

542 KK AP9
 543 KM COMBINE ROUTED FLOW AT AP9 WITH FLOW FROM BASIN PS3. THIS IS THE TOTAL FLOW
 544 KM DETENTION FACILITY C FROM UNION BLVD AND UPSTREAM AREAS
 545 HC 2

 546 KK SB-PS10
 547 KM COMPUTE HYDROGRAPH FOR BASIN PS10
 548 BA .053
 549 LS 0 73.4
 550 UD .177

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

551 KK APDFC
 552 KM COMBINE FLOW AT AP-9 TO FLOW FROM SB-PS10 IN REGIONAL DETENTION FACILITY "C"
 553 KM THIS IS THE TOTAL INFLOW TO DETENTION FACILITY "C"
 554 HC 2

 555 KK RR-DFC
 556 KM ROUTE FLOW THRU REGIONAL DETENTION FACILITY C. ASSUME THE PLANNED 48" DIA
 557 KM OUTLET WITH THE INVERT AT EL 62. OUTLET Q ESTIMATED WITH BUREAU OF PUBLIC
 558 KM ROADS NOMOGRAPH FOR INLET CONTROL OF CULVERTS, SCALE 1.
 559 KO 3 1
 560 RS 1 STOR 0
 561 SV 0 1.1 7.7 16.9 26.9 37.7 49.2 61.5 74.5 88.4
 562 SE 63 64 66 68 70 72 74 76 78 80
 563 SQ 6 23 70 110 140 168 190 215 232 245

564 KK RT-DFC
 565 KM ROUTE OUTFLOW FROM POND "C" WEST DOWN A STORM DRAIN IN BRIARGATE PKWY.
 566 KM TO AP10 AT DETENTION FACILITY "B"
 567 RD 2400 .035 .013 CIRC 4

568 KK SB-PS11
 569 KM COMPUTE HYDROGRAPH FOR BASIN PS11
 570 BA .054
 571 LS 0 80.3
 572 UD .172

573 KK AP10
 574 KM COMBINE ROUTED FLOW RT-DFC TO FLOW FROM SB-PS11
 575 HC 2

576 KK SB-PS12
 577 KM COMPUTE HYDROGRAPH FOR BASIN PS12
 578 BA .153
 579 LS 0 69.0
 580 UD .233

581 KK APDFB
 582 KM COMBINE FLOW AT AP10 TO FLOW FROM BASIN PS12
 583 HC 2

584 KK RR-DFB
 585 KM ROUTE FLOW THROUGH REGIONAL DETENTION POND "B"
 586 KM VOLUME REFLECTS 11-99 AS-BUILT DATA
 587 KM DISCHARGE ASSUMES THE 54" DIA OUTLET SET AT INVERT ELEV. 69.9 IS RESTRICTED
 588 KM TO A 11.7 SF OPENING BY A STEEL PLATE COVERING THE TOP 1.4' OF THE PIPE
 589 KM DISCHARGE CALCULATED WITH THE ORIFICE EQUATION WITH HEAD CALCULATED TO
 590 KM THE CENTER OF THE OPENING AREA @ ELEVATION 71.68 DISCHARGE ABOVE 87.6
 591 KM INCLUDES FLOW OVER 80' LONG EMERGENCY SPILLWAY
 592 KO 3 1
 593 RS 1 STOR 0
 594 SV 0 0.06 0.66 2.51 5.08 8.05 11.42 15.22 19.49 23.24
 595 SV 24.76 29.96
 596 SE 70.6 72.0 74 76 78 80 82 84 86 87.6
 597 SE 88 90

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

598 SQ 0 20 86 117 142 163 181 198 213 225
 599 SQ 289 1133

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600      KK  RT-DFB
601      KM  ROUTE FLOW 1000 LF NORTHWEST IN A STORM DRAIN FROM DETENTION FACILITY "B"
602      KM  TO AP-11
603      RD   1000   .021   .013           CIRC   5.0

604      KK  SB-PS13
605      KM  COMPUTE HYDROGRAPH FOR BASIN PS13
606      BA   .065
607      LS    0   74.3
608      UD   .149

609      KK  AP11
610      KM  COMBINE ROUTED FLOW RT-DFB TO FLOW FROM BASIN PS13 AT AP11
611      HC    2

612      KK  RT-AP11
613      KM  ROUTE FLOW 600 LF NORTHWEST IN A STORM DRAIN FROM AP11 TO AP5A (THE
614      KM  CONFLUENCE OF FLOWS FROM THE NORTH AND SOUTH FORKS OF PINE CREEK)
615      RD   600   .021   .013           CIRC   5

616      KK  AP5A
617      KM  COMBINE ROUTED FLOW AP5 (FLOW FROM THE NORTH FORK OF PINE CREEK) TO ROUTED
618      KM  FLOW RT-AP11 (FLOW FROM THE SOUTH FORK OF PINE CREEK)
619      HC    2

620      KK  RT-AP5A
621      KM  ROUTE THE FLOW AT AP5A IN THE PLANNED 84" STORM SEWER TO PINE CREEK THE
622      KM  DOWN PINE CREEK MAIN CHANNEL TO AP12. USE AN APPROXIMATE AVERAGE CHANNEL
623      KM  SECTION AND SLOPE FOR ROUTING.
624      RD   300   .02   .013           CIRC   7.0
625      RD  1500   .023   .060          TRAP   50   2

626      KK  SB-PN13
627      KM  COMPUTE HYDROGRAPH FOR BASIN PN13
628      BA  0.045
629      LS    0   64.0
630      UD   .241

631      KK  RR-DFIR
632      KM  ROUTE FLOW FROM BASIN PN13 THRU THE EXISTING IRRIGATION POND AS A EXTENDED
633      KM  RELEASE DETENTION POND
634      KM  START STORAGE AT EL 6899.5, SURFACE AREA 55012 SF
635      KM  H.W.S.E. = 6902.0, SURFACE AREA 65,931 SF
636      KO    3    1
637      RS    1   STOR    0
638      SV    0   3.5    10
639      SE  899.5   902   903
640      SQ    0    1.0   2.0

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

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641      KK  SB-PM1
642      KM  COMPUTE HYDROGRAPH FOR BASIN PM1
643      BA   .054
644      LS    0   78.5
645      UD   .203

646      KK  RT-PM1
647      KM  ROUTE THE FLOW FROM BASIN PM1 1200 LF NORTH IN THE LEXINGTON DR. S.D. TO
648      KM  PINE CREEK MAIN CHANNEL THEN IN THE PINE CREEK CHANNEL TO AP12.
649      RD  1200   .08   .013           CIR   3.5
650      RD   400   .03   .060          TRAP   30   2

651      KK  SB-PM2
652      KM  COMPUTE HYDROGRAPH FOR BASIN PM2, AN AREA OF THE GOLF COURSE
653      BA   .187
654      LS    0   68.5
655      UD   .310

656      KK  SB-PM3
657      KM  COMPUTE HYDROGRAPH FOR BASIN PM3
658      BA   .058
659      LS    0   71.0
660      UD   .248

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661      KK      AP12
662      KM      COMBINE ROUTED FLOW RT-PM1 WITH THE ROUTED FLOW IN PINE CREEK MAIN CHANNEL
663      KM      AND THE FLOW FROM BASINS PM2, PM3, AND THE OUTFLOW FROM DFIR
664      KM      NOTE OUTFLOW FROM DFIR IS INSIGNIFICANT IN THE 100 YEAR DESIGN STORM
665      HC      5

666      KK RT-AP12
667      KM      ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL DOWN THE CHANNEL FROM AP12
668      KM      TO THE CROSSING AT CHAPEL HILLS DRIVE.
669      KM      USE AN APPROXIMATE AVERAGE CHANNEL SECTION AND SLOPE FOR ROUTING.
670      RD      1600      .018      .060      TRAP      30      2

671      KK SB-PM4
672      KM      COMPUTE HYDROGRAPH FOR BASIN PM4
673      BA      .111
674      LS      0      71.9
675      UD      .170

676      KK      AP13
677      KM      COMBINE FLOW FROM BASIN PM4 TO THE ROUTED FLOW RT-AP12 IN PINE CREEK MAIN
678      KM      CHANNEL ON THE EAST SIDE OF THE CHAPEL HILLS DRIVE CROSSING
679      HC      2
680      KM      *****
681      KM      *****BEGIN SOUTH CHAPEL HILLS DRIVE STORM DRAIN WATERSHED*****
682      KM      *****
                                HEC-1 INPUT

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

683      KK SB-CS1
684      KM      COMPUTE HYDROGRAPH FOR BASIN CS1
685      BA      .053
686      LS      0      73.8
687      UD      .181

688      KK RT-CS1
689      KM      ROUTE FLOW 1300 LF WEST IN DYNAMIC DR. ASSUME BULK OF FLOW IS ON THE SURFACE
690      RD      1300      .021      .013      TRAP      32      .01

691      KK SB-CS2
692      KM      COMPUTE HYDROGRAPH FOR BASIN CS2
693      BA      .070
694      LS      0      98.0
695      UD      .101

696      KKRR-DFCS2
697      KM      ROUTE FLOW THRU AN ASSUMED DETENTION FACILITY TO REFLECT DETENTION OF 1.6cfs
698      KM      /ACRE FROM THE LI/O PROPERTY AS ASSUMED IN THE MDDP FOR BRIARGATE BUSINESS
699      KM      CAMPUS. BECAUSE THE DISCHARGE CONFIGURATION IS UNKNOWN AT THIS TIME ASSUME
700      KM      THAT THE PEAK DISCHARGE RATE MAY BE DISCHARGED AS SOON AS IT IS AVAILABLE AT
701      KM      THE POND TO REFLECT POTENTIAL FREE DISCHARGE FROM A PORTION OF THE SUBBASIN
702      KM      DISCHARGE REDUCTION ASSUMED AT 1.6 cfs x 37ac=60 cfs
703      RS      1      STOR      0
704      SV      0      .001      6      10
705      SE      100      102      104      106
706      SQ      0      194      194      194

707      KK      AP14
708      KM      COMBINE ROUTED FLOW RT-CS1 TO CONTROLLED FLOW FROM BASIN CS2 AT THE
709      KM      INTERSECTION OF CHAPEL HILLS DR. AND DYNAMIC DR.
710      HC      2

711      KK RT-AP14
712      KM      ROUTE FLOW 1100 LF NORTH IN THE CHAPEL HILLS DR. S.D. TO BRIARGATE PKWY.
713      KM      NOTE: THE CALCULATED 100 YEAR FLOW IS IN EXCESS OF THE FULL PIPE CAPACITY
714      KM      OF THE STORM DRAIN BETWEEN DYNAMIC DRIVE AND BRIARGATE PARKWAY. SOME OF
715      KM      THE FLOW MAY BE ON THE SURFACE IN CHAPEL HILLS DRIVE.
716      RD      1100      .02      .013      CIR      4

717      KK SB-CS3
718      KM      COMPUTE HYDROGRAPH FOR BASIN CS3
719      BA      .051
720      LS      0      85.5
721      UD      .177

722      KKRR-DFCS3

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723 KM ROUTE FLOW THRU AN ASSUMED DETENTION FACILITY TO REFLECT DETENTION REDUCING
 724 KM THE PEAK 100YR FLOW RATE FROM THE 9 ACRES OF THE BASIN THAT ARE DESIGNATED
 725 KM AS LI/O USE AS ASSUMED IN MDDP FOR BRIARGATE BUSINESS CAMPUS.
 726 KM BECAUSE THE DISCHARGE CONFIGURATION IS UNKNOWN AT THIS TIME ASSUME
 727 KM THAT THE PEAK DISCHARGE RATE MAY BE DISCHARGED AS SOON AS IT IS AVAILABLE
 728 KM AT THE POND TO REFLECT FREE DISCHARGE FROM A PORTION OF THE SUB BASIN.
 729 KM DISCHARGE REDUCTION ASSUMED AT 1.6 cfs x 9=14 cfs

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

730 RS 1 STOR 0
 731 SV 0 .001 6 10
 732 SE 100 102 104 106
 733 SQ 0 123 123 123

734 KK AP15
 735 KM COMBINE ROUTED FLOW RT-AP14 WITH CONTROLLED FLOW FROM BASIN CS3 AT THE
 736 KM INTERSECTION OF CHAPEL HILLS DR. AND BRIARGATE PARKWAY. NOTE A SMALL PORTION
 737 KM OF BASIN CS3 IS LOCATED DOWNSTREAM OF THIS POINT. FOR THIS MODELING PURPOSE
 738 KM THIS IS CONSIDERED INSIGNIFICANT.
 739 HC 2

740 KK RT-AP15
 741 KM ROUTE FLOW 1400 LF NORTH IN THE CHAPEL HILLS DR. S.D.
 742 KM NOTE: THE CALCULATED 100 YEAR FLOW IS IN EXCESS OF THE FULL PIPE CAPACITY
 743 KM OF THE STORM DRAIN BETWEEN BRIARGATE PARKWAY AND PINE CREEK. SOME OF
 744 KM THE FLOW MAY BE ON THE SURFACE IN CHAPEL HILLS DRIVE. A SMALL PORTION OF
 745 KM THE SURFACE FLOW MAY BE DIVERTED DOWN BRIARGATE PARKWAY, BUT FOR THE PURPOS
 746 KM OF THIS ANALYSIS ALL OF THE FLOW FROM THE CHAPEL HILLS DRIVE/BRIARGATE PKY.
 747 KM INTERSECTION IS ASSUMED TO REACH PINE CREEK AT CHAPEL HILLS DRIVE.
 748 RD 1400 .045 .013 CIR 4.5

749 KK SB-CS4
 750 KM COMPUTE HYDROGRAPH FOR BASIN CS4
 751 BA .066
 752 LS 0 86.0
 753 UD .128

754 KK RR-DFVC
 755 KM ROUTE FLOW THRU THE PROPOSED VILLAGE CENTER DETENTION FACILITY
 756 KM POND VOLUME BASED ON 1/02 SURVEY
 757 KM DISCHARGE BASED ON 18" FES OUTLET WITH AN INVERT ELEV.=70.7
 758 KM BUREAU OF PUBLIC ROADS NOMOGRAPH USED TO ESTIMATE OUTFLOW RATES ASSUMING
 759 KM INLET CONTROL.
 760 RS 1 STOR 0
 761 SV 0 .01 0.68 2.11 3.72 5.70 6.8
 762 SE 70.7 72 74 76 78 80 81
 763 SQ 0 5 15 21 25 28 29

764 KK AP16
 765 KM COMBINE ROUTED FLOW RT-AP15 WITH THE DISCHARGE FROM THE VILLAGE CENTER POND
 766 HC 2

767 KK RT-AP16
 768 KM ROUTE THE FLOW IN THE CHAPEL HILLS DRIVE STORM DRAIN FROM AP16 TO AP19 IN
 769 KM PINE CREEK MAIN CHANNEL ON THE DOWNSTREAM SIDE OF THE CHAPEL HILLS DRIVE
 770 KM CROSSING
 771 RD 300 .03 .013 CIR 4.5
 772 KM *****
 773 KM ****BEGIN CALCULATION OF THE NORTH CHAPEL HILLS DR. STORM DRAIN WATERSHED***
 774 KM *****

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

775 KK SB-CN1
 776 KM COMPUTE RUNOFF FROM BASIN CN1 THE WATERSHED CONTRIBUTING TO THE PARK SITE AT
 777 KM CHAPEL HILLS DRIVE POND (REGIONAL DETENTION FACILITY "A").
 778 BA .11
 779 LS 0 78.4
 780 UD .190

781 KK RR-DFA
 782 KM ROUTE THE FLOW FROM CN1 THROUGH THE DETENTION POND AT THE PARK
 783 KM SITE AT CHAPEL HILLS DRIVE. STAGE STORAGE CURVE PER THE 12/22/97 GRADING PLAN

784 KM DISCHARGE CURVE REFLECTS 12" DIAMETER OUTLET PIPE CONTROL FOR NORMAL DISCHARG
 785 KM AND A 100' LONG EMERGENCY SPILLWAY SET AT ELEVATION 6805.5
 786 K0 3 1
 787 RS 1 STOR 0
 788 SV 0 .01 .22 .99 1.95 2.80 4.25 5.31 6.51 11.64
 789 SV 15.36
 790 SQ 2.35 2.54 3.00 3.73 4.35 4.75 5.36 5.50 8.39 9.01
 791 SQ 279
 792 SE 6796.6 6797.0 6798.0 6800.0 6802.0 6803.5 6803.51 6804 6804.1 6805.5
 793 SE 6806.5

 794 KK RT-DFA
 795 KM ROUTE OUTFLOW FROM REGIONAL DETENTION POND "A" DOWN THE CHAPEL HILLS STORM
 796 KM DRAIN FROM LEXINGTON DRIVE TO TREELAKE DRIVE
 797 RD 930 .04 .013 CIRC 1.5

 798 KK SB-CN2
 799 KM COMPUTE RUNOFF FROM BASIN CN2
 800 BA .078
 801 LS 0 75.5
 802 UD .214

 803 KK AP17
 804 KM COMBINE ROUTED FLOW RT-DFA AND FLOW FROM BASIN CN2 AT THE INTERSECTION OF
 805 KM CHAPEL HILLS DRIVE AND TREELAKE DRIVE
 806 HC 2

 807 KK RT-AP17
 808 KM ROUTE FLOW AT AP17 DOWN THE CHAPEL HILLS DRIVE STORM DRAIN TO MULLIGAN DR.
 809 RD 1400 .05 .013 CIRC 3.5

 810 KK SB-CN3
 811 KM COMPUTE RUNOFF FROM BASIN CN3
 812 BA .043
 813 LS 0 80.0
 814 UD .157

 815 KK AP18
 816 KM COMBINE ROUTED FLOW RT-AP17 TO FLOW FROM BASIN CN3 AT INTERSECTION OF CHAPEL
 817 KM HILLS DR. AND MULLIGAN DR.
 818 HC 2

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

 819 KK RT-AP18
 820 KM ROUTE FLOW AT AP18 DOWN THE CHAPEL HILLS DRIVE STORM DRAIN TO AP19 IN THE
 821 KM PINE CREEK MAIN CHANNEL ON THE DOWNSTREAM SIDE OF THE CHAPEL HILLS DRIVE
 822 KM CROSSING. NOTE A SMALL PORTION OF BASIN CN3 IS LOCATED SOUTH OF AP18. THIS
 823 KM IS CONSIDERED INSIGNIFICANT FOR THE PURPOSE OF THIS ANALYSIS.
 824 RD 600 .04 .013 CIRC 3.5

 825 KK AP19
 826 KM COMBINE ROUTED FLOW RT-AP18 FROM THE NORTH CHAPEL HILLS DR. STORM DRAIN
 827 KM WITH THE ROUTED FLOW RT-AP16 FROM THE SOUTH CHAPEL HILLS DRIVE STORM DRAIN
 828 KM AND THE FLOW IN PINE CREEK MAIN CHANNEL (AP13) AT THE WEST SIDE OF THE CHAPEL
 829 KM HILLS DRIVE CROSSING. FLOW THAT IS TAKEN INTO THE PINE CREEK CHANNEL FORM THE
 830 KM STREET AT THIS POINT HAS BEEN ACCOUNTED FOR IN BASINS CN3 AND CS3. THIS WAS
 831 KM DONE TO REDUCE THE COMPLEXITY OF THE MODEL.
 832 HC 3

 833 KK RT-AP19
 834 KM ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL FROM AP19 AT THE CHAPEL HILLS DRIVE
 835 KM CROSSING TO AP19A AT THE OUTFALL FROM THE SUB-BASIN PM6A, USE AVERAGE SLOPES
 836 KM AND APPROXIMATE CROSS SECTIONS FOR ROUTING.
 837 RD 550 .035 .060 TRAP 30 2
 838 RD 650 .025 .060 TRAP 120 2

 839 KK SB-PM6A
 840 KM COMPUTE HYDROGRAPH FOR BASIN PM6A
 841 BA .042
 842 LS 0 90.0
 843 UD .131

 844 KK AP19A
 845 KM COMBINE FLOW FROM BASIN PM6A WITH THE ROUTED FLOW IN PINE CREEK

846 HC 2

847 KKRT-AP19A

848 KM ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL FROM AP19A AT THE OUTFALL FROM

849 KM SUB-BASIN PM6A TO AP20 AT REGIONAL DETENTION FACILITY 1 AT BRIARGATE PARKWAY

850 KM AND HIGHWAY 83. USE AVERAGE SLOPES AND APPROXIMATE CROSS SECTIONS FOR ROUTING

851 RD 450 .025 .060 TRAP 120 2

852 RD 1400 .026 .060 TRAP 60 2

853 KK SB-PM5

854 KM COMPUTE HYDROGRAPH FOR BASIN PM5

855 BA .193

856 LS 0 70.5

857 UD .185

858 KK AP20

859 KM COMBINE FLOW FROM BASIN PM5 WITH THE ROUTED FLOW IN PINE CREEK

860 HC 2

HEC-1 INPUT

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

861 KK SB-PM6B

862 KM COMPUTE HYDROGRAPH FOR SUB-BASIN PM6B

863 KM NOTE: THE MDDP FOR BRIARGATE BUSINESS CAMPUS REQUIRES DETENTION IN THIS

864 KM SUBBASIN. FOR THE PURPOSE OF THIS ANALYSIS NO DETENTION IS ASSUMED TO ALLOW

865 KM THE DEVELOPER THE OPTION OF CONSTRUCTING LARGER CONVEYANCE FACILITIES TO

866 KM DETENTION FACILITY No. 1 AND ALLOWING FREE DISCHARGE FROM THE BASIN.

867 BA .036

868 LS 0 98.0

869 UD .115

870 KK AP21

871 KM COMBINE FLOW FROM PM6A WITH THE FLOW IN PINE CREEK AT AP21 FOR THE TOTAL FLOW

872 KM IN PINE CREEK CHANNEL AS IT ENTERS DETENTION FACILITY No 1

873 KO 0 1

874 HC 2

875 KK SB-PM7

876 KM COMPUTE HYDROGRAPH FOR BASIN PM7 THE AREA NORTH OF DETENTION FACILITY 1

877 KM NOTE: THE MDDP FOR THE BRIARGATE BUSINESS CAMPUS REQUIRES DETENTION IN

878 KM THE NON RESIDENTIAL PORTIONS OF THIS AREA. FOR THE PURPOSE OF THIS ANALYSIS

879 KM FREE DISCHARGE FROM THE BASIN IS ASSUMED. THE RESIDENTIAL PORTION OF THE

880 KM BASIN LOCATED IN OUTSIDE THE CITY LIMITS IS ASSUMED TO BE FULLY DEVELOPED

881 KM AS 1 DU PER ACRE RESIDENTIAL.

882 BA .138

883 LS 0 76.3

884 UD .353

885 KM *****

886 KM *****BEGIN CALCULATIONS FOR THE FOCUS ON THE FAMILY STORM DRAIN WATERSHED*****

887 KM *****

888 KK SB-F1

889 KM COMPUTE HYDROGRAPH FOR BASIN F1

890 BA .119

891 LS 0 78.3

892 UD .208

893 KK RT-F1

894 KM ROUTE FLOW IN THE STORM DRAIN 1300 LF WEST FROM THE SAG PT. IN LEXINGTON

895 KM DRIVE TO SUMMER FIELD POND

896 RD 1300 .036 .013 CIRC 3

897 KK SB-F2

898 KM COMPUTE HYDROGRAPH FOR BASIN F2

899 BA .039

900 LS 0 74.0

901 UD .171

902 KK AP-DFSF

903 KM COMBINE ROUTED FLOWS RT-F1 WITH FLOW FROM F2 AT THE SUMMER

904 KM FIELD POND. THIS IS THE TOTAL FLOW TO THE POND

905 HC 2

HEC-1 INPUT

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

906 KK RR-DFSF
 907 KM ROUTE THE FLOW AT AP-DFSF THROUGH THE SUMMER FIELD DETENTION BASIN.
 908 KM THE INFLOW/OUTFLOW S.D. FOR THIS FACILITY IS BURIED BELOW THE POND BOTTOM.
 909 KM THE POND FILLS WHEN THE CAPACITY OF THE DOWNSTREAM REACH OF S.D. IS
 910 KM EXCEEDED. THIS CONFIGURATION PRESENTS A COMPLEX HYDRAULIC PROBLEM. IT IS
 911 KM ASSUMED THAT UNTIL INFLOW >120cfs FLOW WILL PASS THROUGH THE STORM DRAIN.
 912 KM WHEN INFLOW > 120cfs BACKWATER WILL FORM AT THE OUTLET AND THE LID ON THE
 913 KM UPSTREAM MANHOLE WILL LIKELY BE LIFTED OFF AND SOME FLOW WILL ENTER THE POND
 914 KM FROM THAT POINT. WHEN INFLOW>120cfs IT IS ASSUMED THAT THE HEAD LOSS AT
 915 KM THE OUTLET WILL BE APPROXIMATELY 1*VELOCITY HEAD FOR THE PURPOSE OF
 916 KM CALCULATING THE DISCHARGE CURVE.
 917 KO 3 1
 918 RS 1 STOR 0
 919 SV 0 0.57 4.63 6.87 10.32
 920 SE 92 94 96 98 100
 921 SQ 80 126 131 137 144

922 KK RT-DFSF
 923 KM ROUTE OUTFLOW FROM THE DETENTION BASIN IN A 48" S.D. TO RESEARCH PKWY.
 924 RD 800 .018 .013 CIRC 4

925 KK SB-F3
 926 KM COMPUTE HYDROGRAPH FOR BASIN F3
 927 BA .114
 928 LS 0 77.0
 929 UD .215

930 KK AP22
 931 KM COMBINE ROUTED FLOW RT-DTSF TO FLOW FROM BASIN F3 AT THE INTERSECTION OF
 932 KM RESEARCH PARKWAY AND SUMMERSET DRIVE.
 933 HC 2

934 KKRT-AP22P
 935 KM ROUTE THE S.D.FLOW FROM THE BRIARGATE PKWY/ SUMMERSET INTERSECTION TO THE
 936 KM INTERSECTION OF RESEARCH PKWY. AND CHAPEL HILLS DR.
 937 RD 2100 .02 .013 CIRC 5

938 KK SB-F4
 939 KM COMPUTE HYDROGRAPH FOR BASIN F4
 940 BA .038
 941 LS 0 83.0
 942 UD .197

943 KK RR-DFF4
 944 KM ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
 945 KM RATE OF 1.6 CFS/ACRE FROM THE 11.5 AC THAT WILL BE DEVELOPED AS LI/O
 946 KM DISCHARGE REDUCTION PER ACRE IS DETERMINED PER THE RATE AND AREA INCLUDED
 947 KM IN THE MDDP FOR BRIARGATE BUSINESS CAMPUS
 948 KM THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
 949 KM THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE SITE WILL LIKELY
 950 KM FREE DISCHARGE TO THE ADJACENT STREET
 951 KM DISCHARGE REDUCTION = LI/O AREA (acres)11.5 x 1.6 cfs = 18.4 cfs
 952 RS 1 STOR 0
 953 SV 0 .001 6 10
 HEC-1 INPUT

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

954 SE 100 102 104 106
 955 SQ 0 70.6 70.6 70.6

956 KK AP23
 957 KM COMBINE ROUTED FLOW RT-AP22P TO FLOW FROM BASIN F4 AT THE INTERSECTION OF
 958 KM RESEARCH PARKWAY AND CHAPEL HILLS DR.
 959 HC 2
 960 KM KK AP23P
 961 KM DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY AT THE
 962 KM FIRST MANHOLE (MH8) DOWNSTREAM OF THE INTERSECTION OF RESEARCH PARKWAY AND
 963 KM CHAPEL HILLS DRIVE. THE MANHOLE IS LOCATED JUST UPSTREAM OF A PIPE SIZE
 964 KM REDUCTION FROM 54" TO 48" DIA.. IT IS ASSUMED THAT THE MH LID WILL BE PUSHED
 965 KM OFF BY THE HIGH HGL ABOVE THE TRANSITION AT THE ESTIMATED 100 YEAR PEAK
 966 KM FLOW RATE. DOWNSTREAM PIPE CAPACITY IS ESTIMATED AT 298 cfs BASED ON
 967 KM FULL PIPE CONVEYANCE CAPACITY OF 48" DIA RCP, SLOPE = 4.3%
 968 KM DT AP23S
 969 KM DI 298,300,325,350,375,400,425,450,470

970 KM DQ 0, 2, 27, 52, 77,102,127,152,172

971 KKRT-AP23P

972 KM ROUTE THE FLOW IN THE STORM DRAIN FROM THE RESEARCH PKWY/CHAPEL HILLS DR.

973 KM INTERSECTION TO THE INTERSECTION OF EXPLORER DRIVE AND THE FOCUS ON THE

974 KM FAMILY S.D.

975 RD 2100 .044 .013 CIRC 4

976 KM KK AP23S

977 KM RETRIEVE THE DIVERTED FLOW AT MH8 JUST DOWNSTREAM OF THE INTERSECTION OF

978 KM RESEARCH PARKWAY AND CHAPEL HILLS DRIVE. THIS IS SURFACE FLOW.

979 KM DR AP23S

980 KM KK RT-AP23S

981 KM ROUTE THE SURFACE FLOW AT MH8 ACCROSS THE FOCUS SITE TO EXPLORER DRIVE

982 KM ASSUME FLOW WILL BE SHALLOW AND WIDE THROUGH THE PARKING LOTS

983 KM RD 1550, .042, .015, ,TRAP,75,50

984 KK SB-F5

985 KM COMPUTE HYDROGRAPH FOR BASIN F5

986 BA .064

987 LS 0 89.0

988 UD .121

989 KK RR-DFF5

990 KM ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW

991 KM RATE BASED ON APPROXIMATELY 35% OF THE DIFFERENCE BETWEEN THE DEVELOPED

992 KM AND HISTORIC PEAK 100 YR FLOW RATE PER THE ORIGINAL DBPS CRITERIA FOR LI/O

993 KM LAND USE. HISTORIC 100 YR PEAK ESTIMATED AT 1.5 CFS/AC. FULLY DEVELOPED 100

994 KM YR PEAK ESTIMATED AT 4.9 CFS/AC. ESTIMATED REQUIRED DETENTION =

995 KM $(4.9-1.5)*.35*35AC=41cfs$ TOTAL Qin=199cfs

996 KM THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG

997 KM THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN DISCHARGES

998 KM DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN

999 RS 1 STOR 0

1000 SV 0 .001 6 10

1001 SE 100 102 104 106

1002 SQ 0 158 158 158

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

1003 KK AP24

1004 KM COMBINE THE ROUTED FLOW IN THE S.D.(RTAP23P) TO FLOW FROM FF1

1005 KM AT THE INTERSECTION OF EXPLORER DRIVE AND THE FOCUS ON THE FAMILY STORM DRAIN

1006 HC 2

1007 KM KK AP24P

1008 KM DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY AT THE

1009 KM INTERSECTION OF EXPLORER DRIVE AND TELSTAR DRIVE. DOWNSTREAM

1010 KM STORM DRAIN IS A 66" DIA RCP @ S=1.1%, FULL FLOW CAPACITY= 350cfs

1011 KM ASSUME THIS DIVERTED FLOW WILL GO WEST DOWN TELSTAR DRIVE

1012 KM DT AP24S

1013 KM DI 350,351,370,390,410,430,450,470,490

1014 KM DQ 0, 1, 20, 40, 60, 80,100,120,140

1015 KKRT-AP24P

1016 KM ROUTE THE FLOW IN THE FOCUS STORM DRAIN FROM AP24 AT THE INTERSECTION OF

1017 KM EXPLORER DRIVE AND THE FOCUS S.D. TO AP25 AT THE INTERSECTION OF EXPLORER

1018 KM DRIVE & BRIARGATE PKWY

1019 RD 800 .011 .013 CIRC 5.5

1020 KK SB-F6

1021 KM COMPUTE HYDROGRAPH FOR BASIN F6

1022 BA .038

1023 LS 0 93.5

1024 UD .106

1025 KK RR-DFF6

1026 KM ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW

1027 KM RATE BASED ON APPROXIMATELY 35% OF THE DIFFERENCE BETWEEN THE DEVELOPED

1028 KM AND HISTORIC PEAK 100 YR FLOW RATE. HISTORIC ESTIMATED AT 1.5 CFS/AC.

1029 KM FULLY DEVELOPED ESTIMATED AT 5.4 CFS/AC. ESTIMATED REQUIRED DETENTION =

1030 KM $(5.4-1.5)*.35*21.5AC=29cfs$ TOTAL Qin=131cfs

1031 KM THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG

1032 KM THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN DISCHARGES

1033 KM DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN

1034 RS 1 STOR 0

1035 SV 0 .001 6 10

1036	SE	100	102	104	106
1037	SQ	0	102	102	102

1038 KK SB-F7
 1039 KM COMPUTE HYDROGRAPH FOR BASIN F7
 1040 BA .052
 1041 LS 0 90.5
 1042 UD .137

1043 KK RR-DFF7
 1044 KM ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
 1045 KM RATE BASED ON APPROXIMATELY 35% OF THE DIFFERENCE BETWEEN THE DEVELOPED
 1046 KM AND HISTORIC PEAK 100 YR FLOW RATE. HISTORIC ESTIMATED AT 1.5 CFS/AC.
 1047 KM FULLY DEVELOPED ESTIMATED AT 4.9 CFS/AC. ESTIMATED REQUIRED DETENTION =
 1048 KM $(4.9-1.5)*.35*29AC=35cfs$ TOTAL Qin=164cfs
 1049 KM THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
 1050 KM THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN DISCHARGES
 1051 KM DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN

