STORMWATER MANAGEMENT PLAN WITH STORMWATER POLLUTION PREVENTION PLAN (SWPPP) VOLUME 2

WIND COLEBROOK SOUTH

COLEBROOK, CONNECTICUT

Prepared for:

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by:

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Existing Flows – DL3

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: Litchfield Co.

Return Event	Total Depth in	Rainfall Type	RNF ID
2 YR	3.2000	Synthetic Curve	TypeIII 24hr
10 YR	4.7000	Synthetic Curve	TypeIII 24hr
25 YR	5.5000	Synthetic Curve	TypeIII 24hr
50 YR	6.2000	Synthetic Curve	TypeIII 24hr
100 YR	7.0000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*DP 3	JCT	2	.146		12.4000	.73		
*DP 3	JCT	10	.448		12.3000	3.49		
*DP 3	JCT	25	.653		12.2500	5.53		
*DP 3	JCT	50	.850		12.2500	7.49		
*DP 3	JCT	100	1.093		12.2500	9.90		
EXDA 3	AREA	2	.146		12.4000	.73		
EXDA 3	AREA	10	.448		12.3000	3.49		
EXDA 3	AREA	25	.653		12.2500	5.53		
EXDA 3	AREA	50	.850		12.2500	7.49		
EXDA 3	AREA	100	1.093		12.2500	9.90		

File.... C:\Program Files\Haestad\PPKW\PPW\
Title... Project Date: 4/16/2009
          Project Engineer: Curtis Jones
             Project Title: Watershed
          Project Comments:

                    DESIGN STORMS SUMMARY

Design Storm File,ID =   Litchfield Co.

Storm Tag Name   = 2 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 2 yr
Total Rainfall Depth= 3.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 10 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 10 yr
Total Rainfall Depth= 4.7000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 25 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 25 yr
Total Rainfall Depth= 5.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 50 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 50 yr
Total Rainfall Depth= 6.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 100 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 100 yr
Total Rainfall Depth= 7.0000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

```
Type.... Design Storms                          Page 2.02
Name.... Litchfield Co.                          Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\
Storm... TypeIII 24hr    Tag: 2 YR
```

```
                     DESIGN STORMS SUMMARY

  Design Storm File,ID =              Litchfield Co.


  Storm Tag Name        = 2 YR
  -------------------------------------------------------------
  Data Type, File, ID = Synthetic Storm    TypeIII 24hr
  Storm Frequency     = 2 yr
  Total Rainfall Depth= 3.2000 in
  Duration Multiplier =  1
  Resulting Duration  = 24.0000 hrs
  Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


  Storm Tag Name        = 10 YR
  -------------------------------------------------------------
  Data Type, File, ID = Synthetic Storm    TypeIII 24hr
  Storm Frequency     = 10 yr
  Total Rainfall Depth= 4.7000 in
  Duration Multiplier =  1
  Resulting Duration  = 24.0000 hrs
  Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


  Storm Tag Name        = 25 YR
  -------------------------------------------------------------
  Data Type, File, ID = Synthetic Storm    TypeIII 24hr
  Storm Frequency     = 25 yr
  Total Rainfall Depth= 5.5000 in
  Duration Multiplier =  1
  Resulting Duration  = 24.0000 hrs
  Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


  Storm Tag Name        = 50 YR
  -------------------------------------------------------------
  Data Type, File, ID = Synthetic Storm    TypeIII 24hr
  Storm Frequency     = 50 yr
  Total Rainfall Depth= 6.2000 in
  Duration Multiplier =  1
  Resulting Duration  = 24.0000 hrs
  Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


  Storm Tag Name        = 100 YR
  -------------------------------------------------------------
  Data Type, File, ID = Synthetic Storm    TypeIII 24hr
  Storm Frequency     = 100 yr
  Total Rainfall Depth= 7.0000 in
  Duration Multiplier =  1
  Resulting Duration  = 24.0000 hrs
  Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n   .3000
Hydraulic Length   250.00 ft
2yr, 24hr P   3.2000 in
Slope   .120000 ft/ft

Avg.Velocity   .24 ft/sec

                                     Segment #1 Time: .2890 hrs
----

Segment #2: Tc: TR-55 Shallow

Hydraulic Length   335.00 ft
Slope   .131000 ft/ft
Unpaved

Avg.Velocity   5.84 ft/sec

                                     Segment #2 Time: .0159 hrs
----

                            =========================
                            Total Tc: .3049 hrs
                            =========================

File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW

```
---------------------------------------------------------------------
Tc Equations used...
---------------------------------------------------------------------
```

==== SCS TR-55 Sheet Flow ===

        Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

        Where: Tc = Time of concentration, hrs
                 n = Mannings n
                 Lf = Flow length, ft
                 P = 2yr, 24hr Rain depth, inches
                 Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ============================

        Unpaved surface:
        V = 16.1345 * (Sf**0.5)

        Paved surface:
        V = 20.3282 * (Sf**0.5)

        Tc = (Lf / V) / (3600sec/hr)

        Where;   V = Velocity, ft/sec
                 Sf = Slope, ft/ft
                 Tc = Time of concentration, hrs
                 Lf = Flow length, ft

```
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW

RUNOFF CURVE NUMBER DATA
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
```

| | | | Impervious Adjustment | | Adjusted |
Soil/Surface Description	CN	Area acres	%C	%UC	CN
Soil Type B - Wooded	55	4.710			55.00
Soil Type B - Grass/Meadow	60	.820			60.00
Impervious	98	.140			98.00

```
COMPOSITE AREA & WEIGHTED CN --->        5.670                 56.78 (57)
:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
```

```
                         SCS UNIT HYDROGRAPH METHOD
                           (Computational Notes)




      DEFINITION OF TERMS: -----------------------------------------------

      At    = Total area (acres):  At = Ai+Ap
      Ai    = Impervious area (acres)
      Ap    = Pervious area (acres)
      CNi   = Runoff curve number for impervious area
      CNp   = Runoff curve number for pervious area
      fLoss = f loss constant infiltration (depth/time)
      gKs   = Saturated Hydraulic Conductivity (depth/time)
      Md    = Volumetric Moisture Deficit
      Psi   = Capillary Suction (length)
      hK    = Horton Infiltration Decay Rate (time^-1)
      fo    = Initial Infiltration Rate (depth/time)
      fc    = Ultimate(capacity)Infiltration Rate (depth/time)
      Ia    = Initial Abstraction (length)
      dt    = Computational increment (duration of unit excess rainfall)
              Default dt is smallest value of 0.1333Tc, rtm, and th
              (Smallest dt is then adjusted to match up with Tp)
      UDdt  = User specified override computational main time increment
              (only used if UDdt is => .1333Tc)
      D(t)  = Point on distribution curve (fraction of P) for time step t

      K     = 2 / (1 + (Tr/Tp)):  default K = 0.75: (for Tr/Tp = 1.67)
      Ks    = Hydrograph shape factor
            = Unit Conversions * K:
            = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K
              Default Ks = 645.333 * 0.75 = 484


      Lag   = Lag time from center of excess runoff (dt) to Tp:  Lag = 0.6Tc
      P     = Total precipitation depth, inches
      Pa(t) = Accumulated rainfall at time step t
      Pi(t) = Incremental rainfall at time step t
      qp    = Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi.
            = (Ks * A * Q) / Tp   (where Q = 1in. runoff, A=sq.mi.)
      Qu(t) = Unit hydrograph ordinate (cfs) at time step t
      Q(t)  = Final hydrograph ordinate (cfs) at time step t
      Rai(t)= Accumulated runoff (inches) at time step t for impervious area
      Rap(t)= Accumulated runoff (inches) at time step t for pervious area
      Rii(t)= Incremental runoff (inches) at time step t for impervious area
      Rip(t)= Incremental runoff (inches) at time step t for pervious area
      R(t)  = Incremental weighted total runoff (inches)
      Rtm   = Time increment for rainfall table
      Si    = S for impervious area:  Si = (1000/CNi) - 10
      Sp    = S for pervious area:    Sp = (1000/CNp) - 10
      t     = Time step (row) number
      Tc    = Time of concentration
      Tb    = Time (hrs) of entire unit hydrograph:  Tb = Tp + Tr
      Tp    = Time (hrs) to peak of a unit hydrograph:  Tp = (dt/2) + Lag
      Tr    = Time (hrs) of receding limb of unit hydrograph:  Tr = ratio of Tp
```

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

PRECIPITATION: --
Column (1): Time for time step t
Column (2): D(t) = Point on distribution curve for time step t
Column (3): Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4): Pa(t) = D(t) x P: Col.(2) x P

PERVIOUS AREA RUNOFF (using SCS Runoff CN Method) ------------------------
Column (5): Rap(t) = Accumulated pervious runoff for time step t
             If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
             If (Pa(t) is > 0.2Sp) then use:

             Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6): Rip(t) = Incremental pervious runoff for time step t
             Rip(t) =   Rap(t)   -   Rap(t-1)
             Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

IMPERVIOUS AREA RUNOFF ---
Column (7 & 8)... Did not specify to use impervious areas.

INCREMENTAL WEIGHTED RUNOFF: ---
Column (9): R(t) = (Ap/At) x Rip(t)   + (Ai/At) x Rii(t)
             R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS UNIT HYDROGRAPH METHOD: ---
Column (10): Q(t)   is computed with the SCS unit hydrograph method
                    using R() and Qu().

```
Type.... Unit Hyd. Summary                              Page 5.03
Name.... EXDA 3          Tag: 2 YR                       Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

                STORM EVENT: 2 year storm
                Duration     = 24.0000 hrs    Rain Depth = 3.2000 in
                Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
                Rain File -ID =  - TypeIII 24hr
                Unit Hyd Type = Default Curvilinear
                HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
                HYG File - ID =  - EXDA 3 2 YR
                Tc           = .3049 hrs
                Drainage Area = 5,670 acres  Runoff CN= 57


                ========================================
                Computational Time Increment   =    .04066 hrs
                Computed Peak Time             =  12.4414 hrs
                Computed Peak Flow             =      .74 cfs

                Time Increment for HYG File    =    .0500 hrs
                Peak Time, Interpolated Output =  12.4500 hrs
                Peak Flow, Interpolated Output =      .73 cfs
                ========================================


                        DRAINAGE AREA
                        --------------------
                ID:EXDA 3
                CN   =   57
                Area =       5.670 acres
                S    =   7.5439 in
                0.2S =   1.5088 in


                    Cumulative Runoff
                    --------------------
                            .3097 in
                            .146 ac-ft

        HYG Volume...           .146 ac-ft (area under HYG curve)

        ***** SCS UNIT HYDROGRAPH PARAMETERS *****

        Time Concentration, Tc =   .30494 hrs (ID: EXDA 3)
        Computational Incr, Tm =   .04066 hrs = 0.20000 Tp

        Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
        K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
        Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

        Unit peak,        qp =   21.07 cfs
        Unit peak time    Tp =   .20329 hrs
        Unit receding limb, Tr =   .81316 hrs
        Total unit time,   Tb =  1.01645 hrs
```

```
Type.... Unit Hyd. Summary                        Page 5.04
Name.... EXDA 3          Tag: 10 YR               Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr    Tag: 10 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

             STORM EVENT: 10 year storm
             Duration      = 24.0000 hrs    Rain Depth = 4.7000 in
             Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
             Rain File -ID =  - TypeIII 24hr
             Unit Hyd Type = Default Curvilinear
             HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
             HYG File - ID =  - EXDA 3 10 YR
             Tc            = .3049 hrs
             Drainage Area = 5.670 acres  Runoff CN= 57


             ===============================================
             Computational Time Increment   =    .04066 hrs
             Computed Peak Time             =  12.2788 hrs
             Computed Peak Flow             =     3.52 cfs

             Time Increment for HYG File    =    .0500 hrs
             Peak Time, Interpolated Output =  12.3000 hrs
             Peak Flow, Interpolated Output =     3.49 cfs
             ===============================================

                          DRAINAGE AREA
                     --------------------
                 ID:EXDA 3
                 CN    =    57
                 Area =        5.670 acres
                 S    =    7.5439 in
                 0.2S =    1.5088 in

                  Cumulative Runoff
                 --------------------
                         .9487 in
                         .448 ac-ft

             HYG Volume...          .448 ac-ft (area under HYG curve)

             ***** SCS UNIT HYDROGRAPH PARAMETERS *****

             Time Concentration, Tc =   .30494 hrs (ID: EXDA 3)
             Computational Incr, Tm =   .04066 hrs = 0.20000 Tp

             Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
             K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
             Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

             Unit peak,       qp =    21.07 cfs
             Unit peak time   Tp =    .20329 hrs
             Unit receding limb, Tr =  .81316 hrs
             Total unit time,   Tb =  1.01645 hrs
```

```
Type.... Unit Hyd. Summary                          Page 5.05
Name.... EXDA 3          Tag: 25 YR                  Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr    Tag: 25 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

              STORM EVENT: 25 year storm
              Duration      = 24.0000 hrs     Rain Depth = 5.5000 in
              Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
              Rain File -ID =   - TypeIII 24hr
              Unit Hyd Type = Default Curvilinear
              HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
              HYG File - ID =   - EXDA 3 25 YR
              Tc            = .3049 hrs
              Drainage Area = 5.670 acres   Runoff CN= 57


              ===============================================
              Computational Time Increment   =    .04066 hrs
              Computed Peak Time             =  12.2381 hrs
              Computed Peak Flow             =     5.53 cfs

              Time Increment for HYG File    =    .0500 hrs
              Peak Time, Interpolated Output =  12.2500 hrs
              Peak Flow, Interpolated Output =     5.53 cfs
              ===============================================

                         DRAINAGE AREA
                    --------------------
                    ID:EXDA 3
                    CN   =    57
                    Area =      5.670 acres
                    S    =    7.5439 in
                    0.2S =    1.5088 in

                    Cumulative Runoff
                    --------------------
                         1.3810 in
                          .653 ac-ft

              HYG Volume...           .653 ac-ft (area under HYG curve)

              ***** SCS UNIT HYDROGRAPH PARAMETERS *****

              Time Concentration, Tc =    .30494 hrs (ID: EXDA 3)
              Computational Incr, Tm =    .04066 hrs = 0.20000 Tp

              Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
              K =   483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
              Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

              Unit peak,          qp =    21.07 cfs
              Unit peak time      Tp =    .20329 hrs
              Unit receding limb, Tr =    .81316 hrs
              Total unit time,    Tb =  1.01645 hrs
```

```
Type.... Unit Hyd. Summary                    Page 5.06
Name.... EXDA 3        Tag: 50 YR             Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

                    STORM EVENT: 50 year storm
                    Duration    = 24.0000 hrs    Rain Depth = 6.2000 in
                    Rain Dir    = C:\Program Files\Haestad\PPKW\PPW\
                    Rain File -ID =  - TypeIII 24hr
                    Unit Hyd Type = Default Curvilinear
                    HYG Dir     = C:\Program Files\Haestad\PPKW\PPW\
                    HYG File - ID =  - EXDA 3 50 YR
                    Tc          = .3049 hrs
                    Drainage Area = 5.670 acres   Runoff CN= 57


                    ==========================================
                    Computational Time Increment  =   .04066 hrs
                    Computed Peak Time            = 12.2381 hrs
                    Computed Peak Flow            =    7.51 cfs

                    Time Increment for HYG File   =   .0500 hrs
                    Peak Time, Interpolated Output = 12.2500 hrs
                    Peak Flow, Interpolated Output =    7.49 cfs
                    ==========================================

                              DRAINAGE AREA
                         --------------------
                         ID:EXDA 3
                         CN  =   57
                         Area =      5.670 acres
                         S   =    7.5439 in
                         0.2S =   1.5088 in

                         Cumulative Runoff
                         --------------------
                              1.7987 in
                                .850 ac-ft

                    HYG Volume...          .850 ac-ft (area under HYG curve)

                    ***** SCS UNIT HYDROGRAPH PARAMETERS *****

                    Time Concentration, Tc =   .30494 hrs (ID: EXDA 3)
                    Computational Incr, Tm =   .04066 hrs = 0.20000 Tp

                    Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
                    K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
                    Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

                    Unit peak,      qp =   21.07 cfs
                    Unit peak time  Tp =   .20329 hrs
                    Unit receding limb, Tr =   .81316 hrs
                    Total unit time, Tb = 1.01645 hrs
```

```
Type.... Unit Hyd. Summary                              Page 5.07
Name.... EXDA 3           Tag: 100 YR                 Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

             STORM EVENT: 100 year storm
             Duration     = 24.0000 hrs    Rain Depth = 7.0000 in
             Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
             Rain File -ID =  - TypeIII 24hr
             Unit Hyd Type = Default Curvilinear
             HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
             HYG File - ID =  - EXDA 3 100 YR
             Tc           = .3049 hrs
             Drainage Area = 5.670 acres  Runoff CN= 57


             ============================================
             Computational Time Increment   =   .04066 hrs
             Computed Peak Time             =  12.2381 hrs
             Computed Peak Flow             =     9.95 cfs

             Time Increment for HYG File    =    .0500 hrs
             Peak Time, Interpolated Output =  12.2500 hrs
             Peak Flow, Interpolated Output =     9.90 cfs
             ============================================

                          DRAINAGE AREA
                          --------------------
                     ID:EXDA 3
                     CN   =    57
                     Area =       5.670 acres
                     S    =   7.5439 in
                     0.2S =   1.5088 in

                     Cumulative Runoff
                     --------------------
                          2.3133 in
                          1.093 ac-ft

             HYG Volume...        1.093 ac-ft (area under HYG curve)

             ***** SCS UNIT HYDROGRAPH PARAMETERS *****

             Time Concentration, Tc =   .30494 hrs (ID: EXDA 3)
             Computational Incr, Tm =   .04066 hrs = 0.20000 Tp

             Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
             K =   483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
             Receding/Rising, Tr/Tp =  1.6698 (solved from K =   .7491)

             Unit peak,         qp =   21.07 cfs
             Unit peak time     Tp =   .20329 hrs
             Unit receding limb, Tr =   .81316 hrs
             Total unit time,   Tb =  1.01645 hrs
```

```
Type.... Node: Addition Summary                          Page 6.01
Name.... DP 3                                            Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr    Tag: 2 YR
```

```
                       SUMMARY FOR HYDROGRAPH ADDITION
                             at Node: DP 3


HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

==================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID        HYG tag
------------------------------------------------------------------
TO DP 3           EXDA 3                          EXDA 3        2 YR
==================================================================


INFLOWS TO:  DP 3
----------------------------------------- Volume   Peak Time  Peak Flow
HYG file     HYG ID          HYG tag      ac-ft    hrs        cfs
-----------------------------------------------------------------------
             EXDA 3          2 YR          .146    12.4000         .73


TOTAL FLOW INTO:  DP 3
----------------------------------------- Volume   Peak Time  Peak Flow
HYG file     HYG ID          HYG tag      ac-ft    hrs        cfs
-----------------------------------------------------------------------
             DP 3            2 YR          .146    12.4000         .73
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 3
                    HYG Tag  = 2 YR
                    ------------------------------------
                    Peak Discharge =        .73 cfs
                    Time to Peak   =    12.4000 hrs
                    HYG Volume     =        .146 ac-ft
                    ------------------------------------
```

```
                          HYDROGRAPH ORDINATES (cfs)
      Time  |        Output Time increment = .0500 hrs
      hrs   |   Time on left represents time for first value in each row.
    --------|------------------------------------------------------------
    11.9500 |       .00        .00        .03        .09        .22
    12.2000 |       .38        .53        .64        .70        .73
    12.4500 |       .73        .71        .67        .61        .55
    12.7000 |       .50        .45        .42        .39        .37
    12.9500 |       .35        .34        .32        .31        .30
    13.2000 |       .29        .28        .27        .27        .26
    13.4500 |       .26        .26        .26        .25        .25
    13.7000 |       .25        .24        .24        .24        .24
    13.9500 |       .23        .23        .23        .22        .22
    14.2000 |       .22        .21        .21        .21        .21
    14.4500 |       .21        .20        .20        .20        .20
    14.7000 |       .20        .20        .19        .19        .19
    14.9500 |       .19        .19        .19        .18        .18
    15.2000 |       .18        .18        .18        .17        .17
    15.4500 |       .17        .17        .16        .16        .16
    15.7000 |       .16        .16        .15        .15        .15
    15.9500 |       .15        .14        .14        .14        .14
    16.2000 |       .13        .13        .13        .13        .13
    16.4500 |       .13        .13        .13        .12        .12
    16.7000 |       .12        .12        .12        .12        .12
    16.9500 |       .12        .12        .12        .11        .11
    17.2000 |       .11        .11        .11        .11        .11
    17.4500 |       .11        .11        .10        .10        .10
    17.7000 |       .10        .10        .10        .10        .10
    17.9500 |       .09        .09        .09        .09        .09
    18.2000 |       .09        .09        .09        .09        .09
    18.4500 |       .09        .09        .09        .09        .08
    18.7000 |       .08        .08        .08        .08        .08
    18.9500 |       .08        .08        .08        .08        .08
    19.2000 |       .08        .08        .08        .08        .08
    19.4500 |       .08        .08        .08        .08        .08
```

```
Type.... Node: Addition Summary                              Page 6.03
Name.... DP 3                                                Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                         HYDROGRAPH ORDINATES (cfs)
        Time |          Output Time increment = .0500 hrs
        hrs  |     Time on left represents time for first value in each row.
     ---------|-----------------------------------------------------------------
      19.7000 |     .08       .08       .08       .08       .08
      19.9500 |     .08       .08       .08       .08       .07
      20.2000 |     .07       .07       .07       .07       .07
      20.4500 |     .07       .07       .07       .07       .07
      20.7000 |     .07       .07       .07       .07       .07
      20.9500 |     .07       .07       .07       .07       .07
      21.2000 |     .07       .07       .07       .07       .07
      21.4500 |     .07       .07       .07       .07       .07
      21.7000 |     .07       .07       .07       .07       .07
      21.9500 |     .07       .07       .06       .06       .06
      22.2000 |     .06       .06       .06       .06       .06
      22.4500 |     .06       .06       .06       .06       .06
      22.7000 |     .06       .06       .06       .06       .06
      22.9500 |     .06       .06       .06       .06       .06
      23.2000 |     .06       .06       .06       .06       .06
      23.4500 |     .06       .06       .06       .06       .06
      23.7000 |     .06       .05       .05       .05       .05
      23.9500 |     .05       .05       .05       .05       .04
      24.2000 |     .03       .02       .01       .01       .01
      24.4500 |     .00       .00       .00       .00       .00
```

```
Type.... Node: Addition Summary                    Page 6.04
Name.... DP 3                                      Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr    Tag: 10 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                         at Node: DP 3

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

=================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID       HYG tag
-----------------------------------------------------------------
TO DP 3           EXDA 3                          EXDA 3       10 YR
=================================================================


INFLOWS TO:  DP 3
----------------------------------------- Volume   Peak Time  Peak Flow
HYG file     HYG ID         HYG tag       ac-ft    hrs        cfs
-----------------------------------------------------------------
             EXDA 3         10 YR          .448    12.3000     3.49


TOTAL FLOW INTO:  DP 3
----------------------------------------- Volume   Peak Time  Peak Flow
HYG file     HYG ID         HYG tag       ac-ft    hrs        cfs
-----------------------------------------------------------------
             DP 3           10 YR          .448    12.3000     3.49
```

```
Type.... Node: Addition Summary                      Page 6.05
Name.... DP 3                                        Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 3
                    HYG Tag  = 10 YR
                    -----------------------------------
                    Peak Discharge =        3.49 cfs
                    Time to Peak   =     12.3000 hrs
                    HYG Volume     =        .448 ac-ft
                    -----------------------------------

                         HYDROGRAPH ORDINATES (cfs)
        Time  |          Output Time increment = .0500 hrs
        hrs   |   Time on left represents time for first value in each row.
     ---------|-------------------------------------------------------------
      11.6500 |       .00        .00        .02        .05        .13
      11.9000 |       .25        .44        .78       1.31       1.98
      12.1500 |      2.68       3.23       3.48       3.49       3.35
      12.4000 |      3.15       2.91       2.66       2.38       2.10
      12.6500 |      1.83       1.61       1.43       1.29       1.18
      12.9000 |      1.10       1.03        .97        .92        .87
      13.1500 |       .83        .80        .77        .75        .74
      13.4000 |       .72        .71        .70        .69        .68
      13.6500 |       .67        .66        .65        .64        .63
      13.9000 |       .62        .61        .60        .59        .58
      14.1500 |       .57        .56        .55        .54        .54
      14.4000 |       .53        .53        .52        .51        .51
      14.6500 |       .50        .50        .49        .49        .48
      14.9000 |       .48        .47        .47        .46        .46
      15.1500 |       .45        .44        .44        .43        .43
      15.4000 |       .42        .42        .41        .40        .40
      15.6500 |       .39        .39        .38        .37        .37
      15.9000 |       .36        .35        .35        .34        .34
      16.1500 |       .33        .32        .32        .32        .31
      16.4000 |       .31        .31        .30        .30        .30
      16.6500 |       .29        .29        .29        .29        .28
      16.9000 |       .28        .28        .28        .27        .27
      17.1500 |       .27        .26        .26        .26        .26
      17.4000 |       .25        .25        .25        .24        .24
      17.6500 |       .24        .24        .23        .23        .23
      17.9000 |       .22        .22        .22        .22        .21
      18.1500 |       .21        .21        .21        .20        .20
      18.4000 |       .20        .20        .20        .20        .20
      18.6500 |       .20        .20        .20        .19        .19
      18.9000 |       .19        .19        .19        .19        .19
      19.1500 |       .19        .19        .19        .19        .19
```

```
                        HYDROGRAPH ORDINATES (cfs)
    Time  |            Output Time increment = .0500 hrs
    hrs   |     Time on left represents time for first value in each row.
 ---------|-----------------------------------------------------------------
  19.4000 |      .18         .18         .18         .18         .18
  19.6500 |      .18         .18         .18         .18         .18
  19.9000 |      .18         .18         .17         .17         .17
  20.1500 |      .17         .17         .17         .17         .17
  20.4000 |      .17         .17         .17         .17         .17
  20.6500 |      .16         .16         .16         .16         .16
  20.9000 |      .16         .16         .16         .16         .16
  21.1500 |      .16         .16         .16         .16         .16
  21.4000 |      .16         .15         .15         .15         .15
  21.6500 |      .15         .15         .15         .15         .15
  21.9000 |      .15         .15         .15         .15         .15
  22.1500 |      .15         .14         .14         .14         .14
  22.4000 |      .14         .14         .14         .14         .14
  22.6500 |      .14         .14         .14         .14         .14
  22.9000 |      .13         .13         .13         .13         .13
  23.1500 |      .13         .13         .13         .13         .13
  23.4000 |      .13         .13         .13         .13         .12
  23.6500 |      .12         .12         .12         .12         .12
  23.9000 |      .12         .12         .12         .11         .10
  24.1500 |      .09         .07         .05         .03         .02
  24.4000 |      .01         .01         .01         .00         .00
  24.6500 |      .00         .00         .00
```

```
Type.... Node: Addition Summary                    Page 6.07
Name.... DP 3                                      Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr    Tag: 25 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                         at Node: DP 3

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

===============================================================
Upstream Link ID  Upstream Node ID   HYG file   HYG ID        HYG tag
---------------------------------------------------------------
TO DP 3           EXDA 3                         EXDA 3        25 YR
===============================================================


INFLOWS TO:  DP 3
------------------------------------- Volume    Peak Time  Peak Flow
HYG file     HYG ID         HYG tag   ac-ft     hrs        cfs
-------------------------------------------------------------------
             EXDA 3         25 YR     .653      12.2500    5.53

TOTAL FLOW INTO:  DP 3
------------------------------------- Volume    Peak Time  Peak Flow
HYG file     HYG ID         HYG tag   ac-ft     hrs        cfs
-------------------------------------------------------------------
             DP 3           25 YR     .653      12.2500    5.53
```

```
Type.... Node: Addition Summary                           Page 6.08
Name.... DP 3                                            Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr   Tag: 25 YR
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 3
                    HYG Tag  = 25 YR
                    ------------------------------------
                    Peak Discharge =        5.53 cfs
                    Time to Peak   =     12.2500 hrs
                    HYG Volume     =        .653 ac-ft
                    ------------------------------------
```

```
                           HYDROGRAPH ORDINATES (cfs)
          Time |           Output Time increment = .0500 hrs
          hrs  |   Time on left represents time for first value in each row.
        -------|--------------------------------------------------------------
        11.3500 |      .00        .00        .01        .02        .04
        11.6000 |      .06        .11        .17        .26        .39
        11.8500 |      .57        .82       1.17       1.73       2.56
        12.1000 |     3.56       4.55       5.28       5.53       5.43
        12.3500 |     5.12       4.73       4.33       3.91       3.47
        12.6000 |     3.04       2.64       2.30       2.03       1.83
        12.8500 |     1.67       1.55       1.45       1.36       1.29
        13.1000 |     1.22       1.16       1.12       1.08       1.05
        13.3500 |     1.02       1.00        .99        .97        .95
        13.6000 |      .94        .92        .91        .90        .88
        13.8500 |      .87        .85        .84        .82        .81
        14.1000 |      .79        .78        .76        .75        .74
        14.3500 |      .73        .73        .72        .71        .70
        14.6000 |      .70        .69        .68        .67        .67
        14.8500 |      .66        .65        .64        .63        .63
        15.1000 |      .62        .61        .60        .60        .59
        15.3500 |      .58        .57        .56        .55        .55
        15.6000 |      .54        .53        .52        .51        .50
        15.8500 |      .50        .49        .48        .47        .46
        16.1000 |      .45        .44        .44        .43        .43
        16.3500 |      .42        .42        .41        .41        .40
        16.6000 |      .40        .40        .39        .39        .39
        16.8500 |      .38        .38        .37        .37        .37
        17.1000 |      .36        .36        .36        .35        .35
        17.3500 |      .34        .34        .34        .33        .33
        17.6000 |      .32        .32        .32        .31        .31
        17.8500 |      .30        .30        .30        .29        .29
        18.1000 |      .28        .28        .28        .27        .27
        18.3500 |      .27        .27        .27        .27        .27
        18.6000 |      .26        .26        .26        .26        .26
        18.8500 |      .26        .26        .26        .26        .25
```

```
Type.... Node: Addition Summary                          Page 6.09
Name.... DP 3                                            Event: 25 yr
File... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr    Tag: 25 YR
```

```
                        HYDROGRAPH ORDINATES (cfs)
        Time |          Output Time increment = .0500 hrs
        hrs  |   Time on left represents time for first value in each row.
     --------|------------------------------------------------------------
      19.1000 |     .25        .25        .25        .25        .25
      19.3500 |     .25        .25        .25        .24        .24
      19.6000 |     .24        .24        .24        .24        .24
      19.8500 |     .24        .23        .23        .23        .23
      20.1000 |     .23        .23        .23        .23        .23
      20.3500 |     .23        .22        .22        .22        .22
      20.6000 |     .22        .22        .22        .22        .22
      20.8500 |     .22        .21        .21        .21        .21
      21.1000 |     .21        .21        .21        .21        .21
      21.3500 |     .21        .21        .21        .20        .20
      21.6000 |     .20        .20        .20        .20        .20
      21.8500 |     .20        .20        .20        .20        .19
      22.1000 |     .19        .19        .19        .19        .19
      22.3500 |     .19        .19        .19        .19        .18
      22.6000 |     .18        .18        .18        .18        .18
      22.8500 |     .18        .18        .18        .18        .18
      23.1000 |     .17        .17        .17        .17        .17
      23.3500 |     .17        .17        .17        .17        .17
      23.6000 |     .17        .16        .16        .16        .16
      23.8500 |     .16        .16        .16        .16        .15
      24.1000 |     .14        .12        .09        .06        .04
      24.3500 |     .03        .02        .01        .01        .01
      24.6000 |     .00        .00        .00        .00
```

```
Type.... Node: Addition Summary                          Page 6.10
Name.... DP 3                                            Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr    Tag: 50 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                          at Node: DP 3

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

=====================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID        HYG tag
---------------------------------------------------------------------
TO DP 3           EXDA 3                          EXDA 3        50 YR
=====================================================================


INFLOWS TO:  DP 3
-------------------------------------- Volume    Peak Time   Peak Flow
HYG file    HYG ID           HYG tag    ac-ft      hrs         cfs
---------------------------------------------------------------------
            EXDA 3           50 YR      .850     12.2500      7.49


TOTAL FLOW INTO:  DP 3
-------------------------------------- Volume    Peak Time   Peak Flow
HYG file    HYG ID           HYG tag    ac-ft      hrs         cfs
---------------------------------------------------------------------
            DP 3             50 YR      .850     12.2500      7.49
```

```
Type.... Node: Addition Summary                          Page 6.11
Name.... DP 3                                          Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
                TOTAL NODE INFLOW...
                HYG file =
                HYG ID   = DP 3
                HYG Tag  = 50 YR
                ------------------------------------
                Peak Discharge =         7.49 cfs
                Time to Peak   =      12.2500 hrs
                HYG Volume     =         .850 ac-ft
                ------------------------------------
```

```
                      HYDROGRAPH ORDINATES (cfs)
     Time  |          Output Time increment = .0500 hrs
     hrs   |    Time on left represents time for first value in each row.
  ---------|-------------------------------------------------------------
  11.0000 |      .00       .00       .01       .02       .03
  11.2500 |      .04       .06       .08       .11       .14
  11.5000 |      .17       .21       .26       .33       .44
  11.7500 |      .59       .80      1.07      1.43      1.92
  12.0000 |     2.69      3.80      5.11      6.37      7.25
  12.2500 |     7.49      7.28      6.80      6.24      5.67
  12.5000 |     5.09      4.50      3.92      3.40      2.95
  12.7500 |     2.60      2.33      2.13      1.97      1.84
  13.0000 |     1.73      1.63      1.54      1.47      1.41
  13.2500 |     1.36      1.32      1.29      1.26      1.24
  13.5000 |     1.22      1.20      1.18      1.16      1.14
  13.7500 |     1.12      1.10      1.08      1.06      1.05
  14.0000 |     1.03      1.01       .99       .97       .95
  14.2500 |      .94       .93       .92       .90       .89
  14.5000 |      .88       .87       .87       .86       .85
  14.7500 |      .84       .83       .82       .81       .80
  15.0000 |      .79       .78       .77       .76       .75
  15.2500 |      .74       .73       .72       .71       .70
  15.5000 |      .69       .68       .67       .66       .64
  15.7500 |      .63       .62       .61       .60       .59
  16.0000 |      .58       .57       .56       .55       .54
  16.2500 |      .53       .53       .52       .51       .51
  16.5000 |      .50       .50       .49       .49       .48
  16.7500 |      .48       .48       .47       .47       .46
  17.0000 |      .46       .45       .45       .44       .44
  17.2500 |      .43       .43       .42       .42       .41
  17.5000 |      .41       .40       .40       .39       .39
  17.7500 |      .38       .38       .37       .37       .36
  18.0000 |      .36       .35       .35       .34       .34
  18.2500 |      .34       .34       .33       .33       .33
  18.5000 |      .33       .33       .33       .32       .32
```

```
                          HYDROGRAPH ORDINATES (cfs)
     Time  |            Output Time increment = .0500 hrs
     hrs   |    Time on left represents time for first value in each row.
  ---------|-------------------------------------------------------------
    18.7500 |      .32          .32          .32          .32          .32
    19.0000 |      .31          .31          .31          .31          .31
    19.2500 |      .31          .31          .30          .30          .30
    19.5000 |      .30          .30          .30          .30          .29
    19.7500 |      .29          .29          .29          .29          .29
    20.0000 |      .28          .28          .28          .28          .28
    20.2500 |      .28          .28          .28          .27          .27
    20.5000 |      .27          .27          .27          .27          .27
    20.7500 |      .27          .27          .26          .26          .26
    21.0000 |      .26          .26          .26          .26          .26
    21.2500 |      .26          .25          .25          .25          .25
    21.5000 |      .25          .25          .25          .25          .25
    21.7500 |      .24          .24          .24          .24          .24
    22.0000 |      .24          .24          .24          .24          .23
    22.2500 |      .23          .23          .23          .23          .23
    22.5000 |      .23          .23          .23          .22          .22
    22.7500 |      .22          .22          .22          .22          .22
    23.0000 |      .22          .21          .21          .21          .21
    23.2500 |      .21          .21          .21          .21          .21
    23.5000 |      .20          .20          .20          .20          .20
    23.7500 |      .20          .20          .20          .19          .19
    24.0000 |      .19          .19          .17          .14          .11
    24.2500 |      .08          .05          .03          .02          .01
    24.5000 |      .01          .01          .00          .00          .00
    24.7500 |      .00          .00
```

```
Type.... Node: Addition Summary                          Page 6.13
Name.... DP 3                                        Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 3.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                          at Node: DP 3

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

==================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID      HYG tag
------------------------------------------------------------------
TO DP 3           EXDA 3                          EXDA 3      100 YR
==================================================================


INFLOWS TO:  DP 3
------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID         HYG tag    ac-ft       hrs        cfs
------------------------------------------------------------------
            EXDA 3         100 YR     1.093     12.2500      9.90


TOTAL FLOW INTO:  DP 3
------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID         HYG tag    ac-ft       hrs        cfs
------------------------------------------------------------------
            DP 3           100 YR     1.093     12.2500      9.90
```

```
           TOTAL NODE INFLOW...
           HYG file =
           HYG ID   = DP 3
           HYG Tag  = 100 YR
           ------------------------------------
           Peak Discharge =        9.90 cfs
           Time to Peak   =     12.2500 hrs
           HYG Volume     =        1.093 ac-ft
           ------------------------------------
```

		HYDROGRAPH ORDINATES (cfs)		
Time hrs	Output Time increment = .0500 hrs			
	Time on left represents time for first value in each row.			
10.5500	.00	.00	.00	.01	.02
10.8000	.03	.04	.06	.07	.09
11.0500	.11	.13	.15	.17	.20
11.3000	.23	.26	.30	.34	.39
11.5500	.45	.52	.63	.79	1.02
11.8000	1.33	1.72	2.20	2.87	3.89
12.0500	5.35	7.04	8.62	9.68	9.90
12.3000	9.53	8.85	8.06	7.28	6.51
12.5500	5.74	4.98	4.30	3.73	3.28
12.8000	2.94	2.67	2.47	2.30	2.16
13.0500	2.03	1.93	1.83	1.76	1.69
13.3000	1.64	1.60	1.57	1.54	1.51
13.5500	1.49	1.46	1.44	1.41	1.39
13.8000	1.37	1.34	1.32	1.29	1.27
14.0500	1.24	1.22	1.20	1.18	1.16
14.3000	1.14	1.13	1.12	1.10	1.09
14.5500	1.08	1.07	1.05	1.04	1.03
14.8000	1.02	1.01	.99	.98	.97
15.0500	.96	.94	.93	.92	.91
15.3000	.89	.88	.87	.86	.84
15.5500	.83	.82	.80	.79	.78
15.8000	.76	.75	.74	.72	.71
16.0500	.70	.68	.67	.66	.65
16.3000	.64	.64	.63	.62	.62
16.5500	.61	.60	.60	.59	.59
16.8000	.58	.58	.57	.56	.56
17.0500	.55	.55	.54	.53	.53
17.3000	.52	.52	.51	.50	.50
17.5500	.49	.49	.48	.47	.47
17.8000	.46	.46	.45	.44	.44
18.0500	.43	.43	.42	.42	.41

```
                              HYDROGRAPH ORDINATES (cfs)
        Time  |            Output Time increment = .0500 hrs
        hrs   |    Time on left represents time for first value in each row.
     ---------|--------------------------------------------------------------
       18.3000 |      .41          .41          .40          .40          .40
       18.5500 |      .40          .40          .39          .39          .39
       18.8000 |      .39          .39          .39          .38          .38
       19.0500 |      .38          .38          .38          .37          .37
       19.3000 |      .37          .37          .37          .37          .36
       19.5500 |      .36          .36          .36          .36          .36
       19.8000 |      .35          .35          .35          .35          .35
       20.0500 |      .34          .34          .34          .34          .34
       20.3000 |      .34          .34          .33          .33          .33
       20.5500 |      .33          .33          .33          .33          .32
       20.8000 |      .32          .32          .32          .32          .32
       21.0500 |      .32          .31          .31          .31          .31
       21.3000 |      .31          .31          .31          .31          .30
       21.5500 |      .30          .30          .30          .30          .30
       21.8000 |      .30          .29          .29          .29          .29
       22.0500 |      .29          .29          .29          .28          .28
       22.3000 |      .28          .28          .28          .28          .28
       22.5500 |      .27          .27          .27          .27          .27
       22.8000 |      .27          .27          .26          .26          .26
       23.0500 |      .26          .26          .26          .26          .25
       23.3000 |      .25          .25          .25          .25          .25
       23.5500 |      .25          .24          .24          .24          .24
       23.8000 |      .24          .24          .24          .23          .23
       24.0500 |      .22          .21          .17          .13          .09
       24.3000 |      .06          .04          .03          .02          .01
       24.5500 |      .01          .01          .00          .00          .00
       24.8000 |      .00
```

Index of Starting Page Numbers for ID Names

Proposed Flows - DL3

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Table of Contents (continued)

Table of Contents (continued)

```
                      MASTER DESIGN STORM SUMMARY


          Network Storm Collection:  Litchfield Co.


