

SPDES Permit No. NY0028410

# Long Term Control Plan Semi-Annual Status Report Reporting Period: *January through June 2015*

Amended Administrative Order CWA-02-2014-3033 (Amends CWA-02-2012-3024)

September 2015

#### **BUFFALO SEWER AUTHORITY**

# Long Term Control Plan Semi-Annual Status Report Reporting Period: January through June 2015

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## 1. INTRODUCTION

The Buffalo Sewer Authority (Authority) received approval of its Long Term Control Plan (LTCP) from the United States Environmental Protection Agency (USEPA) and New York State Department of Environmental Conservation (NYSDEC) on March 18, 2014. The Authority entered into an Amended Administrative Order, on April 16, 2014 (herein after referred to as the AAO), with the USEPA. This AAO establishes a schedule for implementation of the Authority's LTCP, approved by the USEPA and NYSDEC.

The AAO in part requires that the Authority submit written Semi-Annual Status Reports to the USEPA and NYSDEC by September 1<sup>st</sup> for current year January 1– June 30 reporting period, and March 1<sup>st</sup> for the previous calendar year July 1 – December 31 reporting period. The AAO requires that the following be provided in each Semi-Annual Status Report:

- The project milestones, deadlines and other terms that the Authority is required to meet since the date of the last Semi-Annual Status Report, whether and to what extent the Authority has met those requirements, and the reason for any anticipated delays and/or noncompliance.
- A general description of the work completed during the reporting period and the applicability of the work to meet indicated design criteria, as well as the projection of work to be performed during the next reporting period and any anticipated delays for the upcoming work. Any changes in key personnel must also be noted.
- Enclosure of public meeting (if held) materials including: advertisements, handouts, formal meeting notes, and a summary of the meeting.
- Copies (to USEPA only) of all monthly monitoring reports or other reports pertaining to CSOs and bypasses that BSA submitted to the NYSDEC during the reporting period.

This report covers January through June 2015 which serves as Semi-Annual Report No. 3.

# 2. REQUIREMENTS DUE IN REPORTING PERIOD

Attachment A provides the current status of all projects listed in the Amended Administrative Order. Issues with implementing these projects are detailed in Section 4 of this document.

This document serves as the September 1, 2015 semi-annual report.

As discussed at the June 25, 2015 meeting between BSA, NYSDEC, and USEPA, Certificates of Acceptance and Occupancy for completed projects are included in Attachment B and design reports for green infrastructure designed and/or constructed to date is included in Attachment E on disc.

# 3. WORK COMPLETED IN CURRENT REPORTING PERIOD AND PROJECTION OF WORK TO BE PERFORMED NEXT REPORTING PERIOD

A general description of the work completed on LTCP projects during the reporting period (January 1 through June 30, 2015) and the work projected to be performed during the next reporting period (July 1 through December 31, 2015) is provided in Attachment A. Work to be completed after the current or next reporting period has been grayed out.

As agreed at October 21, 2014 meeting between the BSA and the agencies, a more detailed description of each project including the location and the goal to be achieved through each project is provided in Attachment C.

### 4. IMPLEMENTATION ISSUES

#### 4.1 Bird and Lang RTC Projects

As noted in the previous Semi-Annual Reports: on the Bird and Lang RTC Projects there were construction delays aggregating several weeks due to inclement weather, easement acquisition, submittal and fabrication delays for the actuators and stems, and a delayed radio path study. An additional delay has occurred due to a late determination by National Grid that the existing utility poles which were to have provided power to the projects will need to be replaced due to their age (a six week process further complicated by the snow pack and frigid temperatures). Additionally, legal issues relating to obtaining an easement have necessitated rerouting of power for the Bird Avenue site between the project and the utility pole. A final issue arose due to a delay in the restoration of a light standard on Bird Avenue upon which the Bird RTC Project antenna is to be mounted. As a

result, while the Lang RTC Project has now been energized, the Bird RTC Project has not. Once these projects are energized, optimization will commence.

#### 4.2 Smith Street Storage

The Smith Street Storage project has undergone several conceptual level redesigns that have reduced capital and maintenance costs and negative impacts to the environment and residents, however these redesigns have also resulted in a prolonged engineering period. In order to expedite construction, the Smith Street storage project has been separated into an in-line storage project and a partial sewer separation project. The engineering for the partial sewer separation project was completed just after the March 18, 2015 deadline set forth in the AAO on April 6, 2015. The engineering for the Smith Street in-line storage project was completed on June 10, 2015. Construction of the partial sewer separation project is currently ongoing. The Notice to Proceed for the Smith Street in-line storage project is expected to be issued in early 2016. Completion of construction of the overall Smith Street storage project is expected by March 18, 2017.

#### 4.3 SPP 075 Optimization

As part of the Smith Street Storage project, modifications of SPP 075 were proposed, however detailed field investigations of the local system and the chamber have demonstrated that the proposed changes may not have the expected impact and will be put on hold until post-construction monitoring of this basin is completed.

#### 4.4 SPP 331 Optimization

Preliminary plans for SPP 331 were for the diversion of flows from this point through a new sewer to Bird Avenue along the centerline of Elmwood Avenue. This would have required major disruption of a very high traffic commercial area and was deemed impractical. Plans have instead been developed to divert flows through connected system weir modifications. These modifications include raising the weir at SPP 180 by 1.75' and the bench located in SPP 332 on the northeast quadrant of Gates Circle which currently directs dry weather flows into the interceptor, will be removed and replaced with a 6.2' weir and restored sewer trough which will direct dry weather flows into the Bird Avenue trunk sewer. This solution, as modeled, achieved similar results and was preferred over the conceptual level solution. Substantial completion of this project is expected on or before March 18, 2017.

#### 4.5 SPP 341A Optimization

Based on detailed site condition investigations, the SPP 341A optimization project will not be constructed at this time as detailed site investigations have demonstrated that the proposed modification may not achieve the predicted results and will be put on hold until post-construction monitoring of this basin is completed.

#### 4.6 Hamburg Drain Optimizations

Preliminary design for the Hamburg Drain Optimizations was begun prior to January 1, 2014 however detailed design has been delayed due to high water levels in Lake Erie. As a result of this delay the March 18. 2016 Notice to Proceed deadline is expected to be exceeded and a new date of June 18, 2017 has been suggested by the consulting engineers currently charged with design for these projects (See Attachment D). Note that this project will encompass several distinct smaller projects which may include inline storage, sewer separation, and/or green infrastructure. These projects will be lumped together into logical contracts in order to ensure economies of scale and quality work.

#### 4.7 WWTP Improvement Project Alternative C

BSA has determined that grit is present in the aeration tank influent channels and feed lines to the aeration tanks. This deposit is compromising flow into the tanks and through secondary. The influent channel levels rise as high flow is restricted from flowing into aeration tanks. BSA has engaged a contractor to clean out this channel. This will require closing the sluice gate to one side and draining the channel in order to clear the solids. The first side to be done is the west (B) aeration gallery. This will force all flows to the east side (A) aeration galley.

This needs to be done to verify performance of the primary bypass construction project. It will be done as quickly as is possible. This is a precursor to the primary clarifier evaluation as part of the WWTP improvement project C2. The full amount of grit in the channels will be determined when draining is complete which will determine length of time required to complete cleaning. Once started, the Contractor will work until completion.

It is expected that engineering will still be completed on or before March 18, 2019, the first stage of construction will begin by March 18, 2017, and all construction will be completed by March 18, 2022.

#### 5. CHANGES IN KEY PERSONNEL

Regina Harris was appointed Junior Sanitary Engineer on February 2, 2015.

## 6. PUBLIC MEETINGS

No public meetings have been held regarding the LTCP or projects associated with the LTCP during this reporting period.

#### 7. MODEL MODIFICATIONS

The process of converting the hydraulic model from XP-SWMM to PC-SWMM has been postponed until the model is recalibrated. No new model modifications were made during this reporting period

# 8. CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Oluwole A. McFoy, P.E., General Manager

28 AV4 15

Date

# Attachment A to the Semi-Annual Status Report: September 2015

Work Completed in Current Period/ Projection of Work to be Performed in Next Reporting Period

Project Name	Project Milestone	AO Project Deadline	Actual Completion Dates	Project Status
Phase   Projects		-		
CSO 060 GI Project			Prior to 1/1/2014	Complete.
Bird/Lang RTC	Construction Start	3/17/2014	2/24/2014	Complete
Projects	Completion Date	9/2/2014		Projected to be Completed During Next Reporting Period; Completion has been delayed; See 4.1
	Operations/ Optimization (RTC)	9/3/2014 – 9/3/15		Projected to be Started During Next Reporting Period; Operations/optimization to commence following construction completion; See 4.1
Bird RTC Project	Construction Start	3/17/2014	2/24/2014	Complete
	Completion Date	9/2/2014		Projected to be Started During Next Reporting Period; Operations/optimization to commence following construction completion; See 4.1
	Operations/ Optimization (RTC)	9/3/2014 – 9/3/15		Projected to be Started During Next Reporting Period; Operations/optimization to commence following construction completion; See 4.1
Lang RTC Project	Construction Start	3/17/2014	2/24/2014	Complete
	Completion Date	9/2/2014	3/15/2015	Complete
	Operations/ Optimization (RTC)	9/3/2014 – 9/3/15		Projected to be Started During Next Reporting Period; Operations/optimization to commence following construction completion; See 4.1

Project Name	Project Milestone	AO Project Deadline	Actual Completion Dates	Project Status
Foundation Project	<u>s</u>			
Foundation 1 -	Engineering Start	3/18/2014	Prior to 1/1/2014	Complete
Smith Street Storage	Engineering Completion	3/18/2015	6/10/2015	CSO #026 Project has been split into a partial separation project and an in-line storage project. See 4.2
	Notice to Proceed	3/18/2015		Projected to be Completed During Next Reporting Period; See 4.2, 4.3
	Substantial Completion	3/18/2017		
CSO No. 026 Sewer	Engineering Start	3/18/2014	Prior to 1/1/2014	Complete
Separation	Engineering Completion	3/18/2015	4/3/2015	Complete; See 4.2
	Notice to Proceed	3/18/2015		Projected to be Completed During Next Reporting Period; See 4.2
	Substantial Completion	3/18/2017		
CSO No. 026 RTC	Engineering Start	3/18/2014	Prior to 1/1/2014	Complete
Structure	Engineering Completion	3/18/2015	6/10/2015	Complete; See 4.2, 4.3
	Notice to Proceed	3/18/2015		Projected to be Completed During Next Reporting Period; See 4.2, 4.3
	Substantial Completion	3/18/2017		
Foundation 2 - SPP	Engineering Start	3/1/2014	Prior to 1/1/2014	Complete
Optimization (20	Engineering Completion	3/18/2015	4/20/2015	Complete
projects)	Notice to Proceed	3/1/2014	Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2017		
SPP 180	Engineering Start		Prior to 1/1/2014	Complete
Optimization	Engineering Completion		4/20/2015	Complete
	Notice to Proceed			Projected to be Completed During Next Reporting Period
	Substantial Completion	3/18/2017		
SPP 331	Engineering Start	1222	Prior to 1/1/2014	Complete
Optimization	Engineering Completion	3/18/2015	4/20/2015	Complete; See 4.4
	Notice to Proceed			Projected to be Completed During Next Reporting Period
	Substantial Completion	3/18/2017		

Project Name	Project Milestone	AO Project Deadline	Actual Completion Dates	Project Status
SPP 036	Engineering Start		Prior to 1/1/2014	Complete
Optimization	Engineering Completion		1/20/2014	Complete
	Notice to Proceed		5/30/2014	Complete
	Substantial Completion	3/18/2017	8/4/2014	Complete
SPP 217	Engineering Start	277	Prior to 1/1/2014	Complete
Optimization	Engineering Completion		4/3/2015	Complete
	Notice to Proceed			Projected to be Completed During Next Reporting Period
	Substantial Completion	3/18/2017		
SPP 318	Engineering Start		Prior to 1/1/2014	Complete
Optimization	Engineering Completion		4/3/2015	Complete
	Notice to Proceed	2(22)		Projected to be Completed During Next Reporting Period
	Substantial Completion	3/18/2017		
SPP 097A	Engineering Start		Prior to 1/1/2014	Complete
Optimization	Engineering Completion		4/20/2015	Complete
	Notice to Proceed	(Hee)		Projected to be Completed During Next Reporting Period
	Substantial Completion	3/18/2017		
SPP 122	Engineering Start	8 <del>10.7</del> %	Prior to 1/1/2014	Complete
Optimization	Engineering Completion		Prior to 1/1/2014	Complete
	Notice to Proceed		Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2017	Prior to 1/1/2014	Complete
SPP 163	Engineering Start		3/1/2014	Complete
Optimization	Engineering Completion	1202	11/25/2014	Complete
	Notice to Proceed	13	3/1/2015	Complete
	Substantial Completion	3/18/2017		Projected to be Completed During Next Reporting Period
SPP 165	Engineering Start	(	Prior to 1/1/2014	Complete
Optimization	Engineering Completion		Prior to 1/1/2014	Complete
	Notice to Proceed		Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2017	Prior to 1/1/2014	Complete

Project Name	Project Milestone	AO Project	Actual Completion	Project Status
		Deadline	Dates	20.10.000000000000000000000000000000000
SPP 165A	Engineering Start	<u> </u>	Prior to 1/1/2014	Complete
Optimization	Engineering Completion		4/4/2014	Complete
	Notice to Proceed		7/25/2014	Complete
	Substantial Completion	3/18/2017	11/3/2014	Complete
SPP 178	Engineering Start		Prior to 1/1/2014	Complete
Optimization	Engineering Completion		Prior to 1/1/2014	Complete
	Notice to Proceed		Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2017	Prior to 1/1/2014	Complete
SPP 335B	Engineering Start	uii.	Prior to 1/1/2014	Complete
Optimization	Engineering Completion	<u> </u>	Prior to 1/1/2014	Complete
	Notice to Proceed		Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2017	Prior to 1/1/2014	Complete
SPP 336A	Engineering Start		Prior to 1/1/2014	Complete
Optimization	Engineering Completion		4/20/2015	Complete
	Notice to Proceed			Projected to be Completed During Next Reporting Period
	Substantial Completion	3/18/2017		
SPP 341A	Engineering Start		1/1/2014	Complete
Optimization	Engineering Completion			This project is on hold pending the results of post-construction
	Notice to Proceed			monitoring. See 4.5.
	Substantial Completion	3/18/2017		
SPP 342B	Engineering Start:		Prior to 1/1/2014	Complete
Optimization	Engineering Completion	200 TANK	Prior to 1/1/2014	Complete
	Notice to Proceed		Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2017	Prior to 1/1/2014	Complete
SPP 001	Engineering Start:		Prior to 1/1/2014	Complete
Optimization	Engineering Completion		3/27/2014	Complete
	Notice to Proceed		6/16/2014	Complete
	Substantial Completion	3/18/2017	12/12/2014	Complete

Project Name	Project Milestone	AO Project	Actual Completion	Project Status
		Deadline	Dates	
SPP 183	Engineering Start		Prior to 1/1/2014	Complete
Optimization	Engineering Completion		Prior to 1/1/2014	Complete
	Notice to Proceed		Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2017	Prior to 1/1/2014	Complete
SPP 283	Engineering Start		Prior to 1/1/2014	Complete
Optimization	Engineering Completion		Prior to 1/1/2014	Complete
	Notice to Proceed		Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2017	Prior to 1/1/2014	Complete
SPP 211	Engineering Start		Prior to 1/1/2014	Complete
Optimization	Engineering Completion		Prior to 1/1/2014	Complete
	Notice to Proceed	Para and the second	Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2017	Prior to 1/1/2014	Complete
Foundation 3 -	Engineering Start	3/18/2016		
Remaining RTC	Notice to Proceed	3/18/2017		
(14 sites)	Engineering Completion	3/18/2023		
	Substantial Completion	3/18/2024		
Hertel Northwest	Engineering Start			
n-Line Storage	Engineering Completion			
	Notice to Proceed			
	Substantial Completion	3/18/2024		
Hertel South In-	Engineering Start			
ine Storage	Engineering Completion			
	Notice to Proceed			
	Substantial Completion	3/18/2024		
Hertel Northeast In-	Engineering Start			
ine Storage	Engineering Completion			
	Notice to Proceed			
	Substantial Completion	3/18/2024		

Project Name	Project Milestone	AO Project	Actual Completion	Project Status
	PART SEED SEEDS WITH	Deadline	Dates	
Bird East In-Line	Engineering Start			
Storage	Engineering Completion			
	Notice to Proceed			
	Substantial Completion	3/18/2024		
East Ferry In-Line	Engineering Start			
Storage	Engineering Completion			
	Notice to Proceed			
	Substantial Completion	3/18/2024		State of the state
Colorado In-Line	Engineering Start			
Storage	Engineering Completion			
	Notice to Proceed			对是与MS基础的设置的现在分词的对象。
	Substantial Completion	3/18/2024		
North Bailey In-Line	Engineering Start			
Storage	Engineering Completion			<b>以其中国的基本证明的基本企业的基本企业的基本企业</b>
	Notice to Proceed			
	Substantial Completion	3/18/2024		
South Bailey In-Line	Engineering Start			
Storage	Engineering Completion			
	Notice to Proceed			
	Substantial Completion	3/18/2024		
Roslyn In-Line	Engineering Start			
Storage	Engineering Completion			
	Notice to Proceed			
	Substantial Completion	3/18/2024		
Kay In-Line Storage	Engineering Start			
	Engineering Completion			
	Notice to Proceed			
	Substantial Completion	3/18/2024		

Project Name	Project Milestone	AO Project	Actual Completion	Project Status
		Deadline	Dates	
Amherst Quarry	Engineering Start			
Off-Line Storage	Engineering Completion			
	Notice to Proceed			
	Substantial Completion	3/18/2024		
Fillmore North In-	Engineering Start			
Line Storage	Engineering Completion			
	Notice to Proceed			
	Substantial Completion	3/18/2024		
Gibson CSO Line	Engineering Start			
Storage	Engineering Completion			
	Notice to Proceed	ii		
	Substantial Completion	3/18/2024		
Montgomery CSO	Engineering Start			
Line Storage	Engineering Completion	di mananananan		
	Notice to Proceed			
	Substantial Completion	3/18/2024		
Foundation 4 -	Engineering Start	3/18/2015	Prior to 1/1/2014	Complete
Hamburg Drain	Engineering Completion	3/18/2017		
Optimizations	Notice to Proceed	3/18/2016		See 4.6
	Substantial Completion	3/18/2018		
oundation 4 -	Engineering Start	3/18/2028		
lamburg Drain	Engineering Completion	3/18/2030		
Storage	Notice to Proceed	3/18/2030		
	Substantial Completion	3/18/2032		
<u>WWTP</u>				
WWTP mprovement	Engineering Start	3/18/2015		Projected to be Completed During Next Reporting Period; See 4.7.
	Engineering Completion	3/18/2019		
2	Notice to Proceed	3/18/2017		
	Substantial Completion	3/18/2022		

Project Name	Project Milestone	AO Project Deadline	Actual Completion Dates	Project Status
Green Infrastructur	e Projects			
Green 1 - Pilot	Engineering Start	3/1/2014	Prior to 1/1/2014	Complete
Projects – 267-	Engineering Completion	3/18/2016		
acres of GI control	Substantial Completion	3/18/2018		
2001-2013	Engineering Start		Prior to 1/1/2014	Complete
Demolitions	Engineering Completion		Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2018	See GI Master Plan Appendix 7-1	Complete
2014-2018	Engineering Start		Prior to 1/1/2014	Complete
Demolitions	Engineering Completion			
	Substantial Completion	3/18/2018		
PUSH Blue Projects	Engineering Start		Prior to 1/1/2014	Complete
	Engineering Completion			
	Substantial Completion	3/18/2018		
Carlton Street	Engineering Start	200	Prior to 1/1/2014	Complete
Porous Asphalt	Engineering Completion		Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2018	7/25/2014	Complete
Fillmore Avenue	Engineering Start	1500	Prior to 1/1/2014	Complete
Porous Parking	Engineering Completion		Prior to 1/1/2014	Complete
Lots and Green Lots	Substantial Completion	3/18/2018	4/23/2015	Complete
Ohio Street	Engineering Start		Prior to 1/1/2014	Complete
	Engineering Completion	-	Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2018	12/1/2014	Complete
Kenmore Avenue	Engineering Start		4/30/2014	Complete
	Engineering Completion		4/20/2015	Complete
	Substantial Completion	3/18/2018		

Project Name	Project Milestone	AO Project Deadline	Actual Completion Dates	Project Status
Genesee Gateway	Engineering Start		Prior to 1/1/2014	Complete
Project	Engineering Completion		4/20/2015	Complete
	Substantial Completion	3/18/2018		
Allen Street	Engineering Start		Prior to 1/1/2014	Complete
	Engineering Completion			
	Substantial Completion	3/18/2018		
Niagara Street	Engineering Start		Prior to 1/1/2014	Complete
	Engineering Completion			
	Substantial Completion	3/18/2018		
Green 2 – 410	Engineering Start:	3/18/2019		
acres of GI Control	Engineering Completion:	3/18/2023		
	Substantial Completion:	3/18/2024		
Green 3 – 375	Engineering Start:	3/18/2023		
acres of GI Control	Engineering Completion:	3/18/2028		
	Substantial Completion:	3/18/2029		
Green 4 – 263	Engineering Start:	3/18/2028		
acres of GI Control	Engineering Completion:	3/18/2033		
	Substantial Completion:	3/18/2034		

Project Name	Project Milestone	AO Project Deadline	Actual Completion Dates	Project Status
<b>Gray Projects</b>				
CSOs 014/15 – Erie Basin In-line	Engineering Start		Prior to 1/1/2014	Complete
	Engineering Completion		Prior to 1/1/2014	
projects SEE DETAILS	Notice to Proceed	3/18/2014	Prior to 1/1/2014	1
FOLLOWING FOR SPECIFIC PROJECTS	Substantial Completion	3/18/2015	12/29/2014	1
SPPs 206A&B	Engineering Start		Prior to 1/1/2014	Complete
	Engineering Completion		Prior to 1/1/2014	Complete
	Notice to Proceed	222	5/30/2014	Complete
	Substantial Completion	3/18/2015	12/29/2014	Complete
SPP 035	Engineering Start		Prior to 1/1/2014	Complete
	Engineering Completion		Prior to 1/1/2014	Complete
	Notice to Proceed		Prior to 1/1/2014	Complete
	Substantial Completion	3/18/2015	5/31/2014	Complete
SPP 036	Engineering Start		Prior to 1/1/2014	Complete
	Engineering Completion	7 <del>44</del> 7	Prior to 1/1/2014	Complete
	Notice to Proceed	(Mark)	5/30/2014	Complete
	Substantial Completion	3/18/2015	12/5/2014	Complete
CSO 013 – Satellite storage,	Engineering Start	3/18/2019		
conveyance, FM &	Engineering Completion	3/18/2020		
PS	Notice to Proceed	3/18/2020		
	Substantial Completion	3/18/2022		

Project Name	Project Milestone	AO Project Deadline	Actual Completion Dates	Project Status
North Relief –	Engineering Start	3/18/2019	5/15/2015	Complete
nterceptor	Engineering Completion	3/18/2022		
	Notice to Proceed	3/18/2022		
	Substantial Completion	3/18/2026		
SOs 010, 008/010,	Engineering Start	3/18/2021		
061, 004 –	Engineering Completion	3/18/2023		
	Notice to Proceed	3/18/2023		
ıpsizing	Substantial Completion	3/18/2024		
SPP 337 (CSO 053) - Satellite storage,	Engineering Start	3/18/2023		
onveyance, FM &	Engineering Completion	3/18/2025		
S	Notice to Proceed	3/18/2025		
	Substantial Completion	3/18/2027		
SPP 336A&B (CSO 053) – Satellite	Engineering Start	3/18/2024		
torage,	Engineering Completion	3/18/2026		
onveyance, FM &	Notice to Proceed	3/18/2026		
	Substantial Completion	3/18/2029		
efferson Avenue & lorida Street (CSO	Engineering Start	3/18/2025		
storage, conveyance and	Engineering Completion	3/18/2027		
	Notice to Proceed	3/18/2027		
	Substantial Completion	3/18/2030		
CSO 055 – Satellite	Engineering Start:	3/18/2027		
torage,	Engineering Completion:	3/18/2030		
	Notice to Proceed:	3/18/2030		
S	Substantial Completion:	3/18/2034		

Project Name	Project Milestone	AO Project Deadline	Actual Completion Dates	Project Status
CSOs 028/044/047	Engineering Start:	3/18/2028	Dates	
Satellite storage, conveyance, FM &	Engineering Completion:	3/18/2031		
PS	Notice to Proceed:	3/18/2031		
	Substantial Completion:	3/18/2034		
CSO 052 – Satellite	Engineering Start:	3/18/2030		
storage,	Engineering Completion:	3/18/2032		
conveyance, FM &	Notice to Proceed:	3/18/2032		
PS	Substantial Completion:	3/18/2034		
CSO 064 – Satellite storage, conveyance, FM &	Engineering Start:	3/18/2030		
	Engineering Completion:	3/18/2032		
	Notice to Proceed:	3/18/2032		等。在1866年1月16日,1966年1月18日,1966年1月18日,1966年1月18日,1966年1月18日,1966年1月18日,1966年1月18日,1966年1月18日,1966年1月18日,1966年1月1
PS	Substantial Completion:	3/18/2034		

# Attachment B to the Semi-Annual Status Report: September 2015

Certificates of Acceptance and Occupancy

Board Meeting of March 19, 2014

# ITEM NO. 34

# **CONTRACT NO. 85100037**

# **CERTIFICATE OF ACCEPTANCE AND OCCUPANCY**

WORK:	CSO Outfall No. 060 Green Infrastructure Project		
BID:	\$2,798,780.00		
CONTRACTOR:	Mark Cerrone, Inc. 2368 Maryland Avenue Niagara Falls, NY 14305		
WHEREAS:	The Authority's consulting engineer, URS Corporation has certified that the Contractor completed the work in accordance with the plans and specifications on November 20, 2013; and		
WHEREAS:	The Principal Sanitary Engineer and staff have reviewed the certification and are in agreement with the consulting engineer's certification.		
NOW THEREFORE BE IT RESOLVED:	That the Board of the Buffalo Sewer Authority hereby finds and determines that:  a. The work to be performed under the terms of the Contract has been		
	completed and is accepted;		
	b. The date of entrance and occupancy be fixed as of November 20, 2013;		
	c. The applicable maintenance period commence on November 20, 2013;		
	d. Final payment will be made to the Contractor in the amount of \$144,819.67 increased \$97,613.42 by change orders making the final cost of the Contract \$2,896,393.42.		
	MOTION TO APPROVE		
	MADE BY MS. WILSON-DIVINCENZO		
	2 <sup>ND</sup> BY MR. KENNEDY		
	AYES 3 NOES 0		

# CONTRACT NO. 81300023

# CERTIFICATE OF ACCEPTANCE AND OCCUPANCY

Swan Trunk Improvements

WORK:

	SPP-	35 Modifications		
BID:	\$1,24	17,860.00		
CONTRACTOR:	19 R	ley Company, Inc. ansier Drive Seneca, NY 14224		
WHEREAS:	have		actor completed	of the Buffalo Sewer Authority the work in accordance with the
NOW THEREFORE BE IT RESOLVED:	That that:	the Board of the Buffal	o Sewer Autho	rity hereby finds and determines
	a.	The work to be perfor complete and is accepted		terms of the Contract has been
	b.	The date of entrance an	d occupancy be	fixed as of May 31, 2014;
	c.	The maintenance period	d commence on	May 31, 2014;
	d.			tor in the amount of \$61,610.45, he final cost of the Contract
			MOTION TO	APPROVE
			MADE BY	MR. ROOSEVELT
			2 <sup>ND</sup> BY	MR. KENNEDY
			AYES	3 NOES 0
				Board Meeting of July 23, 2014

## **CONTRACT NO. 81400008**

# CERTIFICATE OF ACCEPTANCE AND OCCUPANCY

WORK:	Chu	rch Street SPP 36 Overflow	Protection Sy	rstem
BID:	\$54	3,543.00		
CONTRACTOR:	19 F	dey Company, Inc. Ransier Road et Seneca, New York 14224		
WHEREAS:	that	Principal Sanitary Engineer the Contractor completed diffications on December 5, 2	the work in	o Sewer Authority has certified accordance with the plans and
NOW THEREFORE BE IT RESOLVED:	That		Sewer Authori	ty hereby finds and determines
	a.	The work to be performe complete and is accepted;	d under the t	erms of the Contract has been
	b.	The date of entrance and o	ccupancy be f	fixed as of December 5, 2014;
	c.	The maintenance period co	ommence on I	December 5, 2014;
	d.	Final payment be made to making the final cost of the		or in the amount of \$24,697.70, 953.93.
		M	OTION TO	APPROVE
		M	ADE BY _	MR. KENNEDY
		$2^{\rm N}$	D BY	MR. ROOSEVELT
		AS	YES	NOES 0
			Во	ard Meeting of January 7, 2015

Board Meeting of January 7, 2015

### ITEM NO. 13

## **CONTRACT NO. 81400013**

# CERTIFICATE OF ACCEPTANCE AND OCCUPANCY

WORK:	Cornelius Creek Intercepting and Overflow Chamber Structural Repairs and Weir Optimization
BID:	\$194,450.00
CONTRACTOR:	Kandey Company, Inc. 19 Ransier Drive West Seneca, NY 14224
WHEREAS:	The Principal Sanitary Engineer of the Buffalo Sewer Authority has certified that the Contractor completed the work in accordance with the plans and specifications on December 12, 2014.
NOW THEREFORE BE IT RESOLVED:	That the Board of the Buffalo Sewer Authority hereby finds and determines that:
	a. The work to be performed under the terms of the Contract has been complete and is accepted;
	b. The date of entrance and occupancy be fixed as of December 12, 2014;
	c. The maintenance period commence on December 12, 2014;
	d. Final payment be made to the Contractor in the amount of \$237,361.42, making the final cost of the Contract \$456,111.42.
	MOTION TOAPPROVE
	MADE BY MR. KENNEDY
	2 <sup>ND</sup> BY MR. ROOSEVELT
	AYES 3 NOES 0

# CONTRACT NO. 81500002

# **CERTIFICATE OF ACCEPTANCE AND OCCUPANCY**

WORK:

WORK:	SPP-165A Kensington Avenue Sewer Upgrade
BID:	\$277,585.00
CONTRACTOR:	NOVA Site Company, LLC 6 Lena Court West Seneca, NY 14224
WHEREAS:	The Principal Sanitary Engineer of the Buffalo Sewer Authority has certified that the Contractor completed the work in accordance with the plans and specifications on November 3, 2014.
NOW THEREFORE BE IT RESOLVED:	That the Board of the Buffalo Sewer Authority hereby finds and determines that:
	a. The work to be performed under the terms of the Contract has been complete and is accepted;
	b. The date of entrance and occupancy be fixed as of November 3, 2014;
	c. The maintenance period commence on November 3, 2014;
	d. Final payment be made to the Contractor in the amount of \$13,840.74, making the final cost of the contract \$276,814.70.
	MOTION TO APPROVE
	MADE BY MR. KENNEDY
	2 <sup>ND</sup> BY MR. ROOSEVELT
	AYES 3 NOES 0
	Board Meeting of January 7, 2015

#### **CONTRACTNO. 81400007**

#### CERTIFICATE OF ACCEPTANCE AND OCCUPANCY

WORK: Swan Trunk Improvements

SPP 206 A&B Modifications Project

BID: \$931,380.00

CONTRACTOR: Visone Construction, Inc.

79 Sheldon Avenue Depew, NY 14043

WHEREAS: The Principal Sanitary Engineer and staff have certified that the Contractor

completed the work in accordance with the plans and specification on July 1,

2015; and

WHEREAS: In Item No. 28, on May 6, 2015, the contract value was increased by \$249.458.73:

and

WHEREAS: In Item No. 25, on July 29, 2015 the contract value was decreased by \$135.40.

NOW THEREFORE

BEITRESOLVED: That the Board of the Buffalo Sewer Authority hereby finds and determines

that:

a. The work to be performed under the terms of the Contract has been complete and is accepted;

- b. The date of entrance and occupancy be fixed as of July 1, 2015:
- c. The maintenance period commence on July 1, 2015;
- d. Final payment be made to the Contractor in the amount of \$59,035.17, increased by \$249,323.33, making the final cost of the Contract \$1,180,838.73.

MOTION TO		APPR	OVE
MADE BY		MS. PET	RUCCI
2 <sup>ND</sup> BY		MR. KEN	NEDY
AYES	3	NOES _	0

Board Meeting of July 29, 2015

FINAL ACCEPTANC	E OF LOCALLY ADMINIST	TERED FED	ERAL-	AID PROJECT
Federal-Aid Project #	2. State-Local Agreement #	3. NYSDO	T Proie	ct Identification #
•	D032555		5759.4	
5759(403)	D032333		9735.	+0
4. Project Phases		:	5. Tow	n/Village/City
Preliminary EngineeringX	Right-of-way Constr	uctionX_	City of	f Buffalo
Railroad Other _	Utility Bette	erment		
6. Description of location and	l scope of work			:
Rehabilitation of Carlton &	High Streets from Michigan Ave t	o Jefferson Ave	•	<i>i</i>
7. Prime Contractor		8. Principal Co	onsultar	nt .
Destro & Bros Concrete Co	o Inc	TVGA		
9. Sponsor Representative fo				10. Date
THOMAS.	J. DUK			7-25-14
11. NYSDOT Representative	for the Final Site Visit			12. Date
Christopher J. Renn				7/25/14
13. I hereby certify that this plans, specifications, estimate	project has been completed in rea es including authorized changes :	asonabity close o	conform	nity with the approved
Authorized Sponsor Signa	ature:	Notes		
Title: <u>5201022</u>	ENGINEER		Date : _	7-25-14
14. I hereby certify that this project has been completed consistent with the terms of the involved funding program, the State-Local Agreement, and the applicable parts of the Locally Administered Federal-aid Project Manual.  Authorized NYSDOT Signature:				
J	D			7/2-/11
Title: <u>Civil Engineer II</u>			Date	:_//25/14
45 Bamarlan		·		· · · · · · · · · · · · · · · · · · ·
15. Remarks:				
				,
	•			
		•		

FINAL ACCEPTANC	E OF LOCALLY ADMINIST	TERED FEDERAL	L-AID PROJECT	
1. Federal-Aid Project # 5757(763)	2. State-Local Agreement # D032782	3. NYSDOT Pro	ject Identification #	
100	Right-of-way Constr	ructionX C	own/Village/City ity of Buffalo	
	d scope of work SCAPE IMPROVEMENTS TO FILL STREET, CITY OF BUFFALO, ERIE		VEEN NORTH PARADE	
7. Prime Contractor CONCRETE APPLIED TEC	HNOLOGY CORPORATION	8. Principal Consulta WATTS ARCHITECT	ure & Engineering	
9. Sponsor Representative for	or the Final Site Inspection		10. Date	
11. NYSDOT Representative Christopher J. Renn	11. NYSDOT Representative for the Final Site Visit  12. Date  4/23/15			
13. I hereby certify that this project has been completed in reasonably close conformity with the approved plans, specifications, estimates including authorized changes and extra work.  Authorized Sponsor Signature:  Title: Se Engineer  Date: 4-23-15				
14. I hereby certify that this project has been completed consistent with the terms of the involved funding program, the State-Local Agreement, and the applicable parts of the Locally Administered Federal-aid Project Manual.  Authorized NYSDOT Signature:				
Title: <u>Civil Engineer II</u>			e: 4/23/15	
15. Remarks:				

# Attachment C to the Semi-Annual Status Report: September 2015

Detailed Project Descriptions

Project Name	Project Description	Project Purpose*
Phase I Projects		<b>建设设施,以政治、政治、政治、政治、政治、政治、政治、政治、政治、政治、政治、政治、政治、政</b>
CSO 060 GI Project	This project consisted of the construction of 4768 CF of rain garden on Windsor, Parkdale and Elmwood Avenues between Bird and Forest Avenues and 39,600 SF of permeable pavement on Clarendon and Claremont Avenues between Bird and Forest Avenues, installation of a Stormceptor unit at Bird Avenue and Granger Place and a total of 6,125 LF of 12-30 inch sewer designed to carry street flow to the existing storm overflow sewer on Forest Avenue from the above mentioned street segments. Additionally, weirs were raised in SPPs 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, and 240.	This project was designed to treat 13,600 cf of stormwater runoff from the 0.9 inch water quality storm event and remove 49.5 cfs of peak flow from the combined sewer system. Thereby reducing overflows through SPPs 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, and 241 to CSO 060. Together with other LTCP projects, this project is projected reduce CSO 060 discharges to Scajaquada Creek based on the 1993 Modified Typical Year (TY) to negligible activations and flow.
Bird/Lang RTC Projects	These RTC projects utilize available capacity of large sewers to provide flow control measures during wet weather events through the use of gates which allow continuous dry weather underflow.	
Bird RTC Project	The Bird RTC Project is located on Bird Avenue between Parkdale Avenue and Hoyt Street.	The Bird RTC project is designed to provide 1.01 MG of storage volume, thereby reducing discharges through SPP 013 to CSO 004. Together with other LTCP projects, this project is projected reduce CSO 004 discharges to the Black Rock Canal based on the TY to 3 activations.
Lang RTC Project	The Lang RTC Project is located on Lang Avenue between Courtland Avenue and Hagen Street.	The Lang RTC project is designed to have a storage volume of 0.84 MG, thereby reducing discharges through SPP 340 to CSO 053. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the 1993 Modified Typical Year (TY) to 4 activations.

Project Name	Project Description	Project Purpose*
Foundation Projects		
Foundation 1 - Smith Street	Originally envisioned as a single project, these two projects have	
Storage	been separated to realize cost advantages due to the different levels of skill required for the projects and to expedite the sewer separation component.	
CSO No. 026 Sewer Separation	This project will consist of installation of collection sewers for street receiver flows on Leddy Street, South Park Avenue, Owahn Place, Prenatt Street, Bolton Place, St. Stephen's Place, and Buffalo River Place in order to discharge these storm flows downstream of regulators combined the Optimization projects for SPP 217 and SPP 318.	Together with the Smith Street in-line storage project, the Smith Street partial sewer separation project is designed to divert and detain the equivalent of a storage volume of 0.5 MG, thereby reducing CSO 026 discharges. Together with other LTCP projects, this project is projected to reduce CSO 026 discharges to the Buffalo River based on the TY to 3 activations.
CSO No. 026 RTC Structure	The second contract consists of an in-line storage project which is designed to detain wet weather flows along the western side of Smith Street between the I-190 and the I-190 off ramp within the Smith Street Drain for discharge to the South Interceptor thereby diverting combined sewer flows from CSO 026.	Together with the Smith Street partial sewer separation project, the Smith Street in-line storage project is designed to divert and detain the equivalent of a storage volume of 0.5 MG, thereby reducing CSO 026 discharges.  Together with other LTCP projects, this project is projected to reduce CSO 026 discharges to the Buffalo River based on the TY to 3 activations.

Project Name	Project Description	Project Purpose*
Foundation 2 - SPP Optimization (20 projects)	Project consists of multiple smaller projects that will overlap in engineering and construction. SEE DETAILS FOLLOWING FOR SPECIFIC PROJECTS	In general, these projects will reduce discharges to the CSOs by detaining flows within the BSA's system through the modification of existing control structures.
SPP 180 Optimization	This project consisted of raising of the weir associated with SPP 180 by 2.0' along its entire length. SPP 180 is located on Delaware Avenue at the intersection with West Delavan. As part of the revised SPP 331 Optimization, this weir will be raised an additional 1.75' along its entire length.	The SPP 180 Optimization project was designed to increase the capacity of the CSS at SPP 180 thereby decreasing CSO 006 discharges. Together with other LTCP projects, this project is projected to reduce CSO 006 discharges to the Black Rock Canal based on the TY to 4 activations.
SPP 331 Optimization	SPP331 is located at the intersection of Elmwood Avenue and West Delavan Avenue. Preliminary plans were for the diversion of flows from this point through a new sewer to Bird Avenue along the centerline of Elmwood Avenue. This would have required major disruption of a very high traffic commercial area and was deemed impractical. Plans have been developed to instead divert the same flow that was to have been diverted through this project through a system of localized weir modifications rather than extensive pipe installation. These modifications include raising the weir at SPP 180 by 1.75' and the bench located in SPP 332 on the northeast quadrant of Gates Circle which currently directs dry weather flows into the interceptor will be removed and replaced with a 6.2' weir and restored sewer trough which will direct dry weather flows into the Bird Avenue trunk sewer.	The SPP 331 Optimization project is designed to increase the underflow capacity at SPP 331 thereby decreasing CSO 006 discharges. Together with other LTCP projects, this project is projected to reduce CSO 006 discharges to the Black Rock Canal based on the TY to 4 activations.
SPP 036 Optimization	This project consisted of the reconstruction of 35' of 30" sewer associated with SPP 036 to reverse the slope. It was located on Church Street between the off and on ramps of the Skyway (State Route 5).	The SPP 036 Optimization project was designed to increase the underflow capacity at SPP 036 thereby decreasing CSO 015 discharges. Together with other LTCP projects, this project is projected based on the TY to reduce discharges to the Erie Basin through CSO 015 to 0 activations.

Project Name	Project Description	Project Purpose*
SPP 217 Optimization	In association with the Smith Street partial sewer separation project, this project will consist of the removal of two bottom orifice plates totaling 1.42' in height, increasing the orifice size and conveyance capacity of the Emslie Street Sewer. SPP 217 is located on Emslie Street at its intersection with Eagle Street.	The SPP 217 Optimization project is designed to increase the underflow capacity at SPP 217 thereby decreasing CSO 026 discharges. Together with other LTCP projects, this project is projected to reduce CSO 026 discharges to the Buffalo River based on the TY to 3 activations.
SPP 318 Optimization	In association with the Smith Street partial sewer separation project, this project will consist of the removal of an orifice plate, increasing the orifice size and conveyance capacity of the Clinton Avenue Sewer. SPP 318 is located east of the intersection of Fillmore Avenue and Clinton Street.	The SPP 318 Optimization project is designed to increase the underflow capacity at SPP 318 thereby decreasing CSO 026 discharges. Together with other LTCP projects, this project is projected to reduce CSO 026 discharges to the Buffalo River based on the TY to 3 activations.
SPP 097A Optimization	This project consists of abandoning an inactive combined sewer, converting another to a storm sewer and abandoning the underflow connection. SPP 097A is located at the intersection of the extension of Prenatt and Orlando Streets.	The SPP 097A Optimization project is designed to eliminate SPP 097A thereby decreasing CSO 026 discharges. Together with other LTCP projects, this project is projected to reduce CSO 026 discharges to the Buffalo River based on the TY to 3 activations.
SPP 122 Optimization	This project consisted of raising of the weir associated with SPP 122 by 0.5' along its entire length. SPP 122 is located on South Legion Drive just north of the intersection with Meriden Street.	The SPP 122 Optimization project was designed to increase the flow volume conveyed by the CSS at SPP 122 thereby decreasing CSO 037 discharges. Together with other LTCP projects, this project is projected to reduce CSO 037 discharges to the Buffalo River based on the TY to 3 activations.
SPP 163 Optimization	The SPP 163 Weir Optimization project consists of replacing the existing weir with a new weir 0.75' higher. It is located to the East of the intersection of Fillmore Avenue and Northland on Northland Avenue.	The SPP 163 Optimization project is designed to increase the flow volume conveyed by the CSS at SPP 163 thereby decreasing CSO 053 discharges. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.

Project Name	Project Description	Project Purpose*
SPP 165 Optimization	This project consisted of raising of the weir associated with SPP 165 by 0.5' along its entire length. SPP 165 is located on Fillmore Avenue just north of the intersection with East Delavan Street.	The SPP 165 Optimization project was designed to increase the capacity of the CSS at SPP 165 thereby decreasing CSO 053 discharges. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.
SPP 165A Optimization	The weir associated with SPP 165A located at the intersections of Fillmore and Kensington Avenues.	The SPP 165A Optimization project was designed to increase the capacity of the CSS at SPP 165A by raising the weir by 0.75' and upsizing 675' of 15" pipe to 18" pipe to reduce CSOs in association with CSO 053. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.
SPP 178 Optimization	This project consisted of raising of the weir associated with SPP 178 by 0.5' along its entire length. SPP 178 is located on Masten Avenue just north of the intersection with Northland Avenue.	The SPP 178 Optimization project was designed to increase the flow volume conveyed by the CSS at SPP 178 thereby decreasing CSO 053 discharges.  Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.
SPP 335B Optimization	This project consisted of raising of the weir associated with SPP 335B by 1.0' along its entire length. SPP 335B is located on Hager Street just south of the intersection with Florida Street.	The SPP 335B Optimization project was designed to increase the flow volume conveyed by CSS at SPP 335B thereby decreasing CSO 053 discharges. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.
SPP 336A Optimization	This project will be constructed in association with the SPP 331 optimization. The project will consist of removing a sluice gate and orifice plate and modifying the existing structure by changing the existing side channel opening from 24" to 30". SPP 336A is located on Humboldt Parkway North of the Scajaquada Drain.	The SPP 336A Optimization project is designed to increase the underflow capacity of the CSS at SPP 336A thereby decreasing CSO 053 discharges.  Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.

Project Name	Project Description	Project Purpose*
SPP 341A Optimization	SPP 341A is located on Genesee Street east of Kerns Avenue. This project is on hold pending the results of post-construction monitoring.	The SPP 341A Optimization project would increase the flow volume conveyed by the CSS at SPP 341A thereby decreasing CSO 053 discharges. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations. Field conditions may require modification to this planned optimization.
SPP 342B Optimization	This project consisted of raising of the weir associated with SPP 342B by 1.0' along its entire length. SPP 342B is located on Sprenger Avenue adjacent to Schiller Park.	The SPP 342B Optimization project was designed to increase the flow volume conveyed by the CSS at SPP 342B thereby decreasing CSO 053 discharges. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.
SPP 001 Optimization	The weir associated with SPP 001 located at the discharge of Cornelius Creek into the Niagara River and tributary to CSO 055 has been raised 1.0' to reduce CSOs.	The SPP 001 Optimization project was designed to increase the flow volume conveyed by the CSS at SPP 001 thereby decreasing CSO 055 discharges.  Together with other LTCP projects, this project is projected to reduce CSO 055 discharges to the Niagara River based on the TY to 9 activations.
SPP 183 Optimization	This project consisted of raising of the weir associated with SPP 183 by 2.0' along its entire length. SPP 183 is located at the intersection of Bradley Avenue and Dewitt Street.	The SPP 183 Optimization project was designed to increase the flow volume conveyed by the CSS at SPP 183 thereby decreasing CSO 059 discharges.  Together with other LTCP projects, this project is projected to reduce CSO 059 discharges to Scajaquada Creek based on the TY to 0 activations.
SPP 283 Optimization	SPP 283 is located in the median between the I-190 South ramp to Porter Avenue and a service road near the West Side Rowing Club. This project consisted of removing an orifice plate which restricted flows from entering the Swan Trunk and the installation of a new 1.0' tall weir to restrict flows from discharging through CSO 063.	The SPP 283 Optimization project was designed to increase the underflow capacity of the CSS at SPP 283 thereby decreasing CSO 063 discharges.  Together with other LTCP projects, this project is projected to reduce CSO 063 discharges to the Niagara River based on the TY to 4 activations.

Project Name	Project Description	Project Purpose*
SPP 211 Optimization	This project consisted of constructing a weir to an elevation above the overflow raised pipe invert at SPP 211. SPP 211 is located at the South East corner of the intersection of Clinton and South Ogden Streets.	The SPP 211 Optimization project was designed to increase the flow volume conveyed by the CSS at SPP 211 thereby decreasing CSO 066 discharges.  Together with other LTCP projects, this project is projected to reduce CSO 066 discharges to the Buffalo River based on the TY to 4 activations.
Foundation 3 - Remaining RTC (14 sites)	These RTC projects propose to utilize available capacity in the CSS to provide flow control measures during wet weather events through the use of active controls.	In general, these projects are designed to reduce discharges to the CSOs through the detention of flows within the BSA's CSS system.
Hertel Northwest In-Line Storage	This RTC project is proposed to utilize available capacity of a large sewer to provide flow control measures during wet weather events while allowing continuous dry weather underflow. The proposed project location is within the northern of the two large combined sewers which are located under Hertel Avenue.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 055 discharges to the Niagara River based on the TY to 9 activations.
Hertel South In- Line Storage	This RTC project is proposed to utilize available capacity in the CSS capacity of a large sewer to provide flow control measures during wet weather events while allowing continuous dry weather underflow. The proposed project location is within the southern of the two large combined sewers which are located under Hertel Avenue.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 055 discharges to the Niagara River based on the TY to 9 activations.
Hertel Northeast In- Line Storage	This RTC project is proposed to utilize available capacity in the CSS capacity of a large sewer to provide flow control measures during wet weather events while allowing continuous dry weather underflow. This project will be located within the northern of the two large combined sewers which are located under Hertel Avenue.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 055 discharges to the Niagara River based on the TY to 9 activations.

Project Name	Project Description	Project Purpose*
Bird East In-Line Storage	This RTC project is proposed to utilize available capacity in the CSS capacity of a large sewer to provide flow control measures during wet weather events while allowing continuous dry weather underflow. This project will be located to the east of the above mentioned Bird RTC project along the same Bird Avenue sewer.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 004 discharges to the Black Rock Canal based on the TY to 3 activations.
East Ferry In-Line Storage	This RTC project is proposed to utilize available capacity in the CSS capacity of a large sewer to provide flow control measures during wet weather events while allowing continuous dry weather underflow. The proposed project location is along the Ferry Street sewer upstream of its leaping weir overflow to the Scajaquada Drain north of Florida Street.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.
Colorado In-Line Storage	This RTC project is proposed to utilize available capacity in the CSS capacity of a large sewer to provide flow control measures during wet weather events while allowing continuous dry weather underflow. The proposed project location is along the Colorado Avenue sewer which runs underneath the manufacturing facility located at 333 Ganson Street.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.
North Bailey In-Line Storage	This RTC project is proposed to utilize available capacity in the CSS capacity of a large sewer to provide flow control measures during wet weather events while allowing continuous dry weather underflow. The proposed project location is along Bailey Avenue north of Scajaquada Street.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.

Project Name	Project Description	Project Purpose*
South Bailey In-Line Storage	This RTC project is proposed to utilize available capacity in the CSS capacity of a large sewer to provide flow control measures during wet weather events while allowing continuous dry weather underflow. The proposed project location is along Bailey Avenue north of Scajaquada Street and south of the afore mentioned North Bailey In-Line Storage project.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.
Roslyn In-Line Storage	This RTC project is proposed to utilize available capacity in the CSS capacity of a large sewer to provide flow control measures during wet weather events while allowing continuous dry weather underflow. The proposed project location is near Roslyn Street on Lang Avenue.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.
Kay In-Line Storage	This RTC project is proposed to utilize available capacity in the CSS capacity of a large sewer to provide flow control measures during wet weather events while allowing continuous dry weather underflow. The proposed project location is Kay Street north of the Kensington Expressway.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.
Amherst Quarry Off-Line Storage	This RTC project proposes to utilize available capacity in the CSS capacity within the inactive Amherst Quarry to provide flow control measures during wet weather events, once downstream capacity is available, flows will then be pumped back into the system. The Amherst Quarry is located in an area bounded by Parkridge Avenue, East Amherst Street, and Hewitt Avenue.	This RTC project is proposed to utilize available capacity of the quarry to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 053 discharges to Scajaquada Creek based on the TY to 4 activations.

Project Name	Project Description	Project Purpose*
Fillmore North In- Line Storage	This RTC project is proposed to utilize available capacity in the CSS capacity of a large sewer to provide flow control measures during wet weather events while allowing continuous dry weather underflow. This project is proposed to be located on Fillmore Avenue, however pending the results of post-construction monitoring, it may be eliminated depending on the efficacy of the Smith Street Storage project.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 026 discharges to the Buffalo River based on the TY to 3 activations.
Gibson CSO Line Storage	This project is proposed to utilize the available capacity of the CSO pipe downstream of the SPP, but before the discharge point or outfall. It would be designed to convey water to prevent surface flooding and overflows through upstream SPPs. Once the storm event has subsided, it would be designed to dewater back into the combined system. The dewatering rate would be controlled so that it would not cause overflows downstream from the control structure. The proposed project location is on Gibson Street, however pending the results of post-construction monitoring, it may be eliminated depending on the efficacy of the Smith Street Storage project.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 026 discharges to the Buffalo River based on the TY to 3 activations.

Project Name	Project Description	Project Purpose*
Montgomery CSO Line Storage	This project is proposed to utilize the available capacity of the CSO pipe downstream of the SPP, but before the discharge point or outfall. It would be designed to convey water to prevent surface flooding and overflows through upstream SPPs. Once the storm event has subsided, it would be designed to dewater back into the combined system. The dewatering rate would be controlled so that it would not cause overflows downstream from the control structure. The proposed project location is along the railroad right-of-way near Montgomery Street, however pending the results of post-construction monitoring, it may be eliminated depending on the efficacy of the Smith Street Storage project.	This RTC project is proposed to utilize available capacity within the collection system to detain flows until downstream capacity becomes available. Together with other LTCP projects, this project is projected to reduce CSO 026 discharges to the Buffalo River based on the TY to 3 activations.
Foundation 4 - Hamburg Drain Optimizations	This project will entail several in-system optimizations, e.g. raising of weirs, lengthening of weirs, rerouting of flows, RTCs, installation of weirs, etc. and/or green infrastructure to reduce the overflow events at a number of upstream SPPs in order to control flows through CSOs 017, 022, and 064. These optimizations would be located within the Hamburg Basin.	These optimization projects are proposed to increase the flow volume conveyed by the CSS upstream of the SPPs and diverting stormwater flows out of the CSS thereby decreasing CSO 017, 022, and 064 discharges. Together with other LTCP projects, this project is projected based on the TY to reduce discharges to the Buffalo River through CSO 017 to 4 activations, CSO 022 to 5 activations, and CSO 064 to 3 activations.
Foundation 4 - Hamburg Drain Storage	Together with the Hamburg Drain Optimizations, this project would be designed to provide the equivalent of 5 MG of offline storage. This facility would be located within the Hamburg Basin.	This storage project is proposed to provide off-line storage thereby decreasing CSO 017, 022, and 064 discharges. Together with other LTCP projects, this project is projected based on the TY to reduce discharges to the Buffalo River through CSO 017 to 4 activations, CSO 022 to 5 activations, and CSO 064 to 3 activations.

Project Name	Project Description	Project Purpose*
Green Infrastructur	e Projects	(1995年) · 1995年 · 199
Green 1 - Pilot Projects – 267- acres of GI control SEE DETAILS FOLLOWING FOR SPECIFIC PROJECTS	Projects consist of multiple green infrastructure projects that will overlap in engineering and construction.	In general, this phase is designed to control stormwater flow from 267 acres of impervious area in the various sewer sheds within the targeted areas.
2001-2013 Demolitions	This project consists of the demolition of vacant houses thereby replacing impervious with pervious surface.	This project is designed to control stormwater flow from 354 total acres of impervious area.
2014-2018 Demolitions	This project consists of the demolition of vacant houses thereby replacing impervious with pervious surface. In addition, the BSA is piloting alterations to the City of Buffalo's demolition specifications to allow for the use of modified rain gardens to increase onsite infiltration.	This project is designed to control stormwater flow from 50 total acres of impervious area.
PUSH Blue Projects	PUSH-Buffalo will install rain gardens, porous pavement and a green roof and distribute rain barrels within the CSO 012 sewer shed.	This project is designed to control stormwater flow from 1 acre of impervious area.
1	This project consists of the installation of pervious pavement to retain stormwater from the area tributary to the Right-of-Way on Carlton Street between Michigan and Jefferson Avenues in the City of Buffalo as part of the City's streetscape project.	This project is designed to control stormwater flow from 1 acre of impervious area.

Project Name	Project Description	Project Purpose*
Fillmore Avenue Porous Parking Lots and Green Lots	This project consists of the installation of porous pavement parking lots and modified rain gardens to retain stormwater from the area tributary to the Right-of-Way of Fillmore Avenue in the City of Buffalo as part of the City's streetscape project.	This project is designed to control stormwater flow from 0.4 total acres of impervious area.
Ohio Street	This project consists of the installation of green infrastructure to retain stormwater from the area tributary to the Right-of-Way on Ohio Street in the City of Buffalo as part of the City's streetscape project.	This project is designed to control stormwater flow from 6.1 total acres of impervious area.
Kenmore Avenue	This project consists of the installation of green infrastructure to retain stormwater from the area tributary to the Right-of-Way on Kenmore Avenue in the City of Buffalo as part of the City's streetscape project.	This project is designed to control stormwater flow from 5.17 total acres of impervious area.
Genesee Gateway Project	This project consists of the installation of green infrastructure to retain stormwater from the area tributary to the Right-of-Way on Genesee Street in the City of Buffalo as part of the City's streetscape project.	This project is designed to control stormwater flow from 2.8 total acres of impervious area.
Allen Street	This project will consist of the installation of green infrastructure to retain stormwater from the area tributary to the Right-of-Way for the portion of Allen Street between Main Street and Elmwood Avenue in the City of Buffalo as part of the City's streetscape project.	This project is designed to control stormwater flow from 2.5 total acres of impervious area.
Niagara Street	This project consists of the installation of green infrastructure to retain stormwater from the area tributary to the Right-of-Way for the length of Niagara Street in the City of Buffalo as part of the City's streetscape project.	This project is designed to control stormwater flow from 50 total acres of impervious area.

Project Name	Project Description	Project Purpose*
Green 2 – 410 acres of GI Control	These projects will consist of multiple green infrastructure projects that will overlap in engineering and construction. Details will be provided in the Phase 2 Green Infrastructure Master Plan.	In general, these projects would be designed to retain stormwater flow from 410 acres of impervious area in the various sewer sheds in the targeted areas.
Green 3 – 375 acres of GI Control	These projects will consist of multiple green infrastructure projects that will overlap in engineering and construction. Details will be provided in the Phase 2 Green Infrastructure Master Plan.	In general, these projects would be designed to retain stormwater flow from 375 acres of impervious area in the various sewer sheds in the targeted areas.
Green 4 – 263 acres of GI Control	These projects will consist of multiple green infrastructure projects that will overlap in engineering and construction. Details will be provided in the Phase 2 Green Infrastructure Master Plan.	In general, these projects would be designed to retain stormwater flow from 263 acres of impervious area in the various sewer sheds in the targeted areas.
<u>WWTP</u>		
WWTP Improvement Project Alternative C2	The proposed project is expected to rehabilitate the existing primary clarifiers by adding high rate disenfection and additional secondary clarifiers at the Bird Island WWTP.	This project would be designed to provide treatment of wet weather flows and increased secondary treatment capacity.

Project Name	Project Description	Project Purpose*
经样头	<b>国际的人类的基础是一个人的人</b>	
Gray Projects		
CSOs 014/15 – Erie Basin In-line storage and optimization projects SEE DETAILS FOLLOWING FOR SPECIFIC PROJECTS		
SPPs 206A&B	A new 113,000 gallon in-line storage facility was constructed in association with SPPs 206A&B to reduce CSOs at CSO 014. This site is located at Trenton Road/ Village Court north east of Fourth Street.	This project was designed to provide in-line storage thereby decreasing CSO 014 discharges through SPPs 206A&B. Together with other LTCP projects, this project is projected based on the TY to reduce discharges to the Erie Basin through CSO 014 to 2 activations.
SPP 035	A new 50,000 gallon in-line storage facility was constructed between the Genesee Trunk and Swan Trunk sewers to create additional storage capacity in association with SPP 035 (CSO 015). This project is located to the north west of the intersection of South Elmwood Avenue and West Genesee Street.	This project was designed to provide in-line storage thereby decreasing CSO 015 discharges through SPP 35. Together with other LTCP projects, this project is projected based on the TY to reduce discharges to the Erie Basin through CSO 015 to 0 activations.
SPP 036	This project consisted of the reconstruction of 35' of 30" sewer associated with SPP 036 to reverse the slope. This site is located on Church Street between the off and on ramps of the Skyway bridge (State Route 5).	This sewer reconstruction project was designed to increase the underflow capacity of the CSS thereby decreasing CSO 015 discharges. Together with other LTCP projects, this project is projected based on the TY to reduce discharges to the Erie Basin through CSO 015 to 0 activations.

Project Name	Project Description	Project Purpose*
CSO 013 – Satellite storage, conveyance, FM & PS	CSO 013 is located at the extension of Virginia Street into the Black Rock Canal, the structure is tentatively planned to be built between the last SPP structure and the Canal. The proposed satellite storage facility would consist of a covered, concrete, underground tank.	This storage project would provide off-line storage thereby decreasing CSO 013 discharges. Preliminary design is for a 0.3 MG offline storage facility. Together with other LTCP projects, this project is projected based on the TY to reduce discharges to the Black Rock Canal through CSO 013 to 4 activations.
North Relief – Interceptor	This project will consist of a deep tunnel relief sewer to run in the vicinity of Niagara Street between Bird Avenue and Albany Street with an additional line connecting the tunnel to the WWTP influent siphon. Preliminary design is for 5,310' of 96"pipe and 571' of 120" pipe.	The purpose of this project is to reduce discharges through CSOs 004, 011, and 012, by creating a new relief sewer thereby creating offline storage capacity capacity in the CSS. Together with other LTCP projects, this project is projected based on the TY to reduce discharges to the Black Rock Canal through CSO 004 to 3 activations, CSO 011 to 4 activation, and CSO 012 to 2 activations.
061, 004 –	This project will consist of upsizing of underflow piping to maximize flow to the interceptors. This project is tentatively proposed for between Breckenridge Street and Brace Street along the I-190 with an extension along Brace Street across Niagara Street.	This underflow capacity upsizing project would increase the capacity of the CSS thereby decreasing CSO 010, 008, 061 and 004 discharges. Together with other LTCP projects, this project is projected based on the 1993 Modified Typical Year to reduce discharges to the Black Rock Canal through CSO 004 to 3 activations, CSO 010 to 1 activations, CSO 008 to 0 activations, and CSO 061 to 4 activations.
<ul> <li>Satellite storage,</li> </ul>	SPP 337 is located at Colorado Street North of Scajaquada Street. The proposed satellite storage facility would consist of a covered, concrete, underground tank.	The purpose of this project is to reduce discharges through CSO 53 to the Scajaquada Creek. Preliminary design is for a 0.7 MG off-line storage facility. Together with other LTCP projects, this project is projected reduce CSO discharges to Scajaquada Creek based on the TY to 4 activations.
SPP 336A&B (CSO 053) – Satellite storage, conveyance, FM & PS	SPP 336A&B are located on Humboldt Parkway on each side of the Scajaquada Drain. The proposed satellite storage facility would consist of a covered, concrete, underground tank.	The purpose of this project is to reduce discharges through CSO 53 to the Scajaquada Creek. Preliminary design is for a 4.2 MG off-line storage facility. Together with other LTCP projects, this project is projected reduce CSO discharges to Scajaquada Creek based on the TY to 4 activations.

Project Name	Project Description	Project Purpose*
Jefferson Avenue & Florida Street (CSO 053) – Satellite storage, conveyance and FM	The proposed location for this facility is in the vicinity of the intersection of Jefferson Avenue and Florida Street. The proposed satellite storage facility would consist of a covered, concrete, underground tank.	The purpose of this project is to reduce discharges through CSO 53 to the Scajaquada Creek. Preliminary design is for a 2.6 MG off-line storage facility Together with other LTCP projects, this project is projected reduce CSO discharges to Scajaquada Creek based on the TY to 4 activations.
CSO 055 – Satellite storage, conveyance, FM & PS	For CSO 055, the proposed storage facility would be located upstream of the regulator, near Military Road. At this location, an offline facility would be constructed and flows above 26 MGD (instantaneous peak) would be diverted from the South Hertel Trunk sewer into the storage facility. The proposed satellite storage facility would consist of a covered, concrete, underground tank.	The purpose of this project is to reduce discharges through CSO 55 to the Niagara River. Preliminary design is for a 7.5 MG off-line storage facility. Together with other LTCP projects, this project is projected reduce CSO discharges to the Niagara River through CSO 55 based on the TY to 9 activations.
CSOs 028/044/047 - Satellite storage, conveyance, FM & PS	The proposed location for this facility is underneath the Tops parking lot between South Park Avenue and the Buffalo River. The proposed satellite storage facility would consist of a covered, concrete, underground tank.	The purpose of this project is to reduce discharges through CSO 28 to the Buffalo River and through CSOs 047 and 044 to Cazenovia Creek. Preliminary design is for a 2.3 MG off-line storage facility. Together with other LTCP projects, this project is projected reduce CSO discharges based on the TY to 6 activations through CSO 028, 2 activations through CSO 044 and 3 activations through CSO 047.
CSO 052 – Satellite storage, conveyance, FM & PS	The proposed location for this facility is in the vicinity of South Ogden Street between Mineral Springs Road and Cazenovia Creek. The proposed satellite storage facility would consist of a covered, concrete, underground tank.	The purpose of this project is to reduce discharges through CSO 52 to the Buffalo River. Preliminary design is for a 0.6 MG offline storage facility. Together with other LTCP projects, this project is projected reduce CSO discharges to the Buffalo River through CSO 052 based on the TY to 3 activations.

Project Name	Project Description	Project Purpose*
CSO 064 – Satellite	The proposed location for this facility is in the vicinity of the	The purpose of this project is to reduce discharges through CSO 064 to the
storage,	confluence of Ohio, Louisiana and Saint Claire Streets. The proposed	Buffalo River. Preliminary design is for a 0.1 MG off-line storage facility.
conveyance, FM &	satellite storage facility would consist of a covered, concrete,	Together with other LTCP projects, this project is projected reduce CSO
PS	에 내용하다 아내는 내용 사람들은 사람들이 가장 사람들이 가장하는 것이 없는데 나를 보고 있다. 그는 사람들이 가장 그는 사람들이 되었다. 그는 사람들이 되었다면 살아보는데 그는 사람들이 되었다.	discharges to the Buffalo River through CSO 064 based on the TY to 3 activations.

\*Note: Black Rock Canal Performance Criterion is 4 Activations in the Typical Year
Buffalo River Performance Criterion is 6 Activations in the Typical Year
Cazenovia Creek - B Performance Criterion is 4 Activations in the Typical Year
Cazenovia Creek - C Performance Criterion is 6 Activations in the Typical Year
Erie Basin Performance Criterion is 2 Activations in the Typical Year
Niagara River Performance Criterion is 9 Activations in the Typical Year
Scajaquada Creek - Performance Criterion is 4 Activations in the Typical Year

# Attachment D to the Semi-Annual Status Report: September 2015

Foundation 4- Hamburg Drain Optimizations



August 25, 2015

Reference No. 631012

Rosaleen Nogle, PE, Associate Engineer Buffalo Sewer Authority 1038 City Hall 65 Niagara Square Buffalo, New York 14202

Dear Ms. Nogle:

Re: Hamburg Drain Optimization Project
Mill Race and Chicago Street Control Structures

As requested at our update meeting on August 12, 2015, the following outlines the concept, status, and schedule for the referenced project which is currently under design by GHD. As you know, this project is part of the Hamburg Drain Optimizations Item, which according to the approved implementation schedule for the Buffalo Sewer Authority's (BSA) approved Long Term Control Plan (LTCP) and associated Amended Administrative Order, is to be completed as follows:

Engineering Start: March 18, 2015

Engineering Completion: March 18, 2017

Notice to Proceed: March 18, 2016

Substantial Completion: March 18, 2018

Note that the schedule shown allows for staged design and construction since the project is likely to be designed and constructed in phases. The information below takes this into consideration.

# 1. Project Summary

Currently the project involves the construction of two separate control chambers in the Mill Race and Chicago Street Sewers to take advantage of available storage in these overflow sewers to control overflows from SPPs 67 and 281, respectively. In addition, the projects include the construction of interconnections or drains between the control structures and the South Interceptor. Finally, the project preliminarily includes partial sewer separations in the same general area to reduce overflows from five smaller SPPs south of I-190 (SPPs 129, 130, 133, 135, and 145). As outlined in the LTCP, during the preliminary design phase, the BSA will evaluate the use of additional Green Infrastructure as a means of reducing or



eliminating the need for the sewer separation portion of the project. In concept, this project is similar to the Smith Street RTC project that is currently under design and construction.

# 2. Project Status

To date, GHD has begun the preliminary design phase of the project including review of available as-built information, confirmation of weir heights, preliminary site selection, hydraulic modeling and conceptual layout development of the proposed improvements. The next step in the process is to determine the condition of both the Mill Race and Chicago Street Sewers and identify any known and unknown connections, so that all tributary flows can be accounted for and included in the final design. In order to make these determinations, the inside of the sewers must be thoroughly inspected. GHD is currently completing negotiations with a subconsultant (OpTech) to complete the inspection. As you know, on July 17, 2015, representatives for both GHD and the BSA met with OpTech and conducted a site visit to discuss the scope and limits of the inspection and identify access points. During that visit, the team realized that the majority of both sewers were nearly full of water. Upon further investigation it was determined that due to the unusually wet summer, water levels in Lake Erie and the Buffalo River were much higher than originally anticipated. Normally the majority of the length of the sewers to be inspected is either dry or nearly so. These elevated water levels continue.

# 3. Project Schedule

This being the case and based on a review of historical lake levels it now appears that the inspection will not take place until late fall or early winter which will make the issuance of the notice to proceed on March 18, 2016 unfeasible. Our belief is that had the inspection been completed in July or August as originally intended and barring any other unforeseen delays, the design schedule would have been met. Obviously, unusually and prolonged high lake levels are neither in the control of the BSA or GHD.

Recognizing the amount of design yet to be completed that is dependent upon the results of the inspection, GHD recommends that the Schedule be revised to account for this delay. Based upon our understanding that the project design will include both chambers while construction may be phased over separate projects, we believe that the following revised schedule of remaining milestones is reasonable.

Engineering Completion: March 18, 2017 (unchanged)

Notice to Proceed: June 18, 2017

Substantial Completion: March 18, 2019

GHD and OpTech will be prepared to mobilize immediately when lake levels permit the inspection and will be monitoring lake levels via the NOAA website. However, we would appreciate it if the BSA would also periodically check the actual water levels in both sewers, so that we can respond and complete the inspection quickly.

631012-Nogle1 (MJQ)\_1

Thank you for the opportunity to continue with this important project and please do not hesitate to contact us should you need any further information or clarification.

Sincerely,

**GHD** 

Michael J. Quinn, P.E., B.C.E.E

Associate

MJQ/ck/1

cc: B. Smith, C. Cowan

File

631012-Nogle1 (MJQ)\_1

# Attachment E to the Semi-Annual Status Report: September 2015

Green Infrastructure Design Reports

# FRUIT BELT REDEVELOPMENT OF CARLTON STREET FROM MICHIGAN AVENUE TO JEFFERSON AVENUE NYSDOT PIN 5759.40

# CITY OF BUFFALO ERIE COUNTY, NEW YORK

## POROUS PAVEMENT TECHNICAL MEMORANDUM

Prepared by:



620 Main Street Buffalo, NY 14202-1906 Phone: 716-849-8739

Fax: 716-856-0981

2010.0374.00 July 2013

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This document has been prepared by TVGA Consultants to describe the porous pavement treatment that will be implemented to mitigate negative impacts from stormwater runoff within the Carlton Street Redevelopment area. The project area is shown in Appendix A - Location Map.

#### I. INTRODUCTION

#### A. Project Description

The project involves rehabilitation of Carlton Street between Michigan Avenue and Jefferson Avenue within the City of Buffalo, New York. The existing pavement, curbs, and sidewalk are in poor condition throughout the project corridor. The proposed project involves a mill and overlay of the existing pavement, replacement of curbing, replacement of sidewalks and installation of ADA compliant curb ramps, replacement of driveway aprons, replacement of signage and striping including safety upgrades, installation of new decorative street lighting, and landscaping improvements. Additionally, the existing roadway will be reduced in width by 2.0 linear feet along the south side of the roadway in an attempt to preserve several old growth elm trees residing in the south side snow storage area.

Porous pavement will be installed along Carlton Street between Orange Street and Rose Street to reduce the stormwater runoff entering the combined sewer system. The pervious asphalt in this section accounts for 43% of the project corridor as shown in Appendix A – Location Map.

#### B. <u>Existing (Pre-Developed) On-Site Conditions</u>

The project corridor consists of primarily residential properties. Roswell Park Cancer Institute is located at the west end of the project (Michigan Avenue) and Marva J. Daniel Futures Academy (School #37) is located on the south side of Carlton Street midway through the corridor (between Orange and Peach Streets), as shown in Appendix B. The project area generally drains to the south east. The corridor is not located adjacent to any known stormwater hotspots.

Soil borings and pavement cores of the project corridor were collected by Quality Inspection Service, Inc on August 2, 2012. Two soil borings (B-3 and B-4) were taken in the northern snow storage area within the limits of the porous pavement. Both borings found fine sand 3.5 feet below the surface. At a depth of 6 feet below the surface, both borings had a combination of clayey silt, and silty clay. The groundwater surface elevation was not reached at a depth of 8 feet at either location.

Two pavement cores were taken within the porous pavement limits. The first core (C-2), taken approximately 100 feet east of Orange Street, consisted of asphalt surface on a concrete subbase. The concrete subbase was laid on fine sand to a final drilling depth of 3 feet below the surface. The second pavement core (C-3), taken approximately 55 feet west of Rose Street, consisted of 3.5 inches of asphalt followed by gravel to a depth of 2 feet. Below the gravel subbase is fine sand and silty clay, to a final drilling depth of 3 feet. The boring logs for the porous pavement section are provided in Appendix D.

### C. <u>Proposed (Post-Developed) On-Site Conditions</u>

The proposed project includes the rehabilitation of the existing roadway, curbs, sidewalks, and lighting, including four blocks of porous pavement. The porous pavement section will utilize 6 inches of pervious asphalt, a biaxial geogrid for stability, and 12 inches of gravel subbase for stormwater storage. Within 3 feet of the proposed curb line, the gravel subbase storage area will be extended to 3 feet in depth, and include an 8 inch perforated underdrain to convey uninfiltrated stormwater to the combined sewer system. Appendix C - MD-3 shows the proposed pervious pavement features.

#### D. Environmental Impact

Correspondence with the New York State Department of Environmental Conservation dated June 13, 2011 confirmed that there are "no records of rare or state listed animals or plants, significant natural communities or other significant habitats, on or in the immediate vicinity" of this project site. No further investigation or coordination regarding protected plants and animals is required.

Correspondence with the New York State Office of Parks, Recreation and Historic Preservation (SHPO) dated May 27, 2011 stated that "it is SHPO's opinion that your project will have No Effect upon cultural resources in or eligible for inclusion in the National Register's of Historic Places." No further coordination with SHPO is required.

#### II. POROUS PAVEMENT CAPTURE AREA AND CAPACITY

#### A. <u>Capture Area of Porous Pavement</u>

The capture area of the porous pavement was determined to be 5.90 acres, using project topographic survey, United States Department of Interior Geologic Survey (USGS) topographic mapping, and proposed project reconstruction plans.

A review of the available USGS topographic mapping determined that the stormwater generally drains to the south east throughout the corridor. The USGS topographic mapping is shown in Appendix A – Location Map. A profile of Carlton Street within the project limits shows that the corridor drains eastward, as shown in Appendix B – Drainage Area Plans.

It was assumed that none of the structures in the capture area have roof drains connected directly to the combined sewer, and that all roof runoff will be conveyed to the porous pavement.

#### B. <u>Porous Pavement Sizing and Capacity</u>

Review of the soil boring and pavement cores in Appendix D reveal a general presence of fine sand at a depth of 3 to 3.5 feet. This sand layer is ideal for infiltration of rainfall into the native soils.

Below the pervious asphalt, the porous pavement will be supported on 12 inches of gravel subbase for stormwater storage. Additional storage will be provided within 3 feet of the proposed north and south curb lines, providing an average gravel subbase depth of 1.74 feet. Per New York State Stormwater Management Design Manual (August 2010) guidance, the required porous surface area for this capture area is 9,782 square-feet. Calculations for the porous pavement sizing are included in Appendix E.

