

SWMHYMO – INPUT - EXISTING

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20 Metric units / ID numbers OFF
*****
*# SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
*****
*# Project Name: [Jock River] Project Number: [411-02]
*# Date : 06-06-2003
*# Modeller : [JoF]
*# Company : JFSAinc.
*# License # : 2549237
*****
*# CALIBRATION OF SUMMER MODEL PARAMETERS
*# USING CONTINUOUS SIMULATIONS
*# Rainfall data from JFSA rainauge installed at site + other gauges by the City
*# Use data collected from May 1st to July 14, 2003
*
* Calibrated parameters for Summer 2003 data: APII=50, APIK=0.85, CN=varies,
* SK=0.01, InterEventTime=12,
* GWResk=0.96, VHydCond=0.055
*
*# -----
*#
*# EXISING SUMMER
*#
*#
*#
*START TZERO=[2003.0501], METOUT=[2], NSTORM=[1], NRUN=[001]
* ["XAVG0315.STM"] average storm data a 15 minute time step
* The above rainf file is an average of the JFSA gauge data
* with the City of Ottawa rainfall data collected during
* the same period.
*% 2 yr, 24 hr SCS storm based on OTTAWA CDA IDF Curves
START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1]
["C:\STORMS-PF\C24SC002.stm"]
*%-----|-----
*%-----|-----
READ STORM STORM_FILENAME=["storm.001"]
*%-----|-----
MODIFY STORM ICASEms=[1], NSHIFT=[96],
RedFACT=[1],
*%-----|-----
COMPUTE API APII=[50], APIK=[.85]/day
*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.32
*%-----|-----
CONTINUOUS NASHYD 1 NHYD=["JR_HW"], DT=[30]min, AREA=[3680] (ha),
DWF=[0] (cms), CN/C=[64], IA=[2.5] (mm),
N=[3.0], TP=[7.13]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr), END=-1
*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.32
*%-----|-----
CONTINUOUS NASHYD 2 NHYD=["SW_13"], DT=[30]min, AREA=[971] (ha),
DWF=[0] (cms), CN/C=[61], IA=[2.5] (mm),
N=[3.0], TP=[3.76]hrs,
Continuous simulation parameters:

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IaRECper=[4] (hrs),
SMIN=[-1] (mm),  SMAX=[-1] (mm),  SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm),  GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----
*#
*# Starting with the addition of Jock River Headwater and Subwatershed 13
*#
ADD HYD          1  NHYDsum=["S_N13"] NHYDs to add=1 2
*#
*# Sum of hydrographs from Node 13 routed to Node 13A
*# (Approximated cross-section - see cross-section 258)
*# Use n=0.04 for summer conditions and n=0.025 for spring conditions
*#
ROUTE CHANNEL    NHYDout=2  ["N13A"] ,  NHYDin=1 ,
RDT=[30] (min),
CHLGTH=[9074] (m),  CHSLOPE=[0.0220] (%),
                    FPSLOPE=[0.0220] (%),
SECNUM=[1.0],      NSEG=[1]
( SEGROUGH, SEGDIST (m))=[0.04,15.5] NSEG times
( DISTANCE (m), ELEVATION (m))=
    [-40, 132.5]
    [-30, 132]
    [-25, 131.5]
    [-13, 130]
    [-8, 127.00]
    [-7, 126.50]
    [-6, 126]
    [-5.5, 125.50]
    [0, 123.75]
    [4.5, 125.50]
    [6, 126]
    [7.5, 126.5]
    [9, 127]
    [10, 127.5]
    [11.5, 128.0]
    [15.5, 129.5]
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.80
*%-----|-----
CONTINUOUS NASHYD  NHYD=1  ["JR_GWM"], DT=[30]min, AREA=[3161] (ha),
DWF=[0] (cms),  CN/C=[55], IA=[2.5] (mm),
N=[3], TP=[11.33]hrs,
Continuou simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm),  SMAX=[-1] (mm),  SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm),  GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----
*#
*# Addition of Subwatershed Jock River at Goodwood Marsh to Node 13A
*#
ADD HYD          NHYDsum=1  ["SN13A"], NHYDs to add= 2 1  ["N13A"+"JR_GWM"]
*%-----|-----
*#
*# Insertion of a reservoir to simulate the effects of the Goodwood Marsh
*#
ROUTE RESERVOIR  NHYDout= 2  ["RES_GM"] ,NHYDin= 1 ,
RDT=[30] (min),

```

TABLE of (OUTFLOW-STORAGE) values
 (cms) - (ha-m)
 [0.0 , 0.0]
 [1.991, 2.144]
 [2.693, 39.826]
 [3.509, 81.697]
 [4.578, 318.774]
 [5.647, 594.947]
 [7.109, 910.219]
 [8.616, 1264.589]
 [10.371, 1658.057]
 [12.402, 2090.622]
 [22.056, 3462.487]
 [-1 , -1] (max twenty pts)
 NHYDovf=[" " ,

*%-----|-----

*#
 SAVE HYD NHYD= 2 , # OF PCYCLES=[-1], ICASEsh=[-1]
 HYD_FILENAME=["H_RESGM"]
 HYD_COMMENT=["Outflow from Res GM"]

*%-----|-----

*# Output of Reservoir Goodwood Marsh routed from Node 13A to Node 12
 *# (Approximated cross-section - see cross-section 258)
 *# Use n=0.04 for summer conditions and n=0.025 for spring conditions

ROUTE CHANNEL NHYDout=1 ["N12"] ,NHYDin=2,
 RDT=[30](min),
 CHLGTH=[5926](m), CHSLOPE=[0.0759](%),
 FPSLOPE=[0.0759](%),
 SECNUM=[1.0], NSEG=[1]
 (SEGROUGH, SEGDIST (m))=[0.04,15.5] NSEG times
 (DISTANCE (m), ELEVATION (m))=
 [-40, 132.5]
 [-30, 132]
 [-25, 131.5]
 [-13, 130]
 [-8, 127.00]
 [-7, 126.50]
 [-6, 126]
 [-5.5, 125.50]
 [0, 123.75]
 [4.5, 125.50]
 [6, 126]
 [7.5, 126.5]
 [9, 127]
 [10, 127.5]
 [11.5, 128.00]
 [15.5, 129.5]

*%-----|-----

CONTINUOUS NASHYD NHYD=4 ["SW_11"], DT=[30]min, AREA=[500](ha),
 DWF=[0](cms), CN/C=[66], IA=[2.5](mm),
 N=[3.0], TP=[1.24]hrs,
 Continuous simulation parameters:
 IaRECper=[4](hrs),
 SMIN=[-1](mm), SMAX=[-1](mm), SK=[0.010]/(mm),
 InterEventTime=[12](hrs)
 Baseflow simulation parameters:
 BaseFlowOption=[1],
 InitGWResVol=[50](mm), GWResK=[0.96](mm/day/mm)
 VHydCond=[0.055](mm/hr), END=-1

*%-----|-----

CONTINUOUS NASHYD NHYD= 2 ["JR_ASH"], DT=[30]min, AREA=[1781](ha),
 DWF=[0](cms), CN/C=[72], IA=[2.5](mm),
 N=[3.0], TP=[3.91]hrs,
 Continuous simulation parameters:
 IaRECper=[4](hrs),
 SMIN=[-1](mm), SMAX=[-1](mm), SK=[0.010]/(mm),
 InterEventTime=[12](hrs)

Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm) , GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr) , END=-1

*%-----|-----

*#

*# Addition of Subwatershed Jock River at Ashton to Node 12

*#

ADD HYD NHYDsum=1 ["S_N12"], NHYDs to add= 1 2 ["N12"+"JR_ASH"]
SAVE HYD NHYD=1 , # OF PCYCLES=[-1], ICASEsh=[-1]
HYD_FILENAME=["H_SN12"]
HYD_COMMENT=["flow at S_N12 near Ashton"]

*%-----|-----

*#

*# Sum of hydrographs from Node 12 routed to Node 11

*# (Approximated cross-section - see cross-section 258)

*# Use n=0.04 for summer conditions and n=0.025 for spring conditions

ROUTE CHANNEL NHYDout= 2 ["N11"] ,NHYDin= 1 ,
RDT=[30] (min),
CHLGTH=[972] (m), CHSLOPE=[0.0514] (%),
FPSLOPE=[0.0514] (%),
SECNUM=[1.0], NSEG=[1]
(SEGROUGH, SEGDIST (m))=[0.04,15.5] NSEG times
(DISTANCE (m), ELEVATION (m))=
[-40, 132.5]
[-30, 132]
[-25, 131.5]
[-13, 130]
[-8, 127.00]
[-7, 126.50]
[-6, 126]
[-5.5, 125.50]
[0, 123.75]
[4.5, 125.50]
[6, 126]
[7.5, 126.5]
[9, 127]
[10, 127.5]
[11.5, 128.00]
[15.5, 129.5]

*%-----|-----

*#

*# Sum of hydrographs from Node 12 routed to Node 11 with Dummy section 248

*#

ROUTE CHANNEL NHYDout= 3 ["Dum11"] ,NHYDin= 1,
RDT=[30] (min),
CHLGTH=[972] (m), CHSLOPE=[0.054] (%),
FPSLOPE=[0.054] (%),
SECNUM=[1.0], NSEG=[1]
(SEGROUGH, SEGDIST (m))=[0.04,15.5] NSEG times
(DISTANCE (m), ELEVATION (m))=
[-40, 132.5]
[-30, 132]
[-25, 131.5]
[-13, 130]
[-8, 127.00]
[-7, 126.50]
[-6, 126]
[-5.5, 125.50]
[0, 123.75]
[4.5, 125.50]
[6, 126]
[7.5, 126.5]
[9, 127]
[10, 127.5]
[11.5, 128.00]
[15.5, 129.5]

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*%-----|-----|
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.80
*%-----|-----|
CONTINUOUS NASHYD  NHYD= 5 ["NN_CK"], DT=[30]min, AREA=[1917] (ha),
                   DWF=[0] (cms),  CN/C=[66], IA=[2.5] (mm),
                   N=[3.0], TP=[5.29]hrs,
                   Continuous simulation parameters:
                   IaRECper=[4] (hrs),
                   SMIN=[-1] (mm),  SMAX=[-1] (mm), SK=[0.010]/(mm),
                   InterEventTime=[12] (hrs)
                   Baseflow simulation parameters:
                   BaseFlowOption=[1] ,
                   InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                   VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----|
*%-----|-----|
*#
*# Addition of Subwatershed 11 and No Name Creek to Node 11
*#
ADD HYD            NHYDsum=1 ["S_N11"], NHYDs to add= 3 4 5 ["Dum11"+"SW_11"+"NN_CK"]
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.52
*%-----|-----|
*%-----|-----|
*#
*# Sum of hydrographs from Node 11 routed to Node 10
*# Section 1
*#
ROUTE CHANNEL     NHYDout= 2 ["N10"], NHYDin= 1 ,
                   RDT=[30] (min),
                   CHLGTH=[14028] (m),  CHSLOPE=[0.1568] (%),
                                           FPSLOPE=[0.1568] (%),
                   SECNUM=[1.0],        NSEG=[5]
                   ( SEGROUGH, SEGDIST (m))=
                   [0.04,-52.82
                    0.1,-6.47
                    -0.05,6.47
                    0.1,45.36
                    0.04,423.88] NSEG times
                   ( DISTANCE (m), ELEVATION (m))=
                   [-226.24 ,112.50]
                   [-167.50 ,111.50]
                   [-106.81 ,111.00]
                   [-92.37 ,110.00]
                   [-52.82 ,109.00]
                   [-24.90 ,109.00]
                   [-17.02 ,108.50]
                   [-6.47 ,108.00]
                   [6.47 ,108.00]
                   [15.67 ,108.50]
                   [18.95 ,109.00]
                   [45.36 ,109.50]
                   [120.79 ,110.00]
                   [145.72 ,111.00]
                   [181.56 ,111.50]
                   [423.88 ,112.50]
CONTINUOUS NASHYD  NHYD= 4 ["SW_10"], DT=[30]min, AREA=[5666] (ha),
                   DWF=[0] (cms),  CN/C=[72], IA=[2.5] (mm),
                   N=[3.0], TP=[8.00]hrs,
                   Continuous simulation parameters:
                   IaRECper=[4] (hrs),
                   SMIN=[-1] (mm),  SMAX=[-1] (mm), SK=[0.010]/(mm),
                   InterEventTime=[12] (hrs)
                   Baseflow simulation parameters:

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BaseFlowOption=[1] ,
InitGWResVol=[50] (mm) , GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr) , END=-1
*%-----|-----
*#
*# Addition of Subwatershed 10 to Node 10
*#
ADD HYD          NHYDsum= 1 ["S_N10"], NHYDs to add= 2 4 ["N10"+"SW_10"]
*%-----|-----
SAVE HYD         NHYD=1, # OF PCYCLES=[-1], ICASEsh=[-1]
                 HYD_FILENAME=["H_SN10"]
                 HYD_COMMENT=["flow at S_N10: N10 + SW_10"]
*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.75
*%-----|-----
CONTINUOUS NASHYD NHYD= 3 ["KG_CK"], DT=[30]min, AREA=[8376] (ha),
                 DWF=[0] (cms), CN/C=[66], IA=[2.5] (mm),
                 N=[3.0], TP=[11.66]hrs,
                 Continuous simulation parameters:
                 IaRECper=[4] (hrs),
                 SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
                 InterEventTime=[12] (hrs)
                 Baseflow simulation parameters:
                 BaseFlowOption=[1] ,
                 InitGWResVol=[50] (mm) , GWResK=[0.96] (mm/day/mm)
                 VHydCond=[0.055] (mm/hr) , END=-1
*%-----|-----
*# Addition of Kings Creek to S_N10
*#
ADD HYD          NHYDsum=2 ["S_N10A"], NHYDs to add= 1 3 ["S_N10"+"KG_CK"]
*%-----|-----
*#
*# Sum of hydrographs from Node 10 routed to Node 9
*# Section 2
*#
ROUTE CHANNEL    NHYDout= 1 ["N9"] ,NHYDin= 2
                 RDT=[30] (min) ,
                 CHLGTH=[3982] (m) , CHSLOPE=[0.0753] (%),
                                     FPSLOPE=[0.0753] (%),
                 SECNUM=[1.0], NSEG=[4]
                 ( SEGROUGH, SEGDIST (m) )=
                 [0.04,-30.27
                 0.05,-18.42
                 -0.05,18.42
                 0.04,131.58] NSEG times
                 ( DISTANCE (m), ELEVATION (m) )=
                 [-446.74, 106.00]
                 [-415.68, 105.50]
                 [-285.40, 105.00]
                 [-173.77, 104.50]
                 [-144.95, 104.00]
                 [-111.18, 103.50]
                 [-94.06, 103.00]
                 [-71.02, 102.50]
                 [-30.27, 102.00]
                 [-19.33, 100.00]
                 [-18.42, 99.50]
                 [18.42, 99.50]
                 [20.77, 100.00]
                 [27.93, 101.00]
                 [52.29, 101.00]
                 [68.80, 101.50]
                 [79.66, 103.00]
                 [91.50, 103.50]
                 [131.58, 104.00]

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*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.68
*%-----|-----
CONTINUOUS NASHYD  NHYD= 3 ["SW_9"], DT=[30]min, AREA=[1132] (ha),
                   DWF=[0] (cms), CN/C=[70], IA=[2.5] (mm),
                   N=[3.0], TP=[2.51]hrs,
                   Continuous simulation parameters:
                   IaRECper=[4] (hrs),
                   SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
                   InterEventTime=[12] (hrs)
                   Baseflow simulation parameters:
                   BaseFlowOption=[1] ,
                   InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                   VHydCond=[0.055] (mm/hr), END=-1
*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.82
*%-----|-----
CONTINUOUS NASHYD  NHYD= 4 ["NC_CK"], DT=[30]min, AREA=[4464] (ha),
                   DWF=[0] (cms), CN/C=[62], IA=[2.5] (mm),
                   N=[3.0], TP=[11.32]hrs,
                   Continuous simulation parameters:
                   IaRECper=[4] (hrs),
                   SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
                   InterEventTime=[12] (hrs)
                   Baseflow simulation parameters:
                   BaseFlowOption=[1] ,
                   InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                   VHydCond=[0.055] (mm/hr), END=-1
*%-----|-----
*#
*# Addition of Subwatershed 9 and Nichols Creek to Node 9
*#
ADD HYD              NHYDsum= 2 ["S_N9"], NHYDs to add= 1 3 4 ["N9"+"SW_9"+"NC_CK"]
*%-----|-----
*#
*# Sum of hydrographs from Node 9 routed to Node 8
*# Section 3
*#
ROUTE CHANNEL        NHYDout= 1 ["N8"] ,NHYDin= 2
                   RDT=[30] (min),
                   CHLGTH=[2269] (m), CHSLOPE=[0.0882] (%),
                                       FPSLOPE=[0.0882] (%),
                   SECNUM=[1.0], NSEG=[3]
                   ( SEGROUGH, SEGDIST (m))=
                     [0.1,-17.99
                      -0.045,17.31
                      0.1,456.58] NSEG times
                   ( DISTANCE (m), ELEVATION (m))=
                     [-201.19,100.50]
                     [-135.21, 100.00]
                     [-94.83, 99.50]
                     [-67.05, 99.00]
                     [-17.99, 98.50]
                     [-16.02, 98.00]
                     [-13.95, 97.50]
                     [13.95, 97.50]
                     [15.64, 98.00]
                     [17.31, 98.50]
                     [162.02, 98.50]
                     [172.89 ,99.00]
                     [314.38, 99.00]
                     [343.78, 99.50]

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[365.67, 100.00]
[376.68, 100.00]
[393.11, 99.50]
[404.97, 99.50]
[431.70, 100.00]
[456.58, 100.50]

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*%-----|-----  
*#  
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)  
*# of 1.80  
*%-----|-----  
CONTINUOUS NASHYD  NHYD= 3 ["SW_8"], DT=[30]min, AREA=[131] (ha),  
DWF=[0] (cms), CN/C=[63], IA=[2.5] (mm),  
N=[3.0], TP=[0.90]hrs,  
Continuous simulation parameters:  
IaRECper=[4] (hrs),  
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),  
InterEventTime=[12] (hrs)  
Baseflow simulation parameters:  
BaseFlowOption=[1] ,  
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)  
VHydCond=[0.055] (mm/hr), END=-1  
*%-----|-----  
*#  
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)  
*# of 1.65  
*%-----|-----  
CONTINUOUS NASHYD  NHYD= 4 ["HB_DR"], DT=[30]min, AREA=[3854] (ha),  
DWF=[0] (cms), CN/C=[66], IA=[2.5] (mm),  
N=[3.0], TP=[8.42]hrs,  
Continuous simulation parameters:  
IaRECper=[4] (hrs),  
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),  
InterEventTime=[12] (hrs)  
Baseflow simulation parameters:  
BaseFlowOption=[1] ,  
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)  
VHydCond=[0.055] (mm/hr), END=-1  
*%-----|-----  
*#  
*# Addition of Subwatershed 8 and Hobb's Drain to Node 8  
*#  
ADD HYD          NHYDsum= 2 ["S_N8"], NHYDs to add= 1 3 4 ["N8"+"SW_8"+"HB_DR"]  
*%-----|-----  
*#  
*# Sum of hydrographs from Node 8 routed to Node 7  
*# Section 4  
*#  
ROUTE CHANNEL   NHYDout= 1 ["N7"] ,NHYDin= 2  
RDT=[30] (min),  
CHLGTH=[3750] (m), CHSLOPE=[0.0533] (%),  
FPSLOPE=[0.0533] (%),  
SECNUM=[1.0], NSEG=[3]  
( SEGROUGH, SEGDIST (m))=  
[0.12,-18.11  
-0.07,17.22  
0.12,590.05] NSEG times  
( DISTANCE (m), ELEVATION (m))=  
[-433.21, 102.00]  
[-425.34, 101.50]  
[-377.56, 101.50]  
[-366.23, 101.00]  
[-202.60, 100.50]  
[-96.25, 99.50]
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[-68.36 99.00]
[-18.11, 98.50]
[-13.81, 97.50]
[13.81, 97.50]
[17.22, 98.50]
[161.95, 98.50]
[173.11, 99.00]
[314.05, 99.00]
[365.52, 100.00]
[404.70, 99.50]
[476.74, 100.50]
[502.31, 101.00]
[584.69, 101.00]
[585.79, 101.00]
[590.05, 102.00]

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*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.82
*%-----|-----
CONTINUOUS NASHYD  NHYD= 3 ["SW_7"], DT=[30]min, AREA=[3197] (ha),
                   DWF=[0] (cms), CN/C=[57], IA=[2.5] (mm),
                   N=[3.0], TP=[6.65]hrs,
                   Continuous simulation parameters:
                   IaRECper=[4] (hrs),
                   SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
                   InterEventTime=[12] (hrs)
                   Baseflow simulation parameters:
                   BaseFlowOption=[1] ,
                   InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                   VHydCond=[0.055] (mm/hr), END=-1
*%-----|-----
*#
*# Addition of Subwatershed 7 to Node 7
*#
ADD HYD            NHYDsum= 2 ["S_N7"], NHYDs to add= 1 3 ["N7"+"SW_7"]
*%-----|-----
SAVE HYD          NHYD=2, # OF PCYCLES=[-1], ICASEsh=[-1]
                   HYD_FILENAME=["H_SN7"]
                   HYD_COMMENT=["flow at S_N7: N7 + SW_7"]
*%-----|-----
*# Insertion of a reservoir to simulate the effects of the Richmond Fen.
*# Storage area and volumes were estimated from available topo maps.
*# Release rate from fen was assumed to be controlled by the downstream
*# river cross-section for summer conditions. It is was assumed that for up to
*# 0.75 m of water, the main channel of the river provided the storage. Above
*# this depth, the wetland starts to significantly store water.
*#
ROUTE RESERVOIR  NHYDout= 1 ["RES_RF"] ,NHYDin= 2
                   RDT=[30] (min),
                   TABLE of ( OUTFLOW-STORAGE ) values
                   (cms) - (ha-m)
                   TABLE of ( OUTFLOW-STORAGE ) values
                   (cms) - (ha-m)
                   [ 0.0 , 0.0 ]
                   [0.9051, 2.40]
                   [2.907, 4.13]
                   [9.744, 9.18]
                   [20.304, 14.96]
                   [34.167, 310.21]
                   [74.993, 605.46]
                   [104.876, 900.71]
                   [140.56, 2892.00]
                   [225.00, 3615.63]
                   [ -1 , -1 ] (max twenty pts)
                   NHYDovf=[" " ] ,

```

```

*%-----|-----
SAVE HYD      NHYD=1, # OF PCYCLES=[-1], ICASEsh=[-1]
              HYD_FILENAME=["H_ResRF"]
              HYD_COMMENT=["outflow of Richmond Fen"]
*%-----|-----
*#
*# Sum of hydrographs from Node 7 routed to Node 6
*# Section 5
*#
ROUTE CHANNEL  NHYDout= 2["N6"] ,NHYDin= 1
               RDT=[30] (min),
               CHLGTH=[3056] (m),  CHSLOPE=[0.0818] (%),
                                   FPSLOPE=[0.0818] (%),
               SECNUM=[1.0],      NSEG=[5]
               ( SEGROUGH, SEGDIST (m))=
                 [0.025,-70.8
                  0.1,-23.9
                  -0.05,23.9
                  0.06,39.8
                  0.05,96.3] NSEG times
               ( DISTANCE (m), ELEVATION (m))=
                 [-100.8, 97.00]
                 [-70.8, 96.50]
                 [-52.0, 96.00]
                 [-35.1, 95.50]
                 [-30.6, 95.00]
                 [-23.9, 94.54]
                 [23.9, 94.54]
                 [39.8, 95.00]
                 [50.4, 95.50]
                 [93.5, 96.00]
                 [94.9, 96.50]
                 [96.3, 97.00]

*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.75
*%-----|-----
CONTINUOUS NASHYD  NHYD= 3 ["SW_6"], DT=[30]min, AREA=[165] (ha),
                  DWF=[0] (cms),  CN/C=[67], IA=[2.5] (mm),
                  N=[3.0], TP=[4.18]hrs,
                  Continuous simulation parameters:
                  IaRECper=[4] (hrs),
                  SMIN=[-1] (mm),  SMAX=[-1] (mm), SK=[0.010]/(mm),
                  InterEventTime=[12] (hrs)
                  Baseflow simulation parameters:
                  BaseFlowOption=[1] ,
                  InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                  VHydCond=[0.055] (mm/hr),  END=-1

*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.67
*%-----|-----
CONTINUOUS NASHYD  NHYD= 4 ["VG_DR"], DT=[30]min, AREA=[1332] (ha),
                  DWF=[0] (cms),  CN/C=[72], IA=[2.5] (mm),
                  N=[3.0], TP=[5.95]hrs,
                  Continuous simulation parameters:
                  IaRECper=[4] (hrs),
                  SMIN=[-1] (mm),  SMAX=[-1] (mm), SK=[0.010]/(mm),
                  InterEventTime=[12] (hrs)
                  Baseflow simulation parameters:
                  BaseFlowOption=[1] ,
                  InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                  VHydCond=[0.055] (mm/hr),  END=-1
SAVE HYD      NHYD=4, # OF PCYCLES=[-1], ICASEsh=[-1]

```

HYD_FILENAME=["H-VG_DR"]
HYD_COMMENT=["flow at Van Gaal Drain"]

*%-----|-----
*#
*# Addition of Subwatershed 6 and Van Gaal Drain to Node 6
*#
ADD HYD NHYDsum= 1 ["S_N6"], NHYDs to add= 2 3 4 ["N6"+"SW_6"+"VG_DR"]
*%-----|-----

*#
*# Sum of hydrographs from Node 6 routed to Node 5
*# Section 6
*#

ROUTE CHANNEL NHYDout= 2 ["N5"] ,NHYDin= 1
 RDT=[30] (min),
 CHLGTH=[1852] (m), CHSLOPE=[0.0540] (%),
 FPSLOPE=[0.0540] (%),
 SECNUM=[1.0], NSEG=[3]
 (SEGROUGH, SEGDIST (m))=
 [0.035,-131.59
 -0.045,48.96
 0.1,239.04] NSEG times
 (DISTANCE (m), ELEVATION (m))=
 [-686.30, 94.50]
 [-675.70, 94.00]
 [-492.52, 93.00]
 [-467.28, 94.00]
 [-131.59, 94.00]
 [-92.79, 92.50]
 [-18.06, 91.00]
 [18.06, 91.00]
 [43.47, 92.50]
 [48.96, 94.00]
 [177.43, 94.00]
 [239.04,94.50]

