



**TOWNSHIP of HOPEWELL
MERCER COUNTY**

**201 WASHINGTON CROSSING – PENNINGTON ROAD
TITUSVILLE, NEW JERSEY 08560-1410**

PROJECT / APPLICATION

BLOCK:

LOT:

ADDRESS:

PROJECT NAME:

**REPORTS AND SUPPORTING
DOCUMENTS**

STORMWATER MANAGEMENT - FILE 1

STORMWATER MANAGEMENT REPORT

VENUE AT HOPEWELL

**BLOCK 93, LOTS 19, 20, 45.01, 46 & 60
TOWNSHIP OF HOPEWELL, MERCER COUNTY, NEW JERSEY
BCG# 081391-01-001**

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**STORMWATER MANAGEMENT REPORT
VENUE AT HOPEWELL
Township of Hopewell
Mercer County, New Jersey**

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No. 1: NRCS SOILS RESOURCE REPORT & GEOTECHNICAL REPORT

No. 2: TR-55 CALCULATIONS – EXISTING CONDITIONS

No. 3: TR-55 CALCULATIONS –PROPOSED CONDITIONS

No. 4: DRAINAGE AREA MAPS

I. INTRODUCTION

This report has been prepared to describe and document (through engineering calculations and related technical data) the stormwater management system designed for a project known as Venue at Hopewell, which is proposed by Deer Valley Realty, Inc, upon Lots 19, 20, 45.01, 46 & 60 of Block 93 in the Township of Hopewell, Mercer County, New Jersey. This report accompanies a set of drawings entitled “Preliminary and Final Major Subdivision & Preliminary and Final Site Plan for Venue at Hopewell” which were prepared by Bowman Consulting Group, Ltd.; dated June 25, 2024. The set of Preliminary and Final Major Subdivision & Preliminary and Final Site Plans illustrate the existing and proposed conditions upon the subject property, as well as provide details for the various stormwater management facilities described herein. Therefore, this report should be reviewed and considered in conjunction with the above referenced Site Plans.

A. Location and Description of Project Site

The subject property is known on the Township of Hopewell tax map as Block 93, Lots 19, 20, 45.01, 46 & 60, consisting of approximately 185.51 acres in total. The property fronts Nursery Road to the south and Scotch Road to the east with a combination of residential, farmland and undeveloped properties to the south and west.

With respect to soil conditions on the project site, the *NRCS Soil Survey for Mercer County, New Jersey* identifies many types of soils within the project limits. The NRCS Soils Resource Report is included in Appendix 1 of this report. The onsite soils identified were used in the hydrologic and hydraulic modeling for this report.

B. Project Description

The Venue at Hopewell project will include site improvements for the construction of 272 single-family home units, 118 duplex units, 120 COAH Affordable Housing units, and 90 MF-10 Affordable Housing units, for a total of 600 units at the subject property. The proposed project will have corresponding improvements including but not limited to, roads, parking lots, roundabouts, stormwater basins, lighting, utility, landscaping, tennis courts, pickleball courts, a playground, bocce courts, dog parks, and a clubhouse facility. Approximately 128.74 acres of the 185.51-acre tract will be disturbed for the proposed improvement associated with the project.

II. OVERVIEW OF REGULATORY REQUIREMENTS

The storm water management system for the proposed Venue at Hopewell project has been designed to comply with current regulatory requirements and standards. The applicable regulations and standards are as follows:

- The State of New Jersey’s “Stormwater Management Rules”, as set forth at NJAC 7:8
- Section 17-82 – Stormwater Control of the Township’s Ordinances.
- The Stormwater Management requirements of the County of Mercer
- The “Residential Site Improvement Standards” (NJAC 5:21), hereinafter referred to as the “RSIS;” and
- The “Standards for Soil Erosion and Sediment Control in New Jersey”

Compliance with each of the above-referenced standards necessitates the preparation of a storm water management plan and design that addresses multiple considerations with respect to post-development storm water runoff. These considerations are as follows:

- Use of Non-Structural Strategies to the maximum extent practicable
- Maintenance of average annual groundwater recharge volume
- Compliance with applicable Water Quality Management Standards
- “Quantity Control,” achieved through peak flow attenuation
- Minimization of erosion and sedimentation
- Assuring effective operation and maintenance for the system

The remainder of this report will detail the manner in which the project’s stormwater management design has addressed each of the above considerations, except for the requirements relevant to maintenance. The maintenance requirements will be addressed in a separate document entitled “Stormwater Management System Operations & Maintenance Manual for Venue at Hopewell; Block 93, Lots 19, 20, 45.01, 46 & 60, Township of Hopewell, Mercer County, New Jersey.” However, the Maintenance Manual has not been prepared at this time, pending review and approval of the system’s design.

The Appendices of this report contain engineering calculations and related technical documentation supporting the project’s design as described herein.

III. METHODOLOGIES

This section of this report describes the engineering methodologies employed for the design of the project's storm water management system. All of the methods are specifically referenced in the applicable regulations and/or in one or more of the "References" listed in Section VIII of this report. Most of the methods are specified and/or detailed in *The New Jersey Stormwater Best Management Practices Manual*, hereinafter referred to as "the BMP Manual." Specifically, the various methods used in the preparation of the project's plans and stormwater management design to address each of the multiple considerations described above were as follows:

A. Estimates of Runoff Rates and Volumes

1. Pre-Development versus Post-Development

The hydrologic estimates and modeling conducted for the design of the storm water management system utilized the "NRCS Methodology" which is specifically referenced for such applications in the BMP Manual. Storm frequencies of 2, 10 and 100-years were modeled, as required to demonstrate compliance with the "quantity control" provisions of the subject Rules. The models were created using the NOAA Type C, 24-hour rainfall. According to data published by the State Office of the Natural Resources Conservation Service the 24-hour rainfall depths for Mercer County for the three existing and future storm frequencies modeled are as follows:

- 2-year = 3.32 inches
- 10-year = 5.00 inches
- 100-year = 8.26 inches

2. Runoff Coefficients and Times of Concentration

All of the soils within the development area are included in Appendix 1 of this report.

In addition to CN values, the above referenced NRCS Methodology for estimating stormwater runoff rates also necessitates the determination of a time of concentration for each subwatershed/drainage area.

3. Weighted Average Volume Technique

As stated in the BMP Manual, variations in cover conditions are not always accurately reflected by calculating a weighted CN value for the entire subwatershed. Rather, a procedure termed the "weighted average volume technique" was presented and recommended in the BMP Manual for such

subwatershed areas. Therefore, runoff estimates for the subwatershed areas with directly connected impervious surface considered in the design of the project's stormwater management system utilized the weighted average volume technique. In such cases, two hydrographs (one representing the impervious area within the area and the other representing the remaining area) were developed for the subwatershed. The hydrograph representing the impervious area was given the suffix "I" for identification, while the hydrograph representing the remainder of the subwatershed area was given the suffix "P".

B. Water Quality Management

Pursuant to applicable standards and regulations, this design consideration was based on the "Water Quality Design Storm" as specified in the BMP manual. Specifically, the storm is based upon a 1.25 inch rainfall event over the course of two hours as specified in Figure 5-2 of the BMP Manual.

C. Ground Water Recharge

Groundwater recharge standards and requirements apply to the proposed improvements associated with the project site and are satisfied by either:

1. Demonstrating through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or
2. Demonstrating through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the projected two-year storm, as defined and determined pursuant to N.J.A.C. 7:8-5.7(d), is infiltrated.

Refer to the Tables and Appendices for details.

D. Erosion and Sedimentation Control

Another key consideration in the development of the project is the minimization of erosion and sedimentation. The greatest potential for erosion and sedimentation will occur during construction, when areas of exposed soils temporarily exist. The "Soil Erosion and Sediment Control Plan," which is included in the set of Site Plans referenced above specifies numerous proven measures for controlling erosion and sedimentation during construction.

This plan is subject to the review and certification by the Mercer County Soil Conservation District.

IV. EXISTING SITE CONDITIONS AND STORMWATER RUNOFF ESTIMATES

This section of this report describes the hydrologic modeling conducted to estimate peak runoff rates and total runoff volumes from the project site under existing conditions. Sheet 1 of 2 contained in **Appendix 4** of this report is an “Existing Conditions” Drainage Area Map prepared for the hydrologic assessment of stormwater runoff from the project site under existing conditions. As illustrated on Sheet 1 of 2, the drainage area was divided into six watersheds flowing to three separate design points. The area of study includes 249.69 acres.

Design Point 1 is the total existing drainage area that flows to Ewing Creek, which consists of Drainage Area XDA-1 and Drainage Area XDA-2.

Drainage Area XDA-1 encompasses 91.57 acres of land. The area includes 86.99 acres of open space/woods/row crops and 4.58 acres of impervious area. Runoff from this area flows to Ewing Creek.

Drainage Area XDA-2 encompasses 35.20 acres of land, which is all considered to be row crops. Runoff from this area flows to Ewing Creek.

Design Point 2 is the total existing drainage area that flows to Jacobs Creek, which consists of Drainage Area XDA-3 and Drainage Area XDA-4.

Drainage Area XDA-3 encompasses 22.13 acres of land, which is all considered to be woods/row crops. Runoff from this area flows to Jacobs Creek.

Drainage Area XDA-4 encompasses 34.95 acres of land, which is all considered to be woods/row crops. Runoff from this area flows to Jacobs Creek.

Design Point 3 is the total existing drainage area that flows to Woolsey Creek, which consists of Drainage Area XDA-5 and Drainage Area XDA-6.

Drainage Area XDA-5 encompasses 8.76 acres of land, which is all considered to be row crops. Runoff from this area flows to Woolsey Creek.

Drainage Area XDA-6 encompasses 57.08 acres of land. The area includes 56.32 acres of woods/row crops and 0.76 acres of impervious area. Runoff from this area flows to Woolsey Creek.

The path used to estimate the time of concentration for each subwatershed is also illustrated on the subject Drainage Area Map. The calculations for the time of concentration, weighted CN value and peak runoff rates under existing conditions are provided in **Appendix 2**.

The peak rates of runoff for each of the storms studied are summarized in Table No. 1 below.

TABLE NO. 1						
SUMMARY OF EXISTING RUNOFF CONDITIONS						
Drainage Area No.	Area (Acres)	Runoff Curve No.	Time of Concentration (Min)	Q2 (cfs)	Q10 (cfs)	Q100 (cfs)
X-1I	4.58	98	8.9	14.33	21.72	36.01
X-1P	61.77	66	8.9	43.20	120.33	301.76
X-1S	25.22	68	8.9	21.06	53.99	129.91
XDA-1 (subtotal)	91.57	-	-	78.74	195.90	467.60
X-2P	35.20	77	10.4	49.35	100.88	208.47
XDA-2 (subtotal)	35.20	-	-	49.35	100.88	208.47
X-3P	22.13	76	2.6	40.04	82.34	170.78
XDA-3 (subtotal)	22.13	-	-	40.04	82.34	170.78
X-4P	30.2	67	9.8	22.42	59.34	146.16
X-6S	4.75	60	9.8	1.64	6.36	18.54
XDA-4 (subtotal)	34.95	-	-	24.03	65.69	164.75
X-5P	8.76	75	8.8	11.70	24.91	53.03
XDA-5 (subtotal)	8.76	-	-	11.70	24.91	53.03
X-6I	0.76	98	8.9	2.38	3.60	5.97
X-6P	56.32	70	8.9	54.60	131.57	304.79
XDA-6 (subtotal)	57.08	-	-	56.94	135.16	310.75

The total runoff to each design point is summarized in table 2 below.

TABLE NO. 2 TOTAL RUNOFF TO EACH DESIGN POINT			
Storm Freq.	Design Point 1	Design Point 2	Design Point 3
	Peak Runoff	Peak Runoff	Peak Runoff
2	126.93 cfs	54.82 cfs	68.63 cfs
10	295.86 cfs	128.69 cfs	160.05 cfs
100	674.29 cfs	293.83 cfs	363.77 cfs

V. DESCRIPTION OF PROPOSED CONDITIONS

This section of this report describes the hydrologic modeling conducted to estimate peak runoff rates and total runoff volumes from the project site under proposed conditions. Sheet 2 of 2 contained in **Appendix 4** of this report is a “Proposed Conditions” Drainage Area Map prepared for the hydrologic assessment of stormwater runoff from the project site under proposed conditions. As illustrated on Sheet 2 of 2, the drainage area was divided into six watersheds flowing to three separate design points. The area of study includes 249.69 acres.

Design Point 1 is the total proposed drainage area that flows to Ewing Creek, which consists of Drainage Area PDA-1 and Drainage Area PDA-2.

Drainage Area PDA-1 encompasses approximately 91.56 acres of land. The area is comprised of the drainage areas that discharge to bioretention basins B-1 through B-17, and undisturbed areas. Runoff from this area flows to Ewing Creek.

Drainage Area PDA-2 encompasses approximately 34.90 acres of land. The area is comprised of the drainage areas that discharge to bioretention basins B-18 through B-28, and undisturbed areas. Runoff from this area flows to Ewing Creek.

Design Point 2 is the total proposed drainage area that flows to Jacobs Creek, which consists of Drainage Area PDA-3 and Drainage Area PDA-4.

Drainage Area PDA-3 encompasses approximately 27.37 acres of land. The area is comprised of the drainage areas that discharge to bioretention basins B-29 through B-40, and undisturbed areas. Runoff from this area flows to Jacobs Creek.

Drainage Area PDA-4 encompasses approximately 31.12 acres of land. The area is comprised of the drainage areas that discharge to bioretention basins B-41 through B-47, and undisturbed areas. Runoff from this area flows to Jacobs Creek.

Design Point 3 is the total existing drainage area that flows to Woolsey Creek, which consists of Drainage Area XDA-5 and Drainage Area XDA-6.

Drainage Area PDA-5 encompasses approximately 8.41 acres of land. The area is comprised of the drainage areas that discharge to bioretention basins B-48 through B-50, and undisturbed areas. Runoff from this area flows to Woolsey Creek.

Drainage Area PDA-6 encompasses approximately 56.17 acres of land. The area is comprised of the drainage areas that discharge to bioretention basins B-51 through B-58, and undisturbed areas. Runoff from this area flows to Woolsey Creek.

The calculations for the time of concentration, weighted CN value and peak runoff rates under proposed conditions are provided in **Appendix 3**. The peak rates of runoff for each of the storms studied are summarized in Table No. 5 below.

Drainage Area No.	Area (Acres)	Runoff Curve No.	Current Q2 (cfs)	Future Q2 (cfs)	Current Q10 (cfs)	Future Q10 (cfs)	Current Q100 (cfs)	Future Q100 (cfs)
1I	0.119	98	0.36	0.42	0.55	0.63	0.93	1.22
1P	2.366	74	2.89	3.84	6.39	8.00	14.15	20.18
B-1 (subtotal)	2.485	-	3.25	4.25	6.94	8.63	15.09	21.41
2I	0.810	98	2.46	2.83	3.76	4.32	6.36	8.32
2P	1.055	74	1.29	1.71	2.85	3.57	6.31	9.00
B-2 (subtotal)	1.865	-	3.74	4.53	6.61	7.89	12.67	17.32
3I	1.243	98	3.77	4.34	5.77	6.63	9.76	12.77
3P	1.661	74	2.03	2.70	4.49	5.62	9.94	14.17
B-3 (subtotal)	2.904	-	5.79	7.03	10.26	12.25	19.69	26.93
4I	0.681	98	2.06	2.38	3.16	3.63	5.35	7.00
4P	2.044	74	2.50	3.32	5.52	6.91	12.23	17.44
B-4 (subtotal)	2.725	-	4.54	5.68	8.68	10.55	17.57	24.43
5I	0.491	98	1.49	1.72	2.28	2.62	3.85	5.04
5P	0.928	74	1.14	1.51	2.51	3.14	5.55	7.92

B-5 (subtotal)	1.419	-	2.61	3.22	4.79	5.76	9.40	12.96
6I	0.694	98	2.10	2.42	3.22	3.70	5.45	7.13
6P	0.497	74	0.61	0.81	1.34	1.68	2.97	4.24
B-6 (subtotal)	1.191	-	2.71	3.23	4.56	5.38	8.42	11.37
7I	0.983	98	2.98	3.43	4.57	5.24	7.72	10.10
7P	0.581	74	0.71	0.94	1.57	1.96	3.48	4.96
B-7 (subtotal)	1.564	-	3.68	4.37	6.13	7.21	11.19	15.05

8I	0.949	98	2.88	3.31	4.41	5.06	7.45	9.75
8P	1.597	74	1.95	2.59	4.31	5.40	9.55	13.62
B-8 (subtotal)	2.546	-	4.81	5.90	8.72	10.47	17.00	23.37
9I	0.791	98	2.40	2.76	3.67	4.22	6.21	8.13
9P	0.712	74	0.87	1.16	1.92	2.41	4.26	6.07
B-9 (subtotal)	1.503	-	3.26	3.91	5.59	6.63	10.47	14.20
10I	0.948	98	2.87	3.31	4.40	5.06	7.44	9.74
10P	0.726	74	0.89	1.18	1.96	2.45	4.34	6.19
B-10 (subtotal)	1.674	-	3.75	4.48	6.36	7.51	11.78	15.93
11I	0.933	98	2.83	3.26	4.33	4.98	7.33	9.58
11P	1.735	74	2.12	2.82	4.69	5.87	10.38	14.80
B-11 (subtotal)	2.668	-	4.93	6.07	9.02	10.85	17.70	24.38
12I	1.369	98	4.15	4.78	6.36	7.30	10.75	14.06
12P	0.635	74	0.78	1.03	1.71	2.15	3.80	5.42
B-12 (subtotal)	2.004	-	4.92	5.81	8.07	9.45	14.54	19.48
13I	1.467	98	4.45	5.12	6.81	7.83	11.52	15.07
13P	0.883	74	1.08	1.43	2.38	2.99	5.28	7.53
B-13 (subtotal)	2.350	-	5.52	6.55	9.20	10.81	16.80	22.60

14I	0.508	98	1.54	1.77	2.36	2.71	3.99	5.22
14P	1.640	74	2.01	2.66	4.43	5.55	9.81	13.99
B-14 (subtotal)	2.148	-	3.53	4.42	6.79	8.26	13.79	19.21
15I	1.389	98	4.21	4.85	6.45	7.41	10.91	14.27
15P	0.976	74	1.19	1.58	2.64	3.30	5.84	8.33
B-15 (subtotal)	2.365	-	5.39	6.43	9.08	10.71	16.74	22.59
16I	1.165	98	3.53	4.07	5.41	6.22	9.15	11.97
16P	1.520	74	1.86	2.47	4.10	5.14	9.09	12.97
B-16 (subtotal)	2.685	-	5.38	6.53	9.51	11.36	18.23	24.93

17I	0.964	98	2.92	3.37	4.48	5.14	7.57	9.90
17P	1.827	74	2.24	2.97	4.93	6.18	10.93	15.59
B-17 (subtotal)	2.791	-	5.13	6.32	9.41	11.32	18.49	25.48
18I	1.169	98	3.54	4.08	5.43	6.24	9.18	12.01
18P	1.289	74	1.58	2.09	3.48	4.36	7.71	11.00
B-18 (subtotal)	2.458	-	5.11	6.17	8.91	10.60	16.88	23.00
19I	0.381	98	1.15	1.33	1.77	2.03	2.99	3.91
19P	0.553	74	0.68	0.90	1.49	1.87	3.31	4.72
B-19 (subtotal)	0.934	-	1.83	2.22	3.26	3.90	6.30	8.63
20I	1.274	98	3.86	4.45	5.92	6.80	10.00	13.09
20P	1.405	74	1.72	2.28	3.79	4.75	8.40	11.99
B-20 (subtotal)	2.679	-	5.57	6.72	9.71	11.55	18.40	25.07
21I	1.115	98	3.38	3.89	5.18	5.95	8.75	11.45
21P	1.565	74	1.91	2.54	4.23	5.29	9.36	13.35
B-21 (subtotal)	2.680	-	5.28	6.42	9.40	11.24	18.11	24.80
22I	0.828	98	2.51	2.89	3.85	4.42	6.50	8.51

22P	1.915	74	2.34	3.11	5.17	6.47	11.45	16.34
B-22 (subtotal)	2.743	-	4.83	5.98	9.02	10.90	17.95	24.84
23I	1.007	98	3.05	3.52	4.68	5.37	7.91	10.34
23P	0.504	74	0.62	0.82	1.36	1.70	3.01	4.30
B-23 (subtotal)	1.511	-	3.66	4.33	6.04	7.08	10.92	14.64
24I	1.227	98	3.72	4.29	5.70	6.55	9.63	12.60
24P	1.512	74	1.85	2.45	4.08	5.11	9.04	12.90
B-24 (subtotal)	2.739	-	5.56	6.73	9.78	11.66	18.67	25.50
25I	1.177	98	3.57	4.11	5.47	6.28	9.24	12.09
25P	1.559	74	1.91	2.53	4.21	5.27	9.33	13.30
B-25 (subtotal)	2.736	-	5.46	6.63	9.67	11.55	18.56	25.39

26I	0.969	98	2.94	3.38	4.50	5.17	7.61	9.95
26P	1.718	74	2.10	2.79	4.64	5.81	10.28	14.66
B-26 (subtotal)	2.687	-	5.01	6.16	9.14	10.98	17.88	24.61
27I	1.164	98	3.53	4.07	5.41	6.21	9.14	11.96
27P	1.250	74	1.53	2.03	3.38	4.23	7.48	10.66
B-27 (subtotal)	2.414	-	5.05	6.09	8.78	10.44	16.61	22.62
28I	1.035	98	3.14	3.62	4.81	5.52	8.13	10.63
28P	0.882	74	1.08	1.43	2.38	2.98	5.28	7.52
B-28 (subtotal)	1.917	-	4.21	5.04	7.19	8.50	13.40	18.15
29I	0.250	98	0.76	0.87	1.16	1.33	1.96	2.57
29P	0.358	74	0.44	0.58	0.97	1.21	2.14	3.05
B-29 (subtotal)	0.608	-	1.19	1.45	2.13	2.54	4.10	5.62
30I	0.494	98	1.50	1.73	2.29	2.64	3.88	5.07
30P	2.380	74	2.91	3.86	6.43	8.05	14.24	20.30

B-30 (subtotal)	2.874	-	4.39	5.57	8.71	10.69	18.11	25.38
31I	0.380	98	1.15	1.33	1.77	2.03	2.98	3.90
31P	0.268	74	0.33	0.43	0.72	0.91	1.60	2.29
B-31 (subtotal)	0.648	-	1.48	1.76	2.49	2.93	4.59	6.19
32I	1.375	98	4.17	4.80	6.39	7.34	10.80	14.13
32P	0.644	74	0.79	1.05	1.74	2.18	3.85	5.49
B-32 (subtotal)	2.019	-	4.95	5.84	8.12	9.51	14.64	19.62
33I	1.108	98	3.36	3.87	5.15	5.91	8.70	11.38
33P	0.814	74	1.00	1.32	2.20	2.75	4.87	6.94
B-33 (subtotal)	1.922	-	4.35	5.18	7.34	8.66	13.56	18.32
34I	1.031	98	3.12	3.60	4.79	5.50	8.09	10.59
34P	1.606	74	1.96	2.61	4.34	5.43	9.61	13.70
B-34 (subtotal)	2.637	-	5.08	6.20	9.12	10.93	17.70	24.29

35I	1.350	98	4.09	4.72	6.27	7.20	10.60	13.87
35P	1.302	74	1.59	2.11	3.52	4.40	7.79	11.11
B-35 (subtotal)	2.652	-	5.67	6.82	9.78	11.60	18.38	24.97
36I	1.594	98	4.83	5.57	7.40	8.50	12.51	16.37
36P	1.020	74	1.25	1.66	2.75	3.45	6.10	8.70
B-36 (subtotal)	2.614	-	6.07	7.21	10.15	11.95	18.61	25.07
37I	0.986	98	2.99	3.44	4.58	5.26	7.74	10.13
37P	1.770	74	2.17	2.87	4.78	5.98	10.59	15.10
B-37 (subtotal)	2.756	-	5.13	6.31	9.36	11.25	18.32	25.22
38I	0.745	98	2.26	2.60	3.46	3.97	5.85	7.65
38P	1.397	74	1.71	2.27	3.77	4.72	8.36	11.92

B-38 (subtotal)	2.142	-	3.95	4.86	7.23	8.70	14.20	19.57
39I	0.730	98	2.21	2.55	3.39	3.89	5.73	7.50
39P	1.038	74	1.27	1.68	2.80	3.51	6.21	8.86
B-39 (subtotal)	1.768	-	3.47	4.23	6.19	7.41	11.94	14.35
40I	0.668	98	2.02	2.33	3.10	3.56	5.24	6.86
40P	0.731	74	0.89	1.19	1.97	2.47	4.37	6.24
B-40 (subtotal)	1.399	-	2.91	3.51	5.08	6.04	9.61	13.10
41I	0.460	98	1.39	1.61	2.14	2.45	3.61	4.73
41P	1.611	74	1.97	2.61	4.35	5.45	9.64	13.74
B-41 (subtotal)	2.071	-	3.35	4.21	6.49	7.91	13.24	18.47
42I	1.254	98	3.80	4.38	5.82	6.69	9.85	12.88
42P	1.081	74	1.32	1.75	2.92	3.66	6.47	9.22
B-42 (subtotal)	2.335	-	5.11	6.13	8.74	10.35	16.31	22.10
43I	1.050	98	3.18	3.67	4.88	5.60	8.24	10.79
43P	1.350	74	1.65	2.19	3.65	4.56	8.08	11.52
B-43 (subtotal)	2.400	-	4.82	5.85	8.52	10.17	16.31	22.30

44I	0.983	98	2.98	3.43	4.57	5.24	7.72	10.10
44P	1.435	74	1.76	2.33	3.88	4.85	8.58	12.24
B-44 (subtotal)	2.418	-	4.72	5.75	8.44	10.10	16.30	22.34
45I	1.277	98	3.87	4.46	5.93	6.81	10.03	13.12
45P	0.517	74	0.63	0.84	1.40	1.75	3.09	4.41
B-45 (subtotal)	1.794	-	4.50	5.29	7.33	8.56	13.12	17.53
46I	1.243	98	3.77	4.34	5.77	6.63	9.76	12.77
46P	2.044	74	2.50	3.32	5.52	6.91	12.23	17.44
B-46 (subtotal)	3.287	-	6.25	7.65	11.29	13.55	21.98	30.20

47I	0.976	98	2.96	3.41	4.53	5.21	7.66	10.03
47P	2.005	74	2.45	3.25	5.41	6.78	11.99	17.10
B-47 (subtotal)	2.981	-	5.39	6.64	9.95	11.99	19.65	27.13
48I	0.892	98	2.70	3.12	4.14	4.76	7.00	9.16
48P	1.523	74	1.86	2.47	4.11	5.15	9.11	12.99
B-48 (subtotal)	2.415	-	4.54	5.58	8.25	9.91	16.11	22.15
49I	1.453	98	4.40	5.08	6.75	7.75	11.41	14.93
49P	0.807	74	1.50	1.99	3.31	4.15	7.34	10.47
B-49 (subtotal)	2.260	-	5.89	7.06	10.06	11.90	18.74	25.39
50I	1.252	98	3.79	4.37	5.82	6.68	9.83	12.86
50P	1.417	74	1.73	2.30	3.83	4.79	8.48	12.09
B-50 (subtotal)	2.669	-	5.52	6.66	9.64	11.47	18.30	24.95
51I	0.627	98	1.90	2.19	2.91	3.34	4.92	6.44
51P	0.991	74	1.21	1.61	2.68	3.35	5.93	8.45
B-51 (subtotal)	1.618	-	3.10	3.79	5.59	6.70	10.85	14.89
52I	1.050	98	3.18	3.67	4.88	5.60	8.24	10.79
52P	0.978	74	1.82	2.41	4.02	5.03	8.89	12.69
B-52 (subtotal)	2.028	-	4.99	6.07	8.89	10.63	17.13	23.47

53I	1.214	98	3.68	4.24	5.64	6.48	9.53	12.47
53P	1.326	74	1.62	2.15	3.58	4.48	7.93	11.31
B-53 (subtotal)	2.540	-	5.29	6.38	9.22	10.96	17.46	23.78
54I	1.423	98	4.71	5.43	7.22	8.29	12.20	15.96
54P	0.668	74	1.24	1.65	2.74	3.44	6.08	8.67
B-54 (subtotal)	2.091	-	5.94	7.07	9.96	11.73	17.94	24.27
55I	1.007	98	3.05	3.52	4.68	5.37	7.91	10.34

55P	1.017	74	1.24	1.65	2.75	3.44	6.08	8.68
B-55 (subtotal)	2.024	-	4.29	5.16	7.42	8.81	13.99	19.02
56I	1.037	98	3.14	3.62	4.82	5.53	8.14	10.65
56P	1.271	74	1.55	2.06	3.43	4.30	7.60	10.84
B-56 (subtotal)	2.308	-	4.69	5.68	8.25	9.83	15.74	21.49
57I	0.666	98	2.02	2.33	3.09	3.55	5.23	6.84
57P	0.631	74	0.77	1.02	1.70	2.13	3.77	5.38
B-57 (subtotal)	1.297	-	2.78	3.35	4.80	5.69	9.00	12.22
58I	0.765	98	2.32	2.67	3.55	4.08	6.01	7.86
58P	1.606	74	1.96	2.61	4.34	5.43	9.61	13.70
B-58 (subtotal)	2.371	-	4.26	5.26	7.89	9.52	15.61	21.56
UPDA-1 (subtotal)	54.670	-	66.88	88.73	147.64	184.85	327.02	466.38
UPDA-2 (subtotal)	9.405	-	11.51	15.27	25.40	31.80	56.26	80.23
UPDA-3 (subtotal)	3.330	-	4.07	5.40	8.99	11.26	19.92	28.41
UPDA-4 (subtotal)	13.834	-	16.92	22.45	37.36	46.78	82.75	118.02
UPDA-5 (subtotal)	0.648	-	0.79	1.05	1.75	2.19	3.88	5.53
UPDA-6 (subtotal)	38.901	-	47.59	63.14	105.05	131.53	232.69	331.86

VI. DESCRIPTION OF PROPOSED STORMWATER MANAGEMENT FACILITIES

As illustrated on the accompanying set of Site Plans, there are fifty-eight (58) proposed bioretention basins. Calculations for each bioretention basin are provided in **Appendix 3**.

Proposed Bioretention Basin 1 (B-1) Table No. 4 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 4 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 1 (B-1)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	3.25	0.07	209.48'	0.112	98%
2 future	4.25	0.10	209.66'	0.176	98%
10 current	6.94	0.98	209.83'	0.374	86%
10 future	8.63	2.09	209.95'	0.502	76%
100 current	15.09	8.34	210.42'	1.001	45%
100 future	21.41	12.74	210.79'	1.507	40%

Proposed Bioretention Basin 2 (B-2) Table No. 5 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 5 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 2 (B-2)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	3.74	0.23	209.77'	0.224	94%
2 future	4.53	0.28	209.99'	0.287	94%
10 current	6.61	1.69	210.22'	0.455	74%
10 future	7.89	3.01	210.35'	0.559	62%
100 current	12.67	8.36	210.74'	0.953	34%
100 future	17.32	12.63	210.99'	1.344	27%

Proposed Bioretention Basin 3 (B-3) Table No. 6 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 6 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 3 (B-3)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.79	0.07	214.30'	0.106	99%
2 future	7.03	0.10	214.49'	0.183	99%
10 current	10.26	0.95	214.66'	0.441	91%
10 future	12.25	2.05	214.78'	0.603	83%
100 current	19.69	8.66	215.27'	1.217	56%
100 future	26.93	12.88	215.69'	1.826	52%

Proposed Bioretention Basin 4 (B-4) Table No. 7 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 7 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 4 (B-4)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.54	0.15	201.06'	0.266	97%
2 future	5.68	0.18	201.37'	0.330	97%
10 current	8.68	1.66	201.61'	0.552	81%
10 future	10.55	3.25	201.76'	0.696	69%
100 current	17.57	11.03	202.29'	1.256	37%
100 future	24.43	15.40	202.67'	1.819	37%

Proposed Bioretention Basin 5 (B-5) Table No. 8 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 8 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 5 (B-5)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	2.61	0.09	200.21'	0.144	97%
2 future	3.22	0.11	200.34'	0.183	97%
10 current	4.79	0.71	200.47'	0.303	85%
10 future	5.76	1.35	200.56'	0.379	76%
100 current	9.40	4.59	200.84'	0.673	51%
100 future	12.96	7.73	201.06'	0.969	40%

Proposed Bioretention Basin 6 (B-6) Table No. 9 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 9 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 6 (B-6)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	2.71	0.13	199.87'	0.156	95%
2 future	3.23	0.15	200.09'	0.198	95%
10 current	4.56	1.15	200.28'	0.308	75%
10 future	5.38	2.13	200.38'	0.376	60%
100 current	8.42	6.08	200.70'	0.631	28%
100 future	11.37	8.89	200.88'	0.884	22%

Proposed Bioretention Basin 7 (B-7) Table No. 10 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 10 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 7 (B-7)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	3.68	0.12	207.80'	0.194	97%
2 future	4.37	0.14	207.98'	0.241	97%
10 current	6.13	1.05	208.16'	0.383	83%
10 future	7.21	1.98	208.26'	0.471	73%
100 current	11.19	6.35	208.61'	0.806	43%
100 future	15.05	9.20	208.85'	1.139	39%

Proposed Bioretention Basin 8 (B-8) Table No. 11 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 11 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 8 (B-8)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.81	0.12	179.61'	0.233	97%
2 future	5.90	0.14	179.82'	0.283	98%
10 current	8.72	1.13	180.01'	0.496	87%
10 future	10.46	2.26	180.13'	0.635	78%
100 current	17.00	8.19	180.57'	1.166	52%
100 future	23.37	14.37	180.92'	1.697	38%

Proposed Bioretention Basin 9 (B-9) Table No. 12 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 12 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 9 (B-9)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	3.26	0.10	179.45'	0.170	97%
2 future	3.91	0.12	179.60'	0.213	97%
10 current	5.59	0.87	179.76'	0.345	84%
10 future	6.63	1.65	179.85'	0.429	75%
100 current	10.46	5.48	180.17'	0.748	48%
100 future	14.20	10.40	180.37'	1.065	27%

Proposed Bioretention Basin 10 (B-10) Table No. 13 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 13 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 10 (B-10)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	3.75	0.17	180.65'	0.221	96%
2 future	4.48	0.19	180.98'	0.279	96%
10 current	6.36	1.68	181.22'	0.433	74%
10 future	7.51	3.17	181.37'	0.528	58%
100 current	11.79	8.93	181.77'	0.885	24%
100 future	15.93	14.71	181.95'	1.239	8%

Proposed Bioretention Basin 11 (B-11) Table No. 14 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 14 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 11 (B-11)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.93	0.19	181.90'	0.300	96%
2 future	6.06	0.22	182.35'	0.376	96%
10 current	9.02	2.23	182.64'	0.602	75%
10 future	10.85	4.35	182.82'	0.745	60%
100 current	17.70	13.25	183.38'	1.298	25%
100 future	24.38	15.07	183.90'	1.854	38%

Proposed Bioretention Basin 12 (B-12) Table No. 15 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 15 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 12 (B-12)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.92	1.08	202.60'	0.291	78%
2 future	5.81	1.31	202.86'	0.367	77%
10 current	8.07	4.02	203.20'	0.560	50%
10 future	9.45	5.80	203.34'	0.677	39%
100 current	14.54	11.31	203.70'	1.117	22%
100 future	19.48	15.43	203.95'	1.547	21%

Proposed Bioretention Basin 13 (B-13) Table No. 16 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 16 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 13 (B-13)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.52	0.16	193.43'	0.288	97%
2 future	6.55	0.18	193.74'	0.347	97%
10 current	9.20	1.68	193.99'	0.558	82%
10 future	10.81	3.25	194.13'	0.690	70%
100 current	16.80	10.56	194.63'	1.195	37%
100 future	22.60	16.05	194.95'	1.695	29%

Proposed Bioretention Basin 14 (B-14) Table No. 17 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 17 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 14 (B-14)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	3.53	0.15	192.94'	0.218	96%
2 future	4.42	0.17	193.26'	0.281	96%
10 current	6.79	1.63	193.50'	0.459	76%
10 future	8.26	3.17	193.65'	0.572	62%
100 current	13.79	10.06	194.12'	1.011	27%
100 future	19.20	14.02	194.43'	1.454	27%

Proposed Bioretention Basin 15 (B-15) Table No. 18 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 18 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 15 (B-15)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.39	1.04	198.20'	0.325	81%
2 future	6.43	1.24	198.57'	0.411	81%
10 current	9.08	4.65	198.98'	0.634	49%
10 future	10.71	6.93	199.15'	0.770	35%
100 current	16.74	13.76	199.56'	1.282	18%
100 future	22.59	15.83	199.99'	1.786	30%

Proposed Bioretention Basin 16 (B-16) Table No. 19 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 19 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 16 (B-16)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.38	0.15	179.03'	0.273	97%
2 future	6.53	0.17	179.30'	0.330	97%
10 current	9.51	1.50	179.53'	0.559	84%
10 future	11.36	2.98	179.67'	0.706	74%
100 current	18.23	10.40	180.18'	1.272	43%
100 future	24.93	15.12	180.56'	1.835	39%

Proposed Bioretention Basin 17 (B-17) Table No. 20 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 20 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 17 (B-17)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.13	0.12	179.62'	0.240	98%
2 future	6.32	0.14	179.82'	0.290	98%
10 current	9.41	1.14	180.01'	0.524	88%
10 future	11.33	2.26	180.13'	0.676	80%
100 current	18.49	8.23	180.57'	1.257	55%
100 future	25.49	13.50	180.92'	1.837	47%

Proposed Bioretention Basin 18 (B-18) Table No. 21 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 21 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 18 (B-18)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.11	3.15	198.28'	0.316	38%
2 future	6.17	3.77	198.50'	0.402	39%
10 current	8.91	6.85	198.83'	0.627	23%
10 future	10.60	8.66	198.96'	0.766	18%
100 current	16.88	14.79	199.34'	1.290	12%
100 future	23.00	16.12	199.99'	1.809	30%

Proposed Bioretention Basin 19 (B-19) Table No. 22 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 22 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 19 (B-19)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	1.83	0.31	203.05'	0.114	83%
2 future	2.22	0.37	203.28'	0.146	84%
10 current	3.26	1.71	203.51'	0.230	48%
10 future	3.90	2.66	203.60'	0.282	32%
100 current	6.30	5.41	203.82'	0.479	14%
100 future	8.63	7.58	203.97'	0.675	12%

Proposed Bioretention Basin 20 (B-20) Table No. 23 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 23 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 20 (B-20)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.57	2.33	152.36'	0.344	58%
2 future	6.72	3.07	152.52'	0.438	54%
10 current	9.71	5.95	152.81'	0.682	39%
10 future	11.55	7.71	152.94'	0.834	33%
100 current	18.40	9.47	153.59'	1.405	49%
100 future	25.07	10.98	154.31'	1.970	56%

Proposed Bioretention Basin 21 (B-21) Table No. 24 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 24 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 21 (B-21)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.28	0.19	152.23	0.310	96%
2 future	6.42	0.21	152.64'	0.383	97%
10 current	9.40	2.12	152.93'	0.612	77%
10 future	11.24	4.12	153.10'	0.757	63%
100 current	18.11	11.52	153.69'	1.317	36%
100 future	24.80	15.90	154.25'	1.878	36%

Proposed Bioretention Basin 22 (B-22) Table No. 25 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 25 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 22 (B-22)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.83	0.16	149.27'	0.282	97%
2 future	5.98	0.19	149.62'	0.348	97%
10 current	9.02	1.81	149.88'	0.574	80%
10 future	10.90	3.55	150.04'	0.720	67%
100 current	17.95	11.51	150.59'	1.287	36%
100 future	24.84	12.69	151.18'	1.857	49%

Proposed Bioretention Basin 23 (B-23) Table No. 26 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 26 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 23 (B-23)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	3.66	0.70	145.95'	0.215	81%
2 future	4.33	0.89	146.13'	0.272	80%
10 current	6.04	2.69	146.39'	0.416	55%
10 future	7.07	3.95	146.50'	0.505	44%
100 current	10.92	7.98	146.79'	0.835	27%
100 future	14.64	11.27	146.99'	1.159	23%

Proposed Bioretention Basin 24 (B-24) Table No. 27 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 27 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 24 (B-24)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.55	0.53	146.20'	0.338	90%
2 future	6.73	0.63	146.48'	0.433	91%
10 current	9.78	3.10	146.81'	0.680	68%
10 future	11.66	5.18	146.98'	0.834	56%
100 current	18.67	12.41	147.47'	1.416	34%
100 future	25.50	13.92	147.98'	1.992	45%

Proposed Bioretention Basin 25 (B-25) Table No. 28 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 28 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 25 (B-25)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.46	0.53	145.82'	0.338	90%
2 future	6.63	0.62	146.20'	0.433	91%
10 current	9.67	3.52	146.57'	0.679	64%
10 future	11.55	5.90	146.76'	0.832	49%
100 current	18.56	12.49	147.30'	1.412	33%
100 future	25.39	13.52	147.95'	1.987	47%

Proposed Bioretention Basin 26 (B-26) Table No. 29 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 29 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 26 (B-26)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.01	0.25	145.66'	0.311	95%
2 future	6.16	0.29	146.08'	0.398	95%
10 current	9.14	2.56	146.40'	0.634	72%
10 future	10.98	4.84	146.59'	0.781	56%
100 current	17.88	11.38	147.22'	1.341	36%
100 future	24.61	12.47	147.97'	1.902	49%

Proposed Bioretention Basin 27 (B-27) Table No. 30 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 30 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 27 (B-27)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.05	3.84	184.80'	0.313	24%
2 future	6.09	4.62	184.95'	0.397	24%
10 current	8.78	7.34	185.21'	0.618	16%
10 future	10.44	9.00	185.33'	0.755	14%
100 current	16.61	15.06	185.69'	1.270	9%
100 future	22.62	20.29	185.99'	1.780	10%

Proposed Bioretention Basin 28 (B-28) Table No. 31 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 31 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 28 (B-28)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.21	3.17	178.99'	0.257	25%
2 future	5.04	4.04	179.08'	0.326	20%
10 current	7.19	6.29	179.24'	0.504	13%
10 future	8.50	7.57	179.32'	0.613	11%
100 current	13.40	12.14	179.58'	1.026	9%
100 future	18.15	15.91	179.83'	1.432	12%

Proposed Bioretention Basin 29 (B-29) Table No. 32 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 32 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 29 (B-29)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	1.19	0.07	187.06'	0.070	94%
2 future	1.45	0.09	187.15'	0.091	94%
10 current	2.13	0.12	187.37'	0.144	95%
10 future	2.55	0.13	187.52'	0.176	95%
100 current	4.11	0.86	187.81'	0.305	79%
100 future	5.63	2.51	187.99'	0.428	55%

Proposed Bioretention Basin 30 (B-30) Table No. 33 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 33 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 30 (B-30)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.39	0.13	176.66'	0.247	97%
2 future	5.57	0.16	176.92'	0.304	97%
10 current	8.71	0.21	177.60'	0.428	98%
10 future	10.69	0.23	178.01'	0.492	98%
100 current	18.11	3.28	178.53'	1.030	82%
100 future	25.37	9.96	178.99'	1.618	61%

Proposed Bioretention Basin 31 (B-31) Table No. 34 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 34 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 31 (B-31)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	1.48	0.13	194.16'	0.088	91%
2 future	1.76	0.15	194.39'	0.112	91%
10 current	2.49	1.05	194.58'	0.173	58%
10 future	2.93	1.81	194.66'	0.210	38%
100 current	4.58	3.95	194.85'	0.350	14%
100 future	6.19	5.48	194.97'	0.488	11%

Proposed Bioretention Basin 32 (B-32) Table No. 35 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 35 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 32 (B-32)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.95	2.89	195.79'	0.295	41%
2 future	5.84	3.37	195.99'	0.371	42%
10 current	8.12	5.92	196.28'	0.565	27%
10 future	9.51	7.44	196.40'	0.684	22%
100 current	14.64	12.65	196.73'	1.126	14%
100 future	19.61	17.42	196.99'	1.559	11%

Proposed Bioretention Basin 33 (B-33) Table No. 36 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 36 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 33 (B-33)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.35	1.63	188.72'	0.264	62%
2 future	5.18	1.92	188.96'	0.333	63%
10 current	7.34	4.37	189.27'	0.513	40%
10 future	8.66	5.86	180.39'	0.624	32%
100 current	13.56	11.01	189.73'	1.040	19%
100 future	18.32	14.93	189.99'	1.449	19%

Proposed Bioretention Basin 34 (B-34) Table No. 37 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 37 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 34 (B-34)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.07	1.15	192.22'	0.320	77%
2 future	6.20	1.36	192.49'	0.410	78%
10 current	9.12	4.23	192.85'	0.645	54%
10 future	10.93	6.27	193.00'	0.791	43%
100 current	17.69	12.97	193.44'	1.347	27%
100 future	24.28	14.19	193.98'	1.900	42%

Proposed Bioretention Basin 35 (B-35) Table No. 38 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 38					
PERFORMANCE SUMMARY FOR					
PROPOSED BIORETENTION BASIN 35 (B-35)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.67	3.45	192.14'	0.348	39%
2 future	6.82	4.12	192.31'	0.442	40%
10 current	9.78	6.95	192.60'	0.687	29%
10 future	11.60	8.74	192.73'	0.838	25%
100 current	18.38	12.11	193.27'	1.406	34%
100 future	24.97	13.76	193.99'	1.967	45%

Proposed Bioretention Basin 36 (B-36) Table No. 39 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 39					
PERFORMANCE SUMMARY FOR					
PROPOSED BIORETENTION BASIN 36 (B-36)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	6.07	1.16	192.34'	0.365	81%
2 future	7.21	1.37	192.57'	0.461	81%
10 current	10.16	3.95	192.90'	0.708	61%
10 future	11.95	5.80	193.05'	0.860	51%
100 current	18.61	11.24	193.48'	1.428	40%
100 future	25.07	12.65	193.99'	1.985	50%

Proposed Bioretention Basin 37 (B-37) Table No. 40 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 40 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 37 (B-37)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.13	0.16	195.23'	0.283	97%
2 future	6.31	0.58	195.33'	0.371	91%
10 current	9.36	2.81	195.58'	0.608	70%
10 future	11.25	4.80	195.74'	0.759	57%
100 current	18.32	10.42	196.26'	1.335	43%
100 future	25.22	11.26	196.83'	1.910	55%

Proposed Bioretention Basin 38 (B-38) Table No. 41 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 41 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 38 (B-38)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	3.95	0.16	206.37'	0.241	96%
2 future	4.86	0.19	206.72'	0.306	96%
10 current	7.23	1.76	206.97'	0.490	76%
10 future	8.70	3.40	207.12'	0.605	61%
100 current	14.20	10.36	207.60'	1.048	27%
100 future	19.57	14.36	207.90'	1.495	27%

Proposed Bioretention Basin 39 (B-39) Table No. 42 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 42 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 39 (B-39)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	3.47	0.78	202.59'	0.217	78%
2 future	4.23	0.94	202.90'	0.278	78%
10 current	6.19	3.59	203.25'	0.436	42%
10 future	7.40	5.31	203.38'	0.535	28%
100 current	11.93	10.24	203.71'	0.909	14%
100 future	16.35	14.35	203.94'	1.280	12%

Proposed Bioretention Basin 40 (B-40) Table No. 43 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 43 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 40 (B-40)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	2.91	0.16	203.51'	0.177	94%
2 future	3.51	0.19	203.85'	0.225	95%
10 current	5.08	1.68	204.10'	0.352	67%
10 future	6.04	3.13	204.24'	0.431	48%
100 current	9.61	8.02	204.60'	0.728	17%
100 future	13.10	11.31	204.79'	1.023	14%

Proposed Bioretention Basin 41 (B-41) Table No. 44 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 44 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 41 (B-41)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	3.35	0.17	183.71'	0.217	95%
2 future	4.21	0.20	184.12'	0.282	95%
10 current	6.49	1.96	184.39'	0.457	70%
10 future	7.91	3.81	184.56'	0.567	52%
100 current	13.25	10.73	185.02'	0.991	19%
100 future	18.48	13.48	185.38'	1.419	27%

Proposed Bioretention Basin 42 (B-42) Table No. 45 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 45 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 42 (B-42)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.11	1.46	183.65'	0.313	71%
2 future	6.13	1.71	184.00'	0.396	72%
10 current	8.74	5.10	184.40'	0.613	42%
10 future	10.35	7.23	184.56'	0.747	30%
100 current	16.31	10.40	185.19'	1.249	36%
100 future	22.10	11.82	185.98'	1.744	47%

Proposed Bioretention Basin 43 (B-43) Table No. 46 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 46 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 43 (B-43)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.82	1.48	178.32'	0.301	69%
2 future	5.85	1.76	178.57'	0.383	70%
10 current	8.52	4.56	178.91'	0.600	47%
10 future	10.17	6.41	179.06'	0.735	37%
100 current	16.31	12.24	179.46'	1.244	25%
100 future	22.30	13.70	179.99'	1.749	39%

Proposed Bioretention Basin 44 (B-44) Table No. 47 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 47 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 44 (B-44)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.73	0.64	167.30'	0.294	86%
2 future	5.76	0.78	167.60	0.376	86%
10 current	8.44	3.46	167.95'	0.593	59%
10 future	10.10	5.57	168.12'	0.728	45%
100 current	16.30	12.48	168.55'	1.239	23%
100 future	22.35	14.55	168.97'	1.746	35%

Proposed Bioretention Basin 45 (B-45) Table No. 48 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 48 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 45 (B-45)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.50	0.27	168.45'	0.264	94%
2 future	5.29	0.31	168.85'	0.331	94%
10 current	7.33	2.41	169.16'	0.505	67%
10 future	8.56	4.31	169.32'	0.611	50%
100 current	13.12	10.55	169.73'	1.005	20%
100 future	17.53	14.67	169.96'	1.389	16%

Proposed Bioretention Basin 46 (B-46) Table No. 49 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 49 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 46 (B-46)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	6.25	0.10	184.30'	0.209	98%
2 future	7.65	0.12	184.44'	0.249	98%
10 current	11.29	0.78	184.58'	0.526	93%
10 future	13.55	1.54	184.68'	0.706	89%
100 current	21.98	5.96	185.04'	1.391	73%
100 future	30.20	11.29	185.37'	2.076	63%

Proposed Bioretention Basin 47 (B-47) Table No. 50 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 50 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 47 (B-47)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.39	0.11	189.35'	0.213	98%
2 future	6.64	0.12	189.51'	0.257	98%
10 current	9.95	0.89	189.67'	0.507	91%
10 future	11.99	1.73	189.77'	0.668	86%
100 current	19.65	6.66	190.16'	1.287	66%
100 future	27.12	12.19	190.50'	1.905	55%

Proposed Bioretention Basin 48 (B-48) Table No. 51 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 51 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 48 (B-48)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.55	0.12	187.94'	0.229	97%
2 future	5.58	0.15	188.16'	0.281	97%
10 current	8.26	0.19	188.74'	0.393	98%
10 future	9.91	0.69	188.86'	0.517	93%
100 current	16.11	5.28	189.29'	1.015	67%
100 future	22.15	16.61	189.61'	1.517	25%

Proposed Bioretention Basin 49 (B-49) Table No. 52 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 52 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 49 (B-49)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.89	0.17	184.88'	0.315	97%
2 future	7.06	0.20	185.24'	0.379	97%
10 current	10.06	1.89	185.51'	0.614	81%
10 future	11.90	3.68	185.67'	0.763	69%
100 current	18.74	11.95	186.21'	1.334	36%
100 future	25.39	13.56	186.74'	1.900	47%

Proposed Bioretention Basin 50 (B-50) Table No. 53 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 53 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 50 (B-50)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.52	0.15	185.22'	0.285	97%
2 future	6.66	0.18	185.51'	0.344	97%
10 current	9.64	1.55	185.75'	0.573	84%
10 future	11.47	3.07	185.90'	0.720	73%
100 current	18.30	10.59	186.41'	1.284	42%
100 future	24.95	14.47	186.81'	1.845	42%

Proposed Bioretention Basin 51 (B-51) Table No. 54 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 54 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 51 (B-51)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	3.10	1.93	188.57'	0.196	38%
2 future	3.79	2.59	188.68'	0.251	32%
10 current	5.59	4.51	188.86'	0.395	19%
10 future	6.70	5.58	188.94'	0.485	17%
100 current	10.84	8.66	189.23'	0.826	20%
100 future	14.89	9.77	189.70'	1.165	34%

Proposed Bioretention Basin 52 (B-52) Table No. 55 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 55 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 52 (B-52)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.99	1.78	194.92'	0.313	64%
2 future	6.07	2.10	195.23'	0.400	65%
10 current	8.89	5.49	195.62'	0.628	38%
10 future	10.63	7.63	195.78'	0.770	28%
100 current	17.13	12.98	196.25'	1.306	24%
100 future	23.47	14.18	196.98'	1.839	40%

Proposed Bioretention Basin 53 (B-53) Table No. 56 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 56 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 53 (B-53)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.29	0.27	202.48'	0.322	95%
2 future	6.38	0.32	202.93'	0.409	95%
10 current	9.22	2.72	203.26'	0.640	70%
10 future	10.96	5.10	203.46'	0.783	53%
100 current	17.46	13.71	203.99'	1.322	21%
100 future	23.78	16.29	204.42'	1.856	32%

Proposed Bioretention Basin 54 (B-54) Table No. 57 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 57 PERFORMANCE SUMMARY FOR PROPOSED BIORETENTION BASIN 54 (B-54)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	5.94	0.21	203.20'	0.343	96%
2 future	7.07	0.24	203.70'	0.422	97%
10 current	9.96	2.52	204.01'	0.654	75%
10 future	11.73	4.88	204.21'	0.798	58%
100 current	18.28	17.94	204.62'	1.345	2%
100 future	24.63	24.27	204.68'	1.892	1%

Proposed Bioretention Basin 55 (B-55) Table No. 58 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 58					
PERFORMANCE SUMMARY FOR					
PROPOSED BIORETENTION BASIN 55 (B-55)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.29	1.39	193.38'	0.264	68%
2 future	5.16	1.65	193.62'	0.336	68%
10 current	7.42	4.22	193.94'	0.522	43%
10 future	8.81	5.82	194.07'	0.637	34%
100 current	13.99	10.53	194.45'	1.070	25%
100 future	19.02	11.86	194.98'	1.498	38%

Proposed Bioretention Basin 56 (B-56) Table No. 59 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 59					
PERFORMANCE SUMMARY FOR					
PROPOSED BIORETENTION BASIN 56 (B-56)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.69	1.24	193.33'	0.292	74%
2 future	5.68	1.48	193.59'	0.372	74%
10 current	8.25	4.28	193.94'	0.581	48%
10 future	9.83	6.17	194.09'	0.711	37%
100 current	15.74	12.35	194.48'	1.201	22%
100 future	21.50	13.88	194.98'	1.688	35%

Proposed Bioretention Basin 57 (B-57) Table No. 60 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 60					
PERFORMANCE SUMMARY FOR					
PROPOSED BIORETENTION BASIN 57 (B-57)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	2.78	0.59	202.93'	0.170	79%
2 future	3.34	0.70	203.14'	0.216	79%
10 current	4.79	2.40	203.40'	0.336	50%
10 future	5.69	3.58	203.50'	0.410	37%
100 current	9.00	7.28	203.78'	0.687	19%
100 future	12.22	10.28	203.97'	0.962	16%

Proposed Bioretention Basin 58 (B-58) Table No. 61 below summarizes the inflow, outflow, and storage characteristics of the basin.

TABLE NO. 61					
PERFORMANCE SUMMARY FOR					
PROPOSED BIORETENTION BASIN 58 (B-58)					
Storm Freq.	Peak Inflow (cfs)	Peak Outflow (cfs)	Peak Storage		Attenuation
			Elevation	Volume (af)	
2 current	4.26	0.16	200.24'	0.256	96%
2 future	5.26	0.19	200.59'	0.322	96%
10 current	7.89	1.78	200.85'	0.520	77%
10 future	9.52	3.47	201.00'	0.646	64%
100 current	15.61	11.06	201.51'	1.137	29%
100 future	21.56	14.23	201.89'	1.630	34%

VII. ASSESSMENT OF COMPLIANCE WITH STORMWATER MANAGEMENT REQUIREMENTS

This section of this report is intended to demonstrate that the stormwater management system designed for the Venue at Hopewell project, as above described, is compliant with all of the regulatory requirements pursuant to the applicable Rules. The various considerations relevant to the design of the system were listed in Subsection II of this report. To reiterate, these considerations are as follows:

- Maintenance of average annual groundwater recharge volume
- Compliance with applicable Water Quality Management Standards
- “Quantity Control,” achieved through peak flow attenuation
- Providing an effective collection and conveyance system
- Assuring minimization of erosion and sedimentation
- Providing for proper maintenance of the system
- Use of Non-structural strategies

Except for the requirement relevant to the maintenance of the proposed system, this section of this report will address each of the above considerations with respect to complying with the applicable rules and standards. As indicated above, the requirement relevant to system maintenance is addressed in an accompanying report.

A. Maintenance of Average Annual Groundwater Recharge

As stated above, groundwater recharge standards and requirements apply to the proposed improvements associated with the project site and are satisfied by either:

1. Demonstrating through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or
2. Demonstrating through hydrologic and hydraulic analysis that the increase of stormwater runoff volume from pre-construction to post-construction for the projected two-year storm, as defined and determined pursuant to N.J.A.C. 7:8- 5.7(d), is infiltrated.

Refer to the Tables and Appendices for details.

B. Water Quality Management

The project proposes to increase the total impervious coverage on the site by approximately 50.98 acres. As this increase is greater than 0.25 acres, the regulatory requirements at NJAC 7:8-5.5 are applicable.

For the purposes of water quality, the NJDEP considers roof, sidewalks, patios and similar impervious areas “clean” and subsequently do not require TSS removal. The parking structures are included as analogous to pavement as it would generate TSS in runoff.

C. Quantity Control (Peak Flow Attenuation)

The project’s approach for compliance with the regulatory requirements for “quantity control” are set forth at Subpart 5.6(b)(3) of the Stormwater Management Regulations (NJAC 7:8). Specifically, the stormwater management basin for this project at all design points have been designed to meet one of the requirements stipulated at Subparagraph i of the State Rules (NJAC 7:8-5.6(b)(3), namely:

- *Design stormwater management measures so that the post-construction peak runoff rates for the current and projected two-, 10-, and 100-year storm events, as defined and determined pursuant to N.J.A.C. 7:8-5.7(c) and (d), respectively, are 50, 75, and 80 percent, respectively, of the pre-construction peak runoff rates. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed.*

Table No. 62 & 63 below summarizes the existing and proposed peak runoff from the hydrographs and routing through the bioretention basins for Design Point 1 and demonstrates compliance with the regulatory requirements.

TABLE NO. 62			
SUMMARY OF CURRENT EXISTING AND PROPOSED PEAK RATES OF RUNOFF AT DESIGN POINT 1 (DP1)			
STORM FREQUENCY (YEARS)	EXISTING (CURRENT) PEAK (cfs)	ALLOWABLE (CURRENT) PEAK (cfs)	PROPOSED (CURRENT) PEAK (cfs)
2	129.60	97.71	92.17
10	306.71	268.98	204.40
100	714.35	644.04	618.50

TABLE NO. 63			
SUMMARY OF FUTURE EXISTING AND PROPOSED PEAK RATES OF RUNOFF AT DESIGN POINT 1 (DP1)			
STORM FREQUENCY (YEARS)	EXISTING (FUTURE) PEAK (cfs)	ALLOWABLE (FUTURE) PEAK (cfs)	PROPOSED (FUTURE) PEAK (cfs)
2	177.25	133.64	122.66
10	390.16	342.16	269.33
100	1,039.69	937.36	883.60

Table No. 64 & 65 below summarizes the existing and proposed peak runoff from the hydrographs and routing through the bioretention basins for Design Point 2 and demonstrates compliance with the regulatory requirements.

TABLE NO. 64			
SUMMARY OF CURRENT EXISTING AND PROPOSED PEAK RATES OF RUNOFF AT DESIGN POINT 2 (DP2)			
STORM FREQUENCY (YEARS)	EXISTING (CURRENT) PEAK (cfs)	ALLOWABLE (CURRENT) PEAK (cfs)	PROPOSED (CURRENT) PEAK (cfs)
2	56.01	35.74	33.49
10	133.44	109.29	76.99
100	311.29	266.22	259.90

TABLE NO. 65			
SUMMARY OF FUTURE EXISTING AND PROPOSED PEAK RATES OF RUNOFF AT DESIGN POINT 2 (DP2)			
STORM FREQUENCY (YEARS)	EXISTING (FUTURE) PEAK (cfs)	ALLOWABLE (FUTURE) PEAK (cfs)	PROPOSED (FUTURE) PEAK (cfs)
2	76.65	48.90	43.28
10	169.92	139.17	118.43
100	454.93	389.06	357.34

Table No. 66 & 67 below summarizes the existing and proposed peak runoff from the hydrographs and routing through the bioretention basins for Design Point 3 and demonstrates compliance with the regulatory requirements.

TABLE NO. 66			
SUMMARY OF CURRENT EXISTING AND PROPOSED PEAK RATES OF RUNOFF AT DESIGN POINT 3 (DP3)			
STORM FREQUENCY (YEARS)	EXISTING (CURRENT) PEAK (cfs)	ALLOWABLE (CURRENT) PEAK (cfs)	PROPOSED (CURRENT) PEAK (cfs)
2	70.10	56.78	54.11
10	165.93	150.17	120.37
100	385.22	355.95	340.46

TABLE NO. 67			
SUMMARY OF FUTURE EXISTING AND PROPOSED PEAK RATES OF RUNOFF AT DESIGN POINT 3 (DP3)			
STORM FREQUENCY (YEARS)	EXISTING (FUTURE) PEAK (cfs)	ALLOWABLE (FUTURE) PEAK (cfs)	PROPOSED (FUTURE) PEAK (cfs)
2	95.65	77.48	71.75
10	211.04	190.99	157.26
100	558.86	516.39	481.25

D. Soil Erosion and Sediment Control Compliance

The project has also been designed to minimize erosion and sedimentation in accordance with *The Standards for Soil Erosion and Sediment Control in New Jersey*. A “Soil Erosion and Sediment Control Plan” is included in the set of project plans, specifying numerous practices to achieve this goal. The project’s “Soil Erosion and Sediment Control Plan” is subject to review and approval by the Mercer County Soil Conservation District (MCSCD). The District’s certification of the plan is required before any construction may commence.

E. Collection and Conveyance System Design

The project’s storm water management system also includes a network of storm sewer pipes to convey the stormwater runoff to and from the various management facilities. Similarly, stormwater inlets are strategically located to collect runoff from the surface of the ground.

F. Use of Non-Structural Strategies

The design of the project's storm water management system also included the implementation of Non-Structural Strategies. Foremost, redevelopment in itself is a low impact design strategy as it takes under-utilized, previously developed land and creates new uses on it instead of developing virgin forest or farm fields. The site also implements non-structural strategies such as utilizing existing stabilized discharge points and preventative pollution source measures.

VIII. REFERENCES

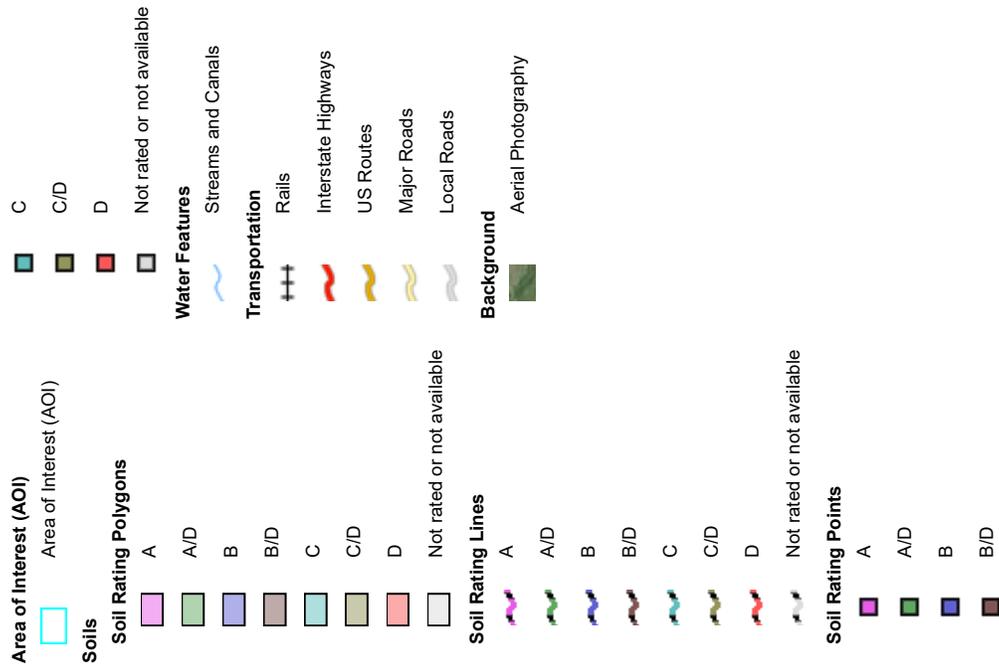
The following documents were relied upon during the preparation of the project's stormwater management plan:

1. New Jersey Stormwater Best Management Practices Manual, New Jersey Department of Environmental Protection; Last Updated: October 6, 2023.
2. Residential Site Improvement Standards, New Jersey Administrative Code Title 5, Chapter 21; Effective Date: March 30, 2021.
3. Standards for Soil Erosion and Sediment Control in New Jersey, New Jersey State Soil Conservation Committee; January 2014 and revised July 2017.
4. Urban Hydrology for Small Watersheds, United States Department of Agriculture, Soil Conservation Service; June, 1986.
5. Soil Survey of Mercer County, United States Department of Agriculture, Soil Conservation Service.
< <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>>
6. NJ-GeoWeb 3.0, New Jersey Department of Environmental Protection, Bureau of GIS. < <https://www.nj.gov/dep/gis/geoweb splash.htm>>

Venue at Hopewell
Stormwater Management Report
June 25, 2024
BCG File: 081391-01-001

APPENDIX 1
**NRCS SOILS RESOURCE REPORT
AND
GEOTECHNICAL REPORT**

MAP LEGEND



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Mercer County, New Jersey
 Survey Area Data: Version 15, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 2, 2019—Jul 9, 2019

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BoyAt	Bowmansville silt loam, 0 to 2 percent slopes, frequently flooded	B/D	35.5	4.2%
BucB	Bucks silt loam, 2 to 6 percent slopes	B	256.2	30.1%
BucB2	Bucks silt loam, 2 to 6 percent slopes, eroded	B	74.4	8.7%
BucC2	Bucks silt loam, 6 to 12 percent slopes, eroded	B	30.1	3.5%
ChcA	Chalfont silt loam, 0 to 2 percent slopes	C	1.2	0.1%
ChcB	Chalfont silt loam, 2 to 6 percent slopes	C	17.3	2.0%
DOZA	Doylestown and Reaville variant silt loams, 0 to 2 percent slopes	D	29.9	3.5%
DOZB	Doylestown and Reaville variant silt loams, 2 to 6 percent slopes	D	9.3	1.1%
KkoC	Klinesville channery loam, 6 to 12 percent slopes	D	14.8	1.7%
KkoE	Klinesville channery loam, 18 to 35 percent slopes	D	30.1	3.5%
LemB2	Lehigh silt loam, 2 to 6 percent slopes, eroded	C	8.1	1.0%
PeoB	Penn channery silt loam, 2 to 6 percent slopes	C	69.0	8.1%
PeoC	Penn channery silt loam, 6 to 12 percent slopes	C	93.6	11.0%
PeoD	Penn channery silt loam, 12 to 18 percent slopes	C	15.4	1.8%
QukB	Quakertown silt loam, 2 to 6 percent slopes	C	17.5	2.1%
QukB2	Quakertown silt loam, 2 to 6 percent slopes, eroded	C	0.0	0.0%
QumB	Quakertown channery silt loam, 2 to 6 percent slopes	C	7.3	0.9%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
QumC2	Quakertown channery silt loam, 6 to 12 percent slopes, eroded	C	7.8	0.9%
REFA	Readington and Abbottstown silt loams, 0 to 2 percent slopes	C	2.0	0.2%
REFB	Readington and Abbottstown silt loams, 2 to 6 percent slopes	C	17.3	2.0%
REFB2	Readington and Abbottstown silt loams, 2 to 6 percent slopes, eroded	C	12.9	1.5%
REFC2	Readington and Abbottstown silt loams, 6 to 12 percent slopes, eroded	C	5.1	0.6%
RehA	Reaville silt loam, 0 to 2 percent slopes	C	0.9	0.1%
RehB	Reaville silt loam, 2 to 6 percent slopes	C	61.7	7.2%
RehC2	Reaville silt loam, 6 to 12 percent slopes, eroded	C	23.1	2.7%
RorAt	Rowland silt loam, 0 to 2 percent slopes, frequently flooded	C	10.6	1.2%
Totals for Area of Interest			851.2	100.0%

Description

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 assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

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 the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



STORMWATER MANAGEMENT TESTING REPORT

Venue at Hopewell

Somerset County, New Jersey

December 1, 2023



Prepared For:

US Home Corporation (dba Lennar)

2465 Kuser Road, Floor 3

Hamilton, New Jersey 08690

Attn: Mitchell Newman

Prepared By:

Geo-Technology Associates, Inc.