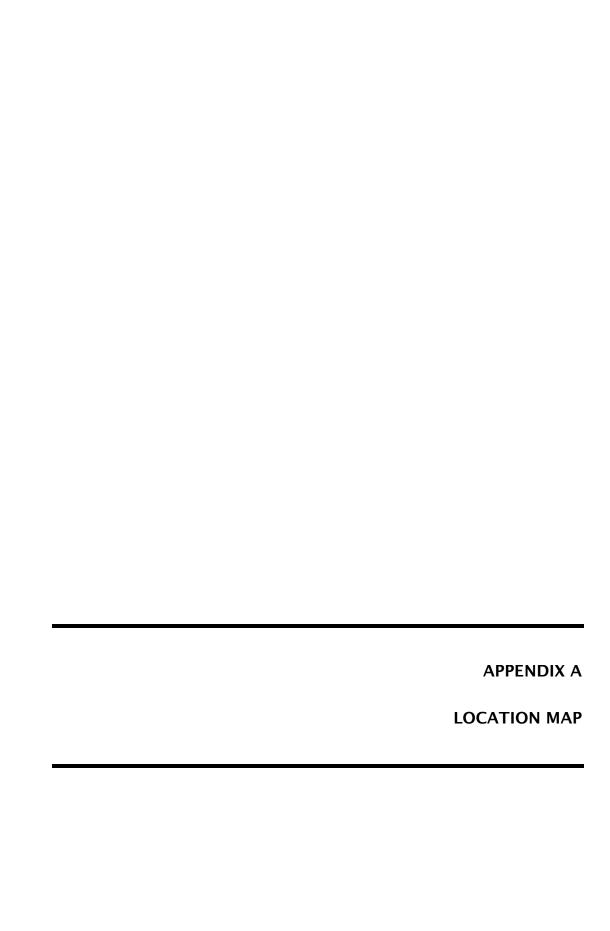
The provided porous pavement area will cover 38,280 square-feet of roadway. The gravel subbase reservoir provided is capable of storing almost 4 times the required stormwater volume.

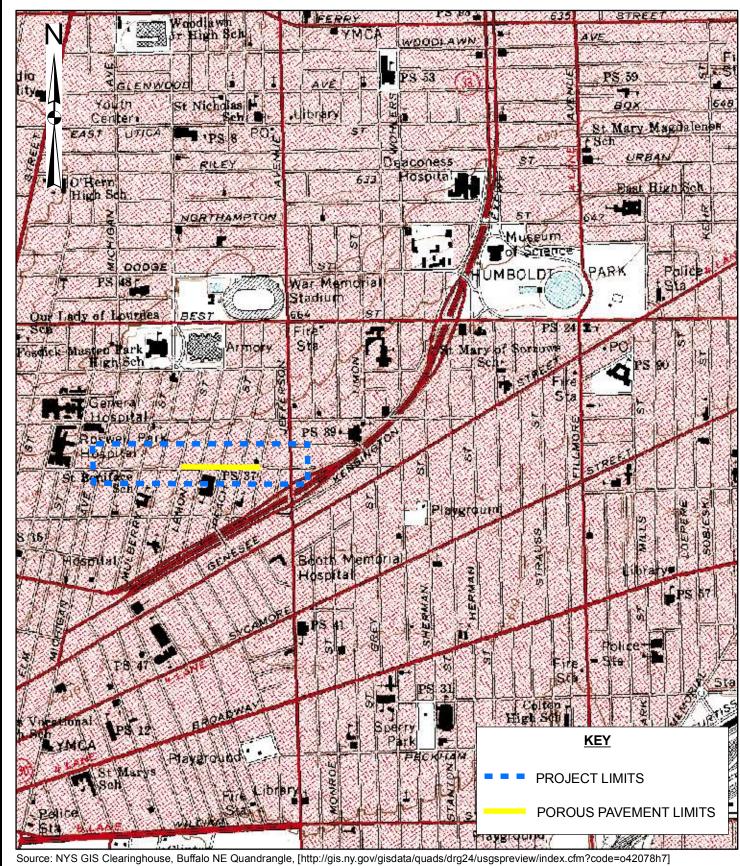
Table II-1: Porous Pavement Sizing and Capacity				
Required Provided				
Porous Pavement Area	9,782 SF	38,280 SF		
Storage Volume	6,808 CF	26,676 CF		

#### III. PERVIOUS ASPHALT MAINTENANCE

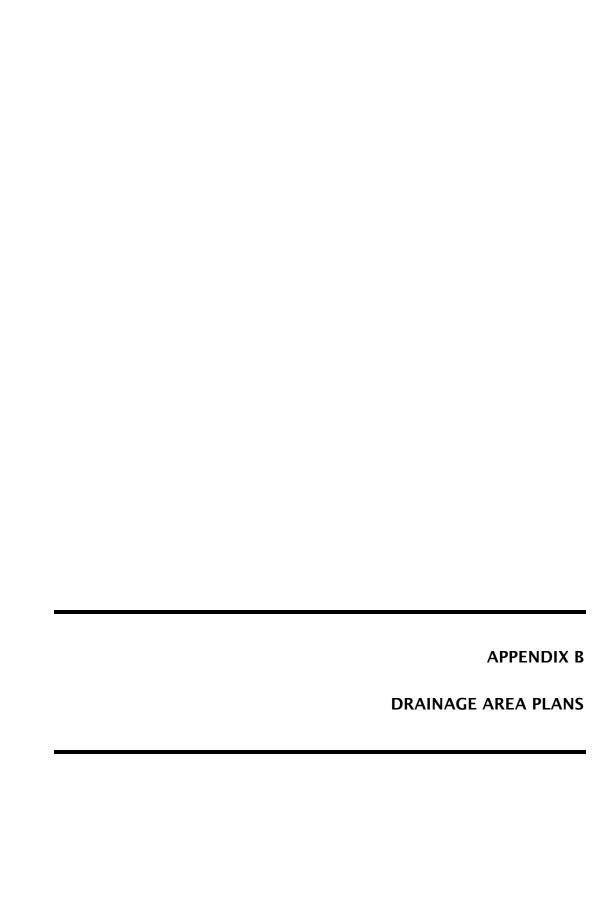
All porous pavements, including pervious asphalt, are highly susceptible to clogging and must be properly maintained to maintain infiltration rates and the long term permeability of the pavement. It is critical that sand and cinders are not used as deicing agents in porous pavement areas as they will quickly clog the pavement pores. The New York State Stormwater Management Design Manual (August 2010) recommends the following maintenance activities for permeable paving.

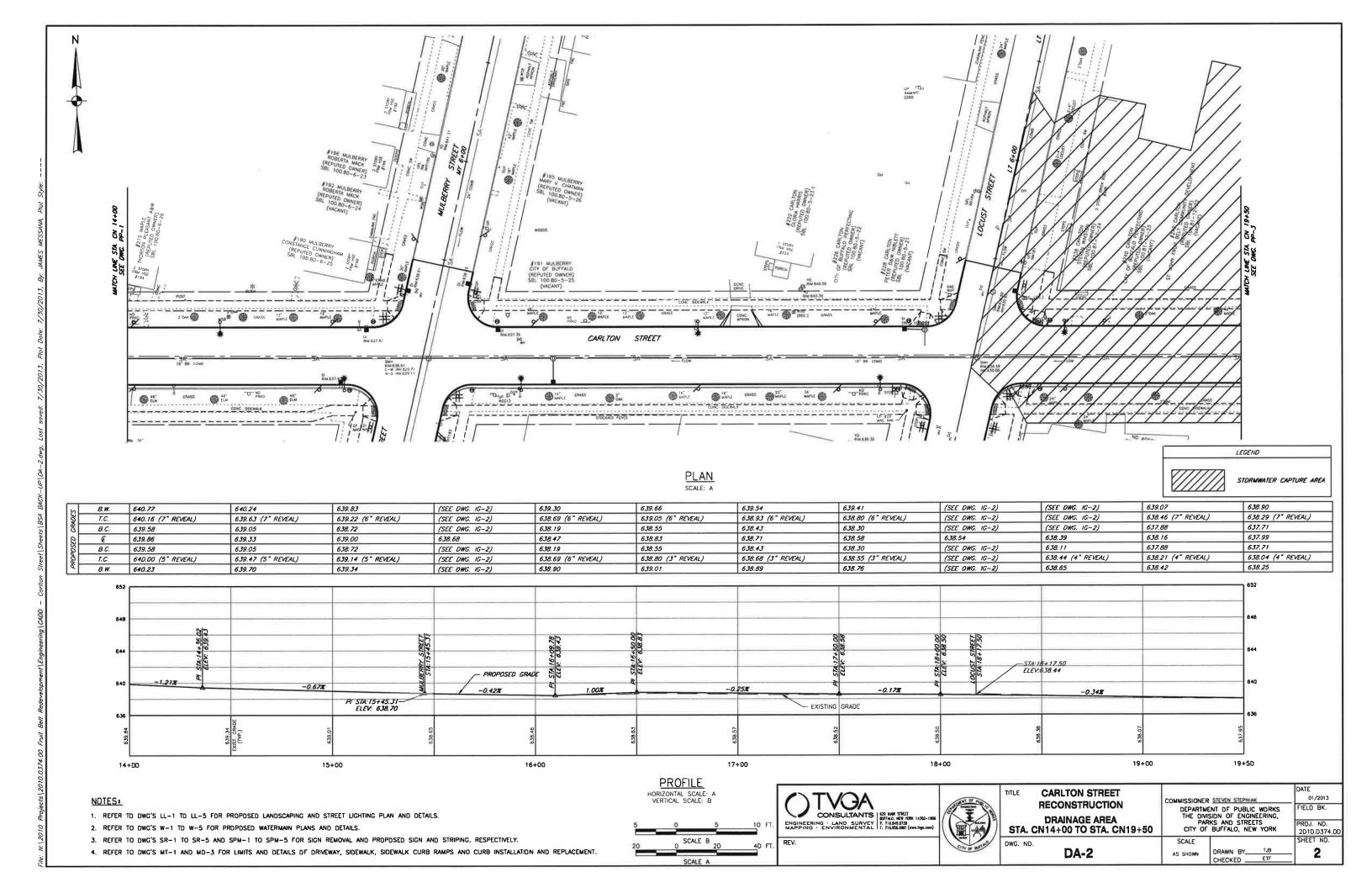
Table III-1: Pervious Asphalt Maintenance Schedule			
Activity	Frequency		
Ensure that paving area is clean of debris	monthly		
Ensure that paving area dewaters between storms	monthly and after storm >0.5" rainfall		
Ensure that the area is clean of sediments	monthly		
Mow upland and adjacent areas	as needed		
Vacuum sweep to keep surface free of sediments	3 - 4 times a year		
Inspect the surface for deterioration	annually		

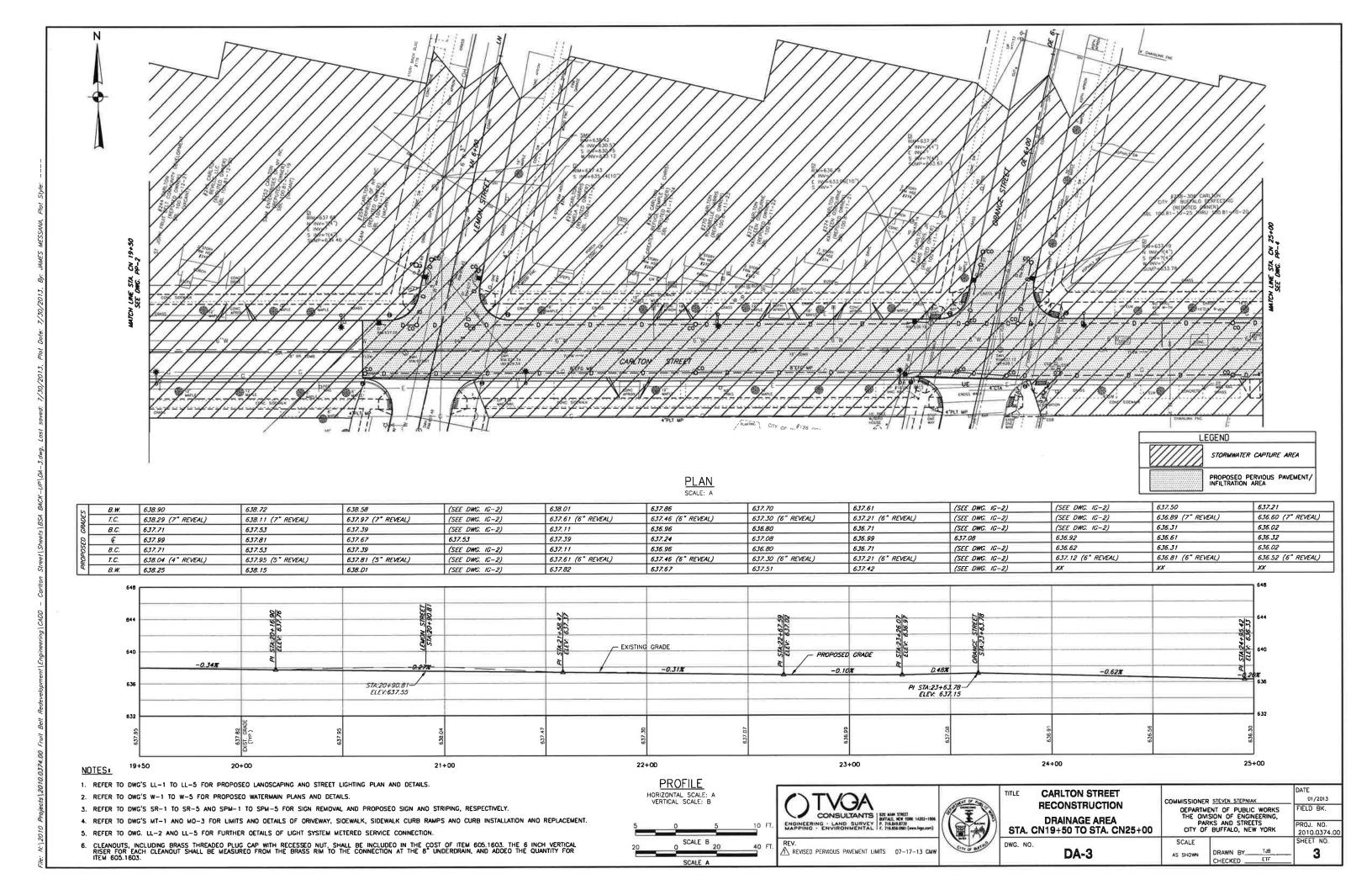


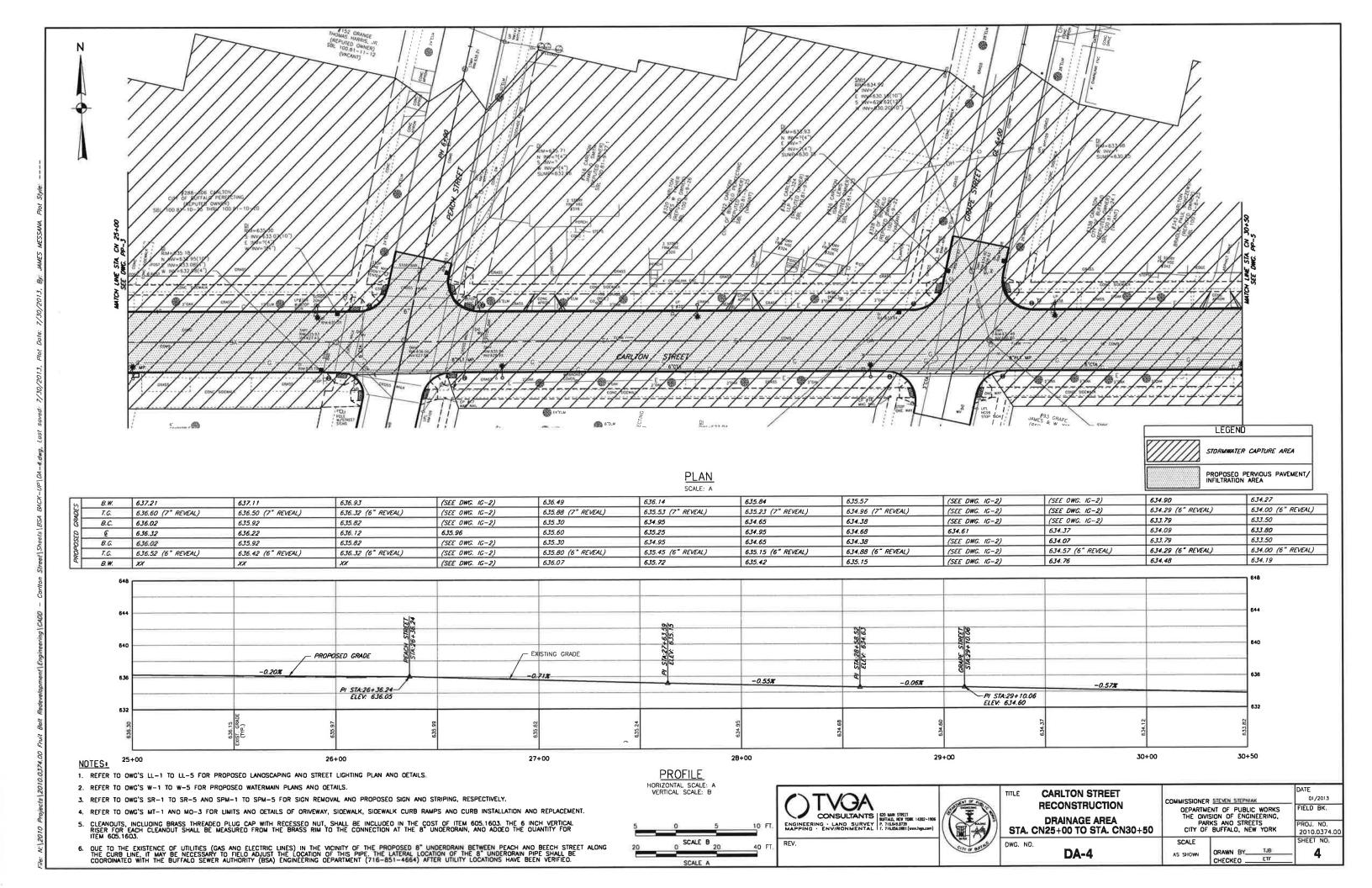


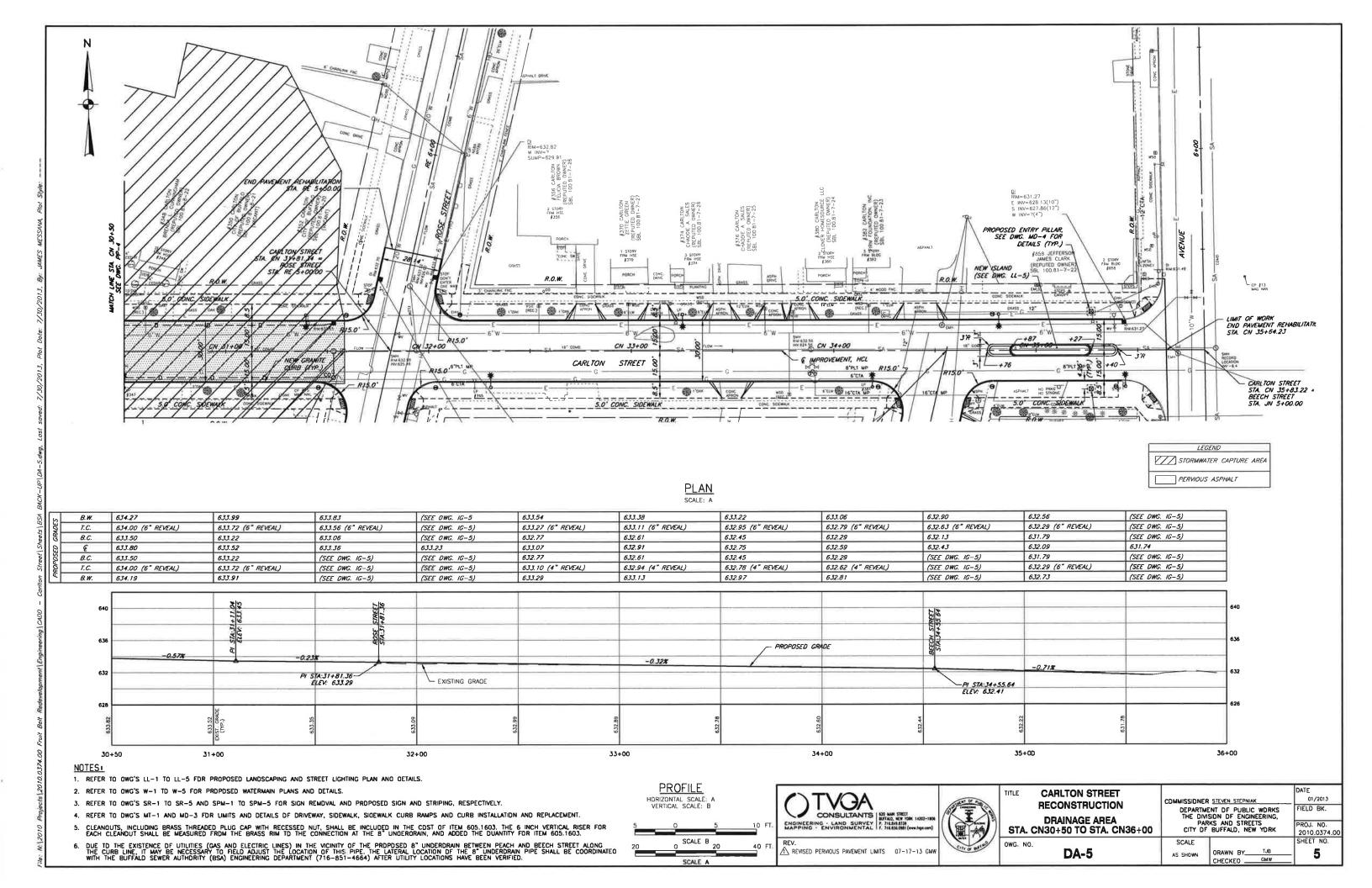
PROJECT LOCATION MAP					
CARLTON STREET P. 716.849.8739 F. 716.856.0981 www.trga.com  BETWEEN MICHIGAN AVENUE AND JEFFERSON AVENUE			VENUE		
PROJECT NO. 2010.0374.00	1 inch = 1,300 feet	JULY 2013	FIGURE NO. 1		

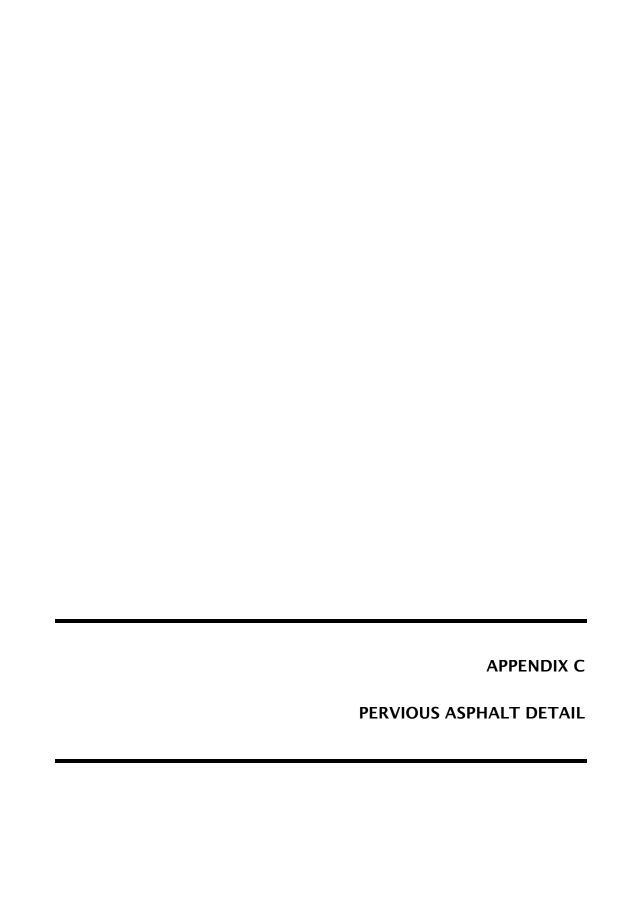


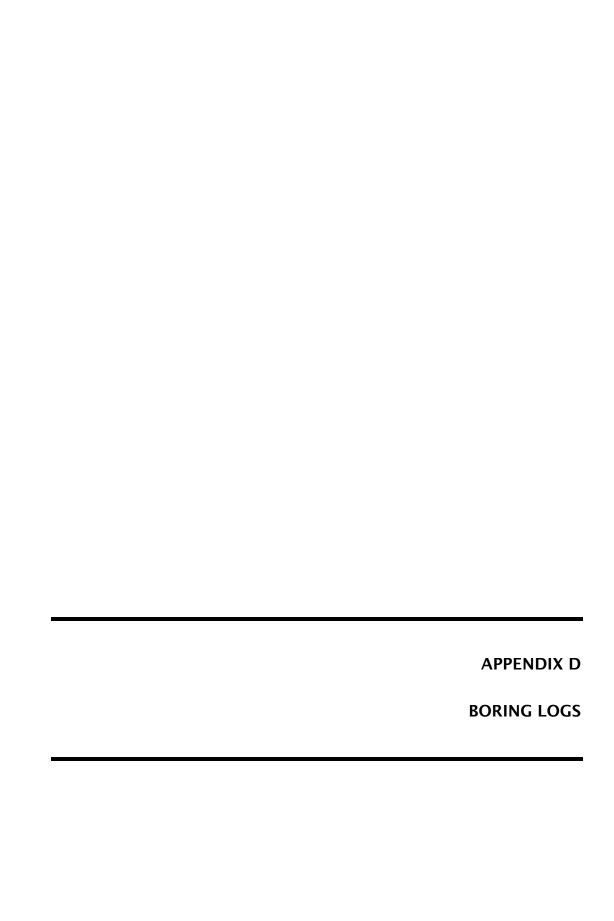












Page 1 of 1

o's

**Boring No.:** 

B-3

Elevation: N/A

Date		Tir	me	Start D	enth	Finis	n Dept	h	Weather		Temp		Driller
	02/		iic .	Start	0 ft.	1111131		ft.	Sunny		75		JT
, J	02,	-			0 10.				Juliny			•	
Drilli	ng M	ethod/Siz	e of Casing: 2	.25 inch	ID HSA	-	Туре	of Dri	ill Rig:	Soil N	/lax		
_			plit Spoon				Samp	le Ha	mmer WT/F	all: <b>14</b>	10 lbs/3	30 inc	hes
Proje	ect:	Carlton S	Street Reconst	ruction			Wate	r Leve	el (bgs)	Date		Time	
			Street (Various	Addres	ses)		1)		NA				
		Buffalo,					2)	<u></u>					
Dept	h	Sample		"N"	Sample	l	Cla	assific	ation of Soi	l/Rock	Mater	ials	
(ft)		Number	Sampler	Value	Recovery	<u> </u>	0.417						
1		C 1	4 7	-			0.4' T						
1	-	S -1	6 7	13	1. 0'				vn fine-coar	se san	D, IITTI	e Siit	
2			6 /	13	1. 0		trace	KOOL	s, dry (FILL)				
_	-		-	+			Tan-k	rown	fine SAND,	little-s	ome S	ilt. me	 nist
3		S -2	7 7	1					3,,			,	0.01
1			9 10	16	1. 5'								
4													
	-					1	Red-l	orowr	n Clayey SIL	 Γ, trace	Sand,	mois	 t
5		S -3	10 9										
			7 15	16	2. 0'								
6						<u> </u>							
							•		n, Clayey Sl	LT, trac	ce Sano	d, trac	ce
7	_	S -4	16 14		4 01		Grave	el, mo	oist				
			17 20	31	1. 8'								
8	-			-		-		_					
9				-			Rorin	a Cor	nplete @ 8.	∩ foot			
	-		-	-			DOTT	ig COI	iipiete @ o.	o ieet			
10				1									
				1									
11													
12													
13													
14													

bgs= below ground surface

Page 1 of 1



**Boring No.:** 

B-4

Elevation: N/A

By   12   0   15   15   15   15   15   15   15													
Drilling Method/Size of Casing: 2.25 inch ID HSA Type of Sampler: Split Spoon  Froject: Carlton Street Reconstruction Carlton Street (Various Addresses) Location: Buffalo, NY  Depth Number  Sample Sample (ft)  S -1	Date	Tim	ne	Start D	epth	Finish	n Dept	h	Weather		Temp	1	Oriller
Sample   Sampler   Split   Spoon   Sample   Hammer   WT/Fall:   140   Ins/30   inches	8/ 02/	12			0 ft.		8	ft.	Sunny		80 F		JT
Sample   Sampler   Split   Spoon   Sample   Hammer   WT/Fall:   140   Ins/30   inches													
Name	Drilling M	ethod/Size	of Casing: 2	25 inch	ID HSA		Туре	of Dri	ll Rig:	Soil N	⁄lax		
Carlton Street (Various Addresses)											0 lbs/30	inch	es
Depth   Sample   Recovery   Sample   Sample   Sample   Value   Recovery   Depth   Sample   Number   Sample   Value   Recovery   Depth   Sample   Number   Sample   Value   Recovery   Depth   Sample   Classification of Soil/Rock Materials   Depth   De	Project:							r Leve	l (bgs)	Date	Ti	me	
Depth (ft)   Sample (ft)   Number   Sample (ft)   Number   Sample (value   Recovery   Classification of Soil/Rock Materials				Addres	ses)				NA				
Number   Sampler   Value   Recovery								L.,		/2 .			
1					,		Cla	assitica	ation of Soil,	/Rock	Material	S	
S -1   4   7   8   7   15   0. 4'   Black-brown SILT, little fine-coarse Sand, dry (FILL)   Tan-brown fine SAND, little Silt, moist   Tan-brown Silty CLAY, trace Sand, moist   S -3   11   9   12   16   21   1. 8'   Red-brown, Clayey SILT, trace Sand, moist   Red-brown, Clayey SILT, trace Sand, moist   S -4   11   15   18   22   33   N A   Boring Complete @ 8.0 feet   Tan-brown fine SAND, little Silt, moist   Tan-brown fine SAND, little Silt, mo	(ft)	Number	Sampler	Value	Recovery	-	0.217	!					
S -2   S -6   S -7   15   O. 4'   dry (FILL)	1	C 1	4 7										
2	0.	3-1		15	0.4'				n sici, iittie	iiie-c	oarse sai	nu,	
3	2		8 /	12	0. 4		ury (i	ILL)					
3       S - 2       5 6 6 7 12       1. 5'         4       S - 3       11 9 12 16 21 1. 8'       Red-brown Silty CLAY, trace Sand, moist         7       S - 4 11 15 18 22 33 N A       Red-brown, Clayey SILT, trace Sand, moist         8       Boring Complete @ 8.0 feet         10       Boring Complete @ 8.0 feet         12       Boring Complete @ 8.0 feet	- 0	1					Tan-l	rown	fine SAND	little S	ilt moist		
4	3	S -2	5 6	1			Turr .	,, 0 ,,,,	Time of tito,		111, 1110150		
4				12	1. 5'								
5     S -3     11     9       12     16     21     1. 8'       7     S -4     11     15       18     22     33     N A       8     Boring Complete @ 8.0 feet       10     Boring Complete @ 8.0 feet       12     Boring Complete @ 8.0 feet	4												
12 16 21 1.8'  Red-brown, Clayey SILT, trace Sand, moist  Red-brown, Clayey SILT, trace Sand, moist  Boring Complete @ 8.0 feet  Boring Complete @ 8.0 feet	-					1	Red-l	orown	Silty CLAY,	trace S	and, mo	ist	
6	5	S -3	11 9										
7 S -4 11 15 18 22 33 N A Red-brown, Clayey SILT, trace Sand, moist  9 Boring Complete @ 8.0 feet  10 11 12 13 13 14 15 16 16 16 16 16 16 16 16 16 16 16 16 16		1	12 16	21	1. 8'								
7 S -4 11 15 18 22 33 N A  9 Boring Complete @ 8.0 feet  10 11 12 13 13 14 15 18 18 18 18 18 18 18 18 18 18 18 18 18	6												
8	5					2	Red-	orown	, Clayey SIL	Γ, trace	e Sand, m	noist	
8 Boring Complete @ 8.0 feet  10 11 12 13 13 15 16 16 17 18 18 18 18 18 18 18 18 18 18 18 18 18	7	S -4											
9			18 22	33	NA								
10	8					-							
10	_												
11	9 —	-		-	II.		Borin	g Con	iplete @ 8.0	) feet			
11	10			-									
12	10 —	-	-	-									
12	11		-	1									
13	**	1	-	1									
13	12		•	1									
	<del>'</del>	1		1									
	13			1									
14		1	-	1									
	14			1									

bgs= below ground surface

Page 1 of 1



**Boring No.:** 

C-2

Elevation: N/A

Date	Tim	e	Start D	epth	Finish D	epth	1	Weather		Temp		Driller
8/ 02/	12			0 ft.		3 -	ft.	Sunny		80 F		JT
Drilling M	ethod/Size	of Casing: 2	l .25 inch	ID HSA	<u> </u>  Т	ype o	of Dri	l II Rig:	Soil N	l ∕lax		
Type of Sa	mpler: Sp	lit Spoon			S	ampl	e Hai	mmer WT/Fo	all: <b>14</b>	10 lbs/30	) inc	hes
Project:	Carlton St	reet Reconst	ruction		V	√ater	Leve	el (bgs)	Date	T	ime	
	Carlton St	reet (Various	Addres	ses)	1	)		NA				
Location:	Buffalo, N	Υ			2	).						
Depth	Sample	Blows on	"N"	Sample		Cla	ssifica	ation of Soil,	/Rock	Materia	ls	
(ft)	Number	Sampler	Value	Recovery								
					<u>A</u>	spha	It pay	vement:				
1					] 1	.25-iı	nch te	op course				
					2	.75-iı	nch b	ase course				
2	S -1	3 3		1. 5'	6	.75-iı	nch c	oncrete				
		6 7	9		B	lack t	fine S	AND, tr. Silt	, tr. Gı	ravel, we	et (Fl	ILL)
3					T	an-bi	rown	fine SAND a	ınd Sil	t, wet		
4					В	oring	g Con	iplete @ 3.0	) feet			
5												
6					1							
7			-									
_												
8			-									
9 ,												
10			-									
			1									
4.4		-	1									

bgs= below ground surface

12

13

14

Page 1 of 1



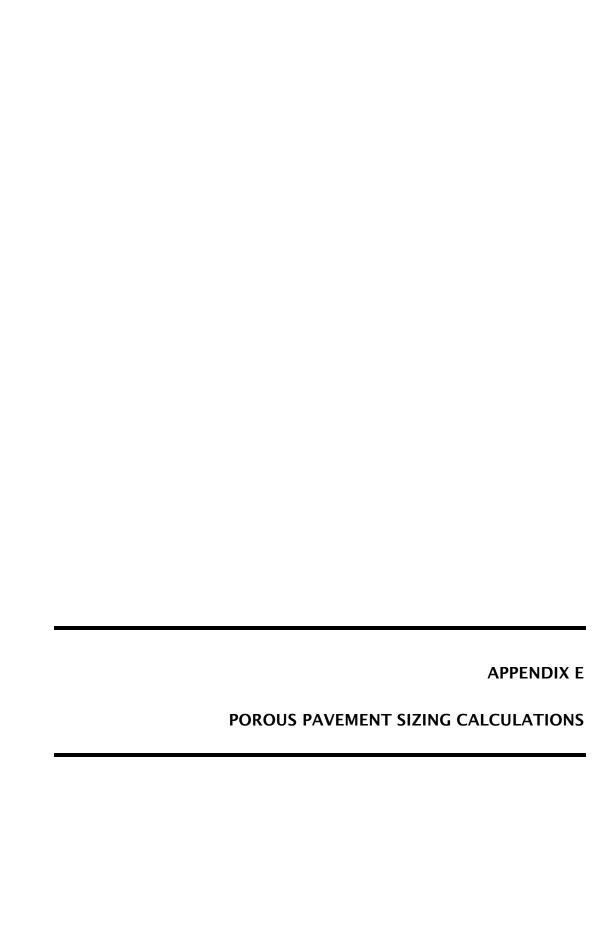
**Boring No.:** 

C-3

Elevation: N/A

Date	ĪΤί	ime			Start D	enth	Finis	n Dept	h	Weather		Temp		Driller
8/ 02/					J.u. C.B	0 ft.	1		ft.	Sunny		80		JT
Drilling M	ethod/Si	ize of	f Casir	g: 2.	25 inch	ID HSA		Туре	of Dri	ill Rig:	Soil N	/lax		
Type of Sa										mmer WT/F	all: <b>14</b>	0 lbs/	30 inc	hes
Project:	Carlton								r Leve	el (bgs)	Date		Time	
	Carlton		et (Va	rious	Addres	ses)		1)		NA				
Location:		-			[ No.11		_	2)			ļ			
Depth	Sample		Blows		"N"	Sample		Cla	issific	ation of Soil,	/Rock	Materi	ials	
(ft)	Numbe	er	Samp	oier	Value	Recovery	$\vdash$	Acnh:	alt na	vement:				
1	S -1	_	4	4						p course				
i	J 1	`	5	4	9	1. 5'				ise course				
2		-	_			_, _				ray fine-med	l. GRA	VEL. tr	. Silt (	FILL)
-							1			e SAND, tr. S				
3	S -2	2 [	5	5	5	1. 0'		Red-k	rowr	Silty CLAY,	wet			
4								Borin	g Con	nplete @ 3.0	) feet			
		-					1							
5		-												
		ŀ					l							1
6		ŀ					l							
7		ŀ												
_		ŀ					l							
8		ľ					1							
:		Ī												
9						II								
3														
10														
		-												
11		-												
12		-												
12		-	_											
13		-												
1, —		-												
14														

bgs= below ground surface





# CALCULATION SHEET SHEET NO.\_\_\_\_\_OF\_\_\_\_

JOB TITLE JOB NO. CALCULATED BY CHECKED BY

Fruit Belt Redevelopment

2010.0374.00

GMW DATE 7/30/2013

DATE

																	Item	She	eet N	lo.	1	of	Ī
Calculatio	ons performe	d in accord	lance wit	h Now	Vork S	tato St	ormw	ator M	lanage	mont	Dociar	n Mani	ual Au	iquet 3	2010	Soctio	n 1 2						
Saidalatio	реполне	, iii dooord	larioo wit						lanage	, mont	Doolgi	IIII	Jai, 710	aguot I	2010.	000110							t
Data:																							İ
Drainage	Area, A			5.90		acre																	İ
Rainfall, F				0.85		in.		Refer	to Figi	ure 4.	1												Ī
Imperviou	ıs %, I			36.00	)	%																	Ì
	WQv = ( (	P) * (Rv) *	(A) ) / 12	2		NYS S	Stormy	vater N	Manag	ement	t Desig	n Mar	nual, po	g. 4-2									1
																							-
		v = water c																					+
		90% Rainf																					+
_		runoff vol					e I is p	percer	nt impe	ervious	s cover	r	Rv =		0.37								ł
	A =	site area in	acres (	Contrib	uting a	ırea)								ĺ									Т
	Proje	Fiç	gure 4.1			II in Ne	ew Yo	rk Sta	ite (NY	(SDEC	C, 2000	0)	ı	NYS S	Stormv	vater I	Manag	emen	t Desig	gn Ma	nual, p	pg 4-2	
	Proje Loca	Fig						rk Sta	000 0000		2, 2000		8		Stormv	water I	Manag	emen'	t Desig	gn Ma	nual, ş	pg 4-2	
		Fig	gure 4.1	90% [	Rainfal				000 00000							water I			t Desig		acre-		
		ct ion	gure 4.1	90% [	Rainfal				000 0000				8			WQv	=		0.156		acre-		
		ct ion	gure 4.1	90% [	Rainfal				000 0000				8				=						
		ct ion	gure 4.1	90% [	Rainfal				000 0000				8		10%	WQv	= = =		0.156		acre-		
		ct ion	gure 4.1	90% [	Rainfal				000 0000				8		10%	WQv WQv	= = = = = = = = = = = = = = = = = = = =		0.156 6808 681		acre- CF CF		



## **CALCULATION SHEET** SHEET NO.\_\_\_\_OF\_\_\_\_

JOB TITLE	Fruit Belt F	Redevelopr	nent				
JOB NO.	2010.0374.00						
CALCULATED BY	GMW	DATE	7/30/2013				
CHECKED BY		DATE					

• `	ORO						<b>U.</b> 2		<u> </u>		<b>J J</b> .	, \ 1		•								411	    <b> </b>	,		_
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																				Item	Sh	eet l	No.	1	of	
Calc	ulation	perfo	rmed i	n acco	rdance	e with	New Y	ork St	ate St	ormwa	ater Ma	anage	ment [	Desian	Manu	ıal. Au	aust 2	010. S	ection	15.3.1	1					
																,										
	Requir	l D-		\	/	//								111/0	<u> </u>											-
A <sub>p</sub> =	nequii	eu ru	lous a	burrace	= <b>v</b> <sub>W</sub>	/ ( H 2	x u <sub>t</sub> )							NYS:	Storm	water	Manag	jemen	Desi	gn iviai	nuai, p	og. 5-1	122			_
																										-
	V <sub>w</sub> =	desig	n volu	me = <b>V</b>	VQ <sub>v</sub> =						6808		CF													_
	<b>n</b> = p	orosit	y of gr	avel be	ed / re	servoi	r =				0.40															
	<b>d</b> . = d	epth (	of arav	el bed	/ rese	rvoir =					1.74		FT		* aver	rage d	epth b	ased o	n pla	n detai	ı					
			Λ -	Requir	od Po	rous S	Surface				0700		05													
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# Green Demo Run-off Calculation Summary

Fillmore Avenue Green Infrastructure Project

Kristopher Winkler, P.E. January 2013



Table 1 Comparison of Existing and Proposed Hydrologic Conditions

T 2 - 1 - 2	Existing Pre-Develo		Proposed Site Post-Development			
Surface Cover Type	Area	Weighted CN	Area	Weighted CN		
1458 Fillmore Ave	2,428 sqft (0.056 acres)	80	7,270 sqft (0.167 acres)	61**		
1484 Fillmore Ave	2,641 sqft (0.061 acres)	80	7,050 sqft (0.162 acres)	61**		
1279 Fillmore Ave.	9,304 sqft (0.214 acres)	80	* see note	61**		

<sup>\*</sup> Grading limits have not been provided for 1279 Fillmore Avenue (deep lot) but the lot is a grass area.

Table 2 Hydraulic Analysis

Rainfall Event	Existing Pre-Development	Post-Developed Discharge		
1-Year 1458 Fillmore Ave	$Q_1 = 0.06 \text{ cfs}$	$Q_1 = 0.00 \text{ cfs}$		
1-Year 1484 Fillmore Ave	$Q_1 = 0.05 \text{ cfs}$	$Q_1 = 0.00 \text{ cfs}$		
1-Year 1279 Fillmore Ave.	$Q_1 = 0.15 \text{ cfs}$	Q <sub>1</sub> = 0.00 cfs**		

<sup>\*\*</sup> Grading limits have not been provided for 1279 Fillmore Avenue (deep lot), but we would be able to retain water similar to other two (2) locations, 1458 Fillmore and 1484 Fillmore.

<sup>\*\*</sup> Higher infiltration soils are to be installed under proposed conditions (Class B soils). These values are reasonable for 1-year storm or smaller events for these sites. The analysis assumes existing conditions are Class D soils. Class D soils have high runoff potential, and have very low infiltration rates: water transmission is 0-0.05 in/hr.

Table 3
Existing Water Volume to Street System in cubic feet (cf)

Rainfall Event	Existing Pre-Development
1-Year 1458 Fillmore Ave	V= 133 cf
1-Year 1484 Fillmore Ave	V = 144 cf
1-Year 1279 Fillmore Ave.	V = 509 cf

## 1458 Fillmore proposed 'green demo' site



1484 Fillmore proposed 'green demo' site



1279 Fillmore proposed 'green demo' site.



1458 Fillmore Avenue



#1458 Subarea



#1458 Proposed Subarea

Shallow Area









Routing Diagram for 11072-1458 Fillmore
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11072-1458 Fillmore
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Page 2

## Area Listing (all nodes)

	rea CN <sub>I</sub> -ft)		Description (subcatchment-numbers)
7,2	270 61	:	>75% Grass cover, Good, HSG B (1S)
2,4	428 80	) ;	>75% Grass cover, Good, HSG D (EX 1)
9,6	698 66	;	TOTAL AREA

11072-1458 Fillmore
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## Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
7,270	HSG B	1S
0	HSG C	
2,428	HSG D	EX 1
0	Other	
9.698		TOTAL AREA

11072-1458 Fillmore
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## **Ground Covers (all nodes)**

HSG-A	HSG-B	HSG-C	HSG-D	Other	Total	Ground	Subcatchment
(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	Cover	Numbers
0	7,270 <b>7.270</b>	0	2,428 <b>2.428</b>	0	9,698 <b>9.698</b>	>75% Grass cover, Good	1S, EX 1

11072-1458 Fillmore

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Type II 24-hr 1 YR Rainfall=2.15" Printed 1/10/2013 Page 5

Time span=1.00-100.00 hrs, dt=0.01 hrs, 9901 points x 3
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: #1458 Proposed Subarea

Runoff Area=7,270 sf 0.00% Impervious Runoff Depth=0.10"

Flow Length=115' Slope=0.0150 '/' Tc=14.7 min CN=61 Runoff=0.00 cfs 63 cf

Subcatchment EX 1: #1458 Subarea

Runoff Area=2,428 sf 0.00% Impervious Runoff Depth=0.66"

Flow Length=73' Slope=0.0280 '/' Tc=7.9 min CN=80 Runoff=0.06 cfs 133 cf

Pond 1P: Shallow Area

Peak Elev=635.08' Storage=13 cf Inflow=0.00 cfs 63 cf Discarded=0.00 cfs 63 cf Primary=0.00 cfs 0 cf Outflow=0.00 cfs 63 cf

Total Runoff Area = 9,698 sf Runoff Volume = 196 cf Average Runoff Depth = 0.24" 100.00% Pervious = 9,698 sf 0.00% Impervious = 0 sf

Page 6

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## Summary for Subcatchment 1S: #1458 Proposed Subarea

Runoff

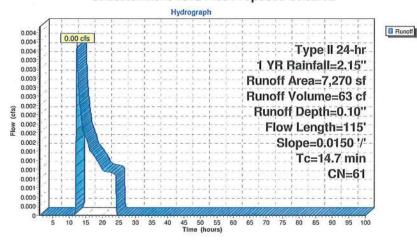
0.00 cfs @ 12.37 hrs, Volume=

63 cf, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-100.00 hrs, dt= 0.01 hrs Type II 24-hr 1 YR Rainfall=2.15"

Α	rea (sf)	CN I	Description								
	7,270	61 :	>75% Gras	5% Grass cover, Good, HSG B							
7,270 100.00% Pervious Area											
Tc (min)	Length (feet)	Slope (ft/ft)	\$100.550   Section 5.000 p.	Capacity (cfs)	Description						
14.7	115	0.0150	0.13		Sheet Flow, Grass Grass: Short n= 0.150 P2= 2.25"						

## Subcatchment 1S: #1458 Proposed Subarea



## Summary for Subcatchment EX 1: #1458 Subarea

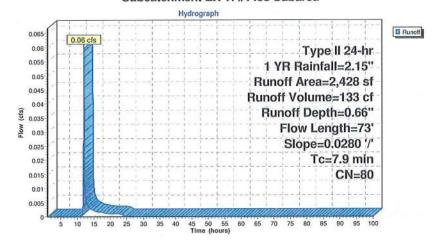
Runoff = 0.06 cfs @ 12.00 hrs, Volume=

133 cf, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-100.00 hrs, dt= 0.01 hrs Type II 24-hr 1 YR Rainfall=2.15"

A	rea (sf)	CN I	Description									
	2,428	80 :	75% Gras	Grass cover, Good, HSG D								
	2,428		100.00% Pervious Area									
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description							
7.9	73	0.0280	0.15		Sheet Flow, Grass Grass: Short n= 0.150	P2= 2.25"						

## Subcatchment EX 1: #1458 Subarea



### 11072-1458 Fillmore

Prepared by Microsoft

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Type II 24-hr 1 YR Rainfall=2.15" Printed 1/10/2013

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## Summary for Pond 1P: Shallow Area

7,270 sf, 0.00% Impervious, Inflow Depth = 0.10" for 1 YR event Inflow Area = 63 cf Inflow

Outflow 63 cf, Atten= 58%, Lag= 203.4 min

0.00 cfs @ 12.37 hrs, Volume= 0.00 cfs @ 15.76 hrs, Volume= 0.00 cfs @ 15.76 hrs, Volume= 0.00 cfs @ 1.00 hrs, Volume= Discarded = 63 cf Primary 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.01 hrs / 3 Peak Elev= 635.08' @ 15.76 hrs Surf.Area= 265 sf Storage= 13 cf

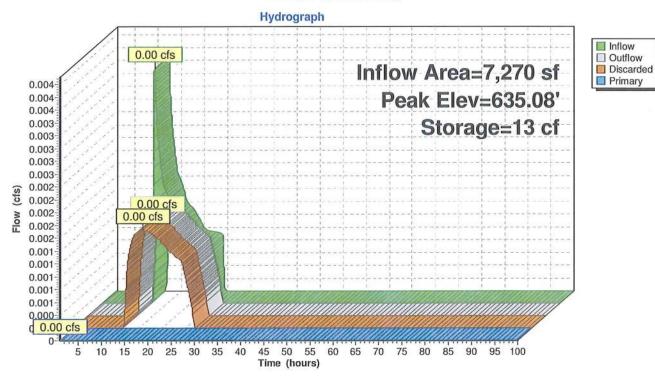
Plug-Flow detention time= 112.1 min calculated for 63 cf (100% of inflow) Center-of-Mass det. time= 112.1 min ( 1,118.0 - 1,005.9 )

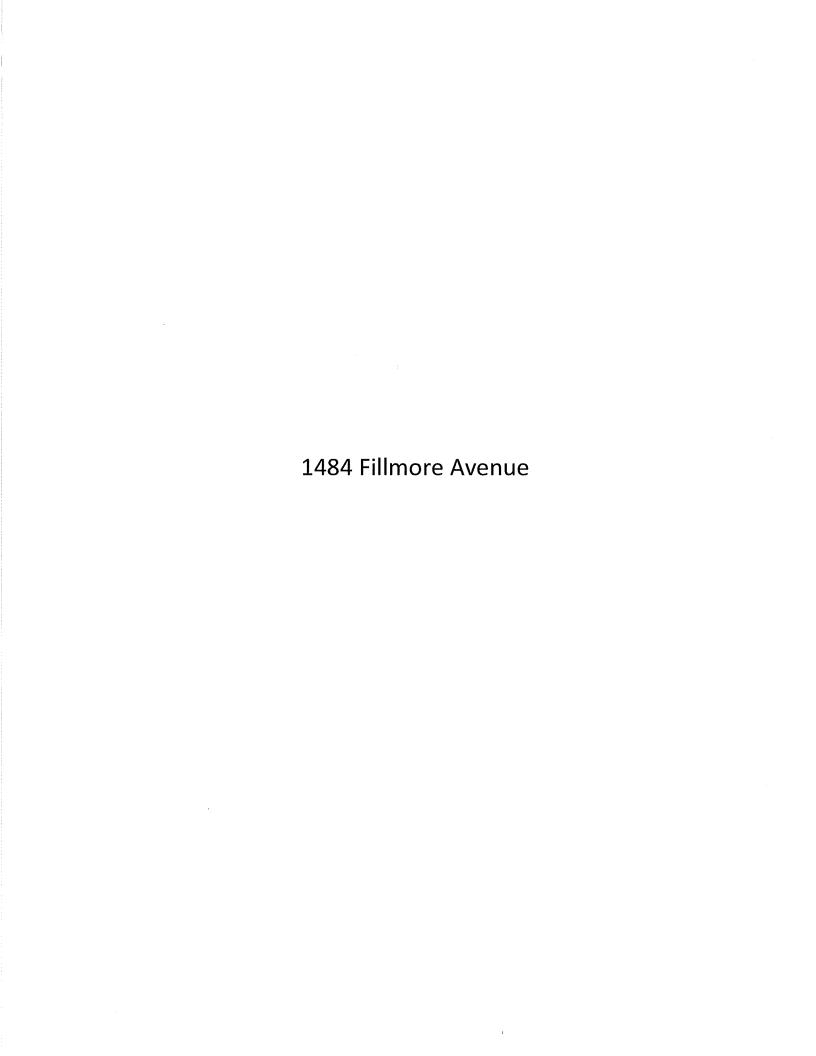
Volume	Invert	Avail.Sto	rage Storage	Description	
#1	635.00'	70	09 cf Custom	Stage Data (Prist	natic) Listed below (Recalc)
Elevatio		ırf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
635.0		50	0	0	
635.3	5	1,000	184	184	
635.5	60	1,600	195	379	
635.7	0	1,700	330	709	
Device	Routing	Invert	Outlet Device	S	
#1	Discarded	635.00'	0.250 in/hr Ex	filtration over Su	rface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	635.56'			rested Rectangular Wéir
	-		Head (feet) 0	49 0 98 1 48 1	97 246 295

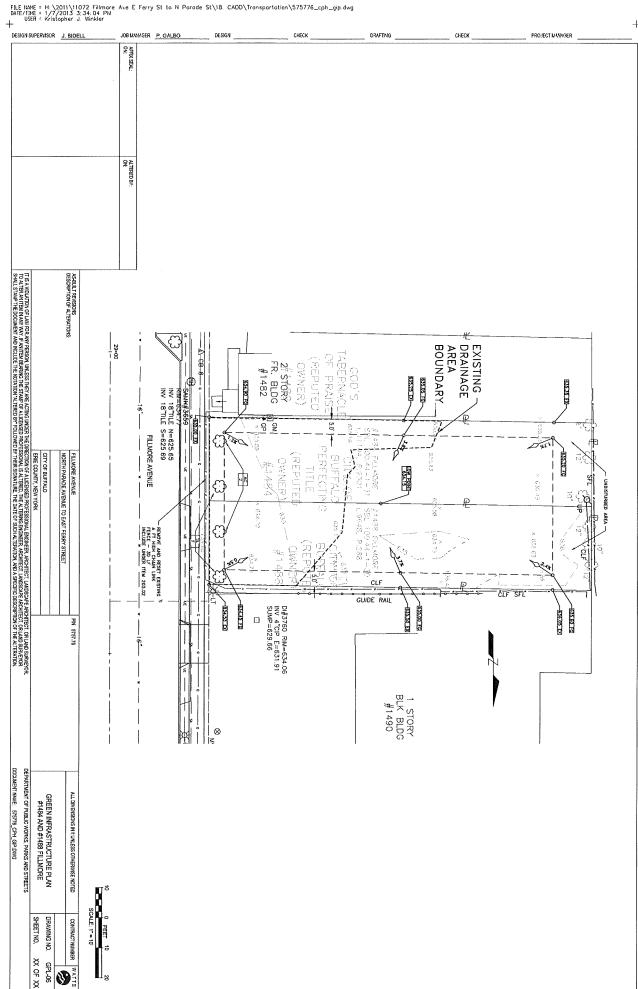
Head (feet) 0.49 0.98 1.48 1.97 2.46 2.95 Coef. (English) 2.84 3.13 3.26 3.30 3.31 3.31

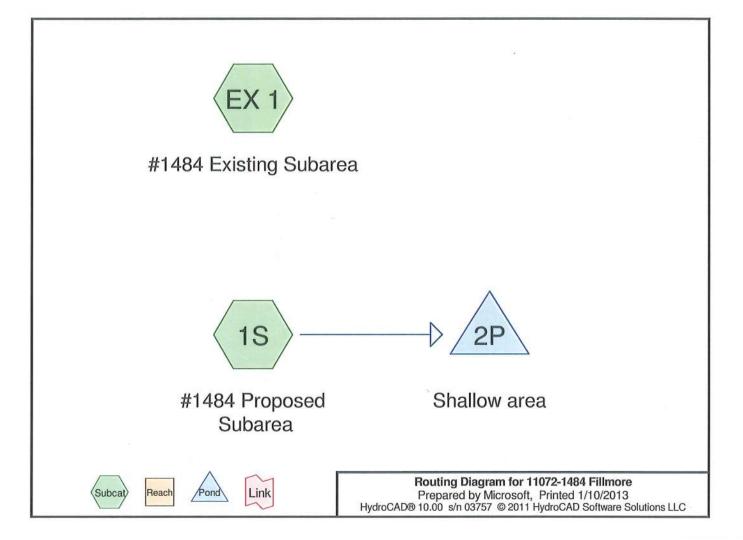
Discarded OutFlow Max=0.00 cfs @ 15.76 hrs HW=635.08' (Free Discharge) 1=Exfiltration (Controls 0.00 cfs)

Pond 1P: Shallow Area









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#### Area Listing (all nodes)

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
7,050	61	>75% Grass cover, Good, HSG B (1S)
2,641	80	>75% Grass cover, Good, HSG D (EX 1)
9,691	66	TOTAL AREA

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#### Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
7,050	HSG B	18
0	HSG C	
2,641	HSG D	EX 1
0	Other	
9,691		TOTAL AREA

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#### **Ground Covers (all nodes)**

	HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcatchment Numbers
Ī	0	7,050	0	2,641	0	9,691	>75% Grass cover, Good	1S, EX 1
	0	7.050	0	2.641	0	9.691	TOTAL AREA	

11072-1484 Fillmore

Prepared by Microsoft HydroCAD® 10.00 s/n 03757 © 2011 HydroCAD Software Solutions LLC Type II 24-hr 1 YR Rainfall=2.15"
Printed 1/10/2013
Page 5

Time span=1.00-100.00 hrs, dt=0.01 hrs, 9901 points x 3
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: #1484 Proposed Subarea

Runoff Area=7,050 sf 0.00% Impervious Runoff Depth=0.10" Flow Length=63' Tc=14.4 min CN=61 Runoff=0.00 cfs 61 cf

Subcatchment EX 1: #1484 Existing Subarea

Runoff Area=2,641 sf 0.00% Impervious Runoff Depth=0.66" Flow Length=81' Slope=0.0075'/' Tc=14.6 min CN=80 Runoff=0.05 cfs 144 cf

Pond 2P: Shallow area

Peak Elev=634.20' Storage=8 cf Inflow=0.00 cfs 61 cf Discarded=0.00 cfs 61 cf Primary=0.00 cfs 0 cf Outflow=0.00 cfs 61 cf

Total Runoff Area = 9,691 sf Runoff Volume = 206 cf Average Runoff Depth = 0.25" 100.00% Pervious = 9,691 sf 0.00% Impervious = 0 sf

#### 11072-1484 Fillmore

Type II 24-hr 1 YR Rainfall=2.15" Printed 1/10/2013

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#### Summary for Subcatchment 1S: #1484 Proposed Subarea

Runoff = 0.00 cfs @ 12.37 hrs, Volume=

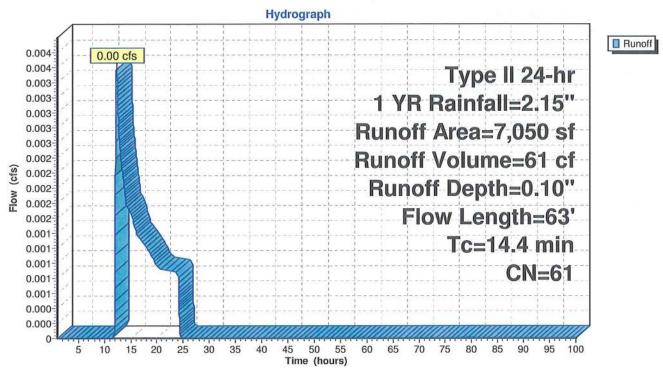
61 cf, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-100.00 hrs, dt= 0.01 hrs Type II 24-hr 1 YR Rainfall=2.15"

	Α	rea (sf)	CN E	escription				
		7,050	61 >	75% Gras	s cover, Go	ood, HSG B		
		7,050	1	100.00% Pervious Area				
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
_	12.8	56	0.0050	0.07		Sheet Flow, Grass		
	1.6	7	0.0140	0.07		Grass: Short n= 0.150 P2= 2.25"  Sheet Flow,  Grass: Short n= 0.150 P2= 2.25"		
-	14.4	63	Total			-		

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#### Subcatchment 1S: #1484 Proposed Subarea



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#### Summary for Subcatchment EX 1: #1484 Existing Subarea

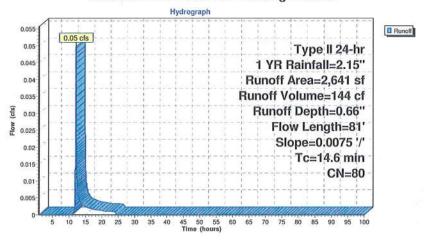
Runoff = 0.05 cfs @ 12.08 hrs, Volume=

144 cf, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-100.00 hrs, dt= 0.01 hrs Type II 24-hr 1 YR Rainfall=2.15"

A	rea (sf)	CN E	Description						
	2,641	80 >	75% Gras	75% Grass cover, Good, HSG D					
	2,641	1	00.00% P	ervious Are	a		¥	i v	***
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
14.6	81	0.0075	0.09		Sheet Flow, Grass Grass: Short n= 0.150	P2= 2.25"			

#### Subcatchment EX 1: #1484 Existing Subarea



Type II 24-hr 1 YR Rainfall=2.15" Printed 1/10/2013 Page 9

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#### Summary for Pond 2P: Shallow area

7,050 sf, 0.00% Impervious, Inflow Depth = 0.10" for 1 YR event Inflow Area = 0.00 cfs @ 12.37 hrs, Volume= 0.00 cfs @ 14.23 hrs, Volume= 0.00 cfs @ 14.23 hrs, Volume= 0.00 cfs @ 1.00 hrs, Volume= 61 cf Inflow Outflow 61 cf, Atten= 50%, Lag= 111.9 min Discarded = 61 cf 0 cf Primary

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.01 hrs / 3 Peak Elev= 634.20' @ 14.23 hrs Surf.Area= 308 sf Storage= 8 cf

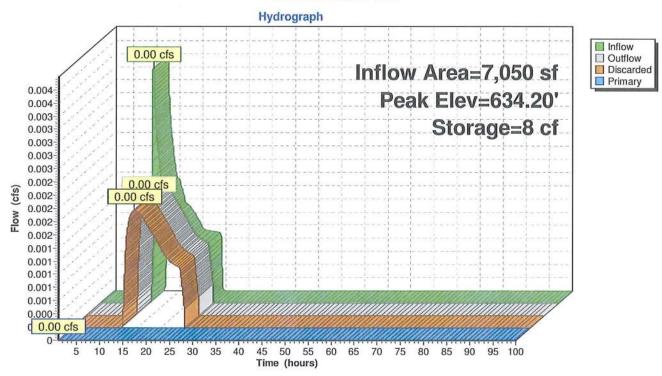
Plug-Flow detention time= (not calculated: outflow precedes inflow) Center-of-Mass det. time= 60.5 min ( 1,066.1 - 1,005.6 )

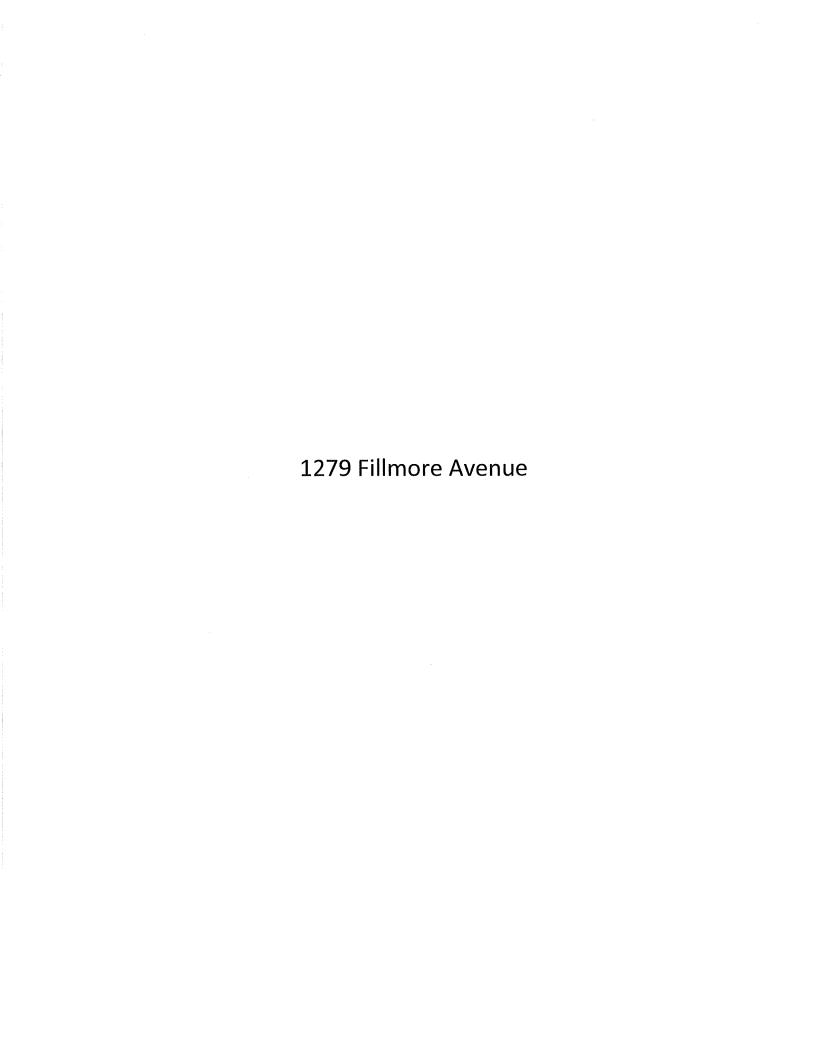
Volum <b>e</b>	Invert	Avail.Sto	rage Storage	Description	
#1	634.15	1,28	30 cf Custom	Stage Data (Pri	ismatic) Listed below (Recalc)
Elevatio	on Si	urf.Area	Inc.Store	Cum.Store	
(fee	et)	(sq-ft)	(cubic-feet)	(cubic-feet)	
634.1	5	50	0	0	
634.4	15	1,700	263	263	
635.0	00	2,000	1,017	1,280	
Devic <b>e</b>	Routing	Invert	Outlet Device	es	
#1	Discarded	634.15'	0.250 in/hr E	xfiltration over S	Surface area Conductivity to Groundwater Elevation = 0.00'
#2	Primary	634.53'	55.0' long (P	rofile 17) Broad	l-Crested Rectangular Weir
	•		Head (feet) (	0.49 0.98 1.48	1.97 2.46 2.95
			Coef. (Englis	h) 2.84 3.13 3.	26 3.30 3.31 3.31

Discarded OutFlow Max=0.00 cfs @ 14.23 hrs HW=634.20' (Free Discharge) 1=Exfiltration ( Controls 0.00 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=634.15' (Free Discharge) 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

#### Pond 2P: Shallow area





Page 1

#### Summary for Subcatchment EX 1: #1279 Subarea

Runoff

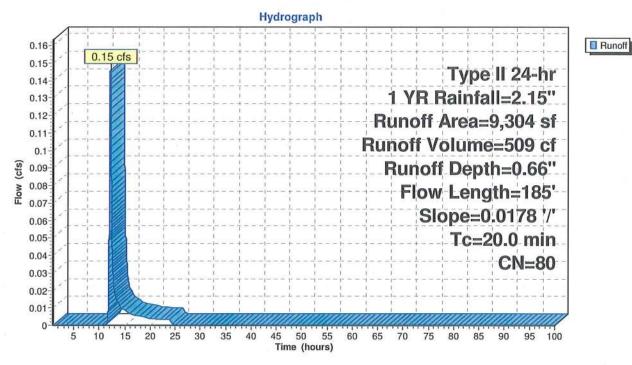
0.15 cfs @ 12.15 hrs, Volume=

509 cf, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-100.00 hrs, dt= 0.01 hrs Type II 24-hr 1 YR Rainfall=2.15"

Α	rea (sf)	CN I	Description				
	9,304	80 :	>75% Grass cover, Good, HSG D				
	9,304		100.00% Pe	ervious Are	a		
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
20.0	185	0.0178	0.15	***	Sheet Flow, Grass Grass: Short n= 0.150 P2= 2.25"		

#### Subcatchment EX 1: #1279 Subarea



# DRAFT Drainage Report

Green Infrastructure and Drainage Improvements for the Genesee Street Gateway Streetscape Project

> Kristopher Winkler, P.E. Draft Report May 2015



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#### **ATTACHMENTS**

- A. Project Maps
  - Figure 1 USGS Quad, Buffalo, NY
  - Figure 2 Aerial Photo, Buffalo NY
  - Figure 3 NRCS Soil, Buffalo NY
  - Drainage Area Maps
- B. Site Investigation Report Soil Borings and Infiltration Tests
- C. Pre and Post Development Computations
- D. Capture Area Computations
- E. Post-Construction Maintenance Plan
- F. Existing and Post Development Hydrologic and Hydraulic analysis

### 1 EXECUTIVE SUMMARY

This report summarizes green infrastructure capture and drainage design for the Genesee Street Gateway Project. The project location is Genesee Street between Washington Street and Elm Street in the City of Buffalo. The roadway consists of one dedicated bike and one dedicated travel lane in each direction and a center turn lane with granite curb and concrete sidewalks on either side. Parallel parking is available at roadside for most of the area. The proposed project improvements include traffic calming curb extensions, also known as "bump outs," which isolate the on street parking and create a more walk able community. The green infrastructure portion of the project includes landscaped storm water planters at various areas for the length of the project. The planters contain crushed stone reservoir areas beneath the planting soil, designed to store storm water runoff, and promote infiltration into the underlying soils. New landscaping and sidewalk areas are included with the improvements at the traffic island at the intersection of Ellicott Street, Genesee Street and East Chippewa Street and at Remembrance Park, just west of Washington Street.

The project is a streetscape that includes asphalt milling and pavement rehabilitation, with full depth reconstruction along the side of the roadway between the curb line and Right of Way. The project area consists of approximately 3.31 acres total area. Within the total area includes 1.25 acres of disturbed areas, where full depth reconstruction occurs.

The results of the hydraulic analysis on the proposed infrastructure for the project at the 90<sup>th</sup> percentile, 2-year and 25-year 24-hour storm events for the project are summarized below:

Table 1
Hydrologic Analysis Summary
Comparison of Pre and Post Construction
Conditions

Rainfall Event	Existing Pre-Development Discharge	Post-Developed Discharge
90 <sup>th</sup> percentile (0.85")	$Q_{90} = 3.50 \text{ cfs}$	Q <sub>90</sub> = 1.78 cfs
2-Year (2.25")	$Q_2 = 10.52 \text{ cfs}$	Q <sub>2</sub> = 8.25 cfs
25-Year (4.00")	$Q_{25} = 19.19 \text{ cfs}$	Q <sub>25</sub> = 18.23 cfs

**Table 2** below summarizes the annual storm water capture volumes calculated for the project. The volumes are based on an annual average rainfall of 42 inches for the City of Buffalo.

Table 2 Capture Area Summary

Green Infrastructure DS No.	SQRT Capture Area	Planting Bed (PB) No.	SQFT Drainage Area	Annual Depth Captured (FT)	Annual Volume Captured (CF)	Annual Volume Captured (Gallons)
DS 2	75%	PB-1A	5,276	2.63	13,876	103,792
DS 4	75%	PB-2A	34,149	2.63	89,812	671,793
DS 5	90%	PB-3A	2,103	3.167	6,660	49,818
DS 15	90%	PB-4A	19,614	3.167	62,118	464,369
DS 7	90%	PB-5A	3,711	3.167	11,753	87,910
DS 8	90%	PB-6A	1,765	3.167	5,590	41,811
DS 9	90%	PB-7A	3,275	3.167	10,372	77,582
DS 10	90%	PB-8A	2,841	3.167	8,997	67,301
DS 11	90%	PB-9A	2,159	3.167	6,838	51,145
DS 18	90%	PB-3B	4,155	3.167	13,159	98,428

DS 24	50%	PB-5B	6,143	1.75	10,750	80,412
DS 31	75%	PB-6B	3,043	2.63	8,003	59,863
DS 29	50%	PB-1B	5,742	1.75	10,049	75,163
DS 30	50%	PB-2B	2,715	2.63	7,140	53,411
DS 35	75%	PB-1C	6,022	2.63	15,838	78,828
DS 39	75%	PB-3C	3,376	2.63	8,879	66,414
DS 41	90%	PB-4C	1,824	3.167	5,777	43,209

Total: 2,171,519 Gallons

#### 2 INTRODUCTION AND SCOPE

#### A. Introduction

This narrative report has been prepared for the Buffalo Sewer Authority (BSA) to summarize the proposed drainage, green infrastructure, and pollution prevention control included in the Genesee Street Gateway Project. Construction is planned to begin in late Summer 2015. The project is being constructed for the City of Buffalo Department of Public Works, Parks and Streets Division of Engineering (DPW) in collaboration with the BSA.

#### B. Location

The project location is Genesee Street between Washington Street and Elm Street in the City of Buffalo, Erie County New York. See **Figure 1** in **Attachment A** for the Project Location on a USGS map.

#### C. Scope

Storm water run-off for the existing project area discharges to combined sewers in the City of Buffalo. Therefore, the drainage design must meet BSA standards, policies and requirements. The purpose of this report is to summarize the drainage design for the project and show conformance with BSA policies. The project includes green infrastructure measures for reducing the volume of run-off captured by the combined storm and sanitary system and managing storm water. The green infrastructure measures included in the report are designed in accordance with the New York State Department of Environmental Conservation (NYSDEC) storm water manual as applicable. Storm water run-off capture volumes, pre and post construction hydraulics, design criteria, and pollution prevention control methods are described in this report.

Erosion and sediment control components are included in the project. The erosion and sediment control components in the project are designed according to the specifications documented in the New York Standards and Specifications for Erosion and Sediment Control (August, 2005).

The following project plans and specifications are referenced in the narrative that follows, and are included in the appendix of this report.

Project Plans, Profiles, and Details (From Contract Plans):

TS-01 TO TS-03	Typical Sections
GN-01	General Notes
PL-01 to PL-04	General Plan
PR-01 to PR-04	Profile
IG-01 to IG-04	Intersection Grading
LP-01 to LP-04	Landscaping Plan
LD-01 to LD-12	Landscaping Details
LS-01 to LS-02	Landscaping Sections
GIP-01 to GIP-04	Green Infrastructure Plans
GI PR-01 to GI PR-02	Green Infrastructure Profiles
GI-01 to GI-03	Green Infrastructure Details
20086DD (BSA std. sheet) Standa	rd Catch Basins – Types 1,2,&3

Project Technical Specifications (from Proposal Book);

GI-01 to GI-24 Green Infrastructure Systems and Landscaping SS-01 to SS-81 Special Specifications

Project Technical Specifications (Additional Sources);

New York State Department of Transportation (NYSDOT) Standard Specifications City of Buffalo Standard Specifications for Construction and Materials

#### D. Responsibilities for Sediment and Erosion Control Implementation

As specified in the Project Special Specifications, Items No. 209.11000011 Inlet Filter Sediment Control for New Catch Basins and 209.12000011Inlet Filter Sediment control for Existing Catch Basins, and the Project Erosion and Sediment Control notes on plan sheet GN-01, the Contractor is responsible for implementing sediment and erosion control measures. Erosion and sediment control measures shall be installed prior to any soil disturbance for which they are intended and shall remain in place until soils are permanently stabilized.

The contractor is required to designate a qualified "Erosion and Sediment Control Supervisor", responsible for implementing the erosion and sediment control plan and for inspecting and maintaining the control measure.

#### 3 PROJECT INFORMATION

#### A. Project Summary

The scope of Genesee Gateway project includes installation of new sidewalk, curbs, landscaping, street lights, traffic signal modifications, and pavement rehabilitation (shallow mill and inlay). The landscaping work includes new planters in the sidewalk areas. Most will include green infrastructure storm water practice as a reservoir course will be installed under the planting beds. The project is to be performed over one (1) phase divided into smaller stages (work zone phases) for traffic control purposes. The four phases include: work on the North side of Genesee Street from Washington Street to Elm Street, work on the south side of Genesee Street from Washington Street to Elm Street, the reconstruction of Remembrance Park, followed by milling and paving operations through the entire corridor. See Figure 2 in Attachment A for the approximate project area shown on a recent aerial photograph.

