TOWN OF BOXFORD
PLANNING BOARD
7A Spofford Road
Boxford, Massachusetts 01921
Phone: (978) 887-6000 x 191 Fax: (978) 887-0758
Email: rpovenmire@town.boxford.ma.us

APPLICATION FOR DRIVEWAY PERMIT

The purpose of this permit is to provide safe and adequate access for emergency and other vehicles from the public way to residential dwellings. It has been developed in accordance with §196-29 of the Boxford Zoning Bylaw. The applicant shall read the bylaw on the back of this page.

Name Estate of Elizabeth Bowler Date 8/25/15

Driveway location/address Lot 2 Ipswich Road (Portion of Map 19-3-23 & 19-3-24)

Required Design Criteria	Compliance – Yes	No
1. Finished driveway width shall be no less than 9 feet	✓	
2. Grade for the first 25 feet of driveway from the public way – 3% or less	✓	
3. 12% maximum slope along the centerline	✓	
4. Any slope over 8% shall be paved	✓	
5. Driveway apron should be 90° to the road	✓	
6. Driveway apron should have curved flare radii of 6'	✓	
7. No physical barriers on inside of driveway curves	✓	
8. Rate of post-development runoff should not exceed pre-development runoff	✓	
9. Water shall not flow from driveway onto road	✓	
10. Sight distance shall exceed 50' in both directions	✓	
11. Driveways longer than 500' shall have a turn-around	N/A	
12. No cut or fill shall exceed 8' from the natural topography	✓	
13. Shared driveways shall be no closer than 100' apart	N/A	
14. Shared portion of a driveway shall be no less than 12 feet	N/A	

The Superintendent of Public Works and Fire Chief may impose other conditions at their discretion to ensure safe access and to prevent any damage or dangerous situation(s) because of drainage, icing, etc. onto public roads. These conditions are indicated below.

Applicant Signature R. Bowler (Agent) Date 8/25/15

Planning Board Approval _____ Date _____

Conditions:

§196-29. Driveways

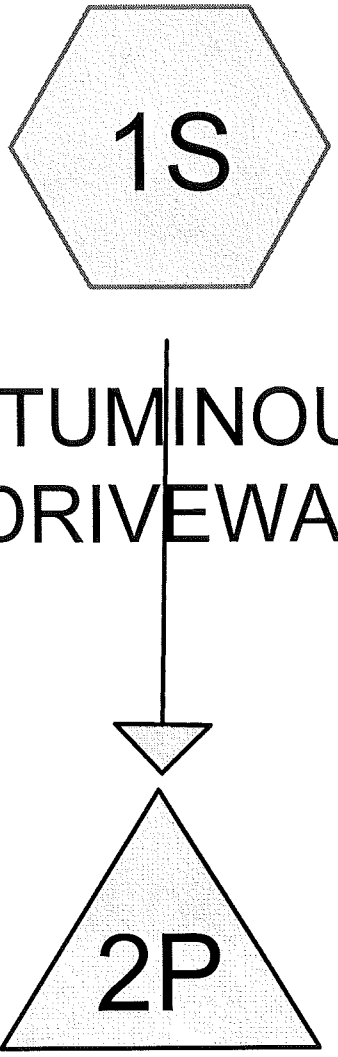
It shall be unlawful to install, construct, reconstruct or relocate any driveway without first obtaining a driveway permit from the Planning Board. Normal maintenance such as repairs and repaving shall be exempt provided repairs and repaving do not increase water runoff onto the public way or abutting lots..

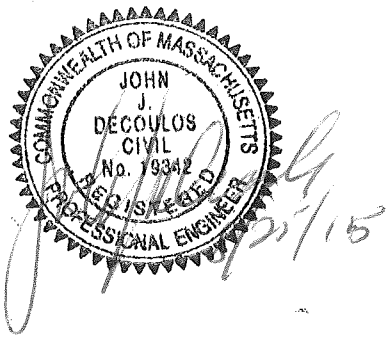
A. **Driveways for detached single-family houses** shall comply with the following:
   1. Layouts and configurations shall avoid excessive curves, switchbacks, and slopes to provide optimal safety for access to and from the dwelling site.
   2. To the extent possible, the driveway apron shall be aligned at ninety degrees (90°) to the road and have curved flare radii of six feet (6') between the road and drive.
   3. No person or persons shall cut or destroy any tree on Town property (right-of-way along side of the road), without first obtaining the approval of the Boxford Planning Board and the Boxford Tree Warden. No person or persons shall remove, alter, or destroy any stone wall on or bordering Town property (right-of-way along side of the road) without first obtaining the approval of the Boxford Planning Board in accordance with the Scenic Road bylaw.