Geotechnical and Environmental Consultants

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GTA Project No: 31191132x1

GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND
ENVIRONMENTAL CONSULTANTS

A Practicing Geoprofessional Business Association Member Firm



December 1, 2023

US Home Corporation (dba Lennar)

2465 Kuser Road, Floor 3
Hamilton, New Jersey 08690

Attn: Mitchell Newman

Re: Stormwater Management Testing Report
Venue at Hopewell
Hopewell Township, Mercer County, New Jersey

Dear Mitch:

In accordance with our agreement dated October 2, 2023, Geo-Technology Associates, Inc. (GTA) has performed a geotechnical exploration for the planning and design of stormwater management (SWM) facilities related to a proposed residential development to be constructed in Hopewell Township, Mercer County, New Jersey. The exploration consisted of excavating 152 test pits with in-situ infiltration testing, performing 60 basin flood tests, and visually classifying the encountered soils. The results of the field testing, and GTA's recommendations regarding the design and construction of the proposed SWM basins are included in this report.

GTA appreciates the opportunity to have been of assistance to you on this project. Please contact our office at (732) 271-9301 if you have questions or require additional information. Please note that, unless you make other arrangements, GTA will discard all soil samples obtained from the explorations 60 days after the date of this report.

Sincerely,

GEO-TECHNOLOGY ASSOCIATES, INC.

Allison Tether, P.G.
Senior Project Manager

Kyle T. Plaza, P.E.
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Dennis C. Loh, P.E.
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Important Information About This Geotechnical Engineering Report

Appendix A – Figures

Figure No. 1	Site Location Map
Figure No. 2	Test Pit Location Plan

Appendix B – Subsurface Summary Table

Appendix C – Exploration Logs

Notes for Exploration Logs
Logs of Test Pits (153 pages)

Appendix D – Laboratory Test Results

Particle Size Distribution Reports (25 pages)
Liquid and Plastic Limits Test Reports (3 pages)

1.0 INTRODUCTION

This report presents the results of a geotechnical engineering exploration performed by Geo-Technology Associates, Inc. (GTA) for the planning and design of stormwater management (SWM) facilities related to a proposed residential development in Hopewell Township, Mercer County, New Jersey.

1.1 Study Purpose

GTA conducted this study to develop confirmation-dependent geotechnical engineering recommendations for the proposed SWM facilities to be constructed at the site. The scope of GTA's study included a field exploration and geotechnical engineering analyses. The field exploration included a total of 152 test pit excavations with in-situ infiltration testing and 60 basin flood tests within the proposed SWM basin areas. The conclusions and recommendations presented in this report were derived from engineering analyses of field data and details of the proposed SWM facilities as detailed herein.

1.2 Reference Documents

GTA was provided with a plan prepared by Bowman Consulting Group, Ltd. (Bowman) titled "Test Pit Location Map" dated September 19, 2023. The plan indicates the site boundaries, existing topography, and the layout and dimensions of the proposed SWM basins. The plan was marked up to show the locations of 152 requested test pits with infiltration testing within the proposed SWM basin areas, and 11 of the proposed basins were highlighted to indicate the areas where infiltration was a priority for design purposes. Those 11 basins include a total of 60 test locations, where basin flood testing was requested in addition to in-situ infiltration testing within the overburden soils.

2.0 PROJECT DESCRIPTION

2.1 Site Location

The site is situated north and west of Nursery Road, west of its intersection with Scotch Road. The general location of the site is shown on the [Site Location Map](#), which is Figure 1 in Appendix A of this report.

2.2 Existing Site Conditions

At the time of our study, the central portion of the subject site was predominantly agricultural fields and wooded areas were present in the northwestern and southeastern portions of the site. An existing farm building was located in the southwestern corner of the site with an access drive leading from Nursery Road to the south. The northeastern corner of the site contained debris from

former structures that have since been demolished, and a cleared path led to the area of the former buildings from Nursery Road to the east. A stream running roughly northeast to southwest was present in the southeastern portion of the site, and mapped wetlands were indicated on the plan surrounding the stream channel. Another small stream was present in the northwestern corner of the site, and was also mapped as a wetlands area.

Based on our visual observations and review of the ground surface topography shown on the plan provided to us, the existing ground surface generally slopes gently across the site from about Elevation (EL) 220 feet in the northeastern corner to about EL 200 feet in the central portion of the site. From the central portion of the site, the ground surface slopes moderately down to about EL 150 feet in the southwestern corner of the site and to about EL 160 feet along the stream channels in the northwestern and southeastern corners.

2.3 Proposed SWM Basin Construction

Based on the plan provided to us, we understand that the proposed residential development will include a total of 48 SWM basins ranging in size from about 1,100 square feet to about 85,000 square feet. The plan also indicates 2 areas in the central and northwestern portions of the site where test pits were requested but the proposed basin boundaries were not outlined on the plan.

The project is in the preliminary phases of design and the grading plans have not yet been developed. As such, the proposed basin bottom elevations have not been determined. However, based on conversations with Bowman, we understand the basin bottoms will likely be established at about the central topographic contour within each basin to balance the amount of cuts and fills required for earthwork.

3.0 GEOTECHNICAL ENGINEERING STUDY

3.1 Geologic Review

The subject site is situated within the Piedmont physiographic province characterized by a low rolling plain divided by a series of higher ridges and predominantly underlain by sedimentary rocks of Triassic and Jurassic age. According to the *Surficial Geology of New Jersey* digital data map (DGS07-2, 2013) published as ESRI's Geographic Information Systems (GIS) shapefiles by the New Jersey Geological Survey as part of the Digital Geodata Series, the surficial geology of the majority of the site consists of weathered shale, mudstone, and sandstone. This unit is described as reddish-brown, yellow, and light gray silty sand to silty clay with shale, mudstone, or sandstone fragments. The weathered zone can be as much as 10 feet thick overlying shale and mudstone, and up to 30 feet thick overlying sandstone. The surficial geology of the southern portion of the site is mapped

as Aeolian deposits, which consist of yellow-brown and pale brown windblown fine sand and silt. The unit can be as much as 15 feet in thickness.

The site is underlain by the Passaic Formation of the Lower Jurassic and Upper Triassic Period of the Mesozoic Era, as shown on the *Bedrock Geologic Map of Central and Southern New Jersey (1998)* published by the United States Geological Survey. This formation is described as predominantly reddish-brown to maroon and purple, fine-grained sandstone, siltstone, and mudstone separated by olive-gray, dark-gray, or black siltstone or shale.

Please refer to the referenced publications for more detailed descriptions of the geologic members.

3.2 Subsurface Exploration

The subsurface exploration program consisted of excavating a total of 152 test pits with in-situ infiltration testing and performing 60 basin flood tests at the requested locations within the proposed SWM basin areas. The test pits were excavated on October 12, 2023 through November 15, 2023 by J.A. Neary Excavating using a Case CX160 excavator and extended to depths ranging from approximately 3 to 12 feet below the existing ground surface. In-situ infiltration testing was performed adjacent to each of the test pits using a double-ring infiltrometer. The exploration locations were selected, surveyed, and staked in the field by Bowman prior to our exploration. The approximate locations of the explorations performed for this study are shown on the Test Pit Location Plan, which is included as Figure 2 in Appendix A. Detailed descriptions of the subsurface conditions encountered in the test pits are indicated on the Logs of Test Pits, which are included in Appendix B. The ground surface elevations shown on the test pit logs were provided by Bowman. The stakes for Test Pits TP-1131 and TP-1132 could not be located in the field. Therefore, the test pits were located in the field by GTA using a hand-held GPS unit and the ground surface elevations were estimated by interpolating between topographic contours shown on the plans provided to us.

The soil samples retrieved from the test pits were delivered to GTA's laboratory for visual classification by a geotechnical engineer and limited laboratory testing. The soil descriptions indicated on the logs are based on visual observations of the individual soil samples as summarized in the Notes for Exploration Logs included in Appendix B, supplemented by the laboratory test results.

3.3 Subsurface Conditions

The results of the subsurface exploration were, for the most part, consistent with the known site history and geologic mapping of the project site. The specific subsurface conditions at each

exploration location are shown on the individual exploration logs within Appendix B. GTA has summarized the subsurface conditions encountered in the following sections.

3.3.1 Surficial Materials

An approximately 6- to 12-inch-thick layer of topsoil was encountered at the ground surface in all of the explorations performed for this study, averaging about 10 inches. The reported topsoil thicknesses generally represent the upper layer of dark and organic soil.

3.3.2 Existing Fill

Two of the explorations performed for this study (TP-1135 and TP-1136) encountered materials that GTA representatives visually identified as existing fill materials. These explorations were performed in an area of the site that was once developed with residential homes that have been razed. The encountered fill generally extended to depths ranging from about 2 to 4 feet below the ground surface and predominantly consisted of sandy silts with gravel and contained debris including bricks, concrete fragments, plastic, scrap metal, and an abandoned utility line.

3.3.3 Native Soils

Beneath the topsoil and existing fill, where present, the explorations encountered native surficial soils consistent with the geologic mapping of the site. The subsurface profile predominantly consisted of silts with varying amounts of granular materials (ML), silty sands (SM), and silty gravel (GM) soils that graded into highly weathered shale bedrock at all of the exploration locations.

3.3.4 Weathered Rock

GTA defines highly weathered rock (HWR) in test pits by visual identification of the rock plate sizes and increased excavation effort. The surface of HWR was encountered in all of the explorations performed for this study at depths ranging from about 1 to 8 feet below the existing surface grades. Refusal to further excavation was encountered in the test pits at depths ranging from about 4 to 12 feet below the ground surface which can be indicative of more competent bedrock materials.

3.3.5 Groundwater

Groundwater was not encountered in the test pits performed for this study. However, seepage of perched or trapped water was observed in 9 of the test pits (TP-1002, TP-1006, TP-1007, TP-1014, TP-1057, TP-1062, TP-1063, TP-1102, and TP-1150) at depths ranging from about 5 to 10 feet below the ground surface. Perched water conditions should be anticipated at varying depths throughout the site in areas where granular soils are underlain by less permeable, fine-grained soils or rock.

Soil mottling indicative of the seasonal high groundwater (SHGW) level was not observed in the test pits performed for this study. Therefore, we believe the SHGW table is below the depths excavated in the test pits.

3.4 Laboratory Testing

Laboratory testing performed for this study included grain-size distribution and Atterberg limits testing for classification of the soils in accordance with the Unified Soil Classification System (USCS), as well as natural moisture content determinations. Detailed results of the laboratory testing performed for this study are included in Appendix C. The results of the laboratory tests are summarized in the following table:

SUMMARY OF LABORATORY TEST RESULTS

Test Pit Location	Depth (ft.)	LL (%)	PI (%)	USCS Classification	NMC (%)	Fines (%)
TP-1001	3½	NV	NV	SILT (ML)	19.7	91.9
TP-1008	4	NV	NV	Sandy SILT (ML)	22.1	62.1
TP-1012	2	NV	NV	SILT with sand (ML)	22.6	76.0
TP-1016	1	NP	NP	Silty GRAVEL with sand (GM)	19.7	47.1
TP-1017	½	NP	NP	Silty GRAVEL (GM)	17.9	30.9
TP-1022	1	NV	NV	Gravelly SILT (ML)	20.5	63.2
TP-1026	3	NV	NV	Gravelly SILT with sand (ML)	21.6	52.0
TP-1028	1	NV	NV	SILT (ML)	24.2	85.3
TP-1037	2½	NV	NV	Gravelly SILT with sand (ML)	16.4	57.7
TP-1043	1½	NV	NV	SILT (ML)	21.6	91.7
TP-1049	2	NV	NV	SILT with sand (ML)	11.9	70.1
TP-1051	3	NV	NV	Gravelly SILT with sand (ML)	10.0	52.9
TP-1053	3	NV	NV	SILT (ML)	22.1	86.6
TP-1057	4	NV	NV	Lean CLAY (CL)	22.1	96.5
TP-1073	2	NP	NP	Silty GRAVEL with sand (GM)	16.4	29.0
TP-1080	2	NP	NP	Silty GRAVEL (GM)	15.6	31.2
TP-1086	2	32.6	10.5	Lean CLAY (CL)	20.3	89.5
TP-1094	2	NV	NV	SILT (ML)	22.7	92.3

Test Pit Location	Depth (ft.)	LL (%)	PI (%)	USCS Classification	NMC (%)	Fines (%)
TP-1098	2	NV	NV	SILT with sand (ML)	19.4	76.1
TP-1104	1	33.9	12.2	Lean CLAY with sand (CL)	23.7	79.5
TP-1119	1	NP	NP	Gravelly SILT with sand (ML)	16.4	52.2
TP-1121	2	NV	NV	SILT (ML)	15.2	99.6
TP-1127	2	NV	NV	Sandy SILT with gravel (ML)	14.5	58.3
TP-1135A	2	32.0	8.3	SILT (ML)	22.2	93.8
TP-1149	1½	NV	NV	Sandy SILT (ML)	23.0	68.3

Note: LL=Liquid Limit, PI=Plasticity Index, NV=Not Verified, NP=Non-Plastic, NMC=Natural Moisture Content, Fines=Material passing the #200 sieve

3.5 Infiltration Test Results

In-situ infiltration testing was performed within the overburden soils at 147 of the 152 test pit locations at depths ranging from about 6 inches to 5 feet below the existing surface grades. The tests were performed using a double-ring infiltrometer in general accordance with Chapter 12 of the New Jersey Stormwater Best Management Practices Manual (Chapter 12). Infiltration tests were attempted at the remaining 5 locations; however, the equipment could not be properly seated to prevent leaking due to the amount of gravel and shale fragments within the soils to be tested, and the tests were abandoned.

The depths of the tests performed at the site and measured infiltration rates are summarized in the Subsurface Summary Table included in Appendix C.

3.6 Basin Flood Test Results

Due to the presence of shallow bedrock at the site, basin flood testing was performed at 60 locations to establish the permeability rate of the bedrock in accordance with Subsection A3 of Chapter 12. A basin flood test involves excavating a “basin” with a minimum bottom area of 50 square feet. If groundwater is observed within the basin, the basin flood test shall not be used. If no groundwater is observed, the basin shall be filled with 12 inches (about 375 gallons) of water and allowed to drain completely. If the time required for the basin to drain is greater than 24 hours, the test shall be terminated, and the rock shall be considered to be a massive rock substratum. If the basin drains completely within 24 hours, the basin shall be filled with another 12 inches of water. If the basin drains completely within 24 hours of the second filling, the rock shall be

considered to be fractured rock substratum, and suitable for infiltration with a design infiltration rate of 0.5 inches per hour.

Sixty basins with dimensions of approximately 10 feet by 5 feet were excavated at the requested locations. The excavations for the basin flood tests were terminated at depths ranging from about 4 to 9½ feet below the ground surface within the weathered rock that was encountered. Following excavation, the basins were filled with 12 inches of water and the water levels were checked 24 hours after filling. Following the initial 24-hour presoak period, it was observed that 39 of the basins did not drain completely. Therefore, the shale bedrock at these locations should be considered a massive rock substratum per Chapter 12 and is not suitable for infiltration.

Following the initial 24-hour presoak period, it was observed that the water drained completely from within the remaining 21 basins. These basins were refilled to 12 inches above the basin bottom levels. Following the second 24-hour period, it was observed that all 21 basins had completely drained again. Therefore, per Chapter 12, the shale bedrock at these locations should be classified as a fractured rock substratum with a design infiltration rate of 0.5 inches per hour.

Please refer to the Subsurface Summary Table included in Appendix C for more detailed information regarding the individual test locations and depths of basin flood tests performed.

4.0 CONCLUSIONS

The primary conditions that affect the capacity to infiltrate water are the soil gradation and density properties and the presence of hydraulically restrictive layers such as silt or clay (fines), rock, or groundwater, each of which would restrict the flow of water into the underlying aquifer. The subsurface profile encountered at the site generally consisted of fine-grained soils (ML, CL) and residual silty sand (SM) and silty gravel (GM) soils, overlying highly weathered shale bedrock. The surface of weathered rock was encountered in all of the explorations performed for this study at depths ranging from about 1 to 8 feet below the existing surface grades. Static groundwater seepage was not observed in the test pits.

In general, the more granular portions of the residual overburden soils tested generally appeared receptive to infiltration with measured infiltration rates ranging up to 24 inches per hour. However, the fine-grained residual soils and the granular residual soils containing appreciable amounts of fines were generally not receptive or only slightly receptive to infiltration, which is typical for soils with high fines contents. The overall results of the testing across the site resulted in variable infiltration rates: 92 of the 147 locations tested (approximately 63%) resulted in a measured infiltration rate of zero (0) inches per hour, 34 of the locations tested (approximately 23%) resulted

in infiltration rates of less than 1 inch per hour, and the remaining 21 of the locations (approximately 14%) resulted in infiltration rates greater than 1 inch per hour.

Chapter 12 requires that infiltration tests be performed within the most restrictive layer within 8 feet of the proposed infiltration elevations. Therefore, per the Chapter 12 guidance, basin flood testing was performed to establish the permeability rate of the bedrock at 60 requested locations. The basin flood tests failed at 39 of the 60 test locations and passed at the remaining 21 locations. The mixed results are typical for the site geology.

5.0 ADDITIONAL SERVICES

We recommended that GTA be retained during construction of the subject project to provide geotechnical consultation and construction observation and testing services as outlined below:

- Review final site plans to evaluate if they conform to the intent of this report.
- Provide on-site observation during SWM basin construction.
- Perform infiltration testing following construction of the proposed SWM basins to verify design rate.

6.0 LIMITATIONS

This report, including all supporting test pit logs, field data, field notes, laboratory test data, calculations, estimates and other documents prepared by GTA in connection with this Project have been prepared for the exclusive use of US Home Corporation (Lennar; Client) pursuant to the Agreement between GTA and Client dated October 2, 2023, and in accordance with generally accepted engineering practice. All terms and conditions set forth in the Agreement and the General Provisions attached thereto are incorporated herein by reference. No warranty, express or implied, is made herein. Use and reproduction of this report by any other person without the expressed written permission of GTA and Client is unauthorized and such use is at the sole risk of the user.

The analysis and recommendations contained in this report are based on the data obtained from limited observation and testing of the encountered materials. Test pits indicate subsurface conditions only at specific locations and times, and only at the depths penetrated. They do not necessarily reflect strata or variations that may exist between the exploration locations. Consequently, the analysis and recommendations must be considered preliminary until the subsurface conditions can be verified by direct observation at the time of construction. If variations of subsurface conditions from those described in this report are noted during construction, recommendations in this report may need to be re-evaluated.

In the event that any changes in the nature, design, or location of the facilities are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed, and conclusions of this report are verified in writing. GTA is not responsible for any claims, damages, or liability associated with interpretation of subsurface data or reuse of the subsurface data or engineering analysis without the expressed written authorization of GTA.

The scope of our services for this geotechnical exploration did not include any environmental assessment or investigation for the presence or absence of wetlands, or hazardous or toxic materials in the soil, surface water, groundwater, or air, on or below or around this site. Any statements in this report or on the logs regarding odors or unusual or suspicious items or conditions observed are strictly for the information of our Client.

This report and the attached logs are instruments of service. The subject matter of this report is limited to the facts and matters stated herein. Absence of a reference to any other conditions or subject matter shall not be construed by the reader to imply approval by the writer.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer

will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site’s subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report’s Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals’ misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals’ plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note*

conspicuously that you’ve included the material for information purposes only. To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled “limitations,” many of these provisions indicate where geotechnical engineers’ responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer’s recommendations will not of itself be sufficient to prevent moisture infiltration.* **Confront the risk of moisture infiltration** by including building-envelope or mold specialists on the design team. **Geotechnical engineers are not building-envelope or mold specialists.**

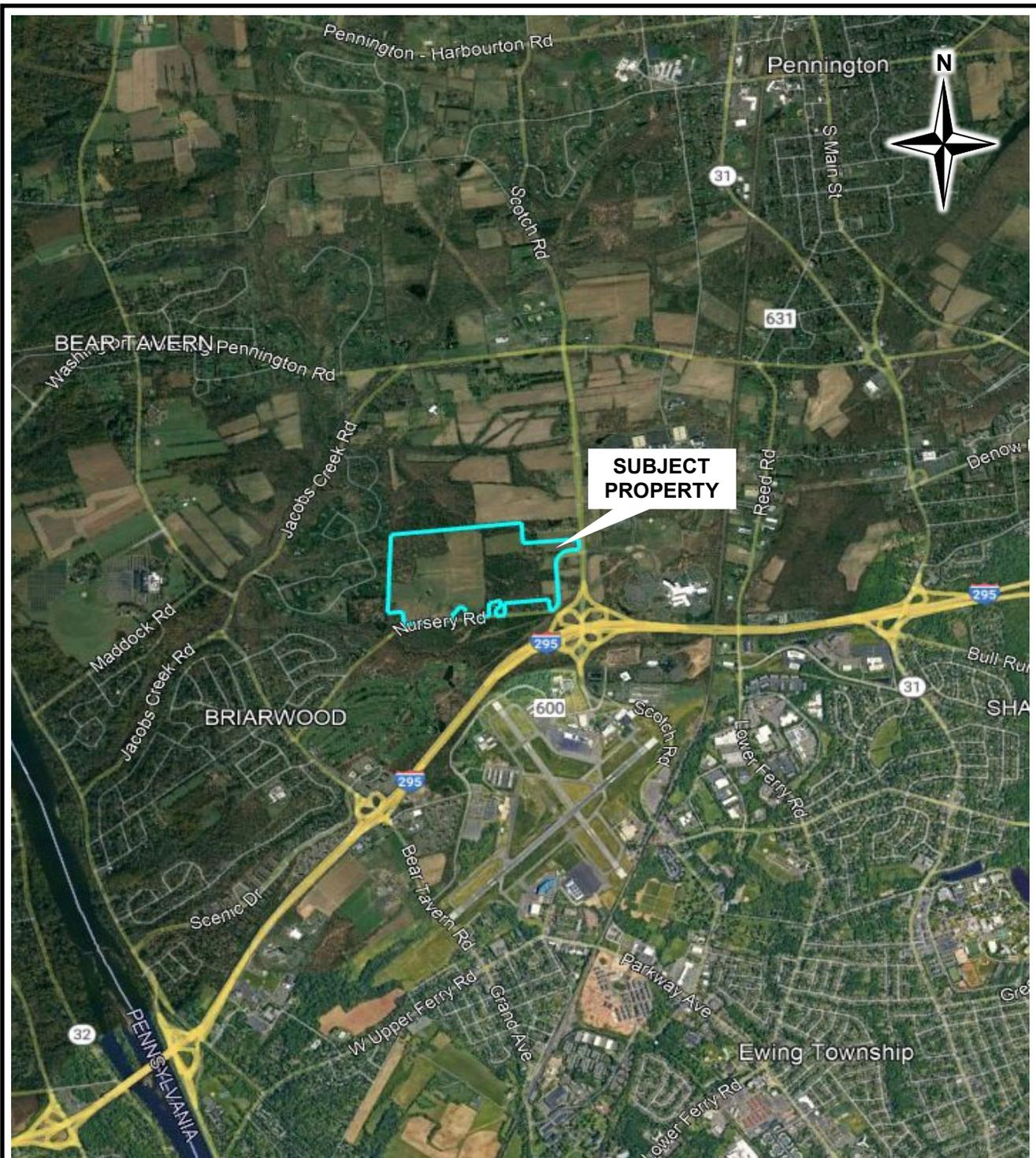


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APPENDIX A

Figures



Note: Site boundary is approximate.

SITE LOCATION MAP



14 Worlds Fair Drive, Suite A
Somerset, New Jersey 08873
(732) 271-9301
fax (732) 271-9306

GEO-TECHNOLOGY ASSOCIATES, INC.

VENUE AT HOPEWELL

Hopewell Township,
Mercer County, New Jersey

Prepared For: Lennar

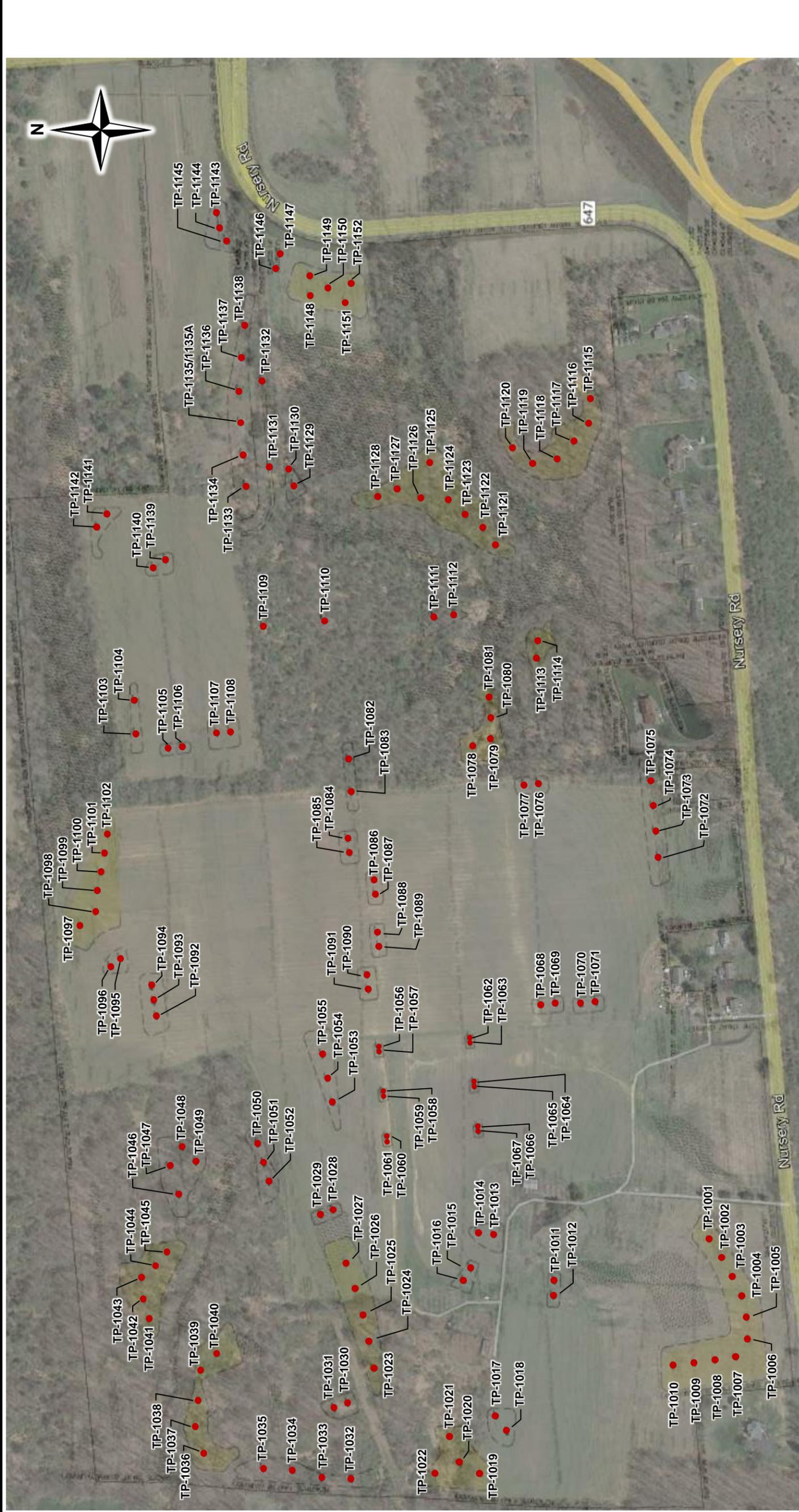
SOURCE: Google Maps

SCALE: NTS

DATE: DEC. 2023

PROJECT #: 31191132x1

Figure 1



* Base plan prepared by Bowman Consulting titled "Test Pit Locations Map" dated September 19, 2023 overlaid on Google Earth aerial image.

LEGEND:

TP-100X ● Indicates the numbers and approximate locations of test pits performed by GTA for this study.

TEST PIT LOCATION PLAN		VENUE AT HOPEWELL	
 GEO-TECHNOLOGY ASSOCIATES, INC. 14 Worlds Fair Drive, Suite A Somerset, New Jersey 08873 (732) 271-9301 fax (732) 271-9306		Hopewell Township, Mercer County, New Jersey Prepared For: Lennar	
DESIGN BY: *	DRAWN BY: AMT	REVIEWED BY: KTP	
SCALE: NTS	DATE: DEC. 2023	PROJECT #: 31191132x1	

Figure 2

APPENDIX B

Subsurface Summary Table

Lennar - Venue at Hopewell
Subsurface Summary Table

Date: 12/1/2023
GTA Project No.: 31191132X1

Test Pit Number	Stake Number	GROUND SURFACE			DEPTH		BEDROCK				INFILTRATION TEST RESULTS					
		Ground Surface EL (Ft.)	Topsoil (In.)	Total Depth (Ft.)	Bottom of Excavation EL (Ft.)	Top of HW Rock (Ft.)	Top of HW Rock EL (Ft.)	Refusal Depth (Ft.)	Refusal EL (Ft.)	In-situ Infiltration Test Depth (Ft.)	In-situ Infiltration Test EL (Ft.)	Measured Infiltration Rate (in/hr)	Basin Flood Test Depth (Ft.)	Basin Flood Test EL (Ft.)	Basin Flood Test Results (PASS/FAIL)	
TP-1001	5000	155.7	10	9	146.7	6	149.7	9	146.7	3.5	152.2	0	8	147.7	FAIL	
TP-1002	5001	153.8	10	8	145.8	6	147.8	8	145.8	4	149.8	0	8	145.8	FAIL	
TP-1003	5002	151.8	8	11	140.8	5.5	146.3	11	140.8	3	148.8	0	8	143.8	PASS	
TP-1004	5003	150.6	10	12	138.6	6.5	144.1	12	138.6	5	145.6	1/2	9.5	141.1	PASS	
TP-1005	5004	149.2	10	10	139.2	8	141.2	10	139.2	3.5	145.7	0	9	140.2	FAIL	
TP-1006	5005	147.1	10	10	137.1	7.5	139.6	10	137.1	4	143.1	0	9	138.1	FAIL	
TP-1007	5006	149.1	6	11	138.1	7.5	141.6	11	138.1	5	144.1	1/2	8	141.1	FAIL	
TP-1008	5007	151.3	10	9	142.3	6	145.3	9	142.3	4	147.3	0	8	143.3	PASS	
TP-1009	5008	154.2	10	8	146.2	6	148.2	8	146.2	3	151.2	0	8	146.2	PASS	
TP-1010	5009	158.5	10	10	148.5	6	152.5	10	148.5	4	154.5	3	8	150.5	PASS	
TP-1011	5061	187.2	10	6	181.2	3	184.2	6	181.2	1	186.2	4-1/2				
TP-1012	5062	189.1	10	7	182.1	4	185.1	7	182.1	2	187.1	0				
TP-1013	5060	198.8	10	5	193.8	2.5	196.3	5	193.8	1	197.8	0				
TP-1014	5059	198.5	10	6	192.5	3	195.5	6	192.5	1	197.5	0				
TP-1015	5058	195.9	10	5	190.9	3	192.9	5	190.9	1	194.9	0				
TP-1016	5057	194.5	10	5	189.5	3	191.5	5	189.5	1	193.5	1/2				
TP-1017	5056	192.7	6	6	186.7	1.5	191.2	6	186.7	0.5	192.2	24				
TP-1018	5055	192.3	6	6	186.3	2.5	189.8	6	186.3	1	191.3	3				
TP-1019	5012	187.7	8	6	182.2	1.5	186.2	5.5	182.2	0.5	187.2	12	5	182.7	FAIL	
TP-1020	5011	182.4	10	6	176.4	1.5	180.9	6	176.4	1	181.4	0	5	177.4	FAIL	
TP-1021	5010	181.7	10	6	175.7	3	178.7	6	175.7	1	180.7	1/2	5	176.7	FAIL	
TP-1022	5013	182.8	10	5	177.8	2	180.8	5	177.8	1	181.8	1/2	4	178.8	FAIL	
TP-1023	5014	189.3	10	6	183.3	4	185.3	6	183.3	2	187.3	0	6	183.3	FAIL	
TP-1024	5015	190.3	10	8	182.3	4	186.3	8	182.3	2.5	187.8	0	7	183.3	PASS	
TP-1025	5016	191.2	10	7	184.2	4	187.2	7	184.2	2	189.2	0	6	185.2	FAIL	
TP-1026	5017	192.7	6	8	184.7	5	187.7	8	184.7	3	189.7	1/2	7	185.7	PASS	
TP-1027	5019	193.6	6	4	189.6	2	191.6	4	189.6	1	192.6	1/2	4	189.6	FAIL	
TP-1028	5145	194.1	12	6	188.1	4	190.1	6	188.1	2	192.1	0				
TP-1029	5146	193.4	10	5.5	187.9	4	189.4	5.5	187.9	2	191.4	1/2				
TP-1030	5147	187.0	10	5	182.0	3	184.0	5	182.0	1	186.0	0				
TP-1031	5148	186.3	10	5.5	180.8	4	182.3	5.5	180.8	2	184.3	0				
TP-1032	5149	182.9	8	5	177.9	3	179.9	5	177.9	1	181.9	0				
TP-1033	5150	183.6	10	5.5	178.1	3	180.6	5.5	178.1	1	182.6	0				
TP-1034	5151	194.3	12	6	188.3	3.5	190.8	6	188.3	1.5	192.8	1/2				
TP-1035	5152	181.2	10	5.5	175.7	2.5	178.7	5.5	175.7	1	180.2	1				
TP-1036	5020	168.9	10	7	161.9	4.5	164.4	7	161.9	3	165.9	1/8	7	161.9	FAIL	
TP-1037	5021	169.4	10	7.5	161.9	5	164.4	7.5	161.9	3	166.4	1/8	7	162.4	FAIL	
TP-1038	5022	172.9	10	8	164.9	5.5	167.4	8	164.9	3.5	169.4	3	7	165.9	FAIL	
TP-1039	5023	174.8	12	8	166.8	4	170.8	8	166.8	2	172.8	1-1/2	7	167.8	FAIL	
TP-1040	5024	179.8	6	7	172.8	3.5	176.3	7	172.8	1.5	178.3	0	6	173.8	FAIL	
TP-1041	5025	177.5	6	6.5	171.0	2.5	175.0	6.5	171.0	0.5	177.0	1/2	5	172.5	PASS	
TP-1042	5026	179.3	6	6	173.3	2	177.3	6	173.3	1	178.3	0	5	174.3	FAIL	
TP-1043	5027	183.8	6	6	177.8	3	180.8	6	177.8	1	182.8	0	5	178.8	FAIL	

Test Pit Number	Stake Number	GROUND SURFACE			DEPTH		BEDROCK				INFILTRATION TEST RESULTS					
		Ground Surface EL (Ft.)	Topsoil (In.)	Total Depth (Ft.)	Bottom of Excavation EL (Ft.)	Top of HW Rock (Ft.)	Top of HW Rock EL (Ft.)	Refusal Depth (Ft.)	Refusal EL (Ft.)	In-situ Infiltration Test Depth (Ft.)	In-situ Infiltration Test EL (Ft.)	Measured Infiltration Rate (in/hr)	Basin Flood Test Depth (Ft.)	Basin Flood Test EL (Ft.)	Basin Flood Test Results (PASS/FAIL)	
TP-1044	5028	182.7	8	6	176.7	3	179.7	6	176.7	1	181.7	0	4.5	178.2	PASS	
TP-1045	5029	183.4	8	7	176.4	5	178.4	7	176.4	3	180.4	1/2	7	176.4	FAIL	
TP-1046	5085	188.5	12	6	182.5	4	184.5	6	182.5	2	186.5	1/4				
TP-1047	5086	191.9	6	6	185.9	1.5	190.4	6	185.9	0.5	191.4	0				
TP-1048	5087	193.4	8	7	186.4	4	189.4	7	186.4	2	191.4	0				
TP-1049	5088	189.9	10	8	181.9	3	186.9	8	181.9	1	188.9	0				
TP-1050	5082	190.4	10	6	184.4	4	186.4	6	184.4	2	188.4	0				
TP-1051	5083	190.3	8	6.5	183.8	4.5	185.8	6.5	183.8	2.5	187.8	0				
TP-1052	5084	189.6	10	6	183.6	4	185.6	6	183.6	2	187.6	0				
TP-1053	5079	199.4	12	4.5	194.9	3.5	195.9	4.5	194.9	1.5	197.9	1/2				
TP-1054	5080	200.3	12	5	195.3	4	196.3	5	195.3	2	198.3	0				
TP-1055	5081	200.9	12	6	194.9	4	196.9	6	194.9	2	198.9	0				
TP-1056	5073	200.9	8	10	190.9	6.5	194.4	10	190.9	4	196.9	0				
TP-1057	5074	201.0	8	12	189.0	6.5	194.5	12	189.0	4	197.0	0				
TP-1058	5075	200.1	8	5	195.1	2	198.1	5	195.1	1	199.1	0				
TP-1059	5076	200.0	8	5	195.0	2.5	197.5	5	195.0	1	199.0	0				
TP-1060	5077	197.6	8	7	190.6	1.5	196.1	7	190.6	1	196.6	1-1/2				
TP-1061	5078	197.3	8	7	190.3	3	194.3	7	190.3	1	196.3	0				
TP-1062	5072	203.7	10	8	195.7	5	198.7	8	195.7	3	200.7	0				
TP-1063	5071	203.5	10	8	195.5	4.5	199.0	8	195.5	2.5	201.0	0				
TP-1064	5070	203.8	10	5	198.8	2	201.8	5	198.8	1.5	202.3	0				
TP-1065	5069	204.1	10	5.5	198.6	2	202.1	5.5	198.6	1	203.1	0				
TP-1066	5068	204.1	10	5.5	198.6	1.5	202.6	5.5	198.6	1	203.1	0				
TP-1067	5067	204.1	10	6	198.6	1.5	202.6	6	198.1	1	203.1	0				
TP-1068	5066	206.6	10	5	201.6	3	203.6	5	201.6	1	205.6	0				
TP-1069	5065	206.9	8	5.5	201.4	1.5	205.4	5.5	201.4	1	205.9	* N/A				
TP-1070	5064	205.7	8	7	198.7	1.5	204.2	7	198.7	1	204.7	* N/A				
TP-1071	5063	204.2	12	5	199.2	2.5	201.7	5	199.2	1	203.2	* N/A				
TP-1072	5121	186.1	10	7	179.1	3	183.1	7	179.1	1	185.1	2				
TP-1073	5120	183.8	10	7.5	176.3	3	180.8	7.5	176.3	1	182.8	2				
TP-1074	5119	181.4	10	7	174.4	3	178.4	7	174.4	1	180.4	2				
TP-1075	5118	179.8	10	6	173.8	3	176.8	6	173.8	1	178.8	2				
TP-1076	5117	200.3	10	6.5	193.8	3	197.3	6.5	193.8	1	199.3	0				
TP-1077	5116	201.2	10	6	195.2	3	198.2	6	195.2	1	200.2	0				
TP-1078	5030	197.6	10	8	189.6	5	192.6	8	189.6	3	194.6	0	8	189.6	PASS	
TP-1079	5031	196.9	8	5	191.9	3	193.9	5	191.9	1	195.9	0	5	191.9	FAIL	
TP-1080	5032	194.9	8	7	187.9	3	191.9	7	187.9	1	193.9	0	5	189.9	FAIL	
TP-1081	5033	192.8	8	7	185.8	2	190.8	7	185.8	1	191.8	0	5	187.8	FAIL	
TP-1082	5106	208.4	10	8	200.4	4	204.4	8	200.4	2	206.4	0				
TP-1083	5107	208.7	10	6	202.7	3	205.7	6	202.7	1	207.7	0				
TP-1084	5108	208.9	10	6	202.9	3	205.9	6	202.9	1	207.9	0				
TP-1085	5109	208.7	10	6.5	202.2	4	204.7	6.5	202.2	2	206.7	0				
TP-1086	5110	207.7	10	6	201.7	4.5	203.2	6	201.7	2.5	205.2	0				
TP-1087	5111	207.3	10	6	201.3	4.5	202.8	6	201.3	2.5	204.8	0				
TP-1088	5112	206.4	10	7.5	198.9	5.5	200.9	7.5	198.9	3.5	202.9	0				
TP-1089	5113	205.5	10	8	197.5	6.5	199.0	8	197.5	4.5	201.0	0				
TP-1090	5114	205.0	10	6.5	198.5	4.5	200.5	6.5	198.5	2.5	202.5	0				

Test Pit Number	Stake Number	GROUND SURFACE			DEPTH		BEDROCK				INFILTRATION TEST RESULTS					
		Ground Surface EL (Ft.)	Topsoil (In.)	Total Depth (Ft.)	Bottom of Excavation EL (Ft.)	Top of HW Rock (Ft.)	Top of HW Rock EL (Ft.)	Refusal Depth (Ft.)	Refusal EL (Ft.)	In-situ Infiltration Test Depth (Ft.)	In-situ Infiltration Test EL (Ft.)	Measured Infiltration Rate (in/hr)	Basin Flood Test Depth (Ft.)	Basin Flood Test EL (Ft.)	Basin Flood Test Results (PASS/FAIL)	
TP-1091	5115	204.4	10	7	197.4	5	199.4	7	197.4	3	201.4	1/2				
TP-1092	5089	196.5	12	9.5	187.0	5	191.5	9.5	187.0	1	195.5	1				
TP-1093	5090	196.9	12	7.5	189.4	5	191.9	7.5	189.4	3	193.9	0				
TP-1094	5091	196.9	10	6	190.9	3	193.9	6	190.9	1	195.9	0				
TP-1095	5092	194.6	12	5	189.6	3	191.6	5	189.6	1	193.6	0				
TP-1096	5093	195.2	12	5.5	189.7	3	192.2	5.5	189.7	1	194.2	0				
TP-1097	5094	190.1	10	6	184.1	3	187.1	6	184.1	1	189.1	0	5	185.1	PASS	
TP-1098	5095	189.9	10	7	182.9	3.5	186.4	7	182.9	1.5	188.4	1/4	6	183.9	FAIL	
TP-1099	5096	189.5	6	5	184.5	2	187.5	5	184.5	0.5	189.0	0	4.5	185.0	PASS	
TP-1100	5097	189.5	6	4	185.5	1	188.5	4	185.5	0.5	189.0	1/4	4	185.5	FAIL	
TP-1101	5098	191.6	6	5.5	186.1	2.5	189.1	5.5	186.1	0.5	191.1	0	4.5	187.1	PASS	
TP-1102	5099	192.3	12	8.5	183.8	5	187.3	8.5	183.8	3	189.3	0	6	186.3	FAIL	
TP-1103	5100	195.2	12	6	189.2	3.5	191.7	6	189.2	1	194.2	0				
TP-1104	5101	196.2	12	8	188.2	4	192.2	8	188.2	2	194.2	0				
TP-1105	5102	198.3	12	7	191.3	4	194.3	7	191.3	2	196.3	1				
TP-1106	5103	199.1	12	7	192.1	4	195.1	7	192.1	2	197.1	0				
TP-1107	5104	200.6	12	5	195.6	3	197.6	5	195.6	1	199.6	1-1/2				
TP-1108	5105	201.7	12	7	194.7	4	197.7	7	194.7	2	199.7	1				
TP-1109	5125	211.5	12	6	205.5	4	207.5	6	205.5	2	209.5	1/2				
TP-1110	5124	207.1	12	6	201.1	4	203.1	6	201.1	2	205.1	0				
TP-1111	5123	187.6	6	6	181.6	1	186.6	6	181.6	0.75	186.9	* N/A				
TP-1112	5122	185.2	12	6	179.2	6	179.2	6	179.2	1	184.2	0				
TP-1113	5035	182.4	10	6.5	175.9	3	179.4	6.5	175.9	1	181.4	0	5	177.4	FAIL	
TP-1114	5034	187.2	12	6	181.2	3	184.2	6	181.2	1	186.2	0	5	182.2	FAIL	
TP-1115	5049	200.4	8	7	193.4	3	197.4	7	193.4	1	199.4	0	7	193.4	PASS	
TP-1116	5048	195.7	10	7	188.7	3.5	192.2	7	188.7	1.5	194.2	0	7	188.7	PASS	
TP-1117	5047	192.3	10	8	184.3	2.5	189.8	8	184.3	1	191.3	1/2	5	187.3	PASS	
TP-1118	5046	187.0	8	8	179.0	4	183.0	8	179.0	2	185.0	1/2	6	181.0	PASS	
TP-1119	5045	182.3	8	8	174.3	3	179.3	8	174.3	1	181.3	6	5	177.3	FAIL	
TP-1120	5044	195.6	10	7	188.6	2.5	193.1	7	188.6	1	194.6	6	5	190.6	FAIL	
TP-1121	5036	180.7	10	7	173.7	4.5	176.2	7	173.7	2.5	178.2	0	6.5	174.2	FAIL	
TP-1122	5037	182.6	10	5.5	177.1	2.5	180.1	5.5	177.1	1	181.6	0	4.5	178.1	FAIL	
TP-1123	5038	184.4	10	5.5	178.9	2.5	181.9	5.5	178.9	1	183.4	1/4	4.5	179.9	FAIL	
TP-1124	5039	187.8	10	5.5	182.3	3	184.8	5.5	182.3	1	186.8	0	5	182.8	PASS	
TP-1125	5040	189.0	10	7	182.0	3	186.0	7	182.0	1	188.0	* N/A	5	184.0	** FAIL	
TP-1126	5041	190.7	10	7	183.7	5	185.7	7	183.7	3	187.7	1/4	7	183.7	FAIL	
TP-1127	5042	199.2	8	6	193.2	4	195.2	6	193.2	2	197.2	0	6	193.2	PASS	
TP-1128	5043	193.5	10	6	187.5	4	189.5	6	187.5	2	191.5	0	6	187.5	FAIL	
TP-1129	5139	209.0	8	8	201.0	3	206.0	8	201.0	1	208.0	1/4				
TP-1130	5138	207.4	8	10	197.4	4	203.4	10	197.4	2	205.4	1/4				
TP-1131	***N/A	212	10	6	206.0	3	209.0	6	206.0	1	211.0	12				
TP-1132	***N/A	210	10	6	204.0	4	206.0	6	204.0	2	208.0	1/2				
TP-1133	5130	212.5	10	6	206.5	4	208.5	6	206.5	2	210.5	1/2				
TP-1134	5131	213.9	8	6.5	207.4	4.5	209.4	6.5	207.4	2.5	211.4	0				
TP-1135	5132	214.4	8	3	211.4											
TP-1135A	5132	214.4	8	6	208.4	4	210.4	6	208.4	2	212.4	1/2				
TP-1136	5133	214.6	6	6	208.6	4	210.6	6	208.6	2	212.6	1/2				

Test Pit Number	Stake Number	GROUND SURFACE			DEPTH		BEDROCK				INFILTRATION TEST RESULTS					
		Ground Surface EL (Ft.)	Topsoil (In.)	Total Depth (Ft.)	Bottom of Excavation EL (Ft.)	Top of HW Rock (Ft.)	Top of HW Rock EL (Ft.)	Refusal Depth (Ft.)	Refusal EL (Ft.)	In-situ Infiltration Test Depth (Ft.)	In-situ Infiltration Test EL (Ft.)	Measured Infiltration Rate (in/hr)	Basin Flood Test Depth (Ft.)	Basin Flood Test EL (Ft.)	Basin Flood Test Results (PASS/FAIL)	
TP-1137	5134	213.7	8	6.5	207.2	4	209.7	6.5	207.2	2	211.7	1/4				
TP-1138	5135	211.9	8	7	204.9	3.5	208.4	7	204.9	1.5	210.4	9				
TP-1139	5126	206.8	12	5	201.8	3	203.8	5	201.8	1	205.8	0				
TP-1140	5127	205.1	8	4	201.1	2	203.1	4	201.1	1	204.1	1/2				
TP-1141	5129	201.6	8	5	196.6	3	198.6	5	196.6	1	200.6	0				
TP-1142	5128	200.0	8	5	195.0	4	196.0	5	195.0	2	198.0	1/2				
TP-1143	5142	213.3	10	8	205.3	4	209.3	8	205.3	2	211.3	0				
TP-1144	5141	213.4	10	7	206.4	3.5	209.9	7	206.4	1.5	211.9	0				
TP-1145	5140	213.2	10	6.5	206.7	4	209.2	6.5	206.7	2	211.2	0				
TP-1146	5144	207.1	10	7	200.1	4	203.1	7	200.1	1.5	205.6	0				
TP-1147	5143	207.1	10	8	199.1	4	203.1	8	199.1	2	205.1	1/2				
TP-1148	5054	202.3	12	4	198.3	2	200.3	4	198.3	1	201.3	1/2	4	198.3	FAIL	
TP-1149	5053	202.8	12	7	195.8	3.5	199.3	7	195.8	1.5	201.3	1/2	5	197.8	PASS	
TP-1150	5052	200.2	12	7	193.2	3.5	196.7	7	193.2	1.5	198.7	0	5	195.2	PASS	
TP-1151	5051	197.6	10	7	190.6	3	194.6	7	190.6	1	196.6	0	5	192.6	FAIL	
TP-1152	5050	197.5	12	7	190.5	4	193.5	7	190.5	2	195.5	0	6	191.5	FAIL	

NOTES:

* Infiltration test attempted. Double-ring could not be properly seated to prevent leaking due to shallow rock.

** Basin flood test attempted. Terminated due to water seepage.

*** Missing stake number, could not be located in the field.

APPENDIX C

Exploration Logs

NOTES FOR EXPLORATION LOGS

KEY TO USCS TERMINOLOGY AND GRAPHIC SYMBOLS

MAJOR DIVISIONS (BASED UPON ASTM D 2488)			SYMBOLS		
			GRAPHIC	LETTER	
COARSE-GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LESS THAN 15% PASSING THE NO. 200 SIEVE)		GW	
		GRAVELS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		GP	
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LESS THAN 15% PASSING THE NO. 200 SIEVE)		GM	
				GC	
		SANDS WITH FINES (MORE THAN 15% PASSING THE NO. 200 SIEVE)		SW	
				SP	
FINE-GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILT OR CLAY (<15% RETAINED ON THE NO. 200 SIEVE) SILT OR CLAY WITH SAND OR GRAVEL (15% TO 30% RETAINED ON THE NO. 200 SIEVE)	SILTS AND LEAN CLAYS LIQUID LIMIT LESS THAN 50		SM	
				SC	
		SANDY OR GRAVELLY SILT OR CLAY (>30% RETAINED ON THE NO. 200 SIEVE)	ELASTIC SILTS AND FAT CLAYS LIQUID LIMIT GREATER THAN 50		ML
					CL
			OL		
			MH		
		CH			
		OH			
HIGHLY ORGANIC SOILS				PT	

NOTE: DUAL SYMBOLS ARE USED TO INDICATE COARSE-GRAINED SOILS WHICH CONTAIN AN ESTIMATED 5 TO 15% FINES BASED ON VISUAL CLASSIFICATION OR BETWEEN 5 AND 12% FINES BASED ON LABORATORY TESTING; AND FINE-GRAINED SOILS WHEN THE PLOT OF LIQUID LIMIT & PLASTICITY INDEX VALUES FALLS IN THE PLASTICITY CHART'S CROSS-HATCHED AREA. FINE-GRAINED SOILS ARE CLASSIFIED AS ORGANIC (OL OR OH) WHEN ENOUGH ORGANIC PARTICLES ARE PRESENT TO INFLUENCE ITS PROPERTIES. LABORATORY TEST RESULTS ARE USED TO SUPPLEMENT SOIL CLASSIFICATION BY THE VISUAL-MANUAL PROCEDURES OF ASTM D 2488.

ADDITIONAL TERMINOLOGY AND GRAPHIC SYMBOLS

ADDITIONAL DESIGNATIONS	DESCRIPTION		GRAPHIC SYMBOLS
		TOPSOIL	
	MAN MADE FILL		
	GLACIAL TILL		
	COBBLES AND BOULDERS		
RESIDUAL SOIL DESIGNATIONS	DESCRIPTION	"N" VALUE	
	HIGHLY WEATHERED ROCK	50 TO 50/1"	
	PARTIALLY WEATHERED ROCK	MORE THAN 50 BLOWS FOR 1" OF PENETRATION OR LESS, AUGER PENETRABLE	

COARSE-GRAINED SOILS (GRAVEL AND SAND)

DESIGNATION	BLOWS PER FOOT (BPF) "N"
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSE	11 - 30
DENSE	31 - 50
VERY DENSE	>50

NOTE: "N" VALUE DETERMINED AS PER ASTM D 1586

FINE-GRAINED SOILS (SILT AND CLAY)

CONSISTENCY	BPF "N"
VERY SOFT	<2
SOFT	2 - 4
MEDIUM STIFF	5 - 8
STIFF	9 - 15
VERY STIFF	16 - 30
HARD	>30

NOTE: ADDITIONAL DESIGNATIONS TO ADVANCE SAMPLER INDICATED IN BLOW COUNT COLUMN:
 WOH = WEIGHT OF HAMMER
 WOR = WEIGHT OF ROD(S)

SAMPLE TYPE

DESIGNATION	SYMBOL
SOIL SAMPLE	S-
SHELBY TUBE	U-
ROCK CORE	R-

WATER DESIGNATION

DESCRIPTION	SYMBOL
ENCOUNTERED DURING DRILLING	
UPON COMPLETION OF DRILLING	
24 HOURS AFTER COMPLETION	

NOTE: WATER OBSERVATIONS WERE MADE AT THE TIME INDICATED. POROSITY OF SOIL STRATA, WEATHER CONDITIONS, SITE TOPOGRAPHY, ETC. MAY CAUSE WATER LEVEL CHANGES.

LOG OF TEST PIT NO. TP-1001 (Stake #5000)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/12/2023**
 DATE COMPLETED: **10/12/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **155.7 Ft.**
 DATUM: **TOPO**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
154.9	0			10 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, SILT [Silt per USDA] - Brown (7.5YR 5/3) at 3 Ft.	
151.7	4	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration test = 0 in/hr at 3-1/2 Ft. - NMC = 19.7%
149.7	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
146.7	8				- Basin Flood Test performed at 8 Ft.
	10			Test pit complete at 9 Ft. due to refusal on highly-weathered rock.	
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1001 (Stake #5000)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1002 (Stake #5001)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/12/2023**
 DATE COMPLETED: **10/12/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **153.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
153.0	0			10 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, SILT with sand [Silt Loam per USDA] - Brown (7.5YR 5/3) at 3 Ft.	
148.8	4	GM		Red-brown (5YR 4/4), wet, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 4 Ft. - Slight perched water seepage at 5 Ft.
147.8	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
145.8	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 8 Ft.
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1002 (Stake #5001)

LOG OF TEST PIT NO. TP-1003 (Stake #5002)

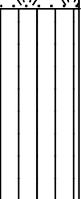
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/12/2023**
 DATE COMPLETED: **10/12/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **151.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
151.1	0			8 In. of Topsoil	- Infiltration rate = 0 in/hr at 3 Ft.
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA] - Brown (7.5YR 5/3) at 3 Ft.	
147.8	4	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
146.3	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
140.8	11			Test pit complete at 11 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 8 Ft.
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1003 (Stake #5002)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1004 (Stake #5003)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/12/2023**
 DATE COMPLETED: **10/12/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **150.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
149.8	0			10 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA] - Brown (7.5YR 5/3) at 3 Ft.	
145.6	6	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0.5 in/hr at 5 Ft.
144.1	8	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
138.6	12			Test pit complete at 12 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 9-1/2 Ft.
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1004 (Stake #5003)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1005 (Stake #5004)

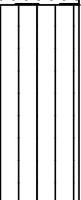
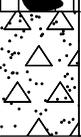
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/12/2023**
 DATE COMPLETED: **10/12/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **149.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
148.4	0			10 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
145.2	4	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 3-1/2 Ft.
141.2	8	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	- Basin Flood Test performed at 9 Ft.
139.2	10			Test pit complete at 10 Ft. due to refusal on highly-weathered rock.	
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1005 (Stake #5004)

Sheet 1 of 1

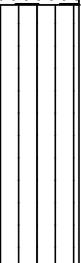
LOG OF TEST PIT NO. TP-1006 (Stake #5005)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/12/2023**
 DATE COMPLETED: **10/12/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **147.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
146.3	0			10 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA] - Red-brown (5YR 4/4) at 3 Ft.	
142.1	6	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 4 Ft.
139.6	8	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	- Slight perched water seepage at 7-1/2 Ft.
137.1	10			Test pit complete at 10 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 9 Ft. - Slight trapped water seepage at 10 Ft.
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1006 (Stake #5005)

LOG OF TEST PIT NO. TP-1007 (Stake #5006)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/13/2023**
 DATE COMPLETED: **10/13/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **149.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
148.6	0			6 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
	4			- Brown (7.5YR 5/3) at 2 Ft. - Red-brown (5YR 4/4) at 3 Ft.	
143.1	6	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0.5 in/hr at 5 Ft.
141.6	8	HW		Red-brown (5YR 5/3), moist, Highly-weathered ROCK (Shale)	- Slight perched water seepage at 7-1/2 Ft. - Basin Flood Test performed at 8 Ft. after slight seepage ceased.
138.1	11			Test pit complete at 11 Ft. due to refusal on highly-weathered rock.	
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1007 (Stake #5006)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1008 (Stake #5007)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/13/2023**
 DATE COMPLETED: **10/13/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **151.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
150.5	0			10 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
	4			- Brown (7.5YR 5/3) at 3 Ft. - Red-brown (5YR 4/4) at 4 Ft.	
146.3	6	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 4 Ft. - NMC = 22.1%
145.3	8	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
142.3	9			Test pit complete at 9 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 8 Ft.

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1008 (Stake #5007)

LOG OF TEST PIT NO. TP-1009 (Stake #5008)

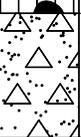
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/13/2023**
 DATE COMPLETED: **10/13/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **154.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
153.4	0			10 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
151.2	4	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 3 Ft.
148.2	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
146.2	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 8 Ft.
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1009 (Stake #5008)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1010 (Stake #5009)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/13/2023**
 DATE COMPLETED: **10/13/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **158.5**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
157.7	0			10 In. of Topsoil	
	2	ML		Red-brown (5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
155.5	4	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
152.5	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	- Infiltration rate = 3 in/hr at 4 Ft.
	8				- Basin Flood Test at 8 Ft.
148.5	10			Test pit complete at 10 Ft. due to refusal on highly-weathered rock.	
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1010 (Stake #5009)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1011 (Stake #5061)

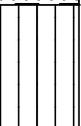
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/18/2023**
 DATE COMPLETED: **10/18/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **187.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
186.4	0			10 In. of Topsoil	- Infiltration rate = 4.5 in/hr at 1 Ft.
	2	ML		Red-brown (5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
184.2	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
181.2	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1011 (Stake #5061)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1012 (Stake #5062)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/18/2023**
 DATE COMPLETED: **10/18/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **189.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
188.3	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 2 Ft. - NMC = 22.6%
	2	ML		Red-brown (5YR 4/4), moist, SILT with sand [Silt Loam per USDA]	
185.1	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
182.1	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1012 (Stake #5062)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1013 (Stake #5060)

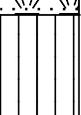
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/19/2023**
 DATE COMPLETED: **10/19/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **198.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
198.0		ML		Red-brown (5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 1 Ft.
196.3	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
193.8	5			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1013 (Stake #5060)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1014 (Stake #5059)

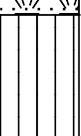
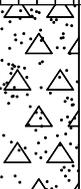
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/19/2023**
 DATE COMPLETED: **10/19/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **198.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
197.7	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
	2	ML		Red-brown (5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
195.5	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
192.5	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	- Slight trapped water seepage at 6 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1014 (Stake #5059)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1015 (Stake #5058)

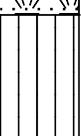
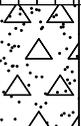
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/18/2023**
 DATE COMPLETED: **10/18/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **195.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
195.1	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
	2	ML		Red-brown (5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
192.9	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
190.9	6			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1015 (Stake #5058)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1016 (Stake #5057)

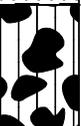
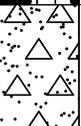
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/18/2023**
 DATE COMPLETED: **10/18/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **194.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
193.7	0			10 In. of Topsoil	- Infiltration rate = 0.5 in/hr at 1 Ft. - NMC = 19.7%
	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
191.5	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
189.5	6			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1016 (Stake #5057)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1017 (Stake #5056)

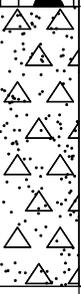
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/18/2023**
 DATE COMPLETED: **10/18/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **192.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
192.2	0			6 In. of Topsoil	
		GM		Red-brown (5YR 4/4), moist, Silty GRAVEL [Gravelly Sand per USDA]	- Infiltration rate = 24 in/hr at 1/2 Ft. - NMC = 17.9%
191.2	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
186.7	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1017 (Stake #5056)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1018 (Stake #5055)

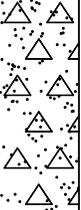
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/18/2023**
 DATE COMPLETED: **10/18/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **192.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
191.8	0			6 In. of Topsoil	- Infiltration rate = 3 in/hr at 1 Ft.
		GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
189.8	2			Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
186.3	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.**
Backfilled on completion.



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LOG OF TEST PIT NO. TP-1018 (Stake #5055)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1019 (Stake #5012)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/13/2023**
 DATE COMPLETED: **10/13/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **187.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
187.0	0		[Topsoil Symbol]	8 In. of Topsoil	- Infiltration rate = 12 in/hr at 1/2 Ft.
		GM	[GM Symbol]	Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
186.2	2	HW	[HW Symbol]	Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
182.2	6			Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 5 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1019 (Stake #5012)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1020 (Stake #5011)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/13/2023**
 DATE COMPLETED: **10/13/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **182.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
181.6		GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 1 Ft.
180.9	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	4				
	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 5 Ft.
176.4	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1020 (Stake #5011)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1021 (Stake #5010)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/17/2023**
 DATE COMPLETED: **10/17/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **181.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
180.9	0		[Symbol: wavy lines]	10 In. of Topsoil	
	2	SM	[Symbol: dots]	Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0.5 in/hr at 1 Ft. - Basin Flood Test performed at 5 Ft.
178.7	4	HW	[Symbol: triangles]	Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
175.7	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1021 (Stake #5010)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1022 (Stake #5013)

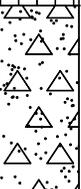
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/17/2023**
 DATE COMPLETED: **10/17/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **182.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
182.0		ML		Brown (7.5YR 4/4), moist, Gravelly SILT [Silt Loam per USDA]	- Infiltration rate = 0.5 in/hr at 1 Ft. - NMC = 20.5%
180.8	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	4				- Basin Flood Test performed at 4 Ft.
177.8	5			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1022 (Stake #5013)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1023 (Stake #5014)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/18/2023**
 DATE COMPLETED: **10/18/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **189.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
188.5	0			10 In. of Topsoil	
	2	ML		Brown (10YR 5/3), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 2 Ft.
185.3	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
183.3	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 6 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1023 (Stake #5014)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1024 (Stake #5015)

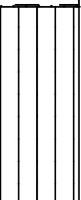
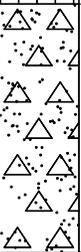
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/18/2023**
 DATE COMPLETED: **10/18/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **190.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
189.5	0			10 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 2-1/2 Ft.
186.3	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
182.3	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1024 (Stake #5015)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1025 (Stake #5016)

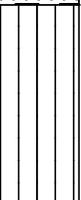
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/18/2023**
 DATE COMPLETED: **10/18/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **191.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
190.4	0			10 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration test = 0 in/hr at 2 Ft.
187.2	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
184.2	6			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 6 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1025 (Stake #5016)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1026 (Stake #5017)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/17/2023**
 DATE COMPLETED: **10/17/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **192.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
192.2	0		[Dotted pattern]	6 In. of Topsoil	
	2	ML	[Vertical lines]	Brown (7.5YR 4/4), moist, Gravelly SILT with sand [Silt Loam per USDA]	- Infiltration rate = 0.5 in/hr at 3 Ft. - NMC = 21.6%
187.7	6	HW	[Triangles]	Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
184.7	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 7 Ft.
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1026 (Stake #5017)

Sheet 1 of 1

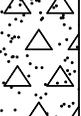
LOG OF TEST PIT NO. TP-1027 (Stake #5019)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/17/2023**
 DATE COMPLETED: **10/17/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **193.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
193.1	0			6 In. of Topsoil	- Infiltration rate = 0.5 in/hr at 1 Ft.
		GM		Brown (7.5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
191.6	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
189.6	4			Test pit complete at 4 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 4 Ft.
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1027 (Stake #5019)

LOG OF TEST PIT NO. TP-1028 (Stake #5145)

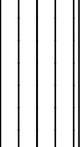
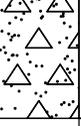
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/20/2023**
 DATE COMPLETED: **10/20/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **194.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
193.1	2	ML		Brown (7.5YR 5/3), moist, SILT [Silt per USDA]	- NMC = 24.2% - Infiltration rate = 0 in/hr at 2 Ft.
190.6	4	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
190.1	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
188.1	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1028 (Stake #5145)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1029 (Stake #5146)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/20/2023**
 DATE COMPLETED: **10/20/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **193.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
192.6	0			10 In. of Topsoil	- Infiltration rate = 0.5 in/hr at 2 Ft.
	2	ML		Red-brown (5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
190.4	4	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
189.4	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
187.9	6			Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1029 (Stake #5146)

Sheet 1 of 1

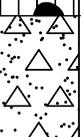
LOG OF TEST PIT NO. TP-1030 (Stake #5147)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/14/2023**
 DATE COMPLETED: **11/14/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **187.0 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
186.2	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
185.0	2	ML		Brown (7.5YR 4/4), moist, SILT [Silt Loam per USDA]	
184.0	4	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
182.0	5	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	5			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1030 (Stake #5147)

LOG OF TEST PIT NO. TP-1031 (Stake #5148)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/14/2023**
 DATE COMPLETED: **11/14/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **186.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
185.5		ML		Dark yellow-brown (10YR 4/6), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 2 Ft.
	2				
183.3		GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
182.3	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
180.8	6			Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1031 (Stake #5148)

Sheet 1 of 1

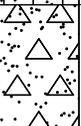
LOG OF TEST PIT NO. TP-1032 (Stake #5149)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/14/2023**
 DATE COMPLETED: **11/14/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **182.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
182.2	0			8 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
		ML		Dark yellow-brown (10YR 4/6), moist, SILT [Silt Loam per USDA]	
180.9	2	SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	
179.9		HW		Very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
177.9	4			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1032 (Stake #5149)

LOG OF TEST PIT NO. TP-1033 (Stake #5150)

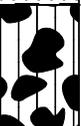
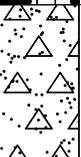
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/14/2023**
 DATE COMPLETED: **11/14/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **183.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
182.8	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
180.6	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
178.1	6			Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1033 (Stake #5150)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1034 (Stake #5151)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/14/2023**
 DATE COMPLETED: **11/14/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **194.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
193.3	0			12 In. of Topsoil	- Infiltration rate = 0.5 in/hr at 1-1/2 Ft.
	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
190.8	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
188.3	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1034 (Stake #5151)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1035 (Stake #5152)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/14/2023**
 DATE COMPLETED: **11/14/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **181.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
180.4	0			10 In. of Topsoil	- Infiltration rate = 1 in/hr at 1 Ft.
		GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
178.7	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	4				
175.7	6			Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.**
Backfilled on completion.