The disturbed area of the project includes full depth reconstruction areas, and these areas total 53,997 square feet (1.24 Acres). Upon completion of the project there will be a decrease in impervious area from 1.15 acres of existing impervious area to 1.14 acres of proposed impervious area within the project disturbed area. For a detailed analysis of existing and proposed conditions, see the calculations included in **Attachment C.** 

#### B. Storm Water Management Objectives

Storm water runoff for the project area discharges to the City's Combined Sewer System. Temporary and Permanent storm water management objectives will apply, per BSA policies.

1. <u>Temporary Objectives</u>: The objectives for temporary measures are to provide temporary erosion and sedimentation controls during construction to minimize soil erosion and waterborne transport of soil material off the site during construction. Although temporary

ESC measures will be implemented, it is anticipated that soil erosion and sedimentation and temporary impairment of storm runoff cannot be entirely prevented. The temporary ESC measures for this project are described in **Section 6** of this report.

- 2. <u>Post-Construction Objectives:</u> The project includes green infrastructure measures for reducing the volume of run-off captured by the combined sewer system and managing storm water. The Storm water Management Practices (SMP's) included in the project are designed in accordance with NYSDEC storm water manual as applicable.
  - Capture Volume: The primary objective for the permanent storm water management practices is to promote storage in the reservoir course beneath the proposed planters and infiltration to the underlying subgrade to reduce flows to the combined sewer system. The proposed SMP's are designed to bypass runoff volumes which exceed the storm water capture volume at 50 percentile, 75 percentile or 90<sup>th</sup> percentile storm event water elevations depending on the available underground storage volume at each location. They also provide significant regulation of the peak discharge for lower frequency rainfall events. The permanent measures for this project are further described in Section 5 and in Table 2 of this report.
  - Peak Flow Reduction: The second objective of the permanent storm water management practices is to provide regulation of the peak discharge at the 90<sup>th</sup> percentile, 2-year and 25-year rainfall events. All storm water runoff from the project site discharges to the City's combined sewer system. The addition of storm water planters reduces the impervious area in the corridor, the site discharge and the downstream flow rates at the 90<sup>th</sup> Percentile 2-year and 25-year rainfall events. Peak storm event flow rate summaries are included in table 4 later in the report.

#### C. Description of Project Construction

Construction activities resulting in soil disturbances will take place either within the sidewalk areas or in locations where utility trenching is required in the roadway area. The majority of the area within the project is the existing roadway. Work within this area will consist of a shallow mill and inlay. Major work activities for the project will include:

- Reconstruction of sidewalks and driveways including bump-outs at corners and widening of sidewalk areas
- Construction of the storm water management practices (storm water planters)
- Excavation and installation of underground utilities
- 2-inch shallow mill and 1½" inlay of asphalt concrete pavement
- Final land grading and planting of lawn and other landscaping
- Replacing the existing street lighting with decorative, LED light standards
- Painting existing signal poles and arms and reconfiguring the Ellicott and Chippewa Street signal system

The construction of the improvements for the project, in particular the addition of landscaping and storm water planters, will result in a reduction in impervious area for the project area.

#### 4 EXISTING SITE CONDITIONS

The existing project site is depicted in the attachments of this report on the Existing Drainage Areas as well as **Attachment A** which includes the project location on a USGS map and a recent aerial photo.

#### A. Land Use

The existing roadway consists of one or two lanes in each direction with granite curb and concrete sidewalks on either side. Parallel parking is available at roadside for most of the area. Commercial buildings and asphalt paved parking areas are adjacent to the roadway throughout the project area.

The disturbed area for construction site encompasses approximately 1.25 acres of paved areas and approximately 3,000 additional square feet of landscaping or lawn. The hydrologic conditions of the existing project site are detailed in **Attachment E** and summarized in **Table 3** below.

Table 3
Hydrologic Data – Pre-Development Conditions – Project Site

Surface Cover Type (% of Disturbed Area)	<b>Area</b> Sq Ft (Acres)	Hydrologic Curve No. weighted by Soil Type	Weighted Composite Hydrologic Curve No.
Pavement, Walks, Drives (92.9%)	50,145 (1.151)	98	90.03
Lawn/Landscaping (0.07%)	4,440 (0.102)	80	6.51
Total Project Area	(1.24)		96.54

#### B. Topography and Existing Drainage Patterns

The existing project site is fairly flat sloped (roughly 0-2% slope), generally pitching from west to east with the grade of Genesee Street. The surface elevations within the project limit ranges from approximately 616 feet on the west end of the site to 612 feet on the east end of the site.

The roadway is crowned, and sidewalks drain toward the road from the Right of way. Water is collect end at the roadway curb and collected in catch basins along the roadway.

#### C. Existing Storm Sewers and Discharge Points

There are three main site discharge points for the project site. The Genesee Street Trunk Sewer collects flows for most of the project area, and the existing drainage system for the project connects into the trunk sewer at various locations. The trunk sewer is an 84-inch diameter brick sewer which flows west to east in the project area. Run-off at Oak Street and Elm Street are discharged to 30-inch diameter storm lines, which continues south to the city's combined sewer system.

#### D. Site Soils

The NRCS Web Soil Survey shows the project area consists of 100% Ud (Urban Land), and is unclassified. The drainage analysis assumed the soils to be Soil Type D. Type D soils are comprised of soils having very slow infiltration rates when thoroughly wet. These consist primarily of clays that have high-shrink-swell potential, soils that have a high water table, soils that have a 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.

Soil borings ranging from 9 to 12 foot depth were taken at various locations within the existing sidewalk area in the project area. The borings indicated that sub soils for the project predominantly consisted of a brown or gray fine sand with little silt from the depths ranging from of approximately two feet to five feet depth. Soils from approximately 4 or 5 feet depth to 9 feet depth predominantly consisted of a brown or gray silty clay. Although the boring results revealed locations with sandy silt soils, the soils in the drainage analysis remained Type D to provide a conservative analysis.

See **Figure 3** in **Attachment A** for the project location on the Soil Survey map. The Geotechnical report is included as **Attachment B** at the end of this report.

#### E. Potentially Sensitive Environmental Resources

A historic section of the project area was identified between Oak and Ellicott along the south side of Genesee Street. New York State Office of Parks, Recreation and Historic Preservation recommended that any future plantings or trees should not obscure signage or advertising in this area.

#### F. Off-Site Areas

The amount of offsite area that sheet flows onto the project site is minimal. A portion of the water that drains onto the site from offsite area is captured in the site drainage system. Runoff from portions of the M & T Bank parking lot near the Washington Street and Genesee Street is collected by drainage structures within the lot and directed underground to the 84-inch trunk sewer on Genesee Street.

### G. Existing Conditions Hydrologic Analysis

A hydrologic and hydraulic analysis with the SCS Unit Hydrograph method is being prepared for the project site and off-site areas. Hydrographs were generated for the 90<sup>th</sup> percentile, 2-year, and 25-year rainfall events. The results of the analysis are detailed in **Attachment C** and summarized in **Table 4** below.

Table 4
Hydrologic Analysis Summary
Comparison of Pre and Post Construction
Conditions

Rainfall Event	Existing Pre-Development
90 <sup>th</sup> percentile (0.85")	$Q_{WQv} = 3.50 \text{ cfs}$
2-Year (2.25")	$Q_2 = 10.52 \text{ cfs}$
25-Year (4.00")	$Q_{25} = 19.19 \text{ cfs}$

#### 5 POST-DEVELOPMENT STORMWATER MANAGEMENT

#### A. Post-Developed Hydrologic Conditions

Detailed plans depicting the new construction are included in the construction documents. The project description is provided above in **Section 3**. The post-development hydrologic conditions of the project site are presented in **Attachment F** and compared to the existing conditions in the following **Table 5**.

Table 5
Comparison of Existing and Proposed Hydrologic Conditions

	Existing Site Pre-Development		Proposed Site Post-Development	
Surface Cover Type	Area (% of Project Area)	Weighted CN	Area (% of Project Area)	Weighted CN
Pavement, Walks, Drives	1.151 acres (91.9%)	90.03	1.139 acres (90.9%)	89.05
Mowed Lawn, Landscaping	0.102 acres (8.1%)	6.51	0.114 acres (9.1%)	7.31
Total Project Area	1.25 acres	96.54	1.25 acres	96.36

#### B. New Storm Drainage

Portions of the storm runoff from the post developed site (walking surfaces and lawn/landscaped areas) is conveyed to new SMPs (storm water planters) by way of sheetflow. Portions of the roadway storm runoff from the post developed site are collected by catch basins and conveyed to the storm water planters through underground piping. Other areas will be captured by existing or new catch basins and conveyed to combined sewers in the project area.

#### C. Run-off Reduction Capture Areas

The Buffalo Sewer Authority's main objective for this project was to reduce run-off flows into the City's combined storm and sewer system to the maximum extent possible. The project includes green infrastructure measures to capture run-off and promote storage in the reservoir course beneath the proposed planters and infiltration to the underlying subgrade. A majority of the areas within the project corridor were designed to capture a 90<sup>th</sup> Percentile storm event. However, there are locations due to site constraints that the 90<sup>th</sup> Percentile storm could not be captured, and only a partial capture of the storm events was achieved. A portion of the run-off from the off-site areas at the M&T Bank Parking lot near Washington and Genesee Streets was also diverted to the proposed green infrastructure. **Table 2** in **Section 1** summarizes the capture areas. It is estimated that over 2.1 million gallons of rain water per year will be captured either by being stored within the green infrastructure measures or by infiltration into the sub surface soils.

#### D. Permanent Storm Water Management Practices (SMPs)

Storm water planters designed as storm water management practices are being constructed as part of the project. There are 17 storm water planters included in the project. The remaining planter (PB-2C) will not include a reservoir course for storm water storage due to underground utility conflict, and is not designed as a storm water management practice. Additional proposed landscaping locations at Remembrance Park and the traffic island at the intersection of Ellicott and Chippewa Streets are intended to increase the pervious area in the corridor; however, they are not akin to the storm water management facilities detailed below. Dimensions of the planters are included in the project plans, Landscaping Details, drawings LD-01 to LD-12. Landscaping Sections are included as drawing no. LS-01 and LS-02.

Each storm water planter is designed to have 2 inches of gravel mulch, a minimum of 18 inches of soil media for sheet flow from proposed sidewalk area, and 3'-6" depth of inches of stone reservoir course. Tree pits within the planters include 24 inches of soil media and 1 foot of sand. The reservoir course contains 6-inch diameter perforated polyvinyl chloride (PVC) piping with cleanout access points at various areas within the planter. Run-off from the roadway drains into a 2-foot by 2-foot green infrastructure catch basin with a 2 foot sump for collecting settled particles. A 6-inch diameter PVC piping conveys flows from the catch basin into the reservoir course for storage and infiltration into the subsoils. An overflow outlet pipe is set at an elevation approximately 2 feet above the bottom of the reservoir course to allow outflows into the downstream system for storm events greater than the storage capacity of the planter. The planters connect into proposed storm sewer piping which convey bypass flows to either the existing storm or combined sewers within project limits. Connections to the existing storm occur at Oak and Elm Street at new manholes, which eventually drain to the City's combined sewer system. The remainder of the planters drains to the 84-inch trunk sewer in the project limits.

The reservoir course is to be constructed with washed no. 2 stone per BSA specifications, and completely wrapped with geotextile filter fabric. Field testing during installation is required to ensure permeability. Refer to the *Green Infrastructure Systems and Landscaping* section of the Proposal Book for additional information.

Perforated and solid PVC piping is to be constructed per NYSDOT requirements (NYSDOT Items 605.1602 and 664.01XX01ER, respectively).

### E. Post-Developed Discharge Summary

The stormwater runoff rates and volumes were modeled using the SCS unit hydrograph method with HydroCAD Software Solutions. Detailed calculations of the pre- and post-development conditions are included in **Attachments C and F**.

A summary and comparison of the routing results for the 90<sup>th</sup> percentile rainfall, 2-Year and 25-year rainfall events are shown in **Table 6** below. Tables 6a, 6b, 6c, and 6d show discharge

at various site discharge points. At Remembrance Park, a slight increase in the discharge rate occurs due to the slight increase in impervious area. However, the increase is negligible, as it will not result in significant downstream impacts.

Table 6
Hydrologic Analysis Summary
Comparison of Pre and Post Construction
Conditions

Rainfall Event	Existing Pre-Development	Post-Developed Discharge	
90 <sup>th</sup> percentile (0.85")	$Q_{90} = 3.50 \text{ cfs}$	Q <sub>90</sub> = 1.78 cfs	
2-Year (2.25")	$Q_2 = 10.52 \text{ cfs}$	Q <sub>2</sub> = 8.25 cfs	
25-Year (4.00")	$Q_{25} = 19.19 \text{ cfs}$	Q <sub>25</sub> = 18.23 cfs	

### Table 6a Hydrologic Analysis Summary Comparison of Pre and Post Construction Conditions Oak Street 24" RCP Sewer

Rainfall Event	Existing Pre-Development	Post-Developed Discharge	
90 <sup>th</sup> percentile (0.85")	$Q_{90} = 0.92 \text{ cfs}$	Q <sub>90</sub> = 0.46 cfs	
2-Year (2.25")	$Q_2 = 2.69 \text{ cfs}$	Q <sub>2</sub> = 1.76 cfs	
25-Year (4.00")	$Q_{25} = 4.85 \text{ cfs}$	Q <sub>25</sub> = 3.98 cfs	

# Table 6b Hydrologic Analysis Summary Comparison of Pre and Post Construction Conditions Elm Street 30" RCP Sewer

Rainfall Event	Existing Pre-Development	Post-Developed Discharge	
90 <sup>th</sup> percentile (0.85")	$Q_{90} = 0.61 \text{ cfs}$	Q <sub>90</sub> = 0.38 cfs	
2-Year (2.25")	$Q_2 = 1.79$ cfs	Q <sub>2</sub> = 1.43 cfs	
25-Year (4.00")	$Q_{25} = 3.30 \text{ cfs}$	Q <sub>25</sub> = 3.30 cfs	

# Table 6c Hydrologic Analysis Summary Comparison of Pre Construction Conditions Genesee Street 84" Sewer

Rainfall Event	Existing Pre-Development	Post-Developed Discharge	
90 <sup>th</sup> percentile (0.85")	$Q_{90} = 1.86 \text{ cfs}$	Q <sub>90</sub> = 0.79 cfs	
2-Year (2.25")	$Q_2 = 5.53$ cfs	Q <sub>2</sub> = 4.51 cfs	
25-Year (4.00")	$Q_{25} = 10.02 \text{ cfs}$	Q <sub>25</sub> = 9.89 cfs	

### Table 6d Hydrologic Analysis Summary Comparison of Pre Construction Conditions Remembrance Park

Rainfall Event	Existing Pre-Development	Post-Developed Discharge	
90 <sup>th</sup> percentile (0.85")	$Q_{90} = 0.11 \text{ cfs}$	Q <sub>90</sub> = 0.15 cfs	
2-Year (2.25")	$Q_2 = 0.51$ cfs	$Q_2 = 0.55 \text{ cfs}$	
25-Year (4.00")	$Q_{25} = 1.02 \text{ cfs}$	Q <sub>25</sub> = 1.06 cfs	

#### F. Post-Construction Maintenance Requirements

The permanent SMPs incorporated into this project require periodic maintenance to assure efficient function of the measures. During construction, the contractor is responsible for general maintenance of the site, including all SMPs. The contractor is also responsible for a two year establishment period following construction per the green infrastructure specifications included in the project manual. The city maintenance staff will be responsible for maintaining all sewer infrastructure (i.e. piping, catch basins, clean outs, etc.) following the establishment period.

The property owners at each SMP location remain responsible for basic maintenance of their property within the right of way, including litter and snow removal. To help ensure long term plant health, the BSA will also provide a plant maintenance guide and technical support for landowners. The agreement letter which was required to be signed by each affected property owner in the corridor can be found in **Attachment E.** 

Long-term maintenance needs of this site include the annual removal of accumulated sediments from the storm system and the SMPs to maintain their capacity and prevent downstream sedimentation. The post-construction maintenance plan is included in **Attachment E**.

#### 6 POLLUTION PREVENTION MEASURES DURING CONSTRUCTION

The temporary Erosion and Sediment Control (ESC) procedures are outlined in the contract documents on the general notes drawing, GN-01 with specifications for drainage structure inlet control included in the Proposal Book Special Specifications Section.

#### A. Solid Waste Control

According to the General Conditions section of the Proposal Book, the contractor is required to remove all dirt, rubbish, and waste material resulting from the Contractor's operations at a minimum of once a week. At the completion of work, the site is to be left clean, free from obstructions.

#### B. Liquid Storage

The contractor shall store all liquid materials in a manner that prevents leaching and accidental spillage. Storm water run-off that is contaminated with fuels, oils, lubricants or other contaminants shall not be allowed to discharge into any natural or manmade drainage facilities on or off the site.

#### C. Critical Erosion Control Areas

Based on the existing topography and drainage patterns, the critical erosion control areas are identified as follows:

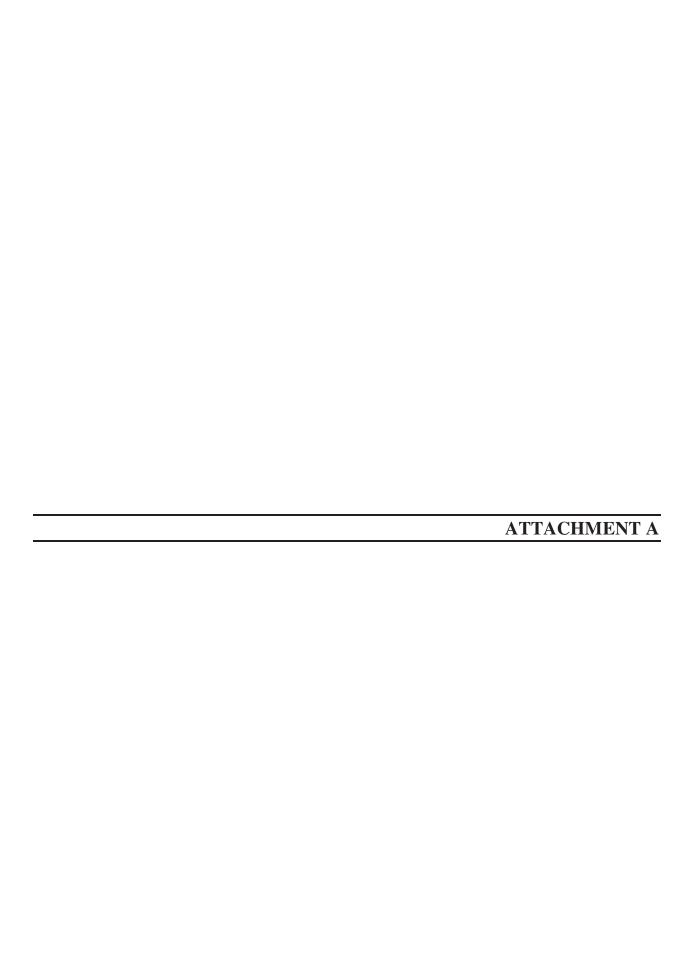
- 1. <u>Construction Vehicle Access Locations</u>: Access to the site will be over milled or existing pavements. Therefore, erosion and tracking of sediment should not be an issue, provided the contractor controls the dust between milling and paving operations, which is a required element.
- 2. <u>Slopes</u>: All working slopes are to be as flat as practicable, and have been designed to be fairly flat. A mounded landscaped area is part of the project work at the traffic island at Ellicott and Chippewa Streets, which will have a maximum grade of 3 horizontal to 1 vertical. The proposed final grading is included within the Contract Documents on drawing numbers TS-01 to TS-03, MT-06 to MT-08, PR-01 to PR-04, and IG-01 to IG-04.

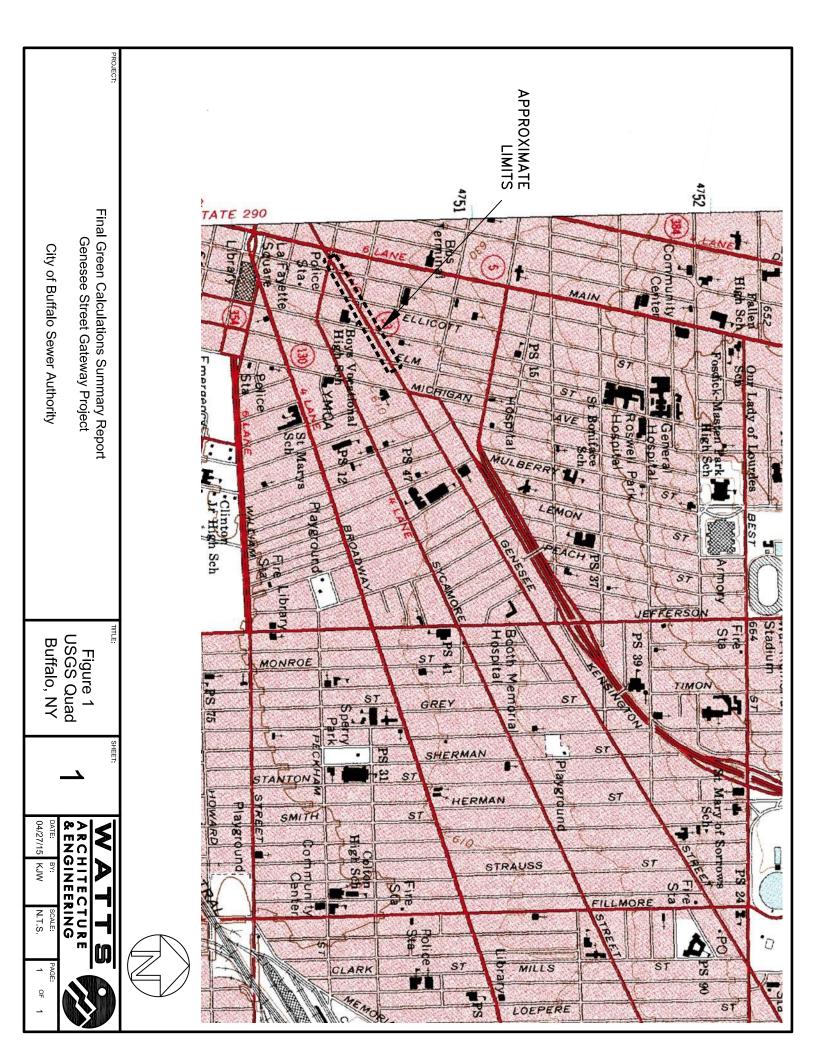
#### D. Erosion and Sedimentation Control Measures

1. <u>Drainage Structure Inlet Protection</u>: Storm inlet sediment trapping measures are specified within the Special Specifications section of the Proposal Book.

### E. Inspection and Maintenance

All erosion and sedimentation control measures shall be continuously monitored for performance and maintained by the Contractor as instructed on the General Notes drawing, GN-01. The Engineer may add additional measures at any time during construction as required.





STREET WASHINGTON STREET APPROXIMATE LIMITS ELLICOTT STREET OAK STREET ELM STREET

Final Green Calculations Summary Report Genesee Street Gateway Project

City of Buffalo Sewer Authority

Figure 2 Aerial Photo Buffalo, NY

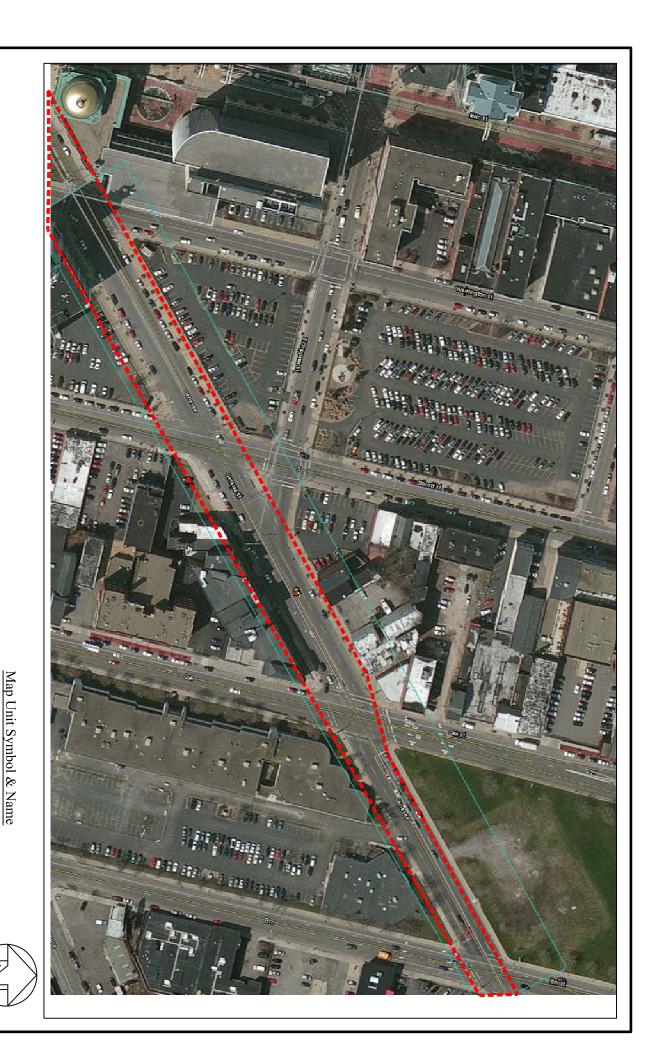
& ENGINEERING

04/27/15

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NTS





Final Green Calculation Summary Report Genesee Street Gateway Project

City of Buffalo Sewer Authority

Figure 3 NRCS Soil Buffalo, NY

 $\mathsf{D}\mathsf{U}$ 

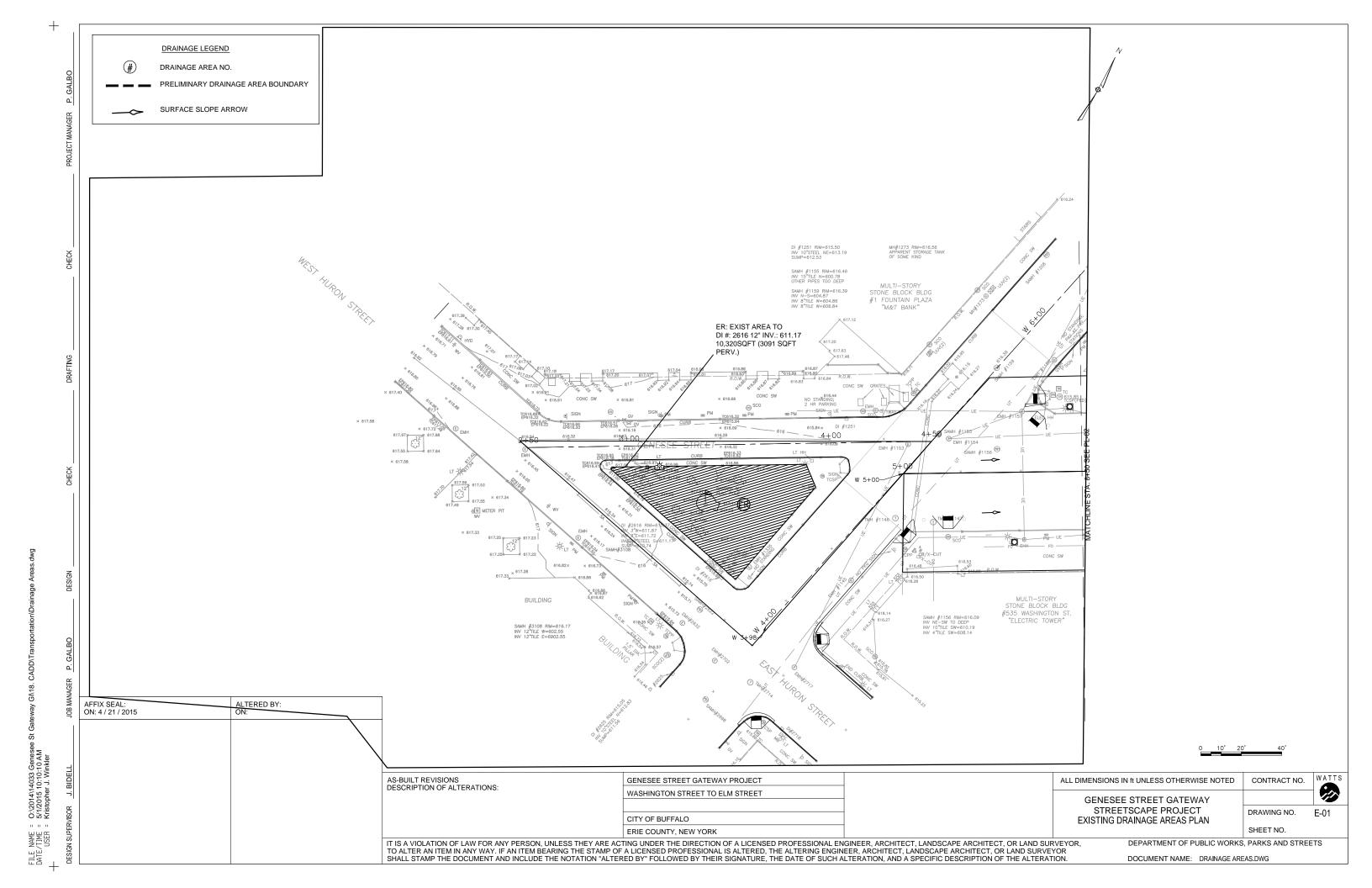
Urban Land

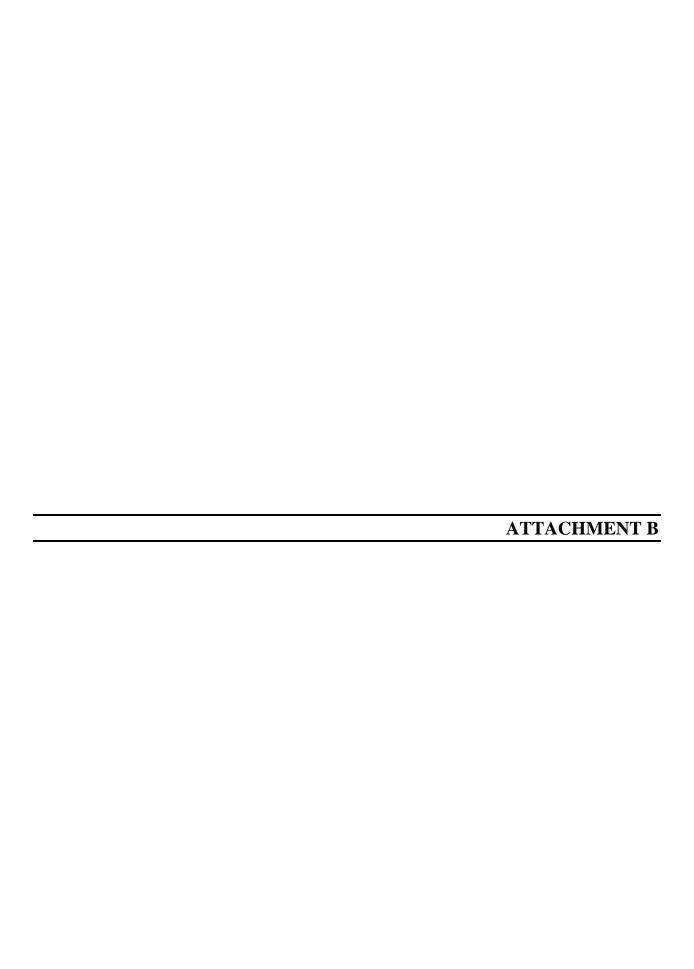
&RCHITECTURE & ENGINEERING

4/27/15 MCX NTS 



DRAINAGE LEGEND DRAINAGE AREA NO. PRELIMINARY DRAINAGE AREA BOUNDARY SURFACE SLOPE ARROW DI #2600 RIM=612.04 INV 12"HDPE SE=607.44 PERVIOUS AREA DI #2358 RIM=612.37 INV 12"HDPE NW=606.22 INV 12"TILE W=603.52 SURFACE SLOPE ARROW AT CURB DI #123 RIM=611.61 TOP/DEBRI=610.31 □ 612.60 DS 39 1824 8QFT (22)/3,376/SQF GD 21+00 **Q** 23 └-GĎ 20+00/ -GØ 19+85 24) AFFIX SEAL: ON: 4 / 21 / 2015 ALTERED BY: ON: O:\2014\14033 Genesee \$ 5/1/2015 10:06:33 AM Kristopher J. Winkler WATTS AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS: GENESEE STREET GATEWAY PROJECT ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED CONTRACT NO. WASHINGTON STREET TO ELM STREET GENESEE STREET GATEWAY STREETSCAPE PROJECT DRAWING NO. PL-05 CITY OF BUFFALO PRELIMINARY DRAINAGE AREAS PLAN STATION 18+50 TO 21+73 SHEET NO. ERIE COUNTY, NEW YORK IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION. DEPARTMENT OF PUBLIC WORKS, PARKS AND STREETS DOCUMENT NAME: DRAINAGE AREAS.DWG







# Contract **Drilling** and **Testing**

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# SITE INVESTIGATION REPORT

# GENESEE STREET INFRASTUCTURE PROJECT **BUFFALO, NEW YORK**

### PREPARED FOR:

WATTS ARCHITECTURE AND ENGINEEING P.C. 95 PERRY STREET SUITE 300 BUFFALO, NY 14203

PREPARED BY:

SJB SERVICES, INC. JANUARY 2015

SJB # BD-14-190

### SITE INVESTIGATION REPORT

# GENESEE STREET INFRASTUCTURE PROJECT BUFFALO, NEW YORK

### I. INTRODUCTION

SJB Services, Inc. drilling personnel were present at various locations along Genesee Street between Washington and Elm Streets in the city of Buffalo, New York on December 22<sup>nd</sup> through 24<sup>th</sup>, 2014 to perform soil borings and infiltration tests for proposed infrastructure improvements. The work was requested and authorized by Mr. Phillip Galbo P.E. of Watts Engineering and Architecture P.C., 95 Perry Street, Suite 300, Buffalo, New York 14203.

A total of ten (10) test borings and subsequent infiltration tests were completed at the site ranging in depth from 9.0 feet to 12.0 feet below existing ground surface. The location of each of these borings was provided to SJB Services, Inc. during a site visit with Mr. Kristopher Winkler P.E. of Watts.

### II. METHOD OF INVESTIGATION

Initially, a portable "Core-Bore" coring machine equipped with a 6-inch diamond thinwall core barrel was utilized to advance through the concrete sidewalk present at the boring locations. Standard drilling techniques were then employed to advance 2 1/4" inside diameter hollow stem augers through the overburden soils beneath the sidewalk. Representative soil samples were obtained throughout the depth of the boring by driving a 2- inch diameter (0.D.) split spoon sampler into the undisturbed soils beneath the augers, utilizing a 140 pound drop hammer freely falling 30- inches. Data regarding the compaction and consistency of the overburden soils are related to the penetration of the split spoon, in accordance with the "Standard Penetration Test" (ASTM D-1586).

The borings were initially drilling and sampled to the infiltration testing depth (5-feet to 8-feet below existing grade). A 4-inch diameter section of PVC pipe was then placed in the borehole, and presoaked with water in preparation for the infiltration test. Upon completion of the infiltration testing, the soils were sampled through the PVC pipe to a depth of 4-feet below the infiltration test elevation. All test holes were then backfilled and grouted to grade upon completion.

The recovered samples were classified in the field by our drill foreman and transported to our Buffalo, New York office where visual classification was performed by a Geologist. Included in this report is a "General Information Key to Subsurface Logs" as a supplement to explain the terms, symbols and definitions, which are utilized in our visual classifications.

### III. GENERAL SITE CONDITIONS

In general, the subsurface conditions encountered at the site consisted of variable fills underlain by silty sands and silty clay soils to the depths investigated.

Please consult the attached boring logs for more specific details such as "N" values, soil classification, and water level conditions.

Included with this report are the results of the infiltration tests performed at the boring locations.

The stratification lines shown on the boring logs are approximate, where as in-situ the changes between strata may be more gradual. The subsurface information represented by the attached logs indicates the conditions present only at the location or depth of each sample taken at the borehole specified.

The following pages contain data recorded in the field by our drill foreman. The data, along with the recovered soil samples and their visual classification constitutes the subsurface investigation report.

All recovered samples will be retained for approximately sixty (60) days, at which time the samples will be destroyed unless directed otherwise.

It has been a pleasure working with you on this project. If you have any questions or wish to discuss this report further, please contact our office at any time.

If we can be of further service to you, please let us know. SJB Services, Inc. offers a full range of construction testing services (concrete, asphalt, soil, steel), should you have a need for these items at a later date.

Frank R. Minnelera Jr. SD

SJB SERVICES, INC.

Frank R. Minnolera Jr.

Staff Geologist



### GENERAL INFORMATION & KEY TO SUBSURFACE LOGS

The Subsurface Logs attached to this report present the observations and mechanical data collected by the driller at the site, supplemented by classification of the material removed from the borings as determined through visual identification by technicians in the laboratory. It is cautioned that the materials removed from the borings represent only a fraction of the total volume of the deposits at the site and may not necessarily be representative of the subsurface condition between adjacent borings or between the sampled intervals. The data presented of the Subsurface Logs together with the recovered samples provide a basis for evaluating the character of the subsurface conditions relative to the project. The evaluation must consider all the recorded details and their procedures to more accurately evaluate the subsurface conditions. Any evaluation of the contents of this report and recovered samples must be performed by qualified professionals. The following information defines some of the procedures and terms used of the Subsurface Logs to describe the conditions encountered, consistent with the numbered identifiers shown on the Key opposite this page.

- 1. The figures in the Depth column define the scale of the Subsurface Log.
- 2. The Samples column shows, graphically, the depth range from which a sample was recovered. See Table I for descriptions of the symbols used to represent the various types of samples.
- 3. The Sample No. is used for identification on sample containers and/or Laboratory Test Reports.
- 4. Blows on Sampler shows the results of the "Penetration Test", recording the number of blows required to drive a split spoon sampler into the soil. The number of blows required for each six inches is recorded. The first 6 inches of penetration is considered a seating drive. The number of blows required for the second and third 6 inches of penetration is termed the penetration resistance, N.
- 5. Blows on Casing Shows the number of blows required to advance the casing a distance of 12 inches. The casing size, hammer weight, and length of drop are noted at the bottom of the Subsurface Log. If the casing is advanced by means other than driving, the method of advancement will be indicated in the Notes column or under the Method of Investigation at the bottom of the Subsurface Log. Alternatively, sample recovery may be shown in this column or other data consistent with the column heading.
- 6. All recovered soil samples are reviewed in the laboratory by an engineering technician, geologist, or geotechnical engineer, unless noted otherwise. Visual descriptions are made on the basis of a combination of the driller's field descriptions and noted observations together with the sample as received in the laboratory. The method of visual classification is based primarily on the Unified Soil Classification System (ASTM D 2487) with regard to the particle size and plasticity (See Table No. II), and the Unified Soil Classification System group symbols for the soil types are sometimes included with the soil classification. Additionally, the relative portion, by weight, of two or more soil types is described for granular soils in accordance with "Suggested Methods of Test for Identification of Soils" by D.M. Burmister, ASTM Special Technical Publication 479, June 1970. (See Table No. III). Description of the relative soil density or consistency is based upon the penetration records as defined in Table No. IV. The description of the soil moisture is based upon the relative wetness of the soil as recovered and is described as dry, moist, wet, and saturated. Water introduced into the boring either naturally or during drilling may have affected the moisture condition of the recovered sample. Special terms are used as required to describe soil deposition in greater detail; several such terms are listed in Table V. When sampling gravelly soils with a standard two inch diameter split spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter. The presence of boulders and large gravel is sometimes, but not necessarily, detected by an evaluation of the casing and sampler blows or through the "action" of the drill rig as reported by the driller.
- 7. Rock description is based on review of the recovered rock core and the driller's notes. Frequently used rock classification terms are included in Table VI.
- 8. The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Solid stratification lines delineate apparent changes in soil type, based upon review of recovered soil samples and the driller's notes. Dashed lines convey a lesser degree of certainty with respect to either a change in soil type or where such change may occur.
- 9. Miscellaneous observations and procedures noted by the driller are shown in this column, including water level observations. It is important to realize the reliability of the water level observations depends upon the soil type (water does not readily stabilize in a hole through fine grained soils), and that any drill water used to advance the boring may have influenced the observations. The ground water level will fluctuate seasonally, typically. One or more perched or trapped water levels may exist in the ground seasonally. All the available readings should be evaluated. If definite conclusions cannot be made, it is often prudent to examine the conditions more thoroughly through test pit excavations or groundwater observation wells.
- 10. The length of core run is defined as the length of penetration of the core barrel. Core recovery is the length of core recovered divided by the core run. The RQD (Rock Quality Designation) is the total length of pieces of NX core exceeding 4 inches divided by the core run. The size core barrel used is also noted in the Method of Investigation at the bottom of the Subsurface Log.

STARTED SJB SERVICES, INC. SHEET OF SERVICES INC.	PROJ. No.  HOLE No.  SURF. ELEV.  G.W. DEPTH
PROJECT 48 PROJECT 48	
SAMPLER SOIL OR ROCK CLASSIFICATION	NOTES
1 3 3 4 8 7 10 3" TOPSOIL  Brown SILT, some Sand, trace clay, ML  (Moist-Loose)	Groundwater at 10' upon completion, and 5' 24 hrs. after
Gray SHALE, medium hard, weathered, thin bedded, some fractures  (numbered features explained on reverse)	Completion - Run#1, 2.5'-5.0' - 95% Recovery 50% RQD
TABLE II TO TABLE III TABL	

	Split Spoon
$\pm IZI$	Split Spoon Sample
	Sample









Identification of soil type is made on basis of an estimate of particle sizes, and in the case of fine grained soils also on basis of plasticity.

	-	
Soil Type	Soil Particle Size	
Boulder	eni garagana y>12"	tivate efective e
Cobble	3" - 12"	
Gravel - Coarse	3" - 3/4"	Coarse Grained
Fine on	3/4" - #4	(Granular)
	#4 - #10	A Charles
- Medium	#10 - #40	* * *
- Fine	#40 - #200	
Silt - Non Plastic Clay - Plastic (Co	· , <===================================	Fine Grained

The following terms are used in classifying soils consisting of mixtures of two or more soil types. The estimate is based on weight of total sample.

Term	Percent of Total Sample
"and"	35 - 50
"some"	<sup>1</sup> 14 - 1 - 20 - 35
	10 - 20
"trace"	less than 10

(When sampling gravelly soils with a standard split spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter.)

## TABLE IV

The relative compactness or consistency is described in accordance with the following terms:

### **Granular Soils Cohesive Soils** Term Blows per Foot, N Term Blows per Foot, N Very Soft 0 - 4 0-2 Loose Soft 2 - 4 Loose 4 - 10 Medium 4 - 8 10 - 30 Firm Stiff 8 - 15 30 - 50 Compact Very Stiff 15 - 30 Very Compact >50 Hard >30

(Large particles in the soils will often significantly influence the blows per foot recorded during the penetration test)

### TABLE V

Varved	Horizontal uniform layers or seams of soil(s).
Layer	Soil deposit more than 6" thick.
Seam	Soil deposit less than 6" thick.
Parting	Soil deposit less than 1/8" thick.
Laminated	Irregular, horizontal and angled seams and partings of soil(s).

### TABLE VI

Rock Clas	sification Term	Meaning	Rock Classification Term	Meaning	
Hardness	- Soft - Medium Hard - Hard - Very Hard	Scratched by fingemail Scratched easily by penknife Scratched with difficulty by penknife Cannot be scratched by penknife	Bedding - Laminated - Thin Bedded - Bedded - Thick Bedded	(<1") (1" - 4") (4" - 12") (12" - 36")	Natural breaks in Rock Layers
Weathering	<ul><li>Very Weathered</li><li>Weathered</li><li>Sound</li></ul>	Judged from the relative amounts of disintegration, iron staining, core recovery, clay seams, etc.	- Massive (Fracturing refers to natural br angle to the rock layers)	(>36") eaks in the rock	oriented at some

START **FINISH** 



SHE	ΕT		1	OF	1			SERVICES, INC.	G.W. DEPTH See Notes
PRO PRO			GEN BD-1			GREEN	N INFR	RASTRUCTURE PROJECT LOCATION: GENESEE STF	L REET - SOUTH SIDEWALK VASHINGTON ST
DEPTH	T	SMPL		BLOWS ON SAMPLER				SOIL OR ROCK	NOTES
FT		NO.	0/6	6/12	12/18	N		CLASSIFICATION	
_		1	1	2	2	4		CONCRETE (SIDEWALK) Dark Gray f-c SAND, some Silt, tr.gravel, tr.brick, tr.cinders (wet, FILL)	Driller notes approx. 5.5"  Concrete
_		2	2	3				Brown fine SAND, little Silt (moist, loose, SM)	
_	V		3	4		6			
5	/	3	4	5				Contains little Clay	_
_	$\rfloor/$	4	6	7				Contains tr.clay (firm)	_
_	$\perp$		10	10		17			_
_	$\rfloor/$	5	6	5				Gray Silty CLAY, tr.sand (moist, stiff, CL)	
_	/		5	7		10			
10								Boring Complete at 9.0'	Driller notes Augering and
_									Sampling to 5' depth, setting 4" PVC infiltration pipe. Infiltration testing
_									then performed and Boring subsequently
_									extended to 9'
-									_
15									_
_	_								_
_									_
_									-
20									_
20	DR	ILLER:		A. J	AKUB	CZAK		NCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW COUNTY OF THE PROPERTY	LASSIFIED BY: Geologist

START 12/22/2014 FINISH 12/23/2014



SHE			1	OF	1	- -	G.W. DEPTH See Notes			
PRC						GREEN	ASTRUCTURE PROJECT LOCATION: GENESEE STI			
PRC	)J. N	10.:	BD-1	14-19	190 75' WEST OF ELLICOTT ST					
DEPTH		SMPL				AMPLER		SOIL OR ROCK	NOTES	
FT.		NO.	0/6	6/12	12/18	N		CLASSIFICATION CONCRETE (SIDEWALK)	Driller notes approx. 4.5"	
		1	6	7	8	15		Dark Brown f-c SAND, some Silt, tr.gravel, tr.roots,	Concrete	
-	٦/							tr.brick (moist, FILL)		
_	_/_								_	
	1/	2	5	5				Brown fine SAND, little Silt (moist, firm SM)		
-	$\exists /$		1						_	
_			6	9		11				
	1/	1								
5	Υ.	3	4	6		$\vdash$			_	
	$\perp \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$	4	5	8						
_	7/							(wet)		
_	/		7	6		15				
	$\perp \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$	_		_						
-	$\exists /$	5	6	7				Contains some Silt, tr.clay	_	
	1		5	5		12		Contains come citi, moral,		
_								_		
10	4							Boring Complete at 9.0'	Driller notes Augering and	
									Sampling to 5' depth, setting 4" PVC infiltration	
_									pipe. Infiltration testing	
_		_							then performed and	
									Boring subsequently extended to 9'	
-	-		1						extended to 9	
_										
15									_	
-			1							
_									_	
-	-		1			$\vdash$			-	
						<u> </u>				
_									7	
20			<u> </u>							
	N =	= NO. BL	.OWS T	O DRIV	/E 2-IN	CH SPO	ON 12-II	NCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW C	LASSIFIED BY: Geologist	
		ILLER:				BCZAK		DRILL RIG TYPE : CME-550X		
	METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS									

START FINISH

12/22/2014



SHE	ΕT		1	OF	1	•	SERVICES	G.W. DEPTH See Notes			
PRO PRO			GEN BD-1			GREEN INFRASTRUCTURE PROJECT LOCATION: GENESEE STREET - NORTH SIDEWALK 35' WEST OF ELLICOTT ST					
DEPTH		SMPL		BI O	WS ON SA	AMPI FR	SOIL OR ROCK	NOTES			
FT.		NO.	0/6	6/12	12/18	N	CLASSIFICATION	NOTES			
	7						Brown f-c SAND, some Silt, tr.roots (moist,	, FILL)			
	$\parallel / \parallel$	1	2	4				,			
_	7/1										
_			4	3		8					
							Brown fine SAND, little Silt (moist, loose, SI	SM)			
_	<b>∐</b> /	2	3	3							
_	Т,		4	4		7					
	/										
5	$\bot$	3	3	3							
	1/						Gray Silty CLAY, tr.fine Sand (moist, v.stiff,	, CL)			
_	4/1	4	6	7							
						4.0					
_	4		8	9		16	<del></del>				
	$\perp$	_									
_	4/1	5	6	8			<u> </u>				
			40	40		40					
_	+		10	16		18					
10							Boring Complete at 9.0'	Driller notes Augering and			
_ '0 _	-						Bonnig Complete at 9.0	Sampling to 5' depth,			
								setting 4" PVC infiltration			
_	-							pipe. Infiltration testing			
								then performed and			
_	1						<del> </del>	Boring subsequently			
								extended to 9'			
_	7							emenaea to c			
_	1										
15											
	1										
_	1										
_	]										
_	4										
20											
	DR	ILLER:		A. J	IAKUB	CZAK	N 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER  DRILL RIG TYPE: CME-550X 1586 USING HOLLOW STEM AUGERS				

START **FINISH** 



SHE	ΞΤ		1	OF	1			SERVICES, INC.	G.W. DEPTH See Notes
PRO	IFC	:T·	GEN	FSFF	STO	REF	N INFR	ASTRUCTURE PROJECTLOCATION: GENESEE STR	FET - NORTH SIDEWALK
PRO			BD-1			JIVEEI		ASHINGTON ST	
DEPTH		SMPL		BLOWS ON SAMPLER			NOTES		
FT.		NO.	0/6	6/12	12/18	N		CLASSIFICATION	
		1	3	4	8	12		CONCRETE (SIDEWALK)  Dark Brown f-c SAND, some Silt, tr.gravel, tr.cinders,	Driller notes approx. 3.5" Concrete
_	۱/	'	3	4	0	12		tr.roots (moist, FILL)	
	V							,	
	I/							Gray fine SAND, little Silt (moist, loose, SM)	
_	4/	2	4	3					_
	V		4	7		7			
	17		_	,		,			_
5	]/	3	3	4				Becomes Brown	
	$\mathbb{V}$								
_	Υ,		7	10		11		Dode Crow City CLAY to fine Cond (resist stiff CL)	_
	1/	4	6	8				Dark Gray Silty CLAY, tr.fine Sand (moist, stiff, CL)	
_	1/	•	Ü						
			4	7		12			
	$\perp$								
_	4/	5	7	8			(v.stiff)	_	
10	V		9	10		17			
_	17		Ü			.,			
	]/	6	5	9					_
	V								
_	1		10	13		19			
								Boring Complete at 12.0'	Driller notes Augering and
_	1								Sampling to 5' depth,
_									setting 4" PVC infiltration
									pipe. Infiltration testing
15									then performed and  Boring subsequently
									extended to 12'
_									
_	_								
_	$\exists$								_
_									
20									
	NI -	- NO PI	0\WS T	חסוי.	/E 2 IN!	^H 6B√	ON 42 II	NCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CL	ASSIFIED BY: Geologist
		ILLER:	O 1 1 1			CZAK		DRILL RIG TYPE : CME-550X	Obologist
	METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS								

START **FINISH** 



SHE	ΕT		1	OF	1			SERVICES, INC.	G.W. DEPTH See Notes
PRO PRO						GREE	N INFR	RASTRUCTURE PROJECT LOCATION: ELLICOTT AT IN TRAFFIC T	
FRO	J. IV	iO	BD-14-190						
DEPTH		SMPL		BLOWS ON SAMPLER			SOIL OR ROCK	NOTES	
FT.		NO.	0/6	6/12	12/18	N		CLASSIFICATION	
			١.			_		CONCRETE (SIDEWALK)	Driller notes approx. 5.5"
_	۱/	1	4	3	2	5		Dark Brown SLAG, some f-c Sand (moist, FILL)	Concrete
	/							Brown fine SAND, little Silt (moist, loose, SM)	
_	+								<del>-</del>
	$\perp \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$	2	3	4					
_	$\exists /$		-	-					-
	1		5	6		9			
_	17		Ť			Ů			
5	V	3	4	3					
	17							Brown Silty CLAY, tr.fine Sand (moist, stiff, CL)	1 -
	1/	4	4	5					
_	7/								
_	$\perp$		7	8		12			
	1/								
_	1/	5	9	11					
	1/							(v.stiff)	
_	_		16	27		27			
4.0								Daving Commission at 0.01	Deillen netes Aveneries and
10	4							Boring Complete at 9.0'	Driller notes Augering and
									Sampling to 5' depth, setting 4" PVC infiltration
_	-								pipe. Infiltration testing
									then performed and
_	-								Boring subsequently
									extended to 9'
_									
_									
15									
_	4								
_	4								_
_	-								_
_	+								-
20									
	•		•						•
	N =	NO. BL	OWS T	O DRIV	/E 2-IN(	CH SPO	ON 12-II		LASSIFIED BY: Geologist
	DR	ILLER:		A. J	AKUE	BCZAK		DRILL RIG TYPE : CME-550X	
	METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS								

START **FINISH**  12/23/2014 12/24/2014



SHE	ΕT		1	OF	1		SERVICES,	G.W. DEPTH See Notes
PRO	JEC	CT:	GEN	ESEE	ST (	GREEN	INFRASTRUCTURE PROJECTLOCATION: FRON	L T OF 110 GENESEE STREET
PRO				4-19				ALO, NEW YORK
DEPTH		SMPL		BLO	WS ON S	AMPLER	SOIL OR ROCK	NOTES
FT.		NO.	0/6	6/12	12/18	N	CLASSIFICATION	
		1	5	4	6	10	CONCRETE (SIDEWALK) Light Brown fine SAND, little Silt (moist, loose	Driller notes approx. 4" e, SM) Concrete
_	٦/		۲		0	10	Light Brown line GAND, little Oilt (moist, 1003c	
_	ν,							_
	$\perp /$	2	3	4				
_	$\exists / \exists$		3	4			<del></del>	_
_			4	5		8	(wet)	_
_								
5	+,	3	6	9			Brown Silty CLAY, tr.fine Sand (moist, v.stiff,	
	$\parallel \parallel$	4	7	8			Brown Only OLAT, traine Oand (moist, v.stiii,	OL)
_	7/							_
_	+,		10	10		18		_
	$\parallel \parallel \parallel$	5	12	15				
_	7/						(hard)	_
_	$\perp$		21	28		36		
10							Boring Complete at 9.0'	Driller notes Augering and
	1							Sampling to 5' depth,
_								setting 4" PVC infiltration
								pipe. Infiltration testing then performed and
_			1					Boring subsequently
_								extended to 9'
_	-							-
15								_
_								_
_	$\dashv \mid$		-				<del> </del>	_
_								_
_	4		-				<del> </del>	_
_	1							_
20								
	DR	ILLER:		A. J	IAKUB	CZAK	N 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER B  DRILL RIG TYPE:  CME-550X  1586 USING HOLLOW STEM AUGERS	LOW CLASSIFIED BY: Geologist

START **FINISH** 



SHEET			1	OF	1			SERVICES, INC.	G.W. DEPTH See Notes			
PROJECT: PROJ. NO.:			GENESEE ST GREEN BD-14-190				NFRASTRUCTURE PROJECT LOCATION: FRONT OF 111 GENESEE STREET BUFFALO, NEW YORK					
DEPTH	Т	ī										
FT.		SMPL NO.	0/6	6/12	WS ON S	N N		CLASSIFICATION	NOTES			
								ASPHALTIC CONCRETE	Driller notes approx. 2.5"			
_	_[/	1	5	8	5	13		Gray GRAVEL and f-c Sand (moist, FILL)	Asphalt			
	1/											
_	╀							Brown fine SAND, little Silt (wet, loose, SM)	-			
	1/	2	2	4				Brown line GAND, little Gilt (Wet, 10030, Gill)				
-	٦/											
_	/		3	3		7			<u> </u>			
	1/	1						Gray Silty CLAY, tr.sand (moist, stiff, CL)				
5	+	3	3	3				-	_			
	1/	4	5	6								
_	٦/	-										
_	$\perp$		7	7		13			_			
	17	1										
_	$\forall$	5	5	4				-	_			
			7	8		11						
_	1		<u> </u>									
10								Boring Complete at 9.0'	Driller notes Augering and			
									Sampling to 5' depth,			
_	4								setting 4" PVC infiltration			
									pipe. Infiltration testing then performed and			
_	┪							1	Boring subsequently			
_	╛								extended to 9'			
_	4							-	_			
15												
_ ' -	-							1	_			
_	╛											
-	4							-	_			
-	1		1					1				
_												
20	1											
	N:	= NO. BL	OWS T	O DRIV	/E 2-IN(	CH SPO	ON 12-II	NCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW C	LASSIFIED BY: Geologist			
		RILLER:						DRILL RIG TYPE : CME-550X				
	ME	ETHOD C	F INVE					USING HOLLOW STEM AUGERS				

START **FINISH** 

12/23/2014 12/24/2014



SHE	ΕT		1	OF	1			SERVICES, INC.	G.W. DEPTH See Notes
PROJECT: GENESEE ST GREEN		N INFR	RASTRUCTURE PROJECTLOCATION: FRONT OF 130	GENESEE STREET					
PROJ. NO.: BD-14-190					BUFFALO, NEW YORK				
DEPTH		SMPL		BLO\	WS ON S	AMPLER		SOIL OR ROCK	NOTES
FT.		NO.	0/6	6/12	12/18	N		CLASSIFICATION	D !!!
		1	4	8	6	14		CONCRETE (SIDEWALK) Brown Silty CLAY, little f-c Sand, tr.brick (moist, FILL)	Driller notes approx. 5" Concrete
_	1/			Ū				Brown fine SAND, little Silt (moist, firm, SM)	
_	1								_
	$\parallel /$	2	4	6					
_	7/							(wet)	_
_	1	_	8	11		14		Drawn City CLAY to and (social social	_
5	//	3	5	7				Brown Silty CLAY, tr.sand (moist, v.stiff, CL)	
_ ` -	Ť	Ť	Ū	·					
_	4/	4	6	9					
	V		10	12		19			
_	17								_
_	4/	5	8	12		<del>-   -   -  </del>			
	V		16	29		28			
_									
10								Boring Complete at 9.0'	Driller notes Augering and
									Sampling to 5' depth, setting 4" PVC infiltration
_									pipe. Infiltration testing
_	_								then performed and
									Boring subsequently extended to 9'
_									
_	-								
15									
_	4								
_									_
_	-								<u> </u>
_									
20	1_	<u> </u>							
	N =	= NO. BL	OWS TO	O DRIV	Έ 2-IN0	CH SPO	ON 12-II	NCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CL	ASSIFIED BY: Geologist
		RILLER:				CZAK		DRILL RIG TYPE : CME-550X  USING HOLLOW STEM AUGERS	

START **FINISH** 

12/23/2014 12/24/2014

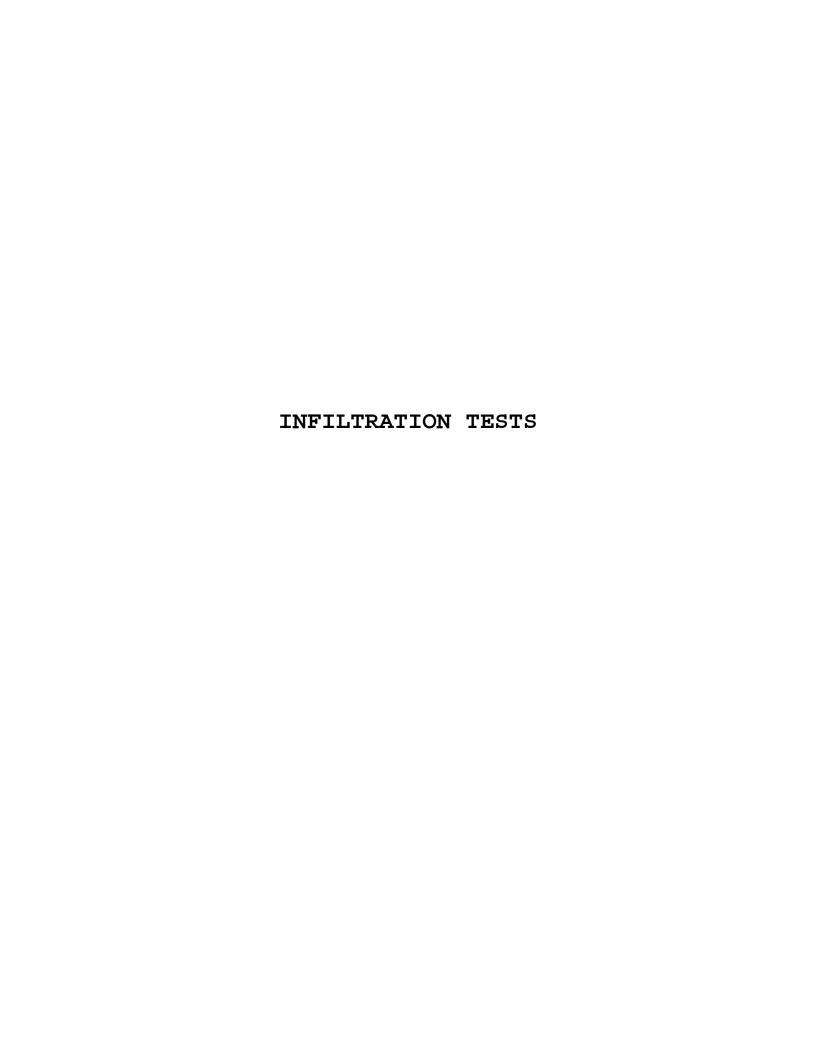


SHEET			1	OF	1			SERVICES, INC.	G.W. DEPTH See Notes	
PROJECT: GENESEE ST GREEN PROJ. NO.: BD-14-190		N INFF	FRASTRUCTURE PROJECT LOCATION: 144 GENESEE STREET - WEST SIDE BUFFALO, NEW YORK							
PRO	J. ľ	NO.:	BD-1	4-19	Ü					
DEPTH		SMPL		BLO	WS ON S			SOIL OR ROCK	NOTES	
FT.		NO.	0/6	6/12	12/18	N		CLASSIFICATION		
			_		7	4.5		CONCRETE (SIDEWALK)	Driller notes approx. 4"	
-	$\exists$ /	1	5	8	7	15		Gray SLAG and f-c Sand, little Clay (moist, FILL)	Concrete	
	/									
_	Ť,							Gray Silty CLAY, little f-c Sand (moist, stiff, CL)	<del>-</del>	
_	/ اـ	2	4	5						
	1/									
_	_		7	7		12				
5	$\perp \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$	3	7	_						
_	┰	3	/	9					_	
	$\perp \prime$	4	5	7						
-	٦/							(v.stiff)	_	
_			10	9		17				
	17	1								
_	4/	5	9	8						
	/		7	11		15				
_	+		/	14		15				
10								Boring Complete at 9.0'	Driller notes Augering and	
								1	Sampling to 5' depth,	
_									setting 4" PVC infiltration	
									pipe. Infiltration testing	
_	4								then performed and	
									Boring subsequently extended to 9'	
_	1									
_										
15										
-	$\dashv$								_	
_	1									
_										
_	_								_	
20										
		1	1					1	1	
	N :	= NO. BL	OWS T	O DRIV	'E 2-IN(	CH SPO	ON 12-II	NCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CI	LASSIFIED BY: Geologist	
		RILLER:				CZAK		DRILL RIG TYPE : CME-550X		
	ME	ETHOD C	F INVE	STIGA <sup>*</sup>	TION	ASTM D	D-1586 I	USING HOLLOW STEM AUGERS		

START 12/23/2014 FINISH



SHE	EET	•	1	OF	1			SERVICES, INC.	G.W. DEPTH See Notes
PROJECT: GENESEE ST GREEN INFRASTRUCTURE PROJECT LC PROJ. NO.: BD-14-190						GREEN	I INFF		
PRO	JJ.	NO.:	BD-1	4-190	U			BUFFALO, NEV	V YORK
DEPTH FT.		SMPL NO.	0/6	BLO\ 6/12	WS ON SA	AMPLER N		SOIL OR ROCK CLASSIFICATION	NOTES
			0,0	0,1.2	12.10			CONCRETE (SIDEWALK)	Driller notes approx. 5"
		1	9	10	12	22		Brown CLAY and Slag, little f-c Sand (wet, FILL)	Concrete
	/	<u> </u>							
			1	١					_
<u>-</u>	$\dashv$	2	4	5				Contains tr.organics	_
	4	<del>                                     </del>	5	7		10			
5		3	8	9				Contains tr.brick	
		4	4	4					
	   							Becomes Dark Brown  Brown Silty CLAY, tr.f-c Sand (moist, stiff, CL)	_
		<del>                                     </del>	5	5		9			
		5	5	7					_
	1		6	8		13			
10								Boring Complete at 9.0'	Driller notes Augering and
10								Burning Complete at 9.0	Sampling to 5' depth,
		-							setting 4" PVC infiltration pipe. Infiltration testing
									then performed and
									Boring subsequently extended to 9'
									_
									_
15	_								_
	-								_
	$\dashv$		1						_
									_
20									
	D	RILLER:		A. J	AKUB	CZAK		DRILL RIG TYPE : CME-550X	ASSIFIED BY: Geologist
I	IV	IE I HOD (	)F INVE	3 I IGA	IION .	49 IM D	,-1586	USING HOLLOW STEM AUGERS	





**TEST DATA** 

IS THERE PRESOAK WATER IN TEST CASING?

FEET FROM TOP OF CASING.

(NO)

(El. ')

B-1 12/22/2014

1056

12/23/2014 11:08

INFILTRATION TEST POINT:

PRESOAK DATE:

PRESOAK TIME:

TEST DATE:

YES

START OF TEST TIME:

IF YES, WHAT DEPTH:

# **INFILTRATION TEST DATA SUMMARY**

PROJECT:	GENESEE ST INFRASTRUCTURE PROJECT						
LOCATION:	GENESEE ST - SOUTH SIDEWALK 75' E OF WASHINGTON						
PROJECT NO:	BD-14-190						
Diameter of Casing 4	inches		Casing Stic	kun-			
			Casing Silc	—			
			FLUSH	feet			
				(El. )			
Existing Grade (El. )							
			Water level presoak fro	at start of m top of casing			
Total dept			ø	feet			
infiltration tes	t noint-			(FL )			

**Bottom of Casing** 

feet below

					ground surface (El.)
RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN	REFILLED WITH WATER, LEVEL FROM TOP
				(FEET)	OF CASING (FEET)
START	11:08				1.90
RUN #1	11:08	12:08	60	0.60	1.90
RUN #2	12:08	13:08	60	0.48	1.80
RUN #3	13:08	14:08	60	0.40	1.82
RUN #4	14:08	15:08	60	0.33	END OF TEST

from top of casing:

feet

3.85

AVERAGE INFILTRATION RATE	0.45	FEET PER HOUR
AVERAGE INFILTRATION RATE	5.4	INCHES PER HOUR

TESTED BY:	A. MORSE	
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**TEST DATA** 

IS THERE PRESOAK WATER IN TEST CASING?

FEET FROM TOP OF CASING.

(NO)

(El. ')

B-2 12/22/2014

1200

12/23/2014 11:18

INFILTRATION TEST POINT:

PRESOAK DATE:

PRESOAK TIME:

**TEST DATE:** 

YES

START OF TEST TIME:

IF YES, WHAT DEPTH:

# **INFILTRATION TEST DATA SUMMARY**

PROJECT:	GENES	SEE ST INFRA	ASTRUCTURE PROJECT
LOCATION:	GENESE	E ST - SOUTH S	SIDEWALK 75' W OF ELLICOTT
PROJECT NO:		ВС	)-14-190
Diameter of Casing 4	inches		Casing Stickup:  GRADE feet  (El. )
Existing Grade (El. )			
			Water level at start of

presoak from top of casing

feet

feet below

(EI. )

**Bottom of Casing** 

					ground surface (El.)
RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN	REFILLED WITH WATER, LEVEL FROM TOP
				(FEET)	OF CASING (FEET)
START	11:18				1.88
RUN #1	11:18	12:18	60	0.14	1.82
RUN #2	12:18	13:18	60	0.08	1.85
RUN #3	13:18	14:18	60	0.05	1.90
RUN #4	14:18	15:18	60	0.07	END OF TEST

Total depth of

infiltration test point-

from top of casing:

feet

3.9

AVERAGE INFILTRATION RATE	0.08	FEET PER HOUR
AVERAGE INFILTRATION RATE	0.96	INCHES PER HOUR

TESTED BY:	A. MORSE	
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**TEST DATA** 

IS THERE PRESOAK WATER IN TEST CASING?

FEET FROM TOP OF CASING.

(NO)

(El. ')

B-3 12/22/2014

1400

12/23/2014 10:57

INFILTRATION TEST POINT:

PRESOAK DATE:

PRESOAK TIME:

TEST DATE:

YES

START OF TEST TIME:

IF YES, WHAT DEPTH:

# **INFILTRATION TEST DATA SUMMARY**

PROJECT:	GENESEE ST INFRASTRUCTURE PROJECT		
LOCATION:	GENESEE ST - NORTH SIDEWALK 35' W OF ELLICOTT		
PROJECT NO:	BD-14-190		
Diameter of Casing 4	inches		Casing Stickup:  GRADE feet  (EI.)
Existing Grade (El. )			
Total depti			Water level at start of presoak from top of casing

**Bottom of Casing** 

					feet below
					ground surface (El.)
RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	10:57				1.38
RUN #1	10:57	11:57	60	1.13	1.42
RUN #2	11:57	12:57	60	0.83	1.30
RUN #3	12:57	13:57	60	1.01	1.40
RUN #4	13:57	14:57	60	0.78	END OF TEST

from top of casing:

feet

3.40

AVERAGE INFILTRATION RATE	0.94	FEET PER HOUR
AVERAGE INFILTRATION RATE	11.25	INCHES PER HOUR

TESTED BY: A.	MORSE
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# **INFILTRATION TEST DATA SUMMARY**

PROJECT:	GENESEE ST INFRASTRUCTURE PROJECT
LOCATION:	GENESEE ST - NORTH SIDEWALK 75' E OF WASHINGTON
PROJECT NO:	BD-14-190

INFILTRATION	
TEST POINT:	B-4
PRESOAK DATE:	12/22/2014
PRESOAK TIME:	1340

# **TEST DATA**

TEST DATE: 12/23/2014
START OF TEST TIME: 11:04

IS THERE PRESOAK WATER IN TEST CASING?

(YES) NO

IF YES, WHAT DEPTH:

6.65 FEET FROM TOP OF CASING.

(EI. ')

Diameter of Casing inches Casing Stickup: GRADE feet (El.) **Existing Grade** (El. ) Water level at start of presoak from top of casing Total depth of 6.65 feet infiltration test point-(El. ) from top of casing: 7.45 **Bottom of Casing** feet feet below ground surface (El.)

					ground surface (El.)
RUN NUMBER	START TIME (HOURS)	end time (Hours)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	11:04				5.40
RUN #1	11:04	12:04	60	0.05	5.42
RUN #2	12:04	13:04	60	0.02	5.40
RUN #3	13:04	14:04	60	0.01	5.41
RUN #4	14:04	15:04	60	0.02	END OF TEST

AVERAGE INFILTRATION RATE	0.025	FEET PER HOUR
AVERAGE INFILTRATION RATE	0.3	INCHES PER HOUR

TESTED BY: A. M	NORSE
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IS THERE PRESOAK WATER IN TEST CASING?

FEET FROM TOP OF CASING.

(NO)

(El. ')

B-5 12/22/2014

1438

12/23/2014 10:52

INFILTRATION TEST POINT:

PRESOAK DATE:

PRESOAK TIME:

**TEST DATE:** 

YES

START OF TEST TIME:

IF YES, WHAT DEPTH:

# **INFILTRATION TEST DATA SUMMARY**

PROJECT:	GENESEE ST INFRASTRUCTURE PROJECT					
LOCATION:	ELLI	ELLICOTT AT GENESEE IN TRAFFIC TRIANGLE				
PROJECT NO:	BD-14-190					
Diameter of Casing 4	inches		Casing Stickup:			
			GRADE feet  (El.)			
Existing Grade (El. )						
			Water level at start of presoak from top of casing			
Total dept	h of		<b>ø</b> feet			

(El. )

**Bottom of Casing** 

					feet below
					ground surface (El.)
RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	10:52				1.78
RUN #1	10:52	11:52	60	0.56	1.76
RUN #2	11:52	12:52	60	0.34	1.70
RUN #3	12:52	13:52	60	0.30	1.70
RUN #4	13:52	14:52	60	0.35	END OF TEST

infiltration test pointfrom top of casing:

feet

3.80

AVERAGE INFILTRATION RATE	0.39	FEET PER HOUR
AVERAGE INFILTRATION RATE	4.68	INCHES PER HOUR

TECTED DV	A MODEE	
TESTED BY:	A. MORSE	



IS THERE PRESOAK WATER IN TEST CASING?

FEET FROM TOP OF CASING.

(NO)

(El. ')

B-6 12/23/2014

930

12/24/2014 9:05

INFILTRATION TEST POINT:

PRESOAK DATE:

PRESOAK TIME:

**TEST DATE:** 

YES

START OF TEST TIME:

IF YES, WHAT DEPTH:

# **INFILTRATION TEST DATA SUMMARY**

PROJECT:	GENESEE ST INFRA	ASTRUCTURE PROJECT	
LOCATION:	FRONT OF 110	GENESEE STREET	
PROJECT NO:	BD-14-190		
Diameter of Casing 4	inches	Casing Stickup:	
		GRADE feet (El. )	
Existing Grade (El. )			
Total deptl infiltration test from top of ca	t point-	Water level at start of presoak from top of casing	

**Bottom of Casing** 

feet below

					ground surface (El.)
RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	09:05				2.10
RUN #1	09:05	10:05	60	0.02	2.12
RUN #2	10:05	11:05	60	0.08	2.02
RUN #3	11:05	12:05	60	0.01	2.03
RUN #4	12:05	13:05	60	0.02	END OF TEST

4.10

feet

AVERAGE INFILTRATION RATE	0.03	FEET PER HOUR
AVERAGE INFILTRATION RATE	0.36	INCHES PER HOUR

TECTED DV	A MODEE	
TESTED BY:	A. MORSE	



IS THERE PRESOAK WATER IN TEST CASING?

FEET FROM TOP OF CASING.

(NO)

(El. ')

B-7 12/23/2014

830

12/24/2014 9:09

INFILTRATION TEST POINT:

PRESOAK DATE:

PRESOAK TIME:

**TEST DATE:** 

YES

START OF TEST TIME:

IF YES, WHAT DEPTH:

# **INFILTRATION TEST DATA SUMMARY**

PROJECT:	GENESEE ST INFRASTRUCTURE PROJECT				
LOCATION:		FRONT OF 111 GENESEE STREET			
PROJECT NO:		BD-14-190			
Diameter of Casing 4	inches		Casing Stickup:  GRADE feet  (EI. )		
Existing Grade (El. )			Water level at start of presoak from top of casing		
Total dept infiltration tes			øfeet (EI. )		

**Bottom of Casing** 

feet below

					ground surface (El.)
RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	09:09				2.50
RUN #1	09:09	10:10	60	0.01	LEFT AT 2.51
RUN #2	10:10	11:10	60	0.00	LEFT AT 2.51
RUN #3	11:10	12:10	60	0.00	LEFT AT 2.51
RUN #4	12:10	13:10	60	0.00	END OF TEST

from top of casing:

feet

4.52

AVERAGE INFILTRATION RATE	0.0025	FEET PER HOUR
AVERAGE INFILTRATION RATE	0.03	INCHES PER HOUR

TECTED DV	A MODEE	
TESTED BY:	A. MORSE	



IS THERE PRESOAK WATER IN TEST CASING?

FEET FROM TOP OF CASING.