B. **Single driveways** shall meet the following standards.
   1. All single driveways shall have a finished width no less than nine feet (9').
   2. The first twenty five feet (25') in from the paved portion of the public way shall have a maximum slope of three percent (3%); the maximum driveway slope along the centerline shall be twelve percent (12%); any slopes over eight percent (8%) shall be paved. To preserve the stability of the existing natural topography, no cut or fill in excess of eight feet (8') of the natural topography shall be allowed within the limits of the driveway cross section.
   3. The slope grade shall allow rapid emergency access during normal weather conditions. No physical barrier shall be located on the inside of the curves that could impede fire truck or emergency vehicle access.
   4. The rate of runoff during construction and post-development shall not exceed the rate of pre-development runoff.
   5. After driveway completion, water runoff from the new driveway shall not be allowed to enter onto the public right-of-way and abutting property at any time.
   6. The Planning Board may impose conditions on the construction, re-construction or relocation of a driveway at their discretion to ensure safe access onto public roads and to prevent any damage or dangerous situation(s) due to drainage, icing, or other hazards. The conditions may incorporate recommendations made by the Fire Chief, Police Chief and Superintendent of Public Works.
   7. The Superintendent of Public Works and Fire Chief may impose other conditions at their discretion to ensure safe access and to prevent any damage or dangerous situation(s) because of drainage, icing, etc. onto public roads.
   8. Sight distance entering the public way, shall be fifty feet (50') in either direction to the best extent possible.
   9. During construction, no debris shall be left on the road or shoulder; nor shall drainage structures, culverts, or ditches be blocked or impeded at any time.
   10. All driveways longer than five hundred feet (500') shall have a turn-around location within twenty five feet (25') of the dwelling for large vehicle turnaround.
   11. Driveways shall conform to all other rules and regulations of the Town of Boxford.

C. **Shared Driveways** shall conform to all the regulations as set forth in Subsection B and §196-13B (11)(m) of the Zoning Bylaw, plus the following:
   1. The shared driveway shall not enter the roadway at a point separated by less than one hundred feet (100') (centerline to centerline) from any other driveway or intersection.
   2. The shared portion of the driveway shall have a finished width no less than twelve feet (12') plus a one foot (1') level shoulder on either side.

D. **Application**
   1. The driveway location, layout, slopes, drainage, and associated improvements, shall be shown on a plan prepared by a professional architect, engineer, or landscape architect. The Planning Board at its sole discretion may waive the requirements for a driveway site plan.
   2. Four copies of the plan shall be submitted to the Planning Board for review. The Planning Board may circulate the copies to the Fire Chief, Police Chief, and the Superintendent of Public Works.
   3. The Fire Chief, Police Chief, and the Superintendent of Public Works may return recommendations within 14 days to the Planning Board. If no recommendations are received within 14 days to the Planning Board, the official failing to submit a report shall be deemed to have approved the proposed work on the driveway.





145 FOOT LONG STONE TRENCH

Subcat Reach Pond Link

Drainage Diagram for LOT 2 IPSWICH ROAD DRIVEWAY DRAINAGE
Prepared by {enter your company name here}, Printed 7/20/2015

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: BITUMINOUS Runoff Area=2,433 sf 100.00% Impervious Runoff Depth=2.89"
Tc=10.0 min CN=98 Runoff=0.15 cfs 0.013 af

Pond 2P: 145 FOOT LONG STONE TRENCH Peak Elev=100.76' Storage=154 cf Inflow=0.15 cfs 0.013 af
Outflow=0.03 cfs 0.013 af