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LOG OF TEST PIT NO. TP-1035 (Stake #5152)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1036 (Stake #5020)

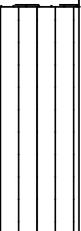
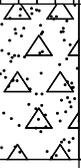
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/23/2023**
 DATE COMPLETED: **10/23/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **168.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
168.1	0			10 In. of Topsoil	
	2	ML		Dark yellow-brown (10YR 3/6), moist, SILT with sand [Silt Loam per USDA]	- Infiltration rate = 0.125 in/hr at 3 Ft.
164.4	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
161.9	6			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 7 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1036 (Stake #5020)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1037 (Stake #5021)

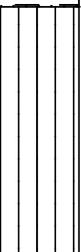
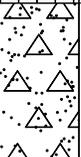
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/23/2023**
 DATE COMPLETED: **10/23/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **169.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
168.6	0			10 In. of Topsoil	
	2	ML		Red-brown (5YR 4/4), moist, Gravelly SILT with sand [Silt Loam per USDA]	- NMC = 16.4% - Infiltration rate = 0.125 in/hr at 3 Ft.
164.4	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
161.9	8			Test pit complete at 7-1/2 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 7 Ft.
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.**
Backfilled on completion.



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LOG OF TEST PIT NO. TP-1037 (Stake #5021)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1038 (Stake #5022)

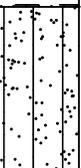
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/23/2023**
 DATE COMPLETED: **10/23/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **172.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
172.1	0			10 In. of Topsoil	
	2	SM		Dark brown (7.5YR 3/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	
169.4	4	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 3 in/hr at 3-1/2 Ft.
167.4	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	- Basin Flood Test performed at 7 Ft.
164.9	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1038 (Stake #5022)

Sheet 1 of 1

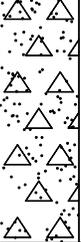
LOG OF TEST PIT NO. TP-1039 (Stake #5023)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/23/2023**
 DATE COMPLETED: **10/23/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **174.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
173.8	0			12 In. of Topsoil	
	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 1.5 in/hr at 2 Ft.
170.8	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
166.8	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1039 (Stake #5023)

LOG OF TEST PIT NO. TP-1040 (Stake #5024)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/23/2023**
 DATE COMPLETED: **10/23/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **179.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
179.3	0		[Dotted pattern]	6 In. of Topsoil	
	2	ML	[Vertical lines]	Brown (7.5YR 4/6), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 1-1/2 Ft.
176.3	4	HW	[Triangles]	Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
172.8	6		[Triangles]	Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 6 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1040 (Stake #5024)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1041 (Stake #5025)

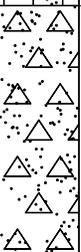
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/24/2023**
 DATE COMPLETED: **10/24/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **177.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
177.0	0			6 In. of Topsoil	
		SM		Dark yellow-brown (10YR 4/6), moist, Silty SAND [Sandy Loam per USDA]	- Infiltration rate = 0.5 in/hr at 1/2 Ft.
175.0	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
171.0	6			Test pit complete at 6-1/2 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 5 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1041 (Stake #5025)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1042 (Stake #5026)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/24/2023**
 DATE COMPLETED: **10/24/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **179.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
178.8	0			6 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
		SM		Brown (7.5YR 4/6), moist, Silty SAND with gravel [Sandy Loam per USDA]	
177.3	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
173.3	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 5 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1042 (Stake #5026)

LOG OF TEST PIT NO. TP-1043 (Stake #5027)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/24/2023**
 DATE COMPLETED: **10/24/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **183.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
183.3	0		[Dotted pattern]	6 In. of Topsoil	
		ML	[Vertical lines]	Brown (7.5YR 4/6), moist, SILT [Silt per USDA]	- Infiltration rate = 0 in/hr at 1 Ft. - NMC = 21.6%
	2	ML	[Vertical lines]		
180.8	4	HW	[Triangles]	Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	- Basin Flood Test performed at 5 Ft.
	6		[Triangles]	Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
177.8	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
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LOG OF TEST PIT NO. TP-1043 (Stake #5027)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1044 (Stake #5028)

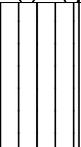
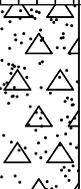
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/24/2023**
 DATE COMPLETED: **10/24/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **182.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
182.1	0			8 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft. - Basin Flood Test performed at 4-1/2 Ft.
	2	ML		Brown (7.5YR 4/6), moist, Sandy SILT [Silt Loam per USDA]	
179.7	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
176.7	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1044 (Stake #5028)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1045 (Stake #5029)

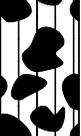
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/24/2023**
 DATE COMPLETED: **10/24/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **183.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
182.8	0			8 In. of Topsoil	
		SM		Brown (7.5YR 4/6), moist, Silty SAND [Sandy Loam per USDA]	
180.9	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0.5 in/hr at 3 Ft.
178.4	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
176.4	6			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1045 (Stake #5029)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1046 (Stake #5085)

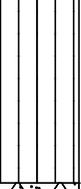
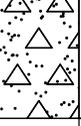
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/26/2023**
 DATE COMPLETED: **10/26/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **188.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
187.5	0			12 In. of Topsoil	- Infiltration rate = 0.25 in/hr at 2 Ft.
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
184.5	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
182.5	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1046 (Stake #5085)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1047 (Stake #5086)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/26/2023**
 DATE COMPLETED: **10/26/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **191.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
191.4	0		[Dotted Pattern]	6 In. of Topsoil	- Infiltration rate = 0 in/hr at 1/2 Ft.
		ML	[Vertical Lines]	Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
190.4	2	HW	[Triangles]	Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
185.9	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1047 (Stake #5086)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1048 (Stake #5087)

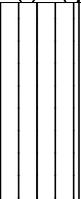
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/26/2023**
 DATE COMPLETED: **10/26/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **193.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
192.8	0			8 In. of Topsoil	- Infiltration rate = 0 in/hr at 2 Ft.
	2	ML		Brown (7.5YR 4/6) and red-brown (5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
189.4	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
186.4	8			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1048 (Stake #5087)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1049 (Stake #5088)

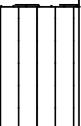
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/26/2023**
 DATE COMPLETED: **10/26/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **189.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
189.1	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft. - NMC = 11.9%
	2	ML		Dark yellow-brown (10YR 4/6), moist, SILT with sand [Silt Loam per USDA]	
186.9	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
181.9	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1049 (Stake #5088)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1050 (Stake #5082)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/26/2023**
 DATE COMPLETED: **10/26/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **190.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
189.6	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 2 Ft.
	2	SM		Brown (7.5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	
186.4	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
184.4	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1050 (Stake #5082)

LOG OF TEST PIT NO. TP-1051 (Stake #5083)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/26/2023**
 DATE COMPLETED: **10/26/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **190.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
189.7	0			8 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 2-1/2 Ft. - NMC = 10.0%
	4			- Red-brown (5YR 4/4), moist, Gravelly SILT with sand [Loam per USDA] at 2-1/2 Ft.	
185.8	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
183.8	6-1/2			Test pit complete at 6-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1051 (Stake #5083)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1052 (Stake #5084)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/26/2023**
 DATE COMPLETED: **10/26/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **189.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
188.8	0			10 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA] - with gravel at 3 Ft.	- Infiltration rate = 0 in/hr at 2 Ft.
185.6	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
183.6	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1052 (Stake #5084)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1053 (Stake #5079)

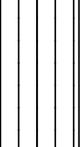
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/20/2023**
 DATE COMPLETED: **10/20/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **199.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
198.4	0			12 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA] - Brown (7.5YR 5/3) at 3 Ft.	- Infiltration rate = 0.5 in/hr at 1-1/2 Ft. - NMC = 22.1%
195.9	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
194.9	4-1/2			Test pit complete at 4-1/2 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1053 (Stake #5079)

Sheet 1 of 1

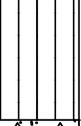
LOG OF TEST PIT NO. TP-1054 (Stake #5080)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/20/2023**
 DATE COMPLETED: **10/20/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **200.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
199.3		CL		Dark yellow-brown (10YR 4/6), moist, Sandy Lean CLAY [Clay per USDA]	
198.3	2	ML		Dark yellow-brown (10YR 4/6) and light brown-gray (10YR 6/2), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 2 Ft.
196.3	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
195.3				Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1054 (Stake #5080)

LOG OF TEST PIT NO. TP-1055 (Stake #5081)

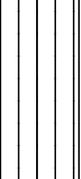
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/20/2023**
 DATE COMPLETED: **10/20/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **200.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
199.9	0			12 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA] - Red-brown (5YR 4/4), with gravel at 2 Ft.	- Infiltration rate = 0 in/hr at 2 Ft.
196.9	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
194.9	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1055 (Stake #5081)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1056 (Stake #5073)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/19/2023**
 DATE COMPLETED: **10/19/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **200.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
200.2	0			8 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, SILT [Silt Loam per USDA]	
	4			- Red-brown (5YR 4/4), with gravel at 5 Ft.	
194.4	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	- Infiltration rate = 0 in/hr at 4 Ft.
	8				- Slight perched water seepage at 6-1/2 Ft.
190.9	10			Test pit complete at 10 Ft. due to refusal on highly-weathered rock.	
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1056 (Stake #5073)

LOG OF TEST PIT NO. TP-1057 (Stake #5074)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/19/2023**
 DATE COMPLETED: **10/19/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **201.0 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
200.3	0			8 In. of Topsoil	
	2	CL		Dark yellow-brown (10YR 4/6), moist, Lean CLAY [Clay per USDA]	
196.0	6	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL [Gravelly Sand per USDA]	- NMC = 22.1% - Infiltration rate = 0 in/hr at 4 Ft.
194.5	8	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	- Rapid perched water seepage at 6-1/2 Ft.
189.0	12			Test pit complete at 12 Ft. due to refusal on highly-weathered rock.	
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1057 (Stake #5074)

LOG OF TEST PIT NO. TP-1058 (Stake #5075)

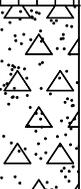
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/19/2023**
 DATE COMPLETED: **10/19/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **200.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
199.4	0			8 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
		ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
198.1	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
195.1	5			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1058 (Stake #5075)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1059 (Stake #5076)

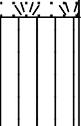
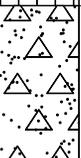
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/19/2023**
 DATE COMPLETED: **10/19/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **200.0 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
199.3	0			8 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
		ML		Brown (7.5YR 4/4), moist, SILT [Silt Loam per USDA]	
197.5	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
195.0	5			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1059 (Stake #5076)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1060 (Stake #5077)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/19/2023**
 DATE COMPLETED: **10/19/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **197.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
196.9	0		[Topsoil Symbol]	8 In. of Topsoil	- Infiltration rate = 1.5 in/hr at 1 Ft.
		ML	[ML Symbol]	Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
196.1	2	HW	[HW Symbol]	Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
190.6	7		[Rock Symbol]	Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1060 (Stake #5077)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1061 (Stake #5078)

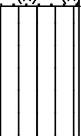
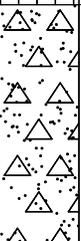
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/19/2023**
 DATE COMPLETED: **10/19/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **197.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
196.6	0			8 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
194.3	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
190.3	8			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1061 (Stake #5078)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1062 (Stake #5072)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/27/2023**
 DATE COMPLETED: **10/27/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **203.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
202.9	0			10 In. of Topsoil	
	2	ML		Dark yellow-brown (10YR 4/6), moist, SILT [Silt per USDA]	
200.7	4	SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0 in/hr at 3 Ft.
198.7	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	- Rapid perched water seepage at 5 Ft.
195.7	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1062 (Stake #5072)

LOG OF TEST PIT NO. TP-1063 (Stake #5071)

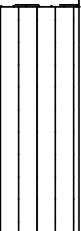
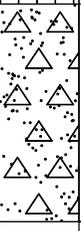
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/27/2023**
 DATE COMPLETED: **10/27/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **203.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
202.7	0			10 In. of Topsoil	
	2	ML		Red-brown (5YR 4/3), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 2-1/2 Ft.
	4				
199.0	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	- Rapid trapped water seepage at 5 Ft.
195.5	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1063 (Stake #5071)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1064 (Stake #5070)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/27/2023**
 DATE COMPLETED: **10/27/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **203.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
203.0		GM		Dark brown (10YR 3/3), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 1-1/2 Ft.
201.8	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
198.8	4			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1064 (Stake #5070)

LOG OF TEST PIT NO. TP-1065 (Stake #5069)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/27/2023**
 DATE COMPLETED: **10/27/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **204.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
203.3	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
		GM		Dark brown (10YR 3/3), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
202.1	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
198.6	6			Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1065 (Stake #5069)

LOG OF TEST PIT NO. TP-1066 (Stake #5068)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/27/2023**
 DATE COMPLETED: **10/27/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **204.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
203.3	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
202.6	1	GM		Dark brown (10YR 3/3), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
198.6	6			Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1066 (Stake #5068)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1067 (Stake #5067)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/27/2023**
 DATE COMPLETED: **10/27/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **204.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
203.3	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
202.6	1	GM		Dark brown (10YR 3/3), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
198.1	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1067 (Stake #5067)

Sheet 1 of 1

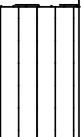
LOG OF TEST PIT NO. TP-1068 (Stake #5066)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/27/2023**
 DATE COMPLETED: **10/27/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **206.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
205.8		ML		Dark yellow-brown (10YR 4/6), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 1 Ft.
	2				
203.6		HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	4				
201.6				Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1068 (Stake #5066)

LOG OF TEST PIT NO. TP-1069 (Stake #5065)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/27/2023**
 DATE COMPLETED: **10/27/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **206.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			8 In. of Topsoil	
206.3		GM		Brown (10YR 4/3), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration test attempted at 1 Ft.
205.4	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	4				
201.4	6			Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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 ASSOCIATES, INC.**

14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1069 (Stake #5065)

LOG OF TEST PIT NO. TP-1070 (Stake #5064)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/27/2023**
 DATE COMPLETED: **10/27/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **205.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
205.1	0			8 In. of Topsoil	
		GM		Dark yellow-brown (10YR 4/6), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration test attempted at 1 Ft.
204.2	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
198.7	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1070 (Stake #5064)

LOG OF TEST PIT NO. TP-1071 (Stake #5063)

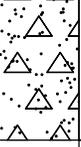
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/27/2023**
 DATE COMPLETED: **10/27/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **204.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
203.2		GM		Dark brown (10YR 3/3), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration test attempted at 1 Ft.
201.7	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
199.2	4			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.**
Backfilled on completion.



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1071 (Stake #5063)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1072 (Stake #5121)

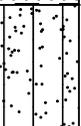
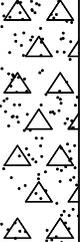
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/02/2023**
 DATE COMPLETED: **11/02/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **186.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
185.3		SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 2 in/hr at 1 Ft.
	2				
183.1		HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	4				
	6				
179.1				Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1072 (Stake #5121)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1073 (Stake #5120)

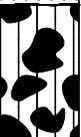
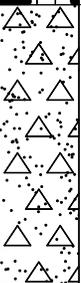
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/02/2023**
 DATE COMPLETED: **11/02/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **183.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
183.0	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 2 in/hr at 1 Ft. - NMC = 16.4%
180.8	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
176.3	8			Test pit complete at 7-1/2 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1073 (Stake #5120)

Sheet 1 of 1

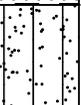
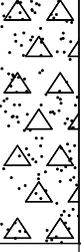
LOG OF TEST PIT NO. TP-1074 (Stake #5119)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/02/2023**
 DATE COMPLETED: **11/02/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **181.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
180.6		SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 2 in/hr at 1 Ft.
	2				
178.4		HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
174.4				Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1074 (Stake #5119)

LOG OF TEST PIT NO. TP-1075 (Stake #5118)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/02/2023**
 DATE COMPLETED: **11/02/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **179.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
179.0	1	SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 2 in/hr at 1 Ft.
176.8	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
173.8	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1075 (Stake #5118)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1076 (Stake #5117)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/02/2023**
 DATE COMPLETED: **11/02/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **200.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
199.5		ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 1 Ft.
198.3	2	GM		Brown (7.5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
197.3	4	HW		Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
193.8	6			Test pit complete at 6-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1076 (Stake #5117)

LOG OF TEST PIT NO. TP-1077 (Stake #5116)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/02/2023**
 DATE COMPLETED: **11/02/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **201.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
200.4	0			10 In. of Topsoil	
		ML		Dark yellow-brown (10YR 3/4), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 1 Ft.
199.2	2	GM		Dark yellow-brown (10YR 3/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
198.2	4	HW		Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
195.2	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1077 (Stake #5116)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1078 (Stake #5030)

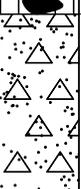
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/30/2023**
 DATE COMPLETED: **10/30/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **197.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
196.8	0			10 In. of Topsoil	
	2	ML		Yellow-brown (10YR 5/6), moist, Sandy SILT [Silt Loam per USDA]	
194.6	4	GM		Dark yellow-brown (10YR 4/6), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 3 Ft.
192.6	6	HW		Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
189.6	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 8 Ft.
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1078 (Stake #5030)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1079 (Stake #5031)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/30/2023**
 DATE COMPLETED: **10/30/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **196.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
196.2	0			8 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
	2	GM		Dark yellow-brown (10YR 4/6), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
193.9	4	HW		Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
191.9	6			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 5 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1079 (Stake #5031)

Sheet 1 of 1

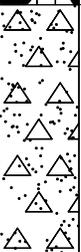
LOG OF TEST PIT NO. TP-1080 (Stake #5032)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/30/2023**
 DATE COMPLETED: **10/30/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **194.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
194.2	0			8 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft. - NMC = 15.6%
	2	GM		Brown (7.5YR 4/4), moist, Silty GRAVEL [Gravelly Sand per USDA]	
191.9	4	HW		Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
187.9	8			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 5 Ft.
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1080 (Stake #5032)

LOG OF TEST PIT NO. TP-1081 (Stake #5033)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/30/2023**
 DATE COMPLETED: **10/30/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **192.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
192.1	0		[Symbol]	8 In. of Topsoil	
		GM	[Symbol]	Brown (7.5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 1 Ft.
190.8	2	HW	[Symbol]	Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
	4		[Symbol]		
	6		[Symbol]		- Basin Flood Test performed at 5 Ft.
185.8	7		[Symbol]	Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1081 (Stake #5033)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1082 (Stake #5106)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/02/2023**
 DATE COMPLETED: **11/02/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **208.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
207.6	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 2 Ft.
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
204.4	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
200.4	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1082 (Stake #5106)

LOG OF TEST PIT NO. TP-1083 (Stake #5107)

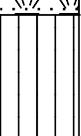
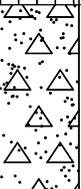
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/02/2023**
 DATE COMPLETED: **11/02/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **208.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
207.9	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
205.7	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
202.7	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1083 (Stake #5107)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1084 (Stake #5108)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/03/2023**
 DATE COMPLETED: **11/03/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **208.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
208.1	2	SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0 in/hr at 1 Ft.
205.9	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
202.9	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1084 (Stake #5108)

LOG OF TEST PIT NO. TP-1085 (Stake #5109)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/03/2023**
 DATE COMPLETED: **11/03/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **208.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
207.9		ML		Red-brown (5YR 4/4), moist, SILT with sand [Silt Loam per USDA]	
206.2	2	SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0 in/hr at 2 Ft.
204.7	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
202.2	6			Test pit complete at 6-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1085 (Stake #5109)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1086 (Stake #5110)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/03/2023**
 DATE COMPLETED: **11/03/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **207.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
206.9		CI		Red-brown (5YR 4/4), moist, Lean CLAY [Clay per USDA]	- NMC = 20.3% - Infiltration rate = 0 in/hr at 2-1/2 Ft.
	2				
204.7		SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	
	4				
203.2		HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
201.7	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.**
Backfilled on completion.



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1086 (Stake #5110)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1087 (Stake #5111)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/03/2023**
 DATE COMPLETED: **11/03/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **207.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
206.5		ML		Brown (7.5YR 4/6), moist, SILT with sand [Silt Loam per USDA]	
	2				
204.3		SM		Brown (10YR 4/6), moist, Silty SAND with gravel [Sandy Loam per USDA]	
	4				
202.8		HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
201.3	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

- Infiltration rate =
0 in/hr at 2-1/2 Ft.

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1087 (Stake #5111)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1088 (Stake #5112)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/03/2023**
 DATE COMPLETED: **11/03/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **206.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
205.6	0			10 In. of Topsoil	
	2	ML		Dark yellow-brown (10YR 4/6), moist, SILT with sand [Silt Loam per USDA]	
202.4	4	SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0 in/hr at 3-1/2 Ft.
200.9	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
198.9	8			Test pit complete at 7-1/2 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1088 (Stake #5112)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1089 (Stake #5113)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/03/2023**
 DATE COMPLETED: **11/03/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **205.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
204.7	0			10 In. of Topsoil	
	2	ML		Dark yellow-brown (10YR 4/6), moist, SILT with sand [Silt Loam per USDA]	
200.5	6	SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0 in/hr at 4-1/2 Ft.
199.0	8	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
197.5	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1089 (Stake #5113)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1090 (Stake #5114)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/03/2023**
 DATE COMPLETED: **11/03/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **205.0 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
204.2		ML		Dark yellow-brown (10YR 4/6), moist, SILT with sand [Silt Loam per USDA]	
	2				
202.0		SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	
	4				
200.5		HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	6				
198.5				Test pit complete at 6-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

- Infiltration rate =
0 in/hr at 2-1/2 Ft.

NOTES: **Location and elevation provided by Bowman.
Backfilled on completion.**



**GEO-TECHNOLOGY
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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1090 (Stake #5114)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1091 (Stake #5115)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/03/2023**
 DATE COMPLETED: **11/03/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **204.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
203.6	0			10 In. of Topsoil	
	2	ML		Dark yellow-brown (10YR 4/6), moist, SILT with sand [Silt Loam per USDA]	
201.4	4	SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0.5 in/hr at 3 Ft.
199.4	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
197.4	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1091 (Stake #5115)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1092 (Stake #5089)

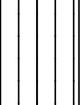
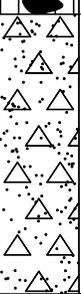
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/25/2023**
 DATE COMPLETED: **10/25/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **196.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
195.5	2	ML		Dark yellow-brown (10YR 4/6), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 1 in/hr at 1 Ft.
193.5	4	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
191.5	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
187.0	10			Test pit complete at 9-1/2 Ft. due to refusal on highly-weathered rock.	
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1092 (Stake #5089)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1093 (Stake #5090)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/25/2023**
 DATE COMPLETED: **10/25/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **196.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
195.9		ML		Dark yellow-brown (10YR 4/6), moist, Sandy SILT [Silt Loam per USDA]	
	2				
193.9		GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 3 Ft.
	4				
191.9		HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	6				
189.4				Test pit complete at 7-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1093 (Stake #5090)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1094 (Stake #5091)

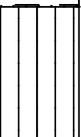
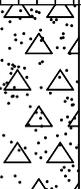
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/25/2023**
 DATE COMPLETED: **10/25/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **196.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
196.1	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft. - NMC = 22.7%
	2	ML		Dark yellow-brown (10YR 4/6), moist, SILT [Silt per USDA]	
193.9	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
190.9	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1094 (Stake #5091)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1095 (Stake #5092)

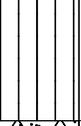
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/25/2023**
 DATE COMPLETED: **10/25/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **194.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
193.6		ML		Dark yellow-brown (10YR 4/6), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 1 Ft.
	2				
191.6		HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	4				
189.6				Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1095 (Stake #5092)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1096 (Stake #5093)

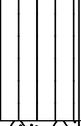
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/25/2023**
 DATE COMPLETED: **10/25/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **195.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
194.2	0			12 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
	2	ML		Dark yellow-brown (10YR 4/6), moist, Sandy SILT [Silt Loam per USDA]	
192.2	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
189.7	6			Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1096 (Stake #5093)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1097 (Stake #5094)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/25/2023**
 DATE COMPLETED: **10/25/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **190.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
189.3	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
	2	SM		Red-brown (5YR 4/4), moist, Silty SAND [Sandy Loam per USDA]	
187.1	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
184.1	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 5 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1097 (Stake #5094)

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LOG OF TEST PIT NO. TP-1098 (Stake #5095)

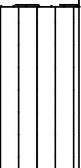
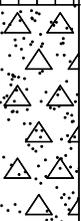
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/25/2023**
 DATE COMPLETED: **10/25/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **189.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
189.1	0			10 In. of Topsoil	
	2	ML		Red-brown (5YR 4/4), moist, SILT with sand [Silt Loam per USDA]	- Infiltration rate = 0.25 in/hr at 1-1/2 Ft. - NMC = 19.4%
186.4	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
182.9	6			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 6 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
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LOG OF TEST PIT NO. TP-1098 (Stake #5095)

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LOG OF TEST PIT NO. TP-1099 (Stake #5096)

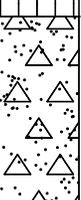
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/25/2023**
 DATE COMPLETED: **10/25/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **189.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
189.0	0			6 In. of Topsoil	- Infiltration rate = 0 in/hr at 1/2 Ft.
		ML		Red-brown (5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
187.5	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
184.5	5			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 4-1/2 Ft.
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1099 (Stake #5096)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1100 (Stake #5097)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/25/2023**
 DATE COMPLETED: **10/25/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **189.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
189.0	0			6 In. of Topsoil	
188.5		SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0.25 in/hr at 1/2 Ft.
		HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
185.5	4			Test pit complete at 4 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 4 Ft.
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1100 (Stake #5097)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1101 (Stake #5098)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/25/2023**
 DATE COMPLETED: **10/25/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **191.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
191.1	0		[Dotted Pattern]	6 In. of Topsoil	
		ML	[Vertical Lines]	Brown (7.5YR 4/4), moist, Sandy SILT with gravel [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 1/2 Ft.
189.1	2		[Vertical Lines]		
		HW	[Triangles]	Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	- Basin Flood Test performed at 4-1/2 Ft.
	4		[Triangles]		
186.1	6		[Triangles]	Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1101 (Stake #5098)

Sheet 1 of 1

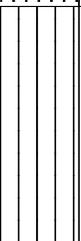
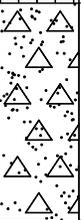
LOG OF TEST PIT NO. TP-1102 (Stake #5099)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/25/2023**
 DATE COMPLETED: **10/25/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **192.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
191.3	0			12 In. of Topsoil	
	2	ML		Dark yellow-brown (10YR 4/6), moist, SILT with sand and gravel [Silt Loam per USDA]	
187.3	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	- Infiltration rate = 0 in/hr at 3 Ft.
183.8	8			Test pit complete at 8-1/2 Ft. due to refusal on highly-weathered rock.	- Moderate trapped water seepage at 6 Ft. - Basin Flood Test attempted at 6 Ft. Terminated due to water seepage.
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
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LOG OF TEST PIT NO. TP-1102 (Stake #5099)

LOG OF TEST PIT NO. TP-1103 (Stake #5100)

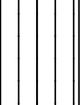
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/10/2023**
 DATE COMPLETED: **11/10/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **195.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
194.2	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT with gravel [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 1 Ft.
192.2		GM		Red-brown (5YR 4/4), moist, Silty GRAVEL [Gravelly Sand per USDA]	
191.7	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
189.2	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1103 (Stake #5100)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1104 (Stake #5101)

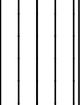
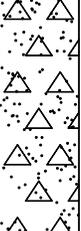
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/10/2023**
 DATE COMPLETED: **11/10/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **196.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
195.2	2	CL		Brown (7.5YR 4/4), moist, Lean CLAY with sand [Clay per USDA]	- NMC = 23.7%
193.2	4	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 2 Ft.
192.2	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
188.2	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1104 (Stake #5101)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1105 (Stake #5102)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/10/2023**
 DATE COMPLETED: **11/10/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **198.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
197.3		ML		Brown (7.5YR 4/4), moist, SILT with sand and gravel [Silt Loam per USDA]	- Infiltration rate = 1 in/hr at 2 Ft.
	2				
195.3		GM		Red-brown (5YR 4/4), moist, Silty GRAVEL [Gravelly Sand per USDA]	
	4				
194.3		HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	6				
191.3				Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1105 (Stake #5102)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1106 (Stake #5103)

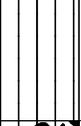
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/10/2023**
 DATE COMPLETED: **11/10/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **199.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
198.1	0			12 In. of Topsoil	- Infiltration rate = 0 in/hr at 2 Ft.
	2	ML		Brown (7.5YR 4/6), moist, Sandy SILT [Silt Loam per USDA]	
196.1		GM		Red-brown (5YR 4/4), moist, Silty GRAVEL [Gravelly Sand per USDA]	
195.1	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
192.1	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1106 (Stake #5103)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1107 (Stake #5104)

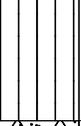
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/13/2023**
 DATE COMPLETED: **11/13/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **200.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
199.6	0			12 In. of Topsoil	- Infiltration rate = 1.5 in/hr at 1 Ft.
	2	ML		Brown (7.5YR 5/3), moist, Sandy SILT [Silt Loam per USDA]	
197.6	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
195.6	6			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1107 (Stake #5104)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1108 (Stake #5105)

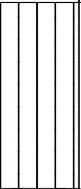
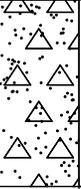
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/13/2023**
 DATE COMPLETED: **11/13/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **201.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
200.7	0			12 In. of Topsoil	- Infiltration rate = 1 in/hr at 2 Ft.
	2	ML		Brown (7.5YR 4/6), moist, Sandy SILT [Silt Loam per USDA]	
197.7	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
194.7	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.**
Backfilled on completion.



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LOG OF TEST PIT NO. TP-1108 (Stake #5105)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1109 (Stake #5125)

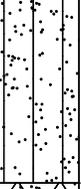
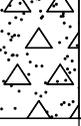
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/13/2023**
 DATE COMPLETED: **11/13/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **211.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
210.5	0			12 In. of Topsoil	- Infiltration rate = 0.5 in/hr at 2 Ft.
	2	SM		Red-brown (5YR 5/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	
207.5	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
205.5	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1109 (Stake #5125)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1110 (Stake #5124)

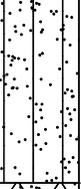
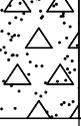
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/13/2023**
 DATE COMPLETED: **11/13/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **207.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
206.1	0			12 In. of Topsoil	- Infiltration rate = 0 in/hr at 2 Ft.
	2	SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	
203.1	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
201.1	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1110 (Stake #5124)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1111 (Stake #5123)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/15/2023**
 DATE COMPLETED: **11/15/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **187.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
187.1	0			6 In. of Topsoil	
186.6		GM		Dark yellow-brown (10YR 4/6), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration test attempted at 9 In.
		HW		Very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
	2				
	4				
181.6	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1111 (Stake #5123)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1112 (Stake #5122)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/15/2023**
 DATE COMPLETED: **11/15/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **185.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
184.2	0			12 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
	2	GM		Brown (7.5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
182.2	4	HW		Very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
179.2	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1112 (Stake #5122)

Sheet 1 of 1

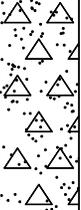
LOG OF TEST PIT NO. TP-1113 (Stake #5035)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/30/2023**
 DATE COMPLETED: **10/30/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **182.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
181.6	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
	2	GM		Dark yellow-brown (10YR 4/6), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
179.4	4	HW		Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
175.9	6			Test pit complete at 6-1/2 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 5 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1113 (Stake #5035)

LOG OF TEST PIT NO. TP-1114 (Stake #5034)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/30/2023**
 DATE COMPLETED: **10/30/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **187.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
186.2	2	GM		Yellow-brown (10YR 5/6), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 1 Ft. - Basin Flood Test performed at 5 Ft.
184.2	4	HW		Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
181.2	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1114 (Stake #5034)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1115 (Stake #5049)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/7/2023**
 DATE COMPLETED: **11/7/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **200.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
199.8	0			8 In. of Topsoil	
	2	CL		Red-brown (5YR 4/4), moist, Sandy Lean CLAY [Clay per USDA]	- Infiltration rate = 0 in/hr at 1 Ft.
197.4	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
193.4	8			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 7 Ft.
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1115 (Stake #5049)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1116 (Stake #5048)

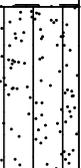
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/7/2023**
 DATE COMPLETED: **11/7/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **195.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
194.9	0			10 In. of Topsoil	
	2	SM		Dark yellow-brown (10YR 3/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0 in/hr at 1-1/2 Ft.
192.2	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
188.7	8			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 7 Ft.
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1116 (Stake #5048)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1117 (Stake #5047)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/7/2023**
 DATE COMPLETED: **11/7/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **192.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
191.5	0		[Diagonal hatching symbol]	10 In. of Topsoil	
	2	SM	[Dotted symbol]	Dark yellow-brown (10YR 3/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0.5 in/hr at 1 Ft.
189.8	4	HW	[Triangle symbol]	Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
184.3	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 5 Ft.
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1117 (Stake #5047)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1118 (Stake #5046)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/7/2023**
 DATE COMPLETED: **11/7/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **187.0 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
186.4	0			8 In. of Topsoil	
	2	SM		Dark yellow-brown (10YR 3/4), moist, Silty SAND [Sandy Loam per USDA]	- Infiltration rate = 0.5 in/hr at 2 Ft.
183.0	4	HW		Red-brown (5YR 4/4) and gray (7.5YR 5/1), moist, Highly-weathered ROCK (Shale)	- Basin Flood Test performed at 6 Ft.
179.0	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
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LOG OF TEST PIT NO. TP-1118 (Stake #5046)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1119 (Stake #5045)

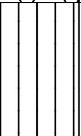
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/7/2023**
 DATE COMPLETED: **11/7/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **182.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
181.7	0			8 In. of Topsoil	- Infiltration rate = 6 in/hr at 1 Ft. - NMC = 16.4%
	2	ML		Dark yellow-brown (10YR 3/4), moist, Gravelly SILT with sand [Gravelly Silt Loam per USDA]	
179.3	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	- Basin Flood Test performed at 5 Ft.
174.3	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1119 (Stake #5045)

Sheet 1 of 1

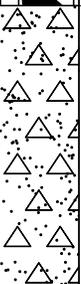
LOG OF TEST PIT NO. TP-1120 (Stake #5044)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/7/2023**
 DATE COMPLETED: **11/7/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **195.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
194.8	0			10 In. of Topsoil	- Infiltration rate = 6 in/hr at 1 Ft.
	2	GM		Brown (7.5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
193.1	4	HW		Red-brown (5YR 4/4) and gray (7.5YR 5/1), moist, Highly-weathered ROCK (Shale)	
188.6	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 5 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1120 (Stake #5044)

LOG OF TEST PIT NO. TP-1121 (Stake #5036)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/31/2023**
 DATE COMPLETED: **10/31/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **180.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
179.9	0			10 In. of Topsoil	
	2	ML		Dark yellow-brown (10YR 4/6), moist, SILT [Silt per USDA]	- NMC = 15.2% - Infiltration rate = 0 in/hr at 2-1/2 Ft.
176.2	6	HW		Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
173.7	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 6-1/2 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1121 (Stake #5036)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1122 (Stake #5037)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/31/2023**
 DATE COMPLETED: **10/31/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **182.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
181.8	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
		GM		Brown (7.5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
180.1	2	HW		Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
177.1	4				- Basin Flood Test performed at 4-1/2 Ft.
	6			Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1122 (Stake #5037)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1123 (Stake #5038)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/31/2023**
 DATE COMPLETED: **10/31/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **184.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
183.6	0			10 In. of Topsoil	- Infiltration rate = 0.25 in/hr at 1 Ft.
	2	GM		Dark yellow-brown (10YR 4/6), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
181.9	4	HW		Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
178.9	6			Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 4-1/2 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1123 (Stake #5038)

LOG OF TEST PIT NO. TP-1124 (Stake #5039)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/31/2023**
 DATE COMPLETED: **10/31/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **187.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
187.0	0			10 In. of Topsoil	
	2	GM		Brown (7.5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 1 Ft.
184.8	4	HW		Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	
182.3	6			Test pit complete at 5-1/2 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 5 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1124 (Stake #5039)

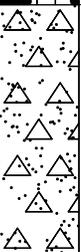
LOG OF TEST PIT NO. TP-1125 (Stake #5040)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/31/2023**
 DATE COMPLETED: **10/31/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **189.0 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
188.2	0			10 In. of Topsoil	
	2	GM		Brown (7.5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration test attempted at 1 Ft.
186.0	4	HW		Red-brown (5YR 4/4) to very dark gray (5YR 3/1), moist, Highly-weathered ROCK (Shale)	- Basin Flood Test performed at 5 Ft.
182.0	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1125 (Stake #5040)

LOG OF TEST PIT NO. TP-1126 (Stake #5041)

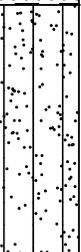
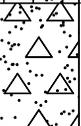
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/31/2023**
 DATE COMPLETED: **10/31/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **190.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
189.9	0			10 In. of Topsoil	
	2	SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0.25 in/hr at 3 Ft.
185.7	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
183.7	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 7 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1126 (Stake #5041)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1127 (Stake #5042)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/31/2023**
 DATE COMPLETED: **10/31/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **199.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			8 In. of Topsoil	
198.5		ML		Red-brown (5YR 4/4), moist, Sandy SILT with gravel [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 2 Ft. - NMC = 14.5%
196.2	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
195.2	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
193.2	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1127 (Stake #5042)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1128 (Stake #5043)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **10/31/2023**
 DATE COMPLETED: **10/31/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **193.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **VP**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			10 In. of Topsoil	
192.7	1	SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0 in/hr at 2 Ft.
190.5	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
189.5	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
187.5	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 6 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1128 (Stake #5043)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1129 (Stake #5139)

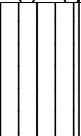
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/9/2023**
 DATE COMPLETED: **11/9/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **209.0 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
208.4	0			8 In. of Topsoil	- Infiltration rate = 0.25 in/hr at 1 Ft.
	2	ML		Red-brown (5YR 4/4), moist, SILT with sand [Silt Loam per USDA]	
206.0	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
201.0	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1129 (Stake #5139)

Sheet 1 of 1

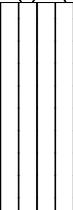
LOG OF TEST PIT NO. TP-1130 (Stake #5138)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/9/2023**
 DATE COMPLETED: **11/9/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **207.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
206.8	0			8 In. of Topsoil	- Infiltration rate = 0.25 in/hr at 2 Ft.
	2	ML		Brown (7.5YR 4/6), moist, Sandy SILT with gravel [Silt Loam per USDA]	
203.4	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
197.4	10			Test pit complete at 10 Ft. due to refusal on highly-weathered rock.	
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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 14 Worlds Fair Drive, Suite A
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LOG OF TEST PIT NO. TP-1130 (Stake #5138)

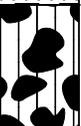
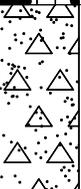
LOG OF TEST PIT NO. TP-1131

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/13/2023**
 DATE COMPLETED: **11/13/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **212 Ft.**
 DATUM: **TOPO**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
211.2	0			10 In. of Topsoil	- Infiltration rate = 12 in/hr at 1 Ft.
	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
209.0	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
206.0	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation are approximate.**
Backfilled on completion.



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1131

LOG OF TEST PIT NO. TP-1132

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/13/2023**
 DATE COMPLETED: **11/13/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **210 Ft.**
 DATUM: **TOPO**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
209.2	0			10 In. of Topsoil	
	2	ML		Dark brown (7.5YR 3/4), moist, Sandy SILT [Silt Loam per USDA] - with gravel at 3 Ft.	- Infiltration rate = 0.5 in/hr at 2 Ft.
206.0	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
204.0	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation are approximate.**
Backfilled on completion.



GEO-TECHNOLOGY ASSOCIATES, INC.

14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1132

LOG OF TEST PIT NO. TP-1133 (Stake #5130)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/9/2023**
 DATE COMPLETED: **11/9/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **212.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
211.7	0			10 In. of Topsoil	- Infiltration rate = 0.5 in/hr at 2 Ft.
	2	ML		Brown (7.5YR 4/6), moist, Sandy SILT [Silt Loam per USDA]	
208.5	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
206.5	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



**GEO-TECHNOLOGY
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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1133 (Stake #5130)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1134 (Stake #5131)

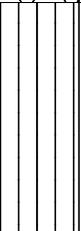
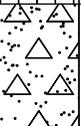
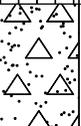
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/9/2023**
 DATE COMPLETED: **11/9/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **213.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
213.3	0			8 In. of Topsoil	- Infiltration rate = 0 in/hr at 2-1/2 Ft.
	2	ML		Red-brown (5YR 4/4), moist, Sandy SILT with gravel [Silt Loam per USDA]	
209.4	4			Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
207.4	6			Test pit complete at 6-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



**GEO-TECHNOLOGY
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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1134 (Stake #5131)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1135 (Stake #5132)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/9/2023**
 DATE COMPLETED: **11/9/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **214.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
213.8	0			8 In. of Topsoil	
				FILL - Red-brown (5YR 4/4), moist, sandy silt with bricks [Silt Loam per USDA]	
211.4	2			- with an abandoned metal pipe (possibly water line) at 2-1/2 Ft.	
				Test pit terminated at 3 Ft. due to existing utility.	- Offset 3 Ft. to the west and continued at TP-1135A.
	4				
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1135 (Stake #5132)

Sheet 1 of 1

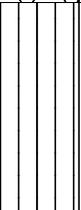
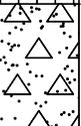
LOG OF TEST PIT NO. TP-1135A (Stake #5132) Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/9/2023**
 DATE COMPLETED: **11/9/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **214.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
213.8	0			8 In. of Topsoil	
	2	ML		Red-brown (5YR 4/4), moist, SILT [Silt per USDA] - with gravel at 2-1/2 Ft.	- Infiltration rate = 0.5 in/hr at 2 Ft. - NMC = 22.2%
210.4	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
208.4	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1135A (Stake #5132)

LOG OF TEST PIT NO. TP-1136 (Stake #5133)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/9/2023**
 DATE COMPLETED: **11/9/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **214.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
214.1	0		[Dotted Pattern]	6 In. of Topsoil	
	2		[Cross-hatch Pattern]	FILL - Red-brown (5YR 4/4), moist, sandy silt with gravel [Silt Loam per USDA] - with concrete fragments at 1 Ft. - with plastic and scrap metal at 2 Ft.	- Infiltration rate = 0.5 in/hr at 2 Ft.
210.6	4	HW	[Triangle Pattern]	Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
208.6	6			Test pit complete at 6 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1136 (Stake #5133)

LOG OF TEST PIT NO. TP-1137 (Stake #5134)

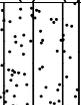
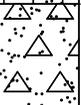
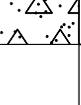
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/9/2023**
 DATE COMPLETED: **11/9/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **213.7 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
213.1	0			8 In. of Topsoil	
	2	SM		Red-brown (5YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0.25 in/hr at 2 Ft.
209.7	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
207.2	6			Test pit complete at 6-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1137 (Stake #5134)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1138 (Stake #5135)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/9/2023**
 DATE COMPLETED: **11/9/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **211.9 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
211.3	0			8 In. of Topsoil	
	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 9 in/hr at 1-1/2 Ft.
208.4	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
204.9	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1138 (Stake #5135)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1139 (Stake #5126)

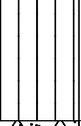
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/10/2023**
 DATE COMPLETED: **11/10/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **206.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
205.8	0			12 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
	2	ML		Red-brown (5YR 4/4), moist, Sandy SILT with gravel [Silt Loam per USDA]	
203.8	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
201.8	6			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1139 (Stake #5126)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1140 (Stake #5127)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/10/2023**
 DATE COMPLETED: **11/10/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **205.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
204.5	0		[Dotted pattern]	8 In. of Topsoil	- Infiltration rate = 0.5 in/hr at 1 Ft.
		ML	[Vertical lines]	Red-brown (5YR 4/4), moist, Sandy SILT with gravel [Silt Loam per USDA]	
203.1	2	HW	[Triangles]	Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
201.1	4		[Triangles]	Test pit complete at 4 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1140 (Stake #5127)

Sheet 1 of 1

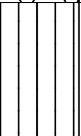
LOG OF TEST PIT NO. TP-1141 (Stake #5129)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/10/2023**
 DATE COMPLETED: **11/10/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **201.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
201.0	0			8 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft.
	2	ML		Red-brown (5YR 4/4), moist, Sandy SILT with gravel [Silt Loam per USDA]	
198.6	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
196.6	6			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1141 (Stake #5129)

LOG OF TEST PIT NO. TP-1142 (Stake #5128)

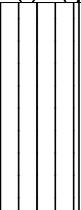
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/10/2023**
 DATE COMPLETED: **11/10/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **200.0 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
199.4	0			8 In. of Topsoil	- Infiltration rate = 0.5 in/hr at 2 Ft.
	2	ML		Red-brown (5YR 4/4), moist, Sandy SILT with gravel [Silt Loam per USDA]	
196.0	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
195.0	5			Test pit complete at 5 Ft. due to refusal on highly-weathered rock.	
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1142 (Stake #5128)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1143 (Stake #5142)

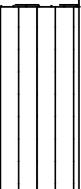
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/8/2023**
 DATE COMPLETED: **11/8/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **213.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
212.5	0			10 In. of Topsoil	
	2	ML		Red-brown (5YR 4/4), moist, Sandy SILT [Silt Loam per USDA] - with gravel at 3 Ft.	- Infiltration rate = 0 in/hr at 2 Ft.
209.3	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
205.3	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1143 (Stake #5142)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1144 (Stake #5141)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/8/2023**
 DATE COMPLETED: **11/8/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **213.4 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
212.6	0			10 In. of Topsoil	
	2	ML		Brown (7.5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 1-1/2 Ft.
	4	HW		- with gravel at 3 Ft. Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
209.9	6				
206.4	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1144 (Stake #5141)

Sheet 1 of 1

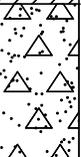
LOG OF TEST PIT NO. TP-1145 (Stake #5140)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/8/2023**
 DATE COMPLETED: **11/8/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **213.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
212.4	0			10 In. of Topsoil	
	2	CL		Red-brown (5YR 4/4), moist, Sandy Lean CLAY [Clay per USDA] - with gravel at 3 Ft.	- Infiltration rate = 0 in/hr at 2 Ft.
209.2	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
206.7	6			Test pit complete at 6-1/2 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1145 (Stake #5140)

LOG OF TEST PIT NO. TP-1146 (Stake #5144)

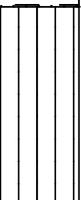
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/8/2023**
 DATE COMPLETED: **11/8/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **207.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
206.3	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1-1/2 Ft.
	2	ML		Dark yellow-brown (10YR 4/6), moist, SILT with sand [Silt Loam per USDA]	
203.1	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
200.1	6			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1146 (Stake #5144)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1147 (Stake #5143)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/8/2023**
 DATE COMPLETED: **11/8/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **207.1 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
206.3	0			10 In. of Topsoil	- Infiltration rate = 0.5 in/hr at 2 Ft.
	2	SM		Dark yellow-brown (10YR 4/6), moist, Silty SAND [Sandy Loam per USDA]	
204.1	4	ML		Dark yellow-brown (10YR 3/4), moist, SILT with sand and gravel [Silt Loam per USDA]	
203.1	6	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
199.1	8			Test pit complete at 8 Ft. due to refusal on highly-weathered rock.	
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman.
 Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1147 (Stake #5143)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1148 (Stake #5054)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/6/2023**
 DATE COMPLETED: **11/6/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **202.3 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
201.3		ML		Red-brown (5YR 4/4), moist, SILT with sand and gravel [Silt Loam per USDA]	- Infiltration rate = 0.5 in/hr at 1 Ft.
200.8		GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
200.3	2	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
198.3	4			Test pit complete at 4 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 4 Ft.
	6				
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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LOG OF TEST PIT NO. TP-1148 (Stake #5054)

LOG OF TEST PIT NO. TP-1149 (Stake #5053)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/6/2023**
 DATE COMPLETED: **11/6/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **202.8 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
201.8		ML		Red-brown (5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	- Infiltration rate = 0.5 in/hr at 1-1/2 Ft. - NMC = 23.0% - Basin Flood Test performed at 5 Ft.
199.8	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
199.3	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	6				
195.8	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1149 (Stake #5053)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1150 (Stake #5052)

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/6/2023**
 DATE COMPLETED: **11/6/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **200.2 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
199.2		ML		Red-brown (5YR 4/4), moist, SILT with sand [Silt Loam per USDA]	- Infiltration rate = 0 in/hr at 1-1/2 Ft.
197.7	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	
196.7	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
193.2	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	- Basin Flood Test performed at 5 Ft. - Moderate water seepage at 7 Ft.
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1150 (Stake #5052)

LOG OF TEST PIT NO. TP-1151 (Stake #5051)

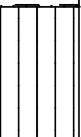
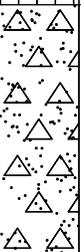
Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/6/2023**
 DATE COMPLETED: **11/6/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **197.6 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
196.8	0			10 In. of Topsoil	- Infiltration rate = 0 in/hr at 1 Ft. - Basin Flood Test performed at 5 Ft.
	2	ML		Red-brown (5YR 4/4), moist, SILT with sand [Silt Loam per USDA] - with gravel at 2 Ft.	
194.6	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
190.6	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

LOG OF TEST PIT NO. TP-1151 (Stake #5051)

Sheet 1 of 1

LOG OF TEST PIT NO. TP-1152 (Stake #5050)

Sheet 1 of 1

PROJECT: **Venue at Hopewell**
 PROJECT LOCATION: **Hopewell Township, New Jersey**
 CLIENT: **Lennar**

PROJECT NO.: **31191132x1**

DATE STARTED: **11/6/2023**
 DATE COMPLETED: **11/6/2023**
 CONTRACTOR: **J.A. Neary Excavating**
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**
 GROUND SURFACE ELEVATION: **197.5 Ft.**
 DATUM: **Survey**
 LOGGED BY: **AFS**
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			12 In. of Topsoil	
196.5		ML		Red-brown (5YR 4/4), moist, Sandy SILT [Silt Loam per USDA]	
195.0	2	GM		Red-brown (5YR 4/4), moist, Silty GRAVEL with sand [Gravelly Sand per USDA]	- Infiltration rate = 0 in/hr at 2 Ft.
193.5	4	HW		Red-brown (5YR 4/4), moist, Highly-weathered ROCK (Shale)	
	6				- Basin Flood Test performed at 6 Ft.
190.5	7			Test pit complete at 7 Ft. due to refusal on highly-weathered rock.	
	8				
	10				
	12				
	14				
	16				
	18				

NOTES: **Location and elevation provided by Bowman. Backfilled on completion.**



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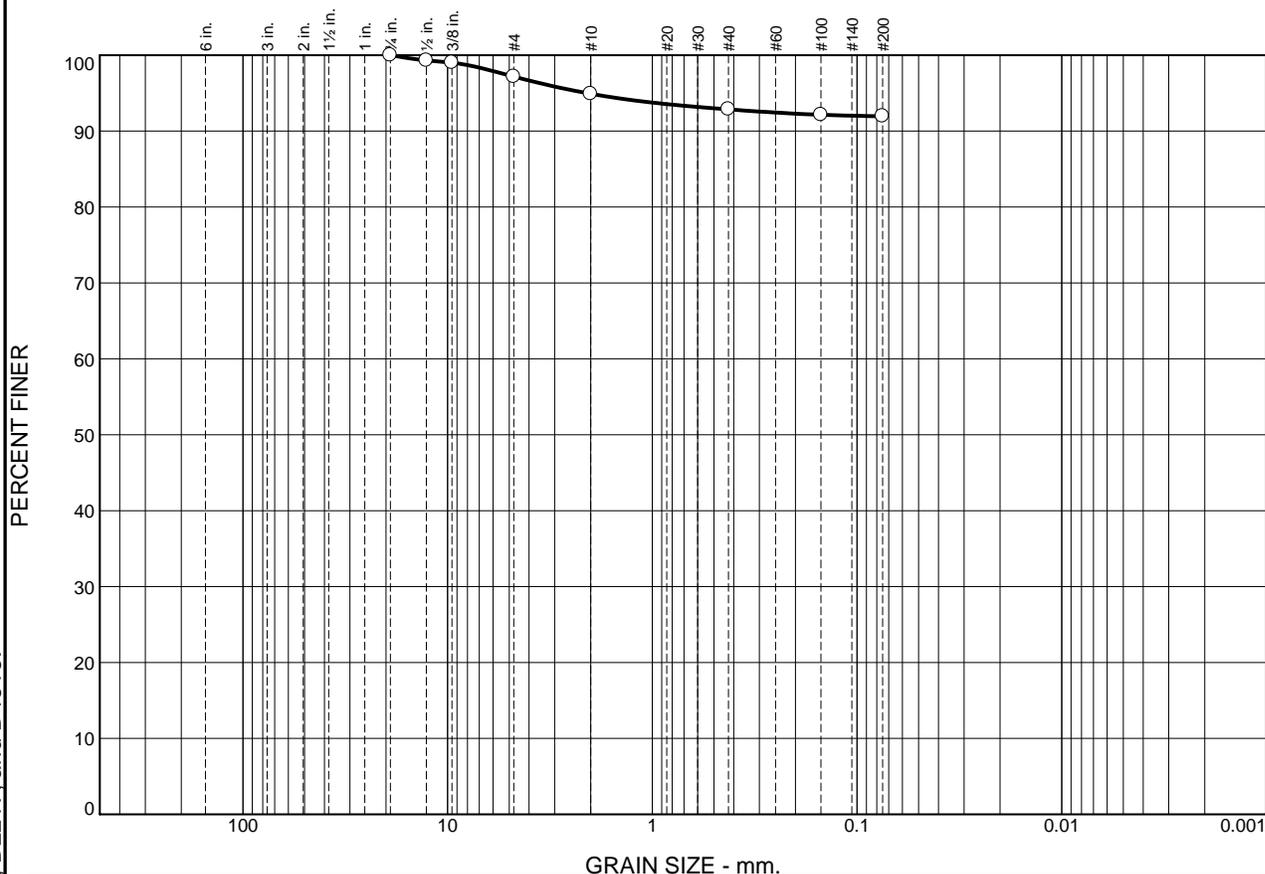
LOG OF TEST PIT NO. TP-1152 (Stake #5050)

Sheet 1 of 1

APPENDIX D

Laboratory Data

Particle Size Distribution Report



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.8	2.3	2.0	1.0	91.9	

LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
NV	NV								

Material Description	USCS	AASHTO
SILT	ML	A-4(0)

Project No. 31191132x1 **Client:** Lennar
Project: Venue at Hopewell

Source of Sample: TP-1001 (Stake #5000) **Depth:** 3.5

Remarks:
 ONMC = 19.7%



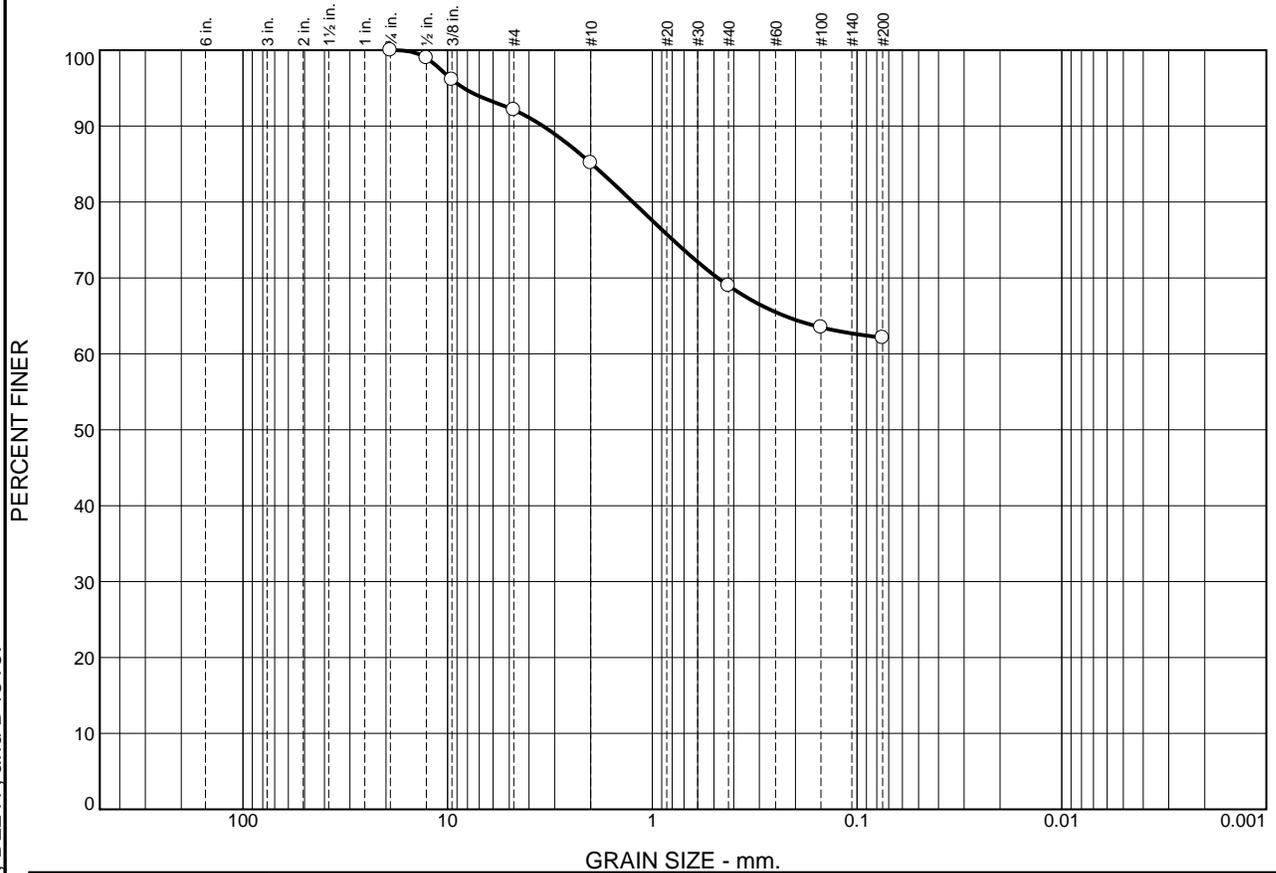
GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

Figure

Tested By: RR/AFS

Checked By: AFS

Particle Size Distribution Report



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.9	7.0	16.1	6.9	62.1	

LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
NV	NV	1.9723							

Material Description	USCS	AASHTO
Sandy SILT	ML	A-4(0)

Project No. 31191132x1 **Client:** Lennar
Project: Venue at Hopewell
Source of Sample: TP-1008 (Stake #5007) **Depth:** 4

Remarks:
 ONMC = 22.1%

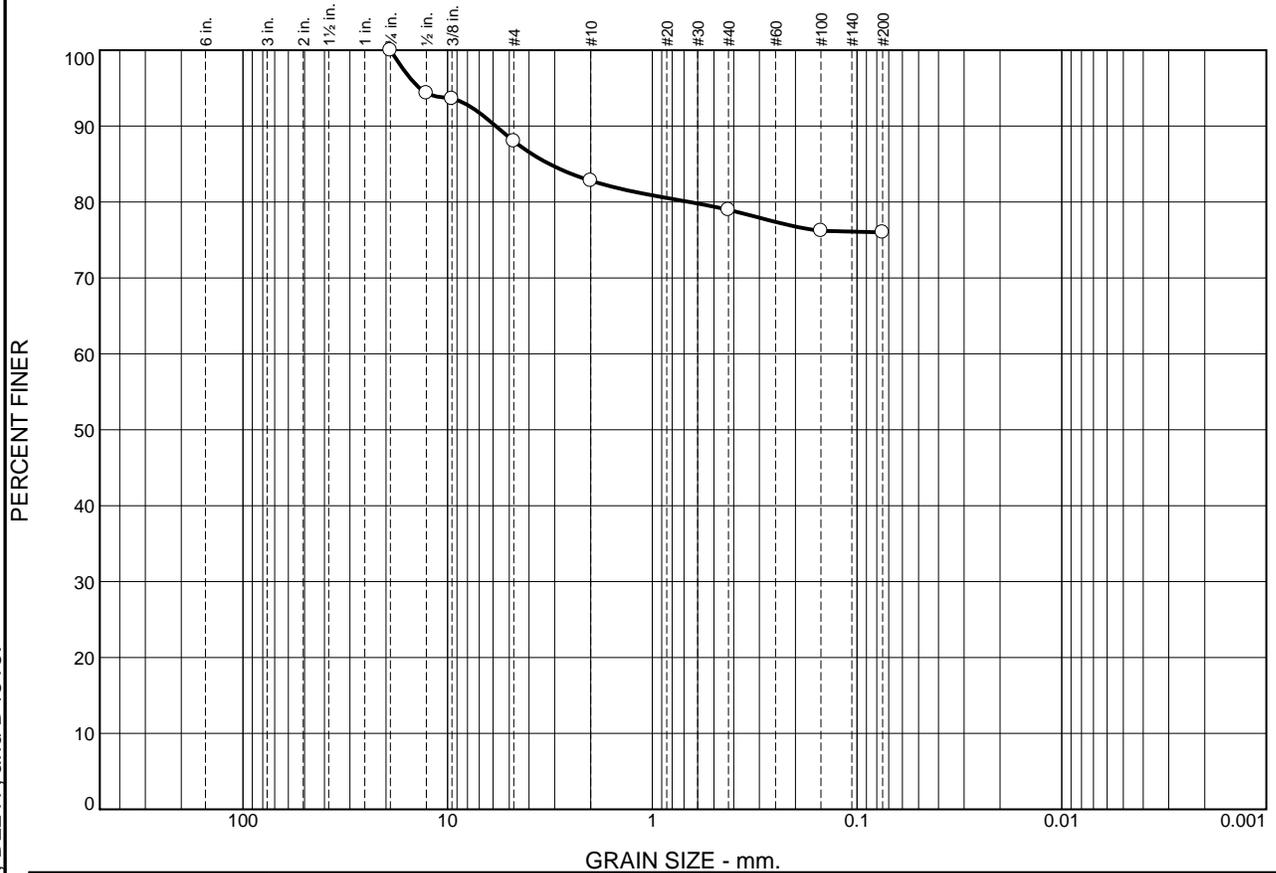


GEO-TECHNOLOGY
 ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

Figure

Tested By: RR/AFS **Checked By:** AFS

Particle Size Distribution Report



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	12.0	5.2	3.8	3.0	76.0	

LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
NV	NV	3.1768							

Material Description	USCS	AASHTO
SILT with sand	ML	A-4(0)

Project No. 31191132x1 **Client:** Lennar
Project: Venue at Hopewell
Source of Sample: TP-1012 (Stake #5062) **Depth:** 2

