Project BCB

SWMM 5.0 – Output

100 Year 6 Hour Storm

Drainage Project BCB (Magnolia Avenue)

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.0 (Build 5.0.005b)
--------------------------------------------------------------

Drainage Project BCB (Magnolia Avenue)
100 Year 6 Hour

***************
Analysis Options
***************
Flow Units ..... CFS
Infiltration Method ..... GREEN_AMPT
Flow Routing Method ..... KINWAVE
Starting Date ..... SEP-30-2005 22:00:00
Ending Date ..... OCT-03-2005 00:00:00
Report Time Step ..... 00:15:00
Wet Time Step ..... 00:15:00
Dry Time Step ..... 01:00:00
Routing Time Step ..... 30.00 sec
```

Runoff Quantity Continuity	Volume acre-feet	Depth inches
Total Precipitation	5.330	2.600
Evaporation Loss	0.000	0.000
Infiltration Loss	2.957	1.443
Surface Runoff	2.398	1.170
Final Surface Storage	0.000	0.000
Continuity Error (%)	-0.473	

Flow Routing Continuity	Volume acre-feet	Volume Mgallons
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	2.402	0.783
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	2.402	0.783
Surface Flooding	0.000	0.000
Evaporation Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	-0.010	

```
****************************
Subcatchment Runoff Summary
****************************
```

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Runoff Coeff
S1	2.600	0.000	0.000	1.411	1.207	0.464
S2	2.600	0.000	0.000	1.254	1.359	0.523
S3	2.600	0.000	0.000	1.555	1.057	0.406
S4	2.600	0.000	0.000	1.689	0.921	0.354
Totals	2.600	0.000	0.000	1.443	1.170	0.450

```
******************
Node Depth Summary
******************
```

	Average Depth	Maximum Depth	Maximum HGL	Time of Max Occurrence	Total Flooding	Total Minutes

Node	Feet	Feet	Feet	days hr:min	in/acre	Flooded
J1	0.00	0.12	207.12	0 14:45	0	0
J2	0.04	0.72	175.72	0 14:45	0	0
J3	0.05	0.86	168.86	0 14:45	0	0
OUT1	0.49	2.50	142.30	0 12:15	0	0

****
Conduit Flow Summary
****

Conduit	Maximum Flow CFS	Time of Max Occurrence days hr:min	Maximum Velocity ft/sec	Length Factor	Maximum /Design Flow	Total Minutes Surcharged
C1	1.98	0 14:45	5.79	1.00	0.10	0
C2	13.87	0 14:45	11.90	1.00	0.18	0
C3	20.57	0 14:45	13.85	1.00	0.25	0

****
Routing Time Step Summary
****
Minimum Time Step : 30.00 sec
Average Time Step : 30.00 sec
Maximum Time Step : 30.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 1.02

Analysis begun on: Thu Jun 15 09:10:00 2006
Total elapsed time: < 1 sec

Project BCB

SWMM 5.0 – Input

25 Year 6 Hour Storm

Drainage Project BCB (Magnolia Avenue)

```
[TITLE]
Drainage Project BCB (Magnolia Avenue)
25 Year 6 Hour

[OPTIONS]
 FLOW_UNITS            CFS
 INFILTRATION          GREEN_AMPT
 FLOW_ROUTING          KINWAVE
 START_DATE            09/30/2005
 START_TIME            22:00:00
 REPORT_START_DATE     09/30/2005
 REPORT_START_TIME     22:00:00
 END_DATE              10/03/2005
 END_TIME              00:00:00
 SWEEP_START           01/01
 SWEEP_END             12/31
 DRY_DAYS              0
 REPORT_STEP           00:15:00
 WET_STEP              00:15:00
 DRY_STEP              01:00:00
 ROUTING_STEP          0:00:30
 ALLOW_PONDING         NO
 INERTIAL_DAMPING      PARTIAL
 VARIABLE_STEP         0.75
 LENGTHENING_STEP      0
 MIN_SURFAREA          0
 NORMAL_FLOW_LIMITED   NO
 SKIP_STEADY_STATE     NO

[RAINGAGES]
;;                     Rain      Recd.  Snow   Data      Source          Station    Rain
;;Name                 Type      Freq.  Catch  Source    Name            ID         Units
;;--------------------------------------------------------------------------------------
;Rain gage does not exist. Use SD Hydrology Manual SCS
;Type II rainfall curve. Place rain gage in central location.
  R1                   CUMULATIVE 0:15   1.0    TIMESERIES 25yr6hr2.1max

[SUBCATCHMENTS]
;;                                                    Total     Pcnt.             Pcnt.     Curb      Snow
;;Name                 Raingage          Outlet       Area      Imperv    Width   Slope     Length    Pack
;;--------------------------------------------------------------------------------------------------------
  S1                   R1                J1           1.73      42        274     4         0
  S2                   R1                J2           10.60     50        474     4         0
  S3                   R1                J3           7.25      38        472     3         0
  S4                   R1                OUT1         5.02      33        278     3         0

[SUBAREAS]
;;Subcatchment       N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;--------------------------------------------------------------------------------------------
  S1                 0.011      0.15       0.05       0.05       100        OUTLET
  S2                 0.011      0.15       0.05       0.05       100        OUTLET
  S3                 0.011      0.15       0.05       0.05       100        OUTLET
  S4                 0.011      0.15       0.05       0.05       100        OUTLET

[INFILTRATION]
;;Subcatchment       Suction    HydCon     IMDmax
;;--------------------------------------------------
  S1                 2.4        1.18       0
  S2                 2.4        1.18       0
  S3                 2.4        1.18       0
  S4                 2.4        1.18       0

[JUNCTIONS]
;;                   Invert     Max.       Init.      Surcharge  Ponded
;;Name               Elev.      Depth      Depth      Depth      Area
;;--------------------------------------------------------------------------
;Gutter flow junction
  J1                 207        0          0          0          0
;Created Manhole
  J2                 175        9          0          0          0
;Created Manhole
  J3                 168        8          0          0          0
```

Drainage Project BCB (Magnolia Avenue)

```
[OUTFALLS]
;;                Invert     Outfall    Stage/Table      Tide
;;Name            Elev.      Type       Time Series      Gate
;;--------------------------------------------------------------
;Created Outlet/Manhole
  OUT1            139.8      FIXED      142.3 NO

[CONDUITS]
;;                Inlet            Outlet                      Manning    Inlet      Outlet     Init.      Ma
;;Name            Node             Node             Length     N          Height     Height     Flow       Fl
;;-------------------------------------------------------------------------------------------------------------
;Gutter Flow
  C1              J1               J2               650.7      0.013      0          0          0          0
;30" RCP - BCB
  C2              J2               J3               197.78     0.013      0          0          0          0
;30" RCP - BCB
  C3              J3               OUT1             723.48     0.013      0          0          0          0

[XSECTIONS]
;;Link            Type         Geom1      Geom2      Geom3      Geom4      Barrels
;;-------------------------------------------------------------------------------
  C1              RECT_OPEN    0.5        3          0          0          1
  C2              CIRCULAR     2.5        0          0          0          1
  C3              CIRCULAR     2.5        0          0          0          1

[TIMESERIES]
;;Name            Date       Time       Value
;;-----------------------------------------------
;100 year 6 hr SCS Type B Design Storm Max Precip = 2.6 inches
  100year6hrCumulative 10/01/2005 10:00      0.0
  100year6hrCumulative            10:15      0.0468
  100year6hrCumulative            10:30      0.091
  100year6hrCumulative            10:45      0.1508
  100year6hrCumulative            11:00      0.208
  100year6hrCumulative            11:15      0.2808
  100year6hrCumulative            11:30      0.351
  100year6hrCumulative            11:45      0.4758
  100year6hrCumulative            12:00      0.598
  100year6hrCumulative            12:15      1.079
  100year6hrCumulative            12:30      1.56
  100year6hrCumulative            12:45      1.69
  100year6hrCumulative            13:00      1.82
  100year6hrCumulative            13:15      1.924
  100year6hrCumulative            13:30      2.028
  100year6hrCumulative            13:45      2.1008
  100year6hrCumulative            14:00      2.171
  100year6hrCumulative            14:15      2.2308
  100year6hrCumulative            14:30      2.288
  100year6hrCumulative            14:45      2.34
  100year6hrCumulative            15:00      2.392
  100year6hrCumulative            15:15      2.444
  100year6hrCumulative            15:30      2.496
  100year6hrCumulative            15:45      2.548
  100year6hrCumulative            16:00      2.6

;SCS II Storm SD Hydrology Manual - 2.1 Cumulative 6 Hour 25 yr Storm
  25yr6hr2.1max                   10:00      0
  25yr6hr2.1max                   10:15      0.0378
  25yr6hr2.1max                   10:30      0.0735
  25yr6hr2.1max                   10:45      0.1218
  25yr6hr2.1max                   11:00      0.168
  25yr6hr2.1max                   11:15      0.2268
  25yr6hr2.1max                   11:30      0.2835
  25yr6hr2.1max                   11:45      0.3843
  25yr6hr2.1max                   12:00      0.483
  25yr6hr2.1max                   12:15      0.8715
  25yr6hr2.1max                   12:30      1.26
  25yr6hr2.1max                   12:45      1.365
  25yr6hr2.1max                   13:00      1.47
  25yr6hr2.1max                   13:15      1.554
  25yr6hr2.1max                   13:30      1.638
```

```
 25yr6hr2.1max                13:45      1.6968
 25yr6hr2.1max                14:00      1.7535
 25yr6hr2.1max                14:15      1.8018
 25yr6hr2.1max                14:30      1.848
 25yr6hr2.1max                14:45      1.89
 25yr6hr2.1max                15:00      1.932
 25yr6hr2.1max                15:15      1.974
 25yr6hr2.1max                15:30      2.016
 25yr6hr2.1max                15:45      2.058
 25yr6hr2.1max                16:00      2.1

