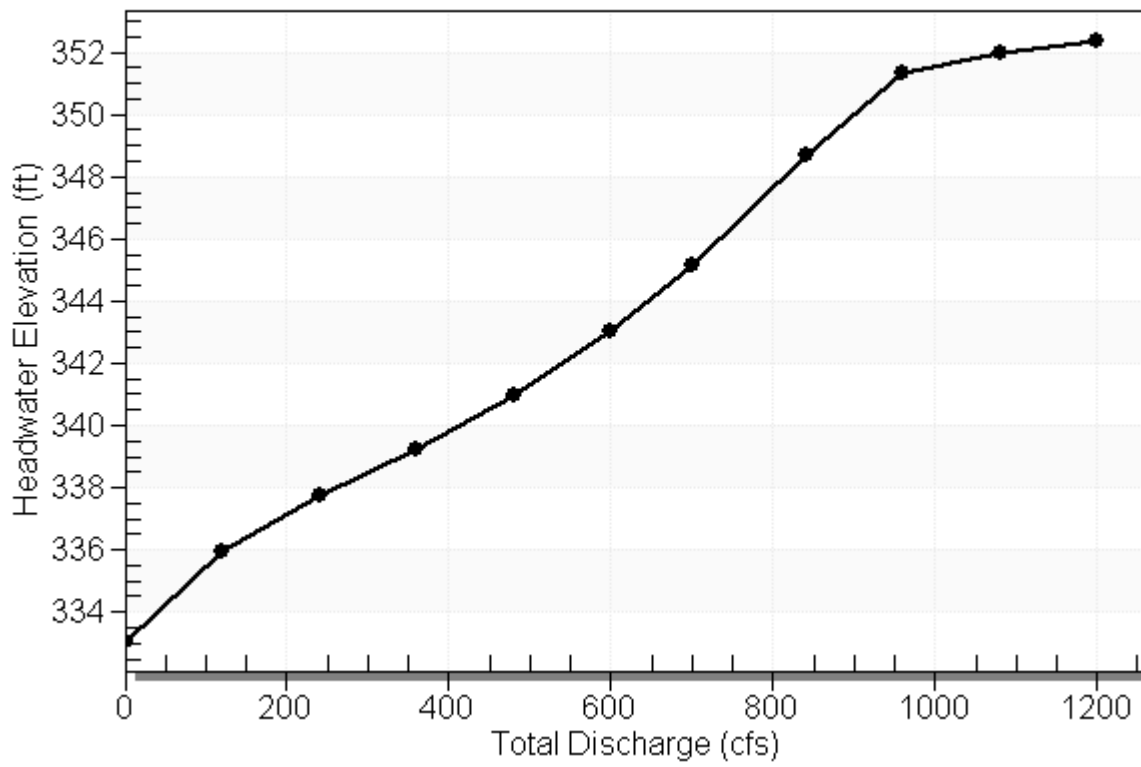
**Table 5 - Summary of Culvert Flows at Crossing: SWM-Cncpt1-HWY STOR2**

Headwater Elevation (ft)	Total Discharge (cfs)	8x6 BOX(6X6BOX=D/S) Discharge (cfs)	Roadway Discharge (cfs)	Iterations
333.08	0.00	0.00	0.00	1
335.97	120.00	120.00	0.00	1
337.72	240.00	240.00	0.00	1
339.26	360.00	360.00	0.00	1
340.96	480.00	480.00	0.00	1
343.04	600.00	600.00	0.00	1
345.14	700.00	700.00	0.00	1
348.69	840.00	840.00	0.00	1
351.37	960.00	930.48	29.38	7
351.96	1080.00	948.28	131.55	4
352.40	1200.00	961.33	238.57	4
351.00	919.23	919.23	0.00	Overtopping

# Rating Curve Plot for Crossing: SWM-Cncpt1-HWY STOR2

## Total Rating Curve

Crossing: SWM-Cncpt1-HWY STOR2



**Table 6 - Downstream Channel Rating Curve (Crossing: SWM-Cncpt1-HWY STOR2)**

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)
0.00	330.31	330.31	0.00
90.00	332.65	332.65	10.96
180.00	333.51	333.51	13.23
270.00	334.97	334.97	14.66
360.00	334.99	334.99	15.69
400.00	335.31	335.31	16.07
540.00	336.37	336.37	17.19
630.00	337.31	337.31	17.50
720.00	337.31	337.31	20.00
740.64	337.31	337.31	20.57
748.47	337.31	337.31	20.79

### **Tailwater Channel Data - SWM-Cncpt1-HWY STOR2**

Tailwater Channel Option: Enter Rating Curve

Channel Invert Elevation: 330.31 ft

### **Roadway Data for Crossing: SWM-Cncpt1-HWY STOR2**

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 50.00 ft

Crest Elevation: 351.00 ft

Roadway Surface: Gravel

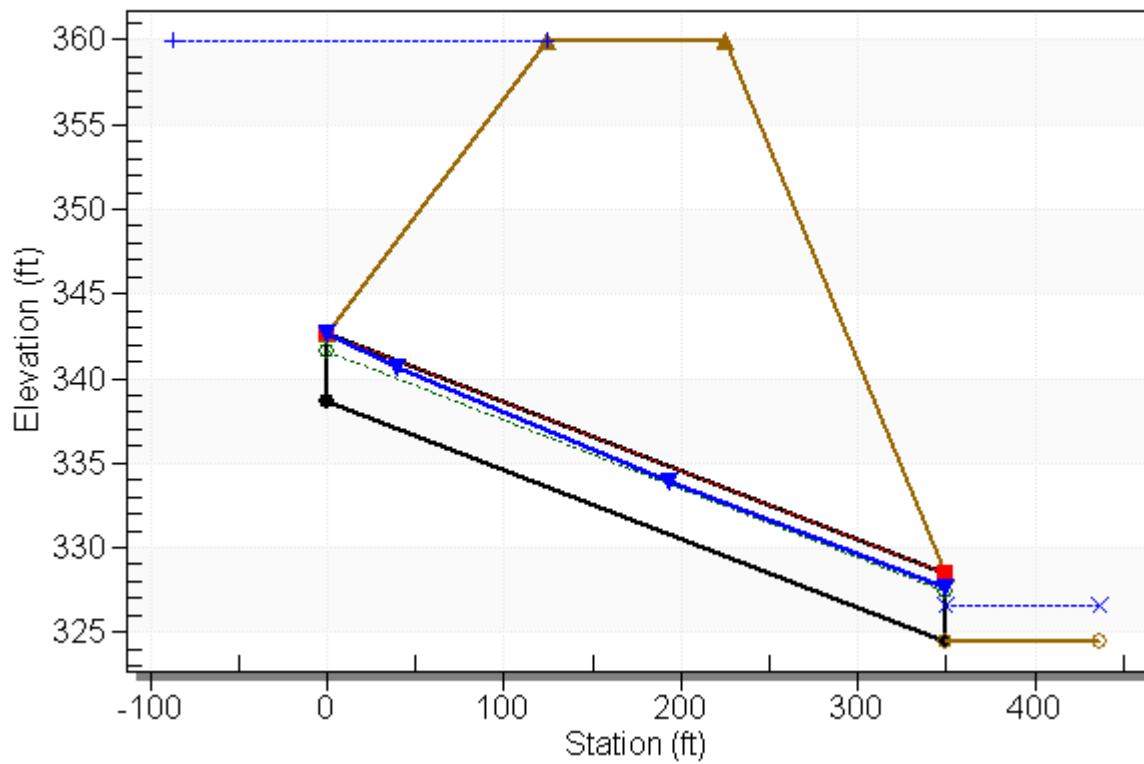
Roadway Top Width: 50.00 ft



### Water Surface Profile Plot for Culvert: Culvert 1

Crossing - SWM-Cncpt 2- D/S pipe, Design Discharge - 268.6 cfs

Culvert - Culvert 1, Culvert Discharge - 268.6 cfs



**Table 7 - Culvert Summary Table: Culvert 1**

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
	0.00	0.00	338.70	0.000	0.000	0-NF	0.000	0.000	0.000	0.000	0.000
	30.00	30.00	340.93	2.228	0.0*	1-S2n	0.821	1.622	0.836	0.739	15.593
	60.00	60.00	342.16	3.461	0.0*	1-S2n	1.177	2.328	1.200	1.042	18.845
	90.00	90.00	343.36	4.659	0.0*	5-S2n	1.464	2.873	1.494	1.266	21.050
	120.00	120.00	344.90	6.199	0.0*	5-S2n	1.710	3.295	1.758	1.449	22.548
	150.00	150.00	346.93	8.225	0.0*	5-S2n	1.944	3.595	2.011	1.606	23.707
	180.00	180.00	349.44	10.743	0.0*	5-S2n	2.170	3.772	2.256	1.746	24.659
	210.00	210.00	352.50	13.800	2.575	5-S2n	2.393	3.873	2.495	1.872	25.487
	240.00	240.00	356.11	17.413	6.569	5-S2n	2.621	4.000	2.881	1.987	24.778
	268.56	268.56	360.00	21.299	10.798	5-S2n	2.848	4.000	3.114	2.089	25.641
	300.00	270.06	360.22	21.515	11.032	5-S2n	2.860	4.000	3.123	2.194	25.706



\* Full Flow Headwater elevation is below inlet invert.

