Storm Water Management Plan

for

Kingsmill Crossing

Prepared By:

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636-946-5555

ZPS Project # 96119

May 16, 2006

5-16-06

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Introduction:

The Kingsmill Crossing Phase 1 project is the infrastructure plans for a retail/commercial development, containing 17.8 acres. The site is located in the City of O'Fallon, Missouri, on the east side of Hwy K across from the existing Crusher Drive. The following report has been prepared as a summary of the attached storm water management calculations. The following storms have been evaluated; 2-Year, 15-Year, 25-Year and 100-Year frequency 20-minute storms. The results of the report will show that the post-development runoff will not exceed the pre-development runoff and that the storm water detention will reduce the erosion of the land and enhance the environmental quality of the water and its tributaries.

Pre-development Conditions:

The existing site contains 17.8 acres, consisting of a agricultural type use. A tree line exists along the edge of the property and this area mostly consisted of tall grass, brush and a few trees. The site consists of a single watershed that runs from west to east. The NRCS has evaluated the soil type at the site. The soil type is Harvester, which is Hydrologic Soil Type C. Some offsite water has been accounted for in the model.

The following table summarizes the data and results for the drainage areas. All calculations and more detailed data can be found in the attached calculations. The methodology used for calculating all flows is based on the United States Department of Agriculture's Natural Resources Conservation Service, NRCS "Urban Hydrology for Small Watershed's", also known as TR-55. The software package used for pond routing and hydraulic flows is Pond Pack v. 9.0. by Haestad Methods, Inc. In addition to the use of these software packages, sound engineering judgment has been used to review all calculations and design.

Drainage Area	Area (acres)	Curve Number	Time of Conc. (hrs)	2-Year Peak Runoff (cfs)	15-Year Peak Runoff (cfs)	25-Year Peak Runoff (cfs)	100-Year Peak Runoff (cfs)
Pre	17.81	74	0.25	20.05	44.04	54.42	72.30
Pre-Offsite	4.60	85	0.26	9.14	16.23	19.11	23.91

72.52

Post-development Conditions:

The proposed development will consist of retail and commercial uses, along with associated roadway and infrastructure improvements. Some off-site runoff has been routed through the basin. The model take both offsite and onsite runoff areas into account and the evaluation point is the "Out-Post" drainage point. These are labeled as such on the model diagrams provided. Overall the watersheds drain in similar fashion to the pre-development condition, including the use of the same outlet point.

The following table summarizes the data and results for the drainage areas.

Drainage Area	Area (acres)	Curve Number	Time of Conc. (hrs)	2-Year Peak Runoff (cfs)	15-Year Peak Runoff (cfs)	25-Year Peak Runoff (cfs)	100-Year Peak Runoff (cfs)
Post	17.81	92	0.22	49.19	78.83	90.59	110.09
Post-Offsite	4.60	85	0.24	9.42	16.65	19.59	24.48

Detention Analysis:

A single detention basin is proposed. The basin is located near the existing storm inlet along the est corner of the site. The basin contains nearly 115,000 cubic feet of storage. The berm height for the basin is 528.0', allowing for more than the required one foot of freeboard. Two years of sediment storage (4628 cu. ft.) has been included. The 100 year HWL is 526.90' and the sill is at 525.50'.

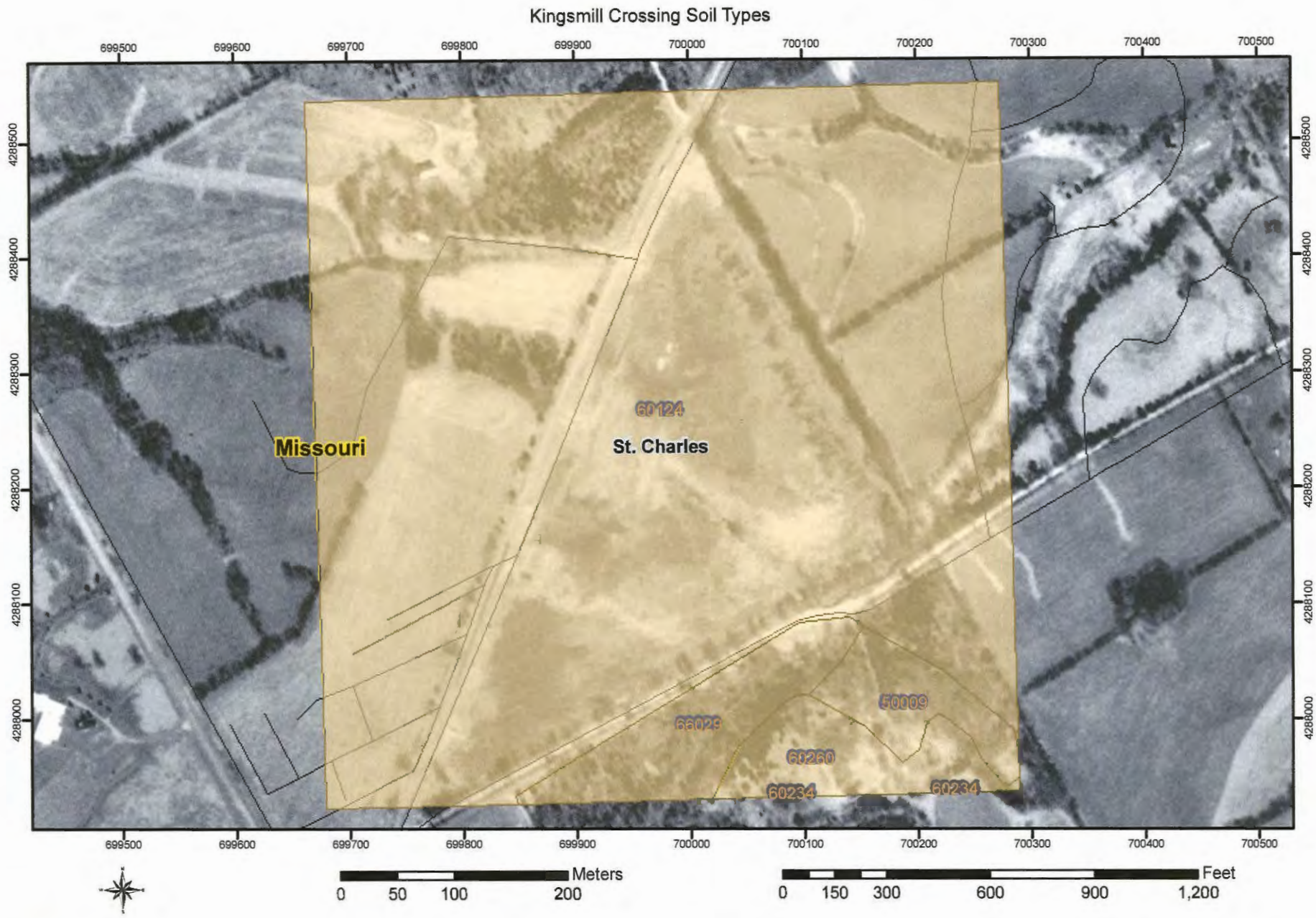
The basin contains walls varying in height on 3-sides of the pond. A grass 3:1 slope will allow maintenance to be performed on the basins. Concrete swales will line the flow paths for inlet pipes reaching the basin. The outfall structures are concrete area inlets open on 4-sides. The sill elevations and openings of the structures are diagramed in this report. In the event that the low flow opening becomes blocked the high-water elevation for the basin will reach 527.68 and the basin outflow will be 128.76 cfs during the 100-year 24-hour storm event.

The following tables summarize the detention basin inflow and outflow, and the total site runoff for both the pre and post-development conditions the basin. As stated in the introduction, the post-development peak release rate does not exceed the pre-development peak release rate.

Detention Basin:

Storm Event	Peak Basin Inflow (cfs)	Peak Basin Outflow (cfs)	Basin High Water Elev.	Total Peak Pre-development Flow (cfs)	Total Peak Post-development Flow (cfs)
2-year	58.34 @ 12.00 hrs.	24.66 @ 12.20 hrs.	522.40	29.20	24.66
15-year	95.25 @ 12.00 hrs.	34.71 @ 12.25 hrs.	525.56	60.27	34.71
25-year	109.98 @ 12.00 hrs.	57.85 @ 12.20 hrs.	526.22	73.53	57.85
100-year	134.43 @ 12.00 hrs.	95.61 @ 12.15 hrs.	526.90	96.21	95.61

HYDROLOGIC GROUP RATING FOR ST CHARLES COUNTY, MISSOURI



HYDROLOGIC GROUP RATING FOR ST CHARLES COUNTY, MISSOURI

Kingsmill Crossing Soil Types

MAP LEGEND

Hydrologic Group

{Dominant Condition, <}

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available
- Soil Map Units
- Cities
- Detailed Counties
- Detailed States
- Interstate Highways
- Roads
- Rails
- Water
- Hydrography
- Oceans

MAP INFORMATION

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov

Coordinate System: UTM Zone 15

Soil Survey Area: St Charles County, Missouri
Spatial Version of Data: 2
Soil Map Compilation Scale: 1:24000

Map comprised of aerial images photographed on these dates:
1996

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Tables - Hydrologic Group

Summary by Map Unit - St Charles County, Missouri

Soil Survey Area Map Unit Symbol	Map Unit Name	Rating	Total Acres in AOI	Percent of AOI
50009	Keswick silt loam, 9 to 14 percent slopes, eroded	C	2.6	2.8
60124	Harvester-Urban land complex, 2 to 9 percent slopes	C	82.8	88.7
60234	Weller silt loam, 2 to 5 percent slopes	C	0.1	0.1
60260	Weller silt loam, 5 to 9 percent slopes	C	3.4	3.6
66029	Dockery silt loam, 0 to 2 percent slopes, occasionally flooded	C	4.4	4.7

Description - Hydrologic Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are placed into four groups A, B, C, and D, and three dual classes, A/D, B/D, and C/D. Definitions of the classes are as follows:

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

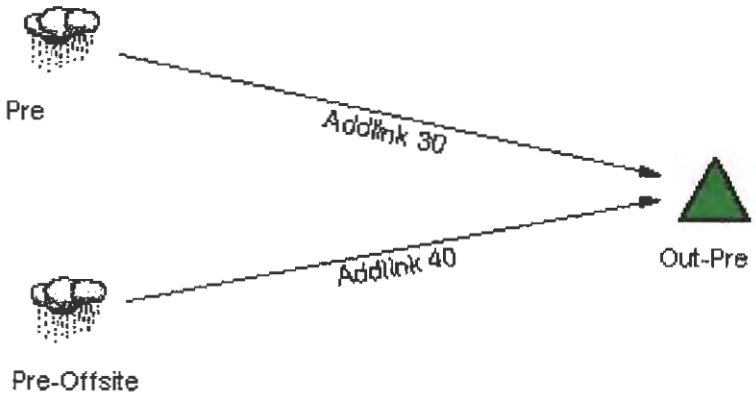
Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only soils that are rated D in their natural condition are assigned to dual classes.

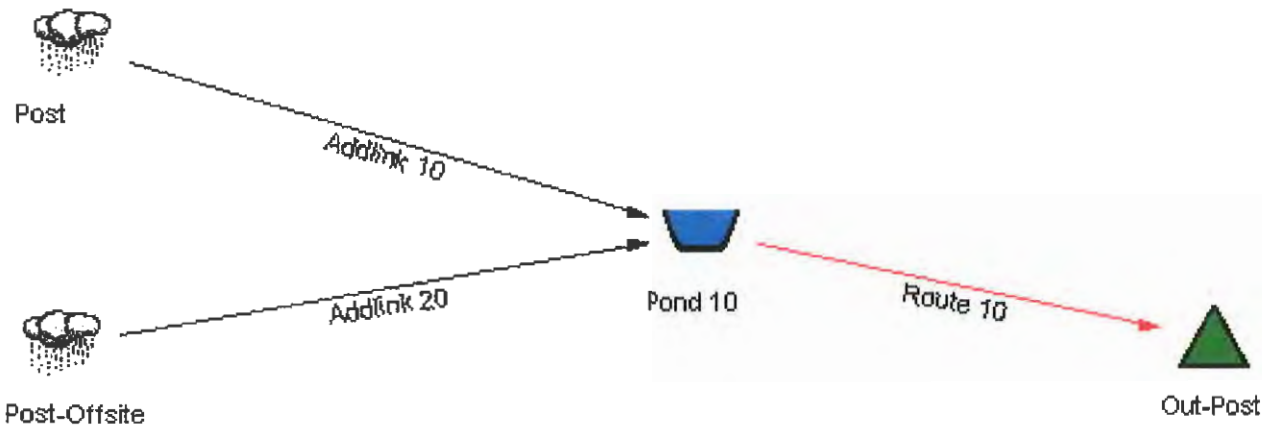
Parameter Summary - Hydrologic Group

Aggregation Method: Dominant Condition

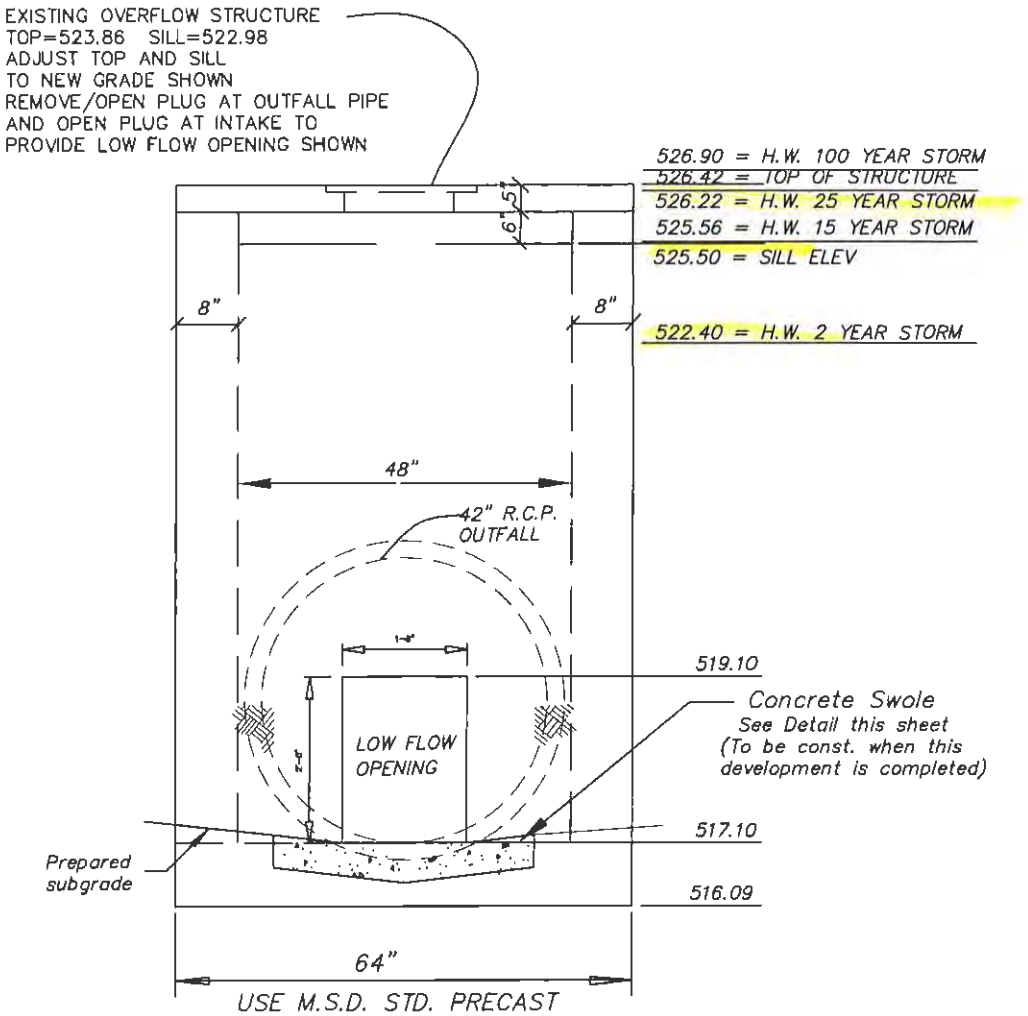
Component Percent Cutoff:



Pre-development Model



Post-development Model

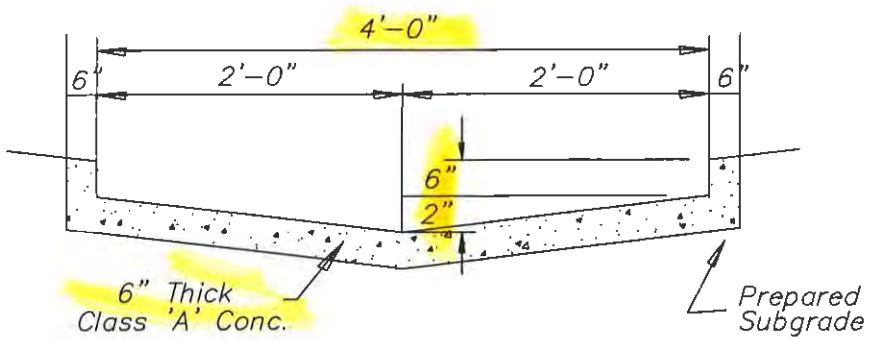


USE M.S.D. STD. PRECAST
CONCRETE AREA INLET 48" INT. ø
SEE MSD DETAIL SHEET NO. 35
MODIFY WITH DRAINAGE SLOT AS SHOWN

ADJUSTMENT TO OUTFALL STRUCTURE WITH BRICK WILL NOT BE ALLOWED

IT IS THE MANUFACTURER'S RESPONSIBILTY TO SUPPLY SHOP DRAWINGS SHOWING THE REQUIRED STEEL IN THIS STRUCTURE.

EXISTING OVERFLOW STRUCTURE "101" AT DETENTION BASIN



CONCRETE SWALE DETAIL

MINIMUM CROSS SLOPE SHALL BE 2" IN 2'
MINIMUM LONGITUDINAL SLOPE SHALL BE 2%

LEGEND

Symbol	Description	Abbrev.	Meaning
	Sanitary Sewer (Proposed)	C.P.	Concrete Pipe
	Sanitary Sewer (Existing)	R.C.P.	Reinforced Concrete Pipe
	Storm Sewer (Proposed)	C.M.P.	Corregated Metal Pipe
	Storm Sewer (Existing)	P.V.C.	Polyvinyl Choride Pipe
	Water Line and size	C.I.P.	Cast Iron Pipe
	Tee and Valve	V.C.P.	Vitrified Clay Pipe
	Fire Hydrant	E.P.	End Pipe
	Cap	F.E.	Flared End Section
	Existing Fence Line	C.O.	Clean Out
	Existing Tree Line	V.T.	Vent Trap
	Existing Contour	M.H.	Manhole
	Proposed Contour	C.I.	Curb Inlet
	Lot or Building Number	D.C.I.	Double Curb Inlet
	Street Sign	A.I.	Area Inlet
	Power Pole	D.A.I.	Double Area Inlet
	Guy Wire	G.I.	Grate Inlet
	Light Standard	C.C.	Concrete Collar
	Gas Line	U.I.P.	Use In Place
	Electric Line	T.B.R.	To Be Removed
	Telephone Line	T.B.R.&R.	To Be Removed & Relocated/Replaced
	Gas Valve	Set I.R.	Set Iron Rod with Cap
	Gas Meter	C.M.	Concrete Monument
	Water Valve	O.I.P.	Old Iron Pipe
	Water Meter	O.S.T.	Old Stone
	Found Old Iron Pipe	O.I.R.	Old Iron Rod
	Found Old Iron Rod		

LEGEND:

- TEMPORARY SWALE
- DRAINAGE AREA
- DRAINAGE "Q's"
- SB TEMPORARY SILT BASIN
- SILT FENCE

STORM STRUCTURE
SILT SOCK (ALONG FACE OF STRUCTURE)
SILT FENCE (4' FROM OUTSIDE EDGE)

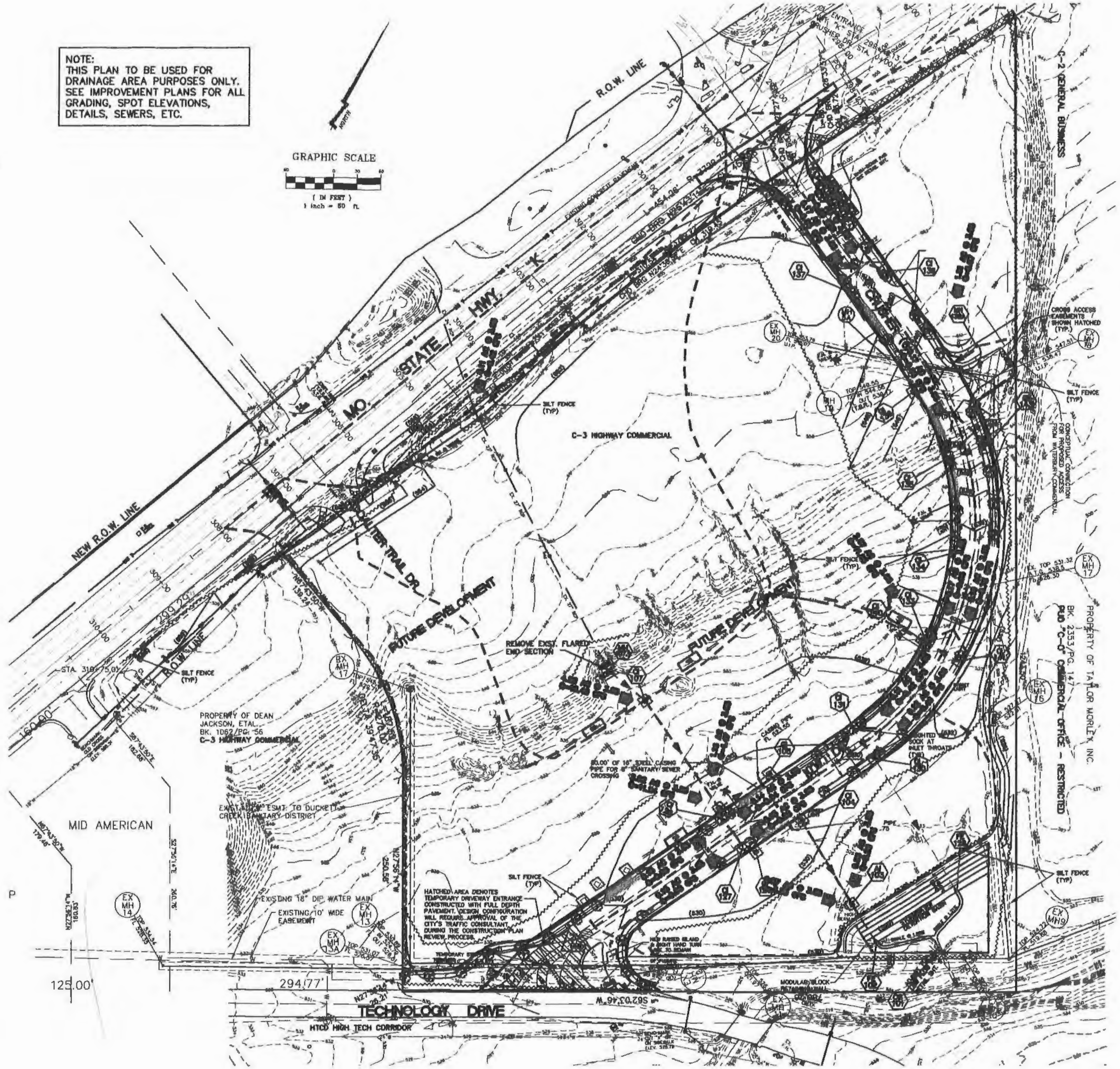
SILTATION PLACEMENT @ STRUCTURES
N.T.S.