*%-----|-----
CONTINUOUS NASHYD NHYD= 3 ["SW_5"], DT=[30]min, AREA=[224] (ha),
 DWF=[0] (cms), CN/C=[77], IA=[2.5] (mm),
 N=[3.0], TP=[0.75]hrs,
 Continuous simulation parameters:
 IaRECper=[4] (hrs),
 SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
 InterEventTime=[12] (hrs)
 Baseflow simulation parameters:
 BaseFlowOption=[1] ,
 InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
 VHydCond=[0.055] (mm/hr), END=-1
*%-----|-----

*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.20
*%-----|-----

CONTINUOUS NASHYD NHYD= 4 ["FL_CK"], DT=[30]min, AREA=[4945] (ha),
 DWF=[0] (cms), CN/C=[74], IA=[2.5] (mm),
 N=[3.0], TP=[4.45]hrs,
 Continuous simulation parameters:
 IaRECper=[4] (hrs),
 SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
 InterEventTime=[12] (hrs)
 Baseflow simulation parameters:
 BaseFlowOption=[1] ,
 InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
 VHydCond=[0.055] (mm/hr), END=-1
*%-----|-----

*#
*# Addition of Subwatershed 5 and Flowing Creek to Node 5

```

*#
ADD HYD          NHYDsum= 1 ["S_N5"], NHYDs to add= 2 3 4 ["N5"+"SW_5"+"FL_CK"]
SAVE HYD        NHYD=2, # OF PCYCLES=[-1], ICASEsh=[-1]
                HYD_FILENAME=["N5ex"]
                HYD_COMMENT=["flow at N5"]
SAVE HYD        NHYD=3, # OF PCYCLES=[-1], ICASEsh=[-1]
                HYD_FILENAME=["SW_5ex"]
                HYD_COMMENT=["flow at SW_5"]
SAVE HYD        NHYD=4, # OF PCYCLES=[-1], ICASEsh=[-1]
                HYD_FILENAME=["FL_CKex"]
                HYD_COMMENT=["flow at FL_CK"]
SAVE HYD        NHYD=1, # OF PCYCLES=[-1], ICASEsh=[-1]
                HYD_FILENAME=["S_N5ex"]
                HYD_COMMENT=["flow at S_N5"]
*%-----|-----

```

```

*#
*# Sum of hydrographs from Node 5 routed to Node 5A
*# Section 7
*#

```

```

ROUTE CHANNEL   NHYDout= 2 ["N5A"], NHYDin= 1
                RDT=[30] (min),
                CHLGTH=[556] (m), CHSLOPE=[0.0900] (%),
                FPSLOPE=[0.0900] (%),
                SECNUM=[1.0], NSEG=[4]
                ( SEGROUGH, SEGDIST (m))=
                  [0.04,-41.5
                  0.1,-14.0
                  -0.045,14.0
                  0.1,41.1] NSEG times
                ( DISTANCE (m), ELEVATION (m))=
                  [-275.8, 93.00]
                  [-248.6, 92.50]
                  [-237.0, 92.00]
                  [-219.3, 91.50]
                  [-202.1, 91.50]
                  [-186.0, 92.00]
                  [-129.2, 92.00]
                  [-117.6, 91.50]
                  [-100.6, 91.00]
                  [-41.5, 91.00]
                  [-20.0, 91.00]
                  [-14.0, 90.54]
                  [14.0, 90.54]
                  [15.3, 91.00]
                  [17.3, 91.50]
                  [38.4, 92.00]
                  [39.8, 92.50]
                  [41.1, 93.00]
*%-----|-----

```

```

CONTINUOUS NASHYD NHYD= 3 ["SW_5A2"], DT=[30]min, AREA=[20] (ha),
                 DWF=[0] (cms), CN/C=[81], IA=[2.5] (mm),
                 N=[3.0], TP=[0.62]hrs,
                 Continuous simulation parameters:
                 IaRECper=[4] (hrs),
                 SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
                 InterEventTime=[12] (hrs)
                 Baseflow simulation parameters:
                 BaseFlowOption=[1] ,
                 InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                 VHydCond=[0.055] (mm/hr), END=-1
*%-----|-----

```

```

*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.61
*%-----|-----

```

```

CONTINUOUS NASHYD NHYD= 4 ["SW_5A1"], DT=[30]min, AREA=[1412] (ha),
                 DWF=[0] (cms), CN/C=[75], IA=[2.5] (mm),

```

```

N=[3.0], TP=[8.00]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr), END=-1
*%-----|-----
*#
*# Addition of Subwatershed 5A1 and Subwatershed 5A2 to Node 5A
*#
ADD HYD          NHYDsum= 1 ["S_N5A"], NHYDs to add= 2 3 4 ["N5A"+"SW_5A2"+"SW_5A1"]
*%-----|-----
*#
*# Sum of hydrographs from Node 5A routed to Node 4
*# Section 8
*#
ROUTE CHANNEL   NHYDout= 2["N4"] ,NHYDin= 1
RDT=[30] (min),
CHLGTH=[4630] (m), CHSLOPE=[0.0432] (%),
FPSLOPE=[0.0432] (%),
SECNUM=[1.0], NSEG=[3]
( SEGROUGH, SEGDIST (m))=
  [0.05,-28.2
  -0.035,28.2
  0.05,173.1] NSEG times
( DISTANCE (m), ELEVATION (m))=
  [-38.9, 92.00]
  [-35.8, 91.50]
  [-33.3, 91.00]
  [-28.2, 90.50]
  [-15.0, 87.48]
  [-5.0, 88.34]
  [5.0, 86.20]
  [15.0, 88.55]
  [28.2, 90.50]
  [29.7, 91.00]
  [46.5, 91.00]
  [127.8, 91.00]
  [148.7, 91.50]
  [173.1, 92.00]

*%-----|-----
CONTINUOUS NASHYD NHYD= 3["SW_4"], DT=[30]min, AREA=[585] (ha),
DWF=[0] (cms), CN/C=[81], IA=[2.5] (mm),
N=[3.0], TP=[1.75]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr), END=-1
*%-----|-----
CONTINUOUS NASHYD NHYD= 4 ["LM_CK"], DT=[30]min, AREA=[1021] (ha),
DWF=[0] (cms), CN/C=[80], IA=[2.5] (mm),
N=[3.0], TP=[2.46]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)

```

VHydCond=[0.055] (mm/hr), END=-1

```
*%-----|-----|
*#
*# Addition of Subwatershed 4 and Leamy Creek to Node 4
*#
ADD HYD          NHYDsum= 1 ["S_N4"], NHYDs to add= 2 3 4 ["N4"+"SW_4"+"LM_CK"]
SAVE HYD         NHYD=1, # OF PCYCLES=[-1], ICASEsh=[1]
                 HYD_COMMENT=["flow at S_N4"]
*%-----|-----|
```

```
*#
*# Sum of hydrographs from Node 4 routed to Node 2
*# Section 9
*#
ROUTE CHANNEL   NHYDout= 2 ["N2"], NHYDin= 1
                 RDT=[30] (min),
                 CHLGTH=[1667] (m), CHSLOPE=[0.0600] (%),
                 FPSLOPE=[0.0600] (%),
                 SECNUM=[1.0], NSEG=[4]
                 ( SEGROUGH, SEGDIST (m))=
                   [0.1,-28.0
                   -0.04,28.4
                   0.06,31.7
                   0.04,80.2] NSEG times
                 ( DISTANCE (m), ELEVATION (m))=
                   [-36.3, 92.00]
                   [-32.6, 91.50]
                   [-30.2, 91.00]
                   [-28.0, 90.45]
                   [-15.0, 87.48]
                   [-5.0, 88.34]
                   [5.0, 86.20]
                   [15.0, 88.55]
                   [28.0, 90.45]
                   [28.4, 90.50]
                   [30.4, 91.00]
                   [31.7, 91.50]
                   [80.2, 92.00]
```

```
*%-----|-----|
CONTINUOUS NASHYD NHYD= 3 ["SW_2"], DT=[30]min, AREA=[177] (ha),
                  DWF=[0] (cms), CN/C=[77], IA=[2.5] (mm),
                  N=[3.0], TP=[0.75]hrs,
                  Continuous simulation parameters:
                  IaRECper=[4] (hrs),
                  SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
                  InterEventTime=[12] (hrs)
                  Baseflow simulation parameters:
                  BaseFlowOption=[1] ,
                  InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                  VHydCond=[0.055] (mm/hr), END=-1
```

```
*%-----|-----|
CONTINUOUS NASHYD NHYD= 4 ["SM_DR"], DT=[30]min, AREA=[1122] (ha),
                  DWF=[0] (cms), CN/C=[81], IA=[2.5] (mm),
                  N=[3.0], TP=[3.25]hrs,
                  Continuous simulation parameters:
                  IaRECper=[4] (hrs),
                  SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
                  InterEventTime=[12] (hrs)
                  Baseflow simulation parameters:
                  BaseFlowOption=[1] ,
                  InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                  VHydCond=[0.055] (mm/hr), END=-1
```

```
*%-----|-----|
CONTINUOUS NASHYD NHYD= 5 ["MO_DR"], DT=[30]min, AREA=[2737] (ha),
                  DWF=[0] (cms), CN/C=[76], IA=[2.5] (mm),
                  N=[3.0], TP=[3.03]hrs,
                  Continuous simulation parameters:
```

```

IaRECper=[4] (hrs),
SMIN=[-1] (mm),  SMAX=[-1] (mm),  SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm),  GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----
*#
*# Addition of Subwatershed 2 with Monohan Drain and Smith Drain to Node 2
*#
ADD HYD          NHYDsum= 1 ["S_N2"], NHYDs to add= 2 3 4 5
                  ["N2"+"SW_2"+"SM_DR"+"MO_DR"]
*%-----|-----
SAVE HYD         NHYD=1, # OF PCYCLES=[-1], ICASEsh=[-1]
                  HYD_FILENAME=["H_SN2"]
                  HYD_COMMENT=["flow at S_N2 Jock River Gauge at Moodie Dr."]
*%-----|-----
*#
*# Sum of hydrographs from Node 2 routed to Node 1
*# Section 10
*#
ROUTE CHANNEL   NHYDout= 2 ["N1"] ,NHYDin= 1
                  RDT=[30] (min),
                  CHLGTH=[10046] (m),  CHSLOPE=[0.0498] (%),
                                      FPSLOPE=[0.0498] (%),
                  SECNUM=[1.0],        NSEG=[5]
                  ( SEGROUGH, SEGDIST (m))=
                    [0.04,-27.6
                     0.06,-15.0
                    -0.045,15.0
                     0.06,25.4
                    0.04,122.6] NSEG times
                  ( DISTANCE (m), ELEVATION (m))=
                    [-87.0, 91.50]
                    [-32.4, 91.00]
                    [-27.6, 90.50]
                    [-25.0, 90.00]
                    [-22.9, 89.57]
                    [-15.0, 86.20]
                    [-5.0, 84.83]
                    [5.0, 84.83]
                    [15.0, 88.11]
                    [22.9, 89.57]
                    [25.4, 90.00]
                    [27.9, 90.50]
                    [38.0, 91.00]
                    [112.5, 91.00]
                    [114.3, 90.50]
                    [115.1, 90.26]
                    [116.3, 90.50]
                    [119.0, 91.00]
                    [121.0, 91.50]
                    [122.6, 92.00]
*%-----|-----
CONTINUOUS NASHYD  NHYD= 3 ["SW_1"], DT=[30]min, AREA=[3176] (ha),
                   DWF=[0] (cms),  CN/C=[78], IA=[2.5] (mm),
                   N=[3.0], TP=[3.56]hrs,
                   Continuous simulation parameters:
                   IaRECper=[4] (hrs),
                   SMIN=[-1] (mm),  SMAX=[-1] (mm),  SK=[0.010]/(mm),
                   InterEventTime=[12] (hrs)
                   Baseflow simulation parameters:
                   BaseFlowOption=[1] ,
                   InitGWResVol=[50] (mm),  GWResK=[0.96] (mm/day/mm)
                   VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----

```



```

*#
*# Addition of Subwatershed 1 to Node 1
*#
ADD HYD          NHYDsum= 1["N1"], NHYDs to add= 2 3 ["N1"+"SW_1"]
SAVE HYD        NHYD=1, # OF PCYCLES=[-1], ICASEsh=[1]
                HYD_FILENAME=["N1-ex"]
                HYD_COMMENT=["total outflow of Jock River"]
#####
*% 5 yr, 24 hr SCS storm based on OTTAWA CDA IDF Curves
START          TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[5]
*%            ["C24SC005.stm"] <--storm filename, one per line for NSTORM time
*%-----|-----|
*% 100 yr, 24 hr SCS storm based on OTTAWA CDA IDF Curves
START          TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[100]
*%            ["C24SC100.stm"] <--storm filename, one per line for NSTORM time
FINISH

```

SWMHYMO – OUTPUT - EXISTING

```

*****
# Project Name: [Jock River]      Project Number: [411-02]
# Date       : 06-06-2003
# Modeller   : [JoF]
# Company    : JFSAinc.
# License #   : 2549237
*****
# CALIBRATION OF SUMMER MODEL PARAMETERS
# USING CONTINUOUS SIMULATIONS
# Rainfall data from JFSA rainauge installed at site + other gauges by the Cit
# Use data collected from May 1st to July 14, 2003
# -----
#
#   EXISING SUMMER
#
#
RUN:COMMAND#
001:0001-----
START
  [TZERO =   .00 hrs on      0]
  [METOUT=  2   (1=imperial, 2=metric output)]
  [NSTORM=  1 ]
  [NRUN =  1 ]
001:0002-----
READ STORM
  Filename = storm.001
  Comment = Pluie SCS de 24 hres 1:2 ans pour Ottawa CDA
  [SDT=10.00:SDUR= 24.00:PTOT= 45.51]
001:0003-----
MODIFY STORM
  [RFACT=  1.00:TSHIFT= 960.00 min]
  [SDT=10.00:SDUR= 40.00:PTOT= 45.51]
001:0004-----
COMPUTE API
  [APIini= 50.00: APIkdy= .8500: APIkdt= .9989]
  {APIimax= 80.12: APIavg= 56.74: APIimin= 44.87}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.32
001:0005-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 01:JR_HW 3680.00 6.065 No_date 37:00 11.44 .251
  [CN= 64.0: N= 3.00]
  [Tp= 7.13:DT=30.00]
  [IaREC= 4.00: SMIN= 57.05: SMAX=380.32: SK= .010]
  [InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.32
001:0006-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 02:SW_13 971.00 2.154 No_date 32:30 10.72 .236
  [CN= 61.0: N= 3.00]
  [Tp= 3.76:DT=30.00]
  [IaREC= 4.00: SMIN= 64.50: SMAX=430.01: SK= .010]
  [InterEventTime= 12.00]
#
# Starting with the addition of Jock River Headwater and Subwatershed 13
#
001:0007-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:S_N13 3680.00 6.065 No_date 37:00 11.44 n/a
                + 02:SW_13 971.00 2.154 No_date 32:30 10.72 n/a
  [DT=30.00] SUM= 01:S_N13 4651.00 7.713 No_date 35:30 11.29 n/a
#
# Sum of hydrographs from Node 13 routed to Node 13A
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
#

```

```

001:0008-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N13 4651.00 7.713 No_date 35:30 11.29 n/a
[RDT=30.00] out<- 02:N13A 4651.00 6.154 No_date 39:30 11.29 n/a
[L/S/n= 9074./ .022/.040]
{Vmax= .427:Dmax= 2.537}

#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
001:0009-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 01:JR_GWM 3161.00 3.203 No_date 39:30 9.41 .207
[CN= 55.0: N= 3.00]
[Tp=11.33:DT=30.00]
[IaREC= 4.00: SMIN= 83.24: SMAX=554.96: SK= .010]
[InterEventTime= 12.00]

#
# Addition of Subwatershed Jock River at Goodwood Marsh to Node 13A
#
001:0010-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N13A 4651.00 6.154 No_date 39:30 11.29 n/a
+ 01:SN13A 3161.00 3.203 No_date 39:30 9.41 n/a
[DT=30.00] SUM= 01:SN13A 7812.00 9.357 No_date 39:30 10.53 n/a

#
# Insertion of a reservoir to simulate the effects of the Goodwood Marsh
#
001:0011-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE RESERVOIR -> 01:SN13A 7812.00 9.357 No_date 39:30 10.53 n/a
[RDT=30.00] out<- 02:RES_GM 7812.00 2.612 No_date 55:30 10.53 n/a
{MxStoUsed=.3547E+02}

#
001:0012-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 02:RES_GM 7812.00 2.612 No_date 55:30 10.53 n/a
fname :C:\STORMS~1\H_RESGM.001
remark:Outflow from Res GM
# Output of Reservoir Goodwood Marsh routed from Node 13A to Node 12
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
001:0013-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:RES_GM 7812.00 2.612 No_date 55:30 10.53 n/a
[RDT=30.00] out<- 01:N12 7812.00 2.604 No_date 58:00 10.53 n/a
[L/S/n= 5926./ .076/.040]
{Vmax= .501:Dmax= 1.328}

001:0014-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_11 500.00 2.663 No_date 29:00 11.95 .263
[CN= 66.0: N= 3.00]
[Tp= 1.24:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]

001:0015-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 02:JR_ASH 1781.00 5.417 No_date 32:30 13.91 .306
[CN= 72.0: N= 3.00]
[Tp= 3.91:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]

#
# Addition of Subwatershed Jock River at Ashton to Node 12
#
001:0016-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 01:S_N12 7812.00 2.604 No_date 58:00 10.53 n/a
+ 02:JR_ASH 1781.00 5.417 No_date 32:30 13.91 n/a
[DT=30.00] SUM= 01:S_N12 9593.00 7.377 No_date 32:30 11.16 n/a

001:0017-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:S_N12 9593.00 7.377 No_date 32:30 11.16 n/a
fname :C:\STORMS~1\H_SN12.001
remark:flow at S_N12 near Ashton

#
# Sum of hydrographs from Node 12 routed to Node 11
# (Approximated cross-section - see cross-section 258)

```

```

# Use n=0.04 for summer conditions and n=0.025 for spring conditions
001:0018-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N12  9593.00  7.377 No_date  32:30  11.16  n/a
[RDT=30.00] out<- 02:N11  9593.00  7.323 No_date  33:00  11.16  n/a
[L/S/n= 972./ .051/.040]
{Vmax= .580:Dmax= 2.120}

#
# Sum of hydrographs from Node 12 routed to Node 11 with Dummy section 248
#
001:0019-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N12  9593.00  7.377 No_date  32:30  11.16  n/a
[RDT=30.00] out<- 03:Dum11 9593.00  7.326 No_date  33:00  11.16  n/a
[L/S/n= 972./ .054/.040]
{Vmax= .589:Dmax= 2.098}

#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
001:0020-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 05:NN_CK  1917.00  3.966 No_date  34:30  11.95  .263
[CN= 66.0: N= 3.00]
[Tp= 5.29:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]

#
# Addition of Subwatershed 11 and No Name Creek to Node 11
#
001:0021-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          03:Dum11  9593.00  7.326 No_date  33:00  11.16  n/a
                + 04:SW_11   500.00  2.663 No_date  29:00  11.95  n/a
                + 05:NN_CK  1917.00  3.966 No_date  34:30  11.95  n/a
[DT=30.00] SUM= 01:S_N11 12010.00 11.957 No_date  33:00  11.32  n/a

#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.52
#
# Sum of hydrographs from Node 11 routed to Node 10
# Section 1
#
001:0022-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N11 12010.00 11.957 No_date  33:00  11.32  n/a
[RDT=30.00] out<- 02:N10  12010.00  8.226 No_date  39:30  11.32  n/a
[L/S/n=14028./ .157/.040]
{Vmax= .460:Dmax= .881}

001:0023-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_10  5666.00 10.936 No_date  38:00  13.91  .306
[CN= 72.0: N= 3.00]
[Tp= 8.00:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]

#
# Addition of Subwatershed 10 to Node 10
#
001:0024-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N10  12010.00  8.226 No_date  39:30  11.32  n/a
                + 04:SW_10  5666.00 10.936 No_date  38:00  13.91  n/a
[DT=30.00] SUM= 01:S_N10 17676.00 19.109 No_date  38:30  12.15  n/a

001:0025-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:S_N10 17676.00 19.109 No_date  38:30  12.15  n/a
fname :C:\STORMS~1\H_SN10.001
remark:flow at S_N10: N10 + SW_10

#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.75
001:0026-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:KG_CK  8376.00 10.656 No_date  39:30  11.95  .263
[CN= 66.0: N= 3.00]
[Tp=11.66:DT=30.00]

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[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
# Addition of Kings Creek to S_N10
#
001:0027-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:S_N10 17676.00 19.109 No_date 38:30 12.15 n/a
                + 03:KG_CK 8376.00 10.656 No_date 39:30 11.95 n/a
                [DT=30.00] SUM= 02:S_N10A 26052.00 29.632 No_date 39:30 12.08 n/a
#
# Sum of hydrographs from Node 10 routed to Node 9
# Section 2
#
001:0028-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 02:S_N10A 26052.00 29.632 No_date 39:30 12.08 n/a
[RDT=30.00] out<- 01:N9 26052.00 28.892 No_date 39:30 12.08 n/a
[L/S/n= 3982./ .075/.040]
{Vmax= .591:Dmax= 1.193}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.68
001:0029-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_9 1132.00 4.365 No_date 30:30 13.32 .293
[CN= 70.0: N= 3.00]
[Tp= 2.51:DT=30.00]
[IaREC= 4.00: SMIN= 43.07: SMAX=287.10: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.82
001:0030-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:NC_CK 4464.00 5.312 No_date 39:30 10.96 .241
[CN= 62.0: N= 3.00]
[Tp=11.32:DT=30.00]
[IaREC= 4.00: SMIN= 61.90: SMAX=412.66: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 9 and Nichols Creek to Node 9
#
001:0031-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:N9 26052.00 28.892 No_date 39:30 12.08 n/a
                + 03:SW_9 1132.00 4.365 No_date 30:30 13.32 n/a
                + 04:NC_CK 4464.00 5.312 No_date 39:30 10.96 n/a
                [DT=30.00] SUM= 02:S_N9 31648.00 35.499 No_date 39:30 11.97 n/a
#
# Sum of hydrographs from Node 9 routed to Node 8
# Section 3
#
001:0032-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 02:S_N9 31648.00 35.499 No_date 39:30 11.97 n/a
[RDT=30.00] out<- 01:N8 31648.00 33.315 No_date 40:00 11.97 n/a
[L/S/n= 2269./ .088/.045]
{Vmax= .420:Dmax= 1.270}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
001:0033-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_8 131.00 .770 No_date 28:30 11.20 .246
[CN= 63.0: N= 3.00]
[Tp= .90:DT=30.00]
[IaREC= 4.00: SMIN= 59.42: SMAX=396.11: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.65
001:0034-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:HB_DR 3854.00 6.083 No_date 38:30 11.95 .263
[CN= 66.0: N= 3.00]

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[TP= 8.42:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 8 and Hobb's Drain to Node 8
#
001:0035-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:N8      31648.00  33.315 No_date  40:00  11.97  n/a
                + 03:SW_8    131.00    .770 No_date  28:30  11.20  n/a
                + 04:HB_DR   3854.00   6.083 No_date  38:30  11.95  n/a
                [DT=30.00] SUM= 02:S_N8  35633.00  39.371 No_date  39:30  11.96  n/a
#
# Sum of hydrographs from Node 8 routed to Node 7
# Section 4
#
001:0036-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 02:S_N8   35633.00  39.371 No_date  39:30  11.96  n/a
[RDT=30.00] out<- 01:N7    35633.00  32.183 No_date  44:00  11.96  n/a
[L/S/n= 3750./ .053/.070]
{Vmax= .209:Dmax= 1.635}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.82
001:0037-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_7   3197.00   4.557 No_date  36:30   9.83  .216
[CN= 57.0: N= 3.00]
[TP= 6.65:DT=30.00]
[IaREC= 4.00: SMIN= 76.32: SMAX=508.81: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 7 to Node 7
#
001:0038-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:N7      35633.00  32.183 No_date  44:00  11.96  n/a
                + 03:SW_7    3197.00   4.557 No_date  36:30   9.83  n/a
                [DT=30.00] SUM= 02:S_N7  38830.00  34.359 No_date  43:00  11.79  n/a
001:0039-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         02:S_N7   38830.00  34.359 No_date  43:00  11.79  n/a
fname :C:\STORMS~1\H_SN7.001
remark:flow at S_N7: N7 + SW_7
# Insertion of a reservoir to simulate the effects of the Richmond Fen.
# Storage area and volumes were estimated from available topo maps.
# Release rate from fen was assumed to be controlled by the downstream
# river cross-section for summer conditions. It is was assumed that for up to
# 0.75 m of water, the main channel of the river provided the storage. Above
# this depth, the wetland starts to significantly store water.
#
001:0040-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE RESERVOIR -> 02:S_N7   38830.00  34.359 No_date  43:00  11.79  n/a
[RDT=30.00] out<- 01:RES_RF 38830.00  23.079 No_date  54:30  11.79  n/a
{MxStoUsed=.7407E+02}
001:0041-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:RES_RF 38830.00  23.079 No_date  54:30  11.79  n/a
fname :C:\STORMS~1\H_ResRF.001
remark:outflow of Richmond Fen
#
# Sum of hydrographs from Node 7 routed to Node 6
# Section 5
#
001:0042-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:RES_RF 38830.00  23.079 No_date  54:30  11.79  n/a
[RDT=30.00] out<- 02:N6    38830.00  23.056 No_date  56:00  11.79  n/a
[L/S/n= 3056./ .082/.025]
{Vmax= .431:Dmax= .805}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.75

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001:0043-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_6      165.00      .407 No_date   33:00   12.21 .268
[CN= 67.0: N= 3.00]
[Tp= 4.18:DT=30.00]
[IaREC= 4.00: SMIN= 50.55: SMAX=336.97: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.67
001:0044-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:VG_DR    1332.00     3.083 No_date   35:00   13.91 .306
[CN= 72.0: N= 3.00]
[Tp= 5.95:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]
001:0045-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          04:VG_DR    1332.00     3.083 No_date   35:00   13.91 n/a
fname :C:\STORMS~1\H-VG_DR.001
remark:flow at Van Gaal Drain
#
# Addition of Subwatershed 6 and Van Gaal Drain to Node 6
#
001:0046-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD           02:N6       38830.00    23.056 No_date   56:00   11.79 n/a
                + 03:SW_6      165.00      .407 No_date   33:00   12.21 n/a
                + 04:VG_DR    1332.00     3.083 No_date   35:00   13.91 n/a
[DT=30.00] SUM= 01:S_N6   40327.01    23.227 No_date   39:30   11.86 n/a
#
# Sum of hydrographs from Node 6 routed to Node 5
# Section 6
#
001:0047-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N6   40327.01    23.227 No_date   39:30   11.86 n/a
[RDT=30.00] out<- 02:N5   40327.01    23.175 No_date   55:00   11.86 n/a
[L/S/n= 1852./ .054/.035]
{Vmax= .378:Dmax= .915}
001:0048-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_5      224.00     2.527 No_date   28:30   15.88 .349
[CN= 77.0: N= 3.00]
[Tp= .75:DT=30.00]
[IaREC= 4.00: SMIN= 31.15: SMAX=207.66: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.20
001:0049-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:FL_CK    4945.00    14.579 No_date   33:00   14.54 .319
[CN= 74.0: N= 3.00]
[Tp= 4.45:DT=30.00]
[IaREC= 4.00: SMIN= 36.67: SMAX=244.49: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 5 and Flowing Creek to Node 5
#
001:0050-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD           02:N5       40327.01    23.175 No_date   55:00   11.86 n/a
                + 03:SW_5      224.00     2.527 No_date   28:30   15.88 n/a
                + 04:FL_CK    4945.00    14.579 No_date   33:00   14.54 n/a
[DT=30.00] SUM= 01:S_N5   45496.01    32.982 No_date   37:00   12.17 n/a
001:0051-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          02:N5       40327.01    23.175 No_date   55:00   11.86 n/a
fname :C:\STORMS~1\N5ex.001
remark:flow at N5
001:0052-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          03:SW_5      224.00     2.527 No_date   28:30   15.88 n/a
fname :C:\STORMS~1\SW_5ex.001
remark:flow at SW_5