                       Total
                       Depth    Rainfall
                         in       Type          RNF ID
          Return Event  ------  ------------    --------------
          ------------
                 2 YR   3.2000  Synthetic Curve  TypeIII 24hr
                10 YR   4.7000  Synthetic Curve  TypeIII 24hr
                25 YR   5.5000  Synthetic Curve  TypeIII 24hr
                50 YR   6.2000  Synthetic Curve  TypeIII 24hr
               100 YR   7.0000  Synthetic Curve  TypeIII 24hr



                        MASTER NETWORK SUMMARY
                      SCS Unit Hydrograph Method

                 (*Node=Outfall; +Node=Diversion;)
          (Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)
```

| | | | Return | HYG Vol | | Qpeak | Qpeak | Max WSEL | Max Pond Storage |
Node ID		Type	Event	ac-ft	Trun	hrs	cfs	ft	ac-ft
*DP 3		JCT	2	.162		12.4000	.95		
*DP 3		JCT	10	.507		12.3000	3.41		
*DP 3		JCT	25	.737		12.3000	5.00		
*DP 3		JCT	50	.958		12.3000	6.73		
*DP 3		JCT	100	1.231		12.3000	9.19		
JUNCTION		JCT	2	.162		12.4000	.95		
JUNCTION		JCT	10	.507		12.3000	3.41		
JUNCTION		JCT	25	.737		12.3000	5.00		
JUNCTION		JCT	50	.958		12.3000	6.73		
JUNCTION		JCT	100	1.231		12.3000	9.19		
POND 1	IN	POND	2	.133		12.1000	1.36		
POND 1	IN	POND	10	.297		12.1000	3.38		
POND 1	IN	POND	25	.397		12.1000	4.60		
POND 1	IN	POND	50	.490		12.1000	5.71		
POND 1	IN	POND	100	.600		12.1000	7.03		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
POND 1	OUT POND	2	.056		12.5000	.43	1443.97	.030
POND 1	OUT POND	10	.182		12.5000	.92	1444.69	.084
POND 1	OUT POND	25	.263		12.5000	1.15	1445.12	.122
POND 1	OUT POND	50	.341		12.5000	1.70	1445.43	.151
POND 1	OUT POND	100	.437		12.4000	2.47	1445.71	.180
PRDA 3D	AREA	2	.133		12.1000	1.36		
PRDA 3D	AREA	10	.297		12.1000	3.38		
PRDA 3D	AREA	25	.397		12.1000	4.60		
PRDA 3D	AREA	50	.490		12.1000	5.71		
PRDA 3D	AREA	100	.600		12.1000	7.03		
PRDA 3ND	AREA	2	.106		12.4000	.54		
PRDA 3ND	AREA	10	.326		12.3000	2.55		
PRDA 3ND	AREA	25	.474		12.3000	3.95		
PRDA 3ND	AREA	50	.618		12.2000	5.33		
PRDA 3ND	AREA	100	.794		12.2000	7.11		

File.... C:\Program Files\Haestad\PPKW\PPW\
Title... Project Date: 4/16/2009
        Project Engineer: Curtis Jones
            Project Title: Watershed
        Project Comments:

                    DESIGN STORMS SUMMARY

Design Storm File,ID =   Litchfield Co.

Storm Tag Name   = 2 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 2 yr
Total Rainfall Depth= 3.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 10 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 10 yr
Total Rainfall Depth= 4.7000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 25 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 25 yr
Total Rainfall Depth= 5.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 50 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 50 yr
Total Rainfall Depth= 6.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 100 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 100 yr
Total Rainfall Depth= 7.0000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs End= 24.0000 hrs

```
Type.... Design Storms                              Page 2.02
Name.... Litchfield Co.                             Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\
Storm... TypeIII 24hr    Tag: 2 YR
```

```
                      DESIGN STORMS SUMMARY

Design Storm File,ID =              Litchfield Co.


Storm Tag Name       = 2 YR
---------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency      = 2 yr
Total Rainfall Depth= 3.2000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs


Storm Tag Name       = 10 YR
---------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency      = 10 yr
Total Rainfall Depth= 4.7000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs


Storm Tag Name       = 25 YR
---------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency      = 25 yr
Total Rainfall Depth= 5.5000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs


Storm Tag Name       = 50 YR
---------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency      = 50 yr
Total Rainfall Depth= 6.2000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs


Storm Tag Name       = 100 YR
---------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency      = 100 yr
Total Rainfall Depth= 7.0000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs
```

```
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

 :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
 TIME OF CONCENTRATION CALCULATOR
 :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::


 ------------------------------------------------------------------


 Segment #1:  Tc: User Defined

                                   Segment #1 Time:     .1300 hrs
 ------------------------------------------------------------------


                                  ==========================
                                   Total Tc:     .1300 hrs
                                  ==========================
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

```
 --------------------------------------------------------------------
 Tc Equations used...
 --------------------------------------------------------------------


 ==== User Defined =================================================

      Tc = Value entered by user

      Where:  Tc = Time of concentration
```

```
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

 :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
 TIME OF CONCENTRATION CALCULATOR
 :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::


 ------------------------------------------------------------------


 Segment #1:  Tc: User Defined

                                   Segment #1 Time:    .3000 hrs
 ------------------------------------------------------------------

                                   ==========================
                                   Total Tc:    .3000 hrs
                                   ==========================
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

```
--------------------------------------------------------------------------
Tc Equations used...
--------------------------------------------------------------------------


==== User Defined ==================================================

      Tc = Value entered by user

      Where:  Tc = Time of concentration
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

RUNOFF CURVE NUMBER DATA
:::

| | | Area | Impervious Adjustment | | Adjusted |
Soil/Surface Description	CN	acres	%C	%UC	CN
Soil Type B - Grass/Meadow	60	1.520			60.00
Soil Type B - Wooded	55	.030			55.00
Impervious Area	98	.500			98.00

COMPOSITE AREA & WEIGHTED CN --->   2.050   69.20 (69)
:::

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

RUNOFF CURVE NUMBER DATA
::

| | | | Impervious Adjustment | | |
Soil/Surface Description	CN	Area acres	%C	%UC	Adjusted CN
Soil Type B - Wooded	55	2.730			55.00
Soil Type B - Grass/Meadow	58	1.320			58.00
Impervious	98	.070			98.00

| COMPOSITE AREA & WEIGHTED CN ---> | | 4.120 | | | 56.69 (57) |

::

```
                        SCS UNIT HYDROGRAPH METHOD
                          (Computational Notes)




      DEFINITION OF TERMS: ------------------------------------------------

      At     = Total area (acres):  At = Ai+Ap
      Ai     = Impervious area (acres)
      Ap     = Pervious area (acres)
      CNi    = Runoff curve number for impervious area
      CNp    = Runoff curve number for pervious area
      fLoss  = f loss constant infiltration (depth/time)
      gKs    = Saturated Hydraulic Conductivity (depth/time)
      Md     = Volumetric Moisture Deficit
      Psi    = Capillary Suction (length)
      hK     = Horton Infiltration Decay Rate (time^-1)
      fo     = Initial Infiltration Rate (depth/time)
      fc     = Ultimate(capacity)Infiltration Rate (depth/time)
      Ia     = Initial Abstraction (length)
      dt     = Computational increment (duration of unit excess rainfall)
               Default dt is smallest value of 0.1333Tc, rtm, and th
               (Smallest dt is then adjusted to match up with Tp)
 UDdt      = User specified override computational main time increment
             (only used if UDdt is => .1333Tc)
      D(t)   = Point on distribution curve (fraction of P) for time step t

      K      = 2 / (1 + (Tr/Tp)): default K = 0.75: (for Tr/Tp = 1.67)
      Ks     = Hydrograph shape factor
             = Unit Conversions * K:
             = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K
               Default Ks = 645.333 * 0.75 = 484


      Lag    = Lag time from center of excess runoff (dt) to Tp:  Lag = 0.6Tc
      P      = Total precipitation depth, inches
      Pa(t)  = Accumulated rainfall at time step t
      Pi(t)  = Incremental rainfall at time step t
      qp     = Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi.
             = (Ks * A * Q) / Tp   (where Q = 1in. runoff, A=sq.mi.)
      Qu(t)  = Unit hydrograph ordinate (cfs) at time step t
      Q(t)   = Final hydrograph ordinate (cfs) at time step t
      Rai(t) = Accumulated runoff (inches) at time step t for impervious area
      Rap(t) = Accumulated runoff (inches) at time step t for pervious area
      Rii(t) = Incremental runoff (inches) at time step t for impervious area
      Rip(t) = Incremental runoff (inches) at time step t for pervious area
      R(t)   = Incremental weighted total runoff (inches)
      Rtm    = Time increment for rainfall table
      Si     = S for impervious area:  Si = (1000/CNi) - 10
      Sp     = S for pervious area:    Sp = (1000/CNp) - 10
      t      = Time step (row) number
      Tc     = Time of concentration
      Tb     = Time (hrs) of entire unit hydrograph: Tb = Tp + Tr
      Tp     = Time (hrs) to peak of a unit hydrograph: Tp = (dt/2) + Lag
      Tr     = Time (hrs) of receding limb of unit hydrograph:  Tr = ratio of Tp
```

```
                      SCS UNIT HYDROGRAPH METHOD
                       (Computational Notes)

  PRECIPITATION: ------------------------------------------------------------
  Column (1):  Time for time step t
  Column (2):  D(t) = Point on distribution curve for time step t
  Column (3):  Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
  Column (4):  Pa(t) = D(t) x P:       Col.(2) x P


  PERVIOUS AREA RUNOFF (using SCS Runoff CN Method) --------------------------
  Column (5):  Rap(t) = Accumulated pervious runoff for time step t
               If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
               If (Pa(t) is >  0.2Sp) then use:

               Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

  Column (6):  Rip(t) = Incremental pervious runoff for time step t
               Rip(t) =         Rap(t)          -         Rap(t-1)
               Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

  IMPERVIOUS AREA RUNOFF -----------------------------------------------------
  Column (7 & 8)... Did not specify to use impervious areas.


  INCREMENTAL WEIGHTED RUNOFF: -----------------------------------------------
  Column (9):  R(t)  = (Ap/At) x Rip(t)   +  (Ai/At) x Rii(t)
               R(t)  = (Ap/At) x Col.(6)  +  (Ai/At) x Col.(8)


  SCS UNIT HYDROGRAPH METHOD: ------------------------------------------------
  Column (10): Q(t)   is computed with the SCS unit hydrograph method
                      using R() and Qu().
```

```
Type.... Unit Hyd. Summary                        Page 5.03
Name.... PRDA 3D          Tag: 2 YR               Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

                    STORM EVENT: 2 year storm
                    Duration      = 24.0000 hrs    Rain Depth = 3.2000 in
                    Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
                    Rain File -ID =  - TypeIII 24hr
                    Unit Hyd Type = Default Curvilinear
                    HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
                    HYG File - ID =  - PRDA 3D 2 YR
                    Tc            = .1300 hrs
                    Drainage Area = 2.050 acres  Runoff CN= 69


                    ===========================================
                    Computational Time Increment   =   .01733 hrs
                    Computed Peak Time             =  12.1333 hrs
                    Computed Peak Flow             =     1.45 cfs

                    Time Increment for HYG File    =   .1000 hrs
                    Peak Time, Interpolated Output = 12.1000 hrs
                    Peak Flow, Interpolated Output =    1.36 cfs
                    WARNING: The difference between calculated peak flow
                    and interpolated peak flow is greater than 1.50%
                    =============================================

                              DRAINAGE AREA
                              -------------------
                         ID:PRDA 3D
                         CN   =   69
                         Area =      2.050 acres
                         S    =    4.4928 in
                         0.2S =     .8986 in

                          Cumulative Runoff
                          --------------------
                                    .7796 in
                                    .133 ac-ft

         HYG Volume...              .133 ac-ft (area under HYG curve)

         ***** SCS UNIT HYDROGRAPH PARAMETERS *****

         Time Concentration, Tc =    .13000 hrs (ID: PRDA 3D)
         Computational Incr, Tm =    .01733 hrs = 0.20000 Tp

         Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
         K =  483.43/645.333,   K =    .7491 (also, K = 2/(1+(Tr/Tp))
         Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

         Unit peak,         qp =    17.87 cfs
         Unit peak time     Tp =    .08667 hrs
         Unit receding limb, Tr =   .34667 hrs
         Total unit time,    Tb =   .43333 hrs
```

```
               SCS UNIT HYDROGRAPH METHOD

               STORM EVENT: 10 year storm
               Duration    = 24.0000 hrs    Rain Depth = 4.7000 in
               Rain Dir    = C:\Program Files\Haestad\PPKW\PPW\
               Rain File -ID =  - TypeIII 24hr
               Unit Hyd Type = Default Curvilinear
               HYG Dir     = C:\Program Files\Haestad\PPKW\PPW\
               HYG File - ID =  - PRDA 3D 10 YR
               Tc          = .1300 hrs
               Drainage Area = 2.050 acres  Runoff CN= 69


               =========================================
               Computational Time Increment   =   .01733 hrs
               Computed Peak Time             =  12.1333 hrs
               Computed Peak Flow             =     3.50 cfs

               Time Increment for HYG File    =   .1000 hrs
               Peak Time, Interpolated Output = 12.1000 hrs
               Peak Flow, Interpolated Output =    3.38 cfs
               WARNING: The difference between calculated peak flow
               and interpolated peak flow is greater than 1.50%
               =========================================

                          DRAINAGE AREA
                   -------------------
                   ID:PRDA 3D
                   CN  =   69
                   Area =      2.050 acres
                   S   =   4.4928 in
                   0.2S =    .8986 in

                    Cumulative Runoff
                   -------------------
                        1.7423 in
                         .298 ac-ft

               HYG Volume...          .297 ac-ft (area under HYG curve)

               ***** SCS UNIT HYDROGRAPH PARAMETERS *****

               Time Concentration, Tc =   .13000 hrs (ID: PRDA 3D)
               Computational Incr, Tm =   .01733 hrs = 0.20000 Tp

               Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
               K =  483.43/645.333,  K =   .7491 (also, K = 2/(1+(Tr/Tp))
               Receding/Rising, Tr/Tp =  1.6698 (solved from K =   .7491)

               Unit peak,       qp =   17.87 cfs
               Unit peak time    Tp =  .08667 hrs
               Unit receding limb, Tr =  .34667 hrs
               Total unit time,  Tb =  .43333 hrs
```

```
                SCS UNIT HYDROGRAPH METHOD

                STORM EVENT: 25 year storm
                Duration    = 24.0000 hrs    Rain Depth = 5.5000 in
                Rain Dir    = C:\Program Files\Haestad\PPKW\PPW\
                Rain File -ID =  - TypeIII 24hr
                Unit Hyd Type = Default Curvilinear
                HYG Dir     = C:\Program Files\Haestad\PPKW\PPW\
                HYG File - ID =  - PRDA 3D 25 YR
                Tc          = .1300 hrs
                Drainage Area = 2.050 acres  Runoff CN= 69


                ===============================================
                Computational Time Increment   =   .01733 hrs
                Computed Peak Time             =  12.1333 hrs
                Computed Peak Flow             =     4.72 cfs

                Time Increment for HYG File    =    .1000 hrs
                Peak Time, Interpolated Output = 12.1000 hrs
                Peak Flow, Interpolated Output =    4.60 cfs
                WARNING: The difference between calculated peak flow
                and interpolated peak flow is greater than 1.50%
                ===============================================


                        DRAINAGE AREA
                        --------------------
                ID:PRDA 3D
                CN   =   69
                Area =      2.050 acres
                S    =   4.4928 in
                0.2S =    .8986 in


                    Cumulative Runoff
                    --------------------
                        2.3282 in
                         .398 ac-ft


    HYG Volume...            .397 ac-ft (area under HYG curve)


    ***** SCS UNIT HYDROGRAPH PARAMETERS *****

    Time Concentration, Tc =   .13000 hrs (ID: PRDA 3D)
    Computational Incr, Tm =   .01733 hrs = 0.20000 Tp

    Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
    K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
    Receding/Rising, Tr/Tp =  1.6698 (solved from K =   .7491)

    Unit peak,        qp =    17.87 cfs
    Unit peak time    Tp =    .08667 hrs
    Unit receding limb, Tr =   .34667 hrs
    Total unit time,    Tb =   .43333 hrs
```

```
Type.... Unit Hyd. Summary                        Page 5.06
Name.... PRDA 3D          Tag: 50 YR              Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr    Tag: 50 YR
```

```
                 SCS UNIT HYDROGRAPH METHOD

                 STORM EVENT: 50 year storm
                 Duration      = 24.0000 hrs    Rain Depth = 6.2000 in
                 Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
                 Rain File -ID =  - TypeIII 24hr
                 Unit Hyd Type = Default Curvilinear
                 HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
                 HYG File - ID =  - PRDA 3D 50 YR
                 Tc            = .1300 hrs
                 Drainage Area = 2.050 acres  Runoff CN= 69


                 =========================================
                 Computational Time Increment   =   .01733 hrs
                 Computed Peak Time             =  12.1333 hrs
                 Computed Peak Flow             =     5.84 cfs

                 Time Increment for HYG File    =    .1000 hrs
                 Peak Time, Interpolated Output =  12.1000 hrs
                 Peak Flow, Interpolated Output =     5.71 cfs
                 WARNING: The difference between calculated peak flow
                 and interpolated peak flow is greater than 1.50%
                 =========================================

                            DRAINAGE AREA
                            --------------------
                      ID:PRDA 3D
                      CN   =    69
                      Area =      2.050 acres
                      S    =    4.4928 in
                      0.2S =     .8986 in

                       Cumulative Runoff
                       --------------------
                            2.8696 in
                             .490 ac-ft

                 HYG Volume...           .490 ac-ft (area under HYG curve)

                 ***** SCS UNIT HYDROGRAPH PARAMETERS *****

                 Time Concentration, Tc =   .13000 hrs (ID: PRDA 3D)
                 Computational Incr, Tm =   .01733 hrs = 0.20000 Tp

                 Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
                 K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
                 Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

                 Unit peak,       qp =    17.87 cfs
                 Unit peak time   Tp =    .08667 hrs
                 Unit receding limb, Tr =   .34667 hrs
                 Total unit time,    Tb =   .43333 hrs
```

```
Type.... Unit Hyd. Summary                    Page 5.07
Name.... PRDA 3D            Tag: 100 YR        Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

                    STORM EVENT: 100 year storm
                    Duration      = 24.0000 hrs    Rain Depth = 7.0000 in
                    Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
                    Rain File -ID =  - TypeIII 24hr
                    Unit Hyd Type = Default Curvilinear
                    HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
                    HYG File - ID =  - PRDA 3D 100 YR
                    Tc            = .1300 hrs
                    Drainage Area = 2.050 acres  Runoff CN= 69


                    ============================================
                    Computational Time Increment   =   .01733 hrs
                    Computed Peak Time             =  12.1160 hrs
                    Computed Peak Flow             =     7.16 cfs

                    Time Increment for HYG File    =   .1000 hrs
                    Peak Time, Interpolated Output =  12.1000 hrs
                    Peak Flow, Interpolated Output =    7.03 cfs
                    WARNING: The difference between calculated peak flow
                    and interpolated peak flow is greater than 1.50%
                    ============================================

                           DRAINAGE AREA
                           ---------------------
                       ID:PRDA 3D
                       CN   =   69
                       Area =      2.050 acres
                       S    =    4.4928 in
                       0.2S =     .8986 in


                        Cumulative Runoff
                        -------------------
                            3.5140 in
                             .600 ac-ft

                HYG Volume...          .600 ac-ft (area under HYG curve)

                ***** SCS UNIT HYDROGRAPH PARAMETERS *****

                Time Concentration, Tc =   .13000 hrs (ID: PRDA 3D)
                Computational Incr, Tm =   .01733 hrs = 0.20000 Tp

                Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
                K = 483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
                Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

                Unit peak,        qp =   17.87 cfs
                Unit peak time    Tp =   .08667 hrs
                Unit receding limb, Tr =   .34667 hrs
                Total unit time,  Tb =   .43333 hrs
```

```
Type.... Unit Hyd. Summary                          Page 5.08
Name.... PRDA 3ND           Tag: 2 YR              Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                SCS UNIT HYDROGRAPH METHOD

                STORM EVENT: 2 year storm
                Duration    = 24.0000 hrs    Rain Depth = 3.2000 in
                Rain Dir    = C:\Program Files\Haestad\PPKW\PPW\
                Rain File -ID =  - TypeIII 24hr
                Unit Hyd Type = Default Curvilinear
                HYG Dir     = C:\Program Files\Haestad\PPKW\PPW\
                HYG File - ID =  - PRDA 3ND 2 YR
                Tc          = .3000 hrs
                Drainage Area = 4.120 acres  Runoff CN= 57


                ===============================================
                Computational Time Increment   =   .04000 hrs
                Computed Peak Time             = 12.4400 hrs
                Computed Peak Flow             =     .54 cfs

                Time Increment for HYG File    =    .1000 hrs
                Peak Time, Interpolated Output = 12.4000 hrs
                Peak Flow, Interpolated Output =     .54 cfs
                ===============================================


                        DRAINAGE AREA
                        --------------------
                   ID:PRDA 3ND
                   CN   =   57
                   Area =      4.120 acres
                   S    =    7.5439 in
                   0.2S =    1.5088 in


                   Cumulative Runoff
                   --------------------
                             .3097 in
                             .106 ac-ft

                HYG Volume...          .106 ac-ft (area under HYG curve)

                ***** SCS UNIT HYDROGRAPH PARAMETERS *****

                Time Concentration, Tc =   .30000 hrs (ID: PRDA 3ND)
                Computational Incr, Tm =   .04000 hrs = 0.20000 Tp

                Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
                K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
                Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

                Unit peak,         qp =   15.56 cfs
                Unit peak time     Tp =   .20000 hrs
                Unit receding limb, Tr =  .80000 hrs
                Total unit time,   Tb = 1.00000 hrs
```

```
Type.... Unit Hyd. Summary                          Page 5.09
Name.... PRDA 3ND          Tag: 10 YR               Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
              SCS UNIT HYDROGRAPH METHOD

              STORM EVENT: 10 year storm
              Duration      = 24.0000 hrs    Rain Depth = 4.7000 in
              Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
              Rain File -ID =   - TypeIII 24hr
              Unit Hyd Type = Default Curvilinear
              HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
              HYG File - ID =   - PRDA 3ND 10 YR
              Tc            = .3000 hrs
              Drainage Area = 4.120 acres  Runoff CN= 57


              ===============================================
              Computational Time Increment   =   .04000 hrs
              Computed Peak Time             = 12.2800 hrs
              Computed Peak Flow             =     2.57 cfs

              Time Increment for HYG File    =   .1000 hrs
              Peak Time, Interpolated Output = 12.3000 hrs
              Peak Flow, Interpolated Output =     2.55 cfs
              ===============================================

                        DRAINAGE AREA
                        --------------------
              ID:PRDA 3ND
              CN   =    57
              Area =       4.120 acres
              S    =    7.5439 in
              0.2S =    1.5088 in

                  Cumulative Runoff
                  --------------------
                        .9487 in
                        .326 ac-ft

         HYG Volume...          .326 ac-ft (area under HYG curve)

         ***** SCS UNIT HYDROGRAPH PARAMETERS *****

         Time Concentration, Tc =   .30000 hrs (ID: PRDA 3ND)
         Computational Incr, Tm =   .04000 hrs = 0.20000 Tp

         Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
         K =  483.43/645.333,  K =   .7491 (also, K = 2/(1+(Tr/Tp))
         Receding/Rising, Tr/Tp =  1.6698 (solved from K =   .7491)

         Unit peak,        qp =   15.56 cfs
         Unit peak time    Tp =   .20000 hrs
         Unit receding limb, Tr =   .80000 hrs
         Total unit time,  Tb = 1.00000 hrs
```

```
                    SCS UNIT HYDROGRAPH METHOD

                    STORM EVENT: 25 year storm
                    Duration     = 24.0000 hrs    Rain Depth = 5.5000 in
                    Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
                    Rain File -ID = - TypeIII 24hr
                    Unit Hyd Type = Default Curvilinear
                    HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
                    HYG File - ID = - PRDA 3ND 25 YR
                    Tc           = .3000 hrs
                    Drainage Area = 4.120 acres  Runoff CN= 57


                    ===========================================
                    Computational Time Increment   =   .04000 hrs
                    Computed Peak Time             =  12.2400 hrs
                    Computed Peak Flow             =     4.05 cfs

                    Time Increment for HYG File     =   .1000 hrs
                    Peak Time, Interpolated Output =  12.3000 hrs
                    Peak Flow, Interpolated Output =     3.95 cfs
                    WARNING: The difference between calculated peak flow
                    and interpolated peak flow is greater than 1.50%
                    ===========================================

                              DRAINAGE AREA
                         --------------------
                         ID:PRDA 3ND
                         CN   =   57
                         Area =      4.120 acres
                         S    =    7.5439 in
                         0.2S =    1.5088 in

                         Cumulative Runoff
                         --------------------
                              1.3810 in
                               .474 ac-ft

            HYG Volume...           .474 ac-ft (area under HYG curve)

            ***** SCS UNIT HYDROGRAPH PARAMETERS *****

            Time Concentration, Tc =    .30000 hrs (ID: PRDA 3ND)
            Computational Incr, Tm =    .04000 hrs = 0.20000 Tp

            Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
            K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
            Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

            Unit peak,        qp =    15.56 cfs
            Unit peak time    Tp =    .20000 hrs
            Unit receding limb, Tr =   .80000 hrs
            Total unit time,   Tb =  1.00000 hrs
```

```
Type.... Unit Hyd. Summary                          Page 5.11
Name.... PRDA 3ND          Tag: 50 YR              Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
              SCS UNIT HYDROGRAPH METHOD

              STORM EVENT: 50 year storm
              Duration      = 24.0000 hrs    Rain Depth = 6.2000 in
              Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
              Rain File -ID =  - TypeIII 24hr
              Unit Hyd Type = Default Curvilinear
              HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
              HYG File - ID =  - PRDA 3ND 50 YR
              Tc            = .3000 hrs
              Drainage Area = 4.120 acres  Runoff CN= 57


              ==========================================
              Computational Time Increment   =   .04000 hrs
              Computed Peak Time             =  12.2400 hrs
              Computed Peak Flow             =     5.50 cfs

              Time Increment for HYG File    =   .1000 hrs
              Peak Time, Interpolated Output =  12.2000 hrs
              Peak Flow, Interpolated Output =     5.33 cfs
              WARNING: The difference between calculated peak flow
              and interpolated peak flow is greater than 1.50%
              ==========================================

                        DRAINAGE AREA
                        --------------------
              ID:PRDA 3ND
              CN   =    57
              Area =       4.120 acres
              S    =    7.5439 in
              0.2S =    1.5088 in


                 Cumulative Runoff
                 --------------------
                      1.7987 in
                       .618 ac-ft

HYG Volume...              .618 ac-ft (area under HYG curve)

***** SCS UNIT HYDROGRAPH PARAMETERS *****

Time Concentration, Tc =    .30000 hrs (ID: PRDA 3ND)
Computational Incr, Tm =    .04000 hrs = 0.20000 Tp

Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
K =  483.43/645.333,  K =     .7491 (also, K = 2/(1+(Tr/Tp))
Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

Unit peak,         qp =    15.56 cfs
Unit peak time     Tp =    .20000 hrs
Unit receding limb, Tr =    .80000 hrs
Total unit time,    Tb =  1.00000 hrs
```

```
Type.... Unit Hyd. Summary                          Page 5.12
Name.... PRDA 3ND          Tag: 100 YR          Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
                 SCS UNIT HYDROGRAPH METHOD

                 STORM EVENT: 100 year storm
                 Duration    = 24.0000 hrs    Rain Depth = 7.0000 in
                 Rain Dir    = C:\Program Files\Haestad\PPKW\PPW\
                 Rain File -ID =  - TypeIII 24hr
                 Unit Hyd Type = Default Curvilinear
                 HYG Dir     = C:\Program Files\Haestad\PPKW\PPW\
                 HYG File - ID =  - PRDA 3ND 100 YR
                 Tc          = .3000 hrs
                 Drainage Area = 4.120 acres  Runoff CN= 57


                 ===============================================
                 Computational Time Increment  =   .04000 hrs
                 Computed Peak Time            =  12.2400 hrs
                 Computed Peak Flow            =     7.27 cfs

                 Time Increment for HYG File   =    .1000 hrs
                 Peak Time, Interpolated Output =  12.2000 hrs
                 Peak Flow, Interpolated Output =     7.11 cfs
                 WARNING: The difference between calculated peak flow
                 and interpolated peak flow is greater than 1.50%
                 ===============================================

                          DRAINAGE AREA
                          --------------------
                 ID:PRDA 3ND
                 CN  =   57
                 Area =      4.120 acres
                 S   =   7.5439 in
                 0.2S =   1.5088 in

                     Cumulative Runoff
                     --------------------
                          2.3133 in
                            .794 ac-ft

                 HYG Volume...        .794 ac-ft (area under HYG curve)

                 ***** SCS UNIT HYDROGRAPH PARAMETERS *****

                 Time Concentration, Tc =   .30000 hrs (ID: PRDA 3ND)
                 Computational Incr, Tm =   .04000 hrs = 0.20000 Tp

                 Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
                 K = 483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
                 Receding/Rising, Tr/Tp =  1.6698 (solved from K =   .7491)

                 Unit peak,        qp =    15.56 cfs
                 Unit peak time    Tp =    .20000 hrs
                 Unit receding limb, Tr =  .80000 hrs
                 Total unit time,  Tb =  1.00000 hrs
```

                    SUMMARY FOR HYDROGRAPH ADDITION
                    at Node: DP 3

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

==
Upstream Link ID Upstream Node ID   HYG file   HYG ID   HYG tag
----
TO DP3   JUNCTION   JUNCTION   2 YR
==

INFLOWS TO: DP 3
--- Volume   Peak Time Peak Flow
HYG file   HYG ID   HYG tag   ac-ft   hrs   cfs

             JUNCTION   2 YR   .162   12.4000   .95

TOTAL FLOW INTO: DP 3
--- Volume   Peak Time Peak Flow
HYG file   HYG ID   HYG tag   ac-ft   hrs   cfs

             DP 3   2 YR   .162   12.4000   .95

```
Type.... Node: Addition Summary                    Page 6.02
Name.... DP 3                                       Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr    Tag: 2 YR
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 3
                    HYG Tag  = 2 YR
                    ------------------------------------
                    Peak Discharge =          .95 cfs
                    Time to Peak   =      12.4000 hrs
                    HYG Volume     =         .162 ac-ft
                    ------------------------------------

                         HYDROGRAPH ORDINATES (cfs)
       Time  |          Output Time increment = .1000 hrs
       hrs   |   Time on left represents time for first value in each row.
     ---------|-------------------------------------------------------------
     11.6000 |     .00       .00       .00       .01       .03
     12.1000 |     .18       .53       .82       .95       .95
     12.6000 |     .86       .74       .64       .57       .52
     13.1000 |     .47       .43       .40       .38       .36
     13.6000 |     .34       .32       .31       .29       .28
     14.1000 |     .26       .25       .24       .23       .22
     14.6000 |     .22       .21       .20       .19       .19
     15.1000 |     .18       .17       .17       .16       .15
     15.6000 |     .14       .14       .13       .13       .12
     16.1000 |     .12       .12       .11       .11       .11
     16.6000 |     .11       .10       .10       .10       .10
     17.1000 |     .10       .09       .09       .09       .09
     17.6000 |     .09       .08       .08       .08       .08
     18.1000 |     .08       .07       .07       .07       .07
     18.6000 |     .07       .07       .07       .07       .07
     19.1000 |     .07       .07       .07       .07       .07
     19.6000 |     .07       .06       .06       .06       .06
     20.1000 |     .06       .06       .06       .06       .06
     20.6000 |     .06       .06       .06       .06       .06
     21.1000 |     .06       .06       .06       .06       .06
     21.6000 |     .06       .06       .05       .05       .05
     22.1000 |     .05       .05       .05       .05       .05
     22.6000 |     .05       .05       .05       .05       .05
     23.1000 |     .05       .05       .05       .05       .05
     23.6000 |     .05       .05       .05       .04       .04
     24.1000 |     .04       .03       .01       .01       .00
     24.6000 |     .00       .00       .00       .00       .00
```

```
Type.... Node: Addition Summary                    Page 6.03
Name.... DP 3                                      Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
                     SUMMARY FOR HYDROGRAPH ADDITION
                        at Node: DP 3

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

================================================================
Upstream Link ID  Upstream Node ID   HYG file   HYG ID      HYG tag
----------------------------------------------------------------
TO DP3            JUNCTION                       JUNCTION    10 YR
================================================================


INFLOWS TO:  DP 3
-------------------------------------- Volume   Peak Time  Peak Flow
HYG file    HYG ID        HYG tag      ac-ft    hrs        cfs
----------------------------------------------------------------
            JUNCTION      10 YR        .507     12.3000    3.41


TOTAL FLOW INTO:  DP 3
-------------------------------------- Volume   Peak Time  Peak Flow
HYG file    HYG ID        HYG tag      ac-ft    hrs        cfs
----------------------------------------------------------------
            DP 3          10 YR        .507     12.3000    3.41
```

```
Type.... Node: Addition Summary                           Page 6.04
Name.... DP 3                                             Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 3
                    HYG Tag  = 10 YR
                    ------------------------------------
                    Peak Discharge =       3.41 cfs
                    Time to Peak   =    12.3000 hrs
                    HYG Volume     =       .507 ac-ft
                    ------------------------------------
```

```
                         HYDROGRAPH ORDINATES (cfs)
     Time  |         Output Time increment = .1000 hrs
     hrs   |    Time on left represents time for first value in each row.
    -------|--------------------------------------------------------------
    10.5000 |        .00       .00       .00       .00       .00
    11.0000 |        .01       .01       .01       .01       .01
    11.5000 |        .01       .02       .03       .10       .32
    12.0000 |        .92      2.09      3.16      3.41      3.18
    12.5000 |       2.84      2.42      2.05      1.79      1.64
    13.0000 |       1.52      1.42      1.34      1.27      1.22
    13.5000 |       1.17      1.12      1.07      1.03       .97
    14.0000 |        .93       .87       .81       .75       .71
    14.5000 |        .67       .64       .61       .59       .56
    15.0000 |        .54       .52       .50       .48       .46
    15.5000 |        .45       .43       .41       .39       .38
    16.0000 |        .36       .34       .33       .32       .31
    16.5000 |        .30       .29       .28       .27       .27
    17.0000 |        .26       .25       .24       .23       .23
    17.5000 |        .22       .21       .20       .20       .19
    18.0000 |        .18       .18       .17       .17       .17
    18.5000 |        .16       .16       .16       .16       .16
    19.0000 |        .16       .15       .15       .15       .15
    19.5000 |        .15       .15       .15       .14       .14
    20.0000 |        .14       .14       .14       .14       .14
    20.5000 |        .14       .13       .13       .13       .13
    21.0000 |        .13       .13       .13       .13       .13
    21.5000 |        .12       .12       .12       .12       .12
    22.0000 |        .12       .12       .12       .12       .11
    22.5000 |        .11       .11       .11       .11       .11
    23.0000 |        .11       .11       .11       .10       .10
    23.5000 |        .10       .10       .10       .10       .10
    24.0000 |        .10       .09       .05       .03       .01
    24.5000 |        .01       .01       .00       .00       .00
    25.0000 |        .00       .00       .00       .00
```

```
Type.... Node: Addition Summary                    Page 6.05
Name.... DP 3                                      Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr    Tag: 25 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                         at Node: DP 3


  HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

  =======================================================================
  Upstream Link ID  Upstream Node ID   HYG file    HYG ID          HYG tag
  -----------------------------------------------------------------------
  TO DP3            JUNCTION                        JUNCTION        25 YR
  =======================================================================


  INFLOWS TO:  DP 3
  ---------------------------------------- Volume    Peak Time  Peak Flow
  HYG file      HYG ID          HYG tag    ac-ft     hrs        cfs
  ----------------------------------------------------------------------
                JUNCTION        25 YR       .737     12.3000      5.00


  TOTAL FLOW INTO:  DP 3
  ---------------------------------------- Volume    Peak Time  Peak Flow
  HYG file      HYG ID          HYG tag    ac-ft     hrs        cfs
  ----------------------------------------------------------------------
                DP 3            25 YR       .737     12.3000      5.00
```

```
Type.... Node: Addition Summary                       Page 6.06
Name.... DP 3                                          Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr    Tag: 25 YR
```

```
                 TOTAL NODE INFLOW...
                 HYG file =
                 HYG ID   = DP 3
                 HYG Tag  = 25 YR
                 ----------------------------------
                 Peak Discharge =       5.00 cfs
                 Time to Peak   =   12.3000 hrs
                 HYG Volume     =       .737 ac-ft
                 ----------------------------------
```

```
                         HYDROGRAPH ORDINATES (cfs)
        Time  |          Output Time increment = .1000 hrs
        hrs   |    Time on left represents time for first value in each row.
     ---------|--------------------------------------------------------------
        9.9000 |     .00        .00        .00        .00        .00
       10.4000 |     .00        .01        .01        .01        .01
       10.9000 |     .01        .01        .01        .02        .02
       11.4000 |     .02        .05        .10        .21        .45
       11.9000 |     .92       1.85       3.43       4.84       5.00
       12.4000 |    4.54       3.97       3.33       2.76       2.39
       12.9000 |    2.17       2.01       1.88       1.78       1.71
       13.4000 |    1.65       1.59       1.54       1.49       1.44
       13.9000 |    1.39       1.33       1.28       1.23       1.18
       14.4000 |    1.13       1.09       1.04       1.00        .96
       14.9000 |     .90        .84        .79        .75        .72
       15.4000 |     .68        .65        .62        .59        .57
       15.9000 |     .54        .52        .49        .47        .45
       16.4000 |     .44        .43        .41        .40        .39
       16.9000 |     .38        .36        .35        .34        .33
       17.4000 |     .32        .31        .31        .30        .29
       17.9000 |     .28        .27        .26        .25        .24
       18.4000 |     .24        .23        .23        .22        .22
       18.9000 |     .21        .21        .21        .20        .20
       19.4000 |     .20        .20        .20        .19        .19
       19.9000 |     .19        .19        .19        .18        .18
       20.4000 |     .18        .18        .18        .18        .17
       20.9000 |     .17        .17        .17        .17        .17
       21.4000 |     .17        .16        .16        .16        .16
       21.9000 |     .16        .16        .16        .15        .15
       22.4000 |     .15        .15        .15        .15        .15
       22.9000 |     .14        .14        .14        .14        .14
       23.4000 |     .14        .13        .13        .13        .13
       23.9000 |     .13        .13        .11        .07        .04
       24.4000 |     .02        .01        .01        .00        .00
       24.9000 |     .00        .00        .00        .00        .00
```

```
                        HYDROGRAPH ORDINATES (cfs)
         Time |          Output Time increment = .1000 hrs
         hrs  |    Time on left represents time for first value in each row.
    ---------|-----------------------------------------------------------------
     25.4000 |          .00
```

SUMMARY FOR HYDROGRAPH ADDITION
at Node: DP 3

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

```
===============================================================
Upstream Link ID  Upstream Node ID   HYG file   HYG ID        HYG tag
---------------------------------------------------------------
TO DP3            JUNCTION                      JUNCTION      50 YR
===============================================================
```

INFLOWS TO: DP 3

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNCTION	50 YR	.958	12.3000	6.73

