Technical Supplement
Drainage Calculations

FOR
The Preserve at Abbyville
And
Abbyville Commons

LOCATED IN
NORFOLK, MASSACHUSETTS

PREPARED FOR
Abbyville Development, LLC
and
Abbyville Residential, LLC
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Report Summary

This Technical Supplement – Drainage Calculations reflect the various revisions that have been completed during the permitting process. These revisions include revised house and roadway layout. Single family house and rental unit footprints as well as driveways were revised. Garage buildings were added to the rental unit development. The site grading was revised which necessitated revisions to the storm-water system. The storm-water collections system was revised to provide for catchment based on the revised grading. The watersheds (sub-catchments) were evaluated and revised to reflect the above listed revisions.

The attached calculations are reflective of the revisions and include updated sediment fore-bay sizing and pond sizing calculations.

APPENDIX A

Sediment Fore-bay Sizing Calculations:

IB – 1 modeled as Pond 1P: SF-1

Impervious Area = 9.29 acres

9.29 x 1/12 x 0.1 = 0.0774 acre feet required 0.079 acre feet provided

IB – 2 modeled as Pond 1P: SF-2

Impervious Area = 34.158 acres

3.175 x 1/12 x 0.1 = 0.0345 acre feet required 0.075 acre feet provided

IB – 3 modeled as Pond 1P: SF-3

Impervious Area = 7.664 acres

6.076 x 1/12 x 0.1 = 0.0504 acre feet required 0.217 acre feet provided

APPENDIX B

2 YR POST-DEVELOPMENT
Sediment Fore-bays and Ponds

IB - 1

Pond 1P: SF-1

[93] Warning: Storage range exceeded by 0.59'
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area =	25.388 ac,	Inflow Depth =	0.55"	for 2-YR event	
Inflow =	17.72 cfs @	12.02 hrs,	Volume=	1.164 af	
Outflow =	24.13 cfs @	12.05 hrs,	Volume=	1.085 af,	Atten= 0%, Lag= 1.4 min
Primary =	24.13 cfs @	12.05 hrs,	Volume=	1.085 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 175.09' @ 12.05 hrs Surf.Area= 0.062 ac Storage= 0.079 af

Plug-Flow detention time= 50.3 min calculated for 1.085 af (93% of inflow)
Center-of-Mass det. time= 14.2 min (898.6 - 884.4)

Volume	Invert	Avail.Storage	Storage Description
#1	173.00'	0.079 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
173.00	0.043	0.000	0.000
174.00	0.056	0.050	0.050
174.50	0.062	0.029	0.079

Device	Routing	Invert	Outlet Devices
#1	Primary	174.50'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=22.88 cfs @ 12.05 hrs HW=175.06' TW=172.14' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 22.88 cfs @ 2.03 fps)

Pond 2P: IB-1

Inflow Area =	28.478 ac,	Inflow Depth =	0.49"	for 2-YR event	
Inflow =	24.42 cfs @	12.05 hrs,	Volume=	1.173 af	
Outflow =	9.98 cfs @	12.14 hrs,	Volume=	1.185 af,	Atten= 59%, Lag= 5.7 min
Discarded =	9.98 cfs @	12.14 hrs,	Volume=	1.185 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 172.20' @ 12.14 hrs Surf.Area= 0.495 ac Storage= 0.096 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.8 min (903.9 - 902.1)

Volume	Invert	Avail.Storage	Storage Description
#1	172.00'	2.476 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
172.00	0.484	0.000	0.000
174.00	0.596	1.080	1.080
176.00	0.800	1.396	2.476

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**
#2	Primary	175.50'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=9.98 cfs @ 12.14 hrs HW=172.20' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 9.98 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=172.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 90P: TR1

Inflow Area = 1.300 ac, Inflow Depth = 0.00" for 2-YR event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 202.00' @ 0.00 hrs Surf.Area= 0.019 ac Storage= 0.000 af

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: no inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	202.00'	0.038 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
202.00	0.019	0.000	0.000
204.00	0.019	0.038	0.038

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 0.00 hrs HW=202.00' (Free Discharge)
└─**1=Exfiltration** (Passes 0.00 cfs of 0.38 cfs potential flow)

IB - 2

Pond 1P: SF-2

[93] Warning: Storage range exceeded by 0.50'
[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area =	11.716 ac,	Inflow Depth =	0.41"	for 2-YR event	
Inflow =	4.42 cfs @	12.02 hrs,	Volume=	0.396 af	
Outflow =	3.80 cfs @	12.14 hrs,	Volume=	0.321 af,	Atten= 14%, Lag= 7.8 min
Primary =	3.80 cfs @	12.14 hrs,	Volume=	0.321 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 170.50' @ 12.14 hrs Surf.Area= 0.049 ac Storage= 0.075 af

Plug-Flow detention time= 133.0 min calculated for 0.321 af (81% of inflow)
Center-of-Mass det. time= 46.1 min (958.3 - 912.1)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	0.075 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.026	0.000	0.000
170.00	0.049	0.075	0.075

Device	Routing	Invert	Outlet Devices
#1	Primary	170.00'	**4.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=3.52 cfs @ 12.14 hrs HW=170.47' TW=170.00' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 3.52 cfs @ 1.86 fps)

Pond 2P: IB-2

Inflow Area =	13.112 ac,	Inflow Depth =	0.34"	for 2-YR event	
Inflow =	4.05 cfs @	12.14 hrs,	Volume=	0.372 af	
Outflow =	3.68 cfs @	12.15 hrs,	Volume=	0.374 af,	Atten= 9%, Lag= 0.1 min
Discarded =	3.68 cfs @	12.15 hrs,	Volume=	0.374 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 170.00' @ 12.15 hrs Surf.Area= 0.183 ac Storage= 0.001 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.2 min (953.2 - 952.0)

Volume	Invert	Avail.Storage	Storage Description
#1	170.00'	1.068 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
170.00	0.183	0.000	0.000
172.00	0.266	0.449	0.449
174.00	0.353	0.619	1.068

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**
#2	Primary	173.50'	**4.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=3.69 cfs @ 12.15 hrs HW=170.00' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 3.69 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=170.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

IB - 3

Pond 1P: SF-3

Inflow Area = 19.285 ac, Inflow Depth = 0.39" for 2-YR event
Inflow = 8.09 cfs @ 12.04 hrs, Volume= 0.620 af
Outflow = 6.77 cfs @ 12.11 hrs, Volume= 0.541 af, Atten= 16%, Lag= 4.5 min
Primary = 6.77 cfs @ 12.11 hrs, Volume= 0.541 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 169.27' @ 12.12 hrs Surf.Area= 0.093 ac Storage= 0.103 af

Plug-Flow detention time= 95.9 min calculated for 0.541 af (87% of inflow)
Center-of-Mass det. time= 34.2 min (943.2 - 909.0)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	0.390 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.069	0.000	0.000
170.00	0.107	0.176	0.176
172.50	0.064	0.214	0.390

Device	Routing	Invert	Outlet Devices
#1	Primary	169.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=6.27 cfs @ 12.11 hrs HW=169.26' TW=168.02' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 6.27 cfs @ 1.23 fps)

Pond 2P: IB-3

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 20.395 ac, Inflow Depth = 0.36" for 2-YR event
Inflow = 7.40 cfs @ 12.11 hrs, Volume= 0.613 af
Outflow = 5.23 cfs @ 12.15 hrs, Volume= 0.614 af, Atten= 29%, Lag= 2.3 min
Discarded = 5.23 cfs @ 12.15 hrs, Volume= 0.614 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 168.04' @ 12.17 hrs Surf.Area= 0.260 ac Storage= 0.011 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.7 min (936.3 - 935.5)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	1.792 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.255	0.000	0.000
170.00	0.476	0.731	0.731
172.00	0.585	1.061	1.792

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=5.23 cfs @ 12.15 hrs HW=168.04' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 5.23 cfs)

APPENDIX C

10 YR POST-DEVELOPMENT
Sediment Fore-bays and Ponds

IB - 1

Pond 1P: SF-1

[93] Warning: Storage range exceeded by 0.66'
[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area =	25.388 ac,	Inflow Depth =	1.35"	for	10-YR event
Inflow =	29.61 cfs @	12.14 hrs,	Volume=	2.865 af	
Outflow =	28.75 cfs @	12.13 hrs,	Volume=	2.786 af,	Atten= 3%, Lag= 0.0 min
Primary =	28.75 cfs @	12.13 hrs,	Volume=	2.786 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 175.16' @ 12.13 hrs Surf.Area= 0.062 ac Storage= 0.079 af

Plug-Flow detention time= 22.3 min calculated for 2.786 af (97% of inflow)
Center-of-Mass det. time= 7.0 min (872.2 - 865.2)

Volume	Invert	Avail.Storage	Storage Description
#1	173.00'	0.079 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
173.00	0.043	0.000	0.000
174.00	0.056	0.050	0.050
174.50	0.062	0.029	0.079

Device	Routing	Invert	Outlet Devices
#1	Primary	174.50'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=28.53 cfs @ 12.13 hrs HW=175.16' TW=172.28' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 28.53 cfs @ 2.17 fps)

Pond 2P: IB-1

Inflow Area =	28.478 ac,	Inflow Depth =	1.29"	for	10-YR event
Inflow =	29.89 cfs @	12.14 hrs,	Volume=	3.059 af	
Outflow =	10.91 cfs @	12.61 hrs,	Volume=	3.067 af,	Atten= 64%, Lag= 28.1 min
Discarded =	10.91 cfs @	12.61 hrs,	Volume=	3.067 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 173.01' @ 12.61 hrs Surf.Area= 0.541 ac Storage= 0.519 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 12.0 min (886.4 - 874.5)

Volume	Invert	Avail.Storage	Storage Description
#1	172.00'	2.476 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
172.00	0.484	0.000	0.000
174.00	0.596	1.080	1.080
176.00	0.800	1.396	2.476

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**
#2	Primary	175.50'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=10.90 cfs @ 12.61 hrs HW=173.01' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 10.90 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=172.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 90P: TR1

Inflow Area = 1.300 ac, Inflow Depth = 0.08" for 10-YR event
Inflow = 0.01 cfs @ 15.13 hrs, Volume= 0.009 af
Outflow = 0.01 cfs @ 15.13 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.01 cfs @ 15.13 hrs, Volume= 0.009 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 202.00' @ 0.00 hrs Surf.Area= 0.019 ac Storage= 0.000 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (1,087.8 - 1,087.8)

Volume	Invert	Avail.Storage	Storage Description
#1	202.00'	0.038 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
202.00	0.019	0.000	0.000
204.00	0.019	0.038	0.038

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 15.13 hrs HW=202.00' (Free Discharge)
└─**1=Exfiltration** (Passes 0.00 cfs of 0.38 cfs potential flow)

IB - 2

Pond 1P: SF-2

[93] Warning: Storage range exceeded by 1.07'
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area =	11.716 ac,	Inflow Depth =	1.14"	for	10-YR event
Inflow =	9.67 cfs @	12.15 hrs,	Volume=	1.113 af	
Outflow =	10.79 cfs @	12.15 hrs,	Volume=	1.038 af,	Atten= 0%, Lag= 0.0 min
Primary =	10.79 cfs @	12.15 hrs,	Volume=	1.038 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 171.07' @ 12.45 hrs Surf.Area= 0.049 ac Storage= 0.075 af

Plug-Flow detention time= 47.7 min calculated for 1.037 af (93% of inflow)
Center-of-Mass det. time= 13.5 min (894.2 - 880.8)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	0.075 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.026	0.000	0.000
170.00	0.049	0.075	0.075

Device	Routing	Invert	Outlet Devices
#1	Primary	170.00'	**4.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=10.24 cfs @ 12.15 hrs HW=171.03' TW=170.34' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 10.24 cfs @ 2.47 fps)

Pond 2P: IB-2

Inflow Area =	13.112 ac,	Inflow Depth =	1.08"	for	10-YR event
Inflow =	12.37 cfs @	12.15 hrs,	Volume=	1.184 af	
Outflow =	4.50 cfs @	12.60 hrs,	Volume=	1.184 af,	Atten= 64%, Lag= 27.2 min
Discarded =	4.50 cfs @	12.60 hrs,	Volume=	1.184 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 170.97' @ 12.60 hrs Surf.Area= 0.223 ac Storage= 0.196 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 10.7 min (902.6 - 891.9)

Volume	Invert	Avail.Storage	Storage Description
#1	170.00'	1.068 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
170.00	0.183	0.000	0.000
172.00	0.266	0.449	0.449
174.00	0.353	0.619	1.068

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**
#2	Primary	173.50'	**4.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=4.50 cfs @ 12.60 hrs HW=170.97' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 4.50 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=170.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

IB - 3

Pond 1P: SF-3

Inflow Area = 19.285 ac, Inflow Depth = 1.08" for 10-YR event
Inflow = 16.06 cfs @ 12.16 hrs, Volume= 1.737 af
Outflow = 15.62 cfs @ 12.19 hrs, Volume= 1.659 af, Atten= 3%, Lag= 1.7 min
Primary = 15.62 cfs @ 12.19 hrs, Volume= 1.659 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 169.45' @ 12.19 hrs Surf.Area= 0.097 ac Storage= 0.120 af

Plug-Flow detention time= 36.9 min calculated for 1.656 af (95% of inflow)
Center-of-Mass det. time= 13.1 min (894.9 - 881.7)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	0.390 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.069	0.000	0.000
170.00	0.107	0.176	0.176
172.50	0.064	0.214	0.390

Device	Routing	Invert	Outlet Devices
#1	Primary	169.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=15.46 cfs @ 12.19 hrs HW=169.45' TW=168.39' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 15.46 cfs @ 1.72 fps)

Pond 2P: IB-3

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 20.395 ac, Inflow Depth = 1.07" for 10-YR event
Inflow = 17.38 cfs @ 12.18 hrs, Volume= 1.826 af
Outflow = 7.22 cfs @ 12.61 hrs, Volume= 1.830 af, Atten= 58%, Lag= 25.6 min
Discarded = 7.22 cfs @ 12.61 hrs, Volume= 1.830 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 168.93' @ 12.61 hrs Surf.Area= 0.358 ac Storage= 0.286 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 10.1 min (901.2 - 891.1)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	1.792 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.255	0.000	0.000
170.00	0.476	0.731	0.731
172.00	0.585	1.061	1.792

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=7.22 cfs @ 12.61 hrs HW=168.93' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 7.22 cfs)

APPENDIX D

25 YR POST-DEVELOPMENT
Sediment Fore-bays and Ponds

IB - 1

Pond 1P: SF-1

[93] Warning: Storage range exceeded by 0.83'
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area =	25.388 ac,	Inflow Depth =	1.77"	for 25-YR event	
Inflow =	39.48 cfs @	12.14 hrs,	Volume=	3.755 af	
Outflow =	40.23 cfs @	12.14 hrs,	Volume=	3.676 af,	Atten= 0%, Lag= 0.2 min
Primary =	40.23 cfs @	12.14 hrs,	Volume=	3.676 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 175.33' @ 12.14 hrs Surf.Area= 0.062 ac Storage= 0.079 af

Plug-Flow detention time= 17.7 min calculated for 3.676 af (98% of inflow)
Center-of-Mass det. time= 5.8 min (864.2 - 858.4)

Volume	Invert	Avail.Storage	Storage Description
#1	173.00'	0.079 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
173.00	0.043	0.000	0.000
174.00	0.056	0.050	0.050
174.50	0.062	0.029	0.079

Device	Routing	Invert	Outlet Devices
#1	Primary	174.50'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=39.59 cfs @ 12.14 hrs HW=175.33' TW=172.58' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 39.59 cfs @ 2.40 fps)

Pond 2P: IB-1

Inflow Area =	28.478 ac,	Inflow Depth =	1.71"	for 25-YR event	
Inflow =	42.22 cfs @	12.15 hrs,	Volume=	4.051 af	
Outflow =	11.65 cfs @	12.68 hrs,	Volume=	4.055 af,	Atten= 72%, Lag= 32.3 min
Discarded =	11.65 cfs @	12.68 hrs,	Volume=	4.055 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 173.68' @ 12.68 hrs Surf.Area= 0.578 ac Storage= 0.890 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 21.3 min (887.6 - 866.3)

Volume	Invert	Avail.Storage	Storage Description
#1	172.00'	2.476 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
172.00	0.484	0.000	0.000
174.00	0.596	1.080	1.080
176.00	0.800	1.396	2.476

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**
#2	Primary	175.50'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=11.65 cfs @ 12.68 hrs HW=173.68' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 11.65 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=172.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 90P: TR1

Inflow Area = 1.300 ac, Inflow Depth = 0.19" for 25-YR event
Inflow = 0.04 cfs @ 13.64 hrs, Volume= 0.021 af
Outflow = 0.04 cfs @ 13.64 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.04 cfs @ 13.64 hrs, Volume= 0.021 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 202.00' @ 0.00 hrs Surf.Area= 0.019 ac Storage= 0.000 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (1,022.4 - 1,022.4)

Volume	Invert	Avail.Storage	Storage Description
#1	202.00'	0.038 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
202.00	0.019	0.000	0.000
204.00	0.019	0.038	0.038

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 13.64 hrs HW=202.00' (Free Discharge)
└─**1=Exfiltration** (Passes 0.00 cfs of 0.38 cfs potential flow)

IB - 2

Pond 1P: SF-2

[93] Warning: Storage range exceeded by 1.71'
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area =	11.716 ac,	Inflow Depth =	1.54"	for 25-YR event	
Inflow =	13.75 cfs @	12.15 hrs,	Volume=	1.501 af	
Outflow =	16.61 cfs @	12.15 hrs,	Volume=	1.426 af,	Atten= 0%, Lag= 0.0 min
Primary =	16.61 cfs @	12.15 hrs,	Volume=	1.426 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 171.71' @ 12.66 hrs Surf.Area= 0.049 ac Storage= 0.075 af

Plug-Flow detention time= 36.5 min calculated for 1.424 af (95% of inflow)
Center-of-Mass det. time= 10.2 min (882.2 - 872.0)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	0.075 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.026	0.000	0.000
170.00	0.049	0.075	0.075

Device	Routing	Invert	Outlet Devices
#1	Primary	170.00'	**4.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=15.34 cfs @ 12.15 hrs HW=171.41' TW=170.66' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 15.34 cfs @ 2.71 fps)