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

1052	RS	1	STOR	0						
1053	SV	0	.001	6	10					
1054	SE	100	102	104	106					
1055	SQ	0	129	129	129					

1056 KK AP25
 1057 KM COMBINE ROUTED FLOW RT-AP25P TO CONTROLLED FLOW FROM BASINS F6 AND F7
 1058 KM AT THE INTERSECTION OF EXPLORER DR AND BRIARGATE PKWY.
 1059 HC 3
 1060 KM KK AP25P
 1061 KM DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY AT THE
 1062 KM INTERSECTION OF EXPLORER DR. AND BRIARGATE PARKWAY. CONTROL APPEARS TO
 1063 KM BE DOWNSTREAM 54" DIA S.D. @ 5.5% SLOPE, FULL PIPE CAPACITY=461cfs
 1064 KM DIVERTED FLOW IS ASSUMED TO FLOW DOWN BRIARGATE PARKWAY TO THE SUMP
 1065 KM ADJACENT TO FACILITY #1
 1066 KM DT AP25S
 1067 KM DI 461,464,475,500,525,550,575,600,625
 1068 KM DQ 0, 1, 14, 39, 64, 89,114,139,164

1069 KKRT-AP25P
 1070 KM ROUTE THE FLOW IN THE S.D.FROM THE INTERSECTION OF EXPLORER DR. & BRIARGATE
 1071 KM PARKWAY TO DETENTION FACILITY 1 AT BRIARGATE PKWY & HIGHWAY 83
 1072 RD 1250 .011 .013 CIRC 5.5

1073 KK SB-PM8
 1074 KM COMPUTE HYDROGRAPH FOR BASIN PM8 THE PORTION OF BRIARGATE PARKWAY BETWEEN
 1075 KM EXPLORER DR. AND HIGHWAY 83
 1076 BA .014
 1077 LS 0 98.0
 1078 UD .100

1079 KK AP-DF#1
 1080 KM ADD THE FLOW FROM THE FOCUS ON THE FAMILY STORM DRAIN, BASINS PM7 AND PM8,
 1081 KM AND FLOW IN PINE CREEK FOR THE TOTAL INFLOW TO DETENTION FACILITY 1
 1082 HC 4

1083 KK RR-DF#1
 1084 KM MODEL STORAGE VOLUME BASED ON 2001 AREAL TOPOGRAPHY. OUTLET MODELED
 1085 KM ASSUMING THE TOP 7.5' OF THE ENTRANCE TO THE 10'R X 12'S HIGH BOX CULVERT IS
 1086 KM BLOCKED AND A NEW 12' WIDE OPENING IS CREATED W/ INVERT AT 67.2
 1087 KM OUTFLOW CURVE CALCULATED WITH A SPREADSHEET TREATING THE LOWER OPENING AS
 1088 KM A SUBMERGED ORIFICE WITH C=.60, h=POND DEPTH - NORMAL DEPTH IN THE OUTFALL
 1089 KM AND THE UPPER OPENING TO ELEVATION 73.0 TREATED AS A SHARP CRESTED WEIR WITH
 1090 KM A FULL LENGTH OF 12.77' (THE SKEW LENGTH) ADJUSTED 0.2h FOR END CONTRACTIONS
 1091 KM AND $C=3.22+0.40(h/P)$ WHERE P=14.2. ABOVE ELEVATION 73.0 THE TOP OUTLET
 1092 KM STRUCTURE IS ASSUMED TO TERMINATE WITHOUT A TOP AND THUS ADDITIONAL FLOW CAN
 1093 KM OVER TOP THE SIDES AND BACK OF THE ASSUMED 3 SIDED STRUCTURE 12.77 x 10
 1094 KO 3 1
 1095 RS 1 STOR 0
 1096 SA 0 0.01 0.02 3.78 4.60 4.95 5.25 5.55 5.85 6.17
 1097 SA 6.55 6.76 6.98 7.23 7.49
 1098 SE 54.0 55.0 56.0 58.0 60.0 62.0 64.0 66.0 68.0 70.0
 1099 SE 72.0 73.0 74.0 75.0 76.0
 1100 SQ 0 99 184 261 326 380 427 470 532 718
 1101 SQ 969 1112 1264 1750 2100

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1102      KM      SQ      0, 105 , 194, 275, 344, 401, 451, 496, 560, 747, 998, 1142, 12
1103      KM      SQ 1750, 2100
1104      KM      KK AP25S
1105      KM      RETRIEVE THE DIVERTED FLOW AT THE INTERSECTION OF BRIARGATE PARKWAY AND
1106      KM      EXPLORER DRIVE. THIS IS FLOW IN THE STREET.
1107      KM      DR AP25S
1108      KM      KK RT-AP25S
1109      KM      ROUTE THE SURFACE FLOW IN BRIARGATE PARKWAY DOWN BRIARGATE PARKWAY TO PINE
1110      KM      CREEK. ASSUME THIS FLOW ENTERS THE CHANNEL AT THE OUTLET FROM DETENTION
1111      KM      FACILITY #1.
1112      KM      RD 1400,.043,.015,,TRAP,75,.01
1113      KM      KK AP26
1114      KM      COMBINE ROUTED FLOW RT-AP25S TO THE OUTFLOW FROM DF#1 AT THE INTERSECTION OF
1115      KM      BRIARGATE PKWY. AND PINE CREEK
1116      KM      HC 2

1117      KK RT-AP26
1118      KM      ROUTE THE COMBINED FLOW FROM AP26 AT BRIARGATE PARKWAY DOWN PINE CREEK TO
1119      KM      AP-27 UPSTREAM OF THE INTERSECTION OF PINE CREEK AND HIGHWAY 83. USE AVERAGE
1120      KM      APPROXIMATE SECTION AND SLOPE FOR ROUTING
1121      RD      1450      .019      .060      TRAP      40      2

1122      KK SB-PM9
1123      KM      COMPUTE HYDROGRAPH FOR BASIN PM9
1124      BA      .068
1125      LS      0      83.5
1126      UD      .146

1127      KK AP27
1128      KM      COMBINE THE FLOW FROM BASIN PM9 AND THE ROUTED FLOW IN PINE CREEK (RT-AP26) A
1129      KM      AT THE UPSTREAM SIDE OF HIGHWAY 83.
1130      HC      2

1131      KK SB-PM10
1132      KM      COMPUTE HYDROGRAPH FOR BASIN PM10
1133      BA      .048
1134      LS      0      98.0
1135      UD      .12

1136      KKRRDFPM10
1137      KM      ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
1138      KM      RATE TO THE APPROXIMATE PEAK FLOW RATE DISCHARGE GOAL FROM THE BASIN
1139      KM      AS SHOWN IN THE FINAL DRAINAGE REPORT FOR BRIARGATE BUSINESS CAMPUS
1140      KM      FILING 13 AS APPROVED OCT 31, 1996
1141      KM      THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
1142      KM      THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN MAY DISCHARGE
1143      KM      DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN.
1144      KM      DISCHARGE FROM THE BASIN PER THE FINAL DRAINAGE REPORT=140 cfs
1145      RS      1      STOR      0
1146      SV      0      001      .6      1.5
1147      SE      100      102      104      106
1148      SQ      0      140      140      140

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HEC-1 INPUT

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1149      KK RT-PM10
1150      KM      ROUTE THE FLOW IN THE S.D.FROM THE LOW POINT IN TELESTAR DR. TO THE EXISTING
1151      KM      OUTFALL TO PINE CREEK JUST UPSTREAM OF HIGHWAY 83.
1152      RD      1000      .025      .013      CIRC      4.0

1153      KK SB-PM11
1154      KM      COMPUTE HYDROGRAPH FOR BASIN PM11
1155      BA      .042
1156      LS      0      98.0
1157      UD      .121
1158      KM      KK AP24S
1159      KM      RETRIEVE THE FLOW THAT WAS IN EXCESS OF THE STORM DRAIN CAPACITY AT THE
1160      KM      INTERSECTION OF EXPLORER DRIVE AND TELSTAR DRIVE.(AP24S)
1161      KM      DR AP24S
1162      KM      KK RT-AP24S
1163      KM      ROUTE THE RETRIEVED FLOW FROM AP24 DOWN TELSTAR DRIVE TO THE SUMP THEN

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1164 KM ACROSS BBC FILING 19 TO AP28 IN PINE CREEK.
 1165 KM RD 2200,.05,.015,,TRAP,40,01

 1166 KK AP28
 1167 KM COMBINE THE FLOW FROM BASIN PM11 WITH THE ROUTED SURFACE FLOW FROM THE
 1168 KM INTERSECTION OF TELSTAR DR. AND EXPLORER DRIVE (RT-AP24S), THE FLOW IN
 1169 KM PINE CREEK AT AP27, AND THE ROUTED FLOW FROM BASIN PM10.
 1170 KM FLOW IS COMBINED IN PINE CREEK AT THE UPSTREAM SIDE OF THE BOX CULVERT
 1171 KM UNDER HIGHWAY 83. THIS REPRESENTS THE TOTAL FLOW TO PINE CREEK FROM THE
 1172 KM BRIARGATE AREA
 1173 KO 3 1
 1174 HC 3
 1175 ZZ

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT LINE	(V) ROUTING	(--->) DIVERSION OR PUMP FLOW
NO.	(.) CONNECTOR	(<---) RETURN OF DIVERTED OR PUMPED FLOW
15	SB-PNE1	
	V	
	V	
32	RR-DFNE1	
	V	
	V	
42	RT-APNE1	
	.	
45	.	SB-PNE2
	.	V
	.	V
50	.	RR-DFNE2
	.	V
	.	V
60	.	RT-DFNE2
	.	.
	.	.
63	.	SB-PNE3
	.	.
	.	.
68	APE1.....	
	.	
80	.	-----> APE1a
72	APE1	
	V	
	V	
83	RT-APE1	
	.	
86	.	SB-PNE4
	.	.
	.	.
91	APE2.....	
	V	
	V	
95	RT-APE2	
	.	
	.	
101	.	<----- APE1a
99	.	DR-APE1a
	.	V
	.	V
102	.	RT-APE1a
	.	.
	.	.
106	.	SB-PNE5
	.	.
	.	.
111	.	APE3.....
	.	.
	.	.
115	APE3a.....	
	V	
	V	
119	RT-APE3a	

122	.	SB-PNE6	.
	.	V	.
	.	V	.
127	.	RR-DFNE6	.
	.	V	.
	.	V	.
137	.	RT-DFNE6	.
	.	.	.
140	.	.	SB-PNE7
	.	.	.
145	.	APE4a.....	.
	.	.	.
149	.	APE4.....	.
	.	.	.
159	.	----->	APE4a
152	.	APE4	.
	.	V	.
	.	V	.
162	.	RT-APE4	.
	.	.	.
165	.	SB-PNE8	.
	.	.	.
170	.	APE5.....	.
	.	V	.
	.	V	.
174	.	RT-APE5	.
	.	.	.
177	.	SB-PNE9	.
	.	.	.
182	.	APE6.....	.
	.	V	.
	.	V	.
185	.	RT-APE6	.
	.	.	.
190	.	.	<----- APE4a
188	.	APE4a	.
	.	V	.
	.	V	.
191	.	RT-APE4a	.
	.	.	.
195	.	.	SB-PNE10
	.	.	.
200	.	AP3a.....	.
	.	.	.
205	.	SB-PNE11	.
	.	V	.
	.	V	.
210	.	RT-PNE11	.
	.	.	.
213	.	.	SB-PNE12
	.	.	.
218	.	.	AP1.....
	.	V	.
	.	V	.
221	.	RT-AP1	.
	.	.	.
224	.	.	SB-PNE13
	.	.	V
	.	.	V
229	.	.	RT-PNE13

233	.	.	.	.	SB-PNE14

238	.	.	.	AP2a.....	.

241	.	.	AP2.....	.	.
	.	.	V	.	.
	.	.	V	.	.
244	.	.	RT-AP2	.	.

247	AP3.....	.	.	.	.

251	.	SB-PN7	.	.	.

256	.	.	SB-PN8	.	.

261	APDFF.....	.	.	.	.
	V	.	.	.	.
	V	.	.	.	.
265	RR-DFF	.	.	.	.
	V	.	.	.	.
	V	.	.	.	.
277	RT-DFF	.	.	.	.

281	.	SB-PN9	.	.	.

286	AP4.....	.	.	.	.
	V	.	.	.	.
	V	.	.	.	.
289	RT-AP4	.	.	.	.

294	.	SB-PN11	.	.	.

299	.	.	SB-PN12	.	.

304	APDFE.....	.	.	.	.
	V	.	.	.	.
	V	.	.	.	.
308	RR-DFE	.	.	.	.
	V	.	.	.	.
	V	.	.	.	.
320	RT-DFE	.	.	.	.

323	.	SB-PN15	.	.	.

328	AP5.....	.	.	.	.
	V	.	.	.	.
	V	.	.	.	.
331	RT-AP5	.	.	.	.

338	.	SB-PSE1	.	.	.
	.	V	.	.	.
	.	V	.	.	.
343	.	RT-PSE1	.	.	.

346	.	.	SB-PSE2	.	.

351	.	APE7.....	.	.	.
	.	V	.	.	.
	.	V	.	.	.

354	.	RT-APE7	.
357	.	.	SB-PSE3
362	.	APE8.....	.
365	.	.	SB-PSE4
	.	.	V
	.	.	V
370	.	RT-PSE4	.
373	.	.	SB-PSE5
378	.	APE9.....	.
	.	.	V
	.	.	V
381	.	RT-APE9	.
384	.	.	SB-PSE6
389	.	DFD1a.....	.
392	.	DFD1.....	.
	.	.	V
	.	.	V
396	.	RR-DFD1	.
	.	.	V
	.	.	V
408	.	RT-DFD1	.
411	.	SB-PSE7	.
416	.	.	SB-PSE8
	.	.	V
	.	.	V
421	.	RT-PSE8	.
425	.	.	SB-PSE9
430	.	DFD2.....	.
	.	.	V
	.	.	V
433	.	RR-DFD2	.
	.	.	V
	.	.	V
444	.	RT-DFD2	.
447	.	.	SBPSE10
452	.	APE10.....	.
456	.	AP6.....	.
	.	.	V
	.	.	V
460	.	RR-AP6	.
463	.	SB-PSE11	.
468	.	AP6A.....	.
	.	.	V

471	.	V	
	.	RT-AP6A	
474	.		SB-PS2
479	.	AP6B.....	
	.	V	
	.	V	
482	.	RT-AP6B	
486	.		SB-PS3
491	.		SB-PS4
496	.	AP7.....	
	.	V	
	.	V	
499	.	RT-AP7	
502	.		SB-PS5
507	.		SB-PS6
512	.	AP7A.....	
	.	V	
	.	V	
515	.	RT-AP7A	
518	.		SB-PS7
523	.		SB-PS8
528	.	AP8.....	
	.	V	
	.	V	
531	.	RT-AP8	
534	.		SB-PS9
	.		V
	.		V
539	.		RT-PS9
542	.	AP9.....	
546	.		SB-PS10
551	.	APDFC.....	
	.	V	
	.	V	
555	.	RR-DFC	
	.	V	
	.	V	
564	.	RT-DFC	
568	.		SB-PS11
573	.	AP10.....	
576	.		SB-PS12

581	.	.	.	.
	.	APDFB.....	.	.
	.	V	.	.
	.	V	.	.
584	.	RR-DFB	.	.
	.	V	.	.
	.	V	.	.
600	.	RT-DFB	.	.

604	.	.	SB-PS13	.

609	.	AP11.....	.	.
	.	V	.	.
	.	V	.	.
612	.	RT-AP11	.	.

616	.	AP5A.....	.	.
	.	V	.	.
	.	V	.	.
620	.	RT-AP5A	.	.

626	.	SB-PN13	.	.
	.	V	.	.
	.	V	.	.
631	.	RR-DFIR	.	.

641	.	.	SB-PM1	.
	.	.	V	.
	.	.	V	.
646	.	.	RT-PM1	.

651	.	.	.	SB-PM2

656	.	.	.	SB-PM3

661	.	AP12.....	.	.
	.	V	.	.
	.	V	.	.
666	.	RT-AP12	.	.

671	.	SB-PM4	.	.

676	.	AP13.....	.	.

683	.	SB-CS1	.	.
	.	V	.	.
	.	V	.	.
688	.	RT-CS1	.	.

691	.	.	SB-CS2	.
	.	.	V	.
	.	.	V	.
696	.	.	RR-DFCS2	.

707	.	AP14.....	.	.
	.	V	.	.
	.	V	.	.
711	.	RT-AP14	.	.

717	.	.	SB-CS3	.
	.	.	V	.
	.	.	V	.

722	.	.	RR-DFCS3
	.	.	.
	.	.	.
734	.	AP15.....	.
	.	V	.
	.	V	.
740	.	RT-AP15	.
	.	.	.
	.	.	.
749	.	.	SB-CS4
	.	.	V
	.	.	V
754	.	.	RR-DFVC
	.	.	.
	.	.	.
764	.	AP16.....	.
	.	V	.
	.	V	.
767	.	RT-AP16	.
	.	.	.
	.	.	.
775	.	.	SB-CN1
	.	.	V
	.	.	V
781	.	.	RR-DFA
	.	.	V
	.	.	V
794	.	.	RT-DFA
	.	.	.
	.	.	.
798	.	.	SB-CN2
	.	.	.
	.	.	.
803	.	.	AP17.....
	.	.	V
	.	.	V
807	.	.	RT-AP17
	.	.	.
	.	.	.
810	.	.	SB-CN3
	.	.	.
	.	.	.
815	.	.	AP18.....
	.	.	V
	.	.	V
819	.	.	RT-AP18
	.	.	.
	.	.	.
825	.	AP19.....	.
	.	V	.
	.	V	.
833	.	RT-AP19	.
	.	.	.
	.	.	.
839	.	SB-PM6A	.
	.	.	.
	.	.	.
844	.	AP19A.....	.
	.	V	.
	.	V	.
847	.	RT-AP19A	.
	.	.	.
	.	.	.
853	.	SB-PM5	.
	.	.	.
	.	.	.
858	.	AP20.....	.
	.	.	.
	.	.	.
861	.	SB-PM6B	.
	.	.	.
	.	.	.
870	.	AP21.....	.
	.	.	.
	.	.	.
875	.	SB-PM7	.
	.	.	.

888	.	.	SB-F1	
	.	.	V	
	.	.	V	
893	.	.	RT-F1	
	.	.	.	
897	.	.	.	SB-F2

902	.	.	AP-DFSF.....	
	.	.	V	
	.	.	V	
906	.	.	RR-DFSF	
	.	.	V	
	.	.	V	
922	.	.	RT-DFSF	
	.	.	.	
925	.	.	.	SB-F3

930	.	.	AP22.....	
	.	.	V	
	.	.	V	
934	.	.	RT-AP22P	
	.	.	.	
938	.	.	.	SB-F4
	.	.	.	V
	.	.	.	V
943	.	.	RR-DFF4	

956	.	.	AP23.....	
	.	.	V	
	.	.	V	
971	.	.	RT-AP23P	
	.	.	.	
984	.	.	.	SB-F5
	.	.	.	V
	.	.	.	V
989	.	.	RR-DFF5	

1003	.	.	AP24.....	
	.	.	V	
	.	.	V	
1015	.	.	RT-AP24P	
	.	.	.	
1020	.	.	.	SB-F6
	.	.	.	V
	.	.	.	V
1025	.	.	RR-DFF6	

1038	.	.	.	SB-F7
	.	.	.	V
	.	.	.	V
1043	.	.	RR-DFF7	

1056	.	.	AP25.....	
	.	.	V	
	.	.	V	
1069	.	.	RT-AP25P	
	.	.	.	
1073	.	.	.	SB-PM8

1079	AP-DF#1.....	.	.	
	V	.	.	
	V	.	.	
1083	RR-DF#1	.	.	

```

      V
      V
1117  RT-AP26
      .
1122      .      SB-PM9
      .
1127  AP27.....
      .
1131      .      SB-PM10
      .      V
      .      V
1136      .      RRDFPM10
      .      V
      .      V
1149      .      RT-PM10
      .
1153      .      .      SB-PM11
      .
1166  AP28.....

```

(***) RUNOFF ALSO COMPUTED AT THIS LOCATION
 HEC1 S/N: 1343000062 HMVersion: 6.33 Data File: PCDEV5.DAT

```

*****
*****
*
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1) *
*
* MAY 1991 *
*
* VERSION 4.0.1E *
*
*
* RUN DATE 09/24/2002 TIME 15:58:29 *
*
*
*****
*****

```

*
 * U.S. ARMY CORPS OF ENGINEERS
 * HYDROLOGIC ENGINEERING CENTER
 * 609 SECOND STREET
 * DAVIS, CALIFORNIA 95616
 * (916) 756-1104
 *

PINE CREEK DRAINAGE BASIN - 24HR, FULL DEVELOPED CONDITION (TYPE IIa5 YEAR)
 FULLY DEVELOPED CONDITION MODEL ASSUMING EXISTING AND PLANNED DEVELOPMENT
 WEST OF POWERS AND LAND USE AND MAJOR STREETS PER DECEMBER 2001 CONCEPT PLAN
 FOR CORDERA (JOHNSON RANCH) EAST OF POWERS
 THIS IS A MODIFIED VERSION OF THE DBPS AMENDMENT 2 MODEL. THE MODEL HAS BEEN
 REVISED IN AREAS THAT HAVE CHANGED SIGNIFICANTLY FROM THE AMENDMENT 2
 ASSUMPTIONS. OTHER AREAS HAVE NOT BEEN CHANGED
 CN VALUES HAVE BEEN ADJUSTED TO PRODUCE PEAK 100 YEAR FLOW RATES SIMILAR TO
 100 YEAR FLOW RATES PRODUCED BY RATIONAL METHOD.

 BEGIN CALCULATIONS IN THE PINE CREEK NORTH FORK WATERSHED

```

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

IT          HYDROGRAPH TIME DATA
            NMIN      3  MINUTES IN COMPUTATION INTERVAL
            IDATE      1  0  STARTING DATE
            ITIME      0000  STARTING TIME
            NQ         300  NUMBER OF HYDROGRAPH ORDINATES
            NDDATE     1  0  ENDING DATE
            NDTIME     1457  ENDING TIME

```

ICENT 19 CENTURY MARK

COMPUTATION INTERVAL 0.05 HOURS
TOTAL TIME BASE 14.95 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

* *
32 KK * RR-DFNE1 *
* *

37 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 1 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

38 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC 0.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

39 SV	STORAGE	0.0	0.0	0.7	1.5	2.7	4.0	5.6	7.5
40 SE	ELEVATION	49.00	50.00	52.00	54.00	56.00	58.00	60.00	62.00
41 SQ	DISCHARGE	0.	4.	35.	60.	81.	92.	103.	114.

*** *** *** *** ***

HYDROGRAPH AT STATION RR-DFNE1

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
59.	6.25	(CFS)	11.	5.	5.	5.
		(INCHES)	0.765	0.849	0.849	0.849
		(AC-FT)	6.	6.	6.	6.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	14.95-HR
1.	6.25		0.	0.	0.	0.
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	14.95-HR
53.95	6.25		50.44	49.73	49.73	49.73

CUMULATIVE AREA = 0.14 SQ MI


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*****
*
50 KK  * RR-DFNE2 *
*
*****

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55 KO      OUTPUT CONTROL VARIABLES
          IPRNT      3  PRINT CONTROL
          IPLOT      1  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

```

HYDROGRAPH ROUTING DATA

```

56 RS      STORAGE ROUTING
          NSTPS      1  NUMBER OF SUBREACHES
          ITYP      STOR  TYPE OF INITIAL CONDITION
          RSVRIC     0.00 INITIAL CONDITION
          X          0.00 WORKING R AND D COEFFICIENT

```

	STORAGE	0.0	0.0	1.1	2.5	4.2	6.1	8.4	11.1
57 SV	ELEVATION	21.00	22.00	24.00	26.00	28.00	30.00	32.00	34.00
58 SE	DISCHARGE	0.	5.	41.	85.	104.	121.	138.	155.

*** *** *** *** ***

HYDROGRAPH AT STATION RR-DFNE2

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
67.	6.30	(CFS)	14.	6.	6.	6.
		(INCHES)	0.741	0.823	0.823	0.823
		(AC-FT)	7.	8.	8.	8.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	14.95-HR
2.	6.30		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	14.95-HR
25.17	6.30		22.33	21.65	21.65	21.65

CUMULATIVE AREA = 0.17 SQ MI

*** **

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*****
*
127 KK * RR-DFNE6 *
*
*****

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```

132 KO      OUTPUT CONTROL VARIABLES
          IPRNT      3  PRINT CONTROL
          IPLOT      1  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

```

HYDROGRAPH ROUTING DATA

```

133 RS      STORAGE ROUTING
          NSTPS      1  NUMBER OF SUBREACHES

```

	ITYP	STOR	TYPE OF INITIAL CONDITION				
	RSVRIC	0.00	INITIAL CONDITION				
	X	0.00	WORKING R AND D COEFFICIENT				
134 SV	STORAGE	0.0	0.0	0.2	0.4	0.8	1.4
135 SE	ELEVATION	0.00	1.00	2.00	4.00	6.00	8.00
136 SQ	DISCHARGE	0.	3.	7.	11.	14.	16.

*** *** *** *** ***

HYDROGRAPH AT STATION RR-DFNE6

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
8.	6.25	(CFS)	2.	1.	1.	1.
		(INCHES)	0.839	0.926	0.926	0.926
		(AC-FT)	1.	1.	1.	1.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	14.95-HR
0.	6.25		0.	0.	0.	0.
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	14.95-HR
2.66	6.25		0.60	0.27	0.27	0.27

CUMULATIVE AREA = 0.02 SQ MI

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*****
*
265 KK *   RR-DF *
*       *       *
*****

```

272 KO OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	1	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

273 RS	STORAGE ROUTING										
	NSTPS	1	NUMBER OF SUBREACHES								
	ITYP	STOR	TYPE OF INITIAL CONDITION								
	RSVRIC	0.00	INITIAL CONDITION								
	X	0.00	WORKING R AND D COEFFICIENT								
274 SV	STORAGE	0.0	0.2	2.6	8.1	15.4	23.7	32.6	42.4	53.1	64.8
275 SE	ELEVATION	13.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	28.00	30.00
276 SQ	DISCHARGE	5.	30.	93.	122.	146.	166.	184.	201.	216.	230.

*** *** *** *** ***

HYDROGRAPH AT STATION RR-DF

PEAK FLOW	TIME		6-HR	24-HR	72-HR	14.95-HR
(CFS)	(HR)					
152.	6.75	(CFS)	87.	40.	40.	40.
		(INCHES)	0.881	1.017	1.017	1.017
		(AC-FT)	43.	50.	50.	50.

PEAK STORAGE	TIME		6-HR	24-HR	72-HR	14.95-HR
(AC-FT)	(HR)					
18.	6.75		7.	3.	3.	3.

PEAK STAGE	TIME		6-HR	24-HR	72-HR	14.95-HR
(FEET)	(HR)					
20.63	6.75		16.69	14.58	14.58	14.58

CUMULATIVE AREA = 0.92 SQ MI

*** **

308 KK *****
*
* RR-DFE *
*

315 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 1 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

316 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC 0.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

317 SV	STORAGE	0.0	0.3	2.0	4.9	8.3	12.0	16.1	20.6	25.5	30.9
318 SE	ELEVATION	784.00	786.00	788.00	790.00	792.00	794.00	796.00	798.00	800.00	802.00
319 SQ	DISCHARGE	0.	26.	80.	133.	173.	208.	238.	260.	278.	1441.

HYDROGRAPH AT STATION RR-DFE

PEAK FLOW	TIME		6-HR	24-HR	72-HR	14.95-HR
(CFS)	(HR)					
157.	7.50	(CFS)	104.	48.	48.	48.
		(INCHES)	0.799	0.916	0.916	0.916
		(AC-FT)	52.	59.	59.	59.

PEAK STORAGE	TIME		6-HR	24-HR	72-HR	14.95-HR
(AC-FT)	(HR)					
7.	7.50		4.	2.	2.	2.

PEAK STAGE	TIME		6-HR	24-HR	72-HR	14.95-HR
(FEET)	(HR)					

791.20 7.50 789.00 786.48 786.48 786.48

CUMULATIVE AREA = 1.21 SQ MI

*** **

396 KK RR-DFD1

404 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 1 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

403 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC 0.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

405 SV	STORAGE	0.0	1.3	2.9	5.2	8.9	14.1	20.9	29.5
406 SE	ELEVATION	100.00	102.00	104.00	106.00	108.00	110.00	112.00	114.00
407 SQ	DISCHARGE	0.	37.	53.	65.	75.	84.	92.	100.

*** **

HYDROGRAPH AT STATION RR-DFD1

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	6-HR	24-HR	72-HR	14.95-HR
64.	6.40	25.	11.	11.	11.
(INCHES)		0.721	0.801	0.801	0.801
(AC-FT)		12.	14.	14.	14.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	14.95-HR
5.	6.40	1.	1.	1.	1.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	14.95-HR
105.89	6.40	101.77	100.77	100.77	100.77

CUMULATIVE AREA = 0.32 SQ MI

*** **

433 KK RR-DFD2

440 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL

IPLOT 1 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

439 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC 0.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

441 SV	STORAGE	0.0	0.6	1.9	3.5	5.4	7.6	10.1
442 SE	ELEVATION	100.00	102.00	104.00	106.00	108.00	110.00	112.00
443 SQ	DISCHARGE	0.	26.	38.	46.	54.	60.	66.

HYDROGRAPH AT STATION RR-DFD2

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	6-HR	24-HR	72-HR	14.95-HR
45.	6.25	15.	6.	6.	6.
(INCHES)		1.376	1.507	1.507	1.507
(AC-FT)		7.	8.	8.	8.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	14.95-HR
3.	6.25	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	14.95-HR
105.67	6.25	101.47	100.63	100.63	100.63

CUMULATIVE AREA = 0.10 SQ MI

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*
555 KK * RR-DFC *
*

559 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 1 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

560 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC 0.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

561 SV	STORAGE	0.0	1.1	7.7	16.9	26.9	37.7	49.2	61.5	74.5	88.4
562 SE	ELEVATION	63.00	64.00	66.00	68.00	70.00	72.00	74.00	76.00	78.00	80.00
563 SQ	DISCHARGE	6.	23.	70.	110.	140.	168.	190.	215.	232.	245.

HYDROGRAPH AT STATION RR-DFC

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
156.	6.90	(CFS)	120.	59.	59.	59.
		(INCHES)	1.083	1.331	1.331	1.331
		(AC-FT)	59.	73.	73.	73.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	14.95-HR
33.	6.90		21.	9.	9.	9.
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	14.95-HR
71.16	6.90		68.83	65.72	65.72	65.72

CUMULATIVE AREA = 1.03 SQ MI

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*
584 KK * RR-DFB *
*

592 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 1 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

593 RS	STORAGE ROUTING		1	NUMBER OF SUBREACHES							
	NSTPS		STOR	TYPE OF INITIAL CONDITION							
	ITYP		0.00	INITIAL CONDITION							
	RSVRIC		0.00	WORKING R AND D COEFFICIENT							
	X										
594 SV	STORAGE	0.0	0.1	0.7	2.5	5.1	8.1	11.4	15.2	19.5	23.2
		24.8	30.0								
596 SE	ELEVATION	70.60	72.00	74.00	76.00	78.00	80.00	82.00	84.00	86.00	87.60
		88.00	90.00								
598 SQ	DISCHARGE	0.	20.	86.	117.	142.	163.	181.	198.	213.	225.
		289.	1133.								

HYDROGRAPH AT STATION RR-DFB

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
153.	8.15	(CFS)	131.	64.	64.	64.
		(INCHES)	0.986	1.205	1.205	1.205
		(AC-FT)	65.	79.	79.	79.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			

(AC-FT)	(HR)	6-HR	24-HR	72-HR	14.95-HR
7.	8.10	4.	2.	2.	2.
PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	14.95-HR
79.01	8.15	77.26	73.89	73.89	73.89

CUMULATIVE AREA = 1.24 SQ MI

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 631 KK * RR-DFIR *
 *

636 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 1 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

637 RS STORAGE ROUTING
 NSTPS 1 NUMBER OF SUBREACHES
 ITYP STOR TYPE OF INITIAL CONDITION
 RSVRIC 0.00 INITIAL CONDITION
 X 0.00 WORKING R AND D COEFFICIENT

638 SV STORAGE 0.0 3.5 10.0

639 SE ELEVATION 899.50 902.00 903.00

640 SQ DISCHARGE 0. 1. 2.

*** **

HYDROGRAPH AT STATION RR-DFIR

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	6-HR	24-HR	72-HR	14.95-HR
0.	14.95	(CFS)	0.	0.	0.
		(INCHES)	0.033	0.044	0.044
		(AC-FT)	0.	0.	0.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	14.95-HR
1.	14.90	1.	0.	0.	0.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	14.95-HR
899.94	14.95	899.90	899.71	899.71	899.71

CUMULATIVE AREA = 0.05 SQ MI

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*****
*           *
781 KK      *   RR-DFA   *
*           *
*****

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786 KO      OUTPUT CONTROL VARIABLES
              IPRNT      3  PRINT CONTROL
              IPLOT      1  PLOT CONTROL
              QSCAL      0.  HYDROGRAPH PLOT SCALE

```

HYDROGRAPH ROUTING DATA

```

787 RS      STORAGE ROUTING
              NSTPS      1  NUMBER OF SUBREACHES
              ITYP      STOR  TYPE OF INITIAL CONDITION
              RSVRIC     0.00 INITIAL CONDITION
              X          0.00 WORKING R AND D COEFFICIENT

```

		0.0	0.0	0.2	1.0	2.0	2.8	4.3	5.3	6.5	11.6
788 SV	STORAGE	0.0 15.4									
790 SQ	DISCHARGE	2. 279.	3.	3.	4.	4.	5.	5.	6.	8.	9.
792 SE	ELEVATION	6796.60 6806.50	6797.00	6798.00	6800.00	6802.00	6803.50	6803.51	6804.00	6804.10	6805.50

HYDROGRAPH AT STATION RR-DFA

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	14.95-HR
5.	7.70	5.	4.	4.	4.
(INCHES)		0.397	0.777	0.777	0.777
(AC-FT)		2.	5.	5.	5.

PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	14.95-HR
3.	7.90	3.	1.	1.	1.

PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	14.95-HR
6803.50	7.25	6803.20	6800.32	6800.32	6800.32

CUMULATIVE AREA = 0.11 SQ MI

*** **

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*****
*           *
870 KK      *   AP21   *
*           *
*****

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```

873 KO      OUTPUT CONTROL VARIABLES
              IPRNT      5  PRINT CONTROL
              IPLOT      1  PLOT CONTROL
              QSCAL      0.  HYDROGRAPH PLOT SCALE

```

*** **

```

*****
*
906 KK  *   RR-DFSF  *
*
*****

```

```

917 KO      OUTPUT CONTROL VARIABLES
          IPRNT      3  PRINT CONTROL
          IPLOT      1  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

```

HYDROGRAPH ROUTING DATA

```

918 RS      STORAGE ROUTING
          NSTPS      1  NUMBER OF SUBREACHES
          ITYP      STOR  TYPE OF INITIAL CONDITION
          RSVRIC     0.00 INITIAL CONDITION
          X          0.00 WORKING R AND D COEFFICIENT

```

	STORAGE	0.0	0.6	4.6	6.9	10.3
919 SV						
920 SE	ELEVATION	92.00	94.00	96.00	98.00	100.00
921 SQ	DISCHARGE	80.	126.	131.	137.	144.

*** *** *** *** ***

HYDROGRAPH AT STATION RR-DFSF

PEAK FLOW	TIME		6-HR	24-HR	72-HR	14.95-HR
(CFS)	(HR)					
92.	6.20	(CFS)	80.	80.	80.	80.
		(INCHES)	4.724	11.746	11.746	11.746
		(AC-FT)	40.	99.	99.	99.

PEAK STORAGE	TIME		6-HR	24-HR	72-HR	14.95-HR
(AC-FT)	(HR)					
0.	6.20		0.	0.	0.	0.

PEAK STAGE	TIME		6-HR	24-HR	72-HR	14.95-HR
(FEET)	(HR)					
92.50	6.20		92.01	92.00	92.00	92.00

CUMULATIVE AREA = 0.16 SQ MI

*** **

1083 KK

```

*****
*      *
*  RR-DF#1  *
*      *
*****

```

1094 KO

OUTPUT CONTROL VARIABLES

```

IPRNT      3  PRINT CONTROL
IPLOT      1  PLOT CONTROL
QSCAL      0.  HYDROGRAPH PLOT SCALE
SQ      0, 105 , 194, 275, 344, 401, 451, 496, 560, 747, 998, 1142, 12
SQ 1750, 2100
KK AP25S
RETRIEVE THE DIVERTED FLOW AT THE INTERSECTION OF BRIARGATE PARKWAY AND
EXPLORER DRIVE. THIS IS FLOW IN THE STREET.
DR AP25S
KK RT-AP25S
ROUTE THE SURFACE FLOW IN BRIARGATE PARKWAY DOWN BRIARGATE PARKWAY TO PINE
CREEK. ASSUME THIS FLOW ENTERS THE CHANNEL AT THE OUTLET FROM DETENTION
FACILITY #1.
RD 1400,.043,.015,,TRAP,75,.01
KK AP26
COMBINE ROUTED FLOW RT-AP25S TO THE OUTFLOW FROM DF#1 AT THE INTERSECTION OF
BRIARGATE PKWY. AND PINE CREEK
HC 2

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HYDROGRAPH ROUTING DATA

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1095 RS      STORAGE ROUTING
              NSTPS      1  NUMBER OF SUBREACHES
              ITYP      STOR TYPE OF INITIAL CONDITION
              RSVRIC     0.00 INITIAL CONDITION
              X          0.00 WORKING R AND D COEFFICIENT

1096 SA      AREA      0.0      0.0      0.0      3.8      4.6      4.9      5.3      5.6      5.8      6.2
              6.6      6.8      7.0      7.2      7.5

1098 SE      ELEVATION  54.00    55.00    56.00    58.00    60.00    62.00    64.00    66.00    68.00    70.00
              72.00    73.00    74.00    75.00    76.00

1100 SQ      DISCHARGE   0.      99.      184.      261.      326.      380.      427.      470.      532.      718.
              969.     1112.     1264.     1750.     2100.

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COMPUTED STORAGE-ELEVATION DATA

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STORAGE      0.00    0.00    0.02    2.73    11.10    20.65    30.85    41.65    53.04    65.06
ELEVATION    54.00    55.00    56.00    58.00    60.00    62.00    64.00    66.00    68.00    70.00

STORAGE      77.78    84.44    91.31    98.41    105.77
ELEVATION    72.00    73.00    74.00    75.00    76.00

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*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 184.
 THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
 THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

HYDROGRAPH AT STATION RR-DF#1

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PEAK FLOW    TIME      MAXIMUM AVERAGE FLOW
(CFS)        (HR)      6-HR      24-HR      72-HR      14.95-HR
463.         8.20      (CFS)
              430.      261.      261.      261.
              (INCHES) 0.910    1.374    1.374    1.374
              (AC-FT) 213.      322.      322.      322.

PEAK STORAGE TIME      MAXIMUM AVERAGE STORAGE
(AC-FT)       (HR)      6-HR      24-HR      72-HR      14.95-HR
40.           8.20      32.       14.       14.       14.

PEAK STAGE   TIME      MAXIMUM AVERAGE STAGE
(FEET)       (HR)      6-HR      24-HR      72-HR      14.95-HR
65.68        8.20      64.22    59.25    59.25    59.25

CUMULATIVE AREA = 4.40 SQ MI

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1166 KK  *      AP28  *
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1173 KO      OUTPUT CONTROL VARIABLES
              IPRNT      3  PRINT CONTROL
              IPLOT      1  PLOT CONTROL
              QSCAL      0. HYDROGRAPH PLOT SCALE

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1174 HC      HYDROGRAPH COMBINATION
              ICOMP      3  NUMBER OF HYDROGRAPHS TO COMBINE

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*** *** *** *** ***

HYDROGRAPH AT STATION AP28

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	14.95-HR
(CFS)	(HR)				
563.	6.05	(CFS)			
		451.	272.	272.	272.
		(INCHES)	0.920	1.385	1.385
		(AC-FT)	224.	336.	336.
CUMULATIVE AREA =		4.56 SQ MI			

5 YEAR, 24 HOUR, DEVELOPED
RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SB-PNE1	104.	6.10	11.	5.	5.	0.14		
ROUTED TO	RR-DFNE1	59.	6.25	11.	5.	5.	0.14	53.95	6.25
ROUTED TO	RT-APNE1	59.	6.25	11.	5.	5.	0.14		
HYDROGRAPH AT	SB-PNE2	120.	6.10	14.	6.	6.	0.17		
ROUTED TO	RR-DFNE2	67.	6.30	14.	6.	6.	0.17	25.17	6.30
ROUTED TO	RT-DFNE2	67.	6.30	14.	6.	6.	0.17		
HYDROGRAPH AT	SB-PNE3	18.	6.05	2.	1.	1.	0.01		
3 COMBINED AT	APE1	131.	6.25	27.	12.	12.	0.32		
DIVERSION TO	APE1a	0.	6.25	0.	0.	0.	0.32		
HYDROGRAPH AT	APE1	130.	6.25	26.	12.	12.	0.32		
ROUTED TO	RT-APE1	130.	6.30	26.	12.	12.	0.32		
HYDROGRAPH AT	SB-PNE4	60.	6.05	6.	3.	3.	0.08		
2 COMBINED AT	APE2	164.	6.15	33.	15.	15.	0.40		
ROUTED TO	RT-APE2	163.	6.15	33.	15.	15.	0.40		
HYDROGRAPH AT	DR-APE1a	0.	6.25	0.	0.	0.	0.00		
ROUTED TO	RT-APE1a	0.	6.80	0.	0.	0.	0.00		
HYDROGRAPH AT	SB-PNE5	5.	6.10	1.	0.	0.	0.02		
2 COMBINED AT	APE3	5.	6.10	1.	0.	0.	0.02		
2 COMBINED AT	APE3a	169.	6.15	33.	15.	15.	0.41		
ROUTED TO	RT-APE3a	168.	6.15	33.	15.	15.	0.41		
HYDROGRAPH AT	SB-PNE6	18.	6.05	2.	1.	1.	0.02		
ROUTED TO	RR-DFNE6	8.	6.25	2.	1.	1.	0.02	2.66	6.25

ROUTED TO	RT-DFNE6	8.	6.30	2.	1.	1.	0.02
HYDROGRAPH AT	SB-PNE7	71.	6.10	7.	3.	3.	0.10
2 COMBINED AT	APE4a	77.	6.10	9.	4.	4.	0.12
2 COMBINED AT	APE4	238.	6.10	42.	19.	19.	0.54
DIVERSION TO	APE4a	90.	6.10	5.	2.	2.	0.54
HYDROGRAPH AT	APE4	148.	6.10	38.	17.	17.	0.54
ROUTED TO	RT-APE4	148.	6.15	38.	17.	17.	0.54
HYDROGRAPH AT	SB-PNE8	40.	6.05	4.	2.	2.	0.04
2 COMBINED AT	APE5	185.	6.10	42.	19.	19.	0.58
ROUTED TO	RT-APE5	185.	6.10	42.	19.	19.	0.58
HYDROGRAPH AT	SB-PNE9	14.	6.00	1.	1.	1.	0.01
2 COMBINED AT	APE6	194.	6.10	43.	19.	19.	0.59
ROUTED TO	RT-APE6	194.	6.10	43.	19.	19.	0.59
HYDROGRAPH AT	APE4a	90.	6.10	5.	2.	2.	0.00
ROUTED TO	RT-APE4a	91.	6.20	5.	2.	2.	0.00
HYDROGRAPH AT	SB-PNE10	20.	6.15	3.	1.	1.	0.06
2 COMBINED AT	AP3a	110.	6.20	7.	3.	3.	0.06
HYDROGRAPH AT	SB-PNE11	144.	6.00	16.	7.	7.	0.07
ROUTED TO	RT-PNE11	143.	6.00	16.	7.	7.	0.07
HYDROGRAPH AT	SB-PNE12	54.	6.00	6.	3.	3.	0.03
2 COMBINED AT	AP1	198.	6.00	22.	9.	9.	0.10
ROUTED TO	RT-AP1	196.	6.00	22.	9.	9.	0.10
HYDROGRAPH AT	SB-PNE13	49.	6.05	5.	2.	2.	0.05
ROUTED TO	RT-PNE13	48.	6.10	5.	2.	2.	0.05
HYDROGRAPH AT	SB-PNE14	16.	6.05	1.	1.	1.	0.02
2 COMBINED AT							

	AP2a	63.	6.05	6.	3.	3.	0.07		
2 COMBINED AT	AP2	255.	6.05	28.	12.	12.	0.17		
ROUTED TO	RT-AP2	255.	6.05	28.	12.	12.	0.17		
3 COMBINED AT	AP3	470.	6.15	77.	35.	35.	0.81		
HYDROGRAPH AT	SB-PN7	40.	6.10	4.	2.	2.	0.07		
HYDROGRAPH AT	SB-PN8	54.	6.00	5.	2.	2.	0.04		
3 COMBINED AT	APDFF	553.	6.05	87.	39.	39.	0.92		
ROUTED TO	RR-DFF	152.	6.75	87.	40.	40.	0.92	20.63	6.75
ROUTED TO	RT-DFF	152.	6.85	87.	40.	40.	0.92		
HYDROGRAPH AT	SB-PN9	44.	6.15	5.	2.	2.	0.11		
2 COMBINED AT	AP4	166.	6.25	93.	43.	43.	1.03		
ROUTED TO	RT-AP4	166.	6.30	92.	43.	43.	1.03		
HYDROGRAPH AT	SB-PN11	67.	6.10	7.	3.	3.	0.08		
HYDROGRAPH AT	SB-PN12	42.	6.15	5.	2.	2.	0.10		
3 COMBINED AT	APDFE	254.	6.15	105.	48.	48.	1.21		
ROUTED TO	RR-DFE	157.	7.50	104.	48.	48.	1.21	791.20	7.50
ROUTED TO	RT-DFE	157.	7.55	104.	48.	48.	1.21		
HYDROGRAPH AT	SB-PN15	37.	6.10	4.	2.	2.	0.07		
2 COMBINED AT	AP5	159.	7.50	108.	50.	50.	1.28		
ROUTED TO	RT-AP5	159.	7.50	108.	50.	50.	1.28		
HYDROGRAPH AT	SB-PSE1	20.	6.10	2.	1.	1.	0.03		
ROUTED TO	RT-PSE1	20.	6.10	2.	1.	1.	0.03		
HYDROGRAPH AT	SB-PSE2	21.	6.10	2.	1.	1.	0.03		
2 COMBINED AT	APE7	41.	6.10	4.	2.	2.	0.06		
ROUTED TO	RT-APE7	40.	6.10	4.	2.	2.	0.06		
HYDROGRAPH AT									

	SB-PSE3	68.	6.05	7.	3.	3.	0.08		
2 COMBINED AT	APE8	107.	6.10	12.	5.	5.	0.14		
HYDROGRAPH AT	SB-PSE4	48.	6.10	5.	2.	2.	0.08		
ROUTED TO	RT-PSE4	48.	6.10	5.	2.	2.	0.08		
HYDROGRAPH AT	SB-PSE5	33.	6.10	4.	2.	2.	0.05		
2 COMBINED AT	APE9	81.	6.10	9.	4.	4.	0.12		
ROUTED TO	RT-APE9	79.	6.10	9.	4.	4.	0.12		
HYDROGRAPH AT	SB-PSE6	42.	6.10	5.	2.	2.	0.05		
2 COMBINED AT	DFD1a	121.	6.10	13.	6.	6.	0.18		
2 COMBINED AT	DFD1	229.	6.10	25.	11.	11.	0.32		
ROUTED TO	RR-DFD1	64.	6.40	25.	11.	11.	0.32	105.89	6.40
ROUTED TO	RT-DFD1	64.	6.45	25.	11.	11.	0.32		
HYDROGRAPH AT	SB-PSE7	118.	6.00	13.	6.	6.	0.06		
HYDROGRAPH AT	SB-PSE8	52.	6.05	5.	2.	2.	0.06		
ROUTED TO	RT-PSE8	52.	6.10	5.	2.	2.	0.06		
HYDROGRAPH AT	SB-PSE9	86.	6.00	9.	4.	4.	0.04		
2 COMBINED AT	DFD2	131.	6.00	15.	6.	6.	0.10		
ROUTED TO	RR-DFD2	45.	6.25	15.	6.	6.	0.10	105.67	6.25
ROUTED TO	RT-DFD2	45.	6.25	15.	6.	6.	0.10		
HYDROGRAPH AT	SBPSE10	38.	6.05	4.	2.	2.	0.04		
2 COMBINED AT	APE10	80.	6.10	19.	8.	8.	0.13		
3 COMBINED AT	AP6	236.	6.05	56.	25.	25.	0.51		
ROUTED TO	RR-AP6	235.	6.05	56.	25.	25.	0.51		
HYDROGRAPH AT	SB-PSE11	26.	6.10	3.	1.	1.	0.03		
2 COMBINED AT	AP6A	260.	6.05	59.	26.	26.	0.54		
ROUTED TO									

	RT-AP6A	258.	6.05	59.	26.	26.	0.54
HYDROGRAPH AT	SB-PS2	35.	6.05	4.	2.	2.	0.02
2 COMBINED AT	AP6B	293.	6.05	62.	28.	28.	0.57
ROUTED TO	RT-AP6B	290.	6.05	62.	28.	28.	0.57
HYDROGRAPH AT	SB-PS3	146.	6.00	16.	7.	7.	0.07
HYDROGRAPH AT	SB-PS4	48.	6.10	5.	2.	2.	0.06
3 COMBINED AT	AP7	476.	6.05	83.	37.	37.	0.70
ROUTED TO	RT-AP7	474.	6.05	83.	37.	37.	0.70
HYDROGRAPH AT	SB-PS5	60.	6.00	6.	3.	3.	0.03
HYDROGRAPH AT	SB-PS6	110.	6.00	12.	5.	5.	0.05
3 COMBINED AT	AP7A	637.	6.05	102.	45.	45.	0.78
ROUTED TO	RT-AP7A	636.	6.05	102.	45.	45.	0.78
HYDROGRAPH AT	SB-PS7	65.	6.00	7.	3.	3.	0.03
HYDROGRAPH AT	SB-PS8	118.	6.05	12.	5.	5.	0.11
3 COMBINED AT	AP8	815.	6.05	121.	53.	53.	0.92
ROUTED TO	RT-AP8	814.	6.05	121.	53.	53.	0.92
HYDROGRAPH AT	SB-PS9	87.	6.00	9.	4.	4.	0.05
ROUTED TO	RT-PS9	86.	6.05	9.	4.	4.	0.05
2 COMBINED AT	AP9	900.	6.05	130.	57.	57.	0.98
HYDROGRAPH AT	SB-PS10	30.	6.10	3.	1.	1.	0.05
2 COMBINED AT	APDFC	929.	6.05	133.	59.	59.	1.03
ROUTED TO	RR-DFC	156.	6.90	120.	59.	59.	1.03
ROUTED TO	RT-DFC	156.	6.90	120.	59.	59.	1.03
HYDROGRAPH AT	SB-PS11	49.	6.05	5.	2.	2.	0.05
2 COMBINED AT	AP10	175.	6.15	125.	61.	61.	1.08
HYDROGRAPH AT	SB-PS12	52.	6.15	7.	3.	3.	0.15

71.16

6.90

2 COMBINED AT	APDFB	227.	6.15	131.	64.	64.	1.24		
ROUTED TO	RR-DFB	153.	8.15	131.	64.	64.	1.24	79.01	8.15
ROUTED TO	RT-DFB	153.	8.15	131.	64.	64.	1.24		
HYDROGRAPH AT	SB-PS13	43.	6.05	4.	2.	2.	0.06		
2 COMBINED AT	AP11	155.	8.05	135.	66.	66.	1.30		
ROUTED TO	RT-AP11	155.	8.05	135.	66.	66.	1.30		
2 COMBINED AT	AP5A	313.	7.75	243.	116.	116.	2.58		
ROUTED TO	RT-AP5A	313.	7.80	243.	115.	115.	2.58		
HYDROGRAPH AT	SB-PN13	8.	6.20	1.	1.	1.	0.05		
ROUTED TO	RR-DFIR	0.	14.95	0.	0.	0.	0.05	899.94	14.95
HYDROGRAPH AT	SB-PM1	41.	6.10	5.	2.	2.	0.05		
ROUTED TO	RT-PM1	40.	6.15	5.	2.	2.	0.05		
HYDROGRAPH AT	SB-PM2	49.	6.25	8.	4.	4.	0.19		
HYDROGRAPH AT	SB-PM3	23.	6.15	3.	1.	1.	0.06		
5 COMBINED AT	AP12	372.	6.20	258.	122.	122.	2.93		
ROUTED TO	RT-AP12	374.	6.30	258.	122.	122.	2.93		
HYDROGRAPH AT	SB-PM4	57.	6.10	6.	3.	3.	0.11		
2 COMBINED AT	AP13	399.	6.25	263.	125.	125.	3.04		
HYDROGRAPH AT	SB-CS1	31.	6.10	3.	1.	1.	0.05		
ROUTED TO	RT-CS1	30.	6.15	3.	1.	1.	0.05		
HYDROGRAPH AT	SB-CS2	149.	6.00	16.	7.	7.	0.07		
ROUTED TO	RR-DFCS2	149.	6.00	16.	7.	7.	0.07	101.53	6.00
2 COMBINED AT	AP14	167.	6.00	20.	9.	9.	0.12		
ROUTED TO	RT-AP14	166.	6.00	20.	9.	9.	0.12		
HYDROGRAPH AT									

	SB-CS3	61.	6.05	6.	3.	3.	0.05		
ROUTED TO	RR-DFCS3	61.	6.05	6.	3.	3.	0.05	100.99	6.05
2 COMBINED AT	AP15	224.	6.05	26.	11.	11.	0.17		
ROUTED TO	RT-AP15	223.	6.05	26.	11.	11.	0.17		
HYDROGRAPH AT	SB-CS4	88.	6.05	9.	4.	4.	0.07		
ROUTED TO	RR-DFVC	21.	6.30	9.	4.	4.	0.07	75.96	6.30
2 COMBINED AT	AP16	242.	6.05	35.	15.	15.	0.24		
ROUTED TO	RT-AP16	242.	6.05	35.	15.	15.	0.24		
HYDROGRAPH AT	SB-CN1	86.	6.10	9.	4.	4.	0.11		
ROUTED TO	RR-DFA	5.	7.70	5.	4.	4.	0.11	6803.50	7.25
ROUTED TO	RT-DFA	5.	8.05	5.	4.	4.	0.11		
HYDROGRAPH AT	SB-CN2	47.	6.10	5.	2.	2.	0.08		
2 COMBINED AT	AP17	51.	6.10	10.	6.	6.	0.19		
ROUTED TO	RT-AP17	50.	6.15	10.	6.	6.	0.19		
HYDROGRAPH AT	SB-CN3	40.	6.05	4.	2.	2.	0.04		
2 COMBINED AT	AP18	88.	6.10	14.	8.	8.	0.23		
ROUTED TO	RT-AP18	87.	6.10	14.	8.	8.	0.23		
3 COMBINED AT	AP19	609.	6.15	306.	148.	148.	3.51		
ROUTED TO	RT-AP19	601.	6.20	306.	147.	147.	3.51		
HYDROGRAPH AT	SB-PM6A	67.	6.00	7.	3.	3.	0.04		
2 COMBINED AT	AP19A	641.	6.15	313.	150.	150.	3.55		
ROUTED TO	RT-AP19A	645.	6.20	313.	150.	150.	3.55		
HYDROGRAPH AT	SB-PM5	86.	6.10	9.	4.	4.	0.19		
2 COMBINED AT	AP20	712.	6.20	322.	154.	154.	3.75		
HYDROGRAPH AT	SB-PM6B	76.	6.00	8.	4.	4.	0.04		

2 COMBINED AT	AP21	735.	6.20	329.	158.	158.	3.78		
HYDROGRAPH AT	SB-PM7	66.	6.25	10.	5.	5.	0.14		
HYDROGRAPH AT	SB-F1	89.	6.10	10.	4.	4.	0.12		
ROUTED TO	RT-F1	87.	6.10	10.	4.	4.	0.12		
HYDROGRAPH AT	SB-F2	24.	6.10	2.	1.	1.	0.04		
2 COMBINED AT	AP-DFSF	110.	6.10	12.	6.	6.	0.16		
ROUTED TO	RR-DFSF	92.	6.20	80.	80.	80.	0.16	92.50	6.20
ROUTED TO	RT-DFSF	91.	6.20	80.	80.	80.	0.16		
HYDROGRAPH AT	SB-F3	76.	6.10	9.	4.	4.	0.11		
2 COMBINED AT	AP22	161.	6.15	89.	84.	84.	0.27		
ROUTED TO	RT-AP22P	159.	6.20	89.	84.	84.	0.27		
HYDROGRAPH AT	SB-F4	38.	6.10	4.	2.	2.	0.04		
ROUTED TO	RR-DFF4	38.	6.10	4.	2.	2.	0.04	101.09	6.10
2 COMBINED AT	AP23	194.	6.15	93.	86.	86.	0.31		
ROUTED TO	RT-AP23P	193.	6.15	93.	86.	86.	0.31		
HYDROGRAPH AT	SB-F5	99.	6.00	10.	4.	4.	0.06		
ROUTED TO	RR-DFF5	99.	6.00	10.	4.	4.	0.06	101.25	6.00
2 COMBINED AT	AP24	274.	6.05	103.	90.	90.	0.37		
ROUTED TO	RT-AP24P	270.	6.05	103.	90.	90.	0.37		
HYDROGRAPH AT	SB-F6	72.	6.00	7.	3.	3.	0.04		
ROUTED TO	RR-DFF6	72.	6.00	7.	3.	3.	0.04	101.40	6.00
HYDROGRAPH AT	SB-F7	83.	6.05	9.	4.	4.	0.05		
ROUTED TO	RR-DFF7	84.	6.05	9.	4.	4.	0.05	101.29	6.05
3 COMBINED AT	AP25	421.	6.05	119.	97.	97.	0.46		

ROUTED TO	RT-AP25P	417.	6.05	119.	97.	97.	0.46		
HYDROGRAPH AT	SB-PM8	30.	6.00	3.	1.	1.	0.01		
4 COMBINED AT	AP-DF#1	1153.	6.15	460.	261.	261.	4.40		
ROUTED TO	RR-DF#1	463.	8.20	430.	261.	261.	4.40	65.68	8.20
ROUTED TO	RT-AP26	463.	8.25	430.	260.	260.	4.40		
HYDROGRAPH AT	SB-PM9	78.	6.05	8.	3.	3.	0.07		
2 COMBINED AT	AP27	466.	8.05	435.	263.	263.	4.47		
HYDROGRAPH AT	SB-PM10	101.	6.00	11.	5.	5.	0.05		
ROUTED TO	RRDFPM10	97.	6.05	11.	5.	5.	0.05	101.39	6.05
ROUTED TO	RT-PM10	97.	6.05	11.	5.	5.	0.05		
HYDROGRAPH AT	SB-PM11	88.	6.00	10.	4.	4.	0.04		
3 COMBINED AT	AP28	563.	6.05	451.	272.	272.	4.56		

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT	PEAK	TIME TO PEAK	VOLUME	DT	INTERPOLATED TO COMPUTATION INTERVAL		VOLUME
							PEAK	TIME TO PEAK	
		(MIN)	(CFS)	(MIN)	(IN)	(MIN)	(CFS)	(MIN)	(IN)
RT-APNE1	MANE	0.51	59.27	375.71	0.85	3.00	59.14	375.00	0.85

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6114E+01 EXCESS=0.0000E+00 OUTFLOW=0.6117E+01 BASIN STORAGE=-.2360E-02 PERCENT ERROR= 0.0

RT-DFNE2	MANE	0.12	66.65	378.10	0.82	3.00	66.63	378.00	0.82
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7510E+01 EXCESS=0.0000E+00 OUTFLOW=0.7511E+01 BASIN STORAGE=-.7001E-03 PERCENT ERROR= 0.0

RT-APE1	MANE	1.74	130.00	375.68	0.86	3.00	129.83	378.00	0.86
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1460E+02 EXCESS=0.0000E+00 OUTFLOW=0.1462E+02 BASIN STORAGE=-.1693E-01 PERCENT ERROR= 0.0

RT-APE2	MANE	0.51	163.76	369.45	0.85	3.00	163.31	369.00	0.85
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1795E+02 EXCESS=0.0000E+00 OUTFLOW=0.1795E+02 BASIN STORAGE=-.3861E-02 PERCENT ERROR= 0.0

RT-APE1a	MANE	0.15	0.32	406.80	-1.00	3.00	0.26	408.00	-1.00
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RT-APE3a	MANE	0.25	168.49	369.33	0.83	3.00	168.14	369.00	0.83
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1833E+02 EXCESS=0.0000E+00 OUTFLOW=0.1833E+02 BASIN STORAGE=-.1767E-02 PERCENT ERROR= 0.0

RT-DFNE6	MANE	2.10	7.96	378.00	0.92	3.00	7.96	378.00	0.92
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9880E+00 EXCESS=0.0000E+00 OUTFLOW=0.9854E+00 BASIN STORAGE=0.3079E-02 PERCENT ERROR= -0.1

