

November 19, 2015

Mr. Gregory Fries
City of Madison
Engineering Division
City-County Bldg., Rm. 115
210 Martin Luther King, Jr. Blvd.
Madison, WI 53703-3342

RE: St. Mary's Care Center
Petition for Stormwater Variance

Dear Mr. Fries,

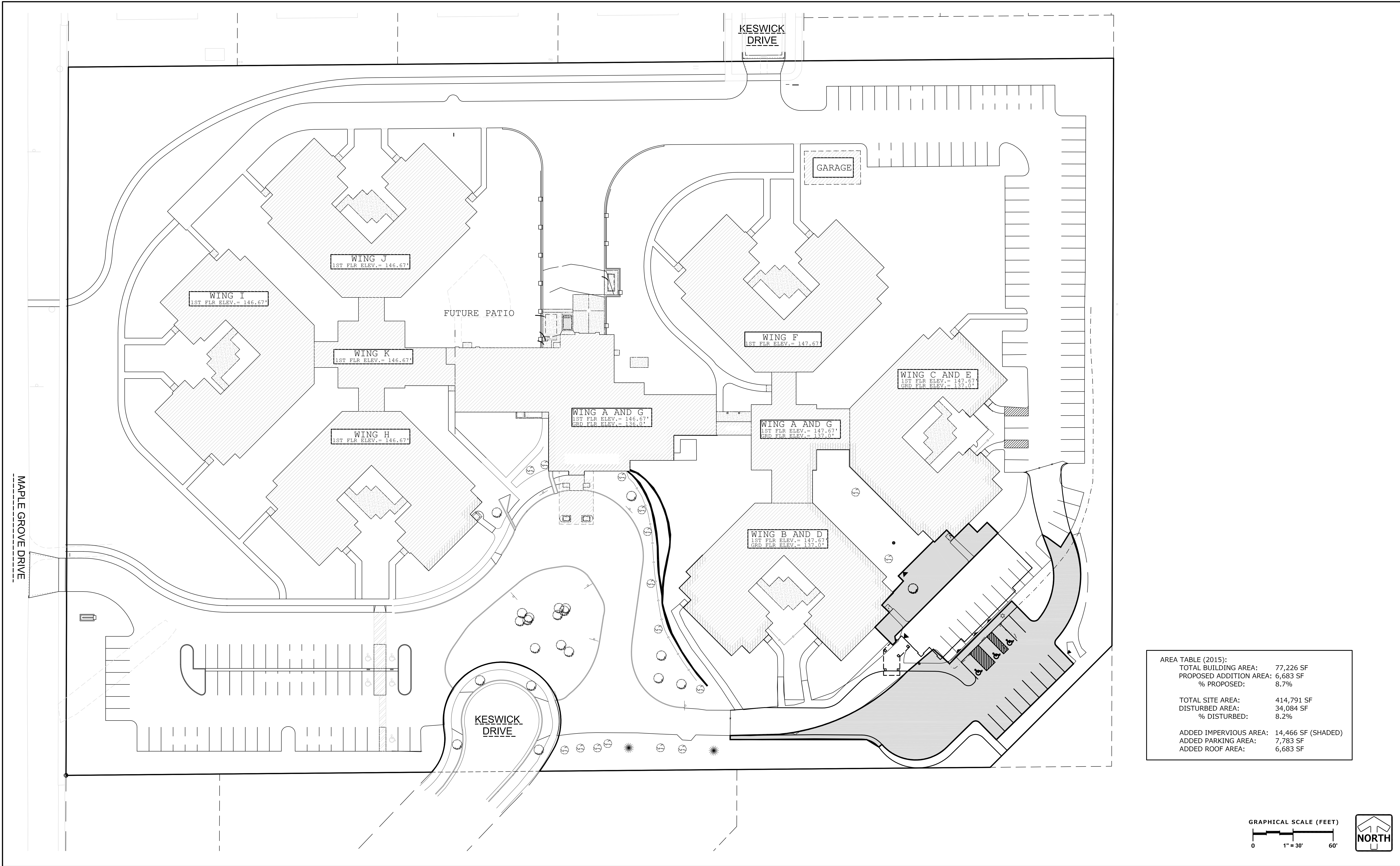
On behalf of St. Mary's care center please find the necessary material for a variance to allow the construction a new therapy wing and associated parking on the southeast corner of the property. It is our understanding that the variance, if granted, would allow for the release for additional stormwater from the site with the fee in lieu payment. The calculations for which are also included. It also our understanding that sediment control is already provided for in downstream facilities, but thermal mitigation and oil control must be provided for on site. It is proposed to modify and expand the existing stone trench on site to achieve this.

