Appendix C

DRAINAGE AND HYDROLOGY REPORT

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PROJECT: Yorktown Farms Subdivision
Town of Yorktown, NY

SCOPE: Drainage and Hydrology Report

DATE: December 6, 2004

INTRODUCTION:

The proposed construction of new roads and homes on this 43-acre site requires the study of the impacts on watercourses in and around the site. This study reviews the existing drainage conditions as well as the proposed improvements to provide measures that will be used to control any potential impacts due to stormwater runoff. For this report, a 34-lot plan has been studied. Approximately 13.8-acres of the site are located in the NYCDEP watershed.

METHODOLOGY:

The watersheds are divided into subareas, by topography, land use, and SCS soil hydrologic grouping. Tabulations of areas and descriptions are shown on the enclosed maps and tables. A summary of the watershed areas, composite curve numbers, and travel times is shown in Table 1.

The flows from the watersheds in the existing condition are computed to determine undeveloped peak runoff and runoff hydrographs at selected design points. The existing peak flows are presented in Table 2.

In the after development condition, the flows from the proposed development are computed by using the runoff curve numbers taken from TR-55. The watersheds are adjusted for the proposed grading of the site. The runoff flows are hydraulically routed for updated travel times, runoff diversions, and new storage structures as necessary. The resulting, proposed peak flows at each design point are presented in Table 2.

Maps have been prepared showing the existing and proposed watersheds and are included in this report.

The methods used are those presented in the US Army Corps. of Engineers HEC 1 computer program using a shortened printout for convenience. The 100, 50, 25, 10, 5, and 2-year frequency storms are studied. The 1 year storm is also studied to analyze Channel Protection (Cp_v), as per NYSDEC. The 1.3 inch rainfall is also studied to determine the Water Quality Volume ($WQ_{v)}$. The SCS type III - 24-hour storm distribution (Westchester) is used throughout. Soil types and hydrologic groups are based on soil maps from the Westchester Soil and Water Board. Topographical mapping for the watersheds are taken from digital topography maps from the Town of Yorktown.

YORKTOWN FARMS SUBDIVISION

TOWN OF YORKTOWN
WESTCHESTER COUNTY, NEW YORK

DRAINAGE AND HYDROLOGY REPORT

December 6, 2004

Prepared for

37 Croton Dam Road Corporation
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TABLE 1 - COMPARISON OF WATERSHEDS, CURVE NUMBERS AND TRAVEL TIMES:

DRAINAGE AREA NAME	EXISTING DRAINAGE AREA (ACRES)	PROPOSED DRAINAGE AREA (ACRES)	EXISTING CURVE NO.	PROPOSED CURVE NO.	EXISTING LAG (HOURS)	PROPOSED LAG (HOURS)
WS1	13.40	NA	65.29	NA	0.27	NA
WS1A	NA	1.53	NA	73.42	NA	0.12
WS1B	NA	4.48	NA	77.75	NA	0.13
WS1C	NA	3.05	NA	77.13	NA	0.11
WS1D	NA	3.65	NA	67.14	NA	0.11
WS2	1.61	1.65	66.00	70.00	0.16	0.16
WS3	4.25	4.19	75.85	74.56	0.20	0.21
WS4	14.13	NA	72.78	NA	0.25	NA
WS4A	NA	0.47	NA	82.41	NA	0.03
WS4B	NA	2.52	NA	82.54	NA	0.09
WS4C	NA	1.80	NA	80.00	NA	0.13
WS4D	NA	3.38	NA	74.00	NA	0.19
WS4E	NA	4.49	NA	73.31	NA	0.16
WS5	5.89	NA	73.17	NA	0.22	NA
WS5A	NA	1.01	NA	78.08	NA	0.11
WS5B	NA	3.44	NA	70.35	NA	0.15
WS5C	NA	3.16	NA	80.00	NA	0.17
WS5D	NA	0.38	NA	75.50	NA	0.04
WS6	15.63	15.71	76.77	77.10	0.28	0.28

DESCRIPTION OF THE DESIGN POINTS:

The design points that are evaluated in this report are described as follows:

Design Point 1 - This design point is in the NYCDEP watershed area and is located in the southeast corner of the site. This design point represents the runoff from the site just before it enters the existing stream at this location. This design point is analyzed as it represents the net peak flows from existing Watershed 1. In the proposed case this design point represents the net peak flows from Watersheds 1A, 1B, 1C, and 1D. In the proposed case, 7.5 inches of runoff off the rooftops in Watersheds 1A and 1C, is captured in drywells.

Design Point 2 - This design point is located at the southwest corner of the site at the intersection of two existing field stone walls. This design point is analyzed as it represents the net peak flows from existing and proposed Watershed 2. In the proposed case, 7.5 inches of runoff off the rooftops is captured in drywells.

Design Point 3 - This design point is located on the west side of the site at the intersection of two existing field stone walls. This design point is analyzed as it represents the net peak flows from Watershed 3 in the existing and the proposed case. In the proposed case, 1.3 inches of runoff off the rooftops is captured in drywells.

Design Point 4 - This design point is located in the northwest corner of the site, within an existing drainage way. This design point is analyzed as it represents the net peak flows from existing Watershed 4. In the proposed case this design point represents the net peak flows from Watersheds 4A, 4B, 4C, 4D, and 4F.

Design Point 5 - This design point is located in the northeast corner of the site at an existing depression were the runoff leaves the site. This design point is analyzed as it represents the net peak flows from Watershed 5 in the existing case. In the proposed case, this design point represents the net peak flows from Watersheds 5A, 5B, 5C, and 5D. In both, the existing and proposed cases, the eastern property line is modeled as a linear design point. In the proposed case, 7.5 inches of runoff off the rooftops in Watershed 5B, is captured in drywells.

Design Point 6 This design point is located just upstream of the culvert which conveys runoff from the northeast portion of the site. Existing watersheds 3, 4, and 6 are summed at this location. Watershed 6 consists predominately of offsite areas. In the proposed case, this design point represents the runoff from watersheds 3, 4B, 4C, 4D, and 6.

DISCUSSION:

The proposed stormwater management plan permits the control of stormwater for all storms in the 2 year through 100-year frequency of occurrence. For example, at Design Point DP1, the peak flow after development is reduced from 33 cfs to 32 cfs during the 100-year storm. At Design Point DP3, the peak flow after development is maintained at 15 cfs during the 100-year storm.

Since the flows after development match the flows prior to development for the 10 and 100 year storms, the NYSDEC criteria for Overbank Flood (Q_p) and Extreme Storm (Q_f) are met. Channel Protection (Cp_v) criteria is also met by detaining the proposed condition 1 year storm for a minimum of 24 hours.

TABLE 2- COMPARISON OF EXISTING AND PROPOSED PEAK FLOWS AT OFFSITE DESIGN POINTS

DESIGN POINT	STORM EVENT (YR)	EXISTING PEAK FLOW (CFS)	PROPOSED PEAK FLOW (CFS)	NET CHANGE (CFS)	PERCENT CHANGE OVER PRIOR CONDITIONS	CHECK
DP1	100	33	32	-1	-3.0	OK
	50	29	27	-2	-6.9	OK
	25	22	21	-1	-4.5	OK
	10	15	14	-1	-6.7	OK
	5	12	10	-2	-16.7	OK
	2	6	3	-3	-50.0	OK
DP2	100	4.8	4.6	-0.2	-4.2	OK
	50	4.3	4.1	-0.2	-4.7	OK
	25	3.2	3.1	-0.1	-3.1	OK
	10	2.2	2.1	-0.1	-4.5	OK
	5	1.8	1.7	-0.1	-4.5	OK
	2	0.9	0.9	0.0	0.0	OK
DP3	100	15	15	0	0.0	OK
	50	14	13	-1	-7.1	OK
	25	11	10	-1	-9.1	OK
	10	8	8	0	0.0	OK
	5	7	6	-1	-14.3	OK
	2	4	4	0	0.0	OK
DP5	100	20	19	-1	-5.0	OK
	50	18	16	-2	-11.1	OK
	25	14	10	-4	28.6	OK
	10	10	7	-3	-30.0	OK
	5	8	6	-2	-25.0	OK
	2	5	3	-2	-40.0	OK
DP6	100	112	111	-1	-0.9	OK
	50	101	100	-1	-1.0	OK
	25	80	76	-4	-5.0	OK
	10	59	52	-7	-11.9	OK
	5	50	43	-7	-14.0	OK
	2	31	26	-5	-16.1	OK

PROPOSED FLOW PATHS:

At Design Point 1 the runoff from the 2-year storm from Watershed 1B is diverted to a water quality basin that maintains or reduces the peak flows at Design Point 1. In Watersheds 1A and 1C the runoff from the 100-year storm from the roof tops of the houses is proposed to be captured in drywells. This assists maintaining peak flows at Design Point 1 as well as improving water quality.