Total Runoff Area = 0.056 ac Runoff Volume = 0.013 af Average Runoff Depth = 2.89"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.056 ac

Summary for Subcatchment 1S: BITUMINOUS DRIVEWAY

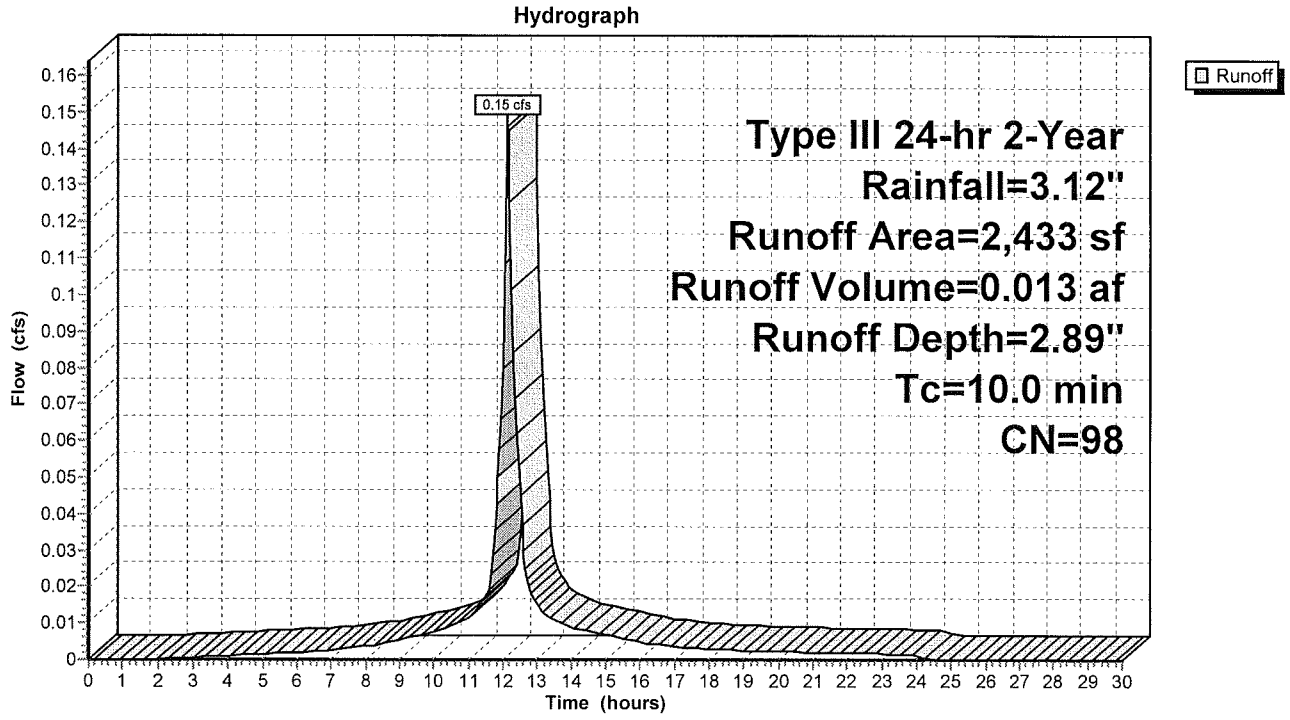
Runoff = 0.15 cfs @ 12.14 hrs, Volume= 0.013 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.12"

	Area (sf)	CN	Description
*	2,433	98	PAVED DRIVEWAY AREA
	2,433		100.00% Impervious Area

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

Subcatchment 1S: BITUMINOUS DRIVEWAY



Summary for Pond 2P: 145 FOOT LONG STONE TRENCH

Inflow Area = 0.056 ac,100.00% Impervious, Inflow Depth = 2.89" for 2-Year event
Inflow = 0.15 cfs @ 12.14 hrs, Volume= 0.013 af
Outflow = 0.03 cfs @ 11.75 hrs, Volume= 0.013 af, Atten= 81%, Lag= 0.0 min
Discarded = 0.03 cfs @ 11.75 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 100.76' @ 12.62 hrs Surf.Area= 508 sf Storage= 154 cf