NOTES:

1. REFER TO CONSTRUCTION DETAILS ADDITIONAL SILTATION CONTROL LAYOUT AND DETAILS.
2. TEMPORARY SWALES TO BE BUILT TO DIVERT FLOW TO ULTIMATE STORM COLLECTION POINTS.
3. EXISTING STORM BASIN TO BE MODIFIED IN SIZE. ORIGINAL STRUCTURES ARE SIZED FOR ULTIMATE FLOW AND TO BE USED IN PLACE.
4. SEE DETAIL SHEETS FOR WASH-DOWN PAD DETAILS.

NOTE:
THIS PLAN TO BE USED FOR DRAINAGE AREA PURPOSES ONLY. SEE IMPROVEMENT PLANS FOR ALL GRADING, SPOT ELEVATIONS, DETAILS, SEWERS, ETC.

GRAPHIC SCALE
(IN FEET)
1 inch = 50 ft.



CONTRACTOR TO NOTIFY MoDOT TRAFFIC DIVISION TO LOCATE ANY EXISTING SIGNAL AND LIGHTING UNDERGROUND CABLES OR WIRES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION OR EARTHWORK. (314) 340-4100.

Missouri One Call System, Inc.
Call Before You Dig!
1-800-DIG-RITE
(1-800-344-7483)

NOTE:
FOR ALL WORK WITHIN THE MISSOURI STATE RIGHT-OF-WAY FOR HIGHWAY K REFER TO THE ATTACHED KINGSMILL MoDOT ENTRANCE PLANS

Disclaimer

ENGINEERS CERTIFICATION: ... ZAVRADINOS PROFESSIONAL SERVICES, INC.

Richard G. Wachmann DATE
PE-2003015069

No.	Date	Revision/Issue

KINGSMILL CROSSING
PHASE 1 DRAINAGE AREA MAP

Zavradinos Professional Services, Inc.
ENGINEERING LAND SURVEYING SITE PLANNING
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CHESTERFIELD, MO 63005
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Client
KINGSMILL TRANSP. DEVELOPMENT DISTRICT
14151 CLAYTON ROAD
CHESTERFIELD, MO 63017
636-394-3577

CITY/COUNTY JOB NO: 9864.02
MSD P- BASEMAP
Original Issue Date 5/1/06
Drawn By JBC
ZPS PM JRE
Project No. 96119
Sheet 6

Pond Pack Output Report

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: O'Fallon

Return Event	Total Depth in	Rainfall Type	RNF ID
2YR	3.1000	Synthetic Curve	TypeII 24hr
15YR	4.6000	Synthetic Curve	TypeII 24hr
25YR	5.2000	Synthetic Curve	TypeII 24hr
100YR	6.2000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

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

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
*OUT-POST	JCT	2	173670		12.2000	24.66		
*OUT-POST	JCT	15	289115		12.2500	34.71		
*OUT-POST	JCT	25	336178		12.2000	57.85		
*OUT-POST	JCT	100	415253		12.1500	95.61		
*OUT-PRE	JCT	2	90759		12.0500	29.20		
*OUT-PRE	JCT	15	182541		12.0500	60.27		
*OUT-PRE	JCT	25	222482		12.0500	73.53		
*OUT-PRE	JCT	100	291713		12.0500	96.21		
POND 10 IN	POND	2	173676		12.0000	58.34		
POND 10 IN	POND	15	289121		12.0000	95.25		
POND 10 IN	POND	25	336183		12.0000	109.98		
POND 10 IN	POND	100	415259		12.0000	134.43		

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

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

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
POND 10 OUT	POND	2	173670		12.2000	24.66	522.40	46519
POND 10 OUT	POND	15	289115		12.2500	34.71	525.56	83657
POND 10 OUT	POND	25	336178		12.2000	57.85	526.22	92190
POND 10 OUT	POND	100	415253		12.1500	95.61	526.90	101174
POST	AREA	2	145742		12.0000	49.19		
POST	AREA	15	239011		12.0000	78.83		
POST	AREA	25	276838		12.0000	90.59		
POST	AREA	100	340246		12.0000	110.09		
POST-OFFSITE	AREA	2	27934		12.0500	9.42		
POST-OFFSITE	AREA	15	50110		12.0500	16.65		
POST-OFFSITE	AREA	25	59345		12.0500	19.59		
POST-OFFSITE	AREA	100	75013		12.0500	24.48		
PRE	AREA	2	62828		12.0500	20.05		
PRE	AREA	15	132436		12.0500	44.04		
PRE	AREA	25	163144		12.0500	54.42		
PRE	AREA	100	216708		12.0500	72.30		
PRE-OFFSITE	AREA	2	27931		12.0500	9.14		
PRE-OFFSITE	AREA	15	50104		12.0500	16.23		
PRE-OFFSITE	AREA	25	59339		12.0500	19.11		
PRE-OFFSITE	AREA	100	75004		12.0500	23.91		

File.... M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Title... Project Date: 5/16/2005
Project Engineer: ZAVRADINOS
Project Title: Kingsmill Crossing
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File,ID = O'Fallon

Storm Tag Name = 2YR

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 3.1000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 15YR

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 15 yr
Total Rainfall Depth= 4.6000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 25YR

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 25 yr
Total Rainfall Depth= 5.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = 100YR

Data Type, File, ID = Synthetic Storm TypeII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 6.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

File.... M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\KINGSMILL.PPW

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: User Defined

Segment #1 Time: .2200 hrs

Total Tc: .2200 hrs

File.... M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\KINGSMILL.PPW

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: User Defined

Segment #1 Time: .2400 hrs

Total Tc: .2400 hrs

File.... M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\KINGSMILL.PPW

::
TIME OF CONCENTRATION CALCULATOR
::

Segment #1: Tc: User Defined

Segment #1 Time: .2500 hrs

==========
Total Tc: .2500 hrs
==========

File.... M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\KINGSMILL.PPW

TIME OF CONCENTRATION CALCULATOR

Segment #1: Tc: User Defined

Segment #1 Time: .2600 hrs

Total Tc: .2600 hrs

File.... M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\KINGSMILL.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
post dev	92	17.800			92.00
COMPOSITE AREA & WEIGHTED CN --->		17.800			92.00 (92)

File.... M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\KINGSMILL.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
off-site	85	4.600			85.00
COMPOSITE AREA & WEIGHTED CN --->		4.600			85.00 (85)

File.... M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\KINGSMILL.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	74	17.800			74.00
COMPOSITE AREA & WEIGHTED CN --->		17.800			74.00 (74)

File.... M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\KINGSMILL.PPW

RUNOFF CURVE NUMBER DATA

Soil/Surface Description	CN	Area acres	Impervious Adjustment %C	Impervious Adjustment %UC	Adjusted CN
	85	4.600			85.00
COMPOSITE AREA & WEIGHTED CN --->		4.600			85.00 (85)

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.1000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - POST 2YR
Tc = .2200 hrs
Drainage Area = 17.800 acres Runoff CN= 92

==========
Computational Time Increment = .02933 hrs
Computed Peak Time = 12.0267 hrs
Computed Peak Flow = 49.57 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0000 hrs
Peak Flow, Interpolated Output = 49.19 cfs
==========

DRAINAGE AREA

ID:POST
CN = 92
Area = 17.800 acres
S = .8696 in
0.2S = .1739 in

Cumulative Runoff

2.2557 in
145752 cu.ft

HYG Volume... 145742 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .22000 hrs (ID: POST)
Computational Incr, Tm = .02933 hrs = 0.20000 Tp

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

Unit peak, qp = 91.67 cfs
Unit peak time Tp = .14667 hrs
Unit receding limb, Tr = .58667 hrs
Total unit time, Tb = .73333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 15 year storm
Duration = 24.0000 hrs Rain Depth = 4.6000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - POST 15YR
Tc = .2200 hrs
Drainage Area = 17.800 acres Runoff CN= 92

==========
Computational Time Increment = .02933 hrs
Computed Peak Time = 12.0267 hrs
Computed Peak Flow = 79.11 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0000 hrs
Peak Flow, Interpolated Output = 78.83 cfs
==========

DRAINAGE AREA

ID:POST
CN = 92
Area = 17.800 acres
S = .8696 in
0.2S = .1739 in

Cumulative Runoff

3.6993 in
239027 cu.ft

HYG Volume... 239011 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .22000 hrs (ID: POST)
Computational Incr, Tm = .02933 hrs = 0.20000 Tp

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

Unit peak, qp = 91.67 cfs
Unit peak time Tp = .14667 hrs
Unit receding limb, Tr = .58667 hrs
Total unit time, Tb = .73333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 5.2000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - POST 25YR
Tc = .2200 hrs
Drainage Area = 17.800 acres Runoff CN= 92

==========
Computational Time Increment = .02933 hrs
Computed Peak Time = 12.0267 hrs
Computed Peak Flow = 90.83 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0000 hrs
Peak Flow, Interpolated Output = 90.59 cfs
==========

DRAINAGE AREA

ID:POST
CN = 92
Area = 17.800 acres
S = .8696 in
0.2S = .1739 in

Cumulative Runoff

4.2848 in
276857 cu.ft

HYG Volume... 276838 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .22000 hrs (ID: POST)
Computational Incr, Tm = .02933 hrs = 0.20000 Tp

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

Unit peak, qp = 91.67 cfs
Unit peak time Tp = .14667 hrs
Unit receding limb, Tr = .58667 hrs
Total unit time, Tb = .73333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 6.2000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - POST 100YR
Tc = .2200 hrs
Drainage Area = 17.800 acres Runoff CN= 92

==========
Computational Time Increment = .02933 hrs
Computed Peak Time = 12.0267 hrs
Computed Peak Flow = 110.26 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0000 hrs
Peak Flow, Interpolated Output = 110.09 cfs
==========

DRAINAGE AREA

ID:POST
CN = 92
Area = 17.800 acres
S = .8696 in
0.2S = .1739 in

Cumulative Runoff

5.2662 in
340269 cu.ft

HYG Volume... 340246 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .22000 hrs (ID: POST)
Computational Incr, Tm = .02933 hrs = 0.20000 Tp

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

Unit peak, qp = 91.67 cfs
Unit peak time Tp = .14667 hrs
Unit receding limb, Tr = .58667 hrs
Total unit time, Tb = .73333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.1000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - POST-OFFSITE 2YR
Tc = .2400 hrs
Drainage Area = 4.600 acres Runoff CN= 85

==========
Computational Time Increment = .03200 hrs
Computed Peak Time = 12.0320 hrs
Computed Peak Flow = 9.51 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 9.42 cfs
==========

DRAINAGE AREA

ID:POST-OFFSITE
CN = 85
Area = 4.600 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

1.6726 in
27929 cu.ft

HYG Volume... 27934 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .24000 hrs (ID: POST-OFFSITE)
Computational Incr, Tm = .03200 hrs = 0.20000 Tp

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

Unit peak, qp = 21.72 cfs
Unit peak time Tp = .16000 hrs
Unit receding limb, Tr = .64000 hrs
Total unit time, Tb = .80000 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 15 year storm
Duration = 24.0000 hrs Rain Depth = 4.6000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - POST-OFFSITE 15YR
Tc = .2400 hrs
Drainage Area = 4.600 acres Runoff CN= 85

==========
Computational Time Increment = .03200 hrs
Computed Peak Time = 12.0320 hrs
Computed Peak Flow = 16.89 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 16.65 cfs
==========

DRAINAGE AREA

ID:POST-OFFSITE
CN = 85
Area = 4.600 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

3.0004 in
50100 cu.ft

HYG Volume... 50110 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .24000 hrs (ID: POST-OFFSITE)
Computational Incr, Tm = .03200 hrs = 0.20000 Tp

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

Unit peak, qp = 21.72 cfs
Unit peak time Tp = .16000 hrs
Unit receding limb, Tr = .64000 hrs
Total unit time, Tb = .80000 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 5.2000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - POST-OFFSITE 25YR
Tc = .2400 hrs
Drainage Area = 4.600 acres Runoff CN= 85

==========
Computational Time Increment = .03200 hrs
Computed Peak Time = 12.0320 hrs
Computed Peak Flow = 19.89 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 19.59 cfs
WARNING: The difference between calculated peak flow
and interpolated peak flow is greater than 1.50%
==========

DRAINAGE AREA

ID:POST-OFFSITE
CN = 85
Area = 4.600 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

3.5534 in
59334 cu.ft

HYG Volume... 59345 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .24000 hrs (ID: POST-OFFSITE)
Computational Incr, Tm = .03200 hrs = 0.20000 Tp

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

Unit peak, qp = 21.72 cfs
Unit peak time Tp = .16000 hrs
Unit receding limb, Tr = .64000 hrs
Total unit time, Tb = .80000 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 6.2000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - POST-OFFSITE 100YR
Tc = .2400 hrs
Drainage Area = 4.600 acres Runoff CN= 85

==========
Computational Time Increment = .03200 hrs
Computed Peak Time = 12.0320 hrs
Computed Peak Flow = 24.89 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 24.48 cfs
WARNING: The difference between calculated peak flow
and interpolated peak flow is greater than 1.50%
==========

DRAINAGE AREA

ID:POST-OFFSITE
CN = 85
Area = 4.600 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

4.4915 in
74999 cu.ft

HYG Volume... 75013 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .24000 hrs (ID: POST-OFFSITE)
Computational Incr, Tm = .03200 hrs = 0.20000 Tp

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

Unit peak, qp = 21.72 cfs
Unit peak time Tp = .16000 hrs
Unit receding limb, Tr = .64000 hrs
Total unit time, Tb = .80000 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.1000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - PRE 2YR
Tc = .2500 hrs
Drainage Area = 17.800 acres Runoff CN= 74

==========
Computational Time Increment = .03333 hrs
Computed Peak Time = 12.0667 hrs
Computed Peak Flow = 20.25 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 20.05 cfs
==========

DRAINAGE AREA

ID:PRE
CN = 74
Area = 17.800 acres
S = 3.5135 in
0.2S = .7027 in

Cumulative Runoff

.9723 in
62824 cu.ft

HYG Volume... 62828 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .25000 hrs (ID: PRE)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

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

Unit peak, qp = 80.67 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 15 year storm
Duration = 24.0000 hrs Rain Depth = 4.6000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - PRE 15YR
Tc = .2500 hrs
Drainage Area = 17.800 acres Runoff CN= 74

==========
Computational Time Increment = .03333 hrs
Computed Peak Time = 12.0333 hrs
Computed Peak Flow = 44.07 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 44.04 cfs
==========

DRAINAGE AREA
ID:PRE
CN = 74
Area = 17.800 acres
S = 3.5135 in
0.2S = .7027 in

Cumulative Runoff
2.0496 in
132431 cu.ft

HYG Volume... 132436 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .25000 hrs (ID: PRE)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

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

Unit peak, qp = 80.67 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 5.2000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - PRE 25YR
Tc = .2500 hrs
Drainage Area = 17.800 acres Runoff CN= 74

==========
Computational Time Increment = .03333 hrs
Computed Peak Time = 12.0333 hrs
Computed Peak Flow = 54.58 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 54.42 cfs
==========

DRAINAGE AREA

ID:PRE
CN = 74
Area = 17.800 acres
S = 3.5135 in
0.2S = .7027 in

Cumulative Runoff

2.5248 in
163137 cu.ft

HYG Volume... 163144 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .25000 hrs (ID: PRE)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

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

Unit peak, qp = 80.67 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 6.2000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - PRE 100YR
Tc = .2500 hrs
Drainage Area = 17.800 acres Runoff CN= 74

==========
Computational Time Increment = .03333 hrs
Computed Peak Time = 12.0333 hrs
Computed Peak Flow = 72.70 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 72.30 cfs
==========

DRAINAGE AREA

ID:PRE
CN = 74
Area = 17.800 acres
S = 3.5135 in
0.2S = .7027 in

Cumulative Runoff

3.3538 in
216701 cu.ft

HYG Volume... 216708 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .25000 hrs (ID: PRE)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

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

Unit peak, qp = 80.67 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 2 year storm
Duration = 24.0000 hrs Rain Depth = 3.1000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - PRE-OFFSITE 2YR
Tc = .2600 hrs
Drainage Area = 4.600 acres Runoff CN= 85

==========
Computational Time Increment = .03467 hrs
Computed Peak Time = 12.0640 hrs
Computed Peak Flow = 9.16 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 9.14 cfs
==========

DRAINAGE AREA

ID:PRE-OFFSITE
CN = 85
Area = 4.600 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

1.6726 in
27929 cu.ft

HYG Volume... 27931 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .26000 hrs (ID: PRE-OFFSITE)
Computational Incr, Tm = .03467 hrs = 0.20000 Tp

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

Unit peak, qp = 20.05 cfs
Unit peak time Tp = .17333 hrs
Unit receding limb, Tr = .69333 hrs
Total unit time, Tb = .86667 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 15 year storm
Duration = 24.0000 hrs Rain Depth = 4.6000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - PRE-OFFSITE 15YR
Tc = .2600 hrs
Drainage Area = 4.600 acres Runoff CN= 85

==========
Computational Time Increment = .03467 hrs
Computed Peak Time = 12.0293 hrs
Computed Peak Flow = 16.27 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 16.23 cfs
==========

DRAINAGE AREA

ID:PRE-OFFSITE
CN = 85
Area = 4.600 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

3.0004 in
50100 cu.ft

HYG Volume... 50104 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .26000 hrs (ID: PRE-OFFSITE)
Computational Incr, Tm = .03467 hrs = 0.20000 Tp

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

Unit peak, qp = 20.05 cfs
Unit peak time Tp = .17333 hrs
Unit receding limb, Tr = .69333 hrs
Total unit time, Tb = .86667 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 25 year storm
Duration = 24.0000 hrs Rain Depth = 5.2000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - PRE-OFFSITE 25YR
Tc = .2600 hrs
Drainage Area = 4.600 acres Runoff CN= 85

==========
Computational Time Increment = .03467 hrs
Computed Peak Time = 12.0293 hrs
Computed Peak Flow = 19.18 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 19.11 cfs
==========

DRAINAGE AREA

ID:PRE-OFFSITE
CN = 85
Area = 4.600 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