Remarks:
 ONMC = 22.6%



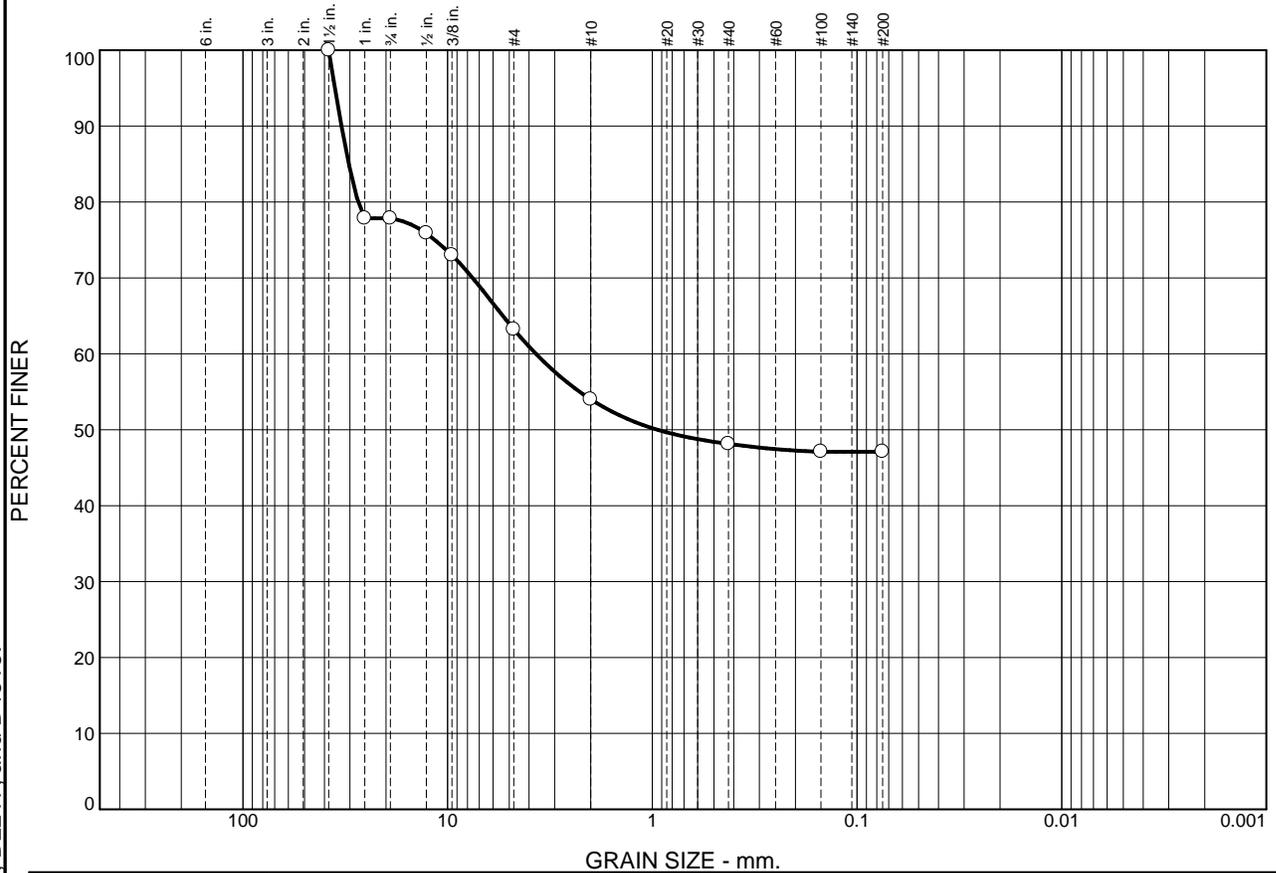
GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

Figure

Tested By: RR/AFS

Checked By: AFS

Particle Size Distribution Report



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	22.2	14.6	9.2	5.9	1.0	47.1	

LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
NP	NP	30.3913	3.7018	0.9440					

Material Description	USCS	AASHTO
<input type="radio"/> Silty GRAVEL with sand	GM	A-4(0)

Project No. 31191132x1 **Client:** Lennar
Project: Venue at Hopewell

Source of Sample: TP-1016 (Stake #5057) **Depth:** 1

Remarks:
 ONMC = 19.7%



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 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

Figure

Tested By: RR/AFS

Checked By: AFS

Particle Size Distribution Report



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	16.6	9.3	6.8	11.8	3.5	52.0	

LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
NV	NV	19.8849	0.8729						

Material Description	USCS	AASHTO
Gravelly SILT with sand	ML	A-4(0)

Project No. 31191132x1 **Client:** Lennar
Project: Venue at Hopewell
Source of Sample: TP-1026 (Stake #5017) **Depth:** 3

Remarks:
 ONMC = 21.6%



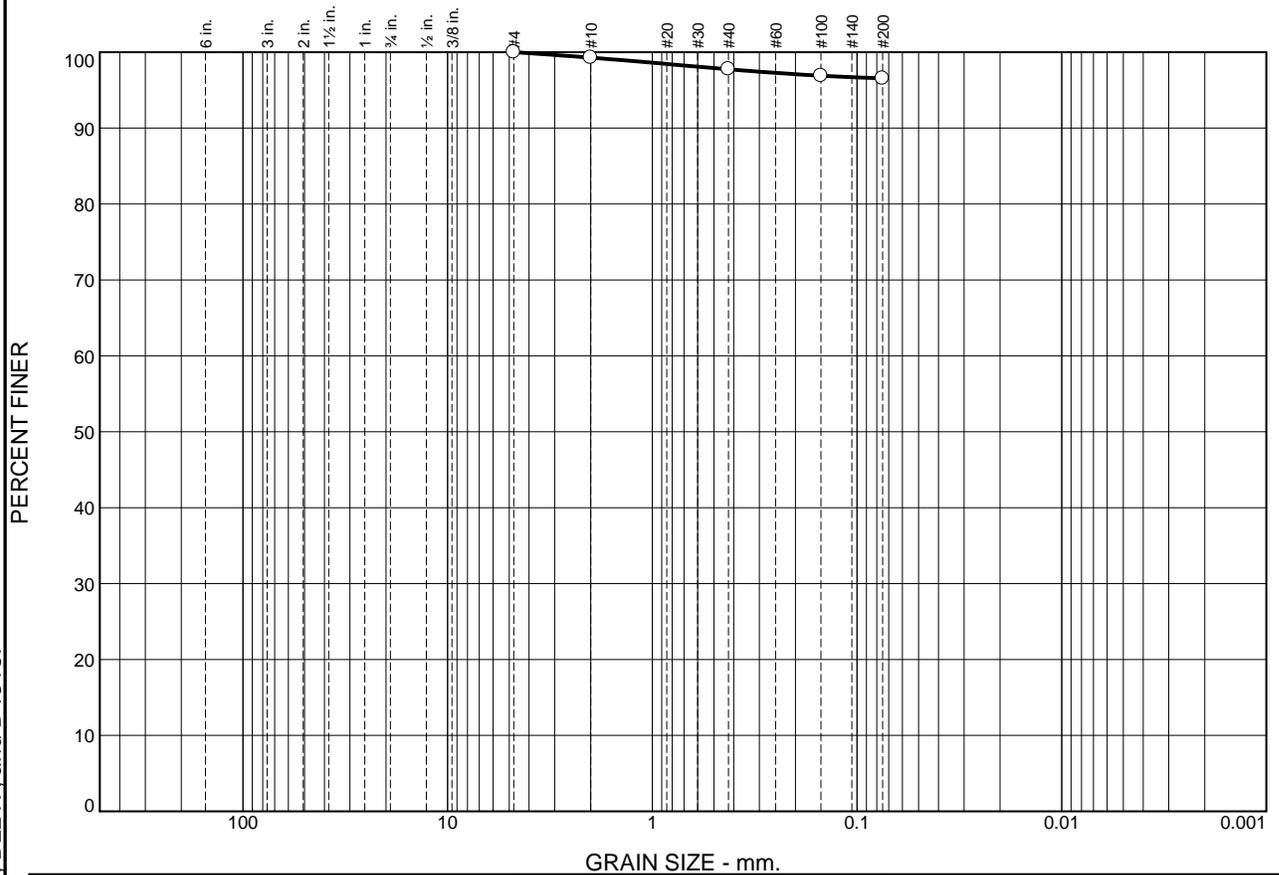
GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

Figure

Tested By: RR/AFS

Checked By: AFS

Particle Size Distribution Report



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.7	1.5	1.3	96.5	

LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
NV	NV								

Material Description	USCS	AASHTO
Lean CLAY	ML	A-4(0)

Project No. 31191132x1 **Client:** Lennar
Project: Venue at Hopewell

Source of Sample: TP-1057 (Stake #5074) **Depth:** 4

Remarks:
 ONMC = 22.1%



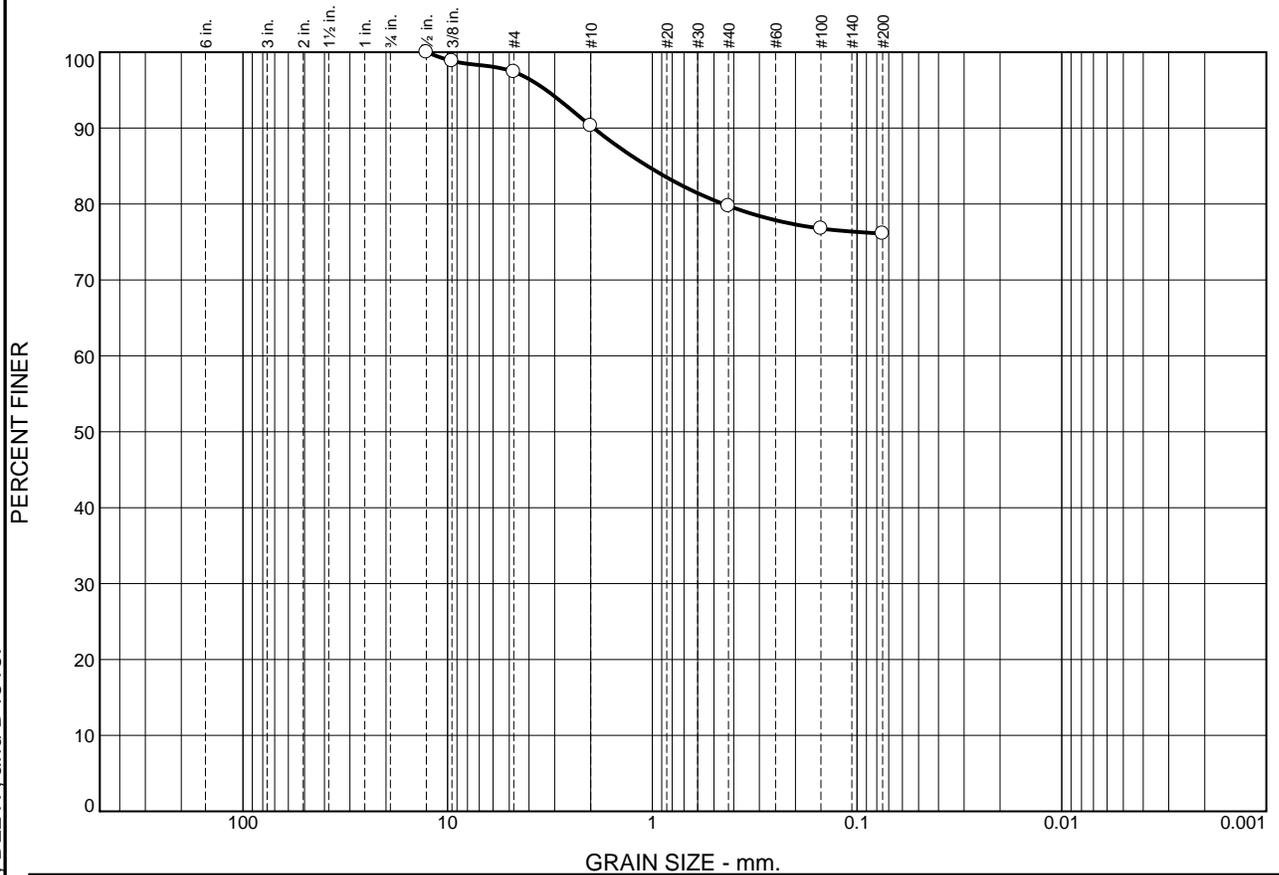
GEO-TECHNOLOGY ASSOCIATES, INC.
 14 Worlds Fair Drive, Suite A
 Somerset, NJ 08873

Figure

Tested By: RR/AFS

Checked By: AFS

Particle Size Distribution Report



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.6	7.1	10.5	3.7	76.1	

LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
NV	NV	1.0567							

Material Description	USCS	AASHTO
SILT with sand	ML	A-4(0)

Project No. 31191132x1 **Client:** Lennar
Project: Venue at Hopewell
Source of Sample: TP-1098 (Stake #5095) **Depth:** 2

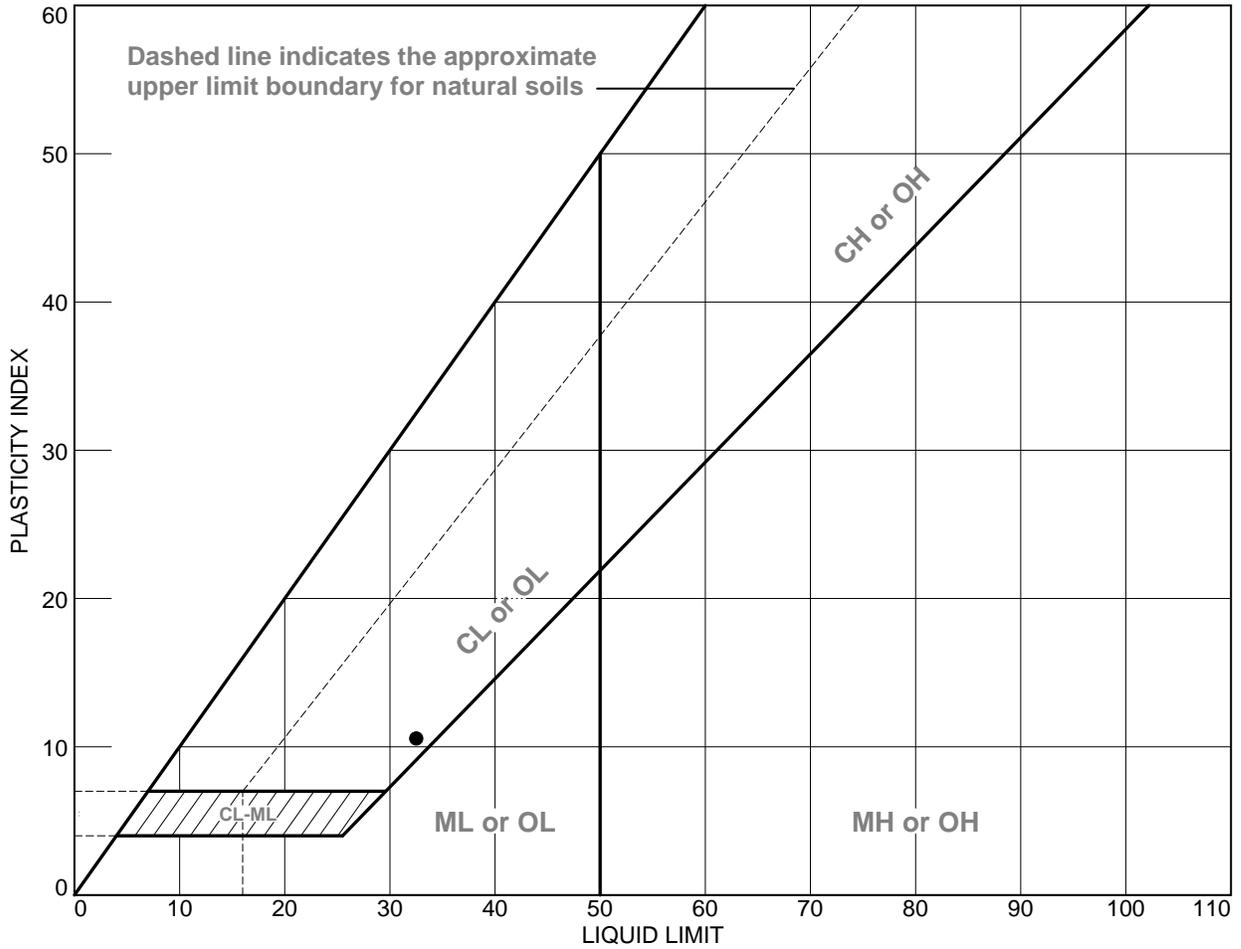
Remarks:
 ONMC = 19.4%



Figure

Tested By: RR **Checked By:** AMT

LIQUID AND PLASTIC LIMITS TEST REPORT - ASTM D4318



ASTM Specifications performed by include: D421, D422, D2216, D2217, and D4318.

SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP-1086 (Stake #5110)		2	20.3	22.1	32.6	10.5	CL



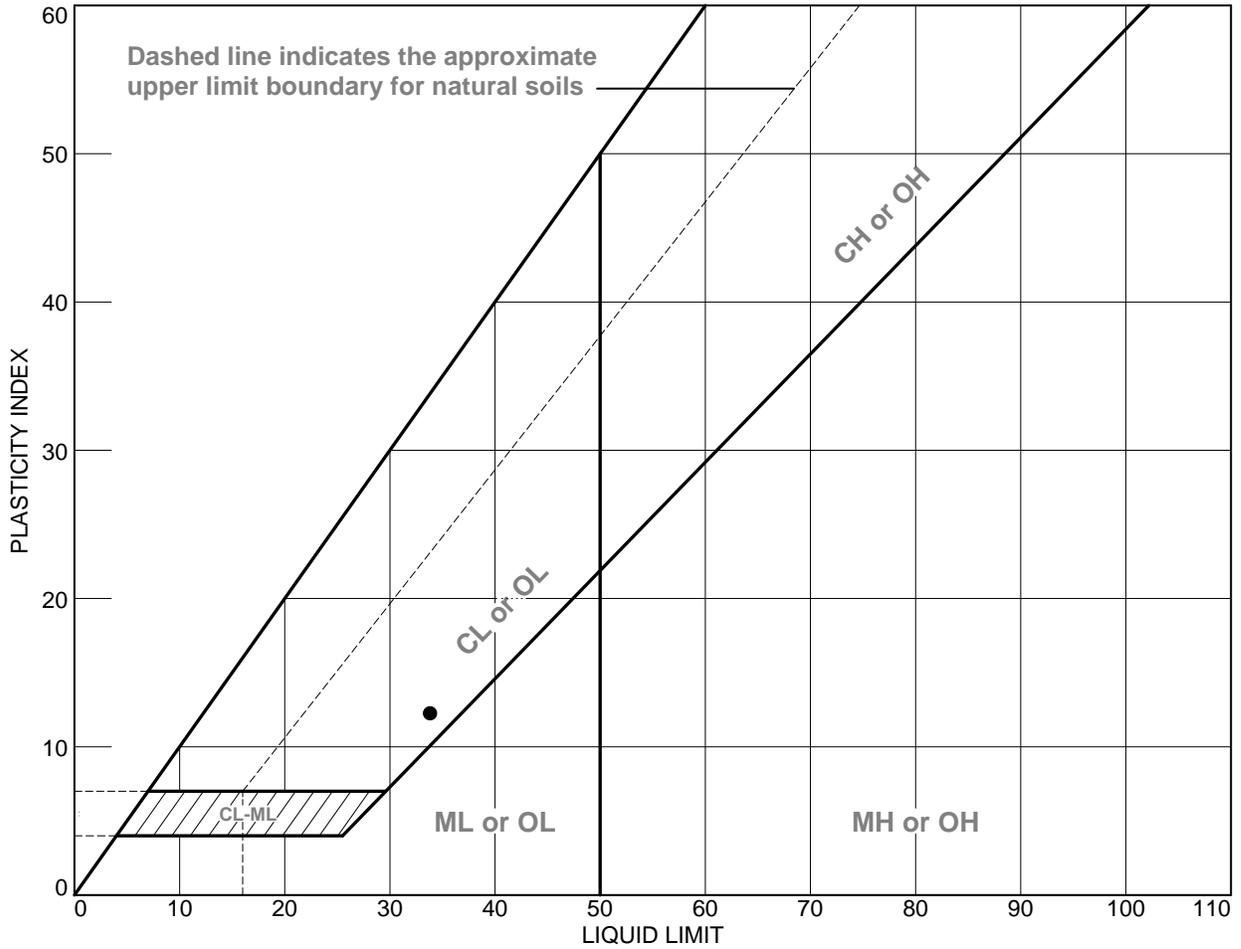
GEO-TECHNOLOGY ASSOCIATES, INC.
14 Worlds Fair Drive, Suite A
Somerset, NJ 08873

Client: Lennar
Project: Venue at Hopewell
Project No.: 31191132x1

Figure

Tested By: RR _____ **Checked By:** AMT _____

LIQUID AND PLASTIC LIMITS TEST REPORT - ASTM D4318



ASTM Specifications performed by include: D421, D422, D2216, D2217, and D4318.

SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP-1104 (Stake #5101)		1	23.7	21.7	33.9	12.2	CL



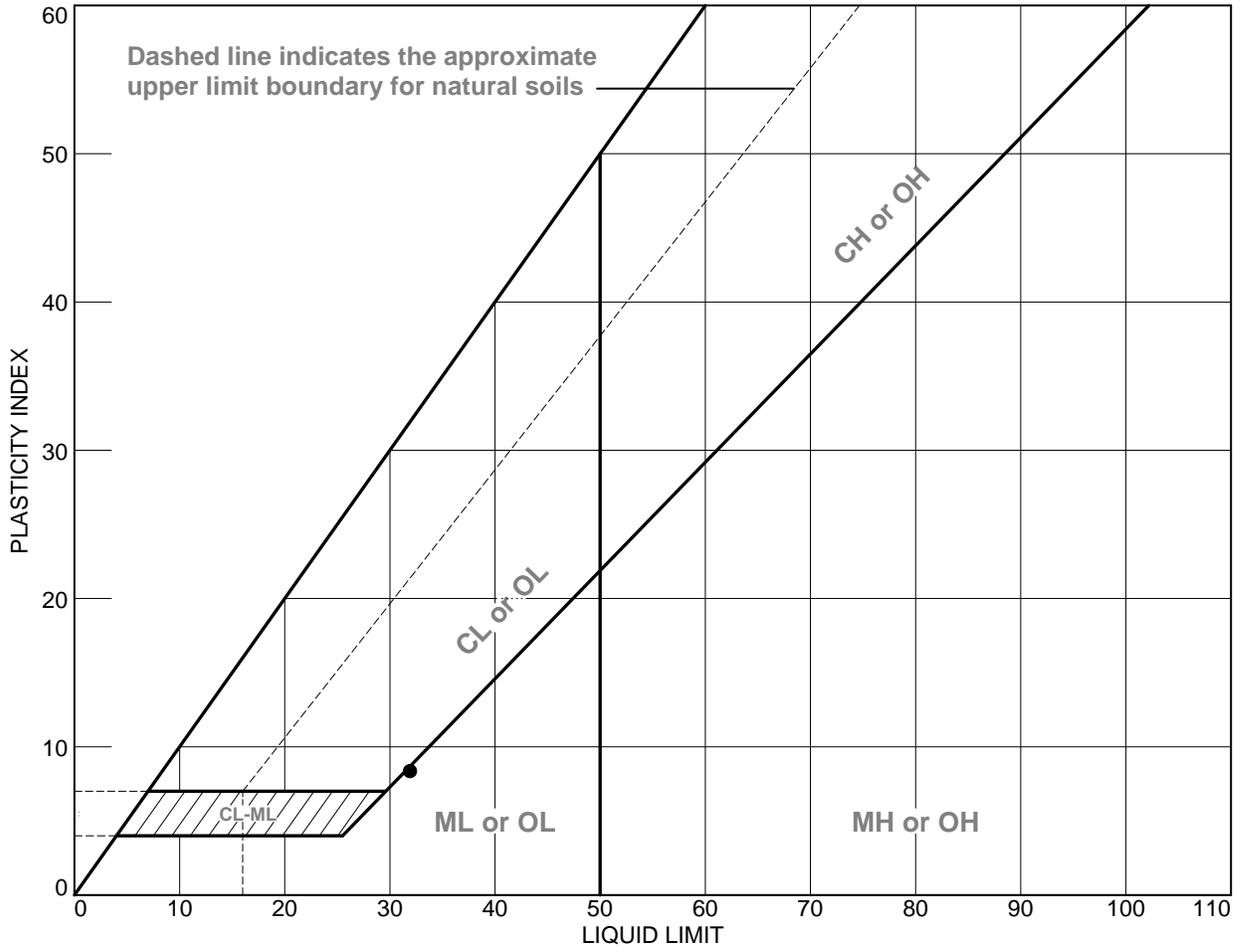
GEO-TECHNOLOGY ASSOCIATES, INC.
14 Worlds Fair Drive, Suite A
Somerset, NJ 08873

Client: Lennar
Project: Venue at Hopewell
Project No.: 31191132x1

Figure

Tested By: RR _____ **Checked By:** AMT _____

LIQUID AND PLASTIC LIMITS TEST REPORT - ASTM D4318



ASTM Specifications performed may include: D421, D422, D2216, D2217, and D4318.

SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP-1135A (Stake #5132)		2	22.2	23.7	32.0	8.3	ML



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14 Worlds Fair Drive, Suite A
Somerset, NJ 08873

Client: Lennar
Project: Venue at Hopewell
Project No.: 31191132x1

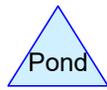
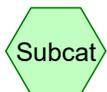
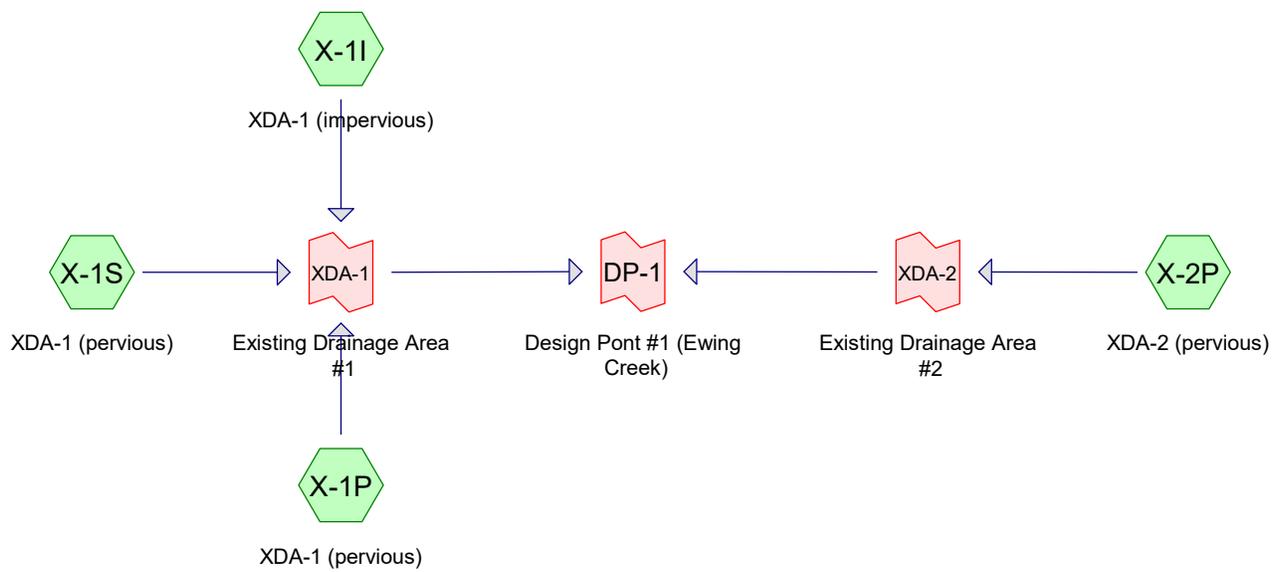
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Tested By: AFS

Checked By: AMT

Venue at Hopewell
Stormwater Management Report
June 25, 2024
BCG File: 081391-01-001

APPENDIX 2
TR-55 CALCULATIONS – EXISTING CONDITIONS



Routing Diagram for 2024-06-25 Existing- 081391
 Prepared by Bowman Consulting Group, Printed 6/25/2024
 HydroCAD® 10.20-3c s/n 09435 © 2023 HydroCAD Software Solutions LLC

2024-06-25 Existing- 081391

Prepared by Bowman Consulting Group

HydroCAD® 10.20-3c s/n 09435 © 2023 HydroCAD Software Solutions LLC

Printed 6/25/2024

Page 2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.580	98	(X-1I)
6.440	61	>75% Grass cover, Good, HSG B (X-1P, X-1S)
24.170	71	Row crops, C&T, Good, HSG B (X-1P, X-1S, X-2P)
39.640	78	Row crops, C&T, Good, HSG C (X-1P, X-1S, X-2P)
2.470	81	Row crops, C&T, Good, HSG D (X-1P, X-1S, X-2P)
25.940	55	Woods, Good, HSG B (X-1P, X-1S)
16.840	70	Woods, Good, HSG C (X-1P, X-1S)
6.690	77	Woods, Good, HSG D (X-1P, X-1S)

Summary for Subcatchment X-1I: XDA-1 (impervious)

Runoff = 12.19 cfs @ 1.13 hrs, Volume= 0.395 af, Depth= 1.03"

Routed to Link XDA-1 : Existing Drainage Area #1

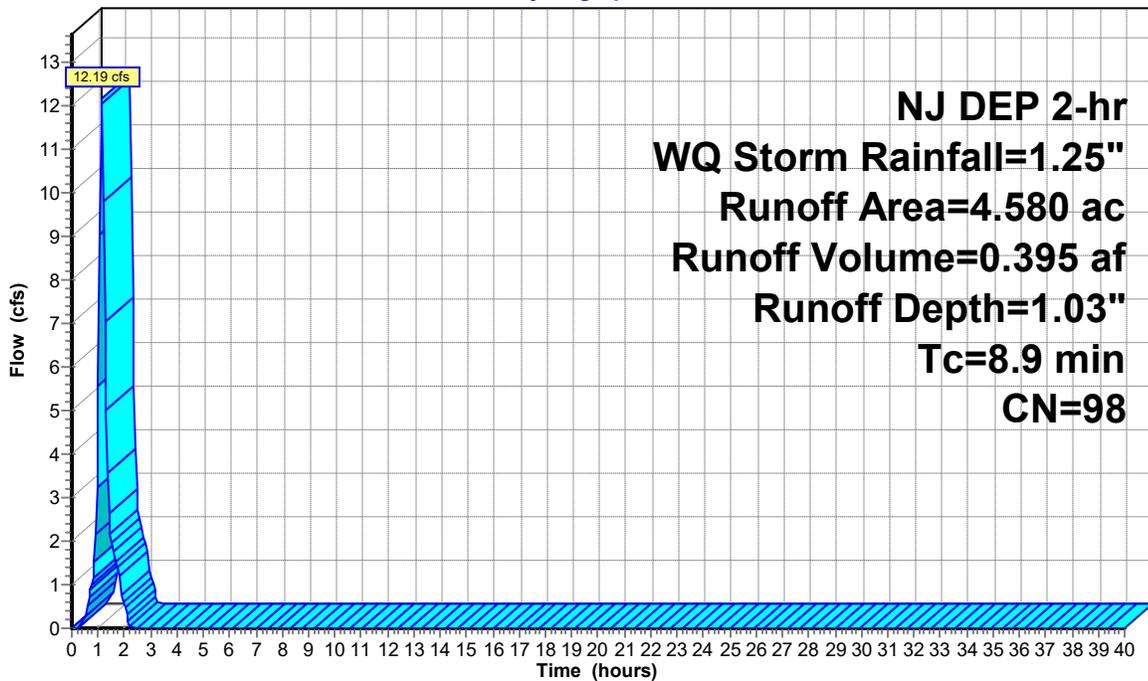
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NJ DEP 2-hr WQ Storm Rainfall=1.25"

Area (ac)	CN	Description
* 4.580	98	
4.580		100.00% Impervious Area

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

Subcatchment X-1I: XDA-1 (impervious)

Hydrograph



Summary for Subcatchment X-1P: XDA-1 (pervious)

Runoff = 1.13 cfs @ 1.79 hrs, Volume= 0.046 af, Depth= 0.01"
 Routed to Link XDA-1 : Existing Drainage Area #1

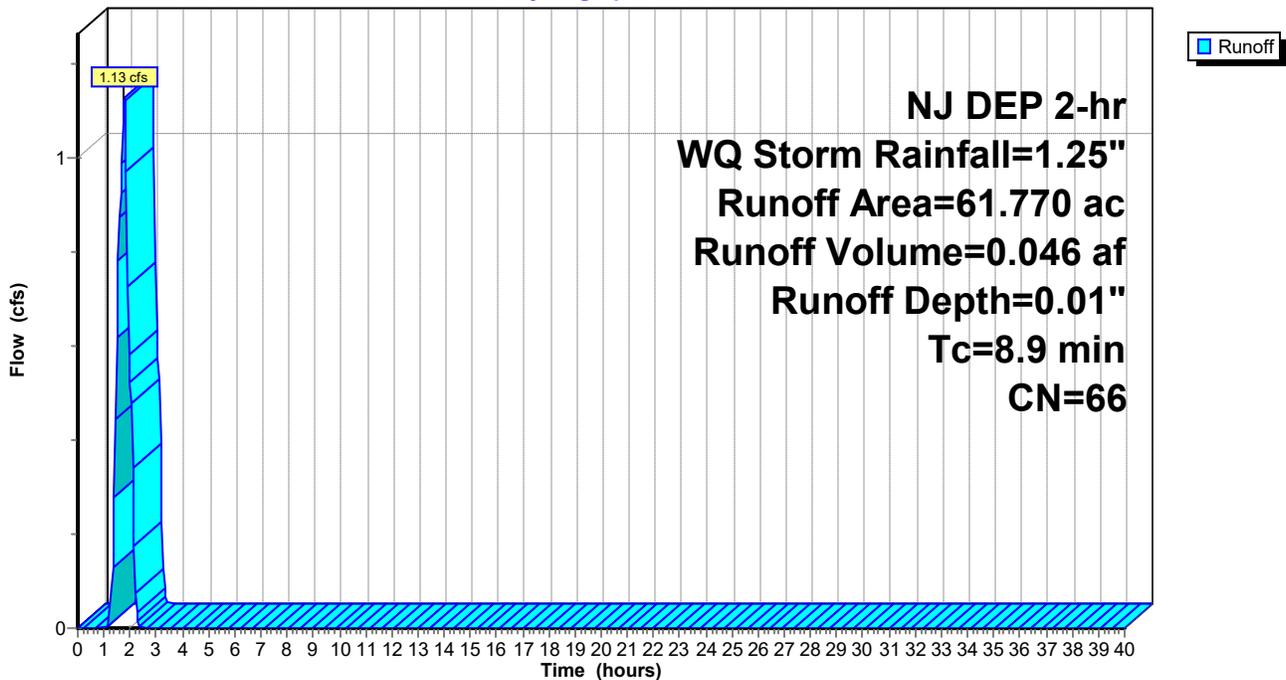
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NJ DEP 2-hr WQ Storm Rainfall=1.25"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
20.810	55	Woods, Good, HSG B
14.490	70	Woods, Good, HSG C
6.630	77	Woods, Good, HSG D
10.000	71	Row crops, C&T, Good, HSG B
6.300	78	Row crops, C&T, Good, HSG C
0.320	81	Row crops, C&T, Good, HSG D
61.770	66	Weighted Average
61.770		100.00% Pervious Area

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

Subcatchment X-1P: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-1S: XDA-1 (pervious)

Runoff = 0.76 cfs @ 1.78 hrs, Volume= 0.040 af, Depth= 0.02"
 Routed to Link XDA-1 : Existing Drainage Area #1

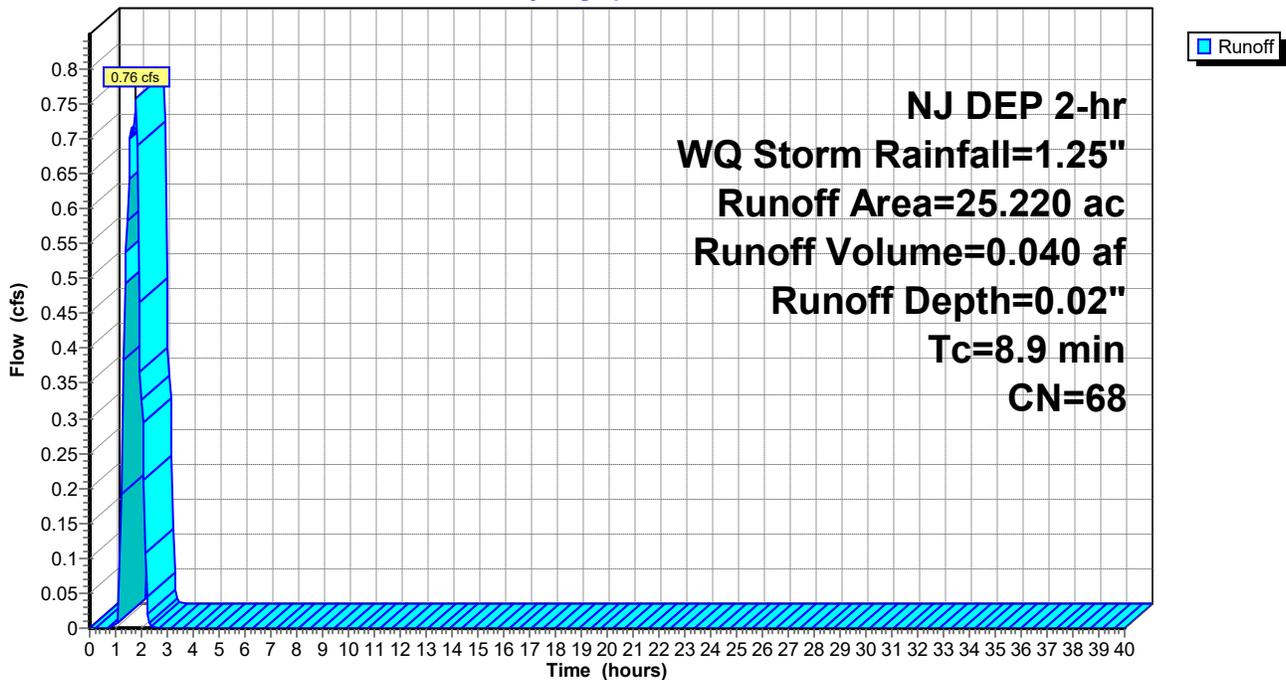
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NJ DEP 2-hr WQ Storm Rainfall=1.25"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
5.130	55	Woods, Good, HSG B
2.350	70	Woods, Good, HSG C
0.060	77	Woods, Good, HSG D
8.280	71	Row crops, C&T, Good, HSG B
6.020	78	Row crops, C&T, Good, HSG C
0.160	81	Row crops, C&T, Good, HSG D
25.220	68	Weighted Average
25.220		100.00% Pervious Area

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

Subcatchment X-1S: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-2P: XDA-2 (pervious)

Runoff = 8.21 cfs @ 1.24 hrs, Volume= 0.343 af, Depth= 0.12"
 Routed to Link XDA-2 : Existing Drainage Area #2

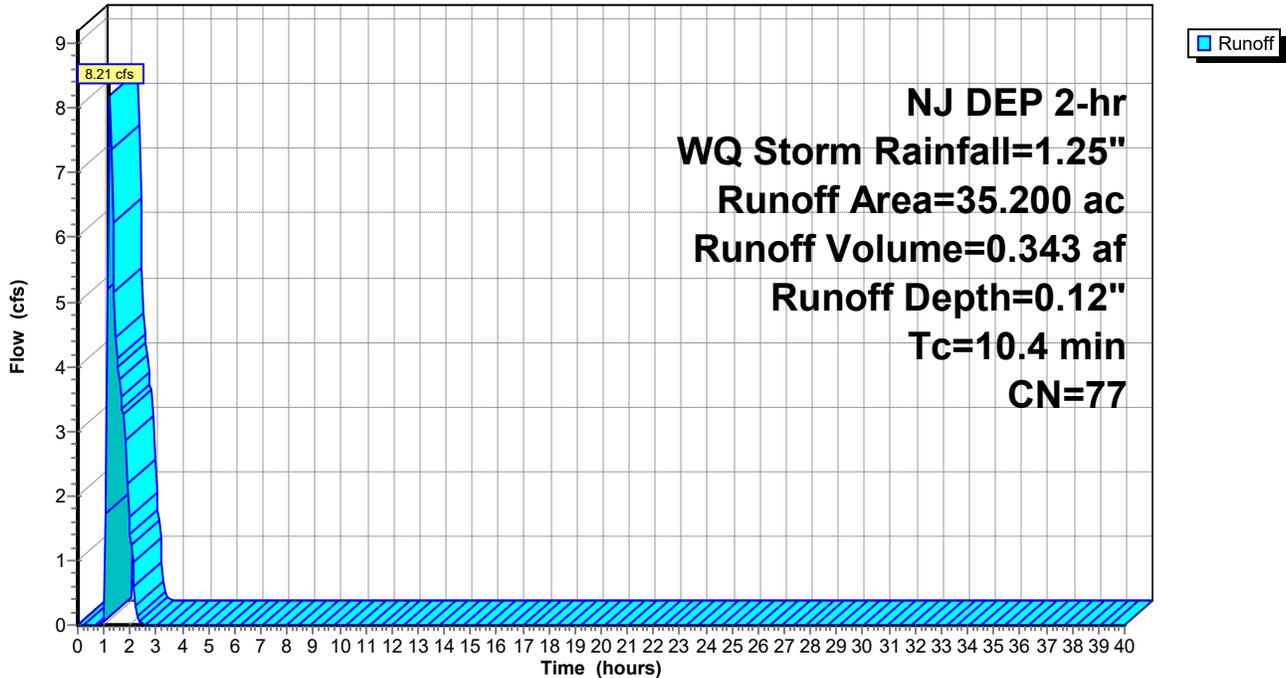
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NJ DEP 2-hr WQ Storm Rainfall=1.25"

Area (ac)	CN	Description
5.890	71	Row crops, C&T, Good, HSG B
27.320	78	Row crops, C&T, Good, HSG C
1.990	81	Row crops, C&T, Good, HSG D
35.200	77	Weighted Average
35.200		100.00% Pervious Area

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

Subcatchment X-2P: XDA-2 (pervious)

Hydrograph



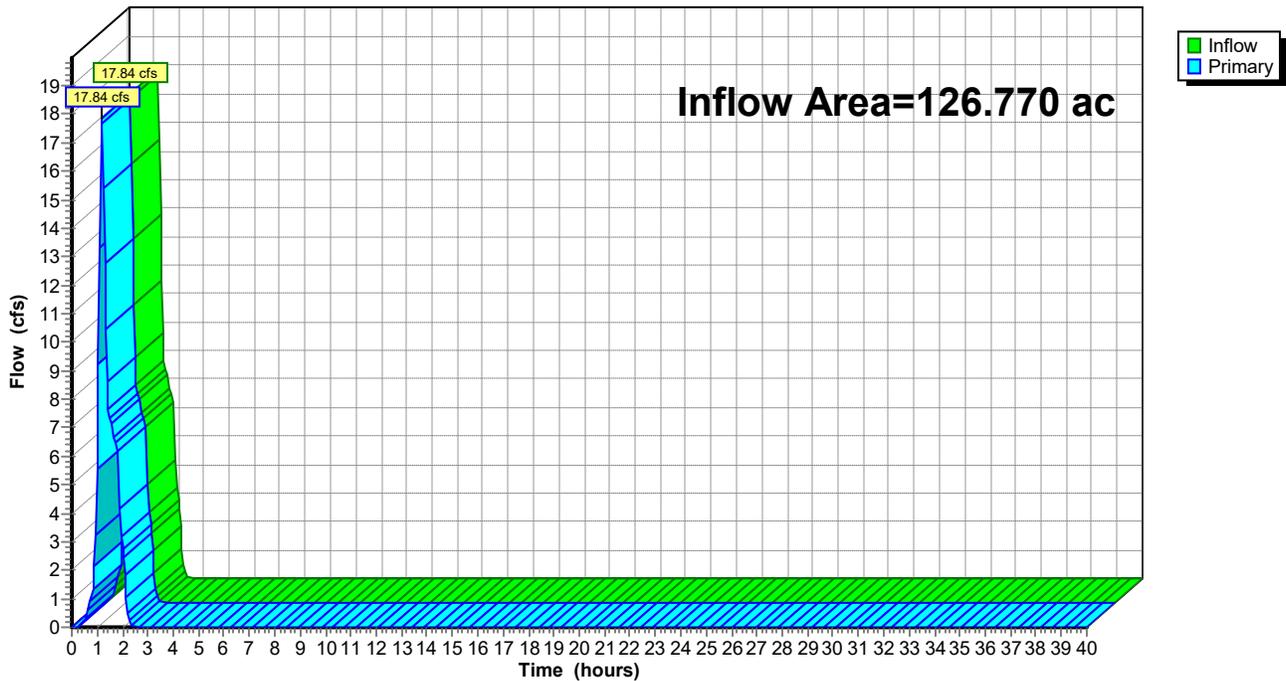
Summary for Link DP-1: Design Pont #1 (Ewing Creek)

Inflow Area = 126.770 ac, 3.61% Impervious, Inflow Depth = 0.08" for WQ Storm event
Inflow = 17.84 cfs @ 1.18 hrs, Volume= 0.824 af
Primary = 17.84 cfs @ 1.18 hrs, Volume= 0.824 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-1: Design Pont #1 (Ewing Creek)

Hydrograph



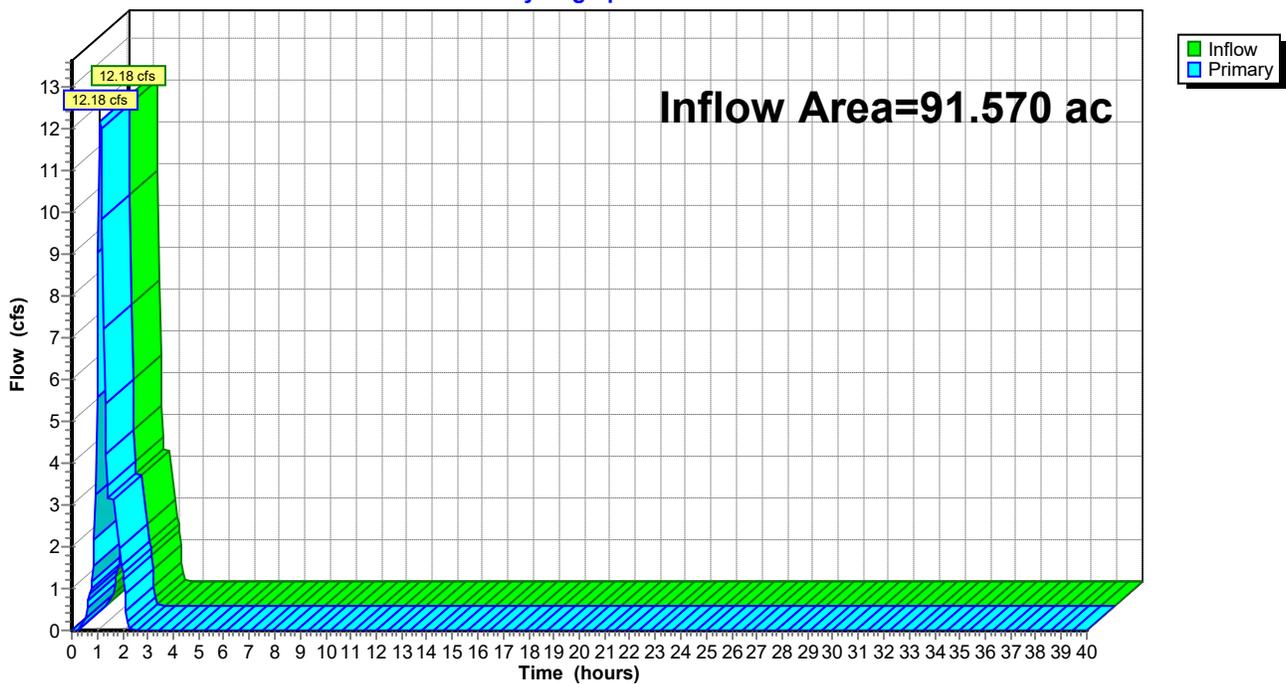
Summary for Link XDA-1: Existing Drainage Area #1

Inflow Area = 91.570 ac, 5.00% Impervious, Inflow Depth = 0.06" for WQ Storm event
Inflow = 12.18 cfs @ 1.13 hrs, Volume= 0.481 af
Primary = 12.18 cfs @ 1.13 hrs, Volume= 0.481 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-1: Existing Drainage Area #1

Hydrograph



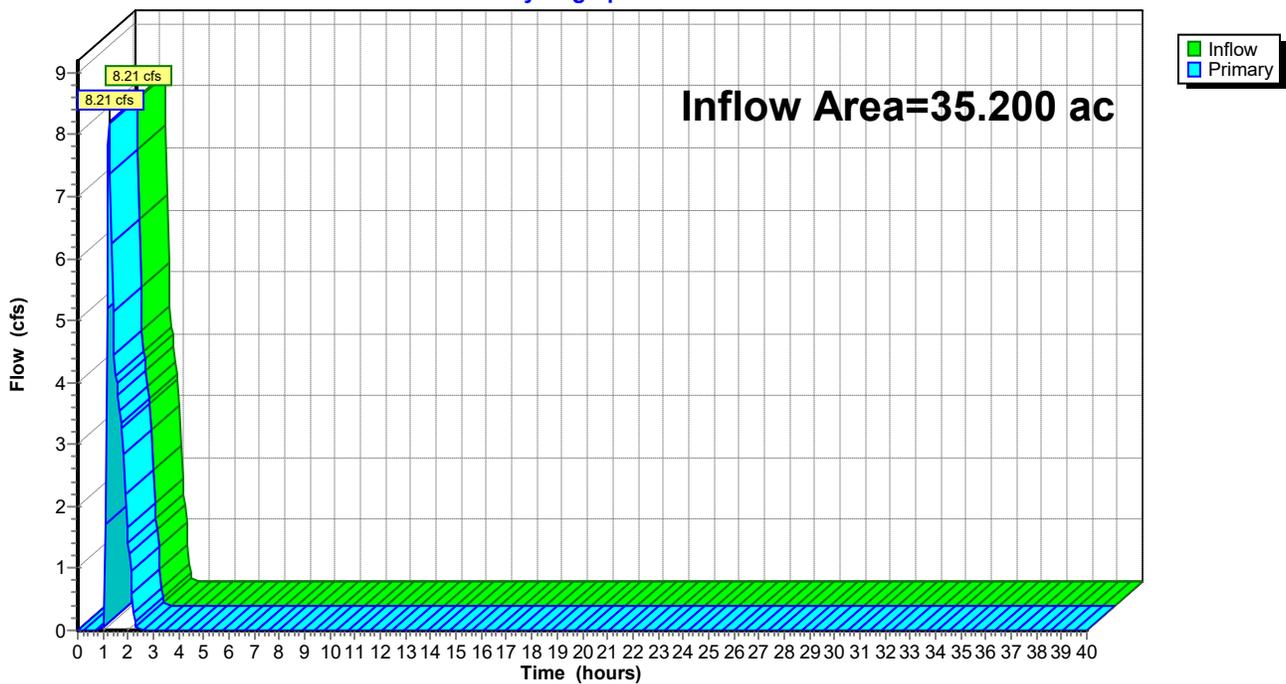
Summary for Link XDA-2: Existing Drainage Area #2

Inflow Area = 35.200 ac, 0.00% Impervious, Inflow Depth = 0.12" for WQ Storm event
Inflow = 8.21 cfs @ 1.24 hrs, Volume= 0.343 af
Primary = 8.21 cfs @ 1.24 hrs, Volume= 0.343 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-2: Existing Drainage Area #2

Hydrograph



Summary for Subcatchment X-1I: XDA-1 (impervious)

Runoff = 14.46 cfs @ 12.16 hrs, Volume= 1.190 af, Depth= 3.12"
 Routed to Link XDA-1 : Existing Drainage Area #1

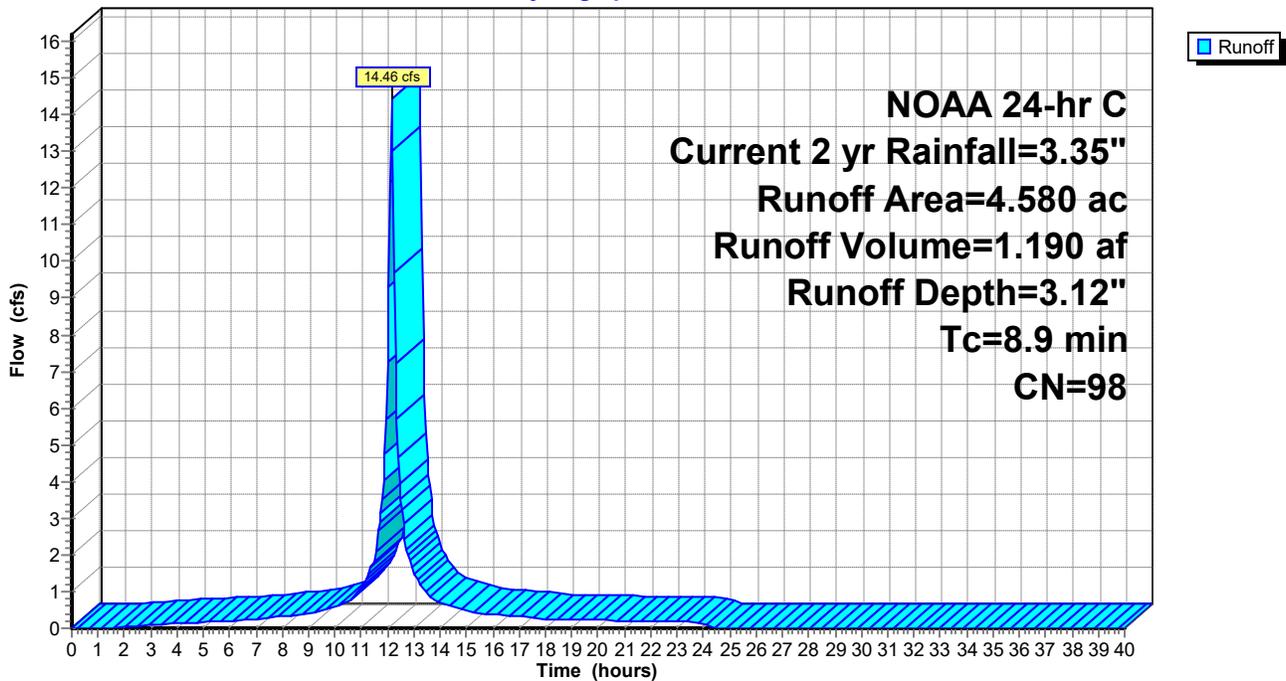
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 2 yr Rainfall=3.35"

Area (ac)	CN	Description
* 4.580	98	
4.580		100.00% Impervious Area

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

Subcatchment X-1I: XDA-1 (impervious)

Hydrograph



Summary for Subcatchment X-1P: XDA-1 (pervious)

Runoff = 44.37 cfs @ 12.18 hrs, Volume= 3.707 af, Depth= 0.72"
 Routed to Link XDA-1 : Existing Drainage Area #1

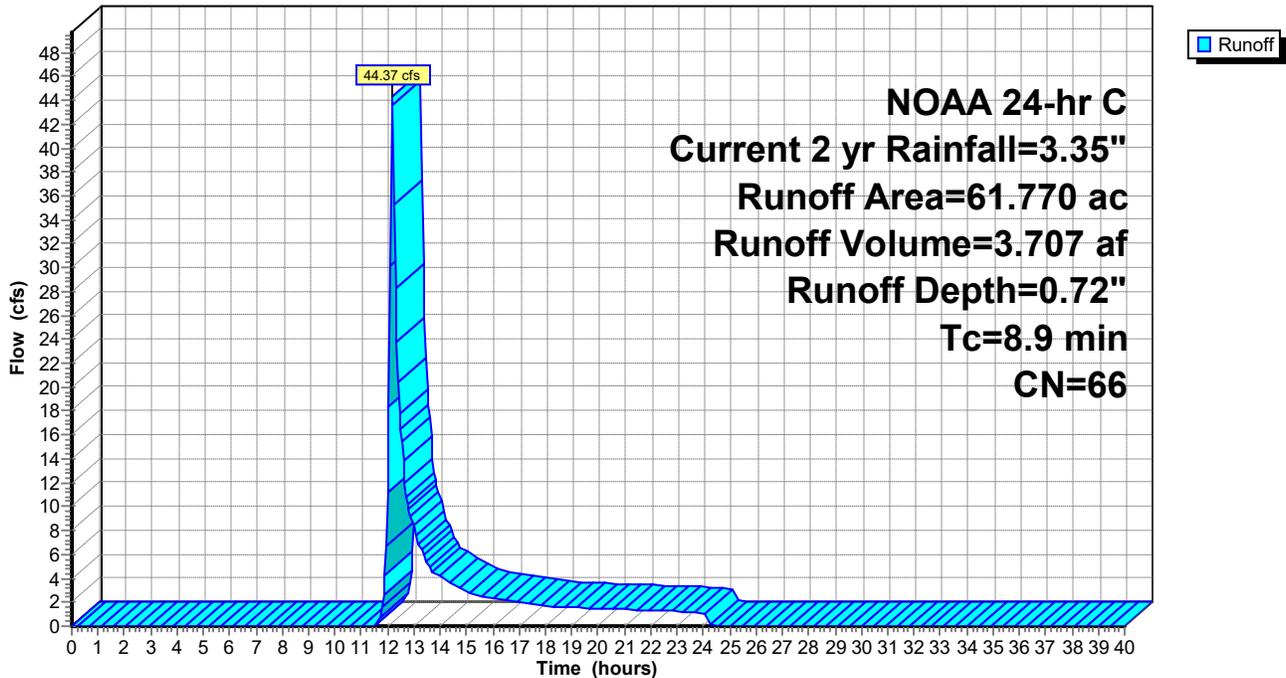
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 2 yr Rainfall=3.35"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
20.810	55	Woods, Good, HSG B
14.490	70	Woods, Good, HSG C
6.630	77	Woods, Good, HSG D
10.000	71	Row crops, C&T, Good, HSG B
6.300	78	Row crops, C&T, Good, HSG C
0.320	81	Row crops, C&T, Good, HSG D
61.770	66	Weighted Average
61.770		100.00% Pervious Area

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

Subcatchment X-1P: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-1S: XDA-1 (pervious)

Runoff = 21.58 cfs @ 12.17 hrs, Volume= 1.714 af, Depth= 0.82"
 Routed to Link XDA-1 : Existing Drainage Area #1

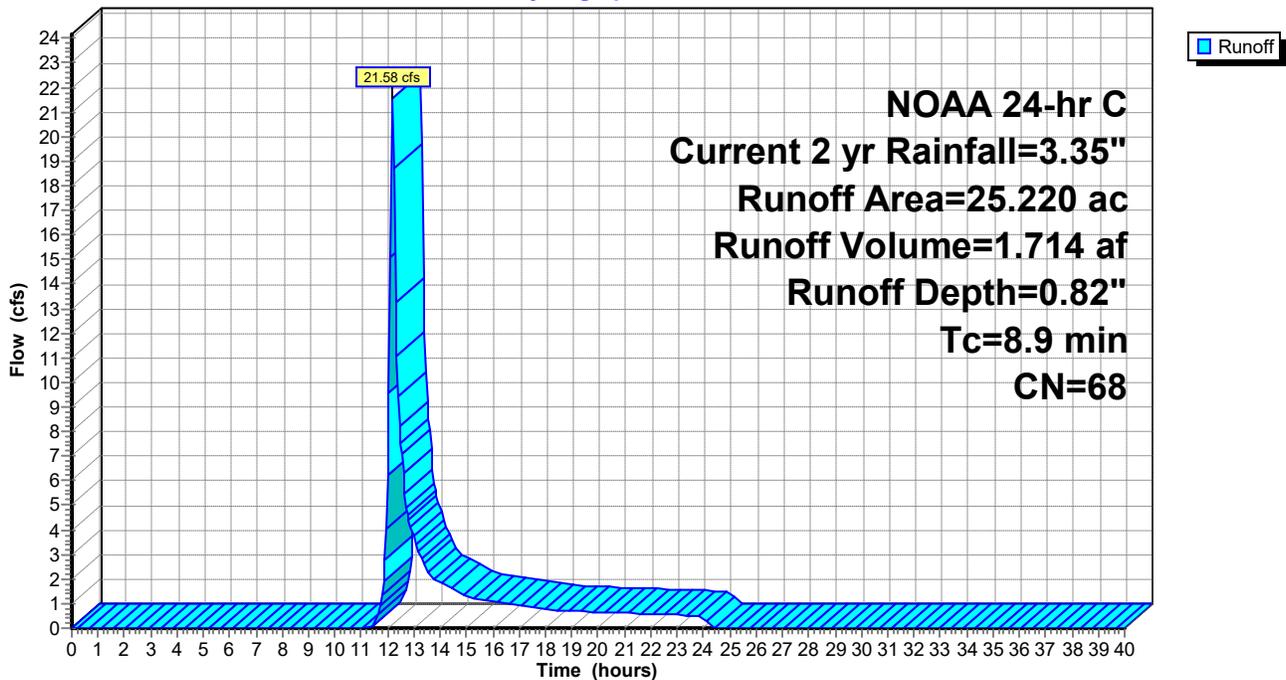
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 2 yr Rainfall=3.35"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
5.130	55	Woods, Good, HSG B
2.350	70	Woods, Good, HSG C
0.060	77	Woods, Good, HSG D
8.280	71	Row crops, C&T, Good, HSG B
6.020	78	Row crops, C&T, Good, HSG C
0.160	81	Row crops, C&T, Good, HSG D
25.220	68	Weighted Average
25.220		100.00% Pervious Area

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

Subcatchment X-1S: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-2P: XDA-2 (pervious)

Runoff = 50.22 cfs @ 12.19 hrs, Volume= 3.872 af, Depth= 1.32"
 Routed to Link XDA-2 : Existing Drainage Area #2

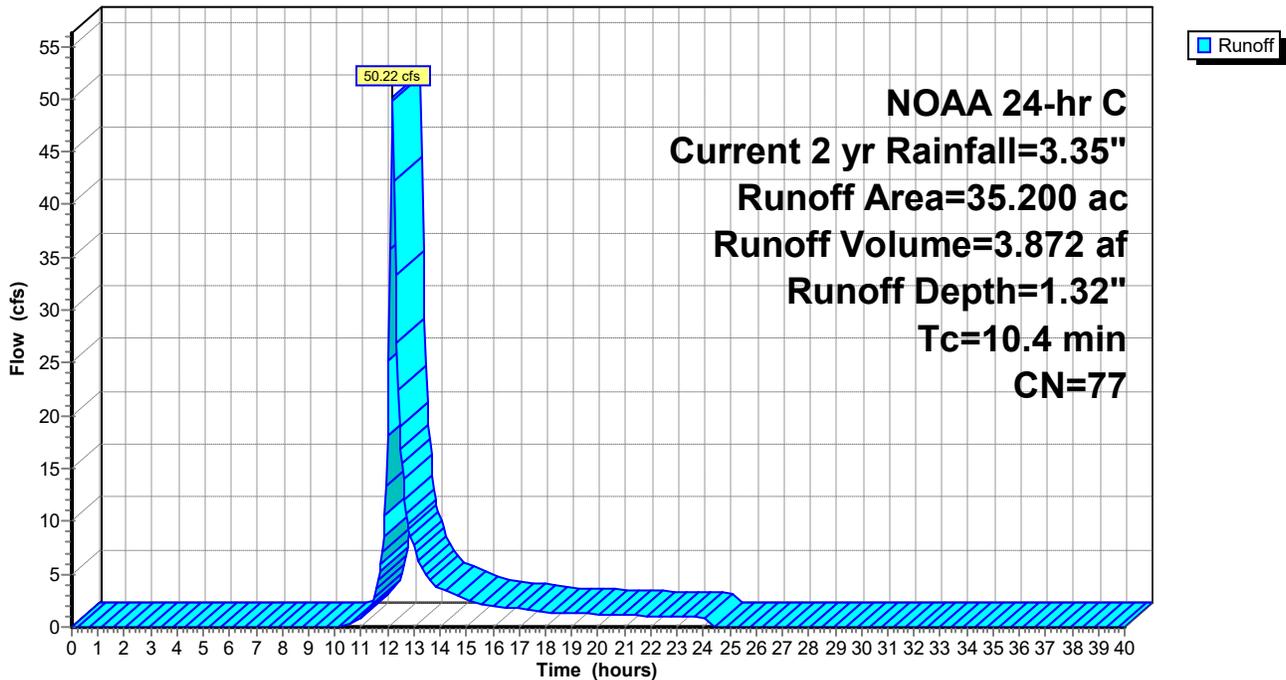
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 2 yr Rainfall=3.35"

Area (ac)	CN	Description
5.890	71	Row crops, C&T, Good, HSG B
27.320	78	Row crops, C&T, Good, HSG C
1.990	81	Row crops, C&T, Good, HSG D
35.200	77	Weighted Average
35.200		100.00% Pervious Area

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

Subcatchment X-2P: XDA-2 (pervious)

Hydrograph



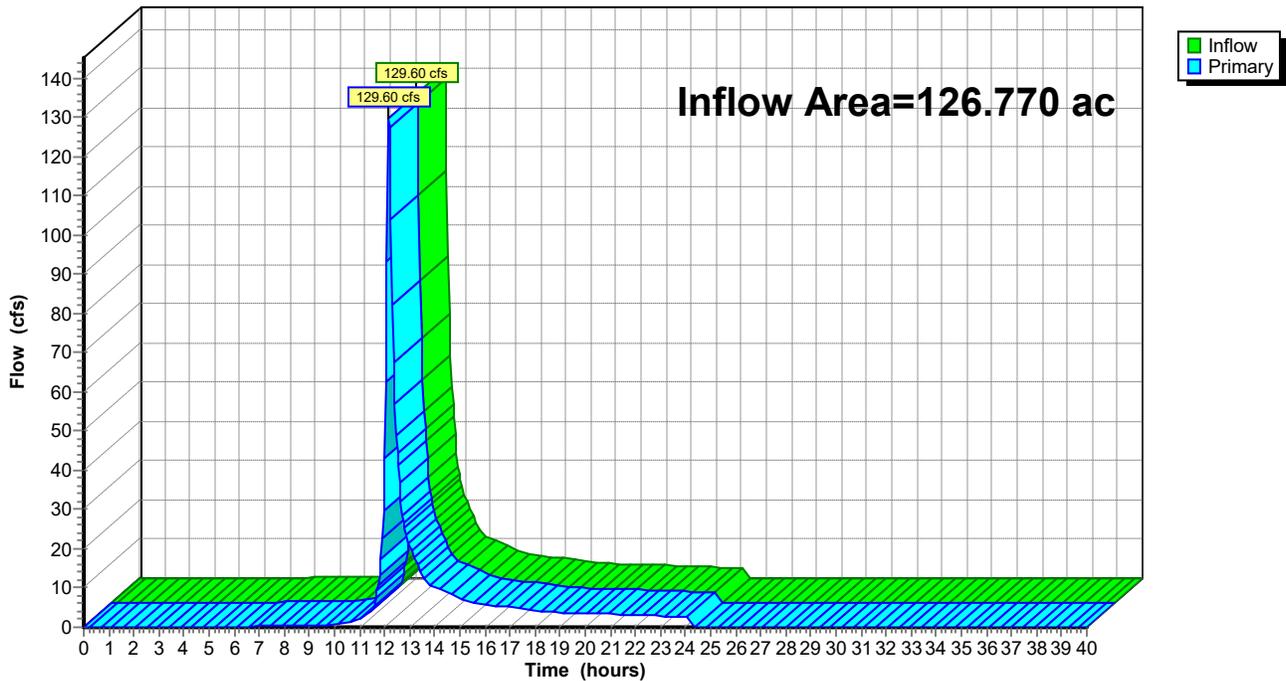
Summary for Link DP-1: Design Pont #1 (Ewing Creek)