Pond 2P: IB-2

[80] Warning: Exceeded Pond 1P by 1.53' @ 13.00 hrs (19.97 cfs 0.596 af)

Inflow Area =	13.112 ac,	Inflow Depth =	1.48"	for 25-YR event	
Inflow =	18.78 cfs @	12.15 hrs,	Volume=	1.621 af	
Outflow =	5.08 cfs @	12.67 hrs,	Volume=	1.624 af,	Atten= 73%, Lag= 31.1 min
Discarded =	5.08 cfs @	12.67 hrs,	Volume=	1.624 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 171.66' @ 12.67 hrs Surf.Area= 0.252 ac Storage= 0.361 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 21.8 min (902.0 - 880.2)

Volume	Invert	Avail.Storage	Storage Description
#1	170.00'	1.068 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
170.00	0.183	0.000	0.000
172.00	0.266	0.449	0.449
174.00	0.353	0.619	1.068

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**
#2	Primary	173.50'	**4.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=5.08 cfs @ 12.67 hrs HW=171.66' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 5.08 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=170.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

IB - 3

Pond 1P: SF-3

Inflow Area = 19.285 ac, Inflow Depth = 1.46" for 25-YR event
Inflow = 22.59 cfs @ 12.16 hrs, Volume= 2.347 af
Outflow = 22.07 cfs @ 12.18 hrs, Volume= 2.268 af, Atten= 2%, Lag= 1.4 min
Primary = 22.07 cfs @ 12.18 hrs, Volume= 2.268 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 169.56' @ 12.18 hrs Surf.Area= 0.099 ac Storage= 0.130 af

Plug-Flow detention time= 29.6 min calculated for 2.268 af (97% of inflow)
Center-of-Mass det. time= 11.0 min (884.2 - 873.2)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	0.390 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.069	0.000	0.000
170.00	0.107	0.176	0.176
172.50	0.064	0.214	0.390

Device	Routing	Invert	Outlet Devices
#1	Primary	169.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=21.79 cfs @ 12.18 hrs HW=169.55' TW=168.66' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 21.79 cfs @ 1.97 fps)

Pond 2P: IB-3

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area = 20.395 ac, Inflow Depth = 1.46" for 25-YR event
Inflow = 24.68 cfs @ 12.17 hrs, Volume= 2.483 af
Outflow = 8.38 cfs @ 12.63 hrs, Volume= 2.488 af, Atten= 66%, Lag= 27.4 min
Discarded = 8.38 cfs @ 12.63 hrs, Volume= 2.488 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 169.45' @ 12.63 hrs Surf.Area= 0.415 ac Storage= 0.487 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 17.3 min (898.3 - 881.0)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	1.792 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.255	0.000	0.000
170.00	0.476	0.731	0.731
172.00	0.585	1.061	1.792

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=8.38 cfs @ 12.63 hrs HW=169.45' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 8.38 cfs)

APPENDIX E

50 YR POST-DEVELOPMENT
Sediment Fore-bays and Ponds

IB - 1

Pond 1P: SF-1

[93] Warning: Storage range exceeded by 0.97'
[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area =	25.388 ac,	Inflow Depth =	2.23"	for	50-YR event
Inflow =	50.26 cfs @	12.14 hrs,	Volume=	4.712 af	
Outflow =	50.12 cfs @	12.14 hrs,	Volume=	4.633 af,	Atten= 0%, Lag= 0.0 min
Primary =	50.12 cfs @	12.14 hrs,	Volume=	4.633 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 175.47' @ 12.14 hrs Surf.Area= 0.062 ac Storage= 0.079 af

Plug-Flow detention time= 14.4 min calculated for 4.627 af (98% of inflow)
Center-of-Mass det. time= 5.0 min (857.6 - 852.7)

Volume	Invert	Avail.Storage	Storage Description
#1	173.00'	0.079 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
173.00	0.043	0.000	0.000
174.00	0.056	0.050	0.050
174.50	0.062	0.029	0.079

Device	Routing	Invert	Outlet Devices
#1	Primary	174.50'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=49.30 cfs @ 12.14 hrs HW=175.46' TW=172.86' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 49.30 cfs @ 2.58 fps)

Pond 2P: IB-1

Inflow Area =	28.478 ac,	Inflow Depth =	2.16"	for	50-YR event
Inflow =	52.86 cfs @	12.14 hrs,	Volume=	5.118 af	
Outflow =	12.83 cfs @	12.75 hrs,	Volume=	5.129 af,	Atten= 76%, Lag= 36.5 min
Discarded =	12.83 cfs @	12.75 hrs,	Volume=	5.129 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 174.39' @ 12.75 hrs Surf.Area= 0.636 ac Storage= 1.323 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 33.3 min (892.9 - 859.6)

Volume	Invert	Avail.Storage	Storage Description
#1	172.00'	2.476 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
172.00	0.484	0.000	0.000
174.00	0.596	1.080	1.080
176.00	0.800	1.396	2.476

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**
#2	Primary	175.50'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=12.83 cfs @ 12.75 hrs HW=174.39' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 12.83 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=172.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 90P: TR1

Inflow Area = 1.300 ac, Inflow Depth = 0.34" for 50-YR event
Inflow = 0.13 cfs @ 12.41 hrs, Volume= 0.037 af
Outflow = 0.13 cfs @ 12.41 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.13 cfs @ 12.41 hrs, Volume= 0.037 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 202.00' @ 0.00 hrs Surf.Area= 0.019 ac Storage= 0.000 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (983.1 - 983.1)

Volume	Invert	Avail.Storage	Storage Description
#1	202.00'	0.038 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
202.00	0.019	0.000	0.000
204.00	0.019	0.038	0.038

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.00 cfs @ 12.41 hrs HW=202.00' (Free Discharge)
└─**1=Exfiltration** (Passes 0.00 cfs of 0.38 cfs potential flow)

IB - 2

Pond 1P: SF-2

[93] Warning: Storage range exceeded by 2.37'
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area =	11.716 ac,	Inflow Depth =	1.97"	for	50-YR event
Inflow =	18.21 cfs @	12.15 hrs,	Volume=	1.922 af	
Outflow =	19.18 cfs @	12.19 hrs,	Volume=	1.847 af,	Atten= 0%, Lag= 2.5 min
Primary =	19.18 cfs @	12.19 hrs,	Volume=	1.847 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 172.37' @ 12.79 hrs Surf.Area= 0.049 ac Storage= 0.075 af

Plug-Flow detention time= 29.3 min calculated for 1.844 af (96% of inflow)
Center-of-Mass det. time= 8.3 min (873.2 - 864.9)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	0.075 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.026	0.000	0.000
170.00	0.049	0.075	0.075

Device	Routing	Invert	Outlet Devices
#1	Primary	170.00'	**4.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=15.85 cfs @ 12.19 hrs HW=171.69' TW=171.24' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 15.85 cfs @ 2.34 fps)

Pond 2P: IB-2

[80] Warning: Exceeded Pond 1P by 1.05' @ 14.55 hrs (11.40 cfs 0.397 af)

Inflow Area =	13.112 ac,	Inflow Depth =	1.92"	for	50-YR event
Inflow =	22.55 cfs @	12.11 hrs,	Volume=	2.096 af	
Outflow =	5.68 cfs @	12.72 hrs,	Volume=	2.098 af,	Atten= 75%, Lag= 36.8 min
Discarded =	5.68 cfs @	12.72 hrs,	Volume=	2.098 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 172.36' @ 12.72 hrs Surf.Area= 0.282 ac Storage= 0.547 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 32.7 min (904.1 - 871.4)

Volume	Invert	Avail.Storage	Storage Description
#1	170.00'	1.068 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
170.00	0.183	0.000	0.000
172.00	0.266	0.449	0.449
174.00	0.353	0.619	1.068

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**
#2	Primary	173.50'	**4.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=5.68 cfs @ 12.72 hrs HW=172.36' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 5.68 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=170.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

IB - 3

Pond 1P: SF-3

Inflow Area = 19.285 ac, Inflow Depth = 1.87" for 50-YR event
Inflow = 29.90 cfs @ 12.16 hrs, Volume= 3.012 af
Outflow = 29.27 cfs @ 12.18 hrs, Volume= 2.933 af, Atten= 2%, Lag= 1.3 min
Primary = 29.27 cfs @ 12.18 hrs, Volume= 2.933 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 169.95' @ 12.71 hrs Surf.Area= 0.106 ac Storage= 0.170 af

Plug-Flow detention time= 24.9 min calculated for 2.929 af (97% of inflow)
Center-of-Mass det. time= 10.6 min (876.9 - 866.3)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	0.390 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.069	0.000	0.000
170.00	0.107	0.176	0.176
172.50	0.064	0.214	0.390

Device	Routing	Invert	Outlet Devices
#1	Primary	169.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=28.88 cfs @ 12.18 hrs HW=169.66' TW=168.98' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 28.88 cfs @ 2.18 fps)

Pond 2P: IB-3

[87] Warning: Oscillations may require Finer Routing or smaller dt
[80] Warning: Exceeded Pond 1P by 0.03' @ 12.50 hrs (13.24 cfs 0.234 af)

Inflow Area = 20.395 ac, Inflow Depth = 1.88" for 50-YR event
Inflow = 32.47 cfs @ 12.17 hrs, Volume= 3.199 af
Outflow = 9.47 cfs @ 12.67 hrs, Volume= 3.202 af, Atten= 71%, Lag= 29.5 min
Discarded = 9.47 cfs @ 12.67 hrs, Volume= 3.202 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 169.94' @ 12.67 hrs Surf.Area= 0.470 ac Storage= 0.704 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 24.9 min (898.8 - 873.9)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	1.792 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.255	0.000	0.000
170.00	0.476	0.731	0.731
172.00	0.585	1.061	1.792

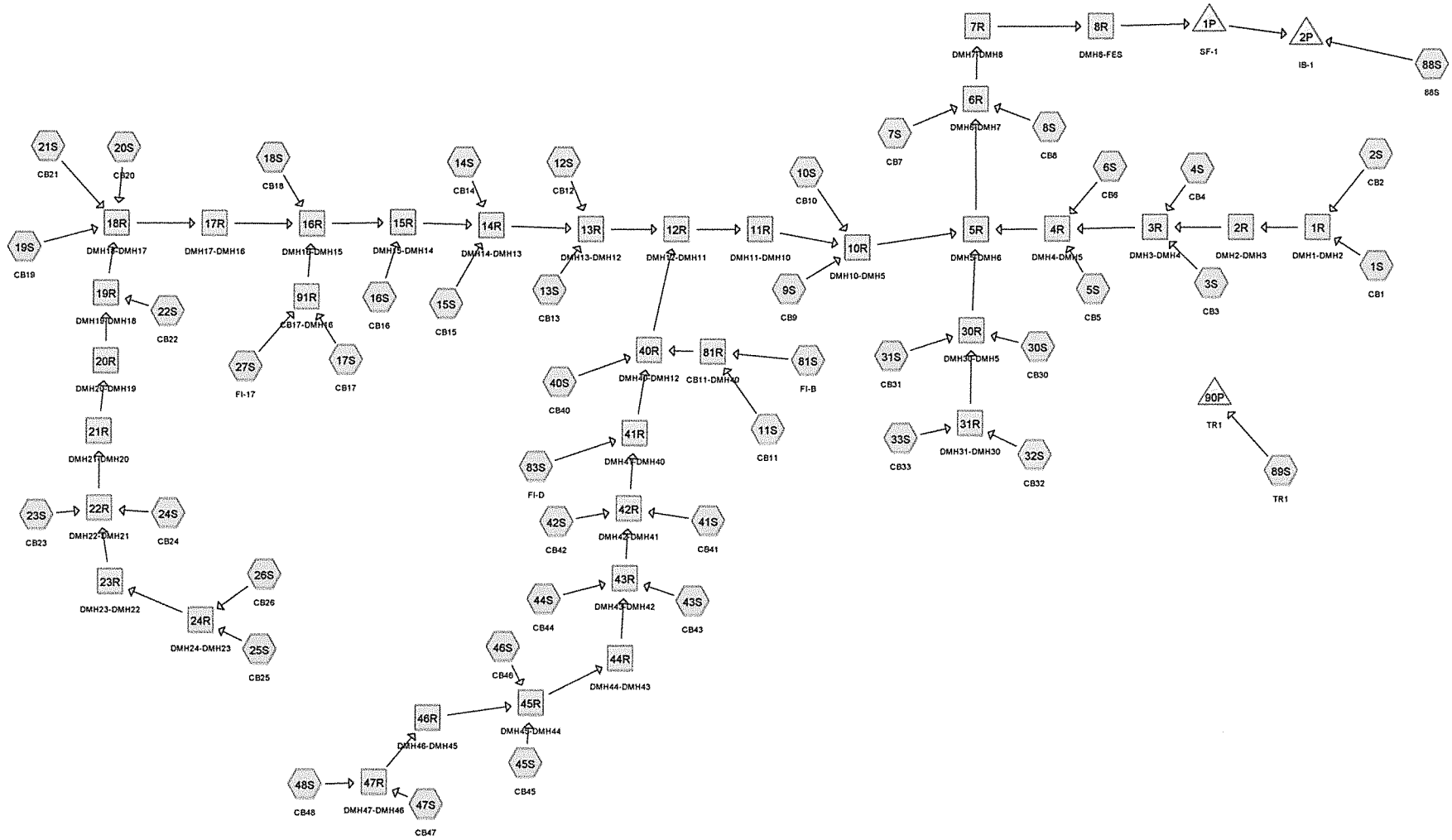
Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=9.47 cfs @ 12.67 hrs HW=169.94' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 9.47 cfs)

APPENDIX F

100 YR POST-DEVELOPMENT
Sediment Fore-bays and Ponds

IB - 1



Subcat Reach Pond Link

Drainage Diagram for LS-Apartments (propcondition)-BasinA

Prepared by CAQ/rrg 7/25/2018

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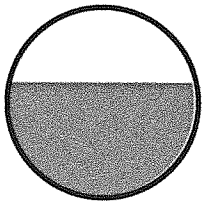


Reach 3R: DMH3-DMH4

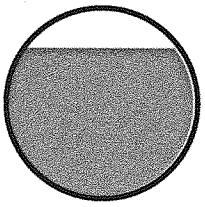
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 79% of Reach 2R bottom

Inflow Area =	5.564 ac,	Inflow Depth =	1.71"	for	100-YR event
Inflow =	6.85 cfs @	12.16 hrs,	Volume=	0.794 af	
Outflow =	6.86 cfs @	12.17 hrs,	Volume=	0.794 af,	Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.57 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.61 fps, Avg. Travel Time= 1.6 min

Peak Storage= 262 cf @ 12.17 hrs, Average Depth at Peak Storage= 0.99'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 7.09 cfs

15.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 251.0' Slope= 0.0120 '/'
Inlet Invert= 188.93', Outlet Invert= 185.91'



Reach 4R: DMH4-DMH5

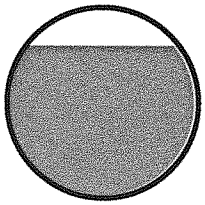
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 30% of Reach 3R bottom

Inflow Area =	5.988 ac,	Inflow Depth =	1.81"	for	100-YR event
Inflow =	7.99 cfs @	12.15 hrs,	Volume=	0.903 af	
Outflow =	8.00 cfs @	12.16 hrs,	Volume=	0.903 af,	Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.59 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.60 fps, Avg. Travel Time= 0.5 min

Peak Storage= 84 cf @ 12.16 hrs, Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 8.17 cfs

15.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 80.0' Slope= 0.0160 '/'
Inlet Invert= 185.81', Outlet Invert= 184.53'



Reach 5R: DMH5-DMH6

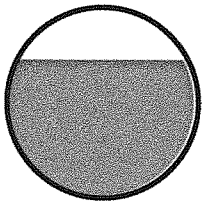
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 31% of Reach 4R bottom
[62] Warning: Submerged 39% of Reach 10R inlet

Inflow Area =	25.171 ac,	Inflow Depth =	2.61"	for	100-YR event
Inflow =	58.93 cfs @	12.12 hrs,	Volume=	5.485 af	
Outflow =	58.46 cfs @	12.13 hrs,	Volume=	5.485 af,	Atten= 1%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.62 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.26 fps, Avg. Travel Time= 0.9 min

Peak Storage= 917 cf @ 12.13 hrs, Average Depth at Peak Storage= 2.18'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 66.70 cfs

36.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 167.0' Slope= 0.0100 '/'
Inlet Invert= 182.77', Outlet Invert= 181.10'



Reach 6R: DMH6-DMH7

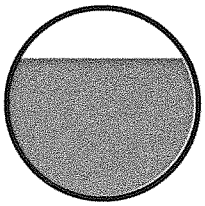
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[62] Warning: Submerged 14% of Reach 5R inlet

Inflow Area =	25.388 ac,	Inflow Depth =	2.64"	for	100-YR event
Inflow =	59.53 cfs @	12.13 hrs,	Volume=	5.577 af	
Outflow =	59.56 cfs @	12.13 hrs,	Volume=	5.577 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.65 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.28 fps, Avg. Travel Time= 0.1 min

Peak Storage= 117 cf @ 12.13 hrs, Average Depth at Peak Storage= 2.21'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 66.70 cfs

36.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 21.0' Slope= 0.0100 '/'
Inlet Invert= 181.00', Outlet Invert= 180.79'



Reach 7R: DMH7-DMH8

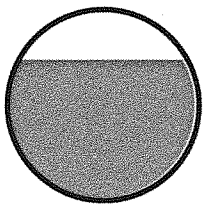
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[62] Warning: Submerged 63% of Reach 6R inlet

Inflow Area =	25.388 ac,	Inflow Depth =	2.64"	for	100-YR event
Inflow =	59.56 cfs @	12.13 hrs,	Volume=	5.577 af	
Outflow =	59.66 cfs @	12.13 hrs,	Volume=	5.577 af,	Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.66 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.29 fps, Avg. Travel Time= 0.5 min

Peak Storage= 604 cf @ 12.13 hrs, Average Depth at Peak Storage= 2.21'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 66.70 cfs

36.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 108.0' Slope= 0.0100 '/'
Inlet Invert= 180.68', Outlet Invert= 179.60'



Reach 8R: DMH8-FES

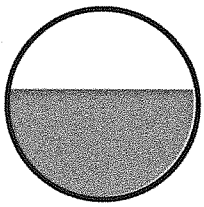
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[62] Warning: Submerged 18% of Reach 7R inlet