RT-APE4	MANE	1.20	148.09	368.40	0.74	3.00	148.02	369.00	0.74
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2103E+02 EXCESS=0.0000E+00 OUTFLOW=0.2104E+02 BASIN STORAGE=-.5347E-02 PERCENT ERROR= 0.0

RT-APE5	MANE	0.84	184.87	367.01	0.75	3.00	184.71	366.00	0.76
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2324E+02 EXCESS=0.0000E+00 OUTFLOW=0.2324E+02 BASIN STORAGE=-.1614E-02 PERCENT ERROR= 0.0

RT-APE6	MANE	0.49	194.29	366.10	0.76	3.00	194.26	366.00	0.76
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2391E+02 EXCESS=0.0000E+00 OUTFLOW=0.2391E+02 BASIN STORAGE=-.7224E-03 PERCENT ERROR= 0.0

RT-APE4a	MANE	0.60	90.65	372.00	-1.00	3.00	90.65	372.00	-1.00
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RT-PNE11	MANE	0.27	143.47	360.27	2.20	3.00	143.31	360.00	2.20
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8348E+01 EXCESS=0.0000E+00 OUTFLOW=0.8346E+01 BASIN STORAGE=0.1549E-02 PERCENT ERROR= 0.0

RT-AP1	MANE	1.12	196.98	361.16	2.23	3.00	196.33	360.00	2.23
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1155E+02 EXCESS=0.0000E+00 OUTFLOW=0.1154E+02 BASIN STORAGE=0.8669E-02 PERCENT ERROR= 0.0

RT-PNE13	MANE	1.50	48.16	364.50	1.01	3.00	47.72	366.00	1.01
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2639E+01 EXCESS=0.0000E+00 OUTFLOW=0.2629E+01 BASIN STORAGE=0.6169E-02 PERCENT ERROR= 0.1

RT-AP2	MANE	0.18	255.14	362.95	1.69	3.00	255.13	363.00	1.69
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1500E+02 EXCESS=0.0000E+00 OUTFLOW=0.1500E+02 BASIN STORAGE=0.2040E-02 PERCENT ERROR= 0.0

RT-DFF	MANE	3.00	152.36	411.00	1.01	3.00	152.36	411.00	1.01
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4996E+02 EXCESS=0.0000E+00 OUTFLOW=0.4976E+02 BASIN STORAGE=0.2072E+00 PERCENT ERROR= 0.0

RT-AP4	MANE	1.95	166.07	378.30	0.96	3.00	165.95	378.00	0.96
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5278E+02 EXCESS=0.0000E+00 OUTFLOW=0.5268E+02 BASIN STORAGE=0.1161E+00 PERCENT ERROR= 0.0

RT-DFE	MANE	1.10	156.91	451.35	0.92	3.00	156.90	453.00	0.92
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5931E+02 EXCESS=0.0000E+00 OUTFLOW=0.5926E+02 BASIN STORAGE=0.4500E-01 PERCENT ERROR= 0.0

RT-AP5	MANE	0.11	159.36	450.16	0.90	3.00	159.36	450.00	0.90
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6150E+02 EXCESS=0.0000E+00 OUTFLOW=0.6150E+02 BASIN STORAGE=0.4547E-02 PERCENT ERROR= 0.0

RT-PSE1	MANE	1.11	19.91	367.62	0.68	3.00	19.55	366.00	0.68
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1237E+01 EXCESS=0.0000E+00 OUTFLOW=0.1236E+01 BASIN STORAGE=0.1556E-02 PERCENT ERROR= 0.0

RT-APE7	MANE	1.65	40.42	366.30	0.73	3.00	40.12	366.00	0.73
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2471E+01 EXCESS=0.0000E+00 OUTFLOW=0.2467E+01 BASIN STORAGE=0.4797E-02 PERCENT ERROR= 0.0

RT-PSE4	MANE	1.12	48.24	367.14	0.73	3.00	47.50	366.00	0.73
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2927E+01 EXCESS=0.0000E+00 OUTFLOW=0.2924E+01 BASIN STORAGE=0.3634E-02 PERCENT ERROR= 0.0

RT-APE9	MANE	0.83	79.90	366.47	0.75	3.00	79.12	366.00	0.75
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4866E+01 EXCESS=0.0000E+00 OUTFLOW=0.4862E+01 BASIN STORAGE=0.4416E-02 PERCENT ERROR= 0.0

RT-DFD1	MANE	1.38	64.31	386.30	0.80	3.00	64.28	387.00	0.80
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1355E+02 EXCESS=0.0000E+00 OUTFLOW=0.1353E+02 BASIN STORAGE=0.1593E-01 PERCENT ERROR= 0.0

RT-PSE8	MANE	1.08	52.37	364.81	0.95	3.00	51.62	366.00	0.95
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2949E+01 EXCESS=0.0000E+00 OUTFLOW=0.2947E+01 BASIN STORAGE=0.3246E-02 PERCENT ERROR= 0.0

RT-DFD2	MANE	0.36	44.67	375.19	1.51	3.00	44.67	375.00	1.51
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7959E+01 EXCESS=0.0000E+00 OUTFLOW=0.7957E+01 BASIN STORAGE=0.1826E-02 PERCENT ERROR= 0.0

RR-AP6	MANE	0.43	235.63	363.39	1.12	3.00	235.01	363.00	1.12
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3049E+02 EXCESS=0.0000E+00 OUTFLOW=0.3049E+02 BASIN STORAGE=0.1023E-01 PERCENT ERROR= 0.0

RT-AP6A	MANE	0.42	259.33	363.60	1.11	3.00	258.20	363.00	1.11
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3212E+02 EXCESS=0.0000E+00 OUTFLOW=0.3211E+02 BASIN STORAGE=0.1072E-01 PERCENT ERROR= 0.0

RT-AP6B	MANE	0.53	292.13	363.80	1.13	3.00	290.40	363.00	1.13
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3402E+02 EXCESS=0.0000E+00 OUTFLOW=0.3401E+02 BASIN STORAGE=0.1437E-01 PERCENT ERROR= 0.0

RT-AP7	MANE	0.52	474.73	363.26	1.22	3.00	473.81	363.00	1.22
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4543E+02 EXCESS=0.0000E+00 OUTFLOW=0.4541E+02 BASIN STORAGE=0.4580E-01 PERCENT ERROR= -0.1

RT-AP7A	MANE	0.38	635.91	363.15	1.33	3.00	635.62	363.00	1.33
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5540E+02 EXCESS=0.0000E+00 OUTFLOW=0.5538E+02 BASIN STORAGE=0.4124E-01 PERCENT ERROR= 0.0

RT-AP8	MANE	0.13	814.10	363.09	1.34	3.00	813.95	363.00	1.34
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6595E+02 EXCESS=0.0000E+00 OUTFLOW=0.6594E+02 BASIN STORAGE=0.1663E-01 PERCENT ERROR= 0.0

RT-PS9 MANE 0.74 86.55 361.42 1.61 3.00 85.79 363.00 1.62

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4653E+01 EXCESS=0.0000E+00 OUTFLOW=0.4651E+01 BASIN STORAGE=0.2819E-02 PERCENT ERROR= 0.0

RT-DFC MANE 1.56 156.23 414.25 1.33 3.00 156.23 414.00 1.33

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7303E+02 EXCESS=0.0000E+00 OUTFLOW=0.7297E+02 BASIN STORAGE=0.6048E-01 PERCENT ERROR= 0.0

RT-DFB MANE 0.78 152.65 489.60 1.20 3.00 152.65 489.00 1.20

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7940E+02 EXCESS=0.0000E+00 OUTFLOW=0.7936E+02 BASIN STORAGE=0.4744E-01 PERCENT ERROR= 0.0

RT-AP11 MANE 0.47 155.04 483.25 1.18 3.00 155.04 483.00 1.18

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8171E+02 EXCESS=0.0000E+00 OUTFLOW=0.8168E+02 BASIN STORAGE=0.2915E-01 PERCENT ERROR= 0.0

RT-AP5A MANE 3.00 313.15 468.00 1.03 3.00 313.15 468.00 1.03

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1433E+03 EXCESS=0.0000E+00 OUTFLOW=0.1427E+03 BASIN STORAGE=0.7749E+00 PERCENT ERROR= -0.1

RT-PM1 MANE 1.65 40.70 367.95 0.87 3.00 40.30 369.00 0.87

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2514E+01 EXCESS=0.0000E+00 OUTFLOW=0.2510E+01 BASIN STORAGE=0.1094E-01 PERCENT ERROR= -0.3

RT-AP12 MANE 3.00 374.10 378.00 0.96 3.00 374.10 378.00 0.96

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1514E+03 EXCESS=0.0000E+00 OUTFLOW=0.1507E+03 BASIN STORAGE=0.7976E+00 PERCENT ERROR= -0.1

RT-CS1 MANE 1.50 30.63 367.50 0.65 3.00 30.41 369.00 0.65

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1844E+01 EXCESS=0.0000E+00 OUTFLOW=0.1838E+01 BASIN STORAGE=0.1506E-01 PERCENT ERROR= -0.5

RT-AP14 MANE 0.61 166.72 360.40 1.63 3.00 165.90 360.00 1.63

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1067E+02 EXCESS=0.0000E+00 OUTFLOW=0.1066E+02 BASIN STORAGE=0.1314E-01 PERCENT ERROR= -0.1

RT-AP15 MANE 0.57 223.43 362.50 1.53 3.00 223.32 363.00 1.53

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1417E+02 EXCESS=0.0000E+00 OUTFLOW=0.1416E+02 BASIN STORAGE=0.1694E-01 PERCENT ERROR= -0.1

RT-AP16 MANE 0.13 241.53 363.05 1.47 3.00 241.50 363.00 1.47

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1882E+02 EXCESS=0.0000E+00 OUTFLOW=0.1882E+02 BASIN STORAGE=0.4982E-02 PERCENT ERROR= 0.0

RT-DFA MANE 1.22 4.83 484.05 0.78 3.00 4.83 483.00 0.78

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4559E+01 EXCESS=0.0000E+00 OUTFLOW=0.4556E+01 BASIN STORAGE=0.3081E-02 PERCENT ERROR= 0.0

RT-AP17 MANE 1.00 50.95 367.58 0.75 3.00 50.37 369.00 0.76

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7578E+01 EXCESS=0.0000E+00 OUTFLOW=0.7573E+01 BASIN STORAGE=0.5807E-02 PERCENT ERROR= 0.0

RT-AP18	MANE	0.42	87.59	366.38	0.79	3.00	87.27	366.00	0.79
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9759E+01 EXCESS=0.0000E+00 OUTFLOW=0.9756E+01 BASIN STORAGE=0.3303E-02 PERCENT ERROR= 0.0

RT-AP19	MANE	2.06	608.91	370.41	0.97	3.00	600.70	372.00	0.97
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1825E+03 EXCESS=0.0000E+00 OUTFLOW=0.1822E+03 BASIN STORAGE=0.4747E+00 PERCENT ERROR= -0.1

RT-AP19A	MANE	3.00	644.72	372.00	0.98	3.00	644.72	372.00	0.98
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1860E+03 EXCESS=0.0000E+00 OUTFLOW=0.1854E+03 BASIN STORAGE=0.7947E+00 PERCENT ERROR= -0.1

RT-F1	MANE	0.98	88.15	366.75	0.86	3.00	86.90	366.00	0.86
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5475E+01 EXCESS=0.0000E+00 OUTFLOW=0.5471E+01 BASIN STORAGE=0.5551E-02 PERCENT ERROR= 0.0

RT-DFSF	MANE	0.45	91.34	373.05	11.74	3.00	90.80	372.00	11.75
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9901E+02 EXCESS=0.0000E+00 OUTFLOW=0.9901E+02 BASIN STORAGE=-.6495E-09 PERCENT ERROR= 0.0

RT-AP22P	MANE	1.53	159.79	369.99	7.15	3.00	158.71	372.00	7.16
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1039E+03 EXCESS=0.0000E+00 OUTFLOW=0.1039E+03 BASIN STORAGE=0.3607E-02 PERCENT ERROR= 0.0

RT-AP23P	MANE	1.12	193.03	369.58	6.41	3.00	193.01	369.00	6.42
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1061E+03 EXCESS=0.0000E+00 OUTFLOW=0.1061E+03 BASIN STORAGE=0.3787E-02 PERCENT ERROR= 0.0

RT-AP24P	MANE	0.68	273.02	363.87	5.58	3.00	270.26	363.00	5.58
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1114E+03 EXCESS=0.0000E+00 OUTFLOW=0.1114E+03 BASIN STORAGE=0.3731E-02 PERCENT ERROR= 0.0

RT-AP25P	MANE	0.99	418.39	363.69	4.84	3.00	416.58	363.00	4.84
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1199E+03 EXCESS=0.0000E+00 OUTFLOW=0.1199E+03 BASIN STORAGE=0.8877E-02 PERCENT ERROR= 0.0

RT-AP26	MANE	3.00	463.16	495.00	1.37	3.00	463.16	495.00	1.37
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3226E+03 EXCESS=0.0000E+00 OUTFLOW=0.3213E+03 BASIN STORAGE=0.1560E+01 PERCENT ERROR= -0.1

RT-PM10	MANE	0.82	97.08	363.46	2.36	3.00	96.97	363.00	2.36
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6046E+01 EXCESS=0.0000E+00 OUTFLOW=0.6043E+01 BASIN STORAGE=0.3163E-02 PERCENT ERROR= 0.0

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

C-2

HEC-1 MODEL OUTPUT

100-YEAR STORM, FULLY DEVELOPED CONDITION

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*****
*
* FLOOD HYDROGRAPH PACKAGE (HEC-1)
* MAY 1991
* VERSION 4.0.1E
*
* RUN DATE 09/24/2002 TIME 13:22:01
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*****
*
* U.S. ARMY CORPS OF ENGINEERS
* HYDROLOGIC ENGINEERING CENTER
* 609 SECOND STREET
* DAVIS, CALIFORNIA 95616
* (916) 756-1104
*
*****
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X   X XXXXXXX XXXXX      X
X   X X      X   X      XX
X   X X      X      X      X
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::::::::::::::::::::::::::::::::::::
:::
::: Full Microcomputer Implementation :::
::: by :::
::: Haestad Methods, Inc. :::
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37 Brookside Road * Waterbury, Connecticut 06708 * (203) 755-1666

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

HEC-1 INPUT

PAGE 1

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LINE      ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
1         ID   PINE CREEK DRAINAGE BASIN - 24HR, FULL DEVELOPED CONDITION (TYPE Iia100 YEAR)
2         ID   FULLY DEVELOPED CONDITION MODEL ASSUMING EXISTING AND PLANNED DEVELOPMENT
3         ID   WEST OF POWERS AND LAND USE AND MAJOR STREETS PER DECEMBER 2001 CONCEPT PLAN
4         ID   FOR CORDERA (JOHNSON RANCH) EAST OF POWERS
5         ID   THIS IS A MODIFIED VERSION OF THE DBPS AMENDMENT 2 MODEL. THE MODEL HAS BEEN
6         ID   REVISED IN AREAS THAT HAVE CHANGED SIGNIFICANTLY FROM THE AMENDMENT 2
7         ID   ASSUMPTIONS. OTHER AREAS HAVE NOT BEEN CHANGED
8         ID   CN VALUES HAVE BEEN ADJUSTED TO PRODUCE PEAK 100 YEAR FLOW RATES SIMILAR TO
9         ID   100 YEAR FLOW RATES PRODUCED BY RATIONAL METHOD.
10        ID   *****
11        ID   BEGIN CALCULATIONS IN THE PINE CREEK NORTH FORK WATERSHED
12        ID   *****
*** FREE ***
13        *DIAGRAM
14        IT      3      0      0      300
15        IO      5
16        KK SB-PNE1
17        KM COMPUTE HYDROGRAPH FOR BASIN PNE1
18        BA .135

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18	IN	15									
19	PB	4.4									
20	PC	.0000	.0005	.0015	.0030	.0045	.0060	.0080	.0100	.0120	.0143
21	PC	.0165	.0188	.0210	.0233	.0255	.0278	.0320	.0390	.0460	.0530
22	PC	.0600	.0750	.1000	.4000	.7000	.7250	.7500	.7650	.7800	.7900
23	PC	.8000	.8100	.8200	.8250	.8300	.8350	.8400	.8450	.8500	.8550
24	PC	.8600	.8638	.8675	.8713	.8750	.8788	.8825	.8863	.8900	.8938
25	PC	.8975	.9013	.9050	.9083	.9115	.9148	.9180	.9210	.9240	.9270
26	PC	.9300	.9325	.9350	.9375	.9400	.9425	.9450	.9475	.9500	.9525
27	PC	.9550	.9575	.9600	.9625	.9650	.9675	.9700	.9725	.9750	.9775
28	PC	.9800	.9813	.9825	.9838	.9850	.9863	.9875	.9888	.9900	.9913
29	PC	.9925	.9938	.9950	.9963	.9975	.9988	1.000			
30	LS	0	78								
31	UD	.186									

32 KKRR-DFNE1

33 KM ROUTE FLOW FROM BASIN PNE1 THROUGH A CONCEPTUAL DETENTION FACILITY. ASSUME A

34 KM 36" DIA OUTLET WITH INVERT AT EL. 49.00 OUTLET Q ESTIMATED WITH BUREAU OF

35 KM PUBLIC ROADS NOMOGRAPH FOR INLET CONTROL OF CULVERTS. VOLUME BASED ON

36 KM CONCEPTUAL TRAPEZOID POND WITH A 160'X80' BOTTOM AND 4:1 SIDE SLOPES.

37	KO	3	1								
38	RS	1	STOR	0							
39	SV	0	0	0.7	1.5	2.7	4.0	5.6	7.5		
40	SE	49	50	52	54	56	58	60	62		
41	SQ	0	4	35	60	81	92	103	114		

42 KKRT-APNE1

43 KM ROUTE DISCHARGE FROM DFNE1 TO APE1

44 RD 700 .043 .013 CIRC 3.5

HEC-1 INPUT

PAGE 2

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

45 KK SB-PNE2

46 KM COMPUTE HYDROGRAPH FOR BASIN PNE2

47 BA .171

48 LS 0 77.5

49 UD .210

50 KKRR-DFNE2

51 KM ROUTE FLOW FROM BASIN PNE2 THROUGH A CONCEPTUAL DETENTION FACILITY. ASSUME A

52 KM 42" DIA OUTLET WITH INVERT AT EL. 21. OUTLET Q ESTIMATED WITH BUREAU OF

53 KM PUBLIC ROADS NOMOGRAPH FOR INLET CONTROL OF CULVERTS. VOLUME BASED ON

54 KM CONCEPTUAL TRAPEZOID POND WITH A 105'X210' BOTTOM WITH 4:1 SIDE SLOPES.

55	KO	3	1								
56	RS	1	STOR	0							
57	SV	0	0	1.1	2.5	4.2	6.1	8.4	11.1		
58	SE	21	22	24	26	28	30	32	34		
59	SQ	0	5	41	85	104	121	138	155		

60 KKRT-DFNE2

61 KM ROUTE DISCHARGE FROM DFNE2 TO APE1

62 RD 150 .03 .013 CIRC 3.5

63 KK SB-PNE3

64 KM COMPUTE HYDROGRAPH FOR BASIN PNE3

65 BA .013

66 LS 0 87

67 UD 0.143

68 KK APE1

69 KM COMBINE ROUTED FLOW FROM DFNE1 AND DFNE2 WITH THE FLOW FROM BASIN PNE3

70 KO 0 3

71 HC 3

72 KK APE1

73 KM A DIVERSION BOX IS PROPOSED AT APE1 TO SPLIT THE FLOW. OUTFLOW

74 KM LESS THAN THE 5-YEAR PEAK FLOW +/- SHALL BE CONVEYED DOWNSTREAM IN A

75 KM PROPOSED STORM DRAIN. FLOWS GREATER THAN THE 5-YEAR PEAK FLOW SHALL

76 KM OVERFLOW AND BE CONVEYED IN THE NATURAL CHANNEL. THE DIVERTED FLOW RATIO

77 KM IS BASED ON A CONCEPT DIVERSION BOX WITH A 48" DIA. OUTLET TO THE DOWNSTREAM

78 KM STORM SEWER WITH ITS INVERT SET 7 FEET LOWER THAN A 10 FOOT LONG WEIR OUTLET

79 KM TO THE DOWNSTREAM CHANNEL C=3.3.

80 DT APE1a

81	DI	130	152	178	211	251	293				
82	DQ	0	12	33	61	93	130				

83 KK RT-APE1
 84 KM ROUTE THE FLOW TO BE CONVEYED IN THE STORM DRAIN FROM APE1 TO APE2
 85 RD 2600 .035 .013 CIRC 4
 86 KK SB-PNE4
 87 KM COMPUTE HYDROGRAPH FOR BASIN PNE4
 88 BA .076
 89 LS 0 77.5
 90 UD .158

HEC-1 INPUT

PAGE 3

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

91 KK APE2
 92 KM COMBINE THE ROUTED FLOW FROM BASIN PNE4 WITH THE ROUTED FLOW IN THE PROPOSED
 93 KM STORM SEWER FROM THE PROPOSED DIVERSION BOW AT APE2
 94 HC 2

95 KK RT-APE2
 96 KM ROUTE FLOW FROM APE2 IN THE PROPOSED BLUE ROAD STORM SEWER TO A POINT JUST
 97 KM DOWNSTREAM OF APE3
 98 RD 600 .016 .013 CIRC 5.0

99 KKDR-APE1a
 100 KM RETRIEVE THE FLOW DIVERTED TO THE NATURAL CHANNEL AT APE1
 101 DR APE1a

102 KKRT-APE1a
 103 KM ROUTE THE RETRIEVED FLOW FROM APE1 TO APE3 IN THE NATURAL CHANNEL.
 104 KM USE GENERALIZED CHANNEL SECTION AND AVERAGE SLOPE
 105 RD 2700 .037 0.04 TRAP 20 5

106 KK SB-PNE5
 107 KM COMPUTE HYDROGRAPH FOR BASIN PNE5
 108 BA .018
 109 LS 0 66.8
 110 UD .198

111 KK APE3
 112 KM COMBINE ROUTED FLOW FROM BASIN PNE5 WITH THE ROUTED FLOW IN THE NATURAL
 113 KM CHANNEL AT APE3
 114 HC 2

115 KK APE3a
 116 KM COMBINE ROUTED FLOW FROM APE3 WITH THE ROUTED FLOW IN THE PROPOSED BLUE RD.
 117 KM STORM SEWER FROM APE2 JUST DOWNSTREAM OF APE3
 118 HC 2

119 KKRT-APE3a
 120 KM ROUTE FLOW FROM APE3a TO APE4
 121 RD 300 .016 .013 CIRC 6.5

122 KK SB-PNE6
 123 KM COMPUTE HYDROGRAPH FOR BASIN PNE6
 124 BA .02
 125 LS 0 79.5
 126 UD .154

127 KKRR-DFNE6
 128 KM ROUTE FLOW FROM BASIN PNE6 THROUGH A CONCEPTUAL DETENTION FACILITY. ASSUME A
 129 KM 18" DIA OUTLET WITH INVERT AT EL. 0. OUTLET Q ESTIMATED WITH BUREAU OF
 130 KM PUBLIC ROADS NOMOGRAPH FOR INLET CONTROL OF CULVERTS. VOLUME BASED ON
 131 KM CONCEPTUAL TRAPEZOID POND WITH A 111' SQUARE BOTTOM WITH 4:1 SIDE SLOPES.
 132 KO 3 1
 133 RS 1 STOR 0
 134 SV 0 0.01 0.21 0.45 0.83 1.37
 135 SE 0 1 2 4 6 8

HEC-1 INPUT

PAGE 4

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

136 SQ 0 2.8 6.5 11.0 14.0 16.0

137 KKRT-DFNE6
 138 KM ROUTE DETAINED FLOW FROM BASIN PNE6 TO APE4

139 RD 2700 .034 .013 CIRC 2
 140 KK SB-PNE7
 141 KM COMPUTE HYDROGRAPH FOR BASIN PNE7
 142 BA .103
 143 LS 0 76
 144 UD .175

 145 KK APE4a
 146 KM COMBINE ROUTED FLOW FROM BASIN PNE6 WITH THE FLOW FROM BASIN PNE7 JUST
 147 KM UPSTREAM OF APE4
 148 HC 2

 149 KK APE4
 150 KM COMBINE ROUTED FLOW FROM APE3a AND BASIN AP4a
 151 HC 2

 152 KK APE4
 153 KM A DIVERSION BOX IS PROPOSED AT APE4 TO SPLIT THE FLOW. FLOW LESS THAN
 154 KM THE 2-YEAR PEAK FLOW +/- SHALL BE CONVEYED BY THE PROPOSED STORM DRAIN.
 155 KM PORTIONS OF FLOWS GREATER THAN THE 2-YEAR PEAK FLOW SHALL OVERFLOW TO
 156 KM THE NATURAL CHANNEL. THE DIVERTED FLOW RATIO IS BASED A CONCEPT DIVERSION
 157 KM BOX WITH A 48" DIA. OUTLET TO THE DOWNSTREAM STORM SEWER WITH ITS INVERT
 158 KM SET 7 FEET LOWER THAN A 20 FOOT LONG WEIR OUTLET TO THE DOWNSTREAM CHANNEL C=
 159 DT APE4a
 160 DI 130 211 347 514 708
 161 DQ 0 66 187 342 528

 162 KK RT-APE4
 163 KM ROUTE THE FLOW IN THE PROPOSED STORM SEWER FROM APE4 TO APE5
 164 RD 1700 .013 .013 CIRC 4

 165 KK SB-PNE8
 166 KM COMPUTE HYDROGRAPH FOR BASIN PNE8
 167 BA .041
 168 LS 0 81.0
 169 UD .157

 170 KK APE5
 171 KM COMBINE ROUTED FLOW FROM BASIN PNE8 WITH THE ROUTED FLOW IN THE STORM SEWER
 172 KM FROM APE4
 173 HC 2

 174 KK RT-APE5
 175 KM ROUTE FLOW FROM APE5 TO APE6
 176 RD 1000 .015 .013 CIRC 5.5
 HEC-1 INPUT

PAGE 5

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

177 KK SB-PNE9
 178 KM COMPUTE HYDROGRAPH FOR BASIN PNE9
 179 BA .013
 180 LS 0 80.0
 181 UD .097

 182 KK APE6
 183 KM COMBINE ROUTED FLOW FROM BASIN PNE9 WITH THE ROUTED FLOW FROM APE5
 184 HC 2

 185 KK RT-APE6
 186 KM ROUTE FLOW FROM APE6 TO AP3 AT THE CHANNEL RUNDOWN TO DETENTION FACILITY F
 187 RD 800 .033 .013 CIRC 5.5

 188 KK APE4a
 189 KM RETRIEVE THE FLOW DIVERTED TO THE NATURAL CHANNEL AT APE4
 190 DR APE4a

 191 KKRT-APE4a
 192 KM ROUTE FLOW FROM APE4 IN THE NATURAL CHANNEL TO AP3 AT THE CHANNEL RUNDOWN
 193 KM TO DETENTION FACILITY F. USE GENERALIZED CHANNEL SECTION AND AVERAGE SLOPE
 194 RD 2100 .033 0.05 TRAP 10 3

 195 KKSb-PNE10
 196 KM COMPUTE HYDROGRAPH FOR BASIN PNE10
 197 BA .057

198 LS 0 69.3
 199 UD .228

 200 KK AP3a
 201 KM COMBINE ROUTED FLOW IN THE CHANNEL WITH THE FLOW FROM BASIN PNE10
 202 KM THIS IS THE TOTAL FLOW IN THE NATURAL CHANNEL ABOVE DETENTION
 203 KM FACILITY F
 204 HC 2

 205 KKSBB-PNE11
 206 KM COMPUTE HYDROGRAPH FOR BASIN PNE11
 207 BA .071
 208 LS 0 96.5
 209 UD .130

 210 KKRT-PNE11
 211 KM ROUTE THE FLOW FROM BASIN PNE11 TO AP1 AT THE OUTFALL FROM BASIN PNE12
 212 RD 400 .03 .013 CIRC 5

 213 KKSBB-PNE12
 214 KM COMPUTE HYDROGRAPH FOR BASIN PNE12
 215 BA .026
 216 LS 0 97.5
 217 UD .116

HEC-1 INPUT

PAGE 6

LINE	ID.....1.....2.....3.....4.....5.....6.....7.....8.....9.....10
218	KK AP1
219	KM COMBINE THE ROUTED FLOW FROM BASIN PNE11 WITH THE FLOW FROM BASIN PNE12
220	HC 2
221	KK RT-AP1
222	KM ROUTE THE FLOW FROM AP1 TO AP2
223	RD 1150 .01 .013 CIRC 6.0
224	KKSBB-PNE13
225	KM COMPUTE HYDROGRAPH FOR BASIN PNE13
226	BA .049
227	LS 0 81.0
228	UD .146
229	KKRT-PNE13
230	KM ROUTE THE FLOW FROM BASIN PNE13 TO AP2 IN THE PROPOSED POWERS RAMP B
231	KM STORM SEWER
232	RD 950 .002 .013 CIRC 6.0
233	KKSBB-PNE14
234	KM COMPUTE HYDROGRAPH FOR BASIN PNE14
235	BA .020
236	LS 0 76.5
237	UD .134
238	KK AP2a
239	KM COMBINE THE FLOW FROM BASINS PNE13 AND PNE14
240	HC 2
241	KK AP2
242	KM COMBINE THE FLOW FROM BASINS PNE13 AND PNE14 WITH THE ROUTED FLOW FROM AP1
243	HC 2
244	KK RT-AP2
245	KM ROUTE THE FLOW FROM AP2 TO AP3 AT THE RUNDOWN CHANNEL TO DF-F
246	RD 400 .06 .013 CIRC 6.0
247	KK AP3
248	KM COMBINE ROUTED FLOW FROM AP2 WITH ROUTED FLOW FROM APE6 AND THE FLOW IN THE
249	KM NATURAL CHANNEL (AP3a). THIS IS THE TOTAL FLOW TO THE DF-F RUNDOWN CHANNEL
250	HC 3
251	KK SB-PN7
252	KM COMPUTE HYDROGRAPH FOR BASIN PN7
253	BA .071
254	LS 0 74.0
255	UD .200

256 KK SB-PN8
 257 KM COMPUTE HYDROGRAPH FOR BASIN PN8
 258 BA .036
 259 LS 0 88.5
 260 UD .125

HEC-1 INPUT

PAGE 7

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

261 KK APDFF
 262 KM COMBINE THE FLOW FROM BASINS PN7 AND PN8 AND AP3. THIS IS THE TOTAL
 263 KM INFLOW TO DETENTION FACILITY F
 264 HC 3

265 KK RR-DFF
 266 KM ROUTE FLOW THRU A PROPOSED REGIONAL DETENTION FACILITY.
 267 KM VOLUME REFLECTS CURRENT DRAFT DESIGN
 268 KM DISCHARGE ASSUMES THE 54" DIA OUTLET SET AT INVERT ELEV. 11.5 IS RESTRICTED
 269 KM TO A 11.7 SF OPENING BY A STEEL PLATE COVERING THE TOP 1.4' OF THE PIPE.
 270 KM DISCHARGE CALCULATED WITH THE ORIFICE EQUATION WITH HEAD CALCULATED TO
 271 KM THE CENTER OF THE OPENING AREA @ ELEVATION 13.28

272	KO	3	1											
273	RS	1	STOR	0										
274	SV	0	.18	2.6	8.1	15.4	23.70	32.6	42.4	53.1	64.8			
275	SE	13	14	16	18	20	22	24	26	28	30			
276	SQ	5	30	93	122	146	166	184	201	216	230			