At Design Point 2 mitigation of post-development peak flows to or below existing levels is performed by capturing 7.5 inches of runoff from the rooftops of the houses within Watershed number 2. This capture also maintains water quality to this design point.

At Design Point 3, mitigation of post-development peak flows to or below existing levels is performed by capturing 1.3 inches of runoff from the rooftops of the houses within Watershed number 3.

At Design Point 4 the mitigation of the proposed flows is accomplished by two water quality basins. The first basin is Water Quality Basin 4A an offline basin that captures in excess of the runoff from the 1.3 inch rainfall event as per NYS DEC. This basin will operate as an extended detention basin. A second basin (WQB 4B) is a flow-through basin that treats the runoff from Watersheds 4B, 4C, and 4D. This basin captures in excess of the runoff from the 1.3" rainfall event and releases it slowly as per NYS DEC guidelines. In order to simplify data analysis, all runoff from watershed 4 is assumed to flow to the Route 6 crossing at DP6.

At Design Point 5 the runoff from Watersheds 5A and 5C are treated in Water Quality Basin 5A, a flow-through water quality basin. Water Quality Basin 5A captures in excess of the runoff from the 1.3" rainfall event and releases it slowly as per NYSDEC guidelines. Mitigation of post-development peak flows is also performed by capturing 1.3 inches of runoff from the rooftops of the houses within Watershed 5B.

At Design Point 6 the runoff from watersheds 4A, 4B, 4C, 4D, 4E, and 6 are summed.

WATER QUALITY:

First flush capture and treatment through successive structural and natural devices will provide long term treatment of runoff in keeping with the intent NYS DEC and NYC DEP rules. For detailed pollutant loading estimates, see the separate report entitled "Pollutant Loading Analysis".

CONCLUSION:

As the proposed stormwater management plan allows for the maintenance of peak flows to existing conditions or reductions in peak flows for a wide variety of storms at all design points studied, there should be no adverse impacts due to stormwater, either on-site or off-site, as a result of the proposed site development.

Submitted By:

Ralph G. Mastromonaco, P.E.

EXISTING CURVE NUMBERS						
WATERSHED 1						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	3.58	WOODS	GOOD	B	55	196.79
2	1.45	WOODS	GOOD	D	77	111.50
3	0.09	WOODS	GOOD	C	70	6.51
4	2.48	MEADOW	GOOD	C	71	175.94
5	4.3	WOODS	GOOD	C	70	300.72
6	0.17	MEADOW	GOOD	B	58	9.98
7	1.33	WOODS	GOOD	B	55	73.37
TOTAL	13.40				**65.29**	874.80
WATERSHED 2						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	1.61	WOODS	POOR	B	66	106.33
TOTAL	1.61				**66.00**	106.33
WATERSHED 3						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	1.44	PASTURE	FAIR	C	79	113.44
2	0.83	WOODS	POOR	C	77	63.53
3	0.86	PASTURE	FAIR	C	79	68.26
4	0.95	PASTURE	FAIR	B	69	65.55
5	0.17	WOODS	POOR	B	66	11.42
TOTAL	4.25				**75.85**	322.19
WATERSHED 4						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	0.16	IMPERVIOUS		C	98	15.88
2	0.2	PASTURE	GOOD	C	74	14.50
3	0.47	WOODS	GOOD	C	70	32.69
4	7.7	PASTURE	GOOD	C	74	570.02
5	4.83	WOODS	GOOD	C	70	338.03
6	0.35	PASTURE	GOOD	C	74	25.53
7	0.43	PASTURE	GOOD	C	74	31.52
TOTAL	14.13				**72.78**	1028.18

WATERSHED 5						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	0.09	WOODS	FAIR	D	79	7.43
2	0.01	WOODS	FAIR	C	73	0.66
3	0.02	PASTURE	GOOD	D	80	1.28
4	0	PASTURE	GOOD	D	80	0.16
5	2.5	PASTURE	GOOD	C	74	184.63
6	3.1	WOODS	FAIR	C	73	226.59
7	0.17	WOODS	FAIR	B	60	10.08
TOTAL	5.89				**73.17**	430.83

WATERSHED 6						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	0.37	IMPERVIOUS		C	98	35.83
2	8.63	WOODS	FAIR	C	73	630.02
3	1.35	RESIDENTIAL	1/2 ACRE	C	80	107.89
4	0.18	IMPERVIOUS		C	98	17.85
5	4.88	RESIDENTIAL	1/2 ACRE	C	80	390.66
6	0.22	RESIDENTIAL	1/2 ACRE	C	80	17.83
TOTAL	15.63				**76.77**	1200.08

PROPOSED CURVE NUMBERS						
WATERSHED 1A						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	0.98	RESIDENTIAL	1/2 ACRE	B	70	68.90
2	0.51	RESIDENTIAL	1/2 ACRE	C	80	41.00
TOTAL	1.50				**73.42**	109.90
WATERSHED 1B						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	1.01	RESIDENTIAL	1/2 ACRE	B	70	71.04
2	3.50	RESIDENTIAL	1/2 ACRE	C	80	279.76
TOTAL	4.51				**77.75**	350.80
WATERSHED 1C						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	2.18	RESIDENTIAL	1/2 ACRE	C	80	174.01
2	0.88	RESIDENTIAL	1/2 ACRE	B	70	61.36
TOTAL	3.05				**77.13**	235.38

WATERSHED 1D						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	0.19	OPEN SPACE	GOOD	B	61	11.85
2	1.33	WOODS	GOOD	B	55	73.18
3	1.45	WOODS	GOOD	D	77	111.49
4	0.10	RESIDENTIAL	1/2 ACRE	B	70	7.22
5	0.12	RESIDENTIAL	1/2 ACRE	C	80	9.34
6	0.09	WOODS	GOOD	C	70	6.49
7	0.36	WOODS	GOOD	C	70	25.03
TOTAL	3.64				**67.14**	244.59
WATERSHED 2						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	1.65	RESIDENTIAL	1/2 ACRE	B	70	115.31
TOTAL	1.65				**70.00**	115.31
WATERSHED 3						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	0.52	RESIDENTIAL	1/2 ACRE	C	80	41.21
2	0.15	OPEN SPACE	GOOD	C	74	11.29
3	0.05	WOODS	POOR	C	77	4.00
4	1.35	OPEN SPACE	GOOD	C	74	99.90
5	0.16	WOODS	POOR	C	77	12.30
6	0.55	RESIDENTIAL	1/2 ACRE	C	80	43.75
7	0.17	OPEN SPACE	GOOD	C	74	12.46
8	0.22	WOODS	POOR	C	77	17.09
9	0.83	RESIDENTIAL	1/2 ACRE	B	70	58.11
10	0.09	OPEN SPACE	GOOD	B	61	5.63
11	0.10	WOODS	POOR	B	66	6.68
TOTAL	4.19				**74.56**	312.43
WATERSHED 4A						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	0.11	OPEN SPACE	GOOD	C	74	8.21
2	0.13	OPEN SPACE	GOOD	C	74	9.73
3	0.16	IMPERVIOUS		C	98	16.09
4	0.06	OPEN SPACE	GOOD	C	74	4.56
TOTAL	0.47				**82.41**	38.59

WATERSHED 4B						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	0.38	IMPERVIOUS		B	98	37.02
2	0.69	IMPERVIOUS		C	98	67.28
3	0.26	OPEN SPACE	GOOD	B	61	15.69
4	0.05	OPEN SPACE	GOOD	B	61	2.96
5	0.25	OPEN SPACE	GOOD	C	74	18.52
6	0.52	OPEN SPACE	GOOD	C	74	38.29
7	0.39	OPEN SPACE	GOOD	C	74	28.62
TOTAL	2.52				**82.54**	208.37
WATERSHED 4C						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	1.80	RESIDENTIAL	1/2 ACRE	C	80	143.71
TOTAL	1.80				**80.00**	143.71
WATERSHED 4D						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	3.38	OPEN SPACE	GOOD	C	74	250.25
TOTAL	3.38				**74.00**	250.25
WATERSHED 4E						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	0.35	IMPERVIOUS		C	98	34.04
2	0.02	MEADOW	GOOD	C	71	1.51
3	0.02	WOODS	GOOD	C	70	1.50
4	0.21	OPEN SPACE	GOOD	C	74	15.37
5	0.25	OPEN SPACE	GOOD	C	74	18.58
6	0.14	MEADOW	GOOD	C	71	10.04
7	0.55	WOODS	GOOD	C	70	38.66
8	2.36	MEADOW	GOOD	C	71	167.82
9	0.36	WOODS	GOOD	C	70	24.97
10	0.20	OPEN SPACE	GOOD	C	74	14.63
11	0.03	WOODS	GOOD	C	70	2.31
TOTAL	4.49				**73.31**	329.44