[REPORT]
 INPUT      NO
 CONTROLS   NO

[OPTIONS]
 TEMPDIR    "C:\Carlsbad\DMP\"
```

Project BCB

SWMM 5.0 – Output

25 Year 6 Hour Storm

Drainage Project BCB (Magnolia Avenue)

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.0 (Build 5.0.005b)

Drainage Project BCB (Magnolia Avenue)
25 Year 6 Hour

****
Analysis Options
****

Flow Units	CFS
Infiltration Method	GREEN_AMPT
Flow Routing Method	KINWAVE
Starting Date	SEP-30-2005 22:00:00
Ending Date	OCT-03-2005 00:00:00
Report Time Step	00:15:00
Wet Time Step	00:15:00
Dry Time Step	01:00:00
Routing Time Step	30.00 sec

Runoff Quantity Continuity	Volume acre-feet	Depth inches
Total Precipitation	4.305	2.100
Evaporation Loss	0.000	0.000
Infiltration Loss	2.462	1.201
Surface Runoff	1.865	0.910
Final Surface Storage	0.000	0.000
Continuity Error (%)	-0.525	

Flow Routing Continuity	Volume acre-feet	Volume Mgallons
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	1.867	0.608
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	1.867	0.608
Surface Flooding	0.000	0.000
Evaporation Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	-0.011	

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Runoff Coeff
S1	2.100	0.000	0.000	1.199	0.917	0.437
S2	2.100	0.000	0.000	1.044	1.068	0.509
S3	2.100	0.000	0.000	1.294	0.816	0.389
S4	2.100	0.000	0.000	1.400	0.709	0.338
Totals	2.100	0.000	0.000	1.201	0.910	0.433

****
Node Depth Summary
****

	Average Depth	Maximum Depth	Maximum HGL	Time of Max Occurrence	Total Flooding	Total Minutes

Drainage Project BCB (Magnolia Avenue)

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.0 (Build 5.0.005b)

Drainage Project BCB (Magnolia Avenue)
25 Year 6 Hour

****
Analysis Options
****

Flow Units	CFS
Infiltration Method	GREEN_AMPT
Flow Routing Method	KINWAVE
Starting Date	SEP-30-2005 22:00:00
Ending Date	OCT-03-2005 00:00:00
Report Time Step	00:15:00
Wet Time Step	00:15:00
Dry Time Step	01:00:00
Routing Time Step	30.00 sec

Runoff Quantity Continuity	Volume acre-feet	Depth inches
Total Precipitation	4.305	2.100
Evaporation Loss	0.000	0.000
Infiltration Loss	2.462	1.201
Surface Runoff	1.865	0.910
Final Surface Storage	0.000	0.000
Continuity Error (%)	-0.525	

Flow Routing Continuity	Volume acre-feet	Volume Mgallons
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	1.867	0.608
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	1.867	0.608
Surface Flooding	0.000	0.000
Evaporation Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	-0.011	

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Runoff Coeff
S1	2.100	0.000	0.000	1.199	0.917	0.437
S2	2.100	0.000	0.000	1.044	1.068	0.509
S3	2.100	0.000	0.000	1.294	0.816	0.389
S4	2.100	0.000	0.000	1.400	0.709	0.338
Totals	2.100	0.000	0.000	1.201	0.910	0.433

****
Node Depth Summary
****

	Average Depth	Maximum Depth	Maximum HGL	Time of Max Occurrence	Total Flooding	Total Minutes

Drainage Project BCB (Magnolia Avenue)

Node	Feet	Feet	Feet	days	hr:min	in/acre	Flooded
J1	0.00	0.09	207.09	0	12:45	0	0
J2	0.03	0.61	175.61	0	12:45	0	0
J3	0.04	0.72	168.72	0	12:44	0	0
OUT1	0.49	2.50	142.30	0	10:15	0	0

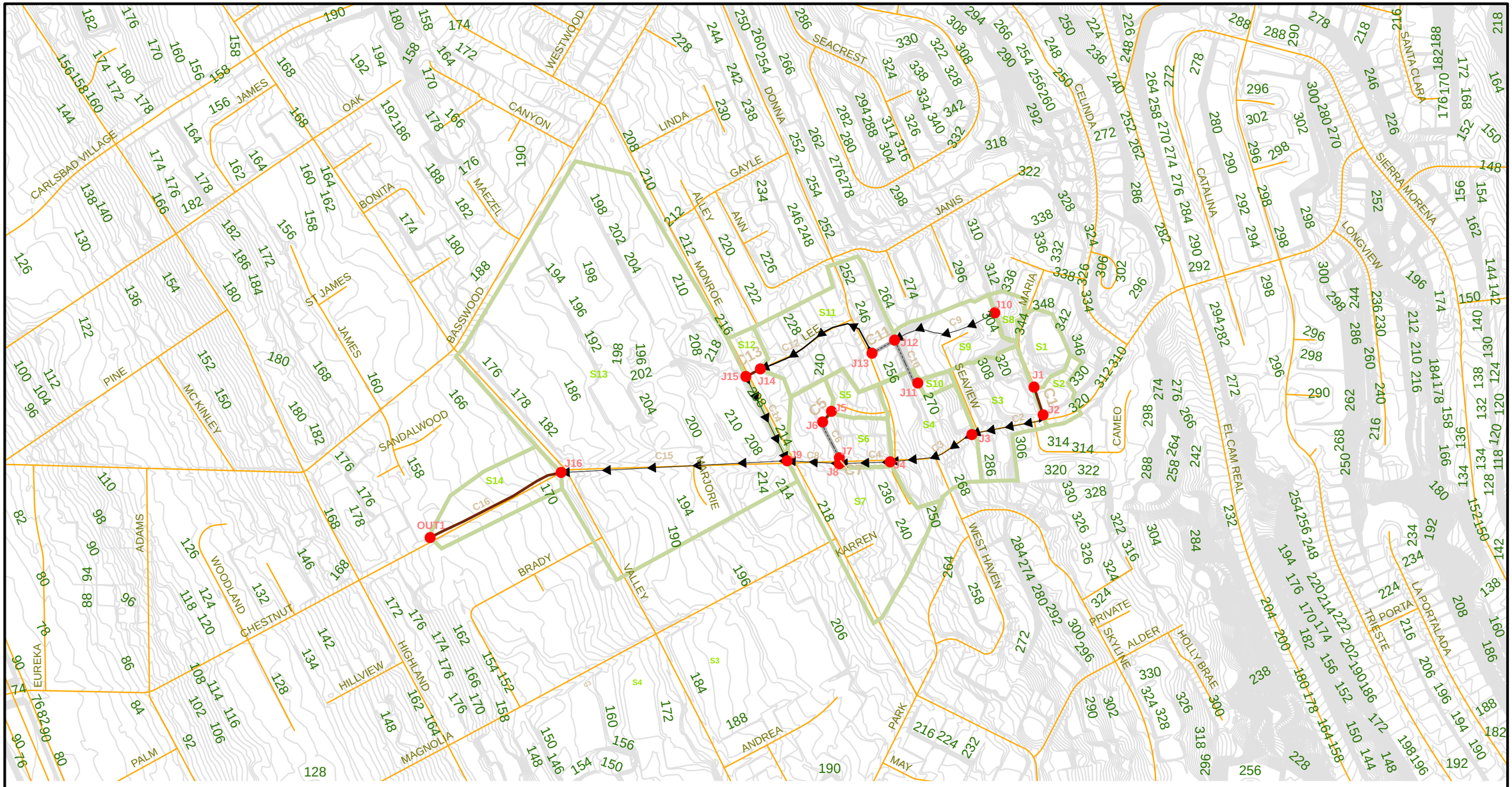
****
Conduit Flow Summary
****

Conduit	Maximum Flow CFS	Time of Max Occurrence days	hr:min	Maximum Velocity ft/sec	Length Factor	Maximum /Design Flow	Total Minutes Surcharged
C1	1.34	0	12:45	4.98	1.00	0.07	0
C2	10.08	0	12:45	10.89	1.00	0.13	0
C3	14.78	0	12:45	12.62	1.00	0.18	0

****
Routing Time Step Summary
****
Minimum Time Step : 30.00 sec
Average Time Step : 30.00 sec
Maximum Time Step : 30.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 1.01

Analysis begun on: Thu Jun 15 09:09:37 2006
Total elapsed time: < 1 sec

Project BCC
Chestnut Avenue Project



LEGEND

- JUNCTIONS
- CONDUITS
- GUTTER FLOW
- SUBCATCHMENTS
- CONTOURS
- ROADS

PROJECT BCC

PROJECT LOCATION

CHESTNUT AVENUE PROJECT
CARLSBAD, CALIFORNIA

DATE	PROJECT NUMBER
NOV 2007	128290

BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA

N

W E

S

0 250 500 1,000

Feet

LEGEND

- JUNCTIONS
- GUTTER FLOW
- CONDUITS
- SUBCATCHMENTS
- ROADS

PROJECT BCC

PROJECT LOCATION

CHESTNUT AVENUE PROJECT
CARLSBAD, CALIFORNIA

DATE	PROJECT NUMBER
NOV 2007	128290

BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA

Project BCC

SWMM 5.0 – Input

100 Year 6 Hour Storm

Drainage Project BCC (Chestnut Avenue)

```
[TITLE]
Drainage Project BCC (Chestnut Avenue)
100 Year 6 Hour Storm

[OPTIONS]
 FLOW_UNITS            CFS
 INFILTRATION          GREEN_AMPT
 FLOW_ROUTING          KINWAVE
 START_DATE            09/30/2005
 START_TIME            22:00:00
 REPORT_START_DATE     09/30/2005
 REPORT_START_TIME     22:00:00
 END_DATE              10/02/2005
 END_TIME              00:00:00
 SWEEP_START           01/01
 SWEEP_END             12/31
 DRY_DAYS              0
 REPORT_STEP           00:15:00
 WET_STEP              00:15:00
 DRY_STEP              01:00:00
 ROUTING_STEP          0:00:30
 ALLOW_PONDING         NO
 INERTIAL_DAMPING      PARTIAL
 VARIABLE_STEP         0.75
 LENGTHENING_STEP      0
 MIN_SURFAREA          0
 NORMAL_FLOW_LIMITED   NO
 SKIP_STEADY_STATE     NO

[RAINGAGES]
;;                      Rain      Recd.  Snow  Data       Source           Station    Rain
;;Name                  Type      Freq.  Catch Source     Name             ID         Units
;;--------------------------------------------------------------------------------------
  RG1                   CUMULATIVE 0:15   1.0   TIMESERIES 100yr6hr

[SUBCATCHMENTS]
;;                                                        Total     Pcnt.                Pcnt.     Curb      Snow
;;Name                  Raingage          Outlet          Area      Imperv    Width      Slope     Length    Pack
;;--------------------------------------------------------------------------------------------------------------
  S1                    RG1               J1              1.76      46        207        6.8       0
  S2                    RG1               J2              1.11      44        146        7.9       0
  S3                    RG1               J3              4.44      40        386        9.2       0
  S4                    RG1               J4              5.57      41        485        9.2       0
  S5                    RG1               J5              1.13      30        176        7.1       0
  S6                    RG1               J8              1.8       50        238        7.3       0
  S7                    RG1               J9              9.35      48        491        5.1       0
  S8                    RG1               J10             0.7       25        173        16        0
  S9                    RG1               J12             3.59      36        272        10.4      0
  S10                   RG1               J11             .33       38        80         10        0
  S11                   RG1               J14             7.37      35        431        7         0
  S12                   RG1               J9              1.89      66        126        1.2       0
  S13                   RG1               J16             45.86     43        1272       1.9       0
  S14                   RG1               OUT1            3.75      45        233        2.3       0

[SUBAREAS]
;;Subcatchment         N-Imperv  N-Perv    S-Imperv  S-Perv    PctZero   RouteTo    PctRouted
;;--------------------------------------------------------------------------------------------
  S1                    0.011     0.15      0.05      0.05      100       OUTLET
  S2                    0.011     0.15      0.05      0.05      100       OUTLET
  S3                    0.011     0.15      0.05      0.05      100       OUTLET
  S4                    0.011     0.15      0.05      0.05      100       OUTLET
  S5                    0.011     0.15      0.05      0.05      100       OUTLET
  S6                    0.011     0.15      0.05      0.05      100       OUTLET
  S7                    0.011     0.15      0.05      0.05      100       OUTLET
  S8                    0.011     0.15      0.05      0.05      100       OUTLET
  S9                    0.011     0.15      0.05      0.05      100       OUTLET
  S10                   0.011     0.15      0.05      0.05      100       OUTLET
  S11                   0.011     0.15      0.05      0.05      100       OUTLET
  S12                   0.011     0.15      0.05      0.05      100       OUTLET
  S13                   0.011     0.15      0.05      0.05      100       OUTLET
  S14                   0.011     0.15      0.05      0.05      100       OUTLET
```

[INFILTRATION]

;;Subcatchment	Suction	HydCon	IMDmax
S1	2.4	1.18	0
S2	2.4	1.18	0
S3	2.4	1.18	0
S4	2.4	1.18	0
S5	2.4	1.18	0
S6	2.4	1.18	0
S7	2.4	1.18	0
S8	2.4	1.18	0
S9	2.4	1.18	0
S10	2.4	1.18	0
S11	2.4	1.18	0
S12	2.4	1.18	0
S13	2.4	1.18	0
S14	2.4	1.18	0

[JUNCTIONS]

;;Name	Invert Elev.	Max. Depth	Init. Depth	Surcharge Depth	Ponded Area
J1	324	0	0	0	0
J2	312	0	0	0	0
J3	288	0	0	0	0
J4	246	0	0	0	0
J5	233	0	0	0	0
J6	230	0	0	0	0
J7	229	0	0	0	0
J8	228.7	0	0	0	0
J9	213	0	0	0	0
J10	306	0	0	0	0
J11	273	0	0	0	0
J12	264	0	0	0	0
J13	256	0	0	0	0
J14	218	0	0	0	0
J15	216	0	0	0	0
J16	174.5	0	0	0	0

[OUTFALLS]

;;Name	Invert Elev.	Outfall Type	Stage/Table Time Series	Tide Gate
OUT1	148.5	FIXED	151.5 NO	

[CONDUITS]

;;Name	Inlet Node	Outlet Node	Length	Manning N	Inlet Height	Outlet Height	Init. Flow	Ma Fl
;RCP - 18" C1	J1	J2	152	0.013	0	0	0	0
;Gutter C2	J2	J3	392	0.013	0	0	0	0
;Gutter C3	J3	J4	456	0.013	0	0	0	0
;Gutter C4	J4	J8	263	0.013	0	0	0	0
;RCP - 12" C5	J5	J6	71	0.013	0	0	0	0
;Concrete Ditch 2' x 1' C6	J6	J7	206	0.013	0	0	0	0
;Gutter C7	J7	J8	30	0.013	0	0	0	0
;Gutter C8	J8	J9	269	0.013	0	0	0	0
;Gutter C9	J10	J12	558	0.013	0	0	0	0
;Concrete Ditch 2'x1' C10	J11	J12	262	0.013	0	0	0	0
;Concrete Ditch 2'x1' C11	J12	J13	135	0.013	0	0	0	0
;Gutter								

```
  C12               J13             J14             720         0.013     0         0         0         0
;RCP 24"
  C13               J14             J15             85          0.013     0         0         0         0
;Gutter
  C15               J9              J16             1167        0.013     0         0         0         0
;Gutter
  C14               J15             J9              482         0.013     0         0         0         0
;RCP - 36" (BCC)
  C16               J16             OUT1            756         0.013     0         0         0         0