TOTAL FLOW INTO: DP 3

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DP 3	50 YR	.958	12.3000	6.73

```
Type.... Node: Addition Summary                          Page 6.09
Name.... DP 3                                            Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 3
                    HYG Tag  = 50 YR
                    -----------------------------------
                    Peak Discharge =        6.73 cfs
                    Time to Peak   =     12.3000 hrs
                    HYG Volume     =        .958 ac-ft
                    -----------------------------------
```

```
                            HYDROGRAPH ORDINATES (cfs)
     Time  |              Output Time increment = .1000 hrs
     hrs   |    Time on left represents time for first value in each row.
   --------|-------------------------------------------------------------
     9.4000 |      .00        .00        .00        .00        .00
     9.9000 |      .00        .00        .01        .01        .01
    10.4000 |      .01        .01        .01        .01        .02
    10.9000 |      .02        .02        .03        .05        .09
    11.4000 |      .14        .20        .29        .49        .88
    11.9000 |     1.55       2.68       4.70       6.45       6.73
    12.4000 |     6.16       5.38       4.45       3.63       3.07
    12.9000 |     2.71       2.45       2.25       2.11       2.01
    13.4000 |     1.94       1.89       1.83       1.78       1.72
    13.9000 |     1.67       1.61       1.55       1.50       1.45
    14.4000 |     1.40       1.36       1.31       1.27       1.22
    14.9000 |     1.18       1.13       1.09       1.04       1.00
    15.4000 |      .93        .88        .83        .78        .74
    15.9000 |      .70        .67        .64        .61        .58
    16.4000 |      .56        .54        .53        .51        .50
    16.9000 |      .48        .47        .45        .44        .43
    17.4000 |      .41        .40        .39        .37        .36
    17.9000 |      .35        .34        .33        .32        .31
    18.4000 |      .31        .30        .29        .29        .29
    18.9000 |      .28        .28        .27        .27        .26
    19.4000 |      .26        .25        .25        .25        .24
    19.9000 |      .24        .23        .23        .23        .22
    20.4000 |      .22        .22        .22        .22        .21
    20.9000 |      .21        .21        .21        .21        .20
    21.4000 |      .20        .20        .20        .20        .20
    21.9000 |      .19        .19        .19        .19        .19
    22.4000 |      .18        .18        .18        .18        .18
    22.9000 |      .17        .17        .17        .17        .17
    23.4000 |      .17        .16        .16        .16        .16
    23.9000 |      .16        .15        .14        .09        .04
    24.4000 |      .02        .01        .01        .01        .00
```

```
                        HYDROGRAPH ORDINATES (cfs)
        Time  |            Output Time increment = .1000 hrs
         hrs  |    Time on left represents time for first value in each row.
       -------|-------------------------------------------------------------
       24.9000 |       .00        .00        .00        .00        .00
       25.4000 |       .00        .00
```

```
Type.... Node: Addition Summary                        Page 6.11
Name.... DP 3                                        Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                        at Node: DP 3

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

==============================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID          HYG tag
--------------------------------------------------------------
TO DP3            JUNCTION                        JUNCTION        100 YR
==============================================================


INFLOWS TO:  DP 3
------------------------------------ Volume    Peak Time   Peak Flow
HYG file     HYG ID          HYG tag    ac-ft       hrs        cfs
------------------------------------------------------------------
             JUNCTION        100 YR    1.231     12.3000      9.19


TOTAL FLOW INTO:  DP 3
------------------------------------ Volume    Peak Time   Peak Flow
HYG file     HYG ID          HYG tag    ac-ft       hrs        cfs
------------------------------------------------------------------
             DP 3            100 YR    1.231     12.3000      9.19
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 3
                    HYG Tag  = 100 YR
                    ------------------------------------
                    Peak Discharge =        9.19 cfs
                    Time to Peak   =     12.3000 hrs
                    HYG Volume     =        1.231 ac-ft
                    ------------------------------------
```

```
                         HYDROGRAPH ORDINATES (cfs)
     Time |            Output Time increment = .1000 hrs
     hrs  |   Time on left represents time for first value in each row.
   -------|-----------------------------------------------------------------
    8.9000 |      .00         .00         .00         .00         .00
    9.4000 |      .00         .00         .01         .01         .01
    9.9000 |      .01         .01         .01         .01         .01
   10.4000 |      .02         .02         .02         .03         .05
   10.9000 |      .08         .11         .15         .20         .25
   11.4000 |      .34         .44         .58         .88        1.45
   11.9000 |     2.25        3.69        6.25        8.80        9.19
   12.4000 |     8.30        7.15        5.85        4.72        3.93
   12.9000 |     3.41        3.04        2.75        2.52        2.37
   13.4000 |     2.26        2.18        2.11        2.05        1.99
   13.9000 |     1.94        1.87        1.81        1.76        1.70
   14.4000 |     1.66        1.61        1.57        1.52        1.47
   14.9000 |     1.43        1.38        1.34        1.29        1.24
   15.4000 |     1.19        1.14        1.09        1.05         .98
   15.9000 |      .92         .87         .81         .77         .74
   16.4000 |      .71         .69         .66         .64         .62
   16.9000 |      .60         .59         .57         .55         .54
   17.4000 |      .52         .51         .49         .47         .46
   17.9000 |      .44         .43         .41         .40         .39
   18.4000 |      .38         .38         .37         .37         .36
   18.9000 |      .35         .35         .34         .34         .33
   19.4000 |      .33         .33         .32         .32         .31
   19.9000 |      .31         .30         .30         .29         .29
   20.4000 |      .29         .28         .28         .27         .27
   20.9000 |      .27         .26         .26         .26         .25
   21.4000 |      .25         .25         .24         .24         .24
   21.9000 |      .23         .23         .23         .23         .23
   22.4000 |      .22         .22         .22         .22         .21
   22.9000 |      .21         .21         .21         .20         .20
   23.4000 |      .20         .20         .20         .19         .19
   23.9000 |      .19         .19         .17         .11         .05
```

```
Type.... Node: Addition Summary                    Page 6.13
Name.... DP 3                                      Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr    Tag: 100 YR
```

```
                          HYDROGRAPH ORDINATES (cfs)
         Time  |          Output Time increment = .1000 hrs
         hrs   |   Time on left represents time for first value in each row.
       --------|-------------------------------------------------------------
        24.4000 |     .03       .02       .01       .01       .00
        24.9000 |     .00       .00       .00       .00       .00
        25.4000 |     .00       .00       .00
```

```
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
```

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
1443.50	-----	.0600	.0000	.000	.000
1445.50	-----	.1000	.2375	.158	.158
1447.50	-----	.1400	.3583	.239	.397

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

   Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

   where: EL1, EL2   = Lower and upper elevations of the increment
          Area1,Area2   = Areas computed for EL1, EL2, respectively
          Volume   = Incremental volume between EL1 and EL2

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

                    REQUESTED POND WS ELEVATIONS:

                    Min. Elev.=   1443.50 ft
                    Increment =   .10 ft
                    Max. Elev.=   1447.50 ft

            ****
                         OUTLET CONNECTIVITY
            ****

             ---> Forward Flow Only (UpStream to DnStream)
             <--- Reverse Flow Only (DnStream to UpStream)
             <---> Forward and Reverse Both Allowed

        Structure   No.   Outfall   E1, ft   E2, ft
        ---------------   ----   -------   --------- ---------
    Orifice-Circular   2   --->   TW   1445.000   1447.500
    Orifice-Circular   1   --->   TW   1443.500   1447.500
    TW SETUP, DS Channel

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

OUTLET STRUCTURE INPUT DATA

        Structure ID   = 2
        Structure Type   = Orifice-Circular

        # of Openings   =   1
        Invert Elev.   =   1445.00 ft
        Diameter   =   .7500 ft
        Orifice Coeff.   =   .600

        Structure ID   = 1
        Structure Type   = Orifice-Circular

        # of Openings   =   1
        Invert Elev.   =   1443.50 ft
        Diameter   =   .5000 ft
        Orifice Coeff.   =   .600

        Structure ID   = TW
        Structure Type   = TW SETUP, DS Channel

        FREE OUTFALL CONDITIONS SPECIFIED

        CONVERGENCE TOLERANCES...
        Maximum Iterations=   30
        Min. TW tolerance =   .01 ft
        Max. TW tolerance =   .01 ft
        Min. HW tolerance =   .01 ft
        Max. HW tolerance =   .01 ft
        Min. Q tolerance =   .10 cfs
        Max. Q tolerance =   .10 cfs

File... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2 (Orifice-Circular)

Upstream ID =   (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev.	Device Q	Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
1443.50	.00	Free Outfall		HW & TW below invert
1443.60	.00	Free Outfall		HW & TW below invert
1443.70	.00	Free Outfall		HW & TW below invert
1443.80	.00	Free Outfall		HW & TW below invert
1443.90	.00	Free Outfall		HW & TW below invert
1444.00	.00	Free Outfall		HW & TW below invert
1444.10	.00	Free Outfall		HW & TW below invert
1444.20	.00	Free Outfall		HW & TW below invert
1444.30	.00	Free Outfall		HW & TW below invert
1444.40	.00	Free Outfall		HW & TW below invert
1444.50	.00	Free Outfall		HW & TW below invert
1444.60	.00	Free Outfall		HW & TW below invert
1444.70	.00	Free Outfall		HW & TW below invert
1444.80	.00	Free Outfall		HW & TW below invert
1444.90	.00	Free Outfall		HW & TW below invert
1445.00	.00	Free Outfall		Upstream HW & DNstream TW < Inv.El
1445.10	.03	Free Outfall		CRIT.DEPTH CONTROL Vh= .024ft Dcr= .076ft CRIT.DEPTH
1445.20	.11	Free Outfall		CRIT.DEPTH CONTROL Vh= .053ft Dcr= .146ft CRIT.DEPTH
1445.30	.24	Free Outfall		CRIT.DEPTH CONTROL Vh= .080ft Dcr= .220ft CRIT.DEPTH
1445.40	.42	Free Outfall		CRIT.DEPTH CONTROL Vh= .109ft Dcr= .291ft CRIT.DEPTH
1445.50	.63	Free Outfall		CRIT.DEPTH CONTROL Vh= .140ft Dcr= .360ft CRIT.DEPTH
1445.60	.86	Free Outfall		CRIT.DEPTH CONTROL Vh= .175ft Dcr= .425ft CRIT.DEPTH
1445.70	1.12	Free Outfall		CRIT.DEPTH CONTROL Vh= .212ft Dcr= .488ft CRIT.DEPTH
1445.80	1.39	Free Outfall		H =.43
1445.90	1.54	Free Outfall		H =.53
1446.00	1.68	Free Outfall		H =.63
1446.10	1.81	Free Outfall		H =.72
1446.20	1.93	Free Outfall		H =.82
1446.30	2.05	Free Outfall		H =.93
1446.40	2.15	Free Outfall		H =1.03
1446.50	2.26	Free Outfall		H =1.13
1446.60	2.35	Free Outfall		H =1.22
1446.70	2.45	Free Outfall		H =1.32
1446.80	2.54	Free Outfall		H =1.43

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 2   (Orifice-Circular)

Upstream   ID =   (Pond Water Surface)
DNstream   ID = TW (Pond Outfall)

WS Elev,Device Q		Tail Water		Notes
WS Elev.	Q	TW Elev	Converge	
ft	cfs	ft	+/-ft	Computation Messages
1446.90	2.63	Free Outfall		H =1.53
1447.00	2.71	Free Outfall		H =1.63
1447.10	2.79	Free Outfall		H =1.72
1447.20	2.87	Free Outfall		H =1.82
1447.30	2.95	Free Outfall		H =1.93
1447.40	3.03	Free Outfall		H =2.03
1447.50	3.10	Free Outfall		H =2.13

```
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW


                 RATING TABLE FOR ONE OUTLET TYPE

            Structure ID  = 1  (Orifice-Circular)
            ------------------------------------
            Upstream  ID  =     (Pond Water Surface)
            DNstream  ID  = TW  (Pond Outfall)


    WS Elev,Device Q      Tail Water              Notes
    ----------------      ----------------    ----------------------------
    WS Elev.    Q        TW Elev Converge
       ft      cfs        ft     +/-ft    Computation Messages
    --------  -------    -------  -----    ----------------------------
    1443.50     .00     Free Outfall    Upstream HW & DNstream TW < Inv.El
    1443.60     .02     Free Outfall    CRIT.DEPTH CONTROL  Vh= .022ft  Dcr= .078ft   CRIT.DEPTH
    1443.70     .09     Free Outfall    CRIT.DEPTH CONTROL  Vh= .051ft  Dcr= .148ft   CRIT.DEPTH
    1443.80     .19     Free Outfall    CRIT.DEPTH CONTROL  Vh= .081ft  Dcr= .219ft   CRIT.DEPTH
    1443.90     .31     Free Outfall    CRIT.DEPTH CONTROL  Vh= .116ft  Dcr= .283ft   CRIT.DEPTH
    1444.00     .47     Free Outfall    H =.25
    1444.10     .56     Free Outfall    H =.35
    1444.20     .63     Free Outfall    H =.45
    1444.30     .70     Free Outfall    H =.55
    1444.40     .76     Free Outfall    H =.65
    1444.50     .82     Free Outfall    H =.75
    1444.60     .87     Free Outfall    H =.85
    1444.70     .92     Free Outfall    H =.95
    1444.80     .97     Free Outfall    H =1.05
    1444.90    1.01     Free Outfall    H =1.15
    1445.00    1.06     Free Outfall    H =1.25
    1445.10    1.10     Free Outfall    H =1.35
    1445.20    1.14     Free Outfall    H =1.45
    1445.30    1.18     Free Outfall    H =1.55
    1445.40    1.21     Free Outfall    H =1.65
    1445.50    1.25     Free Outfall    H =1.75
    1445.60    1.29     Free Outfall    H =1.85
    1445.70    1.32     Free Outfall    H =1.95
    1445.80    1.35     Free Outfall    H =2.05
    1445.90    1.39     Free Outfall    H =2.15
    1446.00    1.42     Free Outfall    H =2.25
    1446.10    1.45     Free Outfall    H =2.35
    1446.20    1.48     Free Outfall    H =2.45
    1446.30    1.51     Free Outfall    H =2.55
    1446.40    1.54     Free Outfall    H =2.65
    1446.50    1.57     Free Outfall    H =2.75
    1446.60    1.60     Free Outfall    H =2.85
    1446.70    1.62     Free Outfall    H =2.95
    1446.80    1.65     Free Outfall    H =3.05
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 1 (Orifice-Circular)

Upstream ID =   (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev.	Device Q	Tail Water		Notes
WS Elev.	Q	TW Elev	Converge	
ft	cfs	ft	+/-ft	Computation Messages
1446.90	1.68	Free Outfall		H =3.15
1447.00	1.70	Free Outfall		H =3.25
1447.10	1.73	Free Outfall		H =3.35
1447.20	1.76	Free Outfall		H =3.45
1447.30	1.78	Free Outfall		H =3.55
1447.40	1.81	Free Outfall		H =3.65
1447.50	1.83	Free Outfall		H =3.75

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q				Notes
		Converge		
Elev.	Q	TW Elev	Error	
ft	cfs	ft	+/-ft	Contributing Structures
1443.50	.00	Free Outfall		None contributing
1443.60	.02	Free Outfall		1
1443.70	.09	Free Outfall		1
1443.80	.19	Free Outfall		1
1443.90	.31	Free Outfall		1
1444.00	.47	Free Outfall		1
1444.10	.56	Free Outfall		1
1444.20	.63	Free Outfall		1
1444.30	.70	Free Outfall		1
1444.40	.76	Free Outfall		1
1444.50	.82	Free Outfall		1
1444.60	.87	Free Outfall		1
1444.70	.92	Free Outfall		1
1444.80	.97	Free Outfall		1
1444.90	1.01	Free Outfall		1
1445.00	1.06	Free Outfall		1
1445.10	1.13	Free Outfall		2 +1
1445.20	1.25	Free Outfall		2 +1
1445.30	1.42	Free Outfall		2 +1
1445.40	1.63	Free Outfall		2 +1
1445.50	1.88	Free Outfall		2 +1
1445.60	2.15	Free Outfall		2 +1
1445.70	2.44	Free Outfall		2 +1
1445.80	2.74	Free Outfall		2 +1
1445.90	2.93	Free Outfall		2 +1
1446.00	3.10	Free Outfall		2 +1
1446.10	3.26	Free Outfall		2 +1
1446.20	3.41	Free Outfall		2 +1
1446.30	3.55	Free Outfall		2 +1
1446.40	3.69	Free Outfall		2 +1
1446.50	3.82	Free Outfall		2 +1
1446.60	3.95	Free Outfall		2 +1
1446.70	4.07	Free Outfall		2 +1
1446.80	4.19	Free Outfall		2 +1
1446.90	4.30	Free Outfall		2 +1
1447.00	4.41	Free Outfall		2 +1
1447.10	4.52	Free Outfall		2 +1
1447.20	4.63	Free Outfall		2 +1

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q				Notes
Elev.	Q	TW Elev	Converge Error	
ft	cfs	ft	+/-ft	Contributing Structures
1447.30	4.73	Free Outfall	2 +1	
1447.40	4.83	Free Outfall	2 +1	
1447.50	4.93	Free Outfall	2 +1	

```
              INFILTRATION RATING TABLE CALCULATIONS

         Infilt.(cfs) = (2.0000 (in/hr)  * Area) * Ku
         Where: Ku = units conversion factor
```

W.S.Elev ft	Total Area acres	Infilt. cfs
No storage at this elevation... infiltration set to zero.		
1443.50	.0600	.00
1443.60	.0618	.12
1443.70	.0635	.13
1443.80	.0654	.13
1443.90	.0672	.14
1444.00	.0690	.14
1444.10	.0709	.14
1444.20	.0728	.15
1444.30	.0748	.15
1444.40	.0767	.15
1444.50	.0787	.16
1444.60	.0807	.16
1444.70	.0828	.17
1444.80	.0848	.17
1444.90	.0869	.18
1445.00	.0890	.18
1445.10	.0912	.18
1445.20	.0934	.19
1445.30	.0955	.19
1445.40	.0978	.20
1445.50	.1000	.20
1445.60	.1018	.21
1445.70	.1037	.21
1445.80	.1056	.21
1445.90	.1075	.22
1446.00	.1094	.22
1446.10	.1113	.22
1446.20	.1132	.23
1446.30	.1152	.23
1446.40	.1172	.24
1446.50	.1192	.24
1446.60	.1212	.24
1446.70	.1232	.25
1446.80	.1252	.25
1446.90	.1273	.26
1447.00	.1294	.26
1447.10	.1315	.27
1447.20	.1336	.27
1447.30	.1357	.27
1447.40	.1378	.28
1447.50	.1400	.28

```
                        LEVEL POOL ROUTING DATA

    HYG Dir        = C:\Program Files\Haestad\PPKW\PPW\
    Inflow  HYG file = NONE STORED - POND 1        IN  2 YR
    Outflow HYG file = NONE STORED - POND 1        OUT 2 YR

    Pond Node    Data = POND 1
    Pond Volume Data = POND 1
    Pond Outlet Data = Outlet 1


    Infiltration =   2.0000 in/hr

    INITIAL CONDITIONS
    -----------------------------------
    Starting WS Elev   =  1443.50 ft
    Starting Volume    =      .000 ac-ft
    Starting Outflow   =      .00 cfs
    Starting Infiltr.  =      .00 cfs
    Starting Total Qout=      .00 cfs
    Time Increment     =      .1000 hrs
```

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
1443.50	.00	.000	.0600	.00	.00	.00
1443.60	.02	.006	.0618	.12	.15	1.62
1443.70	.09	.012	.0635	.13	.22	3.21
1443.80	.19	.019	.0654	.13	.32	4.87
1443.90	.31	.025	.0672	.14	.45	6.60
1444.00	.47	.032	.0690	.14	.61	8.41
1444.10	.56	.039	.0709	.14	.70	10.20
1444.20	.63	.046	.0728	.15	.78	12.01
1444.30	.70	.054	.0748	.15	.85	13.87
1444.40	.76	.061	.0767	.15	.92	15.77
1444.50	.82	.069	.0787	.16	.98	17.71
1444.60	.87	.077	.0807	.16	1.03	19.70
1444.70	.92	.085	.0828	.17	1.09	21.73
1444.80	.97	.094	.0848	.17	1.14	23.81
1444.90	1.01	.102	.0869	.18	1.19	25.94
1445.00	1.06	.111	.0890	.18	1.24	28.12
1445.10	1.13	.120	.0912	.18	1.31	30.37
1445.20	1.25	.129	.0934	.19	1.44	32.73
1445.30	1.42	.139	.0955	.19	1.61	35.19
1445.40	1.63	.148	.0978	.20	1.83	37.75

                       LEVEL POOL ROUTING DATA

    HYG Dir   = C:\Program Files\Haestad\PPKW\PPW\
    Inflow HYG file = NONE STORED - POND 1   IN 2 YR
    Outflow HYG file = NONE STORED - POND 1   OUT 2 YR

    Pond Node   Data = POND 1
    Pond Volume Data = POND 1
    Pond Outlet Data = Outlet 1

    Infiltration =   2.0000 in/hr

    INITIAL CONDITIONS

    Starting WS Elev   =   1443.50 ft
    Starting Volume   =   .000 ac-ft
    Starting Outflow   =   .00 cfs
    Starting Infiltr. =   .00 cfs
    Starting Total Qout=   .00 cfs
    Time Increment   =   .1000 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
1445.50	1.88	.158	.1000	.20	2.08	40.39
1445.60	2.15	.168	.1018	.21	2.36	43.11
1445.70	2.44	.179	.1037	.21	2.65	45.89
1445.80	2.74	.189	.1056	.21	2.95	48.73
1445.90	2.93	.200	.1075	.22	3.14	51.49
1446.00	3.10	.211	.1094	.22	3.32	54.29
1446.10	3.26	.222	.1113	.22	3.48	57.13
1446.20	3.41	.233	.1132	.23	3.64	60.00
1446.30	3.55	.244	.1152	.23	3.79	62.91
1446.40	3.69	.256	.1172	.24	3.93	65.86
1446.50	3.82	.268	.1192	.24	4.06	68.86
1446.60	3.95	.280	.1212	.24	4.19	71.90
1446.70	4.07	.292	.1232	.25	4.32	74.98
1446.80	4.19	.304	.1252	.25	4.44	78.11
1446.90	4.30	.317	.1273	.26	4.56	81.28
1447.00	4.41	.330	.1294	.26	4.68	84.50
1447.10	4.52	.343	.1315	.27	4.79	87.77
1447.20	4.63	.356	.1336	.27	4.90	91.09
1447.30	4.73	.370	.1357	.27	5.00	94.45
1447.40	4.83	.383	.1378	.28	5.11	97.87

                        LEVEL POOL ROUTING DATA

    HYG Dir   = C:\Program Files\Haestad\PPKW\PPW\
    Inflow HYG file = NONE STORED - POND 1   IN 2 YR
    Outflow HYG file = NONE STORED - POND 1   OUT 2 YR

    Pond Node   Data = POND 1
    Pond Volume Data = POND 1
    Pond Outlet Data = Outlet 1

    Infiltration = 2.0000 in/hr

    INITIAL CONDITIONS

    Starting WS Elev   = 1443.50 ft
    Starting Volume   =   .000 ac-ft
    Starting Outflow   =   .00 cfs
    Starting Infiltr. =   .00 cfs
    Starting Total Qout=   .00 cfs
    Time Increment   =   .1000 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
1447.50	4.93	.397	.1400	.28	5.21	101.33

```
Type.... Pond Routing Summary                      Page 9.05
Name.... POND 1      OUT   Tag: 2 YR               Event: 2 yr
File... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                      LEVEL POOL ROUTING SUMMARY

HYG Dir           = C:\Program Files\Haestad\PPKW\PPW\
Inflow  HYG file  = NONE STORED - POND 1        IN  2 YR
Outflow HYG file  = NONE STORED - POND 1        OUT 2 YR

Pond Node   Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Outlet 1

Infiltration =   2.0000 in/hr

INITIAL CONDITIONS
-----------------------------------
Starting WS Elev  =  1443.50 ft
Starting Volume   =     .000 ac-ft
Starting Outflow  =     .00 cfs
Starting Infiltr. =     .00 cfs
Starting Total Qout=    .00 cfs
Time Increment    =    .1000 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=================================================================
Peak Inflow       =      1.36 cfs   at   12.1000 hrs
Peak Outflow      =       .43 cfs   at   12.5000 hrs
Peak Infiltration =       .14 cfs   at   12.5000 hrs
-----------------------------------------------------------------
Peak Elevation    =  1443.97 ft
Peak Storage =           .030 ac-ft
=================================================================


MASS BALANCE (ac-ft)
---------------------------
+ Initial Vol  =      .000
+ HYG Vol IN   =      .133
- Infiltration =      .077
- HYG Vol OUT  =      .056
- Retained Vol =      .000
                  ----------
Unrouted Vol =       -.000 ac-ft  (.000% of Inflow Volume)
```

```
Type.... Pond Routing Summary                    Page 9.06
Name.... POND 1      OUT   Tag: 10 YR            Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
                    LEVEL POOL ROUTING SUMMARY

HYG Dir          = C:\Program Files\Haestad\PPKW\PPW\
Inflow  HYG file = NONE STORED - POND 1       IN  10 YR
Outflow HYG file = NONE STORED - POND 1       OUT 10 YR

Pond Node   Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Outlet 1

Infiltration =   2.0000 in/hr

INITIAL CONDITIONS
-----------------------------------
Starting WS Elev  =  1443.50 ft
Starting Volume   =      .000 ac-ft
Starting Outflow  =      .00 cfs
Starting Infiltr. =      .00 cfs
Starting Total Qout=     .00 cfs
Time Increment    =    .1000 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=======================================================
Peak Inflow       =      3.38 cfs    at   12.1000 hrs
Peak Outflow      =       .92 cfs    at   12.5000 hrs
Peak Infiltration =       .17 cfs    at   12.5000 hrs
-------------------------------------------------------
Peak Elevation    =  1444.69 ft
Peak Storage =            .084 ac-ft
=======================================================


MASS BALANCE (ac-ft)
--------------------------
+ Initial Vol  =       .000
+ HYG Vol IN   =       .297
- Infiltration =       .116
- HYG Vol OUT  =       .182
- Retained Vol =       .000
                  ----------
  Unrouted Vol =        -.000 ac-ft  (.001% of Inflow Volume)
```

```
Type.... Pond Routing Summary                         Page 9.07
Name.... POND 1    OUT   Tag: 25 YR                    Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 25 YR
```

```
                     LEVEL POOL ROUTING SUMMARY

HYG Dir            = C:\Program Files\Haestad\PPKW\PPW\
Inflow  HYG file = NONE STORED - POND 1        IN  25 YR
Outflow HYG file = NONE STORED - POND 1        OUT 25 YR

Pond Node    Data = POND 1
Pond Volume  Data = POND 1
Pond Outlet  Data = Outlet 1

Infiltration =  2.0000 in/hr

INITIAL CONDITIONS
----------------------------------
Starting WS Elev   =  1443.50 ft
Starting Volume    =      .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .1000 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
==================================================================
Peak Inflow       =      4.60 cfs    at   12.1000 hrs
Peak Outflow      =      1.15 cfs    at   12.5000 hrs
Peak Infiltration =       .18 cfs    at   12.5000 hrs
------------------------------------------------------------------
Peak Elevation    =  1445.12 ft
Peak Storage =          .122 ac-ft
==================================================================


MASS BALANCE (ac-ft)
----------------------------
+ Initial Vol   =       .000
+ HYG Vol IN    =       .397
- Infiltration  =       .135
- HYG Vol OUT   =       .263
- Retained Vol  =       .000
                    ----------
  Unrouted Vol  =      -.000 ac-ft  (.001% of Inflow Volume)
```

```
Type.... Pond Routing Summary                          Page 9.08
Name.... POND 1      OUT   Tag: 50 YR               Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 3.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
                         LEVEL POOL ROUTING SUMMARY

 HYG Dir         = C:\Program Files\Haestad\PPKW\PPW\
 Inflow  HYG file = NONE STORED - POND 1          IN  50 YR
 Outflow HYG file = NONE STORED - POND 1          OUT 50 YR

 Pond Node   Data = POND 1
 Pond Volume Data = POND 1
 Pond Outlet Data = Outlet 1

 Infiltration =  2.0000 in/hr

 INITIAL CONDITIONS
 -----------------------------------
 Starting WS Elev  = 1443.50 ft
 Starting Volume   =    .000 ac-ft
 Starting Outflow  =    .00 cfs
 Starting Infiltr. =    .00 cfs
 Starting Total Qout=   .00 cfs
 Time Increment    =  .1000 hrs


 INFLOW/OUTFLOW HYDROGRAPH SUMMARY
 ========================================================
 Peak Inflow       =     5.71 cfs   at   12.1000 hrs
 Peak Outflow      =     1.70 cfs   at   12.5000 hrs
 Peak Infiltration =      .20 cfs   at   12.5000 hrs
 --------------------------------------------------------
 Peak Elevation    = 1445.43 ft
 Peak Storage =         .151 ac-ft
 ========================================================


 MASS BALANCE (ac-ft)
 -------------------------
 + Initial Vol  =       .000
 + HYG Vol IN   =       .490
 - Infiltration =       .149
 - HYG Vol OUT  =       .341
 - Retained Vol =       .000
                    -----------
   Unrouted Vol =       .000 ac-ft  (.000% of Inflow Volume)
```

                        LEVEL POOL ROUTING SUMMARY

    HYG Dir   = C:\Program Files\Haestad\PPKW\PPW\
    Inflow HYG file = NONE STORED - POND 1   IN 100 YR
    Outflow HYG file = NONE STORED - POND 1   OUT 100 YR

    Pond Node   Data = POND 1
    Pond Volume Data = POND 1
    Pond Outlet Data = Outlet 1

    Infiltration =   2.0000 in/hr

    INITIAL CONDITIONS

    Starting WS Elev = 1443.50 ft
    Starting Volume   =   .000 ac-ft
    Starting Outflow =   .00 cfs
    Starting Infiltr. =   .00 cfs
    Starting Total Qout=   .00 cfs
    Time Increment   =   .1000 hrs

    INFLOW/OUTFLOW HYDROGRAPH SUMMARY
    ===
    Peak Inflow   =   7.03 cfs   at 12.1000 hrs
    Peak Outflow   =   2.47 cfs   at 12.4000 hrs
    Peak Infiltration =   .21 cfs   at 12.4000 hrs

    Peak Elevation   = 1445.71 ft
    Peak Storage =   .180 ac-ft
    ===

    MASS BALANCE (ac-ft)

  + Initial Vol =   .000
  + HYG Vol IN   =   .600
  - Infiltration =   .163
  - HYG Vol OUT =   .437
  - Retained Vol =   .000

    Unrouted Vol =   -.000 ac-ft (.001% of Inflow Volume)

Index of Starting Page Numbers for ID Names

Existing Flows – DL4

Table of Contents

Table of Contents (continued)

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Litchfield Co.

Return Event	Total Depth in	Rainfall Type	RNF ID
2 YR	3.2000	Synthetic Curve	TypeIII 24hr
10 YR	4.7000	Synthetic Curve	TypeIII 24hr
25 YR	5.5000	Synthetic Curve	TypeIII 24hr
50 YR	6.2000	Synthetic Curve	TypeIII 24hr
100 YR	7.0000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*DP 4	JCT	2	.167		12.5000	.68		
*DP 4	JCT	10	.554		12.3500	3.90		
*DP 4	JCT	25	.823		12.3000	6.44		
*DP 4	JCT	50	1.085		12.3000	8.91		
*DP 4	JCT	100	1.411		12.2500	11.96		
EXDA 4	AREA	2	.167		12.5000	.68		
EXDA 4	AREA	10	.554		12.3500	3.90		
EXDA 4	AREA	25	.823		12.3000	6.44		
EXDA 4	AREA	50	1.085		12.3000	8.91		
EXDA 4	AREA	100	1.411		12.2500	11.96		

File.... C:\Program Files\Haestad\PPKW\PPW\
Title... Project Date: 4/16/2009
         Project Engineer: Curtis Jones
            Project Title: Watershed
         Project Comments:

                    DESIGN STORMS SUMMARY

Design Storm File,ID =   Litchfield Co.

Storm Tag Name   = 2 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 2 yr
Total Rainfall Depth= 3.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs

Storm Tag Name   = 10 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 10 yr
Total Rainfall Depth= 4.7000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs

Storm Tag Name   = 25 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 25 yr
Total Rainfall Depth= 5.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs

Storm Tag Name   = 50 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 50 yr
Total Rainfall Depth= 6.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs

Storm Tag Name   = 100 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 100 yr
Total Rainfall Depth= 7.0000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs

```
Type.... Design Storms                                    Page 2.02
Name.... Litchfield Co.                                   Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                      DESIGN STORMS SUMMARY

  Design Storm File,ID =            Litchfield Co.


  Storm Tag Name      = 2 YR
  ------------------------------------------------------------------
  Data Type, File, ID = Synthetic Storm    TypeIII 24hr
  Storm Frequency     = 2 yr
  Total Rainfall Depth= 3.2000 in
  Duration Multiplier = 1
  Resulting Duration  = 24.0000 hrs
  Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


  Storm Tag Name      = 10 YR
  ------------------------------------------------------------------
  Data Type, File, ID = Synthetic Storm    TypeIII 24hr
  Storm Frequency     = 10 yr
  Total Rainfall Depth= 4.7000 in
  Duration Multiplier = 1
  Resulting Duration  = 24.0000 hrs
  Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


  Storm Tag Name      = 25 YR
  ------------------------------------------------------------------
  Data Type, File, ID = Synthetic Storm    TypeIII 24hr
  Storm Frequency     = 25 yr
  Total Rainfall Depth= 5.5000 in
  Duration Multiplier = 1
  Resulting Duration  = 24.0000 hrs
  Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


  Storm Tag Name      = 50 YR
  ------------------------------------------------------------------
  Data Type, File, ID = Synthetic Storm    TypeIII 24hr
  Storm Frequency     = 50 yr
  Total Rainfall Depth= 6.2000 in
  Duration Multiplier = 1
  Resulting Duration  = 24.0000 hrs
  Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


  Storm Tag Name      = 100 YR
  ------------------------------------------------------------------
  Data Type, File, ID = Synthetic Storm    TypeIII 24hr
  Storm Frequency     = 100 yr
  Total Rainfall Depth= 7.0000 in
  Duration Multiplier = 1
  Resulting Duration  = 24.0000 hrs
  Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW

```
:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
TIME OF CONCENTRATION CALCULATOR
:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
```

Segment #1: Tc: TR-55 Sheet

Mannings n   .4000
Hydraulic Length   225.00 ft
2yr, 24hr P   3.2000 in
Slope   .132000 ft/ft

Avg.Velocity   .19 ft/sec

                                  Segment #1 Time: .3219 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length   365.00 ft
Slope   .082000 ft/ft
Unpaved

Avg.Velocity   4.62 ft/sec

                                  Segment #2 Time: .0219 hrs

                                  ==========================
                                  Total Tc: .3438 hrs
                                  ==========================

File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW

    Tc Equations used...

==== SCS TR-55 Sheet Flow ==

    Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

    Where: Tc = Time of concentration, hrs
            n = Mannings n
            Lf = Flow length, ft
            P = 2yr, 24hr Rain depth, inches
            Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ===============================

    Unpaved surface:
    V = 16.1345 * (Sf**0.5)

    Paved surface:
    V = 20.3282 * (Sf**0.5)

    Tc = (Lf / V) / (3600sec/hr)

    Where: V = Velocity, ft/sec
            Sf = Slope, ft/ft
            Tc = Time of concentration, hrs
            Lf = Flow length, ft

File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW

RUNOFF CURVE NUMBER DATA
::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Soil Type B - Wooded	55	7.770			55.00
Soil Type B - Grass/Meadow	60	.200			60.00
COMPOSITE AREA & WEIGHTED CN --->		7.970			55.13 (55)

::

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

```
DEFINITION OF TERMS: ----------------------------------------------
```

At   = Total area (acres): At = Ai+Ap
Ai   = Impervious area (acres)
Ap   = Pervious area (acres)
CNi   = Runoff curve number for impervious area
CNp   = Runoff curve number for pervious area
fLoss = f loss constant infiltration (depth/time)
gKs   = Saturated Hydraulic Conductivity (depth/time)
Md   = Volumetric Moisture Deficit
Psi   = Capillary Suction (length)
hK   = Horton Infiltration Decay Rate (time^-1)
fo   = Initial Infiltration Rate (depth/time)
fc   = Ultimate(capacity)Infiltration Rate (depth/time)
Ia   = Initial Abstraction (length)
dt   = Computational increment (duration of unit excess rainfall)
        Default dt is smallest value of 0.1333Tc, rtm, and th
        (Smallest dt is then adjusted to match up with Tp)
UDdt = User specified override computational main time increment
        (only used if UDdt is => .1333Tc)
D(t) = Point on distribution curve (fraction of P) for time step t

K   = 2 / (1 + (Tr/Tp)): default K = 0.75: (for Tr/Tp = 1.67)
Ks   = Hydrograph shape factor
      = Unit Conversions * K:
      = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K
        Default Ks = 645.333 * 0.75 = 484

Lag   = Lag time from center of excess runoff (dt) to Tp: Lag = 0.6Tc
P   = Total precipitation depth, inches
Pa(t) = Accumulated rainfall at time step t
Pi(t) = Incremental rainfall at time step t
qp   = Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi.
      = (Ks * A * Q) / Tp   (where Q = 1in. runoff, A=sq.mi.)
Qu(t) = Unit hydrograph ordinate (cfs) at time step t
Q(t) = Final hydrograph ordinate (cfs) at time step t
Rai(t)= Accumulated runoff (inches) at time step t for impervious area
Rap(t)= Accumulated runoff (inches) at time step t for pervious area
Rii(t)= Incremental runoff (inches) at time step t for impervious area
Rip(t)= Incremental runoff (inches) at time step t for pervious area
R(t) = Incremental weighted total runoff (inches)
Rtm   = Time increment for rainfall table
Si   = S for impervious area: Si = (1000/CNi) - 10
Sp   = S for pervious area: Sp = (1000/CNp) - 10
t   = Time step (row) number
Tc   = Time of concentration
Tb   = Time (hrs) of entire unit hydrograph: Tb = Tp + Tr
Tp   = Time (hrs) to peak of a unit hydrograph: Tp = (dt/2) + Lag
Tr   = Time (hrs) of receding limb of unit hydrograph: Tr = ratio of Tp

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

PRECIPITATION: --
Column (1): Time for time step t
Column (2): D(t) = Point on distribution curve for time step t
Column (3): Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4): Pa(t) = D(t) x P: Col.(2) x P

PERVIOUS AREA RUNOFF (using SCS Runoff CN Method) ---------------------------
Column (5): Rap(t) = Accumulated pervious runoff for time step t
             If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
             If (Pa(t) is > 0.2Sp) then use:

             Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6): Rip(t) = Incremental pervious runoff for time step t
             Rip(t) =   Rap(t)   -   Rap(t-1)
             Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

IMPERVIOUS AREA RUNOFF --
Column (7 & 8)... Did not specify to use impervious areas.