\*\*\*\*\*

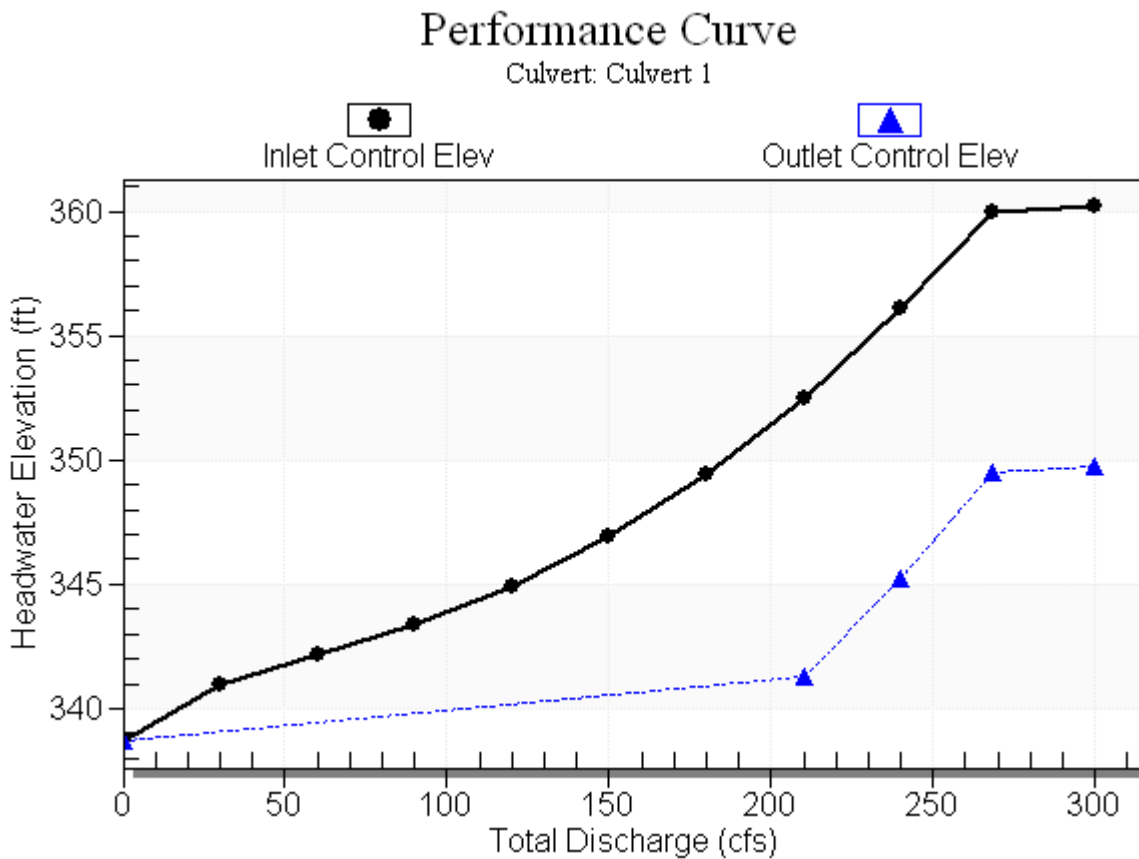
Straight Culvert

Inlet Elevation (invert): 338.70 ft, Outlet Elevation (invert): 324.50 ft

Culvert Length: 349.79 ft, Culvert Slope: 0.0406

\*\*\*\*\*

## Culvert Performance Curve Plot: Culvert 1



### Site Data - Culvert 1

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 338.70 ft

Outlet Station: 349.50 ft

Outlet Elevation: 324.50 ft

Number of Barrels: 1

### Culvert Data Summary - Culvert 1

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: NONE

### Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

**Table 8 - Summary of Culvert Flows at Crossing: SWM-Cncpt 2- D/S pipe**

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
338.70	0.00	0.00	0.00	1
340.93	30.00	30.00	0.00	1
342.16	60.00	60.00	0.00	1
343.36	90.00	90.00	0.00	1
344.90	120.00	120.00	0.00	1
346.93	150.00	150.00	0.00	1
349.44	180.00	180.00	0.00	1
352.50	210.00	210.00	0.00	1
356.11	240.00	240.00	0.00	1
360.00	268.56	268.56	0.00	1
360.22	300.00	270.06	29.66	7
360.00	268.56	268.56	0.00	Overtopping

**Rating Curve Plot for Crossing: SWM-Cncpt 2- D/S pipe**

**Table 9 - Downstream Channel Rating Curve (Crossing: SWM-Cncpt 2- D/S pipe)**

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
0.00	324.50	0.00	0.00	0.00	0.00
30.00	325.24	0.74	7.78	5.07	1.91
60.00	325.54	1.04	9.40	7.15	1.99
90.00	325.77	1.27	10.46	8.69	2.04
120.00	325.95	1.45	11.27	9.95	2.08
150.00	326.11	1.61	11.94	11.03	2.11
180.00	326.25	1.75	12.52	11.98	2.14
210.00	326.37	1.87	13.02	12.85	2.16
240.00	326.49	1.99	13.48	13.64	2.17
268.56	326.59	2.09	13.87	14.34	2.19
300.00	326.69	2.19	14.27	15.06	2.20

### **Tailwater Channel Data - SWM-Cncpt 2- D/S pipe**

Tailwater Channel Option: Trapezoidal Channel

Bottom Width: 3.00 ft

Side Slope (H:V): 3.00 (1:1)