Inflow Area = 126.770 ac, 3.61% Impervious, Inflow Depth = 0.99" for Current 2 yr event
Inflow = 129.60 cfs @ 12.18 hrs, Volume= 10.483 af
Primary = 129.60 cfs @ 12.18 hrs, Volume= 10.483 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-1: Design Pont #1 (Ewing Creek)

Hydrograph



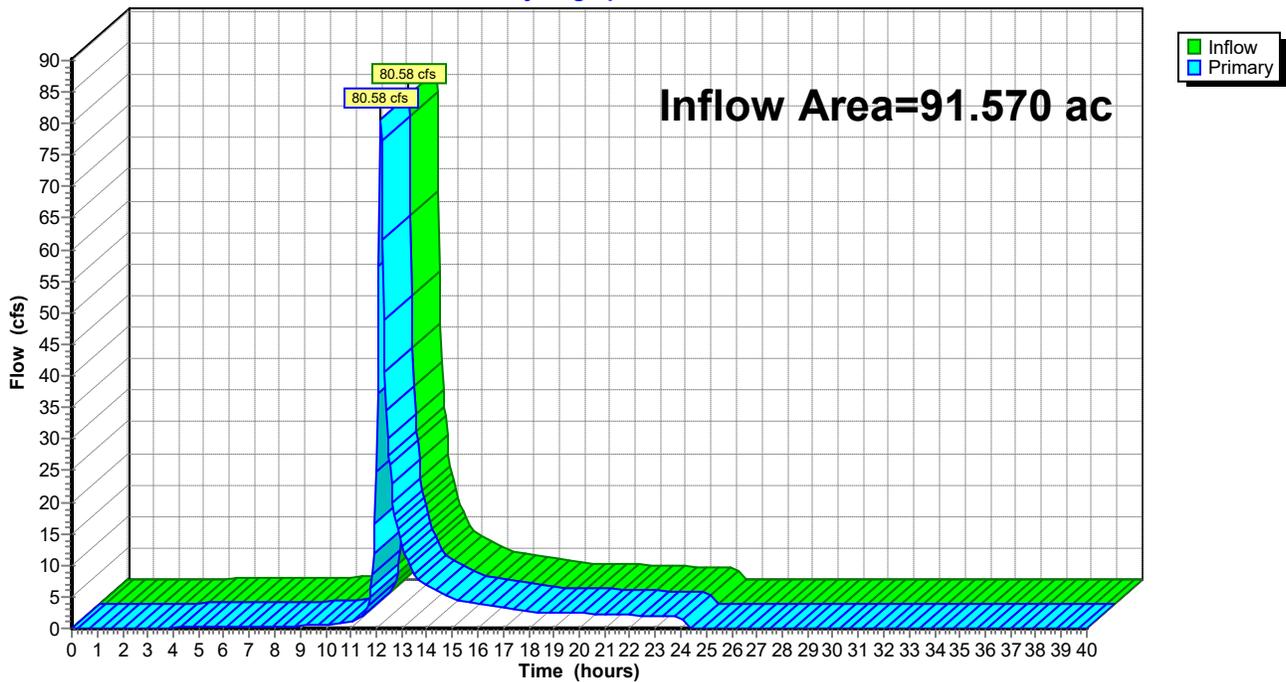
Summary for Link XDA-1: Existing Drainage Area #1

Inflow Area = 91.570 ac, 5.00% Impervious, Inflow Depth = 0.87" for Current 2 yr event
Inflow = 80.58 cfs @ 12.17 hrs, Volume= 6.611 af
Primary = 80.58 cfs @ 12.17 hrs, Volume= 6.611 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-1: Existing Drainage Area #1

Hydrograph

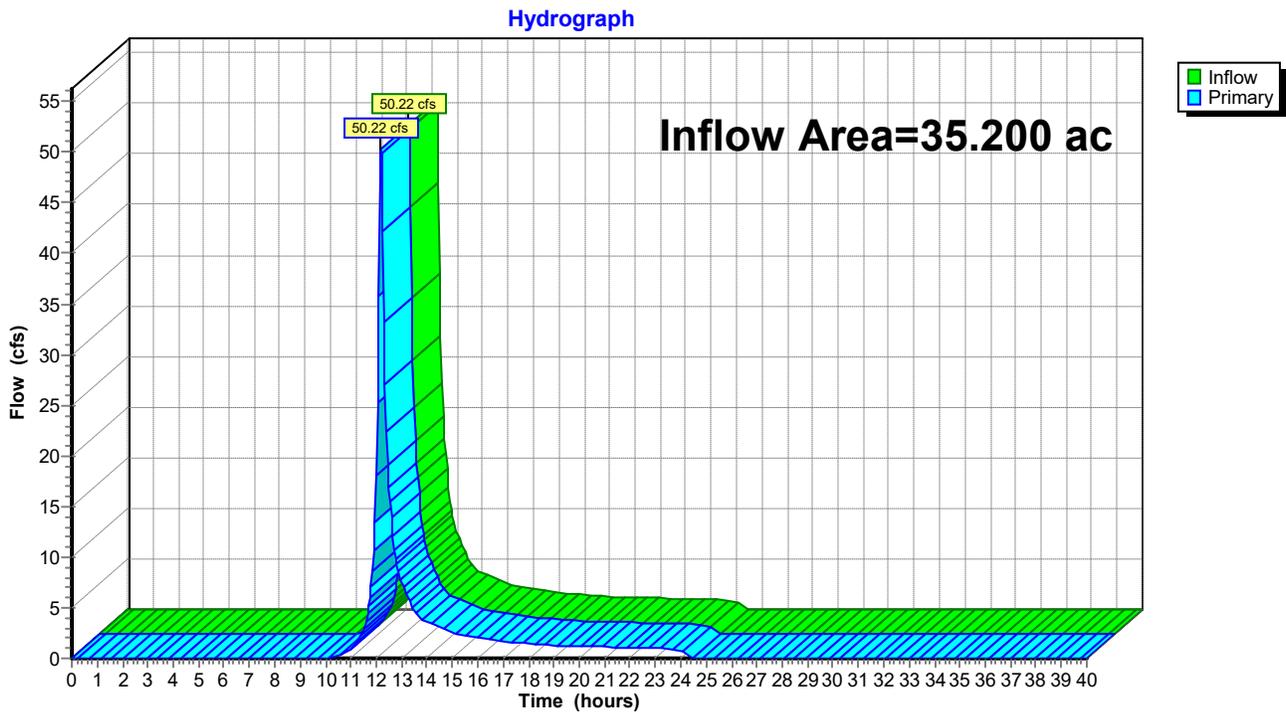


Summary for Link XDA-2: Existing Drainage Area #2

Inflow Area = 35.200 ac, 0.00% Impervious, Inflow Depth = 1.32" for Current 2 yr event
Inflow = 50.22 cfs @ 12.19 hrs, Volume= 3.872 af
Primary = 50.22 cfs @ 12.19 hrs, Volume= 3.872 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-2: Existing Drainage Area #2



Summary for Subcatchment X-1I: XDA-1 (impervious)

Runoff = 22.16 cfs @ 12.16 hrs, Volume= 1.856 af, Depth= 4.86"
 Routed to Link XDA-1 : Existing Drainage Area #1

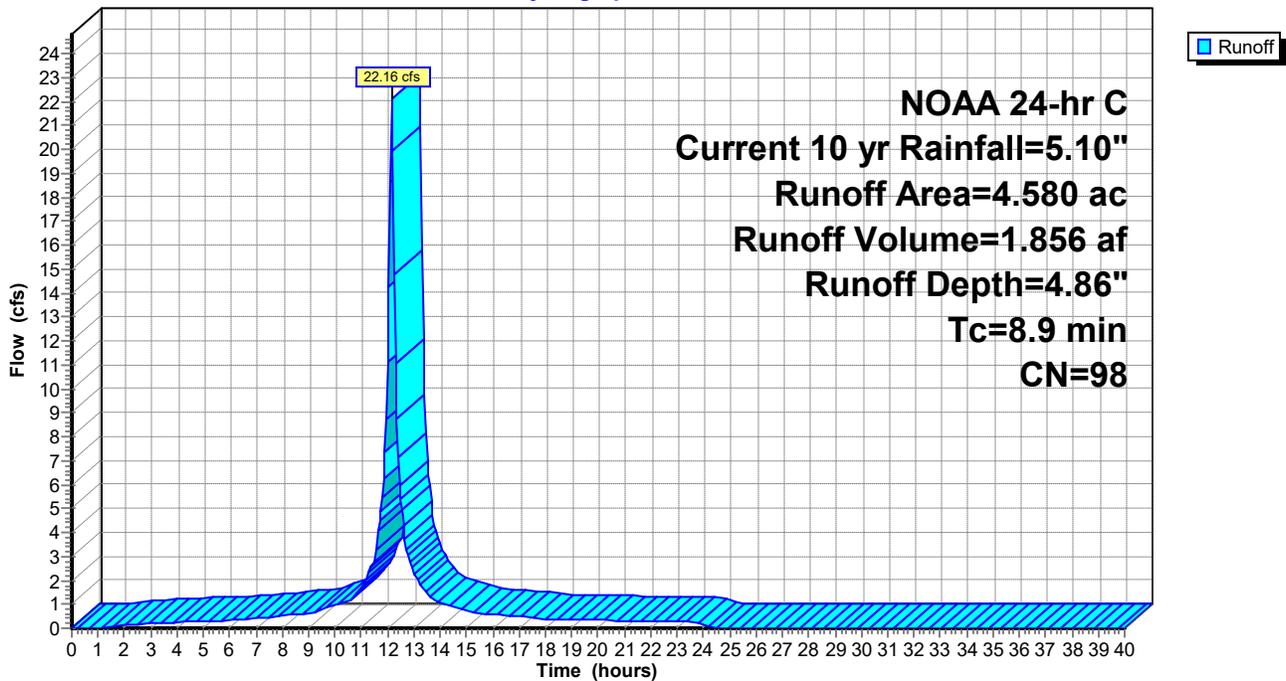
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 10 yr Rainfall=5.10"

Area (ac)	CN	Description
* 4.580	98	
4.580		100.00% Impervious Area

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

Subcatchment X-1I: XDA-1 (impervious)

Hydrograph



Summary for Subcatchment X-1P: XDA-1 (pervious)

Runoff = 125.41 cfs @ 12.17 hrs, Volume= 9.246 af, Depth= 1.80"
 Routed to Link XDA-1 : Existing Drainage Area #1

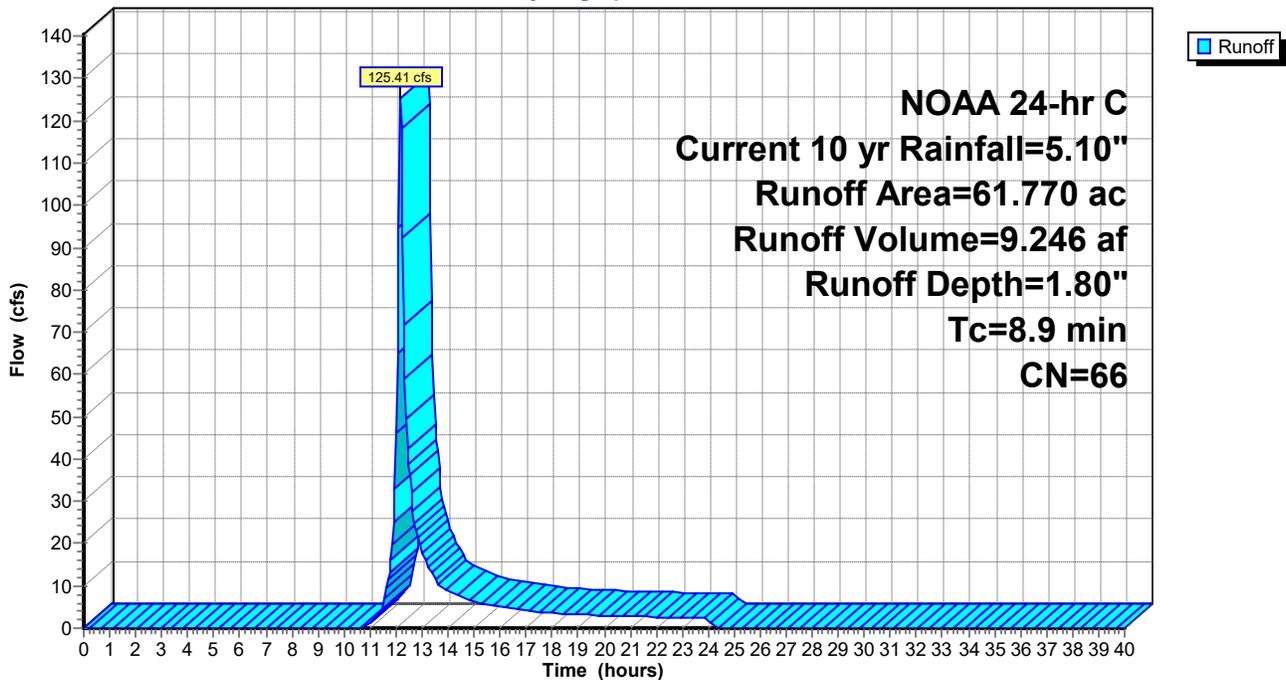
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 10 yr Rainfall=5.10"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
20.810	55	Woods, Good, HSG B
14.490	70	Woods, Good, HSG C
6.630	77	Woods, Good, HSG D
10.000	71	Row crops, C&T, Good, HSG B
6.300	78	Row crops, C&T, Good, HSG C
0.320	81	Row crops, C&T, Good, HSG D
61.770	66	Weighted Average
61.770		100.00% Pervious Area

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

Subcatchment X-1P: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-1S: XDA-1 (pervious)

Runoff = 56.14 cfs @ 12.17 hrs, Volume= 4.101 af, Depth= 1.95"
 Routed to Link XDA-1 : Existing Drainage Area #1

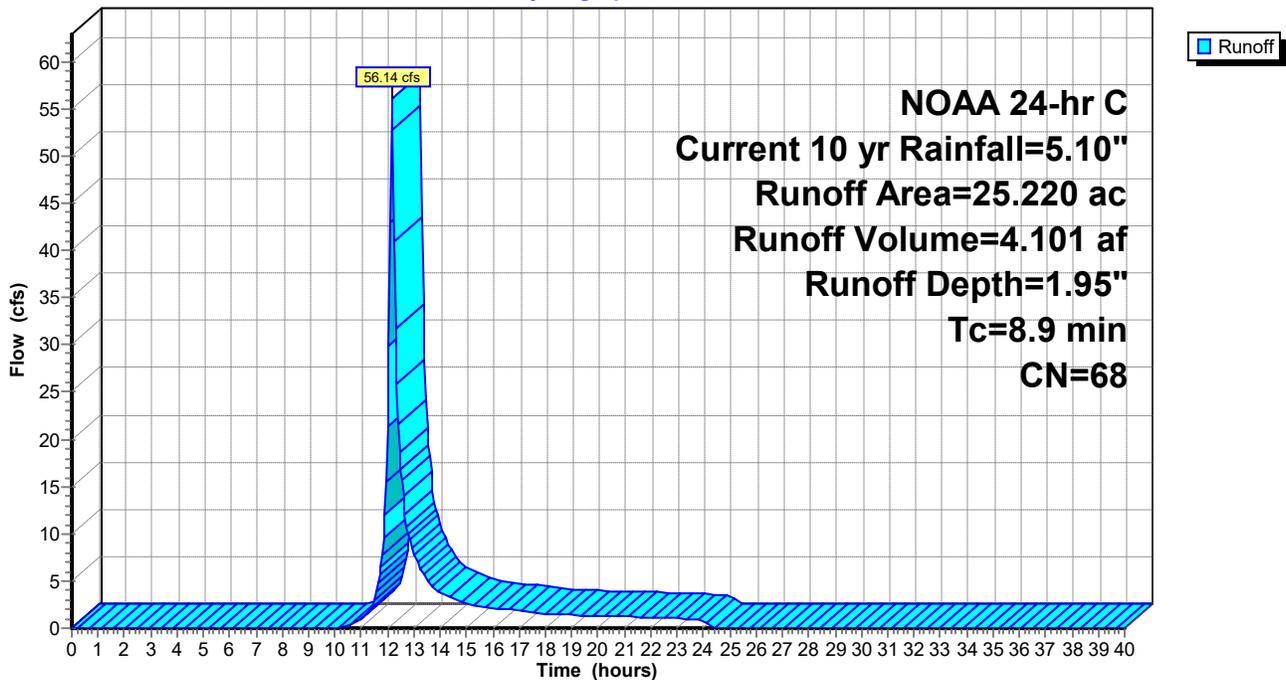
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 10 yr Rainfall=5.10"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
5.130	55	Woods, Good, HSG B
2.350	70	Woods, Good, HSG C
0.060	77	Woods, Good, HSG D
8.280	71	Row crops, C&T, Good, HSG B
6.020	78	Row crops, C&T, Good, HSG C
0.160	81	Row crops, C&T, Good, HSG D
25.220	68	Weighted Average
25.220		100.00% Pervious Area

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

Subcatchment X-1S: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-2P: XDA-2 (pervious)

Runoff = 104.09 cfs @ 12.18 hrs, Volume= 7.940 af, Depth= 2.71"
 Routed to Link XDA-2 : Existing Drainage Area #2

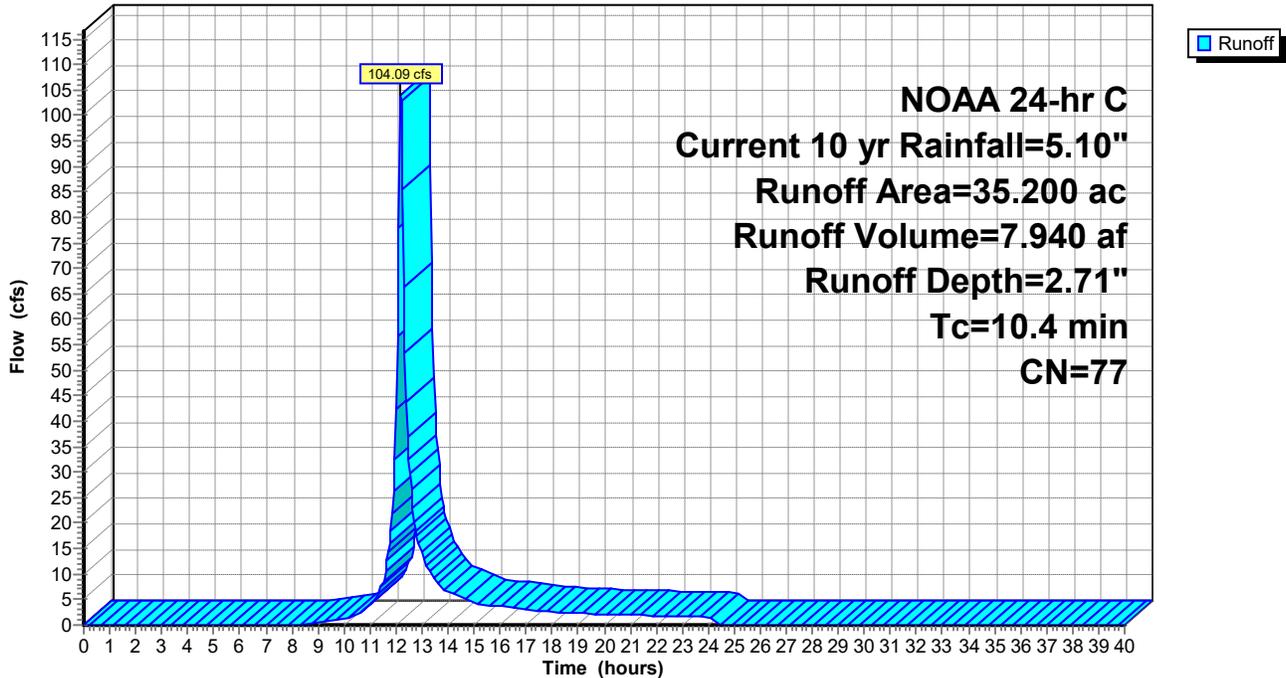
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 10 yr Rainfall=5.10"

Area (ac)	CN	Description
5.890	71	Row crops, C&T, Good, HSG B
27.320	78	Row crops, C&T, Good, HSG C
1.990	81	Row crops, C&T, Good, HSG D
35.200	77	Weighted Average
35.200		100.00% Pervious Area

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

Subcatchment X-2P: XDA-2 (pervious)

Hydrograph



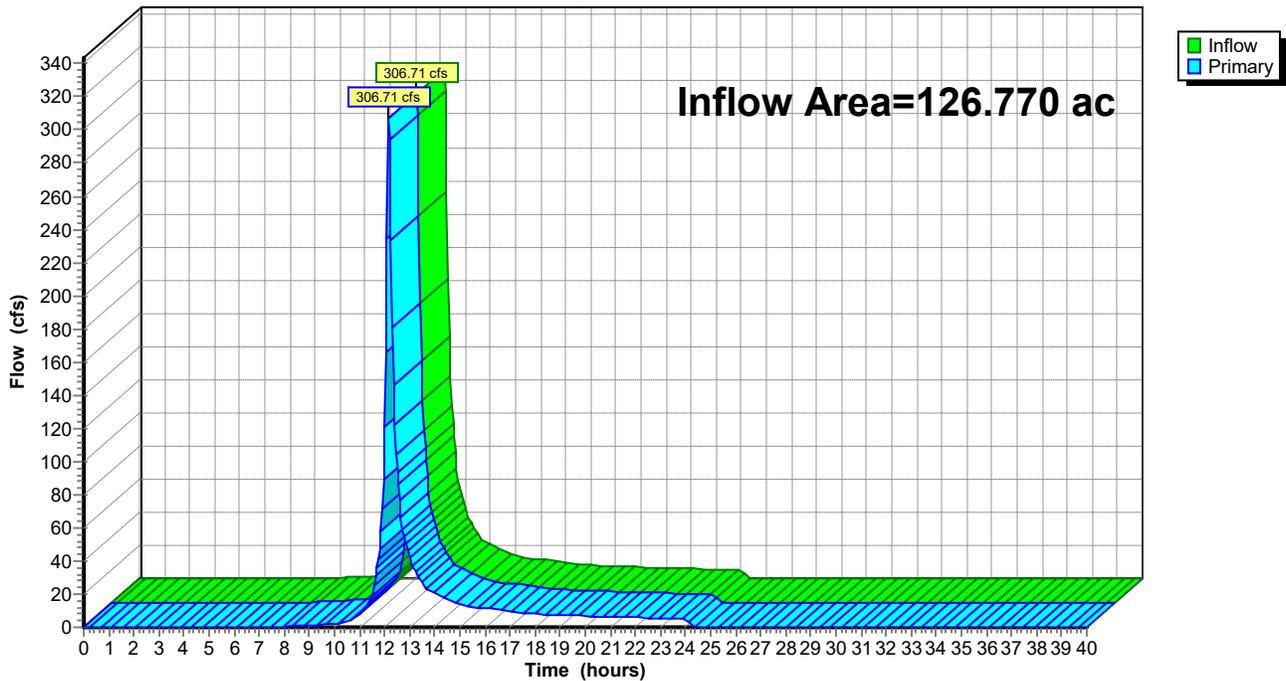
Summary for Link DP-1: Design Pont #1 (Ewing Creek)

Inflow Area = 126.770 ac, 3.61% Impervious, Inflow Depth = 2.19" for Current 10 yr event
Inflow = 306.71 cfs @ 12.17 hrs, Volume= 23.142 af
Primary = 306.71 cfs @ 12.17 hrs, Volume= 23.142 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-1: Design Pont #1 (Ewing Creek)

Hydrograph

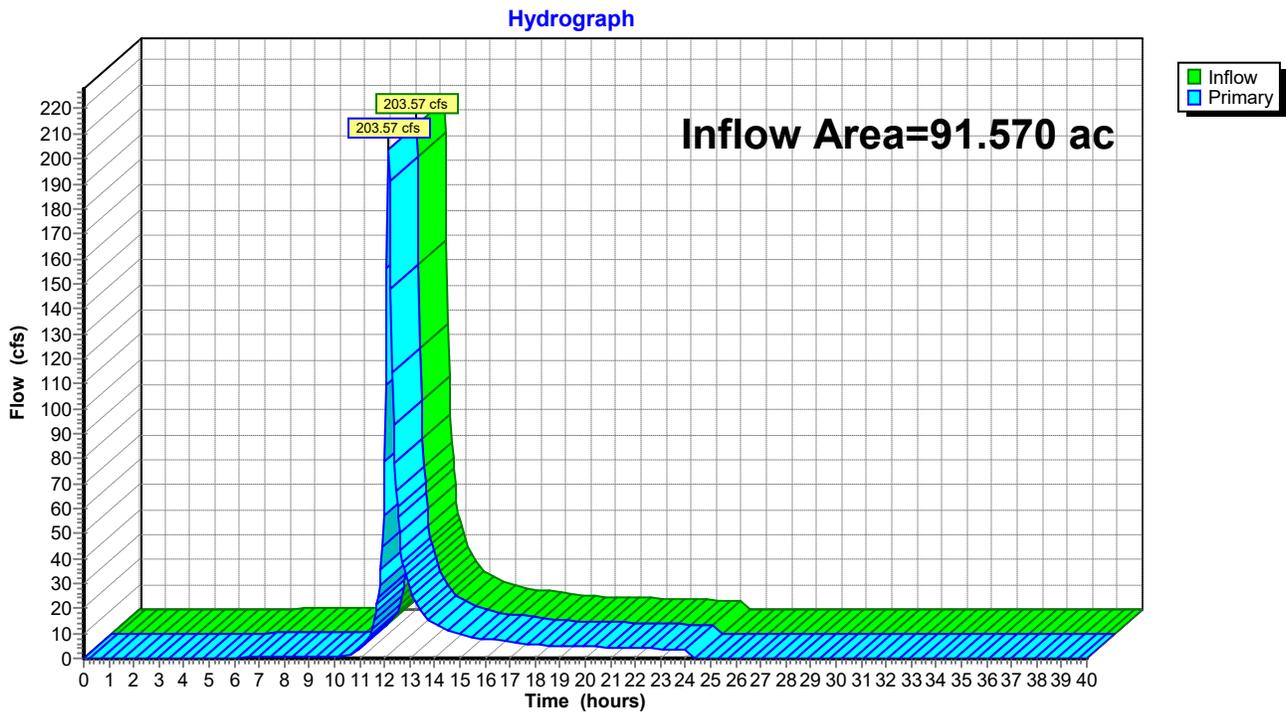


Summary for Link XDA-1: Existing Drainage Area #1

Inflow Area = 91.570 ac, 5.00% Impervious, Inflow Depth = 1.99" for Current 10 yr event
Inflow = 203.57 cfs @ 12.17 hrs, Volume= 15.202 af
Primary = 203.57 cfs @ 12.17 hrs, Volume= 15.202 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-1: Existing Drainage Area #1



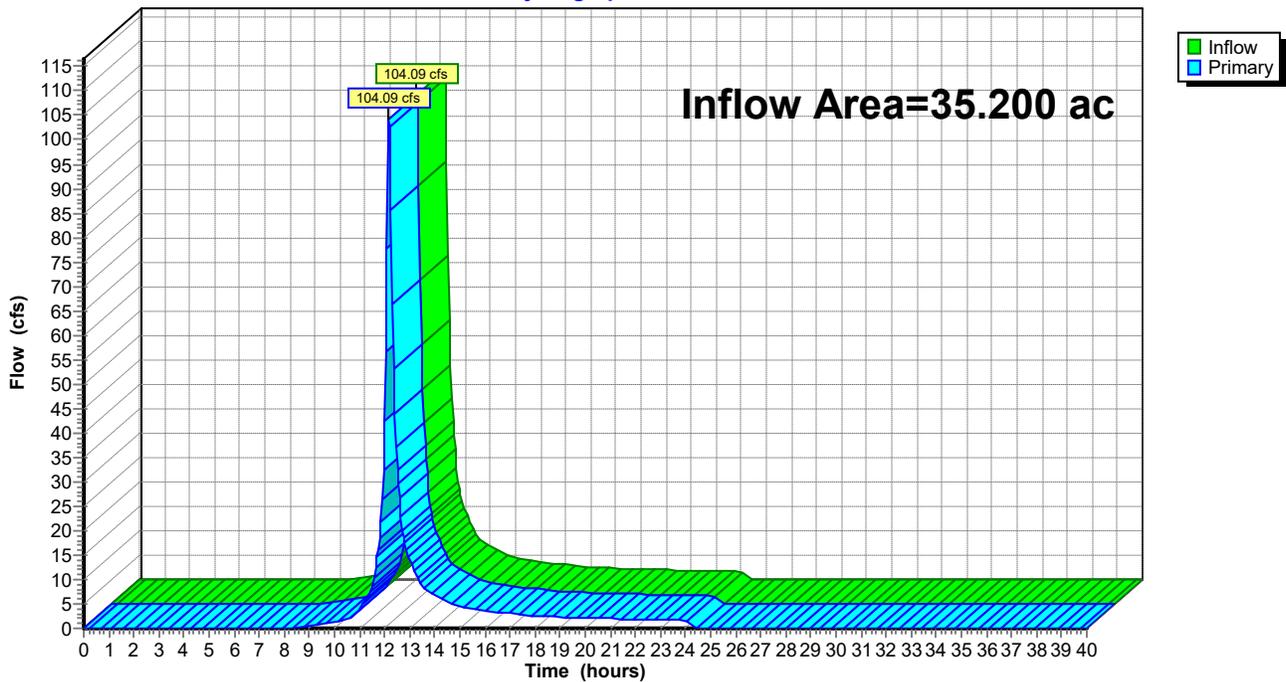
Summary for Link XDA-2: Existing Drainage Area #2

Inflow Area = 35.200 ac, 0.00% Impervious, Inflow Depth = 2.71" for Current 10 yr event
Inflow = 104.09 cfs @ 12.18 hrs, Volume= 7.940 af
Primary = 104.09 cfs @ 12.18 hrs, Volume= 7.940 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-2: Existing Drainage Area #2

Hydrograph



Summary for Subcatchment X-1I: XDA-1 (impervious)

Runoff = 37.45 cfs @ 12.16 hrs, Volume= 3.187 af, Depth= 8.35"
 Routed to Link XDA-1 : Existing Drainage Area #1

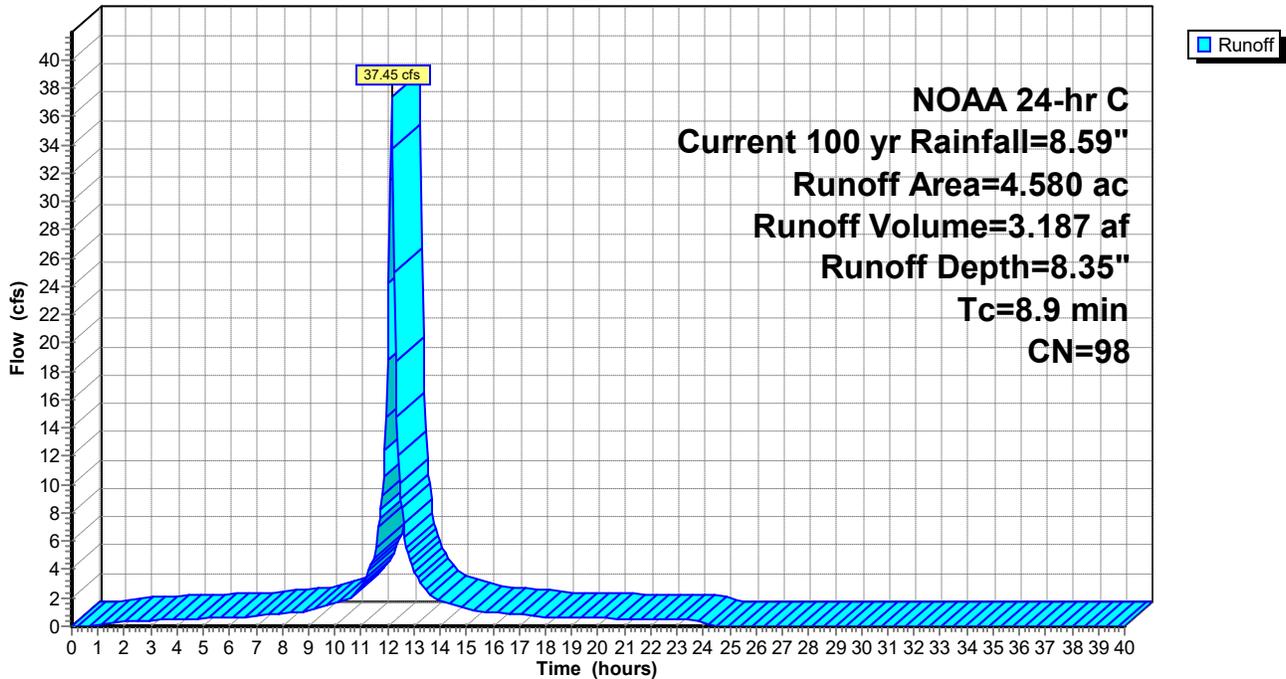
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 100 yr Rainfall=8.59"

Area (ac)	CN	Description
* 4.580	98	
4.580		100.00% Impervious Area

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

Subcatchment X-1I: XDA-1 (impervious)

Hydrograph



Summary for Subcatchment X-1P: XDA-1 (pervious)

Runoff = 321.31 cfs @ 12.16 hrs, Volume= 23.143 af, Depth= 4.50"
 Routed to Link XDA-1 : Existing Drainage Area #1

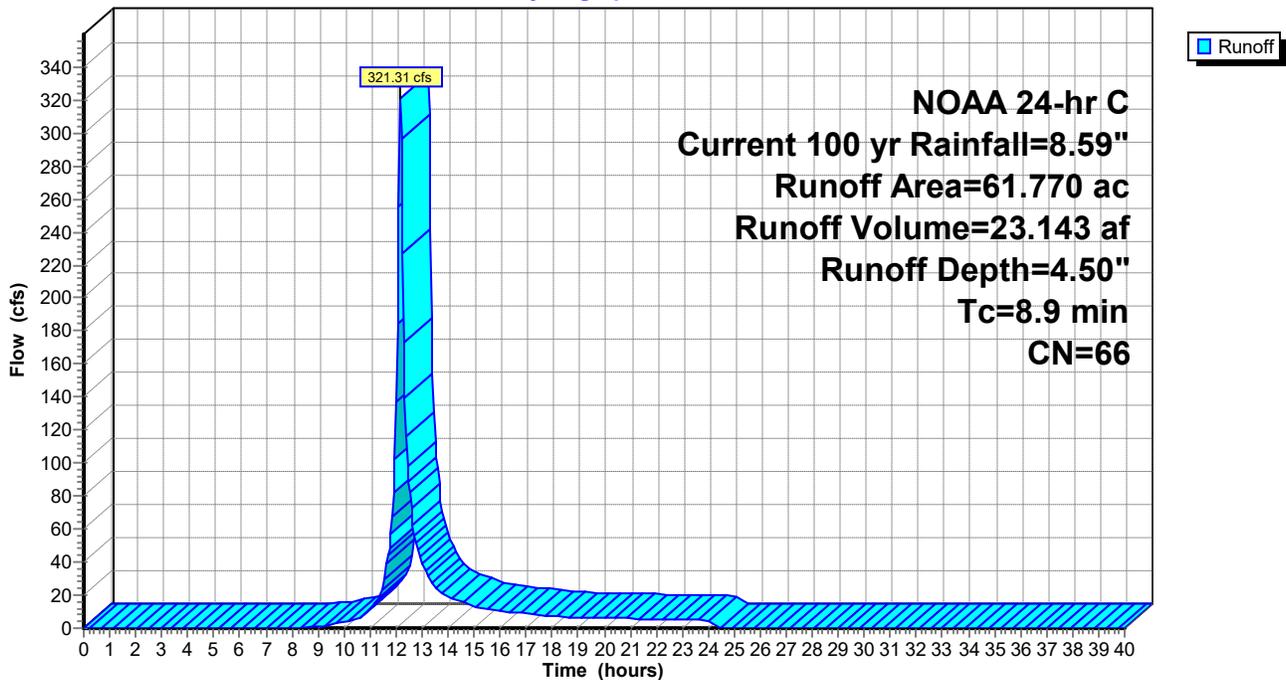
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 100 yr Rainfall=8.59"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
20.810	55	Woods, Good, HSG B
14.490	70	Woods, Good, HSG C
6.630	77	Woods, Good, HSG D
10.000	71	Row crops, C&T, Good, HSG B
6.300	78	Row crops, C&T, Good, HSG C
0.320	81	Row crops, C&T, Good, HSG D
61.770	66	Weighted Average
61.770		100.00% Pervious Area

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

Subcatchment X-1P: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-1S: XDA-1 (pervious)

Runoff = 138.01 cfs @ 12.16 hrs, Volume= 9.952 af, Depth= 4.74"
 Routed to Link XDA-1 : Existing Drainage Area #1

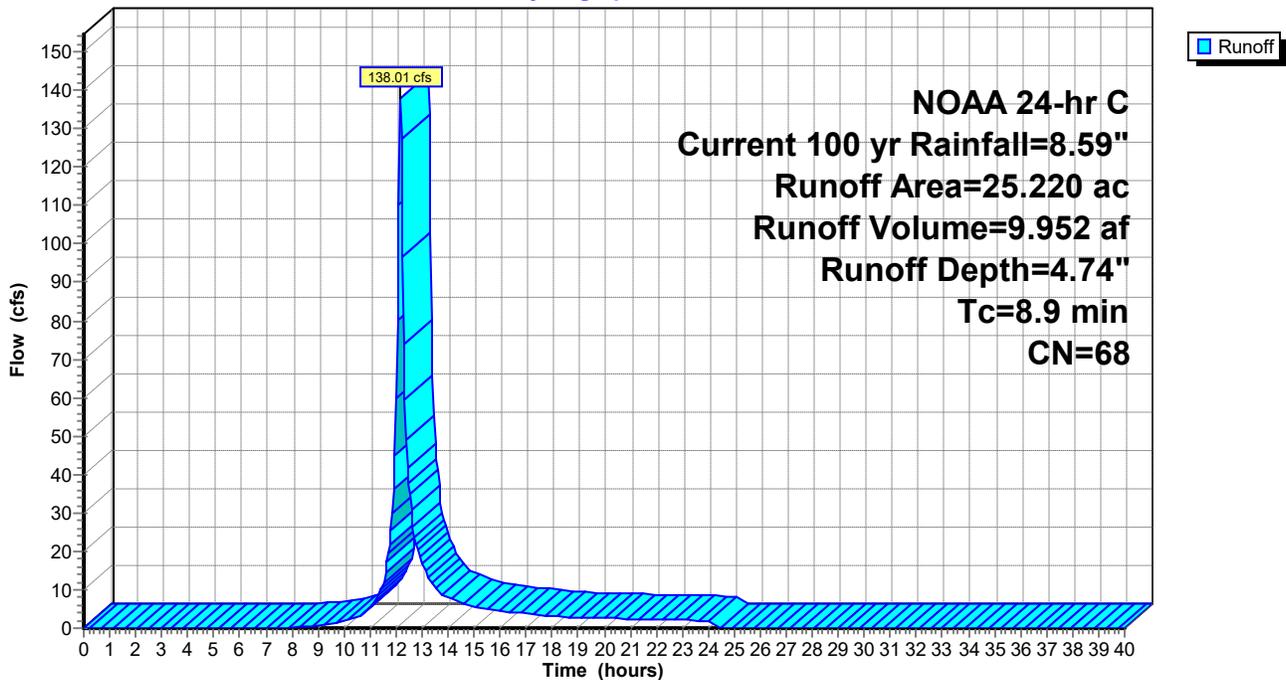
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 100 yr Rainfall=8.59"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
5.130	55	Woods, Good, HSG B
2.350	70	Woods, Good, HSG C
0.060	77	Woods, Good, HSG D
8.280	71	Row crops, C&T, Good, HSG B
6.020	78	Row crops, C&T, Good, HSG C
0.160	81	Row crops, C&T, Good, HSG D
25.220	68	Weighted Average
25.220		100.00% Pervious Area

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

Subcatchment X-1S: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-2P: XDA-2 (pervious)

Runoff = 219.52 cfs @ 12.18 hrs, Volume= 17.067 af, Depth= 5.82"
 Routed to Link XDA-2 : Existing Drainage Area #2

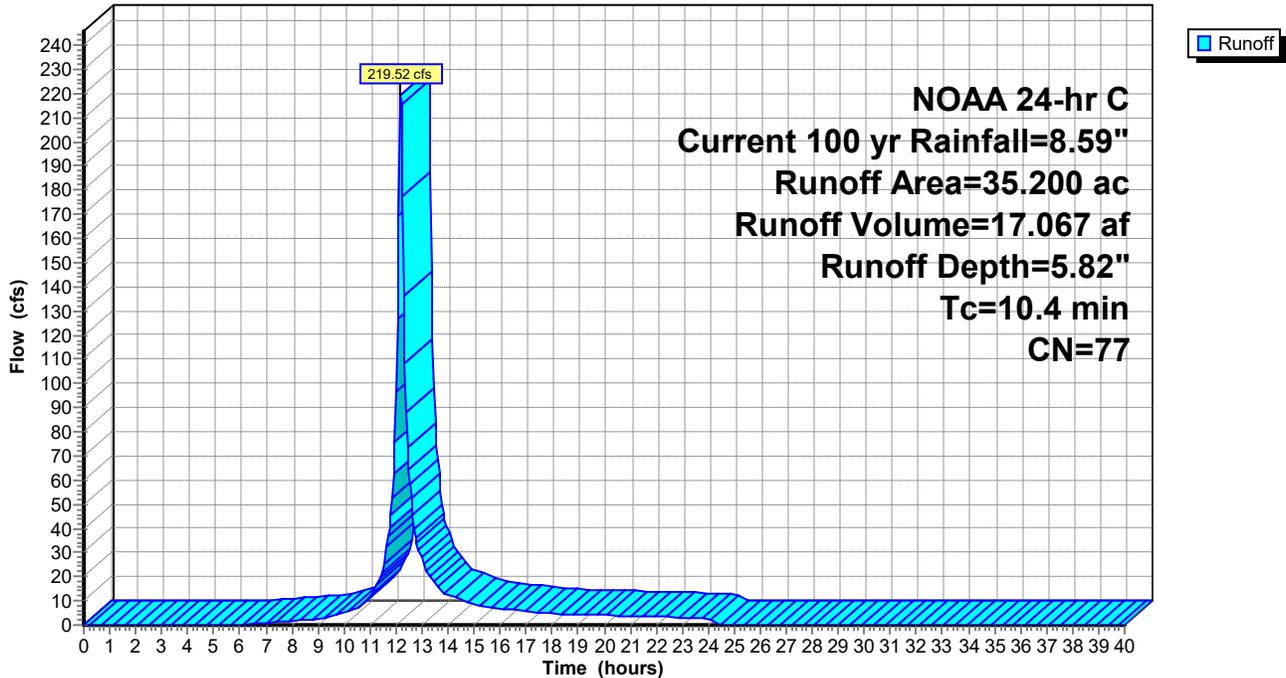
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 100 yr Rainfall=8.59"

Area (ac)	CN	Description
5.890	71	Row crops, C&T, Good, HSG B
27.320	78	Row crops, C&T, Good, HSG C
1.990	81	Row crops, C&T, Good, HSG D
35.200	77	Weighted Average
35.200		100.00% Pervious Area

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

Subcatchment X-2P: XDA-2 (pervious)

Hydrograph



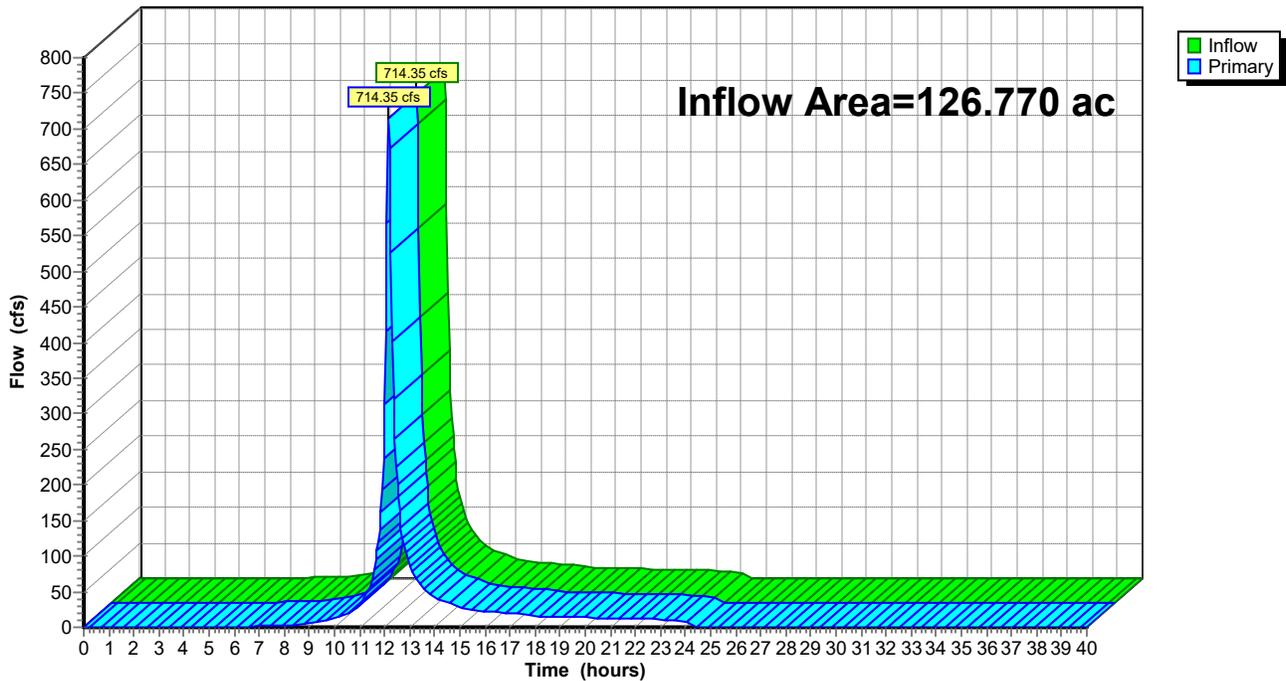
Summary for Link DP-1: Design Pont #1 (Ewing Creek)

Inflow Area = 126.770 ac, 3.61% Impervious, Inflow Depth = 5.05" for Current 100 yr event
Inflow = 714.35 cfs @ 12.17 hrs, Volume= 53.349 af
Primary = 714.35 cfs @ 12.17 hrs, Volume= 53.349 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-1: Design Pont #1 (Ewing Creek)

Hydrograph

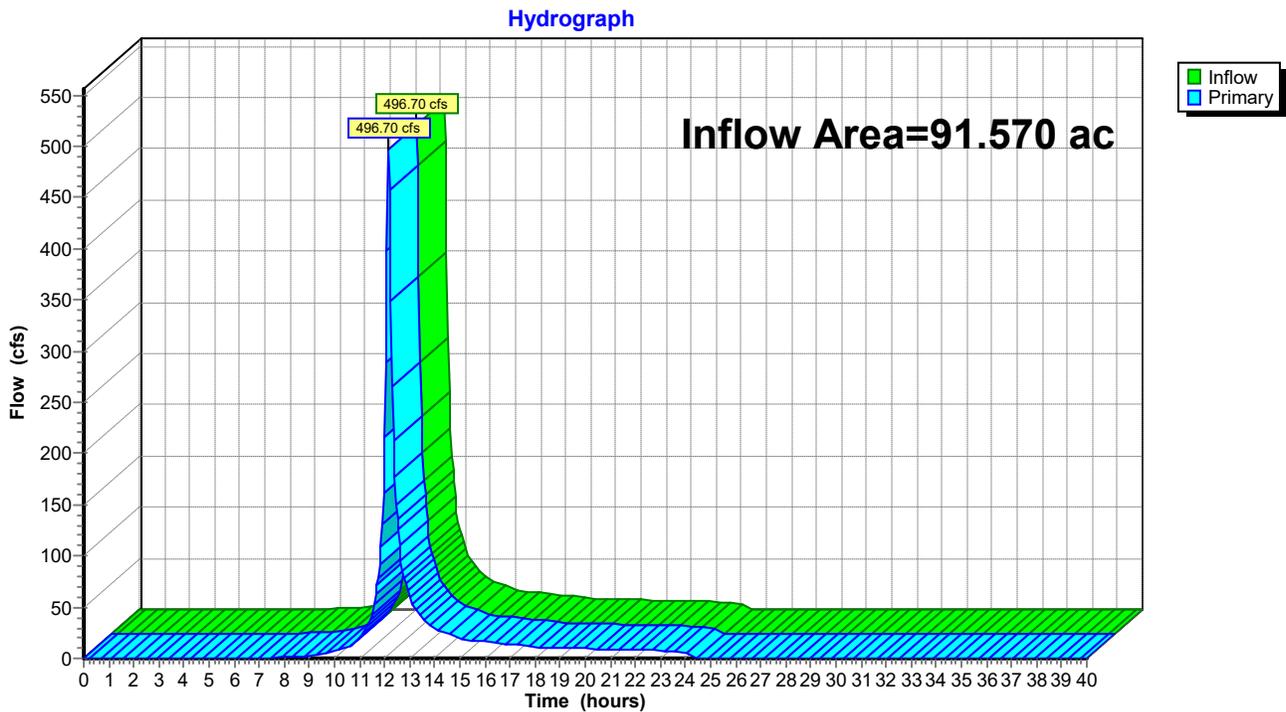


Summary for Link XDA-1: Existing Drainage Area #1

Inflow Area = 91.570 ac, 5.00% Impervious, Inflow Depth = 4.75" for Current 100 yr event
Inflow = 496.70 cfs @ 12.16 hrs, Volume= 36.282 af
Primary = 496.70 cfs @ 12.16 hrs, Volume= 36.282 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-1: Existing Drainage Area #1



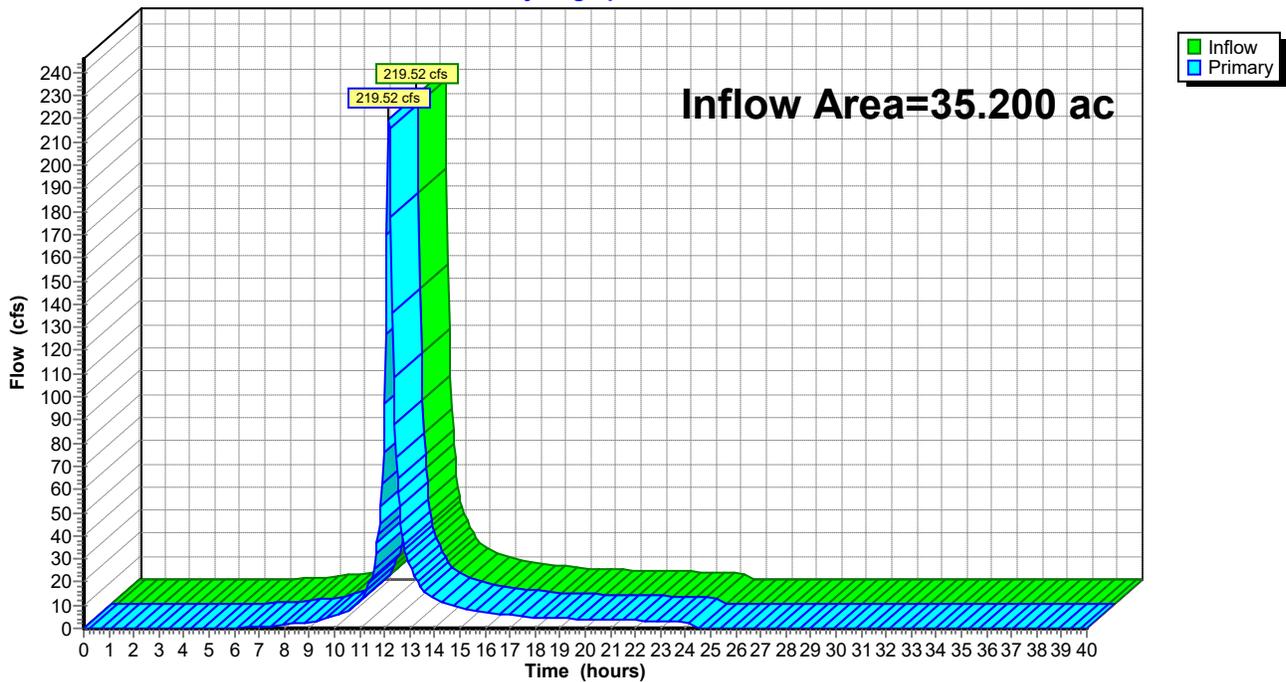
Summary for Link XDA-2: Existing Drainage Area #2

Inflow Area = 35.200 ac, 0.00% Impervious, Inflow Depth = 5.82" for Current 100 yr event
Inflow = 219.52 cfs @ 12.18 hrs, Volume= 17.067 af
Primary = 219.52 cfs @ 12.18 hrs, Volume= 17.067 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-2: Existing Drainage Area #2

Hydrograph



Summary for Subcatchment X-1I: XDA-1 (impervious)

Runoff = 16.66 cfs @ 12.16 hrs, Volume= 1.380 af, Depth= 3.62"
 Routed to Link XDA-1 : Existing Drainage Area #1

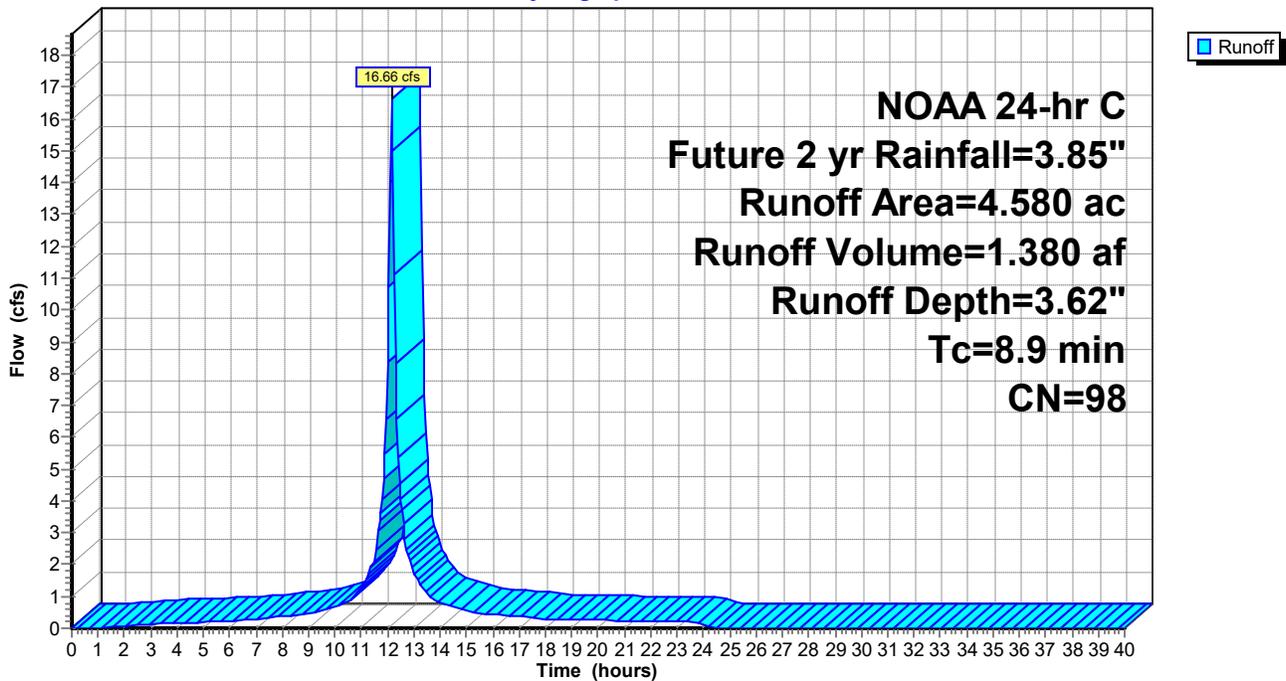
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 2 yr Rainfall=3.85"

Area (ac)	CN	Description
* 4.580	98	
4.580		100.00% Impervious Area

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

Subcatchment X-1I: XDA-1 (impervious)

Hydrograph



Summary for Subcatchment X-1P: XDA-1 (pervious)

Runoff = 65.74 cfs @ 12.17 hrs, Volume= 5.134 af, Depth= 1.00"
 Routed to Link XDA-1 : Existing Drainage Area #1

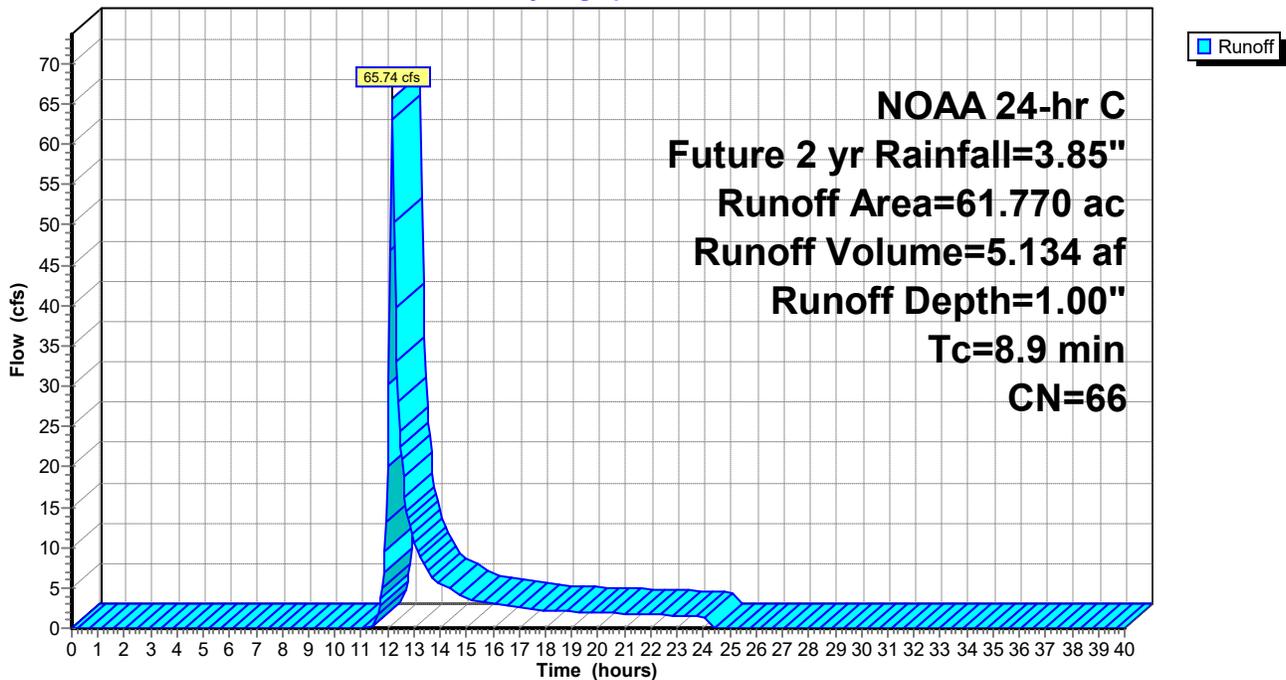
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 2 yr Rainfall=3.85"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
20.810	55	Woods, Good, HSG B
14.490	70	Woods, Good, HSG C
6.630	77	Woods, Good, HSG D
10.000	71	Row crops, C&T, Good, HSG B
6.300	78	Row crops, C&T, Good, HSG C
0.320	81	Row crops, C&T, Good, HSG D
61.770	66	Weighted Average
61.770		100.00% Pervious Area

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

Subcatchment X-1P: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-1S: XDA-1 (pervious)

Runoff = 30.65 cfs @ 12.17 hrs, Volume= 2.335 af, Depth= 1.11"
 Routed to Link XDA-1 : Existing Drainage Area #1

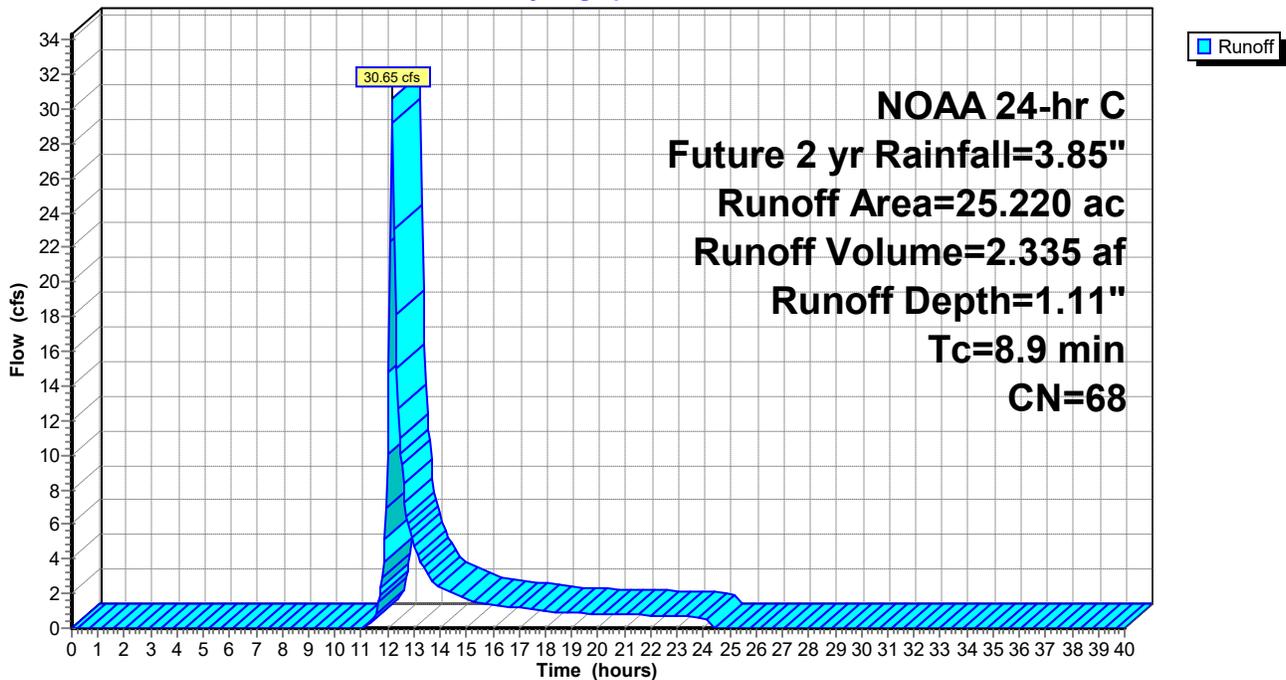
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 2 yr Rainfall=3.85"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
5.130	55	Woods, Good, HSG B
2.350	70	Woods, Good, HSG C
0.060	77	Woods, Good, HSG D
8.280	71	Row crops, C&T, Good, HSG B
6.020	78	Row crops, C&T, Good, HSG C
0.160	81	Row crops, C&T, Good, HSG D
25.220	68	Weighted Average
25.220		100.00% Pervious Area

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

Subcatchment X-1S: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-2P: XDA-2 (pervious)

Runoff = 64.99 cfs @ 12.19 hrs, Volume= 4.974 af, Depth= 1.70"
 Routed to Link XDA-2 : Existing Drainage Area #2

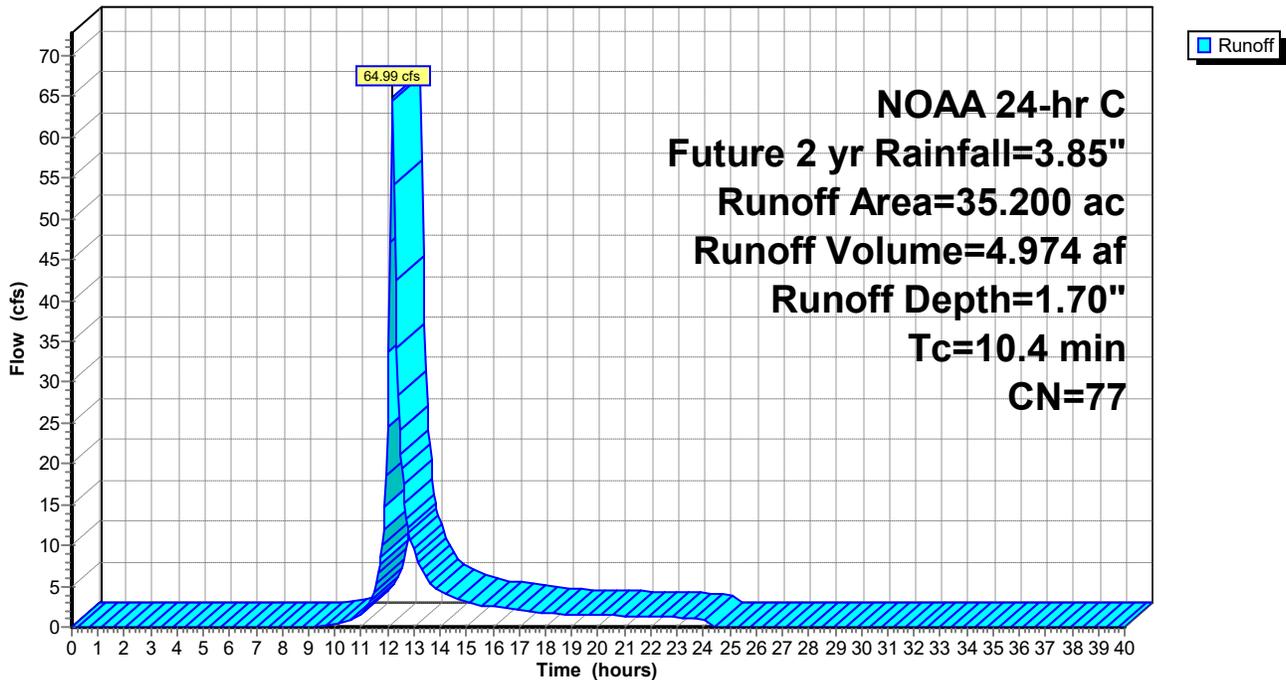
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 2 yr Rainfall=3.85"

Area (ac)	CN	Description
5.890	71	Row crops, C&T, Good, HSG B
27.320	78	Row crops, C&T, Good, HSG C
1.990	81	Row crops, C&T, Good, HSG D
35.200	77	Weighted Average
35.200		100.00% Pervious Area

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

Subcatchment X-2P: XDA-2 (pervious)