```


001:0053-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 04:FL_CK 4945.00 14.579 No_date 33:00 14.54 n/a
fname :C:\STORMS~1\FL_CKex.001
remark:flow at FL_CK

001:0054-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:S_N5 45496.01 32.982 No_date 37:00 12.17 n/a
fname :C:\STORMS~1\S_N5ex.001
remark:flow at S_N5

Sum of hydrographs from Node 5 routed to Node 5A
Section 7
#

001:0055-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N5 45496.01 32.982 No_date 37:00 12.17 n/a
[RDT=30.00] out<- 02:N5A 45496.01 32.930 No_date 37:00 12.17 n/a
[L/S/n= 556./ .090/.040]
{Vmax= .443:Dmax= .935}

001:0056-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_5A2 20.00 .287 No_date 28:30 17.76 .390
[CN= 81.0: N= 3.00]
[Tp= .62:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]

The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
of 1.61

001:0057-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_5A1 1412.00 3.007 No_date 38:00 15.19 .334
[CN= 75.0: N= 3.00]
[Tp= 8.00:DT=30.00]
[IaREC= 4.00: SMIN= 33.81: SMAX=225.43: SK= .010]
[InterEventTime= 12.00]

Addition of Subwatershed 5A1 and Subwatershed 5A2 to Node 5A
#

001:0058-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N5A 45496.01 32.930 No_date 37:00 12.17 n/a
+ 03:SW_5A2 20.00 .287 No_date 28:30 17.76 n/a
+ 04:SW_5A1 1412.00 3.007 No_date 38:00 15.19 n/a
[DT=30.00] SUM= 01:S_N5A 46928.01 35.948 No_date 37:00 12.26 n/a

Sum of hydrographs from Node 5A routed to Node 4
Section 8
#

001:0059-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N5A 46928.01 35.948 No_date 37:00 12.26 n/a
[RDT=30.00] out<- 02:N4 46928.01 35.073 No_date 39:00 12.26 n/a
[L/S/n= 4630./ .043/.035]
{Vmax= .693:Dmax= 2.837}

001:0060-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_4 585.00 4.232 No_date 29:30 17.76 .390
[CN= 81.0: N= 3.00]
[Tp= 1.75:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]

001:0061-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:LM_CK 1021.00 5.667 No_date 30:30 17.36 .382
[CN= 80.0: N= 3.00]
[Tp= 2.46:DT=30.00]
[IaREC= 4.00: SMIN= 26.32: SMAX=175.50: SK= .010]
[InterEventTime= 12.00]

Addition of Subwatershed 4 and Leamy Creek to Node 4
#

001:0062-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N4 46928.01 35.073 No_date 39:00 12.26 n/a
+ 03:SW_4 585.00 4.232 No_date 29:30 17.76 n/a

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+ 04:LM_CK 1021.00 5.667 No_date 30:30 17.36 n/a
[DT=30.00] SUM= 01:S_N4 48534.01 37.407 No_date 38:30 12.44 n/a
001:0063-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:S_N4 48534.01 37.407 No_date 38:30 12.44 n/a
fname :C:\STORMS~1\H-S_N4.001
remark:flow at S_N4

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#
# Sum of hydrographs from Node 4 routed to Node 2
# Section 9
#

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```

001:0064-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N4 48534.01 37.407 No_date 38:30 12.44 n/a
[RDT=30.00] out<- 02:N2 48534.01 37.307 No_date 39:00 12.44 n/a
[L/S/n= 1667./ .060/.040]
{Vmax= .714:Dmax= 2.841}
001:0065-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_2 177.00 1.996 No_date 28:30 15.88 .349
[CN= 77.0: N= 3.00]
[Tp= .75:DT=30.00]
[IaREC= 4.00: SMIN= 31.15: SMAX=207.66: SK= .010]
[InterEventTime= 12.00]
001:0066-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SM_DR 1122.00 5.257 No_date 31:30 17.76 .390
[CN= 81.0: N= 3.00]
[Tp= 3.25:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]
001:0067-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 05:MO_DR 2737.00 11.338 No_date 31:30 15.53 .341
[CN= 76.0: N= 3.00]
[Tp= 3.03:DT=30.00]
[IaREC= 4.00: SMIN= 32.46: SMAX=216.39: SK= .010]
[InterEventTime= 12.00]

```

```

#
# Addition of Subwatershed 2 with Monohan Drain and Smith Drain to Node 2
#

```

```

001:0068-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N2 48534.01 37.307 No_date 39:00 12.44 n/a
+ 03:SW_2 177.00 1.996 No_date 28:30 15.88 n/a
+ 04:SM_DR 1122.00 5.257 No_date 31:30 17.76 n/a
+ 05:MO_DR 2737.00 11.338 No_date 31:30 15.53 n/a
[DT=30.00] SUM= 01:S_N2 52570.01 45.692 No_date 33:30 12.72 n/a
001:0069-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:S_N2 52570.01 45.692 No_date 33:30 12.72 n/a
fname :C:\STORMS~1\H_SN2.001
remark:flow at S_N2 Jock River Gauge at Moodie Dr.

```

```

#
# Sum of hydrographs from Node 2 routed to Node 1
# Section 10
#

```

```

001:0070-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N2 52570.01 45.692 No_date 33:30 12.72 n/a
[RDT=30.00] out<- 02:N1 52570.01 42.616 No_date 39:30 12.72 n/a
[L/S/n=10046./ .050/.040]
{Vmax= .767:Dmax= 2.662}
001:0071-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_1 3176.00 12.490 No_date 32:00 16.23 .357
[CN= 78.0: N= 3.00]
[Tp= 3.56:DT=30.00]
[IaREC= 4.00: SMIN= 29.88: SMAX=199.22: SK= .010]
[InterEventTime= 12.00]

```

```

#
# Addition of Subwatershed 1 to Node 1
#

```

```

001:0072-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N1 52570.01 42.616 No_date 39:30 12.72 n/a
+ 03:SW_1 3176.00 12.490 No_date 32:00 16.23 n/a

```

```
[DT=30.00] SUM= 01:N1 55746.00 49.180 No_date 36:30 12.92 n/a
001:0073-----ID:NHYD-----AREA---QPEAK-TpeakDate_hh:mm---R.V.-R.C.-
SAVE HYD 01:N1 55746.00 49.180 No_date 36:30 12.92 n/a
fname :C:\STORMS~1\H-N1.001
remark:N1-ex
```

```
#####
** END OF RUN : 4
```

```
*****
```

```
RUN:COMMAND#
```

```
005:0001-----
```

```
START
```

```
[TZERO = .00 hrs on 0]
[METOUT= 2 (1=imperial, 2=metric output)]
[NSTORM= 1 ]
[NRUN = 5 ]
```

```
#####
```

```
# SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
```

```
#####
```

```
# Project Name: [Jock River] Project Number: [411-02]
```

```
# Date : 06-06-2003
```

```
# Modeller : [JoF]
```

```
# Company : JFSAinc.
```

```
# License # : 2549237
```

```
#####
```

```
# CALIBRATION OF SUMMER MODEL PARAMETERS
```

```
# USING CONTINUOUS SIMULATIONS
```

```
# Rainfall data from JFSA rainauge installed at site + other gauges by the Cit
```

```
# Use data collected from May 1st to July 14, 2003
```

```
# -----
```

```
#
```

```
# EXISING SUMMER
```

```
#
```

```
#
```

```
005:0002-----
```

```
READ STORM
```

```
Filename = storm.001
Comment = Pluie SCS de 24 hres 1:5 ans pour Ottawa CDA
[SDT=10.00:SDUR= 24.00:PTOT= 57.12]
```

```
005:0003-----
```

```
MODIFY STORM
```

```
[RFAC= 1.00:TSHIFT= 960.00 min]
[SDT=10.00:SDUR= 40.00:PTOT= 57.12]
```

```
005:0004-----
```

```
COMPUTE API
```

```
[APIini= 50.00: APIkdy= .8500: APIkdt= .9989]
{APImax= 90.83: APIavg= 60.09: APImin= 44.87}
```

```
#
```

```
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
```

```
# of 1.32
```

```
005:0005-----ID:NHYD-----AREA---QPEAK-TpeakDate_hh:mm---R.V.-R.C.-
```

```
CONTINUOUS NASHYD 01:JR_HW 3680.00 9.169 No_date 37:00 16.38 .287
```

```
[CN= 64.0: N= 3.00]
```

```
[Tp= 7.13:DT=30.00]
```

```
[IaREC= 4.00: SMIN= 57.05: SMAX=380.32: SK= .010]
```

```
[InterEventTime= 12.00]
```

```
#
```

```
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
```

```
# of 1.32
```

```
005:0006-----ID:NHYD-----AREA---QPEAK-TpeakDate_hh:mm---R.V.-R.C.-
```

```
CONTINUOUS NASHYD 02:SW_13 971.00 3.350 No_date 32:30 15.27 .267
```

```
[CN= 61.0: N= 3.00]
```

```

[Tp= 3.76:DT=30.00]
[IaREC= 4.00: SMIN= 64.50: SMAX=430.01: SK= .010]
[InterEventTime= 12.00]
#
# Starting with the addition of Jock River Headwater and Subwatershed 13
#
005:0007-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:S_N13   3680.00   9.169 No_date   37:00   16.38 n/a
                + 02:SW_13    971.00    3.350 No_date   32:30   15.27 n/a
[DT=30.00] SUM= 01:S_N13   4651.00   11.688 No_date   35:30   16.15 n/a
#
# Sum of hydrographs from Node 13 routed to Node 13A
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
#
005:0008-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N13   4651.00   11.688 No_date   35:30   16.15 n/a
[RDT=30.00] out<- 02:N13A   4651.00   9.343 No_date   39:30   16.15 n/a
[L/S/n= 9074./ .022/.040]
{Vmax= .475:Dmax= 2.992}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
005:0009-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 01:JR_GWM  3161.00   4.639 No_date   39:30   13.20 .231
[CN= 55.0: N= 3.00]
[Tp=11.33:DT=30.00]
[IaREC= 4.00: SMIN= 83.24: SMAX=554.96: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed Jock River at Goodwood Marsh to Node 13A
#
005:0010-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N13A    4651.00   9.343 No_date   39:30   16.15 n/a
                + 01:SN13A   3161.00   4.639 No_date   39:30   13.20 n/a
[DT=30.00] SUM= 01:SN13A   7812.00   13.982 No_date   39:30   14.96 n/a
#
# Insertion of a reservoir to simulate the effects of the Goodwood Marsh
#
005:0011-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE RESERVOIR -> 01:SN13A   7812.00   13.982 No_date   39:30   14.96 n/a
[RDT=30.00] out<- 02:RES_GM  7812.00   3.139 No_date   58:00   14.96 n/a
{MxStoUsed=.6269E+02}
#
005:0012-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          02:RES_GM  7812.00   3.139 No_date   58:00   14.96 n/a
fname :C:\STORMS~1\H_RESGM.005
remark:Outflow from Res GM
# Output of Reservoir Goodwood Marsh routed from Node 13A to Node 12
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
005:0013-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:RES_GM  7812.00   3.139 No_date   58:00   14.96 n/a
[RDT=30.00] out<- 01:N12    7812.00   3.129 No_date   60:30   14.96 n/a
[L/S/n= 5926./ .076/.040]
{Vmax= .526:Dmax= 1.427}
005:0014-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_11    500.00   4.260 No_date   29:00   17.15 .300
[CN= 66.0: N= 3.00]
[Tp= 1.24:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
005:0015-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 02:JR_ASH  1781.00   8.382 No_date   32:30   20.09 .352
[CN= 72.0: N= 3.00]
[Tp= 3.91:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]

```

```

[InterEventTime= 12.00]
#
# Addition of Subwatershed Jock River at Ashton to Node 12
#
005:0016-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:S_N12   7812.00    3.129 No_date  60:30   14.96  n/a
                + 02:JR_ASH  1781.00    8.382 No_date  32:30   20.09  n/a
                [DT=30.00] SUM= 01:S_N12  9593.00   10.366 No_date  32:30   15.91  n/a
005:0017-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:S_N12   9593.00   10.366 No_date  32:30   15.91  n/a
fname :C:\STORMS~1\H_SN12.005
remark:flow at S_N12 near Ashton
#
# Sum of hydrographs from Node 12 routed to Node 11
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
005:0018-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL   -> 01:S_N12   9593.00   10.366 No_date  32:30   15.91  n/a
[RDT=30.00] out<- 02:N11    9593.00   10.235 No_date  33:00   15.91  n/a
[L/S/n= 972./ .051/.040]
{Vmax= .634:Dmax= 2.418}
#
# Sum of hydrographs from Node 12 routed to Node 11 with Dummy section 248
#
005:0019-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL   -> 01:S_N12   9593.00   10.366 No_date  32:30   15.91  n/a
[RDT=30.00] out<- 03:Dum11   9593.00   10.246 No_date  33:00   15.91  n/a
[L/S/n= 972./ .054/.040]
{Vmax= .645:Dmax= 2.393}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
005:0020-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 05:NN_CK   1917.00    6.085 No_date  34:00   17.15  .300
[CN= 66.0: N= 3.00]
[Tp= 5.29:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 11 and No Name Creek to Node 11
#
005:0021-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          03:Dum11   9593.00   10.246 No_date  33:00   15.91  n/a
                + 04:SW_11    500.00    4.260 No_date  29:00   17.15  n/a
                + 05:NN_CK   1917.00    6.085 No_date  34:00   17.15  n/a
                [DT=30.00] SUM= 01:S_N11  12010.00  17.319 No_date  33:00   16.16  n/a
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.52
#
# Sum of hydrographs from Node 11 routed to Node 10
# Section 1
#
005:0022-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL   -> 01:S_N11  12010.00  17.319 No_date  33:00   16.16  n/a
[RDT=30.00] out<- 02:N10    12010.00  11.909 No_date  38:30   16.16  n/a
[L/S/n=14028./ .157/.040]
{Vmax= .462:Dmax= 1.078}
005:0023-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_10   5666.00   16.454 No_date  38:00   20.09  .352
[CN= 72.0: N= 3.00]
[Tp= 8.00:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 10 to Node 10
#

```

```

005:0024-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N10    12010.00   11.909 No_date   38:30   16.16  n/a
          + 04:SW_10    5666.00   16.454 No_date   38:00   20.09  n/a
[DT=30.00] SUM= 01:S_N10  17676.00   28.349 No_date   38:00   17.42  n/a
005:0025-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:S_N10  17676.00   28.349 No_date   38:00   17.42  n/a
fname :C:\STORMS~1\H_SN10.005
remark:flow at S_N10: N10 + SW_10
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.75
005:0026-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:KG_CK   8376.00   15.668 No_date   39:30   17.15  .300
[CN= 66.0: N= 3.00]
[Tp=11.66:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
# Addition of Kings Creek to S_N10
#
005:0027-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:S_N10  17676.00   28.349 No_date   38:00   17.42  n/a
          + 03:KG_CK   8376.00   15.668 No_date   39:30   17.15  n/a
[DT=30.00] SUM= 02:S_N10A 26052.00   43.598 No_date   39:30   17.33  n/a
#
# Sum of hydrographs from Node 10 routed to Node 9
# Section 2
#
005:0028-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:S_N10A 26052.00   43.598 No_date   39:30   17.33  n/a
[RDT=30.00] out<- 01:N9    26052.00   42.453 No_date   39:30   17.33  n/a
[L/S/n= 3982./ .075/.040]
{Vmax= .663:Dmax= 1.480}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.68
005:0029-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_9    1132.00    6.854 No_date   30:30   19.22  .336
[CN= 70.0: N= 3.00]
[Tp= 2.51:DT=30.00]
[IaREC= 4.00: SMIN= 43.07: SMAX=287.10: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.82
005:0030-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:NC_CK   4464.00    7.795 No_date   39:30   15.63  .274
[CN= 62.0: N= 3.00]
[Tp=11.32:DT=30.00]
[IaREC= 4.00: SMIN= 61.90: SMAX=412.66: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 9 and Nichols Creek to Node 9
#
005:0031-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:N9     26052.00   42.453 No_date   39:30   17.33  n/a
          + 03:SW_9    1132.00    6.854 No_date   30:30   19.22  n/a
          + 04:NC_CK   4464.00    7.795 No_date   39:30   15.63  n/a
[DT=30.00] SUM= 02:S_N9    31648.00   52.078 No_date   39:30   17.16  n/a
#
# Sum of hydrographs from Node 9 routed to Node 8
# Section 3
#
005:0032-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:S_N9    31648.00   52.078 No_date   39:30   17.16  n/a
[RDT=30.00] out<- 01:N8    31648.00   48.443 No_date   40:00   17.16  n/a
[L/S/n= 2269./ .088/.045]
{Vmax= .371:Dmax= 1.510}

```

```

#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
005:0033-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_8      131.00    1.239 No_date  28:30   16.00 .280
  [CN= 63.0: N= 3.00]
  [Tp= .90:DT=30.00]
  [IaREC= 4.00: SMIN= 59.42: SMAX=396.11: SK= .010]
  [InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.65
005:0034-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:HB_DR      3854.00    9.126 No_date  38:30   17.15 .300
  [CN= 66.0: N= 3.00]
  [Tp= 8.42:DT=30.00]
  [IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
  [InterEventTime= 12.00]
#
# Addition of Subwatershed 8 and Hobb's Drain to Node 8
#
005:0035-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD           01:N8          31648.00    48.443 No_date  40:00   17.16 n/a
                  + 03:SW_8      131.00    1.239 No_date  28:30   16.00 n/a
                  + 04:HB_DR      3854.00    9.126 No_date  38:30   17.15 n/a
  [DT=30.00] SUM= 02:S_N8      35633.00    57.182 No_date  39:30   17.16 n/a
#
# Sum of hydrographs from Node 8 routed to Node 7
# Section 4
#
005:0036-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:S_N8      35633.00    57.182 No_date  39:30   17.16 n/a
  [RDT=30.00] out<- 01:N7      35633.00    46.901 No_date  45:00   17.16 n/a
  [L/S/n= 3750./ .053/.070]
  {Vmax= .207:Dmax= 1.840}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.82
005:0037-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_7      3197.00    6.873 No_date  36:00   13.87 .243
  [CN= 57.0: N= 3.00]
  [Tp= 6.65:DT=30.00]
  [IaREC= 4.00: SMIN= 76.32: SMAX=508.81: SK= .010]
  [InterEventTime= 12.00]
#
# Addition of Subwatershed 7 to Node 7
#
005:0038-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD           01:N7          35633.00    46.901 No_date  45:00   17.16 n/a
                  + 03:SW_7      3197.00    6.873 No_date  36:00   13.87 n/a
  [DT=30.00] SUM= 02:S_N7      38830.00    50.132 No_date  43:30   16.89 n/a
005:0039-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          02:S_N7      38830.00    50.132 No_date  43:30   16.89 n/a
  fname :C:\STORMS~1\H_SN7.005
  remark:flow at S_N7: N7 + SW_7
# Insertion of a reservoir to simulate the effects of the Richmond Fen.
# Storage area and volumes were estimated from available topo maps.
# Release rate from fen was assumed to be controlled by the downstream
# river cross-section for summer conditions. It is was assumed that for up to
# 0.75 m of water, the main channel of the river provided the storage. Above
# this depth, the wetland starts to significantly store water.
#
005:0040-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE RESERVOIR -> 02:S_N7      38830.00    50.132 No_date  43:30   16.89 n/a
  [RDT=30.00] out<- 01:RES_RF 38830.00    27.650 No_date  59:00   16.89 n/a
  {MxStoUsed=.1714E+03}
005:0041-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-

```

```

SAVE HYD          01:RES_RF 38830.00  27.650 No_date  59:00  16.89 n/a
fname :C:\STORMS~1\H_ResRF.005
remark:outflow of Richmond Fen
#
# Sum of hydrographs from Node 7 routed to Node 6
# Section 5
#
005:0042-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:RES_RF 38830.00  27.650 No_date  59:00  16.89 n/a
[RDT=30.00] out<- 02:N6   38830.00  27.619 No_date  60:00  16.89 n/a
[L/S/n= 3056./ .082/.025]
{Vmax= .458:Dmax= .889}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.75
005:0043-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_6   165.00   .630 No_date  33:00  17.55 .307
[CN= 67.0: N= 3.00]
[Tp= 4.18:DT=30.00]
[IaREC= 4.00: SMIN= 50.55: SMAX=336.97: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.67
005:0044-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:VG_DR  1332.00  4.700 No_date  35:00  20.09 .352
[CN= 72.0: N= 3.00]
[Tp= 5.95:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]
005:0045-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          04:VG_DR  1332.00  4.700 No_date  35:00  20.09 n/a
fname :C:\STORMS~1\H-VG_DR.005
remark:flow at Van Gaal Drain
#
# Addition of Subwatershed 6 and Van Gaal Drain to Node 6
#
005:0046-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N6   38830.00  27.619 No_date  60:00  16.89 n/a
+ 03:SW_6   165.00   .630 No_date  33:00  17.55 n/a
+ 04:VG_DR  1332.00  4.700 No_date  35:00  20.09 n/a
[DT=30.00] SUM= 01:S_N6 40327.01  27.692 No_date  59:30  16.99 n/a
#
# Sum of hydrographs from Node 6 routed to Node 5
# Section 6
#
005:0047-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N6 40327.01  27.692 No_date  59:30  16.99 n/a
[RDT=30.00] out<- 02:N5 40327.01  27.656 No_date  59:30  16.99 n/a
[L/S/n= 1852./ .054/.035]
{Vmax= .396:Dmax= .997}
005:0048-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_5   224.00  3.985 No_date  28:30  22.94 .402
[CN= 77.0: N= 3.00]
[Tp= .75:DT=30.00]
[IaREC= 4.00: SMIN= 31.15: SMAX=207.66: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.20
005:0049-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:FL_CK  4945.00  22.432 No_date  33:00  21.01 .368
[CN= 74.0: N= 3.00]
[Tp= 4.45:DT=30.00]
[IaREC= 4.00: SMIN= 36.67: SMAX=244.49: SK= .010]
[InterEventTime= 12.00]
#

```