Please review the enclosed material and let me know if you need anything else to proceed with the variance. Thank you.

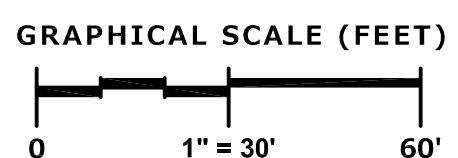
Sincerely,
Pinnacle Engineering Group



Aaron E. Koch, P.E.
Director of Engineering



AREA TABLE (2015):	
TOTAL BUILDING AREA:	77,226 SF
PROPOSED ADDITION AREA:	6,683 SF
% PROPOSED:	8.7%
TOTAL SITE AREA:	414,791 SF
DISTURBED AREA:	34,084 SF
% DISTURBED:	8.2%
ADDED IMPERVIOUS AREA:	14,466 SF (SHADED)
ADDED PARKING AREA:	7,783 SF
ADDED ROOF AREA:	6,683 SF



DATE USED 25-Jan-16

USER: [TNT](#)

VARIANCE FEE CALCULATION IN LIEU OF PROVIDING ONSITE DETENTION

ADDRESS: 3401 MAPLE GROVE DRIVE

LAND AREA REQUIRED

DESIGN STORM	100	YEAR
DEVELOPED CN		
DRAINAGE AREA	0.332	ACRES
PEAK INFLOW	1.8	CFS
PEAK OUTFLOW	1.67	CFS
STORAGE REQUIRED	0.028	AC FT

REQUIRED STORAGE DIVIDED BY 2 FOOT ALLOWABLE DEPTH = REQUIRED LAND AREA

REQUIRED LAND AREA 0.01 ACRES = 609.84 SQ FT

LAND VALUE (PER CITY REAL ESTATE DIVISION)

UNIT PRICE FOR RAW LAND \$5.50 PER SQ FT

VALUE OF REQUIRED LAND AREA \$3,354.12

CONSTRUCTION COSTS

EXCAVATION AND GRADING

45 CY @ \$5.00 \$225.87

RESTORATION AND SEEDING

67.76 SY @ \$2.00 \$135.52

OUTLET CONTROL STRUCTURE

LUMP SUM \$3,000.00

TOTAL CONSTRUCTION COSTS \$3,361.39

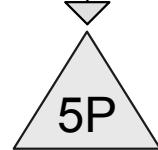
TOTAL VARIANCE FEE \$6,715.51



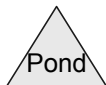
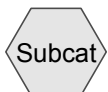
2015 EXISTING



2015 ADDITION



POND



Routing Diagram for 2015 VARIANCE

Prepared by Hewlett-Packard, Printed 11/19/2015

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2015 VARIANCE

Prepared by Hewlett-Packard

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FEE IN LIEU CALC

Type II 24-hr 100-YR Rainfall=6.66"

Printed 11/19/2015

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Time span=0.00-20.00 hrs, dt=0.05 hrs, 401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment2S: 2015 EXISTING

Runoff Area=14,466 sf 0.00% Impervious Runoff Depth>2.88"
Tc=6.0 min CN=68 Runoff=1.80 cfs 0.080 af

Subcatchment4S: 2015 ADDITION

Runoff Area=0.332 ac 100.00% Impervious Runoff Depth>6.10"
Tc=6.0 min CN=98 Runoff=3.07 cfs 0.169 af

Pond 5P: POND

Peak Elev=137.97' Storage=0.028 af Inflow=3.07 cfs 0.169 af
Outflow=1.67 cfs 0.168 af

2015 VARIANCE

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FEE IN LIEU CALC

Type II 24-hr 100-YR Rainfall=6.66"

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Summary for Subcatchment 2S: 2015 EXISTING