Hydrograph



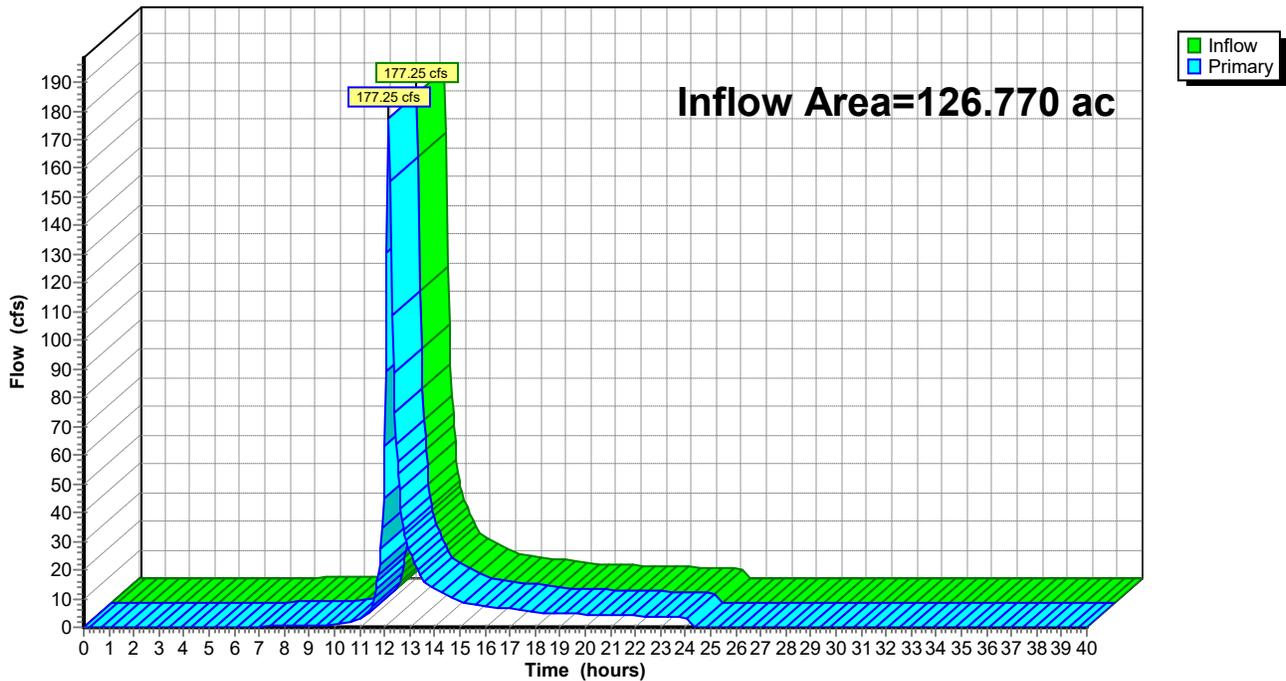
Summary for Link DP-1: Design Pont #1 (Ewing Creek)

Inflow Area = 126.770 ac, 3.61% Impervious, Inflow Depth = 1.31" for Future 2 yr event
Inflow = 177.25 cfs @ 12.17 hrs, Volume= 13.823 af
Primary = 177.25 cfs @ 12.17 hrs, Volume= 13.823 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-1: Design Pont #1 (Ewing Creek)

Hydrograph



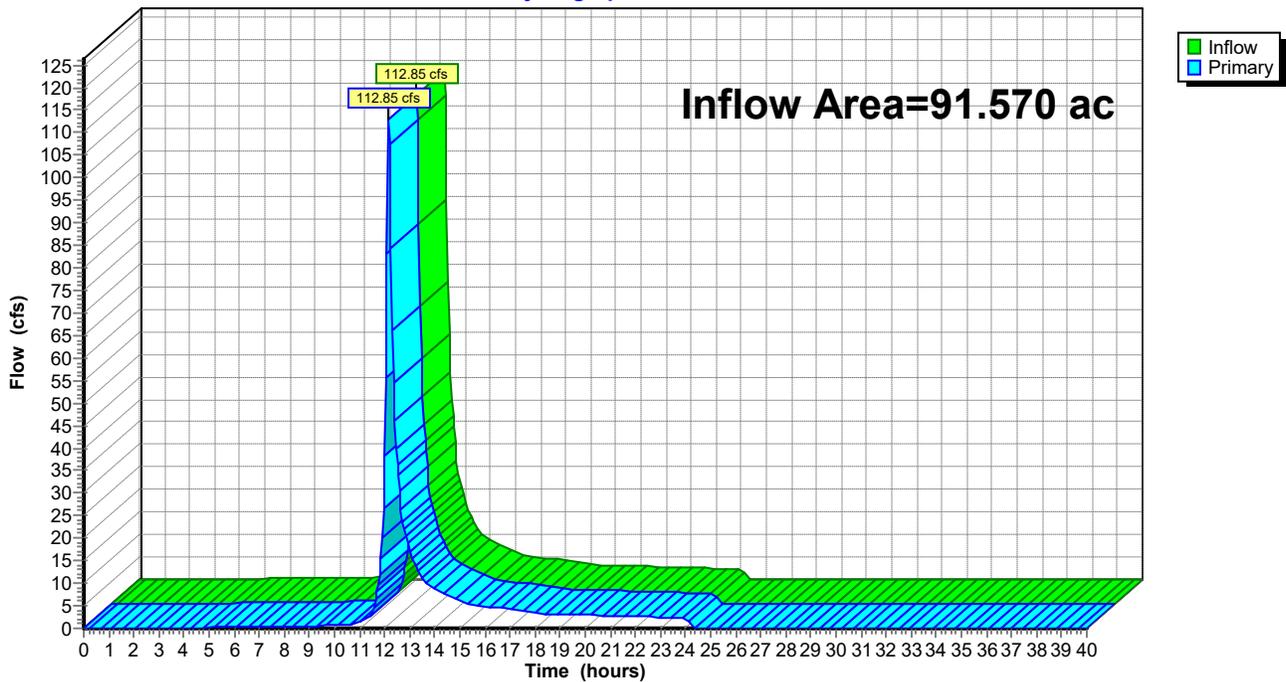
Summary for Link XDA-1: Existing Drainage Area #1

Inflow Area = 91.570 ac, 5.00% Impervious, Inflow Depth = 1.16" for Future 2 yr event
Inflow = 112.85 cfs @ 12.17 hrs, Volume= 8.849 af
Primary = 112.85 cfs @ 12.17 hrs, Volume= 8.849 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-1: Existing Drainage Area #1

Hydrograph



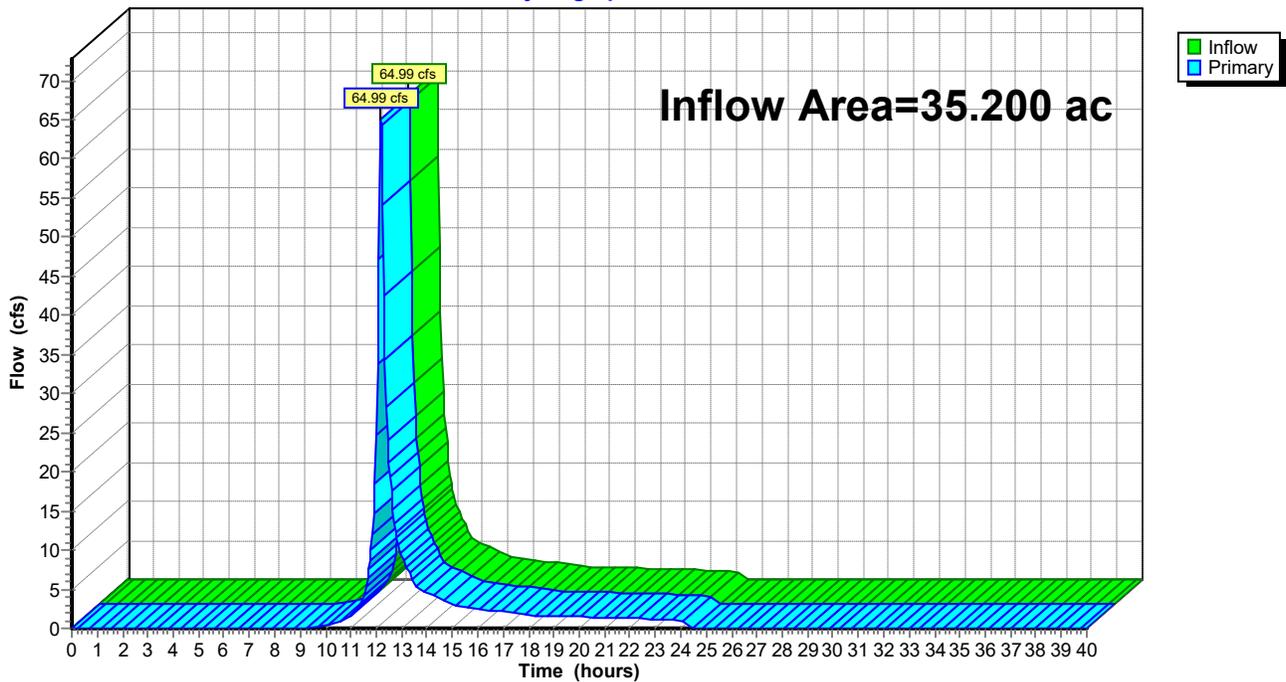
Summary for Link XDA-2: Existing Drainage Area #2

Inflow Area = 35.200 ac, 0.00% Impervious, Inflow Depth = 1.70" for Future 2 yr event
Inflow = 64.99 cfs @ 12.19 hrs, Volume= 4.974 af
Primary = 64.99 cfs @ 12.19 hrs, Volume= 4.974 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-2: Existing Drainage Area #2

Hydrograph



Summary for Subcatchment X-1I: XDA-1 (impervious)

Runoff = 25.45 cfs @ 12.16 hrs, Volume= 2.142 af, Depth= 5.61"
 Routed to Link XDA-1 : Existing Drainage Area #1

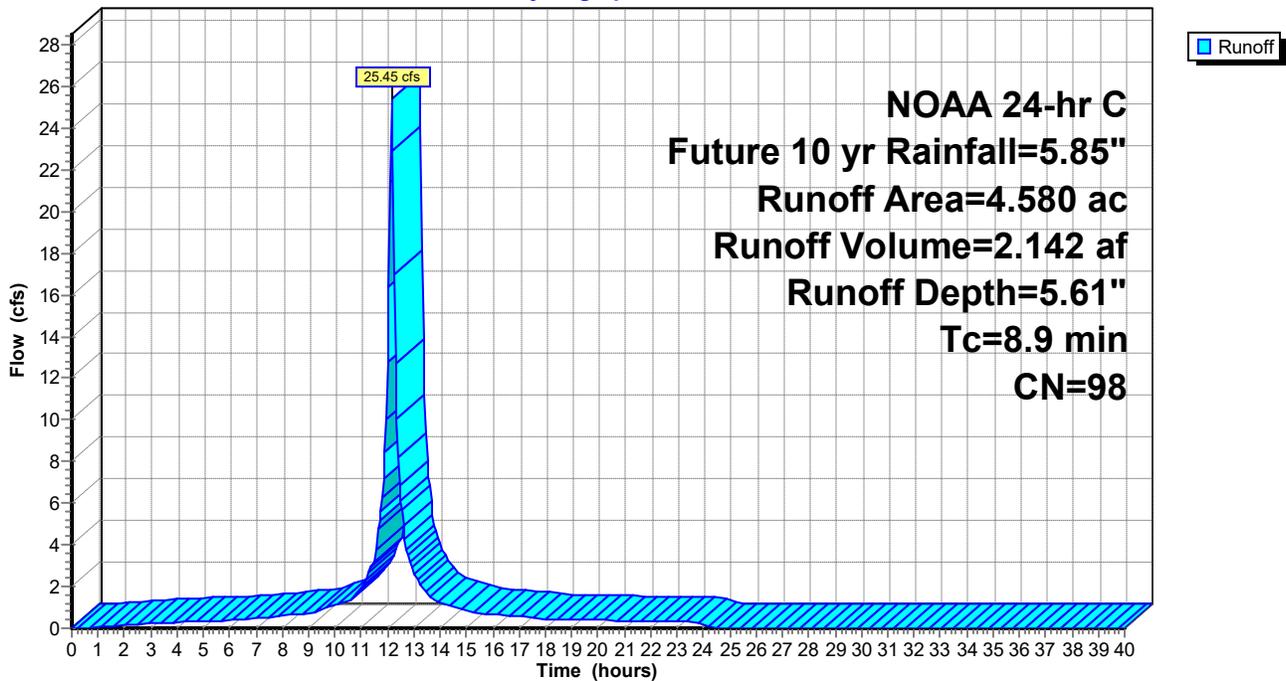
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 10 yr Rainfall=5.85"

Area (ac)	CN	Description
* 4.580	98	
4.580		100.00% Impervious Area

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

Subcatchment X-1I: XDA-1 (impervious)

Hydrograph



Summary for Subcatchment X-1P: XDA-1 (pervious)

Runoff = 164.79 cfs @ 12.17 hrs, Volume= 11.992 af, Depth= 2.33"
 Routed to Link XDA-1 : Existing Drainage Area #1

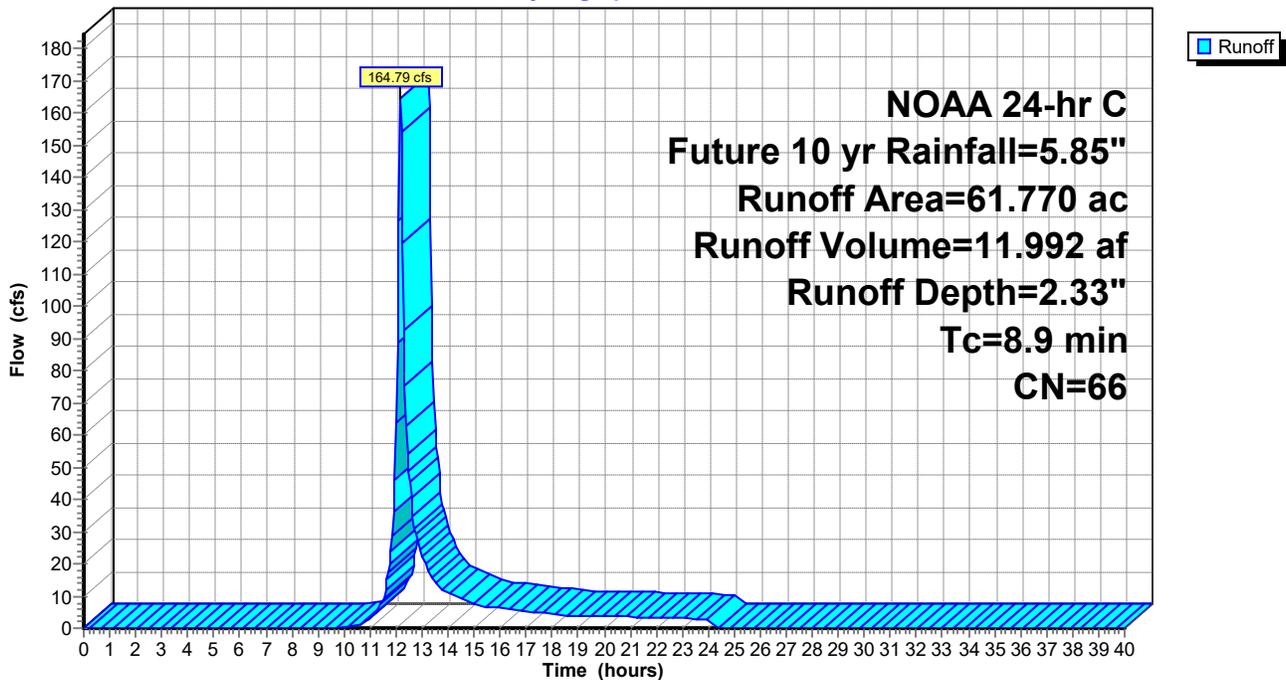
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 10 yr Rainfall=5.85"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
20.810	55	Woods, Good, HSG B
14.490	70	Woods, Good, HSG C
6.630	77	Woods, Good, HSG D
10.000	71	Row crops, C&T, Good, HSG B
6.300	78	Row crops, C&T, Good, HSG C
0.320	81	Row crops, C&T, Good, HSG D
61.770	66	Weighted Average
61.770		100.00% Pervious Area

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

Subcatchment X-1P: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-1S: XDA-1 (pervious)

Runoff = 72.76 cfs @ 12.16 hrs, Volume= 5.267 af, Depth= 2.51"
 Routed to Link XDA-1 : Existing Drainage Area #1

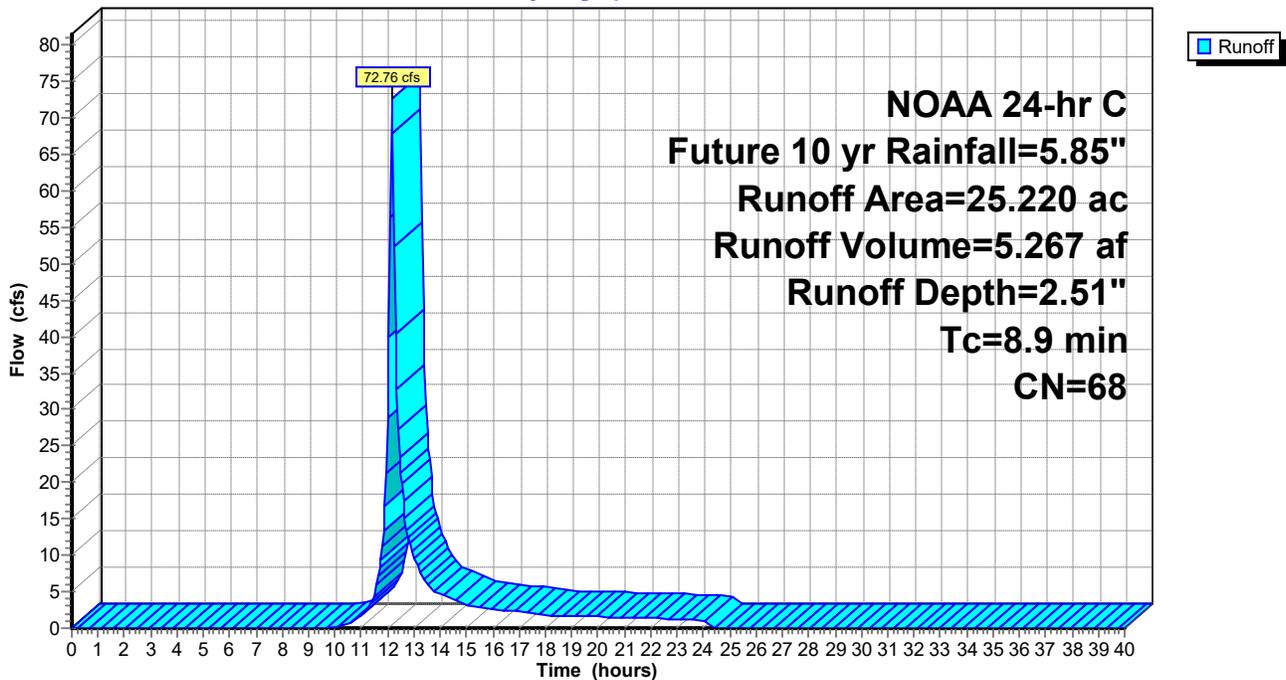
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 10 yr Rainfall=5.85"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
5.130	55	Woods, Good, HSG B
2.350	70	Woods, Good, HSG C
0.060	77	Woods, Good, HSG D
8.280	71	Row crops, C&T, Good, HSG B
6.020	78	Row crops, C&T, Good, HSG C
0.160	81	Row crops, C&T, Good, HSG D
25.220	68	Weighted Average
25.220		100.00% Pervious Area

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

Subcatchment X-1S: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-2P: XDA-2 (pervious)

Runoff = 128.43 cfs @ 12.18 hrs, Volume= 9.822 af, Depth= 3.35"
 Routed to Link XDA-2 : Existing Drainage Area #2

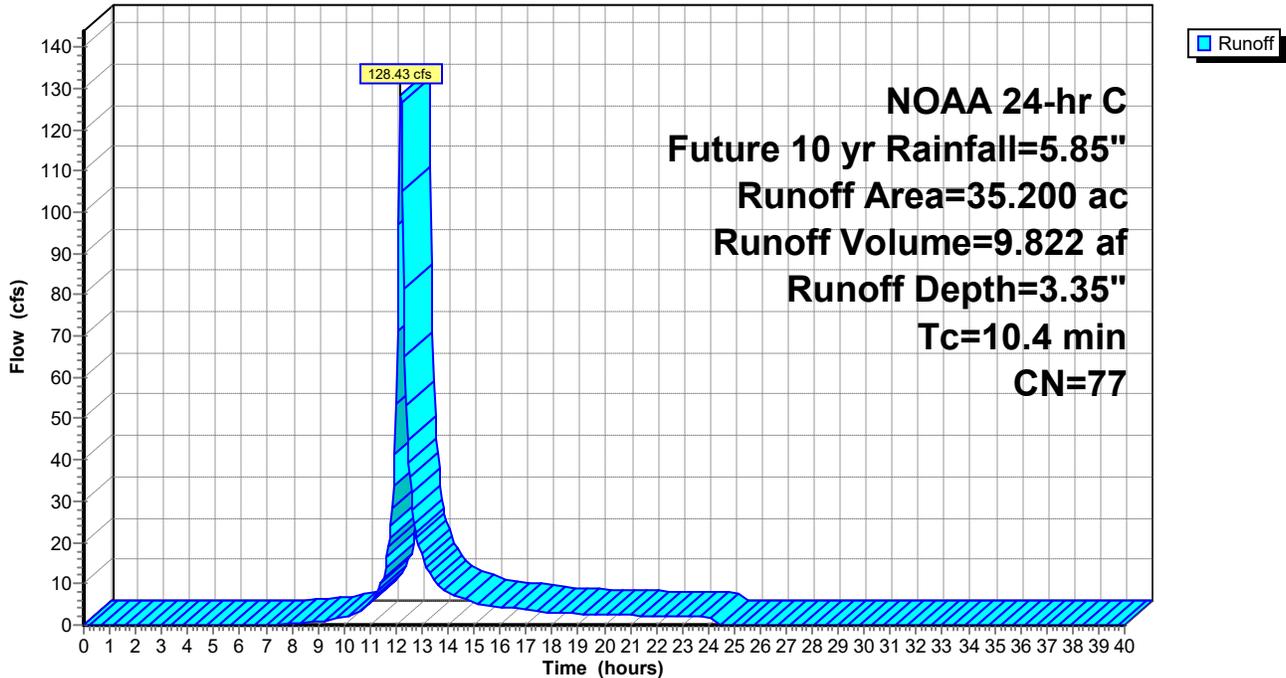
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 10 yr Rainfall=5.85"

Area (ac)	CN	Description
5.890	71	Row crops, C&T, Good, HSG B
27.320	78	Row crops, C&T, Good, HSG C
1.990	81	Row crops, C&T, Good, HSG D
35.200	77	Weighted Average
35.200		100.00% Pervious Area

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

Subcatchment X-2P: XDA-2 (pervious)

Hydrograph



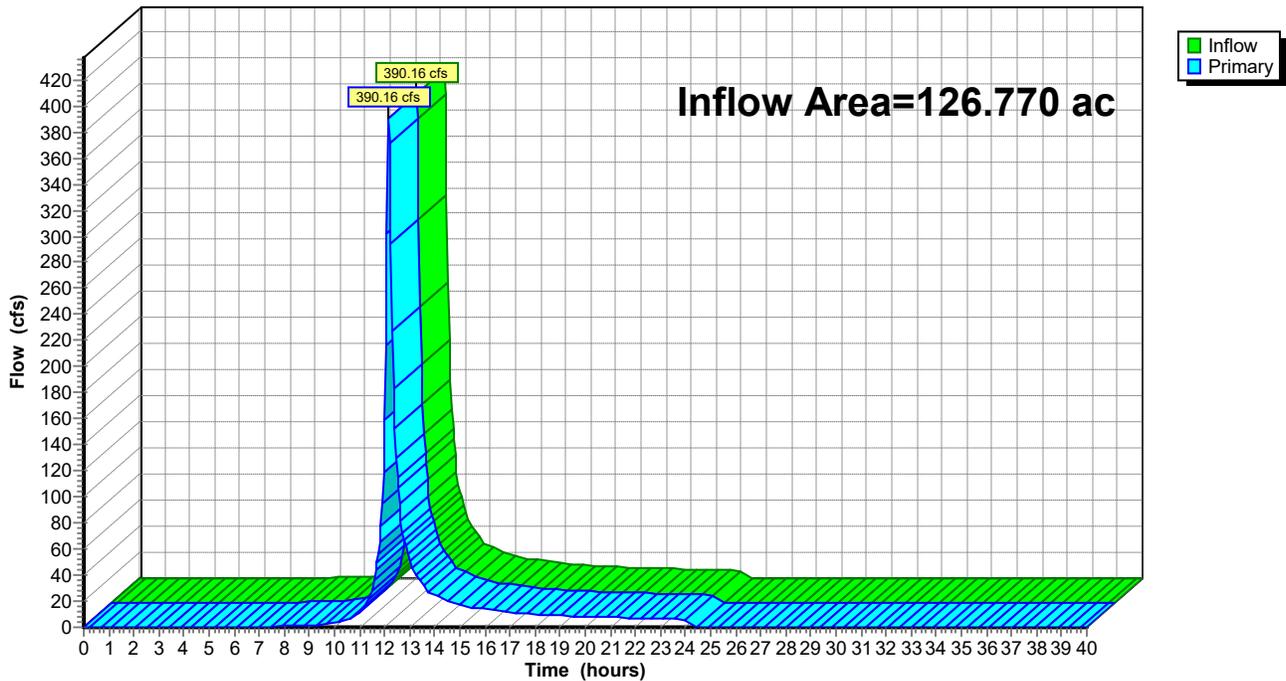
Summary for Link DP-1: Design Pont #1 (Ewing Creek)

Inflow Area = 126.770 ac, 3.61% Impervious, Inflow Depth = 2.77" for Future 10 yr event
Inflow = 390.16 cfs @ 12.17 hrs, Volume= 29.223 af
Primary = 390.16 cfs @ 12.17 hrs, Volume= 29.223 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-1: Design Pont #1 (Ewing Creek)

Hydrograph

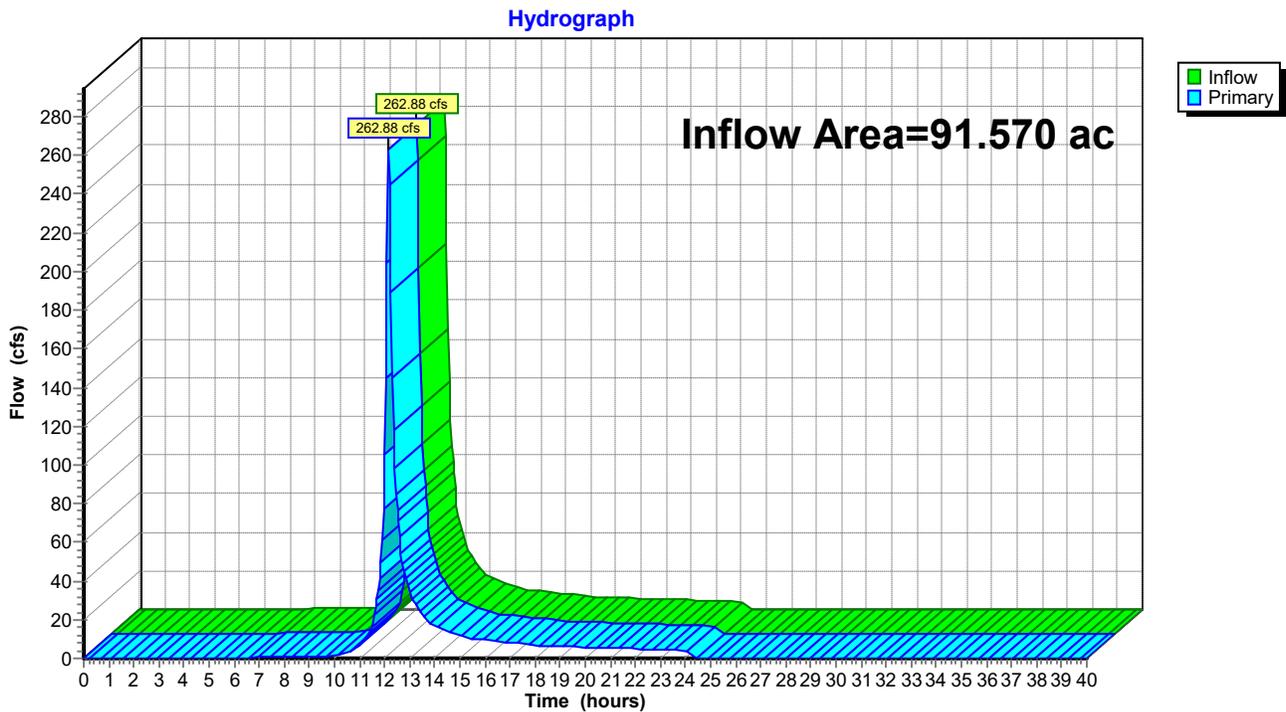


Summary for Link XDA-1: Existing Drainage Area #1

Inflow Area = 91.570 ac, 5.00% Impervious, Inflow Depth = 2.54" for Future 10 yr event
Inflow = 262.88 cfs @ 12.16 hrs, Volume= 19.401 af
Primary = 262.88 cfs @ 12.16 hrs, Volume= 19.401 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-1: Existing Drainage Area #1

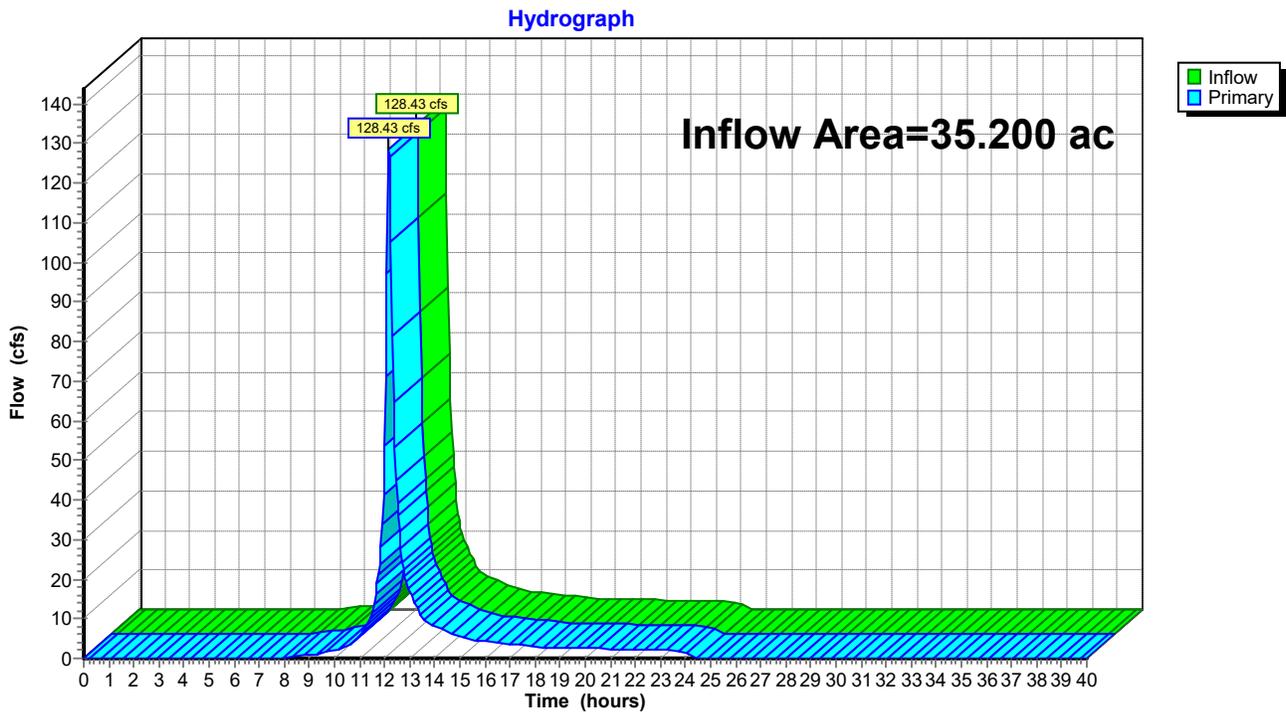


Summary for Link XDA-2: Existing Drainage Area #2

Inflow Area = 35.200 ac, 0.00% Impervious, Inflow Depth = 3.35" for Future 10 yr event
Inflow = 128.43 cfs @ 12.18 hrs, Volume= 9.822 af
Primary = 128.43 cfs @ 12.18 hrs, Volume= 9.822 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-2: Existing Drainage Area #2



Summary for Subcatchment X-1I: XDA-1 (impervious)

Runoff = 49.00 cfs @ 12.16 hrs, Volume= 4.194 af, Depth=10.99"
 Routed to Link XDA-1 : Existing Drainage Area #1

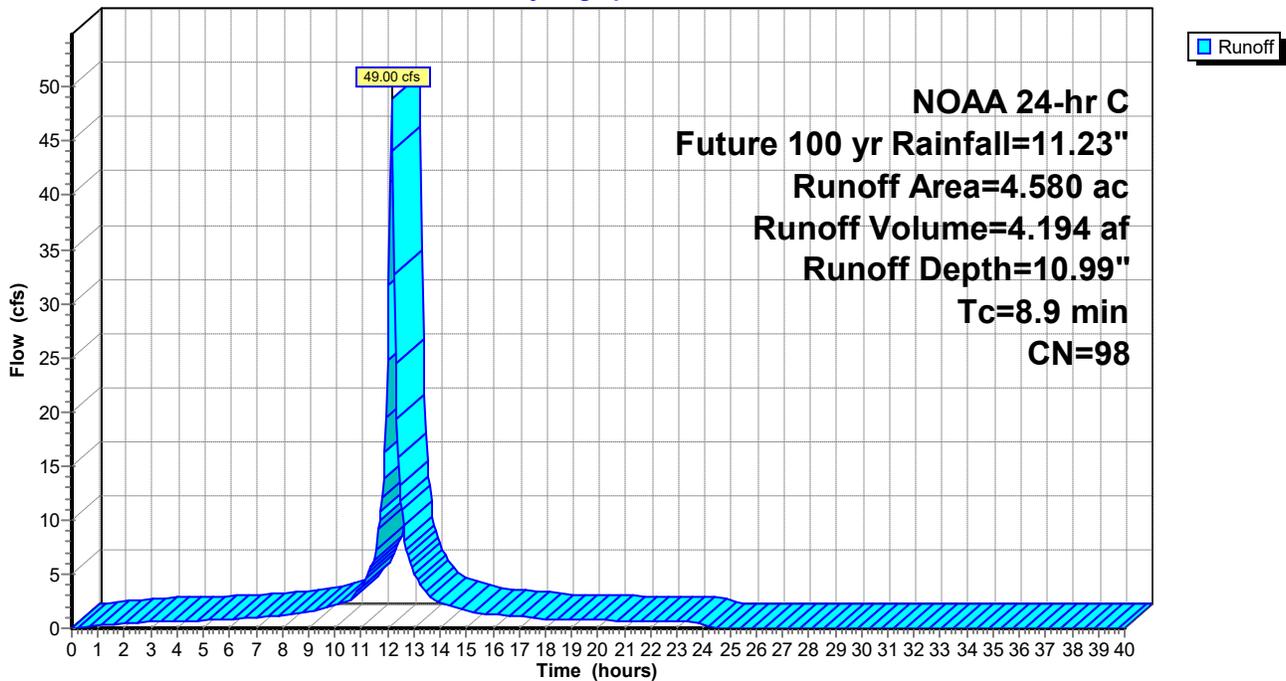
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 100 yr Rainfall=11.23"

Area (ac)	CN	Description
* 4.580	98	
4.580		100.00% Impervious Area

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

Subcatchment X-1I: XDA-1 (impervious)

Hydrograph



Summary for Subcatchment X-1P: XDA-1 (pervious)

Runoff = 481.32 cfs @ 12.16 hrs, Volume= 34.884 af, Depth= 6.78"
 Routed to Link XDA-1 : Existing Drainage Area #1

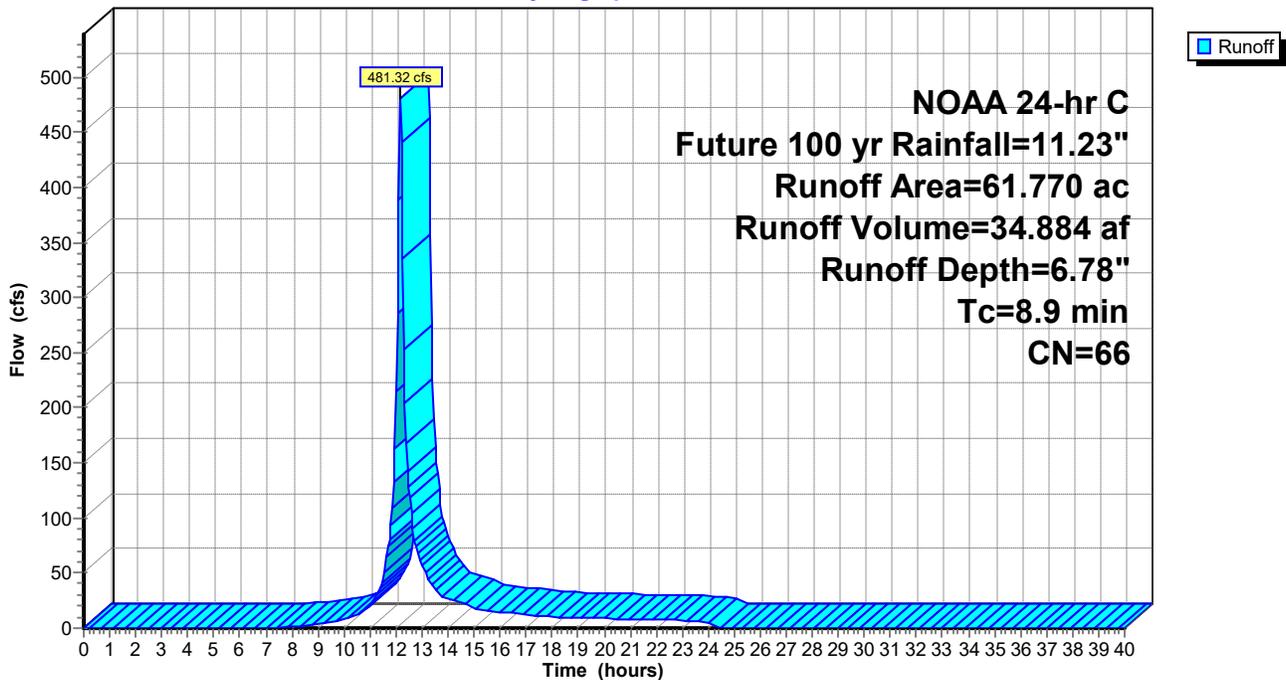
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 100 yr Rainfall=11.23"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
20.810	55	Woods, Good, HSG B
14.490	70	Woods, Good, HSG C
6.630	77	Woods, Good, HSG D
10.000	71	Row crops, C&T, Good, HSG B
6.300	78	Row crops, C&T, Good, HSG C
0.320	81	Row crops, C&T, Good, HSG D
61.770	66	Weighted Average
61.770		100.00% Pervious Area

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

Subcatchment X-1P: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-1S: XDA-1 (pervious)

Runoff = 203.96 cfs @ 12.16 hrs, Volume= 14.837 af, Depth= 7.06"
 Routed to Link XDA-1 : Existing Drainage Area #1

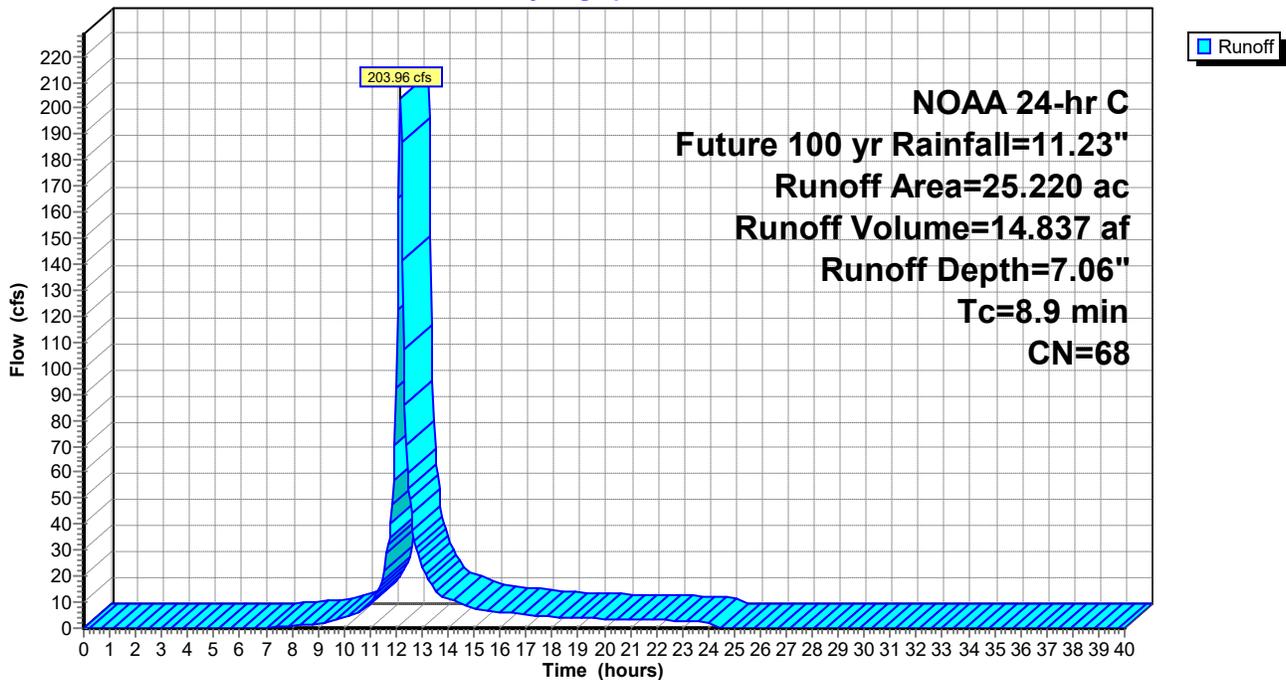
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 100 yr Rainfall=11.23"

Area (ac)	CN	Description
3.220	61	>75% Grass cover, Good, HSG B
5.130	55	Woods, Good, HSG B
2.350	70	Woods, Good, HSG C
0.060	77	Woods, Good, HSG D
8.280	71	Row crops, C&T, Good, HSG B
6.020	78	Row crops, C&T, Good, HSG C
0.160	81	Row crops, C&T, Good, HSG D
25.220	68	Weighted Average
25.220		100.00% Pervious Area

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

Subcatchment X-1S: XDA-1 (pervious)

Hydrograph



Summary for Subcatchment X-2P: XDA-2 (pervious)

Runoff = 308.02 cfs @ 12.18 hrs, Volume= 24.349 af, Depth= 8.30"
 Routed to Link XDA-2 : Existing Drainage Area #2

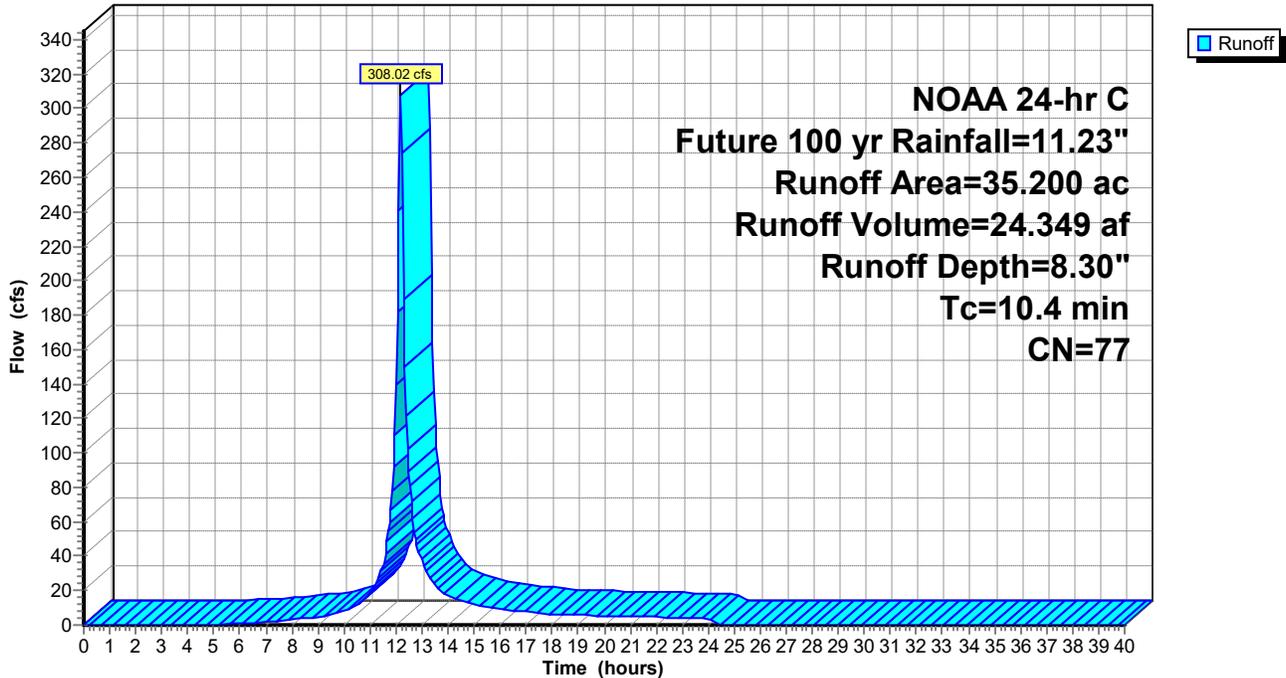
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 100 yr Rainfall=11.23"

Area (ac)	CN	Description
5.890	71	Row crops, C&T, Good, HSG B
27.320	78	Row crops, C&T, Good, HSG C
1.990	81	Row crops, C&T, Good, HSG D
35.200	77	Weighted Average
35.200		100.00% Pervious Area

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

Subcatchment X-2P: XDA-2 (pervious)

Hydrograph



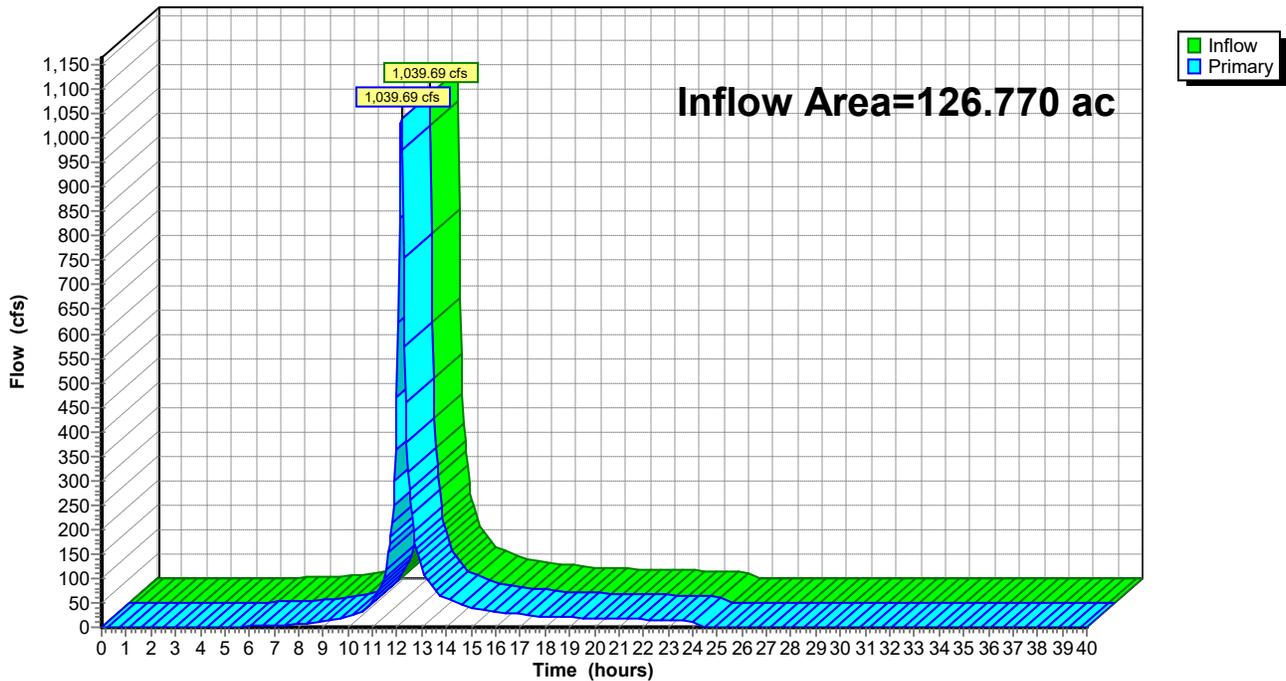
Summary for Link DP-1: Design Pont #1 (Ewing Creek)

Inflow Area = 126.770 ac, 3.61% Impervious, Inflow Depth = 7.41" for Future 100 yr event
Inflow = 1,039.69 cfs @ 12.16 hrs, Volume= 78.264 af
Primary = 1,039.69 cfs @ 12.16 hrs, Volume= 78.264 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-1: Design Pont #1 (Ewing Creek)

Hydrograph

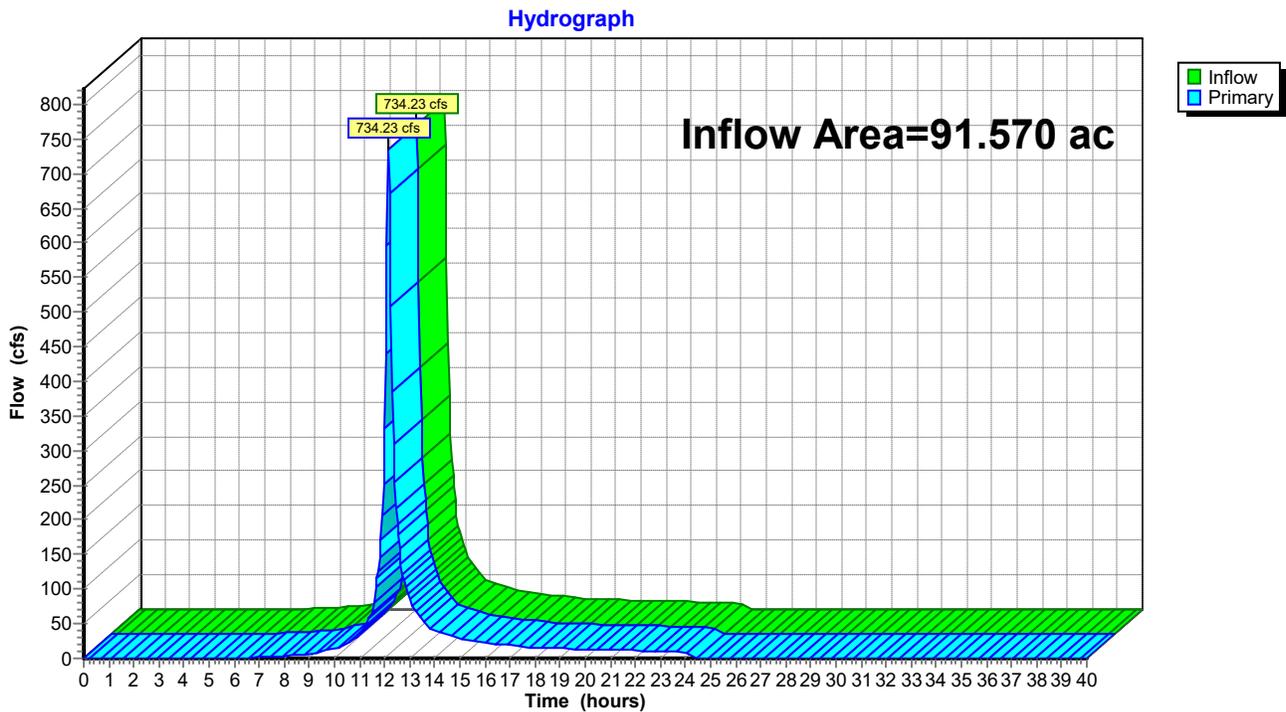


Summary for Link XDA-1: Existing Drainage Area #1

Inflow Area = 91.570 ac, 5.00% Impervious, Inflow Depth = 7.07" for Future 100 yr event
Inflow = 734.23 cfs @ 12.16 hrs, Volume= 53.916 af
Primary = 734.23 cfs @ 12.16 hrs, Volume= 53.916 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-1: Existing Drainage Area #1



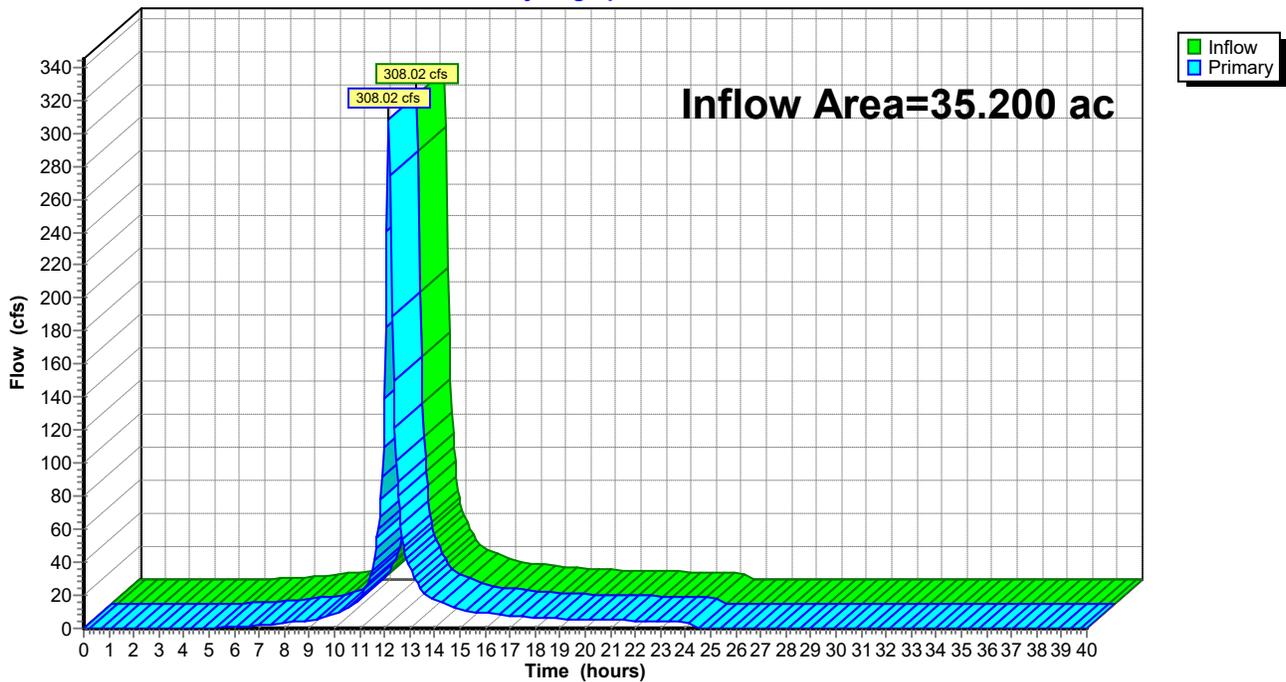
Summary for Link XDA-2: Existing Drainage Area #2

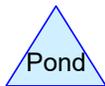
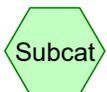
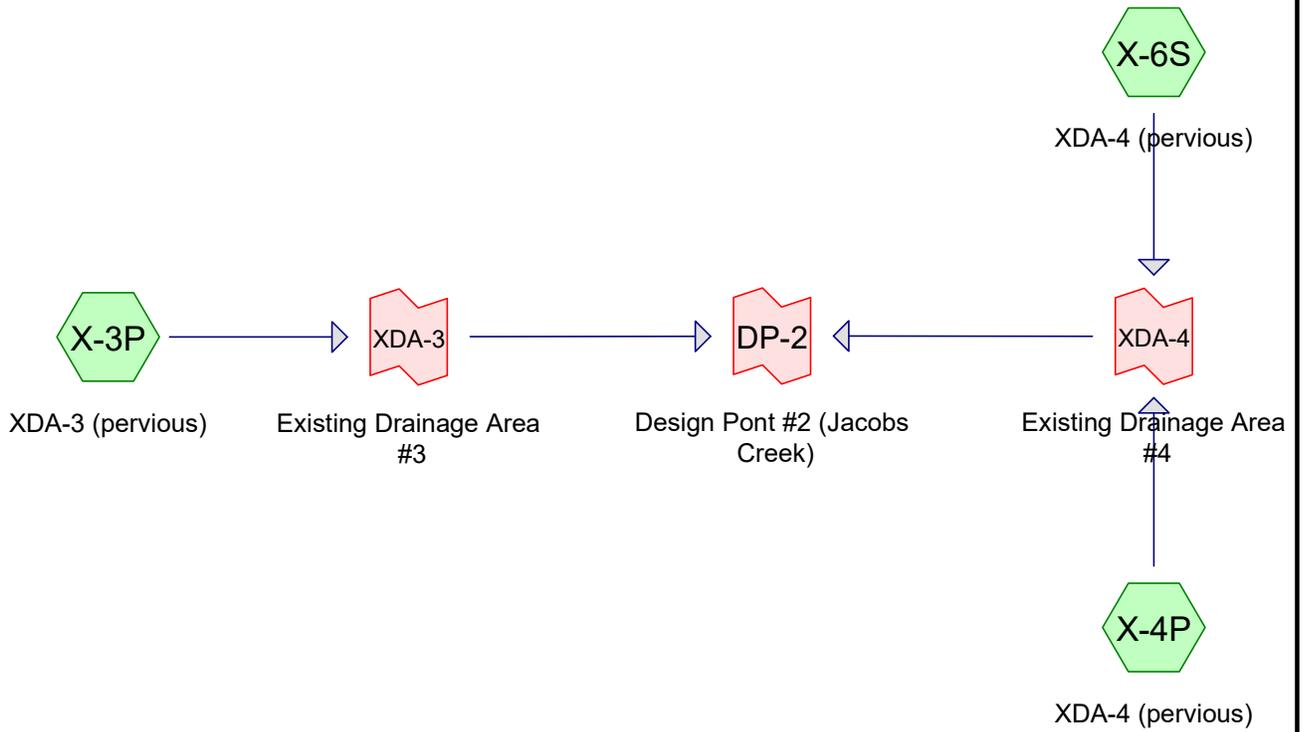
Inflow Area = 35.200 ac, 0.00% Impervious, Inflow Depth = 8.30" for Future 100 yr event
Inflow = 308.02 cfs @ 12.18 hrs, Volume= 24.349 af
Primary = 308.02 cfs @ 12.18 hrs, Volume= 24.349 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-1 : Design Pont #1 (Ewing Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-2: Existing Drainage Area #2

Hydrograph





Routing Diagram for 2024-06-25 Existing- 081391
 Prepared by Bowman Consulting Group, Printed 6/25/2024
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2024-06-25 Existing- 081391

Prepared by Bowman Consulting Group

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Printed 6/25/2024

Page 2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.460	71	Row crops, C&T, Good, HSG B (X-3P, X-4P)
23.810	78	Row crops, C&T, Good, HSG C (X-3P, X-4P)
14.940	55	Woods, Good, HSG B (X-4P, X-6S)
15.560	70	Woods, Good, HSG C (X-3P, X-4P, X-6S)
1.310	77	Woods, Good, HSG D (X-4P)

Summary for Subcatchment X-3P: XDA-3 (pervious)

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

Runoff = 6.60 cfs @ 1.11 hrs, Volume= 0.187 af, Depth= 0.10"
 Routed to Link XDA-3 : Existing Drainage Area #3

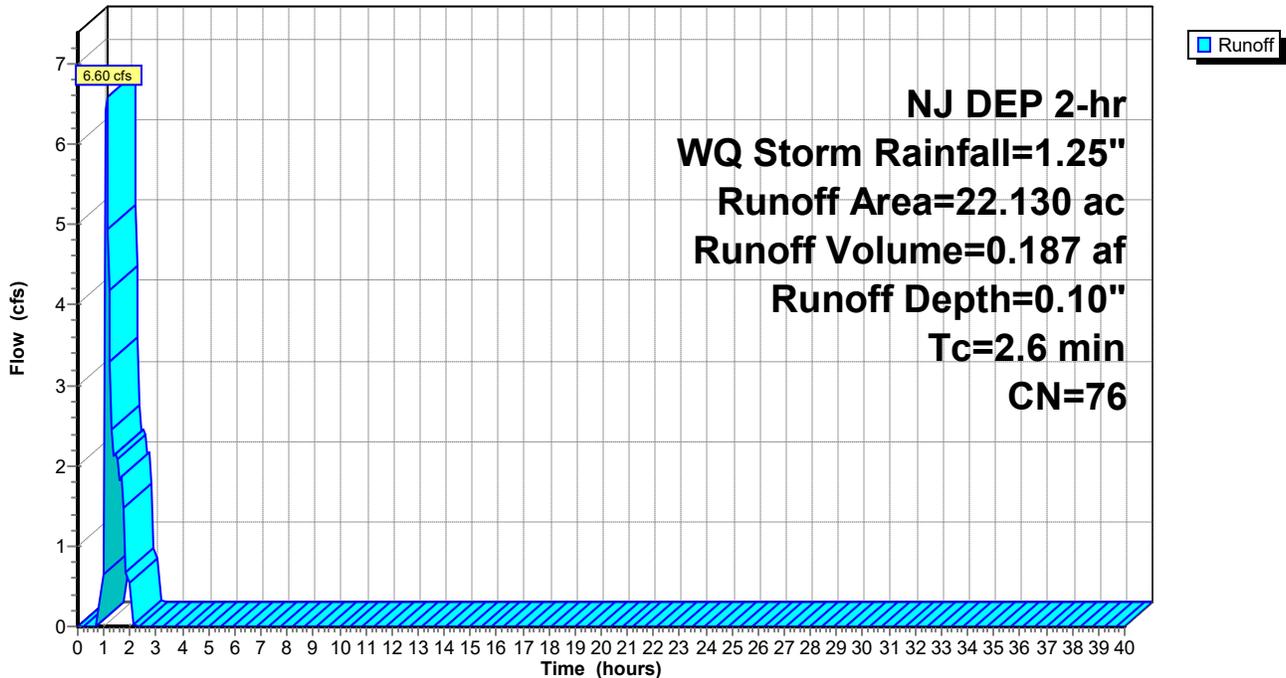
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NJ DEP 2-hr WQ Storm Rainfall=1.25"

Area (ac)	CN	Description
6.110	70	Woods, Good, HSG C
0.900	71	Row crops, C&T, Good, HSG B
15.120	78	Row crops, C&T, Good, HSG C
22.130	76	Weighted Average
22.130		100.00% Pervious Area

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

Subcatchment X-3P: XDA-3 (pervious)

Hydrograph



Summary for Subcatchment X-4P: XDA-4 (pervious)

Runoff = 0.72 cfs @ 1.79 hrs, Volume= 0.034 af, Depth= 0.01"
 Routed to Link XDA-4 : Existing Drainage Area #4

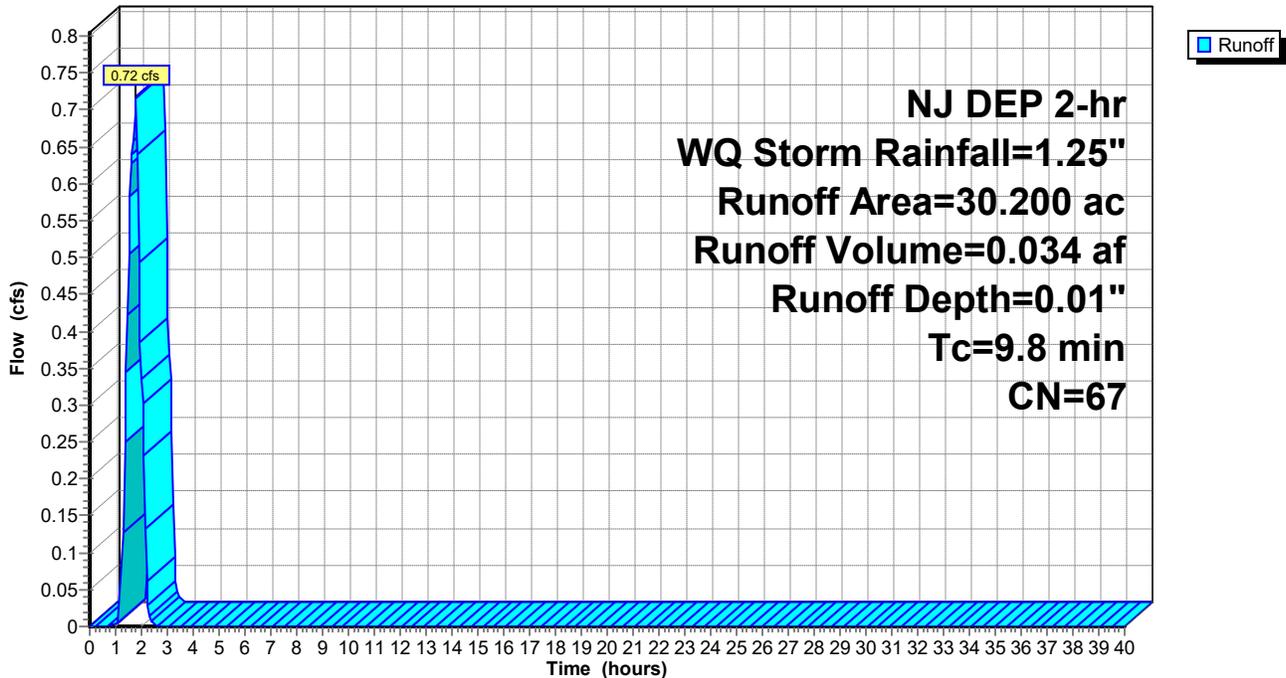
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NJ DEP 2-hr WQ Storm Rainfall=1.25"

Area (ac)	CN	Description
11.700	55	Woods, Good, HSG B
7.940	70	Woods, Good, HSG C
1.310	77	Woods, Good, HSG D
0.560	71	Row crops, C&T, Good, HSG B
8.690	78	Row crops, C&T, Good, HSG C
30.200	67	Weighted Average
30.200		100.00% Pervious Area

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

Subcatchment X-4P: XDA-4 (pervious)

Hydrograph



Summary for Subcatchment X-6S: XDA-4 (pervious)

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"
 Routed to Link XDA-4 : Existing Drainage Area #4