(NO)

(El. ')

B-8 12/23/2014

900

12/24/2014 9:14

INFILTRATION TEST POINT:

PRESOAK DATE:

PRESOAK TIME:

TEST DATE:

YES

START OF TEST TIME:

IF YES, WHAT DEPTH:

# **INFILTRATION TEST DATA SUMMARY**

PROJECT:	GENESEE ST INFR	RASTRUCTURE PROJECT			
LOCATION:	FRONT OF 130 GENESEE STREET				
PROJECT NO:	BD-14-190				
Diameter of Casing 4	inches	Casing Stickup:  GRADE feet  (El.)			
Existing Grade (El. )		Water level at start of presoak from top of casing			
Total depti infiltration test from top of c	t point-	øfeet (El. )			

Bottom of Casing

feet below

					ground surface (El.)
RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	9:14				1.97
RUN #1	9:14	10:14	60	1.64	1.92
RUN #2	10:14	11:14	60	1.27	1.96
RUN #3	11:14	12:14	60	1.06	1.95
RUN #4	12:14	13:14	60	1.01	END OF TEST

3.96

feet

AVERAGE INFILTRATION RATE	1.25	FEET PER HOUR
AVERAGE INFILTRATION RATE	14.94	INCHES PER HOUR

TECTED DV	A MODEE	
TESTED BY:	A. MORSE	



IS THERE PRESOAK WATER IN TEST CASING?

FEET FROM TOP OF CASING.

(NO)

(El. ')

B-9

12/23/2014

1130

12/24/2014 9:21

**INFILTRATION** 

TEST POINT:

**TEST DATE:** 

YES

START OF TEST TIME:

IF YES, WHAT DEPTH:

PRESOAK DATE:

PRESOAK TIME:

# **INFILTRATION TEST DATA SUMMARY**

PROJECT:	GENESEE ST INFRASTRUCTURE PROJECT			
LOCATION:	WEST SIDE OF 144 GENESEE STREET			
PROJECT NO:		BD-14-190		
Diameter of Casing 4	inches		Casing Stickup:  GRADE feet  (EI.)	
Existing Grade (El. )			Water level at start of	
Total deptl infiltration test			presoak from top of casing	

**Bottom of Casing** 

					feet below
					ground surface (El.)
RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	9:14				1.97
RUN #1	9:14	10:14	60	1.64	1.92
RUN #2	10:14	11:14	60	1.27	1.96
RUN #3	11:14	12:14	60	1.06	1.95
RUN #4	12:14	13:14	60	1.01	

from top of casing:

feet

4.05

AVERAGE INFILTRATION RATE	1.25	FEET PER HOUR
AVERAGE INFILTRATION RATE	14.94	INCHES PER HOUR

TESTED BY:	A. MORSE	
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# **INFILTRATION TEST DATA SUMMARY**

GENESEE ST INFRASTRUCTURE PROJECT

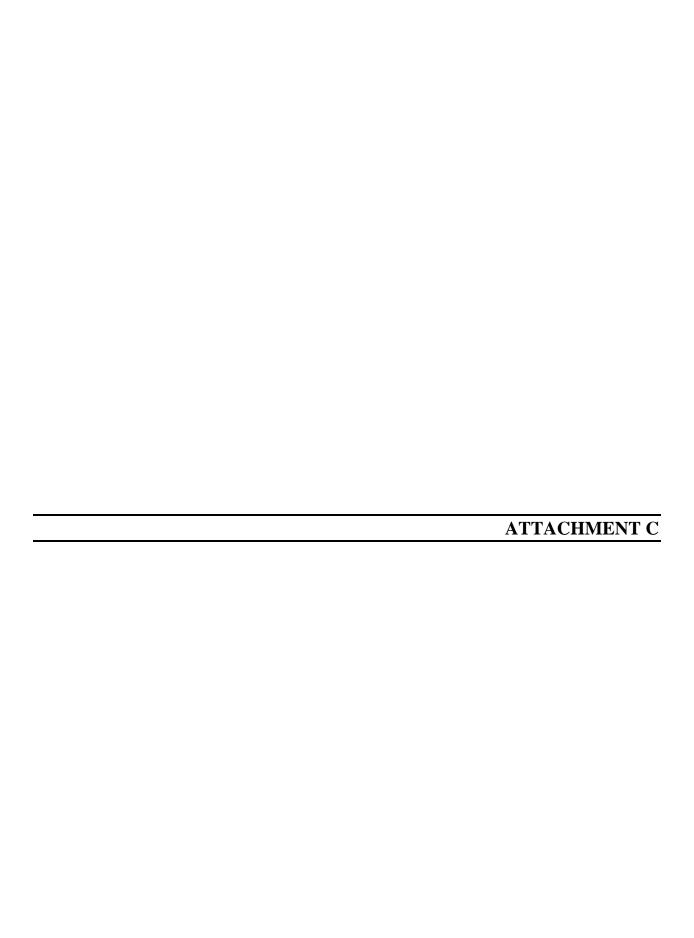
	••			
SERVICES, INC.		LOCATION: EAS	EAST SIDE OF 144 GENESEE STREET	
		PROJECT NO:	BD-14-190	
INFILTRATION TEST POINT: PRESOAK DATE: PRESOAK TIME:	B-10 12/23/2014	Diameter of Casing  4 inches	Casing Stickup:  GRADE feet	
TEST DAT	<u>A</u>		(El. )	
TEST DATE: START OF TEST TIME:	12/24/2014 9:26	Existing Grade (El. )		
IS THERE PRESOAK WATER YES NO IF YES, WHAT DEPTH:	R IN TEST CASING?		Water level at start of presoak from top of casing	
FEET FROM TO (EI. ')	OP OF CASING.	Total depth of infiltration test pointfrom top of casing:  4.00 feet	Ø feet (El. )  Bottom of Casing feet below ground surface (El.)	
			ground Surface (El.)	

PROJECT:

RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	9:26				2.02
RUN #1	9:26	10:26	60	0.28	1.98
RUN #2	10:26	11:26	60	0.33	2.02
RUN #3	11:26	12:26	60	0.22	2.05
RUN #4	12:26	13:26	60	0.25	END OF TEST

AVERAGE INFILTRATION RATE	0.27	FEET PER HOUR
AVERAGE INFILTRATION RATE	0.81	INCHES PER HOUR

TESTED BY:	A. MORSE	
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#### WATTS ARCHITECTURE & ENGINEERING JOB

95 Perry Street, Suite 300 Buffalo, New York 14203 (716) 206-5100 FAX (716) 206-5199

www.watts-ae.com

SUBJECT
CALCULATED BY
CHECKED BY
SHEET NO

14033 - Genesee Street

RAINFALL EVENTS					
KJW	DATE	4/28/2015			
KTS	DATE	4/28/2015			
1	OF	1			
	DATE PRINT	FD 4/28/2015 7:06			

90% Rainfall Event (WQv)

- taken from Figure 4.1, "90% Rainfall"
   from August 2010 NYS Stormwater Management Design Manual
- = 0.85 in. rainfall depth

#### **Non-Erosive Rainfall flow**

- taken from Figure 4.7, "2-Year Design Storm"
   from August 2010 NYS Stormwater Management Design Manual
- = 2.25 in. rainfall depth

#### 25 Year Design Storm

- taken from Figure B-6 25 Year 24 Hour Rainfall
   from TR-55 Urban Hydrology for Small Watersheds June 1986
- = 4.00 in. rainfall depth

#### WATTS ARCHITECTURE & ENGINEERING JOB

95 Perry Street, Suite 300 Buffalo, New York 14203 (716) 206-5100 FAX (716) 206-5199 www.watts-ae.com SUBJECT
CALC. BY
CHECKED BY
SHEET NO

14033 - Genesee Street

Pre Developed Conditions - NYSDEC			
KJW	DATE	4/28/2015	
KTS	DATE	4/28/2015	
1	OF	1	
	DATE PRINTED	4/29/2015 11:35	

## Pre Development Curve Number (CN)

	Land Areas	Percent of	Runoff Curve Number for	Weighted Curve Number based on	Weighted Composite Runoff Curve
Land Use / Land Treatment		Area (%)	Soil Type D		Number
% soil Type			1.000		
Paved areas Lawns, grass, tree pits	50,145 4,440	0.919 0.081	98 80	98.00 80.00	90.03 6.51
Total	54,585	1.00			

Total Runoff Curve Number = 96.54

#### Notes:

- 1. Land area 100% Hydrological Soil Classification 100% Type "D".
- 2. "Curve Numbers" taken from Table 5.5.2, pg. 150, of McGraw-Hill Series in Water Resources and Environmental Engineering, "Applied Hydrology".

Total Disturbed Area	54,585	sq. ft.	1.253	acre
Total Impervious Area				
Paved Walks, Drives (Cadd Take-off)	50,145	sq. ft.	1.151	acre
Impervious Area Totals	50,145	sq. ft.	1.151	acre
Total Pervious Area				
Lawns, grass (Cadd Take-off) Pervious Area Totals	4,440 4,440	sq. ft.	0.102 <b>0.102</b>	acre acre

#### WATTS ARCHITECTURE & ENGINEERING JOB

95 Perry Street, Suite 300 Buffalo, New York 14203 (716) 206-5100 FAX (716) 206-5199

www.watts-ae.com

SUBJECT
CALC. BY
CHECKED BY
SHEET NO

14033 - Genesee Street

Post Developed Conditions - NYSDEC				
KJW	DATE	4/28/2015		
KTS	DATE	4/28/2015		
1	OF	1		
•	DATE PRINTED	5/1/2015 8:41		

Post Development Curve Number (CN)
------------------------------------

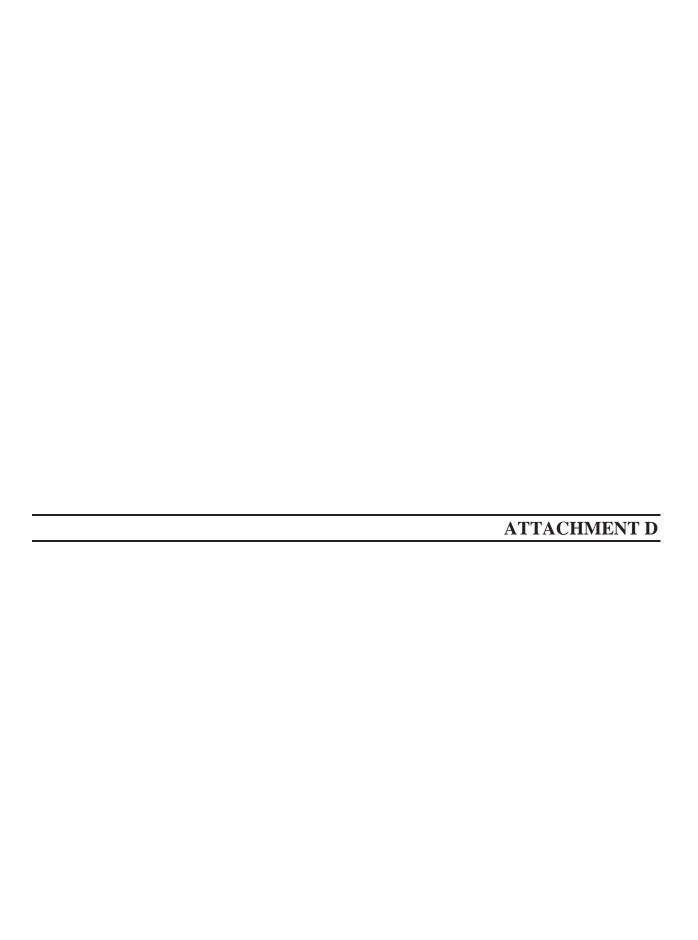
	Land Areas	Percent of	Runoff Curve Number for	Weighted Curve Number based on	Weighted Composite Runoff Curve
Land Use / Land Treatment	(sq. ft.)	Area (%)	Soil Type D		Number
% soil Type			1.000		
Paved roof, driveways Lawns, grass	49,599 4,986		98 80	98.00 80.00	89.05 7.31
Total	54,585	1.00			

Total Runoff Curve Number = 96.36

#### Notes:

- 1. Land area 100% Hydrological Soil Classification 100% Type "D".
- 2. "Curve Numbers" taken from Table 5.5.2, pg. 150, of McGraw-Hill Series in Water Resources and Environmental Engineering, "Applied Hydrology".

Total Distubed Area	54,585.00	sq. ft.	1.253	acre	
Total Impervious Area					
Paved Walks, Drives (Cadd Take-off)	49,599	sq. ft.	1.139	acre	
Impervious Area Totals	49,599	sq. ft.	1.139	acre	_
Total Pervious Area					
Planters area minus curb pieces	2,413	sq. ft.	0.055	acre	
Planters or lawn in Islands	2,573	sq. ft.	0.059	acre	
Pervious Area Totals	4,986	sq. ft.	0.114	acre	



# Genesee Street Runoff Capture Volume Calculations Updated 04/30/2015

				Annual	Annual	Annual
				depth	volume	volume
	Planter	Planter	sqft	captured	captured	captured
DS NO.	<u>Name</u>	<u>Location</u>	<u>Drainage Area</u>	(feet)	<u>(cf)</u>	<u>(gal)</u>
2	PB-1A	STA GB 5+87 LT TO STA GB 6+34 LT	5,276	2.63	13,876	103,792
4	PB-2A	STA GB 6+46 LT TO STA GB 7+15 LT	34,149	2.63	89,812	671,793
5	PB-3A	STA GB 7+23 LT TO STA STA 7+57 LT	2,103	3.167	6,660	49,818
15	PB-4A	STA GB 8+23 LT TO STA 8+91 LT	19,614	3.167	62,118	464,639
7	PB-5A	STA GB 5+65 RT TO STA GB 5+85 RT	3,711	3.167	11,753	87,910
8	PB-6A	STA GB 6+01 RT TO STA 6+21 RT	1,765	3.167	5,590	41,811
9	PB-7A	STA GB 6+54 RT TO STA GB 6+88 RT	3,275	3.167	10,372	77,582
10	PB-8A	STA GB 7+14 RT TO STA 7+48 RT	2,841	3.167	8,997	67,301
11	PB-9A	STA GB 7+57 RT TO STA 7+90 RT	2,159	3.167	6,838	51,145
18	PB-3B	STA GB 9+99 RT TO STA GB 10+54 RT	4,155	3.167	13,159	98,428
24	PB-5B	STA GB 12+42 RT TO STA GB 12+82 RT	6,143	1.75	10,750	80,412
31	PB-6B	STA GB 12+87 RT TO STA GB 13+37 RT	3,043	2.63	8,003	59,863
29	PB-1B	STA GB 12+00 LT TO STA GB 12+27 LT	5,742	1.75	10,049	75,163
30	PB-2B	STA GB 12+74 LT TO STA GB 12 + 86 LT	2,715	2.63	7,140	53,411
35	PB-1C	STA GC 16+25 LT TO STA GC 16 + 79 LT	6,022	1.75	10,539	78,828
39	PB-3C	STA GC 18+35 LT TO STA GC 18 +90 LT	3,376	2.63	8,879	66,414
41	PB_4C	STA GC 18+95 LT TO STA GC 19+49 LT	1,824	3.167	5,777	43,209
					TOTAL:	2,171,519

**GALLONS** 

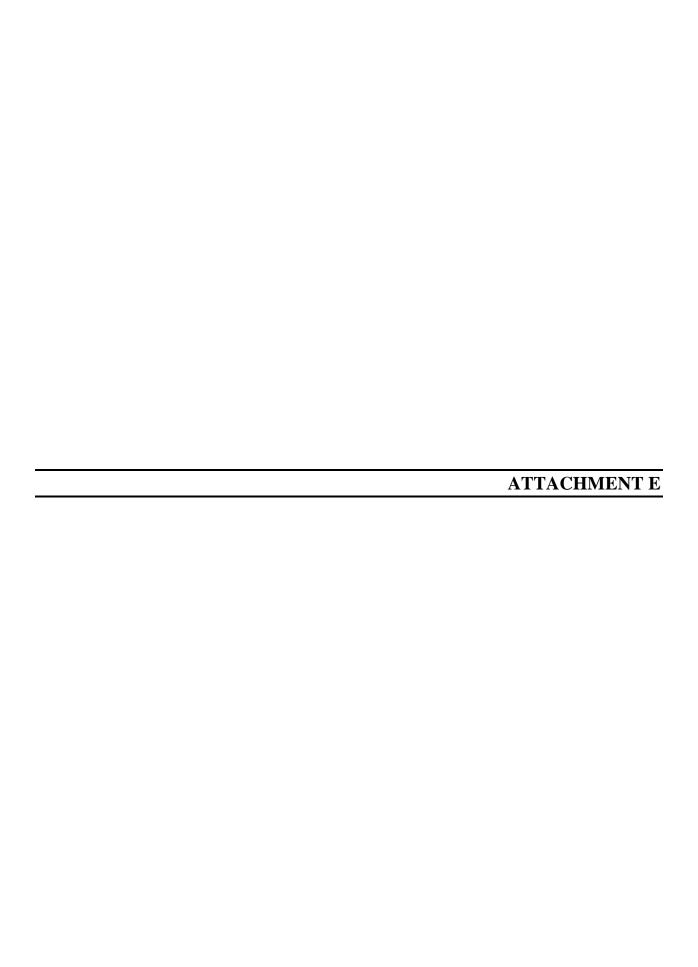
#### Notes:

- 1. Average Annual: Rainfall Buffalo, New York, 42" (5 year average average 2009 to 2013 from National Weather Service Data)
- 2. 90 Percentile rainfall storm event analyzed 0.85 inch rainfall event storm per August 2010 NYSDEc Stormwater Manual, Buffalo NY
- 3. 75 Percentile rainfall storm event analyzed 0.5 inch rainfall.
- 4. 50 Percentile rainfall storm event analyzed 0.35 inch rainfall.

#### **Gallons Captured**

90 Percentile Rainfall Annual Amount: 0.9 x 42"annual rainfall = 38 inches or 3.167 ft

75 Percentile Rainfall Annual Amount:  $0.75 \times 42^{\circ} = 31.5$  inches or 2.63 ft 50 Percentile Rainfall Annual Amount:  $0.50 \times 42^{\circ} = 21$  inches or 1.75 ft



**Post-Construction Maintenance Plan** 

**Project: Genesee Street Greenway Project** 

**Owner Project #: NA** 

City of Buffalo Buffalo Sewer Authority

Section A:

**Operation and Maintenance Information** 

Site Address: Genesee Street, Washington Street to Elm Street

City of Buffalo, NY

**Descriptive Site Location:** Genesee Street, Washington to Elm.

Property Owner: City of Buffalo BSA

1038 City Hall Buffalo, NY 14202 716-851-4664

**Property Management** 

(If different from the owner):

PH:

## Section B:

**Design and Construction Information** 

**Permitting Authority:** Buffalo Sewer Authority

**Design Engineer:** 

Prime Consultant:

Watts Architecture and Engineering

95 Perry Street Buffalo, NY 14203

PH: 716-206-5100

**Contractor:** 

PH:

**Post-Construction Maintenance Plan** 

**Project: Genesee Street Greenway Project** 

Owner Project #: NA

City of Buffalo Buffalo Sewer Authority

Section C: Maintenance and Inspection Responsibilities				
Maintenance Mechanism:  ☐ Maintenance Agreement  ☐ Commercial Property  ☐ Homeowner's Association  ☑ Maintenance Assumed by Municipal Entity  Buffalo Sewer Authority				
Buffalo Sewer Authority  Required Inspections:  Inspections to be performed annually by Buffalo Sewer Authority Staff supervisor.				
Providers of maintenance services, if known:				

#### <u>Section D: Post-construction</u> Stormwater Management Facilities

## Site map identifying location of each facility.

See sheet Landscape plans of project construction drawings

Facilities: Planters

**Type:** Stormwater Planters

Locations: Various Areas on Site, see construction plans.

#### Special needs:

- Instruct Grounds Department not to fertilize or replant these areas.
- Grounds Department staff to be aware that this area is designed to retain water after storms.

#### Section E:

#### **Attachments to Maintenance Plan:**

- As-built plans
- Final landscaping plans
- Design calculations In Green Infrastructure capture report body and appendices (Drainage Area map included)
- **Specifications** for potential repair items
- Operation, Maintenance, and Inspection Checklist
- 1. Stormwater Planters

Post-Construction Maintenance Plan
Project: Genesee Street Greenway Project
Owner Project #: NA
City of Buffalo Buffalo Sewer Authority

# **Attachment 1**

**Maintenance Specifications for Stormwater planters** 

Post-Construction Maintenance Plan
Project: Genesee Street Greenway Project
Owner Project #: NA
City of Buffalo Buffalo Sewer Authority

#### MAINTENANCE DETAILS FOR STORMWATER PLANTERS

#### **Inspection of PLANTER**

The Owner shall make a visual inspection of the planter area. Trash, debris, oil, sludge, sediment, solid levels, grass levels, and vegetation deficiencies shall be recorded and reported to the Permitting Authority if required. The surface of the planter area shall be inspected for erosion and gullying and any deficiencies in the surface material or drainage blanket shall be repaired as indicated below. All structural components, which include all outlet structures, valves, pipes, erosion control materials, and the underdrain system, shall be inspected and any damage shall be repaired. If standing water is observed in the planter area more than 48-hours after a storm event then the Owner is responsible for investigating whether the clogging is due to a soil media clog or underdrain system clog by visually inspecting the underdrain system with access provided by the outlet structure. The Owner shall be responsible for recording the information and contacting the Permitting Authority for guidance or if directed by the Permitting Authority prior to inspection, shall follow the methods described below for Underdrain Flushing or Underdrain Replacement.

All material shall be disposed of by the Owner as specified above and in accordance with all federal, State, and local regulations.

#### Stormwater Facilities Weeding and Litter Removal

The work consists of removing any weeds, trash and/or debris from the surface of the planter area in accordance with the specifications. Weeding shall include any weeds that negatively impact stormwater flowage through the facility, any weeds that negatively impact site lines of the roadway, and/or any weeds that are destroying original design vegetation.

#### **Stormwater Facilities Sediment Removal**

The work includes the removal of sediment within the planter facility in all areas where buildup is greater than or equal to 3 inches (75 mm) or has accumulated to a depth of one-third the design volume. The sediment shall be disposed of off-site in a pre-approved location in accordance with the methods above.

#### **Erosion Remediation Maintenance**

Any areas within the extents of the planter facility that is subject to erosion or gullying shall be replenished with granular drainage blanket material and mulch in accordance with this specification. Slope protection material shall be placed in areas prone to erosion in accordance with the above specifications. Embankment stability shall be inspected for seepage and burrowing animals and any erosion or gullying shall be repaired by the Owner.

Post-Construction Maintenance Plan
Project: Genesee Street Greenway Project
Owner Project #: NA
City of Buffalo Buffalo Sewer Authority

#### **Stormwater Facilities Underdrain System Flushing**

If the clogging of the planter area is due to an underdrain system clog then the underdrain system shall be snaked and/or flushed in accordance with the methods described above.

#### **Stormwater Facilities Underdrain System Replacement**

If the clogging of the planter area is due to an underdrain system clog and the system has been snaked and/or flushed and the surface of the planter area has been cleaned of sediment and continues to pond stormwater more than 48-hours after a storm event or a visual inspection reveals that damage has been done to the underdrain system then the system shall be excavated and replaced in accordance with the methods described above. The work shall also include replacement of the gravel blanket surrounding the underdrain piping and any/all associated filter fabric.

#### **Replacement Planting**

This item shall include all work associated with the replacement of any/all vegetation that has died off or has not fully established, as determined at the time of the inspection. The plantings shall be replaced as directed in the specifications above.

#### **General Cleanup**

The Owner shall be responsible for returning all areas within the extents of the planter facilities to the status that was found at the start of the project or in conformance of the original design Drawings. Any item within the planter facility area, including but not limited to vegetation, pipes, end sections, rip rap, weirs, berms, outlet structures, and frames and grates/covers, damaged or destroyed while completing this work item shall be replaced.

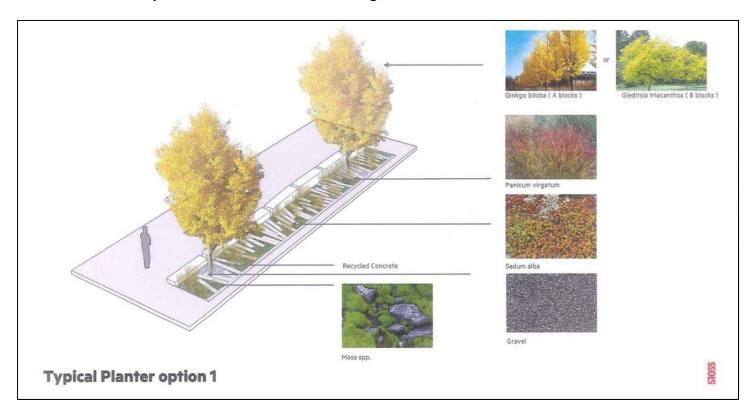


#### March 2015

Dear Genessee Street Property Owner,

Thank you again for partnering with the Buffalo Sewer Authority and City of Buffalo on the revitalization of Genessee Street! One of the components of the project will be to use landscaping to reduce water pollution flowing into the Erie Basin Marina and Buffalo River. The project will install a planter in the right of way in front of your property to collect rainwater from Genessee Street and the sidewalk. Before the project, that rainwater would flow from the street into the City's sewer system where it would generate combined sewer overflows into Erie Basin Marina and the Buffalo River during wet weather and snow melt events.

The project will involve the installation of low growing (less than knee height), low maintenance and winter hardy grasses and plants that help clean and store water in the planter. The proposed design is illustrated below and has been presented in stakeholder meetings.



The Buffalo Sewer Authority will pay for the construction of the planters and installation of the plants. The contractor will be responsible for making sure the plants get fully established and that the beds are weed free for two years. After that period, the Buffalo Sewer Authority will inspect the planters to make sure they are working properly.

As always, property owners remain responsible for basic maintenance of their property within the right of way, including litter and snow removal. To help ensure long term plant health, the Authority will also provide a plant maintenance guide and technical support for landowners.

We would like to finalize the design for the stormwater planter located in the right of way on your property by the end of this month. To finalize completion, we need your input as soon as possible. Please complete the enclosed form and return it to the Buffalo Sewer Authority as soon as possible.

Please contact me if you have any questions at 716-851-4664 x. 4213 or joneill@sa.ci.buffalo.ny.us.

Thank you again for your participation in this exciting project!

Sincerely,

Julie Barrett O'Neill, Green Program Director

**Buffalo Sewer Authority** 

#### GENESSEE STREET PROPERTY OWNER PARTICIPATION CONFIRMATION

ropert	ty Owner's Name:
ieness	ee Street Property Address:
mail:	
hone:	
	Yes! I understand that the right of way (ROW) space in front of my property has been designed and constructed to manage stormwater runoff from the street and sidewalk.
	Yes! I understand the project will involve the installation of <b>low maintenance</b> grasses/perennials/shrubs, not to exceed 18" in height, in the right of way; and I understand that, after the initial establishment period of 2 growing seasons, it will be my responsibility to keep the planter free of litter. A plant maintenance guide will be provided to help me maintain the plants after the initial establishment period.
	Recycled Concrete  Recycled Concrete  Sedum alba  Gravel
	I have concerns about the installation of the landscaped planter described above in front of my property. Please substitute pavement instead. I understand it is my responsibility to keep the area free of snow and litter.
igned:	
	Name Property Owner or Representative Date

# EXISTING REMEMBRENCE PARK











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## Page 2

# **Area Listing (selected nodes)**

Area	CN	Description
 (sq-ft)		(subcatchment-numbers)
3,091	80	>75% Grass cover, Good, HSG D (ER)
7,229	98	Paved parking, HSG D (ER)
10,320	93	TOTAL AREA

# Soil Listing (selected nodes)

Area	Soil	Subcatchment
(sq-ft)	Group	Numbers
0	HSG A	
0	HSG B	
0	HSG C	
10,320	HSG D	ER
0	Other	
10,320		<b>TOTAL AREA</b>

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Sub Nun

# **Ground Covers (selected nodes)**

HSG-A	HSG-B	HSG-C	HSG-D	Other	Total	Ground
(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	Cover
0	0	0	3,091	0	3,091	>75% Grass
						cover, Good
0	0	0	7,229	0	7,229	Paved parking
0	0	0	10,320	0	10,320	TOTAL AREA

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# **Pipe Listing (selected nodes)**

Line#	Node	In-Invert	Out-Invert	Length	Slope	n	Diam/Width	Height	Inside-Fill
	Number	(feet)	(feet)	(feet)	(ft/ft)		(inches)	(inches)	(inches)
1	DI 2616	611.17	611.00	100.0	0.0017	0.010	12.0	0.0	0.0

Type II 24-hr 2 YR Rainfall=2.25"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ER: EXISTING ER Runoff Area=10,320 sf 70.05% Impervious Runoff Depth=1.55"

Tc=12.0 min CN=93 Runoff=0.51 cfs 1,329 cf

Pond DI 2616: DI #2616 Peak Elev=611.63' Inflow=0.51 cfs 1,329 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.51 cfs 1,329 cf

Total Runoff Area = 10,320 sf Runoff Volume = 1,329 cf Average Runoff Depth = 1.55" 29.95% Pervious = 3,091 sf 70.05% Impervious = 7,229 sf

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## **Summary for Subcatchment ER: EXISTING ER**

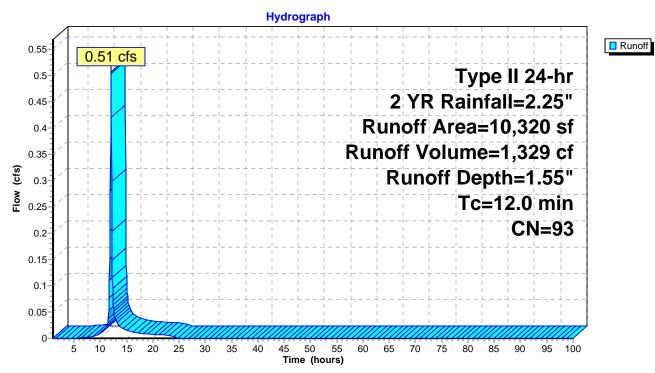
Runoff 0.51 cfs @ 12.04 hrs, Volume= 1,329 cf, Depth= 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

	Area (sf)	CN	Description				
	7,229	98	Paved park	ing, HSG D	)		
	3,091	80	>75% Gras	s cover, Go	ood, HSG D		
	10,320	93	Weighted A	verage			
	3,091		29.95% Pervious Area				
	7,229		70.05% Impervious Area				
To (min)	- 3	Slope (ft/ft	,	Capacity (cfs)	Description		
12.0	)				Direct Entry, SHEET FLOw		

Direct Entry, SHEET FLOW

## Subcatchment ER: EXISTING ER



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## Summary for Pond DI 2616: DI #2616

Inflow Area = 10,320 sf, 70.05% Impervious, Inflow Depth = 1.55" for 2 YR event

Inflow = 0.51 cfs @ 12.04 hrs, Volume= 1,329 cf

Outflow = 0.51 cfs @ 12.04 hrs, Volume= 1,329 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.51 cfs @ 12.04 hrs, Volume= 1,329 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

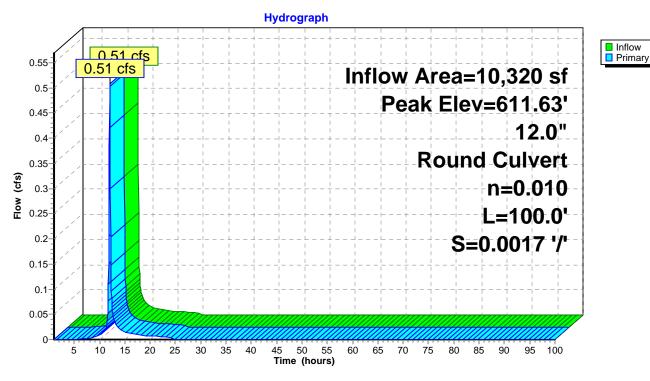
Peak Elev= 611.63' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	12.0" Round Culvert
			L= 100.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.04 hrs HW=611.63' (Free Discharge) 1=Culvert (Barrel Controls 0.50 cfs @ 2.09 fps)

#### Pond DI 2616: DI #2616



Type II 24-hr 25 Year Rainfall=4.00"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ER: EXISTING ER Runoff Area=10,320 sf 70.05% Impervious Runoff Depth=3.22"

Tc=12.0 min CN=93 Runoff=1.02 cfs 2,769 cf

Pond DI 2616: DI #2616 Peak Elev=611.84 Inflow=1.02 cfs 2,769 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=1.02 cfs 2,769 cf

Total Runoff Area = 10,320 sf Runoff Volume = 2,769 cf Average Runoff Depth = 3.22" 29.95% Pervious = 3,091 sf 70.05% Impervious = 7,229 sf HydroCAD® 10.00-12 s/n 03757 © 2014 HydroCAD Software Solutions LLC

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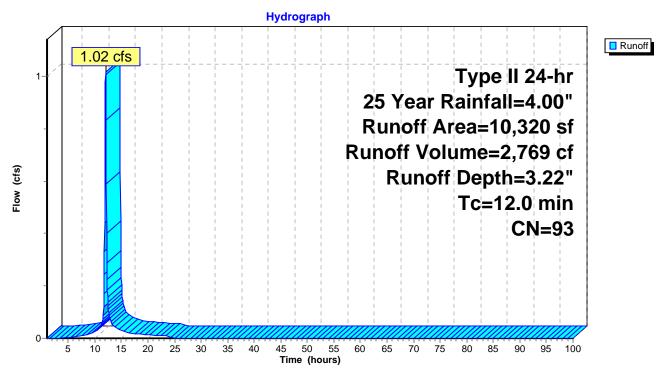
## **Summary for Subcatchment ER: EXISTING ER**

1.02 cfs @ 12.03 hrs, Volume= Runoff 2,769 cf, Depth= 3.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description				
	7,229	98	Paved park	ing, HSG D	)		
	3,091	80	>75% Gras	s cover, Go	ood, HSG D		
	10,320	93	Weighted A	verage			
	3,091		29.95% Pervious Area				
	7,229		70.05% Impervious Area				
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description		
12.0					Direct Entry, SHEET FLOw		

## Subcatchment ER: EXISTING ER



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## Summary for Pond DI 2616: DI #2616

Inflow Area = 10,320 sf, 70.05% Impervious, Inflow Depth = 3.22" for 25 Year event

Inflow = 1.02 cfs @ 12.03 hrs, Volume= 2,769 cf

Outflow = 1.02 cfs @ 12.03 hrs, Volume= 2,769 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.02 cfs @ 12.03 hrs, Volume= 2,769 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

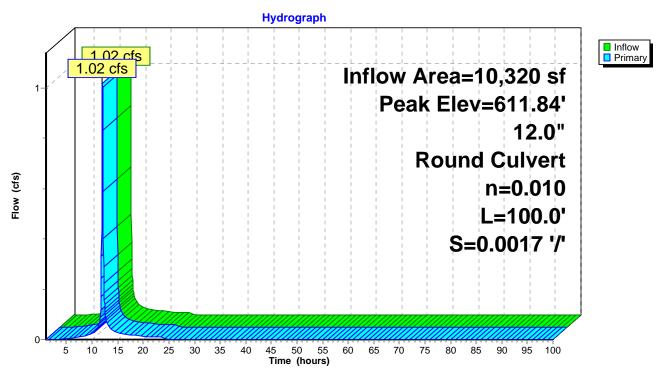
Peak Elev= 611.84' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	12.0" Round Culvert
			L= 100.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.79 sf

Primary OutFlow Max=1.00 cfs @ 12.03 hrs HW=611.84' (Free Discharge) 1=Culvert (Barrel Controls 1.00 cfs @ 2.54 fps)

#### Pond DI 2616: DI #2616



Type II 24-hr 50% Rainfall=0.35"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ER: EXISTING ER Runoff Area=10,320 sf 70.05% Impervious Runoff Depth=0.04"

Tc=12.0 min CN=93 Runoff=0.01 cfs 36 cf

Pond DI 2616: DI #2616 Peak Elev=611.24' Inflow=0.01 cfs 36 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.01 cfs 36 cf

Total Runoff Area = 10,320 sf Runoff Volume = 36 cf Average Runoff Depth = 0.04" 29.95% Pervious = 3,091 sf 70.05% Impervious = 7,229 sf

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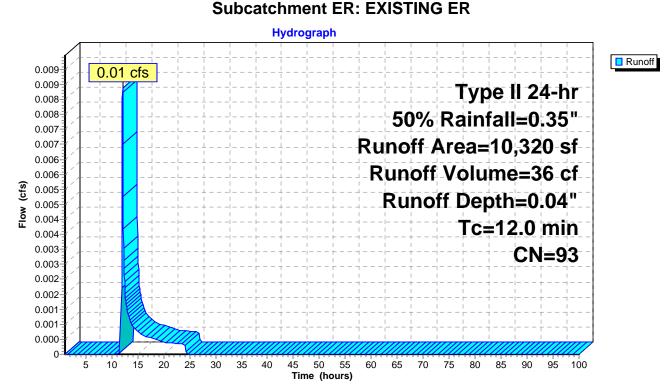
## Summary for Subcatchment ER: EXISTING ER

Runoff = 0.01 cfs @ 12.08 hrs, Volume= 36 cf, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

Aı	rea (sf)	CN	Description				
	7,229	98	Paved park	ing, HSG D	)		
	3,091	80	>75% Gras	s cover, Go	ood, HSG D		
	10,320	93	Weighted A	verage			
	3,091		29.95% Pervious Area				
	7,229		70.05% Impervious Area				
Тс	Length	Slope	e Velocity	Capacity	Description		
(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)			
12.0					Direct Entry, SHEET FLOw		

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## Summary for Pond DI 2616: DI #2616

Inflow Area = 10,320 sf, 70.05% Impervious, Inflow Depth = 0.04" for 50% event

Inflow = 0.01 cfs @ 12.08 hrs, Volume= 36 cf

Outflow = 0.01 cfs @ 12.08 hrs, Volume= 36 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.01 cfs @ 12.08 hrs, Volume= 36 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

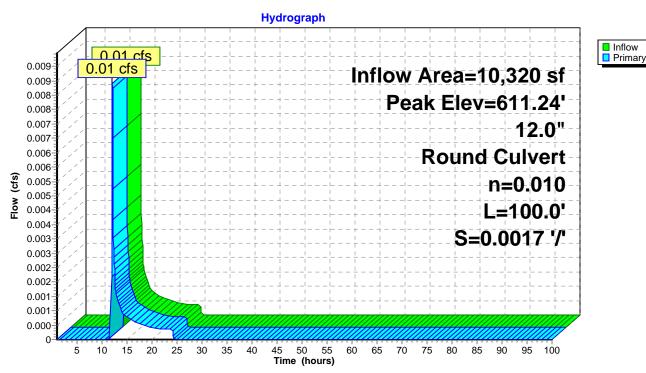
Peak Elev= 611.24' @ 12.08 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	12.0" Round Culvert
			L= 100.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 12.08 hrs HW=611.23' (Free Discharge) 1=Culvert (Barrel Controls 0.01 cfs @ 0.62 fps)

#### Pond DI 2616: DI #2616



Type II 24-hr 75% Rainfall=0.50" Printed 5/4/2015

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ER: EXISTING ER Runoff Area=10,320 sf 70.05% Impervious Runoff Depth=0.11"

Tc=12.0 min CN=93 Runoff=0.03 cfs 95 cf

Pond DI 2616: DI #2616 Peak Elev=611.29' Inflow=0.03 cfs 95 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.03 cfs 96 cf

Total Runoff Area = 10,320 sf Runoff Volume = 95 cf Average Runoff Depth = 0.11" 29.95% Pervious = 3,091 sf 70.05% Impervious = 7,229 sf

#### Summary for Subcatchment ER: EXISTING ER

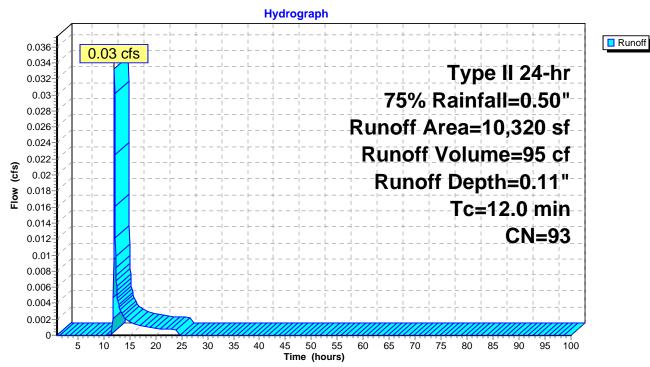
Runoff = 0.03 cfs @ 12.06 hrs, Volume= 95 cf, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description				
	7,229	98	Paved park	ing, HSG D	)		
	3,091	80	>75% Gras	s cover, Go	ood, HSG D		
	10,320	93	Weighted Average				
	3,091		29.95% Pervious Area				
	7,229		70.05% Imp	ervious Ar	ea		
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description		
12.0					Direct Entry, SHEET FLOw		

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#### Subcatchment ER: EXISTING ER



#### Summary for Pond DI 2616: DI #2616

Inflow Area = 10,320 sf, 70.05% Impervious, Inflow Depth = 0.11" for 75% event

Inflow = 0.03 cfs @ 12.06 hrs. Volume= 95 cf

Outflow = 0.03 cfs @ 12.06 hrs, Volume= 96 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.03 cfs @ 12.06 hrs, Volume= 96 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

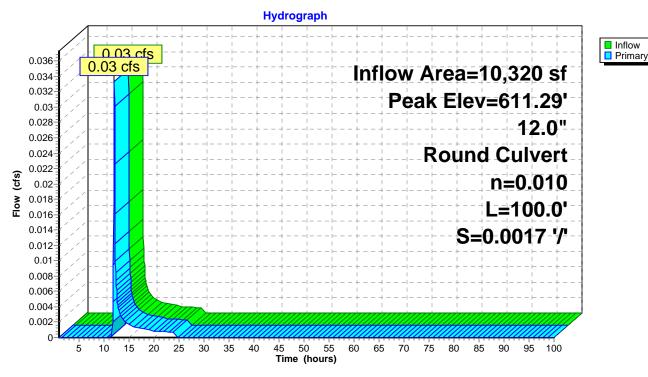
Peak Elev= 611.29' @ 12.06 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	12.0" Round Culvert
			L= 100.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.79 sf

Primary OutFlow Max=0.03 cfs @ 12.06 hrs HW=611.29' (Free Discharge) 1=Culvert (Barrel Controls 0.03 cfs @ 0.94 fps)

#### Pond DI 2616: DI #2616



Type II 24-hr WQv Rainfall=0.85" Printed 5/4/2015

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment ER: EXISTING ER Runoff Area=10,320 sf 70.05% Impervious Runoff Depth=0.34"

Tc=12.0 min CN=93 Runoff=0.11 cfs 290 cf

Pond DI 2616: DI #2616 Peak Elev=611.39' Inflow=0.11 cfs 290 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.11 cfs 290 cf

Total Runoff Area = 10,320 sf Runoff Volume = 290 cf Average Runoff Depth = 0.34" 29.95% Pervious = 3,091 sf 70.05% Impervious = 7,229 sf

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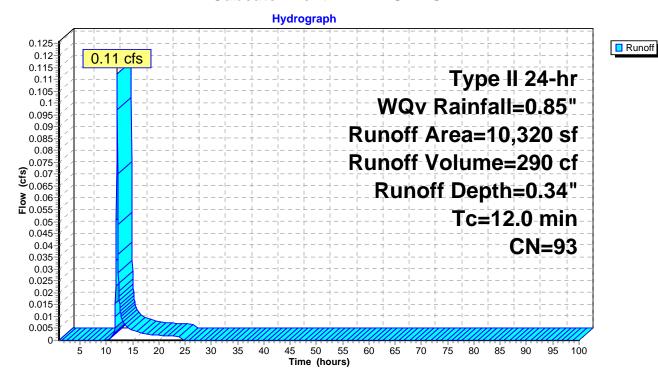
#### Summary for Subcatchment ER: EXISTING ER

Runoff = 0.11 cfs @ 12.04 hrs, Volume= 290 cf, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description				
	7,229	98	Paved park	ing, HSG D	)		
	3,091	80	>75% Gras	s cover, Go	ood, HSG D		
	10,320	93	Weighted A	verage			
	3,091		29.95% Pervious Area				
	7,229		70.05% lmp	ervious Are	ea		
То	Longth	Clana	\/alaaitu	Canacity	Description		
Tc	Length	Slope	,	Capacity	Description		
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)			
12.0					Direct Entry, SHEET FLOw		

#### Subcatchment ER: EXISTING ER



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Inflow Primary

#### Summary for Pond DI 2616: DI #2616

Inflow Area = 10,320 sf, 70.05% Impervious, Inflow Depth = 0.34" for WQv event

Inflow = 0.11 cfs @ 12.04 hrs, Volume= 290 cf

Outflow = 0.11 cfs @ 12.04 hrs, Volume= 290 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.11 cfs @ 12.04 hrs, Volume= 290 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

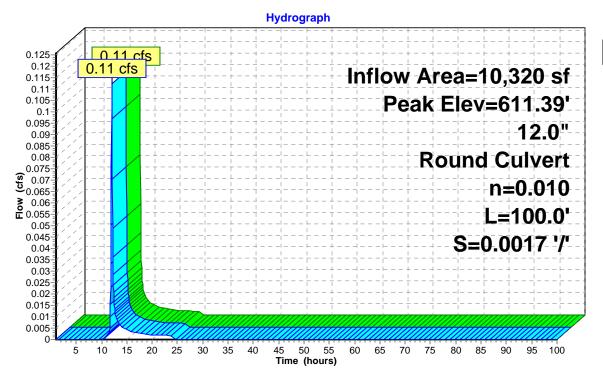
Peak Elev= 611.39' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	12.0" Round Culvert
			L= 100.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 12.04 hrs HW=611.39' (Free Discharge) 1=Culvert (Barrel Controls 0.11 cfs @ 1.35 fps)

#### Pond DI 2616: DI #2616



# PROPOSED REMEMBRENCE PARK











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## **Area Listing (selected nodes)**

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
1,735	80	>75% Grass cover, Good, HSG D (R)
8,585	98	Paved parking, HSG D (R)
10,320	95	TOTAL AREA

## Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
10,320	HSG D	R
0	Other	
10,320		<b>TOTAL AREA</b>

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Sub Nun

#### **Ground Covers (selected nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover
0	0	0	1,735	0	1,735	>75% Grass
						cover, Good
0	0	0	8,585	0	8,585	Paved parking
0	0	0	10,320	0	10,320	<b>TOTAL AREA</b>

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## **Pipe Listing (selected nodes)**

Line#	Node	In-Invert	Out-Invert	Length	Slope	n	Diam/Width	Height	Inside-Fill
	Number	(feet)	(feet)	(feet)	(ft/ft)		(inches)	(inches)	(inches)
1	DI-2616	611.17	611.00	100.0	0.0017	0.010	12.0	0.0	0.0

Type II 24-hr 2 YR Rainfall=2.25" Printed 5/4/2015

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment R: AREA R Runoff Area=10,320 sf 83.19% Impervious Runoff Depth=1.72"

Tc=12.0 min CN=95 Runoff=0.55 cfs 1,481 cf

Pond DI-2616: DI #2616 Peak Elev=611.65' Inflow=0.55 cfs 1,481 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.55 cfs 1,481 cf

Total Runoff Area = 10,320 sf Runoff Volume = 1,481 cf Average Runoff Depth = 1.72" 16.81% Pervious = 1,735 sf 83.19% Impervious = 8,585 sf

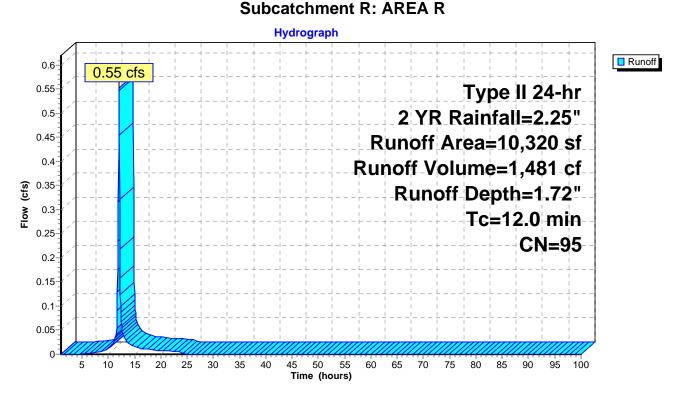
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#### **Summary for Subcatchment R: AREA R**

Runoff = 0.55 cfs @ 12.03 hrs, Volume= 1,481 cf, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description				
	8,585	98	Paved park	ing, HSG D	)		
	1,735	80	>75% Gras	s cover, Go	ood, HSG D		
	10,320	95	Weighted Average				
	1,735		16.81% Pervious Area				
	8,585		83.19% Impervious Area				
Tc	Length	Slope	e Velocity	Capacity	Description		
(min)	(feet)	(ft/ft	,	(cfs)	Description		
	(1661)	(11/11	(11/360)	(615)	D' (E ( OUEET ELO		
12.0					Direct Entry, SHEET FLOw		



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#### Summary for Pond DI-2616: DI #2616

Inflow Area = 10,320 sf, 83.19% Impervious, Inflow Depth = 1.72" for 2 YR event

Inflow = 0.55 cfs @ 12.03 hrs. Volume= 1.481 cf

Outflow = 0.55 cfs @ 12.03 hrs, Volume= 1,481 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.55 cfs @ 12.03 hrs, Volume= 1,481 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

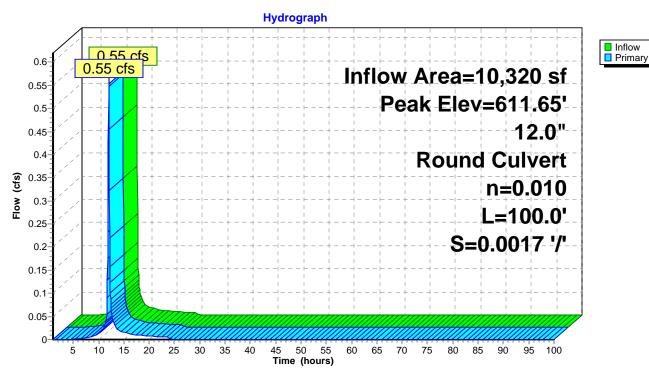
Peak Elev= 611.65' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	12.0" Round Culvert
			L= 100.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.79 sf

Primary OutFlow Max=0.54 cfs @ 12.03 hrs HW=611.65' (Free Discharge) 1=Culvert (Barrel Controls 0.54 cfs @ 2.14 fps)

#### Pond DI-2616: DI #2616



Type II 24-hr 25 Year Rainfall=4.00"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment R: AREA R Runoff Area=10,320 sf 83.19% Impervious Runoff Depth=3.43"

Tc=12.0 min CN=95 Runoff=1.06 cfs 2,951 cf

Pond DI-2616: DI #2616 Peak Elev=611.86' Inflow=1.06 cfs 2,951 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=1.06 cfs 2,951 cf

Total Runoff Area = 10,320 sf Runoff Volume = 2,951 cf Average Runoff Depth = 3.43" 16.81% Pervious = 1,735 sf 83.19% Impervious = 8,585 sf

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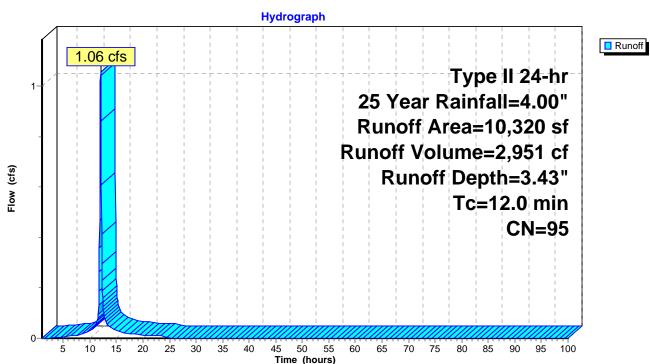
#### **Summary for Subcatchment R: AREA R**

Runoff = 1.06 cfs @ 12.03 hrs, Volume= 2,951 cf, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description				
	8,585	98	Paved park	ing, HSG D	)		
	1,735	80	>75% Gras	s cover, Go	ood, HSG D		
	10,320	95	Weighted Average				
	1,735		16.81% Pervious Area				
	8,585		83.19% lmp	pervious Ar	ea		
т.	مائده مدا	Clana	Valasitu	Consoltu	Description		
Tc	Length	Slope	,	Capacity	Description		
(min)	(feet)	(ft/ft	(ft/sec)	(cfs)			
12.0					Direct Entry, SHEET FLOw		

#### Subcatchment R: AREA R



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#### Summary for Pond DI-2616: DI #2616

Inflow Area = 10,320 sf, 83.19% Impervious, Inflow Depth = 3.43" for 25 Year event

Inflow = 1.06 cfs @ 12.03 hrs, Volume= 2,951 cf

Outflow = 1.06 cfs @ 12.03 hrs, Volume= 2,951 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.06 cfs @ 12.03 hrs, Volume= 2,951 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

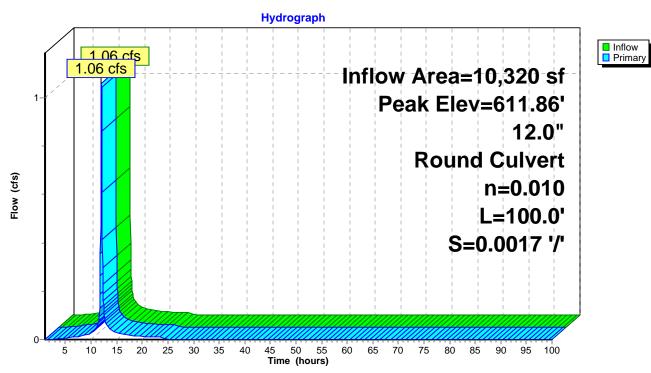
Peak Elev= 611.86' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	12.0" Round Culvert
			L= 100.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.79 sf

Primary OutFlow Max=1.03 cfs @ 12.03 hrs HW=611.85' (Free Discharge) 1=Culvert (Barrel Controls 1.03 cfs @ 2.57 fps)

#### Pond DI-2616: DI #2616



Type II 24-hr 50% Rainfall=0.35"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment R: AREA R Runoff Area=10,320 sf 83.19% Impervious Runoff Depth=0.08"

Tc=12.0 min CN=95 Runoff=0.02 cfs 67 cf

Pond DI-2616: DI #2616 Peak Elev=611.27' Inflow=0.02 cfs 67 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.02 cfs 67 cf

Total Runoff Area = 10,320 sf Runoff Volume = 67 cf Average Runoff Depth = 0.08" 16.81% Pervious = 1,735 sf 83.19% Impervious = 8,585 sf

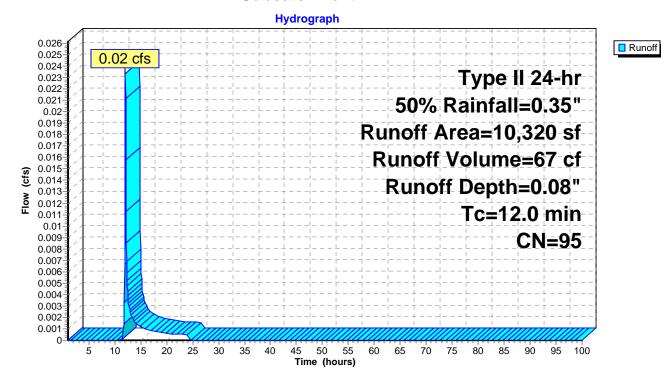
#### Summary for Subcatchment R: AREA R

Runoff = 0.02 cfs @ 12.06 hrs, Volume= 67 cf, Depth= 0.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description					
	8,585	98	Paved park	ing, HSG D	)			
	1,735	80	>75% Gras	s cover, Go	ood, HSG D			
	10,320	95	Weighted Average					
	1,735		16.81% Pei	vious Area	l .			
	8,585		83.19% lmp	pervious Ar	ea			
т.	مائده مدا	Clana	Valacity	Consoltu	Description			
Tc	Length	Slope	,	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
12.0					Direct Entry, SHEET FLOw			

#### Subcatchment R: AREA R



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#### Summary for Pond DI-2616: DI #2616

Inflow Area = 10,320 sf, 83.19% Impervious, Inflow Depth = 0.08" for 50% event

Inflow = 0.02 cfs @ 12.06 hrs. Volume = 67 cf

Outflow = 0.02 cfs @ 12.06 hrs, Volume= 67 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.02 cfs @ 12.06 hrs, Volume= 67 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

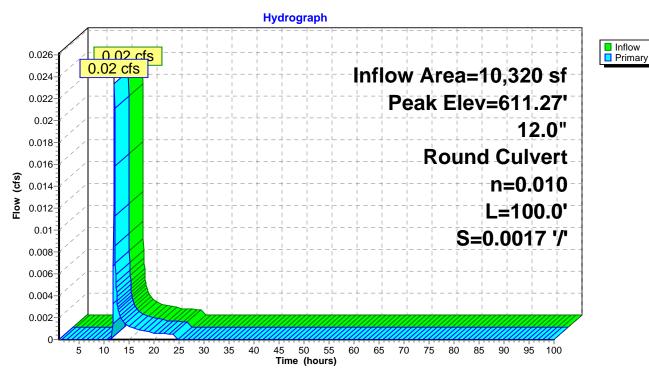
Peak Elev= 611.27' @ 12.06 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	12.0" Round Culvert
			L= 100.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 12.06 hrs HW=611.27' (Free Discharge) 1=Culvert (Barrel Controls 0.02 cfs @ 0.84 fps)

#### Pond DI-2616: DI #2616



Type II 24-hr 75% Rainfall=0.50" Printed 5/4/2015

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment R: AREA R Runoff Area=10,320 sf 83.19% Impervious Runoff Depth=0.17"

Tc=12.0 min CN=95 Runoff=0.06 cfs 145 cf

Pond DI-2616: DI #2616 Peak Elev=611.32' Inflow=0.06 cfs 145 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.06 cfs 146 cf

Total Runoff Area = 10,320 sf Runoff Volume = 145 cf Average Runoff Depth = 0.17" 16.81% Pervious = 1,735 sf 83.19% Impervious = 8,585 sf

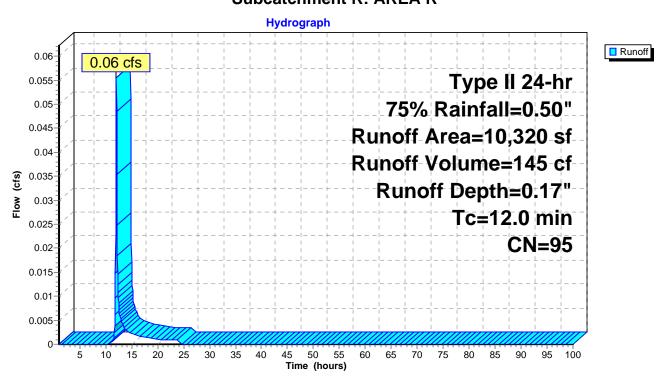
#### **Summary for Subcatchment R: AREA R**

Runoff = 0.06 cfs @ 12.05 hrs, Volume= 145 cf, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description				
	8,585	98	Paved park	ing, HSG D	)		
	1,735	80	>75% Gras	s cover, Go	ood, HSG D		
	10,320	95	Weighted Average				
	1,735		16.81% Per	vious Area			
	8,585		83.19% lmp	pervious Ar	ea		
Tc	Longth	Slope	e Velocity	Capacity	Description		
(min)	Length (feet)	(ft/ft	,	(cfs)	Description		
	(leet)	(11/11	) (II/Sec)	(CIS)			
12.0					Direct Entry, SHEET FLOw		

#### Subcatchment R: AREA R



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#### Summary for Pond DI-2616: DI #2616

Inflow Area = 10,320 sf, 83.19% Impervious, Inflow Depth = 0.17" for 75% event

Inflow = 0.06 cfs @ 12.05 hrs. Volume= 145 cf

Outflow = 0.06 cfs @ 12.05 hrs, Volume= 146 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.06 cfs @ 12.05 hrs, Volume= 146 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

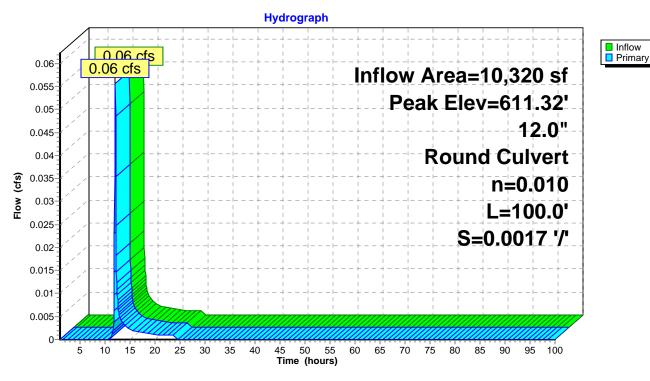
Peak Elev= 611.32' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	12.0" Round Culvert
	-		L= 100.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 '/' Cc= 0.900
			n= 0.010 PVC smooth interior Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.05 hrs HW=611.32' (Free Discharge) 1=Culvert (Barrel Controls 0.06 cfs @ 1.10 fps)

#### Pond DI-2616: DI #2616



Type II 24-hr WQv Rainfall=0.85" Printed 5/4/2015

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment R: AREA R Runoff Area=10,320 sf 83.19% Impervious Runoff Depth=0.44"

Tc=12.0 min CN=95 Runoff=0.15 cfs 375 cf

Pond DI-2616: DI #2616 Peak Elev=611.42' Inflow=0.15 cfs 375 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.15 cfs 375 cf

Total Runoff Area = 10,320 sf Runoff Volume = 375 cf Average Runoff Depth = 0.44" 16.81% Pervious = 1,735 sf 83.19% Impervious = 8,585 sf

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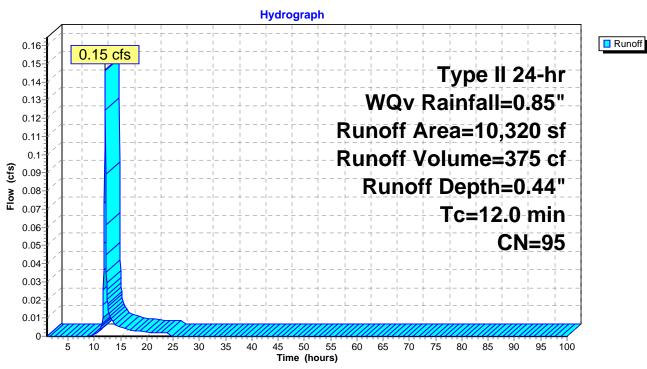
#### **Summary for Subcatchment R: AREA R**

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 375 cf, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description					
	8,585	98	Paved park	ing, HSG D				
	1,735	80	>75% Gras	s cover, Go	ood, HSG D			
	10,320	95	Weighted Average					
	1,735		16.81% Per	vious Area	1			
	8,585		83.19% lmp	ervious Ar	rea			
Tc	Longth	Slope	e Velocity	Capacity	Description			
_	Length	•	,		Description			
(min)	(feet)	(ft/ft	(ft/sec)	(cfs)				
12.0					Direct Entry, SHEET FLOw			

#### Subcatchment R: AREA R



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#### Summary for Pond DI-2616: DI #2616

Inflow Area = 10,320 sf, 83.19% Impervious, Inflow Depth = 0.44" for WQv event

Inflow = 0.15 cfs @ 12.04 hrs, Volume= 375 cf

Outflow = 0.15 cfs @ 12.04 hrs, Volume= 375 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.15 cfs @ 12.04 hrs, Volume= 375 cf

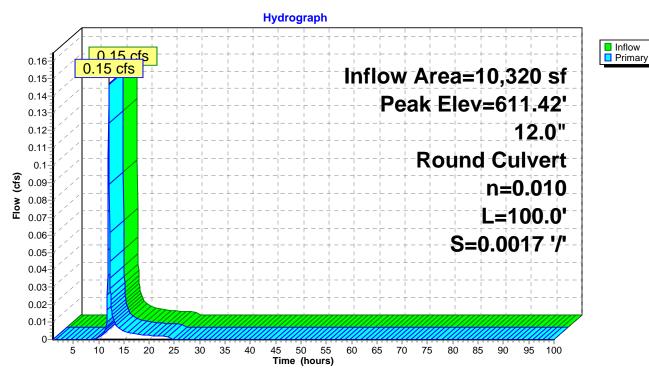
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 611.42' @ 12.04 hrs

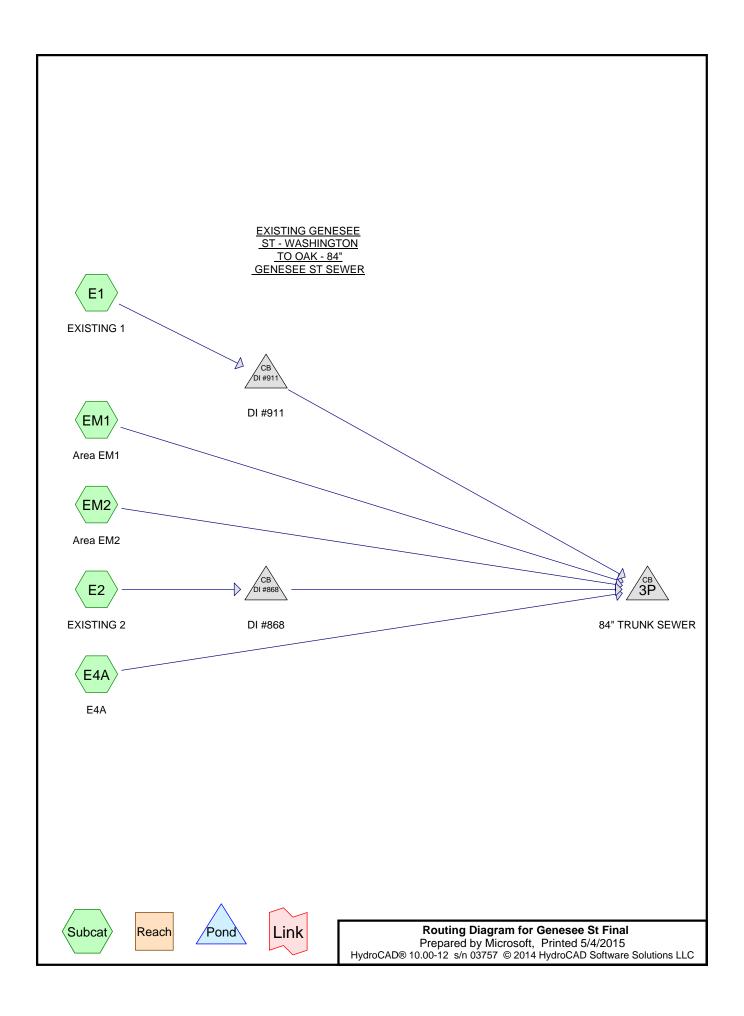
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	12.0" Round Culvert
			L= 100.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.04 hrs HW=611.41' (Free Discharge) 1=Culvert (Barrel Controls 0.14 cfs @ 1.46 fps)

#### Pond DI-2616: DI #2616





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## **Area Listing (selected nodes)**

Area	CN	Description
 (sq-ft)		(subcatchment-numbers)
1,591	80	>75% Grass cover, Good, HSG D (E1, E2, E4A, EM1)
95,660	98	Paved parking, HSG D (E1, E2, E4A, EM1, EM2)
97,251	98	TOTAL AREA

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## Soil Listing (selected nodes)

Area	Soil	Subcatchment
(sq-ft)	Group	Numbers
0	HSG A	
0	HSG B	
0	HSG C	
97,251	HSG D	E1, E2, E4A, EM1, EM2
0	Other	
97,251		TOTAL AREA

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Sub Nun

#### **Ground Covers (selected nodes)**

HSG-A	HSG-B	HSG-C	HSG-D	Other	Total	Ground
(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	Cover
0	0	0	1,591	0	1,591	>75% Grass cover, Good
0	0	0	95,660	0	95,660	Paved parking
0	0	0	97,251	0	97,251	TOTAL AREA

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## **Pipe Listing (selected nodes)**

Line#	Node	In-Invert	Out-Invert	Length	Slope	n	Diam/Width	Height	Inside-Fill
	Number	(feet)	(feet)	(feet)	(ft/ft)		(inches)	(inches)	(inches)
1	3P	590.00	589.80	100.0	0.0020	0.015	84.0	0.0	0.0
2	DI #868	612.54	611.63	325.0	0.0028	0.010	10.0	0.0	0.0
3	DI #911	612.54	611.63	325.0	0.0028	0.010	10.0	0.0	0.0

Type II 24-hr 2 YR Rainfall=2.25"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: EXISTING 1 Runoff Area=17,544 sf 97.93% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=1.04 cfs 2,957 cf

Subcatchment E2: EXISTING 2 Runoff Area=18,344 sf 99.02% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=1.08 cfs 3,092 cf

Subcatchment E4A: E4A Runoff Area=17,702 sf 95.27% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=1.02 cfs 2,828 cf

Subcatchment EM1: Area EM1 Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=2.02"

Tc=15.0 min CN=98 Runoff=1.63 cfs 5,091 cf

Subcatchment EM2: Area EM2 Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.79 cfs 2,267 cf

Pond 3P: 84" TRUNK SEWER Peak Elev=590.92' Inflow=5.53 cfs 16,235 cf

84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=5.53 cfs 16,235 cf

Pond DI #868: DI #868 Peak Elev=613.25' Inflow=1.08 cfs 3,092 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=1.08 cfs 3,092 cf

Pond DI #911: DI #911 Peak Elev=613.22' Inflow=1.04 cfs 2,957 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=1.04 cfs 2,957 cf

Total Runoff Area = 97,251 sf Runoff Volume = 16,235 cf Average Runoff Depth = 2.00" 1.64% Pervious = 1,591 sf 98.36% Impervious = 95,660 sf

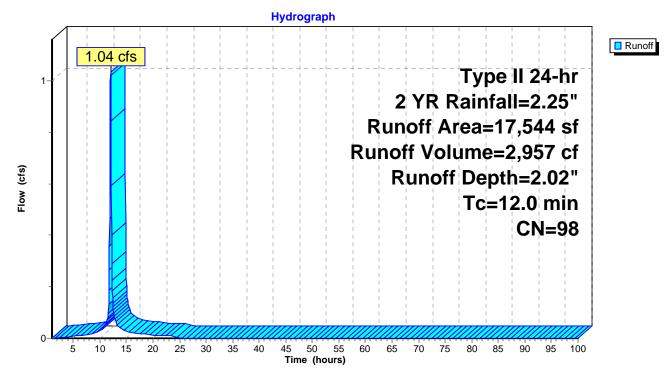
#### **Summary for Subcatchment E1: EXISTING 1**

Runoff = 1.04 cfs @ 12.03 hrs, Volume= 2,957 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description					
	17,181	98	Paved park	ing, HSG D	)			
	363	80	>75% Gras	s cover, Go	ood, HSG D			
	17,544	98	Weighted Average					
	363		2.07% Perv	ious Area				
	17,181		97.93% Impervious Area					
Tc	Length	Slope	e Velocity	Capacity	Description			
(min)	(feet)	(ft/ft	,	(cfs)				
12.0					Direct Entry, SHEET FLOw			

#### **Subcatchment E1: EXISTING 1**



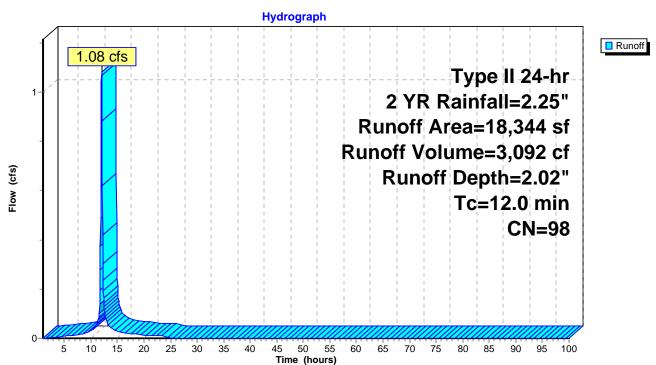
## **Summary for Subcatchment E2: EXISTING 2**

Runoff = 1.08 cfs @ 12.03 hrs, Volume= 3,092 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description					
18,164	98	Paved park	ing, HSG D	)			
180	80	>75% Gras	s cover, Go	ood, HSG D			
18,344	98	Weighted A	Weighted Average				
180		0.98% Perv	0.98% Pervious Area				
18,164		99.02% Impervious Area					
Tc Length (min) (feet)	Slop (ft/f	,	Capacity (cfs)	Description			
12.0				Direct Entry, SHEET FLOw			

#### **Subcatchment E2: EXISTING 2**



## Summary for Subcatchment E4A: E4A

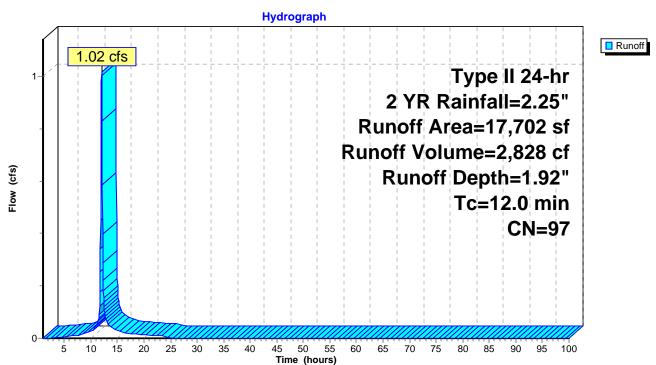
Runoff = 1.02 cfs @ 12.03 hrs, Volume= 2,828 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

Ar	ea (sf)	CN	Description					
•	16,864	98	Paved parking, HSG D					
	838	80	>75% Grass cover, Good, HSG D					
•	17,702	97	Weighted Average					
	838		4.73% Pervious Area					
•	16,864		95.27% Impervious Area					
Tc	Length	Slope	e Velocity	Capacity	Description			
(min)	(feet)	(ft/ft	,	(cfs)	Doonplon			
12.0	•				Direct Entry, SHEET FLOw			

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#### Subcatchment E4A: E4A



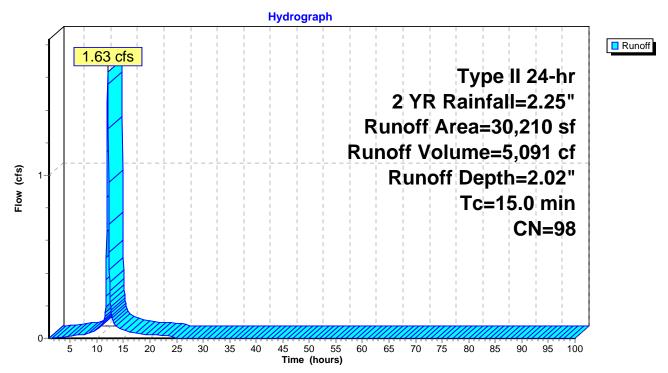
#### **Summary for Subcatchment EM1: Area EM1**

Runoff = 1.63 cfs @ 12.06 hrs, Volume= 5,091 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

	Area (sf)	CN	Description					
	210	80	>75% Grass cover, Good, HSG D					
	30,000	98	Paved parking, HSG D					
	30,210	0,210 98 Weighted Average						
210			0.70% Pervious Area					
	30,000		99.30% Imp	pervious Ar	ea			
То	Longth	Clana	Volocity	Consoitu	Description			
Tc	- 3	Slope	,	Capacity	Description			
(min)	(feet)	(ft/ft	(ft/sec)	(cfs)				
15.0					Direct Entry,			

#### Subcatchment EM1: Area EM1



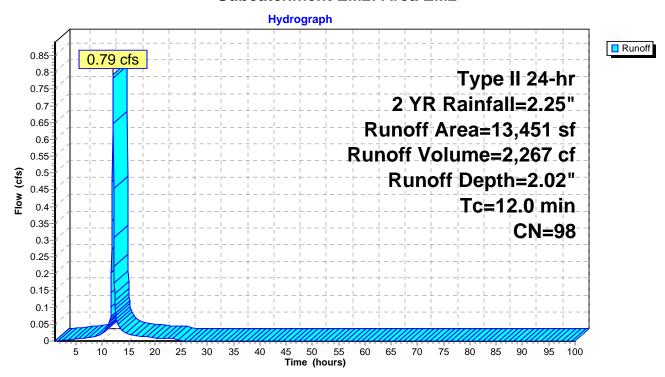
#### **Summary for Subcatchment EM2: Area EM2**