WATERSHED 5A						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	0.32	OPEN SPACE	GOOD	C	74	23.95
2	0.69	RESIDENTIAL	1/2 ACRE	C	80	54.82
TOTAL	1.01				**78.08**	78.77
WATERSHED 5B						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	3.32	RESIDENTIAL	1/2 ACRE	B	70	232.15
2	0.12	RESIDENTIAL	1/2 ACRE	C	80	9.65
TOTAL	3.44				**70.35**	241.81
WATERSHED 5C						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	3.16	RESIDENTIAL	1/2 ACRE	C	80	252.43
TOTAL	3.16				**80.00**	252.43
WATERSHED 5D						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	0.01	WOODS	FAIR	C	73	0.64
2	0.05	WOODS	FAIR	D	79	4.30
3	0.04	OPEN SPACE	GOOD	D	80	3.43
4	0.01	WOODS	FAIR	C	73	0.76
5	0.14	PASTURE	GOOD	C	74	10.49
6	0.01	PASTURE	GOOD	D	80	0.85
7	0.11	OPEN SPACE	GOOD	C	74	8.42
TOTAL	0.38				**75.50**	28.89
WATERSHED 6						
	AREA			SOIL	CURVE	
SUBAREA	AC.	LAND USE	CONDITION	GROUP	NUMBERS	PRODUCT
1	1.42	WOODS	FAIR	C	73	103.92
2	0.37	IMPERVIOUS		C	98	35.83
3	1.35	RESIDENTIAL	1/2 ACRE	C	80	107.89
4	0.40	IMPERVIOUS		C	98	39.29
5	4.88	RESIDENTIAL	1/2 ACRE	C	80	390.66
6	7.06	WOODS	FAIR	C	73	515.67
7	0.22	RESIDENTIAL	1/2 ACRE	C	80	17.83
TOTAL	15.71				**77.10**	1211.09

EXISTING TRAVEL TIMES							
SCS TR-55 TRAVEL TIME COMPUTATIONS							
WATERSHED 1							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	609.0	605.9	2.067	0.240	3.300		0.320
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
450.26	605.9	564.0	9.306				0.025
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
151.42	564.0	562.0	1.321				0.023
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
174.53	562.0	534.0	16.043				0.008
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
387.69	534.0	531.0	0.774				0.076
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
1313.90			78.000	0.809			0.451
						LAG	**0.27**
WATERSHED 2							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	615.0	607.5	5.000	0.240	3.300		0.225

SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
455.76	607.5	596.0	2.523				0.049
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
605.76			19.000	0.614			0.274
						LAG	**0.16**
WATERSHED 3							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	612.5	608.5	2.667	0.240	3.300		0.289
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
556.95	608.5	585.0	4.219				0.047
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
706.95			27.500	0.585			0.335
						LAG	**0.20**
WATERSHED 4							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	612.1	607.8	2.867	0.240	3.300		0.280
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
1301.44	607.8	530.0	5.978				0.092
SHALLOW CONCENTRATED							

FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
307.76	530.0	526.5	1.137				0.050
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
1759.20			85.600	1.158			0.422
						LAG	**0.25**
WATERSHED 5							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
122.00	609.0	604.0	4.098	0.240	3.300		0.206
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
28.00	604.0	602.1	6.786	0.240	3.300		0.052

WATERSHED 6							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	604.0	601.0	2.000	0.240	3.300		0.324
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
505.00	601.0	594.0	1.386				0.074
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
1051.00	594.0	516.0	7.422				0.066
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
1706.00			0.000	1.021			0.464
						LAG	**0.28**

SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
1375.31	602.1	536.2	4.792				0.108
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
1525.31			72.800	1.157			0.366
						LAG	**0.22**

PROPOSED TRAVEL TIMES							
SCS TR-55 TRAVEL TIME COMPUTATIONS							
WATERSHED 1A							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	602.5	584.0	12.333	0.240	3.300		0.156
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
229.72	584.0	564.0	8.706				0.013
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
126.82	564.0	563.0	0.789				0.025
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
506.54			39.500	0.724			0.194
						LAG	**0.12**

WATERSHED 1B							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	612.1	603.0	6.067	0.240	3.300		0.208
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
305.97	603.0	563.0	13.073				0.015
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
455.97			49.100	0.570			0.222
						LAG	**0.13**
WATERSHED 1C							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	611.0	593.0	12.000	0.240	3.300		0.158
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
346.43	593.0	568.0	7.216				0.022
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
496.43			43.000	0.764			0.180
						LAG	**0.11**

WATERSHED 1D							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	592.5	574.0	12.333	0.240	3.300		0.156
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
203.12	574.0	536.0	18.708				0.008
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
227.58	536.0	531.0	2.197				0.026
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
580.70			61.500	0.845			0.191
						LAG	**0.11**
WATERSHED 2							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	615.0	607.0	5.333	0.240	3.300		0.219
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
445.54	607.0	596.0	2.469				0.049
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
595.54			19.000	0.618			0.268
						LAG	**0.16**

WATERSHED 3							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	614.1	610.0	2.733	0.240	3.300		0.286
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
370.70	610.0	598.0	3.237				0.035
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
333.36	598.0	585.0	3.900				0.029
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
854.06			29.100	0.677			0.350
						LAG	**0.21**

WATERSHED 4A							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
24.72	572.0	564.0	32.362	0.240	3.300		0.025
SHALLOW CONCENTRATED FLOW (PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
186.29	564.0	549.0	8.052				0.009
OPEN CHANNEL FLOW - PIPE SECTION							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	DIAMETER		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
125.08	546.5	543.0	2.798	0.040	15.000		0.012
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
311.37			18.500	1.871			0.046
						LAG	**0.03**
WATERSHED 4B							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
79.05	568.0	562.0	7.590	0.240	3.300		0.114
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
27.91	562.0	555.0	25.081	0.240	3.300		0.031
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
106.96			13.000	0.206			0.145
						LAG	**0.09**

WATERSHED 4C							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	592.0	581.0	7.333	0.240	3.300		0.193
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
396.17	581.0	549.5	7.951				0.024
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
546.17			42.500	0.700			0.217
						LAG	**0.13**

WATERSHED 4D							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
134.26	610.1	606.0	3.054	0.240	3.300		0.250
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
15.74	606.0	605.0	6.353	0.240	3.300		0.034
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
499.80	605.0	575.9	5.822				0.036
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
649.80			34.200	0.565			0.320
						LAG	**0.19**

WATERSHED 4E							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	578.2	569.5	5.800	0.240	3.300		0.212
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
687.44	569.5	527.0	6.182				0.048
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
837.44			51.200	0.897			0.259
						LAG	**0.16**

WATERSHED 5A							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	584.2	571.0	8.800	0.240	3.300		0.179
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
65.91	571.0	564.0	10.621				0.003
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
40.18	564.0	551.0	32.354				0.001
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
256.09			33.200	0.387			0.184
						LAG	**0.11**

WATERSHED 5B							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	602.0	582.0	13.333	0.240	3.300		0.152
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
963.18	582.0	555.5	2.751				0.100
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
1113.18			46.500	1.229			0.252
						LAG	**0.15**

WATERSHED 5C							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
136.94	608.0	602.5	4.016	0.240	3.300		0.228
SHALLOW CONCENTRATED FLOW (PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
147.45	602.2	601.0	0.814				0.022
OPEN CHANNEL FLOW - PIPE SECTION							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	DIAMETER		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
666.12	597.0	563.0	5.104	0.040	36.000		0.027
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
950.51			40.700	0.954			0.277
						LAG	**0.17**

WATERSHED 5D							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
58.16	556.0	545.0	18.913	0.240	3.300		0.062
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
112.68	545.0	536.2	7.810				0.007
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
170.84			8.800	0.690			0.069
						LAG	**0.04**

WATERSHED 6							
SHEET FLOW (L.T. 150 FT)							
LENGTH	ELEV1	ELEV2	SLOPE	MANNING	2 YR PRP		TRAVEL
(FT)			PERCENT	N	(INCHES)		TIME
150.00	604.0	601.0	2.000	0.240	3.300		0.324
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
505.00	601.0	594.0	1.386				0.074
SHALLOW CONCENTRATED FLOW (UN-PAVED PATH)							
LENGTH	ELEV1	ELEV2	SLOPE				TRAVEL
(FT)			PERCENT				TIME
1051.00	594.0	516.0	7.422				0.066
TOTAL			TOTAL	AVERAGE			TOTAL
LENGTH			DELTA Y	VELOCITY			TRAVEL T
(FT)			(FT)	(FPS)			(HRS)
1706.00			0.000	1.021			0.464
						LAG	**0.28**