Runoff = 1.80 cfs @ 11.97 hrs, Volume= 0.080 af, Depth> 2.88"

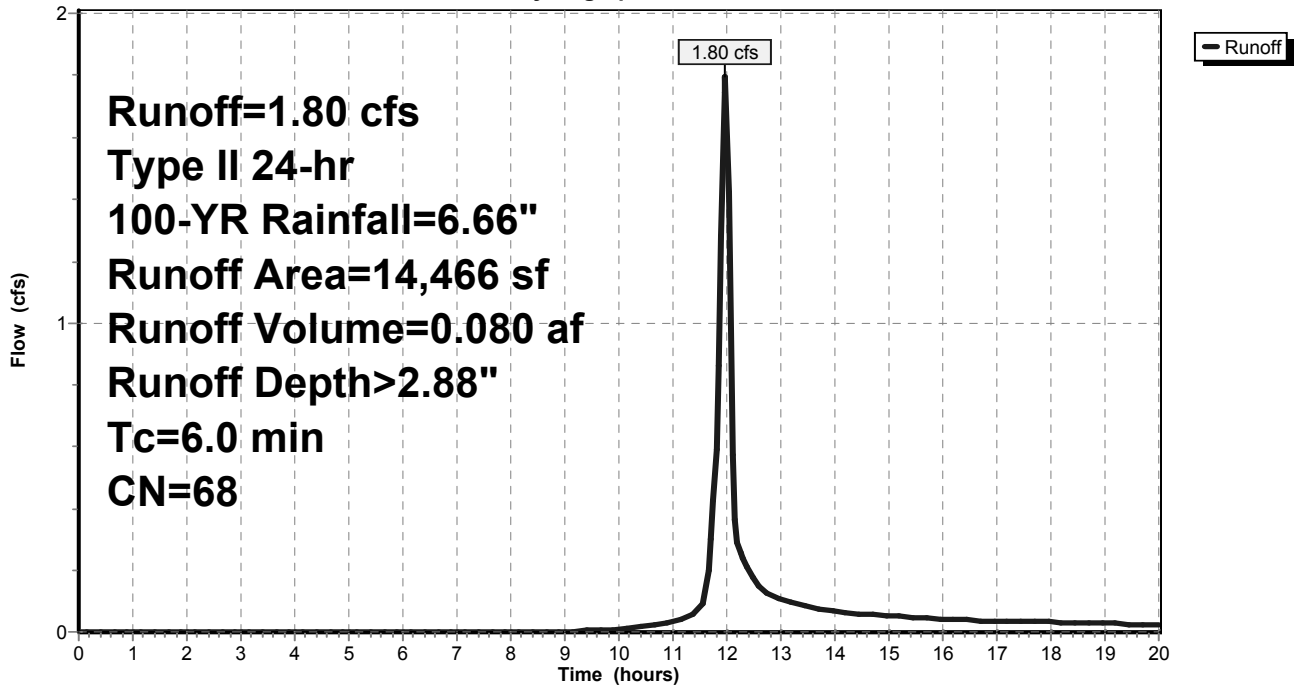
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=6.66"

Area (sf)	CN	Description
* 14,466	68	Maximum per City of Madison
14,466		100.00% Pervious Area

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

Subcatchment 2S: 2015 EXISTING

Hydrograph



2015 VARIANCE

Prepared by Hewlett-Packard

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FEE IN LIEU CALC

Type II 24-hr 100-YR Rainfall=6.66"

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Summary for Subcatchment 4S: 2015 ADDITION

Runoff = 3.07 cfs @ 11.96 hrs, Volume= 0.169 af, Depth> 6.10"