INCREMENTAL WEIGHTED RUNOFF: --
Column (9): R(t) = (Ap/At) x Rip(t)   + (Ai/At) x Rii(t)
             R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS UNIT HYDROGRAPH METHOD: ---
Column (10): Q(t)   is computed with the SCS unit hydrograph method
                    using R() and Qu().

```
Type.... Unit Hyd. Summary                          Page 5.03
Name.... EXDA 4            Tag: 2 YR                 Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                  SCS UNIT HYDROGRAPH METHOD

                  STORM EVENT: 2 year storm
                  Duration     = 24.0000 hrs    Rain Depth = 3.2000 in
                  Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
                  Rain File -ID =  - TypeIII 24hr
                  Unit Hyd Type = Default Curvilinear
                  HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
                  HYG File - ID =  - EXDA 4 2 YR
                  Tc           = .3438 hrs
                  Drainage Area = 7.970 acres  Runoff CN= 55


                  ===========================================
                  Computational Time Increment   =    .04584 hrs
                  Computed Peak Time             = 12.5150 hrs
                  Computed Peak Flow             =      .69 cfs

                  Time Increment for HYG File    =    .0500 hrs
                  Peak Time, Interpolated Output = 12.5000 hrs
                  Peak Flow, Interpolated Output =      .68 cfs
                  ===========================================

                           DRAINAGE AREA
                           -------------------
                           ID:EXDA 4
                           CN  =   55
                           Area =      7.970 acres
                           S    =   8.1818 in
                           0.2S =   1.6364 in

                           Cumulative Runoff
                           -------------------
                                 .2509 in
                                 .167 ac-ft

          HYG Volume...           .167 ac-ft (area under HYG curve)

          ***** SCS UNIT HYDROGRAPH PARAMETERS *****

          Time Concentration, Tc =   .34382 hrs (ID: EXDA 4)
          Computational Incr, Tm =   .04584 hrs = 0.20000 Tp

          Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
          K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
          Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

          Unit peak,         qp =    26.26 cfs
          Unit peak time     Tp =    .22921 hrs
          Unit receding limb, Tr =   .91685 hrs
          Total unit time,    Tb = 1.14607 hrs
```

```
              SCS UNIT HYDROGRAPH METHOD

              STORM EVENT: 10 year storm
              Duration     = 24.0000 hrs    Rain Depth = 4.7000 in
              Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
              Rain File -ID =  - TypeIII 24hr
              Unit Hyd Type = Default Curvilinear
              HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
              HYG File - ID =  - EXDA 4 10 YR
              Tc           = .3438 hrs
              Drainage Area = 7.970 acres  Runoff CN= 55


              ==========================================
              Computational Time Increment   =    .04584 hrs
              Computed Peak Time             =  12.3317 hrs
              Computed Peak Flow             =     3.93 cfs

              Time Increment for HYG File    =    .0500 hrs
              Peak Time, Interpolated Output =  12.3500 hrs
              Peak Flow, Interpolated Output =     3.90 cfs
              ==========================================

                        DRAINAGE AREA
                     --------------------
                     ID:EXDA 4
                     CN   =    55
                     Area =        7.970 acres
                     S    =     8.1818 in
                     0.2S =     1.6364 in

                     Cumulative Runoff
                     --------------------
                            .8346 in
                            .554 ac-ft

              HYG Volume...          .554 ac-ft (area under HYG curve)

              ***** SCS UNIT HYDROGRAPH PARAMETERS *****

              Time Concentration, Tc =   .34382 hrs (ID: EXDA 4)
              Computational Incr, Tm =   .04584 hrs = 0.20000 Tp

              Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
              K =   483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
              Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

              Unit peak,         qp =    26.26 cfs
              Unit peak time     Tp =    .22921 hrs
              Unit receding limb, Tr =   .91685 hrs
              Total unit time,    Tb = 1.14607 hrs
```

```
Type.... Unit Hyd. Summary                        Page 5.05
Name.... EXDA 4           Tag: 25 YR              Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW
Storm... TypeIII 24hr   Tag: 25 YR
```

```
              SCS UNIT HYDROGRAPH METHOD

              STORM EVENT: 25 year storm
              Duration     = 24.0000 hrs    Rain Depth = 5.5000 in
              Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
              Rain File -ID =  - TypeIII 24hr
              Unit Hyd Type = Default Curvilinear
              HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
              HYG File - ID =  - EXDA 4 25 YR
              Tc           = .3438 hrs
              Drainage Area = 7.970 acres  Runoff CN= 55


              =============================================
              Computational Time Increment   =   .04584 hrs
              Computed Peak Time             = 12.2858 hrs
              Computed Peak Flow             =    6.46 cfs

              Time Increment for HYG File    =   .0500 hrs
              Peak Time, Interpolated Output = 12.3000 hrs
              Peak Flow, Interpolated Output =    6.44 cfs
              =============================================

                      DRAINAGE AREA
                      -------------------
                  ID:EXDA 4
                  CN  =   55
                  Area =       7.970 acres
                  S    =   8.1818 in
                  0.2S =   1.6364 in

                    Cumulative Runoff
                    -------------------
                          1.2393 in
                           .823 ac-ft

         HYG Volume...         .823 ac-ft (area under HYG curve)

         ***** SCS UNIT HYDROGRAPH PARAMETERS *****

         Time Concentration, Tc =   .34382 hrs (ID: EXDA 4)
         Computational Incr, Tm =   .04584 hrs = 0.20000 Tp

         Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
         K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp)))
         Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

         Unit peak,        qp =    26.26 cfs
         Unit peak time    Tp =    .22921 hrs
         Unit receding limb, Tr =   .91685 hrs
         Total unit time,   Tb = 1.14607 hrs
```

```
              SCS UNIT HYDROGRAPH METHOD

              STORM EVENT: 50 year storm
              Duration     = 24.0000 hrs    Rain Depth = 6.2000 in
              Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
              Rain File -ID =  - TypeIII 24hr
              Unit Hyd Type = Default Curvilinear
              HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
              HYG File - ID =  - EXDA 4 50 YR
              Tc           = .3438 hrs
              Drainage Area = 7.970 acres  Runoff CN= 55

              ===========================================
              Computational Time Increment   =   .04584 hrs
              Computed Peak Time             =  12.2858 hrs
              Computed Peak Flow             =     8.97 cfs

              Time Increment for HYG File    =   .0500 hrs
              Peak Time, Interpolated Output =  12.3000 hrs
              Peak Flow, Interpolated Output =     8.91 cfs
              ===========================================

                        DRAINAGE AREA
                        --------------------
                        ID:EXDA 4
                        CN  =   55
                        Area =       7.970 acres
                        S   =   8.1818 in
                        0.2S =   1.6364 in

                        Cumulative Runoff
                        --------------------
                              1.6341 in
                              1.085 ac-ft

              HYG Volume...       1.085 ac-ft (area under HYG curve)

              ***** SCS UNIT HYDROGRAPH PARAMETERS *****

              Time Concentration, Tc =   .34382 hrs (ID: EXDA 4)
              Computational Incr, Tm =   .04584 hrs = 0.20000 Tp

              Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
              K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
              Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

              Unit peak,        qp =    26.26 cfs
              Unit peak time    Tp =    .22921 hrs
              Unit receding limb, Tr =   .91685 hrs
              Total unit time,   Tb =  1.14607 hrs
```

```
Type.... Unit Hyd. Summary                        Page 5.07
Name.... EXDA 4           Tag: 100 YR              Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

                    STORM EVENT: 100 year storm
                    Duration      = 24.0000 hrs    Rain Depth = 7.0000 in
                    Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
                    Rain File -ID =  - TypeIII 24hr
                    Unit Hyd Type = Default Curvilinear
                    HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
                    HYG File - ID =  - EXDA 4 100 YR
                    Tc            = .3438 hrs
                    Drainage Area = 7.970 acres  Runoff CN= 55


                    ================================================
                    Computational Time Increment   =   .04584 hrs
                    Computed Peak Time             = 12.2858 hrs
                    Computed Peak Flow             =   12.06 cfs

                    Time Increment for HYG File    =   .0500 hrs
                    Peak Time, Interpolated Output = 12.2500 hrs
                    Peak Flow, Interpolated Output =   11.96 cfs
                    ================================================

                              DRAINAGE AREA
                            --------------------
                            ID:EXDA 4
                            CN   =    55
                            Area =       7.970 acres
                            S    =    8.1818 in
                            0.2S =    1.6364 in

                            Cumulative Runoff
                            --------------------
                                  2.1239 in
                                  1.411 ac-ft

            HYG Volume...         1.411 ac-ft (area under HYG curve)

            ***** SCS UNIT HYDROGRAPH PARAMETERS *****

            Time Concentration, Tc =   .34382 hrs (ID: EXDA 4)
            Computational Incr, Tm =   .04584 hrs = 0.20000 Tp

            Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
            K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
            Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

            Unit peak,          qp =    26.26 cfs
            Unit peak time      Tp =   .22921 hrs
            Unit receding limb, Tr =   .91685 hrs
            Total unit time,    Tb = 1.14607 hrs
```

```
Type.... Node: Addition Summary                    Page 6.01
Name.... DP 4                                       Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                         at Node: DP 4

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

==============================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID          HYG tag
------------------------------------------------------------------------------
TO DP 4           EXDA 4                         EXDA 4          2 YR
==============================================================================


INFLOWS TO:  DP 4
----------------------------------------- Volume    Peak Time   Peak Flow
HYG file    HYG ID          HYG tag       ac-ft      hrs         cfs
-----------------------------------------------------------------------------
            EXDA 4          2 YR           .167     12.5000          .68


TOTAL FLOW INTO:  DP 4
----------------------------------------- Volume    Peak Time   Peak Flow
HYG file    HYG ID          HYG tag       ac-ft      hrs         cfs
-----------------------------------------------------------------------------
            DP 4            2 YR           .167     12.5000          .68
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 4
                    HYG Tag  = 2 YR
                    ------------------------------------
                    Peak Discharge =           .68 cfs
                    Time to Peak   =      12.5000 hrs
                    HYG Volume     =          .167 ac-ft
                    ------------------------------------
```

```
                             HYDROGRAPH ORDINATES (cfs)
            Time  |           Output Time increment = .0500 hrs
            hrs   |    Time on left represents time for first value in each row.
          --------|------------------------------------------------------------
           12.0000 |        .00         .00         .03         .08         .18
           12.2500 |        .31         .43         .54         .62         .67
           12.5000 |        .68         .68         .65         .60         .56
           12.7500 |        .51         .48         .45         .43         .41
           13.0000 |        .39         .37         .36         .35         .34
           13.2500 |        .33         .32         .31         .31         .31
           13.5000 |        .30         .30         .30         .29         .29
           13.7500 |        .29         .29         .28         .28         .28
           14.0000 |        .27         .27         .26         .26         .26
           14.2500 |        .25         .25         .25         .25         .25
           14.5000 |        .24         .24         .24         .24         .24
           14.7500 |        .24         .23         .23         .23         .23
           15.0000 |        .23         .22         .22         .22         .22
           15.2500 |        .22         .21         .21         .21         .21
           15.5000 |        .20         .20         .20         .20         .19
           15.7500 |        .19         .19         .18         .18         .18
           16.0000 |        .18         .17         .17         .17         .17
           16.2500 |        .16         .16         .16         .16         .16
           16.5000 |        .16         .15         .15         .15         .15
           16.7500 |        .15         .15         .15         .15         .14
           17.0000 |        .14         .14         .14         .14         .14
           17.2500 |        .14         .13         .13         .13         .13
           17.5000 |        .13         .13         .13         .13         .12
           17.7500 |        .12         .12         .12         .12         .12
           18.0000 |        .12         .11         .11         .11         .11
           18.2500 |        .11         .11         .11         .11         .11
           18.5000 |        .11         .11         .11         .10         .10
           18.7500 |        .10         .10         .10         .10         .10
           19.0000 |        .10         .10         .10         .10         .10
           19.2500 |        .10         .10         .10         .10         .10
           19.5000 |        .10         .10         .10         .10         .10
```

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
19.7500	.10	.10	.10	.09	.09
20.0000	.09	.09	.09	.09	.09
20.2500	.09	.09	.09	.09	.09
20.5000	.09	.09	.09	.09	.09
20.7500	.09	.09	.09	.09	.09
21.0000	.09	.09	.09	.09	.09
21.2500	.09	.09	.09	.08	.08
21.5000	.08	.08	.08	.08	.08
21.7500	.08	.08	.08	.08	.08
22.0000	.08	.08	.08	.08	.08
22.2500	.08	.08	.08	.08	.08
22.5000	.08	.08	.08	.08	.08
22.7500	.08	.08	.08	.07	.07
23.0000	.07	.07	.07	.07	.07
23.2500	.07	.07	.07	.07	.07
23.5000	.07	.07	.07	.07	.07
23.7500	.07	.07	.07	.07	.07
24.0000	.07	.06	.06	.05	.04
24.2500	.03	.02	.02	.01	.01
24.5000	.01	.00	.00	.00	.00
24.7500	.00				

```
Type.... Node: Addition Summary                    Page 6.04
Name.... DP 4                                       Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW
Storm... TypeIII 24hr    Tag: 10 YR
```

```
                      SUMMARY FOR HYDROGRAPH ADDITION
                      at Node: DP 4

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

========================================================================
Upstream Link ID  Upstream Node ID   HYG file      HYG ID        HYG tag
------------------------------------------------------------------------
TO DP 4           EXDA 4                            EXDA 4        10 YR
========================================================================


INFLOWS TO:  DP 4
----------------------------------------- Volume    Peak Time  Peak Flow
HYG file      HYG ID          HYG tag     ac-ft     hrs        cfs
-----------------------------------------------------------------------
              EXDA 4          10 YR        .554     12.3500     3.90


TOTAL FLOW INTO:  DP 4
----------------------------------------- Volume    Peak Time  Peak Flow
HYG file      HYG ID          HYG tag     ac-ft     hrs        cfs
-----------------------------------------------------------------------
              DP 4            10 YR        .554     12.3500     3.90
```

```
Type.... Node: Addition Summary                    Page 6.05
Name.... DP 4                                      Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
          TOTAL NODE INFLOW...
          HYG file =
          HYG ID   = DP 4
          HYG Tag  = 10 YR
          ------------------------------------
          Peak Discharge =        3.90 cfs
          Time to Peak   =     12.3500 hrs
          HYG Volume     =        .554 ac-ft
          ------------------------------------

                    HYDROGRAPH ORDINATES (cfs)
     Time |          Output Time increment = .0500 hrs
     hrs  |   Time on left represents time for first value in each row.
  ---------|----------------------------------------------------------
  11.7500 |      .00       .01       .03       .10       .25
  12.0000 |      .54      1.02      1.70      2.49      3.20
  12.2500 |     3.68      3.89      3.90      3.78      3.57
  12.5000 |     3.33      3.05      2.74      2.44      2.16
  12.7500 |     1.92      1.73      1.58      1.47      1.37
  13.0000 |     1.29      1.21      1.15      1.10      1.05
  13.2500 |     1.01       .98       .95       .93       .92
  13.5000 |      .90       .89       .87       .86       .85
  13.7500 |      .84       .82       .81       .80       .78
  14.0000 |      .77       .76       .74       .73       .72
  14.2500 |      .71       .70       .69       .68       .68
  14.5000 |      .67       .66       .66       .65       .64
  14.7500 |      .64       .63       .62       .62       .61
  15.0000 |      .60       .60       .59       .58       .58
  15.2500 |      .57       .56       .55       .55       .54
  15.5000 |      .53       .52       .52       .51       .50
  15.7500 |      .49       .49       .48       .47       .46
  16.0000 |      .45       .45       .44       .43       .42
  16.2500 |      .42       .41       .41       .40       .40
  16.5000 |      .39       .39       .39       .38       .38
  16.7500 |      .38       .37       .37       .37       .36
  17.0000 |      .36       .36       .35       .35       .34
  17.2500 |      .34       .34       .33       .33       .33
  17.5000 |      .32       .32       .32       .31       .31
  17.7500 |      .30       .30       .30       .29       .29
  18.0000 |      .29       .28       .28       .27       .27
  18.2500 |      .27       .27       .26       .26       .26
  18.5000 |      .26       .26       .26       .26       .26
  18.7500 |      .25       .25       .25       .25       .25
  19.0000 |      .25       .25       .25       .25       .25
  19.2500 |      .24       .24       .24       .24       .24
```

```
                              HYDROGRAPH ORDINATES (cfs)
          Time  |          Output Time increment = .0500 hrs
          hrs   |    Time on left represents time for first value in each row.
        --------|----------------------------------------------------------------
        19.5000 |      .24       .24       .24       .24       .23
        19.7500 |      .23       .23       .23       .23       .23
        20.0000 |      .23       .23       .23       .22       .22
        20.2500 |      .22       .22       .22       .22       .22
        20.5000 |      .22       .22       .22       .22       .21
        20.7500 |      .21       .21       .21       .21       .21
        21.0000 |      .21       .21       .21       .21       .21
        21.2500 |      .21       .20       .20       .20       .20
        21.5000 |      .20       .20       .20       .20       .20
        21.7500 |      .20       .20       .20       .19       .19
        22.0000 |      .19       .19       .19       .19       .19
        22.2500 |      .19       .19       .19       .19       .18
        22.5000 |      .18       .18       .18       .18       .18
        22.7500 |      .18       .18       .18       .18       .18
        23.0000 |      .17       .17       .17       .17       .17
        23.2500 |      .17       .17       .17       .17       .17
        23.5000 |      .17       .16       .16       .16       .16
        23.7500 |      .16       .16       .16       .16       .16
        24.0000 |      .16       .15       .14       .12       .10
        24.2500 |      .08       .05       .04       .03       .02
        24.5000 |      .01       .01       .01       .00       .00
        24.7500 |      .00       .00       .00
```

Type.... Node: Addition Summary   Page 6.07
Name.... DP 4   Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW
Storm... TypeIII 24hr   Tag: 25 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                         at Node: DP 4

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

================================================================
Upstream Link ID  Upstream Node ID  HYG file   HYG ID      HYG tag
----------------------------------------------------------------
TO DP 4           EXDA 4                        EXDA 4      25 YR
================================================================


INFLOWS TO:  DP 4
---------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID          HYG tag      ac-ft     hrs        cfs
----------------------------------------------------------------
            EXDA 4          25 YR        .823      12.3000    6.44


TOTAL FLOW INTO:  DP 4
---------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID          HYG tag      ac-ft     hrs        cfs
----------------------------------------------------------------
            DP 4            25 YR        .823      12.3000    6.44
```

```
            TOTAL NODE INFLOW...
            HYG file =
            HYG ID   = DP 4
            HYG Tag  = 25 YR
            ------------------------------------
            Peak Discharge =        6.44 cfs
            Time to Peak   =       12.3000 hrs
            HYG Volume     =         .823 ac-ft
            ------------------------------------
```

                         HYDROGRAPH ORDINATES (cfs)
     Time | Output Time increment = .0500 hrs
hrs	Time on left represents time for first value in each row.

Time hrs					
11.5500	.00	.00	.02	.05	.12
11.8000	.23	.39	.63	1.00	1.57
12.0500	2.41	3.51	4.69	5.70	6.28
12.3000	6.44	6.30	5.97	5.55	5.10
12.5500	4.62	4.12	3.64	3.20	2.83
12.8000	2.54	2.31	2.13	1.98	1.85
13.0500	1.74	1.65	1.56	1.49	1.44
13.3000	1.39	1.35	1.32	1.29	1.27
13.5500	1.25	1.23	1.21	1.19	1.17
13.8000	1.15	1.14	1.12	1.10	1.08
14.0500	1.06	1.04	1.02	1.00	.99
14.3000	.98	.96	.95	.94	.93
14.5500	.92	.91	.90	.89	.88
14.8000	.87	.86	.85	.84	.83
15.0500	.82	.81	.80	.79	.78
15.3000	.77	.76	.75	.74	.73
15.5500	.72	.71	.70	.69	.68
15.8000	.67	.66	.64	.63	.62
16.0500	.61	.60	.59	.58	.57
16.3000	.56	.56	.55	.54	.54
16.5500	.53	.53	.52	.52	.51
16.8000	.51	.50	.50	.49	.49
17.0500	.48	.48	.47	.47	.46
17.3000	.46	.45	.45	.44	.44
17.5500	.43	.43	.42	.42	.41
17.8000	.41	.40	.40	.39	.39
18.0500	.38	.38	.37	.37	.36
18.3000	.36	.36	.36	.35	.35
18.5500	.35	.35	.35	.35	.34
18.8000	.34	.34	.34	.34	.34
19.0500	.34	.33	.33	.33	.33

```
                          HYDROGRAPH ORDINATES (cfs)
        Time   |          Output Time increment = .0500 hrs
        hrs    |   Time on left represents time for first value in each row.
       --------|----------------------------------------------------------------
       19.3000 |      .33       .33       .33       .32       .32
       19.5500 |      .32       .32       .32       .32       .31
       19.8000 |      .31       .31       .31       .31       .31
       20.0500 |      .31       .30       .30       .30       .30
       20.3000 |      .30       .30       .30       .30       .29
       20.5500 |      .29       .29       .29       .29       .29
       20.8000 |      .29       .29       .28       .28       .28
       21.0500 |      .28       .28       .28       .28       .28
       21.3000 |      .28       .27       .27       .27       .27
       21.5500 |      .27       .27       .27       .27       .26
       21.8000 |      .26       .26       .26       .26       .26
       22.0500 |      .26       .26       .26       .25       .25
       22.3000 |      .25       .25       .25       .25       .25
       22.5500 |      .25       .24       .24       .24       .24
       22.8000 |      .24       .24       .24       .24       .23
       23.0500 |      .23       .23       .23       .23       .23
       23.3000 |      .23       .23       .22       .22       .22
       23.5500 |      .22       .22       .22       .22       .22
       23.8000 |      .21       .21       .21       .21       .21
       24.0500 |      .20       .19       .16       .13       .10
       24.3000 |      .07       .05       .03       .02       .02
       24.5500 |      .01       .01       .01       .00       .00
       24.8000 |      .00       .00       .00
```

```
Type.... Node: Addition Summary                    Page 6.10
Name.... DP 4                                       Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                          at Node: DP 4

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

==================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID        HYG tag
------------------------------------------------------------------
TO DP 4           EXDA 4                         EXDA 4        50 YR
==================================================================


INFLOWS TO:  DP 4
--------------------------------------- Volume   Peak Time  Peak Flow
HYG file    HYG ID          HYG tag     ac-ft    hrs        cfs
---------------------------------------------------------------------
            EXDA 4          50 YR       1.085    12.3000     8.91


TOTAL FLOW INTO:  DP 4
--------------------------------------- Volume   Peak Time  Peak Flow
HYG file    HYG ID          HYG tag     ac-ft    hrs        cfs
---------------------------------------------------------------------
            DP 4            50 YR       1.085    12.3000     8.91
```

```
Type.... Node: Addition Summary                              Page 6.11
Name.... DP 4                                                Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
              TOTAL NODE INFLOW...
              HYG file =
              HYG ID   = DP 4
              HYG Tag  = 50 YR
              -------------------------------
              Peak Discharge =         8.91 cfs
              Time to Peak   =      12.3000 hrs
              HYG Volume     =        1.085 ac-ft
              -------------------------------
```

```
                        HYDROGRAPH ORDINATES (cfs)
       Time  |          Output Time increment = .0500 hrs
       hrs   |    Time on left represents time for first value in each row.
     ---------|-------------------------------------------------------------
     11.2000 |      .00       .00       .00       .01       .02
     11.4500 |      .04       .07       .11       .15       .22
     11.7000 |      .32       .47       .68       .96      1.34
     11.9500 |     1.88      2.69      3.86      5.35      6.89
     12.2000 |     8.15      8.82      8.91      8.61      8.08
     12.4500 |     7.45      6.80      6.12      5.43      4.77
     12.7000 |     4.18      3.69      3.30      2.99      2.74
     12.9500 |     2.55      2.38      2.24      2.11      2.00
     13.2000 |     1.91      1.83      1.77      1.72      1.68
     13.4500 |     1.65      1.62      1.59      1.56      1.54
     13.7000 |     1.51      1.49      1.46      1.44      1.41
     13.9500 |     1.39      1.36      1.34      1.31      1.29
     14.2000 |     1.27      1.25      1.23      1.21      1.20
     14.4500 |     1.19      1.17      1.16      1.15      1.13
     14.7000 |     1.12      1.11      1.10      1.08      1.07
     14.9500 |     1.06      1.05      1.03      1.02      1.01
     15.2000 |     1.00       .98       .97       .96       .94
     15.4500 |      .93       .92       .90       .89       .87
     15.7000 |      .86       .85       .83       .82       .80
     15.9500 |      .79       .78       .76       .75       .74
     16.2000 |      .72       .71       .70       .69       .69
     16.4500 |      .68       .67       .67       .66       .65
     16.7000 |      .65       .64       .63       .63       .62
     16.9500 |      .61       .61       .60       .60       .59
     17.2000 |      .58       .58       .57       .56       .56
     17.4500 |      .55       .55       .54       .53       .53
     17.7000 |      .52       .51       .51       .50       .49
     17.9500 |      .49       .48       .47       .47       .46
     18.2000 |      .46       .45       .45       .44       .44
     18.4500 |      .44       .44       .44       .43       .43
     18.7000 |      .43       .43       .43       .42       .42
```

```
                        HYDROGRAPH ORDINATES (cfs)
    Time  |            Output Time increment = .0500 hrs
    hrs   |    Time on left represents time for first value in each row.
 ---------|------------------------------------------------------------------
  18.9500 |       .42        .42        .42        .41        .41
  19.2000 |       .41        .41        .41        .40        .40
  19.4500 |       .40        .40        .40        .40        .39
  19.7000 |       .39        .39        .39        .39        .38
  19.9500 |       .38        .38        .38        .38        .37
  20.2000 |       .37        .37        .37        .37        .37
  20.4500 |       .36        .36        .36        .36        .36
  20.7000 |       .36        .36        .35        .35        .35
  20.9500 |       .35        .35        .35        .35        .34
  21.2000 |       .34        .34        .34        .34        .34
  21.4500 |       .34        .33        .33        .33        .33
  21.7000 |       .33        .33        .32        .32        .32
  21.9500 |       .32        .32        .32        .32        .31
  22.2000 |       .31        .31        .31        .31        .31
  22.4500 |       .31        .30        .30        .30        .30
  22.7000 |       .30        .30        .29        .29        .29
  22.9500 |       .29        .29        .29        .29        .28
  23.2000 |       .28        .28        .28        .28        .28
  23.4500 |       .27        .27        .27        .27        .27
  23.7000 |       .27        .27        .26        .26        .26
  23.9500 |       .26        .26        .25        .23        .20
  24.2000 |       .16        .12        .09        .06        .04
  24.4500 |       .03        .02        .01        .01        .01
  24.7000 |       .00        .00        .00        .00        .00
```

```
Type.... Node: Addition Summary                          Page 6.13
Name.... DP 4                                            Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
                         SUMMARY FOR HYDROGRAPH ADDITION
                            at Node: DP 4

   HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

   ================================================================
   Upstream Link ID  Upstream Node ID   HYG file     HYG ID        HYG tag
   ----------------------------------------------------------------
   TO DP 4           EXDA 4                          EXDA 4        100 YR
   ================================================================


   INFLOWS TO:  DP 4
   ------------------------------------- Volume    Peak Time  Peak Flow
   HYG file     HYG ID         HYG tag    ac-ft      hrs        cfs
   -----------------------------------------------------------------
                EXDA 4         100 YR     1.411    12.2500     11.96


   TOTAL FLOW INTO:  DP 4
   ------------------------------------- Volume    Peak Time  Peak Flow
   HYG file     HYG ID         HYG tag    ac-ft      hrs        cfs
   -----------------------------------------------------------------
                DP 4           100 YR     1.411    12.2500     11.96
```

```
Type.... Node: Addition Summary                          Page 6.14
Name.... DP 4                                          Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 4.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
              TOTAL NODE INFLOW...
              HYG file =
              HYG ID   = DP 4
              HYG Tag  = 100 YR
              ------------------------------------
              Peak Discharge =      11.96 cfs
              Time to Peak   =   12.2500 hrs
              HYG Volume     =      1.411 ac-ft
              ------------------------------------
```

                        HYDROGRAPH ORDINATES (cfs)
     Time | Output Time increment = .0500 hrs
hrs	Time on left represents time for first value in each row.
10.8500	.00 .00 .01 .02 .03
11.1000	.05 .07 .09 .12 .15
11.3500	.19 .23 .28 .33 .39
11.6000	.47 .58 .75 .98 1.30
11.8500	1.72 2.27 3.02 4.13 5.70
12.1000	7.65 9.64 11.20 11.96 11.95
12.3500	11.44 10.65 9.76 8.85 7.93
12.6000	7.01 6.14 5.36 4.72 4.21
12.8500	3.80 3.49 3.23 3.01 2.83
13.1000	2.66 2.52 2.40 2.31 2.23
13.3500	2.16 2.11 2.07 2.03 1.99
13.6000	1.96 1.92 1.89 1.86 1.83
13.8500	1.80 1.76 1.73 1.70 1.67
14.1000	1.64 1.61 1.58 1.55 1.53
14.3500	1.51 1.49 1.48 1.46 1.44
14.6000	1.43 1.41 1.39 1.38 1.36
14.8500	1.35 1.33 1.31 1.30 1.28
15.1000	1.27 1.25 1.23 1.22 1.20
15.3500	1.18 1.17 1.15 1.13 1.12
15.6000	1.10 1.08 1.06 1.05 1.03
15.8500	1.01 .99 .98 .96 .94
16.1000	.92 .91 .89 .88 .87
16.3500	.86 .85 .84 .83 .82
16.6000	.81 .80 .80 .79 .78
16.8500	.77 .77 .76 .75 .74
17.1000	.73 .73 .72 .71 .70
17.3500	.69 .69 .68 .67 .66
17.6000	.66 .65 .64 .63 .62
17.8500	.61 .61 .60 .59 .58
18.1000	.57 .57 .56 .55 .55
18.3500	.55 .54 .54 .54 .53
```

```
                        HYDROGRAPH ORDINATES (cfs)
       Time  |           Output Time increment = .0500 hrs
       hrs   |    Time on left represents time for first value in each row.
     ---------|-------------------------------------------------------------
      18.6000 |     .53          .53          .53          .52          .52
      18.8500 |     .52          .52          .51          .51          .51
      19.1000 |     .51          .51          .50          .50          .50
      19.3500 |     .50          .49          .49          .49          .49
      19.6000 |     .48          .48          .48          .48          .47
      19.8500 |     .47          .47          .47          .47          .46
      20.1000 |     .46          .46          .46          .45          .45
      20.3500 |     .45          .45          .45          .44          .44
      20.6000 |     .44          .44          .44          .44          .43
      20.8500 |     .43          .43          .43          .43          .42
      21.1000 |     .42          .42          .42          .42          .42
      21.3500 |     .41          .41          .41          .41          .41
      21.6000 |     .40          .40          .40          .40          .40
      21.8500 |     .40          .39          .39          .39          .39
      22.1000 |     .39          .38          .38          .38          .38
      22.3500 |     .38          .37          .37          .37          .37
      22.6000 |     .37          .37          .36          .36          .36
      22.8500 |     .36          .36          .35          .35          .35
      23.1000 |     .35          .35          .34          .34          .34
      23.3500 |     .34          .34          .34          .33          .33
      23.6000 |     .33          .33          .33          .32          .32
      23.8500 |     .32          .32          .32          .31          .30
      24.1000 |     .28          .25          .20          .15          .11
      24.3500 |     .08          .05          .04          .03          .02
      24.6000 |     .01          .01          .01          .00          .00
      24.8500 |     .00          .00          .00
```

Index of Starting Page Numbers for ID Names

Proposed Flows - DL4

Table of Contents

Table of Contents (continued)

Table of Contents (continued)

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Litchfield Co.

Return	Event	Total Depth in	Rainfall Type	RNF ID
2	YR	3.2000	Synthetic Curve	TypeIII 24hr
10	YR	4.7000	Synthetic Curve	TypeIII 24hr
25	YR	5.5000	Synthetic Curve	TypeIII 24hr
50	YR	6.2000	Synthetic Curve	TypeIII 24hr
100	YR	7.0000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID		Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*DP 4		JCT	2	.162		12.5000	.67		
*DP 4		JCT	10	.590		12.3000	3.80		
*DP 4		JCT	25	.913		12.3000	6.39		
*DP 4		JCT	50	1.234		12.3000	8.92		
*DP 4		JCT	100	1.638		12.3000	11.97		
JUNCTION		JCT	2	.162		12.5000	.67		
JUNCTION		JCT	10	.590		12.3000	3.80		
JUNCTION		JCT	25	.913		12.3000	6.39		
JUNCTION		JCT	50	1.234		12.3000	8.92		
JUNCTION		JCT	100	1.638		12.3000	11.97		
POND 1	IN	POND	2	.142		12.3000	1.14		
POND 1	IN	POND	10	.317		12.3000	2.77		
POND 1	IN	POND	25	.423		12.3000	3.74		
POND 1	IN	POND	50	.522		12.3000	4.63		
POND 1	IN	POND	100	.639		12.3000	5.67		

```
                       MASTER NETWORK SUMMARY
                       SCS Unit Hydrograph Method

                  (*Node=Outfall; +Node=Diversion;)
           (Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)
```

Node ID		Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
POND 1	OUT	POND	2	.000		11.5000	.00	1432.82	.036
POND 1	OUT	POND	10	.051		13.1000	.25	1433.52	.115
POND 1	OUT	POND	25	.114		13.0000	.37	1433.95	.164
POND 1	OUT	POND	50	.180		13.0000	.69	1434.31	.205
POND 1	OUT	POND	100	.268		12.8000	1.37	1434.63	.241
PRDA 4D		AREA	2	.142		12.3000	1.14		
PRDA 4D		AREA	10	.317		12.3000	2.77		
PRDA 4D		AREA	25	.423		12.3000	3.74		
PRDA 4D		AREA	50	.522		12.3000	4.63		
PRDA 4D		AREA	100	.639		12.3000	5.67		
PRDA 4ND		AREA	2	.162		12.5000	.67		
PRDA 4ND		AREA	10	.538		12.3000	3.80		
PRDA 4ND		AREA	25	.799		12.3000	6.28		
PRDA 4ND		AREA	50	1.054		12.3000	8.68		
PRDA 4ND		AREA	100	1.370		12.3000	11.64		

File.... C:\Program Files\Haestad\PPKW\PPW\
Title... Project Date: 4/16/2009
              Project Engineer: Curtis Jones
                  Project Title: Watershed
              Project Comments:

                   DESIGN STORMS SUMMARY

   Design Storm File,ID =   Litchfield Co.

   Storm Tag Name   = 2 YR

   Data Type, File, ID = Synthetic Storm   TypeIII 24hr
   Storm Frequency   = 2 yr
   Total Rainfall Depth= 3.2000 in
   Duration Multiplier = 1
   Resulting Duration   = 24.0000 hrs
   Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

   Storm Tag Name   = 10 YR

   Data Type, File, ID = Synthetic Storm   TypeIII 24hr
   Storm Frequency   = 10 yr
   Total Rainfall Depth= 4.7000 in
   Duration Multiplier = 1
   Resulting Duration   = 24.0000 hrs
   Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

   Storm Tag Name   = 25 YR

   Data Type, File, ID = Synthetic Storm   TypeIII 24hr
   Storm Frequency   = 25 yr
   Total Rainfall Depth= 5.5000 in
   Duration Multiplier = 1
   Resulting Duration   = 24.0000 hrs
   Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

   Storm Tag Name   = 50 YR

   Data Type, File, ID = Synthetic Storm   TypeIII 24hr
   Storm Frequency   = 50 yr
   Total Rainfall Depth= 6.2000 in
   Duration Multiplier = 1
   Resulting Duration   = 24.0000 hrs
   Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

   Storm Tag Name   = 100 YR

   Data Type, File, ID = Synthetic Storm   TypeIII 24hr
   Storm Frequency   = 100 yr
   Total Rainfall Depth= 7.0000 in
   Duration Multiplier = 1
   Resulting Duration   = 24.0000 hrs
   Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Type.... Design Storms
Name.... Litchfield Co.
File.... C:\Program Files\Haestad\PPKW\PPW\
Storm... TypeIII 24hr   Tag: 2 YR

Page 2.02
Event: 2 yr

DESIGN STORMS SUMMARY

Design Storm File,ID =   Litchfield Co.

Storm Tag Name   = 2 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 2 yr
Total Rainfall Depth= 3.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 10 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 10 yr
Total Rainfall Depth= 4.7000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 25 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 25 yr
Total Rainfall Depth= 5.5000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 50 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 50 yr
Total Rainfall Depth= 6.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name   = 100 YR

Data Type, File, ID = Synthetic Storm   TypeIII 24hr
Storm Frequency   = 100 yr
Total Rainfall Depth= 7.0000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n   .3000
Hydraulic Length   225.00 ft
2yr, 24hr P   3.2000 in
Slope   .110000 ft/ft

Avg.Velocity   .23 ft/sec

                                    Segment #1 Time: .2750 hrs
----

Segment #2: Tc: TR-55 Shallow

Hydraulic Length   50.00 ft
Slope   .300000 ft/ft
Unpaved

Avg.Velocity   8.84 ft/sec

                                    Segment #2 Time: .0016 hrs
----

Segment #3: Tc: TR-55 Channel

Flow Area   2.5000 sq.ft
Wetted Perimeter   5.50 ft
Hydraulic Radius   .45 ft
Slope   .035000 ft/ft
Mannings n   .0400
Hydraulic Length 1040.00 ft

Avg.Velocity   4.12 ft/sec

                                    Segment #3 Time: .0701 hrs
----

                                    ===========================
                                    Total Tc: .3467 hrs
                                    ===========================

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW

```
---------------------------------------------------------------------
Tc Equations used...
---------------------------------------------------------------------


==== SCS TR-55 Sheet Flow =============================================

     Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

     Where:  Tc = Time of concentration, hrs
             n  = Mannings n
             Lf = Flow length, ft
             P  = 2yr, 24hr Rain depth, inches
             Sf = Slope, %


==== SCS TR-55 Shallow Concentrated Flow ===============================

     Unpaved surface:
     V  = 16.1345 * (Sf**0.5)

     Paved surface:
     V  = 20.3282 * (Sf**0.5)

     Tc = (Lf / V) / (3600sec/hr)

     Where:  V  = Velocity, ft/sec
             Sf = Slope, ft/ft
             Tc = Time of concentration, hrs
             Lf = Flow length, ft
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW

==== SCS Channel Flow ===

    R = Aq / Wp
    V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

    Tc = (Lf / V) / (3600sec/hr)

    Where: R = Hydraulic radius
            Aq = Flow area, sq.ft.
            Wp = Wetted perimeter, ft
            V = Velocity, ft/sec
            Sf = Slope, ft/ft
            n = Mannings n
            Tc = Time of concentration, hrs
            Lf = Flow length, ft

```
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW

 ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
 TIME OF CONCENTRATION CALCULATOR
 ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::


 ------------------------------------------------------------------------


 Segment #1:  Tc: User Defined

                                   Segment #1 Time:    .3400 hrs
 ------------------------------------------------------------------------


                                   ==========================
                                   Total Tc:    .3400 hrs
                                   ==========================
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW

    Tc Equations used...

    ==== User Defined ==

        Tc = Value entered by user

        Where: Tc = Time of concentration

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW

RUNOFF CURVE NUMBER DATA
:::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Soil Type B - Grass/Meadow	60	1.620			60.00
Soil Type B - Wooded	55	.030			55.00
Impervious Area	98	.530			98.00

COMPOSITE AREA & WEIGHTED CN --->   2.180   69.17 (69)
:::

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW

RUNOFF CURVE NUMBER DATA
::

| | | | Impervious Adjustment | | Adjusted |
Soil/Surface Description	CN	Area acres	%C	%UC	CN
Soil Type B - Wooded	55	7.370			55.00
Soil Type B - Grass/Meadow	60	.320			60.00
Impervious	98	.050			98.00

COMPOSITE AREA & WEIGHTED CN --->   7.740   55.48 (55)
::

```
                        SCS UNIT HYDROGRAPH METHOD
                          (Computational Notes)




     DEFINITION OF TERMS: --------------------------------------------------

     At     = Total area (acres):  At = Ai+Ap
     Ai     = Impervious area (acres)
     Ap     = Pervious area (acres)
     CNi    = Runoff curve number for impervious area
     CNp    = Runoff curve number for pervious area
     fLoss  = f loss constant infiltration (depth/time)
     gKs    = Saturated Hydraulic Conductivity (depth/time)
     Md     = Volumetric Moisture Deficit
     Psi    = Capillary Suction (length)
     hK     = Horton Infiltration Decay Rate (time^-1)
     fo     = Initial Infiltration Rate (depth/time)
     fc     = Ultimate(capacity)Infiltration Rate (depth/time)
     Ia     = Initial Abstraction (length)
     dt     = Computational increment (duration of unit excess rainfall)
              Default dt is smallest value of 0.1333Tc, rtm, and th
              (Smallest dt is then adjusted to match up with Tp)
 UDdt       = User specified override computational main time increment
              (only used if UDdt is => .1333Tc)
     D(t)   = Point on distribution curve (fraction of P) for time step t

     K      = 2 / (1 + (Tr/Tp)): default K = 0.75: (for Tr/Tp = 1.67)
     Ks     = Hydrograph shape factor
            = Unit Conversions * K:
            = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K
              Default Ks = 645.333 * 0.75 = 484


     Lag    = Lag time from center of excess runoff (dt) to Tp:  Lag = 0.6Tc
     P      = Total precipitation depth, inches
     Pa(t)  = Accumulated rainfall at time step t
     Pi(t)  = Incremental rainfall at time step t
     qp     = Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi.
            = (Ks * A * Q) / Tp   (where Q = 1in. runoff, A=sq.mi.)
     Qu(t)  = Unit hydrograph ordinate (cfs) at time step t
     Q(t)   = Final hydrograph ordinate (cfs) at time step t
     Rai(t) = Accumulated runoff (inches) at time step t for impervious area
     Rap(t) = Accumulated runoff (inches) at time step t for pervious area
     Rii(t) = Incremental runoff (inches) at time step t for impervious area
     Rip(t) = Incremental runoff (inches) at time step t for pervious area
     R(t)   = Incremental weighted total runoff (inches)
     Rtm    = Time increment for rainfall table
     Si     = S for impervious area:  Si = (1000/CNi) - 10
     Sp     = S for pervious area:    Sp = (1000/CNp) - 10
     t      = Time step (row) number
     Tc     = Time of concentration
     Tb     = Time (hrs) of entire unit hydrograph:  Tb = Tp + Tr
     Tp     = Time (hrs) to peak of a unit hydrograph:  Tp = (dt/2) + Lag
     Tr     = Time (hrs) of receding limb of unit hydrograph:  Tr = ratio of Tp
```

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

PRECIPITATION: --
Column (1): Time for time step t
Column (2): D(t) = Point on distribution curve for time step t
Column (3): Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4): Pa(t) = D(t) x P: Col.(2) x P

PERVIOUS AREA RUNOFF (using SCS Runoff CN Method) ------------------------
Column (5): Rap(t) = Accumulated pervious runoff for time step t
             If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
             If (Pa(t) is > 0.2Sp) then use:

             Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6): Rip(t) = Incremental pervious runoff for time step t
             Rip(t) =   Rap(t)   -   Rap(t-1)
             Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

IMPERVIOUS AREA RUNOFF ---
Column (7 & 8)... Did not specify to use impervious areas.