```

# Addition of Subwatershed 5 and Flowing Creek to Node 5
#
005:0050-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  ADD HYD          02:N5      40327.01   27.656 No_date   59:30   16.99 n/a
                + 03:SW_5    224.00    3.985 No_date   28:30   22.94 n/a
                + 04:FL_CK   4945.00   22.432 No_date   33:00   21.01 n/a
  [DT=30.00] SUM= 01:S_N5    45496.01  43.205 No_date   35:00   17.46 n/a
005:0051-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  SAVE HYD          02:N5      40327.01   27.656 No_date   59:30   16.99 n/a
  fname :C:\STORMS~1\N5ex.005
  remark:flow at N5
005:0052-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  SAVE HYD          03:SW_5    224.00    3.985 No_date   28:30   22.94 n/a
  fname :C:\STORMS~1\SW_5ex.005
  remark:flow at SW_5
005:0053-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  SAVE HYD          04:FL_CK   4945.00   22.432 No_date   33:00   21.01 n/a
  fname :C:\STORMS~1\FL_CKex.005
  remark:flow at FL_CK
005:0054-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  SAVE HYD          01:S_N5    45496.01  43.205 No_date   35:00   17.46 n/a
  fname :C:\STORMS~1\S_N5ex.005
  remark:flow at S_N5
#
# Sum of hydrographs from Node 5 routed to Node 5A
# Section 7
#
005:0055-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  ROUTE CHANNEL  -> 01:S_N5    45496.01  43.205 No_date   35:00   17.46 n/a
  [RDT=30.00] out<- 02:N5A    45496.01  43.167 No_date   35:30   17.46 n/a
  [L/S/n= 556./ .090/.040]
  {Vmax= .464:Dmax= 1.057}
005:0056-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CONTINUOUS NASHYD 03:SW_5A2    20.00    .448 No_date   28:30   25.59 .448
  [CN= 81.0: N= 3.00]
  [Tp= .62:DT=30.00]
  [IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
  [InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.61
005:0057-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  CONTINUOUS NASHYD 04:SW_5A1  1412.00   4.515 No_date   37:30   21.96 .384
  [CN= 75.0: N= 3.00]
  [Tp= 8.00:DT=30.00]
  [IaREC= 4.00: SMIN= 33.81: SMAX=225.43: SK= .010]
  [InterEventTime= 12.00]
#
# Addition of Subwatershed 5A1 and Subwatershed 5A2 to Node 5A
#
005:0058-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  ADD HYD          02:N5A    45496.01  43.167 No_date   35:30   17.46 n/a
                + 03:SW_5A2    20.00    .448 No_date   28:30   25.59 n/a
                + 04:SW_5A1  1412.00   4.515 No_date   37:30   21.96 n/a
  [DT=30.00] SUM= 01:S_N5A  46928.01  47.522 No_date   35:30   17.60 n/a
#
# Sum of hydrographs from Node 5A routed to Node 4
# Section 8
#
005:0059-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  ROUTE CHANNEL  -> 01:S_N5A  46928.01  47.522 No_date   35:30   17.60 n/a
  [RDT=30.00] out<- 02:N4     46928.01  45.859 No_date   37:30   17.60 n/a
  [L/S/n= 4630./ .043/.035]
  {Vmax= .753:Dmax= 3.105}
005:0060-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  CONTINUOUS NASHYD 03:SW_4     585.00    6.551 No_date   29:30   25.59 .448
  [CN= 81.0: N= 3.00]

```

[Tp= 1.75:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]
005:0061-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:LM_CK 1021.00 8.738 No_date 30:30 25.04 .438
[CN= 80.0: N= 3.00]
[Tp= 2.46:DT=30.00]
[IaREC= 4.00: SMIN= 26.32: SMAX=175.50: SK= .010]
[InterEventTime= 12.00]

Addition of Subwatershed 4 and Leamy Creek to Node 4

005:0062-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N4 46928.01 45.859 No_date 37:30 17.60 n/a
+ 03:SW_4 585.00 6.551 No_date 29:30 25.59 n/a
+ 04:LM_CK 1021.00 8.738 No_date 30:30 25.04 n/a
[DT=30.00] SUM= 01:S_N4 48534.01 50.003 No_date 36:30 17.85 n/a
005:0063-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:S_N4 48534.01 50.003 No_date 36:30 17.85 n/a
fname :C:\STORMS~1\H-S_N4.005
remark:flow at S_N4

Sum of hydrographs from Node 4 routed to Node 2

Section 9

005:0064-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N4 48534.01 50.003 No_date 36:30 17.85 n/a
[RDT=30.00] out<- 02:N2 48534.01 49.892 No_date 37:00 17.85 n/a
[L/S/n= 1667./ .060/.040]
{Vmax= .780:Dmax= 3.124}

005:0065-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_2 177.00 3.149 No_date 28:30 22.94 .402
[CN= 77.0: N= 3.00]
[Tp= .75:DT=30.00]
[IaREC= 4.00: SMIN= 31.15: SMAX=207.66: SK= .010]
[InterEventTime= 12.00]

005:0066-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SM_DR 1122.00 8.043 No_date 31:30 25.59 .448
[CN= 81.0: N= 3.00]
[Tp= 3.25:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]

005:0067-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 05:MO_DR 2737.00 17.548 No_date 31:30 22.44 .393
[CN= 76.0: N= 3.00]
[Tp= 3.03:DT=30.00]
[IaREC= 4.00: SMIN= 32.46: SMAX=216.39: SK= .010]
[InterEventTime= 12.00]

Addition of Subwatershed 2 with Monohan Drain and Smith Drain to Node 2

005:0068-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N2 48534.01 49.892 No_date 37:00 17.85 n/a
+ 03:SW_2 177.00 3.149 No_date 28:30 22.94 n/a
+ 04:SM_DR 1122.00 8.043 No_date 31:30 25.59 n/a
+ 05:MO_DR 2737.00 17.548 No_date 31:30 22.44 n/a
[DT=30.00] SUM= 01:S_N2 52570.01 66.308 No_date 33:00 18.27 n/a

005:0069-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:S_N2 52570.01 66.308 No_date 33:00 18.27 n/a
fname :C:\STORMS~1\H_SN2.005
remark:flow at S_N2 Jock River Gauge at Moodie Dr.

Sum of hydrographs from Node 2 routed to Node 1

Section 10

005:0070-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N2 52570.01 66.308 No_date 33:00 18.27 n/a

```
[RDT=30.00] out<- 02:N1      52570.01  59.710 No_date  37:00  18.27  n/a
[L/S/n=10046./ .050/.040]
{Vmax= .861:Dmax= 3.202}
005:0071-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_1    3176.00  19.206 No_date  32:00  23.45  .411
[CN= 78.0: N= 3.00]
[Tp= 3.56:DT=30.00]
[IaREC= 4.00: SMIN= 29.88: SMAX=199.22: SK= .010]
[InterEventTime= 12.00]
```

```
#
# Addition of Subwatershed 1 to Node 1
#
```

```
005:0072-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N1      52570.01  59.710 No_date  37:00  18.27  n/a
      + 03:SW_1    3176.00  19.206 No_date  32:00  23.45  n/a
[DT=30.00] SUM= 01:N1    55746.00  72.094 No_date  35:00  18.57  n/a
005:0073-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD        01:N1      55746.00  72.094 No_date  35:00  18.57  n/a
fname :C:\STORMS~1\H-N1.005
remark:N1-ex
```

```
#####
** END OF RUN : 99
```

```
*****
```

```
RUN:COMMAND#
```

```
100:0001-----
START
[TZERO = .00 hrs on 0]
[METOUT= 2 (1=imperial, 2=metric output)]
[NSTORM= 1 ]
[NRUN = 100 ]
```

```
*****
```

```
# SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
```

```
*****
```

```
# Project Name: [Jock River] Project Number: [411-02]
# Date : 06-06-2003
# Modeller : [JoF]
# Company : JFSAinc.
# License # : 2549237
```

```
*****
```

```
# CALIBRATION OF SUMMER MODEL PARAMETERS
```

```
# USING CONTINUOUS SIMULATIONS
```

```
# Rainfall data from JFSA rainauge installed at site + other gauges by the Cit
```

```
# Use data collected from May 1st to July 14, 2003
```

```
# -----
```

```
#
```

```
# EXISING SUMMER
```

```
#
```

```
#
```

```
100:0002-----
READ STORM
Filename = storm.001
Comment = Pluie SCS de 24 hres 1:100 ans pour Ottawa CDA
[SDT=10.00:SDUR= 24.00:PTOT= 88.57]
```

```
100:0003-----
MODIFY STORM
[RFACT= 1.00:TSHIFT= 960.00 min]
[SDT=10.00:SDUR= 40.00:PTOT= 88.57]
```

```
100:0004-----
COMPUTE API
[APIini= 50.00: APIkdy= .8500: APIkdt= .9989]
{APImax=119.84: APIavg= 69.19: APImin= 44.87}
```

```

#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.32
100:0005-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 01:JR_HW 3680.00 21.054 No_date 36:30 35.15 .397
[CN= 64.0: N= 3.00]
[Tp= 7.13:DT=30.00]
[IaREC= 4.00: SMIN= 57.05: SMAX=380.32: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.32
100:0006-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 02:SW_13 971.00 8.058 No_date 32:30 32.81 .370
[CN= 61.0: N= 3.00]
[Tp= 3.76:DT=30.00]
[IaREC= 4.00: SMIN= 64.50: SMAX=430.01: SK= .010]
[InterEventTime= 12.00]
#
# Starting with the addition of Jock River Headwater and Subwatershed 13
#
100:0007-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 01:S_N13 3680.00 21.054 No_date 36:30 35.15 n/a
+ 02:SW_13 971.00 8.058 No_date 32:30 32.81 n/a
[DT=30.00] SUM= 01:S_N13 4651.00 27.020 No_date 35:00 34.66 n/a
#
# Sum of hydrographs from Node 13 routed to Node 13A
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
#
100:0008-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N13 4651.00 27.020 No_date 35:00 34.66 n/a
[RDT=30.00] out<- 02:N13A 4651.00 22.149 No_date 38:30 34.66 n/a
[L/S/n= 9074./ .022/.040]
{Vmax= .594:Dmax= 4.138}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
100:0009-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 01:JR_GWM 3161.00 10.266 No_date 39:30 28.27 .319
[CN= 55.0: N= 3.00]
[Tp=11.33:DT=30.00]
[IaREC= 4.00: SMIN= 83.24: SMAX=554.96: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed Jock River at Goodwood Marsh to Node 13A
#
100:0010-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N13A 4651.00 22.149 No_date 38:30 34.66 n/a
+ 01:SN13A 3161.00 10.266 No_date 39:30 28.27 n/a
[DT=30.00] SUM= 01:SN13A 7812.00 32.270 No_date 39:30 32.08 n/a
#
# Insertion of a reservoir to simulate the effects of the Goodwood Marsh
#
100:0011-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE RESERVOIR -> 01:SN13A 7812.00 32.270 No_date 39:30 32.08 n/a
[RDT=30.00] out<- 02:RES_GM 7812.00 3.947 No_date 63:30 32.08 n/a
{MxStoUsed=.1788E+03}
#
100:0012-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 02:RES_GM 7812.00 3.947 No_date 63:30 32.08 n/a
fname :C:\STORMS~1\H_RESGM.100
remark:Outflow from Res GM
# Output of Reservoir Goodwood Marsh routed from Node 13A to Node 12
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
100:0013-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-

```

```

ROUTE CHANNEL -> 02:RES_GM 7812.00 3.947 No_date 63:30 32.08 n/a
[RDT=30.00] out<- 01:N12 7812.00 3.943 No_date 66:30 32.08 n/a
[L/S/n= 5926./ .076/.040]
{Vmax= .560:Dmax= 1.559}
100:0014-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_11 500.00 10.499 No_date 29:00 36.74 .415
[CN= 66.0: N= 3.00]
[Tp= 1.24:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
100:0015-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 02:JR_ASH 1781.00 19.356 No_date 32:30 42.46 .479
[CN= 72.0: N= 3.00]
[Tp= 3.91:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed Jock River at Ashton to Node 12
#
100:0016-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 01:S_N12 7812.00 3.943 No_date 66:30 32.08 n/a
+ 02:JR_ASH 1781.00 19.356 No_date 32:30 42.46 n/a
[DT=30.00] SUM= 01:S_N12 9593.00 21.415 No_date 32:30 34.00 n/a
100:0017-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:S_N12 9593.00 21.415 No_date 32:30 34.00 n/a
fname :C:\STORMS~1\H_SN12.100
remark:flow at S_N12 near Ashton
#
# Sum of hydrographs from Node 12 routed to Node 11
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
100:0018-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N12 9593.00 21.415 No_date 32:30 34.00 n/a
[RDT=30.00] out<- 02:N11 9593.00 21.120 No_date 33:00 34.00 n/a
[L/S/n= 972./ .051/.040]
{Vmax= .760:Dmax= 3.206}
#
# Sum of hydrographs from Node 12 routed to Node 11 with Dummy section 248
#
100:0019-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N12 9593.00 21.415 No_date 32:30 34.00 n/a
[RDT=30.00] out<- 03:Dum11 9593.00 21.116 No_date 32:30 34.00 n/a
[L/S/n= 972./ .054/.040]
{Vmax= .774:Dmax= 3.175}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
100:0020-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 05:NN_CK 1917.00 14.197 No_date 34:00 36.74 .415
[CN= 66.0: N= 3.00]
[Tp= 5.29:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 11 and No Name Creek to Node 11
#
100:0021-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 03:Dum11 9593.00 21.116 No_date 32:30 34.00 n/a
+ 04:SW_11 500.00 10.499 No_date 29:00 36.74 n/a
+ 05:NN_CK 1917.00 14.197 No_date 34:00 36.74 n/a
[DT=30.00] SUM= 01:S_N11 12010.00 37.438 No_date 33:00 34.55 n/a
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.52
#
# Sum of hydrographs from Node 11 routed to Node 10
# Section 1

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#
100:0022-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N11  12010.00  37.438 No_date  33:00  34.55 n/a
[RDT=30.00] out<- 02:N10   12010.00  23.324 No_date  39:00  34.55 n/a
[L/S/n=14028./ .157/.040]
{Vmax= .484:Dmax= 1.483}
100:0023-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_10  5666.00  36.560 No_date  37:30  42.46 .479
[CN= 72.0: N= 3.00]
[Tp= 8.00:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 10 to Node 10
#
100:0024-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N10   12010.00  23.324 No_date  39:00  34.55 n/a
                + 04:SW_10  5666.00  36.560 No_date  37:30  42.46 n/a
[DT=30.00] SUM= 01:S_N10  17676.00  59.680 No_date  38:00  37.09 n/a
100:0025-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD        01:S_N10  17676.00  59.680 No_date  38:00  37.09 n/a
fname :C:\STORMS~1\H_SN10.100
remark:flow at S_N10: N10 + SW_10
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.75
100:0026-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:KG_CK  8376.00  34.456 No_date  39:30  36.74 .415
[CN= 66.0: N= 3.00]
[Tp=11.66:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
# Addition of Kings Creek to S_N10
#
100:0027-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:S_N10  17676.00  59.680 No_date  38:00  37.09 n/a
                + 03:KG_CK  8376.00  34.456 No_date  39:30  36.74 n/a
[DT=30.00] SUM= 02:S_N10A 26052.00  93.257 No_date  39:30  36.98 n/a
#
# Sum of hydrographs from Node 10 routed to Node 9
# Section 2
#
100:0028-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 02:S_N10A 26052.00  93.257 No_date  39:30  36.98 n/a
[RDT=30.00] out<- 01:N9   26052.00  91.386 No_date  39:30  36.98 n/a
[L/S/n= 3982./ .075/.040]
{Vmax= .769:Dmax= 2.125}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.68
100:0029-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_9   1132.00  16.257 No_date  30:30  40.80 .461
[CN= 70.0: N= 3.00]
[Tp= 2.51:DT=30.00]
[IaREC= 4.00: SMIN= 43.07: SMAX=287.10: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.82
100:0030-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:NC_CK  4464.00  17.270 No_date  39:30  33.59 .379
[CN= 62.0: N= 3.00]
[Tp=11.32:DT=30.00]
[IaREC= 4.00: SMIN= 61.90: SMAX=412.66: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 9 and Nichols Creek to Node 9

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#
100:0031-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  ADD HYD          01:N9      26052.00  91.386 No_date  39:30  36.98 n/a
                   + 03:SW_9    1132.00   16.257 No_date  30:30  40.80 n/a
                   + 04:NC_CK   4464.00   17.270 No_date  39:30  33.59 n/a
                   [DT=30.00] SUM= 02:S_N9  31648.00  112.276 No_date  39:30  36.63 n/a
#
# Sum of hydrographs from Node 9 routed to Node 8
# Section 3
#
100:0032-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  ROUTE CHANNEL  -> 02:S_N9  31648.00  112.276 No_date  39:30  36.63 n/a
  [RDT=30.00] out<- 01:N8  31648.00  106.477 No_date  40:00  36.63 n/a
  [L/S/n= 2269./ .088/.045]
  {Vmax= .372:Dmax= 1.905}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
100:0033-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CONTINUOUS NASHYD 03:SW_8    131.00    3.096 No_date  28:30  34.37 .388
    [CN= 63.0: N= 3.00]
    [Tp= .90:DT=30.00]
    [IaREC= 4.00: SMIN= 59.42: SMAX=396.11: SK= .010]
    [InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.65
100:0034-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  CONTINUOUS NASHYD 04:HB_DR   3854.00   20.590 No_date  38:00  36.74 .415
    [CN= 66.0: N= 3.00]
    [Tp= 8.42:DT=30.00]
    [IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
    [InterEventTime= 12.00]
#
# Addition of Subwatershed 8 and Hobb's Drain to Node 8
#
100:0035-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  ADD HYD          01:N8      31648.00  106.477 No_date  40:00  36.63 n/a
                   + 03:SW_8    131.00    3.096 No_date  28:30  34.37 n/a
                   + 04:HB_DR   3854.00   20.590 No_date  38:00  36.74 n/a
                   [DT=30.00] SUM= 02:S_N8  35633.00  126.247 No_date  39:30  36.64 n/a
#
# Sum of hydrographs from Node 8 routed to Node 7
# Section 4
#
100:0036-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  ROUTE CHANNEL  -> 02:S_N8  35633.00  126.247 No_date  39:30  36.64 n/a
  [RDT=30.00] out<- 01:N7  35633.00  108.774 No_date  44:30  36.64 n/a
  [L/S/n= 3750./ .053/.070]
  {Vmax= .236:Dmax= 2.384}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.82
100:0037-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  CONTINUOUS NASHYD 03:SW_7    3197.00   16.027 No_date  36:00  29.76 .336
    [CN= 57.0: N= 3.00]
    [Tp= 6.65:DT=30.00]
    [IaREC= 4.00: SMIN= 76.32: SMAX=508.81: SK= .010]
    [InterEventTime= 12.00]
#
# Addition of Subwatershed 7 to Node 7
#
100:0038-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  ADD HYD          01:N7      35633.00  108.774 No_date  44:30  36.64 n/a
                   + 03:SW_7    3197.00   16.027 No_date  36:00  29.76 n/a
                   [DT=30.00] SUM= 02:S_N7  38830.00  117.367 No_date  43:30  36.07 n/a
100:0039-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-

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SAVE HYD          02:S_N7   38830.00  117.367 No_date   43:30   36.07  n/a
  fname :C:\STORMS~1\H_SN7.100
  remark:flow at S_N7: N7 + SW_7
# Insertion of a reservoir to simulate the effects of the Richmond Fen.
# Storage area and volumes were estimated from available topo maps.
# Release rate from fen was assumed to be controlled by the downstream
# river cross-section for summer conditions. It is was assumed that for up to
# 0.75 m of water, the main channel of the river provided the storage. Above
# this depth, the wetland starts to significantly store water.
#
100:0040-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE RESERVOIR -> 02:S_N7   38830.00  117.367 No_date   43:30   36.07  n/a
[RDT=30.00] out<- 01:RES_RF 38830.00   60.603 No_date   58:30   36.07  n/a
{MxStoUsed=.5014E+03}
100:0041-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          01:RES_RF 38830.00   60.603 No_date   58:30   36.07  n/a
  fname :C:\STORMS~1\H_ResRF.100
  remark:outflow of Richmond Fen
#
# Sum of hydrographs from Node 7 routed to Node 6
# Section 5
#
100:0042-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL    -> 01:RES_RF 38830.00   60.603 No_date   58:30   36.07  n/a
[RDT=30.00] out<- 02:N6     38830.00   60.346 No_date   60:00   36.07  n/a
[L/S/n= 3056./ .082/.025]
{Vmax= .553:Dmax= 1.353}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.75
100:0043-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_6    165.00    1.482 No_date   33:00   37.54  .424
[CN= 67.0: N= 3.00]
[Tp= 4.18:DT=30.00]
[IaREC= 4.00: SMIN= 50.55: SMAX=336.97: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.67
100:0044-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:VG_DR   1332.00   10.635 No_date   35:00   42.46  .479
[CN= 72.0: N= 3.00]
[Tp= 5.95:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]
100:0045-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          04:VG_DR   1332.00   10.635 No_date   35:00   42.46  n/a
  fname :C:\STORMS~1\H-VG_DR.100
  remark:flow at Van Gaal Drain
#
# Addition of Subwatershed 6 and Van Gaal Drain to Node 6
#
100:0046-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD           02:N6     38830.00   60.346 No_date   60:00   36.07  n/a
+ 03:SW_6         165.00    1.482 No_date   33:00   37.54  n/a
+ 04:VG_DR        1332.00   10.635 No_date   35:00   42.46  n/a
[DT=30.00] SUM= 01:S_N6  40327.01  60.507 No_date   59:30   36.29  n/a
#
# Sum of hydrographs from Node 6 routed to Node 5
# Section 6
#
100:0047-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL    -> 01:S_N6  40327.01  60.507 No_date   59:30   36.29  n/a
[RDT=30.00] out<- 02:N5     40327.01  60.393 No_date   60:30   36.29  n/a
[L/S/n= 1852./ .054/.035]
{Vmax= .490:Dmax= 1.451}
100:0048-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-

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* CONTINUOUS NASHYD 03:SW_5      224.00    9.294 No_date  28:30  47.59 .537
  [CN= 77.0: N= 3.00]
  [Tp=  .75:DT=30.00]
  [IaREC= 4.00: SMIN= 31.15: SMAX=207.66: SK= .010]
  [InterEventTime= 12.00]

#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.20
100:0049-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:FL_CK    4945.00    51.121 No_date  33:00  44.15 .498
  [CN= 74.0: N= 3.00]
  [Tp= 4.45:DT=30.00]
  [IaREC= 4.00: SMIN= 36.67: SMAX=244.49: SK= .010]
  [InterEventTime= 12.00]

#
# Addition of Subwatershed 5 and Flowing Creek to Node 5
#
100:0050-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N5         40327.01    60.393 No_date  60:30  36.29 n/a
                + 03:SW_5      224.00     9.294 No_date  28:30  47.59 n/a
                + 04:FL_CK    4945.00    51.121 No_date  33:00  44.15 n/a
  [DT=30.00] SUM= 01:S_N5    45496.01    79.896 No_date  34:00  37.20 n/a
100:0051-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         02:N5         40327.01    60.393 No_date  60:30  36.29 n/a
  fname :C:\STORMS~1\N5ex.100
  remark:flow at N5
100:0052-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         03:SW_5      224.00     9.294 No_date  28:30  47.59 n/a
  fname :C:\STORMS~1\SW_5ex.100
  remark:flow at SW_5
100:0053-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         04:FL_CK    4945.00    51.121 No_date  33:00  44.15 n/a
  fname :C:\STORMS~1\FL_CKex.100
  remark:flow at FL_CK
100:0054-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:S_N5     45496.01    79.896 No_date  34:00  37.20 n/a
  fname :C:\STORMS~1\S_N5ex.100
  remark:flow at S_N5

#
# Sum of hydrographs from Node 5 routed to Node 5A
# Section 7
#
100:0055-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL   -> 01:S_N5     45496.01    79.896 No_date  34:00  37.20 n/a
  [RDT=30.00] out<- 02:N5A     45496.01    79.822 No_date  34:00  37.20 n/a
  [L/S/n= 556./ .090/.040]
  {Vmax= .544:Dmax= 1.346}
100:0056-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_5A2    20.00     1.014 No_date  28:30  52.03 .587
  [CN= 81.0: N= 3.00]
  [Tp=  .62:DT=30.00]
  [IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
  [InterEventTime= 12.00]

#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.61
100:0057-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_5A1   1412.00     9.884 No_date  37:30  45.85 .518
  [CN= 75.0: N= 3.00]
  [Tp= 8.00:DT=30.00]
  [IaREC= 4.00: SMIN= 33.81: SMAX=225.43: SK= .010]
  [InterEventTime= 12.00]

#
# Addition of Subwatershed 5A1 and Subwatershed 5A2 to Node 5A
#
100:0058-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N5A     45496.01    79.822 No_date  34:00  37.20 n/a

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          + 03:SW_5A2    20.00    1.014 No_date    28:30    52.03 n/a
          + 04:SW_5A1   1412.00    9.884 No_date    37:30    45.85 n/a
[DT=30.00] SUM= 01:S_N5A 46928.01  88.624 No_date    34:30    37.46 n/a
#
# Sum of hydrographs from Node 5A routed to Node 4
# Section 8
#
100:0059-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N5A 46928.01  88.624 No_date    34:30    37.46 n/a
[RDT=30.00] out<- 02:N4    46928.01  84.961 No_date    36:00    37.46 n/a
[L/S/n= 4630./ .043/.035]
{Vmax= .901:Dmax= 3.849}
100:0060-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_4    585.00    14.684 No_date    29:30    52.03 .587
[CN= 81.0: N= 3.00]
[Tp= 1.75:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]
100:0061-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:LM_CK   1021.00    19.515 No_date    30:30    51.13 .577
[CN= 80.0: N= 3.00]
[Tp= 2.46:DT=30.00]
[IaREC= 4.00: SMIN= 26.32: SMAX=175.50: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 4 and Leamy Creek to Node 4
#
100:0062-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N4    46928.01  84.961 No_date    36:00    37.46 n/a
          + 03:SW_4    585.00    14.684 No_date    29:30    52.03 n/a
          + 04:LM_CK   1021.00    19.515 No_date    30:30    51.13 n/a
[DT=30.00] SUM= 01:S_N4 48534.01  95.703 No_date    34:30    37.93 n/a
100:0063-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:S_N4 48534.01  95.703 No_date    34:30    37.93 n/a
fname :C:\STORMS~1\H-S_N4.100
remark:flow at S_N4
#
# Sum of hydrographs from Node 4 routed to Node 2
# Section 9
#
100:0064-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N4 48534.01  95.703 No_date    34:30    37.93 n/a
[RDT=30.00] out<- 02:N2    48534.01  95.351 No_date    35:00    37.93 n/a
[L/S/n= 1667./ .060/.040]
{Vmax= .942:Dmax= 3.915}
100:0065-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_2    177.00    7.344 No_date    28:30    47.59 .537
[CN= 77.0: N= 3.00]
[Tp= .75:DT=30.00]
[IaREC= 4.00: SMIN= 31.15: SMAX=207.66: SK= .010]
[InterEventTime= 12.00]
100:0066-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SM_DR   1122.00    17.710 No_date    31:30    52.03 .587
[CN= 81.0: N= 3.00]
[Tp= 3.25:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]
100:0067-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 05:MO_DR   2737.00    40.026 No_date    31:00    46.72 .527
[CN= 76.0: N= 3.00]
[Tp= 3.03:DT=30.00]
[IaREC= 4.00: SMIN= 32.46: SMAX=216.39: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 2 with Monohan Drain and Smith Drain to Node 2
#
100:0068-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-

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ADD HYD          02:N2      48534.01   95.351 No_date   35:00   37.93  n/a
                + 03:SW_2    177.00    7.344 No_date   28:30   47.59  n/a
                + 04:SM_DR   1122.00   17.710 No_date   31:30   52.03  n/a
                + 05:MO_DR   2737.00   40.026 No_date   31:00   46.72  n/a
[DT=30.00] SUM= 01:S_N2    52570.01  141.440 No_date   32:30   38.72  n/a
100:0069-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD        01:S_N2    52570.01  141.440 No_date   32:30   38.72  n/a
fname :C:\STORMS~1\H_SN2.100
remark:flow at S_N2 Jock River Gauge at Moodie Dr.