Channel Slope: 0.1100

Channel Manning's n: 0.0400

Channel Invert Elevation: 324.50 ft

### **Roadway Data for Crossing: SWM-Cncpt 2- D/S pipe**

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 360.00 ft

Roadway Surface: Paved

Roadway Top Width: 100.00 ft

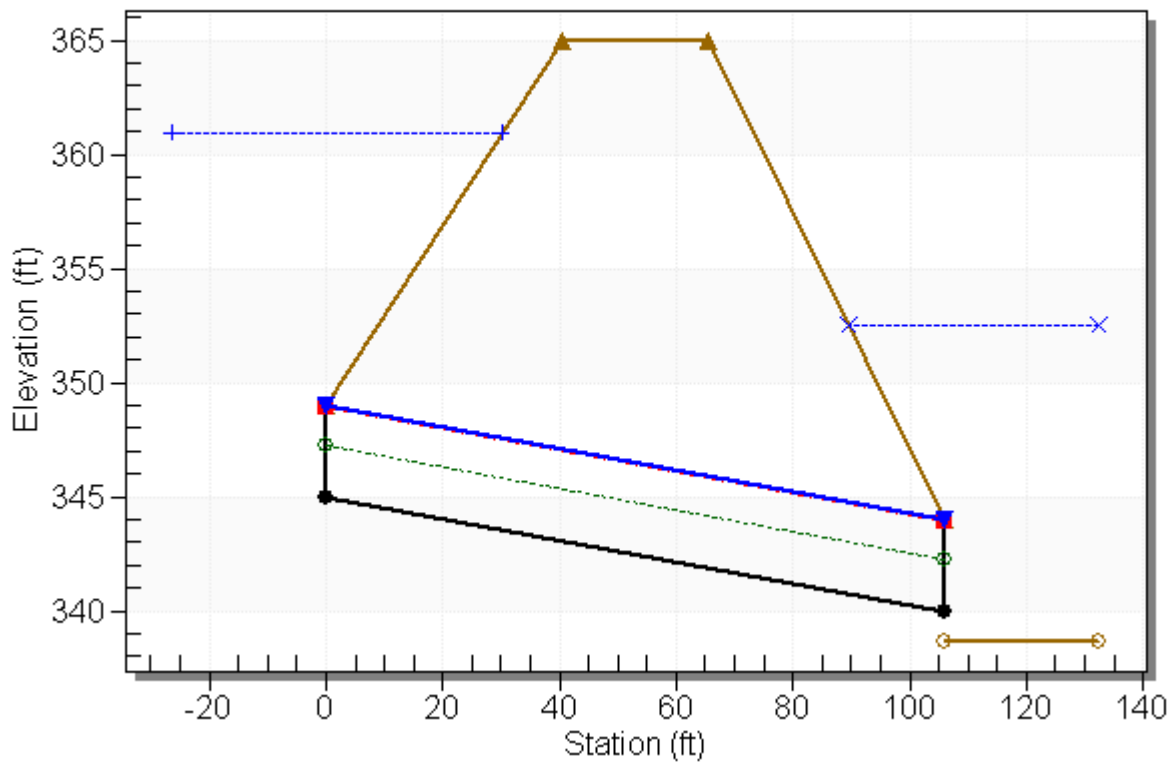




### Water Surface Profile Plot for Culvert: Culvert 2

Crossing - SWM-Cncp 2- U/S pipe, Design Discharge - 210.0 cfs

Culvert - Culvert 2, Culvert Discharge - 210.0 cfs



**Table 10 - Culvert Summary Table: Culvert 2**

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
	0.00	0.00	345.00	0.000	0.000	0-NF	0.000	0.000	0.000	0.000	0.000
	30.00	30.00	347.21	2.215	0.0*	1-S2n	0.793	1.622	0.854	2.230	15.119
	60.00	60.00	348.45	3.448	0.0*	1-S2n	1.135	2.328	1.264	3.460	17.553
	90.00	90.00	349.65	4.646	0.0*	5-S2n	1.404	2.873	1.612	4.660	18.964
	120.00	120.00	351.19	6.186	2.810	5-S2n	1.639	3.295	1.926	6.364	20.040
	150.00	150.00	353.21	8.212	6.224	5-JS1f	1.863	3.595	4.000	8.230	12.502
	180.00	180.00	355.73	10.730	10.625	5-FFf	2.072	3.772	4.000	10.740	14.324
	210.00	210.00	360.92	13.784	15.921	4-FFf	2.280	3.873	4.000	13.800	16.711
	240.00	217.90	365.18	14.688	20.177	4-FFf	2.335	3.884	4.000	17.410	17.340
	270.00	180.25	365.45	10.753	21.202	4-FFf	2.074	3.773	4.000	21.300	14.344
	300.00	170.77	365.57	9.906	10.049	4-FFf	2.008	3.733	4.000	21.300	13.590

\* Full Flow Headwater elevation is below inlet invert.

\*\*\*\*\*

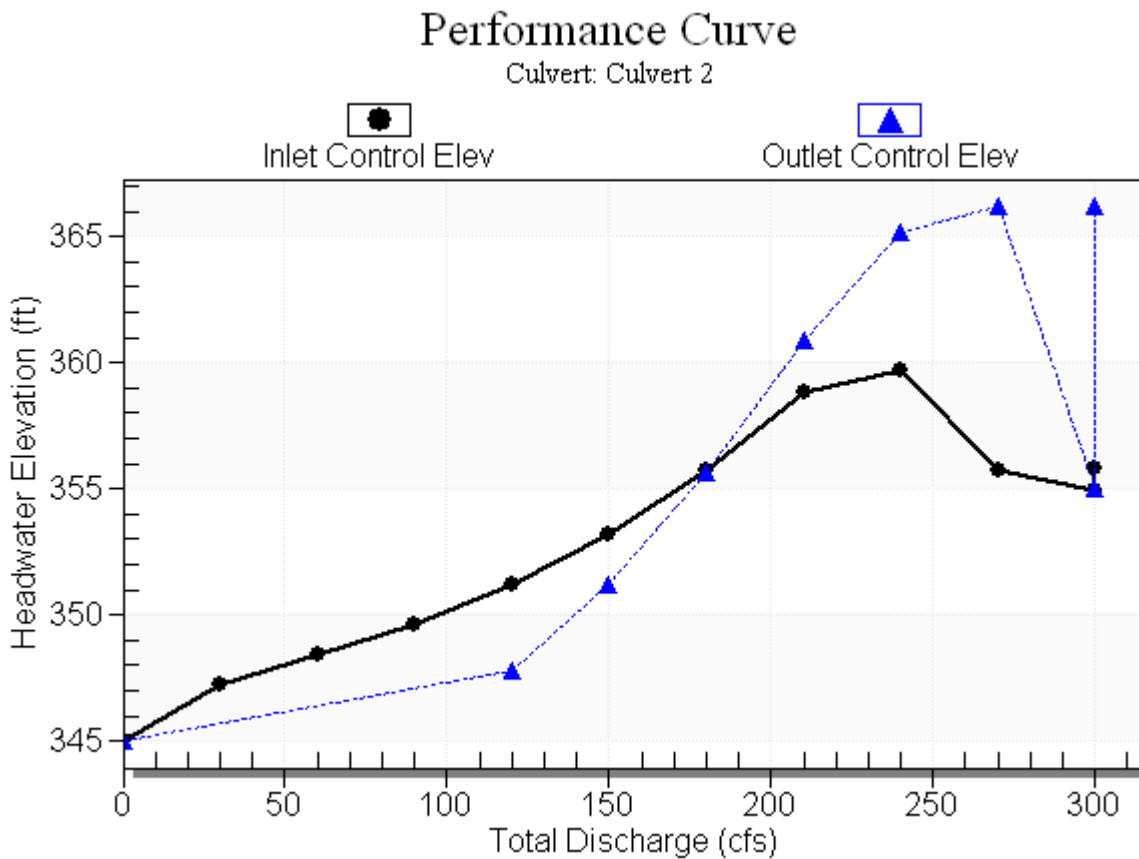
Straight Culvert

Inlet Elevation (invert): 345.00 ft, Outlet Elevation (invert): 340.00 ft

Culvert Length: 106.12 ft, Culvert Slope: 0.0472

\*\*\*\*\*

## Culvert Performance Curve Plot: Culvert 2



### Site Data - Culvert 2

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 345.00 ft

Outlet Station: 106.00 ft

Outlet Elevation: 340.00 ft

Number of Barrels: 1

### Culvert Data Summary - Culvert 2

Barrel Shape: Circular

Barrel Diameter: 4.00 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: NONE

### Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

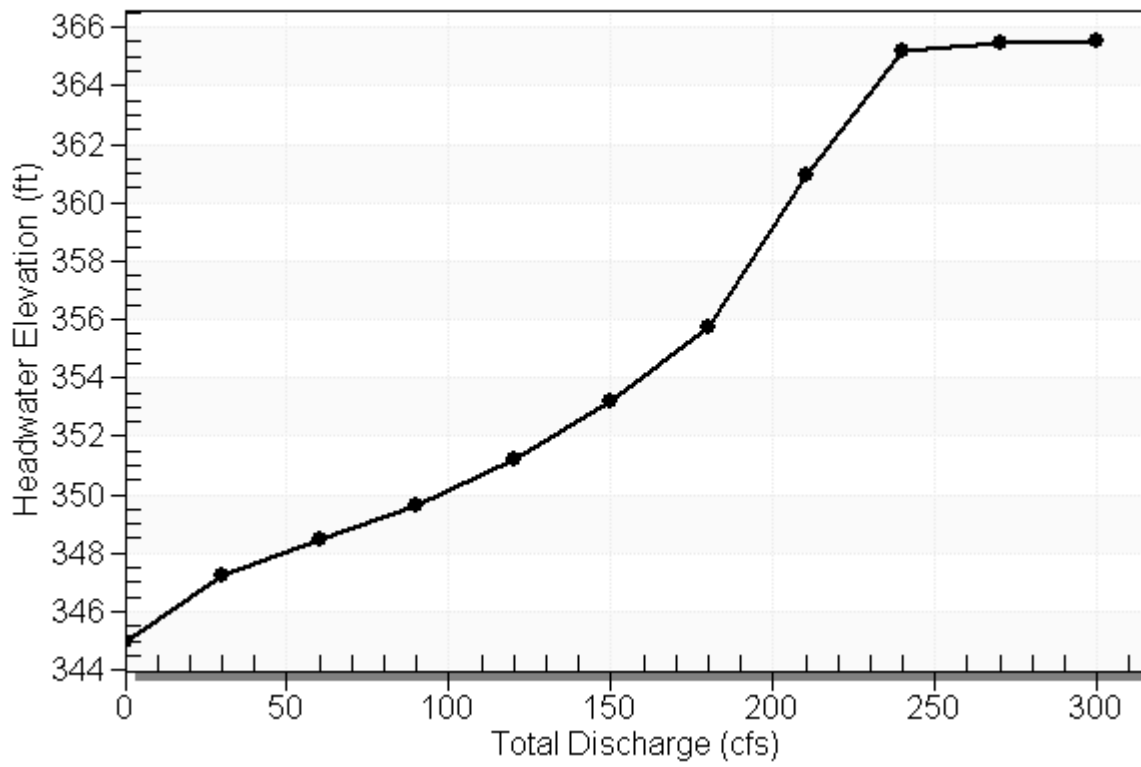
**Table 11 - Summary of Culvert Flows at Crossing: SWM-Cncp 2- U/S pipe**