Inflow Area = 25.388 ac, Inflow Depth = 2.64" for 100-YR event
Inflow = 59.66 cfs @ 12.13 hrs, Volume= 5.577 af
Outflow = 59.69 cfs @ 12.14 hrs, Volume= 5.577 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 14.09 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.22 fps, Avg. Travel Time= 0.2 min

Peak Storage= 169 cf @ 12.13 hrs, Average Depth at Peak Storage= 1.73'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 94.33 cfs

36.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 40.0' Slope= 0.0200 '/'
Inlet Invert= 179.50', Outlet Invert= 178.70'



Reach 10R: DMH10-DMH5

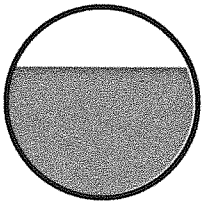
[52] Hint: Inlet conditions not evaluated
[62] Warning: Submerged 55% of Reach 11R inlet

Inflow Area = 17.188 ac, Inflow Depth = 2.92" for 100-YR event
Inflow = 46.13 cfs @ 12.12 hrs, Volume= 4.186 af
Outflow = 45.65 cfs @ 12.13 hrs, Volume= 4.186 af, Atten= 1%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.79 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.82 fps, Avg. Travel Time= 0.7 min

Peak Storage= 646 cf @ 12.13 hrs, Average Depth at Peak Storage= 2.06'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 55.96 cfs

36.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 125.0' Slope= 0.0070 '/'
Inlet Invert= 183.75', Outlet Invert= 182.87'



Reach 11R: DMH11-DMH10

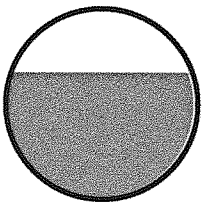
[52] Hint: Inlet conditions not evaluated
[62] Warning: Submerged 18% of Reach 12R inlet

Inflow Area = 16.655 ac, Inflow Depth = 2.90" for 100-YR event
Inflow = 44.02 cfs @ 12.12 hrs, Volume= 4.020 af
Outflow = 44.00 cfs @ 12.12 hrs, Volume= 4.020 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.76 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.91 fps, Avg. Travel Time= 0.2 min

Peak Storage= 190 cf @ 12.12 hrs, Average Depth at Peak Storage= 2.00'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 56.22 cfs

36.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 38.0' Slope= 0.0071 '/'
Inlet Invert= 184.12', Outlet Invert= 183.85'



Reach 12R: DMH12-DMH11

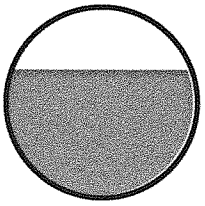
[52] Hint: Inlet conditions not evaluated
[63] Warning: Exceeded Reach 13R inflow depth by 0.03' @ 12.10 hrs
[61] Hint: Submerged 60% of Reach 40R bottom

Inflow Area = 16.655 ac, Inflow Depth = 2.90" for 100-YR event
Inflow = 44.18 cfs @ 12.12 hrs, Volume= 4.020 af
Outflow = 44.02 cfs @ 12.12 hrs, Volume= 4.020 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.71 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.90 fps, Avg. Travel Time= 1.1 min

Peak Storage= 956 cf @ 12.12 hrs, Average Depth at Peak Storage= 2.01'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 55.80 cfs

36.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 190.0' Slope= 0.0070 '/'
Inlet Invert= 185.55', Outlet Invert= 184.22'



Reach 13R: DMH13-DMH12

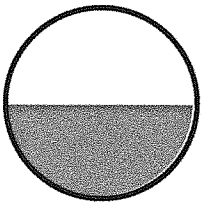
[52] Hint: Inlet conditions not evaluated
[62] Warning: Submerged 19% of Reach 14R inlet

Inflow Area = 11.346 ac, Inflow Depth = 2.85" for 100-YR event
Inflow = 26.97 cfs @ 12.12 hrs, Volume= 2.693 af
Outflow = 26.95 cfs @ 12.12 hrs, Volume= 2.693 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.78 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.58 fps, Avg. Travel Time= 0.4 min

Peak Storage= 196 cf @ 12.12 hrs, Average Depth at Peak Storage= 1.47'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 55.87 cfs

36.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 57.0' Slope= 0.0070 '/'
Inlet Invert= 186.05', Outlet Invert= 185.65'



Reach 14R: DMH14-DMH13

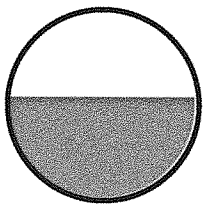
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 23% of Reach 15R bottom

Inflow Area = 10.350 ac, Inflow Depth = 2.83" for 100-YR event
Inflow = 23.47 cfs @ 12.13 hrs, Volume= 2.443 af
Outflow = 23.49 cfs @ 12.13 hrs, Volume= 2.443 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.61 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.91 fps, Avg. Travel Time= 0.3 min

Peak Storage= 131 cf @ 12.13 hrs, Average Depth at Peak Storage= 1.36'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 41.02 cfs

30.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 48.0' Slope= 0.0100 '/'
Inlet Invert= 187.03', Outlet Invert= 186.55'



Reach 15R: DMH15-DMH14

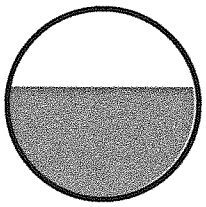
[52] Hint: Inlet conditions not evaluated

Inflow Area =	7.909 ac,	Inflow Depth =	3.10"	for	100-YR event
Inflow =	21.11 cfs @	12.12 hrs,	Volume=	2.041 af	
Outflow =	20.86 cfs @	12.13 hrs,	Volume=	2.041 af,	Atten= 1%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.82 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.64 fps, Avg. Travel Time= 0.8 min

Peak Storage= 354 cf @ 12.13 hrs, Average Depth at Peak Storage= 1.18'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 31.99 cfs

24.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 184.0' Slope= 0.0200 '/'
Inlet Invert= 191.21', Outlet Invert= 187.53'



Reach 16R: DMH16-DMH15

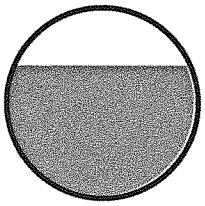
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 46% of Reach 17R bottom
[62] Warning: Submerged 23% of Reach 91R inlet

Inflow Area = 5.989 ac, Inflow Depth = 3.30" for 100-YR event
Inflow = 18.85 cfs @ 12.11 hrs, Volume= 1.647 af
Outflow = 18.72 cfs @ 12.12 hrs, Volume= 1.647 af, Atten= 1%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.03 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.68 fps, Avg. Travel Time= 1.2 min

Peak Storage= 435 cf @ 12.12 hrs, Average Depth at Peak Storage= 1.39'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 187.0' Slope= 0.0100 '/'
Inlet Invert= 194.34', Outlet Invert= 192.47'



Reach 17R: DMH17-DMH16

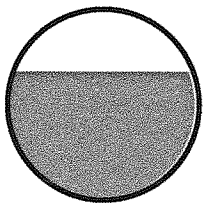
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 15% of Reach 18R bottom

Inflow Area = 3.225 ac, Inflow Depth = 3.26" for 100-YR event
Inflow = 11.85 cfs @ 12.11 hrs, Volume= 0.877 af
Outflow = 11.84 cfs @ 12.11 hrs, Volume= 0.877 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.33 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.01 fps, Avg. Travel Time= 0.5 min

Peak Storage= 119 cf @ 12.11 hrs, Average Depth at Peak Storage= 1.01'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 14.86 cfs

18.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 94.0' Slope= 0.0200 '/'
Inlet Invert= 196.72', Outlet Invert= 194.84'



Reach 18R: DMH18-DMH17

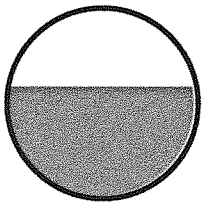
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 66% of Reach 19R bottom

Inflow Area = 3.225 ac, Inflow Depth = 3.26" for 100-YR event
Inflow = 11.85 cfs @ 12.10 hrs, Volume= 0.877 af
Outflow = 11.85 cfs @ 12.11 hrs, Volume= 0.877 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.96 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.47 fps, Avg. Travel Time= 1.0 min

Peak Storage= 218 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.88'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 18.19 cfs

18.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 202.0' Slope= 0.0300 '/'
Inlet Invert= 202.88', Outlet Invert= 196.82'



Reach 19R: DMH19-DMH18

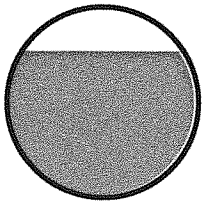
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 52% of Reach 20R bottom

Inflow Area = 2.177 ac, Inflow Depth = 3.47" for 100-YR event
Inflow = 8.57 cfs @ 12.10 hrs, Volume= 0.630 af
Outflow = 8.57 cfs @ 12.10 hrs, Volume= 0.630 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.46 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.78 fps, Avg. Travel Time= 0.2 min

Peak Storage= 41 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.96'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 9.14 cfs

15.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 40.0' Slope= 0.0200 '/'
Inlet Invert= 204.03', Outlet Invert= 203.23'



Reach 20R: DMH20-DMH19

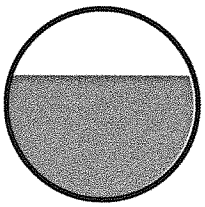
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 34% of Reach 21R bottom

Inflow Area = 2.042 ac, Inflow Depth = 3.34" for 100-YR event
Inflow = 7.77 cfs @ 12.10 hrs, Volume= 0.568 af
Outflow = 7.77 cfs @ 12.10 hrs, Volume= 0.568 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.16 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.10 fps, Avg. Travel Time= 0.4 min

Peak Storage= 56 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 10.21 cfs

15.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 66.0' Slope= 0.0250 '/'
Inlet Invert= 205.78', Outlet Invert= 204.13'



Reach 21R: DMH21-DMH20

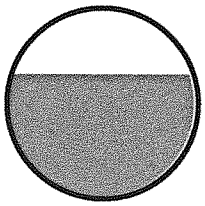
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 43% of Reach 22R bottom

Inflow Area = 2.042 ac, Inflow Depth = 3.34" for 100-YR event
Inflow = 7.77 cfs @ 12.10 hrs, Volume= 0.568 af
Outflow = 7.77 cfs @ 12.10 hrs, Volume= 0.568 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.16 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.11 fps, Avg. Travel Time= 0.5 min

Peak Storage= 71 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 10.21 cfs

15.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 84.0' Slope= 0.0250 '/'
Inlet Invert= 207.98', Outlet Invert= 205.88'



Reach 22R: DMH22-DMH21

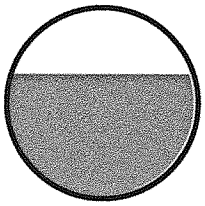
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 9% of Reach 23R bottom

Inflow Area = 2.042 ac, Inflow Depth = 3.34" for 100-YR event
Inflow = 7.76 cfs @ 12.10 hrs, Volume= 0.568 af
Outflow = 7.77 cfs @ 12.10 hrs, Volume= 0.568 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.16 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.10 fps, Avg. Travel Time= 0.4 min

Peak Storage= 56 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 10.21 cfs

15.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 66.0' Slope= 0.0250 '/'
Inlet Invert= 209.73', Outlet Invert= 208.08'



Reach 23R: DMH23-DMH22

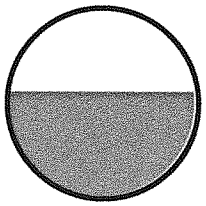
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 35% of Reach 24R bottom

Inflow Area = 0.835 ac, Inflow Depth = 3.59" for 100-YR event
Inflow = 3.42 cfs @ 12.10 hrs, Volume= 0.250 af
Outflow = 3.42 cfs @ 12.10 hrs, Volume= 0.250 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.52 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.54 fps, Avg. Travel Time= 1.6 min

Peak Storage= 111 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.63 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 244.0' Slope= 0.0250 '/'
Inlet Invert= 216.08', Outlet Invert= 209.98'



Reach 24R: DMH24-DMH23

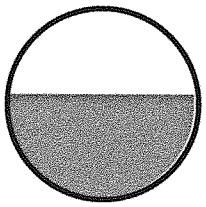
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt

Inflow Area =	0.835 ac,	Inflow Depth =	3.59"	for	100-YR event
Inflow =	3.42 cfs @	12.09 hrs,	Volume=	0.250 af	
Outflow =	3.42 cfs @	12.10 hrs,	Volume=	0.250 af,	Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.70 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.62 fps, Avg. Travel Time= 0.4 min

Peak Storage= 27 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.82 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 60.0' Slope= 0.0267 '/'
Inlet Invert= 217.68', Outlet Invert= 216.08'



Reach 30R: DMH30-DMH5

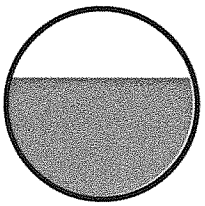
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt

Inflow Area = 1.995 ac, Inflow Depth = 2.38" for 100-YR event
Inflow = 5.22 cfs @ 12.10 hrs, Volume= 0.396 af
Outflow = 5.23 cfs @ 12.10 hrs, Volume= 0.396 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.91 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.77 fps, Avg. Travel Time= 0.2 min

Peak Storage= 22 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.64'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.13 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 41.0' Slope= 0.0400 '/'
Inlet Invert= 188.51', Outlet Invert= 186.87'



Reach 31R: DMH31-DMH30

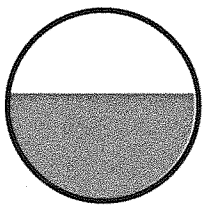
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt

Inflow Area = 1.592 ac, Inflow Depth = 2.19" for 100-YR event
Inflow = 3.78 cfs @ 12.10 hrs, Volume= 0.291 af
Outflow = 3.78 cfs @ 12.10 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.25 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.10 fps, Avg. Travel Time= 0.6 min

Peak Storage= 52 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.57'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.17 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 114.0' Slope= 0.0300 '/'
Inlet Invert= 195.93', Outlet Invert= 192.51'



Reach 40R: DMH40-DMH12

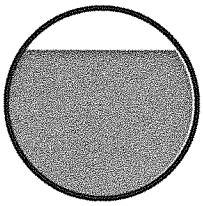
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 26% of Reach 41R bottom
[62] Warning: Submerged 41% of Reach 81R inlet

Inflow Area = 5.309 ac, Inflow Depth = 3.00" for 100-YR event
Inflow = 17.42 cfs @ 12.11 hrs, Volume= 1.327 af
Outflow = 17.42 cfs @ 12.11 hrs, Volume= 1.327 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.72 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 4.14 fps, Avg. Travel Time= 0.1 min

Peak Storage= 31 cf @ 12.11 hrs, Average Depth at Peak Storage= 1.18'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 18.19 cfs

18.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 21.0' Slope= 0.0300 '/'
Inlet Invert= 187.78', Outlet Invert= 187.15'



Reach 41R: DMH41-DMH40

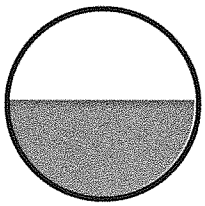
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 9% of Reach 42R bottom

Inflow Area = 3.809 ac, Inflow Depth = 2.70" for 100-YR event
Inflow = 11.30 cfs @ 12.10 hrs, Volume= 0.858 af
Outflow = 11.31 cfs @ 12.10 hrs, Volume= 0.858 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.10 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.01 fps, Avg. Travel Time= 0.4 min

Peak Storage= 97 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.78'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 21.01 cfs

18.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 104.0' Slope= 0.0400 '/'
Inlet Invert= 192.04', Outlet Invert= 187.88'



Reach 42R: DMH42-DMH41

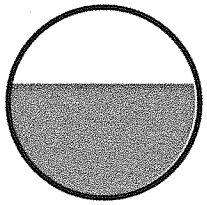
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 7% of Reach 43R bottom

Inflow Area = 3.152 ac, Inflow Depth = 2.53" for 100-YR event
Inflow = 8.63 cfs @ 12.10 hrs, Volume= 0.663 af
Outflow = 8.64 cfs @ 12.11 hrs, Volume= 0.663 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.27 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.81 fps, Avg. Travel Time= 0.7 min

Peak Storage= 119 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.75'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 12.92 cfs

15.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 156.0' Slope= 0.0400 '/'
Inlet Invert= 198.53', Outlet Invert= 192.29'



Reach 43R: DMH43-DMH42

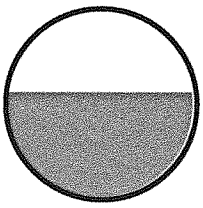
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 17% of Reach 44R bottom

Inflow Area = 1.966 ac, Inflow Depth = 2.13" for 100-YR event
Inflow = 4.35 cfs @ 12.11 hrs, Volume= 0.349 af
Outflow = 4.34 cfs @ 12.11 hrs, Volume= 0.349 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.51 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.29 fps, Avg. Travel Time= 1.0 min

Peak Storage= 87 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.13 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 190.0' Slope= 0.0400 '/'
Inlet Invert= 206.38', Outlet Invert= 198.78'



Reach 44R: DMH44-DMH43

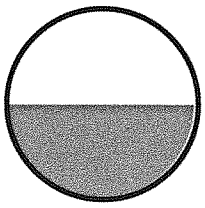
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 14% of Reach 45R bottom

Inflow Area = 1.583 ac, Inflow Depth = 2.16" for 100-YR event
Inflow = 3.55 cfs @ 12.10 hrs, Volume= 0.284 af
Outflow = 3.55 cfs @ 12.11 hrs, Volume= 0.284 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.06 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.12 fps, Avg. Travel Time= 0.4 min

Peak Storage= 26 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.50'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.13 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 66.0' Slope= 0.0400 '/'
Inlet Invert= 209.12', Outlet Invert= 206.48'



Reach 45R: DMH45-DMH44

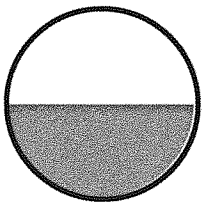
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 5% of Reach 46R bottom

Inflow Area = 1.583 ac, Inflow Depth = 2.16" for 100-YR event
Inflow = 3.55 cfs @ 12.10 hrs, Volume= 0.284 af
Outflow = 3.55 cfs @ 12.10 hrs, Volume= 0.284 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.06 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.12 fps, Avg. Travel Time= 0.4 min