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#
# Sum of hydrographs from Node 2 routed to Node 1
# Section 10
#

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100:0070-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N2    52570.01  141.440 No_date   32:30   38.72  n/a
[RDT=30.00] out<- 02:N1    52570.01  124.317 No_date   35:00   38.72  n/a
[L/S/n=10046./ .050/.040]
{Vmax= 1.091:Dmax= 4.554}

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100:0071-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_1    3176.00   43.079 No_date   32:00   48.46  .547
[CN= 78.0: N= 3.00]
[Tp= 3.56:DT=30.00]
[IaREC= 4.00: SMIN= 29.88: SMAX=199.22: SK= .010]
[InterEventTime= 12.00]

```

```

#
# Addition of Subwatershed 1 to Node 1
#

```

```

100:0072-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N1      52570.01  124.317 No_date   35:00   38.72  n/a
                + 03:SW_1    3176.00   43.079 No_date   32:00   48.46  n/a
[DT=30.00] SUM= 01:N1      55746.00  158.436 No_date   34:00   39.27  n/a

```

```

100:0073-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD        01:N1      55746.00  158.436 No_date   34:00   39.27  n/a
fname :C:\STORMS~1\H-N1.100
remark:N1-ex

```

```

#####
100:0002-----
FINISH

```

```

*****

```

SWMHYMO – INPUT - FUTURE

```

20 Metric units / ID numbers OFF
*#*****
*# SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
*#*****
*# Project Name: [Jock River] Project Number: [411-02]
*# Date : 06-06-2003
*# Modeller : [JoF]
*# Company : JFSAinc.
*# License # : 2549237
*#*****
*# CALIBRATION OF SUMMER MODEL PARAMETERS
*# USING CONTINUOUS SIMULATIONS
*# Rainfall data from JFSA rainauge installed at site + other gauges by the City
*# Use data collected from May 1st to July 14, 2003
*
* Calibrated parameters for Summer 2003 data: APII=50, APIK=0.85, CN=varies,
* SK=0.01, InterEventTime=12,
* GWResk=0.96, VHydCond=0.055
*
*# -----
*#
*# FUTURE SUMMER - Cumulative Development
*#
*#
*#
*# START TZERO=[2003.0501], METOUT=[2], NSTORM=[1], NRUN=[001]
*# ["XAVG0315.STM"] average storm data a 15 minute time step
*# The above rainf file is an average of the JFSA gauge data
*# with the City of Ottawa rainfall data collected during
*# the same period.
*# 2 yr, 24 hr SCS storm based on OTTAWA CDA IDF Curves
*# START TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1]
*# ["C:\STORMS-PF\C24SC002.stm"]
*#-----|-----
*#-----|-----
*# READ STORM STORM_FILENAME=["storm.001"]
*#-----|-----
*# MODIFY STORM ICASEms=[1], NSHIFT=[96],
*# RedFACT=[1],
*#-----|-----
*# COMPUTE API APII=[50], APIK=[.85]/day
*#-----|-----
*#-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.32
*# mod CN
*#-----|-----
*# CONTINUOUS NASHYD 1 NHYD=["JR_HW"], DT=[30]min, AREA=[3680] (ha),
*# DWF=[0] (cms), CN/C=[64.5], IA=[2.5] (mm),
*# N=[3.0], TP=[7.13]hrs,
*# Continuous simulation parameters:
*# IaRECper=[4] (hrs),
*# SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
*# InterEventTime=[12] (hrs)
*# Baseflow simulation parameters:
*# BaseFlowOption=[1],
*# InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
*# VHydCond=[0.055] (mm/hr), END=-1
*#-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.32
*#-----|-----
*# CONTINUOUS NASHYD 2 NHYD=["SW_13"], DT=[30]min, AREA=[971] (ha),
*# DWF=[0] (cms), CN/C=[61], IA=[2.5] (mm),
*# N=[3.0], TP=[3.76]hrs,

```

```

Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm),  SMAX=[-1] (mm),  SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm),  GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----
*#
*# Starting with the addition of Jock River Headwater and Subwatershed 13
*#
ADD HYD          1  NHYDsum=["S_N13"] NHYDs to add=1 2
*#
*# Sum of hydrographs from Node 13 routed to Node 13A
*# (Approximated cross-section - see cross-section 258)
*# Use n=0.04 for summer conditions and n=0.025 for spring conditions
*#
ROUTE CHANNEL    NHYDout=2  ["N13A"] ,  NHYDin=1 ,
RDT=[30] (min),
CHLGTH=[9074] (m),  CHSLOPE=[0.0220] (%),
FPSLOPE=[0.0220] (%),
SECNUM=[1.0],      NSEG=[1]
( SEGROUGH, SEGDIST (m))=[0.04,15.5] NSEG times
( DISTANCE (m), ELEVATION (m))=
    [-40, 132.5]
    [-30, 132]
    [-25, 131.5]
    [-13, 130]
    [-8, 127.00]
    [-7, 126.50]
    [-6, 126]
    [-5.5, 125.50]
    [0, 123.75]
    [4.5, 125.50]
    [6, 126]
    [7.5, 126.5]
    [9, 127]
    [10, 127.5]
    [11.5, 128.0]
    [15.5, 129.5]
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.80
*#mod CN
*%-----|-----
CONTINUOUS NASHYD  NHYD=1  ["JR_GWM"], DT=[30]min, AREA=[3161] (ha),
DWF=[0] (cms),  CN/C=[55.8],  IA=[2.5] (mm),
N=[3],  TP=[11.33]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm),  SMAX=[-1] (mm),  SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm),  GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----
*#
*# Addition of Subwatershed Jock River at Goodwood Marsh to Node 13A
*#
ADD HYD          NHYDsum=1  ["SN13A"], NHYDs to add= 2 1  ["N13A"+"JR_GWM"]
*%-----|-----
*%-----|-----
*#
*# Insertion of a reservoir to simulate the effects of the Goodwood Marsh
*#

```



```

IaRECper=[4] (hrs),
SMIN=[-1] (mm),  SMAX=[-1] (mm),  SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm),  GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----
*#
*# Addition of Subwatershed Jock River at Ashton to Node 12
*#
ADD HYD          NHYDsum=1 ["S_N12"], NHYDs to add= 1 2 ["N12"+"JR_ASH"]
SAVE HYD         NHYD=1 , # OF PCYCLES=[-1],  ICASEsh=[-1]
                 HYD_FILENAME=["H_SN12"]
                 HYD_COMMENT=["flow at S_N12 near Ashton"]
*%-----|-----
*#
*# Sum of hydrographs from Node 12 routed to Node 11
*# (Approximated cross-section - see cross-section 258)
*# Use n=0.04 for summer conditions and n=0.025 for spring conditions
ROUTE CHANNEL   NHYDout= 2 ["N11"] ,NHYDin= 1 ,
                RDT=[30] (min),
                CHLGTH=[972] (m),  CHSLOPE=[0.0514] (%),
                                FPSLOPE=[0.0514] (%),
                SECNUM=[1.0],      NSEG=[1]
                ( SEGROUGH, SEGDIST (m))=[0.04,15.5] NSEG times
                ( DISTANCE (m), ELEVATION (m))=
                [-40, 132.5]
                [-30, 132]
                [-25, 131.5]
                [-13, 130]
                [-8, 127.00]
                [-7, 126.50]
                [-6, 126]
                [-5.5, 125.50]
                [0, 123.75]
                [4.5, 125.50]
                [6, 126]
                [7.5, 126.5]
                [9, 127]
                [10, 127.5]
                [11.5, 128.00]
                [15.5, 129.5]
*%-----|-----
*#
*# Sum of hydrographs from Node 12 routed to Node 11 with Dummy section 248
*#
ROUTE CHANNEL   NHYDout= 3 ["Dum11"] ,NHYDin= 1,
                RDT=[30] (min),
                CHLGTH=[972] (m),  CHSLOPE=[0.054] (%),
                                FPSLOPE=[0.054] (%),
                SECNUM=[1.0],      NSEG=[1]
                ( SEGROUGH, SEGDIST (m))=[0.04,15.5] NSEG times
                ( DISTANCE (m), ELEVATION (m))=
                [-40, 132.5]
                [-30, 132]
                [-25, 131.5]
                [-13, 130]
                [-8, 127.00]
                [-7, 126.50]
                [-6, 126]
                [-5.5, 125.50]
                [0, 123.75]
                [4.5, 125.50]
                [6, 126]
                [7.5, 126.5]
                [9, 127]

```


[10, 127.5]
[11.5, 128.00]
[15.5, 129.5]

*%-----|-----
*#

*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.80

*%-----|-----

CONTINUOUS NASHYD NHYD= 5 ["NN_CK"], DT=[30]min, AREA=[1917] (ha),
DWF=[0] (cms), CN/C=[66], IA=[2.5] (mm),
N=[3.0], TP=[5.29]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr), END=-1

*%-----|-----
*%-----|-----

*#
*# Addition of Subwatershed 11 and No Name Creek to Node 11
*#

ADD HYD NHYDsum=1 ["S_N11"], NHYDs to add= 3 4 5 ["Dum11"+"SW_11"+"NN_CK"]

*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.52

*%-----|-----
*%-----|-----

*#
*# Sum of hydrographs from Node 11 routed to Node 10
*# Section 1
*#

ROUTE CHANNEL NHYDout= 2 ["N10"], NHYDin= 1 ,
RDT=[30] (min),
CHLGTH=[14028] (m), CHSLOPE=[0.1568] (%),
FPSLOPE=[0.1568] (%),
SECNUM=[1.0], NSEG=[5]
(SEGROUGH, SEGDIST (m))=
[0.04,-52.82
0.1,-6.47
-0.05,6.47
0.1,45.36
0.04,423.88] NSEG times
(DISTANCE (m), ELEVATION (m))=
[-226.24 ,112.50]
[-167.50 ,111.50]
[-106.81 ,111.00]
[-92.37 ,110.00]
[-52.82 ,109.00]
[-24.90, 109.00]
[-17.02, 108.50]
[-6.47, 108.00]
[6.47, 108.00]
[15.67, 108.50]
[18.95, 109.00]
[45.36, 109.50]
[120.79, 110.00]
[145.72, 111.00]
[181.56, 111.50]
[423.88, 112.50]

CONTINUOUS NASHYD NHYD= 4 ["SW_10"], DT=[30]min, AREA=[5666] (ha),
DWF=[0] (cms), CN/C=[72], IA=[2.5] (mm),
N=[3.0], TP=[8.00]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),

```

SMIN=[-1] (mm),  SMAX=[-1] (mm),  SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm),  GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----
*#
*# Addition of Subwatershed 10 to Node 10
*#
ADD HYD          NHYDsum= 1 ["S_N10"], NHYDs to add= 2 4 ["N10"+"SW_10"]
*%-----|-----
SAVE HYD        NHYD=1, # OF PCYCLES=[-1], ICASEsh=[-1]
                HYD_FILENAME=["H_SN10"]
                HYD_COMMENT=["flow at S_N10: N10 + SW_10"]
*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.75
*#mod CN
*%-----|-----
CONTINUOUS NASHYD  NHYD= 3 ["KG_CK"], DT=[30]min, AREA=[8376] (ha),
                  DWF=[0] (cms),  CN/C=[66.3], IA=[2.5] (mm),
                  N=[3.0], TP=[11.66]hrs,
                  Continuous simulation parameters:
                  IaRECper=[4] (hrs),
                  SMIN=[-1] (mm),  SMAX=[-1] (mm),  SK=[0.010]/(mm),
                  InterEventTime=[12] (hrs)
                  Baseflow simulation parameters:
                  BaseFlowOption=[1] ,
                  InitGWResVol=[50] (mm),  GWResK=[0.96] (mm/day/mm)
                  VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----
*# Addition of Kings Creek to S_N10
*#
ADD HYD          NHYDsum=2 ["S_N10A"], NHYDs to add= 1 3 ["S_N10"+"KG_CK"]
*%-----|-----
*#
*# Sum of hydrographs from Node 10 routed to Node 9
*# Section 2
*#
ROUTE CHANNEL    NHYDout= 1 ["N9"] ,NHYDin= 2
                  RDT=[30] (min),
                  CHLGTH=[3982] (m),  CHSLOPE=[0.0753] (%),
                                      FPSLOPE=[0.0753] (%),
                  SECNUM=[1.0],      NSEG=[4]
                  ( SEGROUGH, SEGDIST (m))=
                    [0.04,-30.27
                     0.05,-18.42
                    -0.05,18.42
                    0.04,131.58] NSEG times
                  ( DISTANCE (m), ELEVATION (m))=
                    [-446.74, 106.00]
                    [-415.68, 105.50]
                    [-285.40, 105.00]
                    [-173.77, 104.50]
                    [-144.95, 104.00]
                    [-111.18, 103.50]
                    [-94.06, 103.00]
                    [-71.02, 102.50]
                    [-30.27, 102.00]
                    [-19.33, 100.00]
                    [-18.42, 99.50]
                    [18.42, 99.50]
                    [20.77, 100.00]
                    [27.93, 101.00]
                    [52.29, 101.00]

```

[68.80, 101.50]
[79.66, 103.00]
[91.50, 103.50]
[131.58, 104.00]

```
*%-----|-----|
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.68
*%-----|-----|
CONTINUOUS NASHYD  NHYD= 3 ["SW_9"], DT=[30]min, AREA=[1132] (ha),
                   DWF=[0] (cms),  CN/C=[70], IA=[2.5] (mm),
                   N=[3.0], TP=[2.51]hrs,
                   Continuous simulation parameters:
                   IaRECper=[4] (hrs),
                   SMIN=[-1] (mm),  SMAX=[-1] (mm), SK=[0.010]/(mm),
                   InterEventTime=[12] (hrs)
                   Baseflow simulation parameters:
                   BaseFlowOption=[1] ,
                   InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                   VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----|
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.82
*%-----|-----|
CONTINUOUS NASHYD  NHYD= 4 ["NC_CK"], DT=[30]min, AREA=[4464] (ha),
                   DWF=[0] (cms),  CN/C=[62], IA=[2.5] (mm),
                   N=[3.0], TP=[11.32]hrs,
                   Continuous simulation parameters:
                   IaRECper=[4] (hrs),
                   SMIN=[-1] (mm),  SMAX=[-1] (mm), SK=[0.010]/(mm),
                   InterEventTime=[12] (hrs)
                   Baseflow simulation parameters:
                   BaseFlowOption=[1] ,
                   InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                   VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----|
*#
*# Addition of Subwatershed 9 and Nichols Creek to Node 9
*#
ADD HYD              NHYDsum= 2 ["S_N9"], NHYDs to add= 1 3 4 ["N9"+"SW_9"+"NC_CK"]
*%-----|-----|
*#
*# Sum of hydrographs from Node 9 routed to Node 8
*# Section 3
*#
ROUTE CHANNEL       NHYDout= 1 ["N8"] ,NHYDin= 2
                   RDT=[30] (min),
                   CHLGTH=[2269] (m),  CHSLOPE=[0.0882] (%),
                                       FPSLOPE=[0.0882] (%),
                   SECNUM=[1.0],      NSEG=[3]
                   ( SEGROUGH, SEGDIST (m) )=
                   [0.1,-17.99
                   -0.045,17.31
                   0.1,456.58] NSEG times
                   ( DISTANCE (m), ELEVATION (m) )=
                   [-201.19,100.50]
                   [-135.21, 100.00]
                   [-94.83, 99.50]
                   [-67.05, 99.00]
                   [-17.99, 98.50]
                   [-16.02, 98.00]
                   [-13.95, 97.50]
                   [13.95, 97.50]
                   [15.64, 98.00]
                   [17.31, 98.50]
```

[162.02, 98.50]
[172.89 ,99.00]
[314.38, 99.00]
[343.78, 99.50]
[365.67, 100.00]
[376.68, 100.00]
[393.11, 99.50]
[404.97, 99.50]
[431.70, 100.00]
[456.58, 100.50]

*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.80

*%-----|-----
CONTINUOUS NASHYD NHYD= 3 ["SW_8"], DT=[30]min, AREA=[131] (ha),
DWF=[0] (cms), CN/C=[63], IA=[2.5] (mm),
N=[3.0], TP=[0.90]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr), END=-1

*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.65

*%-----|-----
CONTINUOUS NASHYD NHYD= 4 ["HB_DR"], DT=[30]min, AREA=[3854] (ha),
DWF=[0] (cms), CN/C=[66], IA=[2.5] (mm),
N=[3.0], TP=[8.42]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr), END=-1

*%-----|-----
*#
*# Addition of Subwatershed 8 and Hobb's Drain to Node 8
*#

ADD HYD NHYDsum= 2 ["S_N8"], NHYDs to add= 1 3 4 ["N8"+"SW_8"+"HB_DR"]

*%-----|-----
*#
*# Sum of hydrographs from Node 8 routed to Node 7
*# Section 4
*#

ROUTE CHANNEL NHYDout= 1 ["N7"] ,NHYDin= 2
RDT=[30] (min),
CHLGTH=[3750] (m), CHSLOPE=[0.0533] (%),
FPSLOPE=[0.0533] (%),
SECNUM=[1.0], NSEG=[3]
(SEGROUGH, SEGDIST (m))=
[0.12,-18.11
-0.07,17.22
0.12,590.05] NSEG times
(DISTANCE (m), ELEVATION (m))=
[-433.21, 102.00]
[-425.34, 101.50]

```

[-377.56, 101.50]
[-366.23, 101.00]
[-202.60, 100.50]
[-96.25, 99.50]
[-68.36 99.00]
[-18.11, 98.50]
[-13.81, 97.50]
[13.81, 97.50]
[17.22, 98.50]
[161.95, 98.50]
[173.11, 99.00]
[314.05, 99.00]
[365.52, 100.00]
[404.70, 99.50]
[476.74, 100.50]
[502.31, 101.00]
[584.69, 101.00]
[585.79, 101.00]
[590.05, 102.00]

```

```

*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.82
*%-----|-----

```

```

CONTINUOUS NASHYD  NHYD= 3 ["SW_7"], DT=[30]min, AREA=[3197] (ha),
DWF=[0] (cms), CN/C=[57], IA=[2.5] (mm),
N=[3.0], TP=[6.65]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr), END=-1

```

```

*%-----|-----
*#
*# Addition of Subwatershed 7 to Node 7
*#

```

```

ADD HYD          NHYDsum= 2 ["S_N7"], NHYDs to add= 1 3 ["N7"+"SW_7"]

```

```

*%-----|-----
SAVE HYD        NHYD=2, # OF PCYCLES=[-1], ICASEsh=[-1]
HYD_FILENAME=["H_SN7"]
HYD_COMMENT=["flow at S_N7: N7 + SW_7"]

```

```

*%-----|-----
*# Insertion of a reservoir to simulate the effects of the Richmond Fen.
*# Storage area and volumes were estimated from available topo maps.
*# Release rate from fen was assumed to be controlled by the downstream
*# river cross-section for summer conditions. It is was assumed that for up to
*# 0.75 m of water, the main channel of the river provided the storage. Above
*# this depth, the wetland starts to signigicantly store water.
*#

```

```

ROUTE RESERVOIR  NHYDout= 1 ["RES_RF"] ,NHYDin= 2
RDT=[30] (min),
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
TABLE of ( OUTFLOW-STORAGE ) values
(cms) - (ha-m)
[ 0.0 , 0.0 ]
[0.9051, 2.40]
[2.907, 4.13]
[9.744, 9.18]
[20.304, 14.96]
[34.167, 310.21]
[74.993, 605.46]
[104.876, 900.71]

```

```

[140.56, 2892.00]
[225.00, 3615.63]
[ -1 , -1 ] (max twenty pts)
NHYDovf=[" " ] ,
*%-----|-----
SAVE HYD      NHYD=1, # OF PCYCLES=[-1], ICASEsh=[-1]
              HYD_FILENAME=["H_ResRF"]
              HYD_COMMENT=["outflow of Richmond Fen"]
*%-----|-----
*#
*# Sum of hydrographs from Node 7 routed to Node 6
*# Section 5
*#
ROUTE CHANNEL    NHYDout= 2["N6"] ,NHYDin= 1
                 RDT=[30] (min),
                 CHLGTH=[3056] (m),  CHSLOPE=[0.0818] (%),
                                     FPSLOPE=[0.0818] (%),
                 SECNUM=[1.0],      NSEG=[5]
                 ( SEGROUGH, SEGDIST (m))=
                   [0.025,-70.8
                   0.1,-23.9
                   -0.05,23.9
                   0.06,39.8
                   0.05,96.3] NSEG times
                 ( DISTANCE (m), ELEVATION (m))=
                   [-100.8, 97.00]
                   [-70.8, 96.50]
                   [-52.0, 96.00]
                   [-35.1, 95.50]
                   [-30.6, 95.00]
                   [-23.9, 94.54]
                   [23.9, 94.54]
                   [39.8, 95.00]
                   [50.4, 95.50]
                   [93.5, 96.00]
                   [94.9, 96.50]
                   [96.3, 97.00]
SAVE HYD      NHYD=2, # OF PCYCLES=[-1], ICASEsh=[-1]
              HYD_FILENAME=["N6"]
              HYD_COMMENT=["flow at N6 u/s of Richmond"]
*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.75
*#mod CN - Tp reduced by 25%
*%-----|-----
CONTINUOUS NASHYD  NHYD= 3 ["SW_6"], DT=[30]min, AREA=[165] (ha),
                  DWF=[0] (cms),  CN/C=[70.3], IA=[2.5] (mm),
                  N=[3.0], TP=[4.18]hrs,
                  Continuous simulation parameters:
                  IaRECper=[4] (hrs),
                  SMIN=[-1] (mm),  SMAX=[-1] (mm), SK=[0.010]/(mm),
                  InterEventTime=[12] (hrs)
                  Baseflow simulation parameters:
                  BaseFlowOption=[1] ,
                  InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                  VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.67
*# mod CN
*%-----|-----
CONTINUOUS NASHYD  NHYD= 4 ["VG_DR"], DT=[30]min, AREA=[1332] (ha),
                  DWF=[0] (cms),  CN/C=[73.8], IA=[2.5] (mm),
                  N=[3.0], TP=[5.95]hrs,

```

```

Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr), END=-1
SAVE HYD NHYD=4, # OF PCYCLES=[-1], ICASEsh=[-1]
HYD_FILENAME=["H-VG_DR"]
HYD_COMMENT=["flow at Van Gaal Drain"]

*%-----|-----
*#
*# Addition of Subwatershed 6 and Van Gaal Drain to Node 6
*#
ADD HYD NHYDsum= 1 ["S_N6"], NHYDs to add= 2 3 4 ["N6"+"SW_6"+"VG_DR"]
SAVE HYD NHYD=3, # OF PCYCLES=[-1], ICASEsh=[-1]
HYD_FILENAME=["SW_6"]
HYD_COMMENT=["flow from SW_6"]
SAVE HYD NHYD=4, # OF PCYCLES=[-1], ICASEsh=[-1]
HYD_FILENAME=["VG_DR"]
HYD_COMMENT=["flow from VG_DR"]

*%-----|-----
*#
*# Sum of hydrographs from Node 6 routed to Node 5
*# Section 6
*#
ROUTE CHANNEL NHYDout= 2 ["N5"] ,NHYDin= 1
RDT=[30] (min),
CHLGTH=[1852] (m), CHSLOPE=[0.0540] (%),
FPSLOPE=[0.0540] (%),
SECNUM=[1.0], NSEG=[3]
( SEGROUGH, SEGDIST (m))=
[0.035,-131.59
-0.045,48.96
0.1,239.04] NSEG times
( DISTANCE (m), ELEVATION (m))=
[-686.30, 94.50]
[-675.70, 94.00]
[-492.52, 93.00]
[-467.28, 94.00]
[-131.59, 94.00]
[-92.79, 92.50]
[-18.06, 91.00]
[18.06, 91.00]
[43.47, 92.50]
[48.96, 94.00]
[177.43, 94.00]
[239.04,94.50]

*%-----|-----
*# mod CN
CONTINUOUS NASHYD NHYD= 3 ["SW_5"], DT=[30]min, AREA=[224] (ha),
DWF=[0] (cms), CN/C=[79.1], IA=[2.5] (mm),
N=[3.0], TP=[0.75]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr), END=-1

*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.20

```

```

*# mod CN
*%-----|-----
CONTINUOUS NASHYD  NHYD= 4 ["FL_CK"], DT=[30]min, AREA=[4945] (ha),
DWF=[0] (cms), CN/C=[74.6], IA=[2.5] (mm),
N=[3.0], TP=[4.45]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010] / (mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr), END=-1

*%-----|-----
*#
*# Addition of Subwatershed 5 and Flowing Creek to Node 5
*#
ADD HYD          NHYDsum= 1 ["S_N5"], NHYDs to add= 2 3 4 ["N5"+"SW_5"+"FL_CK"]
SAVE HYD        NHYD=2, # OF PCYCLES=[-1], ICASEsh=[-1]
HYD_FILENAME=["N5"]
HYD_COMMENT=["flow at N5"]
SAVE HYD        NHYD=3, # OF PCYCLES=[-1], ICASEsh=[-1]
HYD_FILENAME=["SW_5"]
HYD_COMMENT=["flow at SW_5"]
SAVE HYD        NHYD=4, # OF PCYCLES=[-1], ICASEsh=[-1]
HYD_FILENAME=["FL_CK"]
HYD_COMMENT=["flow at FL_CK"]
SAVE HYD        NHYD=1, # OF PCYCLES=[-1], ICASEsh=[-1]
HYD_FILENAME=["S_N5"]
HYD_COMMENT=["flow at S_N5"]