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 2 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
345.00	0.00	0.00	0.00	1
347.21	30.00	30.00	0.00	1
348.45	60.00	60.00	0.00	1
349.65	90.00	90.00	0.00	1
351.19	120.00	120.00	0.00	1
353.21	150.00	150.00	0.00	1
355.73	180.00	180.00	0.00	1
360.92	210.00	210.00	0.00	1
365.18	240.00	217.90	21.83	12
365.45	270.00	180.25	89.65	6
365.57	300.00	170.77	128.93	4
365.00	238.56	238.56	0.00	Overtopping

# Rating Curve Plot for Crossing: SWM-Cncp 2- U/S pipe

## Total Rating Curve

Crossing: SWM-Cncp 2- U/S pipe



**Table 12 - Downstream Channel Rating Curve (Crossing: SWM-Cncp 2- U/S pipe)**

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)
0.00	338.70	338.70	0.00
30.00	340.93	340.93	15.59
60.00	342.16	342.16	18.85
90.00	343.36	343.36	21.05
100.00	343.82	343.82	21.67
150.00	346.93	346.93	23.71
180.00	349.44	349.44	24.66
210.00	352.50	352.50	25.49
240.00	356.11	356.11	24.78
268.56	360.00	360.00	25.64



**Tailwater Channel Data - SWM-Cncp 2- U/S pipe**

Tailwater Channel Option: Enter Rating Curve

Channel Invert Elevation: 338.70 ft

**Roadway Data for Crossing: SWM-Cncp 2- U/S pipe**

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 365.00 ft

Roadway Surface: Paved

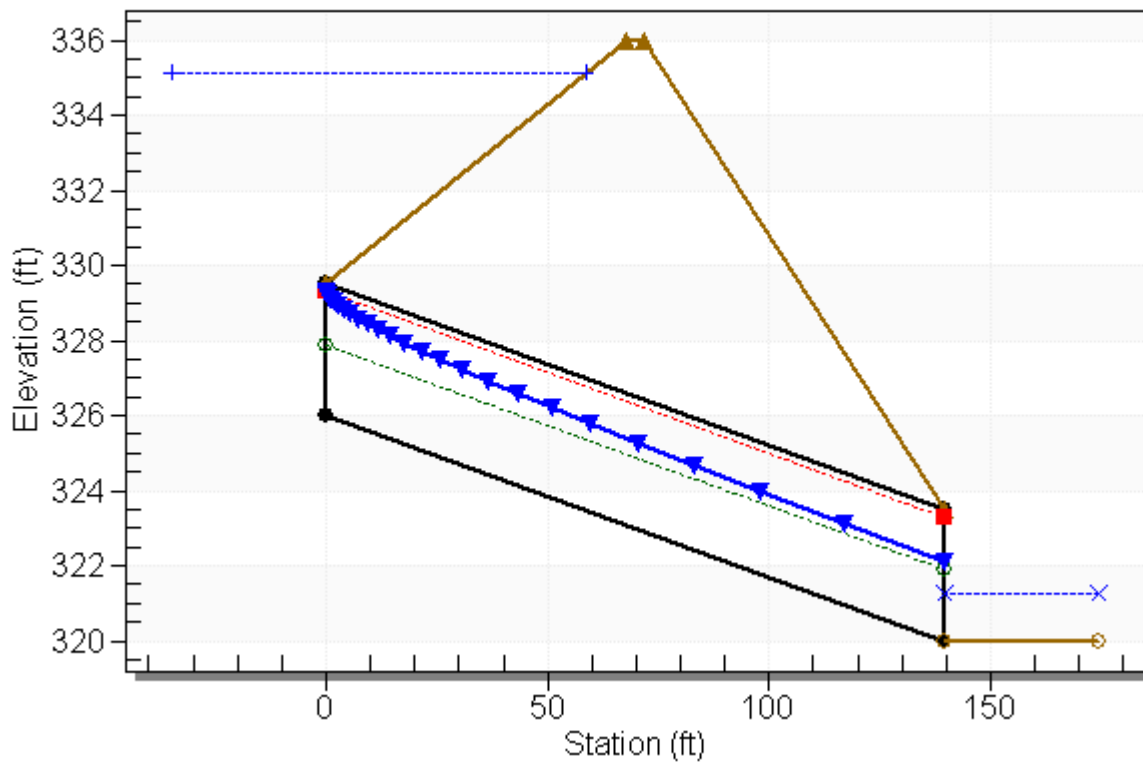
Roadway Top Width: 25.00 ft



### Water Surface Profile Plot for Culvert: Principle Spillway

Crossing - SWM-Cncp 3- P.S., Design Discharge - 126.6 cfs

Culvert - Principle Spillway, Culvert Discharge - 126.6 cfs



**Table 13 - Culvert Summary Table: Principle Spillway**

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
	0.00	0.00	326.00	0.000	0.000	0-NF	0.000	0.000	0.000	0.000	0.000
	100.00	100.00	332.53	6.530	0.970	5-S2n	1.628	3.068	1.805	1.118	19.991
	126.62	126.62	335.14	9.142	3.306	5-S2n	1.871	3.292	2.095	1.256	21.088
	300.00	139.76	336.66	10.662	4.588	5-S2n	1.990	3.277	2.231	1.899	21.592
	400.00	141.60	336.90	10.898	4.756	5-S2n	2.006	3.232	2.249	2.176	21.663
	500.00	143.18	337.10	11.103	4.907	5-S2n	2.020	3.202	2.264	2.413	21.740
	600.00	144.62	337.29	11.293	5.048	5-S2n	2.034	3.178	2.276	2.620	21.817
	700.00	145.98	337.47	11.473	5.184	5-S2n	2.046	3.158	2.290	2.805	21.906
	800.00	147.25	337.64	11.643	5.284	5-S2n	2.057	3.083	2.297	2.973	22.021
	900.00	148.46	337.81	11.806	5.252	5-S2n	2.068	3.105	2.309	3.128	22.068
	1000.00	149.60	337.96	11.961	5.690	5-S2n	2.078	3.382	2.331	3.272	22.004