3.5534 in
59334 cu.ft

HYG Volume... 59339 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .26000 hrs (ID: PRE-OFFSITE)
Computational Incr, Tm = .03467 hrs = 0.20000 Tp

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

Unit peak, qp = 20.05 cfs
Unit peak time Tp = .17333 hrs
Unit receding limb, Tr = .69333 hrs
Total unit time, Tb = .86667 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 6.2000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - PRE-OFFSITE 100YR
Tc = .2600 hrs
Drainage Area = 4.600 acres Runoff CN= 85

==========
Computational Time Increment = .03467 hrs
Computed Peak Time = 12.0293 hrs
Computed Peak Flow = 24.04 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 23.91 cfs
==========

DRAINAGE AREA

ID:PRE-OFFSITE
CN = 85
Area = 4.600 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

4.4915 in
74999 cu.ft

HYG Volume... 75004 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .26000 hrs (ID: PRE-OFFSITE)
Computational Incr, Tm = .03467 hrs = 0.20000 Tp

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

Unit peak, qp = 20.05 cfs
Unit peak time Tp = .17333 hrs
Unit receding limb, Tr = .69333 hrs
Total unit time, Tb = .86667 hrs

TIME vs. ELEVATION (ft)

Output Time increment = .0500 hrs

Time hrs	Time on left represents time for first value in each row.				
4.6500	517.10	517.10	517.10	517.10	517.10
4.9000	517.10	517.10	517.10	517.10	517.11
5.1500	517.11	517.11	517.11	517.11	517.11
5.4000	517.12	517.12	517.12	517.12	517.12
5.6500	517.13	517.13	517.13	517.13	517.14
5.9000	517.14	517.14	517.14	517.15	517.15
6.1500	517.15	517.16	517.16	517.16	517.17
6.4000	517.17	517.17	517.18	517.18	517.18
6.6500	517.18	517.19	517.19	517.19	517.20
6.9000	517.20	517.21	517.21	517.21	517.22
7.1500	517.22	517.22	517.23	517.23	517.23
7.4000	517.24	517.24	517.24	517.25	517.25
7.6500	517.26	517.26	517.26	517.27	517.27
7.9000	517.28	517.28	517.28	517.29	517.29
8.1500	517.30	517.30	517.31	517.31	517.32
8.4000	517.32	517.33	517.33	517.34	517.35
8.6500	517.36	517.36	517.37	517.38	517.39
8.9000	517.40	517.41	517.42	517.43	517.44
9.1500	517.45	517.46	517.47	517.48	517.49
9.4000	517.50	517.51	517.52	517.53	517.53
9.6500	517.54	517.55	517.56	517.57	517.58
9.9000	517.59	517.60	517.61	517.61	517.62
10.1500	517.63	517.63	517.64	517.64	517.65
10.4000	517.65	517.66	517.67	517.67	517.68
10.6500	517.69	517.69	517.70	517.71	517.72
10.9000	517.73	517.74	517.75	517.76	517.77
11.1500	517.79	517.80	517.82	517.83	517.85
11.4000	517.88	517.90	517.92	517.95	518.00
11.6500	518.07	518.18	518.34	518.58	518.91
11.9000	519.40	520.02	520.73	521.41	521.95
12.1500	522.28	522.40	522.38	522.27	522.11
12.4000	521.91	521.70	521.48	521.26	521.03
12.6500	520.80	520.58	520.37	520.17	519.97
12.9000	519.79	519.62	519.45	519.30	519.16
13.1500	519.03	518.90	518.78	518.66	518.54
13.4000	518.44	518.35	518.28	518.21	518.16
13.6500	518.11	518.07	518.03	517.99	517.96
13.9000	517.94	517.92	517.90	517.88	517.87
14.1500	517.85	517.84	517.83	517.82	517.81
14.4000	517.81	517.80	517.79	517.79	517.78
14.6500	517.78	517.78	517.77	517.77	517.76
14.9000	517.76	517.76	517.76	517.75	517.75
15.1500	517.75	517.74	517.74	517.74	517.74

TIME vs. ELEVATION (ft)

Output Time increment = .0500 hrs
Time on left represents time for first value in each row.

Time hrs					
15.4000	517.73	517.73	517.73	517.72	517.72
15.6500	517.72	517.72	517.71	517.71	517.71
15.9000	517.71	517.70	517.70	517.70	517.69
16.1500	517.69	517.69	517.69	517.68	517.68
16.4000	517.68	517.68	517.68	517.68	517.67
16.6500	517.67	517.67	517.67	517.67	517.67
16.9000	517.67	517.67	517.67	517.66	517.66
17.1500	517.66	517.66	517.66	517.66	517.66
17.4000	517.66	517.66	517.66	517.65	517.65
17.6500	517.65	517.65	517.65	517.65	517.65
17.9000	517.65	517.65	517.65	517.65	517.64
18.1500	517.64	517.64	517.64	517.64	517.64
18.4000	517.64	517.64	517.64	517.64	517.63
18.6500	517.63	517.63	517.63	517.63	517.63
18.9000	517.63	517.63	517.63	517.63	517.62
19.1500	517.62	517.62	517.62	517.62	517.62
19.4000	517.62	517.62	517.62	517.62	517.61
19.6500	517.61	517.61	517.61	517.61	517.61
19.9000	517.61	517.61	517.61	517.61	517.60
20.1500	517.60	517.60	517.60	517.60	517.60
20.4000	517.60	517.60	517.60	517.60	517.60
20.6500	517.59	517.59	517.59	517.59	517.59
20.9000	517.59	517.59	517.59	517.59	517.59
21.1500	517.59	517.58	517.58	517.58	517.58
21.4000	517.58	517.58	517.58	517.58	517.58
21.6500	517.58	517.57	517.57	517.57	517.57
21.9000	517.57	517.57	517.57	517.57	517.57
22.1500	517.57	517.57	517.56	517.56	517.56
22.4000	517.56	517.56	517.56	517.56	517.56
22.6500	517.56	517.56	517.56	517.55	517.55
22.9000	517.55	517.55	517.55	517.55	517.55
23.1500	517.55	517.55	517.55	517.55	517.54
23.4000	517.54	517.54	517.54	517.54	517.54
23.6500	517.54	517.54	517.54	517.54	517.54
23.9000	517.53	517.53	517.53	517.53	517.53
24.1500	517.51	517.49	517.47	517.44	517.42
24.4000	517.39	517.37	517.35	517.33	517.31
24.6500	517.29	517.27	517.26	517.25	517.23
24.9000	517.22	517.21	517.20	517.19	517.19
25.1500	517.18	517.17	517.17	517.16	517.16
25.4000	517.15	517.15	517.14	517.14	517.14
25.6500	517.13	517.13	517.13	517.13	517.12
25.9000	517.12	517.12	517.12	517.12	517.11
26.1500	517.11	517.11	517.11	517.11	517.11

TIME vs. ELEVATION (ft)

Output Time increment = .0500 hrs
Time on left represents time for first value in each row.

Time hrs					
26.4000	517.11	517.11	517.11	517.11	517.11
26.6500	517.11	517.11	517.10	517.10	517.10
26.9000	517.10	517.10	517.10	517.10	517.10
27.1500	517.10	517.10	517.10	517.10	517.10

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
3.3000	517.10	517.10	517.10	517.10	517.10
3.5500	517.10	517.10	517.10	517.11	517.11
3.8000	517.11	517.11	517.11	517.12	517.12
4.0500	517.12	517.13	517.13	517.13	517.14
4.3000	517.14	517.14	517.15	517.15	517.15
4.5500	517.16	517.16	517.17	517.17	517.18
4.8000	517.18	517.18	517.19	517.19	517.20
5.0500	517.20	517.21	517.21	517.22	517.22
5.3000	517.23	517.23	517.24	517.24	517.25
5.5500	517.25	517.26	517.26	517.27	517.28
5.8000	517.28	517.29	517.29	517.30	517.30
6.0500	517.31	517.32	517.32	517.33	517.33
6.3000	517.34	517.35	517.35	517.36	517.37
6.5500	517.37	517.38	517.39	517.39	517.40
6.8000	517.41	517.41	517.42	517.43	517.43
7.0500	517.44	517.45	517.46	517.46	517.47
7.3000	517.48	517.49	517.49	517.50	517.51
7.5500	517.52	517.52	517.53	517.54	517.55
7.8000	517.55	517.56	517.57	517.58	517.58
8.0500	517.59	517.60	517.60	517.61	517.61
8.3000	517.61	517.62	517.62	517.63	517.63
8.5500	517.63	517.64	517.64	517.65	517.65
8.8000	517.66	517.66	517.66	517.67	517.67
9.0500	517.68	517.68	517.69	517.69	517.70
9.3000	517.70	517.70	517.71	517.71	517.71
9.5500	517.72	517.72	517.72	517.72	517.73
9.8000	517.73	517.74	517.74	517.75	517.75
10.0500	517.76	517.77	517.77	517.78	517.79
10.3000	517.80	517.81	517.82	517.83	517.84
10.5500	517.85	517.86	517.88	517.89	517.90
10.8000	517.92	517.93	517.95	517.97	517.99
11.0500	518.01	518.03	518.05	518.07	518.10
11.3000	518.12	518.15	518.18	518.22	518.25
11.5500	518.30	518.36	518.47	518.65	518.95
11.8000	519.38	519.97	520.75	521.74	522.83
12.0500	523.88	524.72	525.26	525.52	525.56
12.3000	525.47	525.31	525.10	524.86	524.60
12.5500	524.32	524.04	523.74	523.44	523.14
12.8000	522.84	522.56	522.27	522.00	521.73
13.0500	521.47	521.22	520.98	520.75	520.53
13.3000	520.33	520.13	519.95	519.77	519.61
13.5500	519.46	519.32	519.19	519.07	518.96
13.8000	518.84	518.73	518.62	518.52	518.43

TIME vs. ELEVATION (ft)

Output Time increment = .0500 hrs
Time on left represents time for first value in each row.

Time hrs					
25.0500	517.22	517.21	517.20	517.20	517.19
25.3000	517.18	517.17	517.17	517.16	517.16
25.5500	517.15	517.15	517.14	517.14	517.14
25.8000	517.13	517.13	517.13	517.13	517.12
26.0500	517.12	517.12	517.12	517.12	517.12
26.3000	517.11	517.11	517.11	517.11	517.11
26.5500	517.11	517.11	517.11	517.11	517.11
26.8000	517.11	517.11	517.10	517.10	517.10
27.0500	517.10	517.10	517.10	517.10	517.10
27.3000	517.10	517.10	517.10	517.10	517.10

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
13.3000	521.19	520.98	520.77	520.58	520.39
13.5500	520.22	520.05	519.89	519.75	519.61
13.8000	519.48	519.35	519.24	519.14	519.04
14.0500	518.94	518.85	518.75	518.66	518.57
14.3000	518.49	518.42	518.37	518.32	518.28
14.5500	518.24	518.21	518.19	518.17	518.15
14.8000	518.13	518.12	518.10	518.09	518.08
15.0500	518.07	518.06	518.05	518.04	518.03
15.3000	518.02	518.02	518.01	518.00	518.00
15.5500	517.99	517.98	517.98	517.97	517.96
15.8000	517.96	517.95	517.95	517.94	517.93
16.0500	517.93	517.92	517.92	517.91	517.91
16.3000	517.90	517.90	517.89	517.89	517.89
16.5500	517.88	517.88	517.88	517.87	517.87
16.8000	517.87	517.87	517.86	517.86	517.86
17.0500	517.86	517.86	517.85	517.85	517.85
17.3000	517.85	517.84	517.84	517.84	517.84
17.5500	517.84	517.83	517.83	517.83	517.83
17.8000	517.83	517.82	517.82	517.82	517.82
18.0500	517.82	517.81	517.81	517.81	517.81
18.3000	517.80	517.80	517.80	517.80	517.80
18.5500	517.79	517.79	517.79	517.79	517.79
18.8000	517.78	517.78	517.78	517.78	517.77
19.0500	517.77	517.77	517.77	517.77	517.76
19.3000	517.76	517.76	517.76	517.76	517.75
19.5500	517.75	517.75	517.75	517.75	517.74
19.8000	517.74	517.74	517.74	517.73	517.73
20.0500	517.73	517.73	517.73	517.72	517.72
20.3000	517.72	517.72	517.72	517.72	517.72
20.5500	517.72	517.72	517.71	517.71	517.71
20.8000	517.71	517.71	517.71	517.71	517.71
21.0500	517.71	517.71	517.71	517.71	517.71
21.3000	517.71	517.71	517.71	517.71	517.71
21.5500	517.71	517.71	517.70	517.70	517.70
21.8000	517.70	517.70	517.70	517.70	517.70
22.0500	517.70	517.70	517.70	517.70	517.70
22.3000	517.70	517.70	517.70	517.70	517.70
22.5500	517.70	517.70	517.70	517.70	517.70
22.8000	517.69	517.69	517.69	517.69	517.69
23.0500	517.69	517.69	517.69	517.69	517.69
23.3000	517.69	517.69	517.69	517.69	517.69
23.5500	517.69	517.69	517.69	517.69	517.69
23.8000	517.69	517.69	517.69	517.69	517.68
24.0500	517.68	517.68	517.67	517.65	517.63

TIME vs. ELEVATION (ft)

Output Time increment = .0500 hrs
Time on left represents time for first value in each row.

Time hrs					
24.3000	517.61	517.58	517.54	517.51	517.47
24.5500	517.44	517.41	517.39	517.36	517.34
24.8000	517.32	517.30	517.29	517.27	517.26
25.0500	517.24	517.23	517.22	517.21	517.20
25.3000	517.19	517.18	517.18	517.17	517.16
25.5500	517.16	517.15	517.15	517.15	517.14
25.8000	517.14	517.13	517.13	517.13	517.13
26.0500	517.12	517.12	517.12	517.12	517.12
26.3000	517.12	517.11	517.11	517.11	517.11
26.5500	517.11	517.11	517.11	517.11	517.11
26.8000	517.11	517.11	517.11	517.11	517.10
27.0500	517.10	517.10	517.10	517.10	517.10
27.3000	517.10	517.10	517.10	517.10	517.10
27.5500	517.10				

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
4.6500	0	0	1	1	2
4.9000	3	5	7	10	12
5.1500	15	19	22	26	30
5.4000	35	39	44	49	54
5.6500	60	65	71	77	83
5.9000	89	96	102	109	116
6.1500	123	130	138	145	153
6.4000	161	168	176	185	193
6.6500	201	210	219	228	236
6.9000	246	255	264	274	283
7.1500	293	303	313	323	333
7.4000	343	354	365	375	386
7.6500	397	408	420	431	443
7.9000	454	466	479	491	504
8.1500	517	532	547	564	581
8.4000	601	621	643	667	692
8.6500	718	745	775	806	838
8.9000	872	907	944	983	1023
9.1500	1064	1106	1148	1189	1231
9.4000	1271	1312	1351	1390	1429
9.6500	1469	1511	1555	1603	1655
9.9000	1712	1759	1789	1818	1846
10.1500	1874	1903	1932	1962	1993
10.4000	2025	2059	2094	2130	2167
10.6500	2207	2250	2296	2345	2398
10.9000	2455	2515	2579	2647	2720
11.1500	2800	2890	2994	3112	3245
11.4000	3394	3559	3740	3959	4299
11.6500	4897	5775	7109	9095	11999
11.9000	16329	22180	29063	35956	41605
12.1500	45146	46519	46280	45075	43331
12.4000	41251	39029	36723	34390	32079
12.6500	29799	27617	25506	23532	21661
12.9000	19923	18332	16828	15460	14220
13.1500	13053	11923	10836	9793	8803
13.4000	7927	7196	6581	6063	5624
13.6500	5250	4884	4556	4278	4047
13.9000	3854	3691	3550	3429	3323
14.1500	3231	3149	3079	3018	2965
14.4000	2918	2878	2842	2809	2780
14.6500	2753	2728	2705	2683	2662
14.9000	2642	2623	2604	2586	2569
15.1500	2551	2534	2517	2500	2484

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
15.4000	2467	2451	2434	2418	2402
15.6500	2386	2370	2354	2338	2323
15.9000	2307	2291	2276	2260	2245
16.1500	2230	2216	2203	2191	2180
16.4000	2170	2161	2152	2144	2137
16.6500	2130	2124	2117	2111	2105
16.9000	2099	2093	2088	2082	2077
17.1500	2071	2066	2060	2055	2050
17.4000	2044	2039	2034	2028	2023
17.6500	2018	2013	2007	2002	1997
17.9000	1992	1987	1981	1976	1971
18.1500	1966	1961	1955	1950	1945
18.4000	1940	1935	1930	1925	1919
18.6500	1914	1909	1904	1899	1894
18.9000	1889	1883	1878	1873	1868
19.1500	1863	1858	1853	1848	1843
19.4000	1838	1832	1827	1822	1817
19.6500	1812	1807	1802	1797	1792
19.9000	1787	1782	1777	1772	1767
20.1500	1763	1758	1754	1750	1747
20.4000	1744	1739	1734	1729	1724
20.6500	1718	1714	1708	1704	1699
20.9000	1694	1689	1684	1680	1675
21.1500	1670	1666	1661	1657	1652
21.4000	1647	1643	1638	1634	1629
21.6500	1625	1621	1616	1612	1607
21.9000	1603	1598	1594	1589	1585
22.1500	1581	1576	1572	1568	1563
22.4000	1559	1555	1550	1546	1542
22.6500	1537	1533	1529	1524	1520
22.9000	1516	1511	1507	1503	1499
23.1500	1494	1490	1486	1482	1477
23.4000	1473	1469	1465	1460	1456
23.6500	1452	1448	1444	1439	1435
23.9000	1431	1427	1422	1414	1390
24.1500	1335	1251	1150	1045	943
24.4000	849	763	686	617	556
24.6500	500	451	407	368	333
24.9000	302	274	248	225	205
25.1500	186	169	154	140	128
25.4000	116	106	97	88	81
25.6500	74	67	61	56	51
25.9000	47	43	39	36	33
26.1500	30	27	25	23	21

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
26.4000	19	18	16	15	14
26.6500	12	11	10	9	9
26.9000	8	7	7	6	6
27.1500	5	5	4	4	4

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
3.3000	0	0	0	1	2
3.5500	4	6	9	12	16
3.8000	21	26	31	37	43
4.0500	50	57	64	72	80
4.3000	88	97	106	115	125
4.5500	134	145	155	166	177
4.8000	188	200	212	224	236
5.0500	249	262	275	289	302
5.3000	317	331	345	360	375
5.5500	391	407	423	439	455
5.8000	472	489	507	524	542
6.0500	561	580	599	619	639
6.3000	660	682	704	726	749
6.5500	773	797	821	846	872
6.8000	897	924	951	978	1006
7.0500	1034	1063	1092	1122	1152
7.3000	1183	1214	1246	1278	1311
7.5500	1344	1378	1412	1447	1482
7.8000	1518	1554	1590	1628	1665
8.0500	1704	1743	1763	1782	1801
8.3000	1820	1839	1858	1878	1898
8.5500	1920	1941	1964	1987	2010
8.8000	2034	2058	2083	2109	2135
9.0500	2162	2188	2214	2240	2264
9.3000	2286	2306	2325	2343	2358
9.5500	2374	2388	2404	2421	2442
9.8000	2466	2494	2524	2559	2596
10.0500	2636	2678	2724	2773	2827
10.3000	2884	2945	3011	3080	3152
10.5500	3229	3309	3395	3487	3588
10.8000	3697	3815	3943	4079	4224
11.0500	4378	4542	4720	4918	5140
11.3000	5346	5577	5834	6113	6413
11.5500	6766	7296	8200	9742	12291
11.8000	16192	21680	29292	39375	51243
12.0500	63215	73252	79942	83145	83657
12.3000	82562	80549	77965	74992	71821
12.5500	68460	65032	61550	58088	54696
12.8000	51373	48182	45087	42130	39294
13.0500	36589	34018	31584	29286	27133
13.3000	25101	23220	21442	19809	18317
13.5500	16910	15632	14476	13412	12378
13.8000	11382	10424	9499	8625	7873