*%-----|-----
*#
*# Sum of hydrographs from Node 5 routed to Node 5A
*# Section 7
*#
ROUTE CHANNEL   NHYDout= 2 ["N5A"], NHYDin= 1
RDT=[30] (min),
CHLGTH=[556] (m), CHSLOPE=[0.0900] (%),
FPSLOPE=[0.0900] (%),
SECNUM=[1.0], NSEG=[4]
( SEGROUGH, SEGDIST (m))=
  [0.04,-41.5
   0.1,-14.0
  -0.045,14.0
   0.1,41.1] NSEG times
( DISTANCE (m), ELEVATION (m))=
  [-275.8, 93.00]
  [-248.6, 92.50]
  [-237.0, 92.00]
  [-219.3, 91.50]
  [-202.1, 91.50]
  [-186.0, 92.00]
  [-129.2, 92.00]
  [-117.6, 91.50]
  [-100.6, 91.00]
  [-41.5, 91.00]
  [-20.0, 91.00]
  [-14.0, 90.54]
  [14.0, 90.54]
  [15.3, 91.00]
  [17.3, 91.50]
  [38.4, 92.00]
  [39.8, 92.50]
  [41.1, 93.00]

*%-----|-----
CONTINUOUS NASHYD  NHYD= 3 ["SW_5A2"], DT=[30]min, AREA=[20] (ha),

```



```

DWF=[0] (cms), CN/C=[81], IA=[2.5] (mm),
N=[3.0], TP=[0.62]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr), END=-1
*%-----|-----
*#
*# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
*# of 1.61
*# mod CN
*%-----|-----
CONTINUOUS NASHYD NHYD= 4 ["SW_5A1"], DT=[30]min, AREA=[1412] (ha),
DWF=[0] (cms), CN/C=[75.3], IA=[2.5] (mm),
N=[3.0], TP=[8.00]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr), END=-1
*%-----|-----
*#
*# Addition of Subwatershed 5A1 and Subwatershed 5A2 to Node 5A
*#
ADD HYD NHYDsum= 1 ["S_N5A"], NHYDs to add= 2 3 4 ["N5A"+"SW_5A2"+"SW_5A1"]
*%-----|-----
*#
*# Sum of hydrographs from Node 5A routed to Node 4
*# Section 8
*#
ROUTE CHANNEL NHYDout= 2["N4"] ,NHYDin= 1
RDT=[30] (min),
CHLGTH=[4630] (m), CHSLOPE=[0.0432] (%),
FPSLOPE=[0.0432] (%),
SECNUM=[1.0], NSEG=[3]
( SEGROUGH, SEGDIST (m))=
[0.05,-28.2
-0.035,28.2
0.05,173.1] NSEG times
( DISTANCE (m), ELEVATION (m))=
[-38.9, 92.00]
[-35.8, 91.50]
[-33.3, 91.00]
[-28.2, 90.50]
[-15.0, 87.48]
[-5.0, 88.34]
[5.0, 86.20]
[15.0, 88.55]
[28.2, 90.50]
[29.7, 91.00]
[46.5, 91.00]
[127.8, 91.00]
[148.7, 91.50]
[173.1, 92.00]
*%-----|-----
CONTINUOUS NASHYD NHYD= 3["SW_4"], DT=[30]min, AREA=[585] (ha),
DWF=[0] (cms), CN/C=[81], IA=[2.5] (mm),
N=[3.0], TP=[1.75]hrs,
Continuous simulation parameters:

```

```

IaRECper=[4] (hrs),
SMIN=[-1] (mm),  SMAX=[-1] (mm),  SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm),  GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr),  END=-1
*%-----|-----
CONTINUOUS NASHYD  NHYD= 4 ["LM_CK"], DT=[30]min, AREA=[1021] (ha),
DWF=[0] (cms),  CN/C=[80], IA=[2.5] (mm),
N=[3.0], TP=[2.46]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm),  SMAX=[-1] (mm),  SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm),  GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr),  END=-1

*%-----|-----
*#
*# Addition of Subwatershed 4 and Leamy Creek to Node 4
*#
ADD HYD          NHYDsum= 1 ["S_N4"], NHYDs to add= 2 3 4 ["N4"+"SW_4"+"LM_CK"]
SAVE HYD        NHYD=1, # OF PCYCLES=[-1], ICASEsh=[1]
                HYD_COMMENT=["flow at S_N4"]
*%-----|-----
*#
*# Sum of hydrographs from Node 4 routed to Node 2
*# Section 9
*#
ROUTE CHANNEL   NHYDout= 2 ["N2"] ,NHYDin= 1
                RDT=[30] (min),
                CHLGTH=[1667] (m),  CHSLOPE=[0.0600] (%),
                                FPSLOPE=[0.0600] (%),
                SECNUM=[1.0],      NSEG=[4]
                ( SEGROUGH, SEGDIST (m))=
                [0.1,-28.0
                -0.04,28.4
                0.06,31.7
                0.04,80.2] NSEG times
                ( DISTANCE (m), ELEVATION (m))=
                [-36.3, 92.00]
                [-32.6, 91.50]
                [-30.2, 91.00]
                [-28.0, 90.45]
                [-15.0, 87.48]
                [-5.0, 88.34]
                [5.0, 86.20]
                [15.0, 88.55]
                [28.0, 90.45]
                [28.4, 90.50]
                [30.4, 91.00]
                [31.7, 91.50]
                [80.2, 92.00]
*%-----|-----
CONTINUOUS NASHYD  NHYD= 3 ["SW_2"], DT=[30]min, AREA=[177] (ha),
DWF=[0] (cms),  CN/C=[77], IA=[2.5] (mm),
N=[3.0], TP=[0.75]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm),  SMAX=[-1] (mm),  SK=[0.010]/(mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm),  GWResK=[0.96] (mm/day/mm)

```

```

VHydCond=[0.055] (mm/hr),   END=-1
*%-----|
CONTINUOUS NASHYD  NHYD= 4 ["SM_DR"], DT=[30]min, AREA=[1122] (ha),
DWF=[0] (cms),   CN/C=[81], IA=[2.5] (mm),
N=[3.0], TP=[3.25]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm),   SMAX=[-1] (mm), SK=[0.010] / (mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr),   END=-1
*%-----|
CONTINUOUS NASHYD  NHYD= 5 ["MO_DR"], DT=[30]min, AREA=[2737] (ha),
DWF=[0] (cms),   CN/C=[76], IA=[2.5] (mm),
N=[3.0], TP=[3.03]hrs,
Continuous simulation parameters:
IaRECper=[4] (hrs),
SMIN=[-1] (mm),   SMAX=[-1] (mm), SK=[0.010] / (mm),
InterEventTime=[12] (hrs)
Baseflow simulation parameters:
BaseFlowOption=[1] ,
InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
VHydCond=[0.055] (mm/hr),   END=-1
*%-----|
*#
*# Addition of Subwatershed 2 with Monohan Drain and Smith Drain to Node 2
*#
ADD HYD           NHYDsum= 1 ["S_N2"], NHYDs to add= 2 3 4 5
                  ["N2"+"SW_2"+"SM_DR"+"MO_DR"]
*%-----|
SAVE HYD         NHYD=1, # OF PCYCLES=[-1], ICASEsh=[-1]
HYD_FILENAME=["H_SN2"]
HYD_COMMENT=["flow at S_N2 Jock River Gauge at Moodie Dr."]
*%-----|
*#
*# Sum of hydrographs from Node 2 routed to Node 1
*# Section 10
*#
ROUTE CHANNEL   NHYDout= 2 ["N1"] ,NHYDin= 1
RDT=[30] (min),
CHLGTH=[10046] (m),   CHSLOPE=[0.0498] (%),
                    FPSLOPE=[0.0498] (%),
SECNUM=[1.0],       NSEG=[5]
( SEGROUGH, SEGDIST (m))=
  [0.04,-27.6
  0.06,-15.0
  -0.045,15.0
  0.06,25.4
  0.04,122.6] NSEG times
( DISTANCE (m), ELEVATION (m))=
  [-87.0, 91.50]
  [-32.4, 91.00]
  [-27.6, 90.50]
  [-25.0, 90.00]
  [-22.9, 89.57]
  [-15.0, 86.20]
  [-5.0, 84.83]
  [5.0, 84.83]
  [15.0, 88.11]
  [22.9, 89.57]
  [25.4, 90.00]
  [27.9, 90.50]
  [38.0, 91.00]
  [112.5, 91.00]
  [114.3, 90.50]

```

[115.1, 90.26]
[116.3, 90.50]
[119.0, 91.00]
[121.0, 91.50]
[122.6, 92.00]

```
*%-----|-----|
CONTINUOUS NASHYD  NHYD= 3 ["SW_1"], DT=[30]min, AREA=[3176] (ha),
                   DWF=[0] (cms), CN/C=[78], IA=[2.5] (mm),
                   N=[3.0], TP=[3.56]hrs,
                   Continuous simulation parameters:
                   IaRECper=[4] (hrs),
                   SMIN=[-1] (mm), SMAX=[-1] (mm), SK=[0.010]/(mm),
                   InterEventTime=[12] (hrs)
                   Baseflow simulation parameters:
                   BaseFlowOption=[1] ,
                   InitGWResVol=[50] (mm), GWResK=[0.96] (mm/day/mm)
                   VHydCond=[0.055] (mm/hr), END=-1
*%-----|-----|
*#
*# Addition of Subwatershed 1 to Node 1
*#
ADD HYD             NHYDsum= 1["N1"], NHYDs to add= 2 3 ["N1"+"SW_1"]
SAVE HYD           NHYD=1, # OF PCYCLES=[-1], ICASEsh=[1]
                   HYD_FILENAME=["N1-fut"]
                   HYD_COMMENT=["total outflow of Jock River"]
*#####
*% 5 yr, 24 hr SCS storm based on OTTAWA CDA IDF Curves
START              TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[5]
*%                ["C24SC005.stm"] <--storm filename, one per line for NSTORM time
*%-----|-----|

*% 100 yr, 24 hr SCS storm based on OTTAWA CDA IDF Curves
START              TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[100]
*%                ["C24SC100.stm"] <--storm filename, one per line for NSTORM time
FINISH
```

SWMHYMO – OUTPUT - FUTURE


```

# SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
#*****
# Project Name: [Jock River]      Project Number: [411-02]
# Date       : 06-06-2003
# Modeller   : [JoF]
# Company    : JFSAinc.
# License #   : 2549237
#*****
# CALIBRATION OF SUMMER MODEL PARAMETERS
# USING CONTINUOUS SIMULATIONS
# Rainfall data from JFSA rainauge installed at site + other gauges by the Cit
# Use data collected from May 1st to July 14, 2003
# -----
#
# FUTURE SUMMER - Cumulative Development
#
#
RUN:COMMAND#
001:0001-----
START
  [TZERO = .00 hrs on 0]
  [METOUT= 2 (1=imperial, 2=metric output)]
  [NSTORM= 1 ]
  [NRUN = 1 ]
001:0002-----
READ STORM
  Filename = storm.001
  Comment = Pluie SCS de 24 hres 1:2 ans pour Ottawa CDA
  [SDT=10.00:SDUR= 24.00:PTOT= 45.51]
001:0003-----
MODIFY STORM
  [RFAC= 1.00:TSHIFT= 960.00 min]
  [SDT=10.00:SDUR= 40.00:PTOT= 45.51]
001:0004-----
COMPUTE API
  [APIini= 50.00: APIkdy= .8500: APIkdt= .9989]
  {APIimax= 80.12: APIavg= 56.74: APIimin= 44.87}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.32
# mod CN
001:0005-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 01:JR_HW 3680.00 6.065 No_date 37:00 11.44 .251
  [CN= 64.5: N= 3.00]
  [Tp= 7.13:DT=30.00]
  [IaREC= 4.00: SMIN= 57.05: SMAX=380.32: SK= .010]
  [InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.32
001:0006-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 02:SW_13 971.00 2.154 No_date 32:30 10.72 .236
  [CN= 61.0: N= 3.00]
  [Tp= 3.76:DT=30.00]
  [IaREC= 4.00: SMIN= 64.50: SMAX=430.01: SK= .010]
  [InterEventTime= 12.00]
#
# Starting with the addition of Jock River Headwater and Subwatershed 13
#
001:0007-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:S_N13 3680.00 6.065 No_date 37:00 11.44 n/a
                + 02:SW_13 971.00 2.154 No_date 32:30 10.72 n/a
  [DT=30.00] SUM= 01:S_N13 4651.00 7.713 No_date 35:30 11.29 n/a
#
# Sum of hydrographs from Node 13 routed to Node 13A
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions

```

```

#
001:0008-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N13  4651.00  7.713 No_date  35:30  11.29  n/a
[RDT=30.00] out<- 02:N13A  4651.00  6.154 No_date  39:30  11.29  n/a
[L/S/n= 9074./ .022/.040]
{Vmax= .427:Dmax= 2.537}

#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
#mod CN
001:0009-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 01:JR_GWM 3161.00  3.203 No_date  39:30  9.41  .207
[CN= 55.8: N= 3.00]
[Tp=11.33:DT=30.00]
[IaREC= 4.00: SMIN= 83.24: SMAX=554.96: SK= .010]
[InterEventTime= 12.00]

#
# Addition of Subwatershed Jock River at Goodwood Marsh to Node 13A
#
001:0010-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N13A  4651.00  6.154 No_date  39:30  11.29  n/a
+ 01:SN13A  3161.00  3.203 No_date  39:30  9.41  n/a
[DT=30.00] SUM= 01:SN13A  7812.00  9.357 No_date  39:30  10.53  n/a

#
# Insertion of a reservoir to simulate the effects of the Goodwood Marsh
#
001:0011-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE RESERVOIR -> 01:SN13A  7812.00  9.357 No_date  39:30  10.53  n/a
[RDT=30.00] out<- 02:RES_GM  7812.00  2.612 No_date  55:30  10.53  n/a
{MxStoUsed=.3547E+02}

#
001:0012-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          02:RES_GM  7812.00  2.612 No_date  55:30  10.53  n/a
fname :C:\STORMS~1\H_RESGM.001
remark:Outflow from Res GM
# Output of Reservoir Goodwood Marsh routed from Node 13A to Node 12
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
001:0013-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 02:RES_GM  7812.00  2.612 No_date  55:30  10.53  n/a
[RDT=30.00] out<- 01:N12  7812.00  2.604 No_date  58:00  10.53  n/a
[L/S/n= 5926./ .076/.040]
{Vmax= .501:Dmax= 1.328}

001:0014-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_11  500.00  2.663 No_date  29:00  11.95  .263
[CN= 66.0: N= 3.00]
[Tp= 1.24:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]

#mod CN
001:0015-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 02:JR_ASH 1781.00  5.417 No_date  32:30  13.91  .306
[CN= 72.3: N= 3.00]
[Tp= 3.91:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]

#
# Addition of Subwatershed Jock River at Ashton to Node 12
#
001:0016-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:S_N12  7812.00  2.604 No_date  58:00  10.53  n/a
+ 02:JR_ASH 1781.00  5.417 No_date  32:30  13.91  n/a
[DT=30.00] SUM= 01:S_N12  9593.00  7.377 No_date  32:30  11.16  n/a
001:0017-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          01:S_N12  9593.00  7.377 No_date  32:30  11.16  n/a
fname :C:\STORMS~1\H_SN12.001
remark:flow at S_N12 near Ashton

```



```

#
# Sum of hydrographs from Node 12 routed to Node 11
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
001:0018-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N12  9593.00   7.377 No_date   32:30  11.16  n/a
[RDT=30.00] out<- 02:N11  9593.00   7.323 No_date   33:00  11.16  n/a
[L/S/n= 972./ .051/.040]
{Vmax= .580:Dmax= 2.120}
#
# Sum of hydrographs from Node 12 routed to Node 11 with Dummy section 248
#
001:0019-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N12  9593.00   7.377 No_date   32:30  11.16  n/a
[RDT=30.00] out<- 03:Dum11 9593.00   7.326 No_date   33:00  11.16  n/a
[L/S/n= 972./ .054/.040]
{Vmax= .589:Dmax= 2.098}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
001:0020-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 05:NN_CK  1917.00   3.966 No_date   34:30  11.95  .263
[CN= 66.0: N= 3.00]
[Tp= 5.29:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 11 and No Name Creek to Node 11
#
001:0021-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          03:Dum11  9593.00   7.326 No_date   33:00  11.16  n/a
+ 04:SW_11      500.00   2.663 No_date   29:00  11.95  n/a
+ 05:NN_CK      1917.00   3.966 No_date   34:30  11.95  n/a
[DT=30.00] SUM= 01:S_N11 12010.00  11.957 No_date   33:00  11.32  n/a
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.52
#
# Sum of hydrographs from Node 11 routed to Node 10
# Section 1
#
001:0022-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N11 12010.00  11.957 No_date   33:00  11.32  n/a
[RDT=30.00] out<- 02:N10  12010.00  8.226 No_date   39:30  11.32  n/a
[L/S/n=14028./ .157/.040]
{Vmax= .460:Dmax= .881}
001:0023-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_10  5666.00  10.936 No_date   38:00  13.91  .306
[CN= 72.0: N= 3.00]
[Tp= 8.00:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 10 to Node 10
#
001:0024-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N10  12010.00  8.226 No_date   39:30  11.32  n/a
+ 04:SW_10      5666.00  10.936 No_date   38:00  13.91  n/a
[DT=30.00] SUM= 01:S_N10 17676.00  19.109 No_date   38:30  12.15  n/a
001:0025-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:S_N10 17676.00  19.109 No_date   38:30  12.15  n/a
fname :C:\STORMS~1\H_SN10.001
remark:flow at S_N10: N10 + SW_10
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.75
#mod CN

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001:0026-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:KG_CK 8376.00 10.656 No_date 39:30 11.95 .263
[CN= 66.3: N= 3.00]
[Tp=11.66:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
# Addition of Kings Creek to S_N10
#
001:0027-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 01:S_N10 17676.00 19.109 No_date 38:30 12.15 n/a
+ 03:KG_CK 8376.00 10.656 No_date 39:30 11.95 n/a
[DT=30.00] SUM= 02:S_N10A 26052.00 29.632 No_date 39:30 12.08 n/a
#
# Sum of hydrographs from Node 10 routed to Node 9
# Section 2
#
001:0028-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:S_N10A 26052.00 29.632 No_date 39:30 12.08 n/a
[RDT=30.00] out<- 01:N9 26052.00 28.892 No_date 39:30 12.08 n/a
[L/S/n= 3982./ .075/.040]
{Vmax= .591:Dmax= 1.193}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.68
001:0029-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_9 1132.00 4.365 No_date 30:30 13.32 .293
[CN= 70.0: N= 3.00]
[Tp= 2.51:DT=30.00]
[IaREC= 4.00: SMIN= 43.07: SMAX=287.10: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.82
001:0030-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:NC_CK 4464.00 5.312 No_date 39:30 10.96 .241
[CN= 62.0: N= 3.00]
[Tp=11.32:DT=30.00]
[IaREC= 4.00: SMIN= 61.90: SMAX=412.66: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 9 and Nichols Creek to Node 9
#
001:0031-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 01:N9 26052.00 28.892 No_date 39:30 12.08 n/a
+ 03:SW_9 1132.00 4.365 No_date 30:30 13.32 n/a
+ 04:NC_CK 4464.00 5.312 No_date 39:30 10.96 n/a
[DT=30.00] SUM= 02:S_N9 31648.00 35.499 No_date 39:30 11.97 n/a
#
# Sum of hydrographs from Node 9 routed to Node 8
# Section 3
#
001:0032-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:S_N9 31648.00 35.499 No_date 39:30 11.97 n/a
[RDT=30.00] out<- 01:N8 31648.00 33.315 No_date 40:00 11.97 n/a
[L/S/n= 2269./ .088/.045]
{Vmax= .420:Dmax= 1.270}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
001:0033-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_8 131.00 .770 No_date 28:30 11.20 .246
[CN= 63.0: N= 3.00]
[Tp= .90:DT=30.00]
[IaREC= 4.00: SMIN= 59.42: SMAX=396.11: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)

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# of 1.65
001:0034-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:HB_DR 3854.00 6.083 No_date 38:30 11.95 .263
[CN= 66.0: N= 3.00]
[Tp= 8.42:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 8 and Hobb's Drain to Node 8
#
001:0035-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 01:N8 31648.00 33.315 No_date 40:00 11.97 n/a
+ 03:SW_8 131.00 .770 No_date 28:30 11.20 n/a
+ 04:HB_DR 3854.00 6.083 No_date 38:30 11.95 n/a
[DT=30.00] SUM= 02:S_N8 35633.00 39.371 No_date 39:30 11.96 n/a
#
# Sum of hydrographs from Node 8 routed to Node 7
# Section 4
#
001:0036-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:S_N8 35633.00 39.371 No_date 39:30 11.96 n/a
[RDT=30.00] out<- 01:N7 35633.00 32.183 No_date 44:00 11.96 n/a
[L/S/n= 3750./ .053/.070]
{Vmax= .209:Dmax= 1.635}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.82
001:0037-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_7 3197.00 4.557 No_date 36:30 9.83 .216
[CN= 57.0: N= 3.00]
[Tp= 6.65:DT=30.00]
[IaREC= 4.00: SMIN= 76.32: SMAX=508.81: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 7 to Node 7
#
001:0038-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 01:N7 35633.00 32.183 No_date 44:00 11.96 n/a
+ 03:SW_7 3197.00 4.557 No_date 36:30 9.83 n/a
[DT=30.00] SUM= 02:S_N7 38830.00 34.359 No_date 43:00 11.79 n/a
001:0039-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 02:S_N7 38830.00 34.359 No_date 43:00 11.79 n/a
fname :C:\STORMS~1\H_SN7.001
remark:flow at S_N7: N7 + SW_7
# Insertion of a reservoir to simulate the effects of the Richmond Fen.
# Storage area and volumes were estimated from available topo maps.
# Release rate from fen was assumed to be controlled by the downstream
# river cross-section for summer conditions. It is was assumed that for up to
# 0.75 m of water, the main channel of the river provided the storage. Above
# this depth, the wetland starts to significantly store water.
#
001:0040-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE RESERVOIR -> 02:S_N7 38830.00 34.359 No_date 43:00 11.79 n/a
[RDT=30.00] out<- 01:RES_RF 38830.00 23.079 No_date 54:30 11.79 n/a
{MxStoUsed=.7407E+02}
001:0041-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:RES_RF 38830.00 23.079 No_date 54:30 11.79 n/a
fname :C:\STORMS~1\H_ResRF.001
remark:outflow of Richmond Fen
#
# Sum of hydrographs from Node 7 routed to Node 6
# Section 5
#
001:0042-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:RES_RF 38830.00 23.079 No_date 54:30 11.79 n/a
[RDT=30.00] out<- 02:N6 38830.00 23.056 No_date 56:00 11.79 n/a
[L/S/n= 3056./ .082/.025]

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      {Vmax= .431:Dmax= .805}
001:0043-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          02:N6          38830.00   23.056 No_date   56:00   11.79 n/a
fname :C:\STORMS~1\N6.001
remark:flow at N6 u/s of Richmond
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.75
#mod CN - Tp reduced by 25%
001:0044-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_6          165.00    .454 No_date   33:00   13.32 .293
[CN= 70.3: N= 3.00]
[Tp= 4.18:DT=30.00]
[IaREC= 4.00: SMIN= 43.07: SMAX=287.10: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.67
# mod CN
001:0045-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:VG_DR          1332.00    3.164 No_date   35:00   14.22 .312
[CN= 73.8: N= 3.00]
[Tp= 5.95:DT=30.00]
[IaREC= 4.00: SMIN= 38.18: SMAX=254.55: SK= .010]
[InterEventTime= 12.00]
001:0046-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          04:VG_DR          1332.00    3.164 No_date   35:00   14.22 n/a
fname :C:\STORMS~1\H-VG_DR.001
remark:flow at Van Gaal Drain
#
# Addition of Subwatershed 6 and Van Gaal Drain to Node 6
#
001:0047-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N6          38830.00   23.056 No_date   56:00   11.79 n/a
      + 03:SW_6          165.00    .454 No_date   33:00   13.32 n/a
      + 04:VG_DR          1332.00    3.164 No_date   35:00   14.22 n/a
[DT=30.00] SUM= 01:S_N6 40327.01 23.312 No_date 39:30 11.88 n/a
001:0048-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          03:SW_6          165.00    .454 No_date   33:00   13.32 n/a
fname :C:\STORMS~1\SW_6.001
remark:flow from SW_6
001:0049-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          04:VG_DR          1332.00    3.164 No_date   35:00   14.22 n/a
fname :C:\STORMS~1\VG_DR.001
remark:flow from VG_DR
#
# Sum of hydrographs from Node 6 routed to Node 5
# Section 6
#
001:0050-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N6 40327.01 23.312 No_date 39:30 11.88 n/a
[RDT=30.00] out<- 02:N5 40327.01 23.176 No_date 55:30 11.88 n/a
[L/S/n= 1852./ .054/.035]
{Vmax= .378:Dmax= .916}
# mod CN
001:0051-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_5          224.00    2.773 No_date   28:30   16.98 .373
[CN= 79.1: N= 3.00]
[Tp= .75:DT=30.00]
[IaREC= 4.00: SMIN= 27.47: SMAX=183.15: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.20
# mod CN
001:0052-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:FL_CK          4945.00   14.579 No_date   33:00   14.54 .319

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[CN= 74.6: N= 3.00]
[Tp= 4.45:DT=30.00]
[IaREC= 4.00: SMIN= 36.67: SMAX=244.49: SK= .010]
[InterEventTime= 12.00]

#

Addition of Subwatershed 5 and Flowing Creek to Node 5

#

001:0053-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N5 40327.01 23.176 No_date 55:30 11.88 n/a
 + 03:SW_5 224.00 2.773 No_date 28:30 16.98 n/a
 + 04:FL_CK 4945.00 14.579 No_date 33:00 14.54 n/a
 [DT=30.00] SUM= 01:S_N5 45496.01 33.109 No_date 37:00 12.19 n/a

001:0054-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 02:N5 40327.01 23.176 No_date 55:30 11.88 n/a
fname :C:\STORMS~1\N5.001
remark:flow at N5

001:0055-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 03:SW_5 224.00 2.773 No_date 28:30 16.98 n/a
fname :C:\STORMS~1\SW_5.001
remark:flow at SW_5

001:0056-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 04:FL_CK 4945.00 14.579 No_date 33:00 14.54 n/a
fname :C:\STORMS~1\FL_CK.001
remark:flow at FL_CK

001:0057-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:S_N5 45496.01 33.109 No_date 37:00 12.19 n/a
fname :C:\STORMS~1\S_N5.001
remark:flow at S_N5

#

Sum of hydrographs from Node 5 routed to Node 5A

Section 7

#

001:0058-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N5 45496.01 33.109 No_date 37:00 12.19 n/a
 [RD=30.00] out<- 02:N5A 45496.01 33.059 No_date 37:00 12.19 n/a
 [L/S/n= 556./ .090/.040]
 {Vmax= .443:Dmax= .937}