[XSECTIONS]
;;Link             Type            Geom1           Geom2       Geom3     Geom4     Barrels
;;-------------------------------------------------------------------------------------
  C1                CIRCULAR        1.5             0           0         0         1
  C2                RECT_OPEN       0.5             5           0         0         1
  C3                RECT_OPEN       0.5             5           0         0         1
  C4                RECT_OPEN       0.5             30          0         0         1
  C5                CIRCULAR        1               0           0         0         1
  C6                TRAPEZOIDAL     1               2           0.5       0.5       1
  C7                RECT_OPEN       0.5             5           0         0         1
  C8                RECT_OPEN       0.5             30          0         0         1
  C9                RECT_OPEN       0.5             5           0         0         1
  C10               RECT_OPEN       1               2           0         0         1
  C11               RECT_OPEN       1               2           0         0         1
  C12               RECT_OPEN       0.5             5           0         0         1
  C13               CIRCULAR        2               0           0         0         1
  C15               RECT_OPEN       0.5             30          0         0         1
  C14               RECT_OPEN       0.5             30          0         0         1
  C16               CIRCULAR        3               0           0         0         1

[TIMESERIES]
;;Name             Date            Time            Value
;;-----------------------------------------------
;100 year 6 hour SCS Type Design Storm Max Precip = 2.6 inches
  100yr6hr          10/01/2005      10:00           0.0
  100yr6hr                          10:15           0.0468
  100yr6hr                          10:30           0.091
  100yr6hr                          10:45           0.1508
  100yr6hr                          11:00           0.208
  100yr6hr                          11:15           0.2808
  100yr6hr                          11:30           0.351
  100yr6hr                          11:45           0.4758
  100yr6hr                          12:00           0.598
  100yr6hr                          12:15           1.079
  100yr6hr                          12:30           1.56
  100yr6hr                          12:45           1.69
  100yr6hr                          13:00           1.82
  100yr6hr                          13:15           1.924
  100yr6hr                          13:30           2.028
  100yr6hr                          13:45           2.1008
  100yr6hr                          14:00           2.171
  100yr6hr                          14:15           2.2308
  100yr6hr                          14:30           2.288
  100yr6hr                          14:45           2.34
  100yr6hr                          15:00           2.392
  100yr6hr                          15:15           2.444
  100yr6hr                          15:30           2.496
  100yr6hr                          15:45           2.548
  100yr6hr                          16:00           2.6

[REPORT]
 INPUT     NO
 CONTROLS  NO

[OPTIONS]
 TEMPDIR   "C:\Carlsbad\DMP\"
```

```
  C12               J13             J14             720         0.013     0         0         0         0
;RCP 24"
  C13               J14             J15             85          0.013     0         0         0         0
;Gutter
  C15               J9              J16             1167        0.013     0         0         0         0
;Gutter
  C14               J15             J9              482         0.013     0         0         0         0
;RCP - 36" (BCC)
  C16               J16             OUT1            756         0.013     0         0         0         0

[XSECTIONS]
;;Link             Type            Geom1           Geom2       Geom3     Geom4     Barrels
;;-------------------------------------------------------------------------------------
  C1                CIRCULAR        1.5             0           0         0         1
  C2                RECT_OPEN       0.5             5           0         0         1
  C3                RECT_OPEN       0.5             5           0         0         1
  C4                RECT_OPEN       0.5             30          0         0         1
  C5                CIRCULAR        1               0           0         0         1
  C6                TRAPEZOIDAL     1               2           0.5       0.5       1
  C7                RECT_OPEN       0.5             5           0         0         1
  C8                RECT_OPEN       0.5             30          0         0         1
  C9                RECT_OPEN       0.5             5           0         0         1
  C10               RECT_OPEN       1               2           0         0         1
  C11               RECT_OPEN       1               2           0         0         1
  C12               RECT_OPEN       0.5             5           0         0         1
  C13               CIRCULAR        2               0           0         0         1
  C15               RECT_OPEN       0.5             30          0         0         1
  C14               RECT_OPEN       0.5             30          0         0         1
  C16               CIRCULAR        3               0           0         0         1

[TIMESERIES]
;;Name             Date            Time            Value
;;-----------------------------------------------
;100 year 6 hour SCS Type Design Storm Max Precip = 2.6 inches
  100yr6hr          10/01/2005      10:00           0.0
  100yr6hr                          10:15           0.0468
  100yr6hr                          10:30           0.091
  100yr6hr                          10:45           0.1508
  100yr6hr                          11:00           0.208
  100yr6hr                          11:15           0.2808
  100yr6hr                          11:30           0.351
  100yr6hr                          11:45           0.4758
  100yr6hr                          12:00           0.598
  100yr6hr                          12:15           1.079
  100yr6hr                          12:30           1.56
  100yr6hr                          12:45           1.69
  100yr6hr                          13:00           1.82
  100yr6hr                          13:15           1.924
  100yr6hr                          13:30           2.028
  100yr6hr                          13:45           2.1008
  100yr6hr                          14:00           2.171
  100yr6hr                          14:15           2.2308
  100yr6hr                          14:30           2.288
  100yr6hr                          14:45           2.34
  100yr6hr                          15:00           2.392
  100yr6hr                          15:15           2.444
  100yr6hr                          15:30           2.496
  100yr6hr                          15:45           2.548
  100yr6hr                          16:00           2.6

[REPORT]
 INPUT     NO
 CONTROLS  NO

[OPTIONS]
 TEMPDIR   "C:\Carlsbad\DMP\"
```

Project BCC

SWMM 5.0 – Output

100 Year 6 Hour Storm

Drainage Project BCC (Chestnut Avenue)

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.0 (Build 5.0.005b)
--------------------------------------------------------------

Drainage Project BCC (Chestnut Avenue)
100 Year 6 Hour  Storm

***************
Analysis Options
***************
Flow Units ..............  CFS
Infiltration Method ......  GREEN_AMPT
Flow Routing Method ......  KINWAVE
Starting Date ............  SEP-30-2005 22:00:00
Ending Date ..............  OCT-02-2005 00:00:00
Report Time Step .........  00:15:00
Wet Time Step ............  00:15:00
Dry Time Step ............  01:00:00
Routing Time Step ........  30.00 sec
```

Runoff Quantity Continuity	Volume acre-feet	Depth inches
Total Precipitation	19.207	2.600
Evaporation Loss	0.000	0.000
Infiltration Loss	10.628	1.439
Surface Runoff	8.679	1.175
Final Surface Storage	0.002	0.000
Continuity Error (%)	-0.528	

Flow Routing Continuity	Volume acre-feet	Volume Mgallons
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	8.693	2.833
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	8.697	2.834
Surface Flooding	0.000	0.000
Evaporation Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	-0.045	

Subcatchment Runoff Summary

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Runoff Coeff
S1	2.600	0.000	0.000	1.312	1.306	0.502
S2	2.600	0.000	0.000	1.355	1.265	0.486
S3	2.600	0.000	0.000	1.469	1.147	0.441
S4	2.600	0.000	0.000	1.443	1.172	0.451
S5	2.600	0.000	0.000	1.699	0.923	0.355
S6	2.600	0.000	0.000	1.207	1.412	0.543
S7	2.600	0.000	0.000	1.296	1.316	0.506
S8	2.600	0.000	0.000	1.808	0.854	0.328
S9	2.600	0.000	0.000	1.573	1.042	0.401
S10	2.600	0.000	0.000	1.497	1.154	0.444
S11	2.600	0.000	0.000	1.618	0.993	0.382
S12	2.600	0.000	0.000	0.849	1.767	0.680
S13	2.600	0.000	0.000	1.457	1.154	0.444
S14	2.600	0.000	0.000	1.381	1.231	0.473

Totals	2.600	0.000	0.000	1.439	1.175	0.452

****
Node Depth Summary
****

Node	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Total Flooding in/acre	Total Minutes Flooded
J1	0.03	0.27	324.27	0 14:45	0	0
J2	0.03	0.27	312.27	0 14:45	0	0
J3	0.01	0.17	288.17	0 14:45	0	0
J4	0.01	0.16	246.16	0 14:45	0	0
J5	0.02	0.27	233.27	0 14:45	0	0
J6	0.02	0.26	230.26	0 14:45	0	0
J7	0.01	0.21	229.21	0 14:45	0	0
J8	0.01	0.10	228.80	0 14:45	0	0
J9	0.02	0.20	213.20	0 14:45	0	0
J10	0.00	0.04	306.04	0 14:45	0	0
J11	0.00	0.06	273.06	0 14:45	0	0
J12	0.02	0.25	264.25	0 14:45	0	0
J13	0.02	0.25	256.25	0 14:45	0	0
J14	0.07	0.79	218.79	0 14:45	0	0
J15	0.07	0.79	216.79	0 14:45	0	0
J16	0.18	1.80	176.30	0 14:45	0	0
OUT1	1.59	3.00	151.50	0 12:15	0	0

****
Conduit Flow Summary
****

Conduit	Maximum Flow CFS	Time of Max Occurrence days hr:min	Maximum Velocity ft/sec	Length Factor	Maximum /Design Flow	Total Minutes Surcharged
C1	2.12	0 14:45	9.71	1.00	0.07	0
C2	3.44	0 14:45	6.32	1.00	0.09	0
C3	8.25	0 14:45	10.03	1.00	0.17	0
C4	14.37	0 14:45	5.66	1.00	0.05	0
C5	1.13	0 14:45	6.75	1.00	0.15	0
C6	1.12	0 14:45	2.56	1.00	0.08	0
C7	1.12	0 14:46	2.34	1.00	0.07	0
C8	17.74	0 14:45	5.93	1.00	0.07	0
C9	0.71	0 14:45	3.65	1.00	0.02	0
C10	0.39	0 14:45	3.19	1.00	0.01	0
C11	4.71	0 14:45	9.48	1.00	0.13	0
C12	4.70	0 14:46	6.84	1.00	0.13	0
C13	11.44	0 14:45	9.90	1.00	0.33	0
C15	41.81	0 14:46	7.09	1.00	0.22	0
C14	11.37	0 14:46	2.57	1.00	0.14	0
C16	82.91	0 14:45	18.78	1.00	0.67	0

****
Routing Time Step Summary
****
Minimum Time Step : 30.00 sec
Average Time Step : 30.00 sec
Maximum Time Step : 30.00 sec
Percent in Steady State : 0.00
Average Iterations per Step : 1.04

Analysis begun on: Fri Jun 16 07:42:47 2006
Total elapsed time: < 1 sec

Project BCC

SWMM 5.0 – Input

25 Year 6 Hour Storm

Drainage Project BCC (Chestnut Avenue)

```
[TITLE]
Drainage Project BCC (Chestnut Avenue)
25 Year 6 Hour Storm

[OPTIONS]
 FLOW_UNITS            CFS
 INFILTRATION          GREEN_AMPT
 FLOW_ROUTING          KINWAVE
 START_DATE            09/30/2005
 START_TIME            22:00:00
 REPORT_START_DATE     09/30/2005
 REPORT_START_TIME     22:00:00
 END_DATE              10/02/2005
 END_TIME              00:00:00
 SWEEP_START           01/01
 SWEEP_END             12/31
 DRY_DAYS              0
 REPORT_STEP           00:15:00
 WET_STEP              00:15:00
 DRY_STEP              01:00:00
 ROUTING_STEP          0:00:30
 ALLOW_PONDING         NO
 INERTIAL_DAMPING      PARTIAL
 VARIABLE_STEP         0.75
 LENGTHENING_STEP      0
 MIN_SURFAREA          0
 NORMAL_FLOW_LIMITED   NO
 SKIP_STEADY_STATE     NO

[RAINGAGES]
;;                Rain      Recd.   Snow   Data       Source           Station    Rain
;;Name            Type      Freq.   Catch  Source     Name             ID         Units
;;--------------------------------------------------------------------------------------
  RG1             CUMULATIVE 0:15   1.0    TIMESERIES 25yr6hr2.1Cum

[SUBCATCHMENTS]
;;                                                    Total     Pcnt.                Pcnt.     Curb      Snow
;;Name            Raingage          Outlet           Area      Imperv    Width      Slope     Length    Pack
;;--------------------------------------------------------------------------------------------------------
  S1              RG1               J1               1.76      46        207        6.8       0
  S2              RG1               J2               1.11      44        146        7.9       0
  S3              RG1               J3               4.44      40        386        9.2       0
  S4              RG1               J4               5.57      41        485        9.2       0
  S5              RG1               J5               1.13      30        176        7.1       0
  S6              RG1               J8               1.8       50        238        7.3       0
  S7              RG1               J9               9.35      48        491        5.1       0
  S8              RG1               J10              0.7       25        173        16        0
  S9              RG1               J12              3.59      36        272        10.4      0
  S10             RG1               J11              .33       38        80         10        0
  S11             RG1               J14              7.37      35        431        7         0
  S12             RG1               J9               1.89      66        126        1.2       0
  S13             RG1               J16              45.86     43        1272       1.9       0
  S14             RG1               OUT1             3.75      45        233        2.3       0

[SUBAREAS]
;;Subcatchment     N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;--------------------------------------------------------------------------------------------
  S1              0.011      0.15       0.05       0.05       100        OUTLET
  S2              0.011      0.15       0.05       0.05       100        OUTLET
  S3              0.011      0.15       0.05       0.05       100        OUTLET
  S4              0.011      0.15       0.05       0.05       100        OUTLET
  S5              0.011      0.15       0.05       0.05       100        OUTLET
  S6              0.011      0.15       0.05       0.05       100        OUTLET
  S7              0.011      0.15       0.05       0.05       100        OUTLET
  S8              0.011      0.15       0.05       0.05       100        OUTLET
  S9              0.011      0.15       0.05       0.05       100        OUTLET
  S10             0.011      0.15       0.05       0.05       100        OUTLET
  S11             0.011      0.15       0.05       0.05       100        OUTLET
  S12             0.011      0.15       0.05       0.05       100        OUTLET
  S13             0.011      0.15       0.05       0.05       100        OUTLET
  S14             0.011      0.15       0.05       0.05       100        OUTLET
```