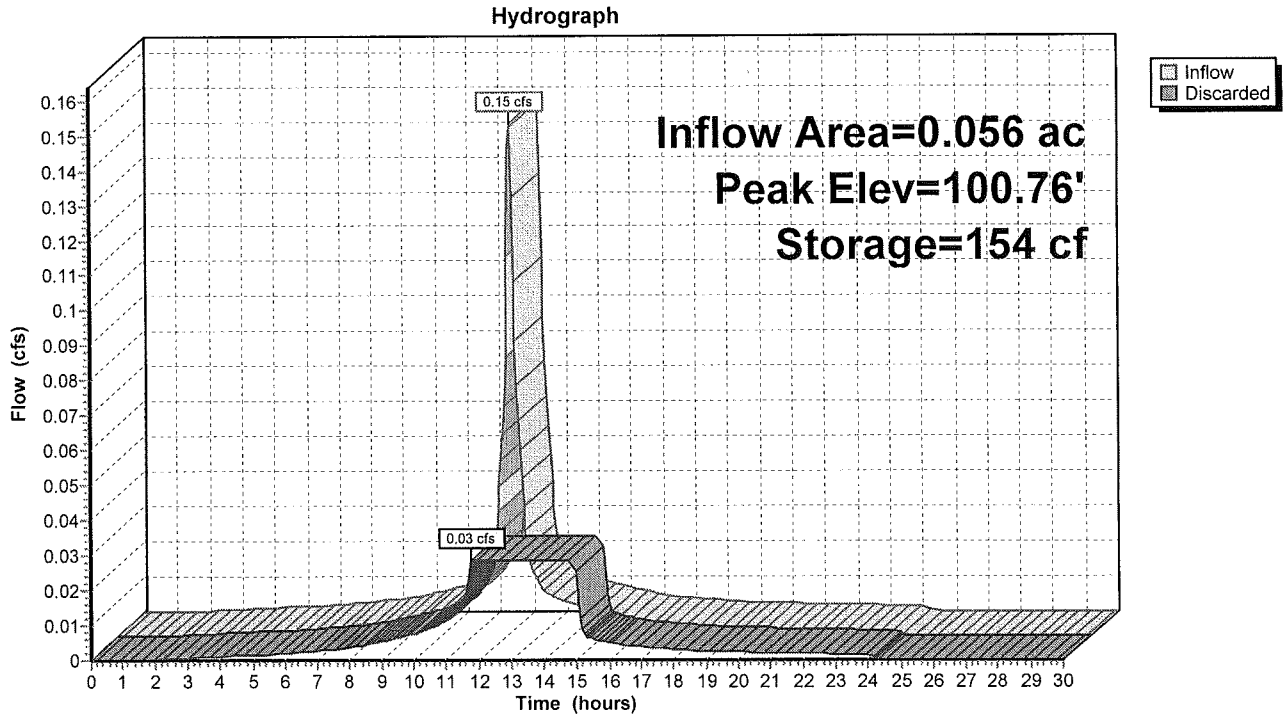
Plug-Flow detention time= 31.2 min calculated for 0.013 af (100% of inflow)
Center-of-Mass det. time= 31.0 min (791.7 - 760.6)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	609 cf	**3.50'W x 145.00'L x 3.00'H Prismatoid** 1,523 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 11.75 hrs HW=100.03' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Pond 2P: 145 FOOT LONG STONE TRENCH



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: BITUMINOUS Runoff Area=2,433 sf 100.00% Impervious Runoff Depth=4.26"
Tc=10.0 min CN=98 Runoff=0.21 cfs 0.020 af

Pond 2P: 145 FOOT LONG STONE TRENCH Peak Elev=101.33' Storage=269 cf Inflow=0.21 cfs 0.020 af
Outflow=0.03 cfs 0.020 af

Total Runoff Area = 0.056 ac Runoff Volume = 0.020 af Average Runoff Depth = 4.26"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.056 ac