Runoff = 0.79 cfs @ 12.03 hrs, Volume= 2,267 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN [	Description					
	13,451	98 F	Paved parking, HSG D					
	13,451	•	100.00% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
12.0					Direct Entry,			

#### **Subcatchment EM2: Area EM2**



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## **Summary for Pond 3P: 84" TRUNK SEWER**

Inflow Area = 97,251 sf, 98.36% Impervious, Inflow Depth = 2.00" for 2 YR event

Inflow = 5.53 cfs @ 12.04 hrs, Volume= 16,235 cf

Outflow = 5.53 cfs @ 12.04 hrs, Volume= 16,235 cf, Atten= 0%, Lag= 0.0 min

Primary = 5.53 cfs @ 12.04 hrs, Volume= 16,235 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

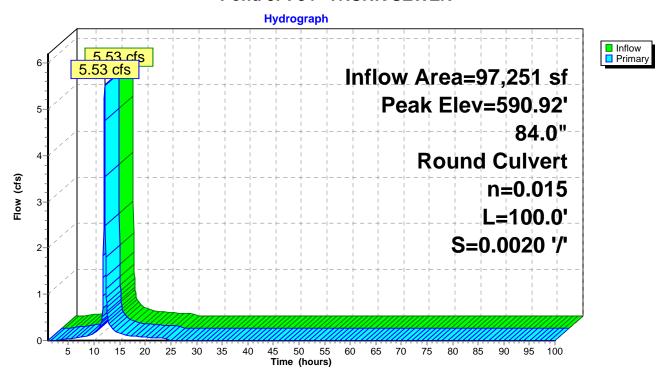
Peak Elev= 590.92' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	84.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 38.48 sf

Primary OutFlow Max=5.44 cfs @ 12.04 hrs HW=590.91' (Free Discharge) 1=Culvert (Barrel Controls 5.44 cfs @ 2.81 fps)

### Pond 3P: 84" TRUNK SEWER



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## Summary for Pond DI #868: DI #868

Inflow Area = 18,344 sf, 99.02% Impervious, Inflow Depth = 2.02" for 2 YR event

Inflow = 1.08 cfs @ 12.03 hrs, Volume= 3,092 cf

Outflow = 1.08 cfs @ 12.03 hrs, Volume= 3,092 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.08 cfs @ 12.03 hrs, Volume= 3,092 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

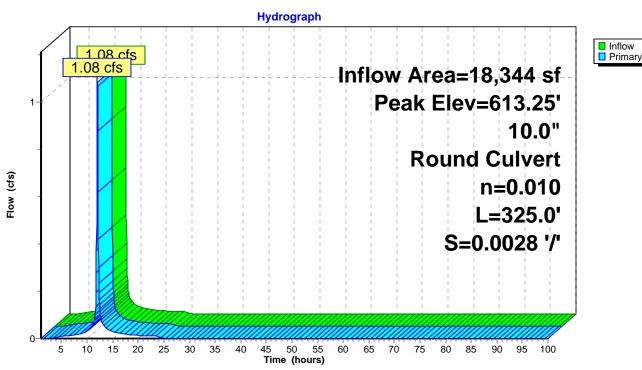
Peak Elev= 613.25' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert
			L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.06 cfs @ 12.03 hrs HW=613.23' TW=590.91' (Dynamic Tailwater) 1=Culvert (Barrel Controls 1.06 cfs @ 2.95 fps)

#### Pond DI #868: DI #868



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### Summary for Pond DI #911: DI #911

Inflow Area = 17,544 sf, 97.93% Impervious, Inflow Depth = 2.02" for 2 YR event

Inflow = 1.04 cfs @ 12.03 hrs, Volume= 2,957 cf

Outflow = 1.04 cfs @ 12.03 hrs, Volume= 2,957 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.04 cfs @ 12.03 hrs, Volume= 2,957 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

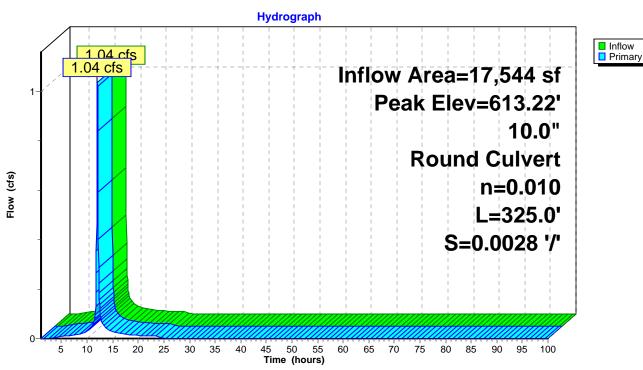
Peak Elev= 613.22' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert
			L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=1.01 cfs @ 12.03 hrs HW=613.21' TW=590.91' (Dynamic Tailwater) 1=Culvert (Barrel Controls 1.01 cfs @ 2.92 fps)

#### Pond DI #911: DI #911



Type II 24-hr 25 Year Rainfall=4.00"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: EXISTING 1 Runoff Area=17,544 sf 97.93% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=1.87 cfs 5,505 cf

Subcatchment E2: EXISTING 2 Runoff Area=18,344 sf 99.02% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=1.96 cfs 5,756 cf

Subcatchment E4A: E4A Runoff Area=17,702 sf 95.27% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=1.87 cfs 5,386 cf

Subcatchment EM1: Area EM1 Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=3.77"

Tc=15.0 min CN=98 Runoff=2.95 cfs 9,479 cf

Subcatchment EM2: Area EM2 Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=1.43 cfs 4,220 cf

Pond 3P: 84" TRUNK SEWER Peak Elev=591.22' Inflow=10.02 cfs 30,346 cf

84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=10.02 cfs 30,346 cf

Pond DI #868: DI #868 Peak Elev=614.31' Inflow=1.96 cfs 5,756 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=1.96 cfs 5,756 cf

Pond DI #911: DI #911 Peak Elev=614.15' Inflow=1.87 cfs 5,505 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=1.87 cfs 5,505 cf

Total Runoff Area = 97,251 sf Runoff Volume = 30,346 cf Average Runoff Depth = 3.74" 1.64% Pervious = 1,591 sf 98.36% Impervious = 95,660 sf

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# **Summary for Subcatchment E1: EXISTING 1**

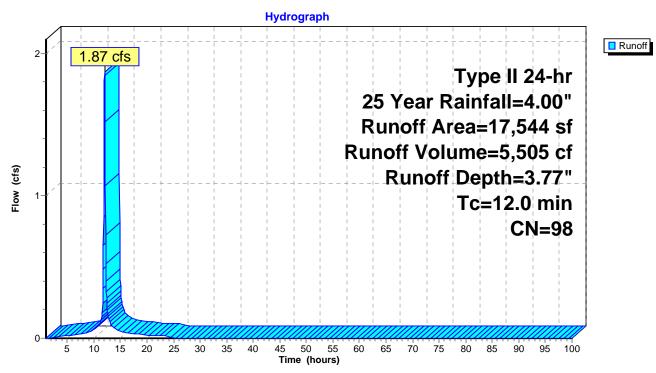
Runoff = 1.87 cfs @ 12.03 hrs, Volume= 5,505 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

Ar	ea (sf)	CN	Description				
•	17,181	98	Paved park	ing, HSG D	)		
	363	80	>75% Gras	s cover, Go	ood, HSG D		
•	17,544	98	Weighted Average				
	363		2.07% Perv	ious Area			
•	17,181		97.93% Impervious Area				
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description		
12.0					Direct Entry, SHEET FLOw		

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### **Subcatchment E1: EXISTING 1**



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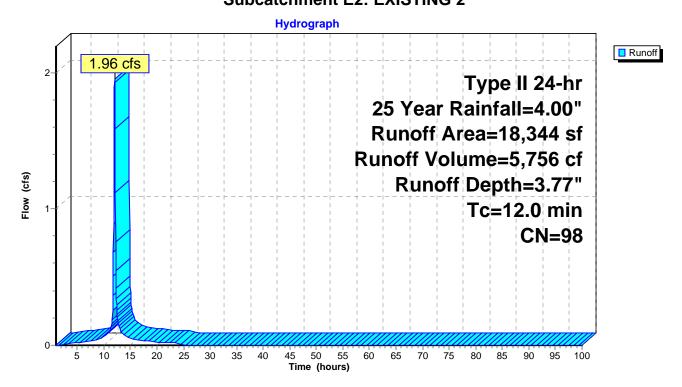
# **Summary for Subcatchment E2: EXISTING 2**

Runoff = 1.96 cfs @ 12.03 hrs, Volume= 5,756 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description					
	18,164	98	Paved park	ing, HSG D	)			
	180	80	>75% Gras	s cover, Go	ood, HSG D			
	18,344	98	Weighted A	Weighted Average				
	180		0.98% Perv	ious Area				
	18,164		99.02% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description			
12.0					Direct Entry, SHEET FLOw			

## **Subcatchment E2: EXISTING 2**



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# Summary for Subcatchment E4A: E4A

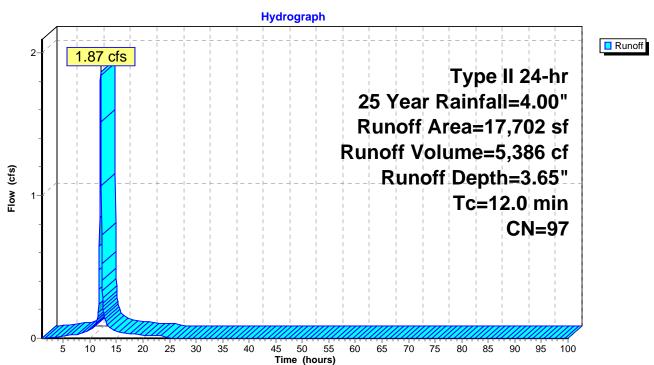
Runoff = 1.87 cfs @ 12.03 hrs, Volume= 5,386 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

Ar	ea (sf)	CN	Description					
1	16,864	98	Paved park	ing, HSG D	)			
	838	80	>75% Gras	s cover, Go	ood, HSG D			
1	17,702	97	Weighted A	verage				
	838		4.73% Perv	ious Area				
1	16,864		95.27% Impervious Area					
Tc	Length	Slope	e Velocity	Capacity	Description			
(min)	(feet)	(ft/ft	,	(cfs)	Doonplon			
12.0					Direct Entry, SHEET FLOw			

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### Subcatchment E4A: E4A



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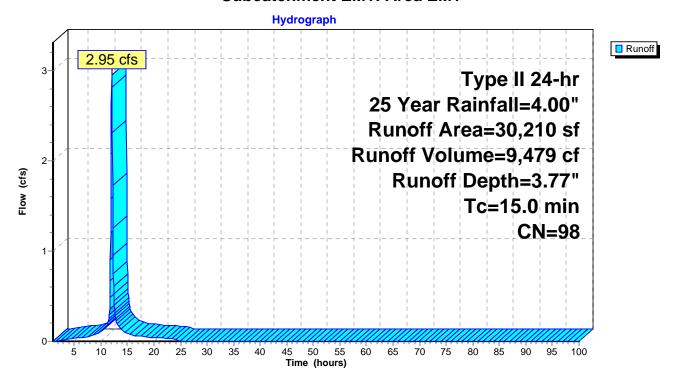
# Summary for Subcatchment EM1: Area EM1

Runoff = 2.95 cfs @ 12.06 hrs, Volume= 9,479 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description					
	210	80	>75% Gras	s cover, Go	ood, HSG D			
	30,000	98	Paved park	ing, HSG D	)			
	30,210	98	Weighted A	Weighted Average				
	210		0.70% Pervious Area					
	30,000 99.30% Impervious Area							
т.	l tl-	Ola a	. Valaait.	0	December			
Tc	Length	Slope	,	Capacity	Description			
<u>(min)</u>	(feet)	(ft/ft	) (ft/sec)	(cfs)				
15.0					Direct Entry,			

#### Subcatchment EM1: Area EM1



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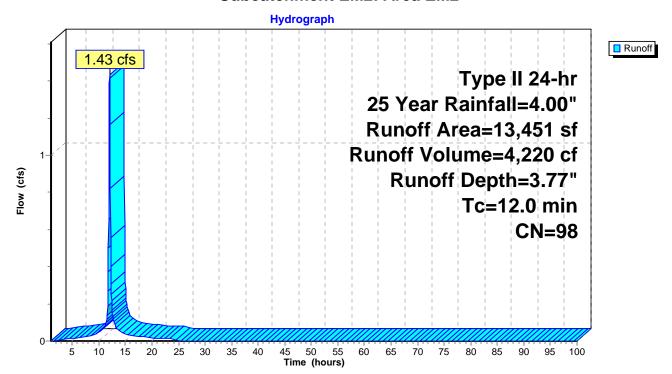
## **Summary for Subcatchment EM2: Area EM2**

Runoff = 1.43 cfs @ 12.03 hrs, Volume= 4,220 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

 Α	rea (sf)	CN	Description					
	13,451	98	Paved parking, HSG D					
	13,451		100.00% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
12.0					Direct Entry,			

#### **Subcatchment EM2: Area EM2**



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### **Summary for Pond 3P: 84" TRUNK SEWER**

Inflow Area = 97,251 sf, 98.36% Impervious, Inflow Depth = 3.74" for 25 Year event

Inflow = 10.02 cfs @ 12.04 hrs, Volume= 30.346 cf

Outflow = 10.02 cfs @ 12.04 hrs, Volume= 30,346 cf, Atten= 0%, Lag= 0.0 min

Primary = 10.02 cfs @ 12.04 hrs, Volume= 30,346 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

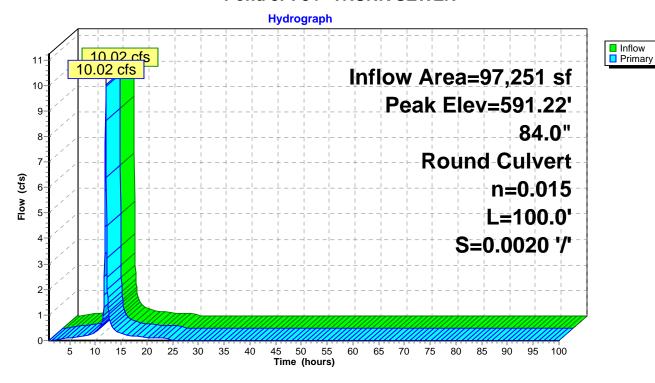
Peak Elev= 591.22' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	84.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 38.48 sf

Primary OutFlow Max=9.85 cfs @ 12.04 hrs HW=591.21' (Free Discharge) 1=Culvert (Barrel Controls 9.85 cfs @ 3.35 fps)

#### Pond 3P: 84" TRUNK SEWER



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## Summary for Pond DI #868: DI #868

Inflow Area = 18,344 sf, 99.02% Impervious, Inflow Depth = 3.77" for 25 Year event

Inflow = 1.96 cfs @ 12.03 hrs, Volume= 5,756 cf

Outflow = 1.96 cfs @ 12.03 hrs, Volume= 5,756 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.96 cfs @ 12.03 hrs, Volume= 5,756 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

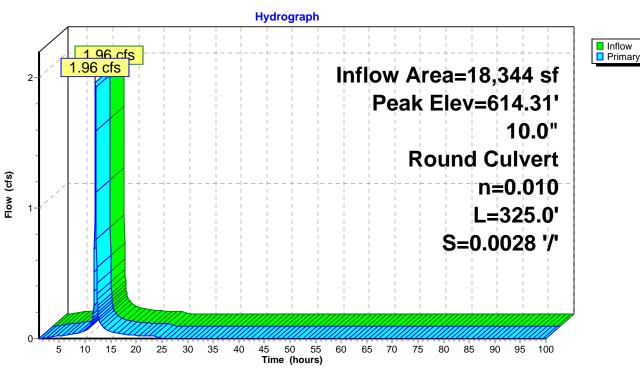
Peak Elev= 614.31' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC. smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=1.91 cfs @ 12.03 hrs HW=614.22' TW=591.21' (Dynamic Tailwater) 1=Culvert (Barrel Controls 1.91 cfs @ 3.50 fps)

#### Pond DI #868: DI #868



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### Summary for Pond DI #911: DI #911

Inflow Area = 17,544 sf, 97.93% Impervious, Inflow Depth = 3.77" for 25 Year event

Inflow = 1.87 cfs @ 12.03 hrs, Volume= 5,505 cf

Outflow = 1.87 cfs @ 12.03 hrs, Volume= 5,505 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.87 cfs @ 12.03 hrs, Volume= 5,505 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

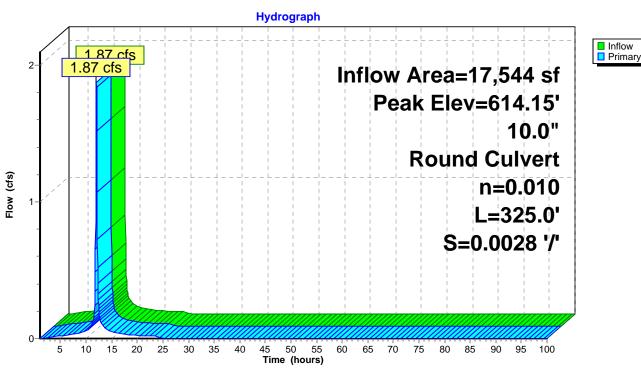
Peak Elev= 614.15' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert
			L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=1.83 cfs @ 12.03 hrs HW=614.07' TW=591.21' (Dynamic Tailwater) 1=Culvert (Barrel Controls 1.83 cfs @ 3.35 fps)

#### Pond DI #911: DI #911



Type II 24-hr 50% Rainfall=0.35"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: EXISTING 1 Runoff Area=17,544 sf 97.93% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.11 cfs 272 cf

Subcatchment E2: EXISTING 2 Runoff Area=18,344 sf 99.02% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.11 cfs 285 cf

Subcatchment E4A: E4A Runoff Area=17,702 sf 95.27% Impervious Runoff Depth=0.14"

Tc=12.0 min CN=97 Runoff=0.08 cfs 205 cf

Subcatchment EM1: Area EM1 Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=0.19"

Tc=15.0 min CN=98 Runoff=0.17 cfs 469 cf

Subcatchment EM2: Area EM2 Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.08 cfs 209 cf

**Pond 3P: 84" TRUNK SEWER**Peak Elev=590.31' Inflow=0.54 cfs 1,440 cf

84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=0.54 cfs 1,443 cf

Pond DI #868: DI #868

Peak Elev=612.75' Inflow=0.11 cfs 285 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.11 cfs 285 cf

Pond DI #911: DI #911 Peak Elev=612.74' Inflow=0.11 cfs 272 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.11 cfs 273 cf

Total Runoff Area = 97,251 sf Runoff Volume = 1,440 cf Average Runoff Depth = 0.18" 1.64% Pervious = 1,591 sf 98.36% Impervious = 95,660 sf

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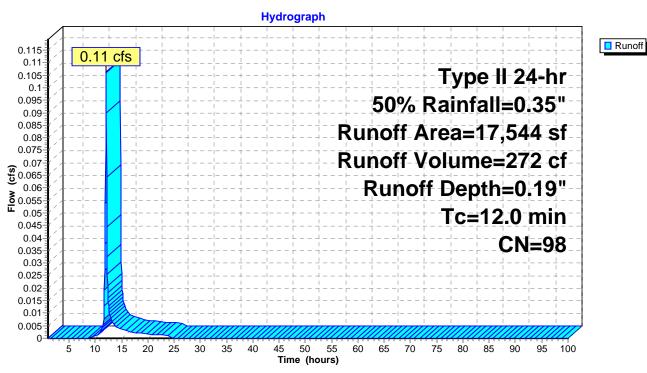
## **Summary for Subcatchment E1: EXISTING 1**

Runoff = 0.11 cfs @ 12.04 hrs, Volume= 272 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

Aı	ea (sf)	CN	Description					
	17,181	98	Paved park	ing, HSG D				
	363	80	>75% Gras	s cover, Go	ood, HSG D			
	17,544	98	Weighted Average					
	363		2.07% Perv	ious Area				
	17,181		97.93% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description			
12.0					Direct Entry, SHEET FLOw			

### **Subcatchment E1: EXISTING 1**



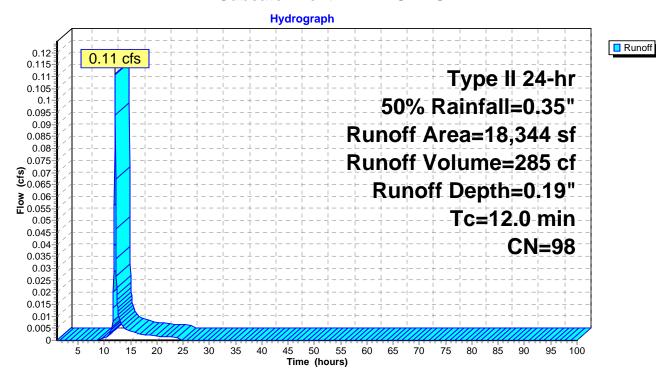
## Summary for Subcatchment E2: EXISTING 2

Runoff = 0.11 cfs @ 12.04 hrs, Volume= 285 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description					
	18,164	98	Paved park	ing, HSG D				
	180	80	>75% Gras	s cover, Go	ood, HSG D			
	18,344	98	Weighted Average					
	180		0.98% Pervious Area					
	18,164		99.02% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description			
12.0		,		, ,	Direct Entry, SHEET FLOw			

#### **Subcatchment E2: EXISTING 2**



### **Summary for Subcatchment E4A: E4A**

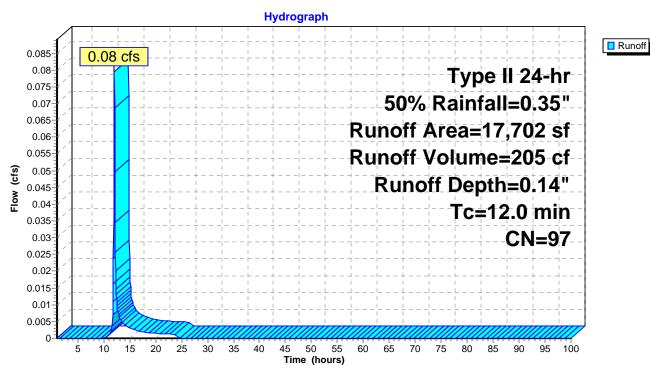
0.08 cfs @ 12.04 hrs, Volume= 205 cf, Depth= 0.14" Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

Aı	rea (sf)	CN	Description						
	16,864	98	Paved park	ing, HSG D	)				
	838	80	>75% Gras	s cover, Go	ood, HSG D				
	17,702	97	Weighted Average						
	838		4.73% Perv	ious Area					
	16,864		95.27% Imp	pervious Ar	ea				
Тс	Length	Slope	e Velocity	Capacity	Description				
(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)	·				
12.0					Direct Entry, SHEET FLOw				

Direct Entry, SHEET FLOW

### Subcatchment E4A: E4A



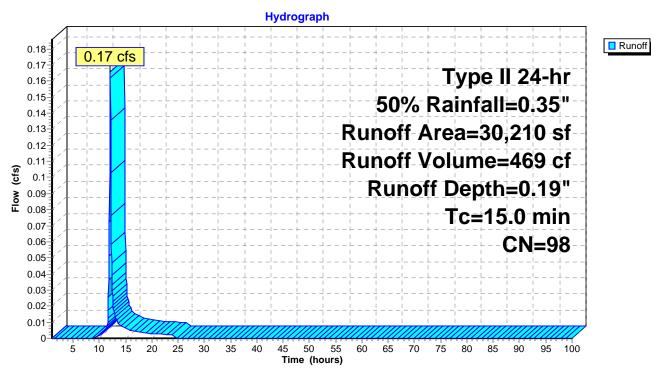
## **Summary for Subcatchment EM1: Area EM1**

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 469 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

	Area (sf)	CN	Description						
	210	80	>75% Gras	s cover, Go	od, HSG D				
	30,000	98	Paved park	ing, HSG D					
	30,210	98	Weighted Average						
	210		0.70% Pervious Area						
	30,000		99.30% Imp	pervious Ar	ea				
То	Longth	Clana	Volocity	Consoitu	Description				
Tc	- 3	Slope	,	Capacity	Description				
(min)	(feet)	(ft/ft	(ft/sec)	(cfs)					
15.0					Direct Entry,				

### Subcatchment EM1: Area EM1



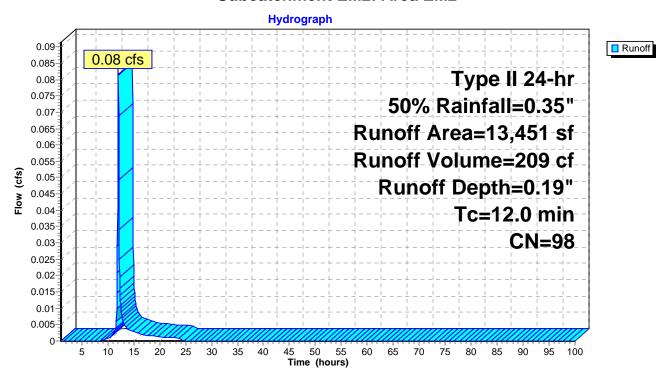
## **Summary for Subcatchment EM2: Area EM2**

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 209 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

 Α	rea (sf)	CN I	Description						
	13,451	98 I	Paved parking, HSG D						
	13,451		100.00% Impervious Area						
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
12.0					Direct Entry,				

#### **Subcatchment EM2: Area EM2**



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### **Summary for Pond 3P: 84" TRUNK SEWER**

Inflow Area = 97,251 sf, 98.36% Impervious, Inflow Depth = 0.18" for 50% event

Inflow = 0.54 cfs @ 12.05 hrs, Volume= 1,440 cf

Outflow = 0.54 cfs @ 12.05 hrs, Volume= 1,443 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.54 cfs @ 12.05 hrs, Volume= 1,443 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

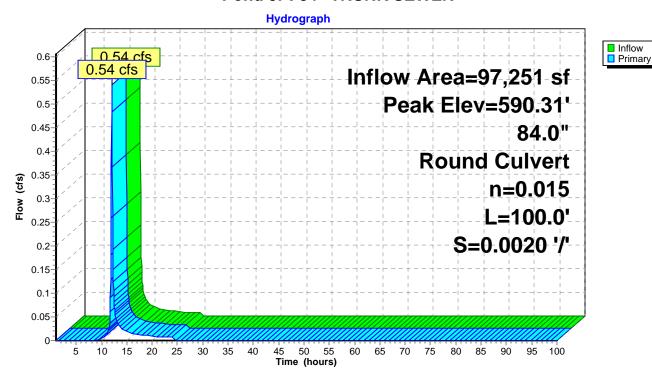
Peak Elev= 590.31' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	84.0" Round Culvert
	-		L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 38.48 sf

Primary OutFlow Max=0.54 cfs @ 12.05 hrs HW=590.31' (Free Discharge) 1=Culvert (Barrel Controls 0.54 cfs @ 1.37 fps)

### Pond 3P: 84" TRUNK SEWER



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## Summary for Pond DI #868: DI #868

Inflow Area = 18,344 sf, 99.02% Impervious, Inflow Depth = 0.19" for 50% event

Inflow = 0.11 cfs @ 12.04 hrs, Volume= 285 cf

Outflow = 0.11 cfs @ 12.04 hrs, Volume= 285 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.11 cfs @ 12.04 hrs, Volume= 285 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

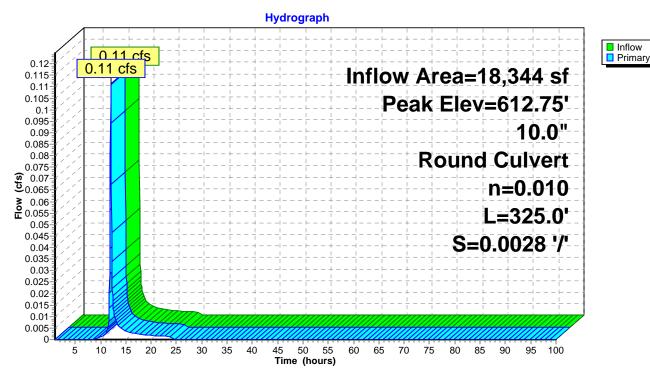
Peak Elev= 612.75' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert
			L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.11 cfs @ 12.04 hrs HW=612.74' TW=590.31' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.11 cfs @ 1.60 fps)

#### Pond DI #868: DI #868



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## Summary for Pond DI #911: DI #911

Inflow Area = 17,544 sf, 97.93% Impervious, Inflow Depth = 0.19" for 50% event

Inflow = 0.11 cfs @ 12.04 hrs, Volume= 272 cf

Outflow = 0.11 cfs @ 12.04 hrs, Volume= 273 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.11 cfs @ 12.04 hrs, Volume= 273 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

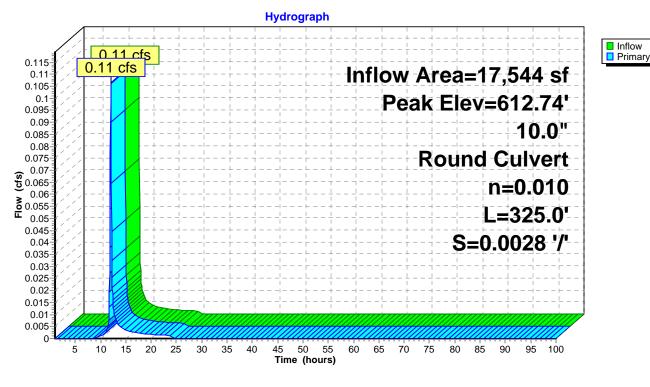
Peak Elev= 612.74' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert
			L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.10 cfs @ 12.04 hrs HW=612.74' TW=590.31' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.10 cfs @ 1.58 fps)

#### Pond DI #911: DI #911



Type II 24-hr 75% Rainfall=0.50"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: EXISTING 1 Runoff Area=17,544 sf 97.93% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.18 cfs 465 cf

Subcatchment E2: EXISTING 2 Runoff Area=18,344 sf 99.02% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.19 cfs 486 cf

Subcatchment E4A: E4A Runoff Area=17,702 sf 95.27% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.15 cfs 379 cf

Subcatchment EM1: Area EM1 Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=0.32"

Tc=15.0 min CN=98 Runoff=0.28 cfs 800 cf

Subcatchment EM2: Area EM2 Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.14 cfs 356 cf

Pond 3P: 84" TRUNK SEWER Peak Elev=590.40' Inflow=0.93 cfs 2,487 cf

84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=0.93 cfs 2,489 cf

Pond DI #868: DI #868

Peak Elev=612.81' Inflow=0.19 cfs 486 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.19 cfs 486 cf

Pond DI #911: DI #911 Peak Elev=612.80' Inflow=0.18 cfs 465 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.18 cfs 465 cf

Total Runoff Area = 97,251 sf Runoff Volume = 2,486 cf Average Runoff Depth = 0.31" 1.64% Pervious = 1,591 sf 98.36% Impervious = 95,660 sf

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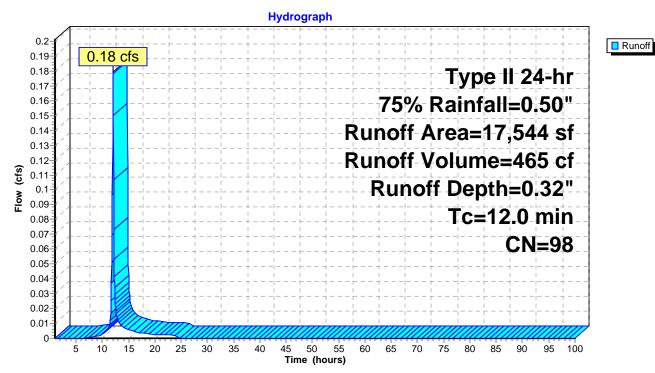
### **Summary for Subcatchment E1: EXISTING 1**

Runoff 0.18 cfs @ 12.04 hrs, Volume= 465 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description					
	17,181	98	Paved park	ing, HSG D	)			
	363	80	>75% Gras	s cover, Go	ood, HSG D			
	17,544	98	Weighted Average					
	363		2.07% Pervious Area					
	17,181		97.93% Impervious Area					
Tc	Length	Slope	e Velocity	Capacity	Description			
(min)	(feet)	(ft/ft	,	(cfs)				
12.0					Direct Entry, SHEET FLOw			

### Subcatchment E1: EXISTING 1



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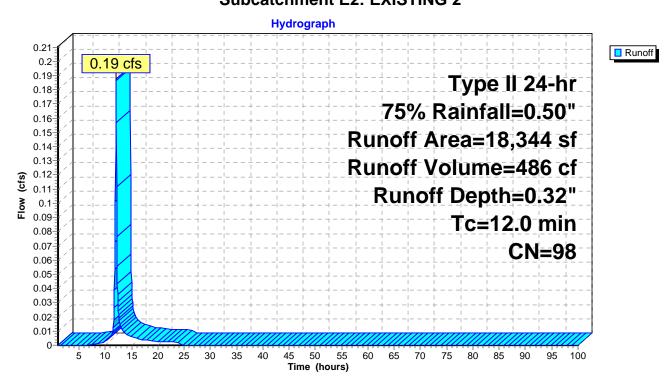
## **Summary for Subcatchment E2: EXISTING 2**

Runoff = 0.19 cfs @ 12.04 hrs, Volume= 486 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description					
•	18,164	98	Paved park	ing, HSG D				
	180	80	>75% Gras	s cover, Go	ood, HSG D			
	18,344	98	Weighted Average					
	180		0.98% Pervious Area					
	18,164		99.02% Imp	ervious Ar	ea			
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description			
12.0					Direct Entry, SHEET FLOw			

## Subcatchment E2: EXISTING 2



## Summary for Subcatchment E4A: E4A

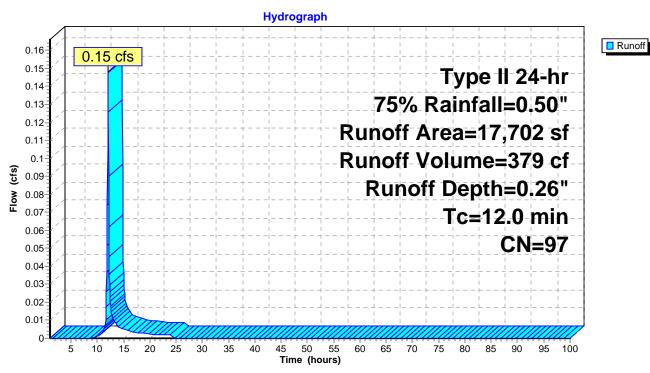
Runoff = 0.15 cfs @ 12.04 hrs, Volume= 379 cf, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

Ar	ea (sf)	CN	Description					
1	16,864	98	Paved park	ing, HSG D	)			
	838	80	>75% Gras	s cover, Go	ood, HSG D			
1	17,702	97	Weighted Average					
	838		4.73% Pervious Area					
1	16,864		95.27% Imp	ervious Ar	ea			
Tc	Length	Slope	e Velocity	Capacity	Description			
(min)	(feet)	(ft/ft	,	(cfs)	Doonplon			
12.0					Direct Entry, SHEET FLOw			

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### Subcatchment E4A: E4A



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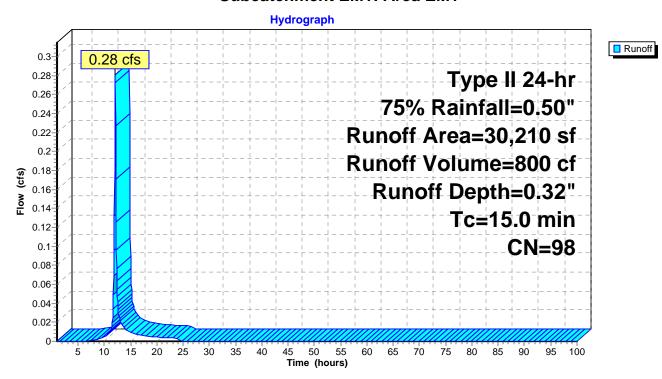
## **Summary for Subcatchment EM1: Area EM1**

Runoff = 0.28 cfs @ 12.07 hrs, Volume= 800 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description						
	210	80	>75% Gras	s cover, Go	ood, HSG D				
	30,000	98	Paved park	ing, HSG D	)				
	30,210	98	Weighted Average						
	210		0.70% Pervious Area						
	30,000		99.30% Imp	pervious Ar	ea				
т.	l tl-	Ola a	. Valaait.	0	December				
Tc	Length	Slope	,	Capacity	Description				
<u>(min)</u>	(feet)	(ft/ft	) (ft/sec) (cfs)						
15.0					Direct Entry,				

#### Subcatchment EM1: Area EM1



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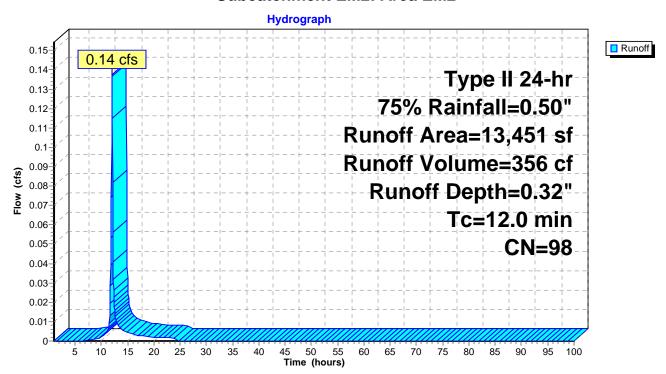
## **Summary for Subcatchment EM2: Area EM2**

Runoff = 0.14 cfs @ 12.04 hrs, Volume= 356 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN [	Description						
	13,451	98 F	Paved parking, HSG D						
	13,451	•	100.00% Impervious Area						
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
12.0					Direct Entry,				

### **Subcatchment EM2: Area EM2**



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## **Summary for Pond 3P: 84" TRUNK SEWER**

Inflow Area = 97,251 sf, 98.36% Impervious, Inflow Depth = 0.31" for 75% event

Inflow = 0.93 cfs @ 12.05 hrs, Volume= 2,487 cf

Outflow = 0.93 cfs @ 12.05 hrs, Volume= 2,489 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.93 cfs @ 12.05 hrs, Volume= 2,489 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

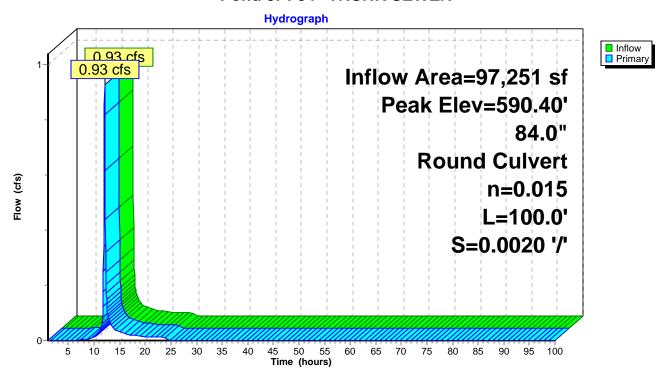
Peak Elev= 590.40' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	84.0" Round Culvert
	-		L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 38.48 sf

Primary OutFlow Max=0.92 cfs @ 12.05 hrs HW=590.40' (Free Discharge) 1=Culvert (Barrel Controls 0.92 cfs @ 1.62 fps)

#### Pond 3P: 84" TRUNK SEWER



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### Summary for Pond DI #868: DI #868

Inflow Area = 18,344 sf, 99.02% Impervious, Inflow Depth = 0.32" for 75% event

Inflow = 0.19 cfs @ 12.04 hrs. Volume= 486 cf

Outflow = 0.19 cfs @ 12.04 hrs, Volume= 486 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.19 cfs @ 12.04 hrs, Volume= 486 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

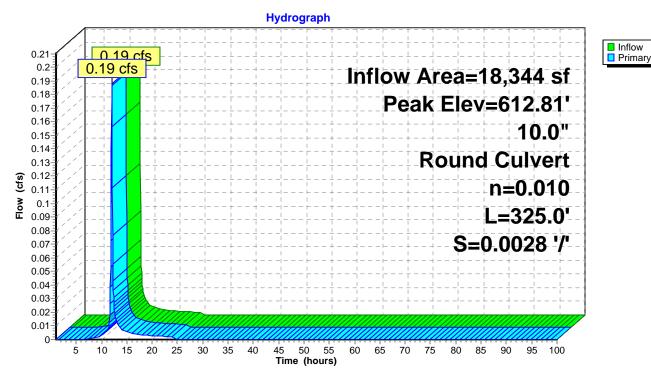
Peak Elev= 612.81' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC. smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.18 cfs @ 12.04 hrs HW=612.80' TW=590.40' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.18 cfs @ 1.86 fps)

#### Pond DI #868: DI #868



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### Summary for Pond DI #911: DI #911

Inflow Area = 17,544 sf, 97.93% Impervious, Inflow Depth = 0.32" for 75% event

Inflow = 0.18 cfs @ 12.04 hrs, Volume= 465 cf

Outflow = 0.18 cfs @ 12.04 hrs, Volume= 465 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.18 cfs @ 12.04 hrs, Volume= 465 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

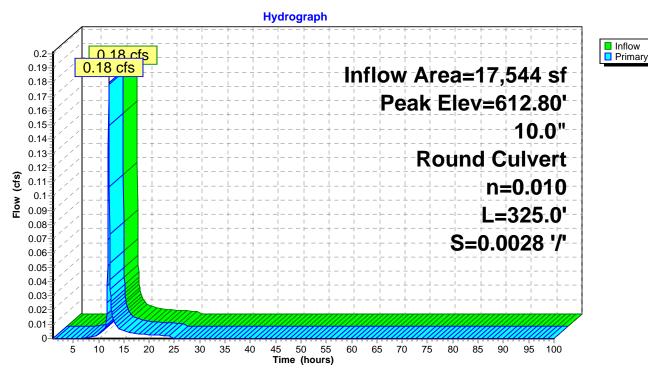
Peak Elev= 612.80' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert
			L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.18 cfs @ 12.04 hrs HW=612.80' TW=590.40' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.18 cfs @ 1.84 fps)

#### Pond DI #911: DI #911



Type II 24-hr WQv Rainfall=0.85"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E1: EXISTING 1 Runoff Area=17,544 sf 97.93% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.35 cfs 945 cf

Subcatchment E2: EXISTING 2 Runoff Area=18,344 sf 99.02% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.37 cfs 988 cf

Subcatchment E4A: E4A Runoff Area=17,702 sf 95.27% Impervious Runoff Depth=0.57"

Tc=12.0 min CN=97 Runoff=0.32 cfs 835 cf

Subcatchment EM1: Area EM1 Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=0.65"

Tc=15.0 min CN=98 Runoff=0.56 cfs 1,627 cf

Subcatchment EM2: Area EM2 Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.27 cfs 724 cf

Pond 3P: 84" TRUNK SEWER Peak Elev=590.55' Inflow=1.86 cfs 5,119 cf

84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=1.86 cfs 5,120 cf

Pond DI #868: DI #868

Peak Elev=612.92' Inflow=0.37 cfs 988 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.37 cfs 988 cf

Pond DI #911: DI #911 Peak Elev=612.91' Inflow=0.35 cfs 945 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.35 cfs 945 cf

Total Runoff Area = 97,251 sf Runoff Volume = 5,119 cf Average Runoff Depth = 0.63" 1.64% Pervious = 1,591 sf 98.36% Impervious = 95,660 sf

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## **Summary for Subcatchment E1: EXISTING 1**

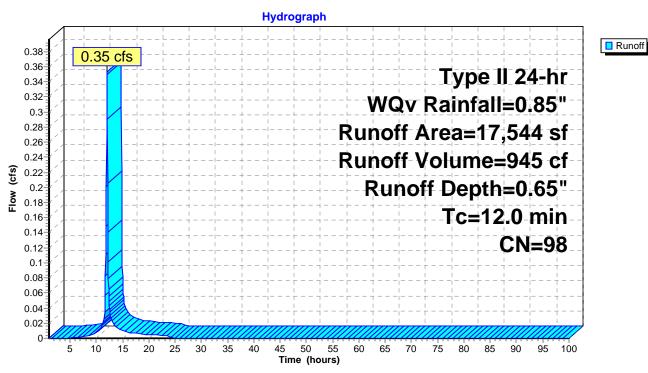
Runoff 0.35 cfs @ 12.03 hrs, Volume= 945 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

Are	ea (sf)	CN	Description					
1	7,181	98	Paved parking, HSG D					
	363	80	>75% Grass cover, Good, HSG D					
1	7,544	98	Weighted Average					
	363		2.07% Pervious Area					
1	7,181		97.93% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description			
12.0					Direct Entry, SHEET FLOw			

Direct Entry, SHEET FLOW

### Subcatchment E1: EXISTING 1



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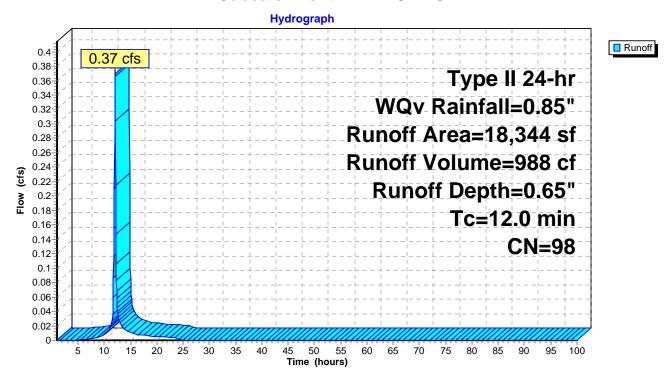
## Summary for Subcatchment E2: EXISTING 2

Runoff = 0.37 cfs @ 12.03 hrs, Volume= 988 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description					
	18,164	98	Paved parking, HSG D					
	180	80	>75% Grass cover, Good, HSG D					
	18,344	98	Weighted Average					
	180		0.98% Pervious Area					
	18,164		99.02% Imp	ea				
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description			
12.0	, ,	,	, ,	, ,	Direct Entry, SHEET FLOw			

#### **Subcatchment E2: EXISTING 2**



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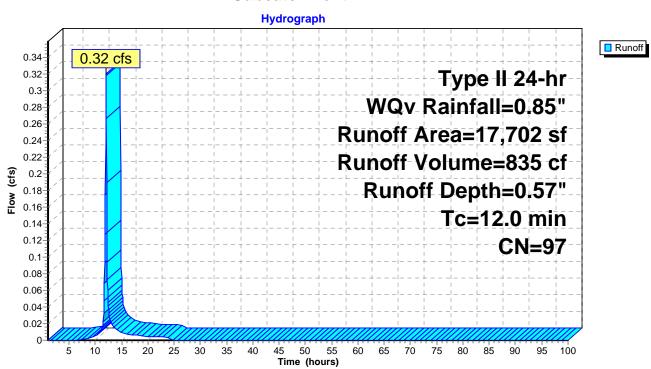
## Summary for Subcatchment E4A: E4A

Runoff = 0.32 cfs @ 12.04 hrs, Volume= 835 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

Ar	ea (sf)	CN	Description					
1	16,864	98	Paved parking, HSG D					
	838	80	>75% Gras	s cover, Go	ood, HSG D			
1	17,702	97	Weighted Average					
	838		4.73% Pervious Area					
1	16,864		95.27% Impervious Area					
Tc	Length	Slope	e Velocity	Capacity	Description			
(min)	(feet)	(ft/ft	,	(cfs)	Doonplon			
12.0					Direct Entry, SHEET FLOw			

### Subcatchment E4A: E4A



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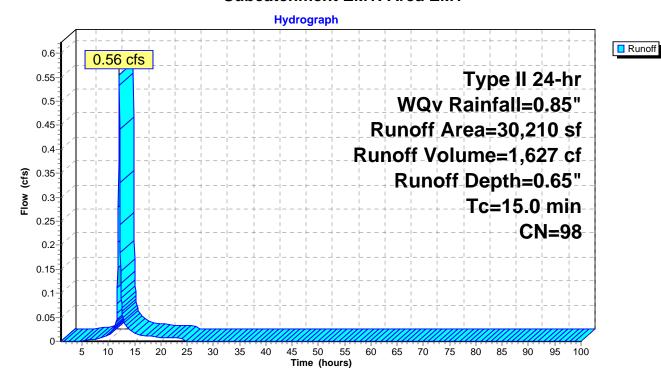
# **Summary for Subcatchment EM1: Area EM1**

Runoff = 0.56 cfs @ 12.06 hrs, Volume= 1,627 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description					
	210	80	>75% Grass cover, Good, HSG D					
	30,000	98	Paved park	ing, HSG D	)			
	30,210	98	Weighted Average					
	210 0.70% Pervious Area							
	30,000 99.30% Impervious Area							
т.	l	Ola a	. Valasita	0	December			
Tc	Length	Slope	,	Capacity	Description			
(min)	(feet)	(ft/ft	t) (ft/sec) (cfs)					
15.0					Direct Entry,			

#### Subcatchment EM1: Area EM1



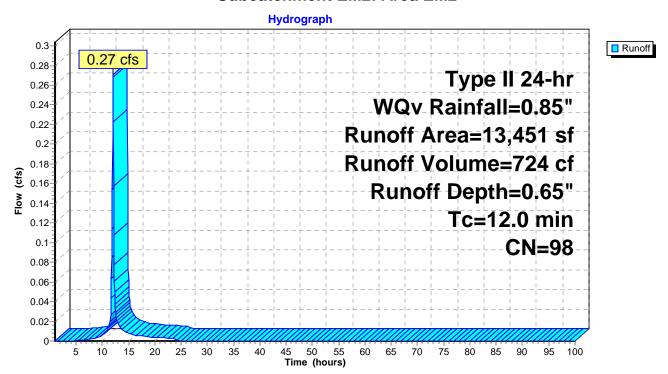
## **Summary for Subcatchment EM2: Area EM2**

Runoff = 0.27 cfs @ 12.03 hrs, Volume= 724 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

 Α	rea (sf)	CN	Description					
	13,451	98	Paved parking, HSG D					
	13,451	3,451 100.00% Impervious Area						
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description			
12.0	•	•		·	Direct Entry,			

### **Subcatchment EM2: Area EM2**



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## **Summary for Pond 3P: 84" TRUNK SEWER**

Inflow Area = 97,251 sf, 98.36% Impervious, Inflow Depth = 0.63" for WQv event

Inflow = 1.86 cfs @ 12.04 hrs, Volume= 5,119 cf

Outflow = 1.86 cfs @ 12.04 hrs, Volume= 5,120 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.86 cfs @ 12.04 hrs, Volume= 5,120 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

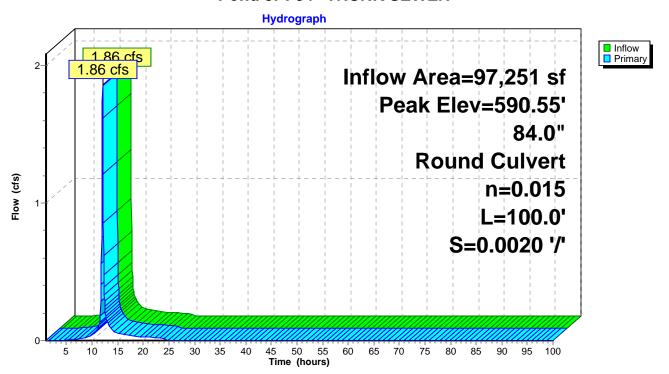
Peak Elev= 590.55' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	84.0" Round Culvert
	-		L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 38.48 sf

Primary OutFlow Max=1.83 cfs @ 12.04 hrs HW=590.55' (Free Discharge) 1=Culvert (Barrel Controls 1.83 cfs @ 2.01 fps)

### Pond 3P: 84" TRUNK SEWER



Type II 24-hr WQv Rainfall=0.85" Printed 5/4/2015

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## Summary for Pond DI #868: DI #868

Inflow Area = 18,344 sf, 99.02% Impervious, Inflow Depth = 0.65" for WQv event

Inflow = 0.37 cfs @ 12.03 hrs, Volume= 988 cf

Outflow = 0.37 cfs @ 12.03 hrs, Volume= 988 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.37 cfs @ 12.03 hrs, Volume= 988 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

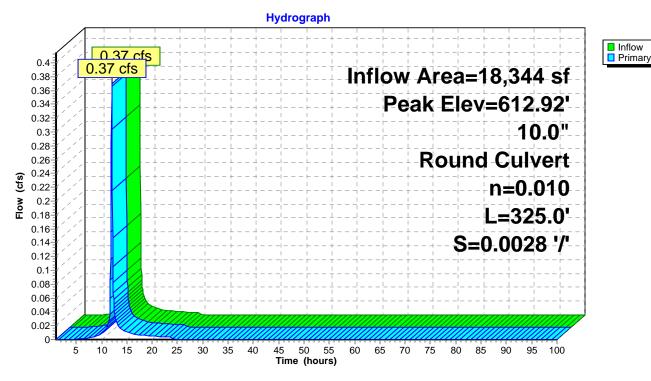
Peak Elev= 612.92' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC. smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.36 cfs @ 12.03 hrs HW=612.91' TW=590.54' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.36 cfs @ 2.25 fps)

#### Pond DI #868: DI #868



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### Summary for Pond DI #911: DI #911

Inflow Area = 17,544 sf, 97.93% Impervious, Inflow Depth = 0.65" for WQv event

Inflow = 0.35 cfs @ 12.03 hrs, Volume= 945 cf

Outflow = 0.35 cfs @ 12.03 hrs, Volume= 945 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.35 cfs @ 12.03 hrs, Volume= 945 cf

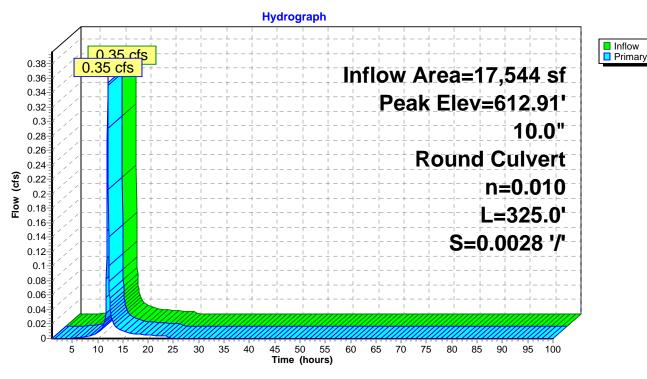
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 612.91' @ 12.03 hrs

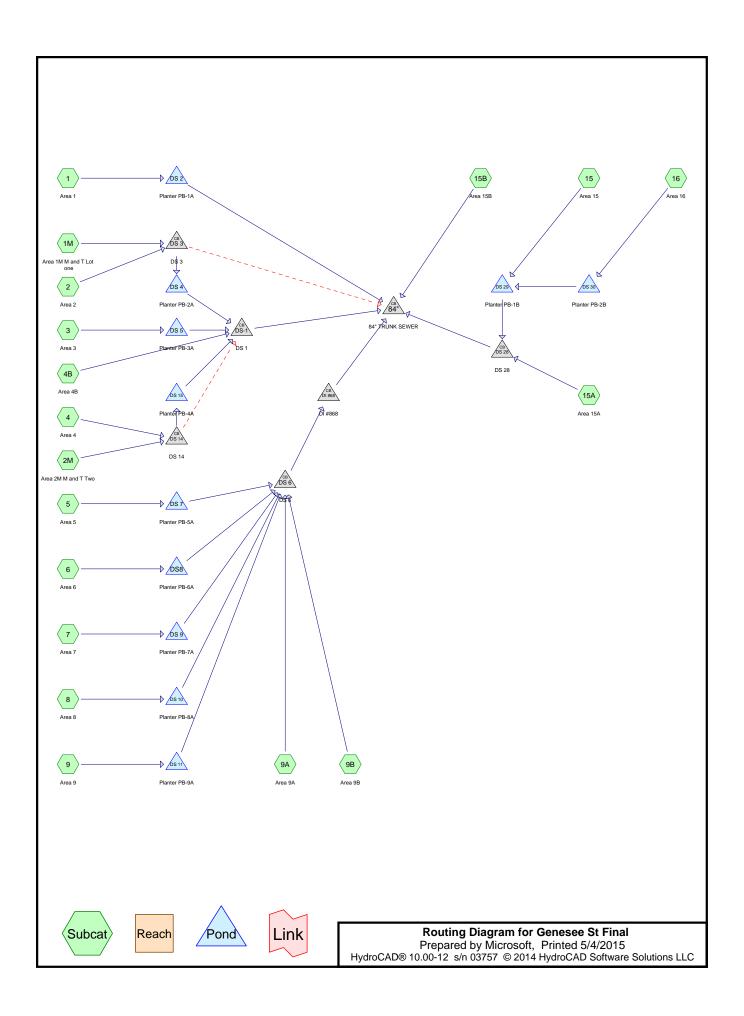
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert
			L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.35 cfs @ 12.03 hrs HW=612.90' TW=590.54' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.35 cfs @ 2.22 fps)

#### Pond DI #911: DI #911





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# **Area Listing (selected nodes)**

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
1,812	80	>75% Grass cover, Good, HSG D (1, 1M, 2, 3, 4, 5, 6, 7, 8, 9, 15, 16)
111,079	98	Paved parking, HSG D (1, 1M, 2, 2M, 3, 4, 4B, 5, 6, 7, 8, 9, 9A, 9B, 15, 15A, 15B, 16)
112,891	98	TOTAL AREA

# Soil Listing (selected nodes)

Area	Soil	Subcatchment
(sq-ft)	Group	Numbers
0	HSG A	
0	HSG B	
0	HSG C	
112,891	HSG D	1, 1M, 2, 2M, 3, 4, 4B, 5, 6, 7, 8, 9, 9A, 9B, 15, 15A, 15B, 16
0	Other	
112,891		TOTAL AREA

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Sub Nun

# **Ground Covers (selected nodes)**

HSG-A	HSG-B	HSG-C	HSG-D	Other	Total	Ground
(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	Cover
0	0	0	1,812	0	1,812	>75% Grass
						cover, Good
0	0	0	111,079	0	111,079	Paved parking
0	0	0	112,891	0	112,891	TOTAL AREA

# **Pipe Listing (selected nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	84"	590.00	589.80	100.0	0.0020	0.015	84.0	0.0	0.0
2	DI 868	612.54	611.63	325.0	0.0028	0.010	10.0	0.0	0.0
3	DS 10	611.95	611.88	6.0	0.0117	0.013	6.0	0.0	0.0
4	DS 10	610.76	610.76	28.0	0.0000	0.010	6.0	0.0	0.0
5	DS 11	611.91	611.84	6.0	0.0117	0.013	6.0	0.0	0.0
6	DS 11	610.62	610.62	27.0	0.0000	0.010	6.0	0.0	0.0
7	DS 14	612.80	612.75	4.0	0.0125	0.010	6.0	0.0	0.0
8	DS 14	612.90	612.83	6.0	0.0117	0.012	6.0	0.0	0.0
9	DS 15	611.93	611.86	6.0	0.0117	0.013	6.0	0.0	0.0
10	DS 15	610.50	610.50	61.0	0.0000	0.010	6.0	0.0	0.0
11	DS 2	612.64	612.59	4.0	0.0125	0.013	6.0	0.0	0.0
12	DS 2	611.12	611.12	39.0	0.0000	0.013	6.0	0.0	0.0
13	DS 28	608.71	608.60	77.0	0.0014	0.012	12.0	0.0	0.0
14	DS 29	610.41	610.35	5.0	0.0120	0.013	6.0	0.0	0.0
15	DS 29	609.75	609.75	50.0	0.0000	0.013	6.0	0.0	0.0
16	DS 3	612.60	612.55	4.0	0.0125	0.010	6.0	0.0	0.0
17	DS 3	613.60	613.55	6.0	0.0083	0.012	6.0	0.0	0.0
18	DS 30	611.87	611.20	59.0	0.0114	0.010	6.0	0.0	0.0
19	DS 30	609.43	609.43	7.0	0.0000	0.010	6.0	0.0	0.0
20	DS 4	612.48	612.41	6.0	0.0117	0.013	6.0	0.0	0.0
21	DS 4	610.89	610.89	60.0	0.0000	0.013	6.0	0.0	0.0
22	DS 5	612.37	612.30	5.5	0.0127	0.010	6.0	0.0	0.0
23	DS 5	610.61	610.61	28.0	0.0000	0.010	6.0	0.0	0.0
24	DS 6	612.27	611.42	303.0	0.0028	0.010	10.0	0.0	0.0
25	DS 7	613.04	612.97	6.0	0.0117	0.010	6.0	0.0	0.0
26	DS 7	611.29	611.29	15.0	0.0000	0.013	6.0	0.0	0.0
27	DS 9	612.30	612.23	6.0	0.0117	0.010	6.0	0.0	0.0
28	DS 9	610.99	610.99	28.0	0.0000	0.013	6.0	0.0	0.0
29	DS-1	612.54	611.63	325.0	0.0028	0.010	10.0	0.0	0.0
30	DS8	613.04	612.97	6.0	0.0117	0.013	6.0	0.0	0.0
31	DS8	611.13	611.13	14.0	0.0000	0.013	6.0	0.0	0.0

Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Area 1 Runoff Area=5,276 sf 95.77% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=0.30 cfs 843 cf

Subcatchment 1M: Area 1M M and T Lot Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=2.02"

Tc=15.0 min CN=98 Runoff=1.63 cfs 5,091 cf

Subcatchment 2: Area 2 Runoff Area=3,939 sf 92.08% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=0.23 cfs 629 cf

Subcatchment 2M: Area 2M M and T Two Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.79 cfs 2,267 cf

Subcatchment 3: Area 3 Runoff Area=2,103 sf 92.44% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=0.12 cfs 336 cf

Subcatchment 4: Area 4 Runoff Area=6,163 sf 94.95% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=0.35 cfs 985 cf

Subcatchment 4B: Area 4B Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.13 cfs 361 cf

Subcatchment 5: Area 5 Runoff Area=3,711 sf 98.14% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.22 cfs 625 cf

Subcatchment 6: Area 6 Runoff Area=1,765 sf 96.09% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=0.10 cfs 282 cf

Subcatchment 7: Area 7 Runoff Area=3,275 sf 96.52% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=0.19 cfs 523 cf

Subcatchment 8: Area 8 Runoff Area=2,841 sf 96.16% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=0.16 cfs 454 cf

Subcatchment 9: Area 9 Runoff Area=2,159 sf 94.58% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=0.12 cfs 345 cf

Subcatchment 9A: Area 9A Runoff Area=4,063 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.24 cfs 685 cf

Subcatchment 9B: Area 9B Runoff Area=5,512 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.33 cfs 929 cf

Subcatchment 15: Area 15 Runoff Area=3,027 sf 97.49% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.18 cfs 510 cf

Subcatchment 15A: Area 15A Runoff Area=3,750 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.22 cfs 632 cf

Genesee St Final Prepared by Microsoft HydroCAD® 10.00-12 s/n 03757 © 2014	• •	2 YR Rainfall=2.25" Printed 5/4/2015 Page 7
Subcatchment 15B: Area 15B	Runoff Area=16,790 sf 100.00% Impervio Tc=12.0 min CN=98 R	
Subcatchment 16: Area 16	Runoff Area=2,715 sf 98.42% Impervio Tc=12.0 min CN=98	us Runoff Depth=2.02" Runoff=0.16 cfs 458 cf
Pond 84": 84" TRUNK SEWER 84.0" Ro	Peak Elev=590.84' Infl und Culvert n=0.015 L=100.0' S=0.0020 '/' Outfl	ow=4.51 cfs 100,453 cf ow=4.51 cfs 100,454 cf
Pond DI 868: DI #868	Peak Elev=613.02'   Round Culvert n=0.010 L=325.0' S=0.0028 '/' Ou	Inflow=0.57 cfs 5,761 cf utflow=0.57 cfs 5,761 cf
Pond DS 10: Planter PB-8A	Peak Elev=612.69' Storage=353 cf	Inflow=0.16 cfs 454 cf Outflow=0.01 cfs 129 cf
Pond DS 11: Planter PB-9A	Peak Elev=612.33' Storage=345 cf	Inflow=0.12 cfs 345 cf Outflow=0.00 cfs 0 cf
Pond DS 14: DS 14  Primary=	Peak Elev=613.50'   0.61 cfs 2,528 cf Secondary=0.54 cfs 723 cf Ou	Inflow=1.15 cfs 3,252 cf utflow=1.15 cfs 3,252 cf
Pond DS 15: Planter PB-4A	Peak Elev=613.16' Storage=1,333 cf O	Inflow=0.61 cfs 2,528 cf utflow=0.27 cfs 1,339 cf
Pond DS 2: Planter PB-1A	Peak Elev=615.50' Storage=609 cf	Inflow=0.30 cfs 843 cf Outflow=0.02 cfs 609 cf
Pond DS 28: DS 28 12.0"	Peak Elev=609.26'   Round Culvert n=0.012 L=77.0' S=0.0014 '/' Ou	Inflow=0.61 cfs 1,466 cf utflow=0.61 cfs 1,468 cf
Pond DS 29: Planter PB-1B	Peak Elev=614.06' Storage=221 cf	Inflow=0.36 cfs 910 cf Outflow=0.39 cfs 834 cf
Pond DS 3: DS 3 Primary=0.	Peak Elev=615.76'   56 cfs 1,905 cf Secondary=1.31 cfs 3,815 cf Ou	Inflow=1.85 cfs 5,721 cf utflow=1.85 cfs 5,721 cf
Pond DS 30: Planter PB-2B	Peak Elev=614.12' Storage=109 cf	Inflow=0.16 cfs 458 cf Outflow=0.19 cfs 400 cf
Pond DS 4: Planter PB-2A	Peak Elev=615.48' Storage=1,715 cf	Inflow=0.56 cfs 1,905 cf Outflow=0.93 cfs 926 cf

Pond DS 5: Planter PB-3A Peak Elev=613.76' Storage=279 cf Inflow=0.12 cfs 336 cf Outflow=0.00 cfs 128 cf

Pond DS 6: DS 6 Peak Elev=613.18' Inflow=0.57 cfs 5,761 cf

10.0" Round Culvert n=0.010 L=303.0' S=0.0028 '/' Outflow=0.57 cfs 5,761 cf

Pond DS 7: Planter PB-5A Peak Elev=615.62' Storage=383 cf Inflow=0.22 cfs 625 cf

Outflow=0.08 cfs 415 cf

Pond DS 9: Planter PB-7A Peak Elev=612.85' Storage=369 cf Inflow=0.19 cfs 523 cf

Outflow=0.01 cfs 208 cf

**Genesee St Final**Prepared by Microsoft
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Type II 24-hr 2 YR Rainfall=2.25"
Printed 5/4/2015
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Pond DS-1: DS 1 Peak Elev=613.38' Inflow=1.38 cfs 85,970 cf 10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=1.38 cfs 85,970 cf

Pond DS8: Planter PB-6A Peak Elev=613.07' Storage=230 cf Inflow=0.10 cfs 282 cf

Outflow=0.00 cfs 55 cf

Total Runoff Area = 112,891 sf Runoff Volume = 18,784 cf Average Runoff Depth = 2.00" 1.61% Pervious = 1,812 sf 98.39% Impervious = 111,079 sf

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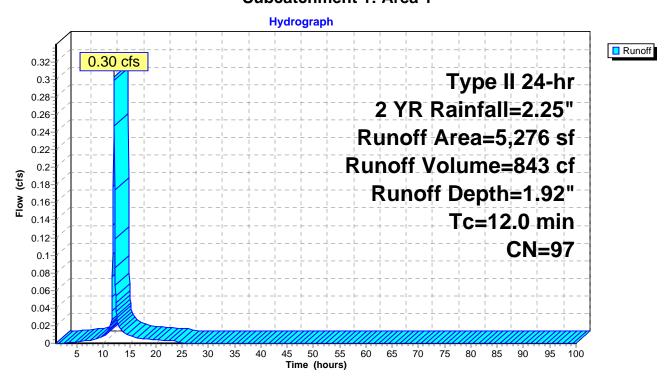
## **Summary for Subcatchment 1: Area 1**

Runoff = 0.30 cfs @ 12.03 hrs, Volume= 843 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description						
	223	80	>75% Grass cover, Good, HSG D						
	5,053	98	Paved park	ing, HSG D	D				
	5,276	97	Weighted Average						
	223		4.23% Perv	ious Area					
	5,053		95.77% Impervious Area						
Tc	Length	Slope	Velocity	Capacity	Description				
(min)	(feet)	(ft/ft)							
12.0	()	(	( = = = )	()	Direct Entry,	_			

#### Subcatchment 1: Area 1



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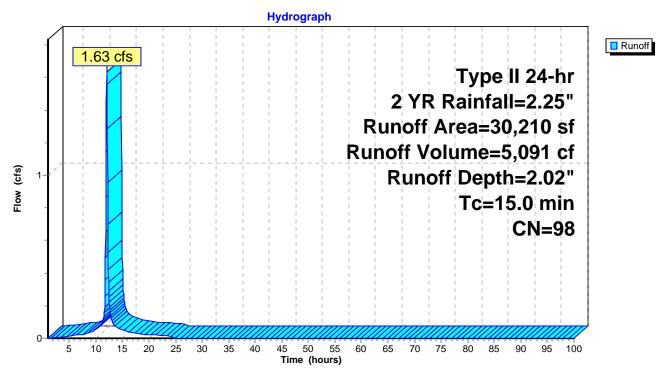
## Summary for Subcatchment 1M: Area 1M M and T Lot one

Runoff = 1.63 cfs @ 12.06 hrs, Volume= 5,091 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description					
	210	80	>75% Gras	s cover, Go	lood, HSG D			
	30,000	98	Paved park	ing, HSG D	D			
	30,210	98	Weighted Average					
	210		0.70% Perv	ious Area				
	30,000		99.30% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	•			
15.0					Direct Entry,			

### Subcatchment 1M: Area 1M M and T Lot one



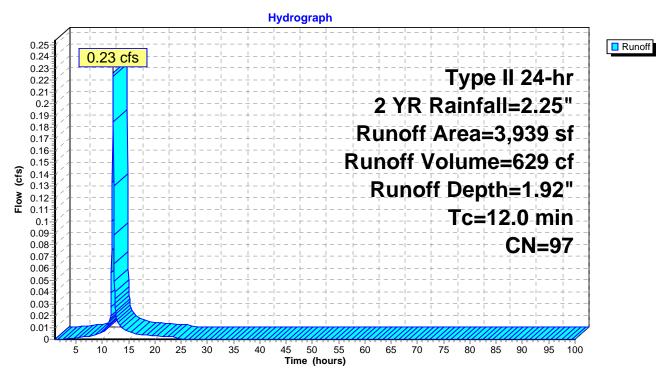
## **Summary for Subcatchment 2: Area 2**

Runoff = 0.23 cfs @ 12.03 hrs, Volume= 629 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description								
	312	80	>75% Gras	>75% Grass cover, Good, HSG D							
	3,627	98	Paved park	ing, HSG D	)						
	3,939	97	Weighted Average								
	312		7.92% Perv	ious Area							
	3,627		92.08% Impervious Area								
Тс	Length	Slope	Velocity	Capacity	Description						
(min)	(feet)	(ft/ft)	(ft/sec) (cfs)								
12.0					Direct Entry,						

#### Subcatchment 2: Area 2



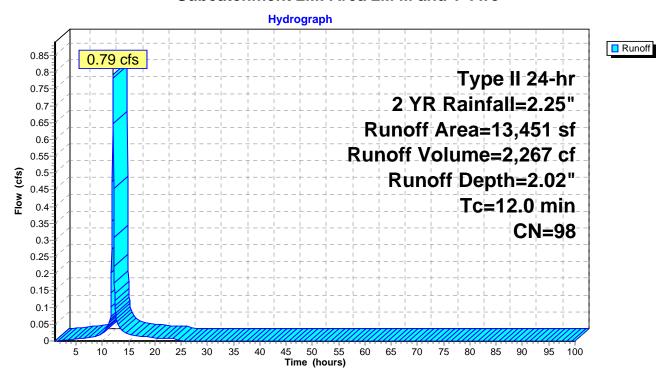
## Summary for Subcatchment 2M: Area 2M M and T Two

Runoff 0.79 cfs @ 12.03 hrs, Volume= 2,267 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

 Α	rea (sf)	CN I	Description					
	13,451	98 I	Paved parking, HSG D					
	13,451		100.00% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
12.0					Direct Entry,			

#### Subcatchment 2M: Area 2M M and T Two



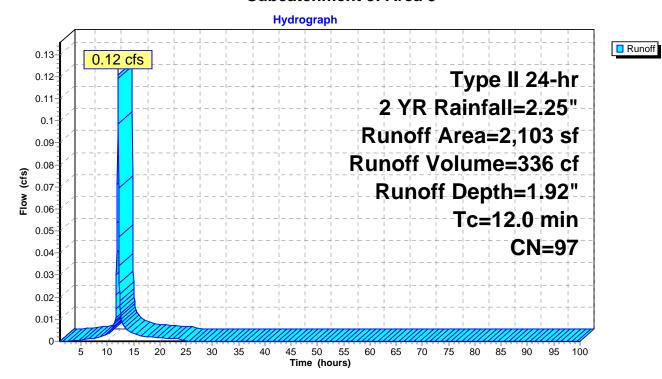
### **Summary for Subcatchment 3: Area 3**

Runoff = 0.12 cfs @ 12.03 hrs, Volume= 336 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description						
	159	80	>75% Grass cover, Good, HSG D						
	1,944	98	Paved park	Paved parking, HSG D					
	2,103	97	Weighted A	Weighted Average					
	159		7.56% Pervious Area						
	1,944		92.44% Impervious Area						
Tc	Length	Slope	,	Capacity	Description				
<u>(min)</u>	(feet)	(ft/ft	t) (ft/sec) (cfs)						
12.0					Direct Entry,				

#### **Subcatchment 3: Area 3**



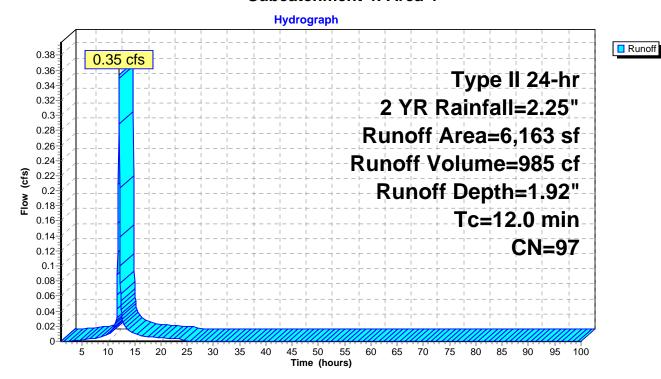
## **Summary for Subcatchment 4: Area 4**

Runoff = 0.35 cfs @ 12.03 hrs, Volume= 985 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description							
	311	80	>75% Grass cover, Good, HSG D							
	5,852	98	Paved parking, HSG D							
	6,163	97	Weighted Average							
	311		5.05% Pervious Area							
	5,852		94.95% Impervious Area							
Тс	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	t) (ft/sec) (cfs)							
12.0					Direct Entry,					

#### Subcatchment 4: Area 4



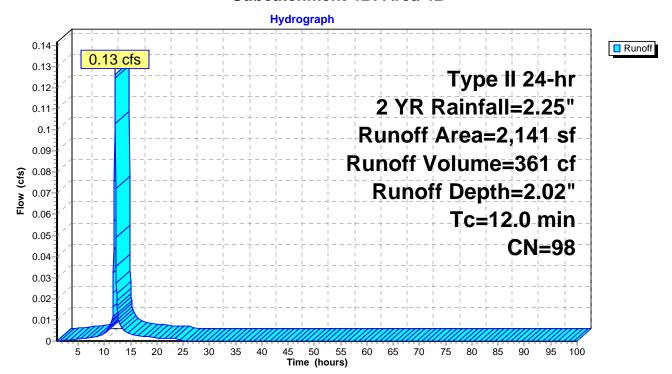
### Summary for Subcatchment 4B: Area 4B

Runoff = 0.13 cfs @ 12.03 hrs, Volume= 361 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

	A	ea (sf)	CN	Description						
		2,141	98	Paved parking, HSG D						
		2,141		100.00% Impervious Area						
(m	Tc in)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description				
12	2.0					Direct Entry,				