Peak Storage= 27 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.50'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.13 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 70.0' Slope= 0.0400 '/'
Inlet Invert= 212.02', Outlet Invert= 209.22'



Reach 46R: DMH46-DMH45

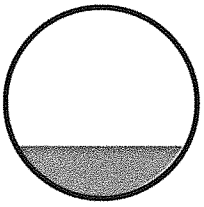
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 5% of Reach 47R bottom

Inflow Area =	0.752 ac,	Inflow Depth =	1.63"	for	100-YR event
Inflow =	1.17 cfs @	12.11 hrs,	Volume=	0.102 af	
Outflow =	1.17 cfs @	12.11 hrs,	Volume=	0.102 af,	Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.67 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.34 fps, Avg. Travel Time= 1.5 min

Peak Storage= 36 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.13 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 206.0' Slope= 0.0400 '/'
Inlet Invert= 220.36', Outlet Invert= 212.12'



Reach 47R: DMH47-DMH46

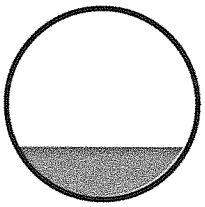
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt

Inflow Area = 0.752 ac, Inflow Depth = 1.63" for 100-YR event
Inflow = 1.17 cfs @ 12.11 hrs, Volume= 0.102 af
Outflow = 1.17 cfs @ 12.11 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.69 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.35 fps, Avg. Travel Time= 0.6 min

Peak Storage= 14 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.13 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 80.0' Slope= 0.0400 '/'
Inlet Invert= 223.66', Outlet Invert= 220.46'



Reach 81R: CB11-DMH40

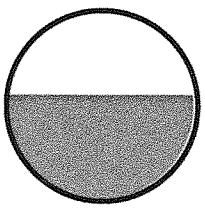
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt

Inflow Area = 0.671 ac, Inflow Depth = 2.82" for 100-YR event
Inflow = 2.14 cfs @ 12.10 hrs, Volume= 0.158 af
Outflow = 2.14 cfs @ 12.10 hrs, Volume= 0.158 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.74 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.77 fps, Avg. Travel Time= 0.2 min

Peak Storage= 7 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.56 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 16.0' Slope= 0.0100 '/'
Inlet Invert= 188.54', Outlet Invert= 188.38'



Reach 91R: CB17-DMH16

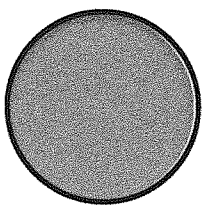
[52] Hint: Inlet conditions not evaluated
[55] Hint: Peak inflow is 135% of Manning's capacity
[76] Warning: Detained 0.021 af (Pond w/culvert advised)

Inflow Area =	2.203 ac,	Inflow Depth =	3.47"	for	100-YR event
Inflow =	6.79 cfs @	12.20 hrs,	Volume=	0.637 af	
Outflow =	5.12 cfs @	12.10 hrs,	Volume=	0.637 af,	Atten= 25%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.31 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.29 fps, Avg. Travel Time= 0.0 min

Peak Storage= 5 cf @ 12.15 hrs, Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.04 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 7.0' Slope= 0.0200 '/'
Inlet Invert= 195.48', Outlet Invert= 195.34'



Pond 1P: SF-1

[93] Warning: Storage range exceeded by 1.09'
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area =	25.388 ac,	Inflow Depth =	2.64"	for	100-YR event
Inflow =	59.69 cfs @	12.14 hrs,	Volume=	5.577 af	
Outflow =	59.73 cfs @	12.14 hrs,	Volume=	5.498 af,	Atten= 0%, Lag= 0.0 min
Primary =	59.73 cfs @	12.14 hrs,	Volume=	5.498 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 175.59' @ 12.14 hrs Surf.Area= 0.062 ac Storage= 0.079 af

Plug-Flow detention time= 12.5 min calculated for 5.491 af (98% of inflow)
Center-of-Mass det. time= 4.4 min (852.9 - 848.5)

Volume	Invert	Avail.Storage	Storage Description
#1	173.00'	0.079 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
173.00	0.043	0.000	0.000
174.00	0.056	0.050	0.050
174.50	0.062	0.029	0.079

Device	Routing	Invert	Outlet Devices
#1	Primary	174.50'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=58.56 cfs @ 12.14 hrs HW=175.57' TW=173.13' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 58.56 cfs @ 2.73 fps)

Pond 2P: IB-1

[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area =	28.478 ac,	Inflow Depth =	2.56"	for	100-YR event
Inflow =	63.17 cfs @	12.14 hrs,	Volume=	6.084 af	
Outflow =	14.06 cfs @	12.79 hrs,	Volume=	6.093 af,	Atten= 78%, Lag= 39.3 min
Discarded =	14.06 cfs @	12.79 hrs,	Volume=	6.093 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 174.99' @ 12.79 hrs Surf.Area= 0.697 ac Storage= 1.723 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 42.9 min (897.7 - 854.8)

Volume	Invert	Avail.Storage	Storage Description
#1	172.00'	2.476 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
172.00	0.484	0.000	0.000
174.00	0.596	1.080	1.080
176.00	0.800	1.396	2.476

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**
#2	Primary	175.50'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=14.06 cfs @ 12.79 hrs HW=174.99' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 14.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=172.00' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 90P: TR1

Inflow Area = 1.300 ac, Inflow Depth = 0.50" for 100-YR event
Inflow = 0.26 cfs @ 12.35 hrs, Volume= 0.054 af
Outflow = 0.26 cfs @ 12.35 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.26 cfs @ 12.35 hrs, Volume= 0.054 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 202.00' @ 12.35 hrs Surf.Area= 0.019 ac Storage= 0.000 af

Plug-Flow detention time= 0.0 min calculated for 0.054 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (960.2 - 960.2)

Volume	Invert	Avail.Storage	Storage Description
#1	202.00'	0.038 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
202.00	0.019	0.000	0.000
204.00	0.019	0.038	0.038

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.38 cfs @ 12.35 hrs HW=202.00' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.38 cfs)

Subcatchment 1S: CB1

Runoff = 2.98 cfs @ 12.26 hrs, Volume= 0.373 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.142	98	Paved roads w/curbs & sewers
0.966	39	>75% Grass cover, Good, HSG A
2.550	46	2 acre lots, 12% imp, HSG A
3.658	46	Weighted Average
3.210		Pervious Area
0.448		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	560	0.1071	0.62		**Lag/CN Method,**
0.0	7	0.0257	7.27	5.71	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
15.1	567	Total			

Subcatchment 2S: CB2

Runoff = 0.96 cfs @ 12.09 hrs, Volume= 0.071 af, Depth= 4.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.130	98	Paved parking & roofs
0.042	39	>75% Grass cover, Good, HSG A
0.172	84	Weighted Average
0.042		Pervious Area
0.130		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	18	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	18	Total			

Subcatchment 3S: CB3

Runoff = 2.84 cfs @ 12.15 hrs, Volume= 0.247 af, Depth= 2.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.412	98	Paved roads w/curbs & sewers
1.073	39	>75% Grass cover, Good, HSG A
1.485	55	Weighted Average
1.073		Pervious Area
0.412		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	420	0.1155	0.76		**Lag/CN Method,**
0.0	7	0.0271	7.47	5.87	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
9.2	427	Total			

Subcatchment 4S: CB4

Runoff = 1.38 cfs @ 12.09 hrs, Volume= 0.103 af, Depth= 4.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.190	98	Paved roads w/curbs & sewers
0.059	39	>75% Grass cover, Good, HSG A
0.249	84	Weighted Average
0.059		Pervious Area
0.190		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	19	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	19	Total			

Subcatchment 5S: CB5

Runoff = 1.20 cfs @ 12.10 hrs, Volume= 0.089 af, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.159	98	Paved roads w/curbs & sewers
0.228	39	>75% Grass cover, Good, HSG A
0.387	63	Weighted Average
0.228		Pervious Area
0.159		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	8	0.0260	7.31	5.74	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	8	Total			

Subcatchment 6S: CB6

Runoff = 0.24 cfs @ 12.09 hrs, Volume= 0.020 af, Depth= 6.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.037	98	Paved roads w/curbs & sewers
0.037		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	21	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	21	Total			

Subcatchment 7S: CB7

Runoff = 0.54 cfs @ 12.09 hrs, Volume= 0.041 af, Depth= 5.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.075	98	Paved roads w/curbs & sewers
0.016	39	>75% Grass cover, Good, HSG A
0.091	88	Weighted Average
0.016		Pervious Area
0.075		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	19	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	19	Total			

Subcatchment 8S: CB8

Runoff = 0.70 cfs @ 12.09 hrs, Volume= 0.052 af, Depth= 4.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.096	98	Paved roads w/curbs & sewers
0.030	39	>75% Grass cover, Good, HSG A
0.126	84	Weighted Average
0.030		Pervious Area
0.096		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	3	0.0630	11.39	8.94	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	3	Total			

Subcatchment 9S: CB9

Runoff = 1.75 cfs @ 12.09 hrs, Volume= 0.127 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.232	98	Paved roads w/curbs & sewers
0.223	39	>75% Grass cover, Good, HSG A
0.455	69	Weighted Average
0.223		Pervious Area
0.232		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	5	0.0500	10.14	7.97	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	5	Total			

Subcatchment 10S: CB10

Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.038 af, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.070	98	Paved roads w/curbs & sewers
0.008	39	>75% Grass cover, Good, HSG A
0.078	92	Weighted Average
0.008		Pervious Area
0.070		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	26	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	26	Total			

Subcatchment 11S: CB11

Runoff = 0.85 cfs @ 12.09 hrs, Volume= 0.062 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.111	98	Paved roads w/curbs & sewers
0.111	39	>75% Grass cover, Good, HSG A
0.222	69	Weighted Average
0.111		Pervious Area
0.111		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 12S: CB12

Runoff = 1.24 cfs @ 12.09 hrs, Volume= 0.090 af, Depth= 3.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.165	98	Paved roads w/curbs & sewers
0.106	39	>75% Grass cover, Good, HSG A
0.271	75	Weighted Average
0.106		Pervious Area
0.165		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	15	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	15	Total			

Subcatchment 13S: CB13

Runoff = 2.17 cfs @ 12.10 hrs, Volume= 0.160 af, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.281	98	Paved parking & roofs
0.444	39	>75% Grass cover, Good, HSG A
0.725	62	Weighted Average
0.444		Pervious Area
0.281		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	3	0.0500	10.14	7.97	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	3	Total			

Subcatchment 14S: CB14

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.49 cfs @ 12.09 hrs, Volume= 0.181 af, Depth= 4.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.333	98	Paved parking & roofs
0.198	39	>75% Grass cover, Good, HSG A
0.531	76	Weighted Average
0.198		Pervious Area
0.333		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.0	12	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
5.9	12	Total			

Subcatchment 15S: CB15

Runoff = 1.51 cfs @ 12.46 hrs, Volume= 0.221 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.300	98	Paved roads w/curbs & sewers
1.610	39	>75% Grass cover, Good, HSG A
1.910	48	Weighted Average
1.610		Pervious Area
0.300		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.1	733	0.0460	0.45		**Lag/CN Method,**
0.0	3	0.0500	10.14	7.97	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
27.1	736	Total			

Subcatchment 16S: CB16

Runoff = 3.72 cfs @ 12.27 hrs, Volume= 0.394 af, Depth= 2.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.680	98	Paved roads w/curbs & sewers
1.240	39	>75% Grass cover, Good, HSG A
1.920	60	Weighted Average
1.240		Pervious Area
0.680		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
18.3	655	0.0460	0.60		**Lag/CN Method,**
0.0	5	0.0200	6.42	5.04	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
18.3	660	Total			

Subcatchment 17S: CB17

Runoff = 2.71 cfs @ 12.22 hrs, Volume= 0.263 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.479	98	Paved roads w/curbs & sewers
0.464	39	>75% Grass cover, Good, HSG A
0.943	69	Weighted Average
0.464		Pervious Area
0.479		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.0	635	0.0360	0.66		**Lag/CN Method,**

Subcatchment 18S: CB18

Runoff = 1.81 cfs @ 12.10 hrs, Volume= 0.133 af, Depth= 2.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.237	98	Paved roads w/curbs & sewers
0.324	39	>75% Grass cover, Good, HSG A
0.561	64	Weighted Average
0.324		Pervious Area
0.237		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.1	34	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.1	34	Total			

Subcatchment 19S: CB19

Runoff = 0.77 cfs @ 12.09 hrs, Volume= 0.059 af, Depth= 5.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.109	98	Paved roads w/curbs & sewers
0.022	39	>75% Grass cover, Good, HSG A
0.131	88	Weighted Average
0.022		Pervious Area
0.109		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.1	26	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.1	26	Total			

Subcatchment 20S: CB20

Runoff = 0.59 cfs @ 12.10 hrs, Volume= 0.043 af, Depth= 2.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.076	98	Paved roads w/curbs & sewers
0.105	39	>75% Grass cover, Good, HSG A
0.181	64	Weighted Average
0.105		Pervious Area
0.076		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	39	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	39	Total			

Subcatchment 21S: CB21

Runoff = 1.93 cfs @ 12.10 hrs, Volume= 0.145 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.251	98	Paved roads w/curbs & sewers
0.485	39	>75% Grass cover, Good, HSG A
0.736	59	Weighted Average
0.485		Pervious Area
0.251		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8					**Direct Entry,**
0.2	48	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	48	Total			

Subcatchment 22S: CB22

Runoff = 0.81 cfs @ 12.09 hrs, Volume= 0.062 af, Depth= 5.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.115	98	Paved roads w/curbs & sewers
0.020	39	>75% Grass cover, Good, HSG A
0.135	89	Weighted Average
0.020		Pervious Area
0.115		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	6	0.0200	6.42	5.04	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	6	Total			

Subcatchment 23S: CB23

Runoff = 2.70 cfs @ 12.10 hrs, Volume= 0.199 af, Depth= 2.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.354	98	Paved roads w/curbs & sewers
0.482	39	>75% Grass cover, Good, HSG A
0.836	64	Weighted Average
0.482		Pervious Area
0.354		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.1	18	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.1	18	Total			

Subcatchment 24S: CB24

Runoff = 1.65 cfs @ 12.09 hrs, Volume= 0.120 af, Depth= 3.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.219	98	Paved roads w/curbs & sewers
0.152	39	>75% Grass cover, Good, HSG A
0.371	74	Weighted Average
0.152		Pervious Area
0.219		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	8	0.0225	6.80	5.34	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	8	Total			

Subcatchment 25S: CB25

Runoff = 2.16 cfs @ 12.10 hrs, Volume= 0.157 af, Depth= 3.15"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.289	98	Paved roads w/curbs & sewers
0.311	39	>75% Grass cover, Good, HSG A
0.600	67	Weighted Average
0.311		Pervious Area
0.289		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	20	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	20	Total			

Subcatchment 26S: CB26

Runoff = 1.26 cfs @ 12.09 hrs, Volume= 0.093 af, Depth= 4.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.170	98	Paved roads w/curbs & sewers
0.065	39	>75% Grass cover, Good, HSG A
0.235	82	Weighted Average
0.065		Pervious Area
0.170		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	10	0.0200	6.42	5.04	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	10	Total			

Subcatchment 27S: FI-17

Runoff = 4.13 cfs @ 12.19 hrs, Volume= 0.373 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.676	98	Paved roads w/curbs & sewers
0.584	39	>75% Grass cover, Good, HSG A
1.260	71	Weighted Average
0.584		Pervious Area
0.676		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.1	560	0.0390	0.71		**Lag/CN Method,**
0.1	27	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
13.2	587	Total			

Subcatchment 30S: CB30

Runoff = 0.86 cfs @ 12.10 hrs, Volume= 0.063 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.111	98	Paved roads w/curbs & sewers
0.144	39	>75% Grass cover, Good, HSG A
0.255	65	Weighted Average
0.144		Pervious Area
0.111		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	15	0.0200	6.42	5.04	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	15	Total			

Subcatchment 31S: CB31

Runoff = 0.59 cfs @ 12.09 hrs, Volume= 0.043 af, Depth= 3.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.078	98	Paved roads w/curbs & sewers
0.070	39	>75% Grass cover, Good, HSG A
0.148	70	Weighted Average
0.070		Pervious Area
0.078		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	31	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	31	Total			

Subcatchment 32S: CB32

Runoff = 2.62 cfs @ 12.10 hrs, Volume= 0.207 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.331	98	Paved parking & roofs
0.969	39	>75% Grass cover, Good, HSG A
1.300	54	Weighted Average
0.969		Pervious Area
0.331		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	8	0.0200	6.42	5.04	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	8	Total			

Subcatchment 33S: CB33

Runoff = 1.16 cfs @ 12.09 hrs, Volume= 0.084 af, Depth= 3.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.153	98	Paved roads w/curbs & sewers
0.139	39	>75% Grass cover, Good, HSG A
0.292	70	Weighted Average
0.139		Pervious Area
0.153		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	16	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	16	Total			

Subcatchment 40S: CB40

Runoff = 3.99 cfs @ 12.11 hrs, Volume= 0.312 af, Depth= 4.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.575	98	Paved roads w/curbs & sewers
0.254	39	>75% Grass cover, Good, HSG A
0.829	80	Weighted Average
0.254		Pervious Area
0.575		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	489	0.0490	1.01		**Lag/CN Method,**
0.0	27	0.0400	9.07	7.13	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
8.1	516	Total			

Subcatchment 41S: CB41

Runoff = 0.74 cfs @ 12.09 hrs, Volume= 0.054 af, Depth= 4.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.098	98	Paved roads w/curbs & sewers
0.060	39	>75% Grass cover, Good, HSG A
0.158	76	Weighted Average
0.060		Pervious Area
0.098		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	8	0.0225	6.80	5.34	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	8	Total			

Subcatchment 42S: CB42

Runoff = 3.58 cfs @ 12.10 hrs, Volume= 0.261 af, Depth= 3.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.475	98	Paved roads w/curbs & sewers
0.553	39	>75% Grass cover, Good, HSG A
1.028	66	Weighted Average
0.553		Pervious Area
0.475		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	18	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	18	Total			

Subcatchment 43S: CB43

Runoff = 0.39 cfs @ 12.11 hrs, Volume= 0.034 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.044	98	Paved roads w/curbs & sewers
0.250	39	>75% Grass cover, Good, HSG A
0.294	48	Weighted Average
0.250		Pervious Area
0.044		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	12	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	12	Total			