001:0059-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_5A2 20.00 .287 No_date 28:30 17.76 .390
 [CN= 81.0: N= 3.00]
 [Tp= .62:DT=30.00]
 [IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
 [InterEventTime= 12.00]

#

The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)

of 1.61

mod CN

001:0060-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_5A1 1412.00 3.007 No_date 38:00 15.19 .334
 [CN= 75.3: N= 3.00]
 [Tp= 8.00:DT=30.00]
 [IaREC= 4.00: SMIN= 33.81: SMAX=225.43: SK= .010]
 [InterEventTime= 12.00]

#

Addition of Subwatershed 5A1 and Subwatershed 5A2 to Node 5A

#

001:0061-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N5A 45496.01 33.059 No_date 37:00 12.19 n/a
 + 03:SW_5A2 20.00 .287 No_date 28:30 17.76 n/a
 + 04:SW_5A1 1412.00 3.007 No_date 38:00 15.19 n/a
 [DT=30.00] SUM= 01:S_N5A 46928.01 36.077 No_date 37:00 12.28 n/a

#

Sum of hydrographs from Node 5A routed to Node 4

Section 8

#

001:0062-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N5A 46928.01 36.077 No_date 37:00 12.28 n/a

```

[RDT=30.00] out<- 02:N4      46928.01  35.195 No_date  39:00  12.28  n/a
[L/S/n= 4630./ .043/.035]
{Vmax= .694:Dmax= 2.840}
001:0063-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_4      585.00   4.232 No_date  29:30  17.76  .390
[CN= 81.0: N= 3.00]
[Tp= 1.75:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]
001:0064-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:LM_CK     1021.00   5.667 No_date  30:30  17.36  .382
[CN= 80.0: N= 3.00]
[Tp= 2.46:DT=30.00]
[IaREC= 4.00: SMIN= 26.32: SMAX=175.50: SK= .010]
[InterEventTime= 12.00]

#
# Addition of Subwatershed 4 and Leamy Creek to Node 4
#
001:0065-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N4      46928.01  35.195 No_date  39:00  12.28  n/a
                + 03:SW_4      585.00   4.232 No_date  29:30  17.76  n/a
                + 04:LM_CK     1021.00   5.667 No_date  30:30  17.36  n/a
                [DT=30.00] SUM= 01:S_N4  48534.01  37.533 No_date  38:30  12.46  n/a
001:0066-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:S_N4  48534.01  37.533 No_date  38:30  12.46  n/a
fname :C:\STORMS~1\H-S_N4.001
remark:flow at S_N4

#
# Sum of hydrographs from Node 4 routed to Node 2
# Section 9
#
001:0067-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N4  48534.01  37.533 No_date  38:30  12.46  n/a
[RDT=30.00] out<- 02:N2      48534.01  37.433 No_date  39:00  12.46  n/a
[L/S/n= 1667./ .060/.040]
{Vmax= .715:Dmax= 2.844}
001:0068-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_2      177.00   1.996 No_date  28:30  15.88  .349
[CN= 77.0: N= 3.00]
[Tp= .75:DT=30.00]
[IaREC= 4.00: SMIN= 31.15: SMAX=207.66: SK= .010]
[InterEventTime= 12.00]
001:0069-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SM_DR     1122.00   5.257 No_date  31:30  17.76  .390
[CN= 81.0: N= 3.00]
[Tp= 3.25:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]
001:0070-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 05:MO_DR     2737.00  11.338 No_date  31:30  15.53  .341
[CN= 76.0: N= 3.00]
[Tp= 3.03:DT=30.00]
[IaREC= 4.00: SMIN= 32.46: SMAX=216.39: SK= .010]
[InterEventTime= 12.00]

#
# Addition of Subwatershed 2 with Monohan Drain and Smith Drain to Node 2
#
001:0071-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N2      48534.01  37.433 No_date  39:00  12.46  n/a
                + 03:SW_2      177.00   1.996 No_date  28:30  15.88  n/a
                + 04:SM_DR     1122.00   5.257 No_date  31:30  17.76  n/a
                + 05:MO_DR     2737.00  11.338 No_date  31:30  15.53  n/a
                [DT=30.00] SUM= 01:S_N2  52570.01  45.832 No_date  33:30  12.74  n/a
001:0072-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:S_N2  52570.01  45.832 No_date  33:30  12.74  n/a
fname :C:\STORMS~1\H_SN2.001
remark:flow at S_N2 Jock River Gauge at Moodie Dr.

```

```

#
# Sum of hydrographs from Node 2 routed to Node 1
# Section 10
#
001:0073-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N2  52570.01  45.832 No_date  33:30  12.74 n/a
[RDt=30.00] out<- 02:N1  52570.01  42.743 No_date  39:30  12.74 n/a
[L/S/n=10046./ .050/.040]
{Vmax= .768:Dmax= 2.667}
001:0074-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_1  3176.00  12.490 No_date  32:00  16.23 .357
[CN= 78.0: N= 3.00]
[Tp= 3.56:DT=30.00]
[IaREC= 4.00: SMIN= 29.88: SMAX=199.22: SK= .010]
[InterEventTime= 12.00]

#
# Addition of Subwatershed 1 to Node 1
#
001:0075-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N1  52570.01  42.743 No_date  39:30  12.74 n/a
                + 03:SW_1  3176.00  12.490 No_date  32:00  16.23 n/a
[DT=30.00] SUM= 01:N1  55746.00  49.310 No_date  36:30  12.94 n/a
001:0076-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD        01:N1  55746.00  49.310 No_date  36:30  12.94 n/a
fname :C:\STORMS~1\H-N1.001
remark:N1-fut
#####
** END OF RUN : 4

```

RUN:COMMAND#

```

005:0001-----
START
[TZERO = .00 hrs on 0]
[METOUT= 2 (1=imperial, 2=metric output)]
[NSTORM= 1 ]
[NRUN = 5 ]

```

```

# SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
# Project Name: [Jock River] Project Number: [411-02]
# Date : 06-06-2003
# Modeller : [JoF]
# Company : JFSAinc.
# License # : 2549237

```

```

# CALIBRATION OF SUMMER MODEL PARAMETERS
# USING CONTINUOUS SIMULATIONS
# Rainfall data from JFSA rainauge installed at site + other gauges by the Cit
# Use data collected from May 1st to July 14, 2003
# -----
#
# FUTURE SUMMER - Cumulative Development
#
#

```

```

005:0002-----
READ STORM
Filename = storm.001
Comment = Pluie SCS de 24 hres 1:5 ans pour Ottawa CDA
[SDT=10.00:SDUR= 24.00:PTOT= 57.12]

```

```

005:0003-----
MODIFY STORM

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[RFAC= 1.00:TSHIFT= 960.00 min]
[SDT=10.00:SDUR= 40.00:PTOT= 57.12]
005:0004-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
COMPUTE API
[APIini= 50.00: APIkdy= .8500: APIkdt= .9989]
{APImax= 90.83: APIavg= 60.09: APImin= 44.87}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.32
# mod CN
005:0005-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 01:JR_HW 3680.00 9.169 No_date 37:00 16.38 .287
[CN= 64.5: N= 3.00]
[Tp= 7.13:DT=30.00]
[IaREC= 4.00: SMIN= 57.05: SMAX=380.32: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.32
005:0006-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 02:SW_13 971.00 3.350 No_date 32:30 15.27 .267
[CN= 61.0: N= 3.00]
[Tp= 3.76:DT=30.00]
[IaREC= 4.00: SMIN= 64.50: SMAX=430.01: SK= .010]
[InterEventTime= 12.00]
#
# Starting with the addition of Jock River Headwater and Subwatershed 13
#
005:0007-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 01:S_N13 3680.00 9.169 No_date 37:00 16.38 n/a
+ 02:SW_13 971.00 3.350 No_date 32:30 15.27 n/a
[DT=30.00] SUM= 01:S_N13 4651.00 11.688 No_date 35:30 16.15 n/a
#
# Sum of hydrographs from Node 13 routed to Node 13A
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
#
005:0008-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N13 4651.00 11.688 No_date 35:30 16.15 n/a
[RDT=30.00] out<- 02:N13A 4651.00 9.343 No_date 39:30 16.15 n/a
[L/S/n= 9074./ .022/.040]
{Vmax= .475:Dmax= 2.992}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
#mod CN
005:0009-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 01:JR_GWM 3161.00 4.639 No_date 39:30 13.20 .231
[CN= 55.8: N= 3.00]
[Tp=11.33:DT=30.00]
[IaREC= 4.00: SMIN= 83.24: SMAX=554.96: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed Jock River at Goodwood Marsh to Node 13A
#
005:0010-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N13A 4651.00 9.343 No_date 39:30 16.15 n/a
+ 01:SN13A 3161.00 4.639 No_date 39:30 13.20 n/a
[DT=30.00] SUM= 01:SN13A 7812.00 13.982 No_date 39:30 14.96 n/a
#
# Insertion of a reservoir to simulate the effects of the Goodwood Marsh
#
005:0011-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE RESERVOIR -> 01:SN13A 7812.00 13.982 No_date 39:30 14.96 n/a
[RDT=30.00] out<- 02:RES_GM 7812.00 3.139 No_date 58:00 14.96 n/a
{MxStoUsed=.6269E+02}
#

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005:0012-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          02:RES_GM  7812.00   3.139 No_date   58:00   14.96 n/a
fname :C:\STORMS~1\H_RESGM.005
remark:Outflow from Res GM
# Output of Reservoir Goodwood Marsh routed from Node 13A to Node 12
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
005:0013-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL    -> 02:RES_GM  7812.00   3.139 No_date   58:00   14.96 n/a
[RDT=30.00] out<- 01:N12    7812.00   3.129 No_date   60:30   14.96 n/a
[L/S/n= 5926./ .076/.040]
{Vmax= .526:Dmax= 1.427}
005:0014-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_11   500.00   4.260 No_date   29:00   17.15 .300
[CN= 66.0: N= 3.00]
[Tp= 1.24:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
#mod CN
005:0015-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 02:JR_ASH  1781.00   8.382 No_date   32:30   20.09 .352
[CN= 72.3: N= 3.00]
[Tp= 3.91:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed Jock River at Ashton to Node 12
#
005:0016-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:S_N12   7812.00   3.129 No_date   60:30   14.96 n/a
+ 02:JR_ASH     1781.00   8.382 No_date   32:30   20.09 n/a
[DT=30.00] SUM= 01:S_N12   9593.00  10.366 No_date   32:30   15.91 n/a
005:0017-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          01:S_N12   9593.00  10.366 No_date   32:30   15.91 n/a
fname :C:\STORMS~1\H_SN12.005
remark:flow at S_N12 near Ashton
#
# Sum of hydrographs from Node 12 routed to Node 11
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
005:0018-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL    -> 01:S_N12   9593.00  10.366 No_date   32:30   15.91 n/a
[RDT=30.00] out<- 02:N11   9593.00  10.235 No_date   33:00   15.91 n/a
[L/S/n= 972./ .051/.040]
{Vmax= .634:Dmax= 2.418}
#
# Sum of hydrographs from Node 12 routed to Node 11 with Dummy section 248
#
005:0019-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL    -> 01:S_N12   9593.00  10.366 No_date   32:30   15.91 n/a
[RDT=30.00] out<- 03:Dum11  9593.00  10.246 No_date   33:00   15.91 n/a
[L/S/n= 972./ .054/.040]
{Vmax= .645:Dmax= 2.393}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
005:0020-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 05:NN_CK  1917.00   6.085 No_date   34:00   17.15 .300
[CN= 66.0: N= 3.00]
[Tp= 5.29:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 11 and No Name Creek to Node 11
#
005:0021-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          03:Dum11   9593.00  10.246 No_date   33:00   15.91 n/a

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                + 04:SW_11    500.00    4.260 No_date    29:00    17.15  n/a
                + 05:NN_CK    1917.00   6.085 No_date    34:00    17.15  n/a
[DT=30.00] SUM= 01:S_N11  12010.00  17.319 No_date    33:00    16.16  n/a
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.52
#
# Sum of hydrographs from Node 11 routed to Node 10
# Section 1
#
005:0022-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N11  12010.00  17.319 No_date    33:00    16.16  n/a
[RDT=30.00] out<- 02:N10    12010.00  11.909 No_date    38:30    16.16  n/a
[L/S/n=14028./ .157/.040]
{Vmax= .462:Dmax= 1.078}
005:0023-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_10  5666.00  16.454 No_date    38:00    20.09  .352
[CN= 72.0: N= 3.00]
[Tp= 8.00:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 10 to Node 10
#
005:0024-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N10    12010.00  11.909 No_date    38:30    16.16  n/a
                + 04:SW_10  5666.00  16.454 No_date    38:00    20.09  n/a
[DT=30.00] SUM= 01:S_N10  17676.00  28.349 No_date    38:00    17.42  n/a
005:0025-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:S_N10  17676.00  28.349 No_date    38:00    17.42  n/a
fname :C:\STORMS~1\H_SN10.005
remark:flow at S_N10: N10 + SW_10
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.75
#mod CN
005:0026-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:KG_CK  8376.00  15.668 No_date    39:30    17.15  .300
[CN= 66.3: N= 3.00]
[Tp=11.66:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
# Addition of Kings Creek to S_N10
#
005:0027-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:S_N10  17676.00  28.349 No_date    38:00    17.42  n/a
                + 03:KG_CK  8376.00  15.668 No_date    39:30    17.15  n/a
[DT=30.00] SUM= 02:S_N10A 26052.00  43.598 No_date    39:30    17.33  n/a
#
# Sum of hydrographs from Node 10 routed to Node 9
# Section 2
#
005:0028-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 02:S_N10A 26052.00  43.598 No_date    39:30    17.33  n/a
[RDT=30.00] out<- 01:N9    26052.00  42.453 No_date    39:30    17.33  n/a
[L/S/n= 3982./ .075/.040]
{Vmax= .663:Dmax= 1.480}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.68
005:0029-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_9   1132.00   6.854 No_date    30:30    19.22  .336
[CN= 70.0: N= 3.00]
[Tp= 2.51:DT=30.00]
[IaREC= 4.00: SMIN= 43.07: SMAX=287.10: SK= .010]
[InterEventTime= 12.00]
#

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# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.82
005:0030-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:NC_CK 4464.00 7.795 No_date 39:30 15.63 .274
[CN= 62.0: N= 3.00]
[Tp=11.32:DT=30.00]
[IaREC= 4.00: SMIN= 61.90: SMAX=412.66: SK= .010]
[InterEventTime= 12.00]

#
# Addition of Subwatershed 9 and Nichols Creek to Node 9
#
005:0031-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 01:N9 26052.00 42.453 No_date 39:30 17.33 n/a
+ 03:SW_9 1132.00 6.854 No_date 30:30 19.22 n/a
+ 04:NC_CK 4464.00 7.795 No_date 39:30 15.63 n/a
[DT=30.00] SUM= 02:S_N9 31648.00 52.078 No_date 39:30 17.16 n/a

#
# Sum of hydrographs from Node 9 routed to Node 8
# Section 3
#
005:0032-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:S_N9 31648.00 52.078 No_date 39:30 17.16 n/a
[RTD=30.00] out<- 01:N8 31648.00 48.443 No_date 40:00 17.16 n/a
[L/S/n= 2269./ .088/.045]
{Vmax= .371:Dmax= 1.510}

#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
005:0033-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_8 131.00 1.239 No_date 28:30 16.00 .280
[CN= 63.0: N= 3.00]
[Tp= .90:DT=30.00]
[IaREC= 4.00: SMIN= 59.42: SMAX=396.11: SK= .010]
[InterEventTime= 12.00]

#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.65
005:0034-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:HB_DR 3854.00 9.126 No_date 38:30 17.15 .300
[CN= 66.0: N= 3.00]
[Tp= 8.42:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]

#
# Addition of Subwatershed 8 and Hobb's Drain to Node 8
#
005:0035-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 01:N8 31648.00 48.443 No_date 40:00 17.16 n/a
+ 03:SW_8 131.00 1.239 No_date 28:30 16.00 n/a
+ 04:HB_DR 3854.00 9.126 No_date 38:30 17.15 n/a
[DT=30.00] SUM= 02:S_N8 35633.00 57.182 No_date 39:30 17.16 n/a

#
# Sum of hydrographs from Node 8 routed to Node 7
# Section 4
#
005:0036-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:S_N8 35633.00 57.182 No_date 39:30 17.16 n/a
[RTD=30.00] out<- 01:N7 35633.00 46.901 No_date 45:00 17.16 n/a
[L/S/n= 3750./ .053/.070]
{Vmax= .207:Dmax= 1.840}

#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.82
005:0037-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_7 3197.00 6.873 No_date 36:00 13.87 .243
[CN= 57.0: N= 3.00]
[Tp= 6.65:DT=30.00]

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[IaREC= 4.00: SMIN= 76.32: SMAX=508.81: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 7 to Node 7
#
005:0038-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:N7      35633.00   46.901 No_date   45:00   17.16  n/a
                + 03:SW_7   3197.00    6.873 No_date   36:00   13.87  n/a
[DT=30.00] SUM= 02:S_N7   38830.00   50.132 No_date   43:30   16.89  n/a
005:0039-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         02:S_N7   38830.00   50.132 No_date   43:30   16.89  n/a
fname :C:\STORMS~1\H_SN7.005
remark:flow at S_N7: N7 + SW_7
# Insertion of a reservoir to simulate the effects of the Richmond Fen.
# Storage area and volumes were estimated from available topo maps.
# Release rate from fen was assumed to be controlled by the downstream
# river cross-section for summer conditions. It is was assumed that for up to
# 0.75 m of water, the main channel of the river provided the storage. Above
# this depth, the wetland starts to significantly store water.
#
005:0040-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE RESERVOIR -> 02:S_N7   38830.00   50.132 No_date   43:30   16.89  n/a
[RD=30.00] out<- 01:RES_RF 38830.00   27.650 No_date   59:00   16.89  n/a
{MxStoUsed=.1714E+03}
005:0041-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:RES_RF 38830.00   27.650 No_date   59:00   16.89  n/a
fname :C:\STORMS~1\H_ResRF.005
remark:outflow of Richmond Fen
#
# Sum of hydrographs from Node 7 routed to Node 6
# Section 5
#
005:0042-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL   -> 01:RES_RF 38830.00   27.650 No_date   59:00   16.89  n/a
[RD=30.00] out<- 02:N6     38830.00   27.619 No_date   60:00   16.89  n/a
[L/S/n= 3056./ .082/.025]
{Vmax= .458:Dmax= .889}
005:0043-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         02:N6     38830.00   27.619 No_date   60:00   16.89  n/a
fname :C:\STORMS~1\N6.005
remark:flow at N6 u/s of Richmond
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.75
#mod CN - Tp reduced by 25%
005:0044-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_6   165.00    .702 No_date   33:00   19.22  .336
[CN= 70.3: N= 3.00]
[Tp= 4.18:DT=30.00]
[IaREC= 4.00: SMIN= 43.07: SMAX=287.10: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.67
# mod CN
005:0045-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:VG_DR   1332.00   4.821 No_date   35:00   20.55  .360
[CN= 73.8: N= 3.00]
[Tp= 5.95:DT=30.00]
[IaREC= 4.00: SMIN= 38.18: SMAX=254.55: SK= .010]
[InterEventTime= 12.00]
005:0046-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         04:VG_DR   1332.00   4.821 No_date   35:00   20.55  n/a
fname :C:\STORMS~1\H-VG_DR.005
remark:flow at Van Gaal Drain
#
# Addition of Subwatershed 6 and Van Gaal Drain to Node 6

```

```

#
005:0047-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  ADD HYD          02:N6      38830.00  27.619 No_date  60:00  16.89 n/a
                   + 03:SW_6      165.00    .702 No_date  33:00  19.22 n/a
                   + 04:VG_DR     1332.00   4.821 No_date  35:00  20.55 n/a
                   [DT=30.00] SUM= 01:S_N6  40327.01  27.694 No_date  59:30  17.02 n/a
005:0048-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  SAVE HYD          03:SW_6      165.00    .702 No_date  33:00  19.22 n/a
  fname :C:\STORMS~1\SW_6.005
  remark:flow from SW_6
005:0049-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  SAVE HYD          04:VG_DR     1332.00   4.821 No_date  35:00  20.55 n/a
  fname :C:\STORMS~1\VG_DR.005
  remark:flow from VG_DR
#
# Sum of hydrographs from Node 6 routed to Node 5
# Section 6
#
005:0050-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  ROUTE CHANNEL  -> 01:S_N6  40327.01  27.694 No_date  59:30  17.02 n/a
  [RDT=30.00] out<- 02:N5   40327.01  27.667 No_date  60:30  17.02 n/a
  [L/S/n= 1852./ .054/.035]
  {Vmax= .396:Dmax= .997}
# mod CN
005:0051-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CONTINUOUS NASHYD 03:SW_5      224.00    4.345 No_date  28:30  24.50 .429
  [CN= 79.1: N= 3.00]
  [Tp= .75:DT=30.00]
  [IaREC= 4.00: SMIN= 27.47: SMAX=183.15: SK= .010]
  [InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.20
# mod CN
005:0052-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  CONTINUOUS NASHYD 04:FL_CK     4945.00   22.432 No_date  33:00  21.01 .368
  [CN= 74.6: N= 3.00]
  [Tp= 4.45:DT=30.00]
  [IaREC= 4.00: SMIN= 36.67: SMAX=244.49: SK= .010]
  [InterEventTime= 12.00]
#
# Addition of Subwatershed 5 and Flowing Creek to Node 5
#
005:0053-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  ADD HYD          02:N5      40327.01  27.667 No_date  60:30  17.02 n/a
                   + 03:SW_5      224.00    4.345 No_date  28:30  24.50 n/a
                   + 04:FL_CK     4945.00   22.432 No_date  33:00  21.01 n/a
                   [DT=30.00] SUM= 01:S_N5  45496.01  43.412 No_date  35:00  17.49 n/a
005:0054-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  SAVE HYD          02:N5      40327.01  27.667 No_date  60:30  17.02 n/a
  fname :C:\STORMS~1\N5.005
  remark:flow at N5
005:0055-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  SAVE HYD          03:SW_5      224.00    4.345 No_date  28:30  24.50 n/a
  fname :C:\STORMS~1\SW_5.005
  remark:flow at SW_5
005:0056-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  SAVE HYD          04:FL_CK     4945.00   22.432 No_date  33:00  21.01 n/a
  fname :C:\STORMS~1\FL_CK.005
  remark:flow at FL_CK
005:0057-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  SAVE HYD          01:S_N5     45496.01  43.412 No_date  35:00  17.49 n/a
  fname :C:\STORMS~1\S_N5.005
  remark:flow at S_N5
#
# Sum of hydrographs from Node 5 routed to Node 5A
# Section 7

```

```

#
005:0058-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N5  45496.01  43.412 No_date  35:00  17.49  n/a
[RDT=30.00] out<- 02:N5A  45496.01  43.373 No_date  35:30  17.49  n/a
[L/S/n= 556./ .090/.040]
{Vmax= .464:Dmax= 1.059}
005:0059-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_5A2  20.00  .448 No_date  28:30  25.59  .448
[CN= 81.0: N= 3.00]
[Tp= .62:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.61
# mod CN
005:0060-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_5A1  1412.00  4.515 No_date  37:30  21.96  .384
[CN= 75.3: N= 3.00]
[Tp= 8.00:DT=30.00]
[IaREC= 4.00: SMIN= 33.81: SMAX=225.43: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 5A1 and Subwatershed 5A2 to Node 5A
#
005:0061-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N5A  45496.01  43.373 No_date  35:30  17.49  n/a
                + 03:SW_5A2  20.00  .448 No_date  28:30  25.59  n/a
                + 04:SW_5A1  1412.00  4.515 No_date  37:30  21.96  n/a
[DT=30.00] SUM= 01:S_N5A  46928.01  47.728 No_date  35:30  17.62  n/a
#
# Sum of hydrographs from Node 5A routed to Node 4
# Section 8
#
005:0062-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N5A  46928.01  47.728 No_date  35:30  17.62  n/a
[RDT=30.00] out<- 02:N4  46928.01  46.060 No_date  37:00  17.62  n/a
[L/S/n= 4630./ .043/.035]
{Vmax= .754:Dmax= 3.110}
005:0063-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_4  585.00  6.551 No_date  29:30  25.59  .448
[CN= 81.0: N= 3.00]
[Tp= 1.75:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]
005:0064-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:LM_CK  1021.00  8.738 No_date  30:30  25.04  .438
[CN= 80.0: N= 3.00]
[Tp= 2.46:DT=30.00]
[IaREC= 4.00: SMIN= 26.32: SMAX=175.50: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 4 and Leamy Creek to Node 4
#
005:0065-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N4  46928.01  46.060 No_date  37:00  17.62  n/a
                + 03:SW_4  585.00  6.551 No_date  29:30  25.59  n/a
                + 04:LM_CK  1021.00  8.738 No_date  30:30  25.04  n/a
[DT=30.00] SUM= 01:S_N4  48534.01  50.229 No_date  36:30  17.88  n/a
005:0066-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:S_N4  48534.01  50.229 No_date  36:30  17.88  n/a
fname :C:\STORMS~1\H-S_N4.005
remark:flow at S_N4
#
# Sum of hydrographs from Node 4 routed to Node 2
# Section 9
#

```

005:0067-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N4 48534.01 50.229 No_date 36:30 17.88 n/a
[RDT=30.00] out<- 02:N2 48534.01 50.109 No_date 37:00 17.88 n/a
[L/S/n= 1667./ .060/.040]
{Vmax= .781:Dmax= 3.129}

005:0068-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_2 177.00 3.149 No_date 28:30 22.94 .402
[CN= 77.0: N= 3.00]
[Tp= .75:DT=30.00]
[IaREC= 4.00: SMIN= 31.15: SMAX=207.66: SK= .010]
[InterEventTime= 12.00]

005:0069-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SM_DR 1122.00 8.043 No_date 31:30 25.59 .448
[CN= 81.0: N= 3.00]
[Tp= 3.25:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]

005:0070-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 05:MO_DR 2737.00 17.548 No_date 31:30 22.44 .393
[CN= 76.0: N= 3.00]
[Tp= 3.03:DT=30.00]
[IaREC= 4.00: SMIN= 32.46: SMAX=216.39: SK= .010]
[InterEventTime= 12.00]

Addition of Subwatershed 2 with Monohan Drain and Smith Drain to Node 2
#

005:0071-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N2 48534.01 50.109 No_date 37:00 17.88 n/a
+ 03:SW_2 177.00 3.149 No_date 28:30 22.94 n/a
+ 04:SM_DR 1122.00 8.043 No_date 31:30 25.59 n/a
+ 05:MO_DR 2737.00 17.548 No_date 31:30 22.44 n/a
[DT=30.00] SUM= 01:S_N2 52570.01 66.504 No_date 33:00 18.30 n/a

005:0072-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:S_N2 52570.01 66.504 No_date 33:00 18.30 n/a
fname :C:\STORMS~1\H_SN2.005
remark:flow at S_N2 Jock River Gauge at Moodie Dr.