Summary for Subcatchment 1S: BITUMINOUS DRIVEWAY

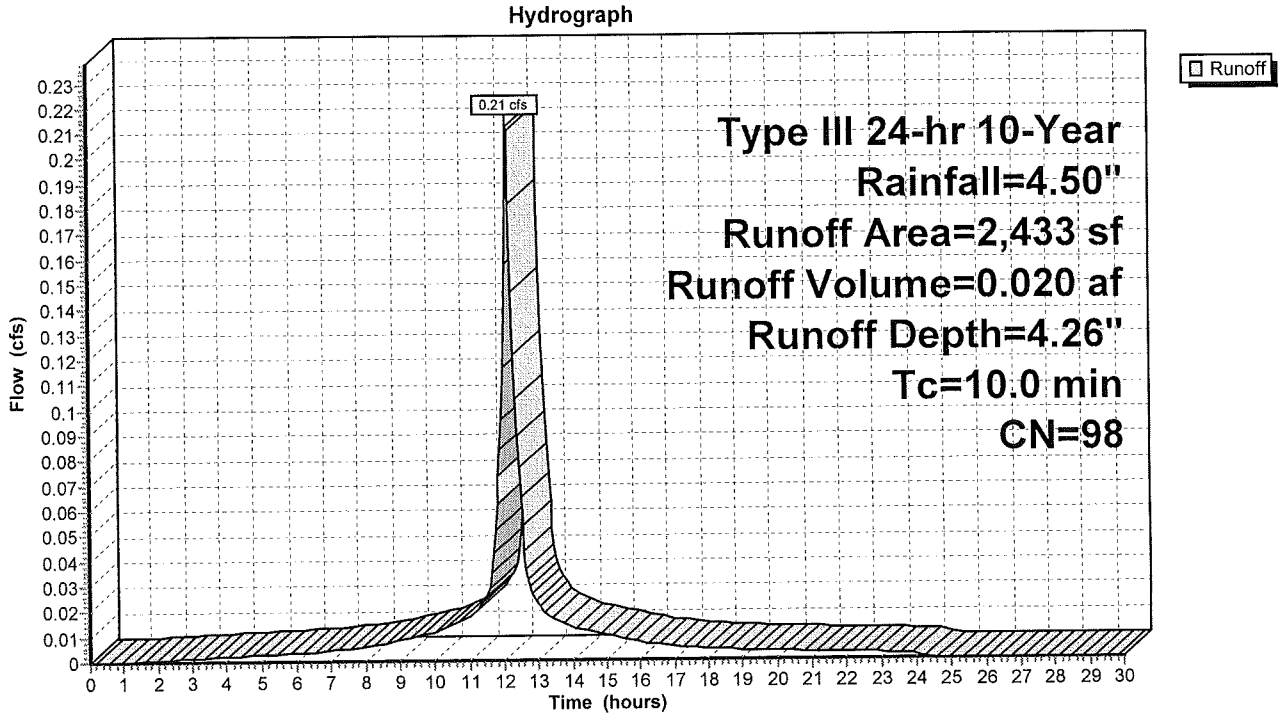
Runoff = 0.21 cfs @ 12.14 hrs, Volume= 0.020 af, Depth= 4.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.50"

	Area (sf)	CN	Description
*	2,433	98	PAVED DRIVEWAY AREA
	2,433		100.00% Impervious Area

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

Subcatchment 1S: BITUMINOUS DRIVEWAY



Summary for Pond 2P: 145 FOOT LONG STONE TRENCH

Inflow Area = 0.056 ac,100.00% Impervious, Inflow Depth = 4.26" for 10-Year event
Inflow = 0.21 cfs @ 12.14 hrs, Volume= 0.020 af
Outflow = 0.03 cfs @ 11.65 hrs, Volume= 0.020 af, Atten= 87%, Lag= 0.0 min
Discarded = 0.03 cfs @ 11.65 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 101.33' @ 12.77 hrs Surf.Area= 508 sf Storage= 269 cf