Drainage Project BCC (Chestnut Avenue)

[INFILTRATION]

;;Subcatchment	Suction	HydCon	IMDmax
S1	2.4	1.18	0
S2	2.4	1.18	0
S3	2.4	1.18	0
S4	2.4	1.18	0
S5	2.4	1.18	0
S6	2.4	1.18	0
S7	2.4	1.18	0
S8	2.4	1.18	0
S9	2.4	1.18	0
S10	2.4	1.18	0
S11	2.4	1.18	0
S12	2.4	1.18	0
S13	2.4	1.18	0
S14	2.4	1.18	0

[JUNCTIONS]

;;Name	Invert Elev.	Max. Depth	Init. Depth	Surcharge Depth	Ponded Area
J1	324	0	0	0	0
J2	312	0	0	0	0
J3	288	0	0	0	0
J4	246	0	0	0	0
J5	233	0	0	0	0
J6	230	0	0	0	0
J7	229	0	0	0	0
J8	228.7	0	0	0	0
J9	213	0	0	0	0
J10	306	0	0	0	0
J11	273	0	0	0	0
J12	264	0	0	0	0
J13	256	0	0	0	0
J14	218	0	0	0	0
J15	216	0	0	0	0
J16	174.5	0	0	0	0

[OUTFALLS]

;;Name	Invert Elev.	Outfall Type	Stage/Table Time Series	Tide Gate
OUT1	148.5	FIXED	151.5 NO	

[CONDUITS]

;;Name	Inlet Node	Outlet Node	Length	Manning N	Inlet Height	Outlet Height	Init. Flow	Ma Fl
;RCP - 18"								
C1	J1	J2	152	0.013	0	0	0	0
;Gutter								
C2	J2	J3	392	0.013	0	0	0	0
;Gutter								
C3	J3	J4	456	0.013	0	0	0	0
;Gutter								
C4	J4	J8	263	0.013	0	0	0	0
;RCP - 12"								
C5	J5	J6	71	0.013	0	0	0	0
;Concrete Ditch 2' x 1'								
C6	J6	J7	206	0.013	0	0	0	0
;Gutter								
C7	J7	J8	30	0.013	0	0	0	0
;Gutter								
C8	J8	J9	269	0.013	0	0	0	0
;Gutter								
C9	J10	J12	558	0.013	0	0	0	0
;Concrete Ditch 2'x1'								
C10	J11	J12	262	0.013	0	0	0	0
;Concrete Ditch 2'x1'								
C11	J12	J13	135	0.013	0	0	0	0
;Gutter								

C12	J13	J14	720	0.013	0	0	0	0
;RCP 24"								
C13	J14	J15	85	0.013	0	0	0	0
;Gutter								
C15	J9	J16	1167	0.013	0	0	0	0
;Gutter								
C14	J15	J9	482	0.013	0	0	0	0
;RCP - 36" (BCC)								
C16	J16	OUT1	756	0.013	0	0	0	0

[XSECTIONS]

;;Link	Type	Geom1	Geom2	Geom3	Geom4	Barrels
C1	CIRCULAR	1.5	0	0	0	1
C2	RECT_OPEN	0.5	5	0	0	1
C3	RECT_OPEN	0.5	5	0	0	1
C4	RECT_OPEN	0.5	30	0	0	1
C5	CIRCULAR	1	0	0	0	1
C6	TRAPEZOIDAL	1	2	0.5	0.5	1
C7	RECT_OPEN	0.5	5	0	0	1
C8	RECT_OPEN	0.5	30	0	0	1
C9	RECT_OPEN	0.5	5	0	0	1
C10	RECT_OPEN	1	2	0	0	1
C11	RECT_OPEN	1	2	0	0	1
C12	RECT_OPEN	0.5	5	0	0	1
C13	CIRCULAR	2	0	0	0	1
C15	RECT_OPEN	0.5	30	0	0	1
C14	RECT_OPEN	0.5	30	0	0	1
C16	CIRCULAR	3	0	0	0	1

[TIMESERIES]

;;Name	Date	Time	Value
;100 year 6 hour SCS Type Design Storm Max Precip = 2.6 inches			
100yr6hr	10/01/2005	10:00	0.0
100yr6hr		10:15	0.0468
100yr6hr		10:30	0.091
100yr6hr		10:45	0.1508
100yr6hr		11:00	0.208
100yr6hr		11:15	0.2808
100yr6hr		11:30	0.351
100yr6hr		11:45	0.4758
100yr6hr		12:00	0.598
100yr6hr		12:15	1.079
100yr6hr		12:30	1.56
100yr6hr		12:45	1.69
100yr6hr		13:00	1.82
100yr6hr		13:15	1.924
100yr6hr		13:30	2.028
100yr6hr		13:45	2.1008
100yr6hr		14:00	2.171
100yr6hr		14:15	2.2308
100yr6hr		14:30	2.288
100yr6hr		14:45	2.34
100yr6hr		15:00	2.392
100yr6hr		15:15	2.444
100yr6hr		15:30	2.496
100yr6hr		15:45	2.548
100yr6hr		16:00	2.6
;SCS II Storm SD Hydrology Manual - 2.1 Cumulative 6 Hour 25 yr Storm			
25yr6hr2.1Cum		10:00	0
25yr6hr2.1Cum		10:15	0.0378
25yr6hr2.1Cum		10:30	0.0735
25yr6hr2.1Cum		10:45	0.1218
25yr6hr2.1Cum		11:00	0.168
25yr6hr2.1Cum		11:15	0.2268
25yr6hr2.1Cum		11:30	0.2835
25yr6hr2.1Cum		11:45	0.3843
25yr6hr2.1Cum		12:00	0.483
25yr6hr2.1Cum		12:15	0.8715
25yr6hr2.1Cum		12:30	1.26

```
 25yr6hr2.1Cum                12:45      1.365
 25yr6hr2.1Cum                13:00      1.47
 25yr6hr2.1Cum                13:15      1.554
 25yr6hr2.1Cum                13:30      1.638
 25yr6hr2.1Cum                13:45      1.6968
 25yr6hr2.1Cum                14:00      1.7535
 25yr6hr2.1Cum                14:15      1.8018
 25yr6hr2.1Cum                14:30      1.848
 25yr6hr2.1Cum                14:45      1.89
 25yr6hr2.1Cum                15:00      1.932
 25yr6hr2.1Cum                15:15      1.974
 25yr6hr2.1Cum                15:30      2.016
 25yr6hr2.1Cum                15:45      2.058
 25yr6hr2.1Cum                16:00      2.1

[REPORT]
 INPUT      NO
 CONTROLS   NO

[OPTIONS]
 TEMPDIR    "C:\Carlsbad\DMP\"
```

Project BCC

SWMM 5.0 – Output

25 Year 6 Hour Storm

Drainage Project BCC (Chestnut Avenue)

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.0 (Build 5.0.005b)

Drainage Project BCC (Chestnut Avenue)
25 Year 6 Hour Storm

****
Analysis Options
****

Flow Units	CFS
Infiltration Method	GREEN_AMPT
Flow Routing Method	KINWAVE
Starting Date	SEP-30-2005 22:00:00
Ending Date	OCT-02-2005 00:00:00
Report Time Step	00:15:00
Wet Time Step	00:15:00
Dry Time Step	01:00:00
Routing Time Step	30.00 sec

Runoff Quantity Continuity	Volume acre-feet	Depth inches
Total Precipitation	15.514	2.100
Evaporation Loss	0.000	0.000
Infiltration Loss	8.821	1.194
Surface Runoff	6.777	0.917
Final Surface Storage	0.001	0.000
Continuity Error (%)	-0.550	

Flow Routing Continuity	Volume acre-feet	Volume Mgallons
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	6.782	2.210
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	6.785	2.211
Surface Flooding	0.000	0.000
Evaporation Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	-0.051	

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip in	Total Runon in	Total Evap in	Total Infil in	Total Runoff in	Runoff Coeff
S1	2.100	0.000	0.000	1.116	1.000	0.476
S2	2.100	0.000	0.000	1.155	0.962	0.458
S3	2.100	0.000	0.000	1.244	0.871	0.415
S4	2.100	0.000	0.000	1.223	0.892	0.425
S5	2.100	0.000	0.000	1.446	0.673	0.320
S6	2.100	0.000	0.000	1.030	1.086	0.517
S7	2.100	0.000	0.000	1.084	1.028	0.489
S8	2.100	0.000	0.000	1.532	0.594	0.283
S9	2.100	0.000	0.000	1.328	0.786	0.374
S10	2.100	0.000	0.000	1.268	0.854	0.407
S11	2.100	0.000	0.000	1.354	0.757	0.361
S12	2.100	0.000	0.000	0.709	1.405	0.669
S13	2.100	0.000	0.000	1.194	0.915	0.436
S14	2.100	0.000	0.000	1.148	0.963	0.458

Totals	2.100	0.000	0.000	1.194	0.917	0.437

****
Node Depth Summary
****

Node	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min	Total Flooding in/acre	Total Minutes Flooded
J1	0.02	0.23	324.23	0 12:45	0	0
J2	0.02	0.23	312.23	0 12:45	0	0
J3	0.01	0.13	288.13	0 12:45	0	0
J4	0.01	0.13	246.13	0 12:45	0	0
J5	0.02	0.21	233.21	0 12:45	0	0
J6	0.02	0.21	230.21	0 12:45	0	0
J7	0.01	0.16	229.16	0 12:45	0	0
J8	0.01	0.08	228.78	0 12:45	0	0
J9	0.01	0.16	213.16	0 12:45	0	0
J10	0.00	0.03	306.03	0 12:45	0	0
J11	0.00	0.05	273.05	0 12:45	0	0
J12	0.01	0.19	264.19	0 12:45	0	0
J13	0.01	0.19	256.19	0 12:45	0	0
J14	0.06	0.64	218.64	0 12:45	0	0
J15	0.06	0.64	216.64	0 12:45	0	0
J16	0.16	1.48	175.98	0 12:45	0	0
OUT1	1.79	3.00	151.50	0 10:15	0	0

****
Conduit Flow Summary
****

Conduit	Maximum Flow CFS	Time of Max Occurrence days hr:min	Maximum Velocity ft/sec	Length Factor	Maximum /Design Flow	Total Minutes Surcharged
C1	1.46	0 12:45	8.71	1.00	0.05	0
C2	2.36	0 12:45	5.46	1.00	0.06	0
C3	5.59	0 12:45	8.63	1.00	0.12	0
C4	9.72	0 12:45	4.84	1.00	0.04	0
C5	0.70	0 12:45	5.88	1.00	0.10	0
C6	0.69	0 12:45	2.16	1.00	0.05	0
C7	0.69	0 12:46	1.94	1.00	0.04	0
C8	11.99	0 12:45	5.07	1.00	0.05	0
C9	0.43	0 12:46	3.00	1.00	0.01	0
C10	0.26	0 12:45	2.72	1.00	0.01	0
C11	3.06	0 12:45	8.14	1.00	0.09	0
C12	3.05	0 12:46	5.79	1.00	0.08	0
C13	7.59	0 12:45	8.84	1.00	0.22	0
C15	28.90	0 12:46	6.12	1.00	0.15	0
C14	7.56	0 12:46	2.19	1.00	0.09	0
C16	60.23	0 12:45	17.42	1.00	0.49	0