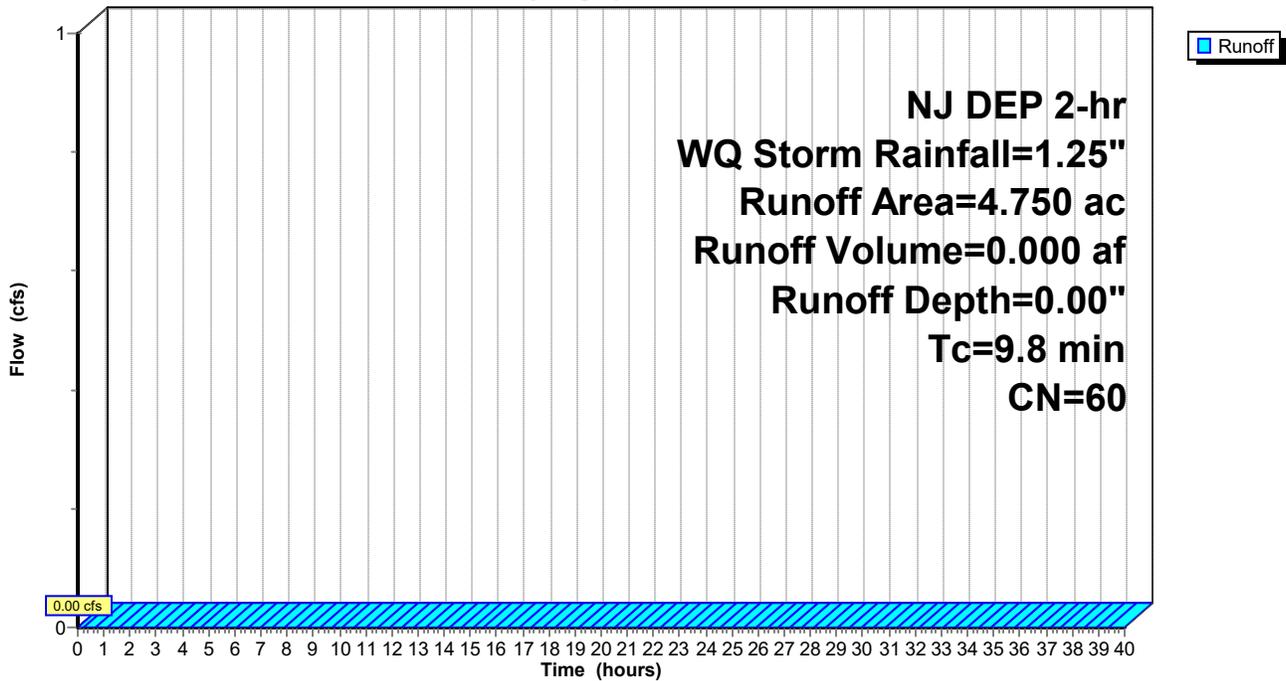
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NJ DEP 2-hr WQ Storm Rainfall=1.25"

Area (ac)	CN	Description
3.240	55	Woods, Good, HSG B
1.510	70	Woods, Good, HSG C
4.750	60	Weighted Average
4.750		100.00% Pervious Area

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

Subcatchment X-6S: XDA-4 (pervious)

Hydrograph



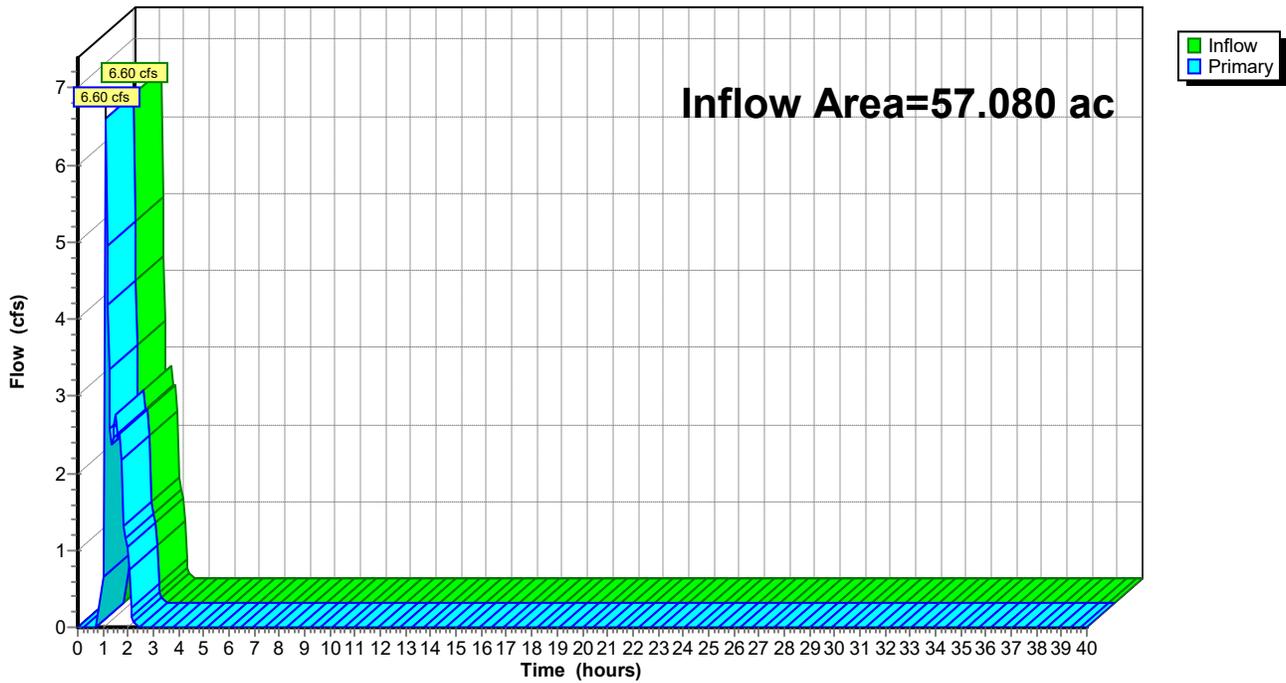
Summary for Link DP-2: Design Pont #2 (Jacobs Creek)

Inflow Area = 57.080 ac, 0.00% Impervious, Inflow Depth = 0.05" for WQ Storm event
Inflow = 6.60 cfs @ 1.11 hrs, Volume= 0.221 af
Primary = 6.60 cfs @ 1.11 hrs, Volume= 0.221 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-2: Design Pont #2 (Jacobs Creek)

Hydrograph



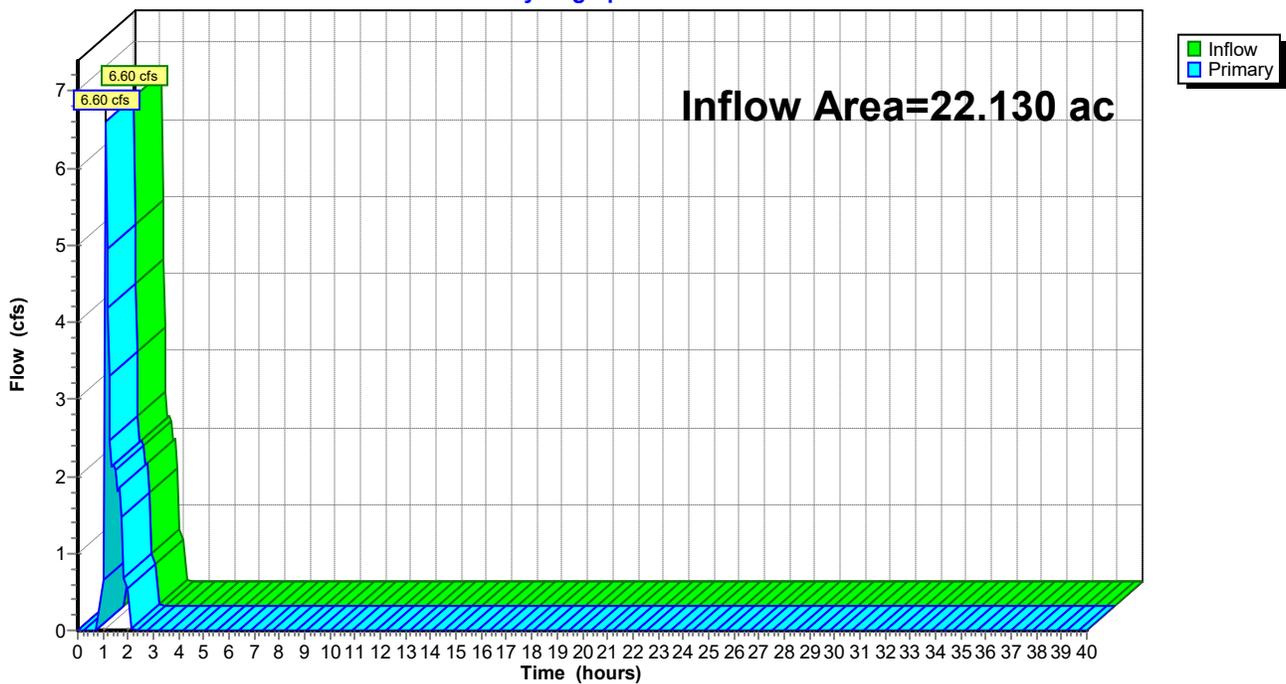
Summary for Link XDA-3: Existing Drainage Area #3

Inflow Area = 22.130 ac, 0.00% Impervious, Inflow Depth = 0.10" for WQ Storm event
Inflow = 6.60 cfs @ 1.11 hrs, Volume= 0.187 af
Primary = 6.60 cfs @ 1.11 hrs, Volume= 0.187 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-3: Existing Drainage Area #3

Hydrograph



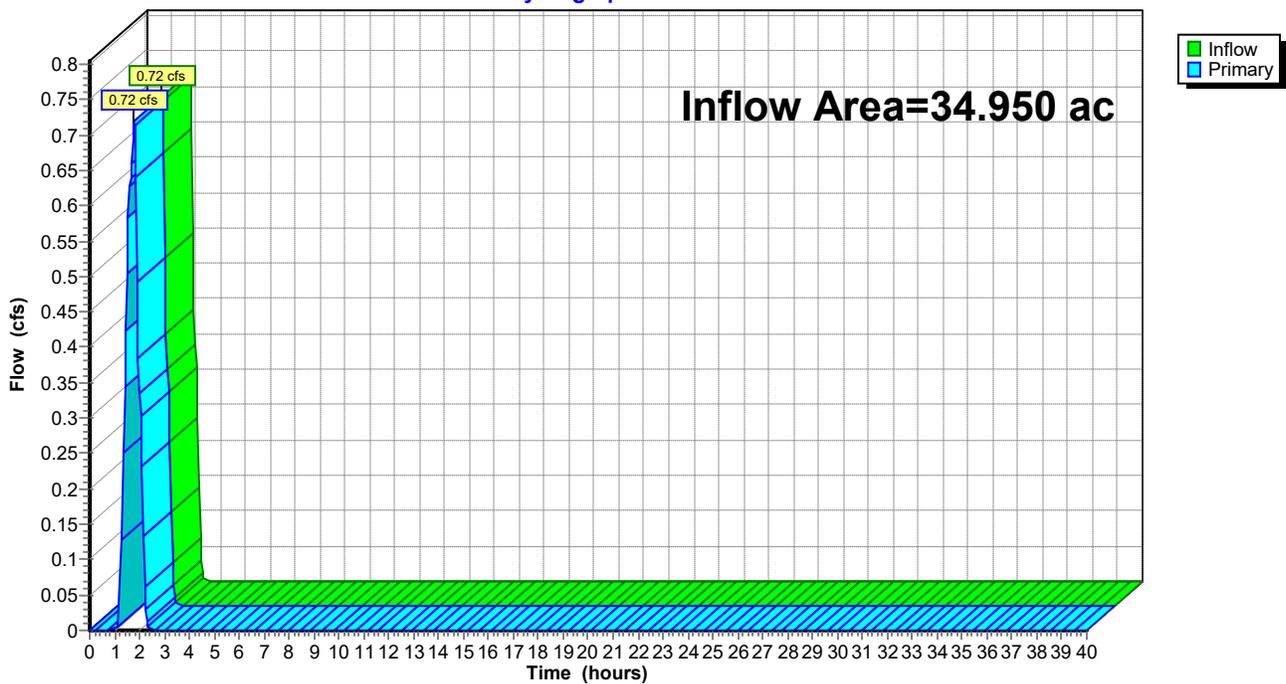
Summary for Link XDA-4: Existing Drainage Area #4

Inflow Area = 34.950 ac, 0.00% Impervious, Inflow Depth = 0.01" for WQ Storm event
Inflow = 0.72 cfs @ 1.79 hrs, Volume= 0.034 af
Primary = 0.72 cfs @ 1.79 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-4: Existing Drainage Area #4

Hydrograph



Summary for Subcatchment X-3P: XDA-3 (pervious)

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

Runoff = 40.75 cfs @ 12.09 hrs, Volume= 2.319 af, Depth= 1.26"
 Routed to Link XDA-3 : Existing Drainage Area #3

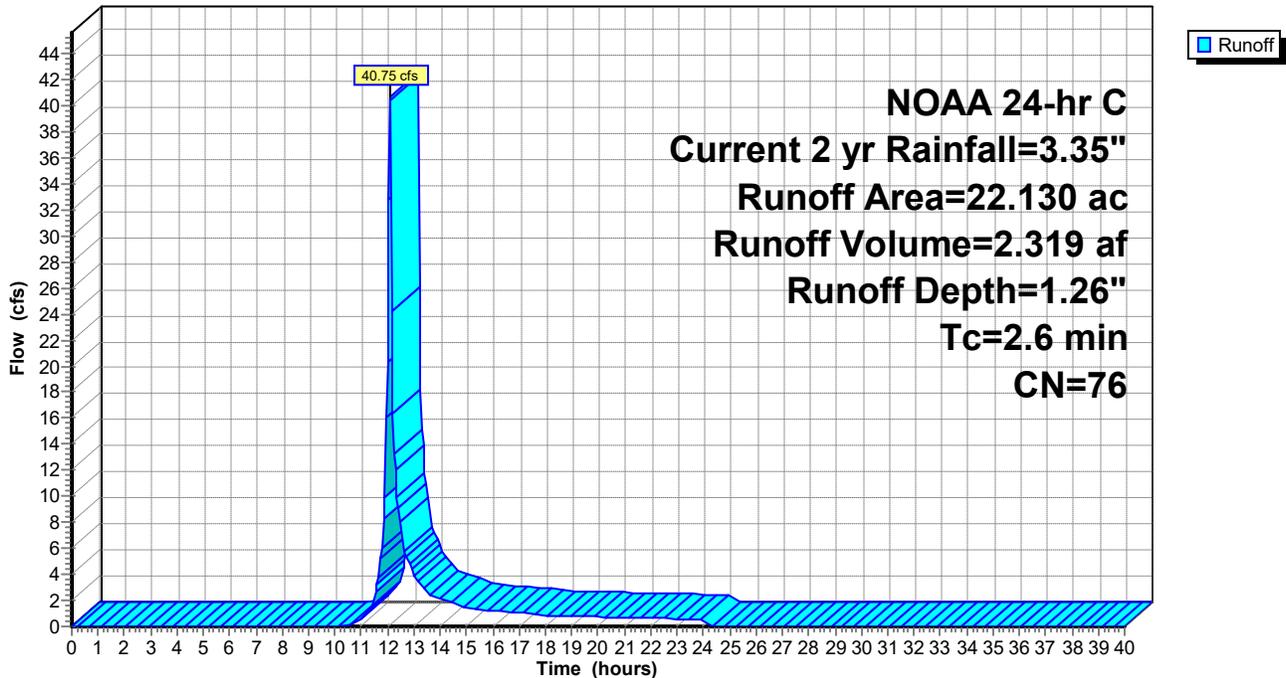
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 2 yr Rainfall=3.35"

Area (ac)	CN	Description
6.110	70	Woods, Good, HSG C
0.900	71	Row crops, C&T, Good, HSG B
15.120	78	Row crops, C&T, Good, HSG C
22.130	76	Weighted Average
22.130		100.00% Pervious Area

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

Subcatchment X-3P: XDA-3 (pervious)

Hydrograph



Summary for Subcatchment X-4P: XDA-4 (pervious)

Runoff = 23.00 cfs @ 12.19 hrs, Volume= 1.931 af, Depth= 0.77"
 Routed to Link XDA-4 : Existing Drainage Area #4

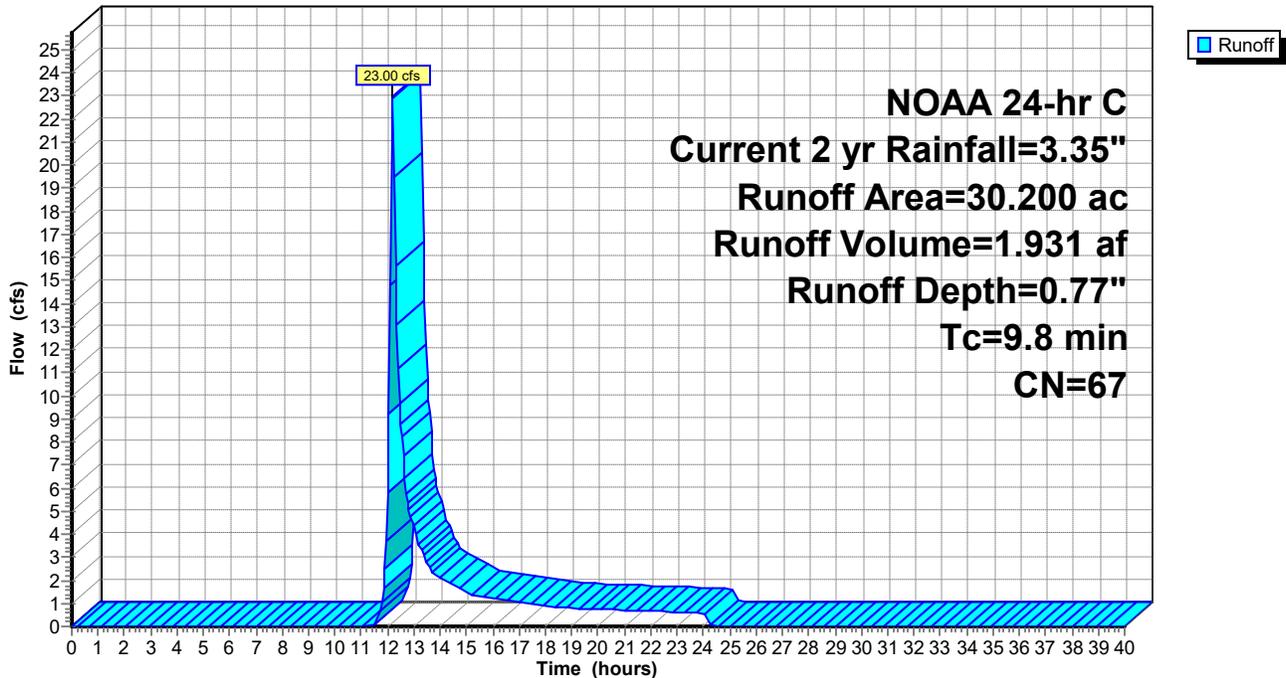
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 2 yr Rainfall=3.35"

Area (ac)	CN	Description
11.700	55	Woods, Good, HSG B
7.940	70	Woods, Good, HSG C
1.310	77	Woods, Good, HSG D
0.560	71	Row crops, C&T, Good, HSG B
8.690	78	Row crops, C&T, Good, HSG C
30.200	67	Weighted Average
30.200		100.00% Pervious Area

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

Subcatchment X-4P: XDA-4 (pervious)

Hydrograph



Summary for Subcatchment X-6S: XDA-4 (pervious)

Runoff = 1.71 cfs @ 12.21 hrs, Volume= 0.185 af, Depth= 0.47"
 Routed to Link XDA-4 : Existing Drainage Area #4

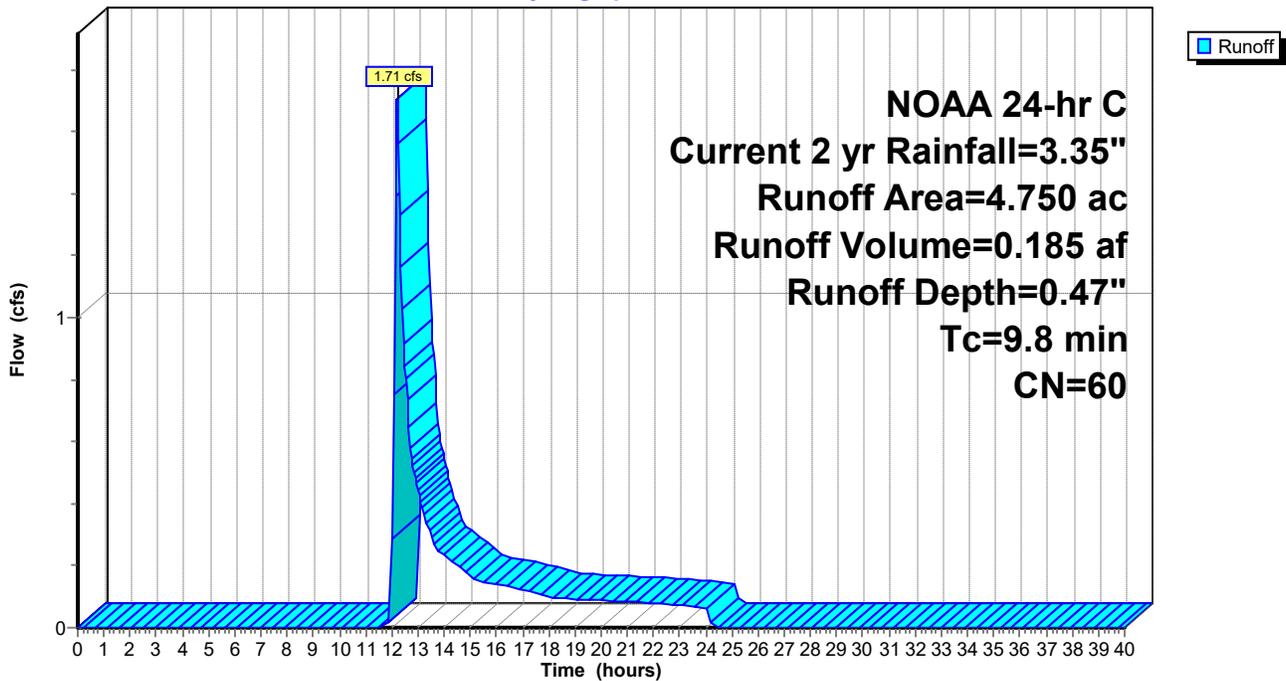
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 2 yr Rainfall=3.35"

Area (ac)	CN	Description
3.240	55	Woods, Good, HSG B
1.510	70	Woods, Good, HSG C
4.750	60	Weighted Average
4.750		100.00% Pervious Area

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

Subcatchment X-6S: XDA-4 (pervious)

Hydrograph



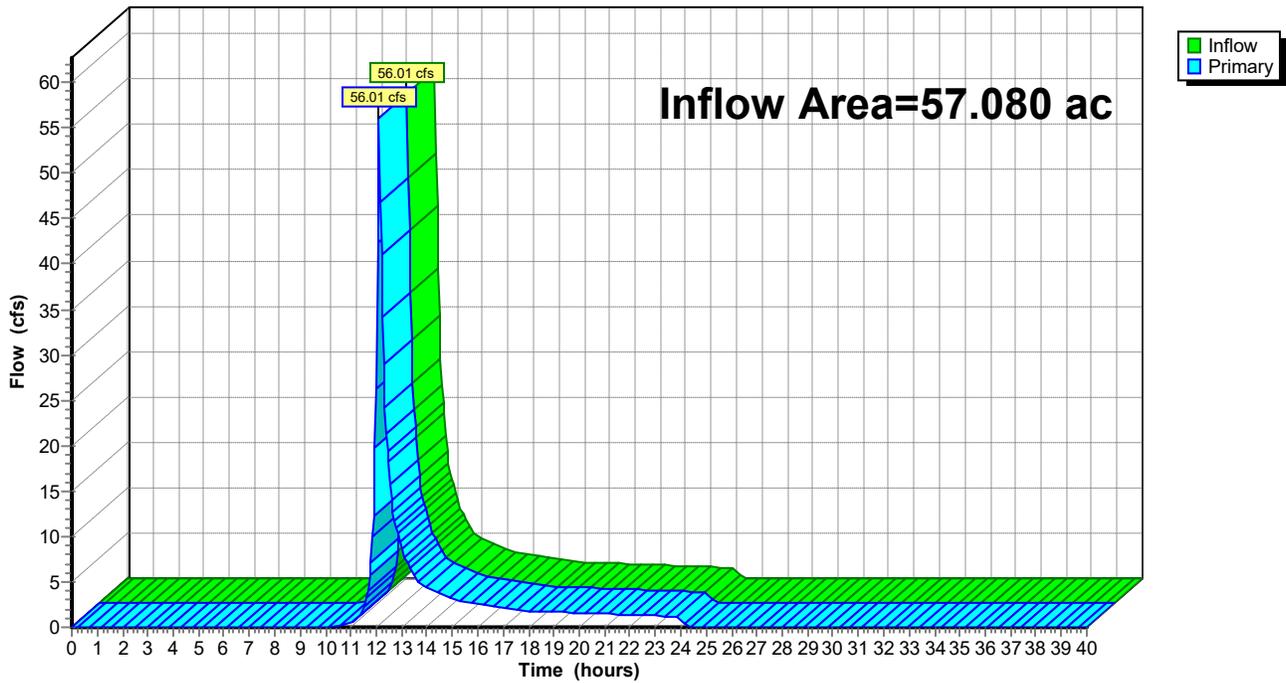
Summary for Link DP-2: Design Pont #2 (Jacobs Creek)

Inflow Area = 57.080 ac, 0.00% Impervious, Inflow Depth = 0.93" for Current 2 yr event
Inflow = 56.01 cfs @ 12.11 hrs, Volume= 4.435 af
Primary = 56.01 cfs @ 12.11 hrs, Volume= 4.435 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-2: Design Pont #2 (Jacobs Creek)

Hydrograph



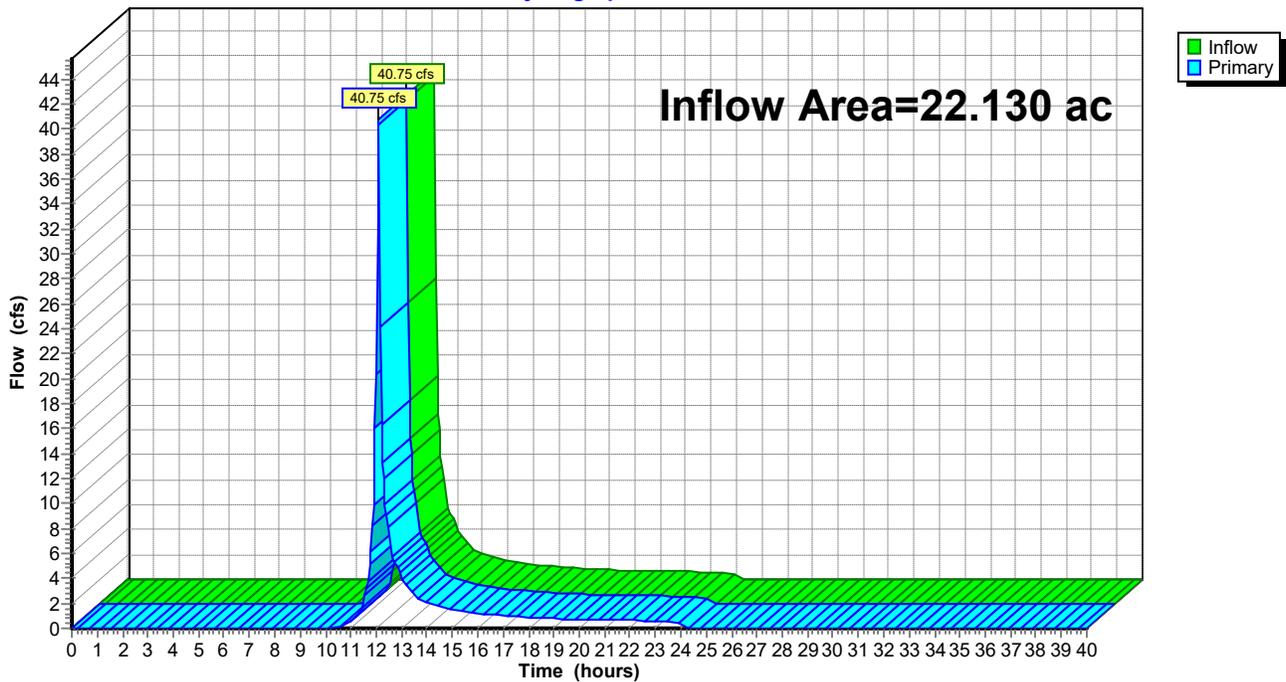
Summary for Link XDA-3: Existing Drainage Area #3

Inflow Area = 22.130 ac, 0.00% Impervious, Inflow Depth = 1.26" for Current 2 yr event
Inflow = 40.75 cfs @ 12.09 hrs, Volume= 2.319 af
Primary = 40.75 cfs @ 12.09 hrs, Volume= 2.319 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-3: Existing Drainage Area #3

Hydrograph



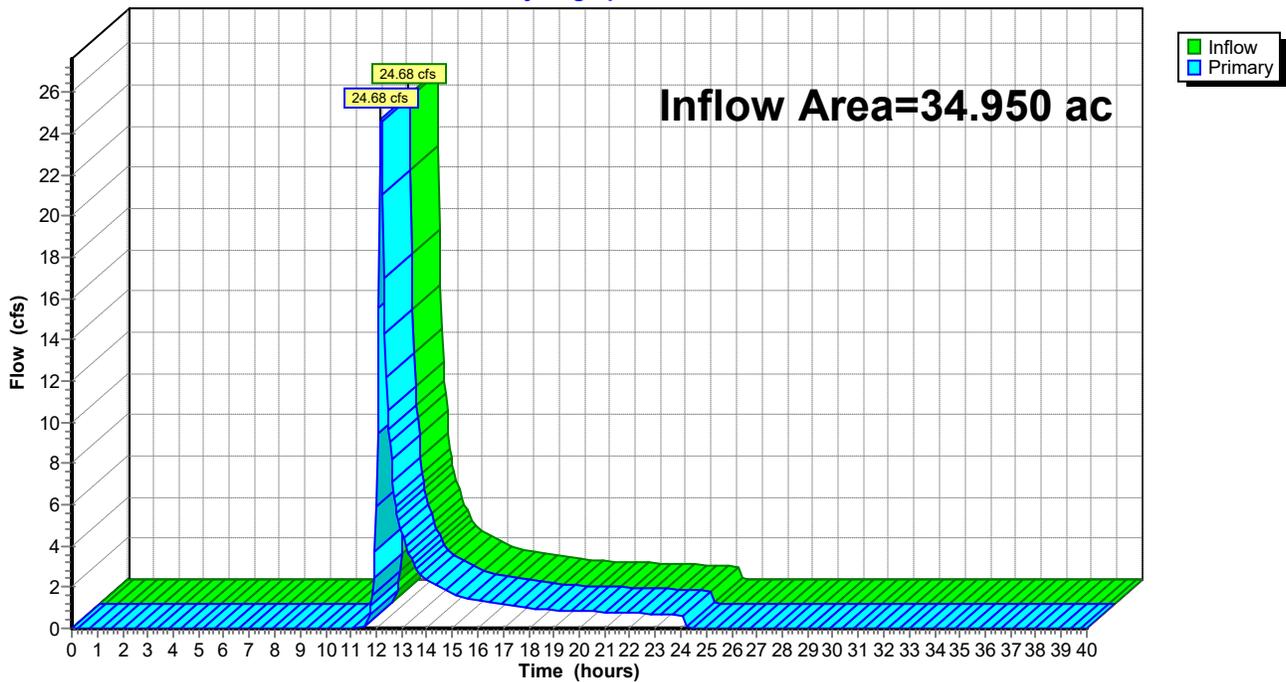
Summary for Link XDA-4: Existing Drainage Area #4

Inflow Area = 34.950 ac, 0.00% Impervious, Inflow Depth = 0.73" for Current 2 yr event
Inflow = 24.68 cfs @ 12.19 hrs, Volume= 2.116 af
Primary = 24.68 cfs @ 12.19 hrs, Volume= 2.116 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-4: Existing Drainage Area #4

Hydrograph



Summary for Subcatchment X-3P: XDA-3 (pervious)

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

Runoff = 84.98 cfs @ 12.09 hrs, Volume= 4.828 af, Depth= 2.62"
 Routed to Link XDA-3 : Existing Drainage Area #3

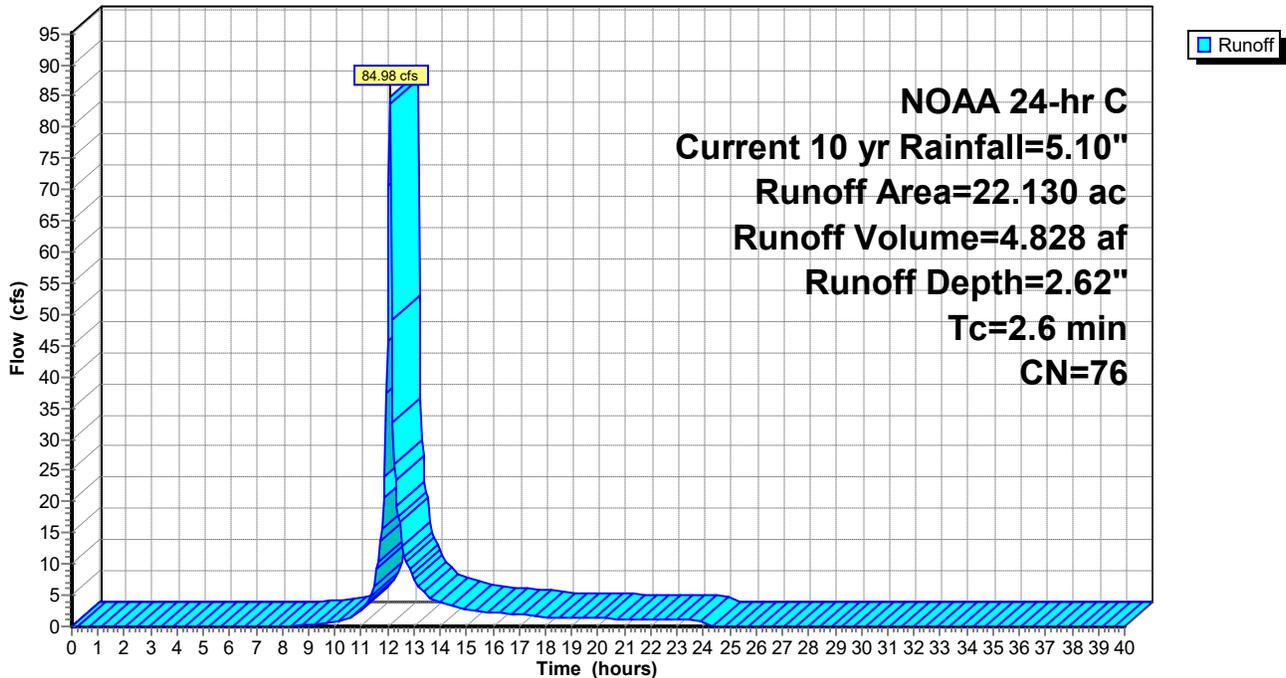
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 10 yr Rainfall=5.10"

Area (ac)	CN	Description
6.110	70	Woods, Good, HSG C
0.900	71	Row crops, C&T, Good, HSG B
15.120	78	Row crops, C&T, Good, HSG C
22.130	76	Weighted Average
22.130		100.00% Pervious Area

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

Subcatchment X-3P: XDA-3 (pervious)

Hydrograph



Summary for Subcatchment X-4P: XDA-4 (pervious)

Runoff = 61.77 cfs @ 12.18 hrs, Volume= 4.714 af, Depth= 1.87"
 Routed to Link XDA-4 : Existing Drainage Area #4

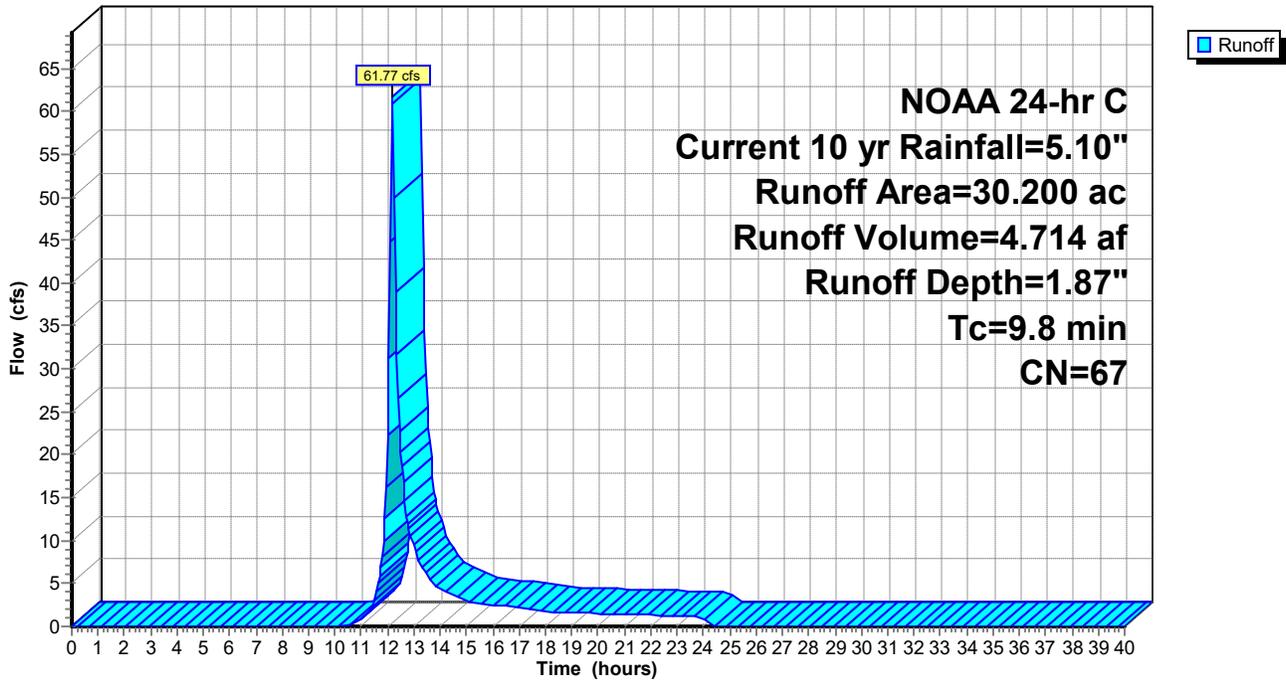
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 10 yr Rainfall=5.10"

Area (ac)	CN	Description
11.700	55	Woods, Good, HSG B
7.940	70	Woods, Good, HSG C
1.310	77	Woods, Good, HSG D
0.560	71	Row crops, C&T, Good, HSG B
8.690	78	Row crops, C&T, Good, HSG C
30.200	67	Weighted Average
30.200		100.00% Pervious Area

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

Subcatchment X-4P: XDA-4 (pervious)

Hydrograph



Summary for Subcatchment X-6S: XDA-4 (pervious)

Runoff = 6.68 cfs @ 12.19 hrs, Volume= 0.538 af, Depth= 1.36"
 Routed to Link XDA-4 : Existing Drainage Area #4

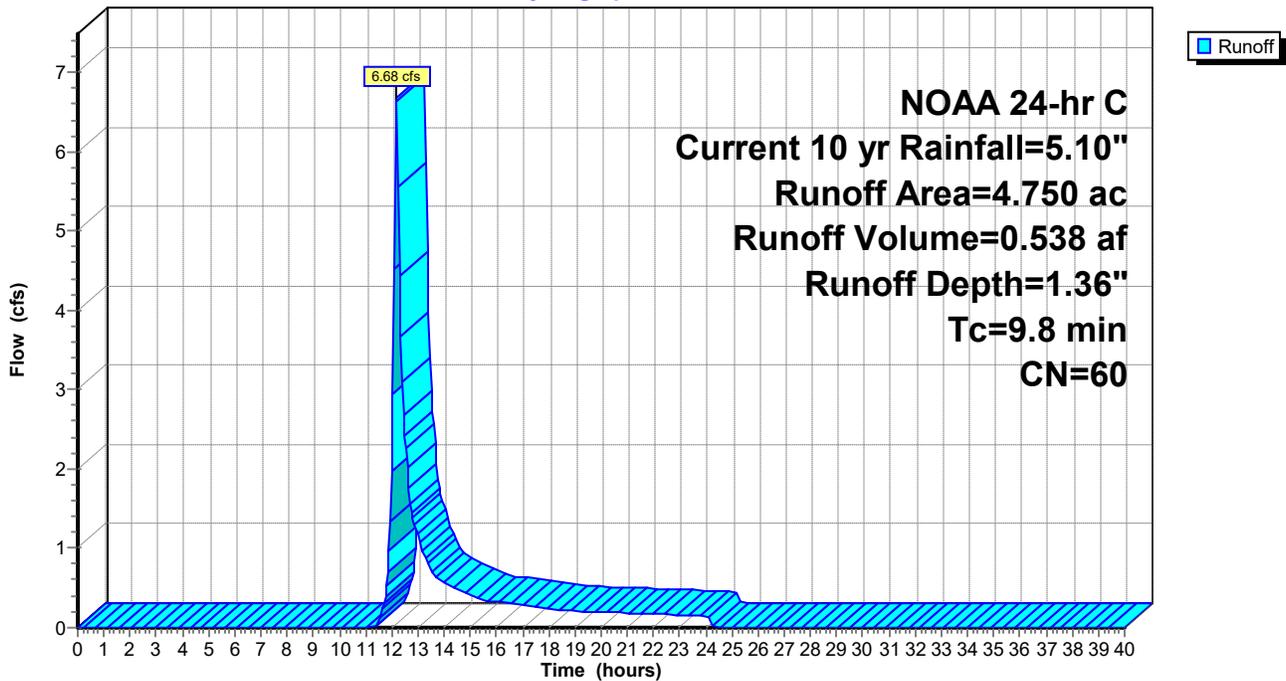
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 10 yr Rainfall=5.10"

Area (ac)	CN	Description
3.240	55	Woods, Good, HSG B
1.510	70	Woods, Good, HSG C
4.750	60	Weighted Average
4.750		100.00% Pervious Area

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

Subcatchment X-6S: XDA-4 (pervious)

Hydrograph



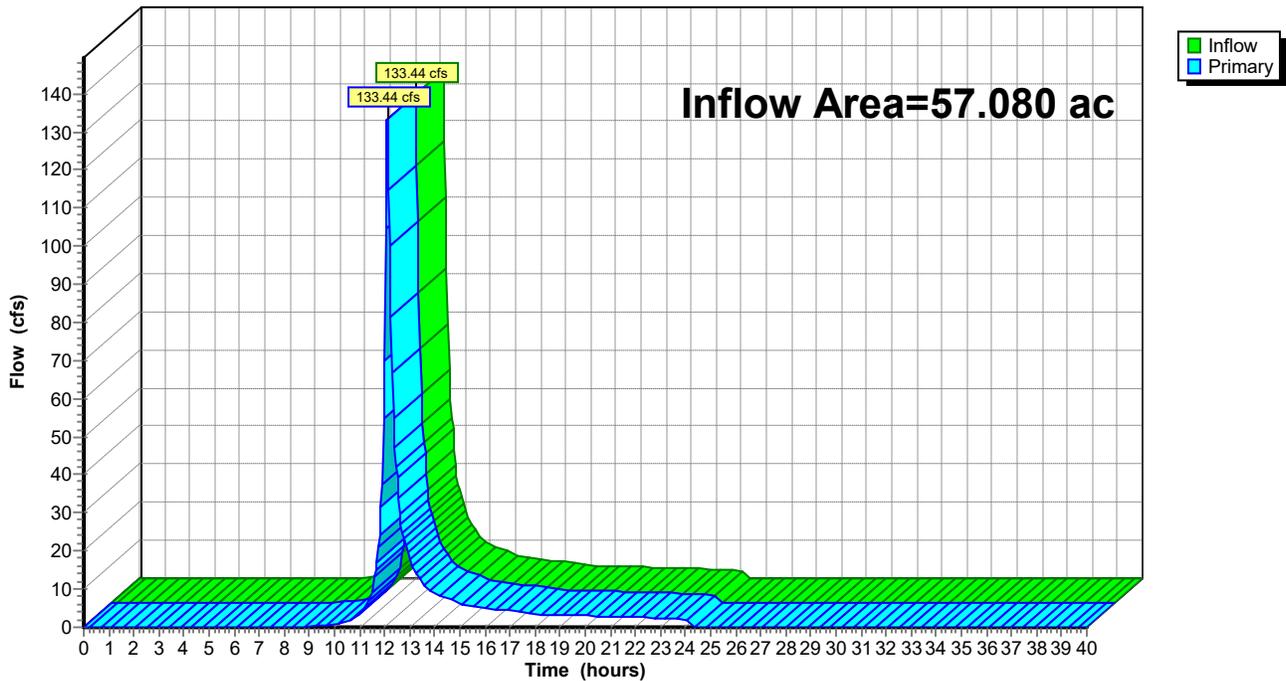
Summary for Link DP-2: Design Pont #2 (Jacobs Creek)

Inflow Area = 57.080 ac, 0.00% Impervious, Inflow Depth = 2.12" for Current 10 yr event
Inflow = 133.44 cfs @ 12.11 hrs, Volume= 10.080 af
Primary = 133.44 cfs @ 12.11 hrs, Volume= 10.080 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-2: Design Pont #2 (Jacobs Creek)

Hydrograph



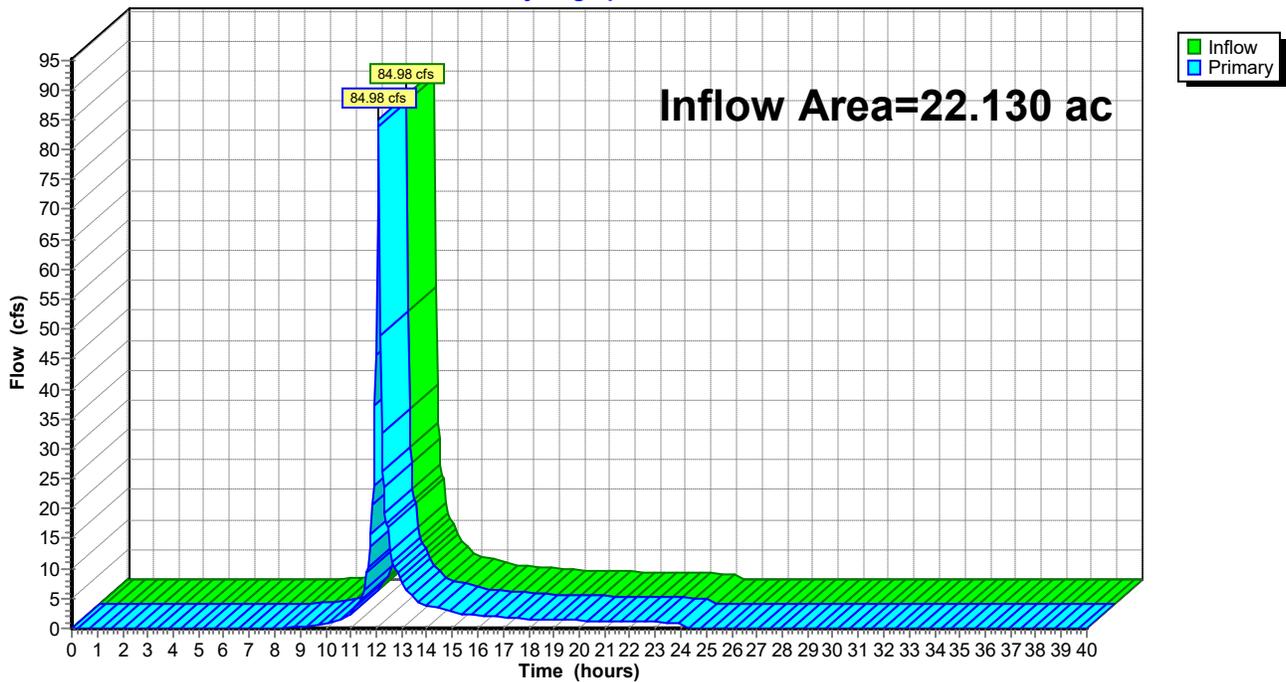
Summary for Link XDA-3: Existing Drainage Area #3

Inflow Area = 22.130 ac, 0.00% Impervious, Inflow Depth = 2.62" for Current 10 yr event
Inflow = 84.98 cfs @ 12.09 hrs, Volume= 4.828 af
Primary = 84.98 cfs @ 12.09 hrs, Volume= 4.828 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-3: Existing Drainage Area #3

Hydrograph



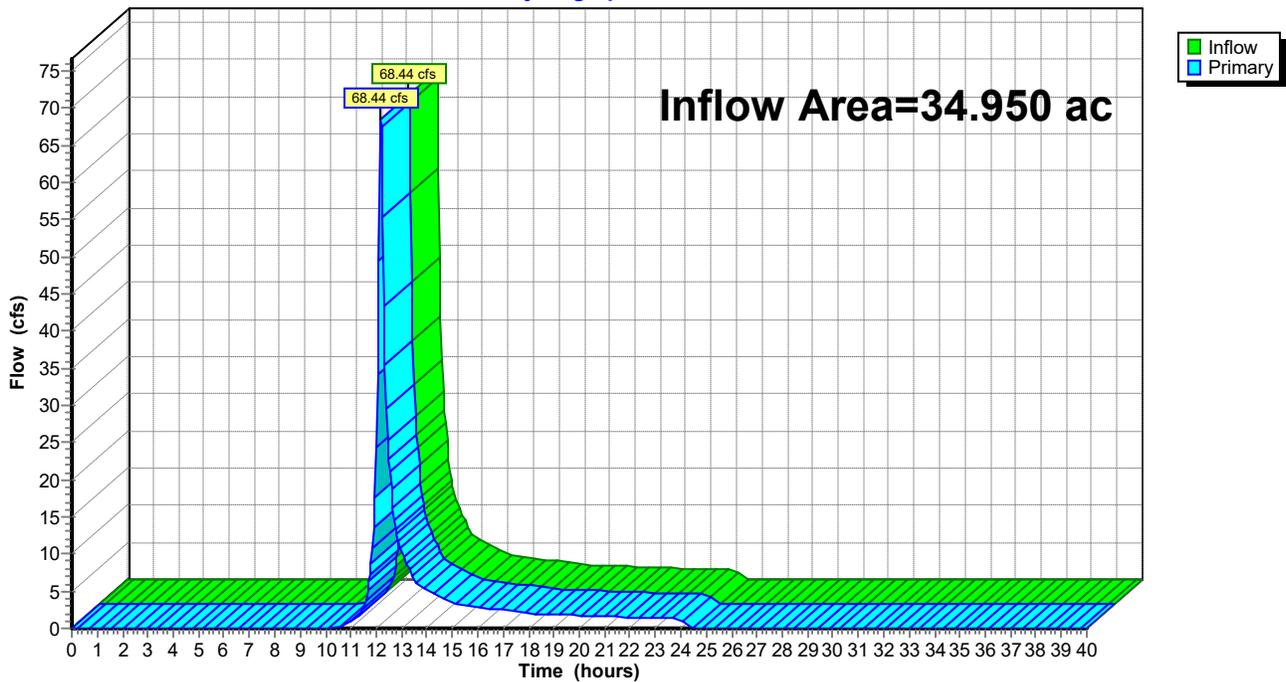
Summary for Link XDA-4: Existing Drainage Area #4

Inflow Area = 34.950 ac, 0.00% Impervious, Inflow Depth = 1.80" for Current 10 yr event
Inflow = 68.44 cfs @ 12.18 hrs, Volume= 5.252 af
Primary = 68.44 cfs @ 12.18 hrs, Volume= 5.252 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-4: Existing Drainage Area #4

Hydrograph



Summary for Subcatchment X-3P: XDA-3 (pervious)

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

Runoff = 179.87 cfs @ 12.09 hrs, Volume= 10.507 af, Depth= 5.70"
 Routed to Link XDA-3 : Existing Drainage Area #3

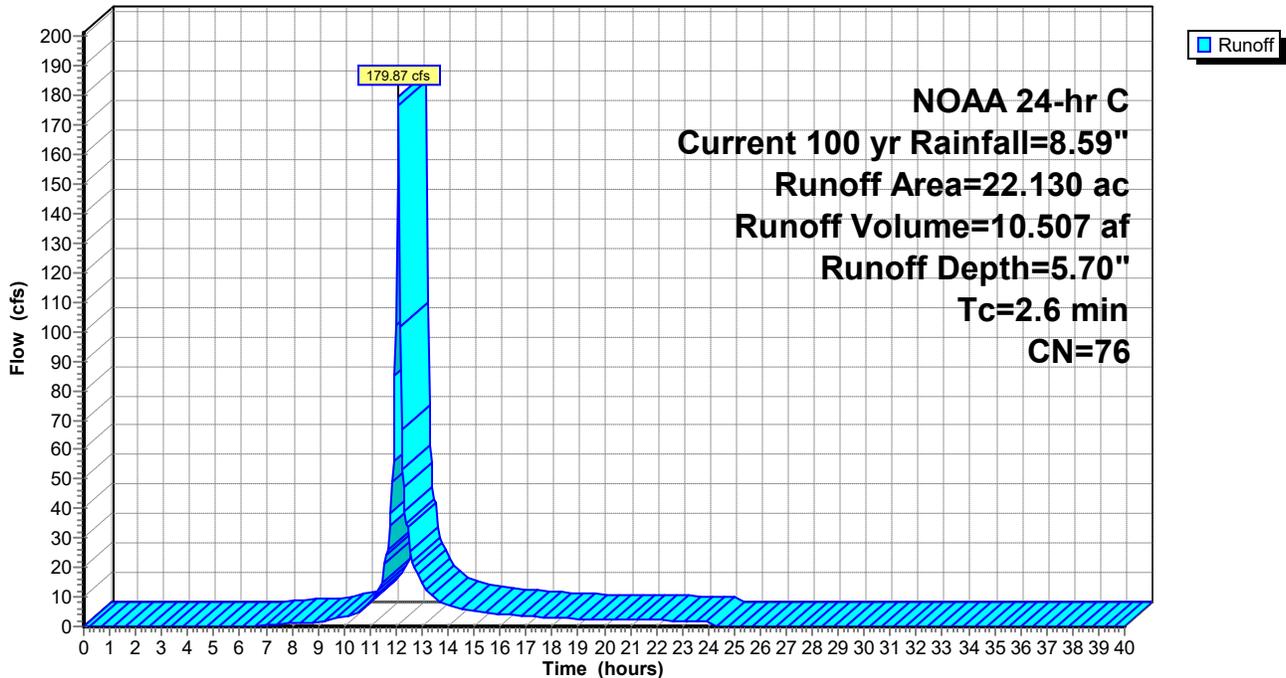
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 100 yr Rainfall=8.59"

Area (ac)	CN	Description
6.110	70	Woods, Good, HSG C
0.900	71	Row crops, C&T, Good, HSG B
15.120	78	Row crops, C&T, Good, HSG C
22.130	76	Weighted Average
22.130		100.00% Pervious Area

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

Subcatchment X-3P: XDA-3 (pervious)

Hydrograph



Summary for Subcatchment X-4P: XDA-4 (pervious)

Runoff = 155.47 cfs @ 12.17 hrs, Volume= 11.616 af, Depth= 4.62"
 Routed to Link XDA-4 : Existing Drainage Area #4

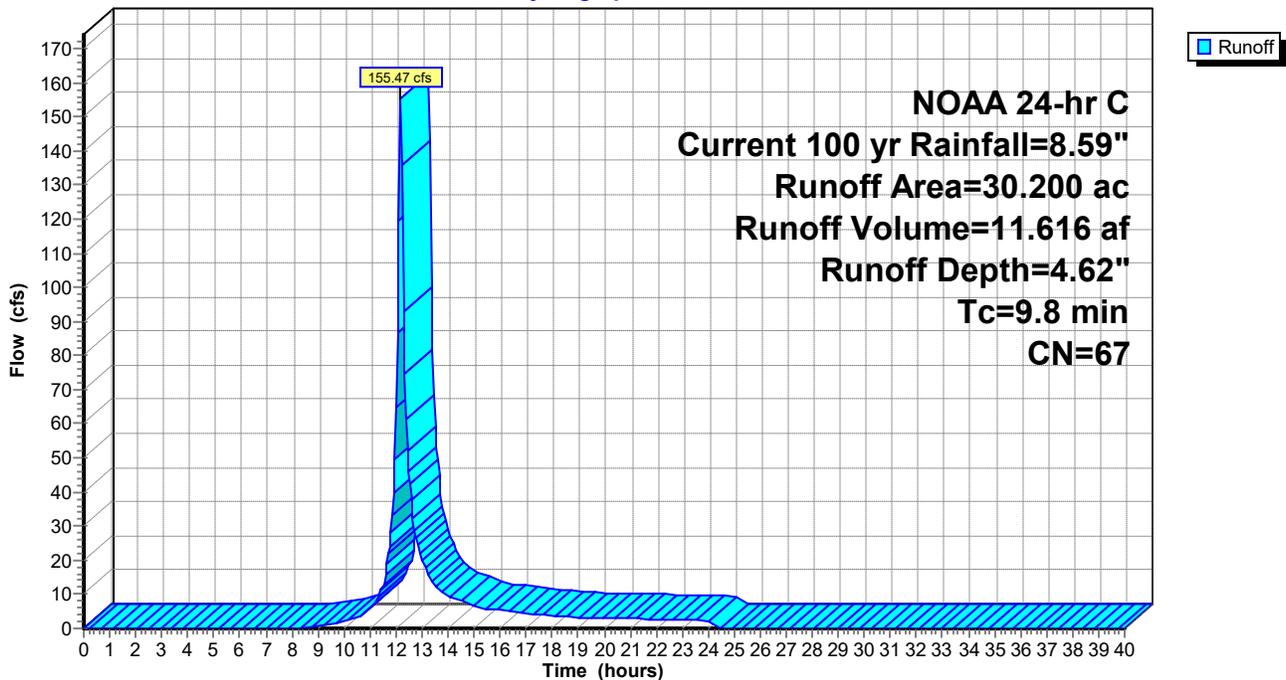
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 100 yr Rainfall=8.59"

Area (ac)	CN	Description
11.700	55	Woods, Good, HSG B
7.940	70	Woods, Good, HSG C
1.310	77	Woods, Good, HSG D
0.560	71	Row crops, C&T, Good, HSG B
8.690	78	Row crops, C&T, Good, HSG C
30.200	67	Weighted Average
30.200		100.00% Pervious Area

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

Subcatchment X-4P: XDA-4 (pervious)

Hydrograph



Summary for Subcatchment X-6S: XDA-4 (pervious)

Runoff = 19.90 cfs @ 12.18 hrs, Volume= 1.497 af, Depth= 3.78"
 Routed to Link XDA-4 : Existing Drainage Area #4

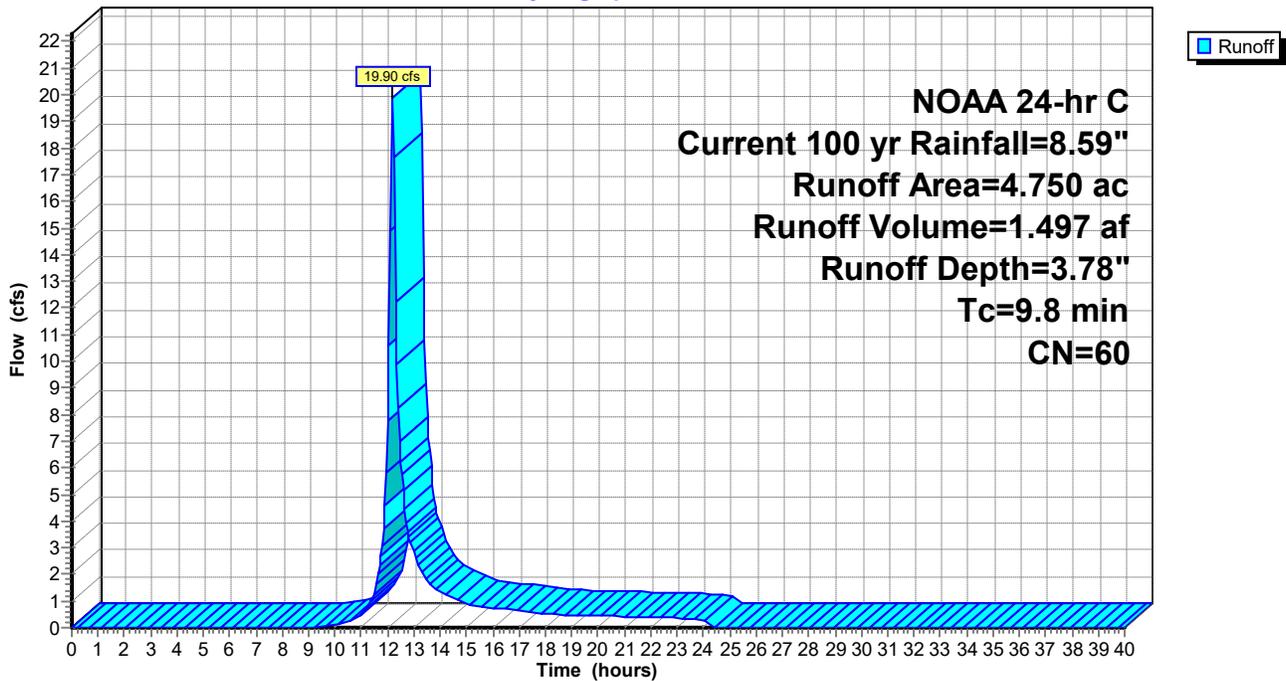
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Current 100 yr Rainfall=8.59"

Area (ac)	CN	Description
3.240	55	Woods, Good, HSG B
1.510	70	Woods, Good, HSG C
4.750	60	Weighted Average
4.750		100.00% Pervious Area

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

Subcatchment X-6S: XDA-4 (pervious)

Hydrograph



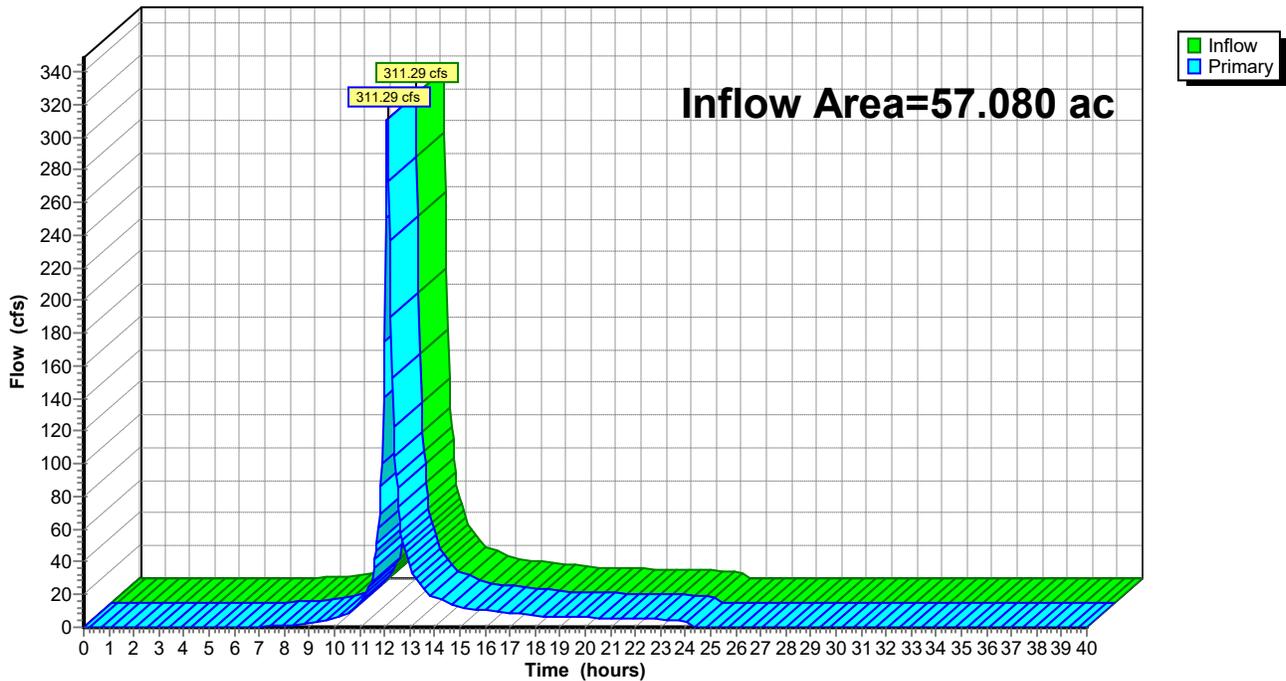
Summary for Link DP-2: Design Pont #2 (Jacobs Creek)

Inflow Area = 57.080 ac, 0.00% Impervious, Inflow Depth = 4.97" for Current 100 yr event
Inflow = 311.29 cfs @ 12.11 hrs, Volume= 23.620 af
Primary = 311.29 cfs @ 12.11 hrs, Volume= 23.620 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-2: Design Pont #2 (Jacobs Creek)

Hydrograph



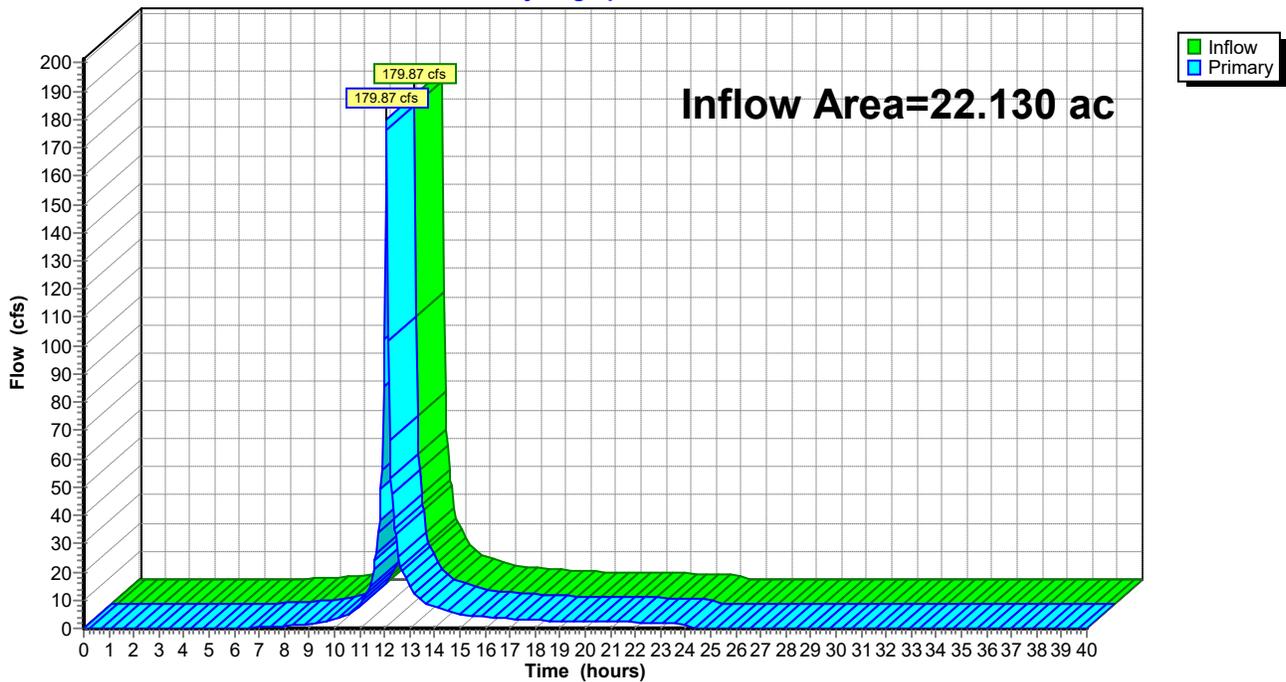
Summary for Link XDA-3: Existing Drainage Area #3