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1*****************************************
 *                                       *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *
 *              MAY   1991               *
 *           VERSION 4.0.1E              *
 *     Lahey F77L-EM/32 version 5.01     *
 *       Ralph G. Mastromonaco P.E.      *
 *  RUN DATE  12/06/04  TIME  19:45:40   *
 *****************************************

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*                                       *
*    U.S. ARMY CORPS OF ENGINEERS       *
*    HYDROLOGIC ENGINEERING CENTER      *
*          609 SECOND STREET            *
*       DAVIS, CALIFORNIA 95616         *
*           (916) 551-1748              *
*                                       *
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X     X  XXXXXXX   XXXXX           X
X     X  X        X     X         XX
X     X  X        X                X
XXXXXXX  XXXX     X        XXXXX   X
X     X  X        X                X
X     X  X        X     X          X
X     X  XXXXXXX   XXXXX          XXX

 THIS PROGRAM REPLACES ALL PREVIOUS VERSIONS OF HEC-1 KNOWN AS HEC1 (JAN 73), HEC1GS, HEC1DB, AND HEC1KW.

 THE DEFINITIONS OF VARIABLES -RTIMP- AND -RTIOR- HAVE CHANGED FROM THOSE USED WITH THE 1973-STYLE INPUT STRUCTURE.
 THE DEFINITION OF -AMSKK- ON RM-CARD WAS CHANGED WITH REVISIONS DATED 28 SEP 81. THIS IS THE FORTRAN77 VERSION
 NEW OPTIONS: DAMBREAK OUTFLOW SUBMERGENCE , SINGLE EVENT DAMAGE CALCULATION, DSS:WRITE STAGE FREQUENCY,
 DSS:READ TIME SERIES AT DESIRED CALCULATION INTERVAL   LOSS RATE:GREEN AND AMPT INFILTRATION
 KINEMATIC WAVE: NEW FINITE DIFFERENCE ALGORITHM

1                                          HEC-1 INPUT                                          PAGE  1

          LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10

            1       ID     R.G. MASTROMONACO, P.E. - SANTUCCI YORKTOWN FARMS
            2       ID  TOWN OF YORKTOWN
            3       ID     USE SCS TYPE 3 DISTRIBUTION FOR SELECTED STORM RAINFALLS
            4       ID     FILENAME:YORKTOWN FARMS D&H 12-3-04.DAT, DATE:DECEMBER 3, 2004
            5       ID     USE SCS LAG
                    *DIAGRAM
            6       IO       5       0
            7       IT       6             000    2400
            8       JR    PREC    .173    .373   0.466    0.60   0.666    0.80   0.933    1.00
            9       IN      06             000

           10       KK   EXDP1
           11       KO                                      21
           12       KM  FLOWS FROM EXISTING WATERSHED 1
           13       PB     7.5
           14       PC   0.000   0.001   0.002   0.003   0.004   0.005   0.006   0.007   0.008   0.009
           15       PC   0.010   0.011   0.012   0.013   0.014   0.015   0.016   0.017   0.018   0.019
           16       PC   0.020   0.021   0.022   0.023   0.024   0.026   0.027   0.028   0.029   0.030
           17       PC   0.031   0.032   0.034   0.035   0.036   0.037   0.038   0.040   0.041   0.042
           18       PC   0.043   0.045   0.046   0.047   0.049   0.050   0.051   0.053   0.054   0.055
           19       PC   0.057   0.058   0.060   0.061   0.063   0.064   0.066   0.067   0.069   0.070
           20       PC   0.072   0.074   0.075   0.077   0.079   0.080   0.082   0.084   0.085   0.087
           21       PC   0.089   0.091   0.093   0.095   0.097   0.100   0.103   0.106   0.109   0.112
           22       PC   0.115   0.118   0.121   0.124   0.127   0.130   0.134   0.137   0.140   0.144
           23       PC   0.148   0.151   0.155   0.159   0.163   0.167   0.171   0.176   0.180   0.185
           24       PC   0.189   0.194   0.199   0.205   0.210   0.216   0.222   0.228   0.235   0.242
           25       PC   0.250   0.258   0.266   0.276   0.287   0.298   0.312   0.328   0.363   0.416
           26       PC   0.500   0.584   0.638   0.673   0.689   0.702   0.714   0.725   0.734   0.743
           27       PC   0.751   0.758   0.766   0.772   0.779   0.785   0.790   0.796   0.801   0.806
           28       PC   0.811   0.816   0.821   0.825   0.829   0.834   0.838   0.842   0.845   0.849
           29       PC   0.853   0.857   0.860   0.864   0.867   0.870   0.874   0.877   0.880   0.883
           30       PC   0.886   0.889   0.892   0.895   0.898   0.900   0.903   0.906   0.908   0.910
           31       PC   0.911   0.913   0.915   0.917   0.919   0.920   0.922   0.924   0.925   0.927
           32       PC   0.929   0.930   0.932   0.933   0.935   0.936   0.938   0.939   0.941   0.942
           33       PC   0.944   0.945   0.946   0.948   0.949   0.951   0.952   0.953   0.955   0.956
           34       PC   0.957   0.958   0.960   0.961   0.962   0.963   0.965   0.966   0.967   0.968
           35       PC   0.969   0.971   0.972   0.973   0.974   0.975   0.976   0.977   0.978   0.979
           36       PC   0.981   0.982   0.983   0.984   0.985   0.986   0.987   0.988   0.989   0.990
           37       PC   0.991   0.992   0.993   0.994   0.995   0.996   0.997   0.998   0.999   1.000
           38       BA  .02094
           39       LS            65.29
           40       UD     .27

           41       KK   EXDP2
           42       KO                                      21
           43       KM  FLOWS FROM EXISTING WATERSHED 2
           44       BA  .00252
           45       LS               66
           46       UD     .16
1                                          HEC-1 INPUT                                          PAGE  2
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          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


            47          KK   EXDP3
            48          KO                                    21
            49          KM  FLOWS FROM EXISTING WATERSHED 3
            50          BA  .00664
            51          LS          75.85
            52          UD    .20

            53          KK   EXWS4
            54          KO                                    21
            55          KM  FLOWS FROM EXISTING WATERSHED 4
            56          BA  .02208
            57          LS          72.78
            58          UD    .25

            59          KK   EXDP4
            60          KO                                    21
            61          KM  FLOWS FROM EXISTING WATERSHEDS 3 & 4
            62          HC       2

            63          KK   EXWS6
            64          KO                                    21
            65          KM  FLOWS FROM EXISTING WATERSHED 6
            66          BA  .02443
            67          LS          76.77
            68          UD    .28

            69          KK   EXDP6
            70          KO                                    21
            71          KM  FLOWS FROM EXISTING WATERSHED 6 AND DP4
            72          HC       2

            73          KK   EXDP5
            74          KO                                    21
            75          KM  FLOWS FROM EXISTING WATERSHED 5
            76          BA  .00920
            77          LS          73.17
            78          UD    .22

            79          KK  DUMMY1
            80          KM  SUM HYDROGRAPHS TO AVOID SCHEMATIC ERROR
            81          HC       4
            82          KM   * * * * * * * *   PROPOSED CONDITIONS   * * * * * * * * * * * * * * * * * * * *

            83          KK  PRWS1A
            84          KO                                    21
            85          KM  FLOWS FROM PROPOSED WATERSHED 1A
            86          BA  .00234
            87          LS          73.42
            88          UD    .12
1                                        HEC-1 INPUT                                                PAGE  3

          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


            89          KK  PRDP1A
            90          KO                                    21
            91          KM  FLOWS NOT GOING TO INDIVIDUAL DRYWELLS
            92          DT    DW1A   .0860
            93          DI       0      20      40      80
            94          DQ       0      20      40      80

            95          KK  PRWS1C
            96          KO                                    21
            97          KM  FLOWS FROM PROPOSED WATERSHED 1C
            98          BA  .00477
            99          LS          77.13
           100          UD    .11

           101          KK  PRDP1C
           102          KO                                    21
           103          KM  FLOWS NOT GOING TO INDIVIDUAL DRYWELLS
           104          DT    DW1C   .1721
           105          DI       0      20      40      80
           106          DQ       0      20      40      80