****
Routing Time Step Summary
****

Minimum Time Step	:	30.00 sec
Average Time Step	:	30.00 sec
Maximum Time Step	:	30.00 sec
Percent in Steady State	:	0.00
Average Iterations per Step	:	1.03

Analysis begun on: Mon Jul 24 11:14:02 2006
Total elapsed time: 00:00:01

Project C – 1
Carlsbad Boulevard South Project

Project C – 2
Paseo Del Norte Project

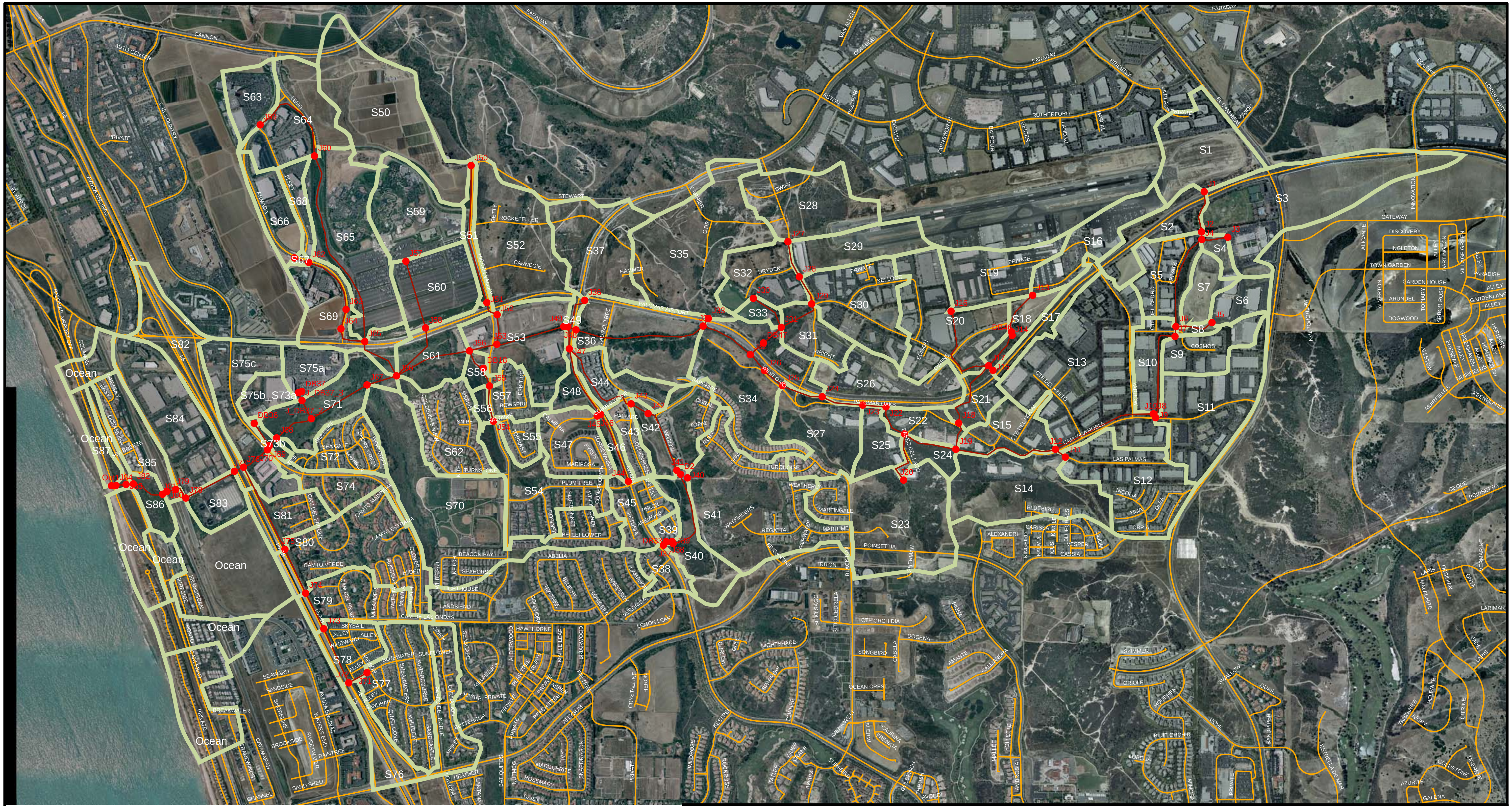
LEGEND

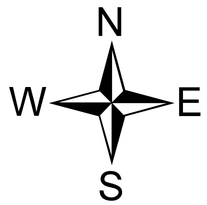
- JUNCTIONS
- FLOWLINE
- CONCRETE CULVERT
- GUTTER
- RCP
- SUBCATCHMENTS
- ROADS

PROJECTS C1 AND C2
BASIN C
WATERSHED MODEL

PROJECT LOCATION	DATE	PROJECT NUMBER
CARLSBAD, CALIFORNIA	NOV 2007	128290

BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA





0	0.375	0.75	1.5 Miles

LEGEND

- ● JUNCTIONS
- FLOWLINE
- CONCRETE CULVERT
- ▶▶▶ GUTTER
- RCP
- SUBCATCHMENTS
- ROADS

PROJECTS C1 AND C2
BASIN C
WATERSHED MODEL

PROJECT LOCATION

CARLSBAD, CALIFORNIA

DATE
NOV 2007

PROJECT NUMBER
128290

BROWN AND CALDWELL
SAN DIEGO, CALIFORNIA

Project C – 1

Project C – 2

SWMM 5.0 – Input

100 Year 6 Hour Storm

Basin C Model including Sedimentation Basins

```
[TITLE]
Basin C Model including Sedimentation Basins

[OPTIONS]
 FLOW_UNITS             CFS
 INFILTRATION           GREEN_AMPT
 FLOW_ROUTING           KINWAVE
 START_DATE             09/30/2005
 START_TIME             22:00:00
 REPORT_START_DATE      10/01/2005
 REPORT_START_TIME      00:00:00
 END_DATE               10/03/2005
 END_TIME               00:00:00
 SWEEP_START            01/01
 SWEEP_END              12/31
 DRY_DAYS               0
 REPORT_STEP            00:15:00
 WET_STEP               00:15:00
 DRY_STEP               01:00:00
 ROUTING_STEP           0:00:30
 ALLOW_PONDING          NO
 INERTIAL_DAMPING       PARTIAL
 VARIABLE_STEP          0.75
 LENGTHENING_STEP       0
 MIN_SURFAREA           0
 NORMAL_FLOW_LIMITED    NO
 SKIP_STEADY_STATE      NO
 IGNORE_RAINFALL        NO

[RAINGAGES]
;;               Rain       Recd.   Snow    Data       Source           Station    Rain
;;Name           Type       Freq.   Catch   Source     Name             ID         Units
;;---------------------------------------------------------------------------------------
  G2             CUMULATIVE 0:15    1.0     TIMESERIES G2-100yr6hr
  G1             CUMULATIVE 0:15    1.0     TIMESERIES G1-100yr6r

[SUBCATCHMENTS]
;;                                                     Total      Pcnt.                 Pcnt.      Curb       Snow
;;Name           Raingage         Outlet               Area       Imperv     Width      Slope      Length     Pack
;;---------------------------------------------------------------------------------------------------------------
  S1             G1               J1                   39         85         891        2          0
  S2             G1               J2                   22         85         553        3          0
  S3             G1               J3                   73         85         775        4          0
  S4             G1               J4                   5          88         236        5          0
  S5             G1               J6                   24         85         724        8          0
  S6             G1               J5                   12         85         291        1          0
  S7             G1               J6                   12         85         394        2          0
  S8             G1               J7                   2          85         255        5          0
  S9             G1               J7                   19         85         418        4          0
  S10            G1               J8                   16         85         484        2          0
  S11            G1               J9                   49         85         1130       5          0
  S12            G1               J11                  46         56         924        6          0
  S13            G1               J12                  91         85         1368       4          0
  S14            G1               J19                  50         34         1046       7          0
  S15            G1               J19                  20         85         687        7          0
  S16            G1               J13                  26         85         415        1          0
  S17            G1               J17                  11         57         380        7          0
  S18            G1               J15                  11         85         205        4          0
  S19            G1               J16                  29         86         762        2          0
  S20            G1               J17                  50         83         745        4          0
  S21            G1               J18                  12         75         456        5          0
  S22            G2               J22                  12         85         678        2          0
  S23            G2               J20                  66         22         1428       9          0
  S24            G2               J21                  9          62         314        12         0
  S25            G2               J23                  13         72         402        14         0
  S26            G1               J24                  33         75         890        6          0
  S27            G2               J25                  34         59         706        11         0
  S28            G2               J27                  39         85         854        5          0
  S29            G2               J28                  25         85         672        7          0
  S30            G2               J29                  39         84         1043       6          0
  S31            G2               J31                  16         72         506        7          0
  S32            G2               J30                  25         84         928        6          0
```

Basin C Model including Sedimentation Basins

```
[TITLE]
Basin C Model including Sedimentation Basins

[OPTIONS]
 FLOW_UNITS             CFS
 INFILTRATION           GREEN_AMPT
 FLOW_ROUTING           KINWAVE
 START_DATE             09/30/2005
 START_TIME             22:00:00
 REPORT_START_DATE      10/01/2005
 REPORT_START_TIME      00:00:00
 END_DATE               10/03/2005
 END_TIME               00:00:00
 SWEEP_START            01/01
 SWEEP_END              12/31
 DRY_DAYS               0
 REPORT_STEP            00:15:00
 WET_STEP               00:15:00
 DRY_STEP               01:00:00
 ROUTING_STEP           0:00:30
 ALLOW_PONDING          NO
 INERTIAL_DAMPING       PARTIAL
 VARIABLE_STEP          0.75
 LENGTHENING_STEP       0
 MIN_SURFAREA           0
 NORMAL_FLOW_LIMITED    NO
 SKIP_STEADY_STATE      NO
 IGNORE_RAINFALL        NO

[RAINGAGES]
;;               Rain       Recd.   Snow    Data       Source           Station    Rain
;;Name           Type       Freq.   Catch   Source     Name             ID         Units
;;---------------------------------------------------------------------------------------
  G2             CUMULATIVE 0:15    1.0     TIMESERIES G2-100yr6hr
  G1             CUMULATIVE 0:15    1.0     TIMESERIES G1-100yr6r

[SUBCATCHMENTS]
;;                                                     Total      Pcnt.                 Pcnt.      Curb       Snow
;;Name           Raingage         Outlet               Area       Imperv     Width      Slope      Length     Pack
;;---------------------------------------------------------------------------------------------------------------
  S1             G1               J1                   39         85         891        2          0
  S2             G1               J2                   22         85         553        3          0
  S3             G1               J3                   73         85         775        4          0
  S4             G1               J4                   5          88         236        5          0
  S5             G1               J6                   24         85         724        8          0
  S6             G1               J5                   12         85         291        1          0
  S7             G1               J6                   12         85         394        2          0
  S8             G1               J7                   2          85         255        5          0
  S9             G1               J7                   19         85         418        4          0
  S10            G1               J8                   16         85         484        2          0
  S11            G1               J9                   49         85         1130       5          0
  S12            G1               J11                  46         56         924        6          0
  S13            G1               J12                  91         85         1368       4          0
  S14            G1               J19                  50         34         1046       7          0
  S15            G1               J19                  20         85         687        7          0
  S16            G1               J13                  26         85         415        1          0
  S17            G1               J17                  11         57         380        7          0
  S18            G1               J15                  11         85         205        4          0
  S19            G1               J16                  29         86         762        2          0
  S20            G1               J17                  50         83         745        4          0
  S21            G1               J18                  12         75         456        5          0
  S22            G2               J22                  12         85         678        2          0
  S23            G2               J20                  66         22         1428       9          0
  S24            G2               J21                  9          62         314        12         0
  S25            G2               J23                  13         72         402        14         0
  S26            G1               J24                  33         75         890        6          0
  S27            G2               J25                  34         59         706        11         0
  S28            G2               J27                  39         85         854        5          0
  S29            G2               J28                  25         85         672        7          0
  S30            G2               J29                  39         84         1043       6          0
  S31            G2               J31                  16         72         506        7          0
  S32            G2               J30                  25         84         928        6          0
```