Inflow Area = 22.130 ac, 0.00% Impervious, Inflow Depth = 5.70" for Current 100 yr event
Inflow = 179.87 cfs @ 12.09 hrs, Volume= 10.507 af
Primary = 179.87 cfs @ 12.09 hrs, Volume= 10.507 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-3: Existing Drainage Area #3

Hydrograph

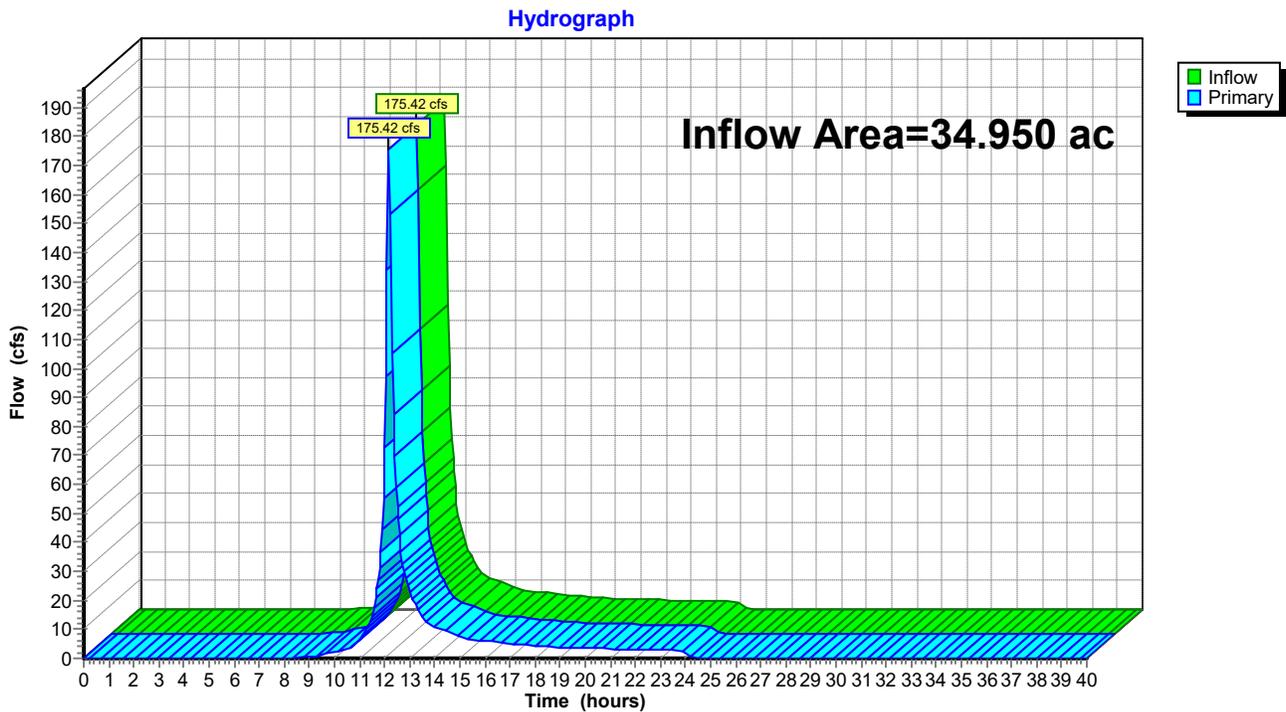


Summary for Link XDA-4: Existing Drainage Area #4

Inflow Area = 34.950 ac, 0.00% Impervious, Inflow Depth = 4.50" for Current 100 yr event
Inflow = 175.42 cfs @ 12.17 hrs, Volume= 13.113 af
Primary = 175.42 cfs @ 12.17 hrs, Volume= 13.113 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-4: Existing Drainage Area #4



Summary for Subcatchment X-3P: XDA-3 (pervious)

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

Runoff = 52.87 cfs @ 12.09 hrs, Volume= 2.996 af, Depth= 1.62"
 Routed to Link XDA-3 : Existing Drainage Area #3

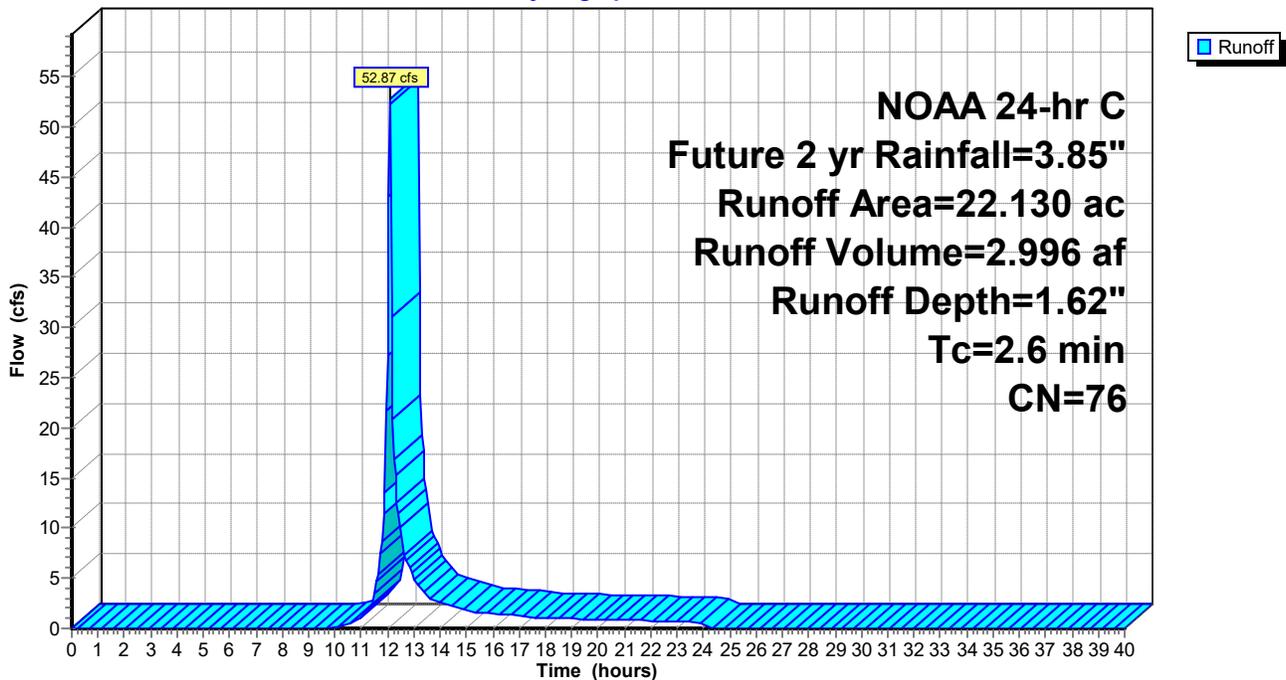
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 2 yr Rainfall=3.85"

Area (ac)	CN	Description
6.110	70	Woods, Good, HSG C
0.900	71	Row crops, C&T, Good, HSG B
15.120	78	Row crops, C&T, Good, HSG C
22.130	76	Weighted Average
22.130		100.00% Pervious Area

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

Subcatchment X-3P: XDA-3 (pervious)

Hydrograph



Summary for Subcatchment X-4P: XDA-4 (pervious)

Runoff = 33.12 cfs @ 12.19 hrs, Volume= 2.652 af, Depth= 1.05"
 Routed to Link XDA-4 : Existing Drainage Area #4

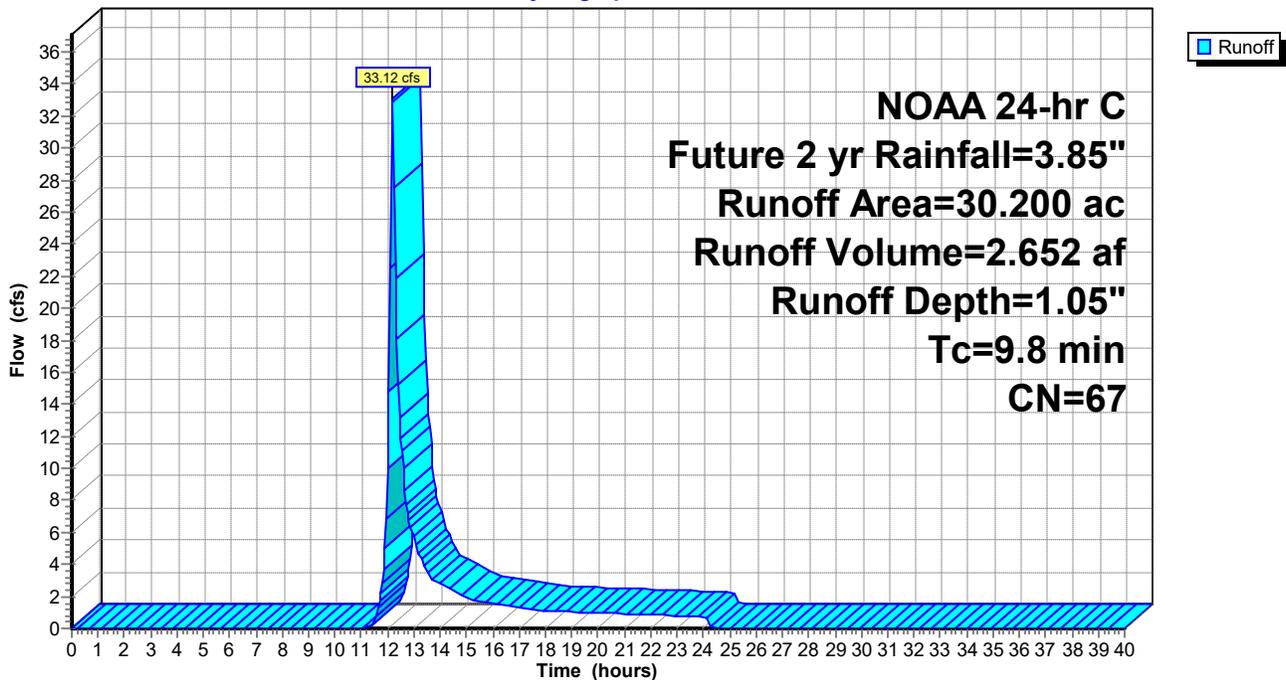
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 2 yr Rainfall=3.85"

Area (ac)	CN	Description
11.700	55	Woods, Good, HSG B
7.940	70	Woods, Good, HSG C
1.310	77	Woods, Good, HSG D
0.560	71	Row crops, C&T, Good, HSG B
8.690	78	Row crops, C&T, Good, HSG C
30.200	67	Weighted Average
30.200		100.00% Pervious Area

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

Subcatchment X-4P: XDA-4 (pervious)

Hydrograph



Summary for Subcatchment X-6S: XDA-4 (pervious)

Runoff = 2.95 cfs @ 12.20 hrs, Volume= 0.273 af, Depth= 0.69"
 Routed to Link XDA-4 : Existing Drainage Area #4

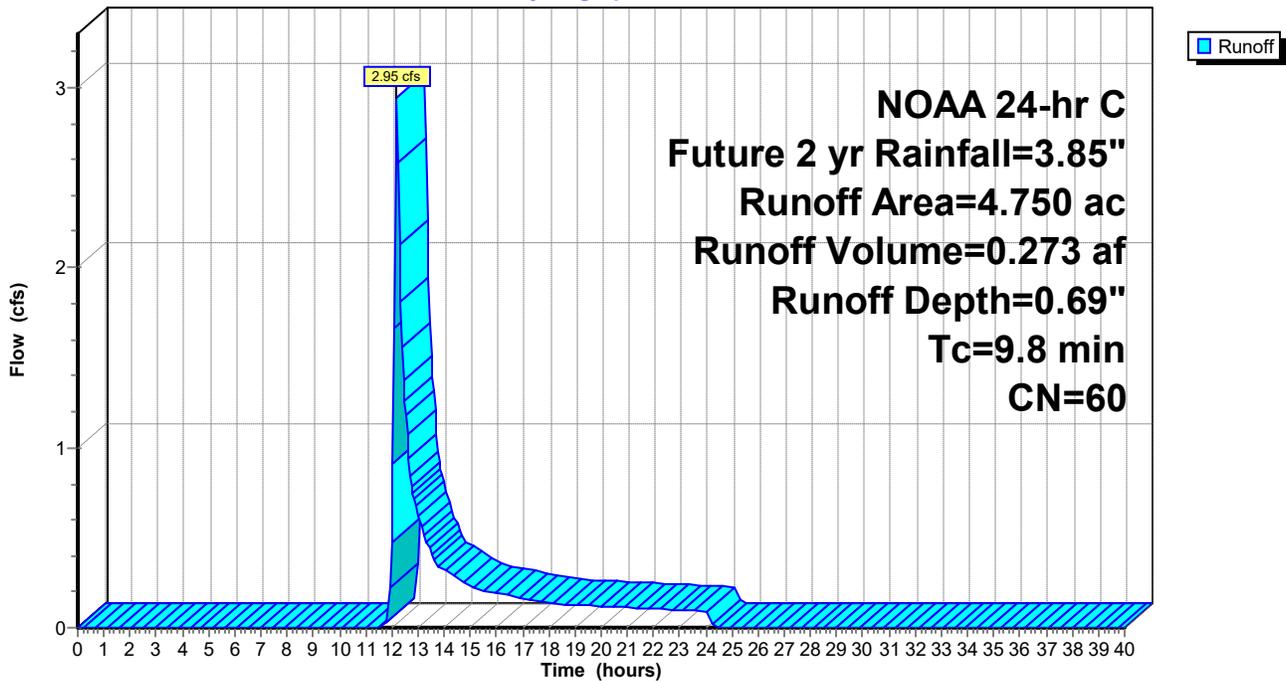
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 2 yr Rainfall=3.85"

Area (ac)	CN	Description
3.240	55	Woods, Good, HSG B
1.510	70	Woods, Good, HSG C
4.750	60	Weighted Average
4.750		100.00% Pervious Area

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

Subcatchment X-6S: XDA-4 (pervious)

Hydrograph



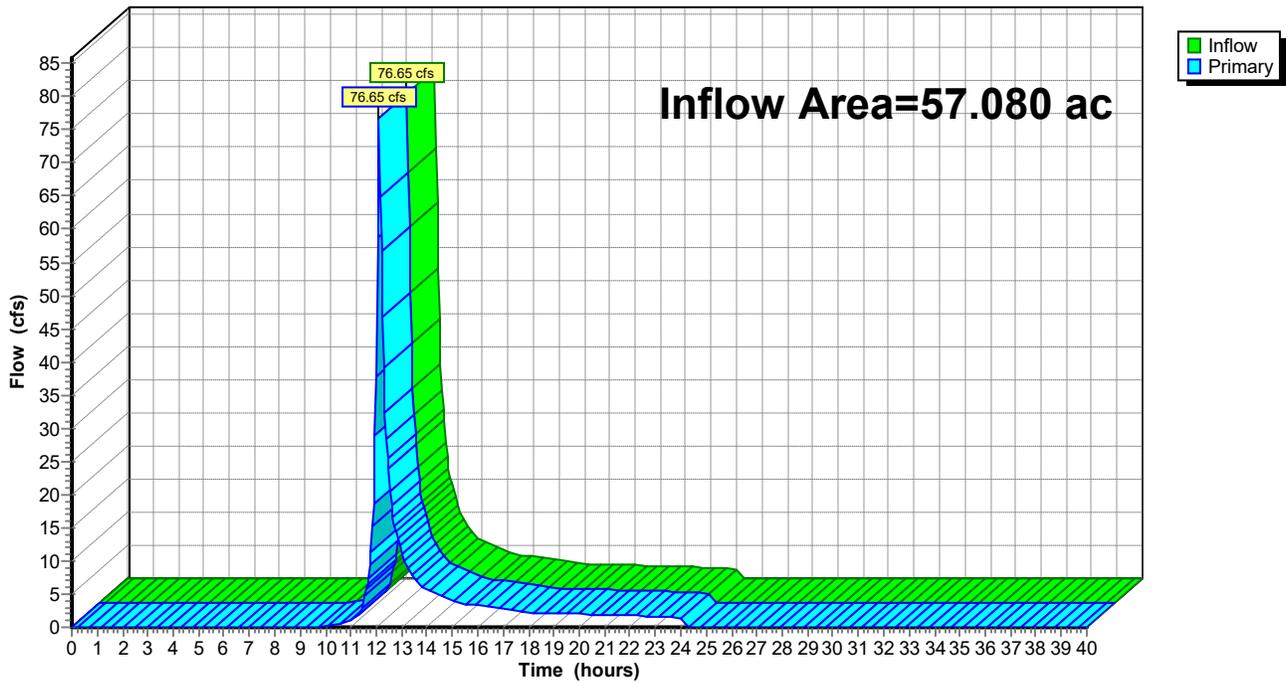
Summary for Link DP-2: Design Pont #2 (Jacobs Creek)

Inflow Area = 57.080 ac, 0.00% Impervious, Inflow Depth = 1.24" for Future 2 yr event
Inflow = 76.65 cfs @ 12.11 hrs, Volume= 5.920 af
Primary = 76.65 cfs @ 12.11 hrs, Volume= 5.920 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-2: Design Pont #2 (Jacobs Creek)

Hydrograph



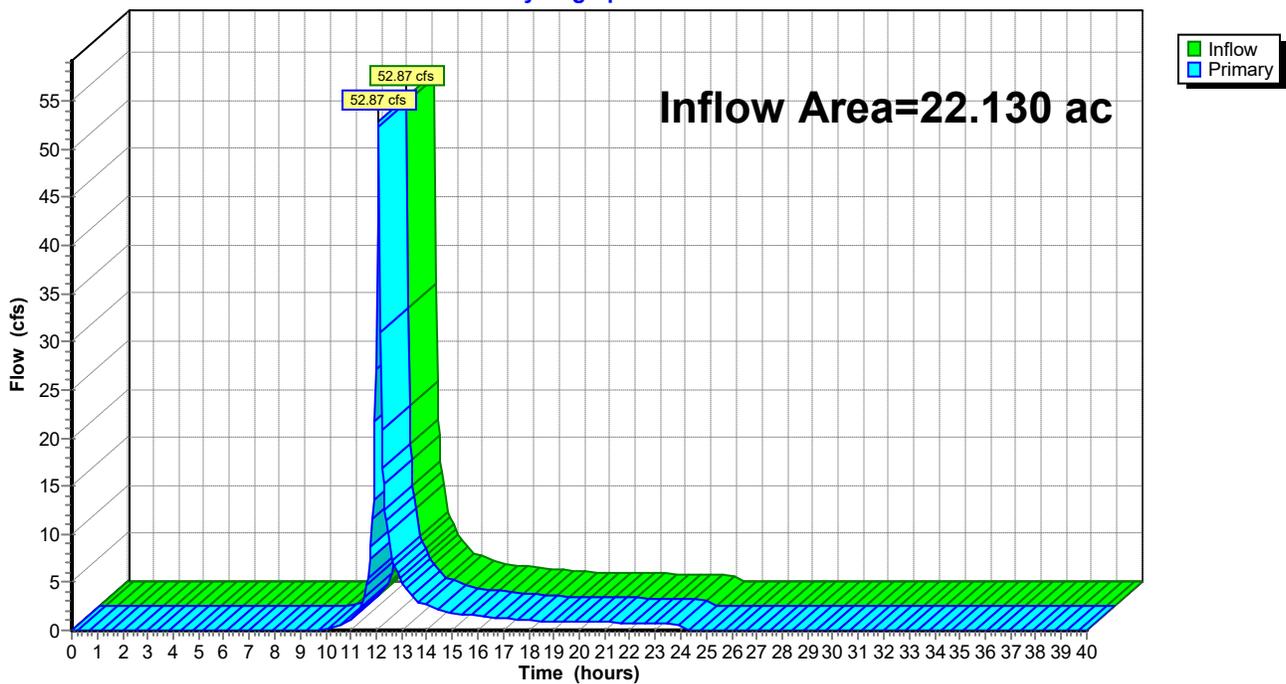
Summary for Link XDA-3: Existing Drainage Area #3

Inflow Area = 22.130 ac, 0.00% Impervious, Inflow Depth = 1.62" for Future 2 yr event
Inflow = 52.87 cfs @ 12.09 hrs, Volume= 2.996 af
Primary = 52.87 cfs @ 12.09 hrs, Volume= 2.996 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-3: Existing Drainage Area #3

Hydrograph



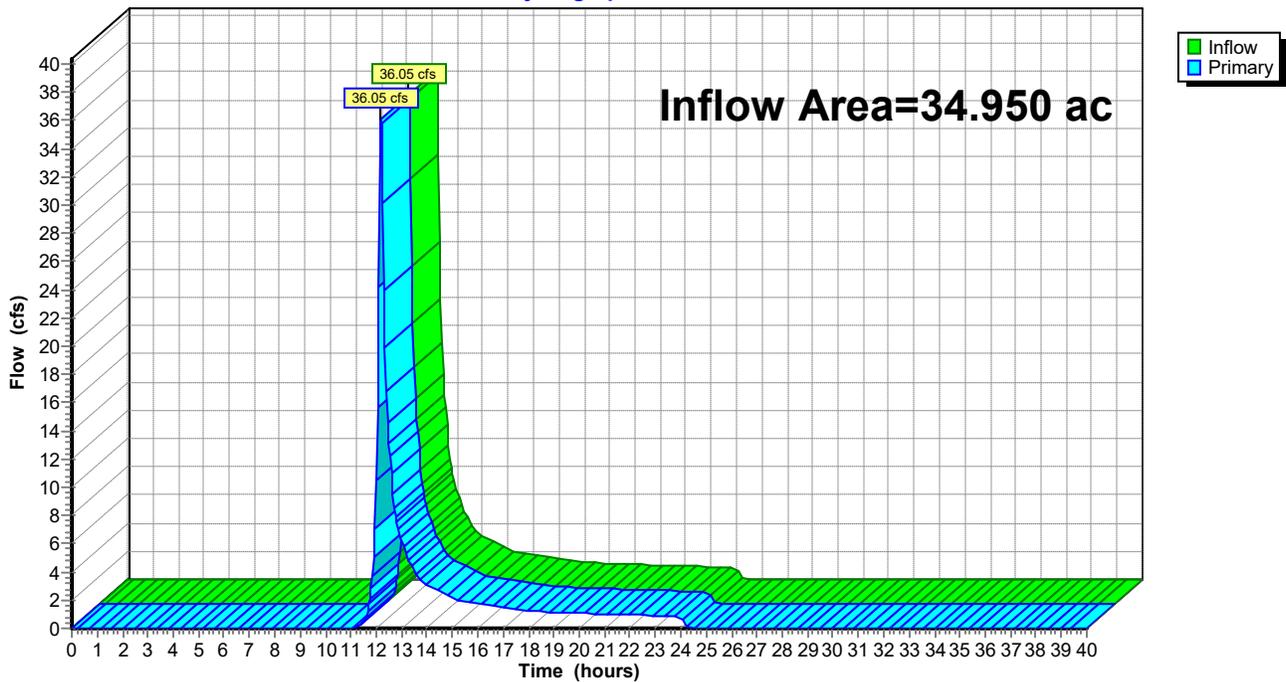
Summary for Link XDA-4: Existing Drainage Area #4

Inflow Area = 34.950 ac, 0.00% Impervious, Inflow Depth = 1.00" for Future 2 yr event
Inflow = 36.05 cfs @ 12.19 hrs, Volume= 2.925 af
Primary = 36.05 cfs @ 12.19 hrs, Volume= 2.925 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-4: Existing Drainage Area #4

Hydrograph



Summary for Subcatchment X-3P: XDA-3 (pervious)

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

Runoff = 104.98 cfs @ 12.09 hrs, Volume= 5.995 af, Depth= 3.25"
 Routed to Link XDA-3 : Existing Drainage Area #3

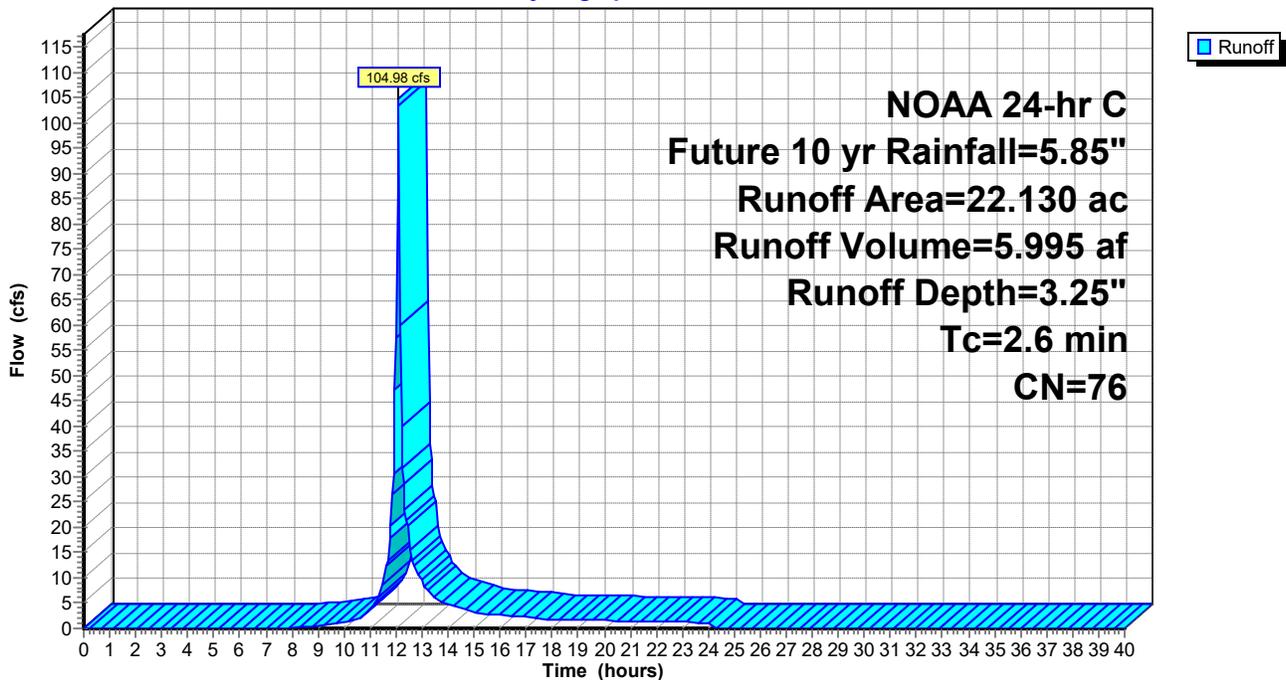
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 10 yr Rainfall=5.85"

Area (ac)	CN	Description
6.110	70	Woods, Good, HSG C
0.900	71	Row crops, C&T, Good, HSG B
15.120	78	Row crops, C&T, Good, HSG C
22.130	76	Weighted Average
22.130		100.00% Pervious Area

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

Subcatchment X-3P: XDA-3 (pervious)

Hydrograph



Summary for Subcatchment X-4P: XDA-4 (pervious)

Runoff = 80.57 cfs @ 12.18 hrs, Volume= 6.084 af, Depth= 2.42"
 Routed to Link XDA-4 : Existing Drainage Area #4

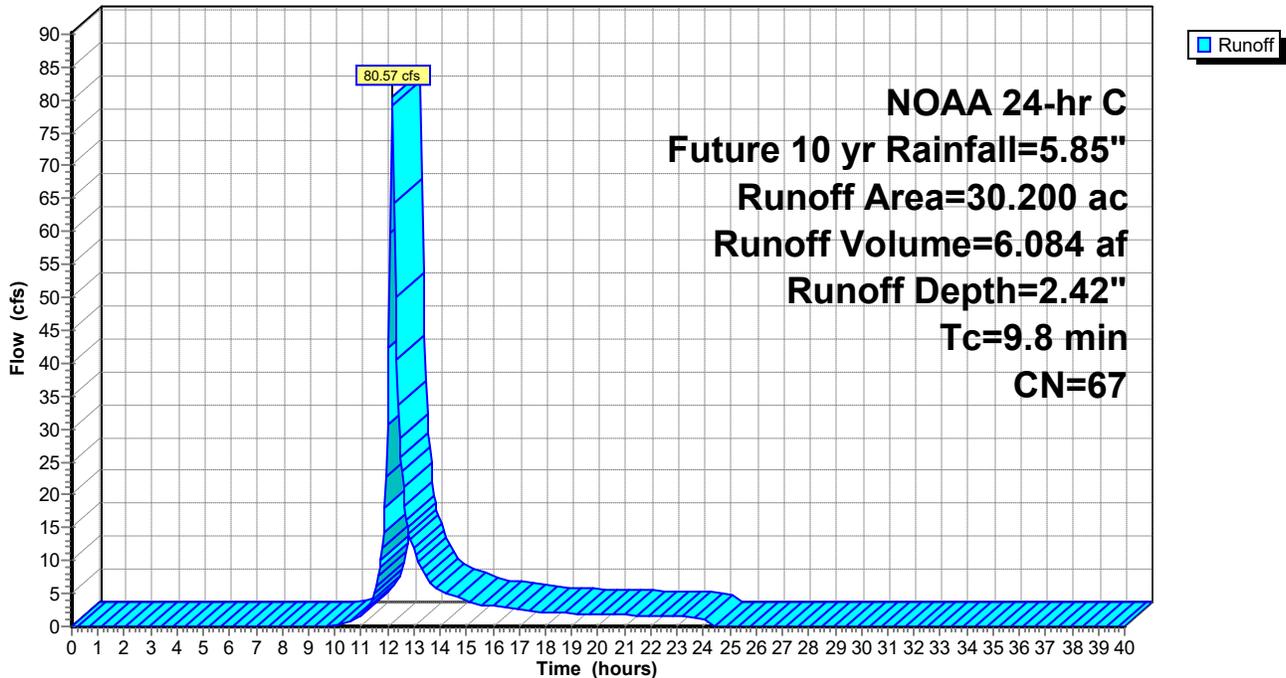
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 10 yr Rainfall=5.85"

Area (ac)	CN	Description
11.700	55	Woods, Good, HSG B
7.940	70	Woods, Good, HSG C
1.310	77	Woods, Good, HSG D
0.560	71	Row crops, C&T, Good, HSG B
8.690	78	Row crops, C&T, Good, HSG C
30.200	67	Weighted Average
30.200		100.00% Pervious Area

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

Subcatchment X-4P: XDA-4 (pervious)

Hydrograph



Summary for Subcatchment X-6S: XDA-4 (pervious)

Runoff = 9.25 cfs @ 12.18 hrs, Volume= 0.722 af, Depth= 1.82"
 Routed to Link XDA-4 : Existing Drainage Area #4

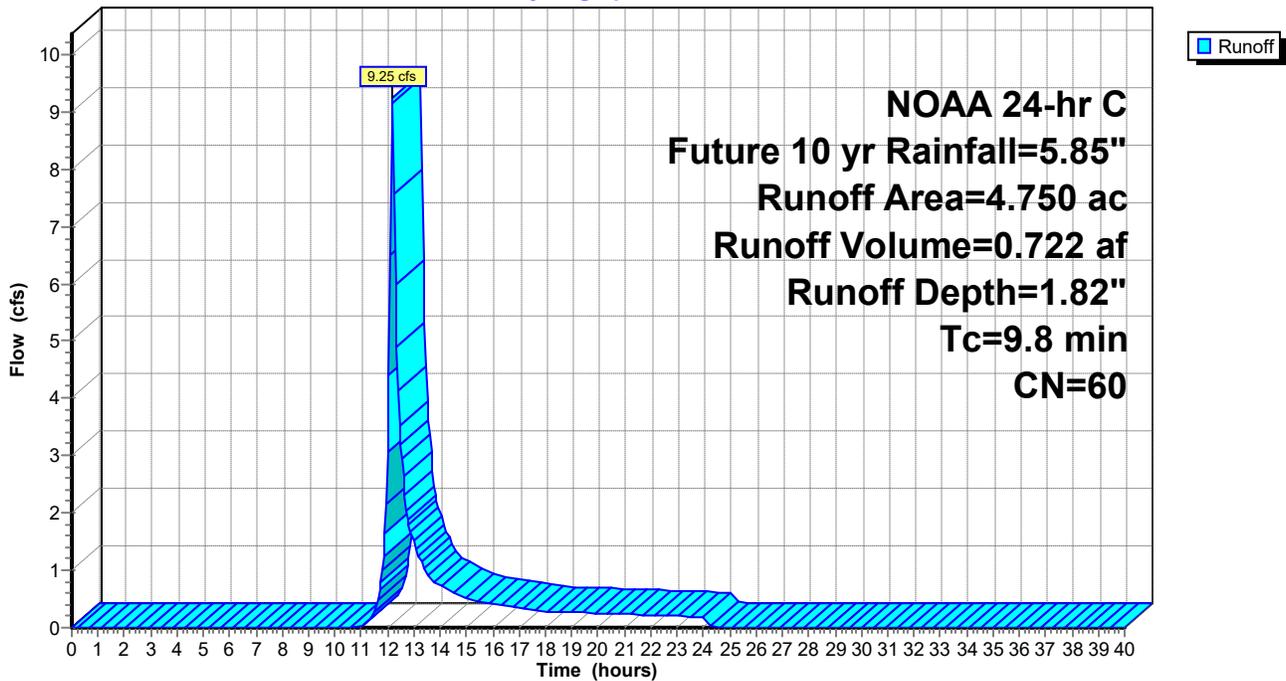
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 10 yr Rainfall=5.85"

Area (ac)	CN	Description
3.240	55	Woods, Good, HSG B
1.510	70	Woods, Good, HSG C
4.750	60	Weighted Average
4.750		100.00% Pervious Area

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

Subcatchment X-6S: XDA-4 (pervious)

Hydrograph



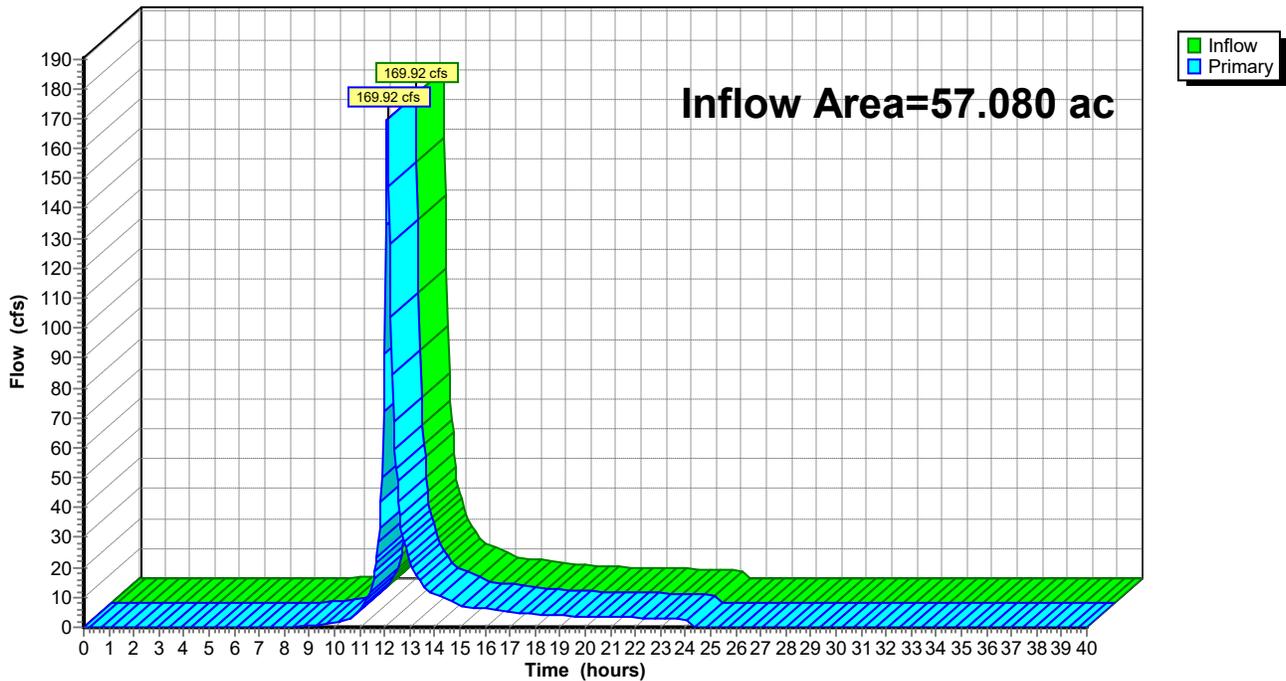
Summary for Link DP-2: Design Pont #2 (Jacobs Creek)

Inflow Area = 57.080 ac, 0.00% Impervious, Inflow Depth = 2.69" for Future 10 yr event
Inflow = 169.92 cfs @ 12.11 hrs, Volume= 12.801 af
Primary = 169.92 cfs @ 12.11 hrs, Volume= 12.801 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-2: Design Pont #2 (Jacobs Creek)

Hydrograph

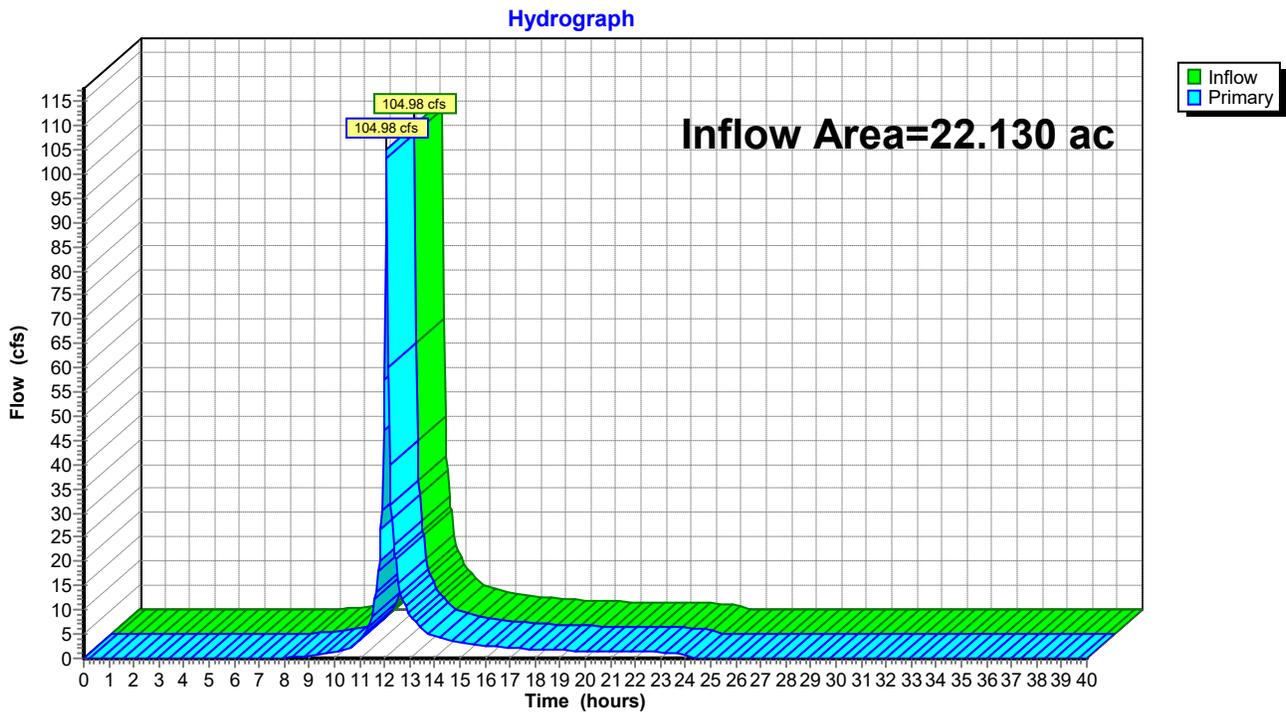


Summary for Link XDA-3: Existing Drainage Area #3

Inflow Area = 22.130 ac, 0.00% Impervious, Inflow Depth = 3.25" for Future 10 yr event
Inflow = 104.98 cfs @ 12.09 hrs, Volume= 5.995 af
Primary = 104.98 cfs @ 12.09 hrs, Volume= 5.995 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-3: Existing Drainage Area #3

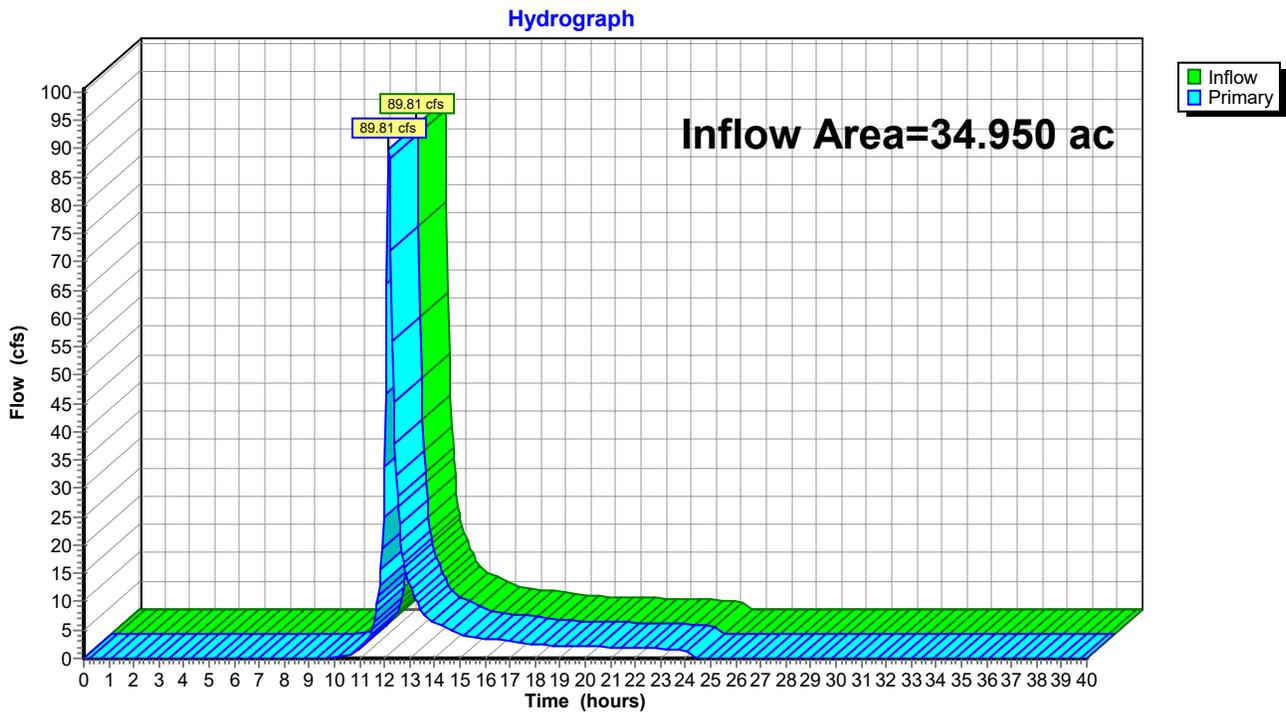


Summary for Link XDA-4: Existing Drainage Area #4

Inflow Area = 34.950 ac, 0.00% Impervious, Inflow Depth = 2.34" for Future 10 yr event
Inflow = 89.81 cfs @ 12.18 hrs, Volume= 6.806 af
Primary = 89.81 cfs @ 12.18 hrs, Volume= 6.806 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-4: Existing Drainage Area #4



Summary for Subcatchment X-3P: XDA-3 (pervious)

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

Runoff = 252.61 cfs @ 12.09 hrs, Volume= 15.058 af, Depth= 8.17"
 Routed to Link XDA-3 : Existing Drainage Area #3

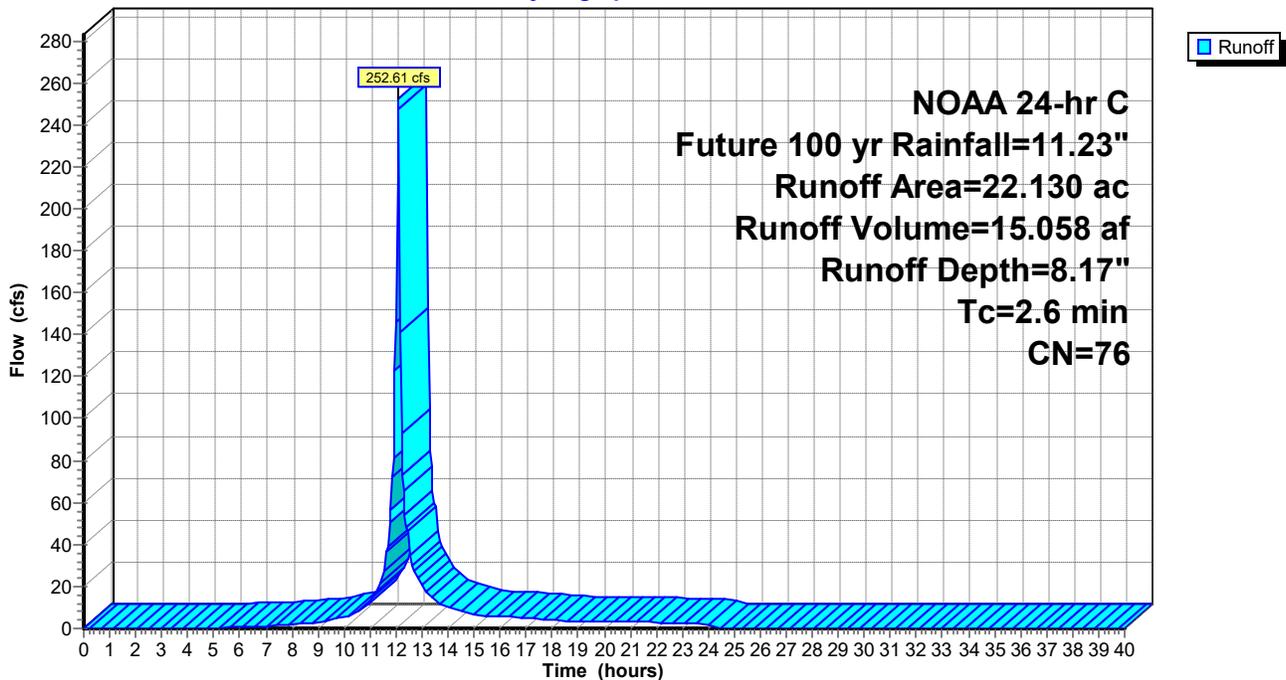
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 100 yr Rainfall=11.23"

Area (ac)	CN	Description
6.110	70	Woods, Good, HSG C
0.900	71	Row crops, C&T, Good, HSG B
15.120	78	Row crops, C&T, Good, HSG C
22.130	76	Weighted Average
22.130		100.00% Pervious Area

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

Subcatchment X-3P: XDA-3 (pervious)

Hydrograph



Summary for Subcatchment X-4P: XDA-4 (pervious)

Runoff = 231.43 cfs @ 12.17 hrs, Volume= 17.412 af, Depth= 6.92"
 Routed to Link XDA-4 : Existing Drainage Area #4

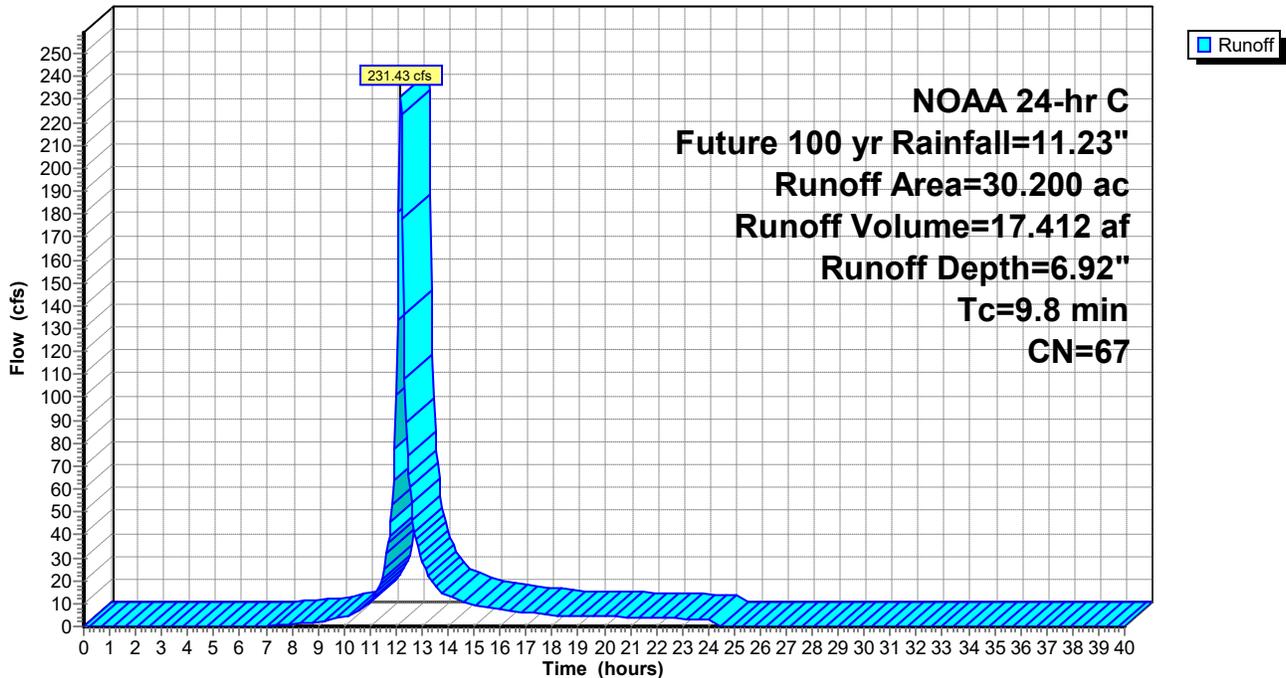
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 100 yr Rainfall=11.23"

Area (ac)	CN	Description
11.700	55	Woods, Good, HSG B
7.940	70	Woods, Good, HSG C
1.310	77	Woods, Good, HSG D
0.560	71	Row crops, C&T, Good, HSG B
8.690	78	Row crops, C&T, Good, HSG C
30.200	67	Weighted Average
30.200		100.00% Pervious Area

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

Subcatchment X-4P: XDA-4 (pervious)

Hydrograph



Summary for Subcatchment X-6S: XDA-4 (pervious)

Runoff = 31.34 cfs @ 12.17 hrs, Volume= 2.341 af, Depth= 5.91"
 Routed to Link XDA-4 : Existing Drainage Area #4

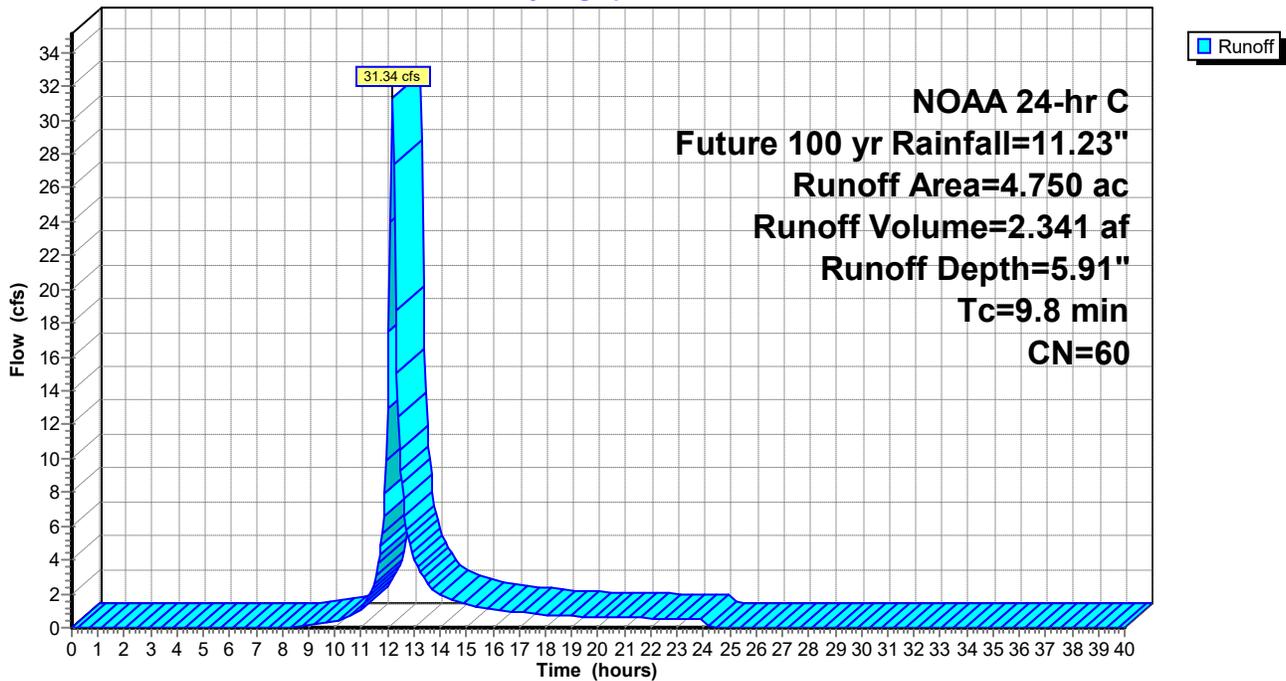
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs
 NOAA 24-hr C Future 100 yr Rainfall=11.23"

Area (ac)	CN	Description
3.240	55	Woods, Good, HSG B
1.510	70	Woods, Good, HSG C
4.750	60	Weighted Average
4.750		100.00% Pervious Area

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

Subcatchment X-6S: XDA-4 (pervious)

Hydrograph



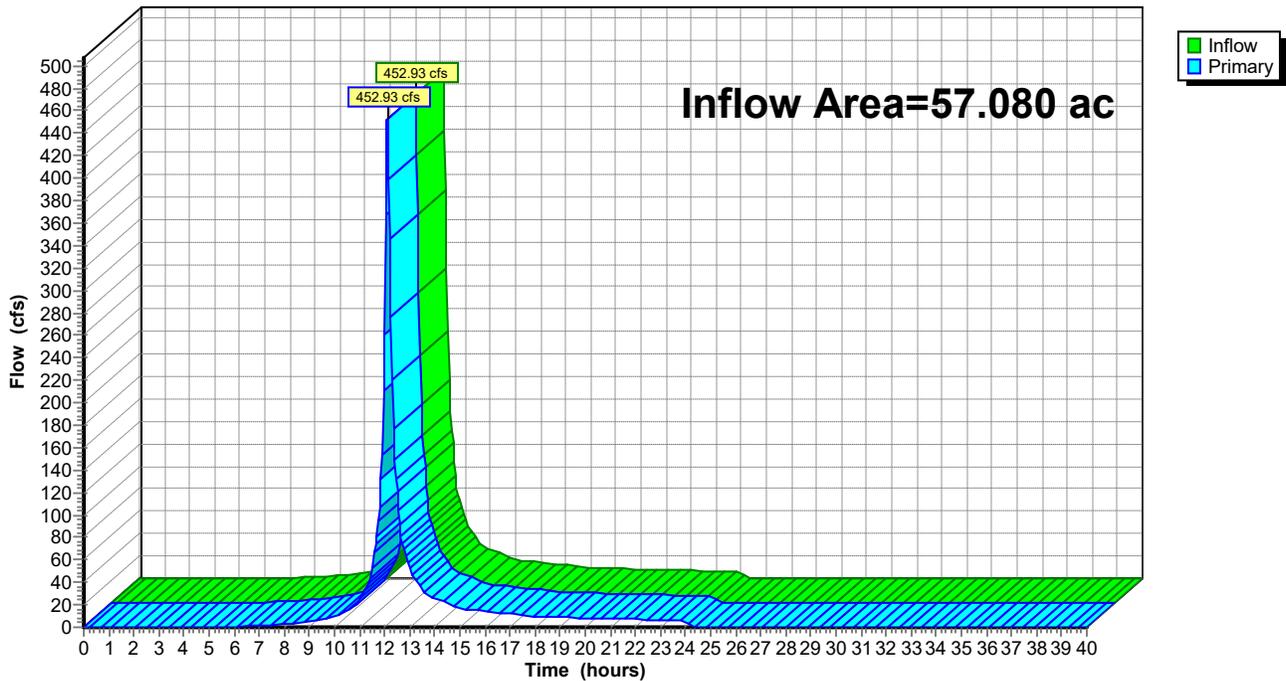
Summary for Link DP-2: Design Pont #2 (Jacobs Creek)

Inflow Area = 57.080 ac, 0.00% Impervious, Inflow Depth = 7.32" for Future 100 yr event
Inflow = 452.93 cfs @ 12.11 hrs, Volume= 34.811 af
Primary = 452.93 cfs @ 12.11 hrs, Volume= 34.811 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link DP-2: Design Pont #2 (Jacobs Creek)

Hydrograph

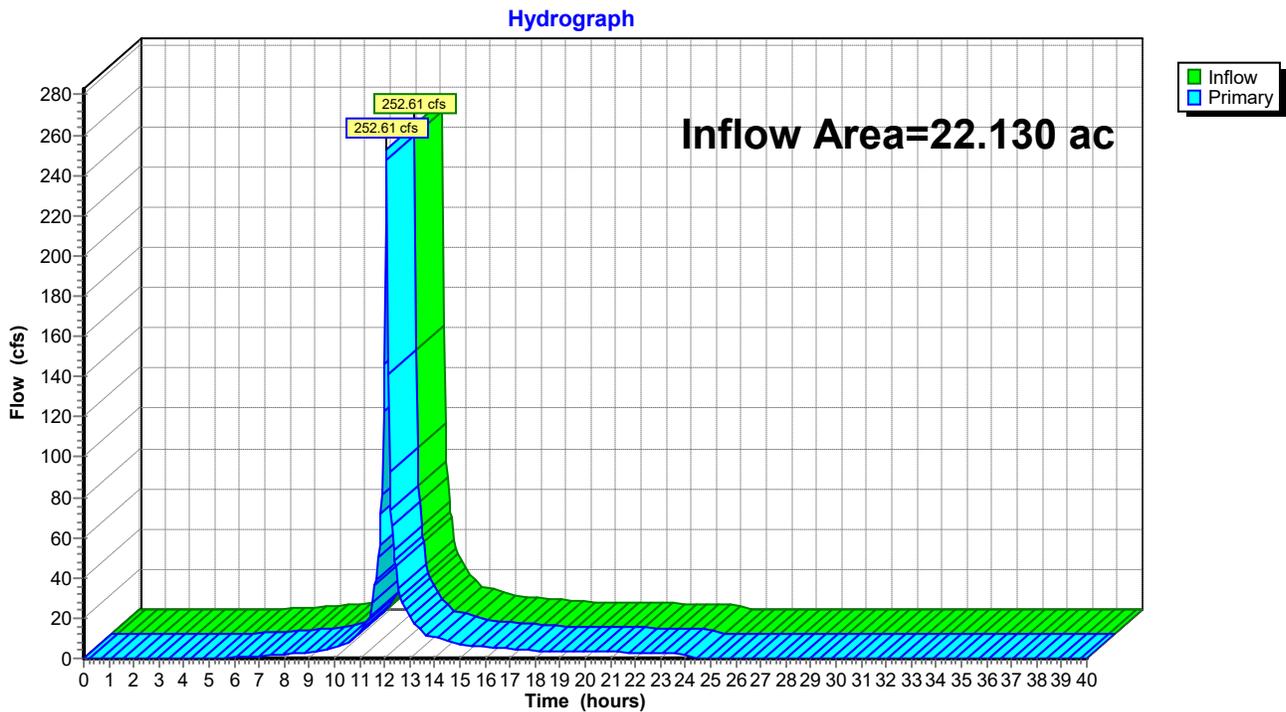


Summary for Link XDA-3: Existing Drainage Area #3

Inflow Area = 22.130 ac, 0.00% Impervious, Inflow Depth = 8.17" for Future 100 yr event
Inflow = 252.61 cfs @ 12.09 hrs, Volume= 15.058 af
Primary = 252.61 cfs @ 12.09 hrs, Volume= 15.058 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-3: Existing Drainage Area #3

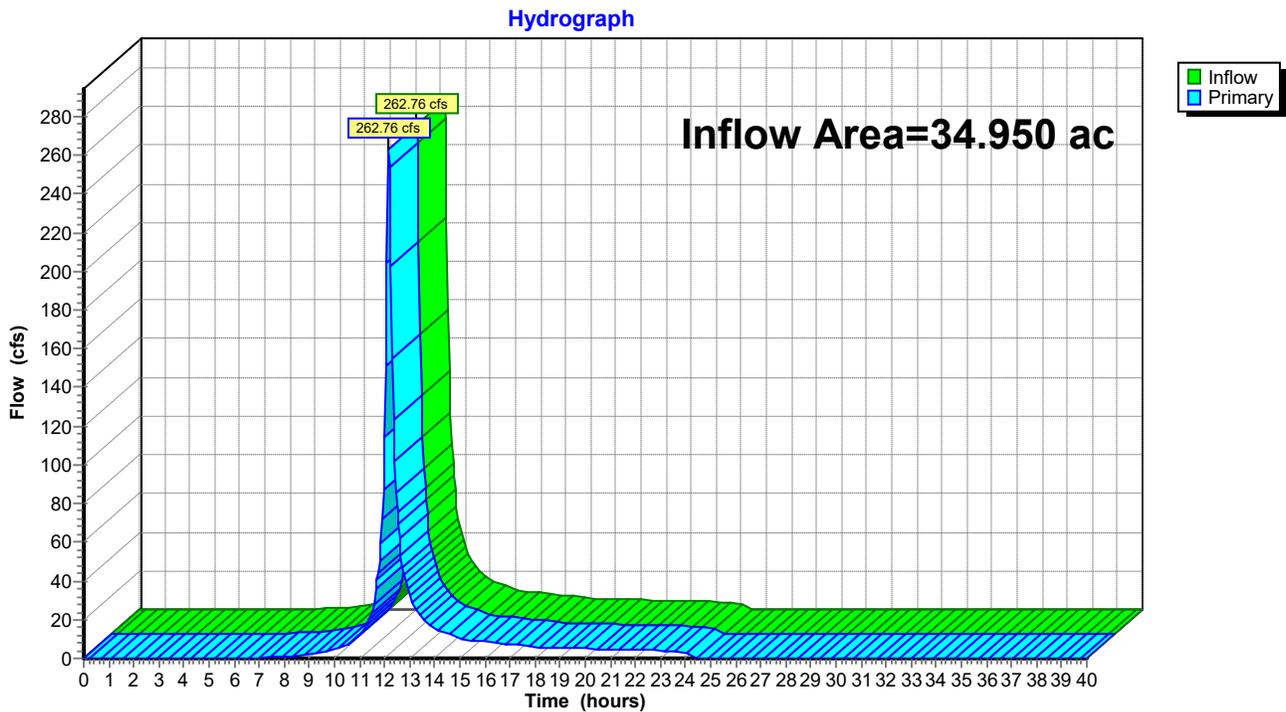


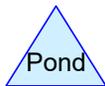
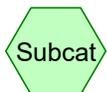
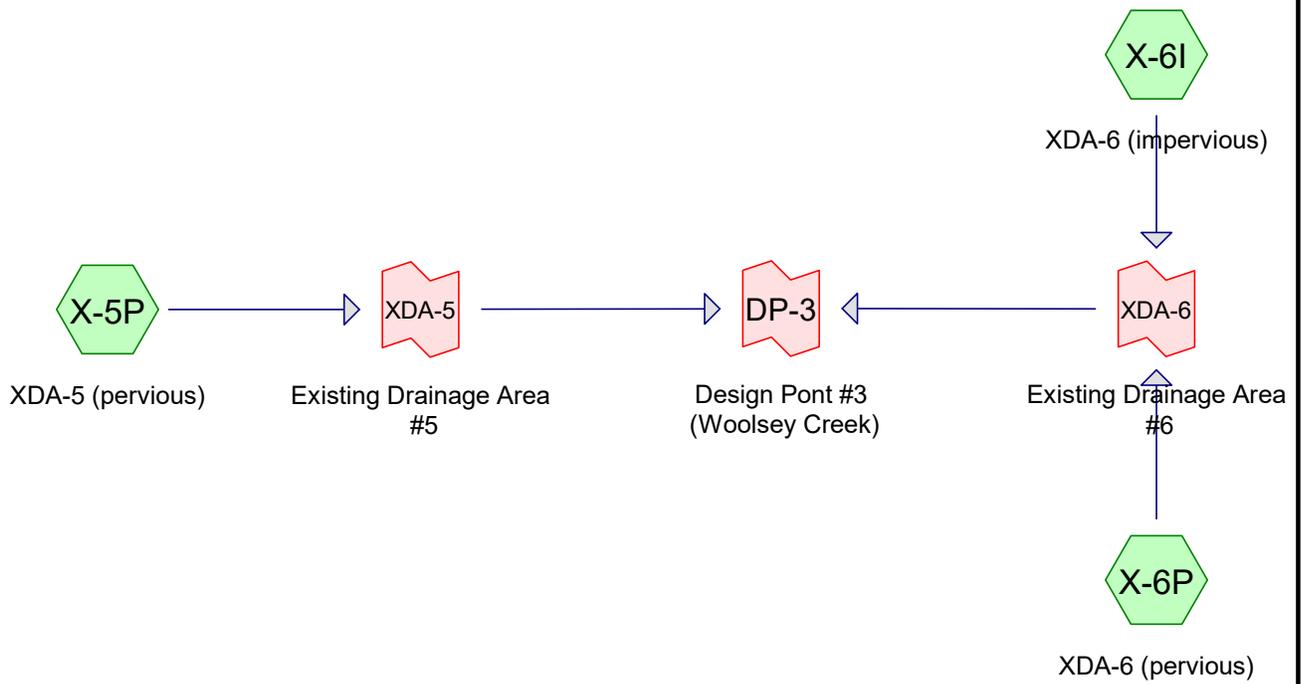
Summary for Link XDA-4: Existing Drainage Area #4

Inflow Area = 34.950 ac, 0.00% Impervious, Inflow Depth = 6.78" for Future 100 yr event
Inflow = 262.76 cfs @ 12.17 hrs, Volume= 19.753 af
Primary = 262.76 cfs @ 12.17 hrs, Volume= 19.753 af, Atten= 0%, Lag= 0.0 min
Routed to Link DP-2 : Design Pont #2 (Jacobs Creek)

Primary outflow = Inflow, Time Span= 0.00-40.00 hrs, dt= 0.05 hrs

Link XDA-4: Existing Drainage Area #4





Routing Diagram for 2024-06-25 Existing- 081391
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