           107          KK  PRWS1B
           108          KO                                    21
           109          KM  FLOWS FROM PROPOSED WATERSHED 1B
           110          BA  .00706
           111          LS          77.74
           112          UD    .13

           113          KK  PRDP1B
           114          KO                                    21
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          115          KM  FLOWS NOT GOING TO WATER QUALITY BASIN 1B
          116          DT  TOWQ1B    0.66
          117          DI       0     100
          118          DQ       0     100

          119          KK    DB1B
          120          KO                                    21
          121          KM  FLOW ROUTED THROUGH DETENTION BASIN 1B
          122          RS       1    ELEV     560
          123          SA       0   .0365   .0365   .0365   .0365   .0365
          124          SE     560   560.1     562     563     564     565
          125          SL  560.75 .921752     .61      .5
          126          SS   563.5       4   3.367     1.5

          127          KK     RTN
          128          KO                                    21
          129          KM  RETRIEVE BYPASSED FLOW
          130          DR  TOWQ1B
1                                       HEC-1 INPUT                                          PAGE  4

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          131          KK   WQ1BA
          132          KO                                    21
          133          KM  FLOW ROUTED THROUGH EXTENDED DETENTION BASIN 1BA
          134          RS       1    ELEV   561.5
          135          SA  .10879  .14966  .19573  .24698
          136          SE     560     562     564     566
          137          SL  561.58 .005454     .61      .5
          138          SS   564.0       2   3.367     1.5

          139          KK   WQ1BB
          140          KO                                    21
          141          KM  FLOW ROUTED THROUGH EXTENDED DETENTION BASIN 1BB
          142          RS       1    ELEV     561
          143          SA  .04287  .06899  .10030  .13681
          144          SE     560     562     564     566
          145          SL  561.04 0.00545     .61      .5
          146          SS   564.0       2   3.367     1.5

          147          KK  PRWS1D
          148          KO                                    21
          149          KM  FLOWS FROM PROPOSED WATERSHED 1D
          150          BA  .00569
          151          LS          67.14
          152          UD     .11

          153          KK   PRDP1
          154          KO                                    21
          155          KM  FLOWS FROM PROPOSED WATERSHED 1D, DESIGN POINT 1B, DESIGN POINT 1C, AND DESIGN
          156          HC       5

          157          KK   PRDP2
          158          KO                                    21
          159          KM  FLOWS FROM PROPOSED WATERSHED 2 (7.5" OVER ROOFS TAKEN OUT)
          160          BA  .00235
          161          LS          66.72
          162          UD     .16

          163          KK   PRWS3
          164          KO                                    21
          165          KM  FLOWS FROM PROPOSED WATERSHED 3
          166          BA  .00655
          167          LS          74.56
          168          UD     .21

          169          KK   PRDP3
          170          KO                                    21
          171          KM  FLOWS NOT GOING TO INDIVIDUAL DRYWELLS
          172          DT  TOIDW4  .04477
          173          DI       0      20      40      80
          174          DQ       0      20      40      80
1                                       HEC-1 INPUT                                          PAGE  5

         LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          175          KK  PRWS4A
          176          KO                                    21
          177          KM  FLOWS FROM PROPOSED WATERSHED 4A
          178          BA  .00073
          179          LS          82.41
          180          UD     .03

          181          KK  PRDP4A
          182          KO                                    21
          183          KM  FLOWS NOT GOING TO WATER QUALITY BASIN 4A
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          184          DT  TOWQ4A   .0459
          185          DI       0      20      40      80
          186          DQ       0      20      40      80

          187          KK  PRWS4B
          188          KO                                  21
          189          KM  FLOWS FROM PROPOSED WATERSHED 4B
          190          BA  .00394
          191          LS          82.54
          192          UD    .09

          193          KK  PRDP4D
          194          KO                                  21
          195          KM  FLOWS FROM PROPOSED WATERSHED 4D
          196          BA  .00528
          197          LS             74
          198          UD    .19

          199          KK   SUM1
          200          KO                                  21
          201          KM  FLOWS FROM PROPOSED WATERSHED 4B AND DESIGN POINT4D
          202          HC       2

          203          KK  PRDP4B
          204          KO                                  21
          205          KM  FLOWS NOT GOING TO WATER QUALITY BASIN 4B
          206          RS       1    ELEV  550.92
          207          SA  .05968 .091756  .12833  .17009  .21705
          208          SE     550     552     554     556     558
          209          SL     551    .005     .61      .5
          210          SS     555       2     3.3     1.5
          211          ST     557      10     3.3     1.5

          212          KK  PRDP4C
          213          KO                                  21
          214          KM  FLOWS FROM PROPOSED WATERSHED 4C
          215          BA  .00281
          216          LS             80
          217          UD    .13
1                                      HEC-1 INPUT                                          PAGE  6

        LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


          218          KK  PRWS4E
          219          KO                                  21
          220          KM  FLOWS FROM PROPOSED WATERSHED 4E
          221          BA  .00702
          222          LS          73.31
          223          UD    .16

          224          KK   PRDP4
          225          KO                                  21
          226          KM  FLOWS FROM PROPOSED WATERSHED 4E, DESIGN POINT 4B, AND DESIGN POINT 4C
          227          HC       4

          228          KK   PRWS6
          229          KO                                  21
          230          KM  FLOWS FROM PROPOSED WATERSHED 6
          231          BA  .02455
          232          LS          77.10
          233          UD    .28

          234          KK   PRDP6
          235          KO                                  21
          236          KM  FLOWS FROM PROPOSED WATERSHED 6 AND DESIGN POINT 4
          237          HC       4

          238          KK  PRWS5A
          239          KO                                  21
          240          KM  FLOWS FROM PROPOSED WATERSHED 5A
          241          BA  .00158
          242          LS          78.08
          243          UD    .11

          244          KK  PRDP5C
          245          KO                                  21
          246          KM  FLOWS FROM PROPOSED WATERSHED 5C
          247          BA  .00493
          248          LS             80
          249          UD    .17

          250          KK   SUM2
          251          KO                                  21
          252          KM  FLOWS FROM PROPOSED WATERSHED 5A AND DESIGN POINT 5C
          253          HC       2