Basin C Model including Sedimentation Basins

S33	G2	J31	5	60	256	5	0
S34	G2	J34	59	39	828	7	0
S35	G2	J33	70	84	1223	8	0
S36	G2	J35	45	38	971	8	0
S37	G2	J36	41	80	1085	6	0
S38	G2	J37	10	25	449	2	0
S39	G2	DB33	3	25	250	3	0
S40	G2	DB2	22	23	436	6	0
S41	G2	J41	74	25	1011	5	0
S42	G2	J43	29	25	542	7	0
S43	G2	J43	10	25	308	7	0
S44	G2	J47	17	26	331	7	0
S45	G2	J44	18	25	640	6	0
S46	G2	J46	6	25	234	6	0
S47	G2	J45	23	27	346	3	0
S48	G2	J47	8	24	314	6	0
S49	G2	J49	3	50	269	2	0
S50	G2	J50	67	62	1335	2	0
S51	G2	J51	8	83	144	7	0
S52	G2	J52	52	84	564	4	0
S53	G2	J56	38	48	929	8	0
S54	G2	J54	37	28	647	5	0
S55	G2	J54	8	30	359	68	0
S56	G2	J55	3	30	183	9	0
S57	G2	J55	12	25	363	3	0
S58	G2	J56	5	18	327	18	0
S59	G2	J57	37	85	910	2	0
S60	G2	J58	30	85	1326	7	0
S61	G2	J66	23	40	495	5	0
S62	G2	J67	32	28	581	5	0
S63	G2	J59	17	80	803	2	0
S64	G2	J60	37	58	1079	1	0
S65	G2	J65	28	85	768	24	0
S66	G2	J61	8	80	407	1	0
S67	G2	J62	1	86	183	2	0
S68	G2	J62	9	90	259	2	0
S69	G2	J65	32	65	522	4	0
S70	G2	J67	93	13	879	3	0
S71	G2	J68	20	22	647	1	0
S72	G2	J68	21	29	416	6	0
S73b	G2	J69	2.39	33	316	4.8	0
S74	G2	J70	17	36	281	5	0
S75a	G2	DB37	5	25	514.67	2.5	0
S75b_S73a	G2	DB36	5	81	471.23	3.7	0
S75c	G2	J70	37.5	81	710.12	1.96	0
S76	G2	J72	37	54	354	2	0
S77	G2	J71	44	30	795	3	0
S78	G2	J73	17	49	535	2	0
S79	G2	J74	27	35	522	4	0
S80	G2	J75	54	33	781	4	0
S81	G2	J76	18	56	477	3	0
S82	G2	J77	31	98	457	97	0
S83	G2	J78	13	53	570	3	0
S84	G2	J79	48	78	831	2	0
S85	G2	J80	23	62	502	2	0
S86	G2	J82	9	14	356	4	0
S87	G2	J84	5	31	129	3	0

[SUBAREAS]

;;Subcatchment	N-Imperv	N-Perv	S-Imperv	S-Perv	PctZero	RouteTo	PctRouted
S1	0.011	0.015	0.05	0.1	100	IMPERVIOUS	100
S2	0.011	0.015	0.05	0.1	100	OUTLET	
S3	0.011	0.015	0.05	0.1	100	OUTLET	
S4	0.011	0.015	0.05	0.1	100	OUTLET	
S5	0.011	0.015	0.05	0.1	100	OUTLET	
S6	0.011	0.015	0.05	0.1	100	OUTLET	
S7	0.011	0.015	0.05	0.1	100	OUTLET	
S8	0.011	0.015	0.05	0.1	100	OUTLET	
S9	0.011	0.015	0.05	0.1	100	OUTLET	
S10	0.011	0.015	0.05	0.1	100	OUTLET	
S11	0.011	0.015	0.05	0.1	100	OUTLET	

S12	0.011	0.015	0.05	0.1	100	OUTLET
S13	0.011	0.015	0.05	0.1	100	OUTLET
S14	0.011	0.015	0.05	0.1	100	OUTLET
S15	0.011	0.015	0.05	0.1	100	OUTLET
S16	0.011	0.015	0.05	0.1	100	OUTLET
S17	0.011	0.015	0.05	0.1	100	OUTLET
S18	0.011	0.015	0.05	0.1	100	OUTLET
S19	0.011	0.015	0.05	0.1	100	OUTLET
S20	0.011	0.015	0.05	0.1	100	OUTLET
S21	0.011	0.015	0.05	0.1	100	OUTLET
S22	0.011	0.015	0.05	0.1	100	OUTLET
S23	0.011	0.015	0.05	0.1	100	OUTLET
S24	0.011	0.015	0.05	0.1	100	OUTLET
S25	0.011	0.015	0.05	0.1	100	OUTLET
S26	0.011	0.015	0.05	0.1	100	OUTLET
S27	0.011	0.015	0.05	0.1	100	OUTLET
S28	0.011	0.015	0.05	0.1	100	OUTLET
S29	0.011	0.015	0.05	0.1	100	OUTLET
S30	0.011	0.015	0.05	0.1	100	OUTLET
S31	0.011	0.015	0.05	0.1	100	OUTLET
S32	0.011	0.015	0.05	0.1	100	OUTLET
S33	0.011	0.015	0.05	0.1	100	OUTLET
S34	0.011	0.015	0.05	0.1	100	OUTLET
S35	0.011	0.015	0.05	0.1	100	OUTLET
S36	0.011	0.015	0.05	0.1	100	OUTLET
S37	0.011	0.015	0.05	0.1	100	OUTLET
S38	0.011	0.015	0.05	0.1	100	OUTLET
S39	0.011	0.015	0.05	0.1	100	OUTLET
S40	0.011	0.015	0.05	0.1	100	OUTLET
S41	0.011	0.015	0.05	0.1	100	OUTLET
S42	0.011	0.015	0.05	0.1	100	OUTLET
S43	0.011	0.015	0.05	0.1	100	OUTLET
S44	0.011	0.015	0.05	0.1	100	OUTLET
S45	0.011	0.015	0.05	0.1	100	OUTLET
S46	0.011	0.015	0.05	0.1	100	OUTLET
S47	0.011	0.015	0.05	0.1	100	OUTLET
S48	0.011	0.015	0.05	0.1	100	OUTLET
S49	0.011	0.015	0.05	0.1	100	OUTLET
S50	0.011	0.015	0.05	0.1	100	OUTLET
S51	0.011	0.015	0.05	0.1	100	OUTLET
S52	0.011	0.015	0.05	0.1	100	OUTLET
S53	0.011	0.015	0.05	0.1	100	OUTLET
S54	0.011	0.015	0.05	0.1	100	OUTLET
S55	0.011	0.015	0.05	0.1	100	OUTLET
S56	0.011	0.015	0.05	0.1	100	OUTLET
S57	0.011	0.015	0.05	0.1	100	OUTLET
S58	0.011	0.015	0.05	0.1	100	OUTLET
S59	0.011	0.015	0.05	0.1	100	OUTLET
S60	0.011	0.015	0.05	0.1	100	OUTLET
S61	0.011	0.015	0.05	0.1	100	OUTLET
S62	0.011	0.015	0.05	0.1	100	OUTLET
S63	0.011	0.015	0.05	0.1	100	OUTLET
S64	0.011	0.015	0.05	0.1	100	OUTLET
S65	0.011	0.015	0.05	0.1	100	OUTLET
S66	0.011	0.015	0.05	0.1	100	OUTLET
S67	0.011	0.015	0.05	0.1	100	OUTLET
S68	0.011	0.015	0.05	0.1	100	OUTLET
S69	0.011	0.015	0.05	0.1	100	OUTLET
S70	0.011	0.015	0.05	0.1	100	OUTLET
S71	0.011	0.015	0.05	0.1	100	OUTLET
S72	0.011	0.015	0.05	0.1	100	OUTLET
S73b	0.011	0.015	0.05	0.1	100	OUTLET
S74	0.011	0.015	0.05	0.1	100	OUTLET
S75a	0.011	0.015	0.05	0.1	100	OUTLET
S75b_S73a	0.011	0.015	0.05	0.1	25	OUTLET
S75c	0.011	0.015	0.05	0.1	100	OUTLET
S76	0.011	0.015	0.05	0.1	100	OUTLET
S77	0.011	0.015	0.05	0.1	100	OUTLET
S78	0.011	0.015	0.05	0.1	100	OUTLET
S79	0.011	0.015	0.05	0.1	100	OUTLET
S80	0.011	0.015	0.05	0.1	100	OUTLET
S81	0.011	0.015	0.05	0.1	100	OUTLET

Basin C Model including Sedimentation Basins

S82	0.011	0.015	0.05	0.1	100	OUTLET
S83	0.011	0.015	0.05	0.1	100	OUTLET
S84	0.011	0.015	0.05	0.1	100	OUTLET
S85	0.011	0.015	0.05	0.1	100	OUTLET
S86	0.011	0.015	0.05	0.1	100	OUTLET
S87	0.011	0.015	0.05	0.1	100	OUTLET

[INFILTRATION]

;;Subcatchment	Suction	HydCon	IMDmax
S1	3.5	0.13	0
S2	3.5	0.13	0
S3	8.66	0.06	0
S4	2.4	1.18	0
S5	2.4	1.18	0
S6	2.4	1.18	0
S7	2.4	1.18	0
S8	3.5	0.13	0
S9	3.5	0.13	0
S10	2.4	1.18	0
S11	3.5	0.13	0
S12	4.33	0.43	0
S13	4.33	0.43	0
S14	4.33	0.43	0
S15	3.5	0.13	0
S16	3.5	0.13	0
S17	3.5	0.13	0
S18	3.5	0.13	0
S19	3.5	0.13	0
S20	3.5	0.13	0
S21	3.5	0.13	0
S22	4.33	0.43	0
S23	4.33	0.43	0
S24	3.5	0.13	0
S25	4.33	0.43	0
S26	3.5	0.13	0
S27	4.33	0.43	0
S28	3.5	0.13	0
S29	3.5	0.13	0
S30	3.5	0.13	0
S31	2.4	1.18	0
S32	4.33	0.43	0
S33	2.4	1.18	0
S34	8.66	0.06	0
S35	2.4	1.18	0
S36	8.27	0.04	0
S37	2.4	1.18	0
S38	4.33	0.43	0
S39	4.33	0.43	0
S40	4.33	0.43	0
S41	4.33	0.43	0
S42	8.66	0.06	0
S43	8.66	0.06	0
S44	8.27	0.04	0
S45	4.33	0.43	0
S46	3.37	0.81	0
S47	2.4	1.18	0
S48	8.66	0.06	0
S49	4.33	0.43	0
S50	2.4	1.18	0
S51	2.4	1.18	0
S52	2.4	1.18	0
S53	4.33	0.43	0
S54	4.33	0.43	0
S55	4.33	0.43	0
S56	2.4	1.18	0
S57	4.33	0.43	0
S58	2.4	1.18	0
S59	2.4	1.18	0
S60	2.4	1.18	0
S61	2.4	1.18	0
S62	3.37	0.81	0

S63	2.4	1.18	0
S64	2.4	1.18	0
S65	2.4	1.18	0
S66	2.4	1.18	0
S67	2.4	1.18	0
S68	2.4	1.18	0
S69	2.4	1.18	0
S70	5.92	0.51	0
S71	8.27	0.04	0
S72	2.4	1.18	0
S73b	2.4	1.18	0
S74	3.37	0.81	0
S75a	7.5	0.6	0
S75b_S73a	7.5	0.6	0
S75c	7.5	0.6	0
S76	2.4	1.18	0
S77	2.4	1.18	0
S78	4.33	0.43	0
S79	3.37	0.81	0
S80	4.33	0.43	0
S81	4.33	0.43	0
S82	2.4	1.18	0
S83	5.8	0.79	0
S84	7.5	0.6	0
S85	2.4	1.18	0
S86	4.33	0.43	0
S87	2.4	1.18	0

[JUNCTIONS]

;;Name	Invert Elev.	Max. Depth	Init. Depth	Surcharge Depth	Ponded Area
J1	260.5	0	0	0	0
J2	246	0	0	0	0
J3	275.11	0	0	0	0
J4	243	0	0	0	0
J5	274.31	0	0	0	0
J6	216	0	0	0	0
J7	212.9	0	0	0	0
J8	198	0	0	0	0
J9	199.8	9	0	0	0
J10	194.7	9	0	0	0
J11	179.42	0	0	0	0
J12	177.45	0	0	0	0
J13	276	0	0	0	0
J15	213	0	0	0	0
J16	279	0	0	0	0
J17	189	0	0	0	0
J18	157.54	0	0	0	0
J19	157	0	0	0	0
J20	193	0	0	0	0
J21	143.34	0	0	0	0
J22	134.13	9	0	0	0
J23	128	9	0	0	0
J24	126	9	0	0	0
J25	117.65	9	0	0	0
J26	115.87	9	0	0	0
J27	223.88	9	0	0	0
J28	202.9	9	0	0	0
J29	190.3	9	0	0	0
J30	157.03	9	0	0	0
J31	130.5	9	0	0	0
J32	114.6	9	0	0	0
J33	103.58	9	0	0	0
J34	97	9	0	0	0
J35	74.2	9	0	0	0
J36	84.3	9	0	0	0
J37	271	9	0	0	0
J39	244	9	0	0	0
J41	164	9	0	0	0
J42	140.34	9	0	0	0
J43	123	9	0	0	0