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
14.0500	7240	6706	6255	5872	5548
14.3000	5272	5017	4780	4581	4413
14.5500	4272	4153	4051	3964	3889
14.8000	3822	3762	3709	3660	3614
15.0500	3572	3532	3494	3458	3423
15.3000	3389	3356	3324	3293	3262
15.5500	3231	3201	3171	3142	3112
15.8000	3083	3055	3026	2998	2969
16.0500	2941	2914	2887	2862	2839
16.3000	2817	2798	2780	2764	2749
16.5500	2735	2722	2709	2698	2686
16.8000	2675	2665	2654	2644	2634
17.0500	2625	2615	2605	2596	2586
17.3000	2577	2567	2558	2549	2539
17.5500	2530	2521	2512	2502	2493
17.8000	2484	2475	2466	2457	2448
18.0500	2439	2430	2421	2412	2403
18.3000	2394	2385	2376	2367	2358
18.5500	2350	2341	2332	2323	2314
18.8000	2305	2297	2288	2279	2271
19.0500	2262	2253	2244	2236	2227
19.3000	2218	2210	2201	2192	2184
19.5500	2175	2167	2158	2150	2141
19.8000	2133	2124	2116	2107	2099
20.0500	2090	2082	2074	2067	2060
20.3000	2054	2048	2044	2040	2036
20.5500	2033	2030	2027	2024	2022
20.8000	2020	2018	2016	2014	2012
21.0500	2010	2008	2006	2005	2003
21.3000	2001	2000	1998	1996	1994
21.5500	1993	1991	1990	1988	1986
21.8000	1985	1983	1981	1980	1978
22.0500	1977	1975	1973	1972	1970
22.3000	1969	1967	1965	1964	1962
22.5500	1960	1959	1957	1956	1954
22.8000	1952	1951	1949	1948	1946
23.0500	1944	1943	1941	1940	1938
23.3000	1936	1935	1933	1932	1930
23.5500	1928	1927	1925	1924	1922
23.8000	1920	1919	1917	1916	1914
24.0500	1909	1890	1848	1783	1669
24.3000	1513	1360	1219	1090	974
24.5500	872	781	700	628	565
24.8000	509	459	414	374	338

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
25.0500	306	278	252	229	208
25.3000	189	172	156	142	130
25.5500	118	108	98	90	82
25.8000	75	68	62	57	52
26.0500	48	43	40	36	33
26.3000	30	28	25	23	21
26.5500	19	18	16	15	14
26.8000	12	11	10	10	9
27.0500	8	7	7	6	6
27.3000	5	5	4	4	4

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
3.0000	0	0	1	2	4
3.2500	6	9	13	18	23
3.5000	29	36	43	50	58
3.7500	66	75	84	94	104
4.0000	114	124	135	147	158
4.2500	170	182	195	208	221
4.5000	234	248	263	277	292
4.7500	308	323	339	356	372
5.0000	389	407	424	443	461
5.2500	480	499	518	538	558
5.5000	579	600	622	645	668
5.7500	692	716	741	767	793
6.0000	820	847	876	904	934
6.2500	964	994	1025	1057	1090
6.5000	1123	1156	1190	1225	1261
6.7500	1297	1334	1371	1409	1448
7.0000	1487	1527	1567	1609	1650
7.2500	1693	1736	1762	1781	1799
7.5000	1815	1830	1845	1858	1871
7.7500	1883	1895	1907	1918	1929
8.0000	1940	1951	1962	1974	1987
8.2500	2002	2018	2037	2056	2078
8.5000	2101	2125	2150	2177	2204
8.7500	2233	2262	2292	2323	2355
9.0000	2388	2421	2454	2487	2519
9.2500	2548	2576	2601	2624	2645
9.5000	2664	2682	2700	2719	2740
9.7500	2765	2795	2829	2868	2911
10.0000	2958	3008	3062	3119	3182
10.2500	3249	3322	3400	3483	3572
10.5000	3665	3762	3865	3974	4093
10.7500	4223	4363	4514	4674	4841
11.0000	5016	5189	5349	5525	5723
11.2500	5948	6202	6484	6793	7128
11.5000	7487	7908	8538	9620	11529
11.7500	14710	19361	25825	34782	46630
12.0000	60589	74675	86073	91825	92190
12.2500	90153	87484	84873	82366	79649
12.5000	76635	73413	70054	66623	63158
12.7500	59751	56384	53131	49971	46919
13.0000	43989	41160	38468	35880	33442
13.2500	31120	28944	26898	24969	23181
13.5000	21485	19923	18493	17146	15913

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
13.7500	14796	13782	12802	11853	10936
14.0000	10049	9194	8399	7732	7171
14.2500	6700	6303	5970	5687	5449
14.5000	5245	5056	4876	4723	4592
14.7500	4479	4380	4293	4216	4147
15.0000	4084	4026	3973	3923	3876
15.2500	3831	3788	3747	3706	3667
15.5000	3628	3591	3554	3517	3481
15.7500	3446	3410	3375	3341	3306
16.0000	3272	3239	3205	3173	3143
16.2500	3115	3089	3066	3044	3025
16.5000	3007	2990	2975	2960	2945
16.7500	2932	2919	2906	2894	2881
17.0000	2870	2858	2846	2835	2823
17.2500	2812	2801	2790	2778	2767
17.5000	2756	2745	2734	2723	2712
17.7500	2701	2690	2680	2669	2658
18.0000	2647	2637	2626	2615	2604
18.2500	2594	2583	2573	2562	2552
18.5000	2541	2530	2520	2509	2499
18.7500	2488	2478	2468	2457	2447
19.0000	2437	2426	2416	2405	2395
19.2500	2385	2375	2364	2355	2344
19.5000	2334	2324	2314	2304	2294
19.7500	2284	2274	2264	2254	2244
20.0000	2234	2224	2214	2205	2196
20.2500	2188	2181	2175	2169	2164
20.5000	2160	2156	2152	2149	2146
20.7500	2143	2141	2138	2136	2134
21.0000	2131	2129	2127	2125	2123
21.2500	2121	2119	2117	2115	2113
21.5000	2111	2109	2107	2105	2103
21.7500	2101	2100	2098	2096	2094
22.0000	2092	2090	2088	2086	2084
22.2500	2082	2081	2079	2077	2075
22.5000	2073	2071	2069	2068	2066
22.7500	2064	2062	2060	2058	2056
23.0000	2054	2052	2050	2048	2047
23.2500	2045	2043	2041	2039	2037
23.5000	2035	2034	2032	2030	2028
23.7500	2026	2024	2022	2020	2019
24.0000	2017	2011	1989	1939	1864
24.2500	1776	1635	1470	1316	1176
24.5000	1050	939	840	752	674

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
24.7500	606	545	491	443	400
25.0000	361	327	296	268	244
25.2500	221	201	183	166	151
25.5000	138	126	114	104	95
25.7500	87	79	72	66	60
26.0000	55	50	46	42	39
26.2500	35	32	30	27	25
26.5000	23	21	19	17	16
26.7500	14	13	12	11	10
27.0000	9	9	8	7	7
27.2500	6	5	5	5	4
27.5000	4	3			

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
2.5500	0	0	1	2	4
2.8000	6	10	15	21	27
3.0500	35	43	52	61	72
3.3000	83	94	106	119	132
3.5500	145	159	174	189	204
3.8000	220	236	253	269	287
4.0500	304	322	340	359	378
4.3000	398	418	438	459	481
4.5500	503	525	548	572	596
4.8000	621	646	673	700	728
5.0500	757	786	817	848	881
5.3000	914	948	983	1018	1055
5.5500	1092	1131	1170	1210	1251
5.8000	1293	1335	1379	1423	1469
6.0500	1515	1562	1610	1659	1709
6.3000	1752	1776	1798	1818	1836
6.5500	1854	1870	1885	1900	1915
6.8000	1929	1942	1956	1969	1982
7.0500	1996	2009	2022	2035	2047
7.3000	2060	2073	2086	2099	2112
7.5500	2125	2138	2151	2165	2178
7.8000	2191	2204	2218	2231	2245
8.0500	2258	2272	2288	2304	2324
8.3000	2345	2370	2397	2426	2458
8.5500	2492	2527	2564	2602	2641
8.8000	2682	2724	2767	2811	2857
9.0500	2903	2949	2995	3038	3079
9.3000	3117	3152	3182	3210	3236
9.5500	3260	3283	3307	3336	3369
9.8000	3410	3457	3510	3570	3635
10.0500	3705	3781	3862	3950	4045
10.3000	4148	4259	4377	4501	4630
10.5500	4763	4901	5047	5192	5331
10.8000	5481	5643	5815	5998	6190
11.0500	6391	6604	6836	7094	7383
11.3000	7708	8068	8462	8887	9343
11.5500	9895	10790	12373	15022	19093
11.8000	24935	33075	44311	59159	76632
12.0500	92338	100545	101174	98177	94256
12.3000	90731	87677	85024	82639	80104
12.5500	77282	74230	71057	67794	64533
12.8000	61304	58135	55048	52030	49120
13.0500	46280	43561	40918	38408	35991

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
13.3000	33712	31545	29497	27581	25749
13.5500	24043	22442	20926	19534	18254
13.8000	17038	15929	14920	13998	13117
14.0500	12256	11420	10608	9823	9071
14.3000	8390	7821	7346	6946	6609
14.5500	6324	6082	5875	5696	5542
14.8000	5406	5287	5181	5075	4972
15.0500	4880	4796	4719	4648	4582
15.3000	4519	4459	4402	4346	4292
15.5500	4240	4189	4140	4090	4042
15.8000	3995	3948	3902	3857	3812
16.0500	3767	3723	3681	3641	3604
16.3000	3571	3540	3512	3487	3463
16.5500	3441	3421	3401	3383	3365
16.8000	3348	3332	3315	3300	3284
17.0500	3269	3253	3239	3224	3209
17.3000	3195	3180	3166	3151	3137
17.5500	3122	3108	3094	3080	3066
17.8000	3052	3038	3024	3010	2996
18.0500	2982	2969	2955	2941	2927
18.3000	2913	2900	2886	2873	2859
18.5500	2845	2832	2819	2805	2792
18.8000	2778	2765	2752	2738	2725
19.0500	2712	2699	2686	2673	2660
19.3000	2647	2634	2621	2608	2595
19.5500	2582	2569	2556	2543	2531
19.8000	2518	2505	2493	2480	2468
20.0500	2455	2443	2431	2420	2410
20.3000	2401	2393	2386	2379	2374
20.5500	2369	2364	2360	2356	2353
20.8000	2350	2346	2343	2340	2338
21.0500	2335	2332	2330	2327	2325
21.3000	2322	2319	2317	2314	2312
21.5500	2310	2307	2305	2303	2300
21.8000	2298	2295	2293	2290	2288
22.0500	2285	2283	2281	2279	2276
22.3000	2274	2271	2269	2266	2264
22.5500	2262	2259	2257	2254	2252
22.8000	2250	2247	2245	2243	2240
23.0500	2238	2235	2233	2231	2228
23.3000	2226	2224	2221	2219	2216
23.5500	2214	2212	2209	2207	2204
23.8000	2202	2200	2198	2195	2192
24.0500	2185	2158	2096	2002	1893

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
24.3000	1788	1639	1466	1308	1167
24.5500	1041	930	831	745	668
24.8000	600	539	486	438	396
25.0500	358	324	294	266	242
25.3000	219	199	181	165	150
25.5500	137	125	114	103	94
25.8000	86	79	72	66	60
26.0500	55	50	46	42	38
26.3000	35	32	29	27	24
26.5500	22	20	19	17	16
26.8000	14	13	12	11	10
27.0500	9	8	8	7	7
27.3000	6	5	5	5	4
27.5500	4				

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Elevation (ft)	Planimeter (sq.in)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	Volume (cu.ft)	Volume Sum (cu.ft)
517.10	-----	2178	0	0	0
518.00	-----	8071	14442	4333	4333
520.00	-----	9563	26419	17613	21946
522.00	-----	10666	30328	20219	42165
524.00	-----	11792	33673	22449	64613
526.00	-----	12941	37086	24724	89337
528.00	-----	14112	40567	27045	116382

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REQUESTED POND WS ELEVATIONS:

Min. Elev.= 517.10 ft
Increment = .50 ft
Max. Elev.= 528.00 ft

****
OUTLET CONNECTIVITY
****

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

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	hi	--->	CV	525.500	528.000
Orifice-Area	O1	--->	CV	517.100	528.000
Culvert-Circular	cv	--->	TW	517.090	528.000

TW SETUP, DS Channel

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OUTLET STRUCTURE INPUT DATA

Structure ID = hi
Structure Type = Weir-Rectangular

# of Openings	=	1
Crest Elev.	=	525.50 ft
Weir Length	=	12.00 ft
Weir Coeff.	=	3.330000

Weir TW effects (Use adjustment equation)

Structure ID = O1
Structure Type = Orifice-Area

# of Openings	=	1
Invert Elev.	=	517.10 ft
Area	=	3.0000 sq.ft
Top of Orifice	=	519.10 ft
Datum Elev.	=	518.10 ft
Orifice Coeff.	=	.600

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OUTLET STRUCTURE INPUT DATA

```
Structure ID      = cv
Structure Type    = Culvert-Circular
-----------------------------------
No. Barrels       =         1
Barrel Diameter   =    3.5000 ft
Upstream Invert   =    517.09 ft
Dnstream Invert   =    516.36 ft
Horiz. Length     =     57.30 ft
Barrel Length     =     57.30 ft
Barrel Slope      =    .01274 ft/ft

OUTLET CONTROL DATA...
Mannings n        =     .0130
Ke                =     .5000  (forward entrance loss)
Kb                =   .005885  (per ft of full flow)
Kr                =     .5000  (reverse entrance loss)
HW Convergence    =      .001  +/- ft

INLET CONTROL DATA...
Equation form     =         1
Inlet Control K   =     .0078
Inlet Control M   =    2.0000
Inlet Control c   =    .02920
Inlet Control Y   =     .7400
T1 ratio (HW/D)   =     1.129
T2 ratio (HW/D)   =     1.201
Slope Factor      =     -.500
```