\*\*\*\*\*

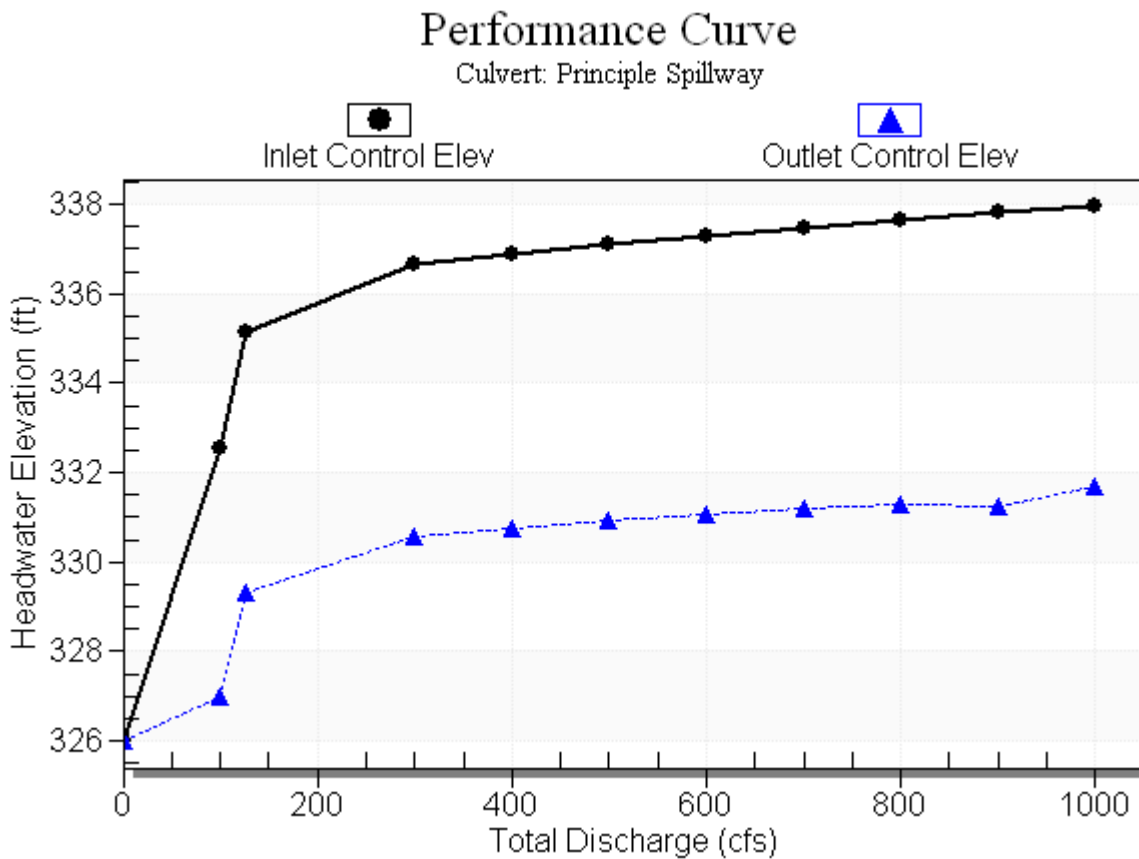
Straight Culvert

Inlet Elevation (invert): 326.00 ft, Outlet Elevation (invert): 320.00 ft

Culvert Length: 139.75 ft, Culvert Slope: 0.0430

\*\*\*\*\*

## Culvert Performance Curve Plot: Principle Spillway



### Site Data - Principle Spillway

Site Data Option: Culvert Invert Data

Inlet Station: 0.00 ft

Inlet Elevation: 326.00 ft

Outlet Station: 139.62 ft

Outlet Elevation: 320.00 ft

Number of Barrels: 1

### Culvert Data Summary - Principle Spillway

Barrel Shape: Circular

Barrel Diameter: 3.50 ft

Barrel Material: Concrete

Embedment: 0.00 in

Barrel Manning's n: 0.0120

Culvert Type: Straight

Inlet Configuration: Square Edge with Headwall

Inlet Depression: NONE

### Crossing Discharge Data

Discharge Selection Method: Specify Minimum, Design, and Maximum Flow

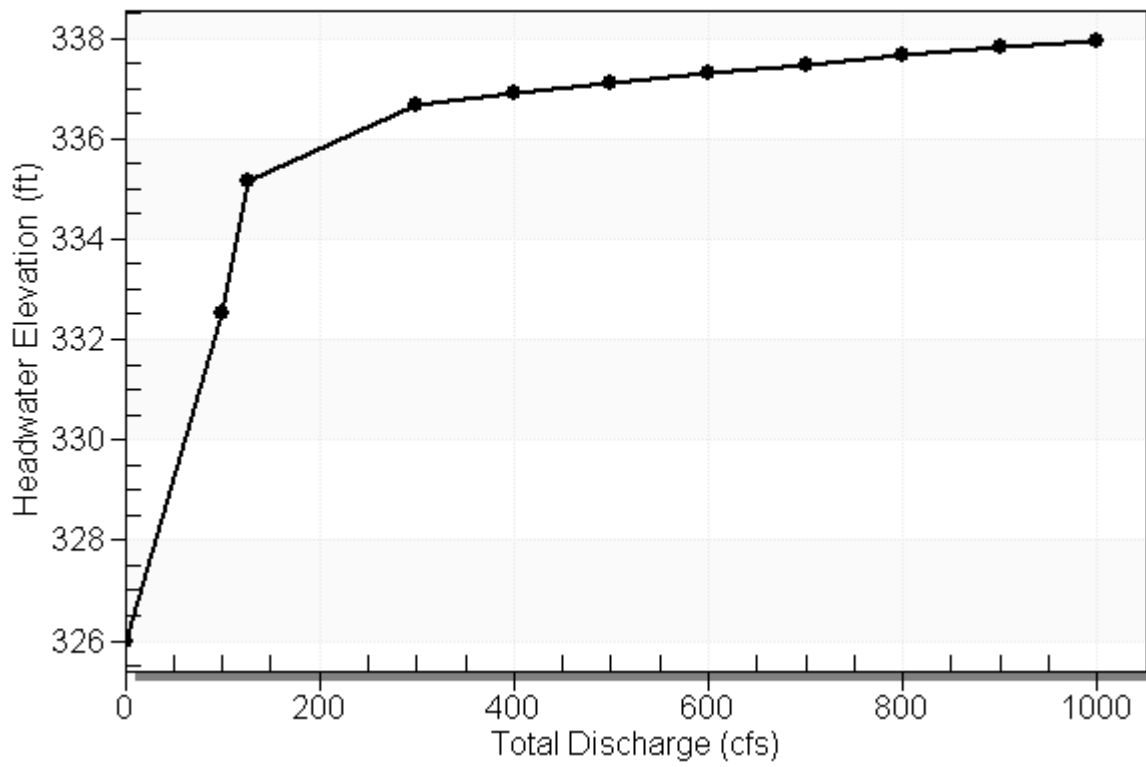
**Table 14 - Summary of Culvert Flows at Crossing: SWM-Cncp 3- P.S.**

Headwater Elevation (ft)	Total Discharge (cfs)	Principle Spillway Discharge (cfs)	Roadway Discharge (cfs)	Iterations
326.00	0.00	0.00	0.00	1
332.53	100.00	100.00	0.00	1
335.14	126.62	126.62	0.00	1
336.66	300.00	139.76	160.07	5
336.90	400.00	141.60	258.00	4
337.10	500.00	143.18	356.69	4
337.29	600.00	144.62	455.20	4
337.47	700.00	145.98	553.91	4
337.64	800.00	147.25	652.19	3
337.81	900.00	148.46	751.28	3
337.96	1000.00	149.60	850.32	3
336.00	134.20	134.20	0.00	Overtopping

**Rating Curve Plot for Crossing: SWM-Cncp 3- P.S.**

### Total Rating Curve

Crossing: SWM-Cncp 3- P.S.





**Table 15 - Downstream Channel Rating Curve (Crossing: SWM-Cncp 3- P.S.)**

Flow (cfs)	Water Surface Elev (ft)	Depth (ft)	Velocity (ft/s)	Shear (psf)	Froude Number
0.00	320.00	0.00	0.00	0.00	0.00
100.00	321.12	1.12	10.17	7.67	2.04
126.62	321.26	1.26	10.85	8.62	2.08
300.00	321.90	1.90	13.63	13.03	2.20
400.00	322.18	2.18	14.60	14.93	2.23
500.00	322.41	2.41	15.37	16.56	2.26
600.00	322.62	2.62	16.04	17.98	2.29
700.00	322.81	2.81	16.63	19.25	2.31
800.00	322.97	2.97	17.16	20.41	2.33
900.00	323.13	3.13	17.65	21.47	2.34
1000.00	323.27	3.27	18.10	22.46	2.36

**Tailwater Channel Data - SWM-Cncp 3- P.S.**

Tailwater Channel Option: Irregular Channel

**Roadway Data for Crossing: SWM-Cncp 3- P.S.**

Roadway Profile Shape: Constant Roadway Elevation

Crest Length: 100.00 ft

Crest Elevation: 336.00 ft

Roadway Surface: Gravel

Roadway Top Width: 4.00 ft

# Principal Spillway Computations - Proposed Conditions

## Concept 2

Pond Elevation	Pond Area	Pond Volume
344.00 ft	0.00 ft <sup>2</sup>	0.000 ac-ft
345.00 ft	18877.00 ft <sup>2</sup>	0.217 ac-ft
346.00 ft	20927.00 ft <sup>2</sup>	0.674 ac-ft
348.00 ft	25168.00 ft <sup>2</sup>	1.732 ac-ft
350.00 ft	30178.00 ft <sup>2</sup>	3.002 ac-ft
352.00 ft	35521.00 ft <sup>2</sup>	4.511 ac-ft
354.00 ft	41245.00 ft <sup>2</sup>	6.273 ac-ft
356.00 ft	47728.00 ft <sup>2</sup>	8.315 ac-ft
358.00 ft	54228.00 ft <sup>2</sup>	10.656 ac-ft
360.00 ft	61610.00 ft <sup>2</sup>	13.315 ac-ft
362.00 ft	74760.00 ft <sup>2</sup>	16.446 ac-ft