          254          KK  PRDP5A
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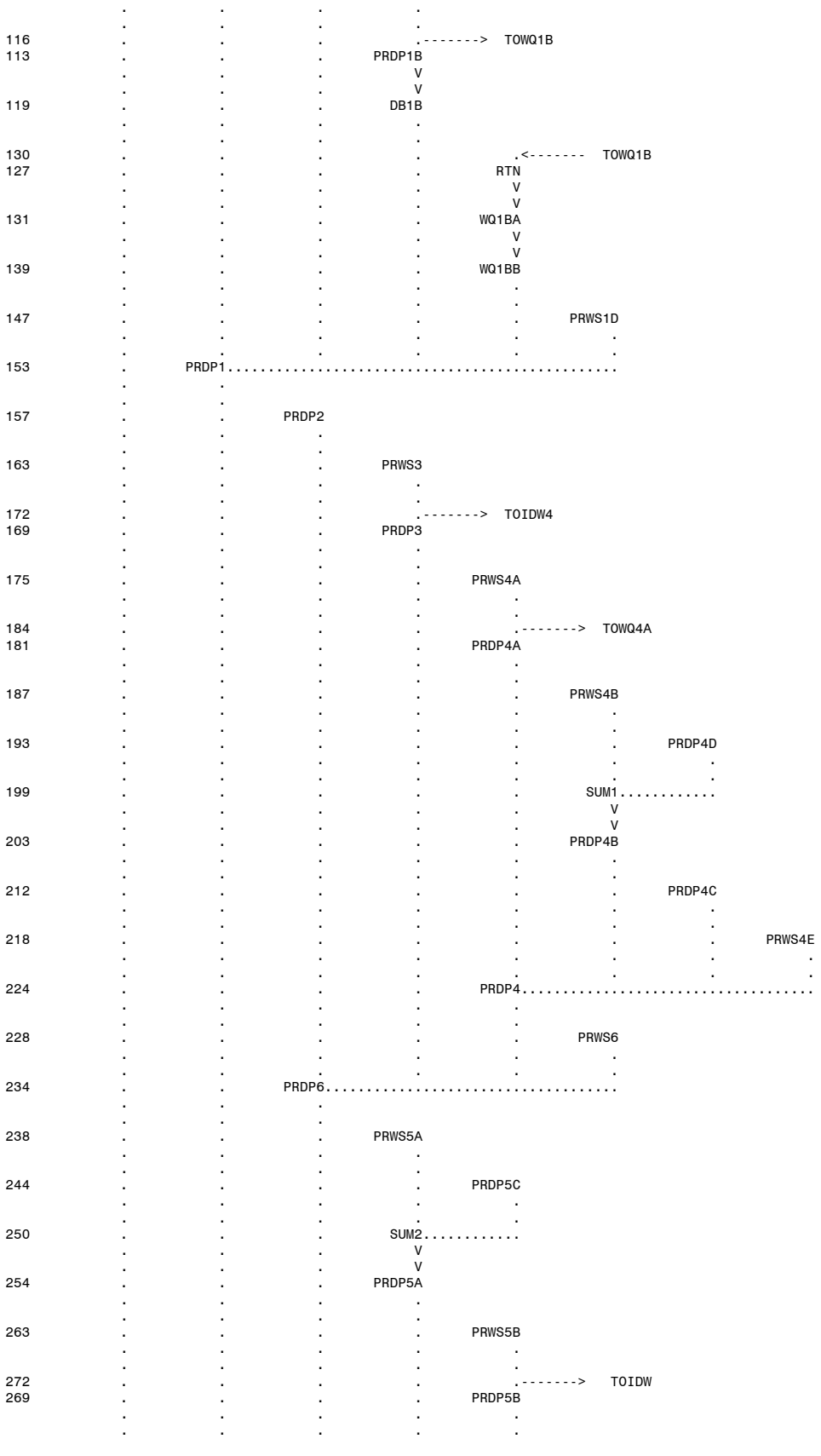
```
           255          KO                                      21
           256          KM  FLOWS NOT GOING TO WATER QUALITY BASIN 5A
           257          RS       1    ELEV  550.92
           258          SA    .100    .147    .200    .259
           259          SE     550     552     554     556
           260          SL     551    .005     .61      .5
           261          SS   553.5     1.5     3.3     1.5
           262          ST     555      10     3.3     1.5
1                                          HEC-1 INPUT                                                    PAGE  7

          LINE          ID.......1.......2.......3.......4.......5.......6.......7.......8.......9......10


           263          KK  PRWS5B
           264          KO                                      21
           265          KM  FLOWS FROM PROPOSED WATERSHED 5B
           266          BA  .00537
           267          LS          70.35
           268          UD     .15

           269          KK  PRDP5B
           270          KO                                      21
           271          KM  FLOWS NOT GOING TO INDIVIDUAL DRYWELLS
           272          DT   TOIDW  .04476
           273          DI       0      20      40      80
           274          DQ       0      20      40      80

           275          KK  PRWS5D
           276          KO                                      21
           277          KM  FLOWS FROM PROPOSED WATERSHED 5D
           278          BA  .00060
           279          LS          75.50
           280          UD     .04

           281          KK   PRDP5
           282          KO                                      21
           283          KM  FLOWS FROM PROPOSED WATERSHED 5D, DESIGN POINT 5A, AND DESIGN POINT 5B
           284          HC       3
           285          ZZ
1
               SCHEMATIC DIAGRAM OF STREAM NETWORK
 INPUT
  LINE      (V) ROUTING          (--->) DIVERSION OR PUMP FLOW

   NO.      (.) CONNECTOR        (<---) RETURN OF DIVERTED OR PUMPED FLOW

    10       EXDP1
                .
                .
    41          .       EXDP2
                .          .
                .          .
    47          .          .       EXDP3
                .          .          .
                .          .          .
    53          .          .          .       EXWS4
                .          .          .          .
                .          .          .          .
    59          .          .       EXDP4.....
                .          .          .
                .          .          .
    63          .          .          .       EXWS6
                .          .          .          .
                .          .          .          .
    69          .          .       EXDP6.....
                .          .          .
                .          .          .
    73          .          .          .       EXDP5
                .          .          .          .
                .          .          .          .
    79      DUMMY1.................................
                .
                .
    83          .      PRWS1A
                .          .
                .          .
    92          .          .-------->    DW1A
    89          .      PRDP1A
                .          .
                .          .
    95          .          .      PRWS1C
                .          .          .
                .          .          .
   104          .          .          .-------->    DW1C
   101          .          .      PRDP1C
                .          .          .
                .          .          .
   107          .          .          .      PRWS1B
```


116
TOWQ1B
113
PRDP1B
119
DB1B
130
TOWQ1B
127
RTN
131
WQ1BA
139
WQ1BB
147
PRWS1D
153
PRDP1
157
PRDP2
163
PRWS3
172
TOIDW4
169
PRDP3
175
PRWS4A
184
TOWQ4A
181
PRDP4A
187
PRWS4B
193
PRDP4D
199
SUM1
203
PRDP4B
212
PRDP4C
218
PRWS4E
224
PRDP4
228
PRWS6
234
PRDP6
238
PRWS5A
244
PRDP5C
250
SUM2
254
PRDP5A
263
PRWS5B
272
TOIDW
269
PRDP5B

```
  275          .          .          .          .          .      PRWS5D
               .          .          .          .          .          .
               .          .          .          .          .          .
  281          .          .          .       PRDP5.......................

 (***) RUNOFF ALSO COMPUTED AT THIS LOCATION
1*************************************                                  *************************************
 *                                   *                                  *                                   *
 *   FLOOD HYDROGRAPH PACKAGE  (HEC-1)   *                              *    U.S. ARMY CORPS OF ENGINEERS     *
 *              MAY   1991           *                                  *    HYDROLOGIC ENGINEERING CENTER    *
 *           VERSION 4.0.1E          *                                  *          609 SECOND STREET          *
 *     Lahey F77L-EM/32 version 5.01     *                              *       DAVIS, CALIFORNIA 95616       *
 *       Ralph G. Mastromonaco P.E.      *                              *           (916) 551-1748            *
 *  RUN DATE  12/06/04  TIME  19:45:40   *                              *                                     *
 *************************************                                  *************************************



                        R.G. MASTROMONACO, P.E. - SANTUCCI YORKTOWN FARMS
                      TOWN OF YORKTOWN
                        USE SCS TYPE 3 DISTRIBUTION FOR SELECTED STORM RAINFALLS
                        FILENAME:YORKTOWN FARMS D&H 12-3-04.DAT, DATE:DECEMBER 3, 2004
                        USE SCS LAG

   6 IO          OUTPUT CONTROL VARIABLES
                      IPRNT           5  PRINT CONTROL
                      IPLOT           0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

*** ERROR *** SPECIFIED START AND END DATES RESULT IN TOO MANY TIME PERIODS

     IT          HYDROGRAPH TIME DATA
                       NMIN           6  MINUTES IN COMPUTATION INTERVAL
                      IDATE      1    0  STARTING DATE
                      ITIME        0000  STARTING TIME
                         NQ        2000  NUMBER OF HYDROGRAPH ORDINATES
                     NDDATE      9    0  ENDING DATE
                     NDTIME        0754  ENDING TIME
                     ICENT           19  CENTURY MARK

                   COMPUTATION INTERVAL    0.10 HOURS
                        TOTAL TIME BASE  199.90 HOURS

          ENGLISH UNITS
               DRAINAGE AREA         SQUARE MILES
               PRECIPITATION DEPTH   INCHES
               LENGTH, ELEVATION     FEET
               FLOW                  CUBIC FEET PER SECOND
               STORAGE VOLUME        ACRE-FEET
               SURFACE AREA          ACRES
               TEMPERATURE           DEGREES FAHRENHEIT

     JP          MULTI-PLAN OPTION
                       NPLAN           1  NUMBER OF PLANS

     JR          MULTI-RATIO OPTION
                     RATIOS OF PRECIPITATION
                    0.17      0.37      0.47      0.60      0.67      0.80      0.93      1.00


*** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** *** ***
```

1

PEAK FLOW AND STAGE (END-OF-PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS
FLOWS IN CUBIC FEET PER SECOND, AREA IN SQUARE MILES
TIME TO PEAK IN HOURS