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use   submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...
At T1 Elev =   521.04 ft ---> Flow =   63.00 cfs
At T2 Elev =   521.29 ft ---> Flow =   72.00 cfs

```
Structure ID      = TW
Structure Type    = TW SETUP, DS Channel
-----------------------------------
FREE OUTFALL CONDITIONS SPECIFIED

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

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = hi (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = cv (Culvert-Circular)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
517.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
517.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
518.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
518.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
519.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
519.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
520.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
520.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
521.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
521.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
522.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
522.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
523.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
523.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
524.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
524.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
525.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
525.50	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = hi (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = cv (Culvert-Circular)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
525.60	1.26	525.60	Free	520.03	.000	.000	Free Outfall	
		H=.10; Htw=.00; Qfree=1.26;						
526.10	18.57	526.10	Free	520.80	.000	.000	Free Outfall	
		H=.60; Htw=.00; Qfree=18.57;						
526.60	46.10	526.60	Free	521.95	.000	.000	Free Outfall	
		H=1.10; Htw=.00; Qfree=46.10;						
527.10	80.87	527.10	Free	523.52	.000	.000	Free Outfall	
		H=1.60; Htw=.00; Qfree=80.87;						
527.60	119.07	527.60	525.80	525.80	.000	.000	Free Outfall	
		H=2.10; Htw=.30; Qfree=121.60;						
528.00	144.30	528.00	526.38	526.38	.000	.000	Free Outfall	
		H=2.50; Htw=.88; Qfree=157.96;						

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = O1 (Orifice-Area)

Upstream ID = (Pond Water Surface)
DNstream ID = cv (Culvert-Circular)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
517.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
517.60	.85	517.60	517.51	517.50	.000	.000	Free Outfall	
		Hi=.09; Ht=1.00; Qt=14.44						
518.10	4.86	518.10	517.59	.00	.000	.000	Free Outfall	
		Hi=.51; Ht=1.00; Qt=14.44						
518.60	9.27	518.60	517.70	.00	.000	.000	Free Outfall	
		Hi=.90; Ht=1.00; Qt=14.44						
519.10	10.39	519.10	518.58	518.59	.008	.000	Free Outfall	
		H =.52						
519.60	13.09	519.60	518.78	518.79	.008	.000	Free Outfall	
		H =.82						
520.10	15.53	520.10	518.94	518.95	.008	.000	Free Outfall	
		H =1.16						
520.60	17.71	520.60	519.10	519.09	.007	.000	Free Outfall	
		H =1.50						
521.10	19.81	521.10	519.22	519.21	.004	.000	Free Outfall	
		H =1.88						
521.60	21.80	521.60	519.32	519.33	.008	.000	Free Outfall	
		H =2.28						
522.10	23.61	522.10	519.43	519.43	.005	.000	Free Outfall	
		H =2.67						
522.60	25.33	522.60	519.52	519.53	.004	.000	Free Outfall	
		H =3.08						
523.10	26.97	523.10	519.61	519.61	.003	.000	Free Outfall	
		H =3.49						
523.60	28.54	523.60	519.69	519.70	.002	.000	Free Outfall	
		H =3.91						
524.10	30.04	524.10	519.77	519.77	.002	.000	Free Outfall	
		H =4.33						
524.60	31.46	524.60	519.85	519.84	.009	.000	Free Outfall	
		H =4.75						
525.10	32.86	525.10	519.92	519.91	.008	.000	Free Outfall	
		H =5.18						
525.50	33.94	525.50	519.97	519.97	.007	.000	Free Outfall	
		H =5.53						

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

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
517.10	.00	Free Outfall		(no Q: hi,O1,cv)
517.60	.85	Free Outfall		O1,cv (no Q: hi)
518.10	4.86	Free Outfall		O1,cv (no Q: hi)
518.60	9.27	Free Outfall		O1,cv (no Q: hi)
519.10	10.39	Free Outfall		O1,cv (no Q: hi)
519.60	13.09	Free Outfall		O1,cv (no Q: hi)
520.10	15.53	Free Outfall		O1,cv (no Q: hi)
520.60	17.71	Free Outfall		O1,cv (no Q: hi)
521.10	19.81	Free Outfall		O1,cv (no Q: hi)
521.60	21.80	Free Outfall		O1,cv (no Q: hi)
522.10	23.61	Free Outfall		O1,cv (no Q: hi)
522.60	25.33	Free Outfall		O1,cv (no Q: hi)
523.10	26.97	Free Outfall		O1,cv (no Q: hi)
523.60	28.54	Free Outfall		O1,cv (no Q: hi)
524.10	30.04	Free Outfall		O1,cv (no Q: hi)
524.60	31.46	Free Outfall		O1,cv (no Q: hi)
525.10	32.86	Free Outfall		O1,cv (no Q: hi)
525.50	33.94	Free Outfall		O1,cv (no Q: hi)
525.60	35.31	Free Outfall		hi,O1,cv
526.10	51.78	Free Outfall		hi,O1,cv
526.60	77.23	Free Outfall		hi,O1,cv
527.10	108.19	Free Outfall		hi,O1,cv
527.60	138.46	Free Outfall		hi,O1,cv
528.00	162.67	Free Outfall		hi,O1,cv

LEVEL POOL ROUTING DATA

HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Inflow HYG file = work_pad.hyg - POND 10 IN 2YR
Outflow HYG file = work_pad.hyg - POND 10 OUT 2YR

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	517.10 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0500 hrs

Elevation ft	Outflow cfs	Storage cu.ft	Area sq.ft	Infilt. cfs	Q Total cfs	2S/t + O cfs
517.10	.00	0	2178	.00	.00	.00
517.60	.85	1744	4992	.00	.85	20.24
518.10	4.86	5143	8143	.00	4.86	62.00
518.60	9.27	9305	8505	.00	9.27	112.65
519.10	10.39	13650	8876	.00	10.39	162.06
519.60	13.09	18182	9254	.00	13.09	215.11
520.10	15.53	22904	9617	.00	15.53	270.03
520.60	17.71	27780	9888	.00	17.71	326.38
521.10	19.81	32792	10162	.00	19.81	384.17
521.60	21.80	37943	10441	.00	21.80	443.38
522.10	23.61	43234	10721	.00	23.61	503.99
522.60	25.33	48663	10998	.00	25.33	566.04
523.10	26.97	54232	11278	.00	26.97	629.55
523.60	28.54	59942	11562	.00	28.54	694.56
524.10	30.04	65795	11848	.00	30.04	761.10
524.60	31.46	71789	12131	.00	31.46	829.12
525.10	32.86	77926	12417	.00	32.86	898.71
525.50	33.94	82940	12649	.00	33.94	955.50
525.60	35.31	84207	12707	.00	35.31	970.94
526.10	51.78	90634	12998	.00	51.78	1058.82

TOTAL NODE INFLOW...
HYG file = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\work_pad.hyg
HYG ID = POND 10 IN
HYG Tag = 2YR

Peak Discharge =	58.34 cfs
Time to Peak =	12.0000 hrs
HYG Volume =	173676 cu.ft

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

Time hrs					
4.6500	.00	.00	.00	.01	.01
4.9000	.02	.02	.03	.03	.03
5.1500	.04	.04	.05	.05	.06
5.4000	.07	.07	.08	.08	.09
5.6500	.09	.10	.10	.11	.11
5.9000	.12	.13	.13	.14	.14
6.1500	.15	.15	.16	.17	.17
6.4000	.18	.18	.19	.20	.20
6.6500	.21	.21	.22	.23	.23
6.9000	.24	.25	.25	.26	.27
7.1500	.27	.28	.29	.29	.30
7.4000	.31	.31	.32	.33	.33
7.6500	.34	.35	.35	.36	.37
7.9000	.37	.38	.39	.40	.41
8.1500	.42	.43	.45	.46	.48
8.4000	.49	.51	.53	.55	.57
8.6500	.59	.61	.63	.65	.67
8.9000	.69	.71	.73	.76	.78
9.1500	.80	.81	.83	.84	.85
9.4000	.86	.87	.88	.89	.91
9.6500	.92	.95	.98	1.01	1.04
9.9000	1.07	1.11	1.14	1.18	1.22
10.1500	1.26	1.31	1.36	1.41	1.46
10.4000	1.52	1.58	1.63	1.69	1.76
10.6500	1.83	1.91	1.99	2.08	2.17
10.9000	2.27	2.37	2.47	2.58	2.71
11.1500	2.85	3.03	3.22	3.44	3.66
11.4000	3.90	4.15	4.41	4.90	6.07
11.6500	8.14	11.46	15.99	21.88	29.60
11.9000	40.49	51.56	58.34	57.58	49.26
12.1500	37.37	26.77	19.83	15.55	12.75

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

Time hrs					
12.4000	10.88	9.49	8.39	7.47	6.72
12.6500	6.12	5.68	5.37	5.12	4.91
12.9000	4.73	4.55	4.39	4.23	4.08
13.1500	3.94	3.82	3.72	3.62	3.53
13.4000	3.44	3.35	3.26	3.18	3.09
13.6500	3.02	2.94	2.88	2.81	2.75
13.9000	2.68	2.62	2.56	2.50	2.44
14.1500	2.39	2.35	2.32	2.29	2.27
14.4000	2.24	2.22	2.20	2.18	2.16
14.6500	2.13	2.11	2.09	2.07	2.05
14.9000	2.03	2.00	1.98	1.96	1.94
15.1500	1.92	1.90	1.87	1.85	1.83
15.4000	1.81	1.79	1.77	1.74	1.72
15.6500	1.70	1.68	1.66	1.63	1.61
15.9000	1.59	1.57	1.55	1.52	1.50
16.1500	1.49	1.47	1.46	1.45	1.44
16.4000	1.43	1.43	1.42	1.41	1.40
16.6500	1.39	1.39	1.38	1.37	1.36
16.9000	1.36	1.35	1.34	1.33	1.32
17.1500	1.32	1.31	1.30	1.29	1.29
17.4000	1.28	1.27	1.26	1.25	1.25
17.6500	1.24	1.23	1.22	1.22	1.21
17.9000	1.20	1.19	1.18	1.18	1.17
18.1500	1.16	1.15	1.14	1.14	1.13
18.4000	1.12	1.11	1.10	1.10	1.09
18.6500	1.08	1.07	1.07	1.06	1.05
18.9000	1.04	1.03	1.03	1.02	1.01
19.1500	1.00	.99	.99	.98	.97
19.4000	.96	.95	.95	.94	.93
19.6500	.92	.91	.91	.90	.89
19.9000	.88	.88	.87	.86	.85
20.1500	.85	.84	.84	.84	.83
20.4000	.83	.83	.83	.83	.83
20.6500	.82	.82	.82	.82	.82
20.9000	.82	.81	.81	.81	.81
21.1500	.81	.81	.81	.80	.80
21.4000	.80	.80	.80	.80	.79
21.6500	.79	.79	.79	.79	.79
21.9000	.79	.78	.78	.78	.78
22.1500	.78	.78	.77	.77	.77
22.4000	.77	.77	.77	.77	.76
22.6500	.76	.76	.76	.76	.76
22.9000	.75	.75	.75	.75	.75
23.1500	.75	.74	.74	.74	.74
23.4000	.74	.74	.74	.73	.73

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

Time hrs					
23.6500	.73	.73	.73	.73	.72
23.9000	.72	.72	.72	.68	.56
24.1500	.39	.23	.14	.08	.04
24.4000	.03	.01	.01	.00	.00
24.6500	.00				

SUMMARY FOR HYDROGRAPH ADDITION
at Node: POND 10 IN

HYG Directory: M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 10	POST	work_pad.hyg	POST	15YR
ADDLINK 20	POST-OFFSITE	work_pad.hyg	POST-OFFSITE	15YR

INFLOWS TO: POND 10 IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	POST	15YR	239011	12.0000	78.83
work_pad.hyg	POST-OFFSITE	15YR	50110	12.0500	16.65

TOTAL FLOW INTO: POND 10 IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	POND 10 IN	15YR	289121	12.0000	95.25

TOTAL NODE INFLOW...
HYG file = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\work_pad.hyg
HYG ID = POND 10 IN
HYG Tag = 15YR

Peak Discharge =	95.25 cfs
Time to Peak =	12.0000 hrs
HYG Volume =	289121 cu.ft

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

Time hrs					
3.3000	.00	.00	.00	.01	.01
3.5500	.02	.03	.03	.04	.05
3.8000	.06	.07	.07	.08	.09
4.0500	.10	.10	.11	.12	.13
4.3000	.14	.14	.15	.16	.17
4.5500	.18	.19	.20	.21	.21
4.8000	.22	.23	.24	.25	.26
5.0500	.27	.28	.29	.30	.31
5.3000	.32	.33	.34	.35	.36
5.5500	.37	.38	.39	.40	.41
5.8000	.42	.43	.44	.45	.46
6.0500	.47	.48	.49	.51	.52
6.3000	.53	.54	.55	.57	.58
6.5500	.59	.61	.62	.63	.64
6.8000	.66	.67	.68	.70	.71
7.0500	.72	.73	.75	.76	.77
7.3000	.79	.80	.81	.83	.84
7.5500	.85	.87	.88	.89	.91
7.8000	.92	.93	.95	.96	.98
8.0500	.99	1.01	1.03	1.05	1.08
8.3000	1.11	1.14	1.18	1.21	1.25
8.5500	1.28	1.32	1.36	1.39	1.43
8.8000	1.47	1.51	1.55	1.59	1.63
9.0500	1.67	1.71	1.74	1.76	1.79
9.3000	1.81	1.82	1.84	1.85	1.87
9.5500	1.88	1.90	1.93	1.97	2.02
9.8000	2.08	2.13	2.20	2.26	2.32
10.0500	2.39	2.46	2.54	2.62	2.71
10.3000	2.80	2.90	2.99	3.09	3.20
10.5500	3.30	3.41	3.54	3.68	3.82
10.8000	3.98	4.14	4.31	4.48	4.66

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

Time hrs					
11.0500	4.84	5.06	5.31	5.61	5.95
11.3000	6.32	6.71	7.11	7.53	7.96
11.5500	8.81	10.85	14.42	20.11	27.77
11.8000	37.57	50.18	67.63	85.03	95.25
12.0500	93.26	79.39	60.03	42.90	31.67
12.3000	24.76	20.24	17.22	14.99	13.23
12.5500	11.77	10.57	9.62	8.91	8.42
12.8000	8.03	7.70	7.41	7.13	6.87
13.0500	6.62	6.38	6.17	5.98	5.81
13.3000	5.66	5.51	5.37	5.23	5.09
13.5500	4.96	4.83	4.71	4.59	4.48
13.8000	4.38	4.28	4.18	4.08	3.98
14.0500	3.89	3.80	3.73	3.66	3.61
14.3000	3.57	3.53	3.49	3.46	3.42
14.5500	3.39	3.35	3.32	3.28	3.25
14.8000	3.22	3.18	3.15	3.11	3.08
15.0500	3.05	3.01	2.98	2.94	2.91
15.3000	2.88	2.84	2.81	2.77	2.74
15.5500	2.71	2.67	2.64	2.60	2.57
15.8000	2.53	2.50	2.46	2.43	2.40
16.0500	2.36	2.33	2.31	2.28	2.26
16.3000	2.25	2.24	2.22	2.21	2.20
16.5500	2.18	2.17	2.16	2.15	2.14
16.8000	2.12	2.11	2.10	2.09	2.07
17.0500	2.06	2.05	2.04	2.03	2.01
17.3000	2.00	1.99	1.98	1.96	1.95
17.5500	1.94	1.93	1.92	1.90	1.89
17.8000	1.88	1.87	1.85	1.84	1.83
18.0500	1.82	1.81	1.79	1.78	1.77
18.3000	1.76	1.74	1.73	1.72	1.71
18.5500	1.70	1.68	1.67	1.66	1.65
18.8000	1.63	1.62	1.61	1.60	1.58
19.0500	1.57	1.56	1.55	1.54	1.52
19.3000	1.51	1.50	1.49	1.47	1.46
19.5500	1.45	1.44	1.42	1.41	1.40
19.8000	1.39	1.37	1.36	1.35	1.34
20.0500	1.33	1.31	1.31	1.30	1.29
20.3000	1.29	1.29	1.28	1.28	1.28
20.5500	1.28	1.27	1.27	1.27	1.27
20.8000	1.26	1.26	1.26	1.26	1.25
21.0500	1.25	1.25	1.25	1.24	1.24
21.3000	1.24	1.24	1.23	1.23	1.23
21.5500	1.23	1.22	1.22	1.22	1.22
21.8000	1.21	1.21	1.21	1.21	1.20
22.0500	1.20	1.20	1.20	1.20	1.19

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

Time hrs					
22.3000	1.19	1.19	1.19	1.18	1.18
22.5500	1.18	1.18	1.17	1.17	1.17
22.8000	1.17	1.16	1.16	1.16	1.16
23.0500	1.15	1.15	1.15	1.15	1.14
23.3000	1.14	1.14	1.14	1.13	1.13
23.5500	1.13	1.13	1.12	1.12	1.12
23.8000	1.12	1.11	1.11	1.11	1.11
24.0500	1.05	.87	.60	.36	.21
24.3000	.12	.07	.04	.02	.01
24.5500	.01	.00	.00		

SUMMARY FOR HYDROGRAPH ADDITION
at Node: POND 10 IN

HYG Directory: M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 10	POST	work_pad.hyg	POST	25YR
ADDLINK 20	POST-OFFSITE	work_pad.hyg	POST-OFFSITE	25YR

INFLOWS TO: POND 10 IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	POST	25YR	276838	12.0000	90.59
work_pad.hyg	POST-OFFSITE	25YR	59345	12.0500	19.59

TOTAL FLOW INTO: POND 10 IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	POND 10 IN	25YR	336183	12.0000	109.98

TOTAL NODE INFLOW...
HYG file = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\work_pad.hyg
HYG ID = POND 10 IN
HYG Tag = 25YR

Peak Discharge =	109.98 cfs
Time to Peak =	12.0000 hrs
HYG Volume =	336183 cu.ft

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

Time hrs					
3.0000	.00	.00	.01	.01	.02
3.2500	.03	.04	.05	.06	.07
3.5000	.08	.09	.09	.10	.11
3.7500	.12	.13	.14	.15	.16
4.0000	.17	.18	.19	.20	.21
4.2500	.22	.23	.24	.25	.26
4.5000	.27	.28	.29	.30	.31
4.7500	.32	.33	.34	.35	.36
5.0000	.38	.39	.40	.41	.42
5.2500	.43	.44	.46	.47	.48
5.5000	.49	.51	.52	.53	.55
5.7500	.56	.57	.59	.60	.62
6.0000	.63	.64	.66	.67	.69
6.2500	.70	.72	.73	.75	.76
6.5000	.78	.79	.81	.82	.84
6.7500	.85	.87	.88	.90	.91
7.0000	.93	.94	.96	.97	.99
7.2500	1.00	1.02	1.03	1.05	1.07
7.5000	1.08	1.10	1.11	1.13	1.14
7.7500	1.16	1.17	1.19	1.21	1.22
8.0000	1.24	1.25	1.27	1.30	1.33
8.2500	1.36	1.40	1.44	1.48	1.52
8.5000	1.56	1.60	1.65	1.69	1.74
8.7500	1.78	1.83	1.87	1.92	1.97
9.0000	2.02	2.06	2.11	2.15	2.18
9.2500	2.20	2.22	2.24	2.26	2.27
9.5000	2.29	2.31	2.33	2.36	2.41
9.7500	2.47	2.53	2.60	2.67	2.75
10.0000	2.83	2.90	2.99	3.08	3.18
10.2500	3.28	3.39	3.50	3.62	3.73
10.5000	3.85	3.97	4.11	4.25	4.41

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

Time hrs					
10.7500	4.59	4.77	4.96	5.16	5.36
11.0000	5.56	5.78	6.03	6.32	6.67
11.2500	7.07	7.50	7.96	8.43	8.91
11.5000	9.42	10.41	12.79	16.98	23.62
11.7500	32.54	43.90	58.45	78.51	98.42
12.0000	109.98	107.48	91.38	69.05	49.31
12.2500	36.38	28.43	23.22	19.74	17.18
12.5000	15.15	13.47	12.10	11.01	10.20
12.7500	9.63	9.19	8.81	8.47	8.16
13.0000	7.85	7.56	7.29	7.05	6.83
13.2500	6.64	6.47	6.30	6.13	5.98
13.5000	5.82	5.67	5.52	5.38	5.24
13.7500	5.12	5.00	4.89	4.77	4.66
14.0000	4.55	4.44	4.34	4.26	4.18
14.2500	4.12	4.07	4.03	3.99	3.95
14.5000	3.91	3.87	3.83	3.79	3.75
14.7500	3.71	3.67	3.63	3.59	3.56
15.0000	3.52	3.48	3.44	3.40	3.36
15.2500	3.32	3.28	3.24	3.20	3.16
15.5000	3.13	3.09	3.05	3.01	2.97
15.7500	2.93	2.89	2.85	2.81	2.77
16.0000	2.73	2.70	2.66	2.63	2.60
16.2500	2.58	2.57	2.55	2.53	2.52
16.5000	2.51	2.49	2.48	2.46	2.45
16.7500	2.44	2.42	2.41	2.39	2.38
17.0000	2.37	2.35	2.34	2.32	2.31
17.2500	2.30	2.28	2.27	2.25	2.24
17.5000	2.23	2.21	2.20	2.18	2.17
17.7500	2.16	2.14	2.13	2.11	2.10
18.0000	2.09	2.07	2.06	2.04	2.03
18.2500	2.02	2.00	1.99	1.97	1.96
18.5000	1.95	1.93	1.92	1.90	1.89
18.7500	1.88	1.86	1.85	1.83	1.82
19.0000	1.81	1.79	1.78	1.76	1.75
19.2500	1.74	1.72	1.71	1.69	1.68
19.5000	1.66	1.65	1.64	1.62	1.61
19.7500	1.59	1.58	1.57	1.55	1.54
20.0000	1.52	1.51	1.50	1.49	1.48
20.2500	1.47	1.47	1.47	1.46	1.46
20.5000	1.46	1.45	1.45	1.45	1.44
20.7500	1.44	1.44	1.44	1.43	1.43
21.0000	1.43	1.43	1.42	1.42	1.42
21.2500	1.41	1.41	1.41	1.41	1.40
21.5000	1.40	1.40	1.40	1.39	1.39
21.7500	1.39	1.38	1.38	1.38	1.38

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

Time hrs					
22.0000	1.37	1.37	1.37	1.36	1.36
22.2500	1.36	1.36	1.35	1.35	1.35
22.5000	1.34	1.34	1.34	1.34	1.33
22.7500	1.33	1.33	1.32	1.32	1.32
23.0000	1.32	1.31	1.31	1.31	1.31
23.2500	1.30	1.30	1.30	1.29	1.29
23.5000	1.29	1.29	1.28	1.28	1.28
23.7500	1.27	1.27	1.27	1.27	1.26
24.0000	1.26	1.20	.99	.69	.41
24.2500	.24	.14	.08	.05	.03
24.5000	.01	.01	.00	.00	

SUMMARY FOR HYDROGRAPH ADDITION
at Node: POND 10 IN

HYG Directory: M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 10	POST	work_pad.hyg	POST	100YR
ADDLINK 20	POST-OFFSITE	work_pad.hyg	POST-OFFSITE	100YR