Subcatchment 44S: CB44

Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.030 af, Depth= 4.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.056	98	Paved roads w/curbs & sewers
0.033	39	>75% Grass cover, Good, HSG A
0.089	76	Weighted Average
0.033		Pervious Area
0.056		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	19	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	19	Total			

Subcatchment 45S: CB45

Runoff = 1.21 cfs @ 12.10 hrs, Volume= 0.095 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.150	98	Paved roads w/curbs & sewers
0.450	39	>75% Grass cover, Good, HSG A
0.600	54	Weighted Average
0.450		Pervious Area
0.150		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	5	0.0280	7.59	5.96	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	5	Total			

Subcatchment 46S: CB46

Runoff = 1.19 cfs @ 12.09 hrs, Volume= 0.087 af, Depth= 4.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.162	98	Paved roads w/curbs & sewers
0.069	39	>75% Grass cover, Good, HSG A
0.231	80	Weighted Average
0.069		Pervious Area
0.162		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	14	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	14	Total			

Subcatchment 47S: CB47

Runoff = 0.73 cfs @ 12.11 hrs, Volume= 0.068 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.077	98	Paved roads w/curbs & sewers
0.593	39	>75% Grass cover, Good, HSG A
0.670	46	Weighted Average
0.593		Pervious Area
0.077		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	19	0.0160	5.74	4.51	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	19	Total			

Subcatchment 48S: CB48

Runoff = 0.46 cfs @ 12.09 hrs, Volume= 0.034 af, Depth= 4.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.063	98	Paved roads w/curbs & sewers
0.019	39	>75% Grass cover, Good, HSG A
0.082	84	Weighted Average
0.019		Pervious Area
0.063		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	30	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	30	Total			

Subcatchment 81S: FI-B

Runoff = 1.29 cfs @ 12.10 hrs, Volume= 0.096 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.168	98	Paved roads w/curbs & sewers
0.281	39	>75% Grass cover, Good, HSG A
0.449	61	Weighted Average
0.281		Pervious Area
0.168		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	17	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	17	Total			

Subcatchment 83S: FI-D

Runoff = 2.68 cfs @ 12.09 hrs, Volume= 0.195 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.361	98	Paved parking & roofs
0.296	39	>75% Grass cover, Good, HSG A
0.657	71	Weighted Average
0.296		Pervious Area
0.361		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	38	0.0200	6.42	5.04	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	38	Total			

Subcatchment 88S: 88S

Runoff = 5.28 cfs @ 12.30 hrs, Volume= 0.586 af, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.407	98	Paved parking & roofs
2.087	39	>75% Grass cover, Good, HSG A
0.596	98	Pond
3.090	58	Weighted Average
2.087		Pervious Area
1.003		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.7	400	0.0200	0.34		**Lag/CN Method,**

Subcatchment 89S: TR1

Runoff = 0.26 cfs @ 12.35 hrs, Volume= 0.054 af, Depth= 0.50"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.433	30	Woods, Good, HSG A
0.867	39	>75% Grass cover, Good, HSG A
1.300	36	Weighted Average
1.300		Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Reach 1R: DMH1-DMH2

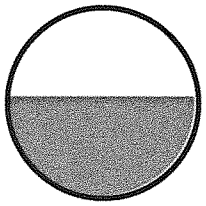
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt

Inflow Area = 3.830 ac, Inflow Depth = 1.39" for 100-YR event
Inflow = 3.43 cfs @ 12.25 hrs, Volume= 0.444 af
Outflow = 3.43 cfs @ 12.25 hrs, Volume= 0.444 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.07 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.15 fps, Avg. Travel Time= 0.6 min

Peak Storage= 50 cf @ 12.25 hrs, Average Depth at Peak Storage= 0.53'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.17 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 118.0' Slope= 0.0300 '/'
Inlet Invert= 193.72', Outlet Invert= 190.18'



Reach 2R: DMH2-DMH3

[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 14% of Reach 1R bottom

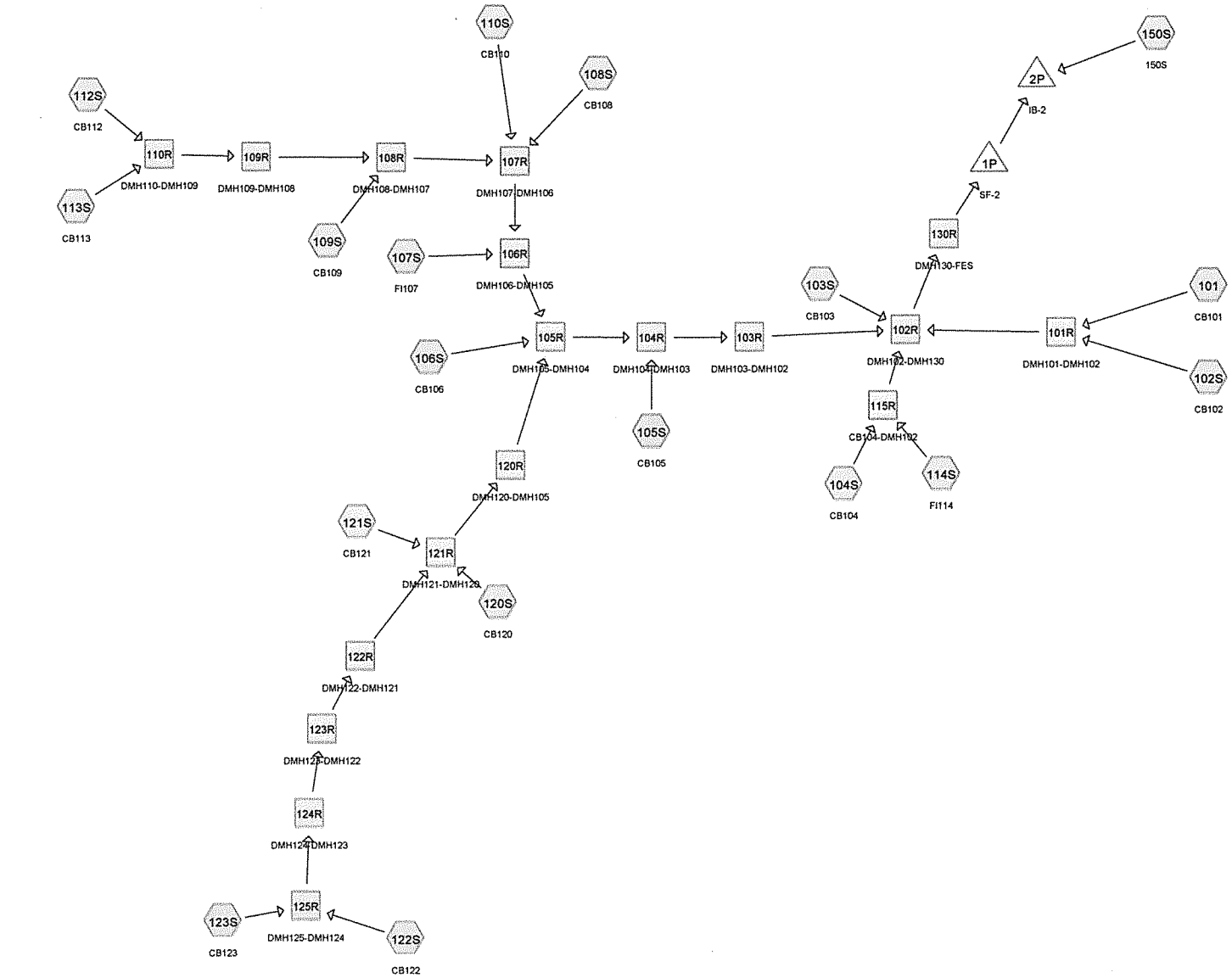
Inflow Area = 3.830 ac, Inflow Depth = 1.39" for 100-YR event
Inflow = 3.43 cfs @ 12.25 hrs, Volume= 0.444 af
Outflow = 3.43 cfs @ 12.25 hrs, Volume= 0.444 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.90 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.73 fps, Avg. Travel Time= 0.2 min

Peak Storage= 20 cf @ 12.25 hrs, Average Depth at Peak Storage= 0.61'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.04 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 40.0' Slope= 0.0200 '/'
Inlet Invert= 190.08', Outlet Invert= 189.28'

IB - 2



Subcat Reach Pond Link

Drainage Diagram for LS--Basin2

Prepared by CAQ/rrg 7/25/2018

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Subcatchment 101: CB101

Runoff = 0.73 cfs @ 12.09 hrs, Volume= 0.054 af, Depth= 4.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.099	98	Paved roads w/curbs & sewers
0.032	39	>75% Grass cover, Good, HSG A
0.131	84	Weighted Average
0.032		Pervious Area
0.099		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.8					**Direct Entry,**
0.2	74	0.0300	7.86	6.17	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	74	Total			

Subcatchment 102S: CB102

Runoff = 1.84 cfs @ 12.19 hrs, Volume= 0.175 af, Depth= 2.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.294	98	Paved roads w/curbs & sewers
0.667	39	>75% Grass cover, Good, HSG A
0.961	57	Weighted Average
0.667		Pervious Area
0.294		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	340	0.0382	0.44		**Lag/CN Method,**
0.0	7	0.0200	6.42	5.04	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
12.8	347	Total			

Subcatchment 103S: CB103

Runoff = 2.21 cfs @ 12.09 hrs, Volume= 0.160 af, Depth= 4.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.298	98	Paved roads w/curbs & sewers
0.174	39	>75% Grass cover, Good, HSG A
0.472	76	Weighted Average
0.174		Pervious Area
0.298		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	4	0.0250	7.17	5.63	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	4	Total			

Subcatchment 104S: CB104

Runoff = 1.37 cfs @ 12.10 hrs, Volume= 0.111 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.170	98	Paved roads w/curbs & sewers
0.601	39	>75% Grass cover, Good, HSG A
0.771	52	Weighted Average
0.601		Pervious Area
0.170		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 105S: CB105

Runoff = 2.42 cfs @ 12.29 hrs, Volume= 0.271 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.457	98	Paved roads w/curbs & sewers
1.100	39	>75% Grass cover, Good, HSG A
1.557	56	Weighted Average
1.100		Pervious Area
0.457		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.2	516	0.0349	0.45		**Lag/CN Method,**

Subcatchment 106S: CB106

Runoff = 2.08 cfs @ 12.15 hrs, Volume= 0.177 af, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.299	98	Paved roads w/curbs & sewers
0.635	39	>75% Grass cover, Good, HSG A
0.934	58	Weighted Average
0.635		Pervious Area
0.299		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	345	0.0710	0.62		**Lag/CN Method,**
0.1	17	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
9.4	362	Total			

Subcatchment 107S: FI107

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 0.070 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.130	98	Paved roads w/curbs & sewers
0.122	39	>75% Grass cover, Good, HSG A
0.252	69	Weighted Average
0.122		Pervious Area
0.130		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 108S: CB108

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.056 af, Depth= 4.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.104	98	Paved roads w/curbs & sewers
0.034	39	>75% Grass cover, Good, HSG A
0.138	83	Weighted Average
0.034		Pervious Area
0.104		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	17	0.0200	6.42	5.04	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	17	Total			

Subcatchment 109S: CB109

Runoff = 0.67 cfs @ 12.09 hrs, Volume= 0.049 af, Depth= 4.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.090	98	Paved roads w/curbs & sewers
0.044	39	>75% Grass cover, Good, HSG A
0.134	79	Weighted Average
0.044		Pervious Area
0.090		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	2	0.0700	12.00	9.43	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	2	Total			

Subcatchment 110S: CB110

Runoff = 2.76 cfs @ 12.15 hrs, Volume= 0.233 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.398	98	Paved roads w/curbs & sewers
0.784	39	>75% Grass cover, Good, HSG A
1.182	59	Weighted Average
0.784		Pervious Area
0.398		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	229	0.0350	0.41		**Lag/CN Method,**
0.1	30	0.0200	6.42	5.04	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
9.4	259	Total			

Subcatchment 112S: CB112

Runoff = 1.18 cfs @ 12.09 hrs, Volume= 0.086 af, Depth= 3.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.155	98	Paved parking & roofs
0.126	39	>75% Grass cover, Good, HSG A
0.281	72	Weighted Average
0.126		Pervious Area
0.155		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	1	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	1	Total			

Subcatchment 113S: CB113

Runoff = 1.62 cfs @ 12.10 hrs, Volume= 0.119 af, Depth= 2.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.212	98	Paved roads w/curbs & sewers
0.289	39	>75% Grass cover, Good, HSG A
0.501	64	Weighted Average
0.289		Pervious Area
0.212		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	173	0.0410	0.48		**Lag/CN Method,**
0.0	8	0.0210	6.57	5.16	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	181	Total			

Subcatchment 114S: FI114

Runoff = 1.59 cfs @ 12.22 hrs, Volume= 0.164 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.257	98	Paved roads w/curbs & sewers
0.776	39	>75% Grass cover, Good, HSG A
1.033	54	Weighted Average
0.776		Pervious Area
0.257		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.7	357	0.0364	0.40		**Lag/CN Method,**
0.0	7	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
14.7	364	Total			

Subcatchment 120S: CB120

Runoff = 1.28 cfs @ 12.15 hrs, Volume= 0.108 af, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.193	98	Paved roads w/curbs & sewers
0.295	39	>75% Grass cover, Good, HSG A
0.488	62	Weighted Average
0.295		Pervious Area
0.193		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	288	0.0380	0.48		**Lag/CN Method,**
0.1	17	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
10.0	305	Total			

Subcatchment 121S: CB121

Runoff = 1.05 cfs @ 12.35 hrs, Volume= 0.139 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.173	98	Paved roads w/curbs & sewers
1.027	39	>75% Grass cover, Good, HSG A
1.200	48	Weighted Average
1.027		Pervious Area
0.173		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.8	389	0.0283	0.31		**Lag/CN Method,**
0.0	7	0.0240	7.03	5.52	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
20.8	396	Total			

Subcatchment 122S: CB122

Runoff = 0.57 cfs @ 12.09 hrs, Volume= 0.041 af, Depth= 3.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.076	98	Paved roads w/curbs & sewers
0.068	39	>75% Grass cover, Good, HSG A
0.144	70	Weighted Average
0.068		Pervious Area
0.076		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	17	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	17	Total			

Subcatchment 123S: CB123

Runoff = 2.87 cfs @ 12.23 hrs, Volume= 0.291 af, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.494	98	Paved roads w/curbs & sewers
1.043	39	>75% Grass cover, Good, HSG A
1.537	58	Weighted Average
1.043		Pervious Area
0.494		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.6	476	0.0420	0.51		**Lag/CN Method,**
0.0	9	0.0189	6.24	4.90	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
15.6	485	Total			

Subcatchment 150S: 150S

Runoff = 4.00 cfs @ 12.10 hrs, Volume= 0.298 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.259	98	Paved parking & roofs
0.871	39	>75% Grass cover, Good, HSG A
0.266	98	Pond
1.396	61	Weighted Average
0.871		Pervious Area
0.525		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	260	0.0916	0.72		**Lag/CN Method,**

Reach 101R: DMH101-DMH102

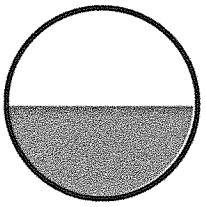
[52] Hint: Inlet conditions not evaluated

Inflow Area = 1.092 ac, Inflow Depth = 2.51" for 100-YR event
Inflow = 2.33 cfs @ 12.16 hrs, Volume= 0.229 af
Outflow = 2.33 cfs @ 12.17 hrs, Volume= 0.229 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.15 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.19 fps, Avg. Travel Time= 1.3 min

Peak Storage= 62 cf @ 12.17 hrs, Average Depth at Peak Storage= 0.49'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 4.91 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 165.0' Slope= 0.0190 '/'
Inlet Invert= 178.88', Outlet Invert= 175.75'



Reach 102R: DMH102-DMH130

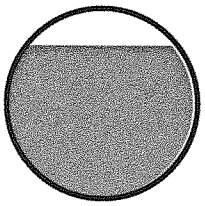
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 16% of Reach 101R bottom
[62] Warning: Submerged 49% of Reach 103R inlet

Inflow Area = 11.716 ac, Inflow Depth = 2.36" for 100-YR event
Inflow = 22.25 cfs @ 12.15 hrs, Volume= 2.305 af
Outflow = 22.26 cfs @ 12.15 hrs, Volume= 2.305 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.21 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.04 fps, Avg. Travel Time= 0.1 min

Peak Storage= 46 cf @ 12.15 hrs, Average Depth at Peak Storage= 1.61'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 17.0' Slope= 0.0100 '/'
Inlet Invert= 174.65', Outlet Invert= 174.48'



Reach 103R: DMH103-DMH102

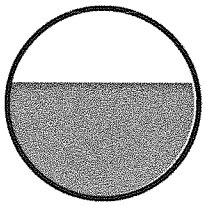
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[62] Warning: Submerged 40% of Reach 104R inlet

Inflow Area = 8.348 ac, Inflow Depth = 2.36" for 100-YR event
Inflow = 15.59 cfs @ 12.16 hrs, Volume= 1.641 af
Outflow = 15.61 cfs @ 12.16 hrs, Volume= 1.641 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.77 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.77 fps, Avg. Travel Time= 0.3 min

Peak Storage= 106 cf @ 12.16 hrs, Average Depth at Peak Storage= 1.22'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 53.0' Slope= 0.0100 '/'
Inlet Invert= 175.28', Outlet Invert= 174.75'



Reach 104R: DMH104-DMH103

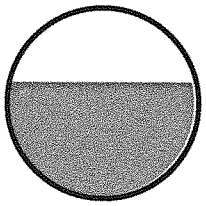
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[62] Warning: Submerged 45% of Reach 105R inlet

Inflow Area = 8.348 ac, Inflow Depth = 2.36" for 100-YR event
Inflow = 15.58 cfs @ 12.15 hrs, Volume= 1.641 af
Outflow = 15.59 cfs @ 12.16 hrs, Volume= 1.641 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.76 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.78 fps, Avg. Travel Time= 0.2 min

Peak Storage= 66 cf @ 12.16 hrs, Average Depth at Peak Storage= 1.22'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 33.0' Slope= 0.0100 '/'
Inlet Invert= 175.71', Outlet Invert= 175.38'