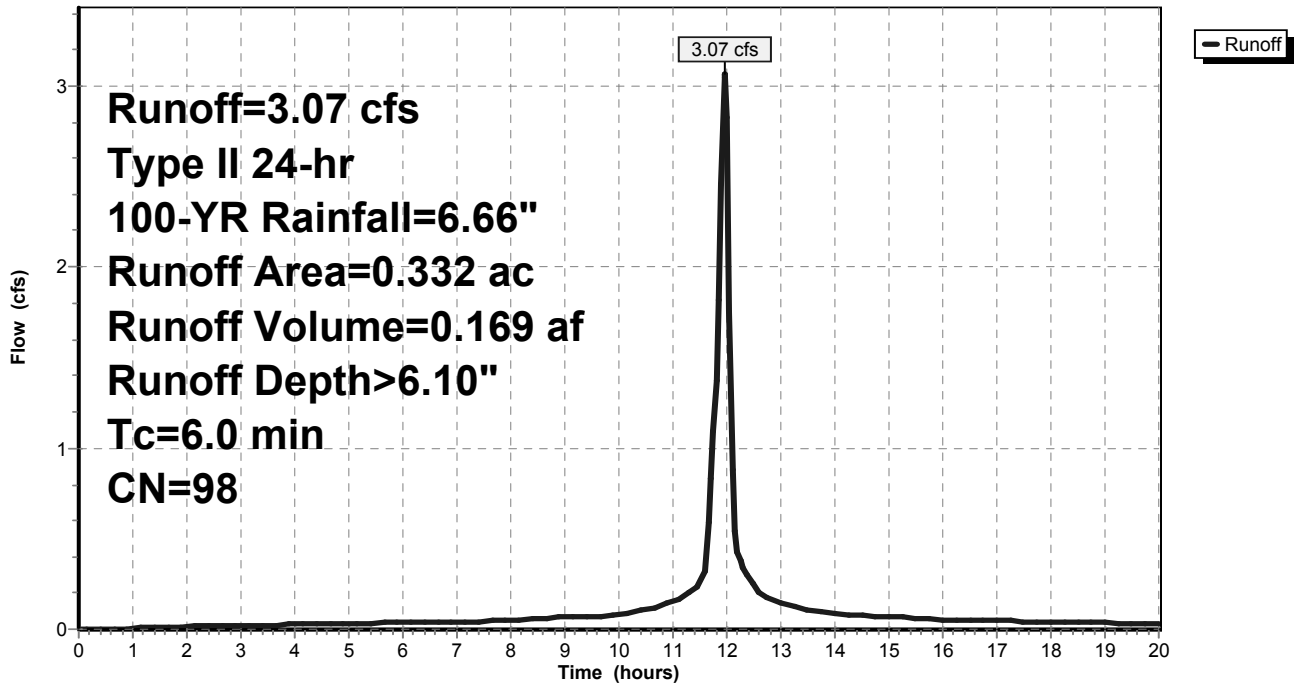
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=6.66"

Area (ac)	CN	Description
0.179	98	Paved parking, HSG C
0.153	98	Unconnected roofs, HSG C
0.332	98	Weighted Average
0.332		100.00% Impervious Area
0.153		46.08% Unconnected

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

Subcatchment 4S: 2015 ADDITION

Hydrograph



2015 VARIANCE

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FEE IN LIEU CALC

Type II 24-hr 100-YR Rainfall=6.66"

Printed 11/19/2015

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Summary for Pond 5P: POND

Inflow Area = 0.332 ac, 100.00% Impervious, Inflow Depth > 6.10" for 100-YR event
Inflow = 3.07 cfs @ 11.96 hrs, Volume= 0.169 af
Outflow = 1.67 cfs @ 12.06 hrs, Volume= 0.168 af, Atten= 46%, Lag= 5.8 min
Primary = 1.67 cfs @ 12.06 hrs, Volume= 0.168 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 137.97' @ 12.06 hrs Surf.Area= 0.024 ac Storage= 0.028 af

Plug-Flow detention time= 9.0 min calculated for 0.168 af (99% of inflow)
Center-of-Mass det. time= 7.4 min (715.8 - 708.5)

Volume	Invert	Avail.Storage	Storage Description
#1	136.00'	0.059 af	10.00'W x 25.00'L x 3.00'H Prismatic Z=4.0

Device	Routing	Invert	Outlet Devices
#1	Primary	136.00'	7.0" Vert. Orifice/Grate C= 0.600

Primary OutFlow Max=1.66 cfs @ 12.06 hrs HW=137.96' (Free Discharge)
↑1=Orifice/Grate (Orifice Controls 1.66 cfs @ 6.22 fps)

Pond 5P: POND

Hydrograph