INCREMENTAL WEIGHTED RUNOFF: ---
Column (9): R(t) = (Ap/At) x Rip(t) + (Ai/At) x Rii(t)
             R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS UNIT HYDROGRAPH METHOD: --
Column (10): Q(t)   is computed with the SCS unit hydrograph method
                    using R() and Qu().

```
                SCS UNIT HYDROGRAPH METHOD

                STORM EVENT: 2 year storm
                Duration     = 24.0000 hrs     Rain Depth = 3.2000 in
                Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
                Rain File -ID = - TypeIII 24hr
                Unit Hyd Type = Default Curvilinear
                HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
                HYG File - ID = - PRDA 4D 2 YR
                Tc           = .3467 hrs
                Drainage Area = 2.180 acres  Runoff CN= 69


                ==============================================
                Computational Time Increment   =    .04623 hrs
                Computed Peak Time             =  12.2978 hrs
                Computed Peak Flow             =     1.14 cfs

                Time Increment for HYG File    =    .1000 hrs
                Peak Time, Interpolated Output =  12.3000 hrs
                Peak Flow, Interpolated Output =     1.14 cfs
                ==============================================

                        DRAINAGE AREA
                        -------------------
                ID:PRDA 4D
                CN   =    69
                Area =       2.180 acres
                S    =    4.4928 in
                0.2S =     .8986 in

                    Cumulative Runoff
                    -------------------
                            .7796 in
                            .142 ac-ft

        HYG Volume...           .142 ac-ft (area under HYG curve)

        ***** SCS UNIT HYDROGRAPH PARAMETERS *****

        Time Concentration, Tc =   .34674 hrs (ID: PRDA 4D)
        Computational Incr, Tm =   .04623 hrs = 0.20000 Tp

        Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
        K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
        Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

        Unit peak,        qp =    7.12 cfs
        Unit peak time    Tp =   .23116 hrs
        Unit receding limb, Tr =  .92464 hrs
        Total unit time,   Tb =  1.15581 hrs
```

```
Type.... Unit Hyd. Summary                              Page 5.04
Name.... PRDA 4D        Tag: 10 YR                     Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr    Tag: 10 YR
```

```
              SCS UNIT HYDROGRAPH METHOD

              STORM EVENT: 10 year storm
              Duration    = 24.0000 hrs     Rain Depth = 4.7000 in
              Rain Dir    = C:\Program Files\Haestad\PPKW\PPW\
              Rain File -ID = - TypeIII 24hr
              Unit Hyd Type = Default Curvilinear
              HYG Dir     = C:\Program Files\Haestad\PPKW\PPW\
              HYG File - ID = - PRDA 4D 10 YR
              Tc          = .3467 hrs
              Drainage Area = 2.180 acres  Runoff CN= 69


              ================================================
              Computational Time Increment   =    .04623 hrs
              Computed Peak Time             =  12.2515 hrs
              Computed Peak Flow             =     2.80 cfs

              Time Increment for HYG File    =    .1000 hrs
              Peak Time, Interpolated Output =  12.3000 hrs
              Peak Flow, Interpolated Output =    2.77 cfs
              ================================================

                        DRAINAGE AREA
                        --------------------
              ID:PRDA 4D
              CN   =    69
              Area =       2.180 acres
              S    =    4.4928 in
              0.2S =     .8986 in

                    Cumulative Runoff
                    --------------------
                        1.7423 in
                         .317 ac-ft

      HYG Volume...          .317 ac-ft (area under HYG curve)

      ***** SCS UNIT HYDROGRAPH PARAMETERS *****

      Time Concentration, Tc =   .34674 hrs (ID: PRDA 4D)
      Computational Incr, Tm =   .04623 hrs = 0.20000 Tp

      Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
      K = 483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
      Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

      Unit peak,        qp =     7.12 cfs
      Unit peak time    Tp =   .23116 hrs
      Unit receding limb, Tr =   .92464 hrs
      Total unit time,   Tb = 1.15581 hrs
```

```
Type.... Unit Hyd. Summary                                    Page 5.05
Name.... PRDA 4D           Tag: 25 YR                        Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr   Tag: 25 YR
```

```
                  SCS UNIT HYDROGRAPH METHOD

                  STORM EVENT: 25 year storm
                  Duration     = 24.0000 hrs    Rain Depth = 5.5000 in
                  Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
                  Rain File -ID = - TypeIII 24hr
                  Unit Hyd Type = Default Curvilinear
                  HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
                  HYG File - ID = - PRDA 4D 25 YR
                  Tc           = .3467 hrs
                  Drainage Area = 2.180 acres  Runoff CN= 69


                  ================================================
                  Computational Time Increment   =    .04623 hrs
                  Computed Peak Time             =   12.2515 hrs
                  Computed Peak Flow             =     3.81 cfs

                  Time Increment for HYG File    =     .1000 hrs
                  Peak Time, Interpolated Output =   12.3000 hrs
                  Peak Flow, Interpolated Output =     3.74 cfs
                  WARNING: The difference between calculated peak flow
                  and interpolated peak flow is greater than 1.50%
                  ================================================

                            DRAINAGE AREA
                        --------------------
                  ID:PRDA 4D
                  CN   =   69
                  Area =       2.180 acres
                  S    =    4.4928 in
                  0.2S =     .8986 in

                      Cumulative Runoff
                      --------------------
                            2.3282 in
                             .423 ac-ft

         HYG Volume...          .423 ac-ft (area under HYG curve)

         ***** SCS UNIT HYDROGRAPH PARAMETERS *****

         Time Concentration, Tc =   .34674 hrs (ID: PRDA 4D)
         Computational Incr, Tm =   .04623 hrs = 0.20000 Tp

         Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
         K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
         Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

         Unit peak,        qp =     7.12 cfs
         Unit peak time    Tp =    .23116 hrs
         Unit receding limb, Tr =  .92464 hrs
         Total unit time,   Tb = 1.15581 hrs
```

```
Type.... Unit Hyd. Summary                              Page 5.06
Name.... PRDA 4D          Tag: 50 YR                    Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr    Tag: 50 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

                    STORM EVENT: 50 year storm
                    Duration     = 24.0000 hrs    Rain Depth = 6.2000 in
                    Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
                    Rain File -ID = - TypeIII 24hr
                    Unit Hyd Type = Default Curvilinear
                    HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
                    HYG File - ID = - PRDA 4D 50 YR
                    Tc           = .3467 hrs
                    Drainage Area = 2.180 acres  Runoff CN= 69

                    ==========================================
                    Computational Time Increment  =   .04623 hrs
                    Computed Peak Time            = 12.2515 hrs
                    Computed Peak Flow            =    4.73 cfs

                    Time Increment for HYG File   =   .1000 hrs
                    Peak Time, Interpolated Output = 12.3000 hrs
                    Peak Flow, Interpolated Output =    4.63 cfs
                    WARNING: The difference between calculated peak flow
                    and interpolated peak flow is greater than 1.50%
                    ==========================================

                            DRAINAGE AREA
                            --------------------
                    ID:PRDA 4D
                    CN  =    69
                    Area =       2.180 acres
                    S    =    4.4928 in
                    0.2S =     .8986 in

                        Cumulative Runoff
                        --------------------
                            2.8696 in
                            .521 ac-ft

        HYG Volume...            .522 ac-ft (area under HYG curve)

        ***** SCS UNIT HYDROGRAPH PARAMETERS *****

        Time Concentration, Tc =   .34674 hrs (ID: PRDA 4D)
        Computational Incr, Tm =   .04623 hrs = 0.20000 Tp

        Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
        K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
        Receding/Rising, Tr/Tp =  1.6698 (solved from K =   .7491)

        Unit peak,          qp =    7.12 cfs
        Unit peak time      Tp =   .23116 hrs
        Unit receding limb, Tr =   .92464 hrs
        Total unit time,    Tb = 1.15581 hrs
```

```
Type.... Unit Hyd. Summary                              Page 5.07
Name.... PRDA 4D          Tag: 100 YR               Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr    Tag: 100 YR
```

```
                SCS UNIT HYDROGRAPH METHOD

                STORM EVENT: 100 year storm
                Duration     = 24.0000 hrs    Rain Depth = 7.0000 in
                Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
                Rain File -ID =  ~ TypeIII 24hr
                Unit Hyd Type = Default Curvilinear
                HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
                HYG File - ID =  ~ PRDA 4D 100 YR
                Tc           = .3467 hrs
                Drainage Area = 2.180 acres  Runoff CN= 69


                ==========================================
                Computational Time Increment   =   .04623 hrs
                Computed Peak Time             = 12.2515 hrs
                Computed Peak Flow             =    5.82 cfs

                Time Increment for HYG File    =   .1000 hrs
                Peak Time, Interpolated Output = 12.3000 hrs
                Peak Flow, Interpolated Output =   5.67 cfs
                WARNING: The difference between calculated peak flow
                and interpolated peak flow is greater than 1.50%
                ==========================================

                        DRAINAGE AREA
                        --------------------
                        ID:PRDA 4D
                        CN   =    69
                        Area =        2.180 acres
                        S    =    4.4928 in
                        0.2S =     .8986 in

                        Cumulative Runoff
                        --------------------
                                 3.5140 in
                                  .638 ac-ft

                HYG Volume...         .639 ac-ft (area under HYG curve)

                ***** SCS UNIT HYDROGRAPH PARAMETERS *****

                Time Concentration, Tc =   .34674 hrs (ID: PRDA 4D)
                Computational Incr, Tm =   .04623 hrs = 0.20000 Tp

                Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
                K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
                Receding/Rising, Tr/Tp =  1.6698 (solved from K =   .7491)

                Unit peak,         qp =    7.12 cfs
                Unit peak time     Tp =   .23116 hrs
                Unit receding limb, Tr =   .92464 hrs
                Total unit time,    Tb = 1.15581 hrs
```

                    SCS UNIT HYDROGRAPH METHOD

             STORM EVENT: 2 year storm
             Duration   = 24.0000 hrs   Rain Depth = 3.2000 in
             Rain Dir   = C:\Program Files\Haestad\PPKW\PPW\
             Rain File -ID = - TypeIII 24hr
             Unit Hyd Type = Default Curvilinear
             HYG Dir   = C:\Program Files\Haestad\PPKW\PPW\
             HYG File - ID = - PRDA 4ND 2 YR
             Tc   = .3400 hrs
             Drainage Area = 7.740 acres Runoff CN= 55

             ==
             Computational Time Increment   =   .04533 hrs
             Computed Peak Time   = 12.5120 hrs
             Computed Peak Flow   =   .67 cfs

             Time Increment for HYG File   =   .1000 hrs
             Peak Time, Interpolated Output = 12.5000 hrs
             Peak Flow, Interpolated Output =   .67 cfs
             ==

                          DRAINAGE AREA

                   ID:PRDA 4ND
                   CN =   55
                   Area =   7.740 acres
                   S   =   8.1818 in
                   0.2S =   1.6364 in

                       Cumulative Runoff

                           .2509 in
                           .162 ac-ft

             HYG Volume...   .162 ac-ft (area under HYG curve)

             ***** SCS UNIT HYDROGRAPH PARAMETERS *****

             Time Concentration, Tc =   .34000 hrs (ID: PRDA 4ND)
             Computational Incr, Tm =   .04533 hrs = 0.20000 Tp

             Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
             K = 483.43/645.333, K =   .7491 (also, K = 2/(1+(Tr/Tp))
             Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

             Unit peak,   qp =   25.79 cfs
             Unit peak time   Tp =   .22667 hrs
             Unit receding limb, Tr =   .90667 hrs
             Total unit time,   Tb = 1.13333 hrs

```
Type.... Unit Hyd. Summary                               Page 5.09
Name.... PRDA 4ND        Tag: 10 YR                      Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr    Tag: 10 YR
```

```
                 SCS UNIT HYDROGRAPH METHOD

                 STORM EVENT: 10 year storm
                 Duration     = 24.0000 hrs    Rain Depth = 4.7000 in
                 Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
                 Rain File -ID = - TypeIII 24hr
                 Unit Hyd Type = Default Curvilinear
                 HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
                 HYG File - ID = - PRDA 4ND 10 YR
                 Tc           = .3400 hrs
                 Drainage Area = 7.740 acres   Runoff CN= 55


                 ===========================================
                 Computational Time Increment    =    .04533 hrs
                 Computed Peak Time              =  12.3307 hrs
                 Computed Peak Flow              =     3.84 cfs

                 Time Increment for HYG File     =    .1000 hrs
                 Peak Time, Interpolated Output  =  12.3000 hrs
                 Peak Flow, Interpolated Output  =     3.80 cfs
                 ===========================================


                           DRAINAGE AREA
                           -------------------
                       ID:PRDA 4ND
                       CN   =    55
                       Area =        7.740 acres
                       S    =   8.1818 in
                       0.2S =   1.6364 in


                       Cumulative Runoff
                       -------------------
                             .8346 in
                             .538 ac-ft

         HYG Volume...         .538 ac-ft (area under HYG curve)

         ***** SCS UNIT HYDROGRAPH PARAMETERS *****

         Time Concentration, Tc =   .34000 hrs (ID: PRDA 4ND)
         Computational Incr, Tm =   .04533 hrs = 0.20000 Tp

         Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
         K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
         Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

         Unit peak,         qp =    25.79 cfs
         Unit peak time     Tp =    .22667 hrs
         Unit receding limb, Tr =   .90667 hrs
         Total unit time,    Tb = 1.13333 hrs
```

```
Type.... Unit Hyd. Summary                              Page 5.10
Name.... PRDA 4ND        Tag: 25 YR                     Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr    Tag: 25 YR
```

```
              SCS UNIT HYDROGRAPH METHOD

              STORM EVENT: 25 year storm
              Duration     = 24.0000 hrs    Rain Depth = 5.5000 in
              Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
              Rain File -ID =  - TypeIII 24hr
              Unit Hyd Type = Default Curvilinear
              HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
              HYG File - ID =  - PRDA 4ND 25 YR
              Tc           = .3400 hrs
              Drainage Area = 7.740 acres   Runoff CN= 55

              ================================================
              Computational Time Increment   =    .04533 hrs
              Computed Peak Time             =  12.2853 hrs
              Computed Peak Flow             =      6.30 cfs

              Time Increment for HYG File    =    .1000 hrs
              Peak Time, Interpolated Output =  12.3000 hrs
              Peak Flow, Interpolated Output =      6.28 cfs
              ================================================

                      DRAINAGE AREA
                      --------------------
              ID:PRDA 4ND
              CN   =    55
              Area =         7.740 acres
              S    =    8.1818 in
              0.2S =    1.6364 in

                      Cumulative Runoff
                      --------------------
                          1.2393 in
                           .799 ac-ft

              HYG Volume...           .799 ac-ft (area under HYG curve)

              ***** SCS UNIT HYDROGRAPH PARAMETERS *****

              Time Concentration, Tc =   .34000 hrs (ID: PRDA 4ND)
              Computational Incr, Tm =   .04533 hrs = 0.20000 Tp

              Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
              K =  483.43/645.333,   K =    .7491 (also, K = 2/(1+(Tr/Tp)))
              Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

              Unit peak,         qp =    25.79 cfs
              Unit peak time     Tp =    .22667 hrs
              Unit receding limb, Tr =    .90667 hrs
              Total unit time,   Tb =   1.13333 hrs
```

```
Type.... Unit Hyd. Summary                              Page 5.11
Name.... PRDA 4ND        Tag: 50 YR                     Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr    Tag: 50 YR
```

```
                  SCS UNIT HYDROGRAPH METHOD

          STORM EVENT: 50 year storm
          Duration     = 24.0000 hrs    Rain Depth = 6.2000 in
          Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
          Rain File -ID =  - TypeIII 24hr
          Unit Hyd Type = Default Curvilinear
          HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
          HYG File - ID =  - PRDA 4ND 50 YR
          Tc           = .3400 hrs
          Drainage Area = 7.740 acres  Runoff CN= 55


          ================================================
          Computational Time Increment   =    .04533 hrs
          Computed Peak Time             =  12.2853 hrs
          Computed Peak Flow             =     8.75 cfs

          Time Increment for HYG File    =    .1000 hrs
          Peak Time, Interpolated Output =  12.3000 hrs
          Peak Flow, Interpolated Output =     8.68 cfs
          ================================================

                         DRAINAGE AREA
                         ------------------
              ID:PRDA 4ND
              CN  =    55
              Area =        7.740 acres
              S    =   8.1818 in
              0.2S =   1.6364 in

                    Cumulative Runoff
                    -------------------
                        1.6341 in
                        1.054 ac-ft

          HYG Volume...        1.054 ac-ft (area under HYG curve)

          ***** SCS UNIT HYDROGRAPH PARAMETERS *****

          Time Concentration, Tc =   .34000 hrs (ID: PRDA 4ND)
          Computational Incr, Tm =   .04533 hrs = 0.20000 Tp

          Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
          K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
          Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

          Unit peak,         qp =    25.79 cfs
          Unit peak time     Tp =    .22667 hrs
          Unit receding limb, Tr =   .90667 hrs
          Total unit time,    Tb = 1.13333 hrs
```

```
Type.... Unit Hyd. Summary                              Page 5.12
Name.... PRDA 4ND          Tag: 100 YR              Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr    Tag: 100 YR
```

```
                  SCS UNIT HYDROGRAPH METHOD

                  STORM EVENT: 100 year storm
                  Duration     = 24.0000 hrs    Rain Depth = 7.0000 in
                  Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
                  Rain File -ID =  - TypeIII 24hr
                  Unit Hyd Type = Default Curvilinear
                  HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
                  HYG File - ID =  - PRDA 4ND 100 YR
                  Tc           = .3400 hrs
                  Drainage Area = 7.740 acres  Runoff CN= 55


                  ================================================
                  Computational Time Increment   =   .04533 hrs
                  Computed Peak Time             = 12.2853 hrs
                  Computed Peak Flow             =   11.75 cfs

                  Time Increment for HYG File    =   .1000 hrs
                  Peak Time, Interpolated Output = 12.3000 hrs
                  Peak Flow, Interpolated Output =   11.64 cfs
                  ================================================

                            DRAINAGE AREA
                            --------------------
                  ID:PRDA 4ND
                  CN   =    55
                  Area =        7.740 acres
                  S    =    8.1818 in
                  0.2S =    1.6364 in

                       Cumulative Runoff
                       --------------------
                            2.1239 in
                            1.370 ac-ft

          HYG Volume...        1.370 ac-ft (area under HYG curve)

          ***** SCS UNIT HYDROGRAPH PARAMETERS *****

          Time Concentration, Tc =   .34000 hrs (ID: PRDA 4ND)
          Computational Incr, Tm =   .04533 hrs = 0.20000 Tp

          Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
          K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
          Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

          Unit peak,        qp =    25.79 cfs
          Unit peak time    Tp =    .22667 hrs
          Unit receding limb, Tr =   .90667 hrs
          Total unit time,    Tb = 1.13333 hrs
```

```
                        SUMMARY FOR HYDROGRAPH ADDITION
                              at Node: DP 4

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

=================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID       HYG tag
-----------------------------------------------------------------
TO DP4            JUNCTION                       JUNCTION     2 YR
=================================================================


INFLOWS TO:  DP 4
------------------------------------------- Volume   Peak Time   Peak Flow
HYG file    HYG ID        HYG tag    ac-ft    hrs         cfs
-------------------------------------------------------------------------
            JUNCTION      2 YR       .162    12.5000        .67


TOTAL FLOW INTO:  DP 4
------------------------------------------- Volume   Peak Time   Peak Flow
HYG file    HYG ID        HYG tag    ac-ft    hrs         cfs
-------------------------------------------------------------------------
            DP 4          2 YR       .162    12.5000        .67
```

```
Type.... Node: Addition Summary                        Page 6.02
Name.... DP 4                                          Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 4
                    HYG Tag  = 2 YR
                    ------------------------------------
                    Peak Discharge =          .67 cfs
                    Time to Peak   =     12.5000 hrs
                    HYG Volume     =          .162 ac-ft
                    ------------------------------------

                         HYDROGRAPH ORDINATES (cfs)
        Time  |          Output Time increment = .1000 hrs
        hrs   |   Time on left represents time for first value in each row.
     ---------|-------------------------------------------------------------
     12.0000  |      .00       .02       .18       .43       .61
     12.5000  |      .67       .63       .54       .46       .41
     13.0000  |      .38       .35       .33       .31       .30
     13.5000  |      .29       .29       .28       .28       .27
     14.0000  |      .26       .26       .25       .25       .24
     14.5000  |      .24       .23       .23       .23       .22
     15.0000  |      .22       .22       .21       .21       .20
     15.5000  |      .20       .19       .19       .18       .18
     16.0000  |      .17       .17       .16       .16       .15
     16.5000  |      .15       .15       .15       .14       .14
     17.0000  |      .14       .14       .13       .13       .13
     17.5000  |      .13       .12       .12       .12       .11
     18.0000  |      .11       .11       .11       .10       .10
     18.5000  |      .10       .10       .10       .10       .10
     19.0000  |      .10       .10       .10       .10       .10
     19.5000  |      .10       .09       .09       .09       .09
     20.0000  |      .09       .09       .09       .09       .09
     20.5000  |      .09       .09       .09       .09       .09
     21.0000  |      .08       .08       .08       .08       .08
     21.5000  |      .08       .08       .08       .08       .08
     22.0000  |      .08       .08       .08       .08       .08
     22.5000  |      .08       .07       .07       .07       .07
     23.0000  |      .07       .07       .07       .07       .07
     23.5000  |      .07       .07       .07       .07       .07
     24.0000  |      .06       .06       .04       .02       .01
     24.5000  |      .01       .00       .00       .00
```

```
Type.... Node: Addition Summary                              Page 6.03
Name.... DP 4                                                Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr    Tag: 10 YR
```

```
                      SUMMARY FOR HYDROGRAPH ADDITION
                            at Node: DP 4

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

===================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID        HYG tag
-------------------------------------------------------------------
TO DP4            JUNCTION                       JUNCTION      10 YR
===================================================================


INFLOWS TO:  DP 4
----------------------------------------- Volume   Peak Time  Peak Flow
HYG file    HYG ID           HYG tag      ac-ft    hrs        cfs
-----------------------------------------------------------------
            JUNCTION         10 YR        .590     12.3000    3.80


TOTAL FLOW INTO:  DP 4
----------------------------------------- Volume   Peak Time  Peak Flow
HYG file    HYG ID           HYG tag      ac-ft    hrs        cfs
-----------------------------------------------------------------
            DP 4             10 YR        .590     12.3000    3.80
```

```
Type.... Node: Addition Summary                          Page 6.04
Name.... DP 4                                           Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 4
                    HYG Tag  = 10 YR
                    ------------------------------------
                    Peak Discharge =        3.80 cfs
                    Time to Peak   =     12.3000 hrs
                    HYG Volume     =        .590 ac-ft
                    ------------------------------------
```

```
                         HYDROGRAPH ORDINATES (cfs)
        Time  |          Output Time increment = .1000 hrs
        hrs   |   Time on left represents time for first value in each row.
      --------|---------------------------------------------------------------
       11.7000 |      .00        .01        .10        .53       1.68
       12.2000 |     3.15       3.80       3.72       3.37       2.85
       12.7000 |     2.31       1.91       1.66       1.49       1.36
       13.2000 |     1.26       1.19       1.15       1.11       1.08
       13.7000 |     1.05       1.02        .99        .96        .93
       14.2000 |      .90        .87        .84        .82        .80
       14.7000 |      .78        .75        .73        .71        .69
       15.2000 |      .66        .64        .61        .59        .57
       15.7000 |      .55        .52        .50        .48        .46
       16.2000 |      .44        .42        .41        .40        .39
       16.7000 |      .38        .37        .36        .35        .34
       17.2000 |      .33        .33        .32        .31        .31
       17.7000 |      .30        .29        .28        .28        .27
       18.2000 |      .26        .26        .26        .25        .25
       18.7000 |      .25        .25        .24        .24        .24
       19.2000 |      .24        .24        .23        .23        .23
       19.7000 |      .23        .23        .22        .22        .22
       20.2000 |      .22        .22        .21        .21        .21
       20.7000 |      .21        .21        .20        .20        .20
       21.2000 |      .20        .20        .20        .20        .19
       21.7000 |      .19        .19        .19        .19        .19
       22.2000 |      .18        .18        .18        .18        .18
       22.7000 |      .17        .17        .17        .17        .17
       23.2000 |      .17        .16        .16        .16        .16
       23.7000 |      .16        .16        .15        .15        .14
       24.2000 |      .10        .05        .02        .01        .01
       24.7000 |      .00        .00        .00
```

```
Type.... Node: Addition Summary                          Page 6.05
Name.... DP 4                                            Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr    Tag: 25 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                         at Node: DP 4

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

=================================================================
Upstream Link ID  Upstream Node ID   HYG file   HYG ID        HYG tag
-----------------------------------------------------------------
TO DP4            JUNCTION                      JUNCTION       25 YR
=================================================================


INFLOWS TO:  DP 4
-------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID          HYG tag    ac-ft     hrs        cfs
--------------------------------------------------------------------
            JUNCTION        25 YR      .913      12.3000     6.39


TOTAL FLOW INTO:  DP 4
-------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID          HYG tag    ac-ft     hrs        cfs
--------------------------------------------------------------------
            DP 4            25 YR      .913      12.3000     6.39
```

```
Type.... Node: Addition Summary                          Page 6.06
Name.... DP 4                                            Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr   Tag: 25 YR
```

```
              TOTAL NODE INFLOW...
              HYG file =
              HYG ID   = DP 4
              HYG Tag  = 25 YR
              ------------------------------------
              Peak Discharge =        6.39 cfs
              Time to Peak   =     12.3000 hrs
              HYG Volume     =        .913 ac-ft
              ------------------------------------

                        HYDROGRAPH ORDINATES (cfs)
        Time |          Output Time increment = .1000 hrs
        hrs  |   Time on left represents time for first value in each row.
     --------|-------------------------------------------------------------
      11.5000 |     .00        .00        .05        .22        .62
      12.0000 |    1.55       3.46       5.59       6.39       6.03
      12.5000 |    5.23       4.31       3.43       2.81       2.42
      13.0000 |    2.16       1.96       1.82       1.72       1.65
      13.5000 |    1.60       1.56       1.52       1.48       1.43
      14.0000 |    1.39       1.35       1.31       1.28       1.25
      14.5000 |    1.23       1.20       1.18       1.15       1.13
      15.0000 |    1.10       1.08       1.05       1.02       1.00
      15.5000 |     .97        .94        .91        .88        .85
      16.0000 |     .82        .79        .76        .73        .70
      16.5000 |     .68        .66        .63        .61        .59
      17.0000 |     .57        .55        .52        .51        .49
      17.5000 |     .47        .45        .44        .42        .40
      18.0000 |     .39        .38        .37        .36        .35
      18.5000 |     .34        .34        .34        .33        .33
      19.0000 |     .33        .32        .32        .32        .32
      19.5000 |     .31        .31        .31        .30        .30
      20.0000 |     .30        .30        .29        .29        .29
      20.5000 |     .29        .28        .28        .28        .28
      21.0000 |     .27        .27        .27        .27        .26
      21.5000 |     .26        .26        .26        .26        .25
      22.0000 |     .25        .25        .25        .24        .24
      22.5000 |     .24        .24        .23        .23        .23
      23.0000 |     .23        .23        .22        .22        .22
      23.5000 |     .22        .21        .21        .21        .21
      24.0000 |     .20        .18        .13        .07        .03
      24.5000 |     .02        .01        .00        .00        .00
```

```
Type...., Node: Addition Summary                          Page 6.07
Name.... DP 4                                             Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                         at Node: DP 4

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID        HYG tag
----------------------------------------------------------------
TO DP4             JUNCTION                       JUNCTION      50 YR
================================================================


INFLOWS TO:  DP 4
----------------------------------------- Volume    Peak Time   Peak Flow
HYG file    HYG ID          HYG tag       ac-ft     hrs         cfs
-----------------------------------------------------------------------
            JUNCTION        50 YR         1.234     12.3000     8.92


TOTAL FLOW INTO:  DP 4
----------------------------------------- Volume    Peak Time   Peak Flow
HYG file    HYG ID          HYG tag       ac-ft     hrs         cfs
-----------------------------------------------------------------------
            DP 4            50 YR         1.234     12.3000     8.92
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 4
                    HYG Tag  = 50 YR
                    ------------------------------------
                    Peak Discharge =        8.92 cfs
                    Time to Peak   =       12.3000 hrs
                    HYG Volume     =        1.234 ac-ft
                    ------------------------------------
```

```
                         HYDROGRAPH ORDINATES (cfs)
        Time  |          Output Time increment = .1000 hrs
        hrs   |   Time on left represents time for first value in each row.
     ---------|----------------------------------------------------------------
     11.2000  |      .00        .00        .02        .07        .15
     11.7000  |      .32        .67       1.32       2.65       5.26
     12.2000  |     8.06       8.92       8.16       6.96       5.70
     12.7000  |     4.60       3.82       3.33       2.99       2.72
     13.2000  |     2.51       2.35       2.24       2.15       2.07
     13.7000  |     2.00       1.93       1.86       1.79       1.73
     14.2000  |     1.66       1.62       1.58       1.54       1.51
     14.7000  |     1.47       1.44       1.41       1.38       1.35
     15.2000  |     1.32       1.29       1.26       1.23       1.19
     15.7000  |     1.16       1.13       1.09       1.06       1.02
     16.2000  |      .99        .96        .94        .92        .90
     16.7000  |      .88        .85        .83        .81        .79
     17.2000  |      .77        .74        .71        .69        .66
     17.7000  |      .64        .61        .58        .56        .53
     18.2000  |      .51        .49        .48        .47        .45
     18.7000  |      .44        .43        .43        .42        .41
     19.2000  |      .41        .40        .39        .39        .38
     19.7000  |      .38        .38        .37        .37        .37
     20.2000  |      .36        .36        .36        .35        .35
     20.7000  |      .35        .34        .34        .34        .34
     21.2000  |      .33        .33        .33        .32        .32
     21.7000  |      .32        .32        .31        .31        .31
     22.2000  |      .30        .30        .30        .29        .29
     22.7000  |      .29        .29        .28        .28        .28
     23.2000  |      .27        .27        .27        .27        .26
     23.7000  |      .26        .26        .25        .25        .23
     24.2000  |      .16        .08        .04        .02        .01
     24.7000  |      .00        .00        .00
```

```
Type.... Node: Addition Summary                          Page 6.09
Name.... DP 4                                           Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
                     SUMMARY FOR HYDROGRAPH ADDITION
                          at Node: DP 4

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

=================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID      HYG tag
-----------------------------------------------------------------
TO DP4            JUNCTION                       JUNCTION    100 YR
=================================================================


INFLOWS TO:  DP 4
----------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID          HYG tag       ac-ft      hrs        cfs
-----------------------------------------------------------------
            JUNCTION        100 YR        1.638     12.3000     11.97


TOTAL FLOW INTO:  DP 4
----------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID          HYG tag       ac-ft      hrs        cfs
-----------------------------------------------------------------
            DP 4            100 YR        1.638     12.3000     11.97
```

```
Type.... Node: Addition Summary                         Page 6.10
Name.... DP 4                                       Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr    Tag: 100 YR
```

```
                   TOTAL NODE INFLOW...
                   HYG file =
                   HYG ID   = DP 4
                   HYG Tag  = 100 YR
                   ------------------------------------
                   Peak Discharge =       11.97 cfs
                   Time to Peak   =      12.3000 hrs
                   HYG Volume     =        1.638 ac-ft
                   ------------------------------------

                        HYDROGRAPH ORDINATES (cfs)
      Time  |           Output Time increment = .1000 hrs
      hrs   |   Time on left represents time for first value in each row.
   ---------|--------------------------------------------------------------
   10.8000 |       .00       .00       .02       .05       .09
   11.3000 |       .15       .23       .32       .46       .73
   11.8000 |      1.28      2.22      4.07      7.55     11.18
   12.3000 |     11.97     10.78      9.37      7.89      6.48
   12.8000 |      5.42      4.71      4.19      3.78      3.45
   13.3000 |      3.20      3.01      2.86      2.73      2.61
   13.8000 |      2.50      2.39      2.29      2.20      2.11
   14.3000 |      2.03      1.97      1.91      1.86      1.81
   14.8000 |      1.76      1.72      1.68      1.63      1.59
   15.3000 |      1.55      1.51      1.47      1.43      1.40
   15.8000 |      1.36      1.32      1.27      1.24      1.20
   16.3000 |      1.17      1.14      1.12      1.09      1.07
   16.8000 |      1.05      1.02      1.00       .98       .95
   17.3000 |       .93       .91       .88       .86       .83
   17.8000 |       .81       .78       .75       .72       .69
   18.3000 |       .67       .65       .63       .61       .59
   18.8000 |       .58       .56       .55       .54       .53
   19.3000 |       .52       .50       .49       .49       .48
   19.8000 |       .47       .46       .46       .45       .44
   20.3000 |       .44       .44       .43       .43       .42
   20.8000 |       .42       .42       .41       .41       .41
   21.3000 |       .40       .40       .40       .39       .39
   21.8000 |       .39       .38       .38       .37       .37
   22.3000 |       .37       .36       .36       .36       .35
   22.8000 |       .35       .35       .34       .34       .33
   23.3000 |       .33       .33       .32       .32       .32
   23.8000 |       .31       .31       .30       .27       .19
   24.3000 |       .10       .05       .02       .01       .01
   24.8000 |       .00       .00
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
1432.50	-----	.1131	.0000	.000	.000
1435.20	-----	.1131	.3393	.305	.305

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

where: EL1, EL2   = Lower and upper elevations of the increment
       Area1,Area2 = Areas computed for EL1, EL2, respectively
       Volume   = Incremental volume between EL1 and EL2

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW

                    REQUESTED POND WS ELEVATIONS:

                    Min. Elev.=   1432.50 ft
                    Increment =   .10 ft
                    Max. Elev.=   1435.20 ft

            ****
                          OUTLET CONNECTIVITY
            ****

             ---> Forward Flow Only (UpStream to DnStream)
             <--- Reverse Flow Only (DnStream to UpStream)
             <---> Forward and Reverse Both Allowed

        Structure   No.   Outfall   E1, ft   E2, ft
        -----------------   ----   -------   ---------   ---------
        Orifice-Circular   2   --->   TW   1434.000   1435.200
        Orifice-Circular   1   --->   TW   1433.000   1435.200
        TW SETUP, DS Channel

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW

           OUTLET STRUCTURE INPUT DATA

           Structure ID   = 2
           Structure Type   = Orifice-Circular

           # of Openings   =   1
           Invert Elev.   =   1434.00 ft
           Diameter   =   .6670 ft
           Orifice Coeff.   =   .600

           Structure ID   = 1
           Structure Type   = Orifice-Circular

           # of Openings   =   1
           Invert Elev.   =   1433.00 ft
           Diameter   =   .3330 ft
           Orifice Coeff.   =   .600

           Structure ID   = TW
           Structure Type   = TW SETUP, DS Channel

           FREE OUTFALL CONDITIONS SPECIFIED

           CONVERGENCE TOLERANCES...
           Maximum Iterations=   30
           Min. TW tolerance =   .01 ft
           Max. TW tolerance =   .01 ft
           Min. HW tolerance =   .01 ft
           Max. HW tolerance =   .01 ft
           Min. Q tolerance =   .10 cfs
           Max. Q tolerance =   .10 cfs

```
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW


                    RATING TABLE FOR ONE OUTLET TYPE

                Structure ID  = 2  (Orifice-Circular)
                ------------------------------------
                Upstream  ID  =    (Pond Water Surface)
                DNstream  ID  = TW (Pond Outfall)


     WS Elev,Device Q      Tail Water              Notes
     ----------------    ----------------   -------------------------
     WS Elev.    Q       TW Elev Converge
        ft      cfs        ft     +/-ft    Computation Messages
     --------  -------   --------  -----   -------------------------
     1432.50     .00     Free Outfall      HW & TW below invert
     1432.60     .00     Free Outfall      HW & TW below invert
     1432.70     .00     Free Outfall      HW & TW below invert
     1432.80     .00     Free Outfall      HW & TW below invert
     1432.90     .00     Free Outfall      HW & TW below invert
     1433.00     .00     Free Outfall      HW & TW below invert
     1433.10     .00     Free Outfall      HW & TW below invert
     1433.20     .00     Free Outfall      HW & TW below invert
     1433.30     .00     Free Outfall      HW & TW below invert
     1433.40     .00     Free Outfall      HW & TW below invert
     1433.50     .00     Free Outfall      HW & TW below invert
     1433.60     .00     Free Outfall      HW & TW below invert
     1433.70     .00     Free Outfall      HW & TW below invert
     1433.80     .00     Free Outfall      HW & TW below invert
     1433.90     .00     Free Outfall      HW & TW below invert
     1434.00     .00     Free Outfall      Upstream HW & DNstream TW < Inv.El
     1434.10     .03     Free Outfall      CRIT.DEPTH CONTROL  Vh= .027ft  Dcr= .073ft   CRIT.DEPTH
     1434.20     .11     Free Outfall      CRIT.DEPTH CONTROL  Vh= .052ft  Dcr= .148ft   CRIT.DEPTH
     1434.30     .23     Free Outfall      CRIT.DEPTH CONTROL  Vh= .081ft  Dcr= .219ft   CRIT.DEPTH
     1434.40     .39     Free Outfall      CRIT.DEPTH CONTROL  Vh= .110ft  Dcr= .289ft   CRIT.DEPTH
     1434.50     .58     Free Outfall      CRIT.DEPTH CONTROL  Vh= .143ft  Dcr= .357ft   CRIT.DEPTH
     1434.60     .79     Free Outfall      CRIT.DEPTH CONTROL  Vh= .180ft  Dcr= .421ft   CRIT.DEPTH
     1434.70    1.02     Free Outfall      H =.37
     1434.80    1.15     Free Outfall      H =.47
     1434.90    1.27     Free Outfall      H =.57
     1435.00    1.37     Free Outfall      H =.67
     1435.10    1.47     Free Outfall      H =.77
     1435.20    1.57     Free Outfall      H =.87
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = 1 (Orifice-Circular)

Upstream ID =   (Pond Water Surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
1432.50	.00	Free Outfall		HW & TW below invert
1432.60	.00	Free Outfall		HW & TW below invert
1432.70	.00	Free Outfall		HW & TW below invert
1432.80	.00	Free Outfall		HW & TW below invert
1432.90	.00	Free Outfall		HW & TW below invert
1433.00	.00	Free Outfall		Upstream HW & DNstream TW < Inv.El
1433.10	.02	Free Outfall		CRIT.DEPTH CONTROL Vh= .027ft Dcr= .073ft CRIT.DEPTH
1433.20	.07	Free Outfall		CRIT.DEPTH CONTROL Vh= .054ft Dcr= .146ft CRIT.DEPTH
1433.30	.14	Free Outfall		CRIT.DEPTH CONTROL Vh= .092ft Dcr= .208ft CRIT.DEPTH
1433.40	.20	Free Outfall		H =.23
1433.50	.24	Free Outfall		H =.33
1433.60	.28	Free Outfall		H =.43
1433.70	.31	Free Outfall		H =.53
1433.80	.33	Free Outfall		H =.63
1433.90	.36	Free Outfall		H =.73
1434.00	.38	Free Outfall		H =.83
1434.10	.40	Free Outfall		H =.93
1434.20	.43	Free Outfall		H =1.03
1434.30	.45	Free Outfall		H =1.13
1434.40	.47	Free Outfall		H =1.23
1434.50	.48	Free Outfall		H =1.33
1434.60	.50	Free Outfall		H =1.43
1434.70	.52	Free Outfall		H =1.53
1434.80	.54	Free Outfall		H =1.63
1434.90	.55	Free Outfall		H =1.73
1435.00	.57	Free Outfall		H =1.83
1435.10	.58	Free Outfall		H =1.93
1435.20	.60	Free Outfall		H =2.03

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW

***** COMPOSITE OUTFLOW SUMMARY ****

WS Elev, Total Q				Notes
		------- Converge ------------------------		
Elev.	Q	TW Elev	Error	
ft	cfs	ft	+/-ft	Contributing Structures
--------	-------	---------	-----	-------------------------
1432.50	.00	Free Outfall		None contributing
1432.60	.00	Free Outfall		None contributing
1432.70	.00	Free Outfall		None contributing
1432.80	.00	Free Outfall		None contributing
1432.90	.00	Free Outfall		None contributing
1433.00	.00	Free Outfall		None contributing
1433.10	.02	Free Outfall		1
1433.20	.07	Free Outfall		1
1433.30	.14	Free Outfall		1
1433.40	.20	Free Outfall		1
1433.50	.24	Free Outfall		1
1433.60	.28	Free Outfall		1
1433.70	.31	Free Outfall		1
1433.80	.33	Free Outfall		1
1433.90	.36	Free Outfall		1
1434.00	.38	Free Outfall		1
1434.10	.43	Free Outfall		2 +1
1434.20	.53	Free Outfall		2 +1
1434.30	.67	Free Outfall		2 +1
1434.40	.85	Free Outfall		2 +1
1434.50	1.06	Free Outfall		2 +1
1434.60	1.29	Free Outfall		2 +1
1434.70	1.54	Free Outfall		2 +1
1434.80	1.68	Free Outfall		2 +1
1434.90	1.82	Free Outfall		2 +1
1435.00	1.94	Free Outfall		2 +1
1435.10	2.06	Free Outfall		2 +1
1435.20	2.16	Free Outfall		2 +1

INFILTRATION RATING TABLE CALCULATIONS

Infilt.(cfs) = (3.0000 (in/hr) * Area) * Ku
Where: Ku = units conversion factor

W.S.Elev ft	Total Area acres	Infilt. cfs
No storage at this elevation... infiltration set to zero.		
1432.50	.1131	.00
1432.60	.1131	.34
1432.70	.1131	.34
1432.80	.1131	.34
1432.90	.1131	.34
1433.00	.1131	.34
1433.10	.1131	.34
1433.20	.1131	.34
1433.30	.1131	.34
1433.40	.1131	.34
1433.50	.1131	.34
1433.60	.1131	.34
1433.70	.1131	.34
1433.80	.1131	.34
1433.90	.1131	.34
1434.00	.1131	.34
1434.10	.1131	.34
1434.20	.1131	.34
1434.30	.1131	.34
1434.40	.1131	.34
1434.50	.1131	.34
1434.60	.1131	.34
1434.70	.1131	.34
1434.80	.1131	.34
1434.90	.1131	.34
1435.00	.1131	.34
1435.10	.1131	.34
1435.20	.1131	.34

```
                        LEVEL POOL ROUTING DATA

   HYG Dir        = C:\Program Files\Haestad\PPKW\PPW\
   Inflow  HYG file = NONE STORED - POND 1        IN  2 YR
   Outflow HYG file = NONE STORED - POND 1        OUT 2 YR

   Pond Node   Data = POND 1
   Pond Volume Data = POND 1
   Pond Outlet Data = Outlet 1

   Infiltration =   3.0000 in/hr

   INITIAL CONDITIONS
   -----------------------------------
   Starting WS Elev  =  1432.50 ft
   Starting Volume   =      .000 ac-ft
   Starting Outflow  =      .00 cfs
   Starting Infiltr. =      .00 cfs
   Starting Total Qout=     .00 cfs
   Time Increment    =     .1000 hrs
```