Barrel Q	Barrel HW
0.00 ft <sup>3</sup> /s	345.00 ft
30.00 ft <sup>3</sup> /s	347.21 ft
60.00 ft <sup>3</sup> /s	348.45 ft
90.00 ft <sup>3</sup> /s	349.65 ft
120.00 ft <sup>3</sup> /s	351.19 ft
150.00 ft <sup>3</sup> /s	353.21 ft
180.00 ft <sup>3</sup> /s	355.73 ft
200.00 ft <sup>3</sup> /s	359.12 ft
210.00 ft <sup>3</sup> /s	360.92 ft

Release Point	Crest Elevation	Crest Width	Orifice Height	Orifice Area	Co	Cw
Low Flow	345.00 ft	2.00 ft	1.00 ft	2.00 ft <sup>2</sup>	0.6	3.1
Weir	357.50 ft	20.00 ft	5.00 ft	0.00 ft <sup>2</sup>	0.6	3.1

Total Flow	Riser WSEL	Pond WSEL	Pond Storage	Low Flow			Weir			Emergency Spillway
0.00 ft <sup>3</sup> /s	345.00 ft <sup>3</sup> /s			h=0.00 ft	Q=0.00 ft <sup>3</sup> /s	h=0.00 ft	h=0.00 ft	h=0.00 ft	h=0.00 ft	
10.00 ft <sup>3</sup> /s	345.74 ft <sup>3</sup> /s	346.82 ft	1.082 ac-ft	orifice	1.08 ft <sup>3</sup> /s	10.00 ft <sup>3</sup> /s	0.00 ft <sup>3</sup> /s	0.00 ft <sup>3</sup> /s	0.00 ft <sup>3</sup> /s	
25.00 ft <sup>3</sup> /s	346.84 ft <sup>3</sup> /s	353.59 ft	5.888 ac-ft	orifice	h=6.75 ft	Q=25.00 ft <sup>3</sup> /s	0.000 ac-ft	h=0.00 ft	Q=0.00 ft <sup>3</sup> /s	
50.00 ft <sup>3</sup> /s	348.04 ft <sup>3</sup> /s	357.97 ft	10.613 ac-ft	orifice	h=9.93 ft	Q=30.33 ft <sup>3</sup> /s	weir	h=0.47 ft	Q=19.67 ft <sup>3</sup> /s	
75.00 ft <sup>3</sup> /s	349.05 ft <sup>3</sup> /s	358.32 ft	11.054 ac-ft	orifice	h=9.27 ft	Q=29.30 ft <sup>3</sup> /s	weir	h=0.82 ft	Q=45.70 ft <sup>3</sup> /s	
100.00 ft <sup>3</sup> /s	350.16 ft <sup>3</sup> /s	358.61 ft	11.425 ac-ft	orifice	h=8.44 ft	Q=27.97 ft <sup>3</sup> /s	weir	h=1.11 ft	Q=72.04 ft <sup>3</sup> /s	
125.00 ft <sup>3</sup> /s	351.53 ft <sup>3</sup> /s	358.87 ft	11.765 ac-ft	orifice	h=7.34 ft	Q=26.08 ft <sup>3</sup> /s	weir	h=1.37 ft	Q=98.93 ft <sup>3</sup> /s	
150.00 ft <sup>3</sup> /s	353.21 ft <sup>3</sup> /s	359.11 ft	12.090 ac-ft	orifice	h=5.90 ft	Q=23.38 ft <sup>3</sup> /s	weir	h=1.61 ft	Q=126.62 ft <sup>3</sup> /s	
175.00 ft <sup>3</sup> /s	355.31 ft <sup>3</sup> /s	359.35 ft	12.410 ac-ft	orifice	h=4.04 ft	Q=19.34 ft <sup>3</sup> /s	weir	h=1.85 ft	Q=155.66 ft <sup>3</sup> /s	
199.00 ft <sup>3</sup> /s	358.95 ft <sup>3</sup> /s	358.95 ft	11.878 ac-ft	barrel	n/a	n/a	barrel	n/a	n/a	
352.23 ft <sup>3</sup> /s	360.02 ft <sup>3</sup> /s	360.02 ft	13.344 ac-ft	barrel	n/a	n/a	barrel	n/a	n/a	h=0.38 ft Q=138.23 ft <sup>3</sup> /s

**orifice:  $Q_o = C_d A_o (2gH_o)^{1/2}$**

$Q_o$  = the orifice flow rate

$C_d$  = orifice discharge coefficient (0.40 - 0.60)

$A_o$  = area of orifice

$H_o$  = effective head on the orifice measured from the centre of the opening

$g$  = acceleration due to gravity

**sharp-crested weir:  $Q_w = C_w L H_w^{3/2}$**

$Q_w$  = weir discharge

$L$  = weir base width

$H_w$  = head above weir crest excluding velocity head

**submerged sharp-crested weir:  $Q_s = Q_u [1 - (H_2/H_1)^{1.5}]^{0.005}$**

$Q_s$  = submerged weir discharge

$Q_u$  = unsubmerged weir discharge

$H_1$  = upstream head above weir crest

$H_2$  = downstream head above weir crest

# Principal Spillway Computations - Proposed Conditions

## Concept 1

Pond Elevation	Pond Area	Pond Volume
334.00 ft	51.00 ft <sup>2</sup>	0.001 ac-ft
335.00 ft	192.00 ft <sup>2</sup>	0.003 ac-ft
336.00 ft	333.00 ft <sup>2</sup>	0.009 ac-ft
337.00 ft	1169.00 ft <sup>2</sup>	0.027 ac-ft
338.00 ft	4611.00 ft <sup>2</sup>	0.569 ac-ft
339.00 ft	51620.00 ft <sup>2</sup>	1.691 ac-ft
340.00 ft	58317.00 ft <sup>2</sup>	2.953 ac-ft
342.00 ft	68490.00 ft <sup>2</sup>	5.864 ac-ft
344.00 ft	74937.00 ft <sup>2</sup>	9.157 ac-ft
346.00 ft	81531.00 ft <sup>2</sup>	12.749 ac-ft

Barrel Q	Barrel HW
0.00 ft <sup>3</sup> /s	333.08 ft
100.00 ft <sup>3</sup> /s	335.64 ft
200.00 ft <sup>3</sup> /s	337.18 ft
300.00 ft <sup>3</sup> /s	338.49 ft
400.00 ft <sup>3</sup> /s	339.80 ft
500.00 ft <sup>3</sup> /s	341.28 ft
600.00 ft <sup>3</sup> /s	343.04 ft
700.00 ft <sup>3</sup> /s	345.14 ft
800.00 ft <sup>3</sup> /s	347.60 ft
900.00 ft <sup>3</sup> /s	350.42 ft
919.23 ft <sup>3</sup> /s	351.00 ft
937.42 ft <sup>3</sup> /s	351.60 ft
948.00 ft <sup>3</sup> /s	351.96 ft
961.00 ft <sup>3</sup> /s	352.40 ft

Release Point	Crest Elevation	Crest Width	Orifice Height	Orifice Area	Co	Cw
Low Flow	333.08 ft	18.00 ft	2.00 ft	18.00 ft <sup>2</sup>	0.6	3.1
Weir	346.00 ft	50.00 ft	5.00 ft	0.00 ft <sup>2</sup>	0.6	3.1