277 KK RT-DFF
 278 KM ROUTE THE OUTFLOW FROM DETENTION FACILITY F DOWN PINE CREEK NORTH FORK FROM
 279 KM ROYAL PINE DRIVE TO AP-4
 280 RD 2400 .02 .060 TRAP 20 3

281 KK SB-PN9
 282 KM COMPUTE HYDROGRAPH FOR BASIN PN9
 283 BA .110
 284 LS 0 70.5
 285 UD .219

286 KK AP4
 287 KM COMBINE ROUTED FLOW RT-DFF WITH FLOW FROM BASIN PN9 AT AP-4
 288 HC 2

289 KK RT-AP4
 290 KM ROUTE THE FLOW IN PINE CREEK NORTH FORK CHANNEL FROM AP4
 291 KM TO DETENTION FACILITY "E" ABOVE STONEGLEN DR.
 292 RD 1400 .032 .060 TRAP 20 3
 293 KM PN10 DESCRIPTOR NOT USED

294 KK SB-PN11
 295 KM COMPUTE HYDROGRAPH FOR BASIN PN11
 296 BA .083
 297 LS 0 79.0
 298 UD .194

299 KK SB-PN12
 300 KM COMPUTE HYDROGRAPH FOR BASIN PN12
 301 BA 0.101
 302 LS 0 71.0
 303 UD .222

HEC-1 INPUT

PAGE 8

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

304 KK APDFE
 305 KM COMBINE ROUTED FLOW FROM AP4 WITH FLOW FROM BASINS PN11 AND PN12
 306 KM THIS IS THE TOTAL INFLOW TO DETENTION FACILITY E
 307 HC 3

308 KK RR-DFE
 309 KM NOTE: THE INPUT POND VOLUME REFLECTS THE AS-BUILT SURVEY FOR THE PC 200 LOMR
 310 KM ROUTE FLOW THRU THE THE EXISTING DETENTION FACILITY. ASSUME
 311 KM THE EXISTING 54" DIA IS UN-RESTRICTED INVERT AT ELEVATION 84.
 312 KM OUTLET Q ESTIMATED WITH BUREAU OF PUBLIC ROADS NOMOGRAPH FOR
 313 KM INLET CONTROL OF CULVERTS. DISCHARGE ABOVE EL 800 INCLUDES FLOW
 314 KM OVER EMERGENCY SPILLWAY

315	KO	3	1									
316	RS	1	STOR	0								
317	SV	0	0.29	1.95	4.92	8.27	11.99	16.09	20.60	25.51	30.89	
318	SE	784	786	788	790	792	794	796	798	800	802	
319	SQ	0	26	80	133	173	208	238	260	278	1441	

320 KK RT-DFE
 321 KM ROUTE THE OUTFLOW FROM DETENTION FACILITY "E" IN A STORM DRAIN TO AP-5
 322 RD 1500 .025 .013 CIRC 4.5

323 KK SB-PN15
 324 KM COMPUTE HYDROGRAPH FOR BASIN PN15
 325 BA .069
 326 LS 0 72.7
 327 UD .186

328 KK AP5
 329 KM COMBINE ROUTED FLOW FROM DFE WITH FLOW FROM BASIN PN15
 330 HC 2

331 KK RT-AP5
 332 KM ROUTE THE FLOW AT AP5 TO AP5A AT THE CONFLUENCE OF THE FLOWS FROM THE
 333 KM NORTH AND SOUTH FORKS OF PINE CREEK
 334 RD 150 .025 .013 CIRC 5.5
 335 KM *****
 336 KM ***** BEGIN CALCULATIONS FOR THE SOUTH FORK OF PINE CREEK WATERSHED *****
 337 KM *****

338 KK SB-PSE1
 339 KM COMPUTE HYDROGRAPH FOR BASIN PSE1
 340 BA .034
 341 LS 0 74.5
 342 UD .197

343 KK RT-PSE1
 344 KM ROUTE FLOW FROM PSE1 THROUGH PSE2 TO APE7
 345 RD 1100 .036 .013 CIRC 3
 HEC-1 INPUT

PAGE 9

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

346 KK SB-PSE2
 347 KM COMPUTE HYDROGRAPH FOR BASIN PSE2
 348 BA 0.029
 349 LS 0 77
 350 UD .169

351 KK APE7
 352 KM COMBINE ROUTED FLOW FROM PSE1 WITH THE FLOW FROM BASIN PSE2 AT APE7
 353 HC 2

354 KK RT-APE7
 355 KM ROUTE FLOW FROM APE7 TO APE8
 356 RD 1800 .025 .013 CIRC 4

357 KK SB-PSE3
 358 KM COMPUTE HYDROGRAPH FOR BASIN PSE3
 359 BA .078
 360 LS 0 79.6
 361 UD .171

362 KK APE8
 363 KM COMBINE ROUTED FLOW FROM APE7 WITH THE FLOW FROM BASIN PSE3 AT APE8
 364 HC 2

365 KK SB-PSE4
 366 KM COMPUTE HYDROGRAPH FOR BASIN PSE4
 367 BA .075
 368 LS 0 75.6
 369 UD .192

370 KK RT-PSE4
 371 KM ROUTE FLOW FROM PSE4 THROUGH PSE5 TO APE9
 372 RD 1350 .036 .013 CIRC 3.5

373 KK SB-PSE5

374 KM COMPUTE HYDROGRAPH FOR BASIN PSE5
 375 BA .047
 376 LS 0 76.5
 377 UD .181

 378 KK APE9
 379 KM COMBINE ROUTED FLOW FROM PSE4 TO FLOW FROM BASIN PSE5 AT APE9
 380 HC 2

 381 KK RT-APE9
 382 KM ROUTE FLOW FROM APE9 TO DF D1.
 383 RD 900 .02 .013 CIRC 4.5

 384 KK SB-PSE6
 385 KM COMPUTE HYDROGRAPH FOR BASIN PSE6
 386 BA .054
 387 LS 0 78.4
 388 UD .189

HEC-1 INPUT

PAGE 10

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

389 KK DFD1a
 390 KM COMBINE THE FLOW FROM BASIN PSE6 TO THE ROUTED FLOW FROM APE9
 391 HC 2

 392 KK DFD1
 393 KM COMBINE THE FLOW FROM PSE6 AND THE ROUTED FLOW FROM APE9 TO THE FLOW AT APE8
 394 KM THIS IS THE TOTAL INFLOW TO PROPOSED DETENTION FACILITY D1
 395 HC 2

 396 KK RR-DFD1
 397 KM ROUTE FLOW THRU DETENTION FACILITY DFD1
 398 KM ASSUME BOTTOM TO BE 202' WIDE X 128' LONG AT EL 100
 399 KM W 4:1 SIDE SLOPES, END SLOPES VARY
 400 KM ASSUME A 32" DIA OUTLET WITH INVERT AT 98.67.
 401 KM OUTLET Q ESTIMATED WITH ORIFICE EQUATION ASSUMING c=0.60
 402 KM AND DOWNSTREAM STORM DRAIN IN NON PRESSURE FLOW
 403 RS 1 STOR 0
 404 KO 3 1
 405 SV 0 1.3 2.9 5.2 8.9 14.1 20.9 29.5
 406 SE 100 102 104 106 108 110 112 114
 407 SQ 0 37 53 65 75 84 92 100

 408 KK RT-DFD1
 409 KM ROUTE FLOW FROM DFD1 TO AP6 IN BRIARGATE PARKWAY ON THE EAST SIDE OF POWERS
 410 RD 1550 .025 .013 CIRC 4

 411 KK SB-PSE7
 412 KM COMPUTE HYDROGRAPH FOR BASIN PSE7
 413 BA .058
 414 LS 0 96.5
 415 UD .125

 416 KK SB-PSE8
 417 KM COMPUTE HYDROGRAPH FOR BASIN PSE8
 418 BA .058
 419 LS 0 80.0
 420 UD .165

 421 KK RT-PSE8
 422 KM ROUTE FLOW FROM PSE8 TO DETENTION FACILITY D2 ON THE EAST SIDE
 423 KM OF POWERS BLVD
 424 RD 1200 .027 .013 CIRC 4

 425 KK SB-PSE9
 426 KM COMPUTE HYDROGRAPH FOR BASIN PSE9
 427 BA .041
 428 LS 0 97.5
 429 UD .107

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

430 KK DFD2

431 KM COMBINE ROUTED FLOW FROM PSE8 AND PSE9 AT DETENTION FACILITY D2
 432 HC 2

 433 KK RR-DFD2
 434 KM ROUTE FLOW THRU DETENTION FACILITY D2
 435 KM ASSUME BOTTOM TO BE 130' WIDE X 200' LONG W 4:1 SIDE SLOPES
 436 KM ASSUME A 27" DIA OUTLET WITH INVERT 99.00.
 437 KM OUTLET Q ESTIMATED WITH ORIFICE EQUATION ASSUMING c=0.60
 438 KM AND DOWNSTREAM STORM DRAIN IN NON PRESSURE FLOW
 439 RS 1 STOR 0
 440 KO 3 1
 441 SV 0 .6 1.9 3.5 5.4 7.6 10.1
 442 SE 100 102 104 106 108 110 112
 443 SQ 0 26 38 46 54 60 66

 444 KK RT-DFD2
 445 KM ROUTE FLOW FROM DFD2 TO APE10
 446 RD 250 .01 .013 CIRC 3

 447 KK SBPSE10
 448 KM COMPUTE HYDROGRAPH FOR BASIN PSE10
 449 BA 0.036
 450 LS 0 83.2
 451 UD .175

 452 KK APE10
 453 KM COMBINE ROUTED FLOW FROM DETENTION FACILITY D2 WITH THE FLOW FROM
 454 KM BASIN PSE10
 455 HC 2

 456 KK AP6
 457 KM COMBINE THE ROUTED FLOW AT AP10 TO THE ROUTED FLOW FROM DETENTION FACILITY
 458 KM D1 AND BASIN PSE7
 459 HC 3

 460 KK RR-AP6
 461 KM ROUTE FLOW FROM AP6 TO AP6A ON THE WEST SIDE OF POWERS BLVD.
 462 RD 600 .02 .013 CIRC 6

 463 KKSBB-PSE11
 464 KM COMPUTE HYDROGRAPH FOR BASIN PSE11
 465 BA 0.032
 466 LS 0 80.0
 467 UD .210

 468 KK AP6A
 469 KM COMBINE FLOW FROM PSE11 TO ROUTED FLOW FROM AP6 AT AP6A
 470 HC 2

HEC-1 INPUT

PAGE 12

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

471 KK RT-AP6A
 472 KM ROUTE FLOW FROM AP6A AT THE WEST SIDE OF POWERS BLVD TO AP6B.
 473 RD 600 .02 .013 CIRC 6.0

 474 KK SB-PS2
 475 KM COMPUTE HYDROGRAPH FOR BASIN PS2
 476 BA .024
 477 LS 0 88.4
 478 UD .150

 479 KK AP6B
 480 KM COMBINE FLOW FROM PS2 TO THE ROUTED FLOW AT AP6B
 481 HC 2

 482 KK RT-AP6B
 483 KM ROUTE FLOW FROM AP6B TO AP7 AT THE BRIARGATE
 484 KM PKWY./ AUSTIN BLUFFS PKWY. INTERSECTION
 485 RD 780 .02 .013 CIRC 6.5

 486 KK SB-PS3
 487 KM COMPUTE HYDROGRAPH FOR BASIN PS3
 488 BA .070
 489 LS 0 97.5
 490 UD .117

491 KK SB-PS4
 492 KM COMPUTE HYDROGRAPH FOR BASIN PS4
 493 BA .060
 494 LS 0 78.5
 495 UD .178

 496 KK AP7
 497 KM COMBINE ROUTED FLOW AT AP7 WITH FLOW FROM BASINS PS3 AND PS4
 498 HC 3

 499 KK RT-AP7
 500 KM ROUTE THE COMBINED FLOW AT AP7 TO AP7A
 501 RD 1050 .022 .013 TRAP 9

 502 KK SB-PS5
 503 KM COMPUTE HYDROGRAPH FOR BASIN PS5
 504 BA .030
 505 LS 0 96.0
 506 UD .13

 507 KK SB-PS6
 508 KM COMPUTE HYDROGRAPH FOR BASIN PS6
 509 BA .053
 510 LS 0 97.5
 511 UD .126

HEC-1 INPUT

PAGE 13

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

512 KK AP7A
 513 KM COMBINE ROUTED FLOW AT AP7A WITH FLOW FROM BASINS PS5 AND PS6
 514 HC 3

 515 KK RT-AP7A
 516 KM ROUTE THE COMBINED FLOW AT AP7A TO AP8
 517 RD 800 .022 .013 TRAP 11

 518 KK SB-PS7
 519 KM COMPUTE HYDROGRAPH FOR BASIN PS7
 520 BA .031
 521 LS 0 97.5
 522 UD .118

 523 KK SB-PS8
 524 KM COMPUTE HYDROGRAPH FOR BASIN PS8
 525 BA .112
 526 LS 0 83.0
 527 UD .174

 528 KK AP8
 529 KM COMBINE ROUTED FLOW AT AP8 WITH FLOW FROM BASINS PS7 AND PS8
 530 HC 3

 531 KK RT-AP8
 532 KM ROUTE THE COMBINED FLOW AT AP8 TO AP9, AT DF C
 533 RD 250 .022 .013 TRAP 16

 534 KK SB-PS9
 535 KM COMPUTE HYDROGRAPH FOR BASIN PS9
 536 BA .054
 537 LS 0 90.0
 538 UD .125

 539 KK RT-PS9
 540 KM ROUTE THE FLOW FROM BASIN PS9 TO AP9, AT DF C
 541 RD 880 .025 .013 CIRC 4.0

 542 KK AP9
 543 KM COMBINE ROUTED FLOW AT AP9 WITH FLOW FROM BASIN PS3. THIS IS THE TOTAL FLOW
 544 KM DETENTION FACILITY C FROM UNION BLVD AND UPSTREAM AREAS
 545 HC 2

 546 KK SB-PS10
 547 KM COMPUTE HYDROGRAPH FOR BASIN PS10
 548 BA .053

549 LS 0 73.4
550 UD .177

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

551 KK APDFC
552 KM COMBINE FLOW AT AP-9 TO FLOW FROM SB-PS10 IN REGIONAL DETENTION FACILITY "C"
553 KM THIS IS THE TOTAL INFLOW TO DETENTION FACILITY "C"
554 HC 2

555 KK RR-DFC
556 KM ROUTE FLOW THRU REGIONAL DETENTION FACILITY C. ASSUME THE PLANNED 48" DIA
557 KM OUTLET WITH THE INVERT AT EL 62. OUTLET Q ESTIMATED WITH BUREAU OF PUBLIC
558 KM ROADS NOMOGRAPH FOR INLET CONTROL OF CULVERTS, SCALE 1.
559 KO 3 1
560 RS 1 STOR 0
561 SV 0 1.1 7.7 16.9 26.9 37.7 49.2 61.5 74.5 88.4
562 SE 63 64 66 68 70 72 74 76 78 80
563 SQ 6 23 70 110 140 168 190 215 232 245

564 KK RT-DFC
565 KM ROUTE OUTFLOW FROM POND "C" WEST DOWN A STORM DRAIN IN BRIARGATE PKWY.
566 KM TO AP10 AT DETENTION FACILITY "B"
567 RD 2400 .035 .013 CIRC 4

568 KK SB-PS11
569 KM COMPUTE HYDROGRAPH FOR BASIN PS11
570 BA .054
571 LS 0 80.3
572 UD .172

573 KK AP10
574 KM COMBINE ROUTED FLOW RT-DFC TO FLOW FROM SB-PS11
575 HC 2

576 KK SB-PS12
577 KM COMPUTE HYDROGRAPH FOR BASIN PS12
578 BA .153
579 LS 0 69.0
580 UD .233

581 KK APDFB
582 KM COMBINE FLOW AT AP10 TO FLOW FROM BASIN PS12
583 HC 2

584 KK RR-DFB
585 KM ROUTE FLOW THROUGH REGIONAL DETENTION POND "B"
586 KM VOLUME REFLECTS 11-99 AS-BUILT DATA
587 KM DISCHARGE ASSUMES THE 54" DIA OUTLET SET AT INVERT ELEV. 69.9 IS RESTRICTED
588 KM TO A 11.7 SF OPENING BY A STEEL PLATE COVERING THE TOP 1.4' OF THE PIPE
589 KM DISCHARGE CALCULATED WITH THE ORIFICE EQUATION WITH HEAD CALCULATED TO
590 KM THE CENTER OF THE OPENING AREA @ ELEVATION 71.68 DISCHARGE ABOVE 87.6
591 KM INCLUDES FLOW OVER 80' LONG EMERGENCY SPILLWAY
592 KO 3 1
593 RS 1 STOR 0
594 SV 0 0.06 0.66 2.51 5.08 8.05 11.42 15.22 19.49 23.24
595 SV 24.76 29.96
596 SE 70.6 72.0 74 76 78 80 82 84 86 87.6
597 SE 88 90

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

598 SQ 0 20 86 117 142 163 181 198 213 225
599 SQ 289 1133

600 KK RT-DFB
601 KM ROUTE FLOW 1000 LF NORTHWEST IN A STORM DRAIN FROM DETENTION FACILITY "B"
602 KM TO AP-11
603 RD 1000 .021 .013 CIRC 5.0

604 KK SB-PS13
605 KM COMPUTE HYDROGRAPH FOR BASIN PS13
606 BA .065
607 LS 0 74.3


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608      UD      .149

609      KK      AP11
610      KM      COMBINE ROUTED FLOW RT-DFB TO FLOW FROM BASIN PS13 AT AP11
611      HC      2

612      KK      RT-AP11
613      KM      ROUTE FLOW 600 LF NORTHWEST IN A STORM DRAIN FROM AP11 TO AP5A (THE
614      KM      CONFLUENCE OF FLOWS FROM THE NORTH AND SOUTH FORKS OF PINE CREEK)
615      RD      600      .021      .013      CIRC      5

616      KK      AP5A
617      KM      COMBINE ROUTED FLOW AP5 (FLOW FROM THE NORTH FORK OF PINE CREEK) TO ROUTED
618      KM      FLOW RT-AP11 (FLOW FROM THE SOUTH FORK OF PINE CREEK)
619      HC      2

620      KK      RT-AP5A
621      KM      ROUTE THE FLOW AT AP5A IN THE PLANNED 84" STORM SEWER TO PINE CREEK THE
622      KM      DOWN PINE CREEK MAIN CHANNEL TO AP12. USE AN APPROXIMATE AVERAGE CHANNEL
623      KM      SECTION AND SLOPE FOR ROUTING.
624      RD      300      .02      .013      CIRC      7.0
625      RD      1500     .023     .060      TRAP      50      2

626      KK      SB-PN13
627      KM      COMPUTE HYDROGRAPH FOR BASIN PN13
628      BA      0.045
629      LS      0      64.0
630      UD      .241

631      KK      RR-DFIR
632      KM      ROUTE FLOW FROM BASIN PN13 THRU THE EXISTING IRRIGATION POND AS A EXTENDED
633      KM      RELEASE DETENTION POND
634      KM      START STORAGE AT EL 6899.5, SURFACE AREA 55012 SF
635      KM      H.W.S.E. = 6902.0, SURFACE AREA 65,931 SF
636      KO      3      1
637      RS      1      STOR      0
638      SV      0      3.5      10
639      SE      899.5     902      903
640      SQ      0      1.0      2.0

                                HEC-1 INPUT

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

641      KK      SB-PM1
642      KM      COMPUTE HYDROGRAPH FOR BASIN PM1
643      BA      .054
644      LS      0      78.5
645      UD      .203

646      KK      RT-PM1
647      KM      ROUTE THE FLOW FROM BASIN PM1 1200 LF NORTH IN THE LEXINGTON DR. S.D. TO
648      KM      PINE CREEK MAIN CHANNEL THEN IN THE PINE CREEK CHANNEL TO AP12.
649      RD      1200     .08      .013      CIR      3.5
650      RD      400      .03      .060      TRAP      30      2

651      KK      SB-PM2
652      KM      COMPUTE HYDROGRAPH FOR BASIN PM2, AN AREA OF THE GOLF COURSE
653      BA      .187
654      LS      0      68.5
655      UD      .310

656      KK      SB-PM3
657      KM      COMPUTE HYDROGRAPH FOR BASIN PM3
658      BA      .058
659      LS      0      71.0
660      UD      .248

661      KK      AP12
662      KM      COMBINE ROUTED FLOW RT-PM1 WITH THE ROUTED FLOW IN PINE CREEK MAIN CHANNEL
663      KM      AND THE FLOW FROM BASINS PM2, PM3, AND THE OUTFLOW FROM DFIR
664      KM      NOTE OUTFLOW FROM DFIR IS INSIGNIFICANT IN THE 100 YEAR DESIGN STORM
665      HC      5

666      KK      RT-AP12
667      KM      ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL DOWN THE CHANNEL FROM AP12
668      KM      TO THE CROSSING AT CHAPEL HILLS DRIVE.

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669 KM USE AN APPROXIMATE AVERAGE CHANNEL SECTION AND SLOPE FOR ROUTING.
 670 RD 1600 .018 .060 TRAP 30 2

 671 KK SB-PM4
 672 KM COMPUTE HYDROGRAPH FOR BASIN PM4
 673 BA .111
 674 LS 0 71.9
 675 UD .170

 676 KK AP13
 677 KM COMBINE FLOW FROM BASIN PM4 TO THE ROUTED FLOW RT-AP12 IN PINE CREEK MAIN
 678 KM CHANNEL ON THE EAST SIDE OF THE CHAPEL HILLS DRIVE CROSSING
 679 HC 2
 680 KM *****
 681 KM *****BEGIN SOUTH CHAPEL HILLS DRIVE STORM DRAIN WATERSHED*****
 682 KM *****
 HEC-1 INPUT

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

683 KK SB-CS1
 684 KM COMPUTE HYDROGRAPH FOR BASIN CS1
 685 BA .053
 686 LS 0 73.8
 687 UD .181

 688 KK RT-CS1
 689 KM ROUTE FLOW 1300 LF WEST IN DYNAMIC DR. ASSUME BULK OF FLOW IS ON THE SURFACE
 690 RD 1300 .021 .013 TRAP 32 .01

 691 KK SB-CS2
 692 KM COMPUTE HYDROGRAPH FOR BASIN CS2
 693 BA .070
 694 LS 0 98.0
 695 UD .101

 696 KKRR-DFCS2
 697 KM ROUTE FLOW THRU AN ASSUMED DETENTION FACILITY TO REFLECT DETENTION OF 1.6cfs
 698 KM /ACRE FROM THE LI/O PROPERTY AS ASSUMED IN THE MDDP FOR BRIARGATE BUSINESS
 699 KM CAMPUS. BECAUSE THE DISCHARGE CONFIGURATION IS UNKNOWN AT THIS TIME ASSUME
 700 KM THAT THE PEAK DISCHARGE RATE MAY BE DISCHARGED AS SOON AS IT IS AVAILABLE AT
 701 KM THE POND TO REFLECT POTENTIAL FREE DISCHARGE FROM A PORTION OF THE SUBBASIN
 702 KM DISCHARGE REDUCTION ASSUMED AT 1.6 cfs x 37ac=60 cfs
 703 RS 1 STOR 0
 704 SV 0 .001 6 10
 705 SE 100 102 104 106
 706 SQ 0 194 194 194

 707 KK AP14
 708 KM COMBINE ROUTED FLOW RT-CS1 TO CONTROLLED FLOW FROM BASIN CS2 AT THE
 709 KM INTERSECTION OF CHAPEL HILLS DR. AND DYNAMIC DR.
 710 HC 2

 711 KK RT-AP14
 712 KM ROUTE FLOW 1100 LF NORTH IN THE CHAPEL HILLS DR. S.D. TO BRIARGATE PKWY.
 713 KM NOTE: THE CALCULATED 100 YEAR FLOW IS IN EXCESS OF THE FULL PIPE CAPACITY
 714 KM OF THE STORM DRAIN BETWEEN DYNAMIC DRIVE AND BRIARGATE PARKWAY. SOME OF
 715 KM THE FLOW MAY BE ON THE SURFACE IN CHAPEL HILLS DRIVE.
 716 RD 1100 .02 .013 CIR 4

 717 KK SB-CS3
 718 KM COMPUTE HYDROGRAPH FOR BASIN CS3
 719 BA .051
 720 LS 0 85.5
 721 UD .177

 722 KKRR-DFCS3
 723 KM ROUTE FLOW THRU AN ASSUMED DETENTION FACILITY TO REFLECT DETENTION REDUCING
 724 KM THE PEAK 100YR FLOW RATE FROM THE 9 ACRES OF THE BASIN THAT ARE DESIGNATED
 725 KM AS LI/O USE AS ASSUMED IN MDDP FOR BRIARGATE BUSINESS CAMPUS.
 726 KM BECAUSE THE DISCHARGE CONFIGURATION IS UNKNOWN AT THIS TIME ASSUME
 727 KM THAT THE PEAK DISCHARGE RATE MAY BE DISCHARGED AS SOON AS IT IS AVAILABLE
 728 KM AT THE POND TO REFLECT FREE DISCHARGE FROM A PORTION OF THE SUB BASIN.
 729 KM DISCHARGE REDUCTION ASSUMED AT 1.6 cfs x 9=14 cfs
 HEC-1 INPUT

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LINE	ID	1	2	3	4	5	6	7	8	9	10
730	RS	1	STOR	0							
731	SV	0	.001	6	10						
732	SE	100	102	104	106						
733	SQ	0	123	123	123						
734	KK	AP15									
735	KM	COMBINE ROUTED FLOW RT-AP14 WITH CONTROLLED FLOW FROM BASIN CS3 AT THE									
736	KM	INTERSECTION OF CHAPEL HILLS DR. AND BRIARGATE PARKWAY. NOTE A SMALL PORTION									
737	KM	OF BASIN CS3 IS LOCATED DOWNSTREAM OF THIS POINT. FOR THIS MODELING PURPOSE									
738	KM	THIS IS CONSIDERED INSIGNIFICANT.									
739	HC	2									
740	KK	RT-AP15									
741	KM	ROUTE FLOW 1400 LF NORTH IN THE CHAPEL HILLS DR. S.D.									
742	KM	NOTE: THE CALCULATED 100 YEAR FLOW IS IN EXCESS OF THE FULL PIPE CAPACITY									
743	KM	OF THE STORM DRAIN BETWEEN BRIARGATE PARKWAY AND PINE CREEK. SOME OF									
744	KM	THE FLOW MAY BE ON THE SURFACE IN CHAPEL HILLS DRIVE. A SMALL PORTION OF									
745	KM	THE SURFACE FLOW MAY BE DIVERTED DOWN BRIARGATE PARKWAY, BUT FOR THE PURPOS									
746	KM	OF THIS ANALYSIS ALL OF THE FLOW FROM THE CHAPEL HILLS DRIVE/BRIARGATE PKY.									
747	KM	INTERSECTION IS ASSUMED TO REACH PINE CREEK AT CHAPEL HILLS DRIVE.									
748	RD	1400	.045	.013		CIR	4.5				
749	KK	SB-CS4									
750	KM	COMPUTE HYDROGRAPH FOR BASIN CS4									
751	BA	.066									
752	LS	0	86.0								
753	UD	.128									
754	KK	RR-DFVC									
755	KM	ROUTE FLOW THRU THE PROPOSED VILLAGE CENTER DETENTION FACILITY									
756	KM	POND VOLUME BASED ON 1/02 SURVEY									
757	KM	DISCHARGE BASED ON 18" FES OUTLET WITH AN INVERT ELEV.=70.7									
758	KM	BUREAU OF PUBLIC ROADS NOMOGRAPH USED TO ESTIMATE OUTFLOW RATES ASSUMING									
759	KM	INLET CONTROL.									
760	RS	1	STOR	0							
761	SV	0	.01	0.68	2.11	3.72	5.70	6.8			
762	SE	70.7	72	74	76	78	80	81			
763	SQ	0	5	15	21	25	28	29			
764	KK	AP16									
765	KM	COMBINE ROUTED FLOW RT-AP15 WITH THE DISCHARGE FROM THE VILLAGE CENTER POND									
766	HC	2									
767	KK	RT-AP16									
768	KM	ROUTE THE FLOW IN THE CHAPEL HILLS DRIVE STORM DRAIN FROM AP16 TO AP19 IN									
769	KM	PINE CREEK MAIN CHANNEL ON THE DOWNSTREAM SIDE OF THE CHAPEL HILLS DRIVE									
770	KM	CROSSING									
771	RD	300	.03	.013		CIR	4.5				
772	KM	*****									
773	KM	****BEGIN CALCULATION OF THE NORTH CHAPEL HILLS DR. STORM DRAIN WATERSHED***									
774	KM	*****									

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LINE	ID	1	2	3	4	5	6	7	8	9	10
775	KK	SB-CN1									
776	KM	COMPUTE RUNOFF FROM BASIN CN1 THE WATERSHED CONTRIBUTING TO THE PARK SITE AT									
777	KM	CHAPEL HILLS DRIVE POND (REGIONAL DETENTION FACILITY "A").									
778	BA	.11									
779	LS	0	78.4								
780	UD	.190									
781	KK	RR-DFA									
782	KM	ROUTE THE FLOW FROM CN1 THROUGH THE DETENTION POND AT THE PARK									
783	KM	SITE AT CHAPEL HILLS DRIVE. STAGE STORAGE CURVE PER THE 12/22/97 GRADING PLAN									
784	KM	DISCHARGE CURVE REFLECTS 12" DIAMETER OUTLET PIPE CONTROL FOR NORMAL DISCHARG									
785	KM	AND A 100' LONG EMERGENCY SPILLWAY SET AT ELEVATION 6805.5									
786	KO	3	1								
787	SV	1	STOR	0							
788	SV	0	.01	.22	.99	1.95	2.80	4.25	5.31	6.51	11.64
789	SV	15.36									
790	SQ	2.35	2.54	3.00	3.73	4.35	4.75	5.36	5.50	8.39	9.01
791	SQ	279									
792	SE	6796.6	6797.0	6798.0	6800.0	6802.0	6803.5	6803.51	6804	6804.1	6805.5

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793      SE  6806.5

794      KK  RT-DFA
795      KM  ROUTE OUTFLOW FROM REGIONAL DETENTION POND "A" DOWN THE CHAPEL HILLS STORM
796      KM  DRAIN FROM LEXINGTON DRIVE TO TREELAKE DRIVE
797      RD   930      .04      .013      CIRC      1.5

798      KK  SB-CN2
799      KM  COMPUTE RUNOFF FROM BASIN CN2
800      BA   .078
801      LS    0      75.5
802      UD   .214

803      KK  AP17
804      KM  COMBINE ROUTED FLOW RT-DFA AND FLOW FROM BASIN CN2 AT THE INTERSECTION OF
805      KM  CHAPEL HILLS DRIVE AND TREELAKE DRIVE
806      HC    2

807      KK  RT-AP17
808      KM  ROUTE FLOW AT AP17 DOWN THE CHAPEL HILLS DRIVE STORM DRAIN TO MULLIGAN DR.
809      RD  1400      .05      .013      CIRC      3.5

810      KK  SB-CN3
811      KM  COMPUTE RUNOFF FROM BASIN CN3
812      BA   .043
813      LS    0      80.0
814      UD   .157

815      KK  AP18
816      KM  COMBINE ROUTED FLOW RT-AP17 TO FLOW FROM BASIN CN3 AT INTERSECTION OF CHAPEL
817      KM  HILLS DR. AND MULLIGAN DR.
818      HC    2