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
1432.50	.00	.000	.1131	.00	.00	.00
1432.60	.00	.011	.1131	.34	.34	3.08
1432.70	.00	.023	.1131	.34	.34	5.81
1432.80	.00	.034	.1131	.34	.34	8.55
1432.90	.00	.045	.1131	.34	.34	11.29
1433.00	.00	.057	.1131	.34	.34	14.03
1433.10	.02	.068	.1131	.34	.36	16.78
1433.20	.07	.079	.1131	.34	.41	19.57
1433.30	.14	.090	.1131	.34	.48	22.38
1433.40	.20	.102	.1131	.34	.54	25.18
1433.50	.24	.113	.1131	.34	.58	27.95
1433.60	.28	.124	.1131	.34	.62	30.72
1433.70	.31	.136	.1131	.34	.65	33.49
1433.80	.33	.147	.1131	.34	.68	36.26
1433.90	.36	.158	.1131	.34	.70	39.02
1434.00	.38	.170	.1131	.34	.72	41.78
1434.10	.43	.181	.1131	.34	.77	44.57
1434.20	.53	.192	.1131	.34	.87	47.40
1434.30	.67	.204	.1131	.34	1.02	50.28
1434.40	.85	.215	.1131	.34	1.19	53.20

```
                       LEVEL POOL ROUTING DATA

HYG Dir        = C:\Program Files\Haestad\PPKW\PPW\
Inflow  HYG file = NONE STORED - POND 1      IN  2 YR
Outflow HYG file = NONE STORED - POND 1      OUT 2 YR

Pond Node    Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Outlet 1

Infiltration =   3.0000 in/hr

INITIAL CONDITIONS
-------------------------------------
Starting WS Elev   =  1432.50 ft
Starting Volume    =      .000 ac-ft
Starting Outflow   =      .00 cfs
Starting Infiltr.  =      .00 cfs
Starting Total Qout=      .00 cfs
Time Increment     =    .1000 hrs
```

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
1434.50	1.06	.226	.1131	.34	1.40	56.14
1434.60	1.29	.238	.1131	.34	1.63	59.11
1434.70	1.54	.249	.1131	.34	1.88	62.09
1434.80	1.68	.260	.1131	.34	2.03	64.98
1434.90	1.82	.271	.1131	.34	2.16	67.85
1435.00	1.94	.283	.1131	.34	2.28	70.71
1435.10	2.06	.294	.1131	.34	2.40	73.56
1435.20	2.16	.305	.1131	.34	2.51	76.40

```
Type..... Pond Routing Summary                              Page 9.04
Name.... POND 1        OUT    Tag: 2 YR                   Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                     LEVEL POOL ROUTING SUMMARY

HYG Dir         = C:\Program Files\Haestad\PPKW\PPW\
Inflow  HYG file = NONE STORED - POND 1        IN  2 YR
Outflow HYG file = NONE STORED - POND 1        OUT 2 YR

Pond Node    Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Outlet 1

Infiltration =   3.0000 in/hr

INITIAL CONDITIONS
------------------------------------
Starting WS Elev   =  1432.50 ft
Starting Volume    =     .000 ac-ft
Starting Outflow   =     .00 cfs
Starting Infiltr.  =     .00 cfs
Starting Total Qout=     .00 cfs
Time Increment     =    .1000 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=========================================================
Peak Inflow      =      1.14 cfs    at   12.3000 hrs
Peak Outflow     =       .00 cfs    at   11.5000 hrs
Peak Infiltration =      .34 cfs    at   12.3000 hrs
---------------------------------------------------------
Peak Elevation   =  1432.82 ft
Peak Storage =          .036 ac-ft
=========================================================


MASS BALANCE (ac-ft)
----------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =        .142
- Infiltration =        .142
- HYG Vol OUT  =        .000
- Retained Vol =        .000
                     -----------
  Unrouted Vol =        .000 ac-ft  (.000% of Inflow Volume)
```

```
Type.... Pond Routing Summary                          Page 9.05
Name.... POND 1      OUT   Tag: 10 YR                  Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
                    LEVEL POOL ROUTING SUMMARY

HYG Dir          = C:\Program Files\Haestad\PPKW\PPW\
Inflow  HYG file = NONE STORED - POND 1        IN  10 YR
Outflow HYG file = NONE STORED - POND 1        OUT 10 YR

Pond Node   Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Outlet 1

Infiltration =   3.0000 in/hr

INITIAL CONDITIONS
-----------------------------------
Starting WS Elev  =  1432.50 ft
Starting Volume   =     .000 ac-ft
Starting Outflow  =     .00 cfs
Starting Infiltr. =     .00 cfs
Starting Total Qout=    .00 cfs
Time Increment    =    .1000 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
===========================================================
Peak Inflow       =     2.77 cfs   at   12.3000 hrs
Peak Outflow      =      .25 cfs   at   13.1000 hrs
Peak Infiltration =      .34 cfs   at   12.0000 hrs
-----------------------------------------------------------
Peak Elevation    =  1433.52 ft
Peak Storage =          .115 ac-ft
===========================================================


MASS BALANCE (ac-ft)
---------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =        .317
- Infiltration =        .265
- HYG Vol OUT  =        .051
- Retained Vol =        .000
                   ----------
  Unrouted Vol =       -.000 ac-ft  (.000% of Inflow Volume)
```

```
Type.... Pond Routing Summary                              Page 9.06
Name.... POND 1      OUT   Tag: 25 YR                       Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr   Tag: 25 YR
```

```
                       LEVEL POOL ROUTING SUMMARY

HYG Dir           = C:\Program Files\Haestad\PPKW\PPW\
Inflow  HYG file = NONE STORED - POND 1         IN  25 YR
Outflow HYG file = NONE STORED - POND 1         OUT 25 YR

Pond Node   Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Outlet 1

Infiltration =  3.0000 in/hr

INITIAL CONDITIONS
-----------------------------------
Starting WS Elev  = 1432.50 ft
Starting Volume   =    .000 ac-ft
Starting Outflow  =    .00 cfs
Starting Infiltr. =    .00 cfs
Starting Total Qout=   .00 cfs
Time Increment    =   .1000 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
=======================================================
Peak Inflow       =     3.74 cfs   at   12.3000 hrs
Peak Outflow      =      .37 cfs   at   13.0000 hrs
Peak Infiltration =      .34 cfs   at   11.9000 hrs
-------------------------------------------------------
Peak Elevation    =  1433.95 ft
Peak Storage =         .164 ac-ft
=======================================================


MASS BALANCE (ac-ft)
---------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =        .423
- Infiltration =        .310
- HYG Vol OUT  =        .114
- Retained Vol =        .000
                    ----------
  Unrouted Vol =        .000 ac-ft  (.000% of Inflow Volume)
```

```
Type.... Pond Routing Summary                              Page 9.07
Name.... POND 1     OUT  Tag: 50 YR            Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
                  LEVEL POOL ROUTING SUMMARY

HYG Dir           = C:\Program Files\Haestad\PPKW\PPW\
Inflow  HYG file = NONE STORED - POND 1          IN  50 YR
Outflow HYG file = NONE STORED - POND 1          OUT 50 YR

Pond Node   Data = POND 1
Pond Volume Data = POND 1
Pond Outlet Data = Outlet 1

Infiltration =   3.0000 in/hr

INITIAL CONDITIONS
----------------------------------
Starting WS Elev  =  1432.50 ft
Starting Volume   =     .000 ac-ft
Starting Outflow  =     .00 cfs
Starting Infiltr. =     .00 cfs
Starting Total Qout=    .00 cfs
Time Increment    =    .1000 hrs


INFLOW/OUTFLOW HYDROGRAPH SUMMARY
================================================
Peak Inflow       =     4.63 cfs   at   12.3000 hrs
Peak Outflow      =      .69 cfs   at   13.0000 hrs
Peak Infiltration =      .34 cfs   at   11.8000 hrs
------------------------------------------------
Peak Elevation    =  1434.31 ft
Peak Storage =          .205 ac-ft
================================================


MASS BALANCE (ac-ft)
----------------------------
+ Initial Vol  =        .000
+ HYG Vol IN   =        .522
- Infiltration =        .342
- HYG Vol OUT  =        .180
- Retained Vol =        .000
                    ----------
  Unrouted Vol =       -.000 ac-ft  (.000% of Inflow Volume)
```

```
Type.... Pond Routing Summary                          Page 9.08
Name.... POND 1      OUT   Tag: 100 YR         Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 4.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
                  LEVEL POOL ROUTING SUMMARY

    HYG Dir           = C:\Program Files\Haestad\PPKW\PPW\
    Inflow  HYG file = NONE STORED - POND 1        IN  100 YR
    Outflow HYG file = NONE STORED - POND 1        OUT 100 YR

    Pond Node   Data = POND 1
    Pond Volume Data = POND 1
    Pond Outlet Data = Outlet 1

    Infiltration =   3.0000 in/hr

    INITIAL CONDITIONS
    --------------------------------
    Starting WS Elev   = 1432.50 ft
    Starting Volume    =     .000 ac-ft
    Starting Outflow   =     .00 cfs
    Starting Infiltr.  =     .00 cfs
    Starting Total Qout=     .00 cfs
    Time Increment     =   .1000 hrs


    INFLOW/OUTFLOW HYDROGRAPH SUMMARY
    =================================================
    Peak Inflow      =      5.67 cfs   at   12.3000 hrs
    Peak Outflow     =      1.37 cfs   at   12.8000 hrs
    Peak Infiltration =      .34 cfs   at   11.6000 hrs
    -------------------------------------------------
    Peak Elevation   =   1434.63 ft
    Peak Storage =         .241 ac-ft
    =================================================


    MASS BALANCE (ac-ft)
    --------------------------
  + Initial Vol  =       .000
  + HYG Vol IN   =       .639
  - Infiltration =       .371
  - HYG Vol OUT  =       .268
  - Retained Vol =       .000
                    ----------
    Unrouted Vol =        .000 ac-ft  (.000% of Inflow Volume)
```

Index of Starting Page Numbers for ID Names

----- D -----
DP 4 2 YR... 6.01, 6.03, 6.05, 6.07,
  6.09

----- L -----
Litchfield Co.... 2.01, 2.02

----- O -----
Outlet 1... 8.01, 8.03, 8.05

----- P -----
POND 1... 7.01, 9.01, 9.02
POND 1   OUT 2 YR... 9.04, 9.05,
  9.06, 9.07, 9.08
PRDA 4D... 3.01, 4.01, 5.03, 5.04,
  5.05, 5.06, 5.07
PRDA 4ND... 3.04, 4.02, 5.08, 5.09,
  5.10, 5.11, 5.12

----- W -----
Watershed... 1.01

Existing Flows – DL5

Table of Contents

Table of Contents (continued)

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Litchfield Co.

Return Event	Total Depth in	Rainfall Type	RNF ID
2 YR	3.2000	Synthetic Curve	TypeIII 24hr
10 YR	4.7000	Synthetic Curve	TypeIII 24hr
25 YR	5.5000	Synthetic Curve	TypeIII 24hr
50 YR	6.2000	Synthetic Curve	TypeIII 24hr
100 YR	7.0000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
*DP 5	JCT	2	.140		12.7000	.45		
*DP 5	JCT	10	.467		12.6000	2.51		
*DP 5	JCT	25	.693		12.5500	4.11		
*DP 5	JCT	50	.914		12.5500	5.67		
*DP 5	JCT	100	1.188		12.5000	7.64		
EXDA 5	AREA	2	.140		12.7000	.45		
EXDA 5	AREA	10	.467		12.6000	2.51		
EXDA 5	AREA	25	.693		12.5500	4.11		
EXDA 5	AREA	50	.914		12.5500	5.67		
EXDA 5	AREA	100	1.188		12.5000	7.64		

File.... C:\Program Files\Haestad\PPKW\PPW\
Title... Project Date: 4/16/2009
         Project Engineer: Curtis Jones
             Project Title: Watershed
         Project Comments:

                    DESIGN STORMS SUMMARY

 Design Storm File,ID =   Litchfield Co.

 Storm Tag Name   = 2 YR

 Data Type, File, ID = Synthetic Storm   TypeIII 24hr
 Storm Frequency   = 2 yr
 Total Rainfall Depth= 3.2000 in
 Duration Multiplier = 1
 Resulting Duration = 24.0000 hrs
 Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

 Storm Tag Name   = 10 YR

 Data Type, File, ID = Synthetic Storm   TypeIII 24hr
 Storm Frequency   = 10 yr
 Total Rainfall Depth= 4.7000 in
 Duration Multiplier = 1
 Resulting Duration = 24.0000 hrs
 Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

 Storm Tag Name   = 25 YR

 Data Type, File, ID = Synthetic Storm   TypeIII 24hr
 Storm Frequency   = 25 yr
 Total Rainfall Depth= 5.5000 in
 Duration Multiplier = 1
 Resulting Duration = 24.0000 hrs
 Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

 Storm Tag Name   = 50 YR

 Data Type, File, ID = Synthetic Storm   TypeIII 24hr
 Storm Frequency   = 50 yr
 Total Rainfall Depth= 6.2000 in
 Duration Multiplier = 1
 Resulting Duration = 24.0000 hrs
 Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

 Storm Tag Name   = 100 YR

 Data Type, File, ID = Synthetic Storm   TypeIII 24hr
 Storm Frequency   = 100 yr
 Total Rainfall Depth= 7.0000 in
 Duration Multiplier = 1
 Resulting Duration = 24.0000 hrs
 Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

```
Type.... Design Storms                           Page 2.02
Name.... Litchfield Co.                           Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\
Storm... TypeIII 24hr    Tag: 2 YR
```

```
                       DESIGN STORMS SUMMARY

 Design Storm File,ID =              Litchfield Co.


 Storm Tag Name       = 2 YR
 ------------------------------------------------------------
 Data Type, File, ID = Synthetic Storm    TypeIII 24hr
 Storm Frequency      = 2 yr
 Total Rainfall Depth= 3.2000 in
 Duration Multiplier =  1
 Resulting Duration  = 24.0000 hrs
 Resulting Start Time= .0000 hrs   Step= .1000 hrs  End= 24.0000 hrs


 Storm Tag Name       = 10 YR
 ------------------------------------------------------------
 Data Type, File, ID = Synthetic Storm    TypeIII 24hr
 Storm Frequency      = 10 yr
 Total Rainfall Depth= 4.7000 in
 Duration Multiplier =  1
 Resulting Duration  = 24.0000 hrs
 Resulting Start Time= .0000 hrs   Step= .1000 hrs  End= 24.0000 hrs


 Storm Tag Name       = 25 YR
 ------------------------------------------------------------
 Data Type, File, ID = Synthetic Storm    TypeIII 24hr
 Storm Frequency      = 25 yr
 Total Rainfall Depth= 5.5000 in
 Duration Multiplier =  1
 Resulting Duration  = 24.0000 hrs
 Resulting Start Time= .0000 hrs   Step= .1000 hrs  End= 24.0000 hrs


 Storm Tag Name       = 50 YR
 ------------------------------------------------------------
 Data Type, File, ID = Synthetic Storm    TypeIII 24hr
 Storm Frequency      = 50 yr
 Total Rainfall Depth= 6.2000 in
 Duration Multiplier =  1
 Resulting Duration  = 24.0000 hrs
 Resulting Start Time= .0000 hrs   Step= .1000 hrs  End= 24.0000 hrs


 Storm Tag Name       = 100 YR
 ------------------------------------------------------------
 Data Type, File, ID = Synthetic Storm    TypeIII 24hr
 Storm Frequency      = 100 yr
 Total Rainfall Depth= 7.0000 in
 Duration Multiplier =  1
 Resulting Duration  = 24.0000 hrs
 Resulting Start Time= .0000 hrs   Step= .1000 hrs  End= 24.0000 hrs
```

```
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
```

```
:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
TIME OF CONCENTRATION CALCULATOR
:::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
```

```
Segment #1:  Tc: TR-55 Sheet

Mannings n          .4000
Hydraulic Length    250.00 ft
2yr, 24hr P         3.2000 in
Slope               .030000 ft/ft

Avg.Velocity            .11 ft/sec

                                  Segment #1 Time:    .6334 hrs
```

```
Segment #2:  Tc: TR-55 Shallow

Hydraulic Length    265.00 ft
Slope               .057000 ft/ft
Unpaved

Avg.Velocity           3.85 ft/sec

                                  Segment #2 Time:    .0191 hrs
```

```
                                ===========================
                                Total Tc:      .6525 hrs
                                ===========================
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW

```
 ----------------------------------------------------------------------
 Tc Equations used...
 ----------------------------------------------------------------------
```

==== SCS TR-55 Sheet Flow ==

Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

Where: Tc = Time of concentration, hrs
        n = Mannings n
        Lf = Flow length, ft
        P = 2yr, 24hr Rain depth, inches
        Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow ===============================

Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved surface:
V = 20.3282 * (Sf**0.5)

Tc = (Lf / V) / (3600sec/hr)

Where: V = Velocity, ft/sec
        Sf = Slope, ft/ft
        Tc = Time of concentration, hrs
        Lf = Flow length, ft

File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW

RUNOFF CURVE NUMBER DATA
:::

```
                                          Impervious
                                   Area   Adjustment   Adjusted
Soil/Surface Description      CN    acres   %C    %UC     CN
----------------------------  ----  ------  ----- -----  ------
Soil Type B - Wooded          55    6.710                55.00


COMPOSITE AREA & WEIGHTED CN --->   6.710              55.00 (55)
```
:::

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

DEFINITION OF TERMS: ---

At	=	Total area (acres): At = Ai+Ap
Ai	=	Impervious area (acres)
Ap	=	Pervious area (acres)
CNi	=	Runoff curve number for impervious area
CNp	=	Runoff curve number for pervious area
fLoss	=	f loss constant infiltration (depth/time)
gKs	=	Saturated Hydraulic Conductivity (depth/time)
Md	=	Volumetric Moisture Deficit
Psi	=	Capillary Suction (length)
hK	=	Horton Infiltration Decay Rate (time^-1)
fo	=	Initial Infiltration Rate (depth/time)
fc	=	Ultimate(capacity)Infiltration Rate (depth/time)
Ia	=	Initial Abstraction (length)
dt	=	Computational increment (duration of unit excess rainfall)

Default dt is smallest value of 0.1333Tc, rtm, and th
(Smallest dt is then adjusted to match up with Tp)

UDdt = User specified override computational main time increment
(only used if UDdt is => .1333Tc)
D(t) = Point on distribution curve (fraction of P) for time step t

K = 2 / (1 + (Tr/Tp)): default K = 0.75: (for Tr/Tp = 1.67)
Ks = Hydrograph shape factor
   = Unit Conversions * K:
   = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K
     Default Ks = 645.333 * 0.75 = 484

Lag = Lag time from center of excess runoff (dt) to Tp: Lag = 0.6Tc
P = Total precipitation depth, inches
Pa(t) = Accumulated rainfall at time step t
Pi(t) = Incremental rainfall at time step t
qp = Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi.
   = (Ks * A * Q) / Tp   (where Q = 1in. runoff, A=sq.mi.)
Qu(t) = Unit hydrograph ordinate (cfs) at time step t
Q(t) = Final hydrograph ordinate (cfs) at time step t
Rai(t)= Accumulated runoff (inches) at time step t for impervious area
Rap(t)= Accumulated runoff (inches) at time step t for pervious area
Rii(t)= Incremental runoff (inches) at time step t for impervious area
Rip(t)= Incremental runoff (inches) at time step t for pervious area
R(t) = Incremental weighted total runoff (inches)
Rtm = Time increment for rainfall table
Si = S for impervious area: Si = (1000/CNi) - 10
Sp = S for pervious area: Sp = (1000/CNp) - 10
t = Time step (row) number
Tc = Time of concentration
Tb = Time (hrs) of entire unit hydrograph: Tb = Tp + Tr
Tp = Time (hrs) to peak of a unit hydrograph: Tp = (dt/2) + Lag
Tr = Time (hrs) of receding limb of unit hydrograph: Tr = ratio of Tp

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

PRECIPITATION: --
Column (1): Time for time step t
Column (2): D(t) = Point on distribution curve for time step t
Column (3): Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4): Pa(t) = D(t) x P: Col.(2) x P

PERVIOUS AREA RUNOFF (using SCS Runoff CN Method) ------------------------
Column (5): Rap(t) = Accumulated pervious runoff for time step t
             If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
             If (Pa(t) is > 0.2Sp) then use:

             Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6): Rip(t) = Incremental pervious runoff for time step t
             Rip(t) =   Rap(t)   -   Rap(t-1)
             Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

IMPERVIOUS AREA RUNOFF ---
Column (7 & 8)... Did not specify to use impervious areas.

INCREMENTAL WEIGHTED RUNOFF: ---
Column (9): R(t) = (Ap/At) x Rip(t)   + (Ai/At) x Rii(t)
             R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS UNIT HYDROGRAPH METHOD: --
Column (10): Q(t)   is computed with the SCS unit hydrograph method
             using R() and Qu().

```
                SCS UNIT HYDROGRAPH METHOD

                STORM EVENT: 2 year storm
                Duration      = 24.0000 hrs    Rain Depth = 3.2000 in
                Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
                Rain File -ID =  - TypeIII 24hr
                Unit Hyd Type = Default Curvilinear
                HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
                HYG File - ID =  - EXDA 5 2 YR
                Tc            = .6525 hrs
                Drainage Area = 6.710 acres  Runoff CN= 55


                ==========================================
                Computational Time Increment   =   .08700 hrs
                Computed Peak Time             = 12.7891 hrs
                Computed Peak Flow             =    .45 cfs

                Time Increment for HYG File    =   .0500 hrs
                Peak Time, Interpolated Output = 12.7500 hrs
                Peak Flow, Interpolated Output =    .45 cfs
                ==========================================

                         DRAINAGE AREA
                         --------------------
                         ID:EXDA 5
                         CN   =    55
                         Area =        6.710 acres
                         S    =   8.1818 in
                         0.2S =   1.6364 in

                          Cumulative Runoff
                          ---------------------
                                    .2509 in
                                    .140 ac-ft

                HYG Volume...          .140 ac-ft (area under HYG curve)

                ***** SCS UNIT HYDROGRAPH PARAMETERS *****

                Time Concentration, Tc =   .65250 hrs (ID: EXDA 5)
                Computational Incr, Tm =   .08700 hrs = 0.20000 Tp

                Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
                K =  483.43/645.333,   K =   .7491 (also, K = 2/(1+(Tr/Tp))
                Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

                Unit peak,        qp =    11.65 cfs
                Unit peak time    Tp =   .43500 hrs
                Unit receding limb, Tr = 1.74001 hrs
                Total unit time,   Tb = 2.17502 hrs
```

                    SCS UNIT HYDROGRAPH METHOD

            STORM EVENT: 10 year storm
            Duration   = 24.0000 hrs   Rain Depth = 4.7000 in
            Rain Dir   = C:\Program Files\Haestad\PPKW\PPW\
            Rain File -ID =   - TypeIII 24hr
            Unit Hyd Type = Default Curvilinear
            HYG Dir   = C:\Program Files\Haestad\PPKW\PPW\
            HYG File - ID =   - EXDA 5 10 YR
            Tc   = .6525 hrs
            Drainage Area = 6.710 acres Runoff CN= 55

            ===
            Computational Time Increment   =   .08700 hrs
            Computed Peak Time   = 12.6151 hrs
            Computed Peak Flow   =   2.51 cfs

            Time Increment for HYG File   =   .0500 hrs
            Peak Time, Interpolated Output = 12.6000 hrs
            Peak Flow, Interpolated Output =   2.51 cfs
            ===

                        DRAINAGE AREA

                    ID:EXDA 5
                    CN   =   55
                    Area =   6.710 acres
                    S   =   8.1818 in
                    0.2S =   1.6364 in

                     Cumulative Runoff

                              .8346 in
                              .467 ac-ft

            HYG Volume...   .467 ac-ft (area under HYG curve)

            ***** SCS UNIT HYDROGRAPH PARAMETERS *****

            Time Concentration, Tc =   .65250 hrs (ID: EXDA 5)
            Computational Incr, Tm =   .08700 hrs = 0.20000 Tp

            Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
            K = 483.43/645.333, K =   .7491 (also, K = 2/(1+(Tr/Tp))
            Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

            Unit peak,   qp =   11.65 cfs
            Unit peak time   Tp =   .43500 hrs
            Unit receding limb, Tr = 1.74001 hrs
            Total unit time,   Tb = 2.17502 hrs

```
Type.... Unit Hyd. Summary                          Page 5.05
Name.... EXDA 5           Tag: 25 YR                 Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 25 YR
```

```
                 SCS UNIT HYDROGRAPH METHOD

                 STORM EVENT: 25 year storm
                 Duration      = 24.0000 hrs    Rain Depth = 5.5000 in
                 Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
                 Rain File -ID =  - TypeIII 24hr
                 Unit Hyd Type = Default Curvilinear
                 HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
                 HYG File - ID =  - EXDA 5 25 YR
                 Tc            = .6525 hrs
                 Drainage Area = 6.710 acres  Runoff CN= 55


                 ==========================================
                 Computational Time Increment   =   .08700 hrs
                 Computed Peak Time             = 12.5281 hrs
                 Computed Peak Flow             =    4.13 cfs

                 Time Increment for HYG File    =   .0500 hrs
                 Peak Time, Interpolated Output = 12.5500 hrs
                 Peak Flow, Interpolated Output =    4.11 cfs
                 ==========================================

                          DRAINAGE AREA
                          --------------------
                          ID:EXDA 5
                          CN   =    55
                          Area =       6.710 acres
                          S    =    8.1818 in
                          0.2S =    1.6364 in

                          Cumulative Runoff
                          -------------------
                                1.2393 in
                                  .693 ac-ft

                 HYG Volume...          .693 ac-ft (area under HYG curve)

                 ***** SCS UNIT HYDROGRAPH PARAMETERS *****

                 Time Concentration, Tc =   .65250 hrs (ID: EXDA 5)
                 Computational Incr, Tm =   .08700 hrs = 0.20000 Tp

                 Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
                 K =   483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
                 Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

                 Unit peak,        qp =    11.65 cfs
                 Unit peak time    Tp =   .43500 hrs
                 Unit receding limb, Tr = 1.74001 hrs
                 Total unit time,    Tb = 2.17502 hrs
```

```
Type.... Unit Hyd. Summary                          Page 5.06
Name.... EXDA 5           Tag: 50 YR                 Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
              SCS UNIT HYDROGRAPH METHOD

              STORM EVENT: 50 year storm
              Duration     = 24.0000 hrs    Rain Depth = 6.2000 in
              Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
              Rain File -ID =  - TypeIII 24hr
              Unit Hyd Type = Default Curvilinear
              HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
              HYG File - ID =  - EXDA 5 50 YR
              Tc           = .6525 hrs
              Drainage Area = 6.710 acres  Runoff CN= 55

              ================================================
              Computational Time Increment   =    .08700 hrs
              Computed Peak Time             =  12.5281 hrs
              Computed Peak Flow             =     5.72 cfs

              Time Increment for HYG File    =    .0500 hrs
              Peak Time, Interpolated Output =  12.5500 hrs
              Peak Flow, Interpolated Output =     5.67 cfs
              ================================================

                       DRAINAGE AREA
                       -------------------
                  ID:EXDA 5
                  CN   =    55
                  Area =       6.710 acres
                  S    =    8.1818 in
                  0.2S =    1.6364 in

                   Cumulative Runoff
                   -------------------
                        1.6341 in
                         .914 ac-ft

              HYG Volume...          .914 ac-ft (area under HYG curve)

              ***** SCS UNIT HYDROGRAPH PARAMETERS *****

              Time Concentration, Tc =   .65250 hrs (ID: EXDA 5)
              Computational Incr, Tm =   .08700 hrs = 0.20000 Tp

              Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
              K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
              Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

              Unit peak,       qp =   11.65 cfs
              Unit peak time   Tp =   .43500 hrs
              Unit receding limb, Tr = 1.74001 hrs
              Total unit time,    Tb = 2.17502 hrs
```

```
Type.... Unit Hyd. Summary                          Page 5.07
Name.... EXDA 5           Tag: 100 YR               Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
              SCS UNIT HYDROGRAPH METHOD

              STORM EVENT: 100 year storm
              Duration    = 24.0000 hrs    Rain Depth = 7.0000 in
              Rain Dir    = C:\Program Files\Haestad\PPKW\PPW\
              Rain File -ID =   - TypeIII 24hr
              Unit Hyd Type = Default Curvilinear
              HYG Dir     = C:\Program Files\Haestad\PPKW\PPW\
              HYG File - ID =   - EXDA 5 100 YR
              Tc          = .6525 hrs
              Drainage Area = 6.710 acres  Runoff CN= 55


              ==========================================
              Computational Time Increment   =   .08700 hrs
              Computed Peak Time             = 12.5281 hrs
              Computed Peak Flow             =    7.69 cfs

              Time Increment for HYG File    =   .0500 hrs
              Peak Time, Interpolated Output = 12.5000 hrs
              Peak Flow, Interpolated Output =    7.64 cfs
              ==========================================

                       DRAINAGE AREA
                       --------------------
                   ID:EXDA 5
                   CN  =    55
                   Area =       6.710 acres
                   S    =   8.1818 in
                   0.2S =   1.6364 in

                   Cumulative Runoff
                   -------------------
                         2.1239 in
                         1.188 ac-ft

              HYG Volume...         1.188 ac-ft (area under HYG curve)

              ***** SCS UNIT HYDROGRAPH PARAMETERS *****

              Time Concentration, Tc =   .65250 hrs (ID: EXDA 5)
              Computational Incr, Tm =   .08700 hrs = 0.20000 Tp

              Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
              K =   483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
              Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

              Unit peak,        qp =   11.65 cfs
              Unit peak time    Tp =   .43500 hrs
              Unit receding limb, Tr = 1.74001 hrs
              Total unit time,    Tb = 2.17502 hrs
```

```
Type.... Node: Addition Summary                           Page 6.01
Name.... DP 5                                            Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                        SUMMARY FOR HYDROGRAPH ADDITION
                            at Node: DP 5

   HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

===================================================================
Upstream Link ID  Upstream Node ID   HYG file     HYG ID       HYG tag
-------------------------------------------------------------------
TO DP 5           EXDA 5                           EXDA 5       2 YR
===================================================================


INFLOWS TO:  DP 5
------------------------------------- Volume    Peak Time  Peak Flow
HYG file     HYG ID         HYG tag    ac-ft      hrs        cfs
-------------------------------------------------------------------
             EXDA 5         2 YR        .140    12.7000       .45


TOTAL FLOW INTO:  DP 5
------------------------------------- Volume    Peak Time  Peak Flow
HYG file     HYG ID         HYG tag    ac-ft      hrs        cfs
-------------------------------------------------------------------
             DP 5           2 YR        .140    12.7000       .45
```

```
Type.... Node: Addition Summary                        Page 6.02
Name.... DP 5                                          Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                   TOTAL NODE INFLOW...
                   HYG file =
                   HYG ID   = DP 5
                   HYG Tag  = 2 YR
                   ------------------------------------
                   Peak Discharge =        .45 cfs
                   Time to Peak   =    12.7000 hrs
                   HYG Volume     =       .140 ac-ft
                   ------------------------------------
```

HYDROGRAPH ORDINATES (cfs)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
12.0000	.00	.00	.01	.02	.04
12.2500	.07	.11	.16	.22	.27
12.5000	.32	.37	.40	.43	.45
12.7500	.45	.45	.44	.42	.41
13.0000	.39	.38	.37	.35	.34
13.2500	.33	.32	.31	.30	.29
13.5000	.29	.28	.28	.27	.27
13.7500	.26	.26	.25	.25	.25
14.0000	.25	.24	.24	.24	.23
14.2500	.23	.23	.22	.22	.22
14.5000	.22	.21	.21	.21	.21
14.7500	.21	.21	.20	.20	.20
15.0000	.20	.20	.20	.19	.19
15.2500	.19	.19	.19	.18	.18
15.5000	.18	.18	.18	.17	.17
15.7500	.17	.17	.17	.16	.16
16.0000	.16	.16	.15	.15	.15
16.2500	.15	.15	.14	.14	.14
16.5000	.14	.14	.14	.13	.13
16.7500	.13	.13	.13	.13	.13
17.0000	.13	.12	.12	.12	.12
17.2500	.12	.12	.12	.12	.12
17.5000	.11	.11	.11	.11	.11
17.7500	.11	.11	.11	.11	.10
18.0000	.10	.10	.10	.10	.10
18.2500	.10	.10	.10	.09	.09
18.5000	.09	.09	.09	.09	.09
18.7500	.09	.09	.09	.09	.09
19.0000	.09	.09	.09	.09	.09
19.2500	.09	.09	.09	.08	.08
19.5000	.08	.08	.08	.08	.08

```
Type.... Node: Addition Summary                          Page 6.03
Name.... DP 5                                            Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                         HYDROGRAPH ORDINATES (cfs)
     Time  |             Output Time increment = .0500 hrs
     hrs   |    Time on left represents time for first value in each row.
  ---------|-----------------------------------------------------------------
   19.7500 |         .08         .08         .08         .08         .08
   20.0000 |         .08         .08         .08         .08         .08
   20.2500 |         .08         .08         .08         .08         .08
   20.5000 |         .08         .08         .08         .08         .08
   20.7500 |         .08         .08         .08         .08         .08
   21.0000 |         .07         .07         .07         .07         .07
   21.2500 |         .07         .07         .07         .07         .07
   21.5000 |         .07         .07         .07         .07         .07
   21.7500 |         .07         .07         .07         .07         .07
   22.0000 |         .07         .07         .07         .07         .07
   22.2500 |         .07         .07         .07         .07         .07
   22.5000 |         .07         .07         .07         .07         .07
   22.7500 |         .07         .06         .06         .06         .06
   23.0000 |         .06         .06         .06         .06         .06
   23.2500 |         .06         .06         .06         .06         .06
   23.5000 |         .06         .06         .06         .06         .06
   23.7500 |         .06         .06         .06         .06         .06
   24.0000 |         .06         .06         .06         .05         .05
   24.2500 |         .05         .04         .04         .03         .03
   24.5000 |         .03         .02         .02         .01         .01
   24.7500 |         .01         .01         .01         .01         .00
   25.0000 |         .00         .00         .00         .00         .00
   25.2500 |         .00         .00         .00
```

```
Type.... Node: Addition Summary                    Page 6.04
Name.... DP 5                                       Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                         at Node: DP 5

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

========================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID         HYG tag
------------------------------------------------------------------------
TO DP 5           EXDA 5                          EXDA 5         10 YR
========================================================================


INFLOWS TO:  DP 5
----------------------------------------- Volume   Peak Time  Peak Flow
HYG file     HYG ID            HYG tag    ac-ft     hrs        cfs
-----------------------------------------------------------------------
             EXDA 5            10 YR       .467    12.6000      2.51


TOTAL FLOW INTO:  DP 5
----------------------------------------- Volume   Peak Time  Peak Flow
HYG file     HYG ID            HYG tag    ac-ft     hrs        cfs
-----------------------------------------------------------------------
             DP 5              10 YR       .467    12.6000      2.51
```

```
Type.... Node: Addition Summary                    Page 6.05
Name.... DP 5                                      Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 5
                    HYG Tag  = 10 YR
                    ------------------------------------
                    Peak Discharge =         2.51 cfs
                    Time to Peak   =      12.6000 hrs
                    HYG Volume     =         .467 ac-ft
                    ------------------------------------
```

```
                         HYDROGRAPH ORDINATES (cfs)
         Time  |        Output Time increment = .0500 hrs
         hrs   |   Time on left represents time for first value in each row.
       --------|------------------------------------------------------------
        11.7500 |      .00         .00         .01         .03         .07
        12.0000 |      .13         .26         .42         .67         .95
        12.2500 |     1.27        1.58        1.89        2.12        2.32
        12.5000 |     2.44        2.51        2.51        2.45        2.37
        12.7500 |     2.24        2.12        1.98        1.85        1.72
        13.0000 |     1.61        1.50        1.40        1.32        1.24
        13.2500 |     1.17        1.11        1.06        1.01         .97
        13.5000 |      .93         .90         .87         .85         .82
        13.7500 |      .80         .79         .77         .75         .74
        14.0000 |      .72         .71         .69         .68         .67
        14.2500 |      .65         .64         .63         .62         .61
        14.5000 |      .60         .60         .59         .58         .57
        14.7500 |      .57         .56         .56         .55         .54
        15.0000 |      .54         .53         .53         .52         .51
        15.2500 |      .51         .50         .50         .49         .48
        15.5000 |      .48         .47         .47         .46         .45
        15.7500 |      .45         .44         .43         .43         .42
        16.0000 |      .41         .41         .40         .39         .39
        16.2500 |      .38         .38         .37         .36         .36
        16.5000 |      .35         .35         .35         .34         .34
        16.7500 |      .33         .33         .33         .32         .32
        17.0000 |      .32         .31         .31         .31         .31
        17.2500 |      .30         .30         .30         .29         .29
        17.5000 |      .29         .28         .28         .28         .27
        17.7500 |      .27         .27         .27         .26         .26
        18.0000 |      .26         .25         .25         .25         .24
        18.2500 |      .24         .24         .23         .23         .23
        18.5000 |      .23         .23         .22         .22         .22
        18.7500 |      .22         .22         .22         .22         .22
        19.0000 |      .21         .21         .21         .21         .21
        19.2500 |      .21         .21         .21         .21         .21
```

```
Type.... Node: Addition Summary                           Page 6.06
Name.... DP 5                                             Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
                            HYDROGRAPH ORDINATES (cfs)
        Time  |             Output Time increment = .0500 hrs
        hrs   |    Time on left represents time for first value in each row.
      --------|-----------------------------------------------------------------
       19.5000 |       .21       .20       .20       .20       .20
       19.7500 |       .20       .20       .20       .20       .20
       20.0000 |       .20       .20       .19       .19       .19
       20.2500 |       .19       .19       .19       .19       .19
       20.5000 |       .19       .19       .19       .19       .18
       20.7500 |       .18       .18       .18       .18       .18
       21.0000 |       .18       .18       .18       .18       .18
       21.2500 |       .18       .18       .17       .17       .17
       21.5000 |       .17       .17       .17       .17       .17
       21.7500 |       .17       .17       .17       .17       .17
       22.0000 |       .17       .16       .16       .16       .16
       22.2500 |       .16       .16       .16       .16       .16
       22.5000 |       .16       .16       .16       .16       .16
       22.7500 |       .15       .15       .15       .15       .15
       23.0000 |       .15       .15       .15       .15       .15
       23.2500 |       .15       .15       .15       .14       .14
       23.5000 |       .14       .14       .14       .14       .14
       23.7500 |       .14       .14       .14       .14       .14
       24.0000 |       .14       .13       .13       .13       .12
       24.2500 |       .11       .10       .09       .08       .07
       24.5000 |       .06       .05       .04       .03       .03
       24.7500 |       .02       .02       .02       .01       .01
       25.0000 |       .01       .01       .01       .00       .00
       25.2500 |       .00       .00       .00       .00       .00
       25.5000 |       .00       .00
```

```
Type.... Node: Addition Summary                      Page 6.07
Name.... DP 5                                        Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 25 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                         at Node: DP 5

 HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

 ====================================================================
 Upstream Link ID  Upstream Node ID   HYG file    HYG ID         HYG tag
 --------------------------------------------------------------------
 TO DP 5           EXDA 5                          EXDA 5         25 YR
 ====================================================================


 INFLOWS TO:  DP 5
 ------------------------------------- Volume    Peak Time  Peak Flow
 HYG file    HYG ID          HYG tag   ac-ft     hrs        cfs
 --------------------------------------------------------------------
             EXDA 5          25 YR     .693      12.5500      4.11


 TOTAL FLOW INTO:  DP 5
 ------------------------------------- Volume    Peak Time  Peak Flow
 HYG file    HYG ID          HYG tag   ac-ft     hrs        cfs
 --------------------------------------------------------------------
             DP 5            25 YR     .693      12.5500      4.11
```

```
Type.... Node: Addition Summary                              Page 6.08
Name.... DP 5                                                Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 25 YR
```

```
                 TOTAL NODE INFLOW...
                 HYG file =
                 HYG ID   = DP 5
                 HYG Tag  = 25 YR
                 ----------------------------------
                 Peak Discharge =      4.11 cfs
                 Time to Peak   =   12.5500 hrs
                 HYG Volume     =      .693 ac-ft
                 ----------------------------------

                         HYDROGRAPH ORDINATES (cfs)
       Time  |           Output Time increment = .0500 hrs
       hrs   |   Time on left represents time for first value in each row.
     ---------|-------------------------------------------------------------
      11.5500 |      .00        .00        .01        .01        .03
      11.8000 |      .06        .10        .17        .29        .45
      12.0500 |      .72       1.03       1.47       1.94       2.46
      12.3000 |     2.93       3.38       3.69       3.95       4.07
      12.5500 |     4.11       4.05       3.91       3.73       3.50
      12.8000 |     3.27       3.04       2.82       2.61       2.42
      13.0500 |     2.24       2.09       1.95       1.83       1.72
      13.3000 |     1.63       1.54       1.46       1.40       1.34
      13.5500 |     1.29       1.25       1.21       1.17       1.14
      13.8000 |     1.11       1.09       1.06       1.04       1.02
      14.0500 |      .99        .97        .95        .93        .92
      14.3000 |      .90        .88        .87        .85        .84
      14.5500 |      .83        .82        .81        .80        .79
      14.8000 |      .78        .77        .76        .75        .75
      15.0500 |      .74        .73        .72        .71        .70
      15.3000 |      .69        .68        .68        .67        .66
      15.5500 |      .65        .64        .63        .62        .61
      15.8000 |      .61        .60        .59        .58        .57
      16.0500 |      .56        .55        .54        .53        .52
      16.3000 |      .52        .51        .50        .49        .49
      16.5500 |      .48        .47        .47        .46        .46
      16.8000 |      .45        .45        .44        .44        .43
      17.0500 |      .43        .43        .42        .42        .41
      17.3000 |      .41        .40        .40        .39        .39
      17.5500 |      .39        .38        .38        .37        .37
      17.8000 |      .36        .36        .36        .35        .35
      18.0500 |      .34        .34        .33        .33        .33
      18.3000 |      .32        .32        .32        .31        .31
      18.5500 |      .31        .30        .30        .30        .30
      18.8000 |      .30        .30        .29        .29        .29
      19.0500 |      .29        .29        .29        .29        .28
```