INFLOWS TO: POND 10 IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	POST	100YR	340246	12.0000	110.09
work_pad.hyg	POST-OFFSITE	100YR	75013	12.0500	24.48

TOTAL FLOW INTO: POND 10 IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	POND 10 IN	100YR	415259	12.0000	134.43

TOTAL NODE INFLOW...
HYG file = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\work_pad.hyg
HYG ID = POND 10 IN
HYG Tag = 100YR

Peak Discharge =	134.43 cfs
Time to Peak =	12.0000 hrs
HYG Volume =	415259 cu.ft

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

Time hrs					
2.5500	.00	.00	.01	.01	.02
2.8000	.03	.05	.06	.07	.08
3.0500	.09	.11	.12	.13	.14
3.3000	.15	.17	.18	.19	.20
3.5500	.22	.23	.24	.25	.26
3.8000	.28	.29	.30	.31	.32
4.0500	.33	.35	.36	.37	.38
4.3000	.40	.41	.42	.44	.45
4.5500	.46	.48	.49	.51	.52
4.8000	.54	.55	.57	.58	.60
5.0500	.62	.63	.65	.67	.68
5.3000	.70	.72	.74	.75	.77
5.5500	.79	.80	.82	.84	.86
5.8000	.88	.89	.91	.93	.95
6.0500	.97	.98	1.00	1.02	1.04
6.3000	1.06	1.07	1.09	1.11	1.13
6.5500	1.15	1.17	1.19	1.20	1.22
6.8000	1.24	1.26	1.28	1.30	1.32
7.0500	1.33	1.35	1.37	1.39	1.41
7.3000	1.43	1.45	1.47	1.49	1.51
7.5500	1.52	1.54	1.56	1.58	1.60
7.8000	1.62	1.64	1.66	1.68	1.70
8.0500	1.72	1.74	1.77	1.81	1.85
8.3000	1.90	1.95	2.00	2.05	2.11
8.5500	2.16	2.22	2.28	2.33	2.39
8.8000	2.45	2.51	2.57	2.63	2.69
9.0500	2.75	2.80	2.85	2.89	2.92
9.3000	2.94	2.96	2.98	3.00	3.01
9.5500	3.03	3.06	3.10	3.16	3.23
9.8000	3.31	3.40	3.49	3.58	3.68
10.0500	3.78	3.88	3.99	4.12	4.25

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

Time hrs					
10.3000	4.38	4.52	4.67	4.81	4.96
10.5500	5.11	5.28	5.46	5.66	5.88
10.8000	6.11	6.34	6.59	6.83	7.09
11.0500	7.35	7.66	8.03	8.46	8.96
11.3000	9.49	10.05	10.64	11.24	11.86
11.5500	13.09	16.05	21.25	29.49	40.50
11.8000	54.45	72.22	96.59	120.64	134.43
12.0500	131.09	111.29	84.01	59.96	44.19
12.3000	34.50	28.16	23.93	20.80	18.34
12.5500	16.30	14.63	13.31	12.33	11.64
12.8000	11.10	10.65	10.24	9.85	9.49
13.0500	9.14	8.81	8.51	8.25	8.02
13.3000	7.81	7.60	7.41	7.22	7.03
13.5500	6.84	6.66	6.49	6.33	6.18
13.8000	6.04	5.90	5.76	5.62	5.49
14.0500	5.36	5.24	5.14	5.05	4.98
14.3000	4.91	4.86	4.81	4.76	4.71
14.5500	4.66	4.61	4.57	4.52	4.47
14.8000	4.43	4.38	4.33	4.29	4.24
15.0500	4.19	4.14	4.10	4.05	4.00
15.3000	3.95	3.91	3.86	3.81	3.77
15.5500	3.72	3.67	3.62	3.58	3.53
15.8000	3.48	3.44	3.39	3.34	3.30
16.0500	3.25	3.20	3.17	3.14	3.11
16.3000	3.09	3.07	3.05	3.04	3.02
16.5500	3.00	2.98	2.97	2.95	2.93
16.8000	2.92	2.90	2.88	2.87	2.85
17.0500	2.83	2.82	2.80	2.78	2.76
17.3000	2.75	2.73	2.72	2.70	2.68
17.5500	2.66	2.65	2.63	2.61	2.60
17.8000	2.58	2.56	2.55	2.53	2.51
18.0500	2.49	2.48	2.46	2.44	2.43
18.3000	2.41	2.39	2.38	2.36	2.34
18.5500	2.33	2.31	2.29	2.27	2.26
18.8000	2.24	2.22	2.21	2.19	2.17
19.0500	2.16	2.14	2.12	2.11	2.09
19.3000	2.07	2.06	2.04	2.02	2.00
19.5500	1.99	1.97	1.95	1.94	1.92
19.8000	1.90	1.88	1.87	1.85	1.83
20.0500	1.82	1.80	1.79	1.78	1.77
20.3000	1.77	1.76	1.76	1.76	1.75
20.5500	1.75	1.75	1.74	1.74	1.74
20.8000	1.73	1.73	1.72	1.72	1.72
21.0500	1.71	1.71	1.71	1.71	1.70
21.3000	1.70	1.70	1.69	1.69	1.68

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

Time hrs					
21.5500	1.68	1.68	1.67	1.67	1.67
21.8000	1.66	1.66	1.66	1.65	1.65
22.0500	1.65	1.64	1.64	1.64	1.63
22.3000	1.63	1.63	1.62	1.62	1.62
22.5500	1.61	1.61	1.61	1.60	1.60
22.8000	1.60	1.59	1.59	1.59	1.58
23.0500	1.58	1.58	1.57	1.57	1.57
23.3000	1.56	1.56	1.56	1.55	1.55
23.5500	1.55	1.54	1.54	1.54	1.53
23.8000	1.53	1.53	1.52	1.52	1.51
24.0500	1.44	1.19	.83	.50	.29
24.3000	.17	.09	.05	.03	.02
24.5500	.01	.00	.00	.00	

LEVEL POOL ROUTING SUMMARY

HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Inflow HYG file = work_pad.hyg - POND 10 IN 2YR
Outflow HYG file = work_pad.hyg - POND 10 OUT 2YR

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	517.10 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	58.34 cfs	at	12.0000 hrs
Peak Outflow	=	24.66 cfs	at	12.2000 hrs
Peak Elevation	=	522.40 ft		
Peak Storage	=	46519 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	173676
- Infiltration	=	0
- HYG Vol OUT	=	173670
- Retained Vol	=	4
Unrouted Vol	=	-2 cu.ft (.001% of Inflow Volume)

LEVEL POOL ROUTING SUMMARY

HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Inflow HYG file = work_pad.hyg - POND 10 IN 15YR
Outflow HYG file = work_pad.hyg - POND 10 OUT 15YR

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	517.10 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	95.25 cfs	at	12.0000 hrs
Peak Outflow	=	34.71 cfs	at	12.2500 hrs
Peak Elevation	=	525.56 ft		
Peak Storage	=	83657 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	289121
- Infiltration	=	0
- HYG Vol OUT	=	289115
- Retained Vol	=	4
Unrouted Vol	=	-2 cu.ft (.001% of Inflow Volume)

LEVEL POOL ROUTING SUMMARY

HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Inflow HYG file = work_pad.hyg - POND 10 IN 25YR
Outflow HYG file = work_pad.hyg - POND 10 OUT 25YR

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	517.10 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	109.98 cfs	at	12.0000 hrs
Peak Outflow	=	57.85 cfs	at	12.2000 hrs
Peak Elevation	=	526.22 ft		
Peak Storage	=	92190 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	336183
- Infiltration	=	0
- HYG Vol OUT	=	336178
- Retained Vol	=	3
Unrouted Vol	=	-2 cu.ft (.001% of Inflow Volume)

LEVEL POOL ROUTING SUMMARY

HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Inflow HYG file = work_pad.hyg - POND 10 IN 100YR
Outflow HYG file = work_pad.hyg - POND 10 OUT 100YR

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	517.10 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	134.43 cfs	at	12.0000 hrs
Peak Outflow	=	95.61 cfs	at	12.1500 hrs
Peak Elevation	=	526.90 ft		
Peak Storage	=	101174 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	415259
- Infiltration	=	0
- HYG Vol OUT	=	415253
- Retained Vol	=	4
Unrouted Vol	=	-2 cu.ft (.000% of Inflow Volume)

DIVERTED HYDROGRAPH...
HYG file = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\work_pad.hyg
HYG ID = ROUTE 10
HYG Tag = 2YR

Peak Discharge = 24.66 cfs
Time to Peak = 12.2000 hrs
HYG Volume = 173670 cu.ft

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

Time hrs					
4.8000	.00	.00	.00	.00	.01
5.0500	.01	.01	.01	.01	.02
5.3000	.02	.02	.03	.03	.03
5.5500	.04	.04	.05	.05	.05
5.8000	.06	.06	.07	.07	.08
6.0500	.08	.09	.09	.10	.10
6.3000	.11	.11	.12	.12	.13
6.5500	.13	.14	.14	.15	.16
6.8000	.16	.17	.17	.18	.19
7.0500	.19	.20	.20	.21	.22
7.3000	.22	.23	.23	.24	.25
7.5500	.25	.26	.27	.27	.28
7.8000	.29	.29	.30	.31	.31
8.0500	.32	.33	.33	.34	.35
8.3000	.36	.37	.38	.39	.40
8.5500	.41	.42	.44	.45	.46
8.8000	.48	.49	.51	.53	.54
9.0500	.56	.58	.59	.61	.63
9.3000	.65	.66	.68	.69	.71
9.5500	.73	.74	.75	.77	.79
9.8000	.80	.82	.84	.87	.92
10.0500	.97	1.01	1.06	1.10	1.15
10.3000	1.19	1.24	1.29	1.34	1.39
10.5500	1.44	1.50	1.55	1.61	1.68
10.8000	1.75	1.82	1.90	1.98	2.06
11.0500	2.15	2.25	2.35	2.46	2.59
11.3000	2.73	2.89	3.06	3.25	3.44
11.5500	3.68	4.02	4.61	5.54	6.97
11.8000	9.05	9.97	12.00	15.16	18.25
12.0500	21.04	23.06	24.22	24.66	24.58
12.3000	24.20	23.64	22.94	22.17	21.33

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

Time hrs					
12.5500	20.43	19.51	18.56	17.64	16.70
12.8000	15.82	14.90	14.00	13.17	12.30
13.0500	11.48	10.74	10.24	9.95	9.67
13.3000	9.40	8.75	7.83	7.06	6.40
13.5500	5.85	5.38	4.97	4.60	4.28
13.8000	4.00	3.77	3.57	3.39	3.24
14.0500	3.10	2.98	2.87	2.78	2.69
14.3000	2.62	2.55	2.50	2.45	2.40
14.5500	2.36	2.32	2.29	2.26	2.23
14.8000	2.20	2.17	2.15	2.12	2.10
15.0500	2.07	2.05	2.03	2.00	1.98
15.3000	1.96	1.94	1.91	1.89	1.87
15.5500	1.85	1.83	1.80	1.78	1.76
15.8000	1.74	1.72	1.69	1.67	1.65
16.0500	1.63	1.61	1.58	1.56	1.55
16.3000	1.53	1.51	1.50	1.49	1.47
16.5500	1.46	1.45	1.44	1.43	1.42
16.8000	1.41	1.40	1.40	1.39	1.38
17.0500	1.37	1.36	1.35	1.35	1.34
17.3000	1.33	1.32	1.32	1.31	1.30
17.5500	1.29	1.28	1.28	1.27	1.26
17.8000	1.25	1.24	1.24	1.23	1.22
18.0500	1.21	1.21	1.20	1.19	1.18
18.3000	1.17	1.17	1.16	1.15	1.14
18.5500	1.13	1.13	1.12	1.11	1.10
18.8000	1.09	1.09	1.08	1.07	1.06
19.0500	1.06	1.05	1.04	1.03	1.02
19.3000	1.02	1.01	1.00	.99	.98
19.5500	.98	.97	.96	.95	.94
19.8000	.94	.93	.92	.91	.90
20.0500	.90	.89	.88	.87	.87
20.3000	.86	.86	.85	.85	.85
20.5500	.85	.85	.84	.84	.84
20.8000	.84	.84	.84	.83	.83
21.0500	.83	.83	.83	.83	.82
21.3000	.82	.82	.82	.82	.82
21.5500	.81	.81	.81	.81	.81
21.8000	.81	.80	.80	.80	.80
22.0500	.80	.80	.80	.79	.79
22.3000	.79	.79	.79	.79	.78
22.5500	.78	.78	.78	.78	.78
22.8000	.77	.77	.77	.77	.77
23.0500	.77	.77	.76	.76	.76
23.3000	.76	.76	.76	.75	.75
23.5500	.75	.75	.75	.75	.75

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

Time hrs					
23.8000	.74	.74	.74	.74	.74
24.0500	.73	.72	.70	.67	.63
24.3000	.59	.54	.50	.46	.42
24.5500	.39	.35	.32	.30	.27
24.8000	.25	.23	.21	.19	.18
25.0500	.16	.15	.13	.12	.11
25.3000	.10	.09	.09	.08	.07
25.5500	.07	.06	.06	.05	.05
25.8000	.04	.04	.04	.03	.03
26.0500	.03	.03	.02	.02	.02
26.3000	.02	.02	.01	.01	.01
26.5500	.01	.01	.01	.01	.01
26.8000	.01	.01	.01	.01	.01
27.0500	.00	.00	.00	.00	.00
27.3000	.00	.00			

DIVERTED HYDROGRAPH...
HYG file = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\work_pad.hyg
HYG ID = ROUTE 10
HYG Tag = 15YR

Peak Discharge = 34.71 cfs
Time to Peak = 12.2500 hrs
HYG Volume = 289115 cu.ft

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

Time hrs					
3.4500	.00	.00	.00	.00	.01
3.7000	.01	.01	.02	.02	.02
3.9500	.03	.03	.04	.04	.05
4.2000	.05	.06	.07	.07	.08
4.4500	.09	.09	.10	.11	.11
4.7000	.12	.13	.14	.14	.15
4.9500	.16	.17	.18	.18	.19
5.2000	.20	.21	.22	.23	.24
5.4500	.24	.25	.26	.27	.28
5.7000	.29	.30	.31	.32	.33
5.9500	.34	.35	.36	.37	.38
6.2000	.39	.40	.41	.42	.43
6.4500	.44	.45	.46	.47	.49
6.7000	.50	.51	.52	.53	.55
6.9500	.56	.57	.58	.59	.61
7.2000	.62	.63	.64	.66	.67
7.4500	.68	.69	.71	.72	.73
7.7000	.75	.76	.77	.79	.80
7.9500	.81	.83	.84	.85	.88
8.2000	.91	.94	.97	1.00	1.03
8.4500	1.06	1.09	1.13	1.16	1.19
8.7000	1.23	1.26	1.30	1.34	1.37
8.9500	1.41	1.45	1.49	1.53	1.56
9.2000	1.60	1.63	1.66	1.69	1.72
9.4500	1.74	1.77	1.79	1.81	1.83
9.7000	1.85	1.88	1.91	1.95	1.99
9.9500	2.04	2.09	2.14	2.19	2.25
10.2000	2.31	2.38	2.45	2.53	2.61
10.4500	2.69	2.78	2.87	2.96	3.06
10.7000	3.17	3.28	3.40	3.52	3.66
10.9500	3.80	3.95	4.10	4.26	4.44

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

Time hrs					
11.2000	4.63	4.85	5.08	5.33	5.60
11.4500	5.90	6.22	6.60	7.16	8.12
11.7000	9.38	10.05	11.92	14.91	18.35
11.9500	22.29	26.10	29.39	31.80	33.30
12.2000	34.16	34.71	33.86	33.43	32.87
12.4500	32.19	31.47	30.68	29.85	28.96
12.7000	28.04	27.10	26.14	25.18	24.21
12.9500	23.24	22.26	21.28	20.29	19.31
13.2000	18.35	17.43	16.52	15.68	14.79
13.4500	13.94	13.16	12.35	11.59	10.89
13.7000	10.33	10.07	9.81	9.56	9.32
13.9500	8.56	7.77	7.10	6.54	6.05
14.2000	5.64	5.29	5.00	4.73	4.50
14.4500	4.30	4.14	4.00	3.88	3.77
14.7000	3.68	3.60	3.53	3.47	3.41
14.9500	3.36	3.31	3.26	3.22	3.17
15.2000	3.13	3.09	3.05	3.02	2.98
15.4500	2.94	2.91	2.87	2.84	2.80
15.7000	2.77	2.73	2.70	2.66	2.63
15.9500	2.59	2.56	2.52	2.49	2.46
16.2000	2.43	2.40	2.37	2.35	2.32
16.4500	2.30	2.28	2.27	2.25	2.23
16.7000	2.22	2.20	2.19	2.18	2.16
16.9500	2.15	2.14	2.12	2.11	2.10
17.2000	2.08	2.07	2.06	2.05	2.04
17.4500	2.02	2.01	2.00	1.99	1.97
17.7000	1.96	1.95	1.94	1.92	1.91
17.9500	1.90	1.89	1.88	1.86	1.85
18.2000	1.84	1.83	1.81	1.80	1.79
18.4500	1.78	1.77	1.75	1.74	1.73
18.7000	1.72	1.70	1.69	1.68	1.67
18.9500	1.65	1.64	1.63	1.62	1.61
19.2000	1.59	1.58	1.57	1.56	1.54
19.4500	1.53	1.52	1.51	1.49	1.48
19.7000	1.47	1.46	1.45	1.43	1.42
19.9500	1.41	1.40	1.38	1.37	1.36
20.2000	1.35	1.34	1.33	1.32	1.31
20.4500	1.31	1.30	1.30	1.29	1.29
20.7000	1.29	1.28	1.28	1.28	1.27
20.9500	1.27	1.27	1.26	1.26	1.26
21.2000	1.26	1.25	1.25	1.25	1.25
21.4500	1.24	1.24	1.24	1.24	1.23
21.7000	1.23	1.23	1.23	1.22	1.22
21.9500	1.22	1.22	1.21	1.21	1.21
22.2000	1.21	1.20	1.20	1.20	1.20

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

Time hrs					
22.4500	1.19	1.19	1.19	1.19	1.18
22.7000	1.18	1.18	1.18	1.17	1.17
22.9500	1.17	1.17	1.17	1.16	1.16
23.2000	1.16	1.16	1.15	1.15	1.15
23.4500	1.15	1.14	1.14	1.14	1.14
23.7000	1.13	1.13	1.13	1.13	1.12
23.9500	1.12	1.12	1.11	1.08	1.02
24.2000	.91	.83	.77	.71	.66
24.4500	.61	.56	.51	.47	.43
24.7000	.39	.36	.33	.30	.28
24.9500	.25	.23	.21	.19	.18
25.2000	.16	.15	.14	.12	.11
25.4500	.10	.10	.09	.08	.07
25.7000	.07	.06	.06	.05	.05
25.9500	.04	.04	.04	.03	.03
26.2000	.03	.03	.02	.02	.02
26.4500	.02	.02	.02	.01	.01
26.7000	.01	.01	.01	.01	.01
26.9500	.01	.01	.01	.01	.01
27.2000	.00	.00	.00	.00	.00
27.4500	.00	.00			

DIVERTED HYDROGRAPH...
HYG file = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\work_pad.hyg
HYG ID = ROUTE 10
HYG Tag = 25YR

Peak Discharge = 57.85 cfs
Time to Peak = 12.2000 hrs
HYG Volume = 336178 cu.ft

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

Time hrs					
3.1000	.00	.00	.00	.00	.01
3.3500	.01	.01	.02	.02	.03
3.6000	.03	.04	.04	.05	.06
3.8500	.06	.07	.08	.08	.09
4.1000	.10	.11	.12	.12	.13
4.3500	.14	.15	.16	.17	.18
4.6000	.18	.19	.20	.21	.22
4.8500	.23	.24	.25	.26	.27
5.1000	.28	.29	.30	.31	.32
5.3500	.33	.34	.36	.37	.38
5.6000	.39	.40	.41	.42	.44
5.8500	.45	.46	.47	.49	.50
6.1000	.51	.52	.54	.55	.56
6.3500	.58	.59	.61	.62	.63
6.6000	.65	.66	.68	.69	.70
6.8500	.72	.73	.75	.76	.78
7.1000	.79	.81	.82	.83	.85
7.3500	.88	.91	.94	.96	.99
7.6000	1.01	1.03	1.05	1.07	1.09
7.8500	1.11	1.12	1.14	1.16	1.18
8.1000	1.19	1.21	1.23	1.25	1.28
8.3500	1.30	1.33	1.36	1.40	1.43
8.6000	1.47	1.51	1.55	1.59	1.63
8.8500	1.67	1.72	1.76	1.81	1.85
9.1000	1.90	1.94	1.98	2.02	2.06
9.3500	2.09	2.12	2.15	2.17	2.20
9.6000	2.22	2.25	2.27	2.30	2.34
9.8500	2.39	2.43	2.49	2.54	2.61
10.1000	2.67	2.74	2.81	2.89	2.98
10.3500	3.07	3.16	3.26	3.36	3.47
10.6000	3.58	3.69	3.81	3.95	4.09

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

Time hrs					
10.8500	4.24	4.39	4.56	4.73	4.91
11.1000	5.08	5.27	5.48	5.73	6.00
11.3500	6.30	6.63	6.99	7.37	7.81
11.6000	8.47	9.35	9.85	11.04	13.71
11.8500	16.85	20.58	24.69	28.71	32.12
12.1000	40.13	56.44	57.85	50.56	43.75
12.3500	37.03	33.82	33.23	32.57	31.83
12.6000	31.05	30.24	29.37	28.49	27.57
12.8500	26.65	25.72	24.79	23.85	22.91
13.1000	21.98	21.01	20.06	19.12	18.20
13.3500	17.32	16.46	15.66	14.81	14.00
13.6000	13.25	12.48	11.75	11.09	10.47
13.8500	10.18	9.93	9.70	9.46	9.15
14.1000	8.32	7.62	7.03	6.53	6.11
14.3500	5.75	5.45	5.19	4.97	4.77
14.6000	4.59	4.44	4.31	4.20	4.10
14.8500	4.02	3.94	3.87	3.81	3.75
15.1000	3.69	3.64	3.59	3.54	3.50
15.3500	3.45	3.41	3.36	3.32	3.28
15.6000	3.24	3.20	3.16	3.12	3.08
15.8500	3.04	3.00	2.96	2.92	2.88
16.1000	2.84	2.80	2.77	2.74	2.70
16.3500	2.68	2.65	2.63	2.61	2.58
16.6000	2.57	2.55	2.53	2.51	2.50
16.8500	2.48	2.47	2.45	2.44	2.42
17.1000	2.41	2.39	2.38	2.36	2.35
17.3500	2.34	2.32	2.31	2.29	2.28
17.6000	2.26	2.25	2.24	2.22	2.21
17.8500	2.19	2.18	2.17	2.15	2.14
18.1000	2.12	2.11	2.10	2.08	2.07
18.3500	2.05	2.04	2.03	2.01	2.00
18.6000	1.98	1.97	1.96	1.94	1.93
18.8500	1.91	1.90	1.89	1.87	1.86
19.1000	1.84	1.83	1.82	1.80	1.79
19.3500	1.77	1.76	1.75	1.73	1.72
19.6000	1.70	1.69	1.68	1.66	1.65
19.8500	1.63	1.62	1.60	1.59	1.58
20.1000	1.56	1.55	1.54	1.53	1.52
20.3500	1.51	1.50	1.49	1.48	1.48
20.6000	1.47	1.47	1.46	1.46	1.46
20.8500	1.45	1.45	1.45	1.44	1.44
21.1000	1.44	1.43	1.43	1.43	1.43
21.3500	1.42	1.42	1.42	1.41	1.41
21.6000	1.41	1.41	1.40	1.40	1.40
21.8500	1.39	1.39	1.39	1.39	1.38

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

Time hrs					
22.1000	1.38	1.38	1.37	1.37	1.37
22.3500	1.37	1.36	1.36	1.36	1.36
22.6000	1.35	1.35	1.35	1.34	1.34
22.8500	1.34	1.34	1.33	1.33	1.33
23.1000	1.32	1.32	1.32	1.32	1.31
23.3500	1.31	1.31	1.30	1.30	1.30
23.6000	1.30	1.29	1.29	1.29	1.29
23.8500	1.28	1.28	1.28	1.27	1.27
24.1000	1.23	1.16	1.04	.90	.81
24.3500	.76	.70	.64	.59	.54
24.6000	.49	.45	.42	.38	.35
24.8500	.32	.29	.27	.24	.22
25.1000	.21	.19	.17	.16	.14
25.3500	.13	.12	.11	.10	.09
25.6000	.09	.08	.07	.07	.06
25.8500	.05	.05	.05	.04	.04
26.1000	.04	.03	.03	.03	.02
26.3500	.02	.02	.02	.02	.02
26.6000	.01	.01	.01	.01	.01
26.8500	.01	.01	.01	.01	.01
27.1000	.01	.01	.01	.00	.00
27.3500	.00	.00	.00	.00	.00

DIVERTED HYDROGRAPH...
HYG file = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\work_pad.hyg
HYG ID = ROUTE 10
HYG Tag = 100YR

Peak Discharge = 95.61 cfs
Time to Peak = 12.1500 hrs
HYG Volume = 415253 cu.ft

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

Time hrs					
2.6500	.00	.00	.00	.01	.01
2.9000	.01	.02	.02	.03	.03
3.1500	.04	.05	.05	.06	.07
3.4000	.08	.09	.10	.11	.12
3.6500	.13	.14	.15	.16	.17
3.9000	.18	.19	.20	.21	.22
4.1500	.23	.24	.25	.27	.28
4.4000	.29	.30	.31	.33	.34
4.6500	.35	.36	.38	.39	.40