Reach 105R: DMH105-DMH104

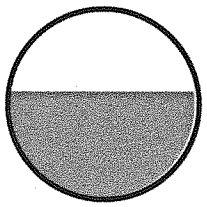
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 50% of Reach 106R bottom
[61] Hint: Submerged 19% of Reach 120R bottom

Inflow Area = 6.791 ac, Inflow Depth = 2.42" for 100-YR event
Inflow = 13.89 cfs @ 12.14 hrs, Volume= 1.370 af
Outflow = 13.90 cfs @ 12.14 hrs, Volume= 1.370 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.57 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.64 fps, Avg. Travel Time= 0.1 min

Peak Storage= 40 cf @ 12.14 hrs, Average Depth at Peak Storage= 1.13'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 22.0' Slope= 0.0100 '/'
Inlet Invert= 176.03', Outlet Invert= 175.81'



Reach 106R: DMH106-DMH105

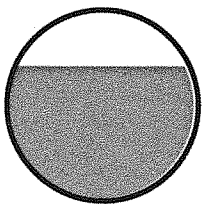
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 16% of Reach 107R bottom

Inflow Area =	2.488 ac,	Inflow Depth =	2.96"	for	100-YR event
Inflow =	7.75 cfs @	12.11 hrs,	Volume=	0.613 af	
Outflow =	7.75 cfs @	12.11 hrs,	Volume=	0.613 af,	Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.34 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.90 fps, Avg. Travel Time= 0.2 min

Peak Storage= 35 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.88'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 9.14 cfs

15.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 38.0' Slope= 0.0200 '/'
Inlet Invert= 177.54', Outlet Invert= 176.78'



Reach 107R: DMH107-DMH106

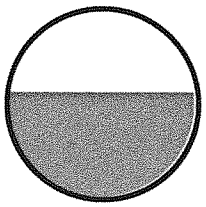
[52] Hint: Inlet conditions not evaluated
[62] Warning: Submerged 1% of Reach 108R inlet

Inflow Area =	2.236 ac,	Inflow Depth =	2.91"	for	100-YR event
Inflow =	6.80 cfs @	12.11 hrs,	Volume=	0.543 af	
Outflow =	6.80 cfs @	12.11 hrs,	Volume=	0.543 af,	Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.54 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.24 fps, Avg. Travel Time= 0.8 min

Peak Storage= 115 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.19 cfs

15.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 162.0' Slope= 0.0300 '/'
Inlet Invert= 182.50', Outlet Invert= 177.64'



Reach 108R: DMH108-DMH107

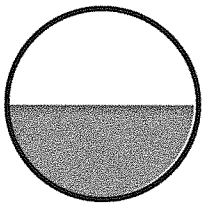
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 24% of Reach 109R bottom

Inflow Area =	0.916 ac,	Inflow Depth =	3.33"	for	100-YR event
Inflow =	3.48 cfs @	12.10 hrs,	Volume=	0.254 af	
Outflow =	3.48 cfs @	12.10 hrs,	Volume=	0.254 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.02 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.09 fps, Avg. Travel Time= 0.1 min

Peak Storage= 4 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.49'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.13 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 11.0' Slope= 0.0400 '/'
Inlet Invert= 183.19', Outlet Invert= 182.75'



Reach 109R: DMH109-DMH108

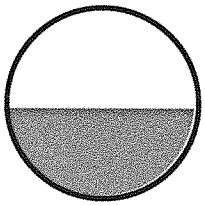
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 22% of Reach 110R bottom

Inflow Area = 0.782 ac, Inflow Depth = 3.14" for 100-YR event
Inflow = 2.81 cfs @ 12.10 hrs, Volume= 0.205 af
Outflow = 2.81 cfs @ 12.10 hrs, Volume= 0.205 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.67 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.76 fps, Avg. Travel Time= 0.3 min

Peak Storage= 20 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.17 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 54.0' Slope= 0.0300 '/'
Inlet Invert= 184.91', Outlet Invert= 183.29'



Reach 110R: DMH110-DMH109

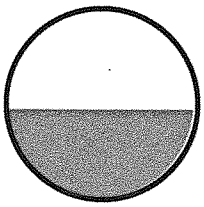
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt

Inflow Area = 0.782 ac, Inflow Depth = 3.14" for 100-YR event
Inflow = 2.80 cfs @ 12.10 hrs, Volume= 0.205 af
Outflow = 2.81 cfs @ 12.10 hrs, Volume= 0.205 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.67 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.77 fps, Avg. Travel Time= 0.3 min

Peak Storage= 20 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.17 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 56.0' Slope= 0.0300 '/'
Inlet Invert= 186.69', Outlet Invert= 185.01'



Reach 115R: CB104-DMH102

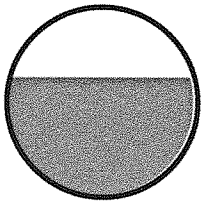
[52] Hint: Inlet conditions not evaluated

Inflow Area = 1.804 ac, Inflow Depth = 1.83" for 100-YR event
Inflow = 2.58 cfs @ 12.16 hrs, Volume= 0.275 af
Outflow = 2.58 cfs @ 12.16 hrs, Volume= 0.275 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.94 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 2.24 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.16 hrs, Average Depth at Peak Storage= 0.63'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.56 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 6.0' Slope= 0.0100 '/'
Inlet Invert= 197.81', Outlet Invert= 197.75'



Reach 120R: DMH120-DMH105

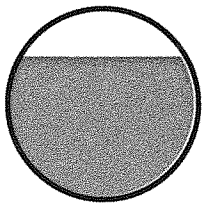
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 18% of Reach 121R bottom

Inflow Area = 3.369 ac, Inflow Depth = 2.06" for 100-YR event
Inflow = 5.10 cfs @ 12.23 hrs, Volume= 0.580 af
Outflow = 5.10 cfs @ 12.23 hrs, Volume= 0.580 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.12 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.44 fps, Avg. Travel Time= 0.1 min

Peak Storage= 18 cf @ 12.23 hrs, Average Depth at Peak Storage= 0.75'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.63 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 28.0' Slope= 0.0250 '/'
Inlet Invert= 177.73', Outlet Invert= 177.03'



Reach 121R: DMH121-DMH120

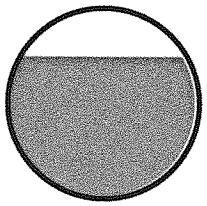
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 41% of Reach 122R bottom

Inflow Area = 3.369 ac, Inflow Depth = 2.06" for 100-YR event
Inflow = 5.10 cfs @ 12.23 hrs, Volume= 0.580 af
Outflow = 5.10 cfs @ 12.23 hrs, Volume= 0.580 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.12 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.44 fps, Avg. Travel Time= 0.7 min

Peak Storage= 88 cf @ 12.23 hrs, Average Depth at Peak Storage= 0.75'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.63 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 140.0' Slope= 0.0250 '/'
Inlet Invert= 181.33', Outlet Invert= 177.83'



Reach 122R: DMH122-DMH121

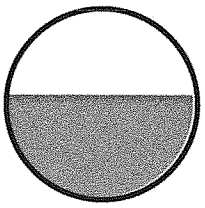
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 14% of Reach 123R bottom

Inflow Area = 1.681 ac, Inflow Depth = 2.38" for 100-YR event
Inflow = 3.19 cfs @ 12.23 hrs, Volume= 0.333 af
Outflow = 3.19 cfs @ 12.23 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.20 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.87 fps, Avg. Travel Time= 0.4 min

Peak Storage= 30 cf @ 12.23 hrs, Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.45 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 67.0' Slope= 0.0234 '/'
Inlet Invert= 183.00', Outlet Invert= 181.43'



Reach 123R: DMH123-DMH122

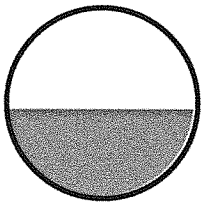
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 25% of Reach 124R bottom

Inflow Area = 1.681 ac, Inflow Depth = 2.38" for 100-YR event
Inflow = 3.20 cfs @ 12.22 hrs, Volume= 0.333 af
Outflow = 3.19 cfs @ 12.23 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.80 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.47 fps, Avg. Travel Time= 0.4 min

Peak Storage= 28 cf @ 12.23 hrs, Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.13 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 78.0' Slope= 0.0400 '/'
Inlet Invert= 186.22', Outlet Invert= 183.10'



Reach 124R: DMH124-DMH123

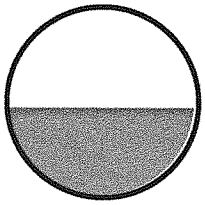
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 35% of Reach 125R bottom

Inflow Area = 1.681 ac, Inflow Depth = 2.38" for 100-YR event
Inflow = 3.20 cfs @ 12.22 hrs, Volume= 0.333 af
Outflow = 3.20 cfs @ 12.22 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.80 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.48 fps, Avg. Travel Time= 0.2 min

Peak Storage= 13 cf @ 12.22 hrs, Average Depth at Peak Storage= 0.47'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.13 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 36.0' Slope= 0.0400 '/'
Inlet Invert= 187.76', Outlet Invert= 186.32'



Reach 125R: DMH125-DMH124

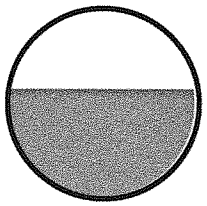
[52] Hint: Inlet conditions not evaluated

Inflow Area = 1.681 ac, Inflow Depth = 2.38" for 100-YR event
Inflow = 3.20 cfs @ 12.22 hrs, Volume= 0.333 af
Outflow = 3.20 cfs @ 12.22 hrs, Volume= 0.333 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.78 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.72 fps, Avg. Travel Time= 0.3 min

Peak Storage= 25 cf @ 12.22 hrs, Average Depth at Peak Storage= 0.58'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.04 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 53.0' Slope= 0.0200 '/'
Inlet Invert= 188.92', Outlet Invert= 187.86'



Reach 130R: DMH130-FES

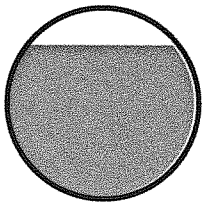
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[62] Warning: Submerged 67% of Reach 102R inlet

Inflow Area = 11.716 ac, Inflow Depth = 2.36" for 100-YR event
Inflow = 22.26 cfs @ 12.15 hrs, Volume= 2.305 af
Outflow = 22.28 cfs @ 12.15 hrs, Volume= 2.305 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.21 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.04 fps, Avg. Travel Time= 0.2 min

Peak Storage= 103 cf @ 12.15 hrs, Average Depth at Peak Storage= 1.61'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 38.0' Slope= 0.0100 '/'
Inlet Invert= 174.38', Outlet Invert= 174.00'



Pond 1P: SF-2

[93] Warning: Storage range exceeded by 2.97'
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[87] Warning: Oscillations may require Finer Routing or smaller dt

Inflow Area =	11.716 ac,	Inflow Depth =	2.36"	for	100-YR event
Inflow =	22.28 cfs @	12.15 hrs,	Volume=	2.305 af	
Outflow =	22.71 cfs @	12.15 hrs,	Volume=	2.230 af,	Atten= 0%, Lag= 0.0 min
Primary =	22.71 cfs @	12.15 hrs,	Volume=	2.230 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 172.97' @ 12.83 hrs Surf.Area= 0.049 ac Storage= 0.075 af

Plug-Flow detention time= 25.1 min calculated for 2.227 af (97% of inflow)
Center-of-Mass det. time= 7.3 min (867.1 - 859.8)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	0.075 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.026	0.000	0.000
170.00	0.049	0.075	0.075

Device	Routing	Invert	Outlet Devices
#1	Primary	170.00'	**4.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=19.08 cfs @ 12.15 hrs HW=171.87' TW=171.32' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 19.08 cfs @ 2.55 fps)

Pond 2P: IB-2

[80] Warning: Exceeded Pond 1P by 0.06' @ 12.50 hrs (13.13 cfs 0.335 af)

Inflow Area =	13.112 ac,	Inflow Depth =	2.31"	for	100-YR event
Inflow =	26.11 cfs @	12.14 hrs,	Volume=	2.528 af	
Outflow =	6.21 cfs @	12.77 hrs,	Volume=	2.532 af,	Atten= 76%, Lag= 37.6 min
Discarded =	6.21 cfs @	12.77 hrs,	Volume=	2.532 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 172.96' @ 12.77 hrs Surf.Area= 0.308 ac Storage= 0.725 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 42.6 min (908.0 - 865.4)

Volume	Invert	Avail.Storage	Storage Description
#1	170.00'	1.068 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

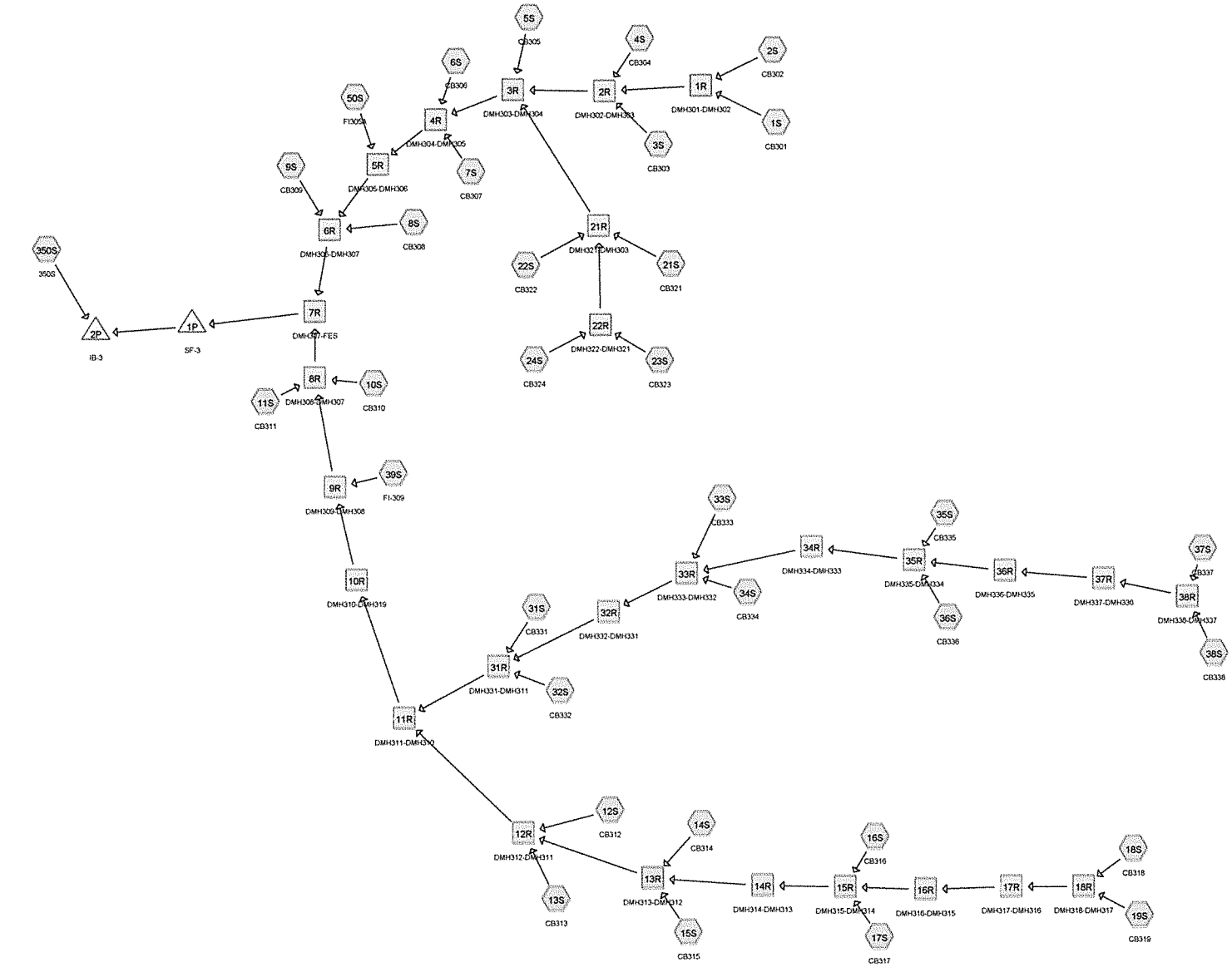
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
170.00	0.183	0.000	0.000
172.00	0.266	0.449	0.449
174.00	0.353	0.619	1.068

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**
#2	Primary	173.50'	**4.0' long x 20.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Discarded OutFlow Max=6.21 cfs @ 12.77 hrs HW=172.96' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 6.21 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=170.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

IB - 3



Subcat Reach Pond Link

Drainage Diagram for LS--Basin3

Prepared by CAQ/rrg 7/25/2018

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Subcatchment 1S: CB301

Runoff = 0.30 cfs @ 12.10 hrs, Volume= 0.022 af, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.040	98	Paved roads w/curbs & sewers
0.058	39	>75% Grass cover, Good, HSG A
0.098	63	Weighted Average
0.058		Pervious Area
0.040		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	9	0.0190	6.25	4.91	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	9	Total			

Subcatchment 2S: CB302

Runoff = 0.67 cfs @ 12.16 hrs, Volume= 0.056 af, Depth= 3.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.101	98	Paved roads w/curbs & sewers
0.107	39	>75% Grass cover, Good, HSG A
0.208	68	Weighted Average
0.107		Pervious Area
0.101		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	194	0.0130	0.31		**Lag/CN Method,**
0.1	17	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
10.7	211	Total			

Subcatchment 3S: CB303

Runoff = 1.73 cfs @ 12.13 hrs, Volume= 0.140 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.251	98	Paved roads w/curbs & sewers
0.317	39	>75% Grass cover, Good, HSG A
0.568	65	Weighted Average
0.317		Pervious Area
0.251		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	279	0.0390	0.53		**Lag/CN Method,**
0.0	20	0.0300	7.86	6.17	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
8.8	299	Total			

Subcatchment 4S: CB304

Runoff = 1.63 cfs @ 12.23 hrs, Volume= 0.163 af, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.289	98	Paved roads w/curbs & sewers
0.446	39	>75% Grass cover, Good, HSG A
0.735	62	Weighted Average
0.446		Pervious Area
0.289		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.1	407	0.0250	0.42		**Lag/CN Method,**
0.0	18	0.0300	7.86	6.17	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
16.1	425	Total			