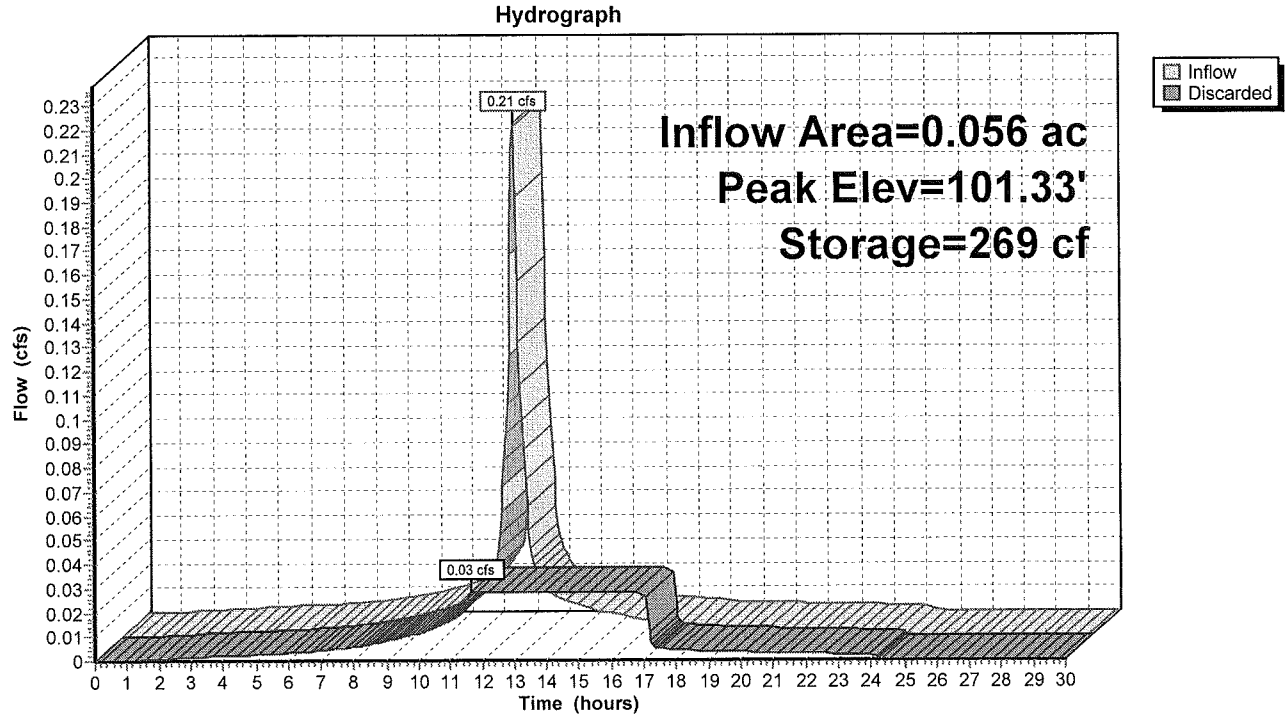
Plug-Flow detention time= 60.7 min calculated for 0.020 af (100% of inflow)
Center-of-Mass det. time= 60.5 min (814.0 - 753.5)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	609 cf	**3.50'W x 145.00'L x 3.00'H Prismatoid** 1,523 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 11.65 hrs HW=100.03' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.03 cfs)

Pond 2P: 145 FOOT LONG STONE TRENCH



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: BITUMINOUS Runoff Area=2,433 sf 100.00% Impervious Runoff Depth=6.76"
Tc=10.0 min CN=98 Runoff=0.33 cfs 0.031 af

Pond 2P: 145 FOOT LONG STONE TRENCH Peak Elev=102.51' Storage=509 cf Inflow=0.33 cfs 0.031 af
Outflow=0.03 cfs 0.031 af

Total Runoff Area = 0.056 ac Runoff Volume = 0.031 af Average Runoff Depth = 6.76"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.056 ac