#### Subcatchment 4B: Area 4B



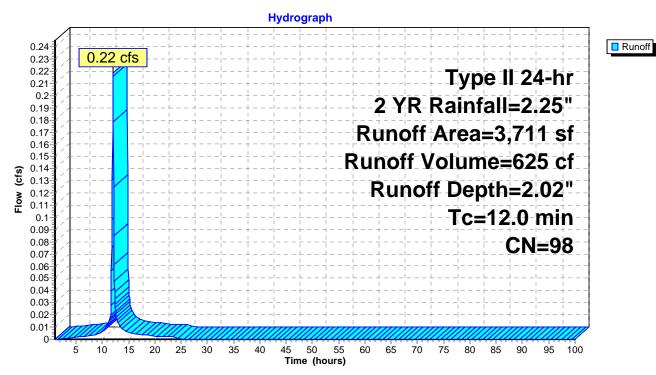
### **Summary for Subcatchment 5: Area 5**

Runoff = 0.22 cfs @ 12.03 hrs, Volume= 625 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

	Area (sf)	CN	Description						
	69	80	>75% Grass cover, Good, HSG D						
	3,642	98	Paved park	Paved parking, HSG D					
	3,711	98	Weighted Average						
	69		1.86% Pervious Area						
	3,642		98.14% Impervious Area						
To (min)	- 3	Slope (ft/ft	,	Capacity (cfs)	Description				
12.0	, ,	(1010	(10300)	(013)	Direct Entry,				
12.0					Direct Littiy,				

#### Subcatchment 5: Area 5



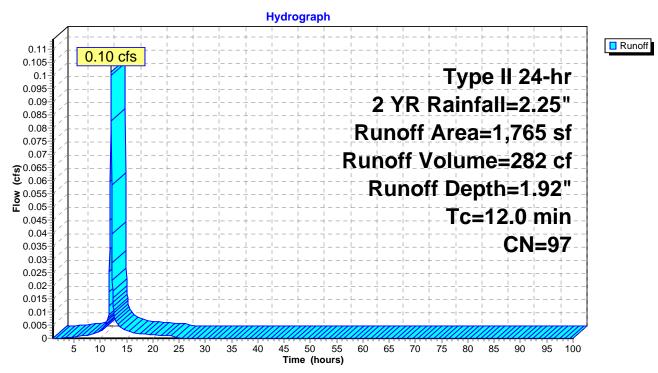
## **Summary for Subcatchment 6: Area 6**

Runoff = 0.10 cfs @ 12.03 hrs, Volume= 282 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description							
	69	80	>75% Grass cover, Good, HSG D							
	1,696	98	Paved parking, HSG D							
	1,765	97	Veighted Average							
	69		3.91% Pervious Area							
	1,696		96.09% Impervious Area							
Тс	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	t) (ft/sec) (cfs)							
12.0					Direct Entry,					

#### Subcatchment 6: Area 6



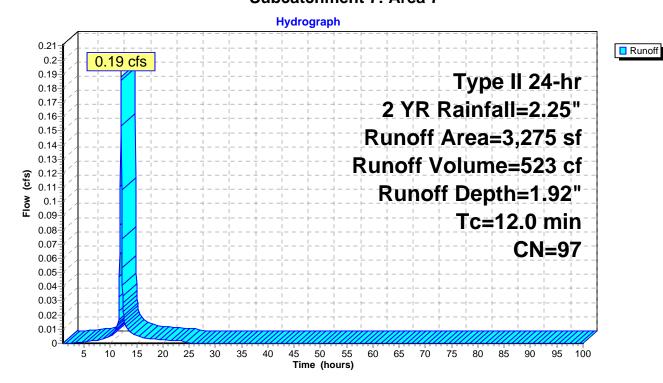
### **Summary for Subcatchment 7: Area 7**

Runoff = 0.19 cfs @ 12.03 hrs, Volume= 523 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description							
	114	80	>75% Grass cover, Good, HSG D							
	3,161	98	Paved park	Paved parking, HSG D						
	3,275	97	Weighted A	Veighted Average						
	114		3.48% Pervious Area							
	3,161		96.52% lmp	ervious Ar	ea					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description					
12.0					Direct Entry,					

#### Subcatchment 7: Area 7



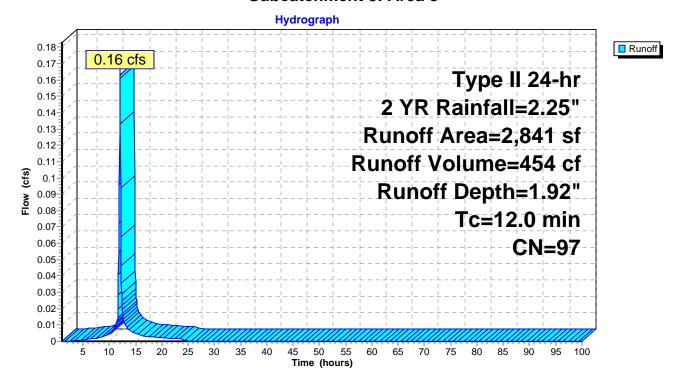
### **Summary for Subcatchment 8: Area 8**

Runoff = 0.16 cfs @ 12.03 hrs, Volume= 454 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description						
	109	80	>75% Grass cover, Good, HSG D						
	2,732	98	Paved parking, HSG D						
	2,841	97	Veighted Average						
	109		3.84% Pervious Area						
	2,732		96.16% lmp	pervious Ar	ea				
Тс	Length	Slope	e Velocity	Capacity	Description				
(min)	(feet)	(ft/ft							
	(100t)	(IVIL							
12.0					Direct Entry,				

#### **Subcatchment 8: Area 8**



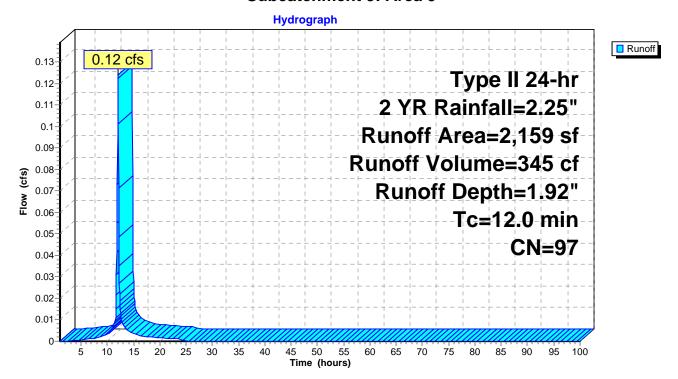
### **Summary for Subcatchment 9: Area 9**

Runoff = 0.12 cfs @ 12.03 hrs, Volume= 345 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description							
	117	80	>75% Grass cover, Good, HSG D							
	2,042	98	Paved parking, HSG D							
	2,159	97	Weighted Average							
	117		5.42% Pervious Area							
	2,042		94.58% Impervious Area							
Тс	Length	Slope	,	Capacity	·					
(min)	(feet)	(ft/ft)	(t) (ft/sec) (cfs)							
12.0					Direct Entry,					

#### **Subcatchment 9: Area 9**



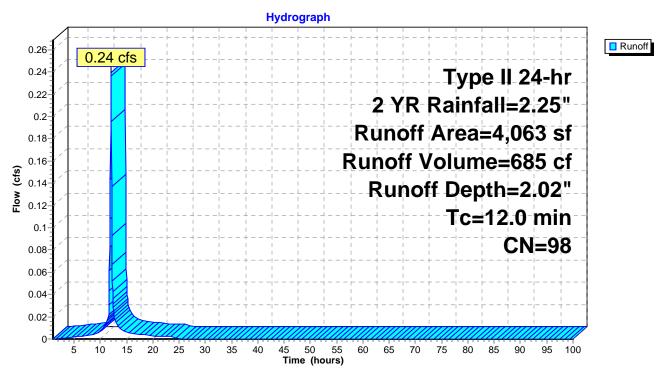
## Summary for Subcatchment 9A: Area 9A

Runoff = 0.24 cfs @ 12.03 hrs, Volume= 685 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

	Area (sf)	CN I	Description						
	4,063	98 I	Paved parking, HSG D						
	4,063	•	100.00% Impervious Area						
To (min		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
12.0	)				Direct Entry,				

#### Subcatchment 9A: Area 9A



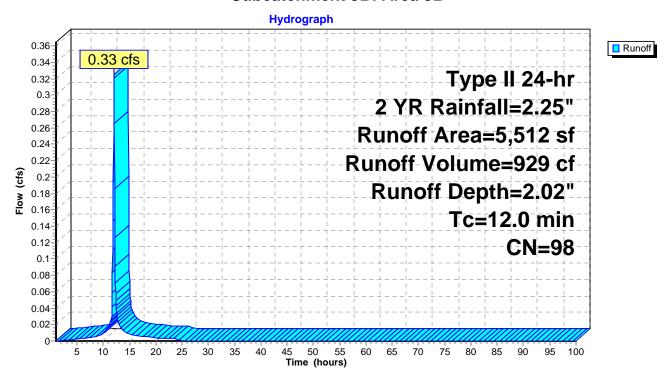
### Summary for Subcatchment 9B: Area 9B

Runoff = 0.33 cfs @ 12.03 hrs, Volume= 929 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

 Α	rea (sf)	CN	Description						
	5,512	98	Paved parking, HSG D						
	5,512		100.00% Impervious Area						
 Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	• • • • • • • • • • • • • • • • • • •				
12.0					Direct Entry,				

#### Subcatchment 9B: Area 9B



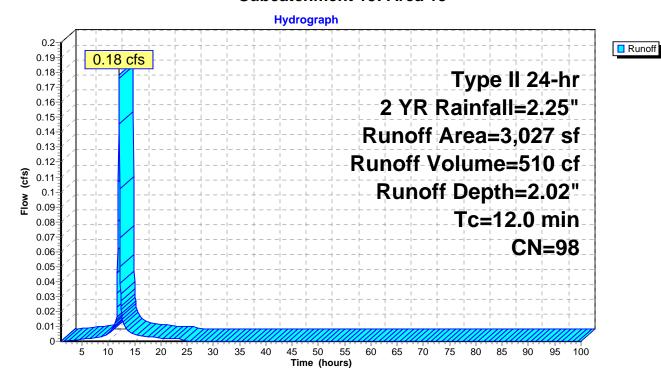
## **Summary for Subcatchment 15: Area 15**

Runoff = 0.18 cfs @ 12.03 hrs, Volume= 510 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description						
	76	80	>75% Grass cover, Good, HSG D						
	2,951	98	Paved parking, HSG D						
	3,027	98	Weighted Average						
	76		2.51% Pervious Area						
	2,951		97.49% Impervious Area						
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	•				
12.0	(.501)	(1010)	(12000)	(0.0)	Direct Entry,				

#### **Subcatchment 15: Area 15**



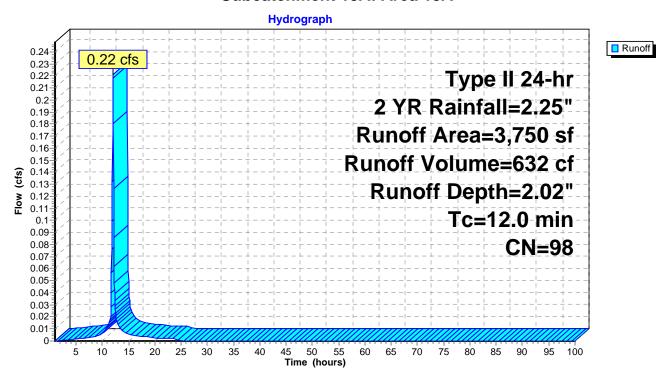
## Summary for Subcatchment 15A: Area 15A

Runoff = 0.22 cfs @ 12.03 hrs, Volume= 632 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

 Α	rea (sf)	CN	Description						
	3,750	98	Paved parking, HSG D						
	3,750		100.00% Impervious Area						
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description				
12.0					Direct Entry,				

#### Subcatchment 15A: Area 15A



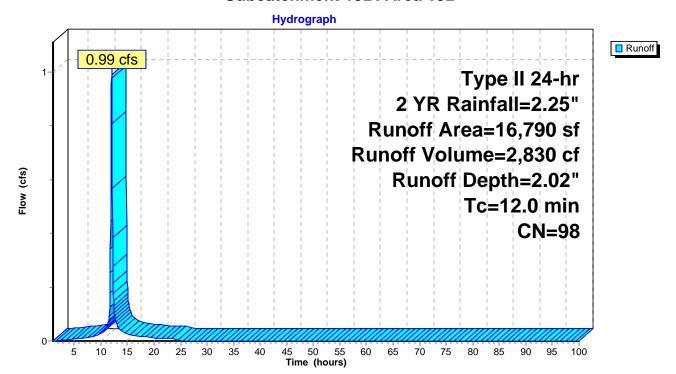
### **Summary for Subcatchment 15B: Area 15B**

Runoff = 0.99 cfs @ 12.03 hrs, Volume= 2,830 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

_	Α	rea (sf)	CN	Description					
		16,790	98	Paved parking, HSG D					
		16,790	90 100.00% Impervious Area						
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
	12.0					Direct Entry,			

### Subcatchment 15B: Area 15B



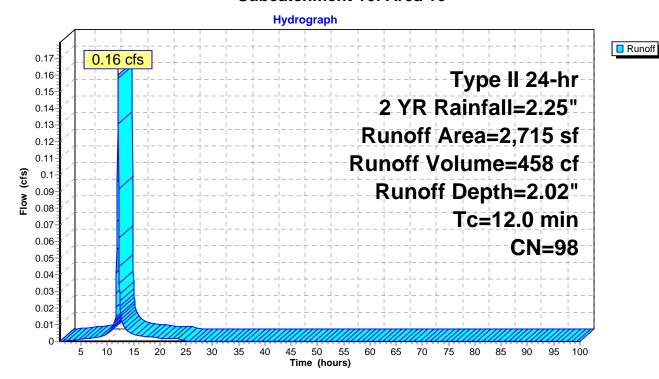
### **Summary for Subcatchment 16: Area 16**

Runoff = 0.16 cfs @ 12.03 hrs, Volume= 458 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description						
	43	80	>75% Grass cover, Good, HSG D						
	2,672	98	Paved park	Paved parking, HSG D					
	2,715	98	Weighted Average						
	43		1.58% Pervious Area						
	2,672		98.42% Impervious Area						
Тс	Length	Slope	,	Capacity	Description				
(min)	(feet)	(ft/ft	t) (ft/sec) (cfs)						
12.0					Direct Entry,				

#### **Subcatchment 16: Area 16**



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### **Summary for Pond 84": 84" TRUNK SEWER**

Inflow Area = 112,891 sf, 98.39% Impervious, Inflow Depth > 10.68" for 2 YR event

Inflow = 4.51 cfs @ 12.09 hrs, Volume= 100,453 cf

Outflow = 4.51 cfs @ 12.09 hrs, Volume= 100,454 cf, Atten= 0%, Lag= 0.0 min

Primary = 4.51 cfs @ 12.09 hrs, Volume= 100,454 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

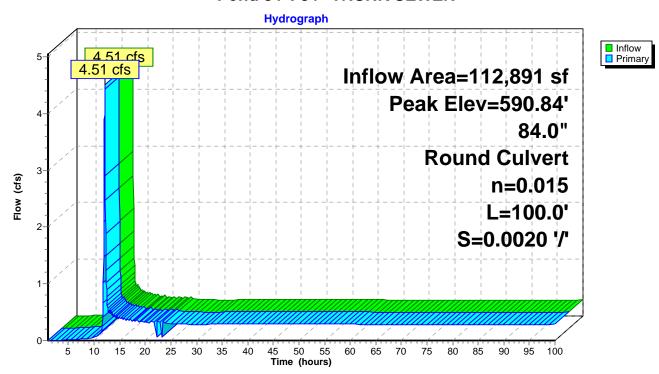
Peak Elev= 590.84' @ 12.09 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	84.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 38.48 sf

Primary OutFlow Max=4.31 cfs @ 12.09 hrs HW=590.82' (Free Discharge) 1=Culvert (Barrel Controls 4.31 cfs @ 2.62 fps)

#### Pond 84": 84" TRUNK SEWER



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### Summary for Pond DI 868: DI #868

[80] Warning: Exceeded Pond DS 6 by 0.27' @ 1.00 hrs (0.10 cfs 7,515 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth > 2.96" for 2 YR event

Inflow = 0.57 cfs @ 12.03 hrs, Volume= 5,761 cf

Outflow = 0.57 cfs @ 12.03 hrs, Volume= 5,761 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.57 cfs @ 12.03 hrs, Volume= 5,761 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

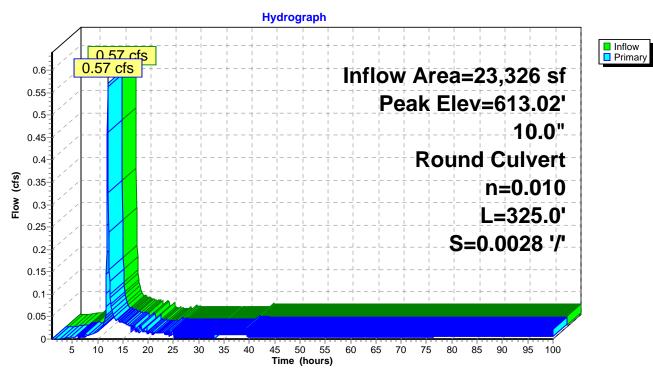
Peak Elev= 613.02' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.56 cfs @ 12.03 hrs HW=613.01' TW=590.78' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.56 cfs @ 2.52 fps)

#### Pond DI 868: DI #868



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### Summary for Pond DS 10: Planter PB-8A

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=63)

2,841 sf, 96.16% Impervious, Inflow Depth = 1.92" for 2 YR event Inflow Area =

0.16 cfs @ 12.03 hrs, Volume= Inflow 454 cf

Outflow 0.01 cfs @ 15.93 hrs, Volume= 129 cf, Atten= 94%, Lag= 233.6 min

0.01 cfs @ 15.93 hrs, Volume= 1,365 cf Primary =

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.69' @ 13.89 hrs Surf.Area= 391 sf Storage= 353 cf

Plug-Flow detention time= 497.6 min calculated for 129 cf (28% of inflow)

Center-of-Mass det. time= 336.4 min (1,114.1 - 777.7)

Volume	Inver	rt Ava	il.Stor	age	Storage Descrip	otion		
#1	610.43	10.43'		88 cf	Storage (Prismatic)Listed below (Recalc)			
Elevation	n S	Surf.Area		le	Inc.Store	Cum.Store		
(fee	_	(sq-ft)	Voids (%)		(cubic-feet)	(cubic-feet)		
			0.0					
610.4		391			0	0		
613.7		391	40.		519	519		
613.7	76	141	20.	.0	1	520		
615.0	09	141	50.	.0	94	614		
615.2	26	141	100.	.0	24	638		
Device	Routing	In	vert	Outl	et Devices			
#1	Primary	611	.95'	6.0"	Round Culvert			
	•			L= 6	5.0' CPP, square	edge headwall.	Ke= 0.500	
						•	S= 0.0117 '/' Cc= 0.900	
							erior, Flow Area= 0.20 sf	
#2	Device 1	Device 1 610			Round Culvert		71101, 110W 7110U = 0.20 01	
π <b>∠</b>	Device i						ng to fill Ko- 0 500	
					L= 28.0' CMP, end-section conforming to fill, Ke= 0.500			
					nlet / Outlet Invert= 610.76' / 610.76' S= 0.0000 '/' Cc= 0.900			
					0.010 PVC, smoo			
#3	Device 2	610	.43'	1.00	1.000 in/hr Exfiltration over Surface area			
#4	Device 1	615	.25'	24.0	" x 24.0" Horiz.	Orifice/Grate C	C = 0.600	
				Limi	ted to weir flow a	t low heads		

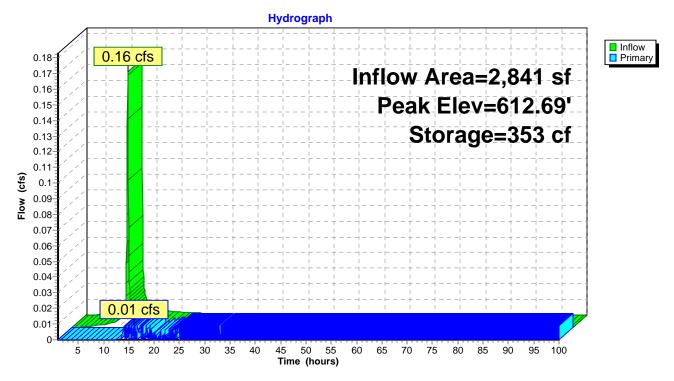
Primary OutFlow Max=0.00 cfs @ 15.93 hrs HW=612.66' TW=612.66' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

<sup>2=</sup>Culvert (Controls 0.00 cfs)
3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

<sup>-4=</sup>Orifice/Grate (Controls 0.00 cfs)

#### Pond DS 10: Planter PB-8A



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## **Summary for Pond DS 11: Planter PB-9A**

2,159 sf, 94.58% Impervious, Inflow Depth = 1.92" for 2 YR event Inflow Area =

0.12 cfs @ 12.03 hrs. Volume= Inflow 345 cf

1.00 hrs, Volume= Outflow 0.00 cfs @ 0 cf, Atten= 100%, Lag= 0.0 min

Primary 0.01 cfs @ 39.40 hrs, Volume= 989 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.33' @ 24.70 hrs Surf.Area= 391 sf Storage= 345 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.	Storage	Storage Descript	ion		
#1	610.12'		664 cf	Storage (Prismatic)Listed below (Recalc)			
Elevatio		rf.Area \ (sq-ft)	√oids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
610.1		391	0.0	0	0		
613.6		391	40.0	546	546		
613.6	62	141	20.0	1	546		
614.9	95	141	50.0	94	640		
615.1	2	141 1	100.0	24	664		
Device	Routing	Inve	ert Outle	et Devices			
#1	Primary	611.9		Round Culvert			
			Inlet		11.91' / 611.84'	Ke= 0.500 S= 0.0117 '/' Cc= 0.900 erior, Flow Area= 0.20 sf	
#2	Device 1	610.6		Round Culvert			
	Inlet			L= 27.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.62' / 610.62' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf			
#3	Device 2	610.1		.000 in/hr Exfiltration over Surface area			
#4	Device 1	615.1		" x 24.0" Horiz. C		= 0.600	
			Limi	ted to weir flow at	low heads		

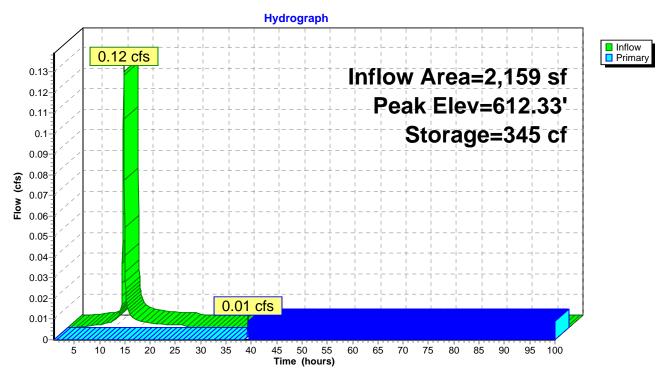
Primary OutFlow Max=0.00 cfs @ 39.40 hrs HW=612.33' TW=612.64' (Dynamic Tailwater)

-1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 11: Planter PB-9A



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# Summary for Pond DS 14: DS 14

Inflow Area =	19,614 sf, 98.41% Impervious,	Inflow Depth = 1.99" for 2 YR event
Inflow =	1.15 cfs @ 12.03 hrs, Volume=	3,252 cf
Outflow =	1.15 cfs @ 12.03 hrs, Volume=	3,252 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.61 cfs @ 12.05 hrs, Volume=	2,528 cf
Secondary =	0.54 cfs @ 12.03 hrs, Volume=	723 cf

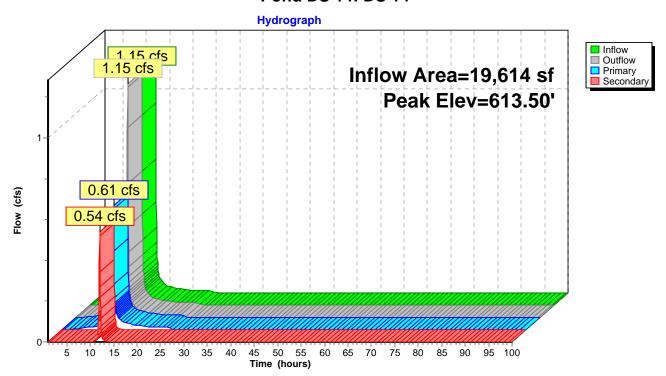
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 613.50' @ 12.05 hrs Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.80'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500
	·		Inlet / Outlet Invert= 612.80' / 612.75' S= 0.0125 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	612.90'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500
	_		Inlet / Outlet Invert= 612.90' / 612.83' S= 0.0117 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.61 cfs @ 12.05 hrs HW=613.50' TW=612.69' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.61 cfs @ 3.10 fps)

Secondary OutFlow Max=0.52 cfs @ 12.03 hrs HW=613.50' TW=613.05' (Dynamic Tailwater) = Culvert (Barrel Controls 0.52 cfs @ 2.79 fps)

#### Pond DS 14: DS 14



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### Summary for Pond DS 15: Planter PB-4A

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=17) [80] Warning: Exceeded Pond DS 14 by 0.02' @ 24.70 hrs (0.00 cfs 148 cf)

19,614 sf, 98.41% Impervious, Inflow Depth = 1.55" for 2 YR event Inflow Area =

0.61 cfs @ 12.05 hrs, Volume= Inflow 2,528 cf

Outflow 0.27 cfs @ 12.20 hrs, Volume= = 1,339 cf, Atten= 56%, Lag= 9.1 min

Primary 0.27 cfs @ 12.20 hrs, Volume= 83,832 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 613.16' @ 12.20 hrs Surf.Area= 1,055 sf Storage= 1,333 cf

Plug-Flow detention time= 283.1 min calculated for 1,339 cf (53% of inflow)

Center-of-Mass det. time= 138.2 min (921.0 - 782.9)

Volume	Invert	t Ava	il.Stor	age	Storage Descript	tion		
#1	610.00	'	1,80	3 cf	Storage (Prisma	atic)Listed below	w (Recalc)	_
Elevatio		urf.Area	Voic		Inc.Store	Cum.Store		
(fee		(sq-ft)	(%		(cubic-feet)	(cubic-feet)		
610.0		1,055	0.	-	0	0		
613.4	.9	1,055	40.	0	1,473	1,473		
613.5	60	394	20.	0	1	1,474		
614.8	3	394	50.	0	262	1,736		
615.0	0	394	100.	0	67	1,803		
Device	Routing	In	vert	Outl	et Devices			
#1	Primary	611	.93'	6.0"	<b>Round Culvert</b>			
	•			L= 6	5.0' CPP, square	edge headwall,	Ke= 0.500	
							S= 0.0117 '/' Cc= 0.900	
				n= 0	.013 Corrugated	PE. smooth inte	erior, Flow Area= 0.20 sf	
#2	Device 1	610	).50'		<b>Round Culvert</b>	,	, , , , , , , , , , , , , , , , , , , ,	
						ection conformi	ng to fill, Ke= 0.500	
							S= 0.0000 '/' Cc= 0.900	
					.010 PVC, smoot			
#3	Device 2	610	0.00'		00 in/hr Exfiltrati	•		
#4	Device 1		I.99'		" x 24.0" Horiz. C			
" '	201.00 1	011			ted to weir flow at			

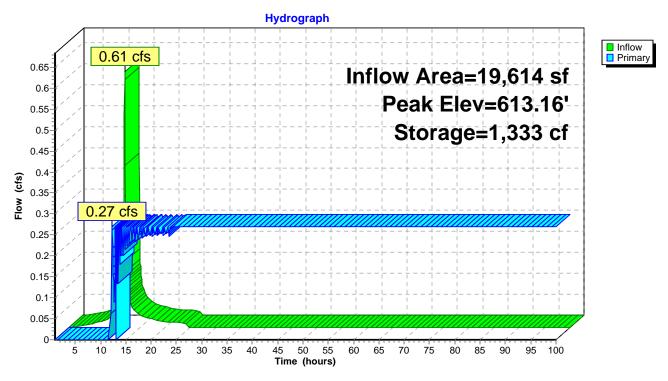
Primary OutFlow Max=0.27 cfs @ 12.20 hrs HW=613.16' TW=613.02' (Dynamic Tailwater)

-1=Culvert (Passes 0.27 cfs of 0.35 cfs potential flow)

**2=Culvert** (Passes 0.27 cfs of 0.28 cfs potential flow) **3=Exfiltration** (Exfiltration Controls 0.27 cfs)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 15: Planter PB-4A



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# Summary for Pond DS 2: Planter PB-1A

Inflow Area = 5,276 sf, 95.77% Impervious, Inflow Depth = 1.92" for 2 YR event

0.30 cfs @ 12.03 hrs, Volume= Inflow 843 cf

0.02 cfs @ 13.19 hrs, Volume= Outflow 609 cf, Atten= 94%, Lag= 69.4 min

Primary 0.02 cfs @ 13.19 hrs, Volume= 609 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 615.50' @ 13.19 hrs Surf.Area= 273 sf Storage= 609 cf

Plug-Flow detention time= 1,605.3 min calculated for 609 cf (72% of inflow)

Center-of-Mass det. time= 1,512.8 min (2,290.5 - 777.7)

Volume	Invert	Avail	.Storage	Storage Descrip	otion	
#1	610.50'		610 cf	Storage (Prism	atic)Listed below	w (Recalc)
Elevatio (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
610.5	-	273	0.0	Ó	0	
613.9	9	273	40.0	381	381	
614.0	0	273	20.0	1	382	
615.3	3	273	50.0	182	563	
615.5	0	273	100.0	46	610	
Device	Routing	lnv	ert Out	et Devices		
#1	Primary	612.		Round Culvert		
			Inle	0.013 Corrugated	12.64' / 612.59	Ke= 0.500 S= 0.0125 '/' Cc= 0.900 erior, Flow Area= 0.20 sf
#2	Device 1	611.		Round Culvert		
						ng to fill, Ke= 0.500
						S= 0.0000 '/' Cc= 0.900 erior, Flow Area= 0.20 sf
#3	Device 2	610.		00 in/hr Exfiltratio	•	•
#4	Device 1	615.		)" x 24.0" Horiz. (		
	_ 3	2.01		ted to weir flow at		

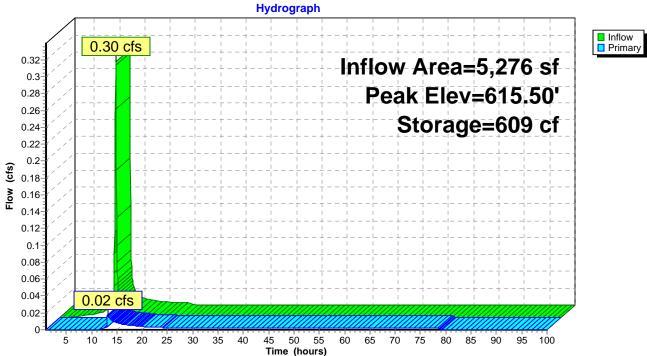
Primary OutFlow Max=0.02 cfs @ 13.19 hrs HW=615.50' TW=590.31' (Dynamic Tailwater)

**-1=Culvert** (Passes 0.02 cfs of 1.53 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 1.24 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.01 cfs @ 0.27 fps)

### Pond DS 2: Planter PB-1A





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# Summary for Pond DS 28: DS 28

Inflow Area = 9,492 sf, 98.75% Impervious, Inflow Depth > 1.85" for 2 YR event

Inflow = 0.61 cfs @ 12.01 hrs, Volume= 1,466 cf

Outflow = 0.61 cfs @ 12.01 hrs, Volume= 1,468 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.61 cfs @ 12.01 hrs, Volume= 1,468 cf

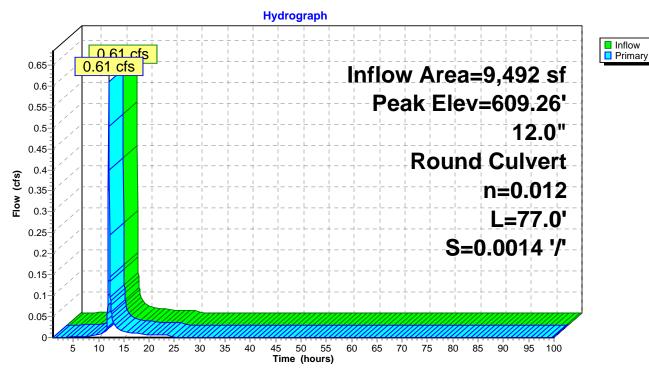
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 609.26' @ 12.01 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	12.0" Round Culvert
	_		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished. Flow Area= 0.79 sf

Primary OutFlow Max=0.58 cfs @ 12.01 hrs HW=609.24' TW=590.78' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.58 cfs @ 1.97 fps)

### Pond DS 28: DS 28



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# Summary for Pond DS 29: Planter PB-1B

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[80] Warning: Exceeded Pond DS 30 by 0.09' @ 12.45 hrs (0.23 cfs 5,494 cf)

5,742 sf, 97.93% Impervious, Inflow Depth = 1.90" for 2 YR event Inflow Area =

Inflow 0.36 cfs @ 12.01 hrs, Volume= 910 cf

Outflow 0.39 cfs @ 12.01 hrs, Volume= 834 cf, Atten= 0%, Lag= 0.0 min

Primary 0.39 cfs @ 12.01 hrs, Volume= 834 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 614.06' @ 12.00 hrs Surf.Area= 101 sf Storage= 221 cf

Plug-Flow detention time= 732.7 min calculated for 834 cf (92% of inflow)

Center-of-Mass det. time= 572.1 min (1,507.0 - 934.9)

Volume	Inve	ert Ava	il.Stora	age Storage Desc	cription	
#1	609.1	0'	225	of Storage (Pris	smatic)Listed belo	w (Recalc)
Flavoria		O	\	. In a Otana	Ours Otana	
Elevatio	_	Surf.Area	Voids			
(fee		(sq-ft)	(%)		(cubic-feet)	
609.1		101	0.0	-	0	
612.6		101	40.0		141	
612.6		101	20.0		142	
613.9		101	50.0		208	
614.1	0	101	100.0	) 17	225	
ъ .	D (;			0 (1 ( 5 )		
Device	Routing			Outlet Devices		
#1	Primary	610		6.0" Round Culve		
				L= 5.0' CPP, squa		
						S= 0.0120 '/' Cc= 0.900
						erior, Flow Area= 0.20 sf
#2	Device 1	609	9.75'	6.0" Round Culve	ert	
				L= 50.0' CMP, en	d-section conformi	ng to fill, Ke= 0.500
				Inlet / Outlet Inverts	= 609.75' / 609.75'	S= 0.0000 '/' Cc= 0.900
				n= 0.013 Corrugat	ed PE, smooth inte	erior, Flow Area= 0.20 sf
#3	Device 2	609	9.10'	0.300 in/hr Exfiltra	ation over Surface	e area
#4	Device 1	614	1.00'	24.0" x 24.0" Horiz	z. Orifice/Grate	C = 0.600
				Limited to weir flow	at low heads	

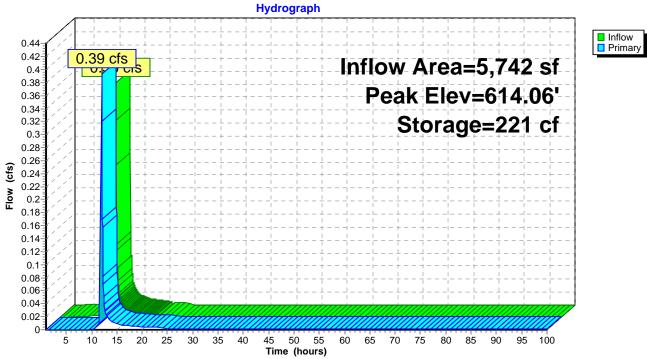
Primary OutFlow Max=0.37 cfs @ 12.01 hrs HW=614.06' TW=609.25' (Dynamic Tailwater)

-1=Culvert (Passes 0.37 cfs of 1.74 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 1.29 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.37 cfs @ 0.79 fps)

### Pond DS 29: Planter PB-1B





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# **Summary for Pond DS 3: DS 3**

Inflow Area =	34,149 sf, 98.47% Impervious	s, Inflow Depth = 2.01" for 2 YR event
Inflow =	1.85 cfs @ 12.06 hrs, Volume=	= 5,721 cf
Outflow =	1.85 cfs @ 12.06 hrs, Volume=	5,721 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.56 cfs @ 12.04 hrs, Volume=	= 1,905 cf
Secondary =	1.31 cfs @ 12.07 hrs, Volume=	= 3,815 cf

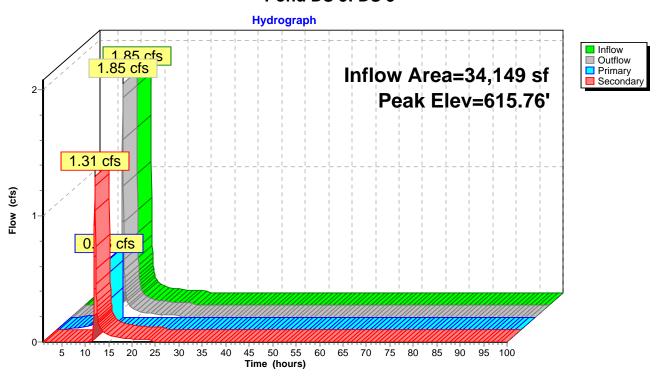
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 615.76' @ 12.07 hrs Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.60'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500
	•		Inlet / Outlet Invert= 612.60' / 612.55' S= 0.0125 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	613.60'	<b>6.0"</b> Round Culvert L= 6.0' RCP, sq.cut end projecting, Ke= 0.500
	-		Inlet / Outlet Invert= 613.60' / 613.55' S= 0.0083 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.55 cfs @ 12.04 hrs HW=615.64' TW=615.31' (Dynamic Tailwater) 1=Culvert (Inlet Controls 0.55 cfs @ 2.79 fps)

Secondary OutFlow Max=1.29 cfs @ 12.07 hrs HW=615.71' TW=590.81' (Dynamic Tailwater) = Culvert (Inlet Controls 1.29 cfs @ 6.57 fps)

#### Pond DS 3: DS 3



Volume

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# Summary for Pond DS 30: Planter PB-2B

[93] Warning: Storage range exceeded by 0.19'

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=122)

Inflow Area = 2,715 sf, 98.42% Impervious, Inflow Depth = 2.02" for 2 YR event

Inflow 0.16 cfs @ 12.03 hrs, Volume= 458 cf

0.19 cfs @ 12.01 hrs. Volume= Outflow 400 cf, Atten= 0%, Lag= 0.0 min =

0.19 cfs @ 12.01 hrs. Volume= Primary 400 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Avail.Storage Storage Description

Peak Elev= 614.12' @ 12.01 hrs Surf.Area= 49 sf Storage= 109 cf

Plug-Flow detention time= 444.7 min calculated for 400 cf (87% of inflow)

Center-of-Mass det. time= 383.7 min (1,150.0 - 766.3)

Invert

VOIGITIO	1111011	7 (Vall.O	torago	Otorago Booonpat	711		
#1	608.93'		109 cf	Storage (Prismat	ic)Listed below (F	Recalc)	
Elevation	on Sui	rf.Area V	oids	Inc.Store	Cum.Store		
(fee	et)	(sq-ft)	(%)	(cubic-feet)	(cubic-feet)		
608.9	93	49	0.0	0	0		
612.4	13	49 4	40.0	69	69		
612.4	<b> </b> 4	49 2	20.0	0	69		
613.7	<b>'</b> 6	49	50.0	32	101		
613.9	93	49 10	0.00	8	109		
Device	Routing	Inver	rt Outle	et Devices			
#1	Primary	611.87		Round Culvert 9.0' CPP, square	edge headwall, k	(e= 0.500	
			n= 0	/ Outlet Invert= 617 .010 PVC, smooth			Cc= 0.900
#2	Device 1	609.43	L= 7	Round Culvert .0' RCP, square e	•		
				/ Outlet Invert= 609 .010 PVC, smooth			Cc= 0.900
#3	Device 2	608.93		0 in/hr Exfiltration			
#4	Device 1	613.92		" x 24.0" Horiz. Or ted to weir flow at lo		.600	

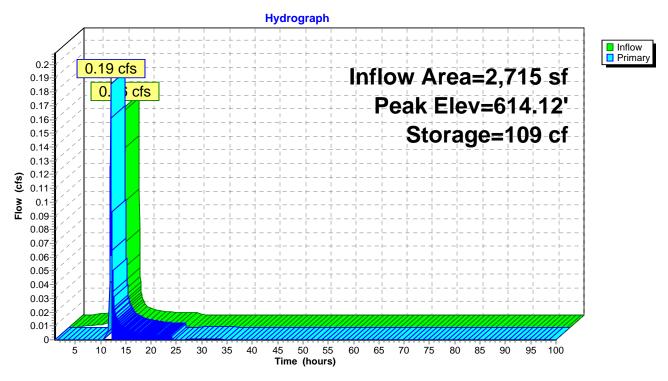
Primary OutFlow Max=0.18 cfs @ 12.01 hrs HW=614.11' TW=614.06' (Dynamic Tailwater)

**1=Culvert** (Outlet Controls 0.18 cfs @ 0.92 fps)

**2=Culvert** (Passes < 0.22 cfs potential flow) **3=Exfiltration** (Passes < 0.00 cfs potential flow)

-4=Orifice/Grate (Passes < 1.57 cfs potential flow)

### Pond DS 30: Planter PB-2B



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### Summary for Pond DS 4: Planter PB-2A

[93] Warning: Storage range exceeded by 0.09'

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[80] Warning: Exceeded Pond DS 3 by 2.29' @ 24.95 hrs (1.35 cfs 151,801 cf)

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 0.67" for 2 YR event

Inflow 0.56 cfs @ 12.04 hrs, Volume= 1,905 cf

0.93 cfs @ 12.10 hrs, Volume= Outflow 926 cf, Atten= 0%, Lag= 3.6 min

0.93 cfs @ 12.10 hrs. Volume= Primary 926 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 615.48' @ 12.10 hrs Surf.Area= 395 sf Storage= 1,715 cf

Plug-Flow detention time= 1,629.4 min calculated for 925 cf (49% of inflow)

Center-of-Mass det. time= 1,531.9 min (2,146.1 - 614.3)

Volume	Inve	rt Ava	il.Stor	age	Storage Descript	tion	
#1	610.39	9'	1,71	5 cf	Storage (Prisma	atic)Listed below	w (Recalc)
Elevatio (fee		Surf.Area (sq-ft)	Void		Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
610.3		990	0.		0	0	
613.8		990	40.	-	1,386	1,386	
613.9		395	20.		1,000	1,387	
615.2		395	50.		261	1,648	
615.3		395	100.		67	1,715	
	-					.,	
Device	Routing	In	vert	Outl	et Devices		
#1	Primary	612	2.48'	6.0"	<b>Round Culvert</b>		
	-			L= 6	5.0' CPP, square	edge headwall,	Ke= 0.500
				Inlet	/ Outlet Invert= 6	12.48' / 612.41'	S= 0.0117 '/' Cc= 0.900
						PE, smooth inte	erior, Flow Area= 0.20 sf
#2	Device 1	610	).89'		Round Culvert		
							ng to fill, Ke= 0.500
							S= 0.0000 '/' Cc= 0.900
							erior, Flow Area= 0.20 sf
#3	Device 2		).39'		0 in/hr Exfiltratio		
#4	Device 1	615	5.37'	_	" x 24.0" Horiz. C		C = 0.600
				Limi	ted to weir flow at	low heads	

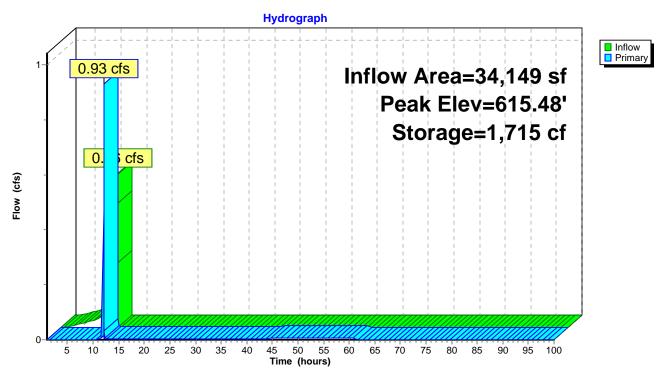
Primary OutFlow Max=0.93 cfs @ 12.10 hrs HW=615.48' TW=613.38' (Dynamic Tailwater)

**1=Culvert** (Passes 0.93 cfs of 1.37 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 0.91 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.93 cfs @ 1.07 fps)

### Pond DS 4: Planter PB-2A



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# Summary for Pond DS 5: Planter PB-3A

Inflow Area = 2,103 sf, 92.44% Impervious, Inflow Depth = 1.92" for 2 YR event

0.12 cfs @ 12.03 hrs. Volume= Inflow 336 cf

0.00 cfs @ 12.35 hrs, Volume= Outflow 128 cf, Atten= 99%, Lag= 19.1 min

0.00 cfs @ 12.35 hrs, Volume= Primary 128 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.76' @ 21.05 hrs Surf.Area= 195 sf Storage= 279 cf

Plug-Flow detention time= 883.3 min calculated for 128 cf (38% of inflow)

Center-of-Mass det. time= 747.6 min (1,525.3 - 777.7)

Volume	Inver	t Ava	il.Stora	ige Storage Desc	ription		
#1	610.19	)'	435	of Storage (Pris	matic)Listed belo	w (Recalc)	
Elevatio		Surf.Area (sq-ft)	Voids (%)		Cum.Store (cubic-feet)		
610.1	9	195	0.0	0	0		
613.6	8	195	40.0	272	272		
613.6	69	195	20.0		273		
615.0		195	50.0		402		
615.1	9	195	100.0	33	435		
Device	Routing	In	vert	Outlet Devices			
#1	Primary	612	-	6.0" Round Culve			
<b>#</b> 0	Daviss 4	C4.0		n= 0.010 PVC, sm	= 612.37' / 612.30' ooth interior, Flow	S= 0.0127 '/' Cc= 0.900	
#2	Device 1	610	-	<b>6.0" Round Culve</b> L = 28.0' CMP end		ng to fill, Ke= 0.500	
				Inlet / Outlet Invert= n= 0.010 PVC, sm	= 610.61' / 610.61' ooth interior, Flow	S= 0.0000 '/' Cc= 0.900 Area= 0.20 sf	
#3	Device 2		-	0.300 in/hr Exfiltra			
#4	Device 1	615	_	<b>24.0" x 24.0" Horiz</b> Limited to weir flow		C= 0.600	

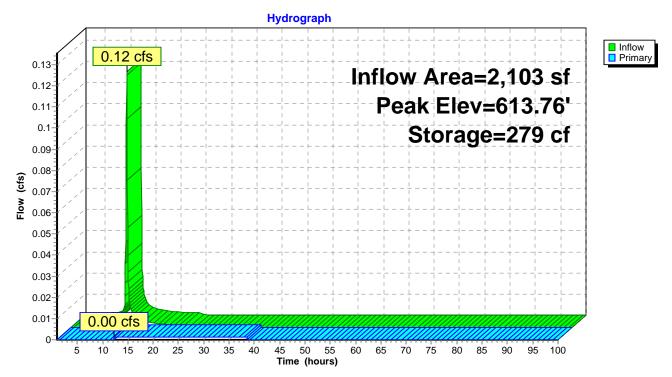
Primary OutFlow Max=0.00 cfs @ 12.35 hrs HW=612.96' TW=612.91' (Dynamic Tailwater)

**-1=Culvert** (Passes 0.00 cfs of 0.21 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 0.21 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 5: Planter PB-3A



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### **Summary for Pond DS 6: DS 6**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=21)

[80] Warning: Exceeded Pond DS 10 by 2.14' @ 5.15 hrs (0.01 cfs 3,109 cf)

[80] Warning: Exceeded Pond DS 11 by 2.46' @ 5.15 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 9 by 2.08' @ 5.15 hrs (0.01 cfs 2,669 cf)

[80] Warning: Exceeded Pond DS8 by 1.44' @ 11.95 hrs (0.00 cfs 4 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth > 2.96" for 2 YR event

Inflow = 0.57 cfs @ 12.03 hrs, Volume= 5,761 cf

Outflow = 0.57 cfs @ 12.03 hrs, Volume= 5,761 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.57 cfs @ 12.03 hrs, Volume= 5,761 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

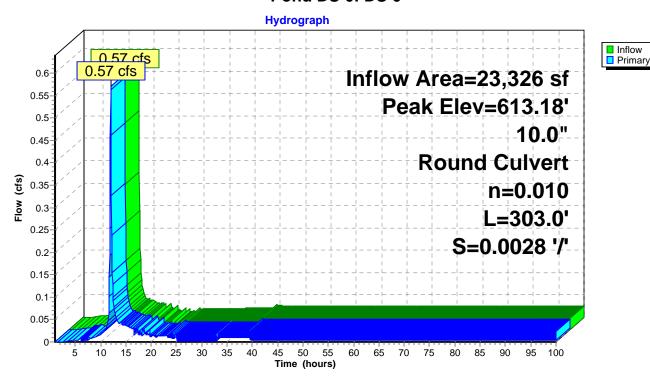
Peak Elev= 613.18' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.27'	10.0" Round Culvert
	•		L= 303.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.27' / 611.42' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC smooth interior Flow Area= 0.55 sf

Primary OutFlow Max=0.56 cfs @ 12.03 hrs HW=613.17' TW=613.01' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.56 cfs @ 1.18 fps)

#### Pond DS 6: DS 6



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### Summary for Pond DS 7: Planter PB-5A

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=7)

3,711 sf, 98.14% Impervious, Inflow Depth = 2.02" for 2 YR event Inflow Area =

Inflow 0.22 cfs @ 12.03 hrs, Volume= 625 cf

415 cf, Atten= 63%, Lag= 13.5 min Outflow 0.08 cfs @ 12.26 hrs, Volume=

0.08 cfs @ 12.26 hrs, Volume= 415 cf Primary

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 615.62' @ 12.25 hrs Surf.Area= 84 sf Storage= 383 cf

Plug-Flow detention time= 720.0 min calculated for 415 cf (66% of inflow)

Center-of-Mass det. time= 619.4 min (1,385.7 - 766.3)

Volume	Invert	Avail.	Storage	Storage Descript	ion	
#1	610.79'		397 cf	Storage (Prisma	atic)Listed below	v (Recalc)
Elevatio		ırf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
610.7		234	0.0	0	0	
614.2	28	234	40.0	327	327	
614.2	29	84	20.0	0	327	
615.6		84	50.0	56	383	
615.7	<b>'</b> 9	84	100.0	14	397	
Device	Routing	Inv	ert Outl	et Devices		
#1	Primary	613.0		Round Culvert		
			Inlet n= 0	6.0' CPP, square COutlet Invert= 6° 0.010 PVC, smoot	13.04' / 612.97	S= 0.0117 '/' Cc= 0.900
#2	Device 1	611.2		Round Culvert	(	
			Inlet	/ Outlet Invert= 61	11.29' / 611.29'	ng to fill, Ke= 0.500 S= 0.0000 '/' Cc= 0.900 rior, Flow Area= 0.20 sf
#3	Device 2	610.7		0 in/hr Exfiltratio		
#4	Device 1	615.6		" x 24.0" Horiz. C ted to weir flow at		= 0.600

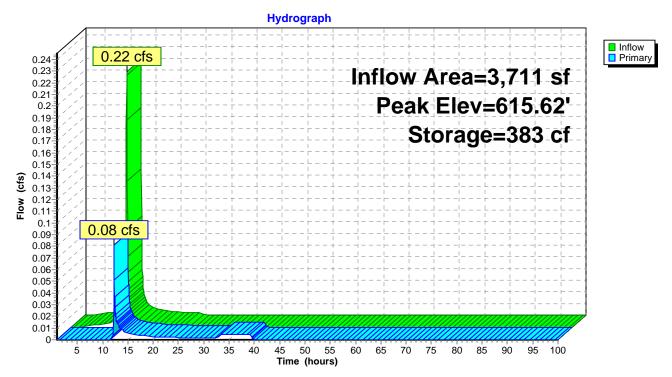
Primary OutFlow Max=0.07 cfs @ 12.26 hrs HW=615.62' TW=612.90' (Dynamic Tailwater)

**1=Culvert** (Passes 0.07 cfs of 1.44 cfs potential flow)

2=Culvert (Passes 0.00 cfs of 1.52 cfs potential flow)
3=Exfiltration (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.07 cfs @ 0.46 fps)

### Pond DS 7: Planter PB-5A



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### Summary for Pond DS 9: Planter PB-7A

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=56)

3,275 sf, 96.52% Impervious, Inflow Depth = 1.92" for 2 YR event Inflow Area =

0.19 cfs @ 12.03 hrs, Volume= Inflow 523 cf

0.01 cfs @ 12.60 hrs, Volume= Outflow 208 cf, Atten= 96%, Lag= 34.1 min

0.01 cfs @ 12.60 hrs, Volume= 1,324 cf Primary

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.85' @ 13.62 hrs Surf.Area= 391 sf Storage= 369 cf

Plug-Flow detention time= 385.7 min calculated for 208 cf (40% of inflow)

Center-of-Mass det. time= 252.8 min (1,030.5 - 777.7)

Volume	Invert	t Avail	l.Storage	Storage Descrip	tion		_
#1	610.49	1	665 cf	Storage (Prism	atic)Listed below	w (Recalc)	
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
610.4		391	0.0	0	0		
613.9		391	40.0	547	547		
614.0		141	20.0	1	548		
615.3	32	141	50.0	93	641		
615.4	19	141	100.0	24	665		
Device	Routing	lnv	ert Out	let Devices			
#1	Primary	612.		Round Culvert		14 0 700	
			Inle	6.0'   CPP, square t / Outlet Invert= 6 0.010  PVC, smoo	12.30' / 612.23'	S= 0.0117 '/' Cc= 0.900	
#2	Device 1	610.	.99' <b>6.0'</b>	Round Culvert	,		
				28.0' RCP, squar			
						S= 0.0000 '/' Cc= 0.900 erior, Flow Area= 0.20 sf	
#3	Device 2	610.		00 in/hr Exfiltratio		•	
#4	Device 1	615.		)" x 24.0" Horiz. (	Orifice/Grate C	= 0.600	
			Lim	ited to weir flow at	low heads		

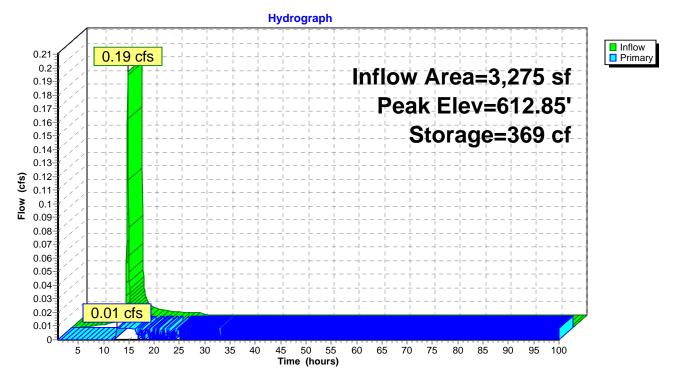
Primary OutFlow Max=0.01 cfs @ 12.60 hrs HW=612.77' TW=612.73' (Dynamic Tailwater)

**1=Culvert** (Passes 0.01 cfs of 0.18 cfs potential flow)

**2=Culvert** (Passes 0.01 cfs of 0.16 cfs potential flow) **3=Exfiltration** (Exfiltration Controls 0.01 cfs)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 9: Planter PB-7A



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### **Summary for Pond DS-1: DS 1**

[80] Warning: Exceeded Pond DS 15 by 2.54' @ 2.35 hrs (0.27 cfs 60,497 cf) [80] Warning: Exceeded Pond DS 4 by 2.15' @ 2.15 hrs (0.01 cfs 249 cf) [80] Warning: Exceeded Pond DS 5 by 2.36' @ 3.15 hrs (0.00 cfs 166 cf)

Inflow Area = 58,007 sf, 98.29% Impervious, Inflow Depth > 17.78" for 2 YR event

Inflow = 1.38 cfs @ 12.10 hrs, Volume= 85,970 cf

Outflow = 1.38 cfs @ 12.10 hrs, Volume= 85,970 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.38 cfs @ 12.10 hrs, Volume= 85,970 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

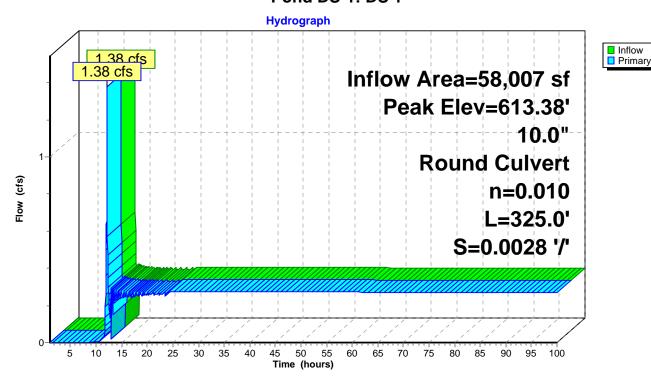
Peak Elev= 613.38' @ 12.10 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert
			L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.35 cfs @ 12.10 hrs HW=613.37' TW=590.83' (Dynamic Tailwater) 1=Culvert (Barrel Controls 1.35 cfs @ 3.10 fps)

#### Pond DS-1: DS 1



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# **Summary for Pond DS8: Planter PB-6A**

Inflow Area = 1,765 sf, 96.09% Impervious, Inflow Depth = 1.92" for 2 YR event

Inflow = 0.10 cfs @ 12.03 hrs, Volume= 282 cf

Outflow = 0.00 cfs @ 15.16 hrs, Volume= 55 cf, Atten= 97%, Lag= 187.7 min

Primary = 0.00 cfs @ 15.16 hrs, Volume= 55 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.07' @ 15.16 hrs Surf.Area= 235 sf Storage= 230 cf

Plug-Flow detention time= 556.3 min calculated for 55 cf (20% of inflow)

Center-of-Mass det. time= 353.3 min (1,131.0 - 777.7)

Volume	Inver	rt Ava	il.Stora	age Storag	Storage Description					
#1	610.63	3'	399	of Storag	Storage (Prismatic)Listed below (Recalc)					
Elevatio		Surf.Area (sq-ft)	Void:		c.Store c-feet)	Cum.Store (cubic-feet)				
610.6	3	235	0.0	)	0	0				
614.1	3	235	40.0	)	329	329				
614.1		84	20.0		0	329				
615.4		84	50.0		55	385				
615.6	53	84	100.0	)	14	399				
Device	Routing	In	vert	Outlet Devic	es					
#1	Primary	613	3.04'	6.0" Round						
<b>#</b> 0	Davids 4	044	401	L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf						
#2	Device 1	611	.13'	6.0" Round		ction conformir	ng to fill, Ke= 0.500			
					•		S= 0.0000 '/' Cc= 0.900			
				n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf						
#3	Device 2	610	).63'	0.900 in/hr l	0.900 in/hr Exfiltration over Surface area					
#4	Device 1	615	5.62'	-		rifice/Grate C	= 0.600			
	Limited to weir flow at low heads									

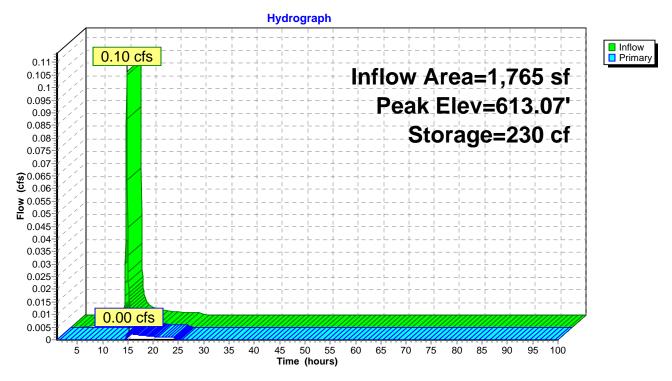
Primary OutFlow Max=0.00 cfs @ 15.16 hrs HW=613.07' TW=612.67' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.00 cfs @ 0.76 fps) 2=Culvert (Passes 0.00 cfs of 0.17 cfs potential flow)

3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS8: Planter PB-6A



Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Area 1 Runoff Area=5,276 sf 95.77% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=0.56 cfs 1,605 cf

Subcatchment 1M: Area 1M M and T Lot Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=3.77"

Tc=15.0 min CN=98 Runoff=2.95 cfs 9,479 cf

Subcatchment 2: Area 2 Runoff Area=3,939 sf 92.08% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=0.42 cfs 1,199 cf

Subcatchment 2M: Area 2M M and T Two Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=1.43 cfs 4,220 cf

Subcatchment 3: Area 3 Runoff Area=2,103 sf 92.44% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=0.22 cfs 640 cf

Subcatchment 4: Area 4 Runoff Area=6,163 sf 94.95% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=0.65 cfs 1,875 cf

Subcatchment 4B: Area 4B Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.23 cfs 672 cf

Subcatchment 5: Area 5 Runoff Area=3,711 sf 98.14% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.40 cfs 1,164 cf

Subcatchment 6: Area 6 Runoff Area=1,765 sf 96.09% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=0.19 cfs 537 cf

Subcatchment 7: Area 7 Runoff Area=3,275 sf 96.52% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=0.35 cfs 997 cf

Subcatchment 8: Area 8 Runoff Area=2,841 sf 96.16% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=0.30 cfs 864 cf

Subcatchment 9: Area 9 Runoff Area=2,159 sf 94.58% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=0.23 cfs 657 cf

Subcatchment 9A: Area 9A Runoff Area=4.063 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.43 cfs 1,275 cf

Subcatchment 9B: Area 9B Runoff Area=5,512 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.59 cfs 1,729 cf

Subcatchment 15: Area 15 Runoff Area=3,027 sf 97.49% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.32 cfs 950 cf

Subcatchment 15A: Area 15A Runoff Area=3,750 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.40 cfs 1,177 cf

Genesee St Final Prepared by Microsoft HydroCAD® 10.00-12 s/n 03757 © 2014 Hyd	Type II 24-hr 25 Year Rainfall=4.00" Printed 5/4/2015 roCAD Software Solutions LLC Page 57
Subcatchment 15B: Area 15B	Runoff Area=16,790 sf 100.00% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=1.79 cfs 5,268 cf
Subcatchment 16: Area 16	Runoff Area=2,715 sf 98.42% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=0.29 cfs 852 cf
Pond 84": 84" TRUNK SEWER 84.0" Round C	Peak Elev=591.22' Inflow=9.89 cfs 113,901 cf culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=9.89 cfs 113,901 cf
Pond DI 868: DI #868 10.0" Round	Peak Elev=613.46' Inflow=1.52 cfs 7,663 cfd Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=1.52 cfs 7,663 cf
Pond DS 10: Planter PB-8A	Peak Elev=615.26' Storage=637 cf Inflow=0.30 cfs 864 cf Outflow=0.02 cfs 545 cf
Pond DS 11: Planter PB-9A	Peak Elev=613.13' Storage=471 cf Inflow=0.23 cfs 657 cf Outflow=0.01 cfs 289 cf
Pond DS 14: DS 14 Primary=1.10 cfs	Peak Elev=620.09' Inflow=2.09 cfs 6,096 cf 3,648 cf Secondary=1.36 cfs 2,448 cf Outflow=2.09 cfs 6,096 cf
Pond DS 15: Planter PB-4A	Peak Elev=618.48' Storage=1,803 cf Inflow=1.10 cfs 3,648 cf Outflow=0.69 cfs 2,463 cf
Pond DS 2: Planter PB-1A	Peak Elev=615.58' Storage=610 cf Inflow=0.56 cfs 1,605 cf Outflow=0.70 cfs 1,372 cf
Pond DS 28: DS 28 12.0" Roun	Peak Elev=609.43' Inflow=1.01 cfs 2,844 cf and Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=1.01 cfs 2,847 cf
Pond DS 29: Planter PB-1B	Peak Elev=614.08' Storage=224 cf Inflow=0.61 cfs 1,744 cf Outflow=0.61 cfs 1,668 cf

Pond DS 3: DS 3

Peak Elev=620.39' Inflow=3.36 cfs 10,677 cf
Primary=1.03 cfs 2,747 cf Secondary=2.44 cfs 7,930 cf Outflow=3.36 cfs 10,677 cf

Pond DS 30: Planter PB-2B Peak Elev=614.23' Storage=109 cf Inflow=0.29 cfs 852 cf

Outflow=0.29 cfs 794 cf

Pond DS 4: Planter PB-2A Peak Elev=619.05' Storage=1,715 cf Inflow=1.03 cfs 2,747 cf

Outflow=1.09 cfs 1,767 cf

Pond DS 5: Planter PB-3A Peak Elev=615.19' Storage=435 cf Inflow=0.22 cfs 640 cf

Outflow=0.03 cfs 431 cf

Pond DS 6: DS 6 Peak Elev=614.50' Inflow=1.52 cfs 7,663 cf

10.0" Round Culvert n=0.010 L=303.0' S=0.0028 '/' Outflow=1.52 cfs 7,663 cf

Pond DS 7: Planter PB-5A Peak Elev=615.67' Storage=387 cf Inflow=0.40 cfs 1,164 cf

Outflow=0.51 cfs 954 cf

Pond DS 9: Planter PB-7A Peak Elev=615.50' Storage=665 cf Inflow=0.35 cfs 997 cf

Outflow=0.08 cfs 674 cf

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Type II 24-hr 25 Year Rainfall=4.00"
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Pond DS-1: DS 1 Peak Elev=617.33' Inflow=3.21 cfs 88,821 cf 10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=3.21 cfs 88,821 cf

Pond DS8: Planter PB-6A Peak Elev=615.62' Storage=399 cf Inflow=0.19 cfs 537 cf

Outflow=0.01 cfs 311 cf

Total Runoff Area = 112,891 sf Runoff Volume = 35,160 cf Average Runoff Depth = 3.74" 1.61% Pervious = 1,812 sf 98.39% Impervious = 111,079 sf

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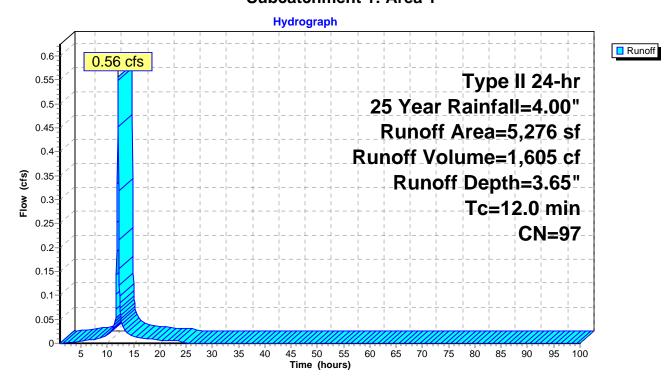
### **Summary for Subcatchment 1: Area 1**

Runoff = 0.56 cfs @ 12.03 hrs, Volume= 1,605 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description							
	223	80	>75% Grass cover, Good, HSG D							
	5,053	98	Paved park	ing, HSG D	D					
	5,276	97	Weighted Average							
	223		4.23% Pervious Area							
	5,053		95.77% Impervious Area							
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	,	(cfs)	·					
12.0	()	(	( = = = )	()	Direct Entry,	_				

### **Subcatchment 1: Area 1**



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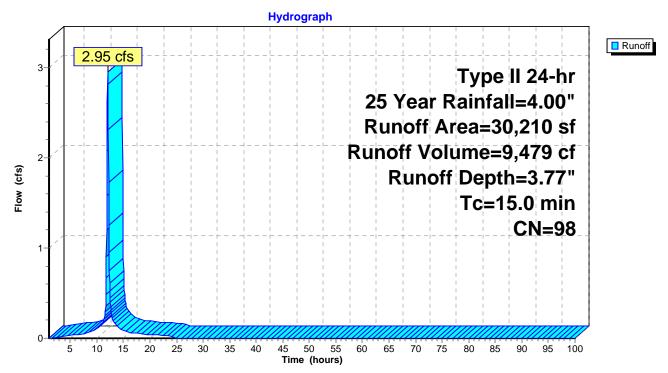
# Summary for Subcatchment 1M: Area 1M M and T Lot one

Runoff = 2.95 cfs @ 12.06 hrs, Volume= 9,479 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description							
	210	80	>75% Gras	s cover, Go	lood, HSG D					
	30,000	98	Paved park	ing, HSG D	D					
	30,210	98	Weighted Average							
	210		0.70% Perv	ious Area						
	30,000		99.30% Imp	ervious Are	rea					
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	•					
15.0					Direct Entry,					

#### Subcatchment 1M: Area 1M M and T Lot one



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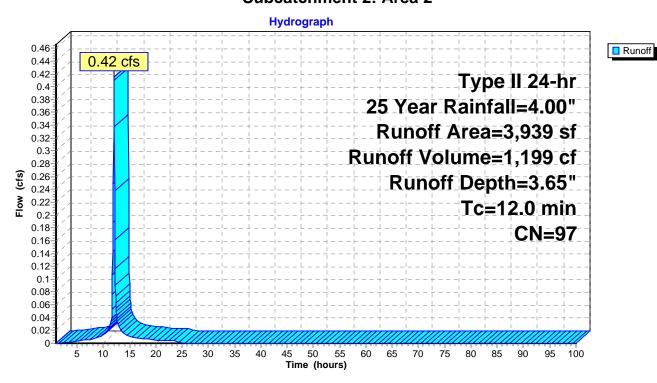
### **Summary for Subcatchment 2: Area 2**

Runoff = 0.42 cfs @ 12.03 hrs, Volume= 1,199 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description							
	312	80	>75% Grass cover, Good, HSG D							
	3,627	98	Paved park	ing, HSG D	D					
	3,939	97	Weighted Average							
	312		7.92% Pervious Area							
	3,627		92.08% lmp	ervious Ar	rea					
Тс	Length	Slope	,	Capacity	•					
(min)	(feet)	(ft/ft	(ft/sec)	(cfs)						
12.0					Direct Entry,					

### Subcatchment 2: Area 2



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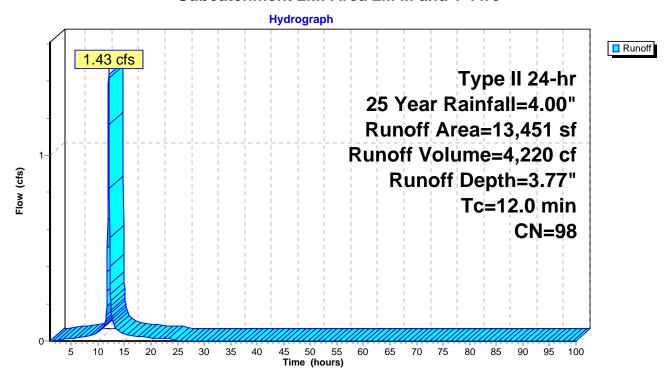
# Summary for Subcatchment 2M: Area 2M M and T Two

Runoff = 1.43 cfs @ 12.03 hrs, Volume= 4,220 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN [	Description							
	13,451	98 F	Paved parking, HSG D							
	13,451	•	100.00% Impervious Area							
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description					
12.0					Direct Entry,					

#### Subcatchment 2M: Area 2M M and T Two



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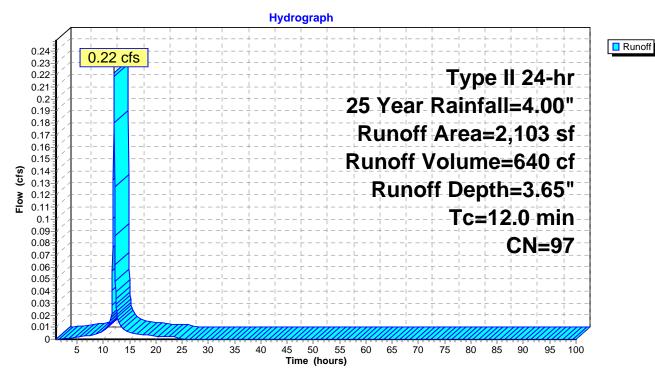
# **Summary for Subcatchment 3: Area 3**

Runoff = 0.22 cfs @ 12.03 hrs, Volume= 640 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description							
	159	80	>75% Grass cover, Good, HSG D							
	1,944	98	Paved park	ing, HSG D						
	2,103		Weighted Average							
	159		7.56% Pervious Area							
	1,944		92.44% lmp	ervious Ar	rea					
Тс	Length	Slope	,	Capacity	Description					
(min)	(feet)	(ft/ft	(ft/sec)	(cfs)						
12.0					Direct Entry,					

#### **Subcatchment 3: Area 3**



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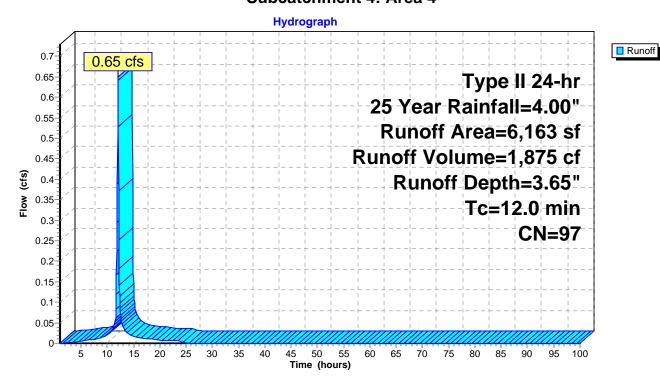
# **Summary for Subcatchment 4: Area 4**

Runoff = 0.65 cfs @ 12.03 hrs, Volume= 1,875 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description							
	311	80	>75% Grass cover, Good, HSG D							
	5,852	98	Paved park	ing, HSG D	D					
	6,163	97	Weighted Average							
	311		5.05% Pervious Area							
	5,852		94.95% Impervious Area							
Tc	Length	Slope	,	Capacity	·					
(min)	(feet)	(ft/ft	(ft/sec)	(cfs)						
12.0					Direct Entry,					

### Subcatchment 4: Area 4



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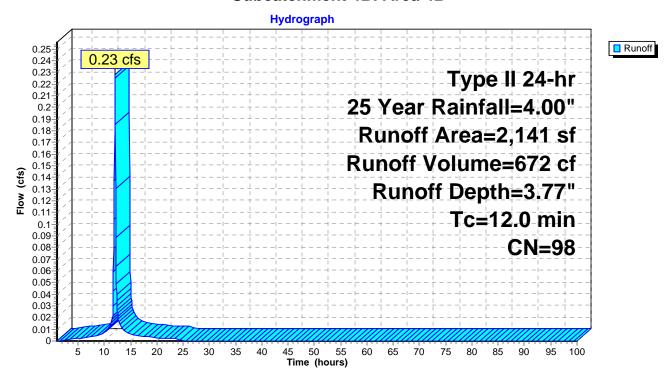
### Summary for Subcatchment 4B: Area 4B

Runoff = 0.23 cfs @ 12.03 hrs, Volume= 672 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN I	Description							
	2,141	98 I	Paved parking, HSG D							
	2,141	•	100.00% Impervious Area							
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description					
12.0	(IEEI)	(11/11)	(10360)	(015)	Direct Entry,					

#### Subcatchment 4B: Area 4B



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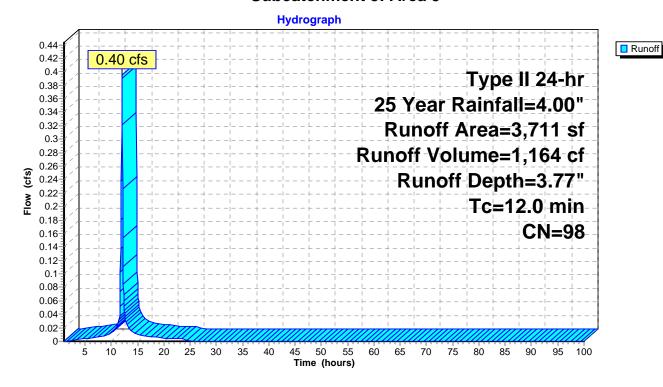
### **Summary for Subcatchment 5: Area 5**