Total Flow	Riser WSEL	Pond WSEL	Pond Storage	Low Flow			Weir			Emergency Spillway	
				h=0.00 ft	Q=0.00 ft <sup>3</sup> /s	h=0.00 ft	h=0.00 ft	h=0.00 ft	h=0.00 ft		
0.00 ft <sup>3</sup> /s	333.08 ft <sup>3</sup> /s			submerged-weir	0.66 ft <sup>3</sup> /s	10.00 ft <sup>3</sup> /s	0.00 ft <sup>3</sup> /s	0.00 ft <sup>3</sup> /s	0.00 ft <sup>3</sup> /s		
10.00 ft <sup>3</sup> /s	333.34 ft <sup>3</sup> /s	333.47 ft	0.000 ac-ft	submerged-weir	h=0.88 ft	Q=50.00 ft <sup>3</sup> /s	0.000 ac-ft	h=0.00 ft	Q=0.00 ft <sup>3</sup> /s		
50.00 ft <sup>3</sup> /s	334.36 ft <sup>3</sup> /s	334.53 ft	0.002 ac-ft	orifice	h=1.33 ft	Q=100.00 ft <sup>3</sup> /s	0.000 ac-ft	h=0.00 ft	Q=0.00 ft <sup>3</sup> /s		
100.00 ft <sup>3</sup> /s	335.64 ft <sup>3</sup> /s	336.97 ft	0.026 ac-ft	orifice	h=2.08 ft	Q=125.00 ft <sup>3</sup> /s	0.000 ac-ft	h=0.00 ft	Q=0.00 ft <sup>3</sup> /s		
125.00 ft <sup>3</sup> /s	336.03 ft <sup>3</sup> /s	338.11 ft	0.683 ac-ft	orifice	h=3.00 ft	Q=150.00 ft <sup>3</sup> /s	0.000 ac-ft	h=0.00 ft	Q=0.00 ft <sup>3</sup> /s		
150.00 ft <sup>3</sup> /s	336.41 ft <sup>3</sup> /s	339.41 ft	2.188 ac-ft	orifice	h=4.08 ft	Q=175.00 ft <sup>3</sup> /s	0.000 ac-ft	h=0.00 ft	Q=0.00 ft <sup>3</sup> /s		
175.00 ft <sup>3</sup> /s	336.80 ft <sup>3</sup> /s	340.88 ft	4.171 ac-ft	orifice	h=5.33 ft	Q=200.00 ft <sup>3</sup> /s	0.000 ac-ft	h=0.00 ft	Q=0.00 ft <sup>3</sup> /s		
200.00 ft <sup>3</sup> /s	337.18 ft <sup>3</sup> /s	342.51 ft	6.676 ac-ft	orifice	h=8.21 ft	Q=248.29 ft <sup>3</sup> /s	weir	h=0.05 ft	Q=1.71 ft <sup>3</sup> /s		
250.00 ft <sup>3</sup> /s	337.84 ft <sup>3</sup> /s	346.05 ft	12.842 ac-ft	orifice	h=8.01 ft	Q=245.18 ft <sup>3</sup> /s	weir	h=0.50 ft	Q=54.82 ft <sup>3</sup> /s		
300.00 ft <sup>3</sup> /s	338.49 ft <sup>3</sup> /s	346.50 ft	13.695 ac-ft	orifice	h=7.65 ft	Q=239.64 ft <sup>3</sup> /s	weir	h=0.80 ft	Q=110.36 ft <sup>3</sup> /s		
350.00 ft <sup>3</sup> /s	339.15 ft <sup>3</sup> /s	346.80 ft	14.267 ac-ft	orifice	h=7.25 ft	Q=233.25 ft <sup>3</sup> /s	weir	h=1.05 ft	Q=166.75 ft <sup>3</sup> /s		
400.00 ft <sup>3</sup> /s	339.80 ft <sup>3</sup> /s	347.05 ft	14.759 ac-ft	orifice	h=6.74 ft	Q=224.94 ft <sup>3</sup> /s	weir	h=1.28 ft	Q=225.06 ft <sup>3</sup> /s		
450.00 ft <sup>3</sup> /s	340.54 ft <sup>3</sup> /s	347.28 ft	15.216 ac-ft	orifice	h=6.22 ft	Q=216.01 ft <sup>3</sup> /s	weir	h=1.50 ft	Q=283.99 ft <sup>3</sup> /s		
500.00 ft <sup>3</sup> /s	341.28 ft <sup>3</sup> /s	347.50 ft	15.643 ac-ft	orifice	h=5.55 ft	Q=204.05 ft <sup>3</sup> /s	weir	1.708 ac-ft	Q=345.95 ft <sup>3</sup> /s		
550.00 ft <sup>3</sup> /s	342.16 ft <sup>3</sup> /s	347.71 ft	16.064 ac-ft	orifice	h=4.87 ft	Q=191.16 ft <sup>3</sup> /s	weir	1.909 ac-ft	Q=408.85 ft <sup>3</sup> /s		
600.00 ft <sup>3</sup> /s	343.04 ft <sup>3</sup> /s	347.91 ft	16.470 ac-ft	orifice	h=4.02 ft	Q=173.77 ft <sup>3</sup> /s	weir	2.113 ac-ft	Q=476.23 ft <sup>3</sup> /s		
650.00 ft <sup>3</sup> /s	344.09 ft <sup>3</sup> /s	348.11 ft	16.886 ac-ft	orifice	h=3.17 ft	Q=154.34 ft <sup>3</sup> /s	weir	2.314 ac-ft	Q=545.66 ft <sup>3</sup> /s		
700.00 ft <sup>3</sup> /s	345.14 ft <sup>3</sup> /s	348.31 ft	17.298 ac-ft	orifice	n/a	n/a	barrel	n/a	n/a		
750.00 ft <sup>3</sup> /s	346.37 ft <sup>3</sup> /s	346.37 ft	13.447 ac-ft	barrel	n/a	n/a	barrel	n/a	n/a		
800.00 ft <sup>3</sup> /s	347.60 ft <sup>3</sup> /s	347.60 ft	15.848 ac-ft	barrel	n/a	n/a	barrel	n/a	n/a		
850.00 ft <sup>3</sup> /s	349.01 ft <sup>3</sup> /s	349.01 ft	18.755 ac-ft	barrel	n/a	n/a	barrel	n/a	n/a		
900.00 ft <sup>3</sup> /s	350.42 ft <sup>3</sup> /s	350.42 ft	21.837 ac-ft	barrel	n/a	n/a	barrel	n/a	n/a		
1112.97 ft <sup>3</sup> /s	352.03 ft <sup>3</sup> /s	352.03 ft	25.533 ac-ft	barrel	n/a	n/a	barrel	n/a	n/a	h=1.03 ft	162.97 ft <sup>3</sup> /s
1191.05 ft <sup>3</sup> /s	352.26 ft <sup>3</sup> /s	352.26 ft	26.080 ac-ft	barrel	n/a	n/a	barrel	n/a	n/a	h=1.26 ft	234.05 ft <sup>3</sup> /s

**orifice:  $Q_o = C_d A_o (2gH_o)^{1/2}$**

$Q_o$  = the orifice flow rate

$C_d$  = orifice discharge coefficient (0.40 - 0.60)

$A_o$  = area of orifice

$H_o$  = effective head on the orifice measured from the centre of the opening

$g$  = acceleration due to gravity

**sharp-crested weir:  $Q_w = C_w L H_w^{3/2}$**

$Q_w$  = weir discharge

$L$  = weir base width

$H_w$  = head above weir crest excluding velocity head

**submerged sharp-crested weir:  $Q_s = Q_u [1 - (H_2/H_1)^{1.5}]^{0.95}$**

$Q_s$  = submerged weir discharge

$Q_u$  = unsubmerged weir discharge

$H_1$  = upstream head above weir crest

$H_2$  = downstream head above weir crest

# Principal Spillway Computations - Proposed Conditions

## Concept 3

Pond Elevation	Pond Area	Pond Volume
326.00 ft	30059.00 ft <sup>2</sup>	0.000 ac-ft
328.00 ft	37990.00 ft <sup>2</sup>	1.562 ac-ft
330.00 ft	45589.00 ft <sup>2</sup>	3.481 ac-ft
332.00 ft	54098.00 ft <sup>2</sup>	5.769 ac-ft
334.00 ft	62189.00 ft <sup>2</sup>	8.439 ac-ft
336.00 ft	72447.00 ft <sup>2</sup>	11.530 ac-ft

Barrel Q	Barrel HW
0.00 ft <sup>3</sup> /s	326.00 ft
30.00 ft <sup>3</sup> /s	328.41 ft
60.00 ft <sup>3</sup> /s	329.84 ft
90.00 ft <sup>3</sup> /s	331.72 ft
118.98 ft <sup>3</sup> /s	334.33 ft
122.86 ft <sup>3</sup> /s	334.73 ft
124.06 ft <sup>3</sup> /s	334.86 ft
125.04 ft <sup>3</sup> /s	334.97 ft
126.63 ft <sup>3</sup> /s	335.14 ft
127.06 ft <sup>3</sup> /s	335.19 ft
127.90 ft <sup>3</sup> /s	335.28 ft
128.63 ft <sup>3</sup> /s	335.37 ft
130.24 ft <sup>3</sup> /s	335.55 ft
131.59 ft <sup>3</sup> /s	335.70 ft
132.77 ft <sup>3</sup> /s	335.83 ft
133.82 ft <sup>3</sup> /s	335.96 ft

Release Point	Crest Elevation	Crest Width	Orifice Height	Orifice Area	C <sub>o</sub>	C <sub>w</sub>
Low Flow	326.00 ft	1.00 ft	0.50 ft	0.50 ft <sup>2</sup>	0.6	3.1
Weir	330.00 ft	20.00 ft	5.00 ft	0.00 ft <sup>2</sup>	0.6	3.1