4.9000	.41	.43	.44	.46	.47
5.1500	.48	.50	.51	.53	.54
5.4000	.56	.57	.59	.61	.62
5.6500	.64	.65	.67	.69	.70
5.9000	.72	.74	.75	.77	.79
6.1500	.81	.82	.84	.86	.90
6.4000	.94	.97	1.00	1.03	1.05
6.6500	1.07	1.10	1.12	1.14	1.16
6.9000	1.18	1.20	1.22	1.24	1.26
7.1500	1.28	1.30	1.32	1.34	1.36
7.4000	1.38	1.40	1.42	1.43	1.45
7.6500	1.47	1.49	1.51	1.53	1.55
7.9000	1.57	1.59	1.61	1.63	1.64
8.1500	1.67	1.69	1.72	1.75	1.78
8.4000	1.82	1.86	1.90	1.95	1.99
8.6500	2.04	2.09	2.14	2.20	2.25
8.9000	2.31	2.36	2.42	2.48	2.53
9.1500	2.59	2.64	2.69	2.74	2.78
9.4000	2.81	2.85	2.88	2.91	2.93
9.6500	2.96	2.99	3.03	3.08	3.13
9.9000	3.19	3.26	3.33	3.41	3.49
10.1500	3.57	3.67	3.77	3.87	3.98

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

Time hrs					
10.4000	4.10	4.22	4.35	4.48	4.62
10.6500	4.76	4.91	5.06	5.22	5.40
10.9000	5.58	5.78	5.99	6.20	6.43
11.1500	6.67	6.95	7.26	7.60	7.98
11.4000	8.39	8.83	9.28	9.42	9.66
11.6500	10.07	11.22	13.57	16.45	19.92
11.9000	23.96	28.33	32.57	58.43	92.71
12.1500	95.61	81.75	65.88	52.16	44.25
12.4000	37.42	33.88	33.33	32.71	32.02
12.6500	31.29	30.52	29.72	28.89	28.05
12.9000	27.20	26.33	25.47	24.58	23.72
13.1500	22.82	21.96	21.05	20.17	19.29
13.4000	18.44	17.62	16.81	16.05	15.30
13.6500	14.52	13.80	13.13	12.42	11.76
13.9000	11.16	10.61	10.26	10.04	9.82
14.1500	9.61	9.40	9.03	8.31	7.72
14.4000	7.22	6.79	6.43	6.13	5.87
14.6500	5.65	5.45	5.29	5.14	5.01
14.9000	4.90	4.79	4.69	4.60	4.52
15.1500	4.44	4.37	4.30	4.24	4.18
15.4000	4.13	4.07	4.02	3.96	3.91
15.6500	3.86	3.81	3.76	3.71	3.67
15.9000	3.62	3.57	3.52	3.47	3.43
16.1500	3.38	3.34	3.30	3.26	3.22
16.4000	3.19	3.17	3.14	3.11	3.09
16.6500	3.07	3.05	3.03	3.01	2.99
16.9000	2.97	2.95	2.93	2.92	2.90
17.1500	2.88	2.86	2.85	2.83	2.81
17.4000	2.80	2.78	2.76	2.74	2.73
17.6500	2.71	2.69	2.68	2.66	2.64
17.9000	2.63	2.61	2.59	2.57	2.56
18.1500	2.54	2.52	2.51	2.49	2.47
18.4000	2.46	2.44	2.42	2.41	2.39
18.6500	2.37	2.35	2.34	2.32	2.30
18.9000	2.29	2.27	2.25	2.24	2.22
19.1500	2.20	2.19	2.17	2.15	2.13
19.4000	2.12	2.10	2.08	2.07	2.05
19.6500	2.03	2.02	2.00	1.98	1.97
19.9000	1.95	1.93	1.91	1.90	1.88
20.1500	1.86	1.85	1.84	1.82	1.81
20.4000	1.80	1.79	1.79	1.78	1.77
20.6500	1.77	1.76	1.76	1.75	1.75
20.9000	1.74	1.74	1.74	1.73	1.73
21.1500	1.73	1.72	1.72	1.71	1.71
21.4000	1.71	1.70	1.70	1.70	1.69

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

Time hrs					
21.6500	1.69	1.69	1.68	1.68	1.68
21.9000	1.67	1.67	1.67	1.66	1.66
22.1500	1.66	1.65	1.65	1.65	1.64
22.4000	1.64	1.64	1.63	1.63	1.63
22.6500	1.62	1.62	1.62	1.61	1.61
22.9000	1.61	1.60	1.60	1.60	1.59
23.1500	1.59	1.59	1.58	1.58	1.58
23.4000	1.57	1.57	1.57	1.56	1.56
23.6500	1.56	1.55	1.55	1.55	1.54
23.9000	1.54	1.54	1.53	1.52	1.48
24.1500	1.39	1.25	1.09	.92	.82
24.4000	.75	.69	.64	.58	.54
24.6500	.49	.45	.41	.38	.35
24.9000	.32	.29	.27	.24	.22
25.1500	.20	.19	.17	.16	.14
25.4000	.13	.12	.11	.10	.09
25.6500	.08	.08	.07	.06	.06
25.9000	.05	.05	.05	.04	.04
26.1500	.04	.03	.03	.03	.02
26.4000	.02	.02	.02	.02	.02
26.6500	.01	.01	.01	.01	.01
26.9000	.01	.01	.01	.01	.01
27.1500	.01	.01	.01	.00	.00
27.4000	.00	.00	.00	.00	

Low Flow Blocked Pond Pack Output Report

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MASTER DESIGN STORM SUMMARY

Network Storm Collection: O'Fallon

Return Event	Total Depth in	Rainfall Type	RNF ID
100YR	6.2000	Synthetic Curve	TypeII 24hr

MASTER NETWORK SUMMARY
SCS Unit Hydrograph Method

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

Node ID	Type	Return Event	HYG Vol cu.ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage cu.ft
*OUT-POST	JCT	100	345959		12.0500	128.76		
*OUT-PRE	JCT	100	291713		12.0500	96.21		
POND 10 IN	POND	100	415259		12.0000	134.43		
POND 10 OUT	POND	100	345959		12.0500	128.76	527.68	98236
POST	AREA	100	340246		12.0000	110.09		
POST-OFFSITE	AREA	100	75013		12.0500	24.48		
PRE	AREA	100	216708		12.0500	72.30		
PRE-OFFSITE	AREA	100	75004		12.0500	23.91		

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 6.2000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - POST 100YR
Tc = .2200 hrs
Drainage Area = 17.800 acres Runoff CN= 92

==========
Computational Time Increment = .02933 hrs
Computed Peak Time = 12.0267 hrs
Computed Peak Flow = 110.26 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0000 hrs
Peak Flow, Interpolated Output = 110.09 cfs
==========

DRAINAGE AREA

ID:POST
CN = 92
Area = 17.800 acres
S = .8696 in
0.2S = .1739 in

Cumulative Runoff

5.2662 in
340269 cu.ft

HYG Volume... 340246 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .22000 hrs (ID: POST)
Computational Incr, Tm = .02933 hrs = 0.20000 Tp

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

Unit peak, qp = 91.67 cfs
Unit peak time Tp = .14667 hrs
Unit receding limb, Tr = .58667 hrs
Total unit time, Tb = .73333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 6.2000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - POST-OFFSITE 100YR
Tc = .2400 hrs
Drainage Area = 4.600 acres Runoff CN= 85

==========
Computational Time Increment = .03200 hrs
Computed Peak Time = 12.0320 hrs
Computed Peak Flow = 24.89 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 24.48 cfs
WARNING: The difference between calculated peak flow
and interpolated peak flow is greater than 1.50%
==========

DRAINAGE AREA

ID:POST-OFFSITE
CN = 85
Area = 4.600 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

4.4915 in
74999 cu.ft

HYG Volume... 75013 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .24000 hrs (ID: POST-OFFSITE)
Computational Incr, Tm = .03200 hrs = 0.20000 Tp

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

Unit peak, qp = 21.72 cfs
Unit peak time Tp = .16000 hrs
Unit receding limb, Tr = .64000 hrs
Total unit time, Tb = .80000 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 6.2000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - PRE 100YR
Tc = .2500 hrs
Drainage Area = 17.800 acres Runoff CN= 74

==========
Computational Time Increment = .03333 hrs
Computed Peak Time = 12.0333 hrs
Computed Peak Flow = 72.70 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 72.30 cfs
==========

DRAINAGE AREA

ID:PRE
CN = 74
Area = 17.800 acres
S = 3.5135 in
0.2S = .7027 in

Cumulative Runoff

3.3538 in
216701 cu.ft

HYG Volume... 216708 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .25000 hrs (ID: PRE)
Computational Incr, Tm = .03333 hrs = 0.20000 Tp

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

Unit peak, qp = 80.67 cfs
Unit peak time Tp = .16667 hrs
Unit receding limb, Tr = .66667 hrs
Total unit time, Tb = .83333 hrs

SCS UNIT HYDROGRAPH METHOD

STORM EVENT: 100 year storm
Duration = 24.0000 hrs Rain Depth = 6.2000 in
Rain Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Rain File -ID = - TypeII 24hr
Unit Hyd Type = Default Curvilinear
HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
HYG File - ID = work_pad.hyg - PRE-OFFSITE 100YR
Tc = .2600 hrs
Drainage Area = 4.600 acres Runoff CN= 85

==========
Computational Time Increment = .03467 hrs
Computed Peak Time = 12.0293 hrs
Computed Peak Flow = 24.04 cfs

Time Increment for HYG File = .0500 hrs
Peak Time, Interpolated Output = 12.0500 hrs
Peak Flow, Interpolated Output = 23.91 cfs
==========

DRAINAGE AREA

ID:PRE-OFFSITE
CN = 85
Area = 4.600 acres
S = 1.7647 in
0.2S = .3529 in

Cumulative Runoff

4.4915 in
74999 cu.ft

HYG Volume... 75004 cu.ft (area under HYG curve)

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

Time Concentration, Tc = .26000 hrs (ID: PRE-OFFSITE)
Computational Incr, Tm = .03467 hrs = 0.20000 Tp

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

Unit peak, qp = 20.05 cfs
Unit peak time Tp = .17333 hrs
Unit receding limb, Tr = .69333 hrs
Total unit time, Tb = .86667 hrs

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
2.5500	519.10	519.10	519.10	519.10	519.10
2.8000	519.10	519.10	519.10	519.10	519.11
3.0500	519.11	519.11	519.11	519.11	519.12
3.3000	519.12	519.12	519.13	519.13	519.13
3.5500	519.14	519.14	519.15	519.15	519.16
3.8000	519.16	519.17	519.17	519.18	519.19
4.0500	519.19	519.20	519.21	519.21	519.22
4.3000	519.23	519.24	519.25	519.25	519.26
4.5500	519.27	519.28	519.29	519.30	519.31
4.8000	519.32	519.33	519.34	519.35	519.37
5.0500	519.38	519.39	519.40	519.42	519.43
5.3000	519.44	519.46	519.47	519.49	519.50
5.5500	519.52	519.53	519.55	519.57	519.58
5.8000	519.60	519.62	519.63	519.65	519.67
6.0500	519.69	519.71	519.72	519.74	519.76
6.3000	519.78	519.80	519.82	519.85	519.87
6.5500	519.89	519.91	519.93	519.96	519.98
6.8000	520.00	520.03	520.05	520.08	520.10
7.0500	520.12	520.15	520.17	520.20	520.23
7.3000	520.25	520.28	520.31	520.33	520.36
7.5500	520.39	520.42	520.45	520.47	520.50
7.8000	520.53	520.56	520.59	520.62	520.65
8.0500	520.68	520.72	520.75	520.78	520.81
8.3000	520.85	520.88	520.92	520.95	520.99
8.5500	521.03	521.07	521.11	521.15	521.19
8.8000	521.23	521.27	521.32	521.36	521.41
9.0500	521.46	521.51	521.56	521.61	521.66
9.3000	521.71	521.76	521.81	521.86	521.91
9.5500	521.96	522.01	522.06	522.12	522.17
9.8000	522.22	522.28	522.34	522.40	522.46
10.0500	522.52	522.58	522.64	522.71	522.78
10.3000	522.85	522.92	522.99	523.07	523.15
10.5500	523.23	523.31	523.39	523.48	523.57
10.8000	523.67	523.76	523.86	523.96	524.07
11.0500	524.18	524.29	524.41	524.53	524.66
11.3000	524.80	524.94	525.09	525.25	525.42
11.5500	525.59	525.74	525.88	526.04	526.23
11.8000	526.45	526.69	526.98	527.30	527.56
12.0500	527.68	527.62	527.40	527.12	526.84
12.3000	526.63	526.46	526.34	526.25	526.18
12.5500	526.12	526.08	526.03	525.99	525.96
12.8000	525.93	525.91	525.89	525.88	525.86
13.0500	525.85	525.84	525.83	525.82	525.81

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
13.3000	525.80	525.80	525.79	525.78	525.78
13.5500	525.77	525.77	525.76	525.76	525.75
13.8000	525.75	525.74	525.74	525.73	525.73
14.0500	525.73	525.72	525.72	525.72	525.71
14.3000	525.71	525.71	525.71	525.70	525.70
14.5500	525.70	525.70	525.70	525.70	525.70
14.8000	525.69	525.69	525.69	525.69	525.69
15.0500	525.69	525.69	525.68	525.68	525.68
15.3000	525.68	525.68	525.68	525.68	525.68
15.5500	525.67	525.67	525.67	525.67	525.67
15.8000	525.67	525.67	525.66	525.66	525.66
16.0500	525.66	525.66	525.66	525.66	525.66
16.3000	525.65	525.65	525.65	525.65	525.65
16.5500	525.65	525.65	525.65	525.65	525.65
16.8000	525.65	525.65	525.65	525.65	525.65
17.0500	525.65	525.65	525.65	525.64	525.64
17.3000	525.64	525.64	525.64	525.64	525.64
17.5500	525.64	525.64	525.64	525.64	525.64
17.8000	525.64	525.64	525.64	525.64	525.64
18.0500	525.64	525.64	525.64	525.64	525.63
18.3000	525.63	525.63	525.63	525.63	525.63
18.5500	525.63	525.63	525.63	525.63	525.63
18.8000	525.63	525.63	525.63	525.63	525.63
19.0500	525.63	525.63	525.63	525.63	525.62
19.3000	525.62	525.62	525.62	525.62	525.62
19.5500	525.62	525.62	525.62	525.62	525.62
19.8000	525.62	525.62	525.62	525.62	525.62
20.0500	525.62	525.62	525.62	525.62	525.62
20.3000	525.62	525.61	525.61	525.61	525.61
20.5500	525.61	525.61	525.61	525.61	525.61
20.8000	525.61	525.61	525.61	525.61	525.61
21.0500	525.61	525.61	525.61	525.61	525.61
21.3000	525.61	525.61	525.61	525.61	525.61
21.5500	525.61	525.61	525.61	525.61	525.61
21.8000	525.61	525.61	525.61	525.61	525.61
22.0500	525.61	525.61	525.61	525.61	525.61
22.3000	525.61	525.61	525.61	525.61	525.61
22.5500	525.61	525.61	525.61	525.61	525.61
22.8000	525.61	525.61	525.61	525.61	525.61
23.0500	525.61	525.61	525.61	525.61	525.61
23.3000	525.61	525.61	525.61	525.61	525.61
23.5500	525.61	525.61	525.61	525.61	525.61
23.8000	525.61	525.61	525.61	525.61	525.61
24.0500	525.61	525.60	525.60	525.59	525.58

TIME vs. ELEVATION (ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
24.3000	525.57	525.56	525.55	525.54	525.54
24.5500	525.53	525.53	525.52	525.52	525.52
24.8000	525.51	525.51	525.51	525.51	525.51
25.0500	525.51	525.50	525.50	525.50	525.50
25.3000	525.50	525.50	525.50	525.50	525.50
25.5500	525.50	525.50	525.50	525.50	525.50
25.8000	525.50	525.50	525.50	525.50	

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
2.5500	0	0	1	3	6
2.8000	11	18	28	39	52
3.0500	68	85	105	127	152
3.3000	178	206	237	270	304
3.5500	341	381	422	465	511
3.8000	558	608	660	714	771
4.0500	829	889	952	1017	1084
4.3000	1154	1226	1301	1377	1457
4.5500	1538	1622	1709	1799	1891
4.8000	1985	2083	2183	2287	2393
5.0500	2503	2615	2731	2850	2973
5.3000	3098	3227	3359	3494	3633
5.5500	3775	3920	4069	4221	4377
5.8000	4535	4692	4851	5014	5180
6.0500	5350	5524	5701	5881	6064
6.3000	6252	6442	6637	6835	7037
6.5500	7243	7452	7665	7881	8102
6.8000	8326	8554	8786	9021	9261
7.0500	9496	9735	9978	10224	10475
7.3000	10728	10986	11248	11513	11782
7.5500	12055	12332	12613	12897	13186
7.8000	13478	13775	14075	14373	14673
8.0500	14977	15286	15600	15920	16249
8.3000	16586	16933	17289	17656	18033
8.5500	18421	18820	19228	19638	20059
8.8000	20492	20936	21391	21859	22338
9.0500	22830	23333	23847	24368	24884
9.3000	25406	25934	26466	27003	27545
9.5500	28091	28643	29204	29770	30339
9.8000	30923	31524	32143	32780	33436
10.0500	34112	34809	35514	36238	36987
10.3000	37763	38565	39397	40258	41136
10.5500	42035	42967	43933	44939	45987
10.8000	47060	48174	49335	50546	51810
11.0500	53104	54447	55860	57352	58921
11.3000	60571	62332	64210	66169	68251
11.5500	70404	72360	74169	76259	78724
11.8000	81544	84817	88714	92977	96573
12.0500	98236	97382	94379	90485	86791
12.3000	83912	81755	80111	78892	77979
12.5500	77276	76682	76130	75626	75198
12.8000	74848	74562	74325	74123	73946
13.0500	73786	73639	73504	73381	73272

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
13.3000	73172	73081	72997	72918	72842
13.5500	72769	72697	72629	72563	72501
13.8000	72442	72385	72331	72278	72227
14.0500	72176	72127	72081	72039	72002
14.3000	71970	71942	71917	71895	71874
14.5500	71855	71836	71818	71800	71782
14.8000	71765	71747	71730	71712	71695
15.0500	71678	71660	71643	71626	71609
15.3000	71591	71573	71556	71539	71521
15.5500	71504	71487	71469	71452	71434
15.8000	71417	71400	71382	71365	71348
16.0500	71330	71313	71297	71283	71269
16.3000	71258	71248	71240	71232	71225
16.5500	71218	71211	71205	71198	71192
16.8000	71185	71179	71173	71167	71160
17.0500	71154	71148	71142	71136	71129
17.3000	71123	71117	71112	71105	71099
17.5500	71093	71087	71080	71074	71068
17.8000	71062	71056	71049	71043	71037
18.0500	71031	71024	71018	71012	71006
18.3000	71000	70993	70987	70981	70975
18.5500	70969	70962	70956	70950	70943
18.8000	70938	70931	70924	70918	70912
19.0500	70906	70899	70893	70887	70881
19.3000	70875	70868	70862	70856	70850
19.5500	70844	70837	70831	70825	70819
19.8000	70812	70806	70800	70794	70788
20.0500	70781	70775	70770	70764	70760
20.3000	70757	70754	70752	70750	70748
20.5500	70747	70745	70743	70742	70741
20.8000	70740	70739	70737	70736	70735
21.0500	70733	70733	70731	70729	70729
21.3000	70727	70726	70725	70723	70722
21.5500	70721	70720	70719	70717	70716
21.8000	70715	70714	70712	70711	70710
22.0500	70708	70708	70706	70705	70704
22.3000	70702	70702	70700	70699	70698
22.5500	70696	70695	70694	70692	70691
22.8000	70690	70689	70688	70687	70685
23.0500	70684	70683	70681	70681	70679
23.3000	70677	70677	70675	70674	70673
23.5500	70671	70670	70669	70668	70667
23.8000	70665	70664	70663	70662	70660
24.0500	70653	70627	70567	70466	70338

TIME vs. VOLUME (cu.ft)

Time hrs	Output Time increment = .0500 hrs Time on left represents time for first value in each row.				
24.3000	70204	70076	69960	69858	69770
24.5500	69694	69630	69576	69530	69491
24.8000	69460	69433	69411	69392	69376
25.0500	69363	69352	69344	69336	69330
25.3000	69325	69320	69316	69313	69311
25.5500	69308	69307	69305	69304	69303
25.8000	69302	69301	69301	69300	

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Elevation (ft)	Planimeter (sq.in)	Area (sq.ft)	A1+A2+sqr(A1*A2) (sq.ft)	Volume (cu.ft)	Volume Sum (cu.ft)
519.10	-----	8892	0	0	0
520.00	-----	9563	27676	8303	8303
522.00	-----	10666	30328	20219	28522
524.00	-----	11792	33673	22449	50971
526.00	-----	12941	37086	24724	75695
528.00	-----	14112	40567	27045	102739

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REQUESTED POND WS ELEVATIONS:

Min. Elev.= 519.10 ft
Increment = .50 ft
Max. Elev.= 528.00 ft

****
OUTLET CONNECTIVITY
****

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

Structure	No.		Outfall	E1, ft	E2, ft
Weir-Rectangular	hi	--->	CV	525.500	528.000
Culvert-Circular	cv	--->	TW	517.090	528.000

TW SETUP, DS Channel

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OUTLET STRUCTURE INPUT DATA

Structure ID = hi
Structure Type = Weir-Rectangular

# of Openings = 1
Crest Elev. = 525.50 ft
Weir Length = 12.00 ft
Weir Coeff. = 3.330000

Weir TW effects (Use adjustment equation)

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OUTLET STRUCTURE INPUT DATA