OPERATION	STATION	AREA	PLAN		RATIOS APPLIED TO PRECIPITATION RATIO 1 0.17	RATIO 2 0.37	RATIO 3 0.47	RATIO 4 0.60	RATIO 5 0.67	RATIO 6 0.80	RATIO 7 0.93	RATIO 8 1.00
HYDROGRAPH AT												
+	EXDP1	0.02	1	FLOW	0.	3.	6.	12.	15.	22.	29.	33.
				TIME	16.50	12.40	12.40	12.40	12.40	12.30	12.30	12.30
HYDROGRAPH AT												
+	EXDP2	0.00	1	FLOW	0.	0.	1.	2.	2.	3.	4.	5.
				TIME	15.10	12.30	12.30	12.20	12.20	12.20	12.20	12.20
HYDROGRAPH AT												
+	EXDP3	0.01	1	FLOW	0.	3.	4.	7.	8.	11.	14.	15.
				TIME	12.40	12.30	12.30	12.30	12.30	12.30	12.30	12.20
HYDROGRAPH AT												
+	EXWS4	0.02	1	FLOW	0.	7.	11.	19.	23.	32.	40.	45.
				TIME	12.60	12.40	12.30	12.30	12.30	12.30	12.30	12.30
2 COMBINED AT												
+	EXDP4	0.03	1	FLOW	0.	9.	16.	26.	31.	43.	54.	60.
				TIME	12.50	12.30	12.30	12.30	12.30	12.30	12.30	12.30
HYDROGRAPH AT												
+	EXWS6	0.02	1	FLOW	1.	10.	15.	24.	28.	37.	47.	52.
				TIME	12.50	12.40	12.40	12.30	12.30	12.30	12.30	12.30
2 COMBINED AT												
+	EXDP6	0.05	1	FLOW	1.	19.	31.	50.	59.	80.	101.	112.
				TIME	12.50	12.40	12.30	12.30	12.30	12.30	12.30	12.30
HYDROGRAPH AT												
+	EXDP5	0.01	1	FLOW	0.	3.	5.	8.	10.	14.	18.	20.
				TIME	12.50	12.30	12.30	12.30	12.30	12.30	12.30	12.30
4 COMBINED AT												
+	DUMMY1	0.09	1	FLOW	1.	25.	42.	71.	87.	119.	152.	169.
				TIME	12.50	12.40	12.30	12.30	12.30	12.30	12.30	12.30
HYDROGRAPH AT												
+	PRWS1A	0.00	1	FLOW	0.	1.	2.	3.	3.	4.	5.	6.
				TIME	12.40	12.20	12.20	12.20	12.20	12.20	12.20	12.20
DIVERSION TO												
+	DW1A	0.00	1	FLOW	0.	1.	2.	3.	3.	3.	2.	2.
				TIME	12.40	12.20	12.20	12.20	12.10	12.00	11.90	11.90
HYDROGRAPH AT												
+	PRDP1A	0.00	1	FLOW	0.	0.	0.	2.	3.	4.	5.	6.
				TIME	0.10	20.70	13.50	12.40	12.30	12.20	12.20	12.20
HYDROGRAPH AT												
+	PRWS1C	0.00	1	FLOW	0.	2.	4.	6.	7.	9.	12.	13.
				TIME	12.30	12.20	12.20	12.20	12.20	12.20	12.10	12.10
DIVERSION TO												
+	DW1C	0.00	1	FLOW	0.	2.	4.	6.	5.	4.	3.	2.
				TIME	12.30	12.20	12.20	12.10	12.00	11.90	11.80	11.70
HYDROGRAPH AT												
+	PRDP1C	0.00	1	FLOW	0.	0.	1.	5.	7.	9.	12.	13.
				TIME	0.10	15.30	12.60	12.30	12.20	12.20	12.10	12.10
HYDROGRAPH AT												
+	PRWS1B	0.01	1	FLOW	0.	4.	6.	9.	11.	14.	17.	19.
				TIME	12.30	12.20	12.20	12.20	12.20	12.20	12.20	12.20
DIVERSION TO												
+	TOWQ1B	0.01	1	FLOW	0.	4.	6.	9.	11.	14.	16.	18.
				TIME	12.30	12.20	12.20	12.20	12.20	12.20	12.20	12.10
HYDROGRAPH AT												
+	PRDP1B	0.01	1	FLOW	0.	0.	0.	1.	1.	5.	14.	16.
				TIME	0.10	0.10	0.10	15.40	13.60	12.50	12.30	12.30
ROUTED TO												
+	DB1B	0.01	1	FLOW	0.	0.	0.	0.	1.	4.	7.	13.
				TIME	0.10	0.10	0.10	16.20	14.00	12.60	12.50	12.40