J44	226.85	9	0	0	0
J45	159.67	9	0	0	0
J46	154.41	9	0	0	0
J47	79.05	9	0	0	0
J48	72.7	9	0	0	0
J49	70	9	0	0	0
J50	235	9	0	0	0
J51	76.8	9	0	0	0
J52	65	9	0	0	0
J53	63	9	0	0	0
J54	121.08	9	0	0	0
J55	97.88	9	0	0	0
J56	61	9	0	0	0
J57	134	9	0	0	0
J58	71	9	0	0	0
J59	149	9	0	0	0
J60	142.07	9	0	0	0
J61	143.69	9	0	0	0
J62	141.18	9	0	0	0
J63	101.67	9	0	0	0
J64	78.8	9	0	0	0
J65	75	9	0	0	0
J66	55	9	0	0	0
J67	50	9	0	0	0
J68	34	9	0	0	0
J69	26.7	9	0	0	0
J70	26.1	9	0	0	0
J71	70.11	9	0	0	0
J72	67	9	0	0	0
J73	60.41	9	0	0	0
J74	55.28	9	0	0	0
J75	49.55	9	0	0	0
J76	24	9	0	0	0
J77	22	9	0	0	0
J78	21	9	0	0	0
J79	19	9	0	0	0
J80	18	9	0	0	0
J81	17	9	0	0	0
J82	15	9	0	0	0
J83	12	9	0	0	0
J84	10	9	0	0	0
J_DB37_1	52.54	6	0	0	0
J_DB37_2	50	6	0	0	0
J_DB37_3	42	6	0	0	0

[OUTFALLS]

;;Name	Invert Elev.	Outfall Type	Stage/Table Time Series	Tide Gate
OUT1	0	FREE		NO

[STORAGE]

;;Name	Invert Elev.	Max. Depth	Init. Depth	Shape Curve	Shape Parameters			Ponded Area	Evap. Frac.
;Desilting Basin DB2 ;A=2,000 H=8									
DB2	164	8	0	FUNCTIONAL	73	1	1409	0	0
;Desilting Basin DB18 ;A=19,000 H=8									
DB18	84	8	0	FUNCTIONAL	251	1	18993	0	0
;Desilting Basin DB33 ;A=1,100 H=5									
DB33	254	5	0	FUNCTIONAL	68	1	1097	0	0
;Desilting Basin DB36 ;A=3,700 H=5									
DB36	46	5	0	FUNCTIONAL	103	0	3078	0	0
;Desilting Basin DB37 ;A=5,400 H=8									
DB37	64	8	0	FUNCTIONAL	124	1	4401	0	0
;Desilting Basin DB46 ;A=90,000 H=11									

```
  DB46              218       11        0         FUNCTIONAL 531       1         84323     0         0
;Desilting Basin DB47
;A=74,000  H=16
  DB47              124       16        0         FUNCTIONAL 469       1         65995     0         0

[CONDUITS]
;;                Inlet             Outlet                      Manning    Inlet      Outlet     Init.      Ma
;;Name             Node              Node              Length    N          Height     Height     Flow       Fl
;;-----------------------------------------------------------------------------------------------------------
;Open Channel Flow
;Model as a trapizodial open channel B=30, H=1 2:1
  C1                J1                J2                651.62    0.15       0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=35, H=1
  C2                J2                J4                119.82    0.15       0          0          0          0
;36 inch RCP
  C3                J3                J4                408.21    0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=35, H=2 2:1
  C4                J4                J6                1477.76   0.03       0          0          0          0
;36 inch RCP
  C5                J5                J6                595.55    0.013      0          0          0          0
;Sheet Flow over street
;Model as a rectangular open channel B=45, H=0.5
  C6                J6                J7                152.59    0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodial open channel B=40, H=2.2 2:1
  C7                J7                J8                1477.81   0.03       0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=40, H=3 2:1
  C8                J8                J10               11.81     0.03       0          0          0          0
;Open Channel Flow
;Model as a trapizodial open channel B=35, H=2 2:1
  C9                J9                J10               74.55     0.15       0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=40, H=3 2:1
  C10               J10               J12               1641.17   0.03       0          0          0          0
;36 inch RCP
  C11               J11               J12               192.65    0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=40, H=3.6 2:1
  C12               J12               J19               1639.62   0.03       0          0          0          0
;36 inch RCP
  C13               J13               DB46              698.46    0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=20, H=1 2:1
  C14               DB46              J17               642.72    0.15       0          0          0          0
;Open Channel Flow
;Model as a trapizodial open channel B=20, H=0.5 2:1
  C15               J15               J17               97.43     0.15       0          0          0          0
;36 inch RCP
  C16               J16               J17               1445.08   0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=30, H=2 2:1
  C17               J17               J18               1178.96   0.15       0          0          0          0
;60 inch RCP
  C18               J18               J19               436.23    0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=40, H=4 2:1
  C19               J19               J21               845.47    0.03       0          0          0          0
;36 inch RCP
  C20               J20               J21               892.73    0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodial open channel B=45, H=4 2:1
  C21               J21               J22               559.4     0.03       0          0          0          0
;Open Channel Flow
;Model as a trapizodial open channel B=45, H=4 2:1
  C22               J22               J23               359.68    0.15       0          0          0          0
;Open Channel Flow
;Model as a trapizodial open channel B=45, H=4 2:1
  C23               J23               J24               650.59    0.03       0          0          0          0
;Open Channel Flow
```

Basin C Model including Sedimentation Basins

```
;Model as a trapizodial open channel B=45, H=4 2:1
  C24              J24              J25              643.28     0.03       0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=50, H=5.6 1:1
;The channel is significantly larger than reality to allow
;for the complete volume to pass through the system. The
;downstream culvert is sufficient.
  C25              J25              J26              365.4      0.15       0          0          0          0
;Box Culvert - 1 Barrel, H=7 B=12
  C26              J26              J32              333.37     0.013      0          0          0          0
;36 inch RCP
  C27              J27              J28              580.25     0.013      0          0          0          0
;36 inch RCP
  C28              J28              J29              466.92     0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=25, H=1.5 2:1
  C29              J29              J31              673.22     0.15       0          0          0          0
;36 inch RCP
  C30              J30              J31              649.94     0.013      0          0          0          0
;Open Channel Flow - Street
;Model as a trapizodal open channel B=30, H=2 2:1
  C31a             J31              DB47             373.93     0.15       0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=30, H=2 2:1
  C31b             DB47             J32              270.53     0.15       0          0          0          0
;Open Channel Flow
;Model as a trapizodial open channel B=48, H=4.5 2:1
  C32              J32              J34              864.25     0.15       0          0          0          0
;36 inch RCP
  C33              J33              J34              145.75     0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodial open channel B=50, H=5 2:1
  C34              J34              J35              2036.30    0.15       0          0          0          0
;Box Culvert 1 Barrel - H=8, B=8
  C35              J35              J48              131.58     0.013      0          0          0          0
;42 inch RCP
  C36              J36              J48              556.52     0.013      0          0          0          0
;Sheet Flow
;Model as a rectangular open channel B=5, H=0.1667
  C37              J37              J39              152.86     0.013      0          0          0          0
;Sheet Flow
;Model as a rectangular open channel B=5, H=0.5
  C38              DB33             J39              112.84     0.013      0          0          0          0
;Open Channel Flow
;Model as a rectangular open channel B=10, H=0.5
  C39              J39              DB2              1318.43    0.15       0          0          0          0
;66 inch RCP
  C40              DB2              J41              84         0.013      0          0          0          0
;66 inch RCP
  C41              J41              J42              1022.90    0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizoidal open channel B=30, H=2, 2:1
  C42              J42              J43              304.3      0.15       0          0          0          0
;66 inch RCP
  C43              J43              J47              1503.1     0.013      0          0          0          0
;36 inch RCP
  C44              J44              J46              1121.12    0.013      0          0          0          0
;Sheet Flow
;Model as a rectangular open channel B=8, H=0.1667
  C45              J45              J46              57.32      0.013      0          0          0          0
;36 inch RCP
  C46              J46              J47              1142.75    0.15       0          0          0          0
;72 inch RCP
  C47              J47              J48              344.94     0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizoidal open channel B=48, H=5, 2:1
  C48              J48              J49              67         0.15       0          0          0          0
;Open Channel Flow
;Model as a trapizoidal open channel B=65, H=5.5, 1:1
  C49              J49              J53              1076.33    0.15       0          0          0          0
;Sheet Flow
;Model as a rectangular open channel B=30, H=0.1667
```

Basin C Model including Sedimentation Basins

```
 C50              J50              J51              2154.63    0.013      0          0          0          0
;Sheet Flow
;Model as a rectangular open channel B=40, H=0.1667
 C51              J51              J52              277.82     0.013      0          0          0          0
;78 inch RCP
 C52              J52              J53              460.14     0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizoidal open channel B=70, H=5.5, 1
;These dimensions are do not represent reality but they
;minimize flooding to below 60 minutes.
 C53              J53              J56              433.74     0.15       0          0          0          0
;36 inch RCP
 C54              J54              J55              556.64     0.013      0          0          0          0
;42 inch RCP
 C55a             J55              DB18             296.95     0.013      0          0          0          0
;42 inch RCP
 C55b             DB18             J56              360.08     0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=75, H=6 1:1
;These dimensions are do not represent reality but they
;minimize flooding to below 60 minutes.
 C56              J56              J66              1208.71    0.15       0          0          0          0
;36 inch RCP
 C57              J57              J58              1075       0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizoidal open channel B=30, H=1.5 2:1
 C58              J58              J66              941.84     0.15       0          0          0          0
;42 inch RCP
 C59              J59              J60              1536.84    0.013      0          0          0          0
;60 inch RCP
 C60              J60              J65              3092.76    0.013      0          0          0          0
;42 inch RCP
 C61              J61              J62              232.44     0.013      0          0          0          0
;42 inch RCP
 C62              J62              J63              1015.48    0.013      0          0          0          0
;42 inch RCP
 C63              J63              J64              309.45     0.013      0          0          0          0
;48 inch RCP
 C64              J64              J65              494.79     0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizoidal open channel B=30, H=1.5 2:1
 C65              J65              J66              796.73     0.15       0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=70, H=6 2:1
 C66              J66              J67              479.76     0.15       0          0          0          0
 C_DB37_1         DB37             J_DB37_1         400        0.01       0          0          0          0
 C_DB37_2         J_DB37_1         J_DB37_2         127.93     0.013      0          0          0          0
 C_DB37_3         J_DB37_2         J_DB37_3         317.52     0.15       0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=75, H=6 2:1
 C67a             J67              J_DB37_3         1011.04    0.15       0          0          0          0
;Open Channel Flow
;Model as a trapizodal open channel B=75, H=6 2:1
 C67b             J_DB37_3         J68              400        0.15       0          0          0          0
 C_DB36_1         DB36             J69              400        0.01       0          0          0          0
;Open Channel Flow
;Model as a trapizoidal open channel B=60, H=5 2:1
 C68              J68              J69              166.25     0.15       0          0          0          0
;Box Culvert, 1 Barrel, B=20, H=5
 C69              J69              J70              67.08      0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizoidal open channel B=85, H=6 2:1
 C70              J70              J76              459.52     0.15       0          0          0          0
;36 inch RCP
 C71              J71              J72              321.22     0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizoidal open channel B=20, H=1.5 2:1
 C72              J72              J73              917.62     0.15       0          0          0          0
;Open Channel Flow
;Model as a trapizoidal open channel B=20, H=2 2:1
 C73              J73              J74              619.12     0.15       0          0          0          0
;Open Channel Flow
```