Runoff = 0.40 cfs @ 12.03 hrs, Volume= 1,164 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description							
	69	80	>75% Grass cover, Good, HSG D							
	3,642	98	Paved park	ing, HSG D	)					
	3,711	98	Weighted Average							
	69		1.86% Pervious Area							
	3,642		98.14% Impervious Area							
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description					
12.0					Direct Entry,					

#### Subcatchment 5: Area 5



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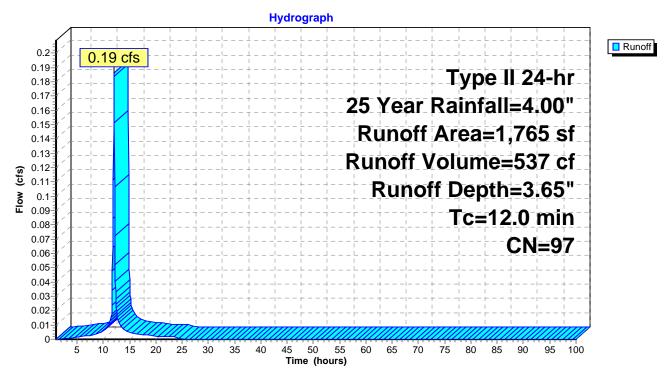
### **Summary for Subcatchment 6: Area 6**

Runoff = 0.19 cfs @ 12.03 hrs, Volume= 537 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description								
	69	80	>75% Grass cover, Good, HSG D								
	1,696	98	Paved park	ing, HSG D	)						
	1,765	97	Weighted Average								
	69		3.91% Pervious Area								
	1,696		96.09% Imp	ervious Ar	ea						
Тс	Length	Slope	Velocity	Capacity	Description						
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	•						
12.0					Direct Entry,						

#### Subcatchment 6: Area 6



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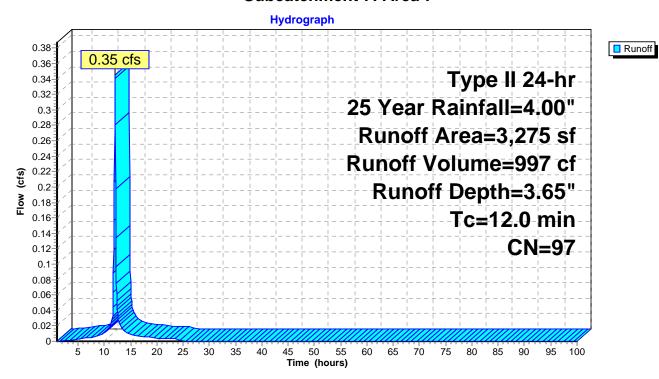
# **Summary for Subcatchment 7: Area 7**

Runoff = 0.35 cfs @ 12.03 hrs, Volume= 997 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description							
	114	80	>75% Grass cover, Good, HSG D							
	3,161	98	Paved parking, HSG D							
	3,275	97	Weighted Average							
	114		3.48% Pervious Area							
	3,161		96.52% Impervious Area							
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description					
12.0					Direct Entry,					

#### Subcatchment 7: Area 7



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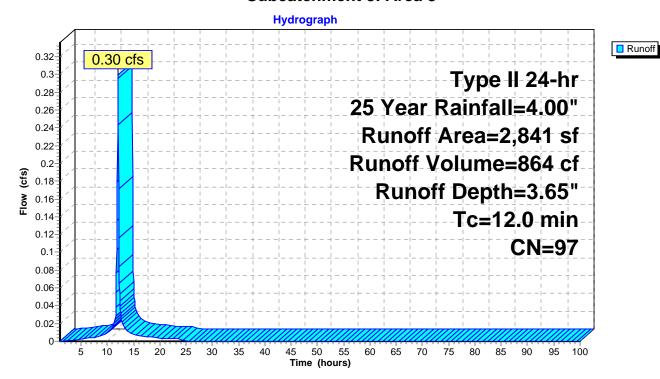
### **Summary for Subcatchment 8: Area 8**

Runoff = 0.30 cfs @ 12.03 hrs, Volume= 864 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	Area (sf) CN Description									
	109	80	>75% Grass cover, Good, HSG D							
	2,732	98	Paved parking, HSG D							
	2,841	97	Weighted Average							
	109		3.84% Pervious Area							
	2,732		96.16% Impervious Area							
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft	,	(cfs)	, , ,					
12.0					Direct Entry,					

#### **Subcatchment 8: Area 8**



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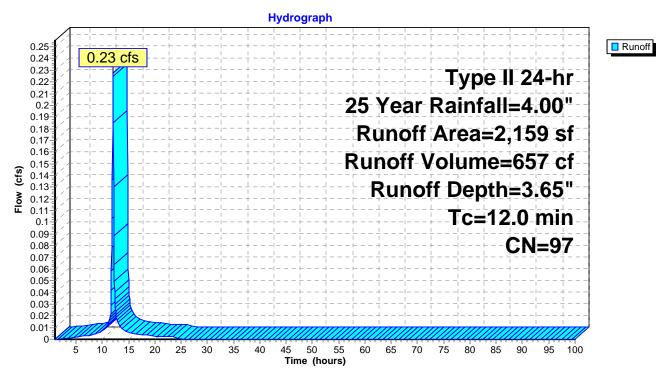
#### **Summary for Subcatchment 9: Area 9**

Runoff = 0.23 cfs @ 12.03 hrs, Volume= 657 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description						
	117	80	>75% Gras	s cover, Go	ood, HSG D				
	2,042	98	Paved park	ing, HSG D	)				
	2,159	97	Weighted Average						
	117		5.42% Pervious Area						
	2,042		94.58% lmp	pervious Ar	ea				
-		01		0 ''	<b>D</b>				
Тс	Length	Slope	,	Capacity	Description				
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
12.0					Direct Entry,				

#### **Subcatchment 9: Area 9**



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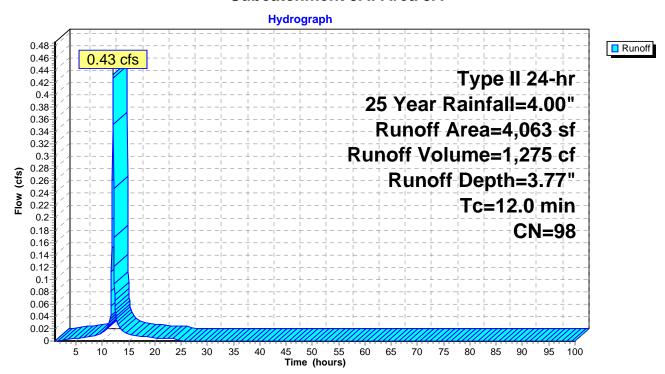
# Summary for Subcatchment 9A: Area 9A

Runoff = 0.43 cfs @ 12.03 hrs, Volume= 1,275 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

	Α	rea (sf)	CN	Description					
		4,063	98	Paved parking, HSG D					
		4,063		100.00% Im	npervious A	Area			
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
	12.0					Direct Entry,			

#### Subcatchment 9A: Area 9A



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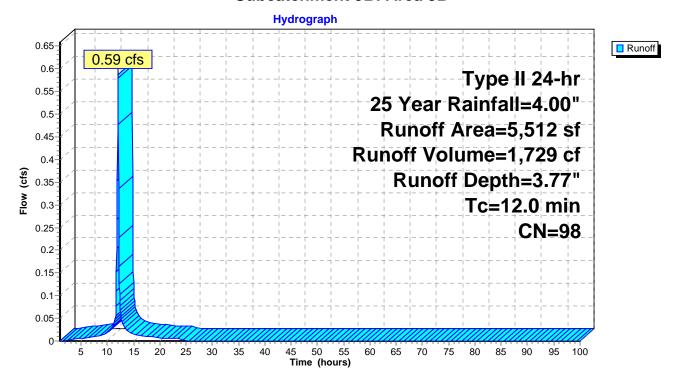
### Summary for Subcatchment 9B: Area 9B

Runoff = 0.59 cfs @ 12.03 hrs, Volume= 1,729 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

 Α	rea (sf)	CN	Description					
	5,512	98	Paved parking, HSG D					
	5,512		100.00% In	npervious A	Area			
 Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	·			
12.0					Direct Entry,			

#### Subcatchment 9B: Area 9B



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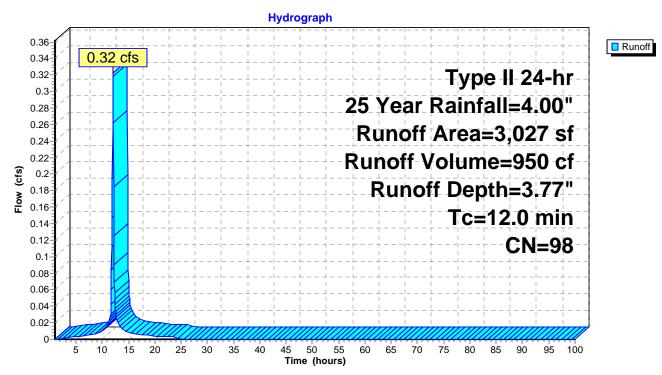
# **Summary for Subcatchment 15: Area 15**

Runoff = 0.32 cfs @ 12.03 hrs, Volume= 950 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description						
	76	80	>75% Gras	s cover, Go	od, HSG D				
	2,951	98	Paved park	ing, HSG D					
	3,027	98	Weighted Average						
	76		2.51% Pervious Area						
	2,951		97.49% lmp	pervious Ar	ea				
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description				
12.0	( 0 0 1)	(14,11	( 3000)	(0.0)	Direct Entry,		_		

#### **Subcatchment 15: Area 15**



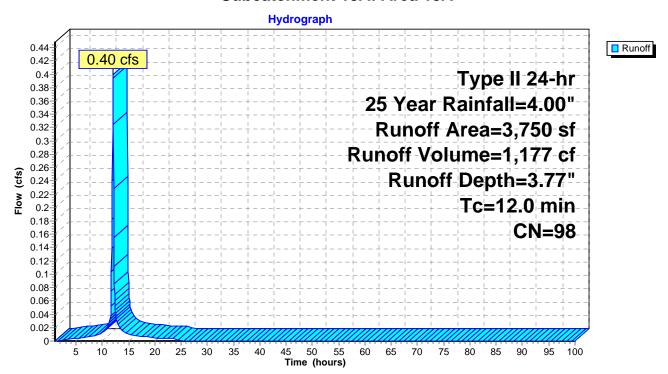
# Summary for Subcatchment 15A: Area 15A

Runoff = 0.40 cfs @ 12.03 hrs, Volume= 1,177 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

	Area (sf)	CN I	Description					
	3,750	98 I	Paved parking, HSG D					
	3,750	•	100.00% Im	npervious A	Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
12.0					Direct Entry,			

#### Subcatchment 15A: Area 15A



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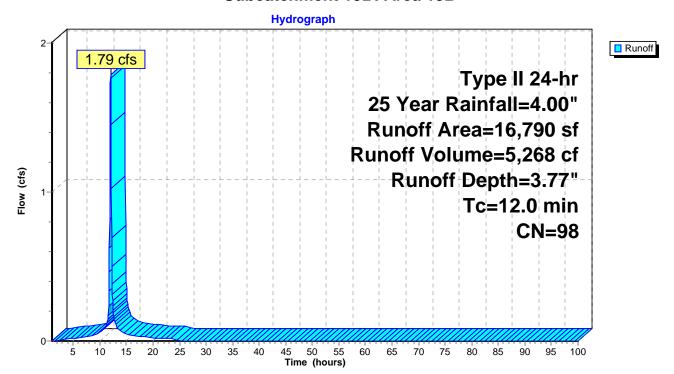
### **Summary for Subcatchment 15B: Area 15B**

Runoff = 1.79 cfs @ 12.03 hrs, Volume= 5,268 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

_	Α	rea (sf)	CN	Description				
		16,790	98	Paved parking, HSG D				
		16,790		100.00% In	npervious A	Area		
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
	12.0					Direct Entry,		

### Subcatchment 15B: Area 15B



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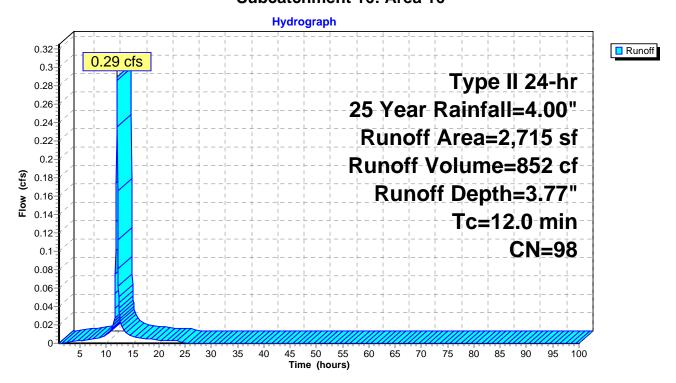
# **Summary for Subcatchment 16: Area 16**

Runoff = 0.29 cfs @ 12.03 hrs, Volume= 852 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description						
	43	80	>75% Gras	s cover, Go	ood, HSG D				
	2,672	98	Paved park	ing, HSG D	D				
	2,715	98	Weighted Average						
	43		1.58% Pervious Area						
	2,672		98.42% lmp	ervious Ar	rea				
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	•				
12.0	,	,	,	,	Direct Entry,				

#### **Subcatchment 16: Area 16**



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# **Summary for Pond 84": 84" TRUNK SEWER**

Inflow Area = 112,891 sf, 98.39% Impervious, Inflow Depth > 12.11" for 25 Year event

Inflow = 9.89 cfs @ 12.06 hrs, Volume= 113,901 cf

Outflow = 9.89 cfs @ 12.06 hrs, Volume= 113,901 cf, Atten= 0%, Lag= 0.0 min

Primary = 9.89 cfs @ 12.06 hrs, Volume= 113,901 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

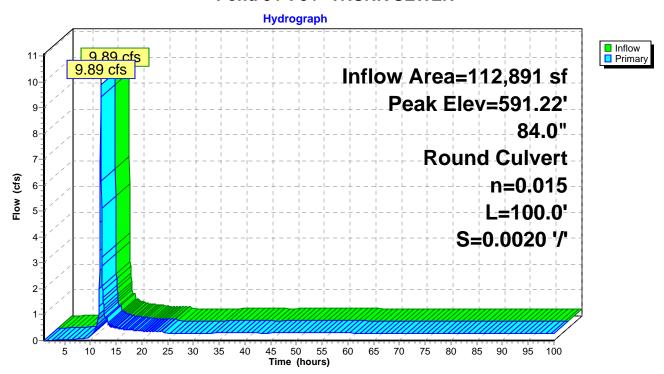
Peak Elev= 591.22' @ 12.06 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	84.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 38.48 sf

Primary OutFlow Max=9.81 cfs @ 12.06 hrs HW=591.21' (Free Discharge) 1=Culvert (Barrel Controls 9.81 cfs @ 3.34 fps)

#### Pond 84": 84" TRUNK SEWER



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#### Summary for Pond DI 868: DI #868

[80] Warning: Exceeded Pond DS 6 by 0.27' @ 1.00 hrs (0.10 cfs 1,040 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth > 3.94" for 25 Year event

Inflow = 1.52 cfs @ 12.04 hrs, Volume= 7,663 cf

Outflow = 1.52 cfs @ 12.04 hrs, Volume= 7,663 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.52 cfs @ 12.04 hrs, Volume= 7,663 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

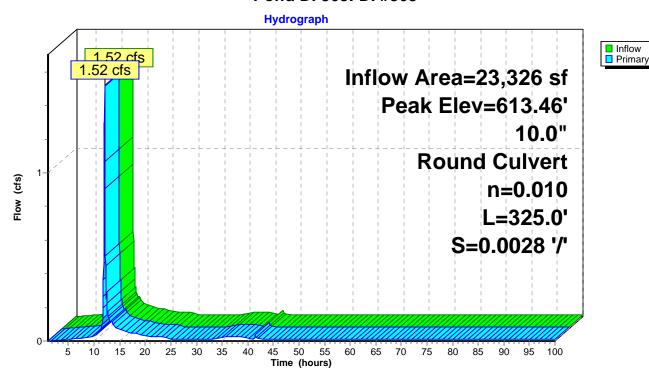
Peak Elev= 613.46' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=1.49 cfs @ 12.04 hrs HW=613.44' TW=591.21' (Dynamic Tailwater) 1=Culvert (Barrel Controls 1.49 cfs @ 3.14 fps)

#### Pond DI 868: DI #868



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### **Summary for Pond DS 10: Planter PB-8A**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=21)

2,841 sf, 96.16% Impervious, Inflow Depth = 3.65" for 25 Year event Inflow Area =

Inflow 0.30 cfs @ 12.03 hrs, Volume= 864 cf

0.02 cfs @ 13.26 hrs, Volume= Outflow 545 cf, Atten= 94%, Lag= 73.9 min

0.02 cfs @ 13.26 hrs, Volume= Primary 1.486 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 615.26' @ 13.26 hrs Surf.Area= 141 sf Storage= 637 cf

Plug-Flow detention time= 958.7 min calculated for 545 cf (63% of inflow)

Center-of-Mass det. time= 854.7 min (1,617.1 - 762.4)

Volume	Invert	Avail.	Storage	Storage Descript	tion				
#1	610.43'		638 cf	Storage (Prisma	atic)Listed below	v (Recalc)			
Elevatio (fee		urf.Area \ (sq-ft)	/oids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)				
610.4	,	391	0.0	0	0				
613.7		391	40.0	519	519				
613.7		141	20.0	1	520				
615.0		141	50.0	94	614				
615.2	:6	141 1	100.0	24	638				
Device	Routing	Inve	ert Outle	et Devices					
#1	Primary	611.9		Round Culvert	edge headwall	Ka- 0 500			
#2	Device 1	610.7	Inlet n= 0	L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.95' / 611.88' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf 6.0" Round Culvert					
			Inlet	L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.76' / 610.76' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf					
#3 #4	Device 2 Device 1	610.4 615.2		0 in/hr Exfiltratio " x 24.0" Horiz. C					
			Limit	ed to weir flow at	low heads				

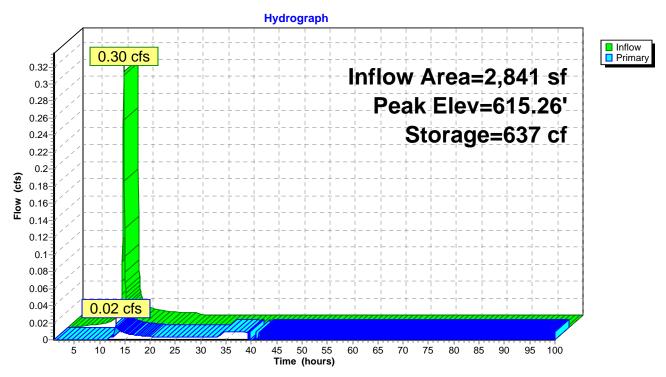
Primary OutFlow Max=0.02 cfs @ 13.26 hrs HW=615.26' TW=612.78' (Dynamic Tailwater)

**1=Culvert** (Passes 0.02 cfs of 1.49 cfs potential flow)

<sup>2=</sup>Culvert (Passes 0.00 cfs of 1.48 cfs potential flow)
3=Exfiltration (Exfiltration Controls 0.00 cfs)

<sup>-4=</sup>Orifice/Grate (Weir Controls 0.01 cfs @ 0.26 fps)

#### Pond DS 10: Planter PB-8A



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### **Summary for Pond DS 11: Planter PB-9A**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=69)

2,159 sf, 94.58% Impervious, Inflow Depth = 3.65" for 25 Year event Inflow Area =

0.23 cfs @ 12.03 hrs, Volume= Inflow 657 cf

0.01 cfs @ 12.40 hrs, Volume= Outflow 289 cf, Atten= 96%, Lag= 22.2 min

0.01 cfs @ 12.40 hrs, Volume= 1,234 cf Primary

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.13' @ 13.76 hrs Surf.Area= 391 sf Storage= 471 cf

Plug-Flow detention time= 483.0 min calculated for 289 cf (44% of inflow)

Center-of-Mass det. time= 349.1 min (1,111.5 - 762.4)

Volume	Invert	Avail.S	Storage	Storage Descript	tion				
#1	610.12'		664 cf	Storage (Prisma	atic)Listed belov	w (Recalc)			
Elevatio		urf.Area V (sq-ft)	oids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)				
610.1		391	0.0	0	0				
613.6			40.0	546	546				
613.6			20.0	1	546				
614.9			50.0	94	640				
615.1	2	141 1	0.00	24	664				
Device	Routing	Inve	rt Outle	et Devices					
#1	Primary	611.9°		Round Culvert					
#0	Davisa 1	610 6	Inlet n= 0	L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.91' / 611.84' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf					
#2	Device 1	610.62	L= 27.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.62' / 610.62' S= 0.0000 '/' Cc= 0.900						
#3 #4	Device 2 Device 1	610.12 615.1	2' <b>1.00</b> 1' <b>24.0</b>	n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf 1.000 in/hr Exfiltration over Surface area 24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads					

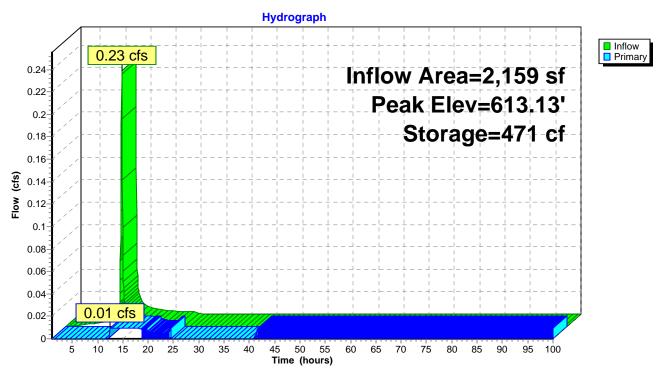
Primary OutFlow Max=0.01 cfs @ 12.40 hrs HW=612.94' TW=612.89' (Dynamic Tailwater)

**1=Culvert** (Passes 0.01 cfs of 0.20 cfs potential flow)

**2=Culvert** (Passes 0.01 cfs of 0.20 cfs potential flow) **3=Exfiltration** (Exfiltration Controls 0.01 cfs)

-4=Orifice/Grate (Controls 0.00 cfs)

# Pond DS 11: Planter PB-9A



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# Summary for Pond DS 14: DS 14

Inflow Area =	19,614 sf, 98.41% Impervious	, Inflow Depth = 3.73" for 25 Year event
Inflow =	2.09 cfs @ 12.03 hrs, Volume=	6,096 cf
Outflow =	2.09 cfs @ 12.03 hrs, Volume=	6,096 cf, Atten= 0%, Lag= 0.0 min
Primary =	1.10 cfs @ 12.00 hrs, Volume=	3,648 cf
Secondary =	1.36 cfs @ 12.07 hrs, Volume=	2,448 cf

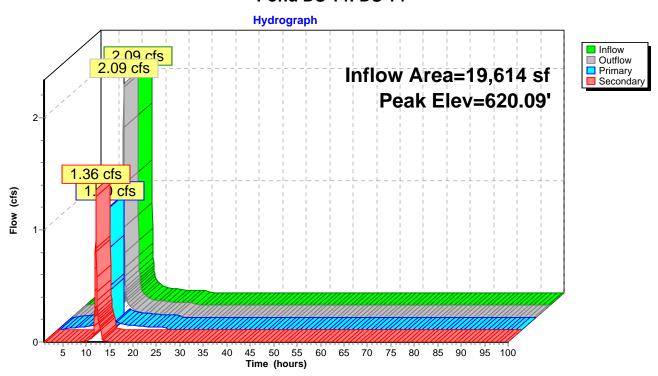
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 620.09' @ 12.08 hrs Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.80'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500
	•		Inlet / Outlet Invert= 612.80' / 612.75' S= 0.0125 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	612.90'	<b>6.0"</b> Round Culvert L= 6.0' RCP, sq.cut end projecting, Ke= 0.500
	_		Inlet / Outlet Invert= 612.90' / 612.83' S= 0.0117 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=1.12 cfs @ 12.00 hrs HW=615.85' TW=614.46' (Dynamic Tailwater) 1=Culvert (Inlet Controls 1.12 cfs @ 5.68 fps)

Secondary OutFlow Max=1.54 cfs @ 12.07 hrs HW=619.39' TW=616.74' (Dynamic Tailwater) = Culvert (Inlet Controls 1.54 cfs @ 7.83 fps)

#### Pond DS 14: DS 14



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# Summary for Pond DS 15: Planter PB-4A

[93] Warning: Storage range exceeded by 3.48'

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=29)

[80] Warning: Exceeded Pond DS 14 by 1.48' @ 12.35 hrs (1.15 cfs 3,210 cf)

Inflow Area = 19,614 sf, 98.41% Impervious, Inflow Depth = 2.23" for 25 Year event

Inflow 1.10 cfs @ 12.00 hrs, Volume= 3.648 cf

0.69 cfs @ 12.09 hrs, Volume= Outflow 2,463 cf, Atten= 37%, Lag= 5.6 min =

0.69 cfs @ 12.09 hrs. Volume= Primary 83.502 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 618.48' @ 12.09 hrs Surf.Area= 394 sf Storage= 1,803 cf

Plug-Flow detention time= 293.0 min calculated for 2,462 cf (67% of inflow)

Center-of-Mass det. time= 143.4 min (915.3 - 771.9)

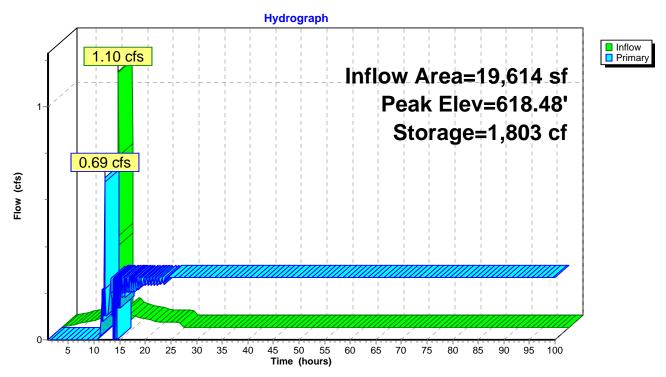
Volume	Inver	t Ava	il.Sto	age	Storage Descript	tion		
#1	610.00	)'	1,80	)3 cf	Storage (Prisma	atic)Listed below	w (Recalc)	
Elevetic	n C	Surf.Area	Voic	lo.	Inc.Store	Cum.Store		
Elevatio (fee		(sq-ft)	Void (%		(cubic-feet)	(cubic-feet)		
					•	· ·		
610.0		1,055	0	-	0	0		
613.4		1,055	40		1,473	1,473		
613.5		394	20		1	1,474		
614.8		394	50		262	1,736		
615.0	00	394	100	.0	67	1,803		
Device	Routing	In	vert	Outl	et Devices			
#1			.93'		Round Culvert			_
#1	Primary	011	.93		5.0' CPP, square	odgo boadwall	Ko- 0 500	
						•	S= 0.0117 '/' Cc= 0.900	
							erior, Flow Area= 0.20 sf	
#2	Device 1	610	).50'		Round Culvert	FE, SHIOULH IIILE	enoi, Flow Alea= 0.20 Si	
#2	Device i	010	7.50			action conformir	ng to fill, Ke= 0.500	
							S= 0.0000 '/' Cc= 0.900	
#3	Device 2	610	0.00'		0.010 PVC, smoot 1 <b>00 in/hr Exfiltrati</b>	·		
				_	" x 24.0" Horiz. C			
#4	Device 1	014	1.99'	_			= 0.000	
π <b>-</b> τ	DOVIDO 1	01-		_	ted to weir flow at		0.000	

Primary OutFlow Max=1.00 cfs @ 12.09 hrs HW=618.11' TW=617.00' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.00 cfs @ 5.08 fps)

-2=Culvert (Passes < 0.80 cfs potential flow)
-3=Exfiltration (Passes < 0.10 cfs potential flow)

-4=Orifice/Grate (Passes < 20.31 cfs potential flow)

## Pond DS 15: Planter PB-4A



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### Summary for Pond DS 2: Planter PB-1A

[93] Warning: Storage range exceeded by 0.08'

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=10)

Inflow Area = 5,276 sf, 95.77% Impervious, Inflow Depth = 3.65" for 25 Year event

Inflow 0.56 cfs @ 12.03 hrs, Volume= 1,605 cf

0.70 cfs @ 12.01 hrs, Volume= Outflow 1,372 cf, Atten= 0%, Lag= 0.0 min

0.70 cfs @ 12.01 hrs. Volume= Primary 1.372 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 615.58' @ 12.00 hrs Surf.Area= 273 sf Storage= 610 cf

Plug-Flow detention time= 769.3 min calculated for 1,372 cf (85% of inflow)

Center-of-Mass det. time= 702.1 min (1,464.5 - 762.4)

Volume	Inve	rt Ava	il.Stor	age	Storage Descrip	tion	
#1	610.50	)'	61	0 cf	Storage (Prism	atic)Listed below	w (Recalc)
Elevatio	un G	Surf.Area	Void	C	Inc.Store	Cum.Store	
(fee		(sq-ft)	(%		(cubic-feet)	(cubic-feet)	
610.5		273	0.		0	0	
613.9		273	40.	_	381	381	
614.0		273	20.	-	1	382	
615.3		273	50.		182	563	
615.5	50	273	100.	0	46	610	
Device	Routing	In	vert	Outl	et Devices		
#1	Primary	612	2.64'	6.0"	<b>Round Culvert</b>		
					.0' CPP, square	•	
							S= 0.0125 '/' Cc= 0.900
#2	Device 1	611	.12'		Round Culvert	PE, Smooth inte	erior, Flow Area= 0.20 sf
#2	Device i	011	.12			ection conformi	ng to fill, Ke= 0.500
							S= 0.0000 '/' Cc= 0.900
							erior, Flow Area= 0.20 sf
#3	Device 2	610	).50'	0.30	0 in/hr Exfiltration	on over Surface	area
#4	Device 1	615	5.49'	_	" x 24.0" Horiz. (		G= 0.600
				Limi	ted to weir flow at	low heads	

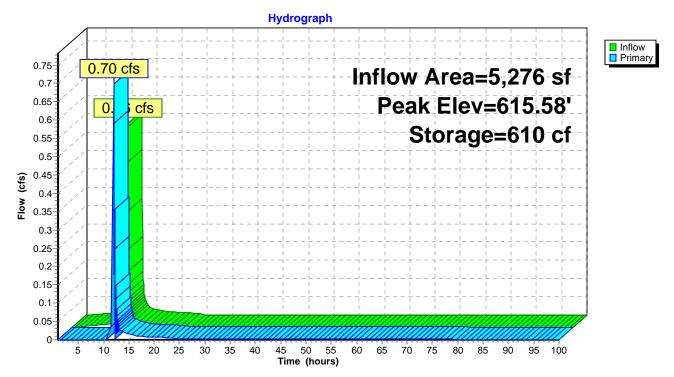
Primary OutFlow Max=0.62 cfs @ 12.01 hrs HW=615.57' TW=591.17' (Dynamic Tailwater)

**1=Culvert** (Passes 0.62 cfs of 1.55 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 1.26 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.61 cfs @ 0.94 fps)

## Pond DS 2: Planter PB-1A



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### **Summary for Pond DS 28: DS 28**

Inflow Area = 9,492 sf, 98.75% Impervious, Inflow Depth > 3.60" for 25 Year event

Inflow = 1.01 cfs @ 12.03 hrs, Volume= 2,844 cf

Outflow = 1.01 cfs @ 12.03 hrs, Volume= 2,847 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.01 cfs @ 12.03 hrs, Volume= 2,847 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

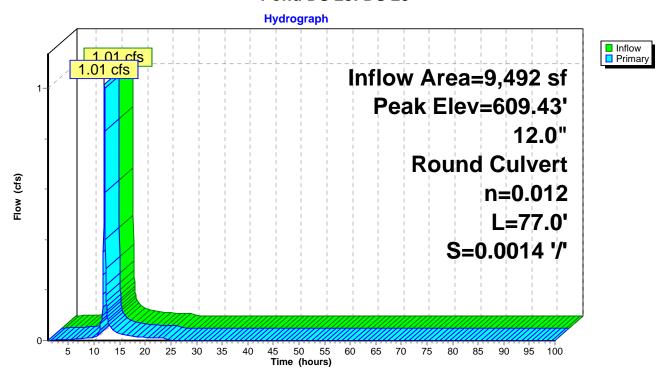
Peak Elev= 609.43' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	12.0" Round Culvert
	_		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished. Flow Area= 0.79 sf

Primary OutFlow Max=0.99 cfs @ 12.03 hrs HW=609.42' TW=591.20' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.99 cfs @ 2.32 fps)

#### Pond DS 28: DS 28



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### Summary for Pond DS 29: Planter PB-1B

[80] Warning: Exceeded Pond DS 30 by 0.07' @ 24.20 hrs (0.21 cfs 1,820 cf)

5,742 sf, 97.93% Impervious, Inflow Depth = 3.64" for 25 Year event Inflow Area =

Inflow 0.61 cfs @ 12.03 hrs, Volume= 1,744 cf

0.61 cfs @ 12.03 hrs, Volume= Outflow 1,668 cf, Atten= 0%, Lag= 0.2 min

0.61 cfs @ 12.03 hrs, Volume= 1.668 cf Primary

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 614.08' @ 12.03 hrs Surf.Area= 101 sf Storage= 224 cf

Plug-Flow detention time= 382.0 min calculated for 1,668 cf (96% of inflow)

Center-of-Mass det. time= 297.2 min (1,147.5 - 850.3)

Volume	Invert	Avail.	Storage	Storage Descrip	tion	
#1	609.10'		225 cf	Storage (Prisma	atic)Listed below	v (Recalc)
Elevatio		urf.Area '	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
609.1		101	0.0	0	0	
612.6		101	40.0	141	141	
612.6		101	20.0	0	142	
613.9		101	50.0	67	208	
614.1	10	101	100.0	17	225	
Device	Routing	Inve	ert Outle	et Devices		
#1	Primary	610.4		Round Culvert	adaa baadwall	Vo. 0.500
#2	Device 1	609.7	Inlet n= 0		10.41' / 610.35'	S= 0.0120 '/' Cc= 0.900 rior, Flow Area= 0.20 sf
<b>_</b>	201100 1	000	L= 5 Inlet	0.0' CMP, end-s / Outlet Invert= 6	09.75' / 609.75'	ng to fill, Ke= 0.500 S= 0.0000 '/' Cc= 0.900 rior, Flow Area= 0.20 sf
#3	Device 2	609.1		0 in/hr Exfiltratio		
#4	Device 1	614.0		" x 24.0" Horiz. Coted to weir flow at		= 0.600

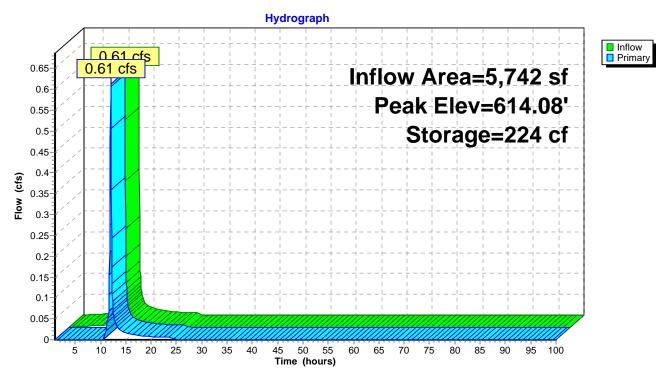
Primary OutFlow Max=0.60 cfs @ 12.03 hrs HW=614.08' TW=609.42' (Dynamic Tailwater)

**1=Culvert** (Passes 0.60 cfs of 1.75 cfs potential flow)

2=Culvert (Passes 0.00 cfs of 1.29 cfs potential flow)
3=Exfiltration (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.60 cfs @ 0.93 fps)

## Pond DS 29: Planter PB-1B



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# Summary for Pond DS 3: DS 3

Inflow Area =	34,149 sf, 98.47% Impervious,	Inflow Depth = 3.75" for 25 Year event
Inflow =	3.36 cfs @ 12.06 hrs, Volume=	10,677 cf
Outflow =	3.36 cfs @ 12.06 hrs, Volume=	10,677 cf, Atten= 0%, Lag= 0.0 min
Primary =	1.03 cfs @ 12.04 hrs, Volume=	2,747 cf
Secondary =	2.44 cfs @ 12.08 hrs, Volume=	7,930 cf

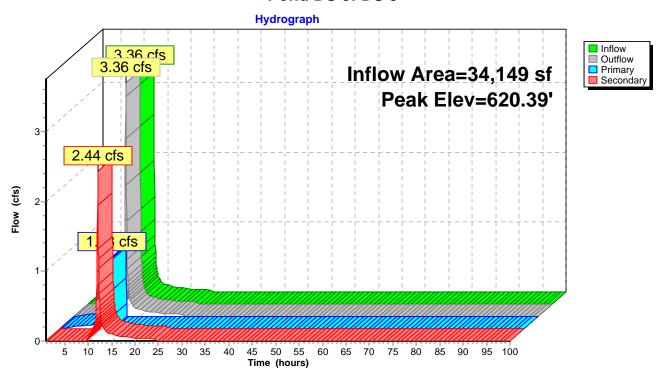
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 620.39' @ 12.08 hrs Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.60'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500
	·		Inlet / Outlet Invert= 612.60' / 612.55' S= 0.0125 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	613.60'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500
	•		Inlet / Outlet Invert= 613.60' / 613.55' S= 0.0083 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=1.34 cfs @ 12.04 hrs HW=619.70' TW=617.70' (Dynamic Tailwater) 1=Culvert (Inlet Controls 1.34 cfs @ 6.80 fps)

Secondary OutFlow Max=2.34 cfs @ 12.08 hrs HW=619.96' TW=591.20' (Dynamic Tailwater) = Culvert (Inlet Controls 2.34 cfs @ 11.90 fps)

#### Pond DS 3: DS 3



Volume

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### Summary for Pond DS 30: Planter PB-2B

[93] Warning: Storage range exceeded by 0.30'

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=36)

2,715 sf, 98.42% Impervious, Inflow Depth = 3.77" for 25 Year event Inflow Area =

0.29 cfs @ 12.03 hrs, Volume= Inflow 852 cf

Outflow 0.29 cfs @ 12.03 hrs, Volume= = 794 cf, Atten= 0%, Lag= 0.0 min

0.29 cfs @ 12.03 hrs, Volume= Primary 794 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Avail Storage Storage Description

Peak Elev= 614.23' @ 12.03 hrs Surf.Area= 49 sf Storage= 109 cf

Plug-Flow detention time= 249.7 min calculated for 794 cf (93% of inflow)

Center-of-Mass det. time= 212.5 min (966.1 - 753.5)

Invert

VOIGITIE	11170	it Ava	11.0101	ayc	Otorage Description	OH			
#1	608.9	3'	10	9 cf	Storage (Prisma	tic)Listed below	v (Recalc)		
Elevatio		Surf.Area (sq-ft)	Void		Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
	-					<u>,                                     </u>			
608.9		49	0.		0	0			
612.4		49	40.		69	69			
612.4		49	20.		0	69			
613.7		49	50.	-	32	101			
613.9	93	49	100.	0	8	109			
Device	Routing	In	vert	Outl	et Devices				
#1	Primary	611	.87'		Round Culvert		1/ 0.500		
				Inlet n= 0	9.0' CPP, square / Outlet Invert= 61 .010 PVC, smooth	1.87' / 611.20'	S= 0.0114 '/'	Cc= 0.900	
#2	Device 1	609	9.43'		Round Culvert				
				Inlet	<ul><li>'.0' RCP, square e</li><li>' Outlet Invert= 60'</li><li>'.010 PVC, smooth</li></ul>	9.43' / 609.43'	S= 0.0000 '/'	Cc= 0.900	
#3	Device 2	608	3.93'	0.30	0 in/hr Exfiltration	over Surface	area		
#4	Device 1	613	3.92'		" x 24.0" Horiz. On ted to weir flow at le		= 0.600		

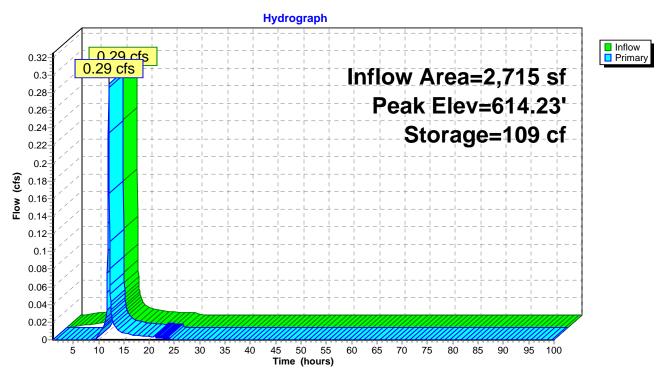
Primary OutFlow Max=0.28 cfs @ 12.03 hrs HW=614.22' TW=614.08' (Dynamic Tailwater)

-1=Culvert (Outlet Controls 0.28 cfs @ 1.44 fps)

-2=Culvert (Passes < 0.35 cfs potential flow)
-3=Exfiltration (Passes < 0.00 cfs potential flow)

-4=Orifice/Grate (Passes < 3.51 cfs potential flow)

#### Pond DS 30: Planter PB-2B



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### Summary for Pond DS 4: Planter PB-2A

[93] Warning: Storage range exceeded by 3.66'

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[80] Warning: Exceeded Pond DS 3 by 2.28' @ 24.90 hrs (1.35 cfs 149,967 cf)

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 0.97" for 25 Year event

Inflow 1.03 cfs @ 12.04 hrs, Volume= 2,747 cf

1.09 cfs @ 12.00 hrs, Volume= Outflow 1,767 cf, Atten= 0%, Lag= 0.0 min

1.09 cfs @ 12.00 hrs. Volume= Primary 1.767 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 619.05' @ 12.08 hrs Surf.Area= 395 sf Storage= 1,715 cf

Plug-Flow detention time= 974.2 min calculated for 1,767 cf (64% of inflow)

Center-of-Mass det. time= 888.5 min (1,459.1 - 570.6)

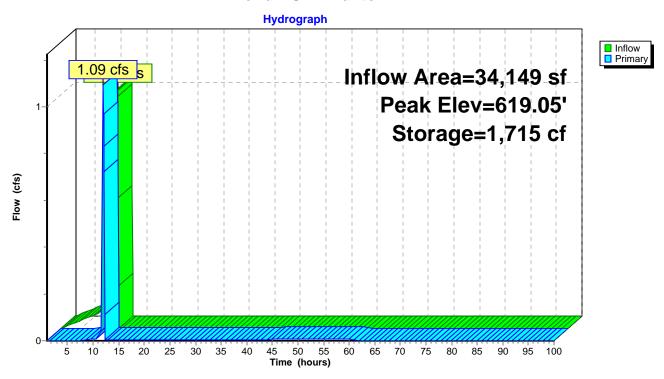
Volume	Inve	rt Ava	il.Stor	age	Storage Descript	tion	
#1	610.39	9'	1,71	5 cf	Storage (Prisma	atic)Listed below	w (Recalc)
Elevatio (fee		Surf.Area (sq-ft)	Void		Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
610.3		990	0.		0	0	
613.8		990	40.	-	1,386	1,386	
613.9		395	20.		1,000	1,387	
615.2		395	50.		261	1,648	
615.3		395	100.		67	1,715	
	-					.,	
Device	Routing	In	vert	Outl	et Devices		
#1	Primary	612	2.48'	6.0"	<b>Round Culvert</b>		
	-			L= 6	5.0' CPP, square	edge headwall,	Ke= 0.500
				Inlet	/ Outlet Invert= 6	12.48' / 612.41'	S= 0.0117 '/' Cc= 0.900
						PE, smooth inte	erior, Flow Area= 0.20 sf
#2	Device 1	610	).89'		Round Culvert		
							ng to fill, Ke= 0.500
							S= 0.0000 '/' Cc= 0.900
							erior, Flow Area= 0.20 sf
#3	Device 2		).39'		0 in/hr Exfiltratio		
#4	Device 1	615	5.37'	_	" x 24.0" Horiz. C		C = 0.600
				Limi	ted to weir flow at	low heads	

Primary OutFlow Max=1.10 cfs @ 12.00 hrs HW=616.54' TW=615.20' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.10 cfs @ 5.58 fps)

-2=Culvert (Passes < 0.73 cfs potential flow)
-3=Exfiltration (Passes < 0.00 cfs potential flow)

-4=Orifice/Grate (Passes < 20.86 cfs potential flow)

#### Pond DS 4: Planter PB-2A



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# **Summary for Pond DS 5: Planter PB-3A**

Inflow Area = 2,103 sf, 92.44% Impervious, Inflow Depth = 3.65" for 25 Year event

Inflow 0.22 cfs @ 12.03 hrs. Volume= 640 cf

0.03 cfs @ 12.51 hrs, Volume= Outflow 431 cf, Atten= 84%, Lag= 28.7 min

Primary 0.03 cfs @ 12.51 hrs, Volume= 431 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 615.19' @ 12.51 hrs Surf.Area= 195 sf Storage= 435 cf

Plug-Flow detention time= 1,280.8 min calculated for 431 cf (67% of inflow)

Center-of-Mass det. time= 1,182.8 min (1,945.2 - 762.4)

Volume	Invert	Avai	I.Storag	e Storage Descr	ription		
#1	610.19'		435 (	of Storage (Pris	matic)Listed belo	w (Recalc)	
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
610.1	-	195	0.0	0	0		
613.6		195	40.0	272	272		
613.6	69	195	20.0	0	273		
615.0		195	50.0	130	402		
615.1	19	195	100.0	33	435		
Device	Routing	Inv	vert O	utlet Devices			
#1	Primary	612		0" Round Culve			
			In n=	= 0.010 PVC, smo	612.37' / 612.30' ooth interior, Flow	S= 0.0127 '/' Cc= 0.900	
#2	Device 1	610		0" Round Culve		ng to fill Ko 0 500	
			In		610.61' / 610.61'	ng to fill, Ke= 0.500 S= 0.0000 '/' Cc= 0.900 Area= 0.20 sf	
#3	Device 2	610	_	300 in/hr Exfiltrat			
#4	Device 1	615		1.0" x 24.0" Horiz		C= 0.600	
			Li	mited to weir flow	at low heads		

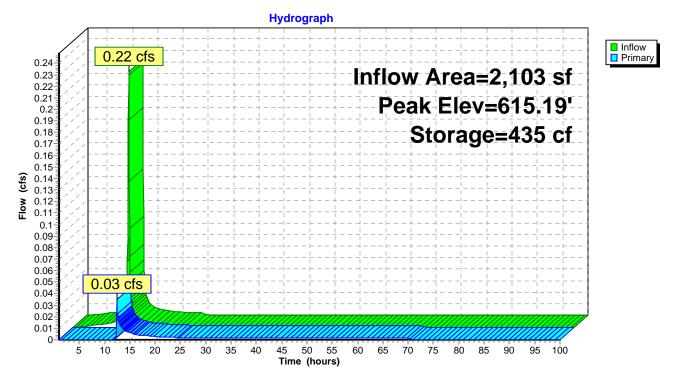
Primary OutFlow Max=0.03 cfs @ 12.51 hrs HW=615.19' TW=612.93' (Dynamic Tailwater)

**-1=Culvert** (Passes 0.03 cfs of 1.42 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 1.41 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.03 cfs @ 0.34 fps)

#### Pond DS 5: Planter PB-3A



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### **Summary for Pond DS 6: DS 6**

[80] Warning: Exceeded Pond DS 10 by 2.16' @ 2.50 hrs (0.01 cfs 2,325 cf) [80] Warning: Exceeded Pond DS 11 by 2.47' @ 2.50 hrs (0.01 cfs 2,980 cf) [80] Warning: Exceeded Pond DS 9 by 2.10' @ 2.50 hrs (0.01 cfs 1,999 cf) [80] Warning: Exceeded Pond DS8 by 1.37' @ 11.95 hrs (0.00 cfs 5 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth > 3.94" for 25 Year event

Inflow = 1.52 cfs @ 12.05 hrs, Volume= 7,663 cf

Outflow = 1.52 cfs @ 12.04 hrs, Volume= 7,663 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.52 cfs @ 12.04 hrs, Volume= 7,663 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

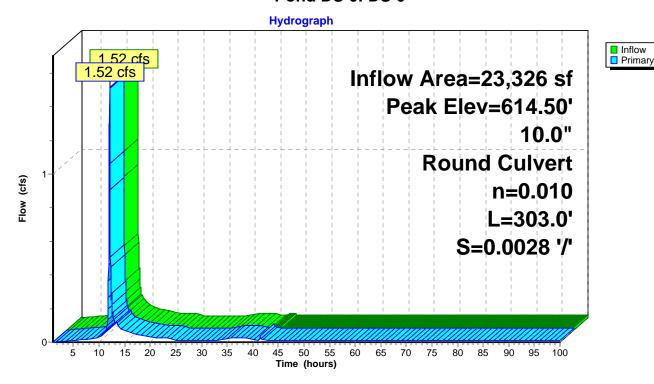
Peak Elev= 614.50' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.27'	10.0" Round Culvert
	-		L= 303.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.27' / 611.42' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC smooth interior Flow Area= 0.55 sf

Primary OutFlow Max=1.49 cfs @ 12.04 hrs HW=614.45' TW=613.44' (Dynamic Tailwater) 1=Culvert (Outlet Controls 1.49 cfs @ 2.73 fps)

#### Pond DS 6: DS 6



Volume

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### Summary for Pond DS 7: Planter PB-5A

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=10)

3,711 sf, 98.14% Impervious, Inflow Depth = 3.77" for 25 Year event Inflow Area =

0.40 cfs @ 12.03 hrs, Volume= Inflow 1,164 cf

Outflow 0.51 cfs @ 12.05 hrs, Volume= 954 cf, Atten= 0%, Lag= 1.2 min =

Primary 0.51 cfs @ 12.05 hrs, Volume= 954 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Avail.Storage Storage Description

Peak Elev= 615.67' @ 12.05 hrs Surf.Area= 84 sf Storage= 387 cf

Plug-Flow detention time= 377.3 min calculated for 954 cf (82% of inflow)

Center-of-Mass det. time= 299.9 min (1,053.4 - 753.5)

Invert

					0.10.10.90 = 0.00.11		
#1	610.79'		39	7 cf	Storage (Prism	atic)Listed below	w (Recalc)
Elevatio		urf.Area	Void		Inc.Store	Cum.Store	
(fee	et)	(sq-ft)	(%	o)	(cubic-feet)	(cubic-feet)	
610.7	<b>7</b> 9	234	0.	0	0	0	
614.2	28	234	40.	0	327	327	
614.2	<u>29</u>	84	20.	0	0	327	
615.6	62	84	50.	0	56	383	
615.7	<b>'</b> 9	84	100.	0	14	397	
Device	Routing	In	vert	Outl	et Devices		
#1	Primary	613	.04'	L= 6 Inlet	Round Culvert .0' CPP, square / Outlet Invert= 6 .010 PVC, smooth	13.04' / 612.97'	S= 0.0117 '/' Cc= 0.900
#2	Device 1	611	.29'	<b>6.0</b> " L= 1 Inlet	Round Culvert 5.0' CMP, end-s / Outlet Invert= 6	ection conformir 11.29' / 611.29'	ng to fill, Ke= 0.500 S= 0.0000 '/' Cc= 0.900 erior, Flow Area= 0.20 sf
#3 #4	Device 2 Device 1	610 615		0.90 24.0	<b>0 in/hr Exfiltratio</b> " <b>x 24.0</b> " Horiz. <b>0</b> ted to weir flow at	on over Surface Orifice/Grate C	area

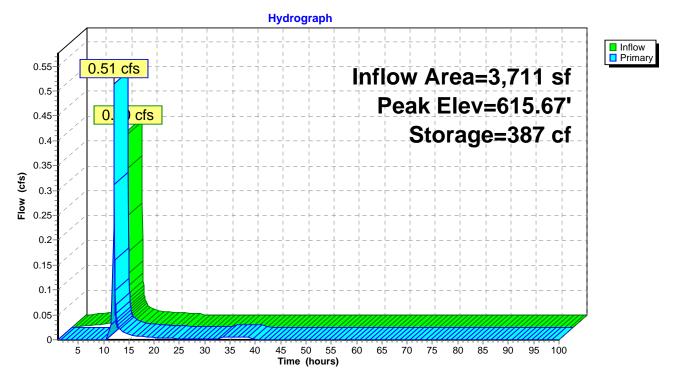
Primary OutFlow Max=0.51 cfs @ 12.05 hrs HW=615.67' TW=614.50' (Dynamic Tailwater)

-1=Culvert (Passes 0.51 cfs of 1.02 cfs potential flow)

-2=Culvert (Passes 0.00 cfs of 1.02 cfs potential flow)
-3=Exfiltration (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.51 cfs @ 0.88 fps)

## Pond DS 7: Planter PB-5A



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### Summary for Pond DS 9: Planter PB-7A

[93] Warning: Storage range exceeded by 0.01'

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=9)

3,275 sf, 96.52% Impervious, Inflow Depth = 3.65" for 25 Year event Inflow Area =

0.35 cfs @ 12.03 hrs, Volume= Inflow 997 cf

Outflow 0.08 cfs @ 12.45 hrs, Volume= = 674 cf, Atten= 78%, Lag= 25.2 min

0.08 cfs @ 12.45 hrs, Volume= Primary 674 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 615.50' @ 12.45 hrs Surf.Area= 141 sf Storage= 665 cf

Plug-Flow detention time= 899.7 min calculated for 674 cf (68% of inflow)

Center-of-Mass det. time= 802.0 min (1,564.4 - 762.4)

Volume	olume Invert Avail.Storage		age	Storage Description					
#1	610.49	)'	665 cf		Storage (Prismatic)Listed below (Recalc)				
Elevatio (fee		Surf.Area (sq-ft)	Voids (%)		Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
610.4	<i>'</i>	391	0.0		0	0			
613.9	-	391	40.	-	547	547			
614.0		141	20.	-	1	548			
615.3		141	50.		93	641			
615.4	9	141	100.	0	24	665			
Device	Routing	In	vert	Outl	et Devices				
#1	•				Round Culvert				
		L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.30' / 612.23' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf							
#2	Device 1	evice 1 610			Round Culvert				
L= 28.0' RCP, square edge headwall, Inlet / Outlet Invert= 610.99' / 610.99' n= 0.013 Corrugated PE, smooth inter						S= 0.0000 '/' Cc= 0.900			
#3	Device 2		).49'		900 in/hr Exfiltration over Surface area				
#4 Device 1 615.4			5.48'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads					

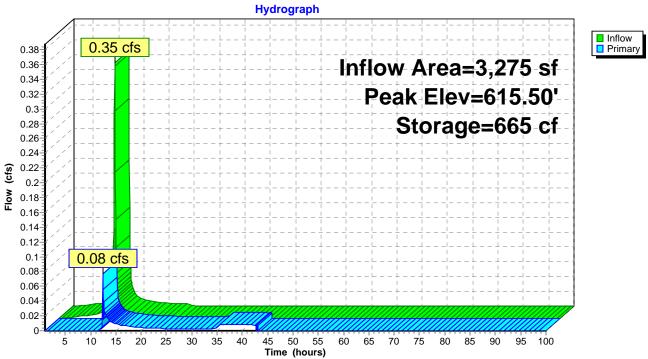
Primary OutFlow Max=0.08 cfs @ 12.45 hrs HW=615.50' TW=612.95' (Dynamic Tailwater)

-1=Culvert (Passes 0.08 cfs of 1.51 cfs potential flow)

**2=Culvert** (Passes 0.00 cfs of 1.30 cfs potential flow) **3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.07 cfs @ 0.46 fps)

## Pond DS 9: Planter PB-7A





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### **Summary for Pond DS-1: DS 1**

[80] Warning: Exceeded Pond DS 15 by 2.55' @ 1.55 hrs (0.27 cfs 64,565 cf) [80] Warning: Exceeded Pond DS 4 by 2.15' @ 1.40 hrs (0.01 cfs 184 cf) [80] Warning: Exceeded Pond DS 5 by 2.74' @ 12.10 hrs (1.56 cfs 594 cf)

Inflow Area = 58,007 sf, 98.29% Impervious, Inflow Depth > 18.37" for 25 Year event

Inflow = 3.21 cfs @ 12.08 hrs, Volume= 88,821 cf

Outflow = 3.21 cfs @ 12.08 hrs, Volume= 88,821 cf, Atten= 0%, Lag= 0.0 min

Primary = 3.21 cfs @ 12.08 hrs, Volume= 88,821 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

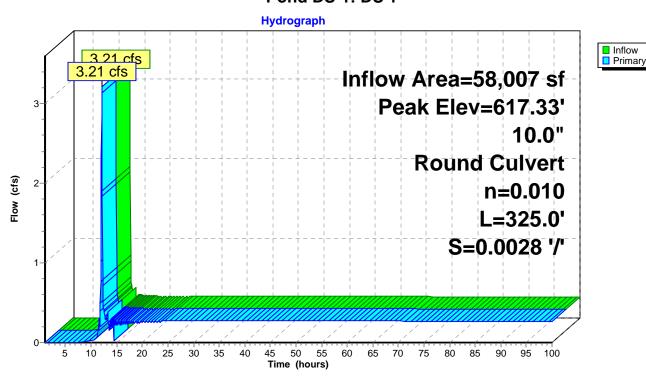
Peak Elev= 617.33' @ 12.09 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert
			L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=3.05 cfs @ 12.08 hrs HW=616.92' TW=591.20' (Dynamic Tailwater) 1=Culvert (Barrel Controls 3.05 cfs @ 5.59 fps)

#### Pond DS-1: DS 1



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### **Summary for Pond DS8: Planter PB-6A**

Inflow Area = 1,765 sf, 96.09% Impervious, Inflow Depth = 3.65" for 25 Year event

0.19 cfs @ 12.03 hrs. Volume= Inflow 537 cf

0.01 cfs @ 13.35 hrs, Volume= Outflow 311 cf, Atten= 95%, Lag= 79.2 min

Primary 0.01 cfs @ 13.35 hrs, Volume= 311 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 615.62' @ 13.35 hrs Surf.Area= 84 sf Storage= 399 cf

Plug-Flow detention time= 955.1 min calculated for 310 cf (58% of inflow)

Center-of-Mass det. time= 845.0 min (1,607.4 - 762.4)

Volume	Inver	t Ava	il.Stor	age	Storage Descrip	otion		
#1	610.63	33'		9 cf	Storage (Prismatic)Listed below		w (Recalc)	
Elevatio		Surf.Area (sq-ft)	Void (%		Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
610.6	3	235	0.	0	0	0		
614.1	3	235	40.	0	329	329		
614.14		84			0	329		
615.4		84	50.		55	385		
615.6	53	84	100.	0	14	399		
Device	Routing	In	vert	Outl	et Devices			
#1	Primary 613.04' <b>6.0" Round Culvert</b>							
//O Do to 4 O44 401		401	L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf					
#2	Device 1	vice 1 611.13		<b>6.0" Round Culvert</b> L= 14.0' CMP, end-section conforming to fill, Ke= 0.500				
				Inlet / Outlet Invert= 611.13' / 611.13' S= 0.0000 '/' Cc= 0.900				
					= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf			
#3	Device 2	Device 2 610.63' 0.900 in/hr Exfiltration over Surface area						
#4	Device 1	Device 1 615.62'		<b>24.0"</b> x <b>24.0"</b> Horiz. Orifice/Grate C= 0.600				
				Limi	ted to weir flow a	it low heads		

Primary OutFlow Max=0.01 cfs @ 13.35 hrs HW=615.62' TW=612.78' (Dynamic Tailwater)

**-1=Culvert** (Passes 0.01 cfs of 1.44 cfs potential flow)

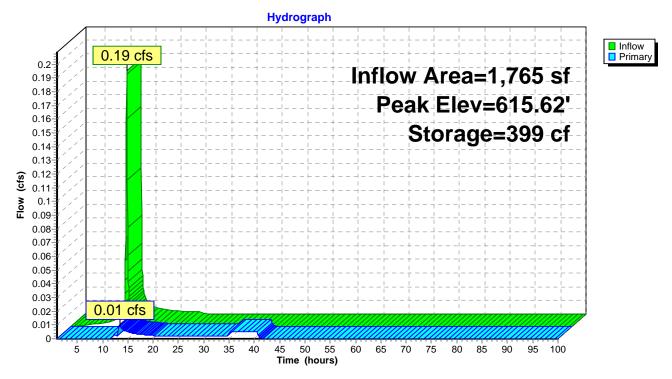
**-2=Culvert** (Passes 0.00 cfs of 1.52 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.01 cfs @ 0.22 fps)

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## Pond DS8: Planter PB-6A



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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment1: Area 1 Runoff Area=5,276 sf 95.77% Impervious Runoff Depth=0.14"

Tc=12.0 min CN=97 Runoff=0.02 cfs 61 cf

Subcatchment 1M: Area 1M M and T Lot Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=0.19"

Tc=15.0 min CN=98 Runoff=0.17 cfs 469 cf

Subcatchment 2: Area 2 Runoff Area=3,939 sf 92.08% Impervious Runoff Depth=0.14"

Tc=12.0 min CN=97 Runoff=0.02 cfs 46 cf

Subcatchment 2M: Area 2M M and T Two Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.08 cfs 209 cf

Subcatchment 3: Area 3 Runoff Area=2,103 sf 92.44% Impervious Runoff Depth=0.14"

Tc=12.0 min CN=97 Runoff=0.01 cfs 24 cf

Subcatchment 4: Area 4 Runoff Area=6,163 sf 94.95% Impervious Runoff Depth=0.14"

Tc=12.0 min CN=97 Runoff=0.03 cfs 71 cf

Subcatchment 4B: Area 4B Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.01 cfs 33 cf

Subcatchment 5: Area 5 Runoff Area=3,711 sf 98.14% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.02 cfs 58 cf

Subcatchment 6: Area 6 Runoff Area=1,765 sf 96.09% Impervious Runoff Depth=0.14"

Tc=12.0 min CN=97 Runoff=0.01 cfs 20 cf

Subcatchment 7: Area 7 Runoff Area=3,275 sf 96.52% Impervious Runoff Depth=0.14"

Tc=12.0 min CN=97 Runoff=0.01 cfs 38 cf

Subcatchment 8: Area 8 Runoff Area=2,841 sf 96.16% Impervious Runoff Depth=0.14"

Tc=12.0 min CN=97 Runoff=0.01 cfs 33 cf

Subcatchment9: Area 9 Runoff Area=2,159 sf 94.58% Impervious Runoff Depth=0.14"

Tc=12.0 min CN=97 Runoff=0.01 cfs 25 cf

Subcatchment 9A: Area 9A Runoff Area=4,063 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.02 cfs 63 cf

Subcatchment 9B: Area 9B Runoff Area=5,512 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.03 cfs 86 cf

Subcatchment 15: Area 15 Runoff Area=3,027 sf 97.49% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.02 cfs 47 cf

Subcatchment 15A: Area 15A Runoff Area=3,750 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.02 cfs 58 cf

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Subcatchment 15B: Area 15B	Runoff Area=16,790 sf 100.00% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.10 cfs 261 cf
Subcatchment 16: Area 16	Runoff Area=2,715 sf 98.42% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.02 cfs 42 cf
Pond 84": 84" TRUNK SEWER	Peak Elev=590.21' Inflow=0.22 cfs 516 cf 84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=0.22 cfs 519 cf
Pond DI 868: DI #868	Peak Elev=612.69' Inflow=0.06 cfs 148 cf 10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.06 cfs 149 cf
Pond DS 10: Planter PB-8A	Peak Elev=610.64' Storage=33 cf Inflow=0.01 cfs 33 cf Outflow=0.00 cfs 0 cf
Pond DS 11: Planter PB-9A	Peak Elev=610.28' Storage=25 cf Inflow=0.01 cfs 25 cf Outflow=0.00 cfs 0 cf
Pond DS 14: DS 14	Peak Elev=612.99' Inflow=0.11 cfs 280 cf Primary=0.09 cfs 265 cf Secondary=0.02 cfs 15 cf Outflow=0.11 cfs 280 cf
Pond DS 15: Planter PB-4A	Peak Elev=610.63' Storage=265 cf Inflow=0.09 cfs 265 cf Outflow=0.00 cfs 0 cf
Pond DS 2: Planter PB-1A	Peak Elev=611.06' Storage=61 cf Inflow=0.02 cfs 61 cf Outflow=0.00 cfs 0 cf
Pond DS 28: DS 28	Peak Elev=608.82' Inflow=0.02 cfs 58 cf 12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=0.02 cfs 58 cf
Pond DS 29: Planter PB-1B	Peak Elev=610.26' Storage=47 cf Inflow=0.02 cfs 47 cf Outflow=0.00 cfs 0 cf
Pond DS 3: DS 3	Peak Elev=612.90' Inflow=0.18 cfs 514 cf Primary=0.18 cfs 515 cf Secondary=0.00 cfs 0 cf Outflow=0.18 cfs 515 cf
Pond DS 30: Planter PB-2B	Peak Elev=611.08' Storage=42 cf Inflow=0.02 cfs 42 cf Outflow=0.00 cfs 0 cf
Pond DS 4: Planter PB-2A	Peak Elev=611.69' Storage=515 cf Inflow=0.18 cfs 515 cf Outflow=0.00 cfs 0 cf
Pond DS 5: Planter PB-3A	Peak Elev=610.50' Storage=24 cf Inflow=0.01 cfs 24 cf Outflow=0.00 cfs 0 cf
Pond DS 6: DS 6	Peak Elev=612.70' Inflow=0.06 cfs 149 cf 10.0" Round Culvert n=0.010 L=303.0' S=0.0028 '/' Outflow=0.06 cfs 148 cf
Pond DS 7: Planter PB-5A	Peak Elev=611.41' Storage=58 cf Inflow=0.02 cfs 58 cf Outflow=0.00 cfs 0 cf
Pond DS 9: Planter PB-7A	Peak Elev=610.73' Storage=38 cf Inflow=0.01 cfs 38 cf

Outflow=0.00 cfs 0 cf

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Type II 24-hr 50% Rainfall=0.35"
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Pond DS-1: DS 1 Peak Elev=612.66' Inflow=0.04 cfs 48 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.04 cfs 49 cf

Pond DS8: Planter PB-6A Peak Elev=610.85' Storage=20 cf Inflow=0.01 cfs 20 cf

Outflow=0.00 cfs 0 cf

Total Runoff Area = 112,891 sf Runoff Volume = 1,644 cf Average Runoff Depth = 0.17" 1.61% Pervious = 1,812 sf 98.39% Impervious = 111,079 sf

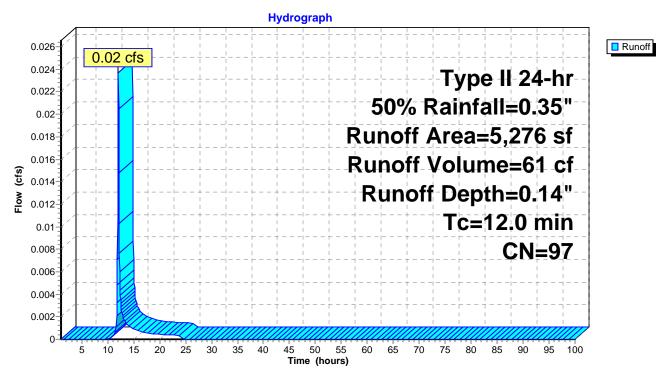
## **Summary for Subcatchment 1: Area 1**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 61 cf, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description						
	223	80	>75% Gras	s cover, Go	ood, HSG D				
	5,053	98	Paved park	ing, HSG D	)				
	5,276	97	Weighted A	verage					
	223		4.23% Pervious Area						
	5,053		95.77% Imp	pervious Ar	ea				
т.	1	01	M-12	0 11	D				
Тс	Length	Slope	,	Capacity	Description				
(min)	(feet)	(ft/ft)	(ft/sec) (cfs)						
12.0			Direct Entry,						

#### **Subcatchment 1: Area 1**



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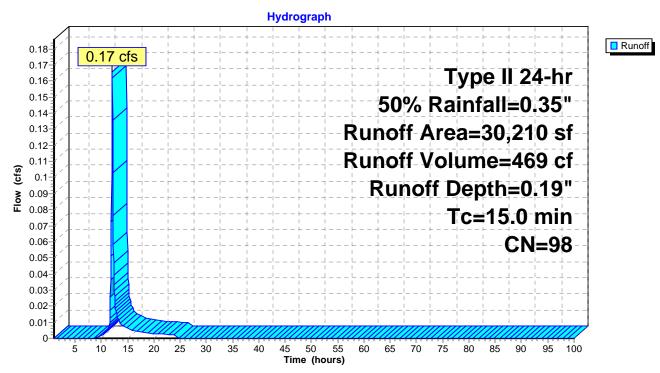
## Summary for Subcatchment 1M: Area 1M M and T Lot one

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 469 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

Α	rea (sf)	CN	Description						
	210	80	>75% Gras	s cover, Go	od, HSG D				
	30,000	98	Paved park	ing, HSG D					
	30,210	98	Weighted A	verage					
	210		0.70% Perv	ious Area					
	30,000		99.30% Imp	pervious Ar	ea				
т.	ما المحمد الم	Clan	. \/alaa!tu	Consolty	Description				
Tc	Length	Slop							
(min)	(feet)	(ft/ft	) (ft/sec) (cfs)						
15.0	•		•		Direct Entry				

## Subcatchment 1M: Area 1M M and T Lot one



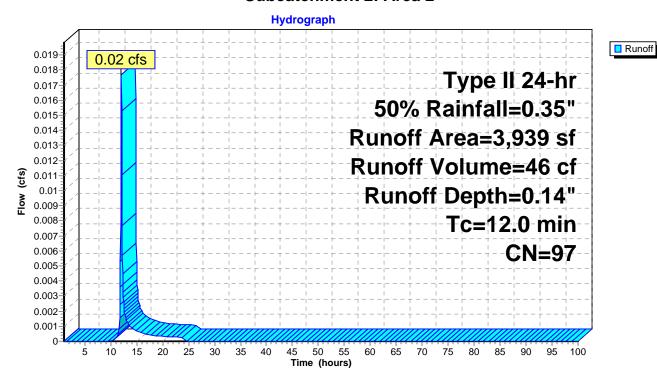
## **Summary for Subcatchment 2: Area 2**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 46 cf, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description					
	312	80	>75% Gras	s cover, Go	Good, HSG D			
	3,627	98	Paved park	ing, HSG D	D			
	3,939	97	Weighted A	verage				
	312		7.92% Pervious Area					
	3,627		92.08% lmp	ervious Ar	rea			
Тс	Length	Slope	,	Capacity	•			
(min)	(feet)	(ft/ft	) (ft/sec) (cfs)					
12.0					Direct Entry,			

#### Subcatchment 2: Area 2



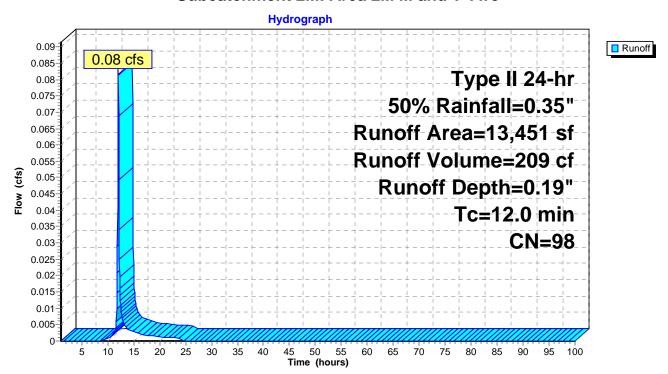
# Summary for Subcatchment 2M: Area 2M M and T Two

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 209 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN [	Description						
	13,451	98 F	Paved parking, HSG D						
	13,451	•	100.00% Impervious Area						
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
12.0					Direct Entry,				

#### Subcatchment 2M: Area 2M M and T Two



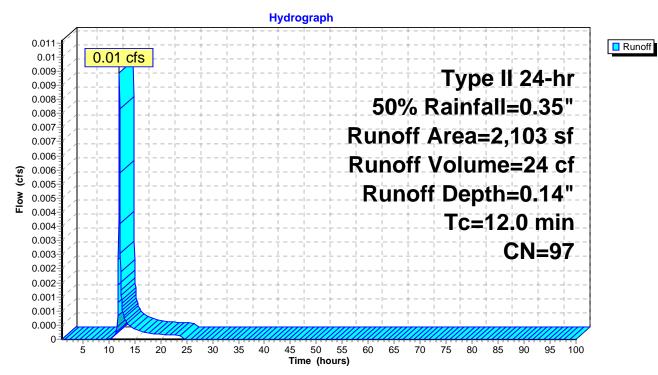
## **Summary for Subcatchment 3: Area 3**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 24 cf, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description						
	159	80	>75% Gras	s cover, Go	ood, HSG D				
	1,944	98	Paved park	ing, HSG D					
	2,103			Veighted Average					
	159		7.56% Perv	ious Area					
	1,944		92.44% Imp	ervious Ar	rea				
Тс	Length	Slope	,	Capacity	Description				
(min)	(feet)	(ft/ft	) (ft/sec) (cfs)						
12.0					Direct Entry,				

#### **Subcatchment 3: Area 3**



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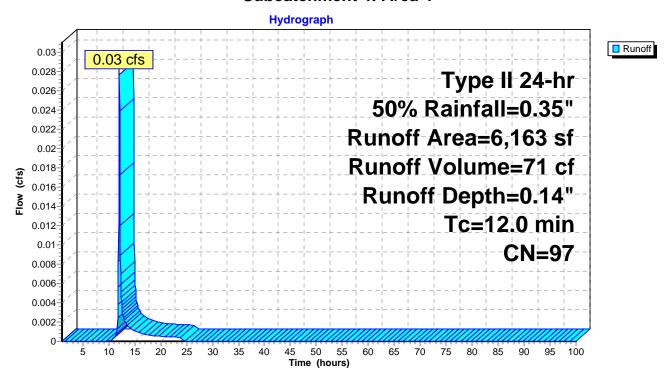
### **Summary for Subcatchment 4: Area 4**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 71 cf, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description						
	311	80	>75% Gras	s cover, Go	ood, HSG D				
	5,852	98	Paved park	ing, HSG D	)				
	6,163	97	Weighted A	verage					
	311		5.05% Pervious Area						
	5,852		94.95% lmp	ervious Ar	ea				
Тс	Length	Slope	Velocity	Capacity	Description				
(min)	(feet)	(ft/ft)	(ft/sec) (cfs)						
12.0					Direct Entry,				

#### Subcatchment 4: Area 4



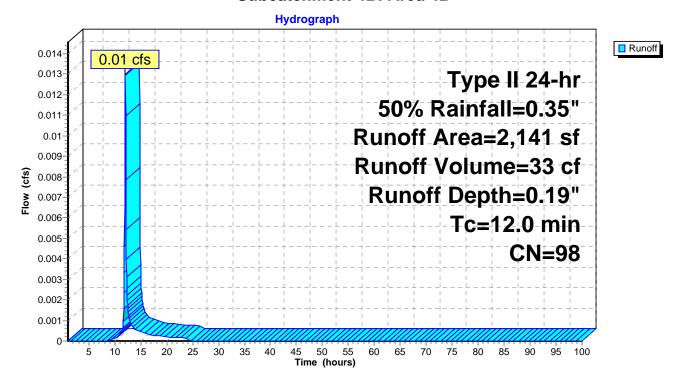
## Summary for Subcatchment 4B: Area 4B

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 33 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

 Α	rea (sf)	CN I	Description					
	2,141	98 I	Paved parking, HSG D					
	2,141	•	00.00% Impervious Area					
 Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
 12.0					Direct Entry,			

#### Subcatchment 4B: Area 4B



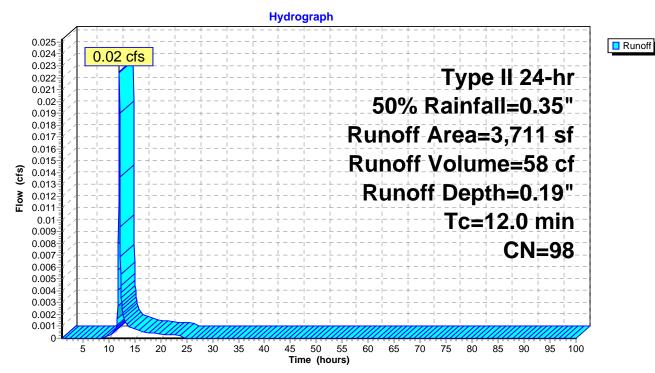
# **Summary for Subcatchment 5: Area 5**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 58 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description						
	69	80	>75% Gras	s cover, Go	od, HSG D				
	3,642	98	Paved park	ing, HSG D					
	3,711	98	Weighted A	Weighted Average					
	69		1.86% Pervious Area						
	3,642		98.14% lmp	pervious Ar	ea				
Тс	Length	Slope	Velocity	Capacity	Description				
(min)	(feet)	(ft/ft)							
12.0			Direct Entry,						