Subcatchment 5S: CB305

Runoff = 1.01 cfs @ 12.26 hrs, Volume= 0.127 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.147	98	Paved roads w/curbs & sewers
1.094	39	>75% Grass cover, Good, HSG A
1.241	46	Weighted Average
1.094		Pervious Area
0.147		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.9	278	0.0360	0.31		**Lag/CN Method,**
0.1	36	0.0300	7.86	6.17	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
15.0	314	Total			

Subcatchment 6S: CB306

Runoff = 2.56 cfs @ 12.12 hrs, Volume= 0.198 af, Depth= 3.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.360	98	Paved roads w/curbs & sewers
0.254	39	>75% Grass cover, Good, HSG A
0.614	74	Weighted Average
0.254		Pervious Area
0.360		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.0	289	0.0310	0.60		**Lag/CN Method,**
0.1	21	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
8.1	310	Total			

Subcatchment 7S: CB307

Runoff = 0.55 cfs @ 12.09 hrs, Volume= 0.040 af, Depth= 4.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.075	98	Paved roads w/curbs & sewers
0.035	39	>75% Grass cover, Good, HSG A
0.110	79	Weighted Average
0.035		Pervious Area
0.075		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	6	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	6	Total			

Subcatchment 8S: CB308

Runoff = 3.17 cfs @ 12.15 hrs, Volume= 0.268 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.459	98	Paved roads w/curbs & sewers
0.897	39	>75% Grass cover, Good, HSG A
1.356	59	Weighted Average
0.897		Pervious Area
0.459		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.4	293	0.0510	0.52		**Lag/CN Method,**
0.0	2	0.0800	12.83	10.08	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
9.4	295	Total			

Subcatchment 9S: CB309

Runoff = 1.51 cfs @ 12.09 hrs, Volume= 0.110 af, Depth= 4.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.205	98	Paved roads w/curbs & sewers
0.118	39	>75% Grass cover, Good, HSG A
0.323	76	Weighted Average
0.118		Pervious Area
0.205		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.1	16	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.1	16	Total			

Subcatchment 10S: CB310

Runoff = 1.74 cfs @ 12.15 hrs, Volume= 0.147 af, Depth= 2.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.254	98	Paved roads w/curbs & sewers
0.437	39	>75% Grass cover, Good, HSG A
0.691	61	Weighted Average
0.437		Pervious Area
0.254		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	365	0.0590	0.62		**Lag/CN Method,**
0.0	9	0.0211	6.12	4.81	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.014 Concrete pipe, finished
9.9	374	Total			

Subcatchment 11S: CB311

Runoff = 1.57 cfs @ 12.22 hrs, Volume= 0.151 af, Depth= 3.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.276	98	Paved roads w/curbs & sewers
0.280	39	>75% Grass cover, Good, HSG A
0.556	68	Weighted Average
0.280		Pervious Area
0.276		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.3	337	0.0150	0.37		**Lag/CN Method,**
0.1	19	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
15.4	356	Total			

Subcatchment 12S: CB312

Runoff = 1.69 cfs @ 12.18 hrs, Volume= 0.158 af, Depth= 2.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.270	98	Paved roads w/curbs & sewers
0.600	39	>75% Grass cover, Good, HSG A
0.870	57	Weighted Average
0.600		Pervious Area
0.270		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.1	460	0.0700	0.64		**Lag/CN Method,**
0.0	8	0.0240	7.03	5.52	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
12.1	468	Total			

Subcatchment 13S: CB313

Runoff = 1.60 cfs @ 12.12 hrs, Volume= 0.123 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.221	98	Paved roads w/curbs & sewers
0.220	39	>75% Grass cover, Good, HSG A
0.441	69	Weighted Average
0.220		Pervious Area
0.221		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	246	0.0330	0.53		**Lag/CN Method,**
0.1	19	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
7.9	265	Total			

Subcatchment 14S: CB314

Runoff = 0.92 cfs @ 12.12 hrs, Volume= 0.072 af, Depth= 2.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.129	98	Paved roads w/curbs & sewers
0.198	39	>75% Grass cover, Good, HSG A
0.327	62	Weighted Average
0.198		Pervious Area
0.129		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	327	0.0730	0.69		**Lag/CN Method,**
0.0	9	0.0210	6.57	5.16	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
7.9	336	Total			

Subcatchment 15S: CB315

Runoff = 0.67 cfs @ 12.09 hrs, Volume= 0.049 af, Depth= 4.19"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.091	98	Paved roads w/curbs & sewers
0.049	39	>75% Grass cover, Good, HSG A
0.140	77	Weighted Average
0.049		Pervious Area
0.091		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.1	19	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.1	19	Total			

Subcatchment 16S: CB316

Runoff = 0.76 cfs @ 12.12 hrs, Volume= 0.059 af, Depth= 2.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.106	98	Paved roads w/curbs & sewers
0.153	39	>75% Grass cover, Good, HSG A
0.259	63	Weighted Average
0.153		Pervious Area
0.106		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	275	0.0550	0.59		**Lag/CN Method,**
0.0	9	0.0210	6.57	5.16	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
7.7	284	Total			

Subcatchment 17S: CB317

Runoff = 2.31 cfs @ 12.12 hrs, Volume= 0.201 af, Depth= 1.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.291	98	Paved roads w/curbs & sewers
1.175	39	>75% Grass cover, Good, HSG A
1.466	51	Weighted Average
1.175		Pervious Area
0.291		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	341	0.1580	0.77		**Lag/CN Method,**
0.1	19	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
7.4	360	Total			

Subcatchment 18S: CB318

Runoff = 0.45 cfs @ 12.09 hrs, Volume= 0.033 af, Depth= 3.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.060	98	Paved roads w/curbs & sewers
0.061	39	>75% Grass cover, Good, HSG A
0.121	68	Weighted Average
0.061		Pervious Area
0.060		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	9	0.0210	6.57	5.16	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	9	Total			

Subcatchment 19S: CB319

Runoff = 1.51 cfs @ 12.34 hrs, Volume= 0.201 af, Depth= 1.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.248	98	Paved roads w/curbs & sewers
1.599	39	>75% Grass cover, Good, HSG A
1.847	47	Weighted Average
1.599		Pervious Area
0.248		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
19.4	564	0.0620	0.48		**Lag/CN Method,**
0.1	19	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
19.5	583	Total			

Subcatchment 21S: CB321

Runoff = 1.09 cfs @ 12.17 hrs, Volume= 0.102 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.162	98	Paved roads w/curbs & sewers
0.481	39	>75% Grass cover, Good, HSG A
0.643	54	Weighted Average
0.481		Pervious Area
0.162		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.1	269	0.0410	0.41		**Lag/CN Method,**
0.1	20	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
11.2	289	Total			

Subcatchment 22S: CB322

Runoff = 0.78 cfs @ 12.09 hrs, Volume= 0.056 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.102	98	Paved roads w/curbs & sewers
0.100	39	>75% Grass cover, Good, HSG A
0.202	69	Weighted Average
0.100		Pervious Area
0.102		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	9	0.0220	6.73	5.28	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	9	Total			

Subcatchment 23S: CB323

Runoff = 1.37 cfs @ 12.15 hrs, Volume= 0.116 af, Depth= 2.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.204	98	Paved roads w/curbs & sewers
0.384	39	>75% Grass cover, Good, HSG A
0.588	59	Weighted Average
0.384		Pervious Area
0.204		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.5	222	0.0320	0.39		**Lag/CN Method,**
0.1	18	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
9.6	240	Total			

Subcatchment 24S: CB324

Runoff = 0.88 cfs @ 12.09 hrs, Volume= 0.067 af, Depth= 5.40"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.124	98	Paved roads w/curbs & sewers
0.025	39	>75% Grass cover, Good, HSG A
0.149	88	Weighted Average
0.025		Pervious Area
0.124		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	8	0.0250	7.17	5.63	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	8	Total			

Subcatchment 31S: CB331

Runoff = 0.92 cfs @ 12.13 hrs, Volume= 0.074 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.133	98	Paved roads w/curbs & sewers
0.131	39	>75% Grass cover, Good, HSG A
0.264	69	Weighted Average
0.131		Pervious Area
0.133		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.6	308	0.0390	0.60		**Lag/CN Method,**
0.0	9	0.0210	6.57	5.16	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
8.6	317	Total			

Subcatchment 32S: CB332

Runoff = 1.49 cfs @ 12.22 hrs, Volume= 0.164 af, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.224	98	Paved roads w/curbs & sewers
1.114	39	>75% Grass cover, Good, HSG A
1.338	49	Weighted Average
1.114		Pervious Area
0.224		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	424	0.0710	0.51		**Lag/CN Method,**
0.1	19	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
13.8	443	Total			

Subcatchment 33S: CB333

Runoff = 0.96 cfs @ 12.09 hrs, Volume= 0.070 af, Depth= 3.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.127	98	Paved roads w/curbs & sewers
0.101	39	>75% Grass cover, Good, HSG A
0.228	72	Weighted Average
0.101		Pervious Area
0.127		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	8	0.0210	6.57	5.16	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	8	Total			

Subcatchment 34S: CB334

Runoff = 1.59 cfs @ 12.20 hrs, Volume= 0.150 af, Depth= 2.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.260	98	Paved roads w/curbs & sewers
0.532	39	>75% Grass cover, Good, HSG A
0.792	58	Weighted Average
0.532		Pervious Area
0.260		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	432	0.0530	0.56		**Lag/CN Method,**
0.1	17	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
12.9	449	Total			

Subcatchment 35S: CB335

Runoff = 0.72 cfs @ 12.09 hrs, Volume= 0.053 af, Depth= 4.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.098	98	Paved roads w/curbs & sewers
0.042	39	>75% Grass cover, Good, HSG A
0.140	80	Weighted Average
0.042		Pervious Area
0.098		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	8	0.0225	6.80	5.34	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	8	Total			

Subcatchment 36S: CB336

Runoff = 0.85 cfs @ 12.09 hrs, Volume= 0.062 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.112	98	Paved roads w/curbs & sewers
0.109	39	>75% Grass cover, Good, HSG A
0.221	69	Weighted Average
0.109		Pervious Area
0.112		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	17	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	17	Total			

Subcatchment 37S: CB337

Runoff = 0.83 cfs @ 12.09 hrs, Volume= 0.061 af, Depth= 3.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.111	98	Paved roads w/curbs & sewers
0.072	39	>75% Grass cover, Good, HSG A
0.183	75	Weighted Average
0.072		Pervious Area
0.111		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**
0.0	8	0.0225	6.80	5.34	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	8	Total			

Subcatchment 38S: CB338

Runoff = 0.71 cfs @ 12.12 hrs, Volume= 0.055 af, Depth= 2.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.100	98	Paved roads w/curbs & sewers
0.124	39	>75% Grass cover, Good, HSG A
0.224	65	Weighted Average
0.124		Pervious Area
0.100		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	187	0.0270	0.40		**Lag/CN Method,**
0.1	18	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
7.8	205	Total			

Subcatchment 39S: FI-309

Runoff = 1.78 cfs @ 12.35 hrs, Volume= 0.234 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.297	98	Paved roads w/curbs & sewers
1.725	39	>75% Grass cover, Good, HSG A
2.022	48	Weighted Average
1.725		Pervious Area
0.297		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	467	0.0390	0.38		**Lag/CN Method,**
0.1	14	0.0100	4.54	3.56	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
20.6	481	Total			

Subcatchment 50S: FI305A

Runoff = 0.46 cfs @ 12.11 hrs, Volume= 0.039 af, Depth= 1.47"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.056	98	Paved roads w/curbs & sewers
0.264	39	>75% Grass cover, Good, HSG A
0.320	49	Weighted Average
0.264		Pervious Area
0.056		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.9					**Direct Entry,**
0.1	33	0.0300	7.86	6.17	**Circular Channel (pipe),** Diam= 12.0" Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Concrete pipe, straight & clean
6.0	33	Total			

Subcatchment 350S: 350S

Runoff = 4.03 cfs @ 12.12 hrs, Volume= 0.310 af, Depth= 3.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.80"

Area (ac)	CN	Description
0.093	98	Paved roads w/curbs & sewers
0.541	39	>75% Grass cover, Good, HSG A
0.476	98	Pond
1.110	69	Weighted Average
0.541		Pervious Area
0.569		Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	205	0.0244	0.44		**Lag/CN Method,**

Reach 1R: DMH301-DMH302

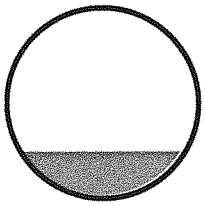
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt

Inflow Area = 0.306 ac, Inflow Depth = 3.09" for 100-YR event
Inflow = 0.93 cfs @ 12.13 hrs, Volume= 0.079 af
Outflow = 0.93 cfs @ 12.14 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.27 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.36 fps, Avg. Travel Time= 1.8 min

Peak Storage= 37 cf @ 12.14 hrs, Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.13 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 250.0' Slope= 0.0400 '/'
Inlet Invert= 188.04', Outlet Invert= 178.04'



Reach 2R: DMH302-DMH303

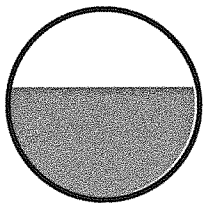
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 5% of Reach 1R bottom

Inflow Area =	1.609 ac,	Inflow Depth =	2.84"	for	100-YR event
Inflow =	4.04 cfs @	12.16 hrs,	Volume=	0.381 af	
Outflow =	4.04 cfs @	12.16 hrs,	Volume=	0.381 af,	Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.37 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.35 fps, Avg. Travel Time= 0.1 min

Peak Storage= 8 cf @ 12.16 hrs, Average Depth at Peak Storage= 0.59'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.17 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 17.0' Slope= 0.0300 '/'
Inlet Invert= 177.94', Outlet Invert= 177.43'



Reach 3R: DMH303-DMH304

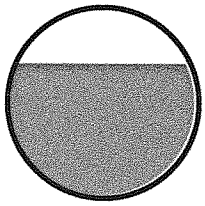
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[62] Warning: Submerged 12% of Reach 2R inlet

Inflow Area = 4.432 ac, Inflow Depth = 2.30" for 100-YR event
Inflow = 8.60 cfs @ 12.16 hrs, Volume= 0.849 af
Outflow = 8.60 cfs @ 12.16 hrs, Volume= 0.849 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.33 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.26 fps, Avg. Travel Time= 0.2 min

Peak Storage= 35 cf @ 12.16 hrs, Average Depth at Peak Storage= 0.88'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 10.21 cfs

15.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 38.0' Slope= 0.0250 '/'
Inlet Invert= 177.18', Outlet Invert= 176.23'



Reach 4R: DMH304-DMH305

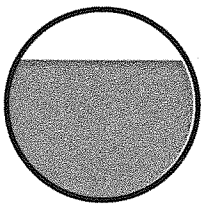
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 90% of Reach 3R bottom

Inflow Area = 5.156 ac, Inflow Depth = 2.53" for 100-YR event
Inflow = 11.45 cfs @ 12.14 hrs, Volume= 1.088 af
Outflow = 11.47 cfs @ 12.15 hrs, Volume= 1.088 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.24 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.88 fps, Avg. Travel Time= 0.6 min

Peak Storage= 143 cf @ 12.15 hrs, Average Depth at Peak Storage= 1.10'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 12.89 cfs

18.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 103.0' Slope= 0.0150 '/'
Inlet Invert= 175.98', Outlet Invert= 174.43'



Reach 5R: DMH305-DMH306

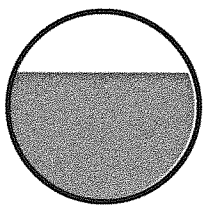
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 59% of Reach 4R bottom

Inflow Area = 5.476 ac, Inflow Depth = 2.47" for 100-YR event
Inflow = 11.88 cfs @ 12.15 hrs, Volume= 1.127 af
Outflow = 11.91 cfs @ 12.15 hrs, Volume= 1.127 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.34 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.21 fps, Avg. Travel Time= 0.7 min

Peak Storage= 164 cf @ 12.15 hrs, Average Depth at Peak Storage= 1.02'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 14.86 cfs

18.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 129.0' Slope= 0.0200 '/'
Inlet Invert= 174.33', Outlet Invert= 171.75'



Reach 6R: DMH306-DMH307

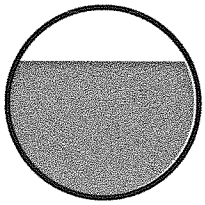
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 36% of Reach 5R bottom

Inflow Area = 7.155 ac, Inflow Depth = 2.52" for 100-YR event
Inflow = 16.32 cfs @ 12.14 hrs, Volume= 1.504 af
Outflow = 16.35 cfs @ 12.15 hrs, Volume= 1.504 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.79 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.32 fps, Avg. Travel Time= 0.6 min

Peak Storage= 195 cf @ 12.15 hrs, Average Depth at Peak Storage= 1.43'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 18.98 cfs

24.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 81.0' Slope= 0.0070 '/'
Inlet Invert= 171.25', Outlet Invert= 170.68'



Reach 7R: DMH307-FES

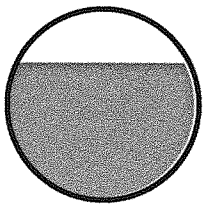
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[63] Warning: Exceeded Reach 6R inflow depth by 0.17' @ 12.20 hrs
[62] Warning: Submerged 63% of Reach 8R inlet

Inflow Area = 19.285 ac, Inflow Depth = 2.25" for 100-YR event
Inflow = 36.56 cfs @ 12.15 hrs, Volume= 3.620 af
Outflow = 36.62 cfs @ 12.16 hrs, Volume= 3.620 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.72 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.29 fps, Avg. Travel Time= 1.2 min

Peak Storage= 926 cf @ 12.16 hrs, Average Depth at Peak Storage= 2.16'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 42.18 cfs

36.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 170.0' Slope= 0.0040 '/'
Inlet Invert= 170.68', Outlet Invert= 170.00'



Reach 8R: DMH308-DMH307

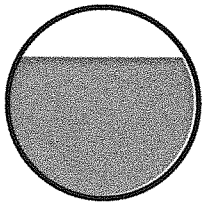
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[62] Warning: Submerged 27% of Reach 9R inlet

Inflow Area = 12.130 ac, Inflow Depth = 2.09" for 100-YR event
Inflow = 20.25 cfs @ 12.16 hrs, Volume= 2.115 af
Outflow = 20.27 cfs @ 12.16 hrs, Volume= 2.115 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.14 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.09 fps, Avg. Travel Time= 0.5 min