Basin C Model including Sedimentation Basins

```
;Model as a trapizoidal open channel B=20, H=2 2:1
  C74             J74             J75             751.13     0.15       0          0          0          0
;Open Channel Flow
;Model as a trapizoidal open channel B=20, H=2 2:1
  C75             J75             J76             1420.58    0.15       0          0          0          0
;Box Culvert, 1 Barrel H=6, B = 10
  C76             J76             J77             155.29     0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodial open channel real dimensions
;B=10, H=8 2:1, model as B=120, H =10 1:1 to allow flow to
;pass through
  C77             J77             J78             860.88     0.15       0          0          0          0
;Model as Box Culvert B=12, H=6
;Pipe in reality much smaller
;Make larger to allow flow that normally splits at
;this junction to pass to outlet
  C78             J78             J79             240.39     0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodial open channel B=150, H=4 1:1
;Exaggerated greatly to allow flow to pass through conduit
  C79             J79             J80             141.21     0.15       0          0          0          0
;Box Culvert B=12, H=6
;Exaggerated scale for flow
  C80             J80             J81             77.06      0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodial open channel B=200, H=4 2:1
;Exaggerated greatly to allow flow through channel
  C81             J81             J82             514.21     0.15       0          0          0          0
;Box Culvert
;Model as a 5 barrel box with B=54, H=6
;Exaggerated scale for flow
  C82             J82             J83             114.96     0.013      0          0          0          0
;Open Channel Flow
;Model as a trapizodial open channel B=200, H=4 2:1
;Exaggerated greatly to allow flow through channel
  C83             J83             J84             159.02     0.15       0          0          0          0
;Box Culvert
;Model as a 5 barrel box with B=54, H=6
  C84             J84             OUT1            400        0.013      0          0          0          0

[XSECTIONS]
;;Link           Type         Geom1      Geom2      Geom3      Geom4      Barrels
;;-------------------------------------------------------------------------------
  C1              TRAPEZOIDAL  1          30         0.5        0.5        1
  C2              TRAPEZOIDAL  1          35         0.5        0.5        1
  C3              CIRCULAR     3          0          0          0          1
  C4              TRAPEZOIDAL  2          35         0.5        0.5        1
  C5              CIRCULAR     3          0          0          0          1
  C6              RECT_OPEN    0.5        45         0          0          1
  C7              TRAPEZOIDAL  3          40         0.5        0.5        1
  C8              TRAPEZOIDAL  3          40         0.5        0.5        1
  C9              TRAPEZOIDAL  2          35         0.5        0.5        1
  C10             TRAPEZOIDAL  3          40         0.5        0.5        1
  C11             CIRCULAR     3          0          0          0          1
  C12             TRAPEZOIDAL  3.6        40         0.5        0.5        1
  C13             CIRCULAR     3          0          0          0          1
  C14             TRAPEZOIDAL  1          20         0.5        0.5        1
  C15             TRAPEZOIDAL  0.5        20         0.5        0.5        1
  C16             CIRCULAR     3          0          0          0          1
  C17             TRAPEZOIDAL  2          30         0.5        0.5        1
  C18             CIRCULAR     5          0          0          0          1
  C19             TRAPEZOIDAL  4          40         0.5        0.5        1
  C20             CIRCULAR     3          0          0          0          1
  C21             TRAPEZOIDAL  4          45         0.5        0.4        1
  C22             TRAPEZOIDAL  4          45         0.5        0.5        1
  C23             TRAPEZOIDAL  5          50         0.5        0.5        1
  C24             TRAPEZOIDAL  4          45         0.5        0.5        1
  C25             TRAPEZOIDAL  5.6        50         1          1          1
  C26             RECT_CLOSED  7          12         0          0          1
  C27             CIRCULAR     3          0          0          0          1
  C28             CIRCULAR     3          0          0          0          1
  C29             TRAPEZOIDAL  1.5        25         0.5        0.5        1
```

Basin C Model including Sedimentation Basins

C30	CIRCULAR	3	0	0	0	1
C31a	TRAPEZOIDAL	2	30	0.5	0.5	1
C31b	TRAPEZOIDAL	2	30	0.5	0.5	1
C32	TRAPEZOIDAL	4.5	48	0.5	0.5	1
C33	CIRCULAR	3	0	0	0	1
C34	TRAPEZOIDAL	5	50	0.5	0.5	1
C35	RECT_CLOSED	8	8	0	0	1
C36	CIRCULAR	3.5	0	0	0	1
C37	RECT_OPEN	0.1667	5	0	0	1
C38	RECT_OPEN	0.1667	5	0	0	1
C39	RECT_OPEN	0.5	10	0	0	1
C40	CIRCULAR	5.5	0	0	0	1
C41	CIRCULAR	5.5	0	0	0	1
C42	TRAPEZOIDAL	2	30	0.5	0.5	1
C43	CIRCULAR	5.5	0	0	0	1
C44	CIRCULAR	3	0	0	0	1
C45	RECT_OPEN	0.1667	8	0	0	1
C46	CIRCULAR	3	0	0	0	1
C47	CIRCULAR	6	0	0	0	1
C48	TRAPEZOIDAL	5	48	0.5	0.5	1
C49	TRAPEZOIDAL	5.5	65	1	1	1
C50	RECT_OPEN	0.1667	30	0	0	1
C51	RECT_OPEN	0.1667	40	0	0	1
C52	CIRCULAR	6.5	0	0	0	1
C53	TRAPEZOIDAL	6	70	1	1	1
C54	CIRCULAR	3	0	0	0	1
C55a	CIRCULAR	3.5	0	0	0	1
C55b	CIRCULAR	3.5	0	0	0	1
C56	TRAPEZOIDAL	6	75	1	1	1
C57	CIRCULAR	3	0	0	0	1
C58	TRAPEZOIDAL	1.5	30	0.5	0.5	1
C59	CIRCULAR	5.5	0	0	0	1
C60	CIRCULAR	5	0	0	0	1
C61	CIRCULAR	3.5	0	0	0	1
C62	CIRCULAR	3.5	0	0	0	1
C63	CIRCULAR	3.5	0	0	0	1
C64	CIRCULAR	4	0	0	0	1
C65	TRAPEZOIDAL	1.5	30	0.5	0.5	1
C66	TRAPEZOIDAL	6	70	0.5	0.5	1
C_DB37_1	CIRCULAR	2	0	0	0	1
C_DB37_2	CIRCULAR	5	0	0	0	1
C_DB37_3	TRAPEZOIDAL	2	30	0.5	0.5	1
C67a	TRAPEZOIDAL	6	75	0.5	0.5	1
C67b	TRAPEZOIDAL	6	75	0.5	0.5	1
C_DB36_1	TRAPEZOIDAL	1.5	20	0.5	0.5	1
C68	TRAPEZOIDAL	5	60	0.5	0.5	1
C69	RECT_CLOSED	5	20	0	0	1
C70	TRAPEZOIDAL	6	100	1	1	1
C71	CIRCULAR	3	0	0	0	1
C72	TRAPEZOIDAL	1.5	20	0.5	0.5	1
C73	TRAPEZOIDAL	2	20	0.5	0.5	1
C74	TRAPEZOIDAL	2	20	0.5	0.5	1
C75	TRAPEZOIDAL	2	20	0.5	0.5	1
C76	RECT_CLOSED	10	8	0	0	1
C77	TRAPEZOIDAL	10	120	1	1	1
C78	RECT_CLOSED	6	12	0	0	2
C79	TRAPEZOIDAL	4	150	1	1	1
C80	RECT_CLOSED	6	12	0	0	2
C81	TRAPEZOIDAL	4	200	1	1	1
C82	RECT_CLOSED	6	56	0	0	5
C83	TRAPEZOIDAL	4	200	0.5	0.5	1
C84	RECT_CLOSED	6	54	0	0	5

```
[TIMESERIES]
;;Name           Date       Time       Value
;;--------------------------------------------
;For Rain Gage 1 (RG1)
  RG1            01/01/2005 0:00       0
  RG1                       0:30       0.045
  RG1                       1:00       0.035
  RG1                       1:30       0.045
  RG1                       2:00       0.045
```

```
 RG1                              2:30       0.055
 RG1                              3:00       0.045
 RG1                              3:30       0.055
 RG1                              4:00       0.06
 RG1                              4:30       0.065
 RG1                              5:00       0.07
 RG1                              5:30       0.08
 RG1                              6:00       0.085
 RG1                              6:30       0.1
 RG1                              7:00       0.115
 RG1                              7:30       0.15
 RG1                              8:00       0.225
 RG1                              8:30       0.335
 RG1                              9:00       0.44
 RG1                              9:30       0.48
 RG1                              10:00      0.41
 RG1                              10:30      0.205
 RG1                              11:00      0.135
 RG1                              11:30      0.115
 RG1                              12:00      0.105
 RG1                              12:30      0.1
 RG1                              13:00      0.095
 RG1                              13:30      0.085
 RG1                              14:00      0.08
 RG1                              14:30      0.09
 RG1                              15:00      0.05
 RG1                              15:30      0.08
 RG1                              16:00      0.075
 RG1                              16:30      0.07
 RG1                              17:00      0.075
 RG1                              17:30      0.06
 RG1                              18:00      0.065
 RG1                              18:30      0.05
 RG1                              19:00      0.05
 RG1                              19:30      0.045
 RG1                              20:00      0.05
 RG1                              20:30      0.055
 RG1                              21:00      0.05
 RG1                              21:30      0.045
 RG1                              22:00      0.045
 RG1                              22:30      0.045
 RG1                              23:00      0.045
 RG1                              23:30      0.05
 RG1                 01/02/2005 0:00         0.045

;For Rain Gage 2 (RG2)
 RG2                 01/01/2005 0:00         0
 RG2                              0:30       0.0405
 RG2                              1:00       0.0315
 RG2                              1:30       0.0405
 RG2                              2:00       0.0405
 RG2                              2:30       0.0495
 RG2                              3:00       0.0405
 RG2                              3:30       0.0495
 RG2                              4:00       0.054
 RG2                              4:30       0.0585
 RG2                              5:00       0.063
 RG2                              5:30       0.072
 RG2                              6:00       0.0765
 RG2                              6:30       0.09
 RG2                              7:00       0.1035
 RG2                              7:30       0.135
 RG2                              8:00       0.2025
 RG2                              8:30       0.3015
 RG2                              9:00       0.396
 RG2                              9:30       0.432
 RG2                              10:00      0.369
 RG2                              10:30      0.1845
 RG2                              11:00      0.1215
 RG2                              11:30      0.1035
 RG2                              12:00      0.0945
 RG2                              12:30      0.09
```

```
RG2                              13:00      0.0855
RG2                              13:30      0.0765
RG2                              14:00      0.072
RG2                              14:30      0.081
RG2                              15:00      0.045
RG2                              15:30      0.072
RG2                              16:00      0.0675
RG2                              16:30      0.063
RG2                              17:00      0.0675
RG2                              17:30      0.054
RG2                              18:00      0.0585
RG2                              18:30      0.045
RG2                              19:00      0.045
RG2                              19:30      0.0405
RG2                              20:00      0.045
RG2                              20:30      0.0495
RG2                              21:00      0.045
RG2                              21:30      0.0405
RG2                              22:00      0.0405
RG2                              22:30      0.0405
RG2                              23:00      0.0405
RG2                              23:30      0.045
RG2                   01/02/2005 0:00       0.0405

;100 Year 6 hour event 2.6 inches
 G2-100yr6hr          10/01/2005 10:00      0.00
 G2-100yr6hr                     10:15      0.0468
 G2-100yr6hr                     10:30      0.091
 G2-100yr6hr                     10:45      0.1508
 G2-100yr6hr                     11:00      0.208
 G2-100yr6hr                     11:15      0.2808
 G2-100yr6hr                     11:30      0.351
 G2-100yr6hr                     11:45      0.4758
 G2-100yr6hr                     12:00      0.598
 G2-100yr6hr                     12:15      1.079
 G2-100yr6hr                     12:30      1.56
 G2-100yr6hr                     12:45      1.69
 G2-100yr6hr                     13:00      1.82
 G2-100yr6hr                     13:15      1.924
 G2-100yr6hr                     13:30      2.028
 G2-100yr6hr                     13:45      2.1008
 G2-100yr6hr                     14:00      2.171
 G2-100yr6hr                     14:15      2.2308
 G2-100yr6hr                     14:30      2.288
 G2-100yr6hr                     14:45      2.34
 G2-100yr6hr                     15:00      2.392
 G2-100yr6hr                     15:15      2.444
 G2-100yr6hr                     15:30      2.496
 G2-100yr6hr                     15:45      2.548
 G2-100yr6hr                     16:00      2.6

;100  year 6 hr 2.8 inches
 G1-100yr6r           10/01/2005 10:00      0.00
 G1-100yr6r                      10:15      0.0504
 G1-100yr6r                      10:30      0.098
 G1-100yr6r                      10:45      0.1624
 G1-100yr6r                      11:00      0.224
 G1-100yr6r                      11:15      0.3024
 G1-100yr6r                      11:30      0.378
 G1-100yr6r                      11:45      0.5124
 G1-100yr6r                      12:00      0.644
 G1-100yr6r                      12:15      1.162
 G1-100yr6r                      12:30      1.68
 G1-100yr6r                      12:45      1.82
 G1-100yr6r                      13:00      1.96
 G1-100yr6r                      13:15      2.072
 G1-100yr6r                      13:30      2.184
 G1-100yr6r                      13:45      2.2624
 G1-100yr6r                      14:00      2.338
 G1-100yr6r                      14:15      2.4024
 G1-100yr6r                      14:30      2.464
 G1-100yr6r                      14:45      2.52
```