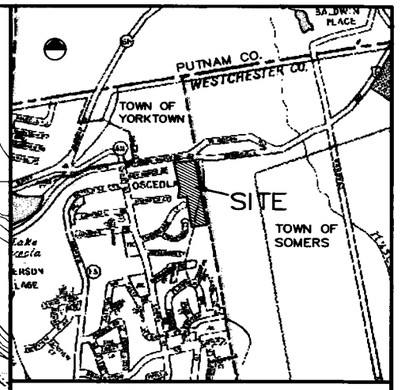
** PEAK STAGES IN FEET **

```
                                1   STAGE      560.00   560.00   560.00   560.83   560.90   561.45   563.39   563.97
                                    TIME         0.00     0.00     0.00    16.30    14.00    12.60    12.50    12.40

 HYDROGRAPH AT
+                    RTN   0.00   1   FLOW         0.       4.       6.       9.      11.      14.      16.      18.
                                    TIME        12.30    12.20    12.20    12.20    12.20    12.20    12.20    12.10

 ROUTED TO
+                  WQ1BA   0.00   1   FLOW         0.       0.       0.       1.       2.       5.       5.       5.
                                    TIME        22.10    21.30    16.90    13.30    12.80    12.40    12.30    12.20

                                ** PEAK STAGES IN FEET **
                                1   STAGE      561.81   563.52   564.10   564.30   564.47   564.79   564.86   564.81
                                    TIME        24.00    24.10    16.90    13.30    12.80    12.40    12.30    12.20

 ROUTED TO
+                  WQ1BB   0.00   1   FLOW         0.       0.       0.       0.       0.       0.       0.       0.
                                    TIME        34.00    61.70    40.40    16.10    14.90    14.40    14.70    14.10

                                ** PEAK STAGES IN FEET **
                                1   STAGE      561.17   561.99   562.79   563.95   563.98   563.99   563.99   563.99
                                    TIME        39.60    85.90    63.00    18.00    16.60    16.00    15.80    15.80

 HYDROGRAPH AT
+                 PRWS1D   0.01   1   FLOW         0.       1.       3.       5.       6.       8.      11.      12.
                                    TIME        15.10    12.20    12.20    12.20    12.20    12.20    12.20    12.20

  5 COMBINED AT
+                  PRDP1   0.02   1   FLOW         0.       1.       3.      10.      14.      21.      27.      32.
                                    TIME        22.10    12.20    12.20    12.30    12.20    12.20    12.20    12.20

 HYDROGRAPH AT
+                  PRDP2   0.00   1   FLOW         0.       0.       1.       2.       2.       3.       4.       5.
                                    TIME        15.70    12.30    12.30    12.20    12.20    12.20    12.20    12.20

 HYDROGRAPH AT
+                  PRWS3   0.01   1   FLOW         0.       2.       4.       6.       8.      10.      13.      15.
                                    TIME        12.50    12.30    12.30    12.30    12.30    12.30    12.30    12.30

 DIVERSION TO
+                 TOIDW4   0.01   1   FLOW         0.       2.       2.       1.       1.       1.       0.       0.
                                    TIME        12.50    12.20    12.00    11.80    11.50    11.00    10.40    10.20

 HYDROGRAPH AT
+                  PRDP3   0.01   1   FLOW         0.       2.       4.       6.       8.      10.      13.      15.
                                    TIME         0.10    12.30    12.30    12.30    12.30    12.30    12.30    12.30

 HYDROGRAPH AT
+                 PRWS4A   0.00   1   FLOW         0.       1.       1.       1.       1.       2.       2.       2.
                                    TIME        12.10    12.10    12.10    12.10    12.10    12.10    12.10    12.10

 DIVERSION TO
+                 TOWQ4A   0.00   1   FLOW         0.       1.       1.       1.       1.       1.       1.       1.
                                    TIME        12.10    12.10    12.10    12.10    12.00    12.00    11.90    11.80

 HYDROGRAPH AT
+                 PRDP4A   0.00   1   FLOW         0.       0.       0.       1.       1.       2.       2.       2.
                                    TIME         0.10    21.10    13.50    12.30    12.20    12.10    12.10    12.10

 HYDROGRAPH AT
+                 PRWS4B   0.00   1   FLOW         1.       3.       4.       6.       7.       9.      11.      12.
                                    TIME        12.20    12.10    12.10    12.10    12.10    12.10    12.10    12.10

 HYDROGRAPH AT
+                 PRDP4D   0.01   1   FLOW         0.       2.       3.       5.       6.       8.      11.      12.
                                    TIME        12.40    12.30    12.30    12.30    12.30    12.20    12.20    12.20

  2 COMBINED AT
+                   SUM1   0.01   1   FLOW         1.       5.       7.      11.      13.      17.      21.      23.
                                    TIME        12.20    12.20    12.20    12.20    12.20    12.20    12.20    12.20

 ROUTED TO
+                 PRDP4B   0.01   1   FLOW         0.       0.       1.       3.       5.      10.      15.      17.
                                    TIME        23.90    20.80    14.80    12.70    12.50    12.40    12.40    12.40

                                ** PEAK STAGES IN FEET **
                                1   STAGE      551.65   554.85   555.18   555.57   555.84   556.33   556.73   556.89
                                    TIME        24.00    24.10    15.20    12.70    12.50    12.40    12.40    12.40

 HYDROGRAPH AT
+                 PRDP4C   0.00   1   FLOW         0.       2.       3.       4.       4.       6.       7.       8.
                                    TIME        12.30    12.20    12.20    12.20    12.20    12.20    12.20    12.20

 HYDROGRAPH AT
+                 PRWS4E   0.01   1   FLOW         0.       3.       4.       7.       9.      12.      15.      17.
                                    TIME        12.40    12.30    12.20    12.20    12.20    12.20    12.20    12.20

  4 COMBINED AT
```

```
+                 PRDP4      0.02     1   FLOW          0.       4.       7.      11.      14.      25.      35.      40.
                                          TIME        12.30    12.20    12.20    12.20    12.20    12.30    12.30    12.30

 HYDROGRAPH AT
+                 PRWS6      0.02     1   FLOW          1.      10.      15.      24.      29.      38.      48.      53.
                                          TIME        12.50    12.40    12.40    12.30    12.30    12.30    12.30    12.30

  4 COMBINED AT
+                 PRDP6      0.05     1   FLOW          1.      16.      26.      43.      52.      76.     100.     111.
                                          TIME        12.50    12.30    12.30    12.30    12.30    12.30    12.30    12.30

 HYDROGRAPH AT
+                PRWS5A      0.00     1   FLOW          0.       1.       1.       2.       2.       3.       4.       4.
                                          TIME        12.30    12.20    12.20    12.20    12.20    12.20    12.10    12.10

 HYDROGRAPH AT
+                PRDP5C      0.00     1   FLOW          0.       3.       4.       6.       7.      10.      12.      13.
                                          TIME        12.30    12.20    12.20    12.20    12.20    12.20    12.20    12.20

  2 COMBINED AT
+                  SUM2      0.01     1   FLOW          0.       4.       6.       8.      10.      13.      16.      17.
                                          TIME        12.30    12.20    12.20    12.20    12.20    12.20    12.20    12.20

 ROUTED TO
+                PRDP5A      0.01     1   FLOW          0.       0.       0.       1.       2.       5.       8.       9.
                                          TIME        24.00    23.30    16.90    13.30    12.80    12.60    12.50    12.50

                                     ** PEAK STAGES IN FEET **
                                     1   STAGE       551.32   553.14   553.62   553.86   554.05   554.48   554.85   555.02
                                          TIME        24.10    24.10    16.90    13.30    12.80    12.60    12.50    12.50

 HYDROGRAPH AT
+                PRWS5B      0.01     1   FLOW          0.       2.       3.       5.       6.       8.      11.      12.
                                          TIME        13.50    12.30    12.20    12.20    12.20    12.20    12.20    12.20

 DIVERSION TO
+                 TOIDW      0.01     1   FLOW          0.       2.       2.       1.       1.       1.       1.       1.
                                          TIME        13.50    12.30    12.10    12.00    11.90    11.50    11.10    10.90

 HYDROGRAPH AT
+                PRDP5B      0.01     1   FLOW          0.       1.       3.       5.       6.       8.      11.      12.
                                          TIME         0.10    12.50    12.30    12.20    12.20    12.20    12.20    12.20

 HYDROGRAPH AT
+                PRWS5D      0.00     1   FLOW          0.       0.       1.       1.       1.       1.       2.       2.
                                          TIME        12.20    12.10    12.10    12.10    12.10    12.10    12.10    12.10

  3 COMBINED AT
+                 PRDP5      0.01     1   FLOW          0.       1.       3.       6.       7.      10.      16.      19.
                                          TIME        12.20    12.50    12.30    12.20    12.20    12.30    12.30    12.30
1                                  SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION   PRDP4B
                                (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)


      PLAN  1 ..............                INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                ELEVATION         550.92             555.00          557.00
                                STORAGE              0.                 1.              1.
                                OUTFLOW              0.                 0.             19.


                             RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                               OF     RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                              PMF     W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                             0.17       551.65        0.00          0.         0.      0.00        24.00        0.00
                             0.37       554.85        0.00          0.         0.      0.00        24.10        0.00
                             0.47       555.18        0.00          1.         1.      0.00        15.20        0.00
                             0.60       555.57        0.00          1.         3.      0.00        12.70        0.00
                             0.67       555.84        0.00          1.         5.      0.00        12.50        0.00
                             0.80       556.33        0.00          1.        10.      0.00        12.40        0.00
                             0.93       556.73        0.00          1.        15.      0.00        12.40        0.00
                             1.00       556.89        0.00          1.        17.      0.00        12.40        0.00
1                                  SUMMARY OF DAM OVERTOPPING/BREACH ANALYSIS FOR STATION   PRDP5A
                                (PEAKS SHOWN ARE FOR INTERNAL TIME STEP USED  DURING BREACH FORMATION)


      PLAN  1 ..............                INITIAL VALUE     SPILLWAY CREST     TOP OF DAM
                                ELEVATION         550.92             553.50          555.00
                                STORAGE              0.                 0.              1.
                                OUTFLOW              0.                 0.              9.


                             RATIO     MAXIMUM      MAXIMUM    MAXIMUM    MAXIMUM    DURATION     TIME OF     TIME OF
                               OF     RESERVOIR      DEPTH     STORAGE    OUTFLOW    OVER TOP   MAX OUTFLOW   FAILURE
                              PMF     W.S.ELEV    OVER DAM     AC-FT       CFS       HOURS        HOURS       HOURS

                             0.17       551.32        0.00          0.         0.      0.00        24.10        0.00
                             0.37       553.14        0.00          0.         0.      0.00        24.10        0.00
```

0.47	553.62	0.00	1.	0.	0.00	16.90	0.00
0.60	553.86	0.00	1.	1.	0.00	13.30	0.00
0.67	554.05	0.00	1.	2.	0.00	12.80	0.00
0.80	554.48	0.00	1.	5.	0.00	12.60	0.00
0.93	554.85	0.00	1.	8.	0.00	12.50	0.00
1.00	555.02	0.02	1.	9.	0.20	12.50	0.00

*** NORMAL END OF HEC-1 ***



LOCATION MAP
N.T.S.

0 80 160
SCALE IN FEET

LEGEND

EXISTING	PROPOSED	
▨	▨	CATCH BASIN
⊖	●	DRAIN MANHOLE
○	●	SAN. SEWER MANHOLE
♂	♂	HYDRANT
⊠	⊠	DRAIN INLET
●	●	WATER VALVE
◡	◡	HEADWALL
	○	DRY WELL
	□	STREET LIGHT
	⊠	MONUMENT
	◆	WELL
	▭	S.D.A.
294	294	CONTOUR LINE
		WETLANDS FLAGGED BY TIM MILLER ASSOCIATES (2003–2004)

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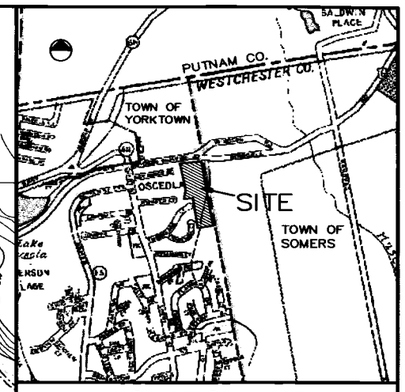
EXISTING DRAINAGE AREAS

PREPARED FOR
YORKTOWN FARMS
TOWN OF YORKTOWN
WESTCHESTER CO., N.Y.
NOVEMBER 10, 2004

SHEET OF SHEETS



LOCATION MAP
N.T.S.

0 80 160
SCALE IN FEET

LEGEND

EXISTING	PROPOSED	
		CATCH BASIN
		DRAIN MANHOLE
		SAN. SEWER MANHOLE
		HYDRANT
		DRAIN INLET
		WATER VALVE
		HEADWALL
		DRY WELL
		STREET LIGHT
		MONUMENT
		WELL
		S.D.A.
		CONTOUR LINE
		WETLANDS FLAGGED BY TIM MILLER ASSOCIATES (2003–2004)

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POST - DEVELOPMENT WATERSHED MAP

PREPARED FOR

YORKTOWN FARMS
TOWN OF YORKTOWN
WESTCHESTER CO., N.Y.
NOVEMBER 10, 2004

SHEET OF SHEETS