```
Type.... Node: Addition Summary                          Page 6.09
Name.... DP 5                                            Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 25 YR
```

```
                         HYDROGRAPH ORDINATES (cfs)
      Time  |          Output Time increment = .0500 hrs
      hrs   |   Time on left represents time for first value in each row.
    --------|------------------------------------------------------------
     19.3000 |     .28        .28        .28        .28        .28
     19.5500 |     .28        .28        .27        .27        .27
     19.8000 |     .27        .27        .27        .27        .26
     20.0500 |     .26        .26        .26        .26        .26
     20.3000 |     .26        .26        .26        .25        .25
     20.5500 |     .25        .25        .25        .25        .25
     20.8000 |     .25        .25        .24        .24        .24
     21.0500 |     .24        .24        .24        .24        .24
     21.3000 |     .24        .24        .23        .23        .23
     21.5500 |     .23        .23        .23        .23        .23
     21.8000 |     .23        .23        .22        .22        .22
     22.0500 |     .22        .22        .22        .22        .22
     22.3000 |     .22        .22        .21        .21        .21
     22.5500 |     .21        .21        .21        .21        .21
     22.8000 |     .21        .21        .20        .20        .20
     23.0500 |     .20        .20        .20        .20        .20
     23.3000 |     .20        .19        .19        .19        .19
     23.5500 |     .19        .19        .19        .19        .19
     23.8000 |     .19        .18        .18        .18        .18
     24.0500 |     .18        .18        .17        .16        .15
     24.3000 |     .14        .12        .11        .09        .08
     24.5500 |     .07        .05        .04        .04        .03
     24.8000 |     .03        .02        .02        .01        .01
     25.0500 |     .01        .01        .01        .01        .00
     25.3000 |     .00        .00        .00        .00        .00
     25.5500 |     .00        .00        .00
```

```
Type.... Node: Addition Summary                          Page 6.10
Name.... DP 5                                            Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
                      SUMMARY FOR HYDROGRAPH ADDITION
                          at Node: DP 5

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\


========================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID          HYG tag
------------------------------------------------------------------------
TO DP 5           EXDA 5                          EXDA 5          50 YR
========================================================================


INFLOWS TO:  DP 5
-------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID          HYG tag    ac-ft     hrs        cfs
----------------------------------------------------------------------
            EXDA 5          50 YR       .914     12.5500       5.67


TOTAL FLOW INTO:  DP 5
-------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID          HYG tag    ac-ft     hrs        cfs
----------------------------------------------------------------------
            DP 5            50 YR       .914     12.5500       5.67
```

```
Type.... Node: Addition Summary                          Page 6.11
Name.... DP 5                                            Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
                 TOTAL NODE INFLOW...
                 HYG file =
                 HYG ID   = DP 5
                 HYG Tag  = 50 YR
                 ----------------------------------
                 Peak Discharge =        5.67 cfs
                 Time to Peak   =     12.5500 hrs
                 HYG Volume     =        .914 ac-ft
                 ----------------------------------


                       HYDROGRAPH ORDINATES (cfs)
     Time  |            Output Time increment = .0500 hrs
     hrs   |      Time on left represents time for first value in each row.
  ---------|------------------------------------------------------------
  11.2500 |       .00        .00        .00        .01        .01
  11.5000 |       .02        .03        .05        .07        .11
  11.7500 |       .15        .22        .32        .45        .65
  12.0000 |       .90       1.30       1.75       2.36       3.00
  12.2500 |      3.69       4.31       4.89       5.25       5.56
  12.5000 |      5.66       5.67       5.55       5.32       5.04
  12.7500 |      4.71       4.38       4.06       3.75       3.46
  13.0000 |      3.19       2.95       2.74       2.55       2.39
  13.2500 |      2.24       2.11       2.00       1.89       1.81
  13.5000 |      1.73       1.66       1.60       1.55       1.50
  13.7500 |      1.46       1.42       1.38       1.35       1.32
  14.0000 |      1.29       1.26       1.23       1.21       1.18
  14.2500 |      1.16       1.14       1.11       1.10       1.08
  14.5000 |      1.06       1.05       1.03       1.02       1.01
  14.7500 |       .99        .98        .97        .96        .95
  15.0000 |       .94        .92        .91        .90        .89
  15.2500 |       .88        .87        .86        .85        .84
  15.5000 |       .83        .81        .80        .79        .78
  15.7500 |       .77        .76        .75        .73        .72
  16.0000 |       .71        .70        .69        .68        .66
  16.2500 |       .65        .64        .63        .62        .61
  16.5000 |       .61        .60        .59        .58        .58
  16.7500 |       .57        .56        .56        .55        .55
  17.0000 |       .54        .53        .53        .52        .52
  17.2500 |       .51        .51        .50        .50        .49
  17.5000 |       .49        .48        .47        .47        .46
  17.7500 |       .46        .45        .45        .44        .44
  18.0000 |       .43        .43        .42        .42        .41
  18.2500 |       .40        .40        .40        .39        .39
  18.5000 |       .38        .38        .38        .38        .37
  18.7500 |       .37        .37        .37        .36        .36
```

```
                         HYDROGRAPH ORDINATES (cfs)
     Time  |            Output Time increment = .0500 hrs
     hrs   |   Time on left represents time for first value in each row.
   --------|-------------------------------------------------------------
   19.0000 |       .36        .36        .36        .36        .35
   19.2500 |       .35        .35        .35        .35        .35
   19.5000 |       .34        .34        .34        .34        .34
   19.7500 |       .34        .33        .33        .33        .33
   20.0000 |       .33        .33        .32        .32        .32
   20.2500 |       .32        .32        .32        .32        .31
   20.5000 |       .31        .31        .31        .31        .31
   20.7500 |       .31        .30        .30        .30        .30
   21.0000 |       .30        .30        .30        .30        .29
   21.2500 |       .29        .29        .29        .29        .29
   21.5000 |       .29        .29        .28        .28        .28
   21.7500 |       .28        .28        .28        .28        .28
   22.0000 |       .27        .27        .27        .27        .27
   22.2500 |       .27        .27        .27        .26        .26
   22.5000 |       .26        .26        .26        .26        .26
   22.7500 |       .26        .25        .25        .25        .25
   23.0000 |       .25        .25        .25        .25        .24
   23.2500 |       .24        .24        .24        .24        .24
   23.5000 |       .24        .24        .23        .23        .23
   23.7500 |       .23        .23        .23        .23        .22
   24.0000 |       .22        .22        .22        .21        .20
   24.2500 |       .19        .17        .15        .13        .11
   24.5000 |       .10        .08        .07        .06        .05
   24.7500 |       .04        .03        .03        .02        .02
   25.0000 |       .01        .01        .01        .01        .01
   25.2500 |       .01        .00        .00        .00        .00
   25.5000 |       .00        .00        .00        .00        .00
```

```
Type.... Node: Addition Summary                          Page 6.13
Name.... DP 5                                            Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 EXDA 5.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
                        SUMMARY FOR HYDROGRAPH ADDITION
                            at Node: DP 5


HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

==================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID         HYG tag
------------------------------------------------------------------
TO DP 5           EXDA 5                          EXDA 5         100 YR
==================================================================


INFLOWS TO:  DP 5
--------------------------------------- Volume    Peak Time   Peak Flow
HYG file     HYG ID          HYG tag    ac-ft     hrs         cfs
------------------------------------------------------------------
             EXDA 5          100 YR     1.188     12.5000      7.64


TOTAL FLOW INTO:  DP 5
--------------------------------------- Volume    Peak Time   Peak Flow
HYG file     HYG ID          HYG tag    ac-ft     hrs         cfs
------------------------------------------------------------------
             DP 5            100 YR     1.188     12.5000      7.64
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 5
                    HYG Tag  = 100 YR
                    ------------------------------------
                    Peak Discharge =        7.64 cfs
                    Time to Peak   =     12.5000 hrs
                    HYG Volume     =       1.188 ac-ft
                    ------------------------------------
```

```
                         HYDROGRAPH ORDINATES (cfs)
        Time  |           Output Time increment = .0500 hrs
        hrs   |    Time on left represents time for first value in each row.
      --------|------------------------------------------------------------
```

Time hrs					
10.9000	.00	.00	.00	.01	.01
11.1500	.02	.03	.04	.05	.07
11.4000	.09	.11	.14	.17	.21
11.6500	.26	.33	.40	.52	.67
11.9000	.87	1.17	1.52	2.08	2.70
12.1500	3.51	4.36	5.26	6.04	6.77
12.4000	7.20	7.55	7.64	7.60	7.39
12.6500	7.05	6.64	6.19	5.73	5.29
12.9000	4.88	4.48	4.13	3.80	3.53
13.1500	3.28	3.06	2.86	2.69	2.54
13.4000	2.41	2.29	2.19	2.10	2.02
13.6500	1.95	1.89	1.84	1.79	1.74
13.9000	1.70	1.65	1.61	1.58	1.54
14.1500	1.51	1.48	1.45	1.42	1.39
14.4000	1.37	1.34	1.32	1.30	1.29
14.6500	1.27	1.25	1.24	1.22	1.21
14.9000	1.19	1.18	1.16	1.15	1.13
15.1500	1.12	1.11	1.09	1.08	1.06
15.4000	1.05	1.04	1.02	1.01	.99
15.6500	.98	.97	.95	.94	.92
15.9000	.91	.89	.88	.86	.85
16.1500	.83	.82	.81	.79	.78
16.4000	.77	.76	.75	.74	.73
16.6500	.72	.71	.70	.69	.69
16.9000	.68	.67	.67	.66	.65
17.1500	.64	.64	.63	.62	.62
17.4000	.61	.60	.60	.59	.58
17.6500	.58	.57	.56	.56	.55
17.9000	.54	.54	.53	.52	.52
18.1500	.51	.50	.50	.49	.49
18.4000	.48	.48	.47	.47	.46

```
                       HYDROGRAPH ORDINATES (cfs)
      Time  |       Output Time increment = .0500 hrs
      hrs   |   Time on left represents time for first value in each row.
    --------|------------------------------------------------------------
     18.6500 |      .46         .46         .46         .45         .45
     18.9000 |      .45         .44         .44         .44         .44
     19.1500 |      .44         .43         .43         .43         .43
     19.4000 |      .43         .42         .42         .42         .42
     19.6500 |      .42         .41         .41         .41         .41
     19.9000 |      .41         .40         .40         .40         .40
     20.1500 |      .40         .39         .39         .39         .39
     20.4000 |      .39         .38         .38         .38         .38
     20.6500 |      .38         .38         .37         .37         .37
     20.9000 |      .37         .37         .37         .36         .36
     21.1500 |      .36         .36         .36         .36         .36
     21.4000 |      .35         .35         .35         .35         .35
     21.6500 |      .35         .34         .34         .34         .34
     21.9000 |      .34         .34         .34         .33         .33
     22.1500 |      .33         .33         .33         .33         .32
     22.4000 |      .32         .32         .32         .32         .32
     22.6500 |      .32         .31         .31         .31         .31
     22.9000 |      .31         .31         .30         .30         .30
     23.1500 |      .30         .30         .30         .29         .29
     23.4000 |      .29         .29         .29         .29         .29
     23.6500 |      .28         .28         .28         .28         .28
     23.9000 |      .28         .27         .27         .27         .26
     24.1500 |      .25         .24         .23         .21         .18
     24.4000 |      .16         .14         .12         .10         .08
     24.6500 |      .07         .06         .05         .04         .03
     24.9000 |      .03         .02         .02         .01         .01
     25.1500 |      .01         .01         .01         .01         .00
     25.4000 |      .00         .00         .00         .00         .00
     25.6500 |      .00         .00
```

Index of Starting Page Numbers for ID Names

Proposed Flows – DL5

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Table of Contents (continued)

Table of Contents (continued)

```
                       MASTER DESIGN STORM SUMMARY


        Network Storm Collection:  Litchfield Co.


                        Total
                        Depth    Rainfall
             Return Event  in     Type             RNF ID
             -------------  ------  -------------------  ------------------
                    2 YR   3.2000  Synthetic Curve    TypeIII 24hr
                   10 YR   4.7000  Synthetic Curve    TypeIII 24hr
                   25 YR   5.5000  Synthetic Curve    TypeIII 24hr
                   50 YR   6.2000  Synthetic Curve    TypeIII 24hr
                  100 YR   7.0000  Synthetic Curve    TypeIII 24hr


                        MASTER NETWORK SUMMARY
                        SCS Unit Hydrograph Method

                 (*Node=Outfall; +Node=Diversion;)
        (Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)
```

| | | Return | HYG Vol | | Qpeak | Qpeak | Max WSEL | Max Pond Storage |
Node ID	Type	Event	ac-ft	Trun	hrs	cfs	ft	ac-ft
*DP 5	JCT	2	.115		12.6000	.46		
*DP 5	JCT	10	.424		12.5000	2.39		
*DP 5	JCT	25	.654		12.4000	3.95		
*DP 5	JCT	50	.880		12.4000	5.44		
*DP 5	JCT	100	1.160		12.4000	7.23		
JUNCTION	JCT	2	.115		12.6000	.46		
JUNCTION	JCT	10	.424		12.5000	2.39		
JUNCTION	JCT	25	.654		12.4000	3.95		
JUNCTION	JCT	50	.880		12.4000	5.44		
JUNCTION	JCT	100	1.160		12.4000	7.23		
PRDA 5D	AREA	2	.101		12.4000	.68		
PRDA 5D	AREA	10	.236		12.4000	1.79		
PRDA 5D	AREA	25	.318		12.4000	2.46		
PRDA 5D	AREA	50	.396		12.4000	3.08		
PRDA 5D	AREA	100	.488		12.4000	3.81		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
(Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID		Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
PRDA 5ND		AREA	2	.115		12.6000	.46		
PRDA 5ND		AREA	10	.367		12.4000	2.33		
PRDA 5ND		AREA	25	.539		12.4000	3.76		
PRDA 5ND		AREA	50	.706		12.4000	5.15		
PRDA 5ND		AREA	100	.913		12.4000	6.85		
UNDER DET 5	IN	POND	2	.101		12.4000	.68		
UNDER DET 5	IN	POND	10	.236		12.4000	1.79		
UNDER DET 5	IN	POND	25	.318		12.4000	2.46		
UNDER DET 5	IN	POND	50	.396		12.4000	3.08		
UNDER DET 5	IN	POND	100	.488		12.4000	3.81		
UNDER DET 5	OUT	POND	2	.000		11.7000	.00	1434.84	.025
UNDER DET 5	OUT	POND	10	.057		13.2000	.28	1435.61	.080
UNDER DET 5	OUT	POND	25	.115		13.1000	.43	1436.10	.115
UNDER DET 5	OUT	POND	50	.174		12.9000	.89	1436.42	.138
UNDER DET 5	OUT	POND	100	.247		12.8000	1.56	1436.72	.159

```
File.... C:\Program Files\Haestad\PPKW\PPW\
Title... Project Date: 4/16/2009
         Project Engineer: Curtis Jones
            Project Title: Watershed
         Project Comments:
```

                    DESIGN STORMS SUMMARY

```
 Design Storm File,ID =              Litchfield Co.


 Storm Tag Name      = 2 YR
 ----------------------------------------------------------------
 Data Type, File, ID = Synthetic Storm    TypeIII 24hr
 Storm Frequency     = 2 yr
 Total Rainfall Depth= 3.2000 in
 Duration Multiplier =  1
 Resulting Duration  = 24.0000 hrs
 Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs


 Storm Tag Name      = 10 YR
 ----------------------------------------------------------------
 Data Type, File, ID = Synthetic Storm    TypeIII 24hr
 Storm Frequency     = 10 yr
 Total Rainfall Depth= 4.7000 in
 Duration Multiplier =  1
 Resulting Duration  = 24.0000 hrs
 Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs


 Storm Tag Name      = 25 YR
 ----------------------------------------------------------------
 Data Type, File, ID = Synthetic Storm    TypeIII 24hr
 Storm Frequency     = 25 yr
 Total Rainfall Depth= 5.5000 in
 Duration Multiplier =  1
 Resulting Duration  = 24.0000 hrs
 Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs


 Storm Tag Name      = 50 YR
 ----------------------------------------------------------------
 Data Type, File, ID = Synthetic Storm    TypeIII 24hr
 Storm Frequency     = 50 yr
 Total Rainfall Depth= 6.2000 in
 Duration Multiplier =  1
 Resulting Duration  = 24.0000 hrs
 Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs


 Storm Tag Name      = 100 YR
 ----------------------------------------------------------------
 Data Type, File, ID = Synthetic Storm    TypeIII 24hr
 Storm Frequency     = 100 yr
 Total Rainfall Depth= 7.0000 in
 Duration Multiplier =  1
 Resulting Duration  = 24.0000 hrs
 Resulting Start Time= .0000 hrs   Step= .1000 hrs   End= 24.0000 hrs
```

```
Type.... Design Storms                              Page 2.02
Name.... Litchfield Co.                             Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\
Storm... TypeIII 24hr    Tag: 2 YR
```

```
                    DESIGN STORMS SUMMARY

Design Storm File,ID =               Litchfield Co.


Storm Tag Name       = 2 YR
-------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency      = 2 yr
Total Rainfall Depth= 3.2000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


Storm Tag Name       = 10 YR
-------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency      = 10 yr
Total Rainfall Depth= 4.7000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


Storm Tag Name       = 25 YR
-------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency      = 25 yr
Total Rainfall Depth= 5.5000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


Storm Tag Name       = 50 YR
-------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency      = 50 yr
Total Rainfall Depth= 6.2000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs


Storm Tag Name       = 100 YR
-------------------------------------------------------------
Data Type, File, ID = Synthetic Storm    TypeIII 24hr
Storm Frequency      = 100 yr
Total Rainfall Depth= 7.0000 in
Duration Multiplier =  1
Resulting Duration  = 24.0000 hrs
Resulting Start Time= .0000 hrs  Step= .1000 hrs  End= 24.0000 hrs
```

```
                    CUMULATIVE RAINFALL FRACTIONS
   Time  |          Output Time increment = .1000 hrs
   hrs   |   Time on left represents time for first value in each row.
---------|----------------------------------------------------------------
   .0000 |      .000       .001       .002       .003       .004
   .5000 |      .005       .006       .007       .008       .009
  1.0000 |      .010       .011       .012       .013       .014
  1.5000 |      .015       .016       .017       .018       .019
  2.0000 |      .020       .021       .022       .023       .024
  2.5000 |      .025       .026       .027       .028       .030
  3.0000 |      .031       .032       .033       .034       .035
  3.5000 |      .037       .038       .039       .040       .042
  4.0000 |      .043       .044       .046       .047       .048
  4.5000 |      .050       .051       .052       .054       .055
  5.0000 |      .057       .058       .060       .061       .063
  5.5000 |      .064       .066       .067       .069       .070
  6.0000 |      .072       .074       .075       .077       .079
  6.5000 |      .081       .083       .084       .086       .088
  7.0000 |      .091       .093       .095       .097       .099
  7.5000 |      .102       .104       .106       .109       .111
  8.0000 |      .114       .117       .119       .122       .125
  8.5000 |      .128       .132       .135       .138       .142
  9.0000 |      .146       .150       .153       .158       .162
  9.5000 |      .166       .170       .175       .179       .184
 10.0000 |      .189       .194       .199       .205       .211
 10.5000 |      .217       .223       .229       .236       .243
 11.0000 |      .250       .258       .266       .276       .287
 11.5000 |      .298       .314       .339       .373       .416
 12.0000 |      .500       .584       .627       .661       .686
 12.5000 |      .702       .713       .724       .734       .742
 13.0000 |      .750       .757       .764       .771       .777
 13.5000 |      .784       .789       .795       .801       .806
 14.0000 |      .811       .816       .821       .825       .830
 14.5000 |      .834       .838       .842       .847       .850
 15.0000 |      .854       .858       .862       .865       .868
 15.5000 |      .872       .875       .878       .881       .883
 16.0000 |      .886       .889       .891       .894       .896
 16.5000 |      .898       .901       .903       .905       .907
 17.0000 |      .910       .912       .914       .916       .918
 17.5000 |      .919       .921       .923       .925       .926
 18.0000 |      .928       .930       .931       .933       .934
 18.5000 |      .936       .937       .939       .940       .942
 19.0000 |      .943       .945       .946       .948       .949
 19.5000 |      .950       .952       .953       .954       .956
 20.0000 |      .957       .958       .960       .961       .962
 20.5000 |      .963       .965       .966       .967       .968
 21.0000 |      .969       .971       .972       .973       .974
 21.5000 |      .975       .976       .977       .979       .980
```

```
                        CUMULATIVE RAINFALL FRACTIONS
        Time  |          Output Time increment = .1000 hrs
        hrs   |    Time on left represents time for first value in each row.
     ---------|----------------------------------------------------------------
       22.0000 |      .981      .982      .983      .984      .985
       22.5000 |      .986      .987      .988      .989      .990
       23.0000 |      .991      .992      .993      .994      .995
       23.5000 |      .996      .997      .997      .998      .999
       24.0000 |     1.000
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW

```
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
TIME OF CONCENTRATION CALCULATOR
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
```

Segment #1: Tc: TR-55 Sheet

Mannings n   .3000
Hydraulic Length   200.00 ft
2yr, 24hr P   3.2000 in
Slope   .035000 ft/ft

Avg.Velocity   .14 ft/sec

                                    Segment #1 Time: .3957 hrs

---

Segment #2: Tc: TR-55 Shallow

Hydraulic Length   502.00 ft
Slope   .010000 ft/ft
Unpaved

Avg.Velocity   1.61 ft/sec

                                    Segment #2 Time: .0864 hrs

---

                                    =========================
                                    Total Tc: .4822 hrs
                                    =========================

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW

```
 ---------------------------------------------------------------------
 Tc Equations used...
 ---------------------------------------------------------------------


 ==== SCS TR-55 Sheet Flow =============================================

      Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

      Where:  Tc = Time of concentration, hrs
              n  = Mannings n
              Lf = Flow length, ft
              P  = 2yr, 24hr Rain depth, inches
              Sf = Slope, %


 ==== SCS TR-55 Shallow Concentrated Flow =============================

      Unpaved surface:
      V  = 16.1345 * (Sf**0.5)

      Paved surface:
      V  = 20.3282 * (Sf**0.5)

      Tc = (Lf / V) / (3600sec/hr)

      Where:  V  = Velocity, ft/sec
              Sf = Slope, ft/ft
              Tc = Time of concentration, hrs
              Lf = Flow length, ft
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: TR-55 Sheet

Mannings n   .4000
Hydraulic Length   250.00 ft
2yr, 24hr P   3.2000 in
Slope   .060000 ft/ft

Avg.Velocity   .14 ft/sec

                                    Segment #1 Time: .4800 hrs
----

                                    ==========================
                                    Total Tc: .4800 hrs
                                    ==========================

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow ===

       Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))

       Where: Tc = Time of concentration, hrs
               n = Mannings n
               Lf = Flow length, ft
               P = 2yr, 24hr Rain depth, inches
               Sf = Slope, %

```
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW

RUNOFF CURVE NUMBER DATA
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::


------------------------------------------------------------------------

                                             Impervious
                                    Area     Adjustment   Adjusted
Soil/Surface Description      CN     acres    %C    %UC      CN
-----------------------------  ----  --------- ----- -----  ------
Soil Type B - Grass/Meadow     60    1.220                  60.00
Soil Type B - Wooded           55     .200                  55.00
Impervious Area                98     .350                  98.00


COMPOSITE AREA & WEIGHTED CN --->     1.770              66.95 (67)
::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW

RUNOFF CURVE NUMBER DATA
::

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	%UC	Adjusted CN
Soil Type B - Wooded	55	4.090			55.00
Soil Type B - Grass/Meadow	60	.800			60.00
Impervious	98	.050			98.00

COMPOSITE AREA & WEIGHTED CN --->   4.940   56.24 (56)
::

```
                        SCS UNIT HYDROGRAPH METHOD
                          (Computational Notes)




     DEFINITION OF TERMS: ----------------------------------------------------

     At    = Total area (acres):  At = Ai+Ap
     Ai    = Impervious area (acres)
     Ap    = Pervious area (acres)
     CNi   = Runoff curve number for impervious area
     CNp   = Runoff curve number for pervious area
     fLoss = f loss constant infiltration (depth/time)
     gKs   = Saturated Hydraulic Conductivity (depth/time)
     Md    = Volumetric Moisture Deficit
     Psi   = Capillary Suction (length)
     hK    = Horton Infiltration Decay Rate (time^-1)
     fo    = Initial Infiltration Rate (depth/time)
     fc    = Ultimate(capacity)Infiltration Rate (depth/time)
     Ia    = Initial Abstraction (length)
     dt    = Computational increment (duration of unit excess rainfall)
             Default dt is smallest value of 0.1333Tc, rtm, and th
             (Smallest dt is then adjusted to match up with Tp)
     UDdt  = User specified override computational main time increment
             (only used if UDdt is => .1333Tc)
     D(t)  = Point on distribution curve (fraction of P) for time step t

     K     = 2 / (1 + (Tr/Tp)):  default K = 0.75: (for Tr/Tp = 1.67)
     Ks    = Hydrograph shape factor
           = Unit Conversions * K:
           = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K
             Default Ks = 645.333 * 0.75 = 484


     Lag   = Lag time from center of excess runoff (dt) to Tp:  Lag = 0.6Tc
     P     = Total precipitation depth, inches
     Pa(t) = Accumulated rainfall at time step t
     Pi(t) = Incremental rainfall at time step t
     qp    = Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi.
           = (Ks * A * Q) / Tp    (where Q = 1in. runoff, A=sq.mi.)
     Qu(t) = Unit hydrograph ordinate (cfs) at time step t
     Q(t)  = Final hydrograph ordinate (cfs) at time step t
     Rai(t)= Accumulated runoff (inches) at time step t for impervious area
     Rap(t)= Accumulated runoff (inches) at time step t for pervious area
     Rii(t)= Incremental runoff (inches) at time step t for impervious area
     Rip(t)= Incremental runoff (inches) at time step t for pervious area
     R(t)  = Incremental weighted total runoff (inches)
     Rtm   = Time increment for rainfall table
     Si    = S for impervious area:  Si = (1000/CNi) - 10
     Sp    = S for pervious area:    Sp = (1000/CNp) - 10
     t     = Time step (row) number
     Tc    = Time of concentration
     Tb    = Time (hrs) of entire unit hydrograph:  Tb = Tp + Tr
     Tp    = Time (hrs) to peak of a unit hydrograph:  Tp = (dt/2) + Lag
     Tr    = Time (hrs) of receding limb of unit hydrograph:  Tr = ratio of Tp
```

SCS UNIT HYDROGRAPH METHOD
(Computational Notes)

PRECIPITATION: --
Column (1): Time for time step t
Column (2): D(t) = Point on distribution curve for time step t
Column (3): Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4): Pa(t) = D(t) x P: Col.(2) x P

PERVIOUS AREA RUNOFF (using SCS Runoff CN Method) -------------------------
Column (5): Rap(t) = Accumulated pervious runoff for time step t
             If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
             If (Pa(t) is > 0.2Sp) then use:

             Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6): Rip(t) = Incremental pervious runoff for time step t
             Rip(t) =   Rap(t)   -   Rap(t-1)
             Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

IMPERVIOUS AREA RUNOFF --
Column (7 & 8)... Did not specify to use impervious areas.