```
Structure ID      = cv
Structure Type    = Culvert-Circular
-----------------------------------
No. Barrels       =         1
Barrel Diameter   =    3.5000 ft
Upstream Invert   =    517.09 ft
Dnstream Invert   =    516.36 ft
Horiz. Length     =     57.30 ft
Barrel Length     =     57.30 ft
Barrel Slope      =    .01274 ft/ft

OUTLET CONTROL DATA...
Mannings n        =     .0130
Ke                =     .5000  (forward entrance loss)
Kb                =   .005885  (per ft of full flow)
Kr                =     .5000  (reverse entrance loss)
HW Convergence    =      .001  +/- ft

INLET CONTROL DATA...
Equation form     =         1
Inlet Control K   =     .0078
Inlet Control M   =    2.0000
Inlet Control c   =    .02920
Inlet Control Y   =     .7400
T1 ratio (HW/D)   =     1.129
T2 ratio (HW/D)   =     1.201
Slope Factor      =     -.500
```

Use unsubmerged inlet control Form 1 equ. below T1 elev.
Use   submerged inlet control Form 1 equ. above T2 elev.

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...
At T1 Elev =   521.04 ft ---> Flow =   63.00 cfs
At T2 Elev =   521.29 ft ---> Flow =   72.00 cfs

```
Structure ID      = TW
Structure Type    = TW SETUP, DS Channel
-----------------------------------
FREE OUTFALL CONDITIONS SPECIFIED

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

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = hi (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = cv (Culvert-Circular)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
519.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
519.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
520.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
520.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
521.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
521.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
522.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
522.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
523.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
523.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
524.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
524.60	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
525.10	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
525.50	.00	...	...	...	...	...	Free Outfall	
		WS below an invert; no flow.						
525.60	1.26	525.60	Free	517.59	.000	.000	Free Outfall	
		H=.10; Htw=.00; Qfree=1.26;						
526.10	18.57	526.10	Free	519.14	.000	.000	Free Outfall	
		H=.60; Htw=.00; Qfree=18.57;						
526.60	46.10	526.60	Free	520.54	.000	.000	Free Outfall	
		H=1.10; Htw=.00; Qfree=46.10;						
527.10	80.87	527.10	Free	522.12	.000	.000	Free Outfall	
		H=1.60; Htw=.00; Qfree=80.87;						

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = hi (Weir-Rectangular)

Upstream ID = (Pond Water Surface)
DNstream ID = cv (Culvert-Circular)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
527.60	121.60	527.60	Free	524.32	.000	.000	Free Outfall	
		H=2.10; Htw=.00; Qfree=121.60;						
528.00	157.96	528.00	Centroid	527.53	2.028	.000	Free Outfall	
		H=2.50; Htw=.00; Qfree=157.96;						

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = cv (Culvert-Circular)

Mannings open channel maximum capacity: 122.15 cfs
UPstream ID = hi (Weir-Rectangular)
DNstream ID = TW (Pond Outfall)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
519.10	.00	517.09	Free	Free	.000	.000	Free Outfall	
519.60	.00	517.09	Free	Free	.000	.000	Free Outfall	
520.10	.00	517.09	Free	Free	.000	.000	Free Outfall	
520.60	.00	517.09	Free	Free	.000	.000	Free Outfall	
521.10	.00	517.09	Free	Free	.000	.000	Free Outfall	
521.60	.00	517.09	Free	Free	.000	.000	Free Outfall	
522.10	.00	517.09	Free	Free	.000	.000	Free Outfall	
522.60	.00	517.09	Free	Free	.000	.000	Free Outfall	
523.10	.00	517.09	Free	Free	.000	.000	Free Outfall	
523.60	.00	517.09	Free	Free	.000	.000	Free Outfall	
524.10	.00	517.09	Free	Free	.000	.000	Free Outfall	
524.60	.00	517.09	Free	Free	.000	.000	Free Outfall	
525.10	.00	517.09	Free	Free	.000	.000	Free Outfall	
525.50	.00	517.09	Free	Free	.000	.000	Free Outfall	
525.60	1.26	517.59	Free	Free	.000	.000	Free Outfall	
		CRIT.DEPTH	CONTROL	Vh= .114ft	Dcr= .334ft		CRIT.DEPTH	
526.10	18.57	519.14	Free	Free	.000	.000	Free Outfall	
		CRIT.DEPTH	CONTROL	Vh= .488ft	Dcr= 1.318ft		CRIT.DEPTH	
526.60	46.10	520.54	Free	Free	.000	.000	Free Outfall	
		CRIT.DEPTH	CONTROL	Vh= .890ft	Dcr= 2.119ft		CRIT.DEPTH	
527.10	80.87	522.12	Free	Free	.000	.000	Free Outfall	
		CRIT.DEPTH	CONTROL	Vh= 1.484ft	Dcr= 2.808ft		CRIT.DEPTH	

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RATING TABLE FOR ONE OUTLET TYPE

Structure ID = cv (Culvert-Circular)

Mannings open channel maximum capacity: 122.15 cfs
UPstream ID = hi (Weir-Rectangular)
DNstream ID = TW (Pond Outfall)

Pond WS. Elev. ft	Device Q cfs	(into) HW HGL ft	Converge DS HGL ft	Next DS HGL ft	DS HGL Error +/-ft	Q SUM Error +/-cfs	DS Chan. TW ft	TW Error +/-ft
527.60	121.60	524.32	Free	Free	.000	.000	Free Outfall	
		INLET CONTROL...		Submerged:	HW =7.23			
528.00	157.96	527.53	Free	Free	.000	.000	Free Outfall	
		INLET CONTROL...		Submerged:	HW =10.44			

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

WS Elev, Total Q		Notes		
		Converge		
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
519.10	.00	Free Outfall		(no Q: hi,cv)
519.60	.00	Free Outfall		(no Q: hi,cv)
520.10	.00	Free Outfall		(no Q: hi,cv)
520.60	.00	Free Outfall		(no Q: hi,cv)
521.10	.00	Free Outfall		(no Q: hi,cv)
521.60	.00	Free Outfall		(no Q: hi,cv)
522.10	.00	Free Outfall		(no Q: hi,cv)
522.60	.00	Free Outfall		(no Q: hi,cv)
523.10	.00	Free Outfall		(no Q: hi,cv)
523.60	.00	Free Outfall		(no Q: hi,cv)
524.10	.00	Free Outfall		(no Q: hi,cv)
524.60	.00	Free Outfall		(no Q: hi,cv)
525.10	.00	Free Outfall		(no Q: hi,cv)
525.50	.00	Free Outfall		(no Q: hi,cv)
525.60	1.26	Free Outfall		hi,cv
526.10	18.57	Free Outfall		hi,cv
526.60	46.10	Free Outfall		hi,cv
527.10	80.87	Free Outfall		hi,cv
527.60	121.60	Free Outfall		hi,cv
528.00	157.96	Free Outfall		hi,cv

Name.... POND 10
File.... M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\KINGSMILL-LFB.PPW

LEVEL POOL ROUTING DATA

HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Inflow HYG file = work_pad.hyg - POND 10 IN 100YR
Outflow HYG file = work_pad.hyg - POND 10 OUT 100YR

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet

No Infiltration

INITIAL CONDITIONS

Starting WS Elev = 519.10 ft
Starting Volume = 0 cu.ft
Starting Outflow = .00 cfs
Starting Infiltr. = .00 cfs
Starting Total Qout= .00 cfs
Time Increment = .0500 hrs

Elevation ft	Outflow cfs	Storage cu.ft	Area sq.ft	Infilt. cfs	Q Total cfs	2S/t + O cfs
519.10	.00	0	8892	.00	.00	.00
519.60	.00	4538	9262	.00	.00	50.42
520.10	.00	9262	9617	.00	.00	102.91
520.60	.00	14138	9888	.00	.00	157.09
521.10	.00	19150	10162	.00	.00	212.78
521.60	.00	24301	10441	.00	.00	270.01
522.10	.00	29591	10721	.00	.00	328.79
522.60	.00	35021	10998	.00	.00	389.12
523.10	.00	40590	11278	.00	.00	451.00
523.60	.00	46300	11562	.00	.00	514.44
524.10	.00	52152	11848	.00	.00	579.47
524.60	.00	58147	12131	.00	.00	646.08
525.10	.00	64284	12417	.00	.00	714.27
525.50	.00	69298	12649	.00	.00	769.97
525.60	1.26	70565	12707	.00	1.26	785.32
526.10	18.57	76991	12998	.00	18.57	874.03
526.60	46.10	83563	13287	.00	46.10	974.57
527.10	80.87	90279	13579	.00	80.87	1083.97
527.60	121.60	97142	13874	.00	121.60	1200.96
528.00	157.96	102739	14112	.00	157.96	1299.50

LEVEL POOL ROUTING DATA

HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Inflow HYG file = work_pad.hyg - POND 10 IN 100YR
Outflow HYG file = work_pad.hyg - POND 10 OUT 100YR

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	519.10 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0500 hrs

Elevation ft	Outflow cfs	Storage cu.ft	Area sq.ft	Infilt. cfs	Q Total cfs	2S/t + O cfs

SUMMARY FOR HYDROGRAPH ADDITION
at Node: POND 10 IN

HYG Directory: M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\

Upstream Link ID	Upstream Node ID	HYG file	HYG ID	HYG tag
ADDLINK 10	POST	work_pad.hyg	POST	100YR
ADDLINK 20	POST-OFFSITE	work_pad.hyg	POST-OFFSITE	100YR

INFLOWS TO: POND 10 IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	POST	100YR	340246	12.0000	110.09
work_pad.hyg	POST-OFFSITE	100YR	75013	12.0500	24.48

TOTAL FLOW INTO: POND 10 IN

HYG file	HYG ID	HYG tag	Volume cu.ft	Peak Time hrs	Peak Flow cfs
work_pad.hyg	POND 10 IN	100YR	415259	12.0000	134.43

TOTAL NODE INFLOW...
HYG file = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\work_pad.hyg
HYG ID = POND 10 IN
HYG Tag = 100YR

Peak Discharge =	134.43 cfs
Time to Peak =	12.0000 hrs
HYG Volume =	415259 cu.ft

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

Time hrs					
2.5500	.00	.00	.01	.01	.02
2.8000	.03	.05	.06	.07	.08
3.0500	.09	.11	.12	.13	.14
3.3000	.15	.17	.18	.19	.20
3.5500	.22	.23	.24	.25	.26
3.8000	.28	.29	.30	.31	.32
4.0500	.33	.35	.36	.37	.38
4.3000	.40	.41	.42	.44	.45
4.5500	.46	.48	.49	.51	.52
4.8000	.54	.55	.57	.58	.60
5.0500	.62	.63	.65	.67	.68
5.3000	.70	.72	.74	.75	.77
5.5500	.79	.80	.82	.84	.86
5.8000	.88	.89	.91	.93	.95
6.0500	.97	.98	1.00	1.02	1.04
6.3000	1.06	1.07	1.09	1.11	1.13
6.5500	1.15	1.17	1.19	1.20	1.22
6.8000	1.24	1.26	1.28	1.30	1.32
7.0500	1.33	1.35	1.37	1.39	1.41
7.3000	1.43	1.45	1.47	1.49	1.51
7.5500	1.52	1.54	1.56	1.58	1.60
7.8000	1.62	1.64	1.66	1.68	1.70
8.0500	1.72	1.74	1.77	1.81	1.85
8.3000	1.90	1.95	2.00	2.05	2.11
8.5500	2.16	2.22	2.28	2.33	2.39
8.8000	2.45	2.51	2.57	2.63	2.69
9.0500	2.75	2.80	2.85	2.89	2.92
9.3000	2.94	2.96	2.98	3.00	3.01
9.5500	3.03	3.06	3.10	3.16	3.23
9.8000	3.31	3.40	3.49	3.58	3.68
10.0500	3.78	3.88	3.99	4.12	4.25

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

Time hrs					
10.3000	4.38	4.52	4.67	4.81	4.96
10.5500	5.11	5.28	5.46	5.66	5.88
10.8000	6.11	6.34	6.59	6.83	7.09
11.0500	7.35	7.66	8.03	8.46	8.96
11.3000	9.49	10.05	10.64	11.24	11.86
11.5500	13.09	16.05	21.25	29.49	40.50
11.8000	54.45	72.22	96.59	120.64	134.43
12.0500	131.09	111.29	84.01	59.96	44.19
12.3000	34.50	28.16	23.93	20.80	18.34
12.5500	16.30	14.63	13.31	12.33	11.64
12.8000	11.10	10.65	10.24	9.85	9.49
13.0500	9.14	8.81	8.51	8.25	8.02
13.3000	7.81	7.60	7.41	7.22	7.03
13.5500	6.84	6.66	6.49	6.33	6.18
13.8000	6.04	5.90	5.76	5.62	5.49
14.0500	5.36	5.24	5.14	5.05	4.98
14.3000	4.91	4.86	4.81	4.76	4.71
14.5500	4.66	4.61	4.57	4.52	4.47
14.8000	4.43	4.38	4.33	4.29	4.24
15.0500	4.19	4.14	4.10	4.05	4.00
15.3000	3.95	3.91	3.86	3.81	3.77
15.5500	3.72	3.67	3.62	3.58	3.53
15.8000	3.48	3.44	3.39	3.34	3.30
16.0500	3.25	3.20	3.17	3.14	3.11
16.3000	3.09	3.07	3.05	3.04	3.02
16.5500	3.00	2.98	2.97	2.95	2.93
16.8000	2.92	2.90	2.88	2.87	2.85
17.0500	2.83	2.82	2.80	2.78	2.76
17.3000	2.75	2.73	2.72	2.70	2.68
17.5500	2.66	2.65	2.63	2.61	2.60
17.8000	2.58	2.56	2.55	2.53	2.51
18.0500	2.49	2.48	2.46	2.44	2.43
18.3000	2.41	2.39	2.38	2.36	2.34
18.5500	2.33	2.31	2.29	2.27	2.26
18.8000	2.24	2.22	2.21	2.19	2.17
19.0500	2.16	2.14	2.12	2.11	2.09
19.3000	2.07	2.06	2.04	2.02	2.00
19.5500	1.99	1.97	1.95	1.94	1.92
19.8000	1.90	1.88	1.87	1.85	1.83
20.0500	1.82	1.80	1.79	1.78	1.77
20.3000	1.77	1.76	1.76	1.76	1.75
20.5500	1.75	1.75	1.74	1.74	1.74
20.8000	1.73	1.73	1.72	1.72	1.72
21.0500	1.71	1.71	1.71	1.71	1.70
21.3000	1.70	1.70	1.69	1.69	1.68

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

Time hrs					
21.5500	1.68	1.68	1.67	1.67	1.67
21.8000	1.66	1.66	1.66	1.65	1.65
22.0500	1.65	1.64	1.64	1.64	1.63
22.3000	1.63	1.63	1.62	1.62	1.62
22.5500	1.61	1.61	1.61	1.60	1.60
22.8000	1.60	1.59	1.59	1.59	1.58
23.0500	1.58	1.58	1.57	1.57	1.57
23.3000	1.56	1.56	1.56	1.55	1.55
23.5500	1.55	1.54	1.54	1.54	1.53
23.8000	1.53	1.53	1.52	1.52	1.51
24.0500	1.44	1.19	.83	.50	.29
24.3000	.17	.09	.05	.03	.02
24.5500	.01	.00	.00	.00	

LEVEL POOL ROUTING SUMMARY

HYG Dir = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\
Inflow HYG file = work_pad.hyg - POND 10 IN 100YR
Outflow HYG file = work_pad.hyg - POND 10 OUT 100YR

Pond Node Data = POND 10
Pond Volume Data = POND 10
Pond Outlet Data = Outlet

No Infiltration

INITIAL CONDITIONS

Starting WS Elev	=	519.10 ft
Starting Volume	=	0 cu.ft
Starting Outflow	=	.00 cfs
Starting Infiltr.	=	.00 cfs
Starting Total Qout	=	.00 cfs
Time Increment	=	.0500 hrs

INFLOW/OUTFLOW HYDROGRAPH SUMMARY

Peak Inflow	=	134.43 cfs	at	12.0000 hrs
Peak Outflow	=	128.76 cfs	at	12.0500 hrs
Peak Elevation	=	527.68 ft		
Peak Storage	=	98236 cu.ft		

MASS BALANCE (cu.ft)

+ Initial Vol	=	0
+ HYG Vol IN	=	415259
- Infiltration	=	0
- HYG Vol OUT	=	345959
- Retained Vol	=	69300
Unrouted Vol	= -	cu.ft (.000% of Inflow Volume)

DIVERTED HYDROGRAPH...
HYG file = M:\Land Projects\96119 Kings Mill, Walmar Investments\DETENTION\work_pad.hyg
HYG ID = ROUTE 10
HYG Tag = 100YR

Peak Discharge = 128.76 cfs
Time to Peak = 12.0500 hrs
HYG Volume = 345959 cu.ft

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

Time hrs					
11.5000	.00	1.10	6.14	11.02	16.62
11.7500	25.89	37.71	52.65	72.84	96.98
12.0000	118.26	128.76	123.17	105.31	82.10
12.2500	62.91	47.93	38.59	31.72	26.60
12.5000	22.75	19.77	17.75	16.27	14.93
12.7500	13.78	12.84	12.07	11.44	10.89
13.0000	10.42	9.99	9.59	9.23	8.90
13.2500	8.60	8.33	8.09	7.86	7.65
13.5000	7.44	7.24	7.05	6.86	6.69
13.7500	6.52	6.36	6.21	6.06	5.92
14.0000	5.78	5.64	5.51	5.38	5.27
14.2500	5.17	5.08	5.01	4.94	4.88
14.5000	4.82	4.77	4.72	4.67	4.62
14.7500	4.57	4.52	4.48	4.43	4.38
15.0000	4.34	4.29	4.24	4.19	4.15
15.2500	4.10	4.05	4.01	3.96	3.91
15.5000	3.86	3.82	3.77	3.72	3.68
15.7500	3.63	3.58	3.53	3.49	3.44
16.0000	3.39	3.35	3.30	3.26	3.22
16.2500	3.18	3.15	3.12	3.10	3.08
16.5000	3.06	3.04	3.02	3.00	2.99
16.7500	2.97	2.95	2.94	2.92	2.90
17.0000	2.88	2.87	2.85	2.83	2.82
17.2500	2.80	2.78	2.77	2.75	2.73
17.5000	2.72	2.70	2.68	2.67	2.65
17.7500	2.63	2.61	2.60	2.58	2.56
18.0000	2.55	2.53	2.51	2.50	2.48
18.2500	2.46	2.45	2.43	2.41	2.39
18.5000	2.38	2.36	2.34	2.33	2.31
18.7500	2.29	2.28	2.26	2.24	2.23
19.0000	2.21	2.19	2.17	2.16	2.14

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

Time hrs					
19.2500	2.12	2.11	2.09	2.07	2.06
19.5000	2.04	2.02	2.00	1.99	1.97
19.7500	1.95	1.94	1.92	1.90	1.89
20.0000	1.87	1.85	1.84	1.82	1.81
20.2500	1.80	1.79	1.78	1.77	1.77
20.5000	1.76	1.76	1.75	1.75	1.75
20.7500	1.74	1.74	1.74	1.73	1.73
21.0000	1.73	1.72	1.72	1.72	1.71
21.2500	1.71	1.71	1.70	1.70	1.70
21.5000	1.69	1.69	1.69	1.68	1.68
21.7500	1.67	1.67	1.67	1.66	1.66
22.0000	1.66	1.65	1.65	1.65	1.64
22.2500	1.64	1.64	1.63	1.63	1.63
22.5000	1.62	1.62	1.62	1.61	1.61
22.7500	1.61	1.60	1.60	1.60	1.59
23.0000	1.59	1.59	1.58	1.58	1.58
23.2500	1.57	1.57	1.57	1.56	1.56
23.5000	1.56	1.55	1.55	1.55	1.54
23.7500	1.54	1.54	1.53	1.53	1.53
24.0000	1.52	1.51	1.43	1.27	1.17
24.2500	1.04	.90	.78	.66	.56
24.5000	.47	.40	.33	.28	.23
24.7500	.19	.16	.14	.11	.09
25.0000	.08	.07	.06	.05	.04
25.2500	.03	.03	.02	.02	.02
25.5000	.01	.01	.01	.01	.01
25.7500	.01	.00	.00	.00	.00