                                     HEC-1 INPUT

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

819      KK  RT-AP18
820      KM  ROUTE FLOW AT AP18 DOWN THE CHAPEL HILLS DRIVE STORM DRAIN TO AP19 IN THE
821      KM  PINE CREEK MAIN CHANNEL ON THE DOWNSTREAM SIDE OF THE CHAPEL HILLS DRIVE
822      KM  CROSSING. NOTE A SMALL PORTION OF BASIN CHN3 IS LOCATED SOUTH OF AP18. THIS
823      KM  IS CONSIDERED INSIGNIFICANT FOR THE PURPOSE OF THIS ANALYSIS.
824      RD   600      .04      .013      CIRC      3.5

825      KK  AP19
826      KM  COMBINE ROUTED FLOW RT-AP18 FROM THE NORTH CHAPEL HILLS DR. STORM DRAIN
827      KM  WITH THE ROUTED FLOW RT-AP16 FROM THE SOUTH CHAPEL HILLS DRIVE STORM DRAIN
828      KM  AND THE FLOW IN PINE CREEK MAIN CHANNEL (AP13) AT THE WEST SIDE OF THE CHAPEL
829      KM  HILLS DRIVE CROSSING. FLOW THAT IS TAKEN INTO THE PINE CREEK CHANNEL FORM THE
830      KM  STREET AT THIS POINT HAS BEEN ACCOUNTED FOR IN BASINS CN3 AND CS3. THIS WAS
831      KM  DONE TO REDUCE THE COMPLEXITY OF THE MODEL.
832      HC    3

833      KK  RT-AP19
834      KM  ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL FROM AP19 AT THE CHAPEL HILLS DRIVE
835      KM  CROSSING TO AP19A AT THE OUTFALL FROM THE SUB-BASIN PM6A, USE AVERAGE SLOPES
836      KM  AND APPROXIMATE CROSS SECTIONS FOR ROUTING.
837      RD   550      .035      .060      TRAP      30      2
838      RD   650      .025      .060      TRAP      120     2

839      KK  SB-PM6A
840      KM  COMPUTE HYDROGRAPH FOR BASIN PM6A
841      BA   .042
842      LS    0      90.0
843      UD   .131

844      KK  AP19A
845      KM  COMBINE FLOW FROM BASIN PM6A WITH THE ROUTED FLOW IN PINE CREEK
846      HC    2

847      KKRT-AP19A
848      KM  ROUTE THE FLOW IN PINE CREEK MAIN CHANNEL FROM AP19A AT THE OUTFALL FROM
849      KM  SUB-BASIN PM6A TO AP20 AT REGIONAL DETENTION FACILITY 1 AT BRIARGATE PARKWAY
850      KM  AND HIGHWAY 83. USE AVERAGE SLOPES AND APPROXIMATE CROSS SECTIONS FOR ROUTING
851      RD   450      .025      .060      TRAP      120     2
852      RD  1400      .026      .060      TRAP      60      2

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853 KK SB-PM5
 854 KM COMPUTE HYDROGRAPH FOR BASIN PM5
 855 BA .193
 856 LS 0 70.5
 857 UD .185

 858 KK AP20
 859 KM COMBINE FLOW FROM BASIN PM5 WITH THE ROUTED FLOW IN PINE CREEK
 860 HC 2

HEC-1 INPUT

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

861 KK SB-PM6B
 862 KM COMPUTE HYDROGRAPH FOR SUB-BASIN PM6B
 863 KM NOTE:THE MDDP FOR BRIARGATE BUSINESS CAMPUS REQUIRES DETENTION IN THIS
 864 KM SUBBASIN. FOR THE PURPOSE OF THIS ANALYSIS NO DETENTION IS ASSUMED TO ALLOW
 865 KM THE DEVELOPER THE OPTION OF CONSTRUCTING LARGER CONVEYANCE FACILITIES TO
 866 KM DETENTION FACILITY No. 1 AND ALLOWING FREE DISCHARGE FROM THE BASIN.
 867 BA .036
 868 LS 0 98.0
 869 UD .115

 870 KK AP21
 871 KM COMBINE FLOW FROM PM6A WITH THE FLOW IN PINE CREEK AT AP21 FOR THE TOTAL FLOW
 872 KM IN PINE CREEK CHANNEL AS IT ENTERS DETENTION FACILITY No 1
 873 KO 0 1
 874 HC 2

 875 KK SB-PM7
 876 KM COMPUTE HYDROGRAPH FOR BASIN PM7 THE AREA NORTH OF DETENTION FACILITY 1
 877 KM NOTE: THE MDDP FOR THE BRIARGATE BUSINESS CAMPUS REQUIRES DETENTION IN
 878 KM THE NON RESIDENTIAL PORTIONS OF THIS AREA. FOR THE PURPOSE OF THIS ANALYSIS
 879 KM FREE DISCHARGE FROM THE BASIN IS ASSUMED. THE RESIDENTIAL PORTION OF THE
 880 KM BASIN LOCATED IN OUTSIDE THE CITY LIMITS IS ASSUMED TO BE FULLY DEVELOPED
 881 KM AS 1 DU PER ACRE RESIDENTIAL.
 882 BA .138
 883 LS 0 76.3
 884 UD .353
 885 KM *****
 886 KM *****BEGIN CALCULATIONS FOR THE FOCUS ON THE FAMILY STORM DRAIN WATERSHED*****
 887 KM *****

 888 KK SB-F1
 889 KM COMPUTE HYDROGRAPH FOR BASIN F1
 890 BA .119
 891 LS 0 78.3
 892 UD .208

 893 KK F1P
 894 KM DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY ASSUMING
 895 KM FULL PIPE FLOW IN 36" DIA @3.44% FROM THE SAG POINT IN LEXINGTON DRIVE.
 896 KM FULL FLOW CAPACITY= 123cfs
 897 DT F1S
 898 DI 123 150 200 250
 899 DQ 0 27 77 127

 900 KK RT-F1P
 901 KM ROUTE FLOW IN THE STORM DRAIN 1300 LF WEST FROM THE SAG PT. IN LEXINGTON
 902 KM DRIVE TO SUMMER FIELD POND
 903 RD 1300 .036 .013 CIRC 3

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

904 KK SB-F2
 905 KM COMPUTE HYDROGRAPH FOR BASIN F2
 906 BA .039
 907 LS 0 74.0
 908 UD .171

 909 KK SB-F1S
 910 KM RETRIEVE FLOW THAT WILL NOT FIT IN THE STORM DRAIN AT LEXINGTON DRIVE
 911 DR F1S

912 KK RT-F1S
 913 KM ROUTE THE EXCESS FLOW THAT IS ON THE SURFACE OF LEXINGTON DRIVE AT THE SAG
 914 KM POINT OVERLAND IN A GRASS LINED SWALE TO THE SUMMERFIELD DETENTION BASIN
 915 RD 1300 .037 .040 TRAP 15 6

 916 KK AP-DFSF
 917 KM COMBINE ROUTED FLOWS RT-F1S AND RT-F1P WITH FLOW FROM F2 AT THE SUMMER
 918 KM FIELD POND. THIS IS THE TOTAL FLOW TO THE POND
 919 HC 3

 920 KK RR-DFSF
 921 KM ROUTE THE FLOW AT AP-DFSF THROUGH THE SUMMER FIELD DETENTION BASIN.
 922 KM THE INFLOW/OUTFLOW S.D. FOR THIS FACILITY IS BURIED BELOW THE POND BOTTOM.
 923 KM THE POND FILLS WHEN THE CAPACITY OF THE DOWNSTREAM REACH OF S.D. IS
 924 KM EXCEEDED. THIS CONFIGURATION PRESENTS A COMPLEX HYDRAULIC PROBLEM. IT IS
 925 KM ASSUMED THAT UNTIL INFLOW >120cfs FLOW WILL PASS THROUGH THE STORM DRAIN.
 926 KM WHEN INFLOW > 120cfs BACKWATER WILL FORM AT THE OUTLET AND THE LID ON THE
 927 KM UPSTREAM MANHOLE WILL LIKELY BE LIFTED OFF AND SOME FLOW WILL ENTER THE POND
 928 KM FROM THAT POINT. WHEN INFLOW>120cfs IT IS ASSUMED THAT THE HEAD LOSS AT
 929 KM THE OUTLET WILL BE APPROXIMATELY 1*VELOCITY HEAD FOR THE PURPOSE OF
 930 KM CALCULATING THE DISCHARGE CURVE.
 931 KO 3 1
 932 RS 1 STOR 0
 933 SV 0 0.57 4.63 6.87 10.32
 934 SE 92 94 96 98 100
 935 SQ 120 126 131 137 144

 936 KK RT-DFSF
 937 KM ROUTE OUTFLOW FROM THE DETENTION BASIN IN A 48" S.D. TO RESEARCH PKWY.
 938 RD 800 .018 .013 CIRC 4

 939 KK SB-F3
 940 KM COMPUTE HYDROGRAPH FOR BASIN F3
 941 BA .114
 942 LS 0 77.0
 943 UD .215

 944 KK AP22
 945 KM COMBINE ROUTED FLOW RT-DTSF TO FLOW FROM BASIN F3 AT THE INTERSECTION OF
 946 KM RESEARCH PARKWAY AND SUMMERSET DRIVE.
 947 HC 2

HEC-1 INPUT

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

948 KK AP22P
 949 KM DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY AT THE
 950 KM INTERSECTION OF RESEARCH PARKWAY AND SUMMERSET DRIVE. CONTROLLING
 951 KM DOWNSTREAM STORM DRAIN IS A 60" DIA RCP @ S=1%, FULL FLOW CAPACITY= 260cfs
 952 KM THE DIVERTED FLOW IS ASSUMED TO RUN DOWN SUMMERSET DR. SOUTH OF RESEARCH
 953 KM PARKWAY AND EVENTUALLY TO COTTONWOOD CREEK.
 954 DT AP22S
 955 DI 260 261 280 300 320 340 360 380
 956 DQ 0 1 20 40 60 80 100 120

 957 KKRT-AP22P
 958 KM ROUTE THE S.D.FLOW FROM THE BRIARGATE PKWY/ SUMMERSET INTERSECTION TO THE
 959 KM INTERSECTION OF RESEARCH PKWY. AND CHAPEL HILLS DR.
 960 RD 2100 .02 .013 CIRC 5

 961 KK SB-F4
 962 KM COMPUTE HYDROGRAPH FOR BASIN F4
 963 BA .038
 964 LS 0 83.0
 965 UD .197

 966 KK RR-DFF4
 967 KM ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
 968 KM RATE OF 1.6 CFS/ACRE FROM THE 11.5 AC THAT WILL BE DEVELOPED AS LI/O
 969 KM DISCHARGE REDUCTION PER ACRE IS DETERMINED PER THE RATE AND AREA INCLUDED
 970 KM IN THE MDDP FOR BRIARGATE BUSINESS CAMPUS
 971 KM THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
 972 KM THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE SITE WILL LIKELY
 973 KM FREE DISCHARGE TO THE ADJACENT STREET
 974 KM DISCHARGE REDUCTION = LI/O AREA (acres)11.5 x 1.6 cfs = 18.4 cfs
 975 RS 1 STOR 0

976	SV	0	.001	6	10				
977	SE	100	102	104	106				
978	SQ	0	70.6	70.6	70.6				

979 KK AP23
 980 KM COMBINE ROUTED FLOW RT-AP22P TO FLOW FROM BASIN F4 AT THE INTERSECTION OF
 981 KM RESEARCH PARKWAY AND CHAPEL HILLS DR.
 982 HC 2

983 KK AP23P
 984 KM DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY AT THE
 985 KM FIRST MANHOLE (MH8) DOWNSTREAM OF THE INTERSECTION OF RESEARCH PARKWAY AND
 986 KM CHAPEL HILLS DRIVE. THE MANHOLE IS LOCATED JUST UPSTREAM OF A PIPE SIZE
 987 KM REDUCTION FROM 54" TO 48" DIA.. IT IS ASSUMED THAT THE MH LID WILL BE PUSHED
 988 KM OFF BY THE HIGH HGL ABOVE THE TRANSITION AT THE ESTIMATED 100 YEAR PEAK
 989 KM FLOW RATE. DOWNSTREAM PIPE CAPACITY IS ESTIMATED AT 298 cfs BASED ON
 990 KM FULL PIPE CONVEYANCE CAPACITY OF 48" DIA RCP, SLOPE = 4.3%
 991 DT AP23S
 992 DI 298 300 325 350 375 400 425 450 470
 993 DQ 0 2 27 52 77 102 127 152 172

HEC-1 INPUT

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

994 KKRT-AP23P
 995 KM ROUTE THE FLOW IN THE STORM DRAIN FROM THE RESEARCH PKWY/CHAPEL HILLS DR.
 996 KM INTERSECTION TO THE INTERSECTION OF EXPLORER DRIVE AND THE FOCUS ON THE
 997 KM FAMILY S.D.
 998 RD 2100 .044 .013 CIRC 4

999 KK AP23S
 1000 KM RETRIEVE THE DIVERTED FLOW AT MH8 JUST DOWNSTREAM OF THE INTERSECTION OF
 1001 KM RESEARCH PARKWAY AND CHAPEL HILLS DRIVE. THIS IS SURFACE FLOW.
 1002 DR AP23S

1003 KKRT-AP23S
 1004 KM ROUTE THE SURFACE FLOW AT MH8 ACCROSS THE FOCUS SITE TO EXPLORER DRIVE
 1005 KM ASSUME FLOW WILL BE SHALLOW AND WIDE THROUGH THE PARKING LOTS
 1006 RD 1550 .042 .015 TRAP 75 50

1007 KK SB-F5
 1008 KM COMPUTE HYDROGRAPH FOR BASIN F5
 1009 BA .064
 1010 LS 0 89.0
 1011 UD .121

1012 KK RR-DFF5
 1013 KM ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
 1014 KM RATE BASED ON APPROXIMATELY 35% OF THE DIFFERENCE BETWEEN THE DEVELOPED
 1015 KM AND HISTORIC PEAK 100 YR FLOW RATE PER THE ORIGINAL DBPS CRITERIA FOR LI/O
 1016 KM LAND USE. HISTORIC 100 YR PEAK ESTIMATED AT 1.5 CFS/AC. FULLY DEVELOPED 100
 1017 KM YR PEAK ESTIMATED AT 4.9 CFS/AC. ESTIMATED REQUIRED DETENTION =
 1018 KM $(4.9-1.5)*.35*35AC=41cfs$ TOTAL Qin=199cfs
 1019 KM THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
 1020 KM THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN DISCHARGES
 1021 KM DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN
 1022 RS 1 STOR 0
 1023 SV 0 .001 6 10
 1024 SE 100 102 104 106
 1025 SQ 0 158 158 158

1026 KK AP24
 1027 KM COMBINE THE ROUTED FLOW IN THE S.D.(RTAP23P) TO FLOW FROM FF1 AND THE SURFACE
 1028 KM FLOW THAT WAS DIVERTED THROUGH THE FOCUS SITE FROM MH8(RP102A) AT THE
 1029 KM INTERSECTION OF EXPLORER DRIVE AND THE FOCUS ON THE FAMILY STORM DRAIN.
 1030 HC 3

1031 KK AP24P
 1032 KM DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY AT THE
 1033 KM INTERSECTION OF EXPLORER DRIVE AND TELSTAR DRIVE. DOWNSTREAM
 1034 KM STORM DRAIN IS A 66" DIA RCP @ S=1.1%, FULL FLOW CAPACITY= 350cfs
 1035 KM ASSUME THIS DIVERTED FLOW WILL GO WEST DOWN TELSTAR DRIVE
 1036 DT AP24S
 1037 DI 350 351 370 390 410 430 450 470 490
 1038 DQ 0 1 20 40 60 80 100 120 140

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

1039 KKRT-AP24P
 1040 KM ROUTE THE FLOW IN THE FOCUS STORM DRAIN FROM AP24 AT THE INTERSECTION OF
 1041 KM EXPLORER DRIVE AND THE FOCUS S.D. TO AP25 AT THE INTERSECTION OF EXPLORER
 1042 KM DRIVE & BRIARGATE PKWY
 1043 RD 800 .011 .013 CIRC 5.5

 1044 KK SB-F6
 1045 KM COMPUTE HYDROGRAPH FOR BASIN F6
 1046 BA .038
 1047 LS 0 93.5
 1048 UD .106

 1049 KK RR-DFF6
 1050 KM ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
 1051 KM RATE BASED ON APPROXIMATELY 35% OF THE DIFFERENCE BETWEEN THE DEVELOPED
 1052 KM AND HISTORIC PEAK 100 YR FLOW RATE. HISTORIC ESTIMATED AT 1.5 CFS/AC.
 1053 KM FULLY DEVELOPED ESTIMATED AT 5.4 CFS/AC. ESTIMATED REQUIRED DETENTION =
 1054 KM $(5.4 - 1.5) * .35 * 21.5 \text{ AC} = 29 \text{ cfs}$ TOTAL Qin=131cfs
 1055 KM THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
 1056 KM THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN DISCHARGES
 1057 KM DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN
 1058 RS 1 STOR 0
 1059 SV 0 .001 6 10
 1060 SE 100 102 104 106
 1061 SQ 0 102 102 102

 1062 KK SB-F7
 1063 KM COMPUTE HYDROGRAPH FOR BASIN F7
 1064 BA .052
 1065 LS 0 90.5
 1066 UD .137

 1067 KK RR-DFF7
 1068 KM ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
 1069 KM RATE BASED ON APPROXIMATELY 35% OF THE DIFFERENCE BETWEEN THE DEVELOPED
 1070 KM AND HISTORIC PEAK 100 YR FLOW RATE. HISTORIC ESTIMATED AT 1.5 CFS/AC.
 1071 KM FULLY DEVELOPED ESTIMATED AT 4.9 CFS/AC. ESTIMATED REQUIRED DETENTION =
 1072 KM $(4.9 - 1.5) * .35 * 29 \text{ AC} = 35 \text{ cfs}$ TOTAL Qin=164cfs
 1073 KM THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
 1074 KM THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN DISCHARGES
 1075 KM DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN
 1076 RS 1 STOR 0
 1077 SV 0 .001 6 10
 1078 SE 100 102 104 106
 1079 SQ 0 129 129 129

 1080 KK AP25
 1081 KM COMBINE ROUTED FLOW RT-AP25P TO CONTROLLED FLOW FROM BASINS F6 AND F7
 1082 KM AT THE INTERSECTION OF EXPLORER DR AND BRIARGATE PKWY.
 1083 HC 3

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

1084 KK AP25P
 1085 KM DIVERT FLOW IN EXCESS OF THE DOWNSTREAM STORM DRAIN CAPACITY AT THE
 1086 KM INTERSECTION OF EXPLORER DR. AND BRIARGATE PARKWAY. CONTROL APPEARS TO
 1087 KM BE DOWNSTREAM 54" DIA S.D. @ 5.5% SLOPE, FULL PIPE CAPACITY=461cfs
 1088 KM DIVERTED FLOW IS ASSUMED TO FLOW DOWN BRIARGATE PARKWAY TO THE SUMP
 1089 KM ADJACENT TO FACILITY #1
 1090 DT AP25S
 1091 DI 461 464 475 500 525 550 575 600 625
 1092 DQ 0 1 14 39 64 89 114 139 164

 1093 KKRT-AP25P
 1094 KM ROUTE THE FLOW IN THE S.D.FROM THE INTERSECTION OF EXPLORER DR. & BRIARGATE
 1095 KM PARKWAY TO DETENTION FACILITY 1 AT BRIARGATE PKWY & HIGHWAY 83
 1096 RD 1250 .011 .013 CIRC 5.5

 1097 KK SB-PM8
 1098 KM COMPUTE HYDROGRAPH FOR BASIN PM8 THE PORTION OF BRIARGATE PARKWAY BETWEEN
 1099 KM EXPLORER DR. AND HIGHWAY 83

1100 BA .014
 1101 LS 0 98.0
 1102 UD .100

 1103 KK AP-DF#1
 1104 KM ADD THE FLOW FROM THE FOCUS ON THE FAMILY STORM DRAIN, BASINS PM7 AND PM8,
 1105 KM AND FLOW IN PINE CREEK FOR THE TOTAL INFLOW TO DETENTION FACILITY 1
 1106 HC 4

 1107 KK RR-DF#1
 1108 KM MODEL STORAGE VOLUME BASED ON 2001 AREAL TOPOGRAPHY. OUTLET MODELED
 1109 KM ASSUMING THE TOP 7.5' OF THE ENTRANCE TO THE 10'R X 12'S HIGH BOX CULVERT IS
 1110 KM BLOCKED AND A NEW 12' WIDE OPENING IS CREATED W/ INVERT AT 67.2
 1111 KM OUTFLOW CURVE CALCULATED WITH A SPREADSHEET TREATING THE LOWER OPENING AS
 1112 KM A SUBMERGED ORIFICE WITH C=.60, h=POND DEPTH - NORMAL DEPTH IN THE OUTFALL
 1113 KM AND THE UPPER OPENING TO ELEVATION 73.0 TREATED AS A SHARP CRESTED WEIR WITH
 1114 KM A FULL LENGTH OF 12.77' (THE SKEW LENGTH) ADJUSTED 0.2h FOR END CONTRACTIONS
 1115 KM AND C=3.22+0.40(h/P) WHERE P=14.2. ABOVE ELEVATION 73.0 THE TOP OUTLET
 1116 KM STRUCTURE IS ASSUMED TO TERMINATE WITHOUT A TOP AND THUS ADDITIONAL FLOW CAN
 1117 KM OVER TOP THE SIDES AND BACK OF THE ASSUMED 3 SIDED STRUCTURE 12.77 x 10
 1118 KO 3 1
 1119 RS 1 STOR 0
 1120 SA 0 0.01 0.02 3.78 4.60 4.95 5.25 5.55 5.85 6.17
 1121 SA 6.55 6.76 6.98 7.23 7.49
 1122 SE 54.0 55.0 56.0 58.0 60.0 62.0 64.0 66.0 68.0 70.0
 1123 SE 72.0 73.0 74.0 75.0 76.0
 1124 SQ 0 99 184 261 326 380 427 470 532 718
 1125 SQ 969 1112 1264 1750 2100
 1126 KM SQ 0, 105, 194, 275, 344, 401, 451, 496, 560, 747, 998, 1142, 12
 1127 KM SQ 1750, 2100

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

1128 KK AP25S
 1129 KM RETRIEVE THE DIVERTED FLOW AT THE INTERSECTION OF BRIARGATE PARKWAY AND
 1130 KM EXPLORER DRIVE. THIS IS FLOW IN THE STREET.
 1131 DR AP25S

 1132 KKRT-AP25S
 1133 KM ROUTE THE SURFACE FLOW IN BRIARGATE PARKWAY DOWN BRIARGATE PARKWAY TO PINE
 1134 KM CREEK. ASSUME THIS FLOW ENTERS THE CHANNEL AT THE OUTLET FROM DETENTION
 1135 KM FACILITY #1.
 1136 RD 1400 .043 .015 TRAP 75 .01

 1137 KK AP26
 1138 KM COMBINE ROUTED FLOW RT-AP25S TO THE OUTFLOW FROM DF#1 AT THE INTERSECTION OF
 1139 KM BRIARGATE PKWY. AND PINE CREEK
 1140 HC 2

 1141 KK RT-AP26
 1142 KM ROUTE THE COMBINED FLOW FROM AP26 AT BRIARGATE PARKWAY DOWN PINE CREEK TO
 1143 KM AP-27 UPSTREAM OF THE INTERSECTION OF PINE CREEK AND HIGHWAY 83. USE AVERAGE
 1144 KM APPROXIMATE SECTION AND SLOPE FOR ROUTING
 1145 RD 1450 .019 .060 TRAP 40 2

 1146 KK SB-PM9
 1147 KM COMPUTE HYDROGRAPH FOR BASIN PM9
 1148 BA .068
 1149 LS 0 83.5
 1150 UD .146

 1151 KK AP27
 1152 KM COMBINE THE FLOW FROM BASIN PM9 AND THE ROUTED FLOW IN PINE CREEK (RT-AP26) A
 1153 KM AT THE UPSTREAM SIDE OF HIGHWAY 83.
 1154 HC 2

 1155 KK SB-PM10
 1156 KM COMPUTE HYDROGRAPH FOR BASIN PM10
 1157 BA .048
 1158 LS 0 98.0
 1159 UD .12

 1160 KKRRDFPM10
 1161 KM ROUTE FLOW THRU A POND ROUTING ROUTINE TO REFLECT REDUCTION IN PEAK FLOW
 1162 KM RATE TO THE APPROXIMATE PEAK FLOW RATE DISCHARGE GOAL FROM THE BASIN

1163 KM AS SHOWN IN THE FINAL DRAINAGE REPORT FOR BRIARGATE BUSINESS CAMPUS
 1164 KM FILING 13 AS APPROVED OCT 31, 1996
 1165 KM THE ROUTING ROUTINE ONLY REGULATES THE PEAK DISCHARGE AND DOES NOT LAG
 1166 KM THE DISCHARGE. THIS IS APPROPRIATE AS A PORTION OF THE BASIN MAY DISCHARGE
 1167 KM DIRECTLY TO THE ADJACENT STREET AND STORM DRAIN.
 1168 KM DISCHARGE FROM THE BASIN PER THE FINAL DRAINAGE REPORT=140 cfs
 1169 RS 1 STOR 0
 1170 SV 0 001 .6 1.5
 1171 SE 100 102 104 106
 1172 SQ 0 140 140 140

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

1173 KK RT-PM10
 1174 KM ROUTE THE FLOW IN THE S.D.FROM THE LOW POINT IN TELESTAR DR. TO THE EXISTING
 1175 KM OUTFALL TO PINE CREEK JUST UPSTREAM OF HIGHWAY 83.
 1176 RD 1000 .025 .013 CIRC 4.0

 1177 KK SB-PM11
 1178 KM COMPUTE HYDROGRAPH FOR BASIN PM11
 1179 BA .042
 1180 LS 0 98.0
 1181 UD .121

 1182 KK AP24S
 1183 KM RETRIEVE THE FLOW THAT WAS IN EXCESS OF THE STORM DRAIN CAPACITY AT THE
 1184 KM INTERSECTION OF EXPLORER DRIVE AND TELSTAR DRIVE.(AP24S)
 1185 DR AP24S

 1186 KKRT-AP24S
 1187 KM ROUTE THE RETRIEVED FLOW FROM AP24 DOWN TELSTAR DRIVE TO THE SUMP THEN
 1188 KM ACROSS BBC FILING 19 TO AP28 IN PINE CREEK.
 1189 RD 2200 .05 .015 TRAP 40 01

 1190 KK AP28
 1191 KM COMBINE THE FLOW FROM BASIN PM11 WITH THE ROUTED SURFACE FLOW FROM THE
 1192 KM INTERSECTION OF TELSTAR DR. AND EXPLORER DRIVE (RT-AP24S), THE FLOW IN
 1193 KM PINE CREEK AT AP27, AND THE ROUTED FLOW FROM BASIN PM10.
 1194 KM FLOW IS COMBINED IN PINE CREEK AT THE UPSTREAM SIDE OF THE BOX CULVERT
 1195 KM UNDER HIGHWAY 83. THIS REPRESENTS THE TOTAL FLOW TO PINE CREEK FROM THE
 1196 KM BRIARGATE AREA
 1197 KO 3 1
 1198 HC 4
 1199 ZZ

SCHEMATIC DIAGRAM OF STREAM NETWORK

INPUT
 LINE (V) ROUTING (--->) DIVERSION OR PUMP FLOW

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

 15 SB-PNE1
 V
 V
 32 RR-DFNE1
 V
 V
 42 RT-APNE1
 .
 .
 45 . SB-PNE2
 V
 V
 50 . RR-DFNE2
 V
 V
 60 . RT-DFNE2
 .
 .
 63 . SB-PNE3
 .
 .
 68 APE1.....
 .
 .

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80      .----->  APE1a
72      APE1
        V
        V
83      RT-APE1
        .
        .
86      .      SB-PNE4
        .
        .
91      APE2.....
        V
        V
95      RT-APE2
        .
        .
101     .      .<----- APE1a
99      .      DR-APE1a
        .      V
        .      V
102     .      RT-APE1a
        .
        .
106     .      .      SB-PNE5
        .      .
        .      .
111     .      APE3.....
        .
        .
115     APE3a.....
        V
        V
119     RT-APE3a
        .
        .
122     .      SB-PNE6
        .      V
        .      V
127     .      RR-DFNE6
        .      V
        .      V
137     .      RT-DFNE6
        .
        .
140     .      .      SB-PNE7
        .      .
        .      .
145     .      APE4a.....
        .
        .
149     APE4.....
        .
        .
159     .----->  APE4a
152     APE4
        V
        V
162     RT-APE4
        .
        .
165     .      SB-PNE8
        .
        .
170     APE5.....
        V
        V
174     RT-APE5
        .
        .
177     .      SB-PNE9
        .
        .
182     APE6.....
        V
        V
185     RT-APE6
        .

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190 . . . . . APE4a
188 . . . . . APE4a
. . . . . V
. . . . . V
191 . . . . . RT-APE4a
. . . . .
. . . . .
195 . . . . . SB-PNE10
. . . . .
. . . . .
200 . . . . . AP3a.....
. . . . .
. . . . .
205 . . . . . SB-PNE11
. . . . . V
. . . . . V
210 . . . . . RT-PNE11
. . . . .
. . . . .
213 . . . . . SB-PNE12
. . . . .
. . . . .
218 . . . . . AP1.....
. . . . . V
. . . . . V
221 . . . . . RT-AP1
. . . . .
. . . . .
224 . . . . . SB-PNE13
. . . . . V
. . . . . V
229 . . . . . RT-PNE13
. . . . .
. . . . .
233 . . . . . SB-PNE14
. . . . .
. . . . .
238 . . . . . AP2a.....
. . . . .
. . . . .
241 . . . . . AP2.....
. . . . . V
. . . . . V
244 . . . . . RT-AP2
. . . . .
. . . . .
247 . . . . . AP3.....
. . . . .
. . . . .
251 . . . . . SB-PN7
. . . . .
. . . . .
256 . . . . . SB-PN8
. . . . .
. . . . .
261 . . . . . APDFF.....
. . . . . V
. . . . . V
265 . . . . . RR-DFF
. . . . . V
. . . . . V
277 . . . . . RT-DFF
. . . . .
. . . . .
281 . . . . . SB-PN9
. . . . .
. . . . .
286 . . . . . AP4.....
. . . . . V
. . . . . V
289 . . . . . RT-AP4
. . . . .
. . . . .
294 . . . . . SB-PN11
. . . . .
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299	.	.	SB-PN12
	.	.	.
304	APDFE
	V		
	V		
308	RR-DFE		
	V		
	V		
320	RT-DFE		
	.		
323	.	SB-PN15	
	.	.	
328	AP5
	V		
	V		
331	RT-AP5		
	.		
338	.	SB-PSE1	
	.	V	
	.	V	
343	.	RT-PSE1	
	.	.	
346	.	.	SB-PSE2
	.	.	.
351	.	APE7	.....
	.	V	
	.	V	
354	.	RT-APE7	
	.	.	
357	.	.	SB-PSE3
	.	.	.
362	.	APE8	.....
	.	.	
365	.	.	SB-PSE4
	.	.	V
	.	.	V
370	.	.	RT-PSE4
	.	.	.
373	.	.	SB-PSE5
	.	.	.
378	.	.	APE9

	.	.	V
	.	.	V
381	.	.	RT-APE9
	.	.	.
384	.	.	SB-PSE6
	.	.	.
389	.	.	DFD1a

392	.	.	DFD1

	.	.	V
	.	.	V
396	.	.	RR-DFD1
	.	.	V
	.	.	V
408	.	.	RT-DFD1
	.	.	.
411	.	.	SB-PSE7
	.	.	.
416	.	.	SB-PSE8
	.	.	V

421	.	.	.	V	
	.	.	.	RT-PSE8	
	
425	.	.	.	.	SB-PSE9
	
	
430	.	.	.	DFD2.....	
	.	.	.	V	
	.	.	.	V	
433	.	.	.	RR-DFD2	
	.	.	.	V	
	.	.	.	V	
444	.	.	.	RT-DFD2	
	
447	.	.	.	.	SBPSE10
	
	
452	.	.	.	APE10.....	
	