Summary for Subcatchment 1S: BITUMINOUS DRIVEWAY

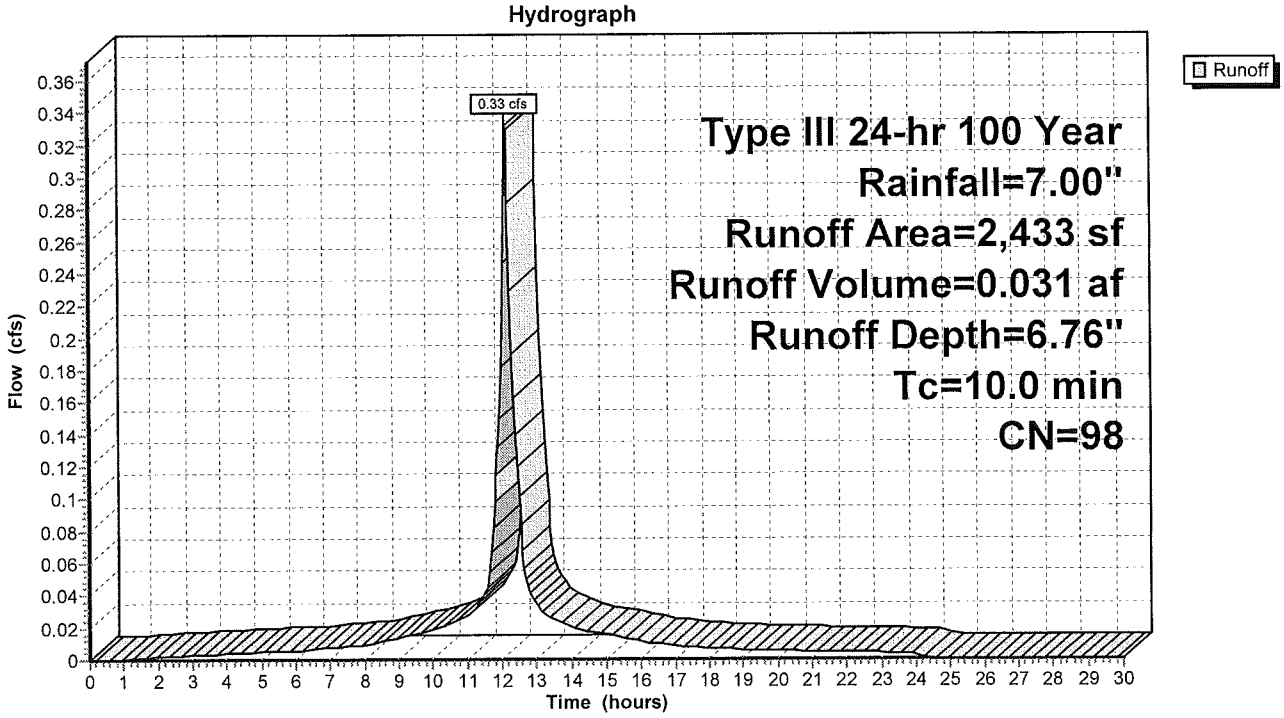
Runoff = 0.33 cfs @ 12.14 hrs, Volume= 0.031 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100 Year Rainfall=7.00"

	Area (sf)	CN	Description
*	2,433	98	PAVED DRIVEWAY AREA
	2,433		100.00% Impervious Area

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

Subcatchment 1S: BITUMINOUS DRIVEWAY



Summary for Pond 2P: 145 FOOT LONG STONE TRENCH

Inflow Area = 0.056 ac,100.00% Impervious, Inflow Depth = 6.76" for 100 Year event
Inflow = 0.33 cfs @ 12.14 hrs, Volume= 0.031 af
Outflow = 0.03 cfs @ 11.20 hrs, Volume= 0.031 af, Atten= 91%, Lag= 0.0 min
Discarded = 0.03 cfs @ 11.20 hrs, Volume= 0.031 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 102.51' @ 13.23 hrs Surf.Area= 508 sf Storage= 509 cf

Plug-Flow detention time= 130.6 min calculated for 0.031 af (100% of inflow)
Center-of-Mass det. time= 130.4 min (877.0 - 746.7)

Volume	Invert	Avail.Storage	Storage Description
#1	100.00'	609 cf	**3.50'W x 145.00'L x 3.00'H Prismatoid** 1,523 cf Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Discarded	100.00'	**2.410 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.03 cfs @ 11.20 hrs HW=100.03' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.03 cfs)

Pond 2P: 145 FOOT LONG STONE TRENCH