INCREMENTAL WEIGHTED RUNOFF: --
Column (9): R(t) = (Ap/At) x Rip(t)   + (Ai/At) x Rii(t)
             R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS UNIT HYDROGRAPH METHOD: ---
Column (10): Q(t)   is computed with the SCS unit hydrograph method
                    using R() and Qu().

```
Type.... Unit Hyd. Summary                          Page 6.03
Name.... PRDA 5D          Tag: 2 YR                  Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr    Tag: 2 YR
```

```
                   SCS UNIT HYDROGRAPH METHOD

                   STORM EVENT: 2 year storm
                   Duration      = 24.0000 hrs    Rain Depth = 3.2000 in
                   Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
                   Rain File -ID =  - TypeIII 24hr
                   Unit Hyd Type = Default Curvilinear
                   HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
                   HYG File - ID =  - PRDA 5D 2 YR
                   Tc            = .4822 hrs
                   Drainage Area = 1.770 acres  Runoff CN= 67


                   ===============================================
                   Computational Time Increment   =    .06429 hrs
                   Computed Peak Time             = 12.4079 hrs
                   Computed Peak Flow             =      .68 cfs

                   Time Increment for HYG File    =     .1000 hrs
                   Peak Time, Interpolated Output = 12.4000 hrs
                   Peak Flow, Interpolated Output =      .68 cfs
                   ===============================================

                          DRAINAGE AREA
                          --------------------
                     ID:PRDA 5D
                     CN   =    67
                     Area =       1.770 acres
                     S    =    4.9254 in
                     0.2S =     .9851 in

                       Cumulative Runoff
                       --------------------
                                  .6871 in
                                  .101 ac-ft

                   HYG Volume...          .101 ac-ft (area under HYG curve)

                   ***** SCS UNIT HYDROGRAPH PARAMETERS *****

                   Time Concentration, Tc =   .48217 hrs (ID: PRDA 5D)
                   Computational Incr, Tm =   .06429 hrs = 0.20000 Tp

                   Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
                   K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
                   Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

                   Unit peak,        qp =     4.16 cfs
                   Unit peak time    Tp =    .32145 hrs
                   Unit receding limb, Tr = 1.28579 hrs
                   Total unit time,   Tb = 1.60724 hrs
```

```
Type.... Unit Hyd. Summary                        Page 6.04
Name.... PRDA 5D          Tag: 10 YR              Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
                SCS UNIT HYDROGRAPH METHOD

                STORM EVENT: 10 year storm
                Duration     = 24.0000 hrs   Rain Depth = 4.7000 in
                Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
                Rain File -ID =  - TypeIII 24hr
                Unit Hyd Type = Default Curvilinear
                HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
                HYG File - ID =  - PRDA 5D 10 YR
                Tc           = .4822 hrs
                Drainage Area = 1.770 acres  Runoff CN= 67


                ================================================
                Computational Time Increment   =    .06429 hrs
                Computed Peak Time             =  12.3436 hrs
                Computed Peak Flow             =     1.79 cfs

                Time Increment for HYG File    =    .1000 hrs
                Peak Time, Interpolated Output =  12.4000 hrs
                Peak Flow, Interpolated Output =     1.79 cfs
                ================================================

                          DRAINAGE AREA
                          --------------------
                    ID:PRDA 5D
                    CN   =    67
                    Area =       1.770 acres
                    S    =    4.9254 in
                    0.2S =     .9851 in

                      Cumulative Runoff
                      --------------------
                          1.5972 in
                           .236 ac-ft

                HYG Volume...          .236 ac-ft (area under HYG curve)

                ***** SCS UNIT HYDROGRAPH PARAMETERS *****

                Time Concentration, Tc =   .48217 hrs (ID: PRDA 5D)
                Computational Incr, Tm =   .06429 hrs = 0.20000 Tp

                Unit Hyd. Shape Factor = 483.432 (37.46% under rising limb)
                K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
                Receding/Rising, Tr/Tp =  1.6698 (solved from K =   .7491)

                Unit peak,        qp =     4.16 cfs
                Unit peak time    Tp =    .32145 hrs
                Unit receding limb, Tr = 1.28579 hrs
                Total unit time,  Tb =  1.60724 hrs
```

```
Type.... Unit Hyd. Summary                              Page 6.05
Name.... PRDA 5D           Tag: 25 YR                   Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr    Tag: 25 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

             STORM EVENT: 25 year storm
             Duration     = 24.0000 hrs     Rain Depth = 5.5000 in
             Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
             Rain File -ID =  - TypeIII 24hr
             Unit Hyd Type = Default Curvilinear
             HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
             HYG File - ID =  - PRDA 5D 25 YR
             Tc           = .4822 hrs
             Drainage Area = 1.770 acres  Runoff CN= 67


             ===========================================
             Computational Time Increment   =   .06429 hrs
             Computed Peak Time             = 12.3436 hrs
             Computed Peak Flow             =    2.48 cfs

             Time Increment for HYG File    =   .1000 hrs
             Peak Time, Interpolated Output = 12.4000 hrs
             Peak Flow, Interpolated Output =    2.46 cfs
             ===========================================

                        DRAINAGE AREA
                      --------------------
                   ID:PRDA 5D
                   CN   =   67
                   Area =       1.770 acres
                   S    =   4.9254 in
                   0.2S =    .9851 in


                    Cumulative Runoff
                   --------------------
                        2.1593 in
                          .318 ac-ft

             HYG Volume...          .318 ac-ft (area under HYG curve)

             ***** SCS UNIT HYDROGRAPH PARAMETERS *****

             Time Concentration, Tc =   .48217 hrs (ID: PRDA 5D)
             Computational Incr, Tm =   .06429 hrs = 0.20000 Tp

             Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
             K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
             Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

             Unit peak,         qp =     4.16 cfs
             Unit peak time     Tp =    .32145 hrs
             Unit receding limb, Tr = 1.28579 hrs
             Total unit time,   Tb = 1.60724 hrs
```

```
Type.... Unit Hyd. Summary                        Page 6.06
Name.... PRDA 5D          Tag: 50 YR              Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

          STORM EVENT: 50 year storm
          Duration      = 24.0000 hrs    Rain Depth = 6.2000 in
          Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
          Rain File -ID =   - TypeIII 24hr
          Unit Hyd Type = Default Curvilinear
          HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
          HYG File - ID =   - PRDA 5D 50 YR
          Tc            = .4822 hrs
          Drainage Area = 1.770 acres  Runoff CN= 67


          ================================================
          Computational Time Increment   =    .06429 hrs
          Computed Peak Time             =  12.3436 hrs
          Computed Peak Flow             =     3.12 cfs

          Time Increment for HYG File    =    .1000 hrs
          Peak Time, Interpolated Output = 12.4000 hrs
          Peak Flow, Interpolated Output =    3.08 cfs
          ================================================

                         DRAINAGE AREA
                    --------------------
             ID:PRDA 5D
             CN   =    67
             Area =       1.770 acres
             S    =    4.9254 in
             0.2S =     .9851 in

              Cumulative Runoff
             --------------------
                   2.6819 in
                    .396 ac-ft

          HYG Volume...          .396 ac-ft (area under HYG curve)

          ***** SCS UNIT HYDROGRAPH PARAMETERS *****

          Time Concentration, Tc =   .48217 hrs (ID: PRDA 5D)
          Computational Incr, Tm =   .06429 hrs = 0.20000 Tp

          Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
          K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
          Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

          Unit peak,         qp =    4.16 cfs
          Unit peak time     Tp =    .32145 hrs
          Unit receding limb, Tr = 1.28579 hrs
          Total unit time,   Tb = 1.60724 hrs
```

```
Type.... Unit Hyd. Summary                              Page 6.07
Name.... PRDA 5D          Tag: 100 YR             Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
              SCS UNIT HYDROGRAPH METHOD

        STORM EVENT: 100 year storm
        Duration     = 24.0000 hrs     Rain Depth = 7.0000 in
        Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
        Rain File -ID =  - TypeIII 24hr
        Unit Hyd Type = Default Curvilinear
        HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
        HYG File - ID =  - PRDA 5D 100 YR
        Tc           = .4822 hrs
        Drainage Area = 1.770 acres  Runoff CN= 67


        ===============================================
        Computational Time Increment   =   .06429 hrs
        Computed Peak Time             = 12.3436 hrs
        Computed Peak Flow             =    3.88 cfs

        Time Increment for HYG File    =   .1000 hrs
        Peak Time, Interpolated Output = 12.4000 hrs
        Peak Flow, Interpolated Output =    3.81 cfs
        WARNING: The difference between calculated peak flow
        and interpolated peak flow is greater than 1.50%
        ===============================================

                      DRAINAGE AREA
                      --------------------
              ID:PRDA 5D
              CN   =    67
              Area =         1.770 acres
              S    =    4.9254 in
              0.2S =     .9851 in

                  Cumulative Runoff
                  --------------------
                      3.3070 in
                       .488 ac-ft

        HYG Volume...          .488 ac-ft (area under HYG curve)

        ***** SCS UNIT HYDROGRAPH PARAMETERS *****

        Time Concentration, Tc =    .48217 hrs (ID: PRDA 5D)
        Computational Incr, Tm =    .06429 hrs = 0.20000 Tp

        Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
        K =  483.43/645.333, K =    .7491 (also, K = 2/(1+(Tr/Tp))
        Receding/Rising, Tr/Tp =  1.6698 (solved from K =   .7491)

        Unit peak,        qp =    4.16 cfs
        Unit peak time    Tp =   .32145 hrs
        Unit receding limb, Tr = 1.28579 hrs
        Total unit time,  Tb = 1.60724 hrs
```

```
                 SCS UNIT HYDROGRAPH METHOD

        STORM EVENT: 2 year storm
        Duration      = 24.0000 hrs     Rain Depth = 3.2000 in
        Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
        Rain File -ID =   - TypeIII 24hr
        Unit Hyd Type = Default Curvilinear
        HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
        HYG File - ID =   - PRDA 5ND 2 YR
        Tc            = .4800 hrs
        Drainage Area = 4.940 acres  Runoff CN= 56


        ===============================================
        Computational Time Increment   =   .06400 hrs
        Computed Peak Time             = 12.6086 hrs
        Computed Peak Flow             =     .46 cfs

        Time Increment for HYG File    =   .1000 hrs
        Peak Time, Interpolated Output = 12.6000 hrs
        Peak Flow, Interpolated Output =     .46 cfs
        ===============================================

                   DRAINAGE AREA
                 --------------------
        ID:PRDA 5ND
        CN   =   56
        Area =        4.940 acres
        S    =   7.8571 in
        0.2S =   1.5714 in

          Cumulative Runoff
         --------------------
                  .2796 in
                  .115 ac-ft

        HYG Volume...          .115 ac-ft (area under HYG curve)

        ***** SCS UNIT HYDROGRAPH PARAMETERS *****

        Time Concentration, Tc =   .48002 hrs (ID: PRDA 5ND)
        Computational Incr, Tm =   .06400 hrs = 0.20000 Tp

        Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
        K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
        Receding/Rising, Tr/Tp =  1.6698 (solved from K =   .7491)

        Unit peak,        qp =   11.66 cfs
        Unit peak time    Tp =   .32002 hrs
        Unit receding limb, Tr = 1.28006 hrs
        Total unit time,   Tb =  1.60008 hrs
```

```
Type.... Unit Hyd. Summary                          Page 6.09
Name.... PRDA 5ND        Tag: 10 YR                 Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr    Tag: 10 YR
```

```
                 SCS UNIT HYDROGRAPH METHOD

                 STORM EVENT: 10 year storm
                 Duration      = 24.0000 hrs    Rain Depth = 4.7000 in
                 Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
                 Rain File -ID =  - TypeIII 24hr
                 Unit Hyd Type = Default Curvilinear
                 HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
                 HYG File - ID =  - PRDA 5ND 10 YR
                 Tc            = .4800 hrs
                 Drainage Area = 4.940 acres  Runoff CN= 56


                 ===========================================
                 Computational Time Increment   =    .06400 hrs
                 Computed Peak Time             =  12.4166 hrs
                 Computed Peak Flow             =     2.36 cfs

                 Time Increment for HYG File    =    .1000 hrs
                 Peak Time, Interpolated Output = 12.4000 hrs
                 Peak Flow, Interpolated Output =     2.33 cfs
                 ===========================================

                           DRAINAGE AREA
                           --------------------
                 ID:PRDA 5ND
                 CN   =   56
                 Area =        4.940 acres
                 S    =   7.8571 in
                 0.2S =   1.5714 in


                   Cumulative Runoff
                   --------------------
                             .8910 in
                             .367 ac-ft

       HYG Volume...            .367 ac-ft (area under HYG curve)

       ***** SCS UNIT HYDROGRAPH PARAMETERS *****

       Time Concentration, Tc =   .48002 hrs (ID: PRDA 5ND)
       Computational Incr, Tm =   .06400 hrs = 0.20000 Tp

       Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
       K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
       Receding/Rising, Tr/Tp =   1.6698 (solved from K =   .7491)

       Unit peak,         qp =   11.66 cfs
       Unit peak time     Tp =    .32002 hrs
       Unit receding limb, Tr = 1.28006 hrs
       Total unit time,    Tb = 1.60008 hrs
```

```
Type.... Unit Hyd. Summary                          Page 6.10
Name.... PRDA 5ND          Tag: 25 YR             Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr    Tag: 25 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

              STORM EVENT: 25 year storm
              Duration     = 24.0000 hrs    Rain Depth = 5.5000 in
              Rain Dir     = C:\Program Files\Haestad\PPKW\PPW\
              Rain File -ID =  - TypeIII 24hr
              Unit Hyd Type = Default Curvilinear
              HYG Dir      = C:\Program Files\Haestad\PPKW\PPW\
              HYG File - ID =  - PRDA 5ND 25 YR
              Tc           = .4800 hrs
              Drainage Area = 4.940 acres  Runoff CN= 56


              ==============================================
              Computational Time Increment   =   .06400 hrs
              Computed Peak Time             = 12.4166 hrs
              Computed Peak Flow             =    3.78 cfs

              Time Increment for HYG File    =   .1000 hrs
              Peak Time, Interpolated Output = 12.4000 hrs
              Peak Flow, Interpolated Output =    3.76 cfs
              ==============================================

                         DRAINAGE AREA
                    --------------------
                    ID:PRDA 5ND
                    CN   =    56
                    Area =      4.940 acres
                    S    =    7.8571 in
                    0.2S =    1.5714 in


                      Cumulative Runoff
                    --------------------
                         1.3095 in
                          .539 ac-ft

              HYG Volume...          .539 ac-ft (area under HYG curve)

              ***** SCS UNIT HYDROGRAPH PARAMETERS *****

              Time Concentration, Tc =   .48002 hrs (ID: PRDA 5ND)
              Computational Incr, Tm =   .06400 hrs = 0.20000 Tp

              Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
              K =  483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
              Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

              Unit peak,       qp =   11.66 cfs
              Unit peak time       Tp =   .32002 hrs
              Unit receding limb, Tr = 1.28006 hrs
              Total unit time,     Tb = 1.60008 hrs
```

```
Type.... Unit Hyd. Summary                          Page 6.11
Name.... PRDA 5ND        Tag: 50 YR                 Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr    Tag: 50 YR
```

```
                    SCS UNIT HYDROGRAPH METHOD

            STORM EVENT: 50 year storm
            Duration      = 24.0000 hrs    Rain Depth = 6.2000 in
            Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
            Rain File -ID =  - TypeIII 24hr
            Unit Hyd Type = Default Curvilinear
            HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
            HYG File - ID =  - PRDA 5ND 50 YR
            Tc            = .4800 hrs
            Drainage Area = 4.940 acres  Runoff CN= 56


            ===========================================
            Computational Time Increment   =   .06400 hrs
            Computed Peak Time             = 12.4166 hrs
            Computed Peak Flow             =     5.15 cfs

            Time Increment for HYG File    =   .1000 hrs
            Peak Time, Interpolated Output = 12.4000 hrs
            Peak Flow, Interpolated Output =     5.15 cfs
            ===========================================


                       DRAINAGE AREA
                    --------------------
                ID:PRDA 5ND
                CN    =    56
                Area =         4.940 acres
                S    =    7.8571 in
                0.2S =    1.5714 in


                  Cumulative Runoff
                 --------------------
                      1.7159 in
                       .706 ac-ft

        HYG Volume...           .706 ac-ft (area under HYG curve)

        ***** SCS UNIT HYDROGRAPH PARAMETERS *****

        Time Concentration, Tc =    .48002 hrs (ID: PRDA 5ND)
        Computational Incr, Tm =    .06400 hrs = 0.20000 Tp

        Unit Hyd. Shape Factor =   483.432 (37.46% under rising limb)
        K =    483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
        Receding/Rising, Tr/Tp =   1.6698 (solved from K =    .7491)

        Unit peak,         qp =    11.66 cfs
        Unit peak time     Tp =    .32002 hrs
        Unit receding limb, Tr =  1.28006 hrs
        Total unit time,    Tb =  1.60008 hrs
```

```
Type.... Unit Hyd. Summary                              Page 6.12
Name.... PRDA 5ND        Tag: 100 YR               Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
                   SCS UNIT HYDROGRAPH METHOD

          STORM EVENT: 100 year storm
          Duration      = 24.0000 hrs    Rain Depth = 7.0000 in
          Rain Dir      = C:\Program Files\Haestad\PPKW\PPW\
          Rain File -ID =  - TypeIII 24hr
          Unit Hyd Type = Default Curvilinear
          HYG Dir       = C:\Program Files\Haestad\PPKW\PPW\
          HYG File - ID =  - PRDA 5ND 100 YR
          Tc            = .4800 hrs
          Drainage Area = 4.940 acres  Runoff CN= 56


          ===============================================
          Computational Time Increment   =    .06400 hrs
          Computed Peak Time             =  12.3526 hrs
          Computed Peak Flow             =     6.88 cfs

          Time Increment for HYG File    =    .1000 hrs
          Peak Time, Interpolated Output =  12.4000 hrs
          Peak Flow, Interpolated Output =     6.85 cfs
          ===============================================

                        DRAINAGE AREA
                   ---------------------
             ID:PRDA 5ND
             CN   =   56
             Area =       4.940 acres
             S    =   7.8571 in
             0.2S =   1.5714 in

                  Cumulative Runoff
                  -------------------
                       2.2181 in
                        .913 ac-ft

          HYG Volume...           .913 ac-ft (area under HYG curve)

          ***** SCS UNIT HYDROGRAPH PARAMETERS *****

          Time Concentration, Tc =   .48002 hrs (ID: PRDA 5ND)
          Computational Incr, Tm =   .06400 hrs = 0.20000 Tp

          Unit Hyd. Shape Factor =  483.432 (37.46% under rising limb)
          K = 483.43/645.333,  K =    .7491 (also, K = 2/(1+(Tr/Tp))
          Receding/Rising, Tr/Tp =  1.6698 (solved from K =   .7491)

          Unit peak,        qp =   11.66 cfs
          Unit peak time    Tp =   .32002 hrs
          Unit receding limb, Tr = 1.28006 hrs
          Total unit time,    Tb = 1.60008 hrs
```

```
Type.... Node: Addition Summary                          Page 7.01
Name.... DP 5                                            Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                      SUMMARY FOR HYDROGRAPH ADDITION
                            at Node: DP 5

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

====================================================================
Upstream Link ID  Upstream Node ID   HYG file   HYG ID      HYG tag
--------------------------------------------------------------------
TO DP5            JUNCTION                      JUNCTION    2 YR
====================================================================


INFLOWS TO:  DP 5
--------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID         HYG tag      ac-ft     hrs        cfs
--------------------------------------------------------------------
            JUNCTION       2 YR          .115     12.6000       .46


TOTAL FLOW INTO:  DP 5
--------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID         HYG tag      ac-ft     hrs        cfs
--------------------------------------------------------------------
            DP 5           2 YR          .115     12.6000       .46
```

```
Type.... Node: Addition Summary                          Page 7.02
Name.... DP 5                                            Event: 2 yr
File... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID   = DP 5
                    HYG Tag  = 2 YR
                    ------------------------------------
                    Peak Discharge =          .46 cfs
                    Time to Peak   =      12.6000 hrs
                    HYG Volume     =         .115 ac-ft
                    ------------------------------------

                          HYDROGRAPH ORDINATES (cfs)
      Time  |              Output Time increment = .1000 hrs
      hrs   |    Time on left represents time for first value in each row.
    --------|-----------------------------------------------------------------
    12.0000 |       .00       .02       .09       .22       .35
    12.5000 |       .44       .46       .43       .38       .34
    13.0000 |       .31       .28       .26       .24       .23
    13.5000 |       .22       .21       .21       .20       .20
    14.0000 |       .19       .19       .18       .18       .17
    14.5000 |       .17       .17       .16       .16       .16
    15.0000 |       .16       .15       .15       .15       .14
    15.5000 |       .14       .14       .13       .13       .13
    16.0000 |       .12       .12       .11       .11       .11
    16.5000 |       .11       .10       .10       .10       .10
    17.0000 |       .10       .10       .09       .09       .09
    17.5000 |       .09       .09       .08       .08       .08
    18.0000 |       .08       .08       .07       .07       .07
    18.5000 |       .07       .07       .07       .07       .07
    19.0000 |       .07       .07       .07       .07       .07
    19.5000 |       .07       .07       .06       .06       .06
    20.0000 |       .06       .06       .06       .06       .06
    20.5000 |       .06       .06       .06       .06       .06
    21.0000 |       .06       .06       .06       .06       .06
    21.5000 |       .06       .06       .06       .05       .05
    22.0000 |       .05       .05       .05       .05       .05
    22.5000 |       .05       .05       .05       .05       .05
    23.0000 |       .05       .05       .05       .05       .05
    23.5000 |       .05       .05       .05       .05       .04
    24.0000 |       .04       .04       .04       .03       .02
    24.5000 |       .01       .01       .00       .00       .00
    25.0000 |       .00
```

```
Type.... Node: Addition Summary                    Page 7.03
Name.... DP 5                                      Event: 10 yr
File... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr    Tag: 10 YR
```

```
                  SUMMARY FOR HYDROGRAPH ADDITION
                       at Node: DP 5

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

=====================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID       HYG tag
---------------------------------------------------------------------
TO DP5            JUNCTION                        JUNCTION     10 YR
=====================================================================


INFLOWS TO:  DP 5
----------------------------------------- Volume   Peak Time  Peak Flow
HYG file      HYG ID          HYG tag     ac-ft    hrs        cfs
-----------------------------------------------------------------------
              JUNCTION        10 YR        .424    12.5000     2.39

TOTAL FLOW INTO:  DP 5
----------------------------------------- Volume   Peak Time  Peak Flow
HYG file      HYG ID          HYG tag     ac-ft    hrs        cfs
-----------------------------------------------------------------------
              DP 5            10 YR        .424    12.5000     2.39
```

```
Type.... Node: Addition Summary                              Page 7.04
Name.... DP 5                                                Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr   Tag: 10 YR
```

```
                    TOTAL NODE INFLOW...
                    HYG file =
                    HYG ID    = DP 5
                    HYG Tag   = 10 YR
                    -----------------------------------
                    Peak Discharge =        2.39 cfs
                    Time to Peak   =     12.5000 hrs
                    HYG Volume     =        .424 ac-ft
                    -----------------------------------

                        HYDROGRAPH ORDINATES (cfs)
       Time  |          Output Time increment = .1000 hrs
       hrs   |   Time on left represents time for first value in each row.
     --------|----------------------------------------------------------------
      11.7000 |      .00        .01        .05        .24        .70
      12.2000 |     1.42       2.05       2.35       2.39       2.24
      12.7000 |     1.98       1.70       1.47       1.30       1.18
      13.2000 |     1.08       1.00        .95        .90        .87
      13.7000 |      .84        .81        .79        .76        .74
      14.2000 |      .71        .69        .67        .65        .62
      14.7000 |      .60        .58        .56        .54        .52
      15.2000 |      .50        .48        .46        .44        .42
      15.7000 |      .40        .39        .37        .36        .34
      16.2000 |      .32        .31        .29        .28        .27
      16.7000 |      .27        .26        .25        .25        .24
      17.2000 |      .23        .22        .22        .21        .21
      17.7000 |      .20        .20        .19        .19        .18
      18.2000 |      .18        .18        .17        .17        .17
      18.7000 |      .17        .17        .16        .16        .16
      19.2000 |      .16        .16        .16        .16        .15
      19.7000 |      .15        .15        .15        .15        .15
      20.2000 |      .15        .14        .14        .14        .14
      20.7000 |      .14        .14        .14        .14        .14
      21.2000 |      .13        .13        .13        .13        .13
      21.7000 |      .13        .13        .13        .13        .12
      22.2000 |      .12        .12        .12        .12        .12
      22.7000 |      .12        .12        .11        .11        .11
      23.2000 |      .11        .11        .11        .11        .11
      23.7000 |      .11        .10        .10        .10        .10
      24.2000 |      .08        .06        .04        .02        .01
      24.7000 |      .01        .00        .00        .00        .00
```

```
Type.... Node: Addition Summary                    Page 7.05
Name.... DP 5                                       Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr    Tag: 25 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                         at Node: DP 5

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

========================================================================
Upstream Link ID  Upstream Node ID   HYG file    HYG ID       HYG tag
------------------------------------------------------------------------
TO DP5            JUNCTION                        JUNCTION     25 YR
========================================================================


INFLOWS TO:  DP 5
--------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID          HYG tag     ac-ft     hrs        cfs
------------------------------------------------------------------------
            JUNCTION        25 YR        .654     12.4000      3.95

TOTAL FLOW INTO:  DP 5
--------------------------------------- Volume    Peak Time  Peak Flow
HYG file    HYG ID          HYG tag     ac-ft     hrs        cfs
------------------------------------------------------------------------
            DP 5            25 YR        .654     12.4000      3.95
```

```
              TOTAL NODE INFLOW...
              HYG file =
              HYG ID   = DP 5
              HYG Tag  = 25 YR
              ------------------------------------
              Peak Discharge =        3.95 cfs
              Time to Peak   =     12.4000 hrs
              HYG Volume     =        .654 ac-ft
              ------------------------------------

                       HYDROGRAPH ORDINATES (cfs)
      Time  |           Output Time increment = .1000 hrs
      hrs   |   Time on left represents time for first value in each row.
   ---------|-------------------------------------------------------------------
   11.4000 |      .00        .00        .01        .04        .12
   11.9000 |      .30        .71       1.49       2.60       3.51
   12.4000 |     3.95       3.85       3.46       2.97       2.51
   12.9000 |     2.17       1.91       1.72       1.57       1.46
   13.4000 |     1.37       1.30       1.25       1.20       1.16
   13.9000 |     1.13       1.09       1.06       1.03       1.00
   14.4000 |      .98        .95        .93        .91        .89
   14.9000 |      .87        .85        .83        .81        .78
   15.4000 |      .76        .74        .72        .69        .67
   15.9000 |      .64        .62        .59        .56        .54
   16.4000 |      .51        .49        .47        .45        .43
   16.9000 |      .41        .39        .38        .36        .35
   17.4000 |      .34        .32        .31        .30        .29
   17.9000 |      .28        .27        .26        .25        .24
   18.4000 |      .24        .23        .23        .22        .22
   18.9000 |      .22        .22        .22        .21        .21
   19.4000 |      .21        .21        .21        .20        .20
   19.9000 |      .20        .20        .20        .19        .19
   20.4000 |      .19        .19        .19        .19        .19
   20.9000 |      .18        .18        .18        .18        .18
   21.4000 |      .18        .17        .17        .17        .17
   21.9000 |      .17        .17        .17        .16        .16
   22.4000 |      .16        .16        .16        .16        .15
   22.9000 |      .15        .15        .15        .15        .15
   23.4000 |      .15        .14        .14        .14        .14
   23.9000 |      .14        .14        .13        .11        .08
   24.4000 |      .05        .03        .02        .01        .01
   24.9000 |      .00        .00        .00        .00
```

```
Type.... Node: Addition Summary                        Page 7.07
Name.... DP 5                                          Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
                   SUMMARY FOR HYDROGRAPH ADDITION
                        at Node: DP 5

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\

=====================================================================
Upstream Link ID  Upstream Node ID   HYG file   HYG ID        HYG tag
---------------------------------------------------------------------
TO DP5            JUNCTION                      JUNCTION      50 YR
=====================================================================


INFLOWS TO:  DP 5
---------------------------------------- Volume   Peak Time  Peak Flow
HYG file    HYG ID          HYG tag      ac-ft    hrs        cfs
---------------------------------------------------------------------
            JUNCTION        50 YR        .880     12.4000    5.44

TOTAL FLOW INTO:  DP 5
---------------------------------------- Volume   Peak Time  Peak Flow
HYG file    HYG ID          HYG tag      ac-ft    hrs        cfs
---------------------------------------------------------------------
            DP 5            50 YR        .880     12.4000    5.44
```

```
                   TOTAL NODE INFLOW...
                   HYG file =
                   HYG ID   = DP 5
                   HYG Tag  = 50 YR
                   -------------------------------------
                   Peak Discharge =         5.44 cfs
                   Time to Peak   =      12.4000 hrs
                   HYG Volume     =         .880 ac-ft
                   -------------------------------------
```

```
                           HYDROGRAPH ORDINATES (cfs)
        Time  |              Output Time increment = .1000 hrs
        hrs   |    Time on left represents time for first value in each row.
     ---------|-----------------------------------------------------------------
       11.1000 |      .00         .00         .01         .03         .05
       11.6000 |      .10         .18         .34         .63        1.23
       12.1000 |     2.32        3.79        5.04        5.44        5.18
       12.6000 |     4.64        4.11        3.61        3.17        2.80
       13.1000 |     2.51        2.26        2.05        1.89        1.76
       13.6000 |     1.66        1.56        1.49        1.43        1.37
       14.1000 |     1.31        1.27        1.22        1.19        1.16
       14.6000 |     1.13        1.11        1.08        1.06        1.04
       15.1000 |     1.01         .99         .97         .94         .92
       15.6000 |      .89         .87         .84         .81         .79
       16.1000 |      .76         .73         .71         .68         .66
       16.6000 |      .64         .62         .60         .57         .55
       17.1000 |      .53         .51         .49         .47         .45
       17.6000 |      .43         .41         .39         .38         .36
       18.1000 |      .35         .33         .32         .31         .30
       18.6000 |      .30         .29         .29         .28         .28
       19.1000 |      .27         .27         .26         .26         .26
       19.6000 |      .25         .25         .25         .25         .24
       20.1000 |      .24         .24         .24         .24         .23
       20.6000 |      .23         .23         .23         .23         .22
       21.1000 |      .22         .22         .22         .22         .21
       21.6000 |      .21         .21         .21         .21         .21
       22.1000 |      .20         .20         .20         .20         .20
       22.6000 |      .19         .19         .19         .19         .19
       23.1000 |      .18         .18         .18         .18         .18
       23.6000 |      .17         .17         .17         .17         .17
       24.1000 |      .16         .13         .10         .06         .04
       24.6000 |      .02         .01         .01         .00         .00
       25.1000 |      .00         .00
```

```
Type.... Node: Addition Summary                      Page 7.09
Name.... DP 5                                    Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr    Tag: 100 YR
```

```
                    SUMMARY FOR HYDROGRAPH ADDITION
                        at Node: DP 5

HYG Directory: C:\Program Files\Haestad\PPKW\PPW\
```

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
TO DP5	JUNCTION		JUNCTION	100 YR

```
INFLOWS TO:  DP 5
```

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	JUNCTION	100 YR	1.160	12.4000	7.23

```
TOTAL FLOW INTO:  DP 5
```

HYG file	HYG ID	HYG tag	Volume ac-ft	Peak Time hrs	Peak Flow cfs
	DP 5	100 YR	1.160	12.4000	7.23

```
Type.... Node: Addition Summary                           Page 7.10
Name.... DP 5                                          Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr    Tag: 100 YR
```

```
             TOTAL NODE INFLOW...
             HYG file =
             HYG ID   = DP 5
             HYG Tag  = 100 YR
             ------------------------------------
             Peak Discharge =         7.23 cfs
             Time to Peak   =      12.4000 hrs
             HYG Volume     =        1.160 ac-ft
             ------------------------------------

                       HYDROGRAPH ORDINATES (cfs)
      Time  |          Output Time increment = .1000 hrs
      hrs   |    Time on left represents time for first value in each row.
   ---------|--------------------------------------------------------------
   10.7000 |      .00        .00        .01        .02        .04
   11.2000 |      .07        .10        .15        .20        .28
   11.7000 |      .41        .65       1.07       1.90       3.36
   12.2000 |     5.37       6.86       7.23       7.05       6.60
   12.7000 |     5.92       5.13       4.45       3.87       3.40
   13.2000 |     3.01       2.70       2.45       2.25       2.10
   13.7000 |     1.97       1.87       1.78       1.69       1.62
   14.2000 |     1.55       1.49       1.43       1.39       1.35
   14.7000 |     1.32       1.29       1.25       1.23       1.20
   15.2000 |     1.17       1.15       1.12       1.09       1.06
   15.7000 |     1.04       1.01        .98        .95        .92
   16.2000 |      .89        .86        .83        .81        .79
   16.7000 |      .77        .75        .73        .71        .69
   17.2000 |      .67        .64        .62        .60        .57
   17.7000 |      .55        .53        .51        .48        .46
   18.2000 |      .44        .42        .41        .40        .39
   18.7000 |      .38        .37        .36        .35        .34
   19.2000 |      .34        .33        .33        .32        .32
   19.7000 |      .31        .31        .31        .30        .30
   20.2000 |      .29        .29        .29        .29        .28
   20.7000 |      .28        .28        .28        .27        .27
   21.2000 |      .27        .27        .26        .26        .26
   21.7000 |      .26        .25        .25        .25        .25
   22.2000 |      .25        .24        .24        .24        .24
   22.7000 |      .23        .23        .23        .23        .22
   23.2000 |      .22        .22        .22        .21        .21
   23.7000 |      .21        .21        .20        .20        .19
   24.2000 |      .16        .12        .08        .04        .03
   24.7000 |      .02        .01        .01        .00        .00
   25.2000 |      .00        .00
```

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqr(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
1434.50	-----	.0720	.0000	.000	.000
1437.00	-----	.0720	.2160	.180	.180

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

   Volume = (1/3) * (EL2-EL1) * (Area1 + Area2 + sq.rt.(Area1*Area2))

   where: EL1, EL2   = Lower and upper elevations of the increment
          Area1,Area2   = Areas computed for EL1, EL2, respectively
          Volume   = Incremental volume between EL1 and EL2

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.=   1434.50 ft
Increment =   .10 ft
Max. Elev.=   1437.00 ft


```
*****************************************************
                OUTLET CONNECTIVITY
*****************************************************
```

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.		Outfall	E1, ft	E2, ft
Orifice-Circular	2	--->	TW	1436.000	1437.000
Orifice-Circular	1	--->	TW	1435.000	1437.000
TW SETUP, DS Channel					

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW

OUTLET STRUCTURE INPUT DATA

Structure ID   = 2
Structure Type   = Orifice-Circular

# of Openings   =   1
Invert Elev.   =   1436.00 ft
Diameter   =   .6670 ft
Orifice Coeff.   =   .600

Structure ID   = 1
Structure Type   = Orifice-Circular

# of Openings   =   1
Invert Elev.   =   1435.00 ft
Diameter   =   .3330 ft
Orifice Coeff.   =   .600

Structure ID   = TW
Structure Type   = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations=   30
Min. TW tolerance =   .01 ft
Max. TW tolerance =   .01 ft
Min. HW tolerance =   .01 ft
Max. HW tolerance =   .01 ft
Min. Q tolerance =   .10 cfs
Max. Q tolerance =   .10 cfs

File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW

                    RATING TABLE FOR ONE OUTLET TYPE

                    Structure ID = 2 (Orifice-Circular)

                    Upstream ID =   (Pond Water Surface)
                    DNstream ID = TW (Pond Outfall)

      WS Elev,Device Q   Tail Water   Notes
      -----------------   ----------------   --------------------------
      WS Elev.   Q   TW Elev Converge
        ft   cfs   ft   +/-ft   Computation Messages
      -------- -------   -------- -----   --------------------------
      1434.50   .00   Free Outfall   HW & TW below invert
      1434.60   .00   Free Outfall   HW & TW below invert
      1434.70   .00   Free Outfall   HW & TW below invert
      1434.80   .00   Free Outfall   HW & TW below invert
      1434.90   .00   Free Outfall   HW & TW below invert
      1435.00   .00   Free Outfall   HW & TW below invert
      1435.10   .00   Free Outfall   HW & TW below invert
      1435.20   .00   Free Outfall   HW & TW below invert
      1435.30   .00   Free Outfall   HW & TW below invert
      1435.40   .00   Free Outfall   HW & TW below invert
      1435.50   .00   Free Outfall   HW & TW below invert
      1435.60   .00   Free Outfall   HW & TW below invert
      1435.70   .00   Free Outfall   HW & TW below invert
      1435.80   .00   Free Outfall   HW & TW below invert
      1435.90   .00   Free Outfall   HW & TW below invert
      1436.00   .00   Free Outfall   Upstream HW & DNstream TW < Inv.El
      1436.10   .03   Free Outfall   CRIT.DEPTH CONTROL Vh= .027ft Dcr= .073ft   CRIT.DEPTH
      1436.20   .11   Free Outfall   CRIT.DEPTH CONTROL Vh= .052ft Dcr= .148ft   CRIT.DEPTH
      1436.30   .23   Free Outfall   CRIT.DEPTH CONTROL Vh= .081ft Dcr= .219ft   CRIT.DEPTH
      1436.40   .39   Free Outfall   CRIT.DEPTH CONTROL Vh= .110ft Dcr= .289ft   CRIT.DEPTH
      1436.50   .58   Free Outfall   CRIT.DEPTH CONTROL Vh= .143ft Dcr= .357ft   CRIT.DEPTH
      1436.60   .79   Free Outfall   CRIT.DEPTH CONTROL Vh= .180ft Dcr= .421ft   CRIT.DEPTH
      1436.70   1.02   Free Outfall   H =.37
      1436.80   1.15   Free Outfall   H =.47
      1436.90   1.27   Free Outfall   H =.57
      1437.00   1.37   Free Outfall   H =.67

```
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW


              RATING TABLE FOR ONE OUTLET TYPE

           Structure ID  = 1  (Orifice-Circular)
           ----------------------------------------
           Upstream  ID  =    (Pond Water Surface)
           DNstream  ID  = TW (Pond Outfall)


   WS Elev,Device Q    Tail Water              Notes
   -----------------   ---------------   ------------------------
   WS Elev.    Q       TW Elev Converge
      ft      cfs        ft     +/-ft    Computation Messages
   --------  -------   --------  -----   ------------------------
   1434.50     .00    Free Outfall     HW & TW below invert
   1434.60     .00    Free Outfall     HW & TW below invert
   1434.70     .00    Free Outfall     HW & TW below invert
   1434.80     .00    Free Outfall     HW & TW below invert
   1434.90     .00    Free Outfall     HW & TW below invert
   1435.00     .00    Free Outfall     Upstream HW & DNstream TW < Inv.El
   1435.10     .02    Free Outfall     CRIT.DEPTH CONTROL  Vh= .027ft  Dcr= .073ft   CRIT.DEPTH
   1435.20     .07    Free Outfall     CRIT.DEPTH CONTROL  Vh= .054ft  Dcr= .146ft   CRIT.DEPTH
   1435.30     .14    Free Outfall     CRIT.DEPTH CONTROL  Vh= .092ft  Dcr= .208ft   CRIT.DEPTH
   1435.40     .20    Free Outfall     H =.23
   1435.50     .24    Free Outfall     H =.33
   1435.60     .28    Free Outfall     H =.43
   1435.70     .31    Free Outfall     H =.53
   1435.80     .33    Free Outfall     H =.63
   1435.90     .36    Free Outfall     H =.73
   1436.00     .38    Free Outfall     H =.83
   1436.10     .40    Free Outfall     H =.93
   1436.20     .43    Free Outfall     H =1.03
   1436.30     .45    Free Outfall     H =1.13
   1436.40     .47    Free Outfall     H =1.23
   1436.50     .48    Free Outfall     H =1.33
   1436.60     .50    Free Outfall     H =1.43
   1436.70     .52    Free Outfall     H =1.53
   1436.80     .54    Free Outfall     H =1.63
   1436.90     .55    Free Outfall     H =1.73
   1437.00     .57    Free Outfall     H =1.83
```

```
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
```

```
                ***** COMPOSITE OUTFLOW SUMMARY ****
```

WS Elev, Total Q		Converge		Notes
Elev.	Q	TW Elev	Error	
ft	cfs	ft	+/-ft	Contributing Structures
1434.50	.00	Free Outfall		None contributing
1434.60	.00	Free Outfall		None contributing
1434.70	.00	Free Outfall		None contributing
1434.80	.00	Free Outfall		None contributing
1434.90	.00	Free Outfall		None contributing
1435.00	.00	Free Outfall		None contributing
1435.10	.02	Free Outfall		1
1435.20	.07	Free Outfall		1
1435.30	.14	Free Outfall		1
1435.40	.20	Free Outfall		1
1435.50	.24	Free Outfall		1
1435.60	.28	Free Outfall		1
1435.70	.31	Free Outfall		1
1435.80	.33	Free Outfall		1
1435.90	.36	Free Outfall		1
1436.00	.38	Free Outfall		1
1436.10	.43	Free Outfall		2 +1
1436.20	.53	Free Outfall		2 +1
1436.30	.67	Free Outfall		2 +1
1436.40	.85	Free Outfall		2 +1
1436.50	1.06	Free Outfall		2 +1
1436.60	1.29	Free Outfall		2 +1
1436.70	1.54	Free Outfall		2 +1
1436.80	1.68	Free Outfall		2 +1
1436.90	1.82	Free Outfall		2 +1
1437.00	1.94	Free Outfall		2 +1

INFILTRATION RATING TABLE CALCULATIONS

Infilt.(cfs) = (3.0000 (in/hr) * Area) * Ku
Where: Ku = units conversion factor

W.S.Elev ft	Total Area acres	Infilt. cfs
No storage at this elevation... infiltration set to zero.		
1434.50	.0720	.00
1434.60	.0720	.22
1434.70	.0720	.22
1434.80	.0720	.22
1434.90	.0720	.22
1435.00	.0720	.22
1435.10	.0720	.22
1435.20	.0720	.22
1435.30	.0720	.22
1435.40	.0720	.22
1435.50	.0720	.22
1435.60	.0720	.22
1435.70	.0720	.22
1435.80	.0720	.22
1435.90	.0720	.22
1436.00	.0720	.22
1436.10	.0720	.22
1436.20	.0720	.22
1436.30	.0720	.22
1436.40	.0720	.22
1436.50	.0720	.22
1436.60	.0720	.22
1436.70	.0720	.22
1436.80	.0720	.22
1436.90	.0720	.22
1437.00	.0720	.22

```
                        LEVEL POOL ROUTING DATA

    HYG Dir         = C:\Program Files\Haestad\PPKW\PPW\
    Inflow  HYG file = NONE STORED - UNDER DET 5  IN  2 YR
    Outflow HYG file = NONE STORED - UNDER DET 5  OUT 2 YR

    Pond Node    Data = UNDER DET 5
    Pond Volume  Data = UNDER DET 5
    Pond Outlet  Data = Outlet 1

    Infiltration =   3.0000 in/hr

    INITIAL CONDITIONS
    ---------------------------------
    Starting WS Elev  =  1434.50 ft
    Starting Volume   =     .000 ac-ft
    Starting Outflow  =     .00 cfs
    Starting Infiltr. =     .00 cfs
    Starting Total Qout=    .00 cfs
    Time Increment    =    .1000 hrs
```

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
1434.50	.00	.000	.0720	.00	.00	.00
1434.60	.00	.007	.0720	.22	.22	1.96
1434.70	.00	.014	.0720	.22	.22	3.70
1434.80	.00	.022	.0720	.22	.22	5.45
1434.90	.00	.029	.0720	.22	.22	7.19
1435.00	.00	.036	.0720	.22	.22	8.93
1435.10	.02	.043	.0720	.22	.24	10.69
1435.20	.07	.050	.0720	.22	.29	12.48
1435.30	.14	.058	.0720	.22	.36	14.30
1435.40	.20	.065	.0720	.22	.42	16.10
1435.50	.24	.072	.0720	.22	.46	17.88
1435.60	.28	.079	.0720	.22	.49	19.66
1435.70	.31	.086	.0720	.22	.52	21.43
1435.80	.33	.094	.0720	.22	.55	23.20
1435.90	.36	.101	.0720	.22	.58	24.97
1436.00	.38	.108	.0720	.22	.60	26.74
1436.10	.43	.115	.0720	.22	.65	28.53
1436.20	.53	.122	.0720	.22	.75	30.37
1436.30	.67	.130	.0720	.22	.89	32.26
1436.40	.85	.137	.0720	.22	1.07	34.18

```
                    LEVEL POOL ROUTING DATA

   HYG Dir          = C:\Program Files\Haestad\PPKW\PPW\
   Inflow  HYG file = NONE STORED - UNDER DET 5  IN  2 YR
   Outflow HYG file = NONE STORED - UNDER DET 5  OUT 2 YR

   Pond Node   Data = UNDER DET 5
   Pond Volume Data = UNDER DET 5
   Pond Outlet Data = Outlet 1

   Infiltration =   3.0000 in/hr

   INITIAL CONDITIONS
   ----------------------------------
   Starting WS Elev  =  1434.50 ft
   Starting Volume   =     .000 ac-ft
   Starting Outflow  =     .00 cfs
   Starting Infiltr. =     .00 cfs
   Starting Total Qout=    .00 cfs
   Time Increment    =    .1000 hrs
```

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + O cfs
1436.50	1.06	.144	.0720	.22	1.28	36.13
1436.60	1.29	.151	.0720	.22	1.51	38.10
1436.70	1.54	.158	.0720	.22	1.75	40.09
1436.80	1.68	.166	.0720	.22	1.90	41.98
1436.90	1.82	.173	.0720	.22	2.04	43.85
1437.00	1.94	.180	.0720	.22	2.16	45.72

```
Type.... Pond Routing Summary                               Page 10.04
Name.... UNDER DET 5  OUT   Tag: 2 YR                       Event: 2 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr   Tag: 2 YR
```

```
                        LEVEL POOL ROUTING SUMMARY

    HYG Dir          = C:\Program Files\Haestad\PPKW\PPW\
    Inflow  HYG file = NONE STORED - UNDER DET 5  IN  2 YR
    Outflow HYG file = NONE STORED - UNDER DET 5  OUT 2 YR

    Pond Node   Data = UNDER DET 5
    Pond Volume Data = UNDER DET 5
    Pond Outlet Data = Outlet 1

    Infiltration =   3.0000 in/hr

    INITIAL CONDITIONS
    --------------------------------
    Starting WS Elev  =  1434.50 ft
    Starting Volume   =     .000 ac-ft
    Starting Outflow  =     .00 cfs
    Starting Infiltr. =     .00 cfs
    Starting Total Qout=    .00 cfs
    Time Increment    =    .1000 hrs


    INFLOW/OUTFLOW HYDROGRAPH SUMMARY
    ==========================================================
    Peak Inflow      =      .68 cfs    at    12.4000 hrs
    Peak Outflow     =      .00 cfs    at    11.7000 hrs
    Peak Infiltration =     .22 cfs    at    12.4000 hrs
    ----------------------------------------------------------
    Peak Elevation   =  1434.84 ft
    Peak Storage =         .025 ac-ft
    ==========================================================


    MASS BALANCE (ac-ft)
    -------------------------
  + Initial Vol  =       .000
  + HYG Vol IN   =       .101
  - Infiltration =       .101
  - HYG Vol OUT  =       .000
  - Retained Vol =       .000
                      ----------
    Unrouted Vol =       .000 ac-ft  (.000% of Inflow Volume)
```

```
Type.... Pond Routing Summary                              Page 10.05
Name.... UNDER DET 5  OUT    Tag: 10 YR                    Event: 10 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr    Tag: 10 YR
```

```
                    LEVEL POOL ROUTING SUMMARY

   HYG Dir          = C:\Program Files\Haestad\PPKW\PPW\
   Inflow  HYG file = NONE STORED - UNDER DET 5  IN  10 YR
   Outflow HYG file = NONE STORED - UNDER DET 5  OUT 10 YR


   Pond Node   Data = UNDER DET 5
   Pond Volume Data = UNDER DET 5
   Pond Outlet Data = Outlet 1


   Infiltration =   3.0000 in/hr

   INITIAL CONDITIONS
   --------------------------------
   Starting WS Elev  =  1434.50 ft
   Starting Volume   =      .000 ac-ft
   Starting Outflow  =      .00 cfs
   Starting Infiltr. =      .00 cfs
   Starting Total Qout=     .00 cfs
   Time Increment    =    .1000 hrs


   INFLOW/OUTFLOW HYDROGRAPH SUMMARY
   ================================================
   Peak Inflow      =      1.79 cfs   at   12.4000 hrs
   Peak Outflow     =       .28 cfs   at   13.2000 hrs
   Peak Infiltration =      .22 cfs   at   12.1000 hrs
   ------------------------------------------------
   Peak Elevation   =   1435.61 ft
   Peak Storage =        .080 ac-ft
   ================================================


   MASS BALANCE (ac-ft)
   --------------------------
 + Initial Vol  =        .000
 + HYG Vol IN   =        .236
 - Infiltration =        .178
 - HYG Vol OUT  =        .057
 - Retained Vol =        .000
                      ----------
   Unrouted Vol =       -.000 ac-ft  (.002% of Inflow Volume)
```

```
Type.... Pond Routing Summary                           Page 10.06
Name.... UNDER DET 5  OUT    Tag: 25 YR                  Event: 25 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr   Tag: 25 YR
```

```
                    LEVEL POOL ROUTING SUMMARY

   HYG Dir            = C:\Program Files\Haestad\PPKW\PPW\
   Inflow  HYG file = NONE STORED - UNDER DET 5  IN  25 YR
   Outflow HYG file = NONE STORED - UNDER DET 5  OUT 25 YR


   Pond Node   Data = UNDER DET 5
   Pond Volume Data = UNDER DET 5
   Pond Outlet Data = Outlet 1


   Infiltration =   3.0000 in/hr

   INITIAL CONDITIONS
   ---------------------------------
   Starting WS Elev  = 1434.50 ft
   Starting Volume   =     .000 ac-ft
   Starting Outflow  =     .00 cfs
   Starting Infiltr. =     .00 cfs
   Starting Total Qout=    .00 cfs
   Time Increment    =   .1000 hrs


   INFLOW/OUTFLOW HYDROGRAPH SUMMARY
   ==================================================
   Peak Inflow      =      2.46 cfs    at   12.4000 hrs
   Peak Outflow     =       .43 cfs    at   13.1000 hrs
   Peak Infiltration =      .22 cfs    at   12.0000 hrs
   --------------------------------------------------
   Peak Elevation   =   1436.10 ft
   Peak Storage =          .115 ac-ft
   ==================================================


   MASS BALANCE (ac-ft)
   ------------------------
 + Initial Vol  =        .000
 + HYG Vol IN   =        .318
 - Infiltration =        .203
 - HYG Vol OUT  =        .115
 - Retained Vol =        .000
                     ----------
   Unrouted Vol =       -.000 ac-ft   (.001% of Inflow Volume)
```

```
Type.... Pond Routing Summary                        Page 10.07
Name.... UNDER DET 5  OUT   Tag: 50 YR               Event: 50 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr   Tag: 50 YR
```

```
                      LEVEL POOL ROUTING SUMMARY

   HYG Dir         = C:\Program Files\Haestad\PPKW\PPW\
   Inflow  HYG file = NONE STORED - UNDER DET 5  IN  50 YR
   Outflow HYG file = NONE STORED - UNDER DET 5  OUT 50 YR

   Pond Node   Data = UNDER DET 5
   Pond Volume Data = UNDER DET 5
   Pond Outlet Data = Outlet 1

   Infiltration =   3.0000 in/hr

   INITIAL CONDITIONS
   -------------------------------------
   Starting WS Elev  =  1434.50 ft
   Starting Volume   =      .000 ac-ft
   Starting Outflow  =      .00 cfs
   Starting Infiltr. =      .00 cfs
   Starting Total Qout=     .00 cfs
   Time Increment    =     .1000 hrs


   INFLOW/OUTFLOW HYDROGRAPH SUMMARY
   =================================================
   Peak Inflow      =      3.08 cfs   at   12.4000 hrs
   Peak Outflow     =       .89 cfs   at   12.9000 hrs
   Peak Infiltration =      .22 cfs   at   11.8000 hrs
   -------------------------------------------------
   Peak Elevation   =  1436.42 ft
   Peak Storage =         .138 ac-ft
   =================================================


   MASS BALANCE (ac-ft)
   --------------------------
 + Initial Vol  =        .000
 + HYG Vol IN   =        .396
 - Infiltration =        .222
 - HYG Vol OUT  =        .174
 - Retained Vol =        .000
                    ----------
   Unrouted Vol =        .000 ac-ft  (.001% of Inflow Volume)
```

```
Type.... Pond Routing Summary                    Page 10.08
Name.... UNDER DET 5  OUT   Tag: 100 YR          Event: 100 yr
File.... C:\Program Files\Haestad\PPKW\PPW\3092 PRDA 5.PPW
Storm... TypeIII 24hr   Tag: 100 YR
```

```
                     LEVEL POOL ROUTING SUMMARY

     HYG Dir          = C:\Program Files\Haestad\PPKW\PPW\
     Inflow  HYG file = NONE STORED - UNDER DET 5  IN  100 YR
     Outflow HYG file = NONE STORED - UNDER DET 5  OUT 100 YR

     Pond Node    Data = UNDER DET 5
     Pond Volume  Data = UNDER DET 5
     Pond Outlet  Data = Outlet 1

     Infiltration =   3.0000 in/hr

     INITIAL CONDITIONS
     --------------------------------
     Starting WS Elev  =  1434.50 ft
     Starting Volume   =     .000 ac-ft
     Starting Outflow  =     .00 cfs
     Starting Infiltr. =     .00 cfs
     Starting Total Qout=    .00 cfs
     Time Increment    =    .1000 hrs


     INFLOW/OUTFLOW HYDROGRAPH SUMMARY
     =================================================================
     Peak Inflow       =      3.81 cfs   at    12.4000 hrs
     Peak Outflow      =      1.56 cfs   at    12.8000 hrs
     Peak Infiltration =       .22 cfs   at    11.6000 hrs
     -----------------------------------------------------------------
     Peak Elevation    =   1436.72 ft
     Peak Storage =           .159 ac-ft
     =================================================================


     MASS BALANCE (ac-ft)
     --------------------------
   + Initial Vol   =      .000
   + HYG Vol IN    =      .488
   - Infiltration  =      .240
   - HYG Vol OUT   =      .247
   - Retained Vol  =      .000
                       ----------
     Unrouted Vol  =      .000 ac-ft  (.001% of Inflow Volume)
```

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