	
456	.	AP6.....	.	.	
	.	V	.	.	
	.	V	.	.	
460	.	RR-AP6	.	.	
	
463	.	.	SB-PSE11	.	
	
	
468	.	AP6A.....	.	.	
	.	V	.	.	
	.	V	.	.	
471	.	RT-AP6A	.	.	
	
474	.	.	SB-PS2	.	
	
	
479	.	AP6B.....	.	.	
	.	V	.	.	
	.	V	.	.	
482	.	RT-AP6B	.	.	
	
486	.	.	SB-PS3	.	
	
491	.	.	.	SB-PS4	
	
	
496	.	AP7.....	.	.	
	.	V	.	.	
	.	V	.	.	
499	.	RT-AP7	.	.	
	
502	.	.	SB-PS5	.	
	
507	.	.	.	SB-PS6	
	
	
512	.	AP7A.....	.	.	
	.	V	.	.	
	.	V	.	.	
515	.	RT-AP7A	.	.	
	
518	.	.	SB-PS7	.	
	
523	.	.	.	SB-PS8	
	
	
528	.	AP8.....	.	.	

	.	V		
	.	V		
531	.	RT-AP8		
	.			
	.		SB-PS9	
534	.		V	
	.		V	
539	.		RT-PS9	
	.			
	.			
542	.	AP9.....		
	.			
	.			
546	.		SB-PS10	
	.			
	.			
551	.	APDFC.....		
	.	V		
	.	V		
555	.	RR-DFC		
	.	V		
	.	V		
564	.	RT-DFC		
	.			
	.			
568	.		SB-PS11	
	.			
	.			
573	.	AP10.....		
	.			
	.			
576	.		SB-PS12	
	.			
	.			
581	.	APDFB.....		
	.	V		
	.	V		
584	.	RR-DFB		
	.	V		
	.	V		
600	.	RT-DFB		
	.			
	.			
604	.		SB-PS13	
	.			
	.			
609	.	AP11.....		
	.	V		
	.	V		
612	.	RT-AP11		
	.			
	.			
616	.	AP5A.....		
	.	V		
	.	V		
620	.	RT-AP5A		
	.			
	.			
626	.	SB-PN13		
	.	V		
	.	V		
631	.	RR-DFIR		
	.			
	.			
641	.		SB-PM1	
	.		V	
	.		V	
646	.		RT-PM1	
	.			
	.			
651	.			SB-PM2
	.			
	.			
656	.			SB-PM3
	.			
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661      AP12.....
        V
        V
666      RT-AP12
        .
        .
671      .      SB-PM4
        .
        .
676      AP13.....
        .
        .
683      .      SB-CS1
        .      V
        .      V
688      .      RT-CS1
        .
        .
691      .      .      SB-CS2
        .      .      V
        .      .      V
696      .      .      RR-DFCS2
        .      .      .
        .      .      .
707      .      AP14.....
        .      V
        .      V
711      .      RT-AP14
        .
        .
717      .      .      SB-CS3
        .      .      V
        .      .      V
722      .      .      RR-DFCS3
        .      .      .
        .      .      .
734      .      AP15.....
        .      V
        .      V
740      .      RT-AP15
        .
        .
749      .      .      SB-CS4
        .      .      V
        .      .      V
754      .      .      RR-DFVC
        .      .      .
        .      .      .
764      .      AP16.....
        .      V
        .      V
767      .      RT-AP16
        .
        .
775      .      .      SB-CN1
        .      .      V
        .      .      V
781      .      .      RR-DFA
        .      .      V
        .      .      V
794      .      .      RT-DFA
        .      .      .
        .      .      .
798      .      .      .      SB-CN2
        .      .      .      .
        .      .      .      .
803      .      .      AP17.....
        .      .      V
        .      .      V
807      .      .      RT-AP17
        .      .      .
        .      .      .
810      .      .      .      SB-CN3
        .      .      .      .
        .      .      .      .
815      .      .      AP18.....
        .      .      V

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819	.	.	V	
	.	.	RT-AP18	
825	.	.	AP19	
	.	.	V	
	.	.	V	
833	.	.	RT-AP19	
839	.	.	SB-PM6A	
844	.	.	AP19A	
	.	.	V	
	.	.	V	
847	.	.	RT-AP19A	
853	.	.	SB-PM5	
858	.	.	AP20	
861	.	.	SB-PM6B	
870	.	.	AP21	
875	.	.	SB-PM7	
888	.	.	SB-F1	
897	.	.		
893	.	.	F1P	-----> F1S
	.	.	V	
	.	.	V	
900	.	.	RT-F1P	
904	.	.	SB-F2	
911	.	.		
909	.	.		
	.	.	SB-F1S	-----< F1S
	.	.	V	
	.	.	V	
912	.	.	RT-F1S	
916	.	.	AP-DFSF	
	.	.	V	
	.	.	V	
920	.	.	RR-DFSF	
	.	.	V	
	.	.	V	
936	.	.	RT-DFSF	
939	.	.	SB-F3	
944	.	.	AP22	
954	.	.		
948	.	.	AP22P	-----> AP22S
	.	.	V	
	.	.	V	
957	.	.	RT-AP22P	
961	.	.	SB-F4	

966	.	.	.	V	
	.	.	.	V	
	.	.	.	RR-DFF4	
	
979	.	.	AP23	.....
	
991	.	.	.	----->	AP23S
983	.	.	AP23P	.	
	.	.	.	V	
	.	.	.	V	
994	.	.	RT-AP23P	.	
	
1002	.	.	.	.	<----- AP23S
999	.	.	.	AP23S	
	.	.	.	V	
	.	.	.	V	
1003	.	.	.	RT-AP23S	
	
1007	.	.	.	.	SB-F5
	.	.	.	.	V
	.	.	.	.	V
1012	.	.	.	.	RR-DFF5

1026	.	.	AP24	.....
	
1036	.	.	.	----->	AP24S
1031	.	.	AP24P	.	
	.	.	.	V	
	.	.	.	V	
1039	.	.	RT-AP24P	.	
	
1044	.	.	.	.	SB-F6
	.	.	.	.	V
	.	.	.	.	V
1049	.	.	.	.	RR-DFF6

1062	.	.	.	.	SB-F7
	.	.	.	.	V
	.	.	.	.	V
1067	.	.	.	.	RR-DFF7

1080	.	.	AP25	.....
	
1090	.	.	.	----->	AP25S
1084	.	.	AP25P	.	
	.	.	.	V	
	.	.	.	V	
1093	.	.	RT-AP25P	.	
	
1097	.	.	.	.	SB-PM8

1103	AP-DF#1	.....	.	.
	.	.	.	V	
	.	.	.	V	
1107	RR-DF#1	.	.	.	
	
1131	.	.	.	.	<----- AP25S
1128	.	.	AP25S	.	
	.	.	.	V	
	.	.	.	V	
1132	.	.	RT-AP25S	.	
	
	
1137	AP26	.....	.	.

COMPUTATION INTERVAL 0.05 HOURS
TOTAL TIME BASE 14.95 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

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32 KK * RR-DFNE1 *
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37 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 1 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

38 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC 0.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

39 SV	STORAGE	0.0	0.0	0.7	1.5	2.7	4.0	5.6	7.5
40 SE	ELEVATION	49.00	50.00	52.00	54.00	56.00	58.00	60.00	62.00
41 SQ	DISCHARGE	0.	4.	35.	60.	81.	92.	103.	114.

*** **

HYDROGRAPH AT STATION RR-DFNE1

PEAK FLOW	TIME		6-HR	24-HR	72-HR	14.95-HR
(CFS)	(HR)					
103.	6.30	(CFS)	29.	13.	13.	13.
		(INCHES)	2.017	2.200	2.200	2.200
		(AC-FT)	15.	16.	16.	16.

PEAK STORAGE	TIME		6-HR	24-HR	72-HR	14.95-HR
(AC-FT)	(HR)					
6.	6.30		1.	0.	0.	0.

PEAK STAGE	TIME		6-HR	24-HR	72-HR	14.95-HR
(FEET)	(HR)					
60.02	6.30		52.11	50.49	50.49	50.49

CUMULATIVE AREA = 0.14 SQ MI

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50 KK  * RR-DFNE2 *
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55 KO      OUTPUT CONTROL VARIABLES
          IPRNT      3  PRINT CONTROL
          IPLOT      1  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

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HYDROGRAPH ROUTING DATA

```

56 RS      STORAGE ROUTING
          NSTPS      1  NUMBER OF SUBREACHES
          ITYP      STOR TYPE OF INITIAL CONDITION
          RSVRIC     0.00 INITIAL CONDITION
          X          0.00 WORKING R AND D COEFFICIENT

```

	STORAGE	0.0	0.0	1.1	2.5	4.2	6.1	8.4	11.1
57 SV									
58 SE	ELEVATION	21.00	22.00	24.00	26.00	28.00	30.00	32.00	34.00
59 SQ	DISCHARGE	0.	5.	41.	85.	104.	121.	138.	155.

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HYDROGRAPH AT STATION RR-DFNE2

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
127.	6.35	(CFS)	36.	16.	16.	16.
		(INCHES)	1.976	2.158	2.158	2.158
		(AC-FT)	18.	20.	20.	20.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	14.95-HR
7.	6.35		1.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	14.95-HR
30.71	6.35		23.92	22.41	22.41	22.41

CUMULATIVE AREA = 0.17 SQ MI

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127 KK  * RR-DFNE6 *
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132 KO      OUTPUT CONTROL VARIABLES
          IPRNT      3  PRINT CONTROL
          IPLOT      1  PLOT CONTROL
          QSCAL      0.  HYDROGRAPH PLOT SCALE