Sum of hydrographs from Node 2 routed to Node 1
Section 10
#

005:0073-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N2 52570.01 66.504 No_date 33:00 18.30 n/a
[RDT=30.00] out<- 02:N1 52570.01 59.921 No_date 37:00 18.30 n/a
[L/S/n=10046./ .050/.040]
{Vmax= .862:Dmax= 3.206}

005:0074-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_1 3176.00 19.206 No_date 32:00 23.45 .411
[CN= 78.0: N= 3.00]
[Tp= 3.56:DT=30.00]
[IaREC= 4.00: SMIN= 29.88: SMAX=199.22: SK= .010]
[InterEventTime= 12.00]

Addition of Subwatershed 1 to Node 1
#

005:0075-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N1 52570.01 59.921 No_date 37:00 18.30 n/a
+ 03:SW_1 3176.00 19.206 No_date 32:00 23.45 n/a
[DT=30.00] SUM= 01:N1 55746.00 72.279 No_date 35:00 18.59 n/a

005:0076-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:N1 55746.00 72.279 No_date 35:00 18.59 n/a
fname :C:\STORMS~1\H-N1.005
remark:N1-fut

** END OF RUN : 99

```

RUN:COMMAND#
100:0001-----
START
  [TZERO = .00 hrs on 0]
  [METOUT= 2 (1=imperial, 2=metric output)]
  [NSTORM= 1 ]
  [NRUN = 100 ]
#*****
# SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
#*****
# Project Name: [Jock River] Project Number: [411-02]
# Date : 06-06-2003
# Modeller : [JoF]
# Company : JFSAinc.
# License # : 2549237
#*****
# CALIBRATION OF SUMMER MODEL PARAMETERS
# USING CONTINUOUS SIMULATIONS
# Rainfall data from JFSA rainauge installed at site + other gauges by the Cit
# Use data collected from May 1st to July 14, 2003
# -----
#
# FUTURE SUMMER - Cumulative Development
#
#
100:0002-----
READ STORM
  Filename = storm.001
  Comment = Pluie SCS de 24 hres 1:100 ans pour Ottawa CDA
  [SDT=10.00:SDUR= 24.00:PTOT= 88.57]
100:0003-----
MODIFY STORM
  [RFACT= 1.00:TSHIFT= 960.00 min]
  [SDT=10.00:SDUR= 40.00:PTOT= 88.57]
100:0004-----
COMPUTE API
  [APIini= 50.00: APIkdy= .8500: APIkdt= .9989]
  {APIimax=119.84: APIavg= 69.19: APIimin= 44.87}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.32
# mod CN
100:0005-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 01:JR_HW 3680.00 21.054 No_date 36:30 35.15 .397
[CN= 64.5: N= 3.00]
[Tp= 7.13:DT=30.00]
[IaREC= 4.00: SMIN= 57.05: SMAX=380.32: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.32
100:0006-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 02:SW_13 971.00 8.058 No_date 32:30 32.81 .370
[CN= 61.0: N= 3.00]
[Tp= 3.76:DT=30.00]
[IaREC= 4.00: SMIN= 64.50: SMAX=430.01: SK= .010]
[InterEventTime= 12.00]
#
# Starting with the addition of Jock River Headwater and Subwatershed 13
#
100:0007-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 01:S_N13 3680.00 21.054 No_date 36:30 35.15 n/a
+ 02:SW_13 971.00 8.058 No_date 32:30 32.81 n/a

```



```

[DT=30.00] SUM= 01:S_N13 4651.00 27.020 No_date 35:00 34.66 n/a
#
# Sum of hydrographs from Node 13 routed to Node 13A
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
#
100:0008-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N13 4651.00 27.020 No_date 35:00 34.66 n/a
[RDT=30.00] out<- 02:N13A 4651.00 22.149 No_date 38:30 34.66 n/a
[L/S/n= 9074./ .022/.040]
{Vmax= .594:Dmax= 4.138}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
#mod CN
100:0009-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 01:JR_GWM 3161.00 10.266 No_date 39:30 28.27 .319
[CN= 55.8: N= 3.00]
[Tp=11.33:DT=30.00]
[IaREC= 4.00: SMIN= 83.24: SMAX=554.96: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed Jock River at Goodwood Marsh to Node 13A
#
100:0010-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N13A 4651.00 22.149 No_date 38:30 34.66 n/a
+ 01:SN13A 3161.00 10.266 No_date 39:30 28.27 n/a
[DT=30.00] SUM= 01:SN13A 7812.00 32.270 No_date 39:30 32.08 n/a
#
# Insertion of a reservoir to simulate the effects of the Goodwood Marsh
#
100:0011-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE RESERVOIR -> 01:SN13A 7812.00 32.270 No_date 39:30 32.08 n/a
[RDT=30.00] out<- 02:RES_GM 7812.00 3.947 No_date 63:30 32.08 n/a
{MxStoUsed=.1788E+03}
#
100:0012-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 02:RES_GM 7812.00 3.947 No_date 63:30 32.08 n/a
fname :C:\STORMS~1\H_RESGM.100
remark:Outflow from Res GM
# Output of Reservoir Goodwood Marsh routed from Node 13A to Node 12
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
100:0013-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:RES_GM 7812.00 3.947 No_date 63:30 32.08 n/a
[RDT=30.00] out<- 01:N12 7812.00 3.943 No_date 66:30 32.08 n/a
[L/S/n= 5926./ .076/.040]
{Vmax= .560:Dmax= 1.559}
100:0014-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_11 500.00 10.499 No_date 29:00 36.74 .415
[CN= 66.0: N= 3.00]
[Tp= 1.24:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
#mod CN
100:0015-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 02:JR_ASH 1781.00 19.356 No_date 32:30 42.46 .479
[CN= 72.3: N= 3.00]
[Tp= 3.91:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed Jock River at Ashton to Node 12
#
100:0016-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 01:S_N12 7812.00 3.943 No_date 66:30 32.08 n/a
+ 02:JR_ASH 1781.00 19.356 No_date 32:30 42.46 n/a

```

```
[DT=30.00] SUM= 01:S_N12 9593.00 21.415 No_date 32:30 34.00 n/a
100:0017-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:S_N12 9593.00 21.415 No_date 32:30 34.00 n/a
fname :C:\STORMS~1\H_SN12.100
remark:flow at S_N12 near Ashton
```

```
#
# Sum of hydrographs from Node 12 routed to Node 11
# (Approximated cross-section - see cross-section 258)
# Use n=0.04 for summer conditions and n=0.025 for spring conditions
100:0018-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N12 9593.00 21.415 No_date 32:30 34.00 n/a
[RDT=30.00] out<- 02:N11 9593.00 21.120 No_date 33:00 34.00 n/a
[L/S/n= 972./ .051/.040]
{Vmax= .760:Dmax= 3.206}
```

```
#
# Sum of hydrographs from Node 12 routed to Node 11 with Dummy section 248
#
100:0019-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N12 9593.00 21.415 No_date 32:30 34.00 n/a
[RDT=30.00] out<- 03:Dum11 9593.00 21.116 No_date 32:30 34.00 n/a
[L/S/n= 972./ .054/.040]
{Vmax= .774:Dmax= 3.175}
```

```
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
100:0020-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 05:NN_CK 1917.00 14.197 No_date 34:00 36.74 .415
[CN= 66.0: N= 3.00]
[Tp= 5.29:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
```

```
#
# Addition of Subwatershed 11 and No Name Creek to Node 11
#
100:0021-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 03:Dum11 9593.00 21.116 No_date 32:30 34.00 n/a
+ 04:SW_11 500.00 10.499 No_date 29:00 36.74 n/a
+ 05:NN_CK 1917.00 14.197 No_date 34:00 36.74 n/a
[DT=30.00] SUM= 01:S_N11 12010.00 37.438 No_date 33:00 34.55 n/a
```

```
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.52
#
# Sum of hydrographs from Node 11 routed to Node 10
# Section 1
#
```

```
100:0022-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N11 12010.00 37.438 No_date 33:00 34.55 n/a
[RDT=30.00] out<- 02:N10 12010.00 23.324 No_date 39:00 34.55 n/a
[L/S/n=14028./ .157/.040]
{Vmax= .484:Dmax= 1.483}
```

```
100:0023-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_10 5666.00 36.560 No_date 37:30 42.46 .479
[CN= 72.0: N= 3.00]
[Tp= 8.00:DT=30.00]
[IaREC= 4.00: SMIN= 39.75: SMAX=264.99: SK= .010]
[InterEventTime= 12.00]
```

```
#
# Addition of Subwatershed 10 to Node 10
#
```

```
100:0024-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N10 12010.00 23.324 No_date 39:00 34.55 n/a
+ 04:SW_10 5666.00 36.560 No_date 37:30 42.46 n/a
[DT=30.00] SUM= 01:S_N10 17676.00 59.680 No_date 38:00 37.09 n/a
```

```
100:0025-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:S_N10 17676.00 59.680 No_date 38:00 37.09 n/a
fname :C:\STORMS~1\H_SN10.100
```

```

    remark:flow at S_N10: N10 + SW_10
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.75
#mod CN
100:0026-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:KG_CK 8376.00 34.456 No_date 39:30 36.74 .415
[CN= 66.3: N= 3.00]
[Tp=11.66:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
# Addition of Kings Creek to S_N10
#
100:0027-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:S_N10 17676.00 59.680 No_date 38:00 37.09 n/a
                + 03:KG_CK 8376.00 34.456 No_date 39:30 36.74 n/a
                [DT=30.00] SUM= 02:S_N10A 26052.00 93.257 No_date 39:30 36.98 n/a
#
# Sum of hydrographs from Node 10 routed to Node 9
# Section 2
#
100:0028-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:S_N10A 26052.00 93.257 No_date 39:30 36.98 n/a
[RDT=30.00] out<- 01:N9 26052.00 91.386 No_date 39:30 36.98 n/a
[L/S/n= 3982./ .075/.040]
{Vmax= .769:Dmax= 2.125}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.68
100:0029-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_9 1132.00 16.257 No_date 30:30 40.80 .461
[CN= 70.0: N= 3.00]
[Tp= 2.51:DT=30.00]
[IaREC= 4.00: SMIN= 43.07: SMAX=287.10: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.82
100:0030-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:NC_CK 4464.00 17.270 No_date 39:30 33.59 .379
[CN= 62.0: N= 3.00]
[Tp=11.32:DT=30.00]
[IaREC= 4.00: SMIN= 61.90: SMAX=412.66: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 9 and Nichols Creek to Node 9
#
100:0031-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:N9 26052.00 91.386 No_date 39:30 36.98 n/a
                + 03:SW_9 1132.00 16.257 No_date 30:30 40.80 n/a
                + 04:NC_CK 4464.00 17.270 No_date 39:30 33.59 n/a
                [DT=30.00] SUM= 02:S_N9 31648.00 112.276 No_date 39:30 36.63 n/a
#
# Sum of hydrographs from Node 9 routed to Node 8
# Section 3
#
100:0032-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 02:S_N9 31648.00 112.276 No_date 39:30 36.63 n/a
[RDT=30.00] out<- 01:N8 31648.00 106.477 No_date 40:00 36.63 n/a
[L/S/n= 2269./ .088/.045]
{Vmax= .372:Dmax= 1.905}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.80
100:0033-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_8 131.00 3.096 No_date 28:30 34.37 .388
[CN= 63.0: N= 3.00]

```

```

[Tp= .90:DT=30.00]
[IaREC= 4.00: SMIN= 59.42: SMAX=396.11: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.65
100:0034-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:HB_DR 3854.00 20.590 No_date 38:00 36.74 .415
[CN= 66.0: N= 3.00]
[Tp= 8.42:DT=30.00]
[IaREC= 4.00: SMIN= 52.62: SMAX=350.79: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 8 and Hobb's Drain to Node 8
#
100:0035-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:N8      31648.00 106.477 No_date 40:00 36.63 n/a
                + 03:SW_8    131.00   3.096 No_date 28:30 34.37 n/a
                + 04:HB_DR    3854.00 20.590 No_date 38:00 36.74 n/a
[DT=30.00] SUM= 02:S_N8 35633.00 126.247 No_date 39:30 36.64 n/a
#
# Sum of hydrographs from Node 8 routed to Node 7
# Section 4
#
100:0036-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 02:S_N8 35633.00 126.247 No_date 39:30 36.64 n/a
[RDT=30.00] out<- 01:N7 35633.00 108.774 No_date 44:30 36.64 n/a
[L/S/n= 3750./ .053/.070]
{Vmax= .236:Dmax= 2.384}
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.82
100:0037-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_7 3197.00 16.027 No_date 36:00 29.76 .336
[CN= 57.0: N= 3.00]
[Tp= 6.65:DT=30.00]
[IaREC= 4.00: SMIN= 76.32: SMAX=508.81: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 7 to Node 7
#
100:0038-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          01:N7      35633.00 108.774 No_date 44:30 36.64 n/a
                + 03:SW_7    3197.00 16.027 No_date 36:00 29.76 n/a
[DT=30.00] SUM= 02:S_N7 38830.00 117.367 No_date 43:30 36.07 n/a
100:0039-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         02:S_N7 38830.00 117.367 No_date 43:30 36.07 n/a
fname :C:\STORMS~1\H_SN7.100
remark:flow at S_N7: N7 + SW_7
# Insertion of a reservoir to simulate the effects of the Richmond Fen.
# Storage area and volumes were estimated from available topo maps.
# Release rate from fen was assumed to be controlled by the downstream
# river cross-section for summer conditions. It is assumed that for up to
# 0.75 m of water, the main channel of the river provided the storage. Above
# this depth, the wetland starts to significantly store water.
#
100:0040-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE RESERVOIR -> 02:S_N7 38830.00 117.367 No_date 43:30 36.07 n/a
[RDT=30.00] out<- 01:RES_RF 38830.00 60.603 No_date 58:30 36.07 n/a
{MxStoUsed=.5014E+03}
100:0041-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:RES_RF 38830.00 60.603 No_date 58:30 36.07 n/a
fname :C:\STORMS~1\H_ResRF.100
remark:outflow of Richmond Fen
#
# Sum of hydrographs from Node 7 routed to Node 6
# Section 5

```

```

#
100:0042-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:RES_RF 38830.00 60.603 No_date 58:30 36.07 n/a
[RDT=30.00] out<- 02:N6 38830.00 60.346 No_date 60:00 36.07 n/a
[L/S/n= 3056./ .082/.025]
{Vmax= .553:Dmax= 1.353}
100:0043-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 02:N6 38830.00 60.346 No_date 60:00 36.07 n/a
fname :C:\STORMS~1\N6.100
remark:flow at N6 u/s of Richmond
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.75
#mod CN - Tp reduced by 25%
100:0044-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_6 165.00 1.630 No_date 32:30 40.80 .461
[CN= 70.3: N= 3.00]
[Tp= 4.18:DT=30.00]
[IaREC= 4.00: SMIN= 43.07: SMAX=287.10: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.67
# mod CN
100:0045-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:VG_DR 1332.00 10.866 No_date 35:00 43.30 .489
[CN= 73.8: N= 3.00]
[Tp= 5.95:DT=30.00]
[IaREC= 4.00: SMIN= 38.18: SMAX=254.55: SK= .010]
[InterEventTime= 12.00]
100:0046-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 04:VG_DR 1332.00 10.866 No_date 35:00 43.30 n/a
fname :C:\STORMS~1\H-VG_DR.100
remark:flow at Van Gaal Drain
#
# Addition of Subwatershed 6 and Van Gaal Drain to Node 6
#
100:0047-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N6 38830.00 60.346 No_date 60:00 36.07 n/a
+ 03:SW_6 165.00 1.630 No_date 32:30 40.80 n/a
+ 04:VG_DR 1332.00 10.866 No_date 35:00 43.30 n/a
[DT=30.00] SUM= 01:S_N6 40327.01 60.510 No_date 59:30 36.33 n/a
100:0048-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 03:SW_6 165.00 1.630 No_date 32:30 40.80 n/a
fname :C:\STORMS~1\SW_6.100
remark:flow from SW_6
100:0049-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 04:VG_DR 1332.00 10.866 No_date 35:00 43.30 n/a
fname :C:\STORMS~1\VG_DR.100
remark:flow from VG_DR
#
# Sum of hydrographs from Node 6 routed to Node 5
# Section 6
#
100:0050-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N6 40327.01 60.510 No_date 59:30 36.33 n/a
[RDT=30.00] out<- 02:N5 40327.01 60.396 No_date 60:30 36.33 n/a
[L/S/n= 1852./ .054/.035]
{Vmax= .490:Dmax= 1.451}
# mod CN
100:0051-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_5 224.00 9.957 No_date 28:30 50.23 .567
[CN= 79.1: N= 3.00]
[Tp= .75:DT=30.00]
[IaREC= 4.00: SMIN= 27.47: SMAX=183.15: SK= .010]
[InterEventTime= 12.00]
#

```

```

# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.20
# mod CN
100:0052-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:FL_CK 4945.00 51.121 No_date 33:00 44.15 .498
[CN= 74.6: N= 3.00]
[Tp= 4.45:DT=30.00]
[IaREC= 4.00: SMIN= 36.67: SMAX=244.49: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 5 and Flowing Creek to Node 5
#
100:0053-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N5      40327.01 60.396 No_date 60:30 36.33 n/a
                + 03:SW_5    224.00  9.957 No_date 28:30 50.23 n/a
                + 04:FL_CK    4945.00 51.121 No_date 33:00 44.15 n/a
[DT=30.00] SUM= 01:S_N5 45496.01 80.280 No_date 34:00 37.25 n/a
100:0054-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          02:N5      40327.01 60.396 No_date 60:30 36.33 n/a
fname :C:\STORMS~1\N5.100
remark:flow at N5
100:0055-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          03:SW_5    224.00  9.957 No_date 28:30 50.23 n/a
fname :C:\STORMS~1\SW_5.100
remark:flow at SW_5
100:0056-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          04:FL_CK    4945.00 51.121 No_date 33:00 44.15 n/a
fname :C:\STORMS~1\FL_CK.100
remark:flow at FL_CK
100:0057-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD          01:S_N5    45496.01 80.280 No_date 34:00 37.25 n/a
fname :C:\STORMS~1\S_N5.100
remark:flow at S_N5
#
# Sum of hydrographs from Node 5 routed to Node 5A
# Section 7
#
100:0058-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N5    45496.01 80.280 No_date 34:00 37.25 n/a
[RDT=30.00] out<- 02:N5A    45496.01 80.210 No_date 34:00 37.25 n/a
[L/S/n= 556./ .090/.040]
{Vmax= .545:Dmax= 1.349}
100:0059-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_5A2 20.00 1.014 No_date 28:30 52.03 .587
[CN= 81.0: N= 3.00]
[Tp= .62:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]
#
# The Tp was modified according to a Peak Reduction factor (MTO-Chart B2-4)
# of 1.61
# mod CN
100:0060-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SW_5A1 1412.00 9.884 No_date 37:30 45.85 .518
[CN= 75.3: N= 3.00]
[Tp= 8.00:DT=30.00]
[IaREC= 4.00: SMIN= 33.81: SMAX=225.43: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 5A1 and Subwatershed 5A2 to Node 5A
#
100:0061-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N5A    45496.01 80.210 No_date 34:00 37.25 n/a
                + 03:SW_5A2 20.00 1.014 No_date 28:30 52.03 n/a
                + 04:SW_5A1 1412.00 9.884 No_date 37:30 45.85 n/a
[DT=30.00] SUM= 01:S_N5A 46928.01 89.005 No_date 34:30 37.51 n/a
#

```

```

# Sum of hydrographs from Node 5A routed to Node 4
# Section 8
#
100:0062-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N5A  46928.01  89.005 No_date  34:30  37.51 n/a
[RDT=30.00] out<- 02:N4    46928.01  85.339 No_date  36:00  37.51 n/a
[L/S/n= 4630./ .043/.035]
{Vmax= .902:Dmax= 3.855}
100:0063-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_4    585.00  14.684 No_date  29:30  52.03 .587
[CN= 81.0: N= 3.00]
[Tp= 1.75:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]
100:0064-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:LM_CK   1021.00  19.515 No_date  30:30  51.13 .577
[CN= 80.0: N= 3.00]
[Tp= 2.46:DT=30.00]
[IaREC= 4.00: SMIN= 26.32: SMAX=175.50: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 4 and Leamy Creek to Node 4
#
100:0065-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N4    46928.01  85.339 No_date  36:00  37.51 n/a
                + 03:SW_4    585.00  14.684 No_date  29:30  52.03 n/a
                + 04:LM_CK   1021.00  19.515 No_date  30:30  51.13 n/a
[DT=30.00] SUM= 01:S_N4  48534.01  96.093 No_date  34:30  37.97 n/a
100:0066-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD         01:S_N4  48534.01  96.093 No_date  34:30  37.97 n/a
fname :C:\STORMS~1\H-S_N4.100
remark:flow at S_N4
#
# Sum of hydrographs from Node 4 routed to Node 2
# Section 9
#
100:0067-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL  -> 01:S_N4  48534.01  96.093 No_date  34:30  37.97 n/a
[RDT=30.00] out<- 02:N2    48534.01  95.740 No_date  35:00  37.97 n/a
[L/S/n= 1667./ .060/.040]
{Vmax= .943:Dmax= 3.921}
100:0068-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
* CONTINUOUS NASHYD 03:SW_2    177.00  7.344 No_date  28:30  47.59 .537
[CN= 77.0: N= 3.00]
[Tp= .75:DT=30.00]
[IaREC= 4.00: SMIN= 31.15: SMAX=207.66: SK= .010]
[InterEventTime= 12.00]
100:0069-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 04:SM_DR   1122.00  17.710 No_date  31:30  52.03 .587
[CN= 81.0: N= 3.00]
[Tp= 3.25:DT=30.00]
[IaREC= 4.00: SMIN= 25.21: SMAX=168.09: SK= .010]
[InterEventTime= 12.00]
100:0070-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 05:MO_DR   2737.00  40.026 No_date  31:00  46.72 .527
[CN= 76.0: N= 3.00]
[Tp= 3.03:DT=30.00]
[IaREC= 4.00: SMIN= 32.46: SMAX=216.39: SK= .010]
[InterEventTime= 12.00]
#
# Addition of Subwatershed 2 with Monohan Drain and Smith Drain to Node 2
#
100:0071-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD          02:N2    48534.01  95.740 No_date  35:00  37.97 n/a
                + 03:SW_2    177.00  7.344 No_date  28:30  47.59 n/a
                + 04:SM_DR   1122.00  17.710 No_date  31:30  52.03 n/a
                + 05:MO_DR   2737.00  40.026 No_date  31:00  46.72 n/a

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[DT=30.00] SUM= 01:S_N2 52570.01 141.818 No_date 32:30 38.76 n/a
100:0072-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:S_N2 52570.01 141.818 No_date 32:30 38.76 n/a
fname :C:\STORMS~1\H_SN2.100
remark:flow at S_N2 Jock River Gauge at Moodie Dr.

Sum of hydrographs from Node 2 routed to Node 1
Section 10

100:0073-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ROUTE CHANNEL -> 01:S_N2 52570.01 141.818 No_date 32:30 38.76 n/a
[RDT=30.00] out<- 02:N1 52570.01 124.692 No_date 35:00 38.76 n/a
[L/S/n=10046./ .050/.040]
{Vmax= 1.092:Dmax= 4.559}
100:0074-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
CONTINUOUS NASHYD 03:SW_1 3176.00 43.079 No_date 32:00 48.46 .547
[CN= 78.0: N= 3.00]
[Tp= 3.56:DT=30.00]
[IaREC= 4.00: SMIN= 29.88: SMAX=199.22: SK= .010]
[InterEventTime= 12.00]

Addition of Subwatershed 1 to Node 1

100:0075-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
ADD HYD 02:N1 52570.01 124.692 No_date 35:00 38.76 n/a
+ 03:SW_1 3176.00 43.079 No_date 32:00 48.46 n/a
[DT=30.00] SUM= 01:N1 55746.00 158.805 No_date 34:00 39.31 n/a
100:0076-----ID:NHYD-----AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
SAVE HYD 01:N1 55746.00 158.805 No_date 34:00 39.31 n/a
fname :C:\STORMS~1\H-N1.100
remark:N1-fut

100:0002-----
FINISH

WARNINGS / ERRORS / NOTES

001:0033 CONTINUOUS NASHYD
*** WARNING: Time step is too large for value of TP.
R.V. may be ok. Peak flow could be off.
001:0051 CONTINUOUS NASHYD
*** WARNING: Time step is too large for value of TP.
R.V. may be ok. Peak flow could be off.
001:0059 CONTINUOUS NASHYD
*** WARNING: Time step is too large for value of TP.
R.V. may be ok. Peak flow could be off.
001:0068 CONTINUOUS NASHYD
*** WARNING: Time step is too large for value of TP.
R.V. may be ok. Peak flow could be off.
005:0033 CONTINUOUS NASHYD
*** WARNING: Time step is too large for value of TP.
R.V. may be ok. Peak flow could be off.
005:0051 CONTINUOUS NASHYD
*** WARNING: Time step is too large for value of TP.
R.V. may be ok. Peak flow could be off.
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*** WARNING: Time step is too large for value of TP.
R.V. may be ok. Peak flow could be off.
100:0068 CONTINUOUS NASHYD
*** WARNING: Time step is too large for value of TP.
R.V. may be ok. Peak flow could be off.
Simulation ended on 2010-03-07 at 14:11:30

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