Total Flow	Riser WSEL	Pond WSEL	Pond Storage	Low Flow			Weir			Emergency Spillway
0.00 ft <sup>3</sup> /s	326.00 ft			h=0.00 ft	Q=0.00 ft <sup>3</sup> /s	h=0.00 ft	h=0.00 ft	h=0.00 ft	h=0.00 ft	
10.00 ft <sup>3</sup> /s	326.80 ft	330.20 ft	3.693 ac-ft	orifice	3.40 ft <sup>3</sup> /s	4.44 ft <sup>3</sup> /s	weir	0.20 ft <sup>3</sup> /s	5.56 ft <sup>3</sup> /s	
15.00 ft <sup>3</sup> /s	327.21 ft	330.31 ft	3.811 ac-ft	orifice	h=3.11 ft	Q=4.24 ft <sup>3</sup> /s	weir	h=0.31 ft	Q=10.76 ft <sup>3</sup> /s	
20.00 ft <sup>3</sup> /s	327.61 ft	330.40 ft	3.913 ac-ft	orifice	h=2.80 ft	Q=4.03 ft <sup>3</sup> /s	weir	h=0.40 ft	Q=15.97 ft <sup>3</sup> /s	
30.00 ft <sup>3</sup> /s	328.41 ft	330.57 ft	4.090 ac-ft	orifice	h=2.16 ft	Q=3.53 ft <sup>3</sup> /s	weir	h=0.57 ft	Q=26.47 ft <sup>3</sup> /s	
40.00 ft <sup>3</sup> /s	328.89 ft	330.71 ft	4.244 ac-ft	orifice	h=1.82 ft	Q=3.25 ft <sup>3</sup> /s	weir	h=0.71 ft	Q=36.75 ft <sup>3</sup> /s	
50.00 ft <sup>3</sup> /s	329.36 ft	330.83 ft	4.386 ac-ft	orifice	h=1.47 ft	Q=2.92 ft <sup>3</sup> /s	weir	h=0.83 ft	Q=47.08 ft <sup>3</sup> /s	
80.00 ft <sup>3</sup> /s	331.09 ft	331.09 ft	4.684 ac-ft	barrel	n/a	n/a	barrel	n/a	n/a	
100.00 ft <sup>3</sup> /s	332.62 ft	332.62 ft	6.558 ac-ft	barrel	n/a	n/a	barrel	n/a	n/a	
125.00 ft <sup>3</sup> /s	334.97 ft	334.97 ft	9.872 ac-ft	barrel	n/a	n/a	barrel	n/a	n/a	
135.00 ft <sup>3</sup> /s	335.52 ft	335.52 ft	10.750 ac-ft	barrel	n/a	n/a	barrel	n/a	n/a	
134.00 ft <sup>3</sup> /s	335.98 ft	335.98 ft	11.499 ac-ft	spillway	n/a	n/a	barrel	n/a	n/a	h=0.00 ft
145.68 ft <sup>3</sup> /s	336.10 ft	336.10 ft	11.695 ac-ft	spillway	n/a	n/a	barrel	n/a	n/a	h=0.10 ft
166.53 ft <sup>3</sup> /s	336.22 ft	336.22 ft	11.891 ac-ft	spillway	n/a	n/a	barrel	n/a	n/a	h=0.22 ft
203.49 ft <sup>3</sup> /s	336.33 ft	336.33 ft	12.087 ac-ft	spillway	n/a	n/a	barrel	n/a	n/a	h=0.33 ft
252.42 ft <sup>3</sup> /s	336.45 ft	336.45 ft	12.283 ac-ft	spillway	n/a	n/a	barrel	n/a	n/a	h=0.45 ft

**orifice:  $Q_o = C_d A_o (2gH_o)^{1/2}$**

$Q_o$  = the orifice flow rate

$C_d$  = orifice discharge coefficient (0.40 - 0.60)

$A_o$  = area of orifice

$H_o$  = effective head on the orifice measured from the centre of the opening

$g$  = acceleration due to gravity

**sharp-crested weir:  $Q_w = C_w L H_w^{3/2}$**

$Q_w$  = weir discharge

$L$  = weir base width

$H_w$  = head above weir crest excluding velocity head

**submerged sharp-crested weir:  $Q_s = Q_u [1 - (H_2/H_1)^{1/2}]^{3/2}$**

$Q_s$  = submerged weir discharge

$Q_u$  = unsubmerged weir discharge

$H_1$  = upstream head above weir crest

$H_2$  = downstream head above weir crest

**Concept 4 - Storm Drain Head Loss and Maximum Flow  
48" Pipe**

from sha 61.1-408

	degree bends	kb
Manhole	23	0.11
	25	0.48
	10	0.06
Manhole	24	0.11
	48	0.78

Pipe Size (ft)	4
Pipe Thickness	0.41667
Surface Elev.	260.5
Highest Allowable Invert	255.083
Invert Elev.	254.25

ALLOWING 1' FOR C

Culvert Q*	HW Elevation*	Velocity*	HI*	Hb (per above)	Total Elevation Head	
0	254.25	0	0	0	0	254.25
15	255.78	10.89	1.53	1.436363944	2.96636	257.2163639
30	256.51	13.29	2.26	2.139235994	4.39924	258.649236
45	257.17	14.81	2.92	2.656555248	5.57656	259.8265552
60	257.74	16.05	3.49	3.12003028	6.61003	260.8600303
75	258.32	17.03	4.07	3.512675497	7.58268	261.8326755
80	258.52	17.34	4.27	3.641723106	7.91172	262.1617231
105	259.66	18.59	5.41	4.185694379	9.59569	263.8456944
120	260.48	19.25	6.23	2.249571739	8.47957	262.7295717
135	261.43	19.8	7.18	2.666678758	9.84668	264.0966788
144.63	262.11	20.11	7.86	2.96493846	10.8249	265.0749385

\*From HY-8

**Concept 5 - Storm Drain Head Loss and Maximum Flow  
48" Pipe**

from sha 61.1-408		
	degree bend	kb
Manhole	81	0.23
	8	0.26
	49	0.19

Pipe Size (ft)	4
Pipe Thickness	0.41667
Surface Elev. @ Invert	229
Highest Allowable Invert	228
Highest Allowable Invert	221.52
Invert Elev.	221.5

Culvert Q*	HW Elevation*	Velocity*	HI*	Hb (per above)		Total Elevation Head
0	221.5	0	0	0	0	221.5
20	223.27	1.67	1.77	0.011259534	1.78126	223.2812595
40	224.2	3.33	2.7	0.044768851	2.74477	224.2447689
60	224.99	5	3.49	0.100931677	3.59093	225.0909317
80	225.76	6.67	4.26	0.179613571	4.43961	225.9396136
100	226.65	8.33	5.15	0.280141522	5.43014	226.9301415
120	227.72	10	6.22	0.403726708	6.62373	228.1237267
140	229.02	11.67	7.52	0.549830963	8.06983	229.569831
160	230.54	13.34	9.04	0.718454286	9.75845	231.2584543
165	230.95	13.75	9.45	0.763295807	10.2133	231.7132958
180	232.27	16.67	12.73	1.121911708	13.8519	235.3519117

**Concept 6 - Storm Drain Head Loss and Maximum Flow  
48" Pipe**

from sha 61.1-408		
degree bend	kb	
90		0.25
90		0.25
90		0.25

Pipe Size (ft)	4
Pipe Thickness	0.42
Surface Elev. @ Invert	178
Invert @ Roadway	182
Highest Allowable Invert	172.58
Invert Elev.	172.5

Culvert Q*	HW Elevation*	Velocity*	HI*	Hb (per above)	Total Head	Total Elevation Head
0	172.5	0	0	0	0	172.5
25	174.52	11.97	2.02	0.556214674	2.5762147	175.0762147
50	175.62	14.15	3.12	0.777261258	3.8972613	176.3972613
75	176.57	16.13	4.07	1.010003494	5.0800035	177.5800035
80	176.77	16.41	4.07	1.045373059	5.1153731	177.6153731
90	177.2	16.9	4.7	1.108734472	5.8087345	178.3087345
100	177.66	17.22	5.16	1.151119565	6.3111196	178.8111196
125	179.04	18.35	6.54	1.307152562	7.8471526	180.3471526
150	180.77	18.81	8.27	1.373509705	9.6435097	182.1435097
167.06	182.14	19.27	9.64	1.441509705	11.08151	183.5815097
169.46	182.35	19.37	9.85	1.456509705	11.30651	183.8065097
171.25	182.5	19.36	10	1.455006211	11.455006	183.9550062
172.8	182.64	19.38	10.14	1.458013975	11.598014	184.098014
185	183.75	19.69	11.25	1.505031444	12.755031	185.2550314
200	185.25	19.69	12.75	1.505031444	14.255031	186.7550314

\*From HY8