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HYDROGRAPH ROUTING DATA

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133 RS      STORAGE ROUTING
          NSTPS      1  NUMBER OF SUBREACHES
          ITYP      STOR TYPE OF INITIAL CONDITION
          RSVRIC     0.00 INITIAL CONDITION

```

	X	0.00 WORKING R AND D COEFFICIENT					
134 SV	STORAGE	0.0	0.0	0.2	0.4	0.8	1.4
135 SE	ELEVATION	0.00	1.00	2.00	4.00	6.00	8.00
136 SQ	DISCHARGE	0.	3.	7.	11.	14.	16.

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HYDROGRAPH AT STATION RR-DFNE6

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	14.95-HR
15.	6.30	5.	2.	2.	2.
	(INCHES)	2.139	2.323	2.323	2.323
	(AC-FT)	2.	2.	2.	2.
PEAK STORAGE (AC-FT)	TIME (HR)	MAXIMUM AVERAGE STORAGE			
		6-HR	24-HR	72-HR	14.95-HR
1.	6.30	0.	0.	0.	0.
PEAK STAGE (FEET)	TIME (HR)	MAXIMUM AVERAGE STAGE			
		6-HR	24-HR	72-HR	14.95-HR
6.58	6.30	1.76	0.76	0.76	0.76

CUMULATIVE AREA = 0.02 SQ MI

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265 KK * RR-DFF *
* *

272 K0 OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 1 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

273 RS STORAGE ROUTING
 NSTPS 1 NUMBER OF SUBREACHES
 ITYP STOR TYPE OF INITIAL CONDITION
 RSVRIC 0.00 INITIAL CONDITION
 X 0.00 WORKING R AND D COEFFICIENT

274 SV	STORAGE	0.0	0.2	2.6	8.1	15.4	23.7	32.6	42.4	53.1	64.8
275 SE	ELEVATION	13.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	28.00	30.00
276 SQ	DISCHARGE	5.	30.	93.	122.	146.	166.	184.	201.	216.	230.

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HYDROGRAPH AT STATION RR-DFF

PEAK FLOW (CFS)	TIME (HR)	MAXIMUM AVERAGE FLOW			
		6-HR	24-HR	72-HR	14.95-HR

220.	7.40	(CFS)	188.	95.	95.	95.
		(INCHES)	1.902	2.383	2.383	2.383
		(AC-FT)	93.	117.	117.	117.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE
		6-HR	24-HR 72-HR 14.95-HR
(AC-FT)	(HR)		
56.	7.40	37.	16. 16. 16.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE
		6-HR	24-HR 72-HR 14.95-HR
(FEET)	(HR)		
28.55	7.40	24.72	18.33 18.33 18.33

CUMULATIVE AREA = 0.92 SQ MI

308 KK *****
 * RR-DFE *

315 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 1 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

316 RS STORAGE ROUTING
 NSTPS 1 NUMBER OF SUBREACHES
 ITYP STOR TYPE OF INITIAL CONDITION
 RSVRIC 0.00 INITIAL CONDITION
 X 0.00 WORKING R AND D COEFFICIENT

317 SV	STORAGE	0.0	0.3	2.0	4.9	8.3	12.0	16.1	20.6	25.5	30.9
318 SE	ELEVATION	784.00	786.00	788.00	790.00	792.00	794.00	796.00	798.00	800.00	802.00
319 SQ	DISCHARGE	0.	26.	80.	133.	173.	208.	238.	260.	278.	1441.

HYDROGRAPH AT STATION RR-DFE

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW
		6-HR	24-HR 72-HR 14.95-HR
(CFS)	(HR)		
244.	7.80	224.	116. 116. 116.
		(INCHES)	1.712 2.220 2.220 2.220
		(AC-FT)	111. 144. 144. 144.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE
		6-HR	24-HR 72-HR 14.95-HR
(AC-FT)	(HR)		
17.	7.75	14.	7. 7. 7.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE
		6-HR	24-HR 72-HR 14.95-HR
(FEET)	(HR)		
796.58	7.80	795.12	789.78 789.78 789.78

CUMULATIVE AREA = 1.21 SQ MI

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396 KK * RR-DFD1 *
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404 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 1 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

403 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC 0.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

405 SV	STORAGE	0.0	1.3	2.9	5.2	8.9	14.1	20.9	29.5
406 SE	ELEVATION	100.00	102.00	104.00	106.00	108.00	110.00	112.00	114.00
407 SQ	DISCHARGE	0.	37.	53.	65.	75.	84.	92.	100.

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HYDROGRAPH AT STATION RR-DFD1

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
89.	6.60	(CFS)	66.	29.	29.	29.
		(INCHES)	1.933	2.116	2.116	2.116
		(AC-FT)	33.	36.	36.	36.
PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	14.95-HR
19.	6.60		9.	4.	4.	4.
PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	14.95-HR
111.33	6.60		106.96	102.93	102.93	102.93

CUMULATIVE AREA = 0.32 SQ MI

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433 KK * RR-DFD2 *
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440 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 1 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

439 RS STORAGE ROUTING

NSTPS 1 NUMBER OF SUBREACHES
 ITYP STOR TYPE OF INITIAL CONDITION
 RSVRIC 0.00 INITIAL CONDITION
 X 0.00 WORKING R AND D COEFFICIENT

441 SV	STORAGE	0.0	0.6	1.9	3.5	5.4	7.6	10.1
442 SE	ELEVATION	100.00	102.00	104.00	106.00	108.00	110.00	112.00
443 SQ	DISCHARGE	0.	26.	38.	46.	54.	60.	66.

HYDROGRAPH AT STATION RR-DFD2

PEAK FLOW	TIME		MAXIMUM	AVERAGE FLOW	
(CFS)	(HR)		6-HR	24-HR	72-HR 14.95-HR
61.	6.30	(CFS)	30.	13.	13. 13.
		(INCHES)	2.805	3.068	3.068 3.068
		(AC-FT)	15.	16.	16. 16.

PEAK STORAGE	TIME		MAXIMUM	AVERAGE STORAGE	
(AC-FT)	(HR)		6-HR	24-HR	72-HR 14.95-HR
8.	6.30		2.	1.	1. 1.

PEAK STAGE	TIME		MAXIMUM	AVERAGE STAGE	
(FEET)	(HR)		6-HR	24-HR	72-HR 14.95-HR
110.35	6.30		103.95	101.67	101.67 101.67

CUMULATIVE AREA = 0.10 SQ MI

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 555 KK * RR-DFC *
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559 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 1 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

560 RS STORAGE ROUTING
 NSTPS 1 NUMBER OF SUBREACHES
 ITYP STOR TYPE OF INITIAL CONDITION
 RSVRIC 0.00 INITIAL CONDITION
 X 0.00 WORKING R AND D COEFFICIENT

561 SV	STORAGE	0.0	1.1	7.7	16.9	26.9	37.7	49.2	61.5	74.5	88.4
562 SE	ELEVATION	63.00	64.00	66.00	68.00	70.00	72.00	74.00	76.00	78.00	80.00
563 SQ	DISCHARGE	6.	23.	70.	110.	140.	168.	190.	215.	232.	245.

HYDROGRAPH AT STATION RR-DFC

PEAK FLOW	TIME		6-HR	24-HR	72-HR	14.95-HR
(CFS)	(HR)					
228.	7.20	(CFS)	209.	115.	115.	115.
		(INCHES)	1.889	2.594	2.594	2.594
		(AC-FT)	104.	142.	142.	142.

PEAK STORAGE	TIME		6-HR	24-HR	72-HR	14.95-HR
(AC-FT)	(HR)					
72.	7.20		60.	29.	29.	29.

PEAK STAGE	TIME		6-HR	24-HR	72-HR	14.95-HR
(FEET)	(HR)					
77.56	7.20		75.68	69.52	69.52	69.52

CUMULATIVE AREA = 1.03 SQ MI

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584 KK * RR-DFB *
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592 KO      OUTPUT CONTROL VARIABLES
            IPRNT      3  PRINT CONTROL
            IPLOT      1  PLOT CONTROL
            QSCAL      0.  HYDROGRAPH PLOT SCALE

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HYDROGRAPH ROUTING DATA

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593 RS      STORAGE ROUTING
            NSTPS      1  NUMBER OF SUBREACHES
            ITYP      STOR  TYPE OF INITIAL CONDITION
            RSVRIC     0.00 INITIAL CONDITION
            X          0.00 WORKING R AND D COEFFICIENT

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594 SV	STORAGE	0.0	0.1	0.7	2.5	5.1	8.1	11.4	15.2	19.5	23.2
		24.8	30.0								
596 SE	ELEVATION	70.60	72.00	74.00	76.00	78.00	80.00	82.00	84.00	86.00	87.60
		88.00	90.00								
598 SQ	DISCHARGE	0.	20.	86.	117.	142.	163.	181.	198.	213.	225.
		289.	1133.								

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HYDROGRAPH AT STATION RR-DFB

PEAK FLOW	TIME		6-HR	24-HR	72-HR	14.95-HR
(CFS)	(HR)					
219.	9.70	(CFS)	213.	125.	125.	125.
		(INCHES)	1.600	2.348	2.348	2.348
		(AC-FT)	105.	155.	155.	155.

PEAK STORAGE	TIME		6-HR	24-HR	72-HR	14.95-HR
(AC-FT)	(HR)					
21.	9.70		19.	10.	10.	10.

PEAK STAGE	TIME		6-HR	24-HR	72-HR	14.95-HR
(FEET)	(HR)					
86.86	9.70		85.97	79.25	79.25	79.25

CUMULATIVE AREA = 1.24 SQ MI

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631 KK * RR-DFIR *
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636 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 1 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

637 RS STORAGE ROUTING
NSTPS 1 NUMBER OF SUBREACHES
ITYP STOR TYPE OF INITIAL CONDITION
RSVRIC 0.00 INITIAL CONDITION
X 0.00 WORKING R AND D COEFFICIENT

638 SV STORAGE 0.0 3.5 10.0

639 SE ELEVATION 899.50 902.00 903.00

640 SQ DISCHARGE 0. 1. 2.

*** **

HYDROGRAPH AT STATION RR-DFIR

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
1.	14.90	(CFS)	1.	0.	0.	0.
		(INCHES)	0.136	0.187	0.187	0.187
		(AC-FT)	0.	0.	0.	0.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	14.95-HR
2.	14.95		2.	1.	1.	1.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	14.95-HR
901.23	14.95		901.14	900.41	900.41	900.41

CUMULATIVE AREA = 0.05 SQ MI

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781 KK * RR-DFA *
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786 KO OUTPUT CONTROL VARIABLES
IPRNT 3 PRINT CONTROL
IPLOT 1 PLOT CONTROL
QSCAL 0. HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

787 RS	STORAGE ROUTING										
	NSTPS	1	NUMBER OF SUBREACHES								
	ITYP	STOR	TYPE OF INITIAL CONDITION								
	RSVRIC	0.00	INITIAL CONDITION								
	X	0.00	WORKING R AND D COEFFICIENT								
788 SV	STORAGE	0.0	0.0	0.2	1.0	2.0	2.8	4.3	5.3	6.5	11.6
		15.4									
790 SQ	DISCHARGE	2.	3.	3.	4.	4.	5.	5.	6.	8.	9.
		279.									
792 SE	ELEVATION	6796.60	6797.00	6798.00	6800.00	6802.00	6803.50	6803.51	6804.00	6804.10	6805.50
		6806.50									

HYDROGRAPH AT STATION RR-DFA

PEAK FLOW	TIME	MAXIMUM AVERAGE FLOW			
(CFS)	(HR)	6-HR	24-HR	72-HR	14.95-HR
9.	8.15	9.	6.	6.	6.
	(INCHES)	0.729	1.278	1.278	1.278
	(AC-FT)	4.	7.	7.	7.

PEAK STORAGE	TIME	MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)	6-HR	24-HR	72-HR	14.95-HR
9.	8.20	8.	5.	5.	5.

PEAK STAGE	TIME	MAXIMUM AVERAGE STAGE			
(FEET)	(HR)	6-HR	24-HR	72-HR	14.95-HR
6804.78	8.20	6804.62	6801.41	6801.41	6801.41

CUMULATIVE AREA = 0.11 SQ MI

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870 KK

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* AP21 *
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873 KO

OUTPUT CONTROL VARIABLES

IPRNT	5	PRINT CONTROL
IPLOT	1	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

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920 KK

*
* RR-DFSF *
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931 KO

OUTPUT CONTROL VARIABLES

IPRNT	3	PRINT CONTROL
IPLOT	1	PLOT CONTROL
QSCAL	0.	HYDROGRAPH PLOT SCALE

HYDROGRAPH ROUTING DATA

932 RS

STORAGE ROUTING

NSTPS 1 NUMBER OF SUBREACHES
 ITYP STOR TYPE OF INITIAL CONDITION
 RSVRIC 0.00 INITIAL CONDITION
 X 0.00 WORKING R AND D COEFFICIENT

933 SV	STORAGE	0.0	0.6	4.6	6.9	10.3
934 SE	ELEVATION	92.00	94.00	96.00	98.00	100.00
935 SQ	DISCHARGE	120.	126.	131.	137.	144.

HYDROGRAPH AT STATION RR-DFSF

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
130.	6.35	(CFS)	121.	121.	121.	121.
		(INCHES)	7.136	17.669	17.669	17.669
		(AC-FT)	60.	149.	149.	149.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	14.95-HR
4.	6.35		0.	0.	0.	0.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	14.95-HR
95.57	6.35		92.44	92.18	92.18	92.18

CUMULATIVE AREA = 0.16 SQ MI

 * RR-DF#1 *
 * 149 *

1118 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 1 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE
 SQ 0, 105, 194, 275, 344, 401, 451, 496, 560, 747, 998, 1142, 12
 SQ 1750, 2100

HYDROGRAPH ROUTING DATA

1119 RS	STORAGE ROUTING										
	NSTPS	1	NUMBER OF SUBREACHES								
	ITYP	STOR	TYPE OF INITIAL CONDITION								
	RSVRIC	0.00	INITIAL CONDITION								
	X	0.00	WORKING R AND D COEFFICIENT								

1120 SA	AREA	0.0	0.0	0.0	3.8	4.6	4.9	5.3	5.6	5.8	6.2
		6.6	6.8	7.0	7.2	7.5					

1122 SE	ELEVATION	54.00	55.00	56.00	58.00	60.00	62.00	64.00	66.00	68.00	70.00
		72.00	73.00	74.00	75.00	76.00					

1124 SQ	DISCHARGE	0.	99.	184.	261.	326.	380.	427.	470.	532.	718.
		969.	1112.	1264.	1750.	2100.					

COMPUTED STORAGE-ELEVATION DATA

STORAGE	0.00	0.00	0.02	2.73	11.10	20.65	30.85	41.65	53.04	65.06
ELEVATION	54.00	55.00	56.00	58.00	60.00	62.00	64.00	66.00	68.00	70.00

STORAGE	77.78	84.44	91.31	98.41	105.77
ELEVATION	72.00	73.00	74.00	75.00	76.00

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN 0. TO 184.
 THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
 THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

*** *** *** *** ***

HYDROGRAPH AT STATION RR-DF#1

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
1156.	6.60	(CFS)	777.	479.	479.	479.
		(INCHES)	1.644	2.522	2.522	2.522
		(AC-FT)	385.	591.	591.	591.

PEAK STORAGE	TIME		MAXIMUM AVERAGE STORAGE			
(AC-FT)	(HR)		6-HR	24-HR	72-HR	14.95-HR
86.	6.60		68.	38.	38.	38.

PEAK STAGE	TIME		MAXIMUM AVERAGE STAGE			
(FEET)	(HR)		6-HR	24-HR	72-HR	14.95-HR
73.29	6.60		70.37	64.00	64.00	64.00

CUMULATIVE AREA = 4.40 SQ MI

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 *
 1190 KK AP28 *
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1197 KO OUTPUT CONTROL VARIABLES
 IPRNT 3 PRINT CONTROL
 IPLOT 1 PLOT CONTROL
 QSCAL 0. HYDROGRAPH PLOT SCALE

1198 HC HYDROGRAPH COMBINATION
 ICOMP 4 NUMBER OF HYDROGRAPHS TO COMBINE

*** *** *** *** ***

HYDROGRAPH AT STATION AP28

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
(CFS)	(HR)		6-HR	24-HR	72-HR	14.95-HR
1199.	6.60	(CFS)	825.	507.	507.	507.
		(INCHES)	1.685	2.580	2.580	2.580
		(AC-FT)	409.	627.	627.	627.

CUMULATIVE AREA = 4.56 SQ MI

100 YEAR 24 HOUR DEVELOPED
RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	SB-PNE1	271.	6.05	29.	13.	13.	0.14		
ROUTED TO	RR-DFNE1	103.	6.30	29.	13.	13.	0.14	60.02	6.30
ROUTED TO	RT-APNE1	103.	6.30	29.	13.	13.	0.14		
HYDROGRAPH AT	SB-PNE2	324.	6.10	36.	16.	16.	0.17		
ROUTED TO	RR-DFNE2	127.	6.35	36.	16.	16.	0.17	30.71	6.35
ROUTED TO	RT-DFNE2	127.	6.35	36.	16.	16.	0.17		
HYDROGRAPH AT	SB-PNE3	37.	6.05	4.	2.	2.	0.01		
3 COMBINED AT	APE1	239.	6.25	69.	30.	30.	0.32		
DIVERSION TO	APE1a	83.	6.20	12.	5.	5.	0.32		
HYDROGRAPH AT	APE1	156.	6.20	57.	25.	25.	0.32		
ROUTED TO	RT-APE1	156.	6.25	57.	25.	25.	0.32		
HYDROGRAPH AT	SB-PNE4	159.	6.05	16.	7.	7.	0.08		
2 COMBINED AT	APE2	310.	6.05	73.	32.	32.	0.40		
ROUTED TO	RT-APE2	308.	6.05	73.	33.	33.	0.40		
HYDROGRAPH AT	DR-APE1a	83.	6.25	12.	5.	5.	0.00		
ROUTED TO	RT-APE1a	83.	6.35	12.	5.	5.	0.00		
HYDROGRAPH AT	SB-PNE5	22.	6.10	2.	1.	1.	0.02		
2 COMBINED AT	APE3	95.	6.25	15.	6.	6.	0.02		
2 COMBINED AT	APE3a	365.	6.15	88.	39.	39.	0.41		
ROUTED TO	RT-APE3a	363.	6.15	88.	39.	39.	0.41		
HYDROGRAPH AT	SB-PNE6	45.	6.05	5.	2.	2.	0.02		
ROUTED TO	RR-DFNE6	15.	6.30	5.	2.	2.	0.02	6.58	6.30

ROUTED TO	RT-DFNE6	15.	6.35	5.	2.	2.	0.02
HYDROGRAPH AT	SB-PNE7	196.	6.05	21.	9.	9.	0.10
2 COMBINED AT	APE4a	208.	6.05	25.	11.	11.	0.12
2 COMBINED AT	APE4	543.	6.15	113.	50.	50.	0.54
DIVERSION TO	APE4a	370.	6.15	43.	17.	17.	0.54
HYDROGRAPH AT	APE4	173.	6.15	71.	32.	32.	0.54
ROUTED TO	RT-APE4	173.	6.15	71.	32.	32.	0.54
HYDROGRAPH AT	SB-PNE8	97.	6.05	10.	4.	4.	0.04
2 COMBINED AT	APE5	269.	6.05	80.	37.	37.	0.58
ROUTED TO	RT-APE5	268.	6.05	80.	37.	37.	0.58
HYDROGRAPH AT	SB-PNE9	33.	6.00	3.	1.	1.	0.01
2 COMBINED AT	APE6	299.	6.05	83.	38.	38.	0.59
ROUTED TO	RT-APE6	298.	6.05	83.	38.	38.	0.59
HYDROGRAPH AT	APE4a	370.	6.15	43.	17.	17.	0.00
ROUTED TO	RT-APE4a	366.	6.20	43.	17.	17.	0.00
HYDROGRAPH AT	SB-PNE10	73.	6.10	9.	4.	4.	0.06
2 COMBINED AT	AP3a	437.	6.15	51.	21.	21.	0.06
HYDROGRAPH AT	SB-PNE11	251.	6.00	28.	12.	12.	0.07
ROUTED TO	RT-PNE11	251.	6.00	28.	12.	12.	0.07
HYDROGRAPH AT	SB-PNE12	94.	6.00	10.	5.	5.	0.03
2 COMBINED AT	AP1	345.	6.00	38.	17.	17.	0.10
ROUTED TO	RT-AP1	343.	6.00	38.	17.	17.	0.10
HYDROGRAPH AT	SB-PNE13	118.	6.05	12.	5.	5.	0.05
ROUTED TO	RT-PNE13	115.	6.05	12.	5.	5.	0.05
HYDROGRAPH AT	SB-PNE14	42.	6.05	4.	2.	2.	0.02
2 COMBINED AT							

	AP2a	157.	6.05	16.	7.	7.	0.07		
2 COMBINED AT									
	AP2	493.	6.00	54.	24.	24.	0.17		
ROUTED TO									
	RT-AP2	492.	6.00	54.	24.	24.	0.17		
3 COMBINED AT									
	AP3	1178.	6.05	188.	83.	83.	0.81		
HYDROGRAPH AT									
	SB-PN7	119.	6.10	13.	6.	6.	0.07		
HYDROGRAPH AT									
	SB-PN8	110.	6.00	11.	5.	5.	0.04		
3 COMBINED AT									
	APDFF	1401.	6.05	213.	93.	93.	0.92		
ROUTED TO									
	RR-DFF	220.	7.40	188.	95.	95.	0.92	28.55	7.40
ROUTED TO									
	RT-DFF	220.	7.50	188.	94.	94.	0.92		
HYDROGRAPH AT									
	SB-PN9	152.	6.10	17.	8.	8.	0.11		
2 COMBINED AT									
	AP4	309.	6.15	204.	102.	102.	1.03		
ROUTED TO									
	RT-AP4	308.	6.20	204.	102.	102.	1.03		
HYDROGRAPH AT									
	SB-PN11	170.	6.10	19.	8.	8.	0.08		
HYDROGRAPH AT									
	SB-PN12	142.	6.10	16.	7.	7.	0.10		
3 COMBINED AT									
	APDFE	593.	6.15	237.	117.	117.	1.21		
ROUTED TO									
	RR-DFE	244.	7.80	224.	116.	116.	1.21	796.58	7.80
ROUTED TO									
	RT-DFE	244.	7.80	224.	116.	116.	1.21		
HYDROGRAPH AT									
	SB-PN15	112.	6.10	12.	5.	5.	0.07		
2 COMBINED AT									
	AP5	276.	6.15	232.	122.	122.	1.28		
ROUTED TO									
	RT-AP5	276.	6.15	232.	122.	122.	1.28		
HYDROGRAPH AT									
	SB-PSE1	59.	6.10	6.	3.	3.	0.03		
ROUTED TO									
	RT-PSE1	58.	6.10	6.	3.	3.	0.03		
HYDROGRAPH AT									
	SB-PSE2	58.	6.05	6.	3.	3.	0.03		
2 COMBINED AT									
	APE7	114.	6.10	12.	5.	5.	0.06		
ROUTED TO									
	RT-APE7	114.	6.10	12.	5.	5.	0.06		
HYDROGRAPH AT									

	SB-PSE3	171.	6.05	18.	8.	8.	0.08		
2 COMBINED AT	APE8	281.	6.05	30.	13.	13.	0.14		
HYDROGRAPH AT	SB-PSE4	136.	6.10	15.	6.	6.	0.08		
ROUTED TO	RT-PSE4	135.	6.10	15.	6.	6.	0.08		
HYDROGRAPH AT	SB-PSE5	90.	6.05	10.	4.	4.	0.05		
2 COMBINED AT	APE9	224.	6.10	24.	11.	11.	0.12		
ROUTED TO	RT-APE9	224.	6.10	24.	11.	11.	0.12		
HYDROGRAPH AT	SB-PSE6	109.	6.05	12.	5.	5.	0.05		
2 COMBINED AT	DFD1a	332.	6.10	36.	16.	16.	0.18		
2 COMBINED AT	DFD1	611.	6.10	67.	29.	29.	0.32		
ROUTED TO	RR-DFD1	89.	6.60	66.	29.	29.	0.32	111.33	6.60
ROUTED TO	RT-DFD1	89.	6.60	66.	29.	29.	0.32		
HYDROGRAPH AT	SB-PSE7	206.	6.00	23.	10.	10.	0.06		
HYDROGRAPH AT	SB-PSE8	131.	6.05	14.	6.	6.	0.06		
ROUTED TO	RT-PSE8	129.	6.05	14.	6.	6.	0.06		
HYDROGRAPH AT	SB-PSE9	148.	6.00	17.	7.	7.	0.04		
2 COMBINED AT	DFD2	269.	6.00	30.	13.	13.	0.10		
ROUTED TO	RR-DFD2	61.	6.30	30.	13.	13.	0.10	110.35	6.30
ROUTED TO	RT-DFD2	61.	6.35	30.	13.	13.	0.10		
HYDROGRAPH AT	SBPSE10	89.	6.05	9.	4.	4.	0.04		
2 COMBINED AT	APE10	144.	6.05	39.	17.	17.	0.13		
3 COMBINED AT	AP6	413.	6.05	127.	56.	56.	0.51		
ROUTED TO	RR-AP6	413.	6.05	127.	56.	56.	0.51		
HYDROGRAPH AT	SB-PSE11	66.	6.10	7.	3.	3.	0.03		
2 COMBINED AT	AP6A	478.	6.05	135.	59.	59.	0.54		
ROUTED TO									

	RT-AP6A	477.	6.05	135.	59.	59.	0.54		
HYDROGRAPH AT	SB-PS2	71.	6.05	8.	3.	3.	0.02		
2 COMBINED AT	AP6B	547.	6.05	142.	63.	63.	0.57		
ROUTED TO	RT-AP6B	545.	6.05	142.	63.	63.	0.57		
HYDROGRAPH AT	SB-PS3	252.	6.00	28.	12.	12.	0.07		
HYDROGRAPH AT	SB-PS4	125.	6.05	13.	6.	6.	0.06		
3 COMBINED AT	AP7	908.	6.05	183.	81.	81.	0.70		
ROUTED TO	RT-AP7	907.	6.05	183.	81.	81.	0.70		
HYDROGRAPH AT	SB-PS5	105.	6.00	12.	5.	5.	0.03		
HYDROGRAPH AT	SB-PS6	190.	6.00	21.	9.	9.	0.05		
3 COMBINED AT	AP7A	1190.	6.05	216.	95.	95.	0.78		
ROUTED TO	RT-AP7A	1189.	6.05	216.	95.	95.	0.78		
HYDROGRAPH AT	SB-PS7	112.	6.00	13.	5.	5.	0.03		
HYDROGRAPH AT	SB-PS8	274.	6.05	29.	13.	13.	0.11		
3 COMBINED AT	AP8	1569.	6.05	257.	113.	113.	0.92		
ROUTED TO	RT-AP8	1568.	6.05	257.	113.	113.	0.92		
HYDROGRAPH AT	SB-PS9	171.	6.00	18.	8.	8.	0.05		
ROUTED TO	RT-PS9	169.	6.00	18.	8.	8.	0.05		
2 COMBINED AT	AP9	1735.	6.05	275.	121.	121.	0.98		
HYDROGRAPH AT	SB-PS10	90.	6.05	10.	4.	4.	0.05		
2 COMBINED AT	APDFC	1825.	6.05	284.	125.	125.	1.03		
ROUTED TO	RR-DFC	228.	7.20	209.	115.	115.	1.03	77.56	7.20
ROUTED TO	RT-DFC	228.	7.20	209.	115.	115.	1.03		
HYDROGRAPH AT	SB-PS11	121.	6.05	13.	6.	6.	0.05		
2 COMBINED AT	AP10	304.	6.10	220.	121.	121.	1.08		
HYDROGRAPH AT	SB-PS12	189.	6.10	23.	10.	10.	0.15		

2 COMBINED AT	APDFB	493.	6.10	242.	131.	131.	1.24		
ROUTED TO	RR-DFB	219.	9.70	213.	125.	125.	1.24	86.86	9.70
ROUTED TO	RT-DFB	219.	9.70	213.	125.	125.	1.24		
HYDROGRAPH AT	SB-PS13	123.	6.05	12.	5.	5.	0.06		
2 COMBINED AT	AP11	263.	6.10	218.	130.	130.	1.30		
ROUTED TO	RT-AP11	263.	6.10	218.	130.	130.	1.30		
2 COMBINED AT	AP5A	531.	6.10	451.	252.	252.	2.58		
ROUTED TO	RT-AP5A	532.	6.15	451.	251.	251.	2.58		
HYDROGRAPH AT	SB-PN13	42.	6.15	5.	2.	2.	0.05		
ROUTED TO	RR-DFIR	1.	14.90	1.	0.	0.	0.05	901.23	14.95
HYDROGRAPH AT	SB-PM1	107.	6.10	12.	5.	5.	0.05		
ROUTED TO	RT-PM1	107.	6.10	12.	5.	5.	0.05		
HYDROGRAPH AT	SB-PM2	193.	6.20	27.	12.	12.	0.19		
HYDROGRAPH AT	SB-PM3	77.	6.15	9.	4.	4.	0.06		
5 COMBINED AT	AP12	899.	6.15	496.	272.	272.	2.93		
ROUTED TO	RT-AP12	898.	6.20	496.	271.	271.	2.93		
HYDROGRAPH AT	SB-PM4	180.	6.05	19.	8.	8.	0.11		
2 COMBINED AT	AP13	1017.	6.20	512.	279.	279.	3.04		
HYDROGRAPH AT	SB-CS1	91.	6.05	10.	4.	4.	0.05		
ROUTED TO	RT-CS1	91.	6.10	10.	4.	4.	0.05		
HYDROGRAPH AT	SB-CS2	254.	6.00	29.	13.	13.	0.07		
ROUTED TO	RR-DFCS2	194.	5.70	29.	13.	13.	0.07	102.48	6.10
2 COMBINED AT	AP14	285.	6.10	38.	17.	17.	0.12		
ROUTED TO	RT-AP14	284.	6.10	38.	17.	17.	0.12		
HYDROGRAPH AT									

	SB-CS3	134.	6.05	15.	6.	6.	0.05		
ROUTED TO	RR-DFCS3	123.	6.00	15.	6.	6.	0.05	102.03	6.10
2 COMBINED AT	AP15	407.	6.10	53.	23.	23.	0.17		
ROUTED TO	RT-AP15	407.	6.10	53.	23.	23.	0.17		
HYDROGRAPH AT	SB-CS4	188.	6.00	19.	8.	8.	0.07		
ROUTED TO	RR-DFVC	28.	6.35	19.	8.	8.	0.07	79.94	6.35
2 COMBINED AT	AP16	433.	6.10	72.	32.	32.	0.24		
ROUTED TO	RT-AP16	433.	6.10	72.	32.	32.	0.24		
HYDROGRAPH AT	SB-CN1	222.	6.05	24.	11.	11.	0.11		
ROUTED TO	RR-DFA	9.	8.15	9.	6.	6.	0.11	6804.78	8.20
ROUTED TO	RT-DFA	9.	8.15	9.	6.	6.	0.11		
HYDROGRAPH AT	SB-CN2	136.	6.10	15.	7.	7.	0.08		
2 COMBINED AT	AP17	141.	6.10	24.	13.	13.	0.19		
ROUTED TO	RT-AP17	139.	6.10	24.	13.	13.	0.19		
HYDROGRAPH AT	SB-CN3	98.	6.05	10.	4.	4.	0.04		
2 COMBINED AT	AP18	231.	6.10	34.	17.	17.	0.23		
ROUTED TO	RT-AP18	231.	6.10	34.	17.	17.	0.23		
3 COMBINED AT	AP19	1655.	6.15	605.	328.	328.	3.51		
ROUTED TO	RT-AP19	1642.	6.15	605.	327.	327.	3.51		
HYDROGRAPH AT	SB-PM6A	132.	6.00	14.	6.	6.	0.04		
2 COMBINED AT	AP19A	1721.	6.15	617.	333.	333.	3.55		
ROUTED TO	RT-AP19A	1700.	6.20	616.	332.	332.	3.55		
HYDROGRAPH AT	SB-PM5	286.	6.10	31.	14.	14.	0.19		
2 COMBINED AT	AP20	1943.	6.15	647.	345.	345.	3.75		
HYDROGRAPH AT	SB-PM6B	130.	6.00	15.	6.	6.	0.04		

2 COMBINED AT	AP21	2007.	6.15	658.	352.	352.	3.78		
HYDROGRAPH AT	SB-PM7	191.	6.20	28.	12.	12.	0.14		
HYDROGRAPH AT	SB-F1	233.	6.10	26.	11.	11.	0.12		
DIVERSION TO	F1S	110.	5.90	5.	2.	2.	0.12		
HYDROGRAPH AT	F1P	123.	5.90	21.	10.	10.	0.12		
ROUTED TO	RT-F1P	123.	6.00	21.	10.	10.	0.12		
HYDROGRAPH AT	SB-F2	69.	6.05	7.	3.	3.	0.04		
HYDROGRAPH AT	SB-F1S	110.	6.10	5.	2.	2.	0.00		
ROUTED TO	RT-F1S	109.	6.15	5.	2.	2.	0.00		
3 COMBINED AT	AP-DFSF	296.	6.10	33.	15.	15.	0.16		
ROUTED TO	RR-DFSF	130.	6.35	121.	121.	121.	0.16	95.57	6.35
ROUTED TO	RT-DFSF	130.	6.35	121.	121.	121.	0.16		
HYDROGRAPH AT	SB-F3	210.	6.10	24.	10.	10.	0.11		
2 COMBINED AT	AP22	337.	6.10	145.	131.	131.	0.27		
DIVERSION TO	AP22S	77.	5.95	3.	1.	1.	0.27		
HYDROGRAPH AT	AP22P	260.	5.95	142.	130.	130.	0.27		
ROUTED TO	RT-AP22P	260.	6.00	142.	130.	130.	0.27		
HYDROGRAPH AT	SB-F4	89.	6.05	10.	4.	4.	0.04		
ROUTED TO	RR-DFF4	71.	5.95	10.	4.	4.	0.04	102.08	6.20
2 COMBINED AT	AP23	331.	6.00	152.	134.	134.	0.31		
DIVERSION TO	AP23S	33.	5.95	2.	1.	1.	0.31		
HYDROGRAPH AT	AP23P	298.	5.95	150.	133.	133.	0.31		
ROUTED TO	RT-AP23P	298.	6.00	150.	133.	133.	0.31		
HYDROGRAPH AT	AP23S	33.	6.00	2.	1.	1.	0.00		
ROUTED TO	RT-AP23S	34.	6.10	2.	1.	1.	0.00		

HYDROGRAPH AT	SB-F5	199.	6.00	20.	9.	9.	0.06		
ROUTED TO	RR-DFF5	158.	5.85	20.	9.	9.	0.06	102.19	6.10
3 COMBINED AT	AP24	490.	6.10	173.	143.	143.	0.37		
DIVERSION TO	AP24S	140.	5.85	8.	3.	3.	0.37		
HYDROGRAPH AT	AP24P	350.	5.85	165.	140.	140.	0.37		
ROUTED TO	RT-AP24P	350.	5.90	165.	140.	140.	0.37		
HYDROGRAPH AT	SB-F6	131.	6.00	14.	6.	6.	0.04		
ROUTED TO	RR-DFF6	102.	5.75	14.	6.	6.	0.04	102.17	6.10
HYDROGRAPH AT	SB-F7	164.	6.00	17.	7.	7.	0.05		
ROUTED TO	RR-DFF7	129.	5.85	18.	8.	8.	0.05	102.18	6.10
3 COMBINED AT	AP25	581.	5.90	196.	153.	153.	0.46		
DIVERSION TO	AP25S	120.	5.75	10.	4.	4.	0.46		
HYDROGRAPH AT	AP25P	461.	5.75	186.	150.	150.	0.46		
ROUTED TO	RT-AP25P	461.	5.80	186.	150.	150.	0.46		
HYDROGRAPH AT	SB-PM8	51.	6.00	6.	3.	3.	0.01		
4 COMBINED AT	AP-DF#1	2671.	6.15	873.	516.	516.	4.40		
ROUTED TO	RR-DF#1	1156.	6.60	777.	479.	479.	4.40	73.29	6.60
HYDROGRAPH AT	AP25S	120.	5.90	10.	4.	4.	0.00		
ROUTED TO	RT-AP25S	121.	5.90	10.	4.	4.	0.00		
2 COMBINED AT	AP26	1156.	6.60	780.	482.	482.	4.40		
ROUTED TO	RT-AP26	1154.	6.65	780.	480.	480.	4.40		
HYDROGRAPH AT	SB-PM9	176.	6.05	18.	8.	8.	0.07		
2 COMBINED AT	AP27	1170.	6.65	791.	488.	488.	4.47		
HYDROGRAPH AT	SB-PM10	173.	6.00	20.	9.	9.	0.05		
ROUTED TO									

	RRDFPM10	140.	5.85	20.	9.	9.	0.05	106.08	6.10
ROUTED TO									
	RT-PM10	140.	5.90	20.	9.	9.	0.05		
HYDROGRAPH AT									
	SB-PM11	152.	6.00	17.	8.	8.	0.04		
HYDROGRAPH AT									
	AP24S	140.	6.10	8.	3.	3.	0.00		
ROUTED TO									
	RT-AP24S	140.	6.15	8.	3.	3.	0.00		
4 COMBINED AT									
	AP28	1199.	6.60	825.	507.	507.	4.56		

SUMMARY OF KINEMATIC WAVE - MUSKINGUM-CUNGE ROUTING
(FLOW IS DIRECT RUNOFF WITHOUT BASE FLOW)

ISTAQ	ELEMENT	DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)	INTERPOLATED TO COMPUTATION INTERVAL			
						DT (MIN)	PEAK (CFS)	TIME TO PEAK (MIN)	VOLUME (IN)
RT-APNE1	MANE	0.46	103.10	378.49	2.20	3.00	103.01	378.00	2.20

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1584E+02 EXCESS=0.0000E+00 OUTFLOW=0.1584E+02 BASIN STORAGE=0.8925E-04 PERCENT ERROR= 0.0

RT-DFNE2	MANE	0.11	126.99	381.08	2.16	3.00	126.99	381.00	2.16
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1968E+02 EXCESS=0.0000E+00 OUTFLOW=0.1968E+02 BASIN STORAGE=0.4279E-04 PERCENT ERROR= 0.0

RT-APE1	MANE	1.68	155.56	375.16	1.85	3.00	155.56	375.00	1.85
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3142E+02 EXCESS=0.0000E+00 OUTFLOW=0.3141E+02 BASIN STORAGE=0.2537E-02 PERCENT ERROR= 0.0

RT-APE2	MANE	0.45	309.37	363.48	1.91	3.00	308.22	363.00	1.91
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4015E+02 EXCESS=0.0000E+00 OUTFLOW=0.4015E+02 BASIN STORAGE=0.3197E-02 PERCENT ERROR= 0.0

RT-APE1a	MANE	1.20	84.85	376.80	-1.00	3.00	82.99	381.00	-1.00
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RT-APE3a	MANE	0.21	364.44	369.24	2.16	3.00	363.18	369.00	2.16
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4760E+02 EXCESS=0.0000E+00 OUTFLOW=0.4759E+02 BASIN STORAGE=0.1759E-02 PERCENT ERROR= 0.0

RT-DFNE6	MANE	2.40	14.58	379.20	2.32	3.00	14.57	381.00	2.32
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2477E+01 EXCESS=0.0000E+00 OUTFLOW=0.2472E+01 BASIN STORAGE=0.5471E-02 PERCENT ERROR= 0.0

RT-APE4	MANE	1.60	173.03	366.79	1.40	3.00	172.99	369.00	1.40
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4017E+02 EXCESS=0.0000E+00 OUTFLOW=0.4014E+02 BASIN STORAGE=0.2313E-01 PERCENT ERROR= 0.0

RT-APE5	MANE	0.78	268.45	363.60	1.48	3.00	267.53	363.00	1.48
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4548E+02 EXCESS=0.0000E+00 OUTFLOW=0.4547E+02 BASIN STORAGE=0.1446E-01 PERCENT ERROR= 0.0

RT-APE6	MANE	0.45	298.05	363.50	1.50	3.00	297.68	363.00	1.50
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4712E+02 EXCESS=0.0000E+00 OUTFLOW=0.4711E+02 BASIN STORAGE=0.8832E-02 PERCENT ERROR= 0.0									
RT-APE4a	MANE	1.20	365.76	370.80	-1.00	3.00	365.59	372.00	-1.00
RT-PNE11	MANE	0.25	251.04	360.18	3.98	3.00	250.93	360.00	3.98
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1508E+02 EXCESS=0.0000E+00 OUTFLOW=0.1508E+02 BASIN STORAGE=0.2378E-02 PERCENT ERROR= 0.0									
RT-AP1	MANE	1.00	343.25	360.31	4.01	3.00	342.92	360.00	4.01
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2076E+02 EXCESS=0.0000E+00 OUTFLOW=0.2075E+02 BASIN STORAGE=0.1330E-01 PERCENT ERROR= 0.0									
RT-PNE13	MANE	1.80	115.24	363.60	2.44	3.00	114.69	363.00	2.44
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6409E+01 EXCESS=0.0000E+00 OUTFLOW=0.6386E+01 BASIN STORAGE=0.1078E-01 PERCENT ERROR= 0.2									
RT-AP2	MANE	0.16	492.84	360.26	3.32	3.00	491.85	360.00	3.32
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2936E+02 EXCESS=0.0000E+00 OUTFLOW=0.2936E+02 BASIN STORAGE=0.3293E-02 PERCENT ERROR= 0.0									
RT-DFE	MANE	3.00	219.86	450.00	2.37	3.00	219.86	450.00	2.37
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1170E+03 EXCESS=0.0000E+00 OUTFLOW=0.1165E+03 BASIN STORAGE=0.5188E+00 PERCENT ERROR= 0.0									
RT-AP4	MANE	2.40	308.09	372.00	2.29	3.00	308.09	372.00	2.29
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1259E+03 EXCESS=0.0000E+00 OUTFLOW=0.1257E+03 BASIN STORAGE=0.2892E+00 PERCENT ERROR= 0.0									
RT-DFE	MANE	1.01	244.34	468.64	2.22	3.00	244.34	468.00	2.22
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1437E+03 EXCESS=0.0000E+00 OUTFLOW=0.1436E+03 BASIN STORAGE=0.1047E+00 PERCENT ERROR= 0.0									
RT-AP5	MANE	0.10	275.82	369.11	2.19	3.00	275.66	369.00	2.19
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1502E+03 EXCESS=0.0000E+00 OUTFLOW=0.1502E+03 BASIN STORAGE=0.1051E-01 PERCENT ERROR= 0.0									
RT-PSE1	MANE	0.90	58.35	366.86	1.92	3.00	58.15	366.00	1.92
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3486E+01 EXCESS=0.0000E+00 OUTFLOW=0.3483E+01 BASIN STORAGE=0.2941E-02 PERCENT ERROR= 0.0									
RT-APE7	MANE	1.43	114.64	365.42	2.01	3.00	114.23	366.00	2.01
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6760E+01 EXCESS=0.0000E+00 OUTFLOW=0.6753E+01 BASIN STORAGE=0.8929E-02 PERCENT ERROR= 0.0									
RT-PSE4	MANE	0.91	135.31	366.39	2.01	3.00	135.23	366.00	2.01
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.8029E+01 EXCESS=0.0000E+00 OUTFLOW=0.8024E+01 BASIN STORAGE=0.6771E-02 PERCENT ERROR= 0.0									

RT-APE9	MANE	0.67	223.61	366.02	2.03	3.00	223.59	366.00	2.03
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1324E+02 EXCESS=0.0000E+00 OUTFLOW=0.1323E+02 BASIN STORAGE=0.8191E-02 PERCENT ERROR= 0.0									
RT-DFD1	MANE	1.30	89.33	398.03	2.11	3.00	89.32	396.00	2.11
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3577E+02 EXCESS=0.0000E+00 OUTFLOW=0.3574E+02 BASIN STORAGE=0.2911E-01 PERCENT ERROR= 0.0									
RT-PSE8	MANE	0.90	129.84	363.42	2.36	3.00	129.05	363.00	2.37
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7318E+01 EXCESS=0.0000E+00 OUTFLOW=0.7313E+01 BASIN STORAGE=0.5735E-02 PERCENT ERROR= 0.0									
RT-DFD2	MANE	0.34	61.05	378.54	3.07	3.00	61.04	381.00	3.07
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1620E+02 EXCESS=0.0000E+00 OUTFLOW=0.1620E+02 BASIN STORAGE=0.3013E-02 PERCENT ERROR= 0.0									
RR-AP6	MANE	0.38	412.75	363.15	2.55	3.00	412.74	363.00	2.55
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6935E+02 EXCESS=0.0000E+00 OUTFLOW=0.6933E+02 BASIN STORAGE=0.1776E-01 PERCENT ERROR= 0.0									
RT-AP6A	MANE	0.37	476.94	363.16	2.54	3.00	476.57	363.00	2.54
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7337E+02 EXCESS=0.0000E+00 OUTFLOW=0.7335E+02 BASIN STORAGE=0.1863E-01 PERCENT ERROR= 0.0									
RT-AP6B	MANE	0.47	545.95	363.44	2.56	3.00	545.32	363.00	2.56
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7736E+02 EXCESS=0.0000E+00 OUTFLOW=0.7734E+02 BASIN STORAGE=0.2488E-01 PERCENT ERROR= 0.0									
RT-AP7	MANE	0.40	907.00	362.96	2.69	3.00	906.90	363.00	2.69
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9981E+02 EXCESS=0.0000E+00 OUTFLOW=0.9978E+02 BASIN STORAGE=0.6852E-01 PERCENT ERROR= 0.0									
RT-AP7A	MANE	0.30	1189.56	362.87	2.83	3.00	1188.94	363.00	2.83
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1177E+03 EXCESS=0.0000E+00 OUTFLOW=0.1177E+03 BASIN STORAGE=0.6105E-01 PERCENT ERROR= 0.0									
RT-AP8	MANE	0.10	1568.31	362.96	2.85	3.00	1568.13	363.00	2.85
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1401E+03 EXCESS=0.0000E+00 OUTFLOW=0.1401E+03 BASIN STORAGE=0.2457E-01 PERCENT ERROR= 0.0									
RT-PS9	MANE	0.65	170.27	360.83	3.29	3.00	169.45	360.00	3.29
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.9478E+01 EXCESS=0.0000E+00 OUTFLOW=0.9475E+01 BASIN STORAGE=0.4513E-02 PERCENT ERROR= 0.0									
RT-DFC	MANE	1.45	228.30	432.63	2.59	3.00	228.30	432.00	2.59
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1423E+03 EXCESS=0.0000E+00 OUTFLOW=0.1420E+03 BASIN STORAGE=0.2287E+00 PERCENT ERROR= 0.0									
RT-DFB	MANE	0.73	219.42	582.63	2.34	3.00	219.42	582.00	2.35
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1548E+03 EXCESS=0.0000E+00 OUTFLOW=0.1546E+03 BASIN STORAGE=0.1797E+00 PERCENT ERROR= 0.0									

RT-AP11	MANE	0.42	263.30	366.04	2.32	3.00	263.28	366.00	2.32
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1612E+03 EXCESS=0.0000E+00 OUTFLOW=0.1611E+03 BASIN STORAGE=0.1090E+00 PERCENT ERROR= 0.0									
RT-AP5A	MANE	3.00	531.51	369.00	2.25	3.00	531.51	369.00	2.25
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3117E+03 EXCESS=0.0000E+00 OUTFLOW=0.3100E+03 BASIN STORAGE=0.1959E+01 PERCENT ERROR= -0.1									
RT-PM1	MANE	1.49	106.62	366.76	2.24	3.00	106.57	366.00	2.24
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.6447E+01 EXCESS=0.0000E+00 OUTFLOW=0.6440E+01 BASIN STORAGE=0.1760E-01 PERCENT ERROR= -0.2									
RT-AP12	MANE	3.00	898.25	372.00	2.14	3.00	898.25	372.00	2.14
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3368E+03 EXCESS=0.0000E+00 OUTFLOW=0.3351E+03 BASIN STORAGE=0.2027E+01 PERCENT ERROR= -0.1									
RT-CS1	MANE	1.65	91.26	366.30	1.87	3.00	91.06	366.00	1.87
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5287E+01 EXCESS=0.0000E+00 OUTFLOW=0.5276E+01 BASIN STORAGE=0.2497E-01 PERCENT ERROR= -0.3									
RT-AP14	MANE	0.50	284.86	366.46	3.19	3.00	284.49	366.00	3.20
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2093E+02 EXCESS=0.0000E+00 OUTFLOW=0.2094E+02 BASIN STORAGE=0.2099E-01 PERCENT ERROR= -0.1									
RT-AP15	MANE	0.45	407.34	366.40	3.10	3.00	406.86	366.00	3.11
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2880E+02 EXCESS=0.0000E+00 OUTFLOW=0.2880E+02 BASIN STORAGE=0.2375E-01 PERCENT ERROR= -0.1									
RT-AP16	MANE	0.11	433.31	366.10	3.05	3.00	433.15	366.00	3.05
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.3904E+02 EXCESS=0.0000E+00 OUTFLOW=0.3904E+02 BASIN STORAGE=0.7197E-02 PERCENT ERROR= 0.0									
RT-DFA	MANE	1.12	8.69	493.29	1.27	3.00	8.69	492.00	1.28
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.7497E+01 EXCESS=0.0000E+00 OUTFLOW=0.7487E+01 BASIN STORAGE=0.9499E-02 PERCENT ERROR= 0.0									
RT-AP17	MANE	0.82	140.43	366.54	1.57	3.00	139.49	366.00	1.57
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1580E+02 EXCESS=0.0000E+00 OUTFLOW=0.1579E+02 BASIN STORAGE=0.1548E-01 PERCENT ERROR= 0.0									
RT-AP18	MANE	0.35	231.04	366.07	1.72	3.00	231.04	366.00	1.72
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.2121E+02 EXCESS=0.0000E+00 OUTFLOW=0.2121E+02 BASIN STORAGE=0.8281E-02 PERCENT ERROR= 0.0									
RT-AP19	MANE	1.40	1647.13	370.42	2.16	3.00	1641.71	369.00	2.16
CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4052E+03 EXCESS=0.0000E+00 OUTFLOW=0.4043E+03 BASIN STORAGE=0.1173E+01 PERCENT ERROR= -0.1									
RT-AP19A	MANE	2.39	1714.28	370.96	2.16	3.00	1699.91	372.00	2.16

CONTINUITY SUMMARY (AC-FT) - INFLOW=0.4113E+03 EXCESS=0.0000E+00 OUTFLOW=0.4097E+03 BASIN STORAGE=0.2001E+01 PERCENT ERROR= -0.1

RT-F1P	MANE	0.92	123.10	355.43	1.86	3.00	123.01	360.00	1.86
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1179E+02 EXCESS=0.0000E+00 OUTFLOW=0.1178E+02 BASIN STORAGE=0.1000E-01 PERCENT ERROR= 0.0

RT-F1S	MANE	0.75	108.57	369.00	-1.00	3.00	108.57	369.00	-1.00
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RT-DFSF	MANE	0.62	129.92	382.04	17.66	3.00	129.91	381.00	17.67
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1489E+03 EXCESS=0.0000E+00 OUTFLOW=0.1489E+03 BASIN STORAGE=0.0000E+00 PERCENT ERROR= 0.0

RT-AP22P	MANE	1.35	260.35	359.10	11.05	3.00	260.20	360.00	11.06
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1605E+03 EXCESS=0.0000E+00 OUTFLOW=0.1605E+03 BASIN STORAGE=0.7076E-02 PERCENT ERROR= 0.0

RT-AP23P	MANE	1.03	298.61	358.10	9.96	3.00	298.01	360.00	9.96
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1648E+03 EXCESS=0.0000E+00 OUTFLOW=0.1648E+03 BASIN STORAGE=0.7177E-02 PERCENT ERROR= 0.0

RT-AP23S	MANE	0.30	36.56	363.60	-1.00	3.00	34.33	366.00	-1.00
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RT-AP24P	MANE	0.64	350.33	349.53	8.65	3.00	350.00	354.00	8.66
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1727E+03 EXCESS=0.0000E+00 OUTFLOW=0.1727E+03 BASIN STORAGE=0.6787E-02 PERCENT ERROR= 0.0

RT-AP25P	MANE	0.96	461.57	347.38	7.46	3.00	461.08	348.00	7.47
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1849E+03 EXCESS=0.0000E+00 OUTFLOW=0.1848E+03 BASIN STORAGE=0.1579E-01 PERCENT ERROR= 0.0

RT-AP25S	MANE	0.60	121.14	354.00	-1.00	3.00	121.14	354.00	-1.00
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RT-AP26	MANE	2.88	1154.12	400.04	2.52	3.00	1154.08	399.00	2.53
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.5957E+03 EXCESS=0.0000E+00 OUTFLOW=0.5928E+03 BASIN STORAGE=0.3256E+01 PERCENT ERROR= -0.1

RT-PM10	MANE	0.76	140.46	352.47	4.15	3.00	140.13	354.00	4.15
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CONTINUITY SUMMARY (AC-FT) - INFLOW=0.1063E+02 EXCESS=0.0000E+00 OUTFLOW=0.1062E+02 BASIN STORAGE=0.4832E-02 PERCENT ERROR= 0.0

RT-AP24S	MANE	0.90	139.89	369.00	-1.00	3.00	139.89	369.00	-1.00
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*** NORMAL END OF HEC-1 ***

C-3

HEC-1 MODEL OUTPUT

5-YEAR STORM, INTERIM CONDITION