Peak Storage= 221 cf @ 12.16 hrs, Average Depth at Peak Storage= 1.48'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 89.0' Slope= 0.0100 '/'
Inlet Invert= 171.57', Outlet Invert= 170.68'



Reach 9R: DMH309-DMH308

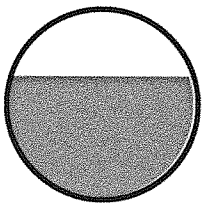
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[62] Warning: Submerged 12% of Reach 10R inlet

Inflow Area = 10.883 ac, Inflow Depth = 2.00" for 100-YR event
Inflow = 17.05 cfs @ 12.15 hrs, Volume= 1.818 af
Outflow = 17.08 cfs @ 12.16 hrs, Volume= 1.818 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.91 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.97 fps, Avg. Travel Time= 0.5 min

Peak Storage= 181 cf @ 12.16 hrs, Average Depth at Peak Storage= 1.30'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 84.0' Slope= 0.0100 '/'
Inlet Invert= 172.51', Outlet Invert= 171.67'



Reach 10R: DMH310-DMH319

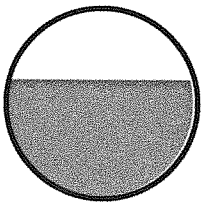
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[62] Warning: Submerged 17% of Reach 11R inlet

Inflow Area = 8.861 ac, Inflow Depth = 2.14" for 100-YR event
Inflow = 16.07 cfs @ 12.14 hrs, Volume= 1.584 af
Outflow = 16.11 cfs @ 12.15 hrs, Volume= 1.584 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.82 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.86 fps, Avg. Travel Time= 0.6 min

Peak Storage= 196 cf @ 12.15 hrs, Average Depth at Peak Storage= 1.25'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 95.0' Slope= 0.0100 '/'
Inlet Invert= 173.56', Outlet Invert= 172.61'



Reach 11R: DMH311-DMH310

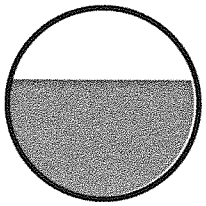
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 39% of Reach 12R bottom
[61] Hint: Submerged 59% of Reach 31R bottom

Inflow Area =	8.861 ac,	Inflow Depth =	2.14"	for	100-YR event
Inflow =	16.04 cfs @	12.14 hrs,	Volume=	1.584 af	
Outflow =	16.07 cfs @	12.14 hrs,	Volume=	1.584 af,	Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.81 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.86 fps, Avg. Travel Time= 0.5 min

Peak Storage= 167 cf @ 12.14 hrs, Average Depth at Peak Storage= 1.25'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 22.62 cfs

24.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 81.0' Slope= 0.0100 '/'
Inlet Invert= 174.47', Outlet Invert= 173.66'



Reach 12R: DMH312-DMH311

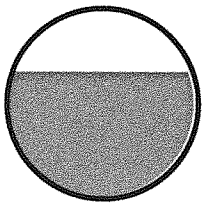
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 9% of Reach 13R bottom

Inflow Area = 5.471 ac, Inflow Depth = 1.97" for 100-YR event
Inflow = 8.74 cfs @ 12.14 hrs, Volume= 0.896 af
Outflow = 8.75 cfs @ 12.14 hrs, Volume= 0.896 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.09 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.85 fps, Avg. Travel Time= 0.2 min

Peak Storage= 36 cf @ 12.14 hrs, Average Depth at Peak Storage= 0.83'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 11.19 cfs

15.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 42.0' Slope= 0.0300 '/'
Inlet Invert= 176.48', Outlet Invert= 175.22'



Reach 13R: DMH313-DMH312

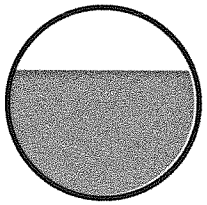
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 27% of Reach 14R bottom

Inflow Area = 4.160 ac, Inflow Depth = 1.77" for 100-YR event
Inflow = 5.58 cfs @ 12.13 hrs, Volume= 0.615 af
Outflow = 5.60 cfs @ 12.14 hrs, Volume= 0.615 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.04 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 3.92 fps, Avg. Travel Time= 0.7 min

Peak Storage= 89 cf @ 12.14 hrs, Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.13 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 160.0' Slope= 0.0400 '/'
Inlet Invert= 183.13', Outlet Invert= 176.73'



Reach 14R: DMH314-DMH313

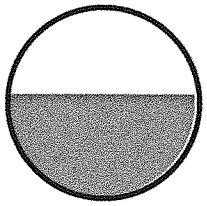
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 6% of Reach 15R bottom

Inflow Area = 3.693 ac, Inflow Depth = 1.60" for 100-YR event
Inflow = 4.12 cfs @ 12.15 hrs, Volume= 0.494 af
Outflow = 4.12 cfs @ 12.15 hrs, Volume= 0.494 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.40 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.96 fps, Avg. Travel Time= 0.2 min

Peak Storage= 23 cf @ 12.15 hrs, Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.13 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 52.0' Slope= 0.0400 '/'
Inlet Invert= 185.31', Outlet Invert= 183.23'



Reach 15R: DMH315-DMH314

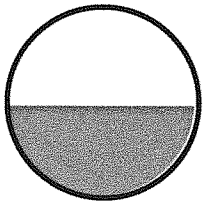
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 9% of Reach 16R bottom

Inflow Area = 3.693 ac, Inflow Depth = 1.60" for 100-YR event
Inflow = 4.11 cfs @ 12.14 hrs, Volume= 0.494 af
Outflow = 4.12 cfs @ 12.15 hrs, Volume= 0.494 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.95 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 4.57 fps, Avg. Travel Time= 0.4 min

Peak Storage= 44 cf @ 12.15 hrs, Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 8.73 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 118.0' Slope= 0.0600 '/'
Inlet Invert= 192.49', Outlet Invert= 185.41'



Reach 16R: DMH316-DMH315

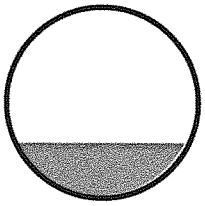
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 3% of Reach 17R bottom

Inflow Area =	1.968 ac,	Inflow Depth =	1.42"	for	100-YR event
Inflow =	1.71 cfs @	12.32 hrs,	Volume=	0.234 af	
Outflow =	1.71 cfs @	12.32 hrs,	Volume=	0.234 af,	Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.10 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.93 fps, Avg. Travel Time= 0.3 min

Peak Storage= 11 cf @ 12.32 hrs, Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 9.43 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 60.0' Slope= 0.0700 '/'
Inlet Invert= 196.79', Outlet Invert= 192.59'



Reach 17R: DMH317-DMH316

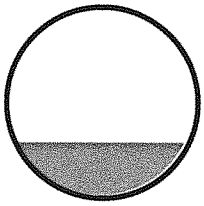
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 4% of Reach 18R bottom

Inflow Area =	1.968 ac,	Inflow Depth =	1.42"	for	100-YR event
Inflow =	1.71 cfs @	12.32 hrs,	Volume=	0.234 af	
Outflow =	1.71 cfs @	12.32 hrs,	Volume=	0.234 af,	Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.10 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.94 fps, Avg. Travel Time= 0.4 min

Peak Storage= 16 cf @ 12.32 hrs, Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 9.43 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 86.0' Slope= 0.0700 '/'
Inlet Invert= 202.91', Outlet Invert= 196.89'



Reach 18R: DMH318-DMH317

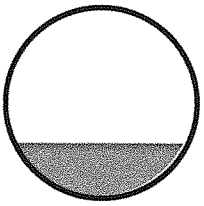
[52] Hint: Inlet conditions not evaluated

Inflow Area =	1.968 ac,	Inflow Depth =	1.42"	for	100-YR event
Inflow =	1.71 cfs @	12.32 hrs,	Volume=	0.234 af	
Outflow =	1.71 cfs @	12.32 hrs,	Volume=	0.234 af,	Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.10 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.93 fps, Avg. Travel Time= 0.3 min

Peak Storage= 14 cf @ 12.32 hrs, Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 9.43 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 72.0' Slope= 0.0700 '/'
Inlet Invert= 208.05', Outlet Invert= 203.01'



Reach 21R: DMH321-DMH303

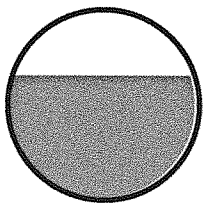
[52] Hint: Inlet conditions not evaluated
[65] Warning: Inlet elevation not specified
[90] Warning: Qout>Qin may require Finer Routing or smaller dt

Inflow Area = 1.582 ac, Inflow Depth = 2.59" for 100-YR event
Inflow = 3.84 cfs @ 12.13 hrs, Volume= 0.342 af
Outflow = 3.85 cfs @ 12.13 hrs, Volume= 0.342 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.05 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.44 fps, Avg. Travel Time= 0.7 min

Peak Storage= 54 cf @ 12.13 hrs, Average Depth at Peak Storage= 0.65'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.04 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 100.0' Slope= 0.0200 '/'
Inlet Invert= 0.00', Outlet Invert= -2.00'



Reach 22R: DMH322-DMH321

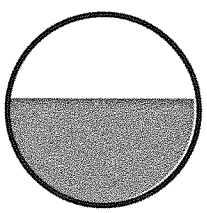
[52] Hint: Inlet conditions not evaluated
[65] Warning: Inlet elevation not specified

Inflow Area = 0.737 ac, Inflow Depth = 2.98" for 100-YR event
Inflow = 2.15 cfs @ 12.12 hrs, Volume= 0.183 af
Outflow = 2.15 cfs @ 12.12 hrs, Volume= 0.183 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.72 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.62 fps, Avg. Travel Time= 1.0 min

Peak Storage= 45 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 3.56 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 100.0' Slope= 0.0100 '/'
Inlet Invert= 0.00', Outlet Invert= -1.00'



Reach 31R: DMH331-DMH311

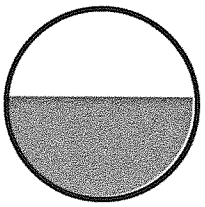
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 12% of Reach 32R bottom

Inflow Area = 3.390 ac, Inflow Depth = 2.43" for 100-YR event
Inflow = 7.28 cfs @ 12.14 hrs, Volume= 0.687 af
Outflow = 7.29 cfs @ 12.14 hrs, Volume= 0.687 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.84 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 3.96 fps, Avg. Travel Time= 0.1 min

Peak Storage= 14 cf @ 12.14 hrs, Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 12.92 cfs

15.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 21.0' Slope= 0.0400 '/'
Inlet Invert= 176.06', Outlet Invert= 175.22'



Reach 32R: DMH332-DMH331

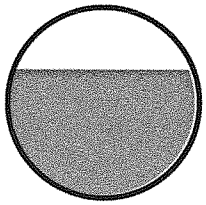
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 9% of Reach 33R bottom

Inflow Area = 1.788 ac, Inflow Depth = 3.02" for 100-YR event
Inflow = 5.29 cfs @ 12.12 hrs, Volume= 0.450 af
Outflow = 5.29 cfs @ 12.12 hrs, Volume= 0.450 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.38 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.41 fps, Avg. Travel Time= 0.5 min

Peak Storage= 55 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.67 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 98.0' Slope= 0.0350 '/'
Inlet Invert= 179.74', Outlet Invert= 176.31'



Reach 33R: DMH333-DMH332

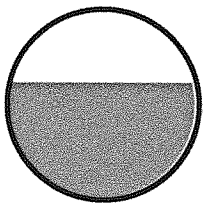
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 14% of Reach 34R bottom

Inflow Area = 1.788 ac, Inflow Depth = 3.02" for 100-YR event
Inflow = 5.30 cfs @ 12.12 hrs, Volume= 0.450 af
Outflow = 5.29 cfs @ 12.12 hrs, Volume= 0.450 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.38 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 3.74 fps, Avg. Travel Time= 0.6 min

Peak Storage= 71 cf @ 12.12 hrs, Average Depth at Peak Storage= 0.62'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.56 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 139.0' Slope= 0.0450 '/'
Inlet Invert= 186.10', Outlet Invert= 179.84'



Reach 34R: DMH334-DMH333

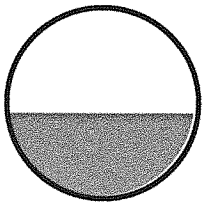
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 10% of Reach 35R bottom

Inflow Area = 0.768 ac, Inflow Depth = 3.59" for 100-YR event
Inflow = 3.09 cfs @ 12.10 hrs, Volume= 0.230 af
Outflow = 3.09 cfs @ 12.10 hrs, Volume= 0.230 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.14 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.10 fps, Avg. Travel Time= 0.4 min

Peak Storage= 28 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.45'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.56 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 82.0' Slope= 0.0450 '/'
Inlet Invert= 189.89', Outlet Invert= 186.20'



Reach 35R: DMH335-DMH334

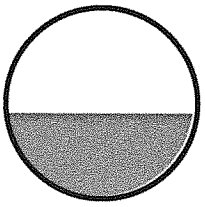
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt
[61] Hint: Submerged 12% of Reach 36R bottom

Inflow Area =	0.768 ac,	Inflow Depth =	3.59"	for	100-YR event
Inflow =	3.09 cfs @	12.10 hrs,	Volume=	0.230 af	
Outflow =	3.09 cfs @	12.10 hrs,	Volume=	0.230 af,	Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 9.14 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.11 fps, Avg. Travel Time= 0.4 min

Peak Storage= 25 cf @ 12.10 hrs, Average Depth at Peak Storage= 0.45'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.56 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 73.0' Slope= 0.0451 '/'
Inlet Invert= 193.28', Outlet Invert= 189.99'



Reach 36R: DMH336-DMH335

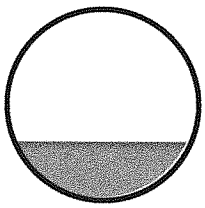
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 5% of Reach 37R bottom

Inflow Area =	0.407 ac,	Inflow Depth =	3.41"	for	100-YR event
Inflow =	1.53 cfs @	12.11 hrs,	Volume=	0.116 af	
Outflow =	1.53 cfs @	12.11 hrs,	Volume=	0.116 af,	Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.53 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.65 fps, Avg. Travel Time= 0.4 min

Peak Storage= 13 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.56 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 64.0' Slope= 0.0450 '/'
Inlet Invert= 196.26', Outlet Invert= 193.38'



Reach 37R: DMH337-DMH336

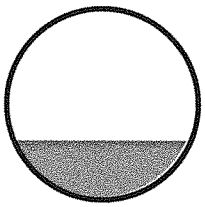
[52] Hint: Inlet conditions not evaluated
[61] Hint: Submerged 6% of Reach 38R bottom

Inflow Area =	0.407 ac,	Inflow Depth =	3.41"	for	100-YR event
Inflow =	1.53 cfs @	12.11 hrs,	Volume=	0.116 af	
Outflow =	1.53 cfs @	12.11 hrs,	Volume=	0.116 af,	Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.38 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.59 fps, Avg. Travel Time= 0.6 min

Peak Storage= 19 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.34 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 92.0' Slope= 0.0425 '/'
Inlet Invert= 200.27', Outlet Invert= 196.36'



Reach 38R: DMH338-DMH337

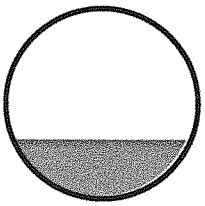
[52] Hint: Inlet conditions not evaluated
[90] Warning: Qout>Qin may require Finer Routing or smaller dt

Inflow Area = 0.407 ac, Inflow Depth = 3.41" for 100-YR event
Inflow = 1.53 cfs @ 12.10 hrs, Volume= 0.116 af
Outflow = 1.53 cfs @ 12.11 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.38 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.59 fps, Avg. Travel Time= 0.5 min

Peak Storage= 17 cf @ 12.11 hrs, Average Depth at Peak Storage= 0.31'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.34 cfs

12.0" Diameter Pipe, n= 0.013 Concrete pipe, straight & clean
Length= 81.0' Slope= 0.0425 '/'
Inlet Invert= 203.81', Outlet Invert= 200.37'



Pond 1P: SF-3

[61] Hint: Submerged 58% of Reach 7R bottom

Inflow Area = 19.285 ac, Inflow Depth = 2.25" for 100-YR event
Inflow = 36.62 cfs @ 12.16 hrs, Volume= 3.620 af
Outflow = 36.02 cfs @ 12.18 hrs, Volume= 3.541 af, Atten= 2%, Lag= 1.1 min
Primary = 36.02 cfs @ 12.18 hrs, Volume= 3.541 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 170.39' @ 12.77 hrs Surf.Area= 0.100 ac Storage= 0.217 af

Plug-Flow detention time= 23.7 min calculated for 3.541 af (98% of inflow)
Center-of-Mass det. time= 11.1 min (872.3 - 861.2)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	0.390 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.069	0.000	0.000
170.00	0.107	0.176	0.176
172.50	0.064	0.214	0.390

Device	Routing	Invert	Outlet Devices
#1	Primary	169.00'	**20.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66

2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=32.81 cfs @ 12.18 hrs HW=169.76' TW=169.25' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 32.81 cfs @ 2.16 fps)

Pond 2P: IB-3

[87] Warning: Oscillations may require Finer Routing or smaller dt
[80] Warning: Exceeded Pond 1P by 0.07' @ 12.40 hrs (24.80 cfs 0.764 af)

Inflow Area =	20.395 ac,	Inflow Depth =	2.27"	for	100-YR event
Inflow =	39.57 cfs @	12.17 hrs,	Volume=	3.851 af	
Outflow =	10.03 cfs @	12.72 hrs,	Volume=	3.855 af,	Atten= 75%, Lag= 32.8 min
Discarded =	10.03 cfs @	12.72 hrs,	Volume=	3.855 af	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.05 hrs
Peak Elev= 170.39' @ 12.72 hrs Surf.Area= 0.497 ac Storage= 0.921 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 32.3 min (901.7 - 869.4)

Volume	Invert	Avail.Storage	Storage Description
#1	168.00'	1.792 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
168.00	0.255	0.000	0.000
170.00	0.476	0.731	0.731
172.00	0.585	1.061	1.792

Device	Routing	Invert	Outlet Devices
#1	Discarded	0.00'	**20.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=10.03 cfs @ 12.72 hrs HW=170.39' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 10.03 cfs)