#### **Subcatchment 5: Area 5**



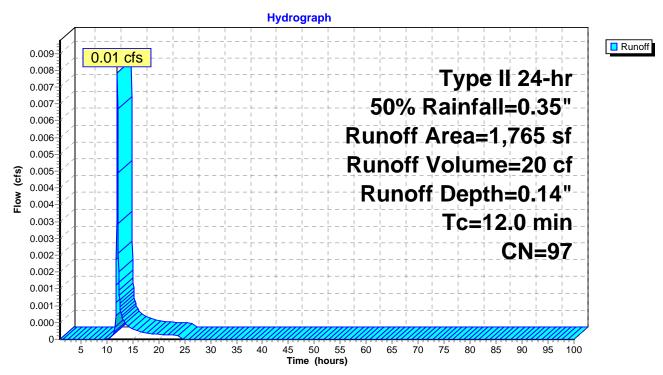
## **Summary for Subcatchment 6: Area 6**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 20 cf, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description					
	69	80	>75% Gras	s cover, Go	ood, HSG D			
	1,696	98	Paved park	ing, HSG D	)			
	1,765	97	Weighted A	verage				
	69		3.91% Pervious Area					
	1,696		96.09% Imp	ervious Ar	ea			
Тс	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec) (cfs)					
12.0					Direct Entry,			

#### **Subcatchment 6: Area 6**



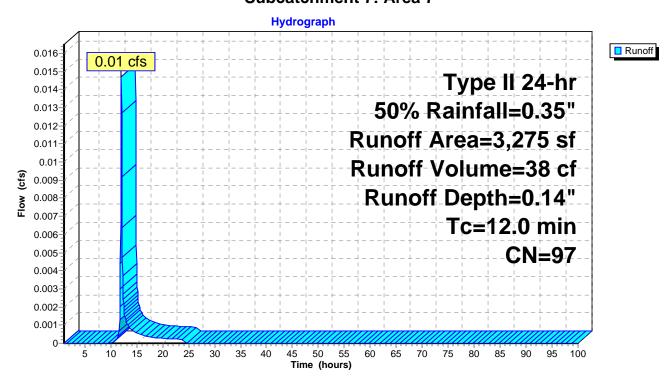
## **Summary for Subcatchment 7: Area 7**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 38 cf, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description							
	114	80	>75% Gras	>75% Grass cover, Good, HSG D						
	3,161	98	Paved park	ing, HSG D						
	3,275	97	Weighted A	Veighted Average						
	114		3.48% Pervious Area							
	3,161		96.52% lmp	ervious Ar	ea					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description					
12.0					Direct Entry,					

### Subcatchment 7: Area 7



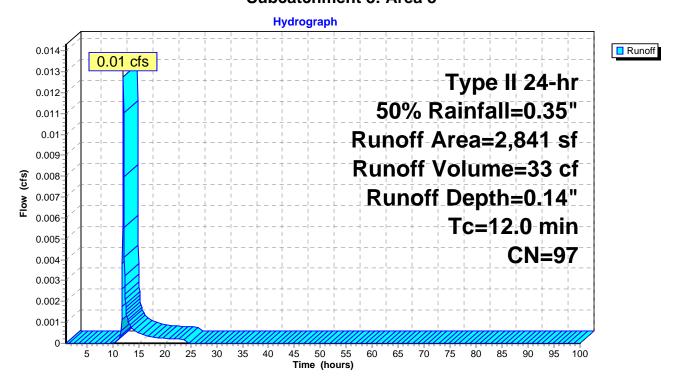
### **Summary for Subcatchment 8: Area 8**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 33 cf, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description						
	109	80	>75% Gras	s cover, Go	ood, HSG D				
	2,732	98	Paved park	ing, HSG D	)				
	2,841	97	Weighted A	Weighted Average					
	109		3.84% Pervious Area						
	2,732		96.16% lmp	pervious Ar	ea				
Тс	Length	Slope	e Velocity	Capacity	Description				
(min)	(feet)	(ft/ft							
	(100t)	(IVIL							
12.0					Direct Entry,				

### **Subcatchment 8: Area 8**



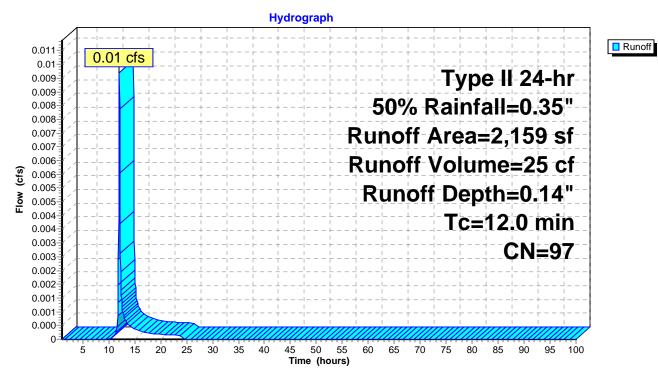
# **Summary for Subcatchment 9: Area 9**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 25 cf, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

Α	rea (sf)	CN	Description						
	117	80	>75% Gras	s cover, Go	ood, HSG D				
	2,042	98	Paved park	ing, HSG D	)				
	2,159	97	Weighted A	Weighted Average					
	117		5.42% Perv	rious Area					
	2,042		94.58% Imp	pervious Ar	ea				
_		01	N/ 1 14	0 ''	<b>5</b>				
Tc	Length	Slope	e Velocity	Capacity	Description				
(min)	(feet)	(ft/ft	t) (ft/sec) (cfs)						
12.0					Direct Entry				

### Subcatchment 9: Area 9



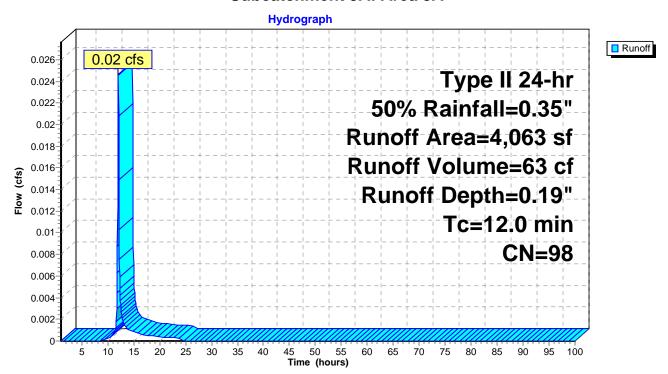
## **Summary for Subcatchment 9A: Area 9A**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 63 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

	Area (sf)	CN I	Description					
	4,063	98 I	Paved parking, HSG D					
	4,063	•	100.00% Impervious Area					
To (min		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
12.0	)				Direct Entry,			

#### Subcatchment 9A: Area 9A



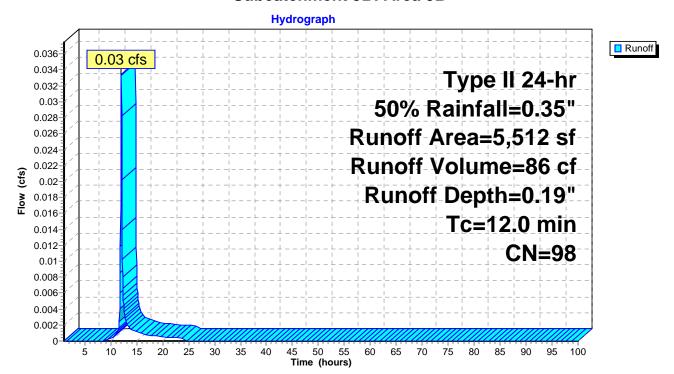
# Summary for Subcatchment 9B: Area 9B

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 86 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

_	Α	rea (sf)	CN I	Description					
		5,512	98 I	Paved parking, HSG D					
		5,512	•	100.00% Impervious Area					
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	·			
	12.0					Direct Entry,			

#### Subcatchment 9B: Area 9B



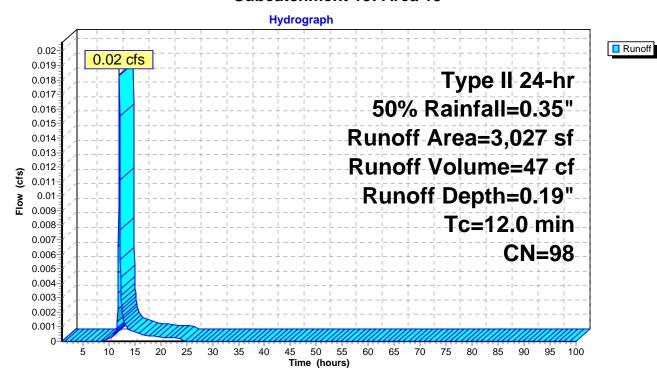
## **Summary for Subcatchment 15: Area 15**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 47 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description					
	76	80	>75% Gras	s cover, Go	ood, HSG D			
	2,951	98	Paved park	ing, HSG D				
	3,027	98	Weighted Average					
	76		2.51% Perv	ious Area				
	2,951		97.49% lmp	ervious Ar	rea			
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description			
12.0	(1001)	(14,14)	(14000)	(0.0)	Direct Entry,			

#### **Subcatchment 15: Area 15**



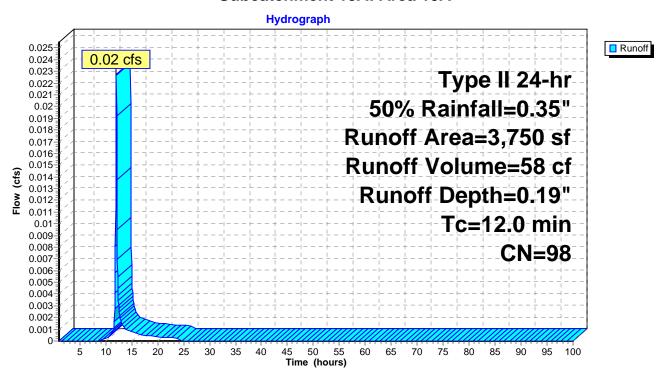
# **Summary for Subcatchment 15A: Area 15A**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 58 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

 Α	rea (sf)	CN	Description					
	3,750	98	Paved parking, HSG D					
	3,750		100.00% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description			
12.0					Direct Entry,			

## Subcatchment 15A: Area 15A



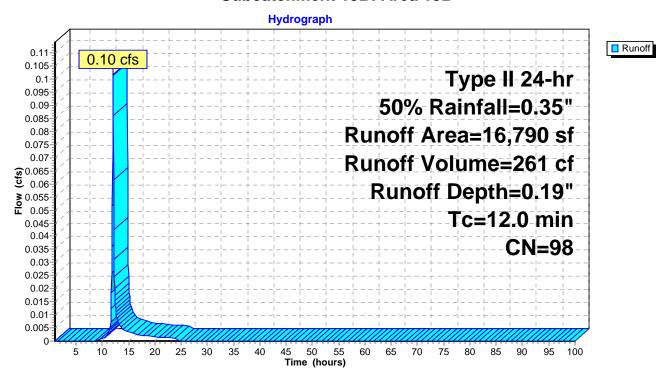
# **Summary for Subcatchment 15B: Area 15B**

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 261 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

	Α	rea (sf)	CN	Description					
		16,790	98	Paved parking, HSG D					
		16,790		100.00% Impervious Area					
	Tc in)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description			
12	2.0					Direct Entry,			

#### Subcatchment 15B: Area 15B



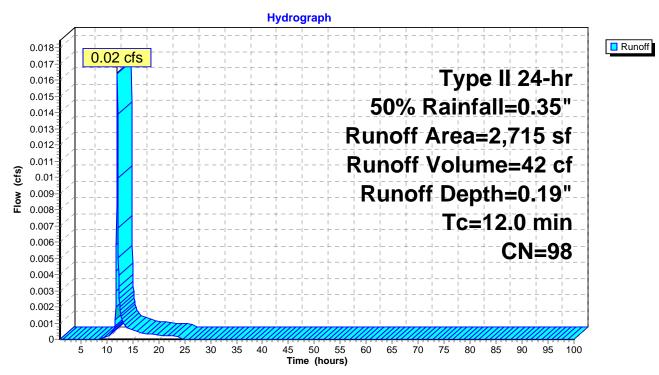
## **Summary for Subcatchment 16: Area 16**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 42 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description					
	43	80	>75% Gras	s cover, Go	ood, HSG D			
	2,672	98	Paved park	ing, HSG D	)			
	2,715	98	Weighted Average					
	43		1.58% Pervious Area					
	2,672		98.42% Imp	ervious Ar	ea			
Tc	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	,	(cfs)	2 cccptc			
12.0					Direct Entry,			

#### **Subcatchment 16: Area 16**



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# **Summary for Pond 84": 84" TRUNK SEWER**

Inflow Area = 112,891 sf, 98.39% Impervious, Inflow Depth = 0.05" for 50% event

Inflow = 0.22 cfs @ 12.04 hrs. Volume= 516 cf

Outflow = 0.22 cfs @ 12.04 hrs, Volume= 519 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.22 cfs @ 12.04 hrs, Volume= 519 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

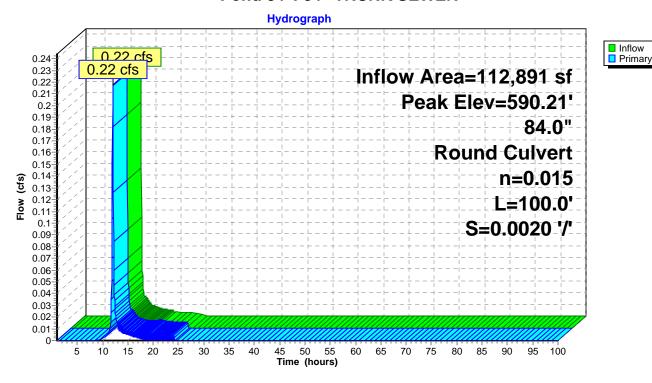
Peak Elev= 590.21' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	84.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 38.48 sf

Primary OutFlow Max=0.21 cfs @ 12.04 hrs HW=590.20' (Free Discharge) 1=Culvert (Barrel Controls 0.21 cfs @ 1.02 fps)

#### Pond 84": 84" TRUNK SEWER



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### Summary for Pond DI 868: DI #868

[80] Warning: Exceeded Pond DS 6 by 0.27' @ 15.55 hrs (0.11 cfs 35,875 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth = 0.08" for 50% event

Inflow = 0.06 cfs @ 12.04 hrs, Volume= 148 cf

Outflow = 0.06 cfs @ 12.04 hrs, Volume= 149 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.06 cfs @ 12.04 hrs, Volume= 149 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

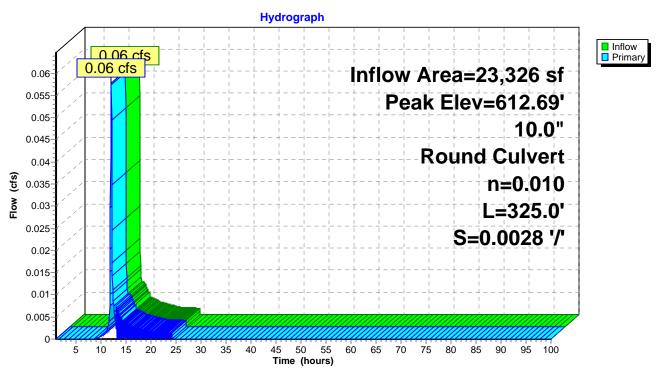
Peak Elev= 612.69' @ 12.04 hrs

Flood Elev= 647.22'

Device I	Routing	Invert	Outlet Devices
		612.54'	10.0" Round Culvert L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.06 cfs @ 12.04 hrs HW=612.69' TW=590.20' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.06 cfs @ 1.32 fps)

#### Pond DI 868: DI #868



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# **Summary for Pond DS 10: Planter PB-8A**

Inflow Area = 2,841 sf, 96.16% Impervious, Inflow Depth = 0.14" for 50% event

Inflow = 0.01 cfs @ 12.04 hrs, Volume= 33 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.64' @ 24.70 hrs Surf.Area= 391 sf Storage= 33 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.	Storage	Storage Descrip	tion			
#1	610.43'	610.43' 63		Storage (Prisma	atic)Listed below	w (Recalc)		
Elevatio		urf.Area \ (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
610.4		391	0.0	0	0			
613.7		391	40.0	519	519			
613.7	<b>'</b> 6	141	20.0	1	520			
615.0	)9	141	50.0	94	614			
615.2	26	141	100.0	24	638			
Device	Routing	Inve	ert Outle	et Devices				
#1	Primary	611.9		Round Culvert		14 0 700		
<b>#</b> 0	Davis 4	040	Inlet n= 0	.013 Corrugated	11.95' / 611.88'	Ke= 0.500 S= 0.0117 '/' Cc= 0.900 erior, Flow Area= 0.20 sf		
#2	Device 1	610.7		Round Culvert	ection conforming	na to fill Ke- 0.500		
				L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.76' / 610.76' S= 0.0000 '/' Cc= 0.900				
		n=		n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf				
#3	Device 2	610.4		0 in/hr Exfiltratio				
#4	Device 1	615.2		" x 24.0" Horiz. C		= 0.600		
			Limit	ted to weir flow at	low heads			

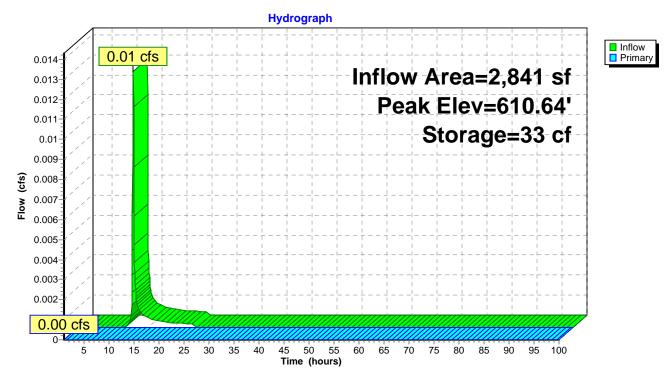
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.43' TW=612.27' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 10: Planter PB-8A



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## Summary for Pond DS 11: Planter PB-9A

Inflow Area = 2,159 sf, 94.58% Impervious, Inflow Depth = 0.14" for 50% event

Inflow = 0.01 cfs @ 12.04 hrs, Volume= 25 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.28' @ 24.70 hrs Surf.Area= 391 sf Storage= 25 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.	Storage	Storage Descript	tion			
#1	610.12'	610.12' 66		Storage (Prismatic)Listed below (Recalc)		w (Recalc)		
Elevatio		urf.Area \ (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
610.1	•	391	0.0	0	0			
613.6		391	40.0	546	546			
613.6	62	141	20.0	1	546			
614.9		141	50.0	94	640			
615.1	12	141 1	100.0	24	664			
Device	Routing	Inve	ert Outle	et Devices				
#1	Primary	611.9		Round Culvert		14 0 500		
<b>"</b> 0	D. L. A	040.0	Inlet n= 0	.013 Corrugated	11.91' / 611.84	Ke= 0.500 S= 0.0117 '/' Cc= 0.900 erior, Flow Area= 0.20 sf		
#2	Device 1	610.6		<b>6.0" Round Culvert</b> L= 27.0' CMP, end-section conforming to fill, Ke= 0.500				
				·		S= 0.0000 '/' Cc= 0.900		
			n= 0	n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf				
#3	Device 2	610.1		.000 in/hr Exfiltration over Surface area				
#4	Device 1	615.1		" x 24.0" Horiz. C		= 0.600		
			Limit	ted to weir flow at	low heads			

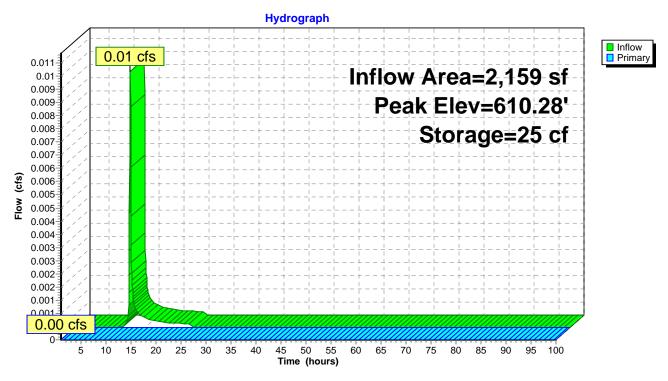
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.12' TW=612.27' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 11: Planter PB-9A



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# Summary for Pond DS 14: DS 14

Inflow Area =	19,614 sf, 98.41% Impervious	Inflow Depth = 0.17" for 50% event
Inflow =	0.11 cfs @ 12.04 hrs, Volume=	280 cf
Outflow =	0.11 cfs @ 12.04 hrs, Volume=	280 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.09 cfs @ 12.04 hrs, Volume=	265 cf
Secondary =	0.02 cfs @ 12.04 hrs, Volume=	15 cf

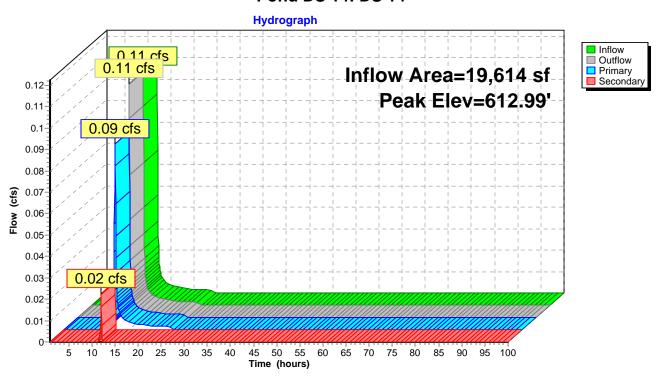
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 612.99' @ 12.04 hrs Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.80'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.80' / 612.75' S= 0.0125 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	612.90'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500
	•		Inlet / Outlet Invert= 612.90' / 612.83' S= 0.0117 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.09 cfs @ 12.04 hrs HW=612.99' TW=610.18' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.09 cfs @ 1.85 fps)

Secondary OutFlow Max=0.02 cfs @ 12.04 hrs HW=612.99' TW=612.66' (Dynamic Tailwater) = Culvert (Barrel Controls 0.02 cfs @ 1.36 fps)

#### Pond DS 14: DS 14



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# **Summary for Pond DS 15: Planter PB-4A**

19,614 sf, 98.41% Impervious, Inflow Depth = 0.16" for 50% event Inflow Area =

0.09 cfs @ 12.04 hrs. Volume= Inflow 265 cf

1.00 hrs, Volume= Outflow 0.00 cfs @ 0 cf, Atten= 100%, Lag= 0.0 min

Primary 1.00 hrs, Volume= 0.00 cfs @ 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.63' @ 24.70 hrs Surf.Area= 1,055 sf Storage= 265 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail	l.Stora	ge Storage Descr	ription		
#1	610.00'		1,803	cf Storage (Pris	matic)Listed belo	w (Recalc)	
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
610.0		1,055	0.0	0	0		
613.4		1,055	40.0	1,473	1,473		
613.5	50	394	20.0	1	1,474		
614.8		394	50.0	262	1,736		
615.0	00	394	100.0	67	1,803		
Device	Routing	ln۱	ert (	Outlet Devices			
#1	Primary	611.		5.0" Round Culver			
				.= 6.0' CPP, squar			
						S= 0.0117 '/' Cc= 0.900 erior, Flow Area= 0.20 sf	
#2	Device 1	610.		5.0" Round Culve		erior, Tiow Area = 0.20 Si	
"-	201100 1	010.				ng to fill, Ke= 0.500	
						S= 0.0000 '/' Cc= 0.900	
			r	n= 0.010 PVC, smc	ooth interior, Flow	Area= 0.20 sf	
#3	Device 2	610.		1.000 in/hr Exfiltra			
#4	Device 1	614.		24.0" x 24.0" Horiz		C = 0.600	
			L	imited to weir flow	at low heads		

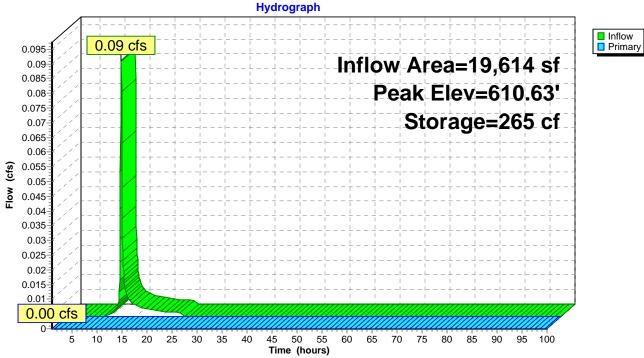
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.00' TW=612.54' (Dynamic Tailwater)

-1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.27 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 15: Planter PB-4A





# Summary for Pond DS 2: Planter PB-1A

5,276 sf, 95.77% Impervious, Inflow Depth = 0.14" for 50% event Inflow Area =

0.02 cfs @ 12.04 hrs, Volume= Inflow 61 cf

1.00 hrs, Volume= Outflow 0.00 cfs @ 0 cf, Atten= 100%, Lag= 0.0 min

Primary 1.00 hrs, Volume= 0.00 cfs @ 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.06' @ 24.70 hrs Surf.Area= 273 sf Storage= 61 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

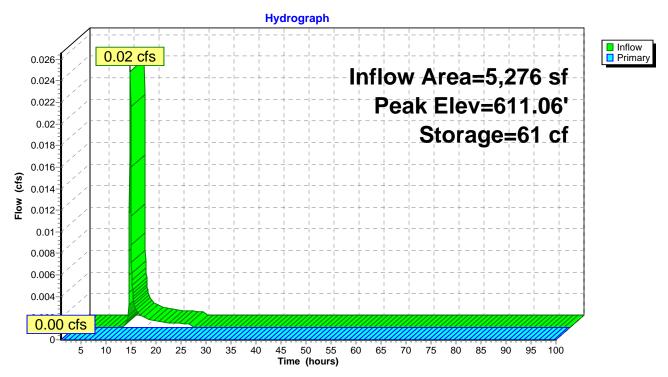
Volume	Invert	Avail.S	Storage	Storage Descript	tion	
#1	610.50'		610 cf	Storage (Prisma	atic)Listed below	w (Recalc)
Elevatio		rf.Area V (sq-ft)	oids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
610.5		273	0.0	0	0	
613.9			40.0	381	381	
614.0	00	273	20.0	1	382	
615.3	33	273	50.0	182	563	
615.5	50	273 1	0.00	46	610	
Device	Routing	Inve	rt Outl	et Devices		
#1	Primary	612.6	4' <b>6.0"</b>	Round Culvert		
			Inlet		12.64' / 612.59'	Ke= 0.500 S= 0.0125 '/' Cc= 0.900 erior, Flow Area= 0.20 sf
#2	Device 1	611.1		Round Culvert	FE, SHIOOTH IIILE	ellor, Flow Area = 0.20 Si
11 <b>Z</b>	DOVIGO 1	011.17			ection conformir	ng to fill, Ke= 0.500
						S= 0.0000 '/' Cc= 0.900
			n= 0	.013 Corrugated	PE, smooth inte	erior, Flow Area= 0.20 sf
#3	Device 2	610.5	O' <b>0.30</b>	0 in/hr Exfiltratio	n over Surface	area
#4	Device 1	615.4	9' <b>24.0</b>	" x 24.0" Horiz. C	Orifice/Grate C	= 0.600
			Limi	ted to weir flow at	low heads	

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.50' TW=590.00' (Dynamic Tailwater) -1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

## Pond DS 2: Planter PB-1A



# Summary for Pond DS 28: DS 28

Inflow Area = 9,492 sf, 98.75% Impervious, Inflow Depth = 0.07" for 50% event

Inflow = 0.02 cfs @ 12.04 hrs, Volume= 58 cf

Outflow = 0.02 cfs @ 12.04 hrs, Volume= 58 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.02 cfs @ 12.04 hrs, Volume= 58 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

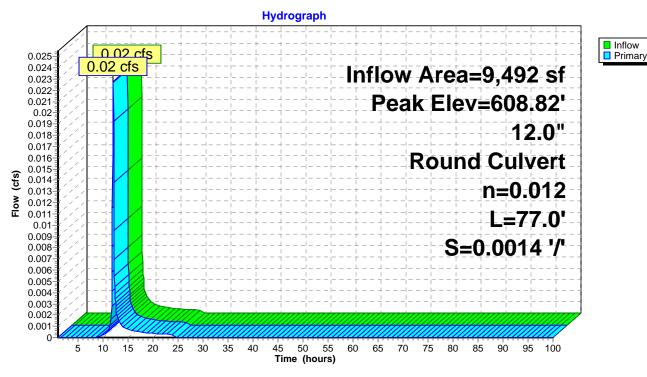
Peak Elev= 608.82' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	12.0" Round Culvert
	-		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 12.04 hrs HW=608.82' TW=590.20' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.02 cfs @ 0.71 fps)

## Pond DS 28: DS 28



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## Summary for Pond DS 29: Planter PB-1B

Inflow Area = 5,742 sf, 97.93% Impervious, Inflow Depth = 0.10" for 50% event

Inflow = 0.02 cfs @ 12.04 hrs, Volume= 47 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.26' @ 24.70 hrs Surf.Area= 101 sf Storage= 47 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avai	l.Stora	ige Storage Desci	ription	
#1	609.10'		225	of Storage (Pris	matic)Listed belo	w (Recalc)
Elevatio	_	urf.Area (sq-ft)	Voids (%)		Cum.Store (cubic-feet)	
609.1		101	0.0	, ,	0	
612.6	60	101	40.0	141	141	
612.6		101	20.0		142	
613.9		101	50.0		208	
614.1	10	101	100.0	17	225	
Device	Routing	Inv	vert	Outlet Devices		
#1	Primary	610		6.0" Round Culve		
				L= 5.0' CPP, squa		
						S= 0.0120 '/' Cc= 0.900 erior, Flow Area= 0.20 sf
#2	Device 1	609		6.0" Round Culve		enoi, Tiow Alea = 0.20 3i
						ng to fill, Ke= 0.500
				Inlet / Outlet Invert=	: 609.75' / 609.75'	S= 0.0000 '/' Cc= 0.900
						erior, Flow Area= 0.20 sf
#3	Device 2	609		0.300 in/hr Exfiltra		
#4	Device 1	614		<b>24.0" x 24.0" Horiz</b> Limited to weir flow		-= U.0UU
				Littliced to Well HOW	at low rieaus	

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=609.10' TW=608.71' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

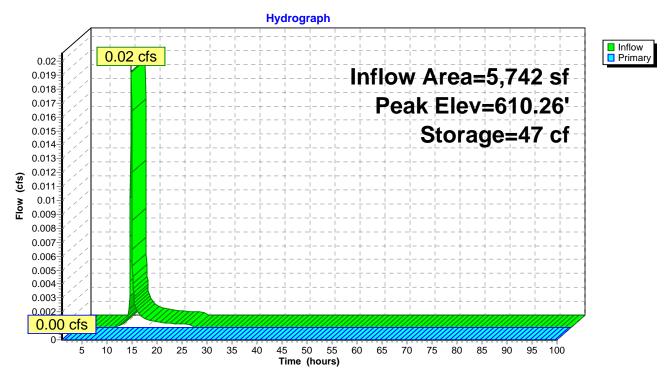
-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

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### Pond DS 29: Planter PB-1B



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## **Summary for Pond DS 3: DS 3**

Inflow Area =	34,149 sf, 98.47% Impervious,	Inflow Depth = 0.18" for 50% event
Inflow =	0.18 cfs @ 12.07 hrs, Volume=	514 cf
Outflow =	0.18 cfs @ 12.07 hrs, Volume=	515 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.18 cfs @ 12.07 hrs, Volume=	515 cf
Secondary =	0.00 cfs @ 1.00 hrs, Volume=	0 cf

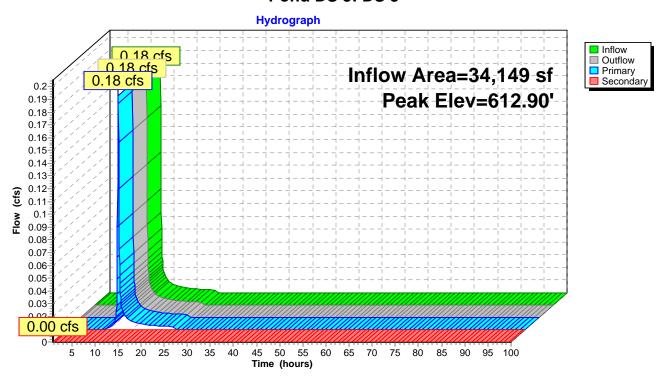
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 612.90' @ 12.07 hrs Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.60'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.60' / 612.55' S= 0.0125 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	613.60'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500
	•		Inlet / Outlet Invert= 613.60' / 613.55' S= 0.0083 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.18 cfs @ 12.07 hrs HW=612.89' TW=610.77' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.18 cfs @ 2.16 fps)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=612.60' TW=590.00' (Dynamic Tailwater) = Culvert ( Controls 0.00 cfs)

#### Pond DS 3: DS 3



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# Summary for Pond DS 30: Planter PB-2B

Inflow Area = 2,715 sf, 98.42% Impervious, Inflow Depth = 0.19" for 50% event

Inflow = 0.02 cfs @ 12.04 hrs, Volume= 42 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume = 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.08' @ 24.70 hrs Surf.Area= 49 sf Storage= 42 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.	.Storage	Storage Descripti	on		
#1	608.93'		109 cf	Storage (Prismatic)Listed below (Recalc)			
Elevatio (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
608.9	<i>'</i>	49	0.0	0	0		
612.4		49	40.0	69	69		
612.4	4	49	20.0	0	69		
613.7	6	49	50.0	32	101		
613.9	3	49	100.0	8	109		
Device	Routing	Inv	ert Outl	et Devices			
#1	Primary	611.8		Round Culvert			
Ir			Inlet	9.0' CPP, square / Outlet Invert= 61 .010 PVC, smooth	1.87' / 611.20'	S= 0.0114 '/'	Cc= 0.900
#2	Device 1	609.4		Round Culvert			
L= 7.0' RCP, square edge headwall, Ke= 0.5 Inlet / Outlet Invert= 609.43' / 609.43' S= 0.00 n= 0.010 PVC, smooth interior, Flow Area= 0				S= 0.0000 '/'	Cc= 0.900		
#3	Device 2	608.9		300 in/hr Exfiltration over Surface area			
#4	Device 1	613.9		" x 24.0" Horiz. On ted to weir flow at I		: 0.600	

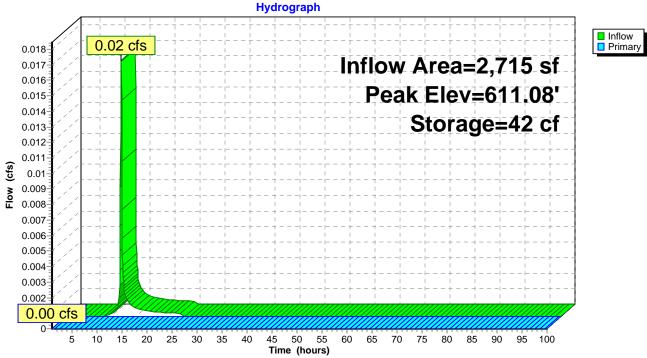
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=608.93' TW=609.10' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 30: Planter PB-2B





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# **Summary for Pond DS 4: Planter PB-2A**

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 0.18" for 50% event

Inflow = 0.18 cfs @ 12.07 hrs, Volume= 515 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume = 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.69' @ 24.90 hrs Surf.Area= 990 sf Storage= 515 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.S	Storage	Storage Description					
#1 610.39' 1,715 d		,715 cf	cf Storage (Prismatic)Listed below (Recalc)						
Elevation Surf.Area Voids (feet) (sq-ft) (%		oids (%)							
-		(sq-ft)		(cubic-feet)					
610.3		990	0.0	0	0				
613.8			40.0	1,386	1,386				
613.9			20.0	004	1,387				
615.2			50.0	261	1,648				
615.3	39	395 1	0.00	67	1,715				
Device	Routing	Inve	ert Outl	et Devices					
#1	Primary	612.4	8' <b>6.0"</b>	6.0" Round Culvert					
				L= 6.0' CPP, square edge headwall, Ke= 0.500					
				Inlet / Outlet Invert= 612.48' / 612.41' S= 0.0117 '/' Cc= 0.900					
				n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf					
#2	Device 1	610.8		Round Culvert					
				L= 60.0' CMP, end-section conforming to fill, Ke= 0.500					
						S= 0.0000 '/' Cc= 0.900			
						rior, Flow Area= 0.20 sf			
#3	Device 2	610.3		0 in/hr Exfiltration					
#4	Device 1	615.3	7' <b>24.0</b>	" x 24.0" Horiz. C	Orifice/Grate C	= 0.600			
			Limi	ted to weir flow at	low heads				

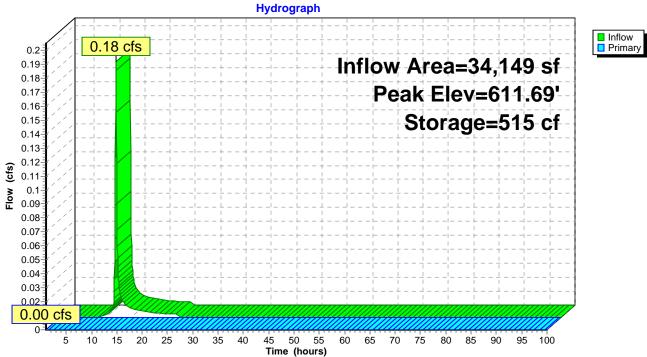
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.39' TW=612.54' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 4: Planter PB-2A





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# **Summary for Pond DS 5: Planter PB-3A**

Inflow Area = 2,103 sf, 92.44% Impervious, Inflow Depth = 0.14" for 50% event

Inflow = 0.01 cfs @ 12.04 hrs, Volume= 24 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume = 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.50' @ 24.70 hrs Surf.Area= 195 sf Storage= 24 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Storage (Prismatic)Listed below (Recalc)					
6.0" Round Culvert					
Inlet / Outlet Invert= 612.37' / 612.30' S= 0.0127 '/' Cc= 0.900					
<b>6.0" Round Culvert</b> = 28.0' CMP, end-section conforming to fill, Ke= 0.500					
Cc = 0.900					
0.010 PVC, smooth interior, Flow Area= 0.20 sf					
)					

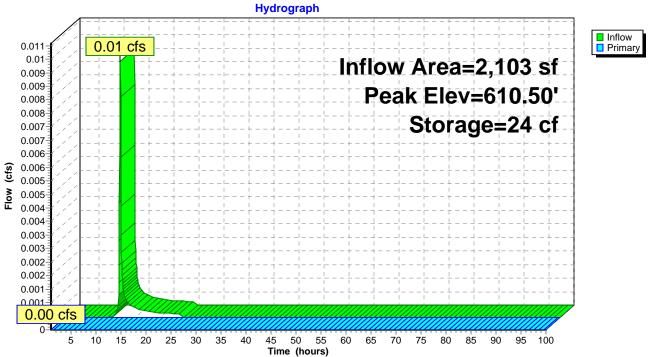
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.19' TW=612.54' (Dynamic Tailwater)

-1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 5: Planter PB-3A





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## **Summary for Pond DS 6: DS 6**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=113)

[80] Warning: Exceeded Pond DS 10 by 2.23' @ 12.00 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 11 by 2.55' @ 12.00 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 9 by 2.16' @ 12.00 hrs (0.01 cfs 254 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth = 0.08" for 50% event

Inflow = 0.06 cfs @ 12.04 hrs. Volume= 149 cf

Outflow = 0.06 cfs @ 12.04 hrs, Volume= 148 cf, Atten= 1%, Lag= 0.0 min

Primary = 0.06 cfs @ 12.04 hrs, Volume= 148 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

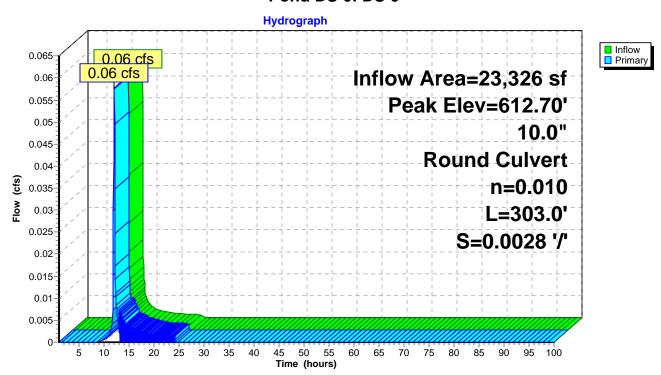
Peak Elev= 612.70' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.27'	10.0" Round Culvert
			L= 303.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.27' / 611.42' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC smooth interior Flow Area= 0.55 sf

Primary OutFlow Max=0.06 cfs @ 12.04 hrs HW=612.70' TW=612.69' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.06 cfs @ 0.29 fps)

#### Pond DS 6: DS 6



# Summary for Pond DS 7: Planter PB-5A

3,711 sf, 98.14% Impervious, Inflow Depth = 0.19" for 50% event Inflow Area =

0.02 cfs @ 12.04 hrs, Volume= Inflow 58 cf

1.00 hrs, Volume= Outflow 0.00 cfs @ 0 cf, Atten= 100%, Lag= 0.0 min

1.00 hrs, Volume= Primary 0.00 cfs @ 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.41' @ 24.70 hrs Surf.Area= 234 sf Storage= 58 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.	Storage	Storage Descript	ion				
#1 610.79' 397 cf		397 cf	Storage (Prismatic)Listed below (Recalc)						
Elevation Surf.Area Voids (feet) (sq-ft) (%)		Voids (%)	Inc.Store Cum.Store (cubic-feet)						
610.7		234	0.0	0	0				
614.2		234	40.0	327	327				
614.2	29	84	20.0	0	327				
615.6	62	84	50.0	56	383				
615.7	79	84	100.0	14	397				
Device	Routing	Inve	ert Outle	et Devices					
#1	Primary	613.0		6.0" Round Culvert					
			Inlet	L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900					
#2	Device 1	- 4 (44.00)		n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf  6.0" Round Culvert					
#2	Device i	vice 1 611.29'		L= 15.0' CMP, end-section conforming to fill, Ke= 0.500					
						S= 0.0000 '/' Cc= 0.900			
						rior, Flow Area= 0.20 sf			
#3	Device 2	610.7		.900 in/hr Exfiltration over Surface area					
#4	Device 1	615.6		" x 24.0" Horiz. C		= 0.600			
				Limited to weir flow at low heads					

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.79' TW=612.27' (Dynamic Tailwater)

-1=Culvert (Controls 0.00 cfs)

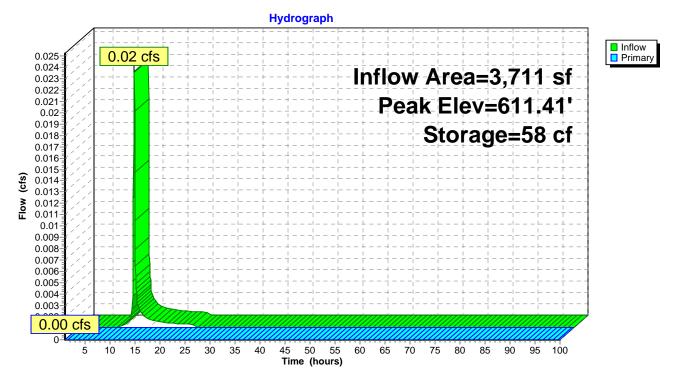
-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

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Pond DS 7: Planter PB-5A



# **Summary for Pond DS 9: Planter PB-7A**

Inflow Area = 3,275 sf, 96.52% Impervious, Inflow Depth = 0.14" for 50% event

Inflow = 0.01 cfs @ 12.04 hrs, Volume= 38 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.73' @ 24.70 hrs Surf.Area= 391 sf Storage= 38 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail	.Storage	Storage Descrip	tion				
#1	610.49'		665 cf	of Storage (Prismatic)Listed below (Recalc)					
Elevation Surf.Area Voids (feet) (sq-ft) (%)		Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)					
610.4	•	391	0.0	0	0				
613.9		391	40.0	547	547				
614.0	00	141	20.0	1	548				
615.3	32	141	50.0	93	641				
615.4	<b>.</b> 9	141	100.0	24	665				
Device	Routing	lnv	ert Out	et Devices					
#1	Primary	612.		6.0" Round Culvert					
		Inle	L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.30' / 612.23' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf						
#2	Device 1	610.		Round Culvert					
				L= 28.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.99' / 610.99' S= 0.0000 '/' Cc= 0.900					
#3	Device 2	610.		n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf 0.900 in/hr Exfiltration over Surface area					
#4	Device 1	615.		)" x 24.0" Horiz. (					
				Limited to weir flow at low heads					

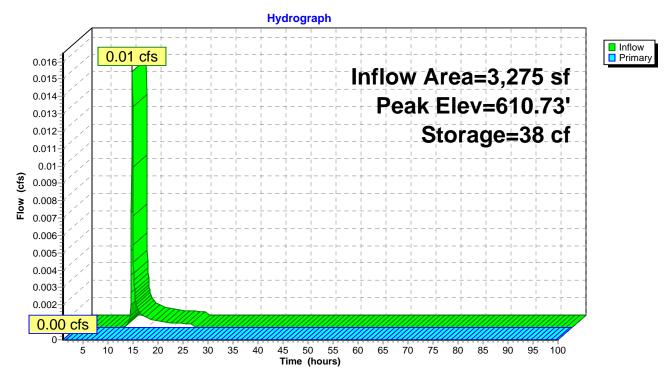
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.49' TW=612.27' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 9: Planter PB-7A



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## **Summary for Pond DS-1: DS 1**

[80] Warning: Exceeded Pond DS 15 by 2.54' @ 8.90 hrs (0.27 cfs 95,741 cf) [80] Warning: Exceeded Pond DS 4 by 2.15' @ 8.40 hrs (0.01 cfs 2,450 cf) [80] Warning: Exceeded Pond DS 5 by 2.40' @ 12.00 hrs (0.00 cfs 483 cf)

Inflow Area = 58,007 sf, 98.29% Impervious, Inflow Depth = 0.01" for 50% event

Inflow = 0.04 cfs @ 12.04 hrs, Volume= 48 cf

Outflow = 0.04 cfs @ 12.04 hrs, Volume= 49 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.04 cfs @ 12.04 hrs, Volume= 49 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

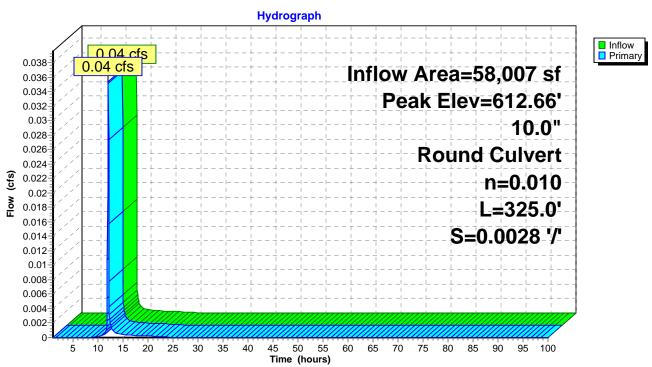
Peak Elev= 612.66' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert
			L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.03 cfs @ 12.04 hrs HW=612.66' TW=590.20' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.03 cfs @ 1.14 fps)

## Pond DS-1: DS 1



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## **Summary for Pond DS8: Planter PB-6A**

Inflow Area = 1,765 sf, 96.09% Impervious, Inflow Depth = 0.14" for 50% event

Inflow = 0.01 cfs @ 12.04 hrs, Volume= 20 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume = 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.85' @ 24.70 hrs Surf.Area= 235 sf Storage= 20 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avai	I.Stora	age	Storage Descript	tion		
#1	#1 610.63' 399 cf		9 cf	Storage (Prismatic)Listed below (Recalc)				
Elevation Surf.Area Voids				Cum.Store				
(fee		(sq-ft)	(%		(cubic-feet)	(cubic-feet)		
610.6	3	235	0.0	)	0	0		
614.1	3	235	40.0	)	329	329		
614.1	4	84	20.0	)	0	329		
615.4	16	84	50.0	)	55	385		
615.6	3	84	100.0	)	14	399		
Device	Routing	Inv	vert	Outle	et Devices			
#1	Primary	613	.04'	6.0"	Round Culvert			
					.0' CPP, square			
							S= 0.0117 '/' Cc= 0.900	
#2	Device 1	611			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf  6.0" Round Culvert			
#2	Device i	011				action conformi	ng to fill, Ke= 0.500	
							S= 0.0000 '/' Cc= 0.900	
#3	Device 2	610			.013 Confugated <b>0 in/hr Exfiltratio</b>		erior, Flow Area= 0.20 sf	
		610						
#4	Device 1			<b>24.0"</b> x <b>24.0"</b> Horiz. Orifice/Grate C= 0.600				
				∟ımıı	ed to weir flow at	iow neads		

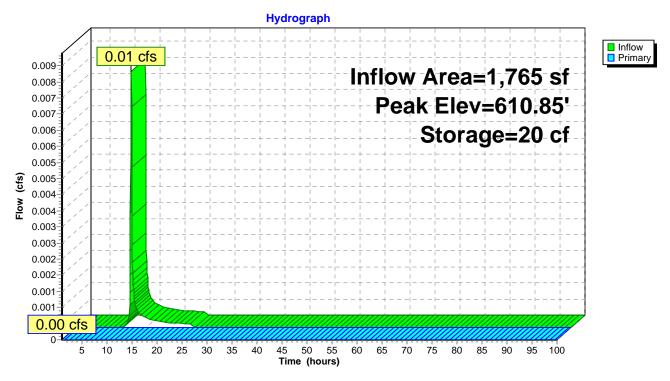
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.63' TW=612.27' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS8: Planter PB-6A



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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Area 1 Runoff Area=5,276 sf 95.77% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.04 cfs 113 cf

Subcatchment 1M: Area 1M M and T Lot Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=0.32"

Tc=15.0 min CN=98 Runoff=0.28 cfs 800 cf

Subcatchment 2: Area 2 Runoff Area=3,939 sf 92.08% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.03 cfs 84 cf

Subcatchment 2M: Area 2M M and T Two Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.14 cfs 356 cf

Subcatchment3: Area 3 Runoff Area=2,103 sf 92.44% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.02 cfs 45 cf

Subcatchment 4: Area 4 Runoff Area=6,163 sf 94.95% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.05 cfs 132 cf

Subcatchment 4B: Area 4B Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.02 cfs 57 cf

Subcatchment 5: Area 5 Runoff Area=3,711 sf 98.14% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.04 cfs 98 cf

Subcatchment 6: Area 6 Runoff Area=1,765 sf 96.09% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.01 cfs 38 cf

Subcatchment 7: Area 7 Runoff Area=3,275 sf 96.52% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.03 cfs 70 cf

Subcatchment 8: Area 8 Runoff Area=2,841 sf 96.16% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.02 cfs 61 cf

Subcatchment 9: Area 9 Runoff Area=2,159 sf 94.58% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.02 cfs 46 cf

Subcatchment 9A: Area 9A Runoff Area=4,063 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.04 cfs 108 cf

Subcatchment 9B: Area 9B Runoff Area=5,512 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.06 cfs 146 cf

Subcatchment 15: Area 15 Runoff Area=3,027 sf 97.49% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.03 cfs 80 cf

Subcatchment 15A: Area 15A Runoff Area=3,750 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.04 cfs 99 cf

Genesee St Final Prepared by Microsoft	<i>Type II 24-hr 75% Rainfall=0.50"</i> Printed 5/4/2015
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Subcatchment 15B: Area 15B	Runoff Area=16,790 sf 100.00% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.17 cfs 445 cf
Subcatchment 16: Area 16	Runoff Area=2,715 sf 98.42% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.03 cfs 72 cf
Pond 84": 84" TRUNK SEWER	Peak Elev=590.27' Inflow=0.39 cfs 2,849 cf 84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=0.39 cfs 2,866 cf
Pond DI 868: DI #868	Peak Elev=612.73' Inflow=0.10 cfs 254 cf 10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.10 cfs 254 cf
Pond DS 10: Planter PB-8A	Peak Elev=610.82' Storage=61 cf Inflow=0.02 cfs 61 cf Outflow=0.00 cfs 0 cf
Pond DS 11: Planter PB-9A	Peak Elev=610.42' Storage=46 cf Inflow=0.02 cfs 46 cf Outflow=0.00 cfs 0 cf
Pond DS 14: DS 14	Peak Elev=613.05' Inflow=0.19 cfs 488 cf Primary=0.13 cfs 442 cf Secondary=0.05 cfs 46 cf Outflow=0.19 cfs 488 cf
Pond DS 15: Planter PB-4A	Peak Elev=611.05' Storage=442 cf Inflow=0.13 cfs 442 cf Outflow=0.00 cfs 0 cf
Pond DS 2: Planter PB-1A	Peak Elev=611.53' Storage=113 cf Inflow=0.04 cfs 113 cf Outflow=0.00 cfs 0 cf
Pond DS 28: DS 28	Peak Elev=608.85' Inflow=0.04 cfs 141 cf 12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=0.04 cfs 141 cf
Pond DS 29: Planter PB-1B	Peak Elev=610.65' Storage=63 cf Inflow=0.03 cfs 94 cf Outflow=0.00 cfs 42 cf
Pond DS 3: DS 3	Peak Elev=613.01' Inflow=0.31 cfs 885 cf Primary=0.31 cfs 885 cf Secondary=0.00 cfs 0 cf Outflow=0.31 cfs 885 cf
Pond DS 30: Planter PB-2B	Peak Elev=612.06' Storage=61 cf Inflow=0.03 cfs 72 cf Outflow=0.00 cfs 14 cf
Pond DS 4: Planter PB-2A	Peak Elev=612.59' Storage=872 cf Inflow=0.31 cfs 885 cf Outflow=0.01 cfs 14 cf
Pond DS 5: Planter PB-3A	Peak Elev=610.77' Storage=45 cf Inflow=0.02 cfs 45 cf Outflow=0.00 cfs 0 cf
Pond DS 6: DS 6	Peak Elev=612.76' Inflow=0.10 cfs 254 cf 10.0" Round Culvert n=0.010 L=303.0' S=0.0028 '/' Outflow=0.10 cfs 254 cf

Pond DS 7: Planter PB-5A

Pond DS 9: Planter PB-7A

Peak Elev=611.84' Storage=98 cf Inflow=0.04 cfs 98 cf

Peak Elev=610.94' Storage=70 cf Inflow=0.03 cfs 70 cf

Outflow=0.00 cfs 0 cf

Outflow=0.00 cfs 0 cf

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Type II 24-hr 75% Rainfall=0.50"
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Pond DS-1: DS 1 Peak Elev=612.71' Inflow=0.08 cfs 2,008 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.08 cfs 2,009 cf

Pond DS8: Planter PB-6A Peak Elev=611.03' Storage=38 cf Inflow=0.01 cfs 38 cf

Outflow=0.00 cfs 0 cf

Total Runoff Area = 112,891 sf Runoff Volume = 2,851 cf Average Runoff Depth = 0.30" 1.61% Pervious = 1,812 sf 98.39% Impervious = 111,079 sf

# **Summary for Subcatchment 1: Area 1**

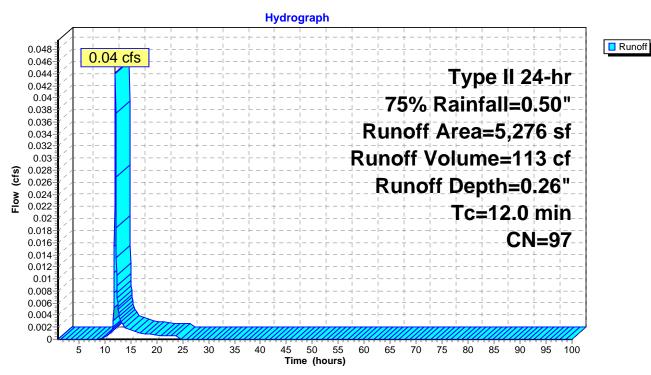
0.04 cfs @ 12.04 hrs, Volume= 113 cf, Depth= 0.26" Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

_	Α	rea (sf)	CN	Description	Description					
		223	80	>75% Gras	s cover, Go	od, HSG D				
_		5,053	98	Paved park	ing, HSG D					
		5,276	97	Weighted A	Veighted Average					
		223		4.23% Perv	rious Area					
		5,053		95.77% Imp	pervious Ar	ea				
	_									
	Tc	Length	Slope	•	Capacity	Description				
_	(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)					
	12.0					Direct Entry,				

Direct Entry,

#### Subcatchment 1: Area 1



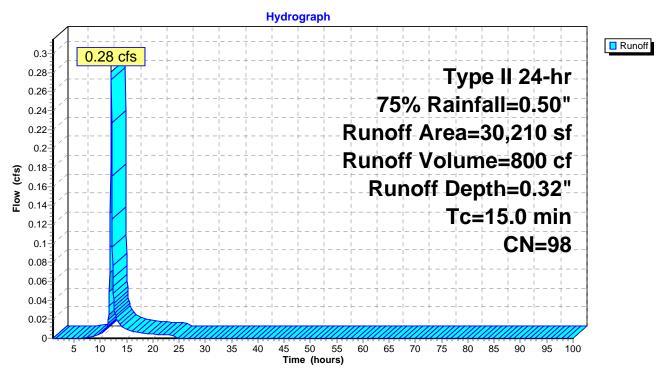
# Summary for Subcatchment 1M: Area 1M M and T Lot one

Runoff 0.28 cfs @ 12.07 hrs, Volume= 800 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

 Α	rea (sf)	CN	Description					
	210	80	>75% Gras	s cover, Go	ood, HSG D			
	30,000	98	Paved park	ing, HSG D	)			
	30,210	98	Weighted A	verage				
	210		0.70% Perv	rious Area				
	30,000		99.30% lmp	pervious Ar	ea			
_		01			<b>5</b>			
	Length	Slope	,	Capacity	Description			
(min)	(feet)	(ft/ft	(ft/sec)	(cfs)				
15.0					Direct Entry			

# Subcatchment 1M: Area 1M M and T Lot one



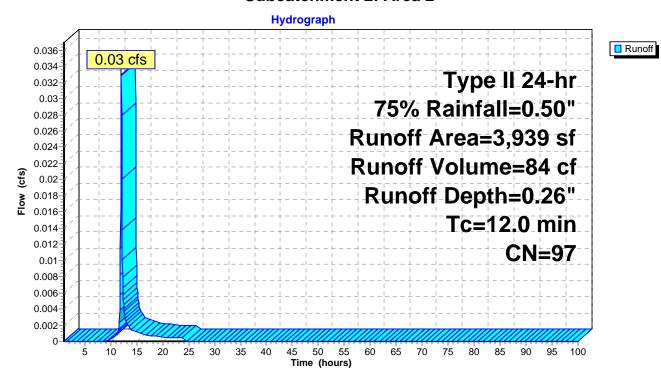
## **Summary for Subcatchment 2: Area 2**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 84 cf, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description	Description						
	312	80	>75% Gras	75% Grass cover, Good, HSG D						
	3,627	98	Paved park	ing, HSG D	D					
	3,939	97	Weighted A	Veighted Average						
	312		7.92% Pervious Area							
	3,627		92.08% lmp	ervious Ar	rea					
Тс	Length	Slope	,	Capacity	•					
(min)	(feet)	(ft/ft	(ft/sec)	(ft/sec) (cfs)						
12.0					Direct Entry,					

#### Subcatchment 2: Area 2



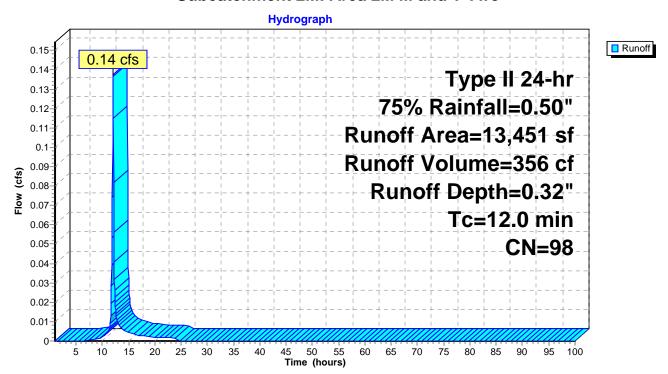
# Summary for Subcatchment 2M: Area 2M M and T Two

Runoff = 0.14 cfs @ 12.04 hrs, Volume= 356 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN [	Description						
	13,451	98 F	aved parking, HSG D						
	13,451	•	100.00% Im	npervious A	Area				
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
12.0					Direct Entry,				

#### Subcatchment 2M: Area 2M M and T Two



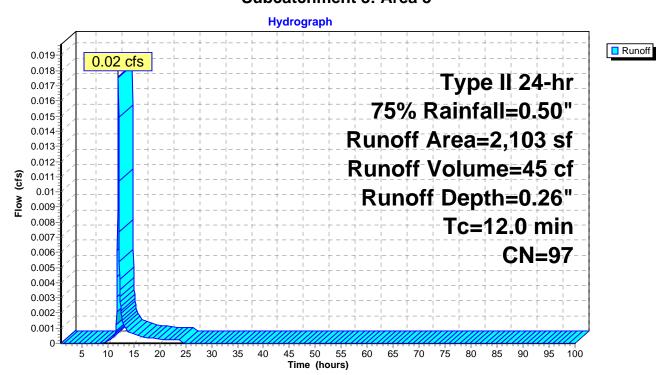
# **Summary for Subcatchment 3: Area 3**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 45 cf, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description								
	159	80	>75% Gras	75% Grass cover, Good, HSG D							
	1,944	98	Paved park	aved parking, HSG D							
	2,103	3 97 Weighted Average									
	159		7.56% Pervious Area								
	1,944		92.44% lmp	ervious Ar							
Tc	Length	Slope	,	Capacity	Description						
<u>(min)</u>	(feet)	(ft/ft	(ft/sec)	(cfs)							
12.0					Direct Entry,						

### Subcatchment 3: Area 3



## **Summary for Subcatchment 4: Area 4**

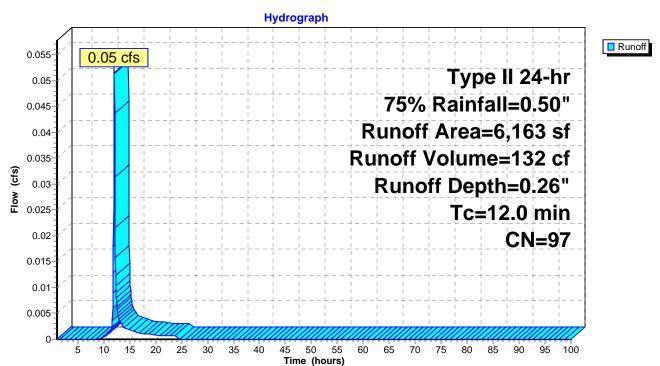
0.05 cfs @ 12.04 hrs, Volume= 132 cf, Depth= 0.26" Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

	Α	rea (sf)	CN	Description								
		311	80	>75% Gras	75% Grass cover, Good, HSG D							
		5,852	98	Paved park	aved parking, HSG D							
		6,163	97	Weighted A	/eighted Average							
		311		5.05% Perv	0.05% Pervious Area							
		5,852		94.95% lmp	pervious Ar	rea						
(r	Tc nin)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description						
	12.0	(1001)	(1011	<u> </u>	(0.0)	Direct Entry,						

Direct Entry,

#### Subcatchment 4: Area 4



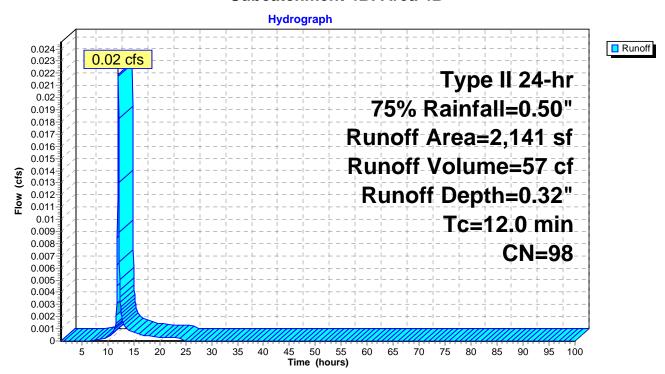
## Summary for Subcatchment 4B: Area 4B

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 57 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN I	Description								
	2,141	98 I	Paved park	aved parking, HSG D							
	2,141	•	100.00% Im	npervious A	Area						
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description						
12.0	(IEEI)	(11/11)	(10360)	(015)	Direct Entry,						

#### Subcatchment 4B: Area 4B



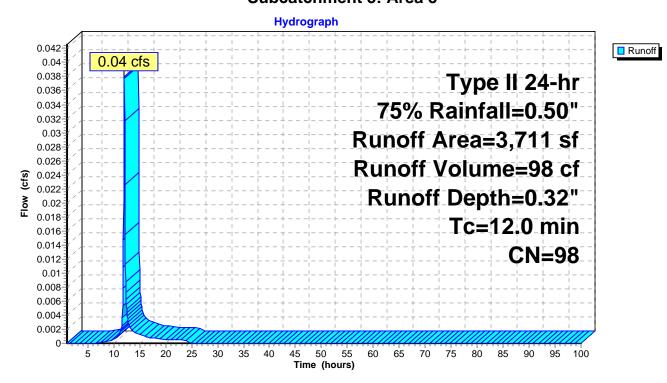
## **Summary for Subcatchment 5: Area 5**

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 98 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description	Description							
	69	80	>75% Gras	75% Grass cover, Good, HSG D							
	3,642	98	Paved park	aved parking, HSG D							
	3,711	98 Weighted Average									
	69		1.86% Pervious Area								
	3,642		98.14% lmp	8.14% Impervious Area							
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description						
12.0					Direct Entry,						

### Subcatchment 5: Area 5



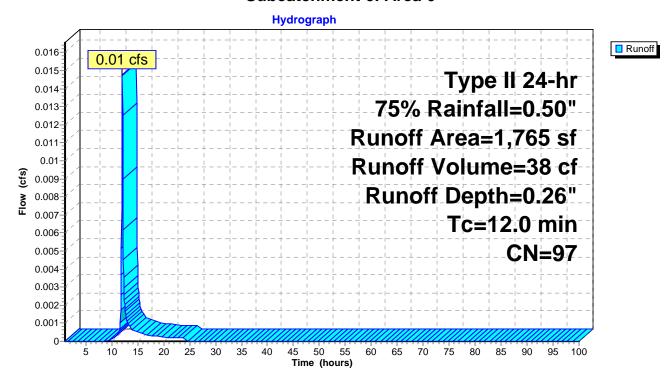
## **Summary for Subcatchment 6: Area 6**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 38 cf, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description	Description								
	69	80	>75% Gras	75% Grass cover, Good, HSG D								
	1,696	98	Paved park	aved parking, HSG D								
	1,765	97	7 Weighted Average									
	69		3.91% Perv	3.91% Pervious Area								
	1,696		96.09% lmp	6.09% Impervious Area								
Тс	Length	Slope	Velocity	Capacity	Description							
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)								
12.0					Direct Entry,							

#### Subcatchment 6: Area 6



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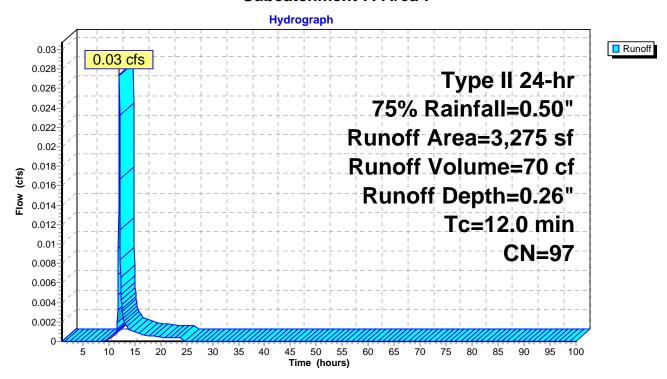
## **Summary for Subcatchment 7: Area 7**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 70 cf, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description							
	114	80	75% Grass cover, Good, HSG D							
	3,161	98	Paved park	aved parking, HSG D						
	3,275	3,275 97 Weighted Average								
	114		3.48% Pervious Area							
	3,161		96.52% Impervious Area							
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	,	(cfs)	Doscription					
12.0	. ,	, ,	•	, ,	Direct Entry,					

#### Subcatchment 7: Area 7



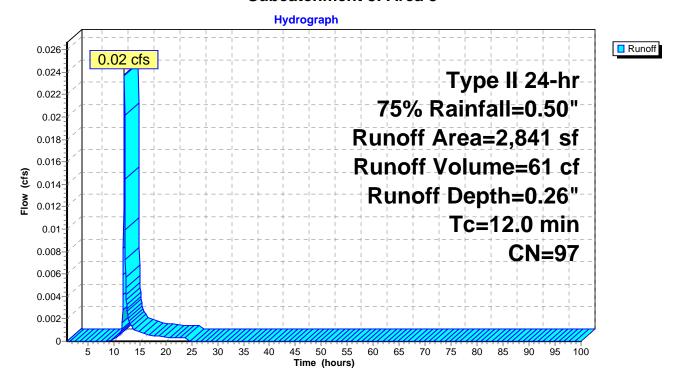
## **Summary for Subcatchment 8: Area 8**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 61 cf, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

_	Α	rea (sf)	CN	Description								
		109	80	>75% Gras	75% Grass cover, Good, HSG D							
		2,732	98	Paved park	ved parking, HSG D							
		2,841	97	Weighted Average								
		109		3.84% Perv	3.84% Pervious Area							
		2,732		96.16% Imp	ervious Ar	ea						
	т.	1 ().	01		0 1	December Co.						
	Tc	Length	Slope	,	Capacity	Description						
	(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)							
-	12.0					Direct Entry						

#### **Subcatchment 8: Area 8**



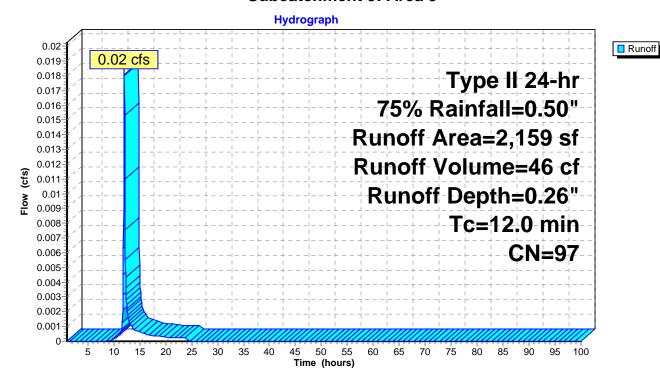
### **Summary for Subcatchment 9: Area 9**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 46 cf, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description								
	117	80	>75% Gras	75% Grass cover, Good, HSG D							
	2,042	98	Paved park	aved parking, HSG D							
	2,159	97	7 Weighted Average								
	117		5.42% Perv	5.42% Pervious Area							
	2,042		94.58% lmp	4.58% Impervious Area							
Тс	Length	Slope	,	Capacity	·						
(min)	(feet)	(ft/ft	(ft/sec)	(cfs)							
12.0					Direct Entry,						

#### **Subcatchment 9: Area 9**



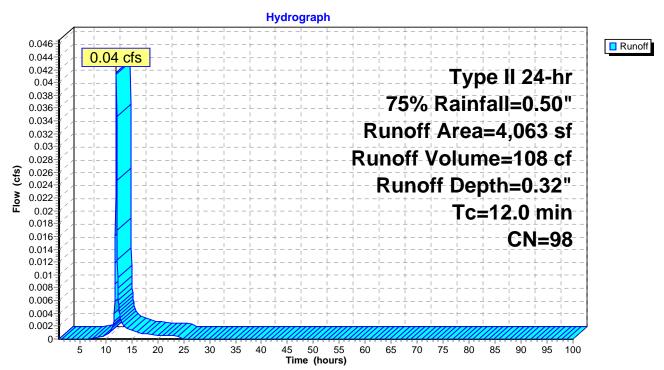
# Summary for Subcatchment 9A: Area 9A

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 108 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

	Area (sf)	CN I	Description						
	4,063	98 I	Paved parking, HSG D						
	4,063	•	100.00% Im	npervious A	Area				
To (min		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
12.0	)				Direct Entry,				

# Subcatchment 9A: Area 9A



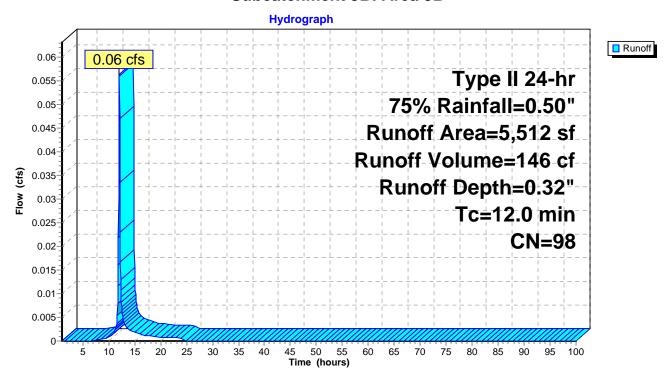
## Summary for Subcatchment 9B: Area 9B

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 146 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

 Α	rea (sf)	CN	Description		
	5,512	98	Paved park	ing, HSG D	D
	5,512		100.00% In	npervious A	Area
 Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	• • • • • • • • • • • • • • • • • • •
12.0					Direct Entry,

#### Subcatchment 9B: Area 9B



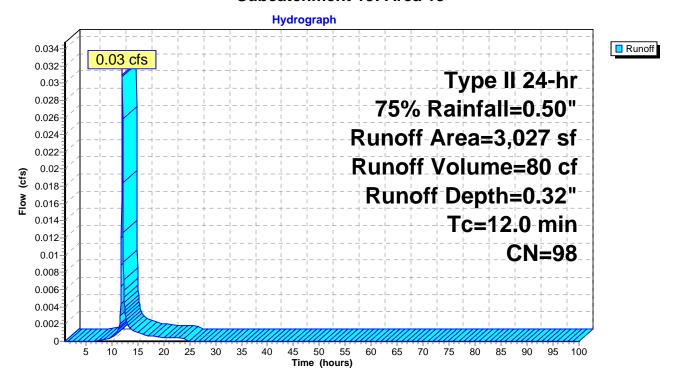
# **Summary for Subcatchment 15: Area 15**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 80 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description								
	76	80	>75% Gras	75% Grass cover, Good, HSG D							
	2,951	98	Paved park	aved parking, HSG D							
	3,027	98	Weighted Average								
	76		2.51% Pervious Area								
	2,951		97.49% lmp	7.49% Impervious Area							
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description						
12.0	( 0 0 1)	(14,11	( 3000)	(0.0)	Direct Entry,		_				

#### **Subcatchment 15: Area 15**



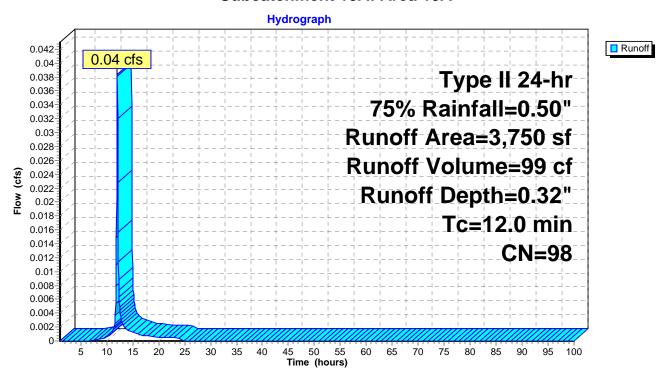
# Summary for Subcatchment 15A: Area 15A

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 99 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

	Area (sf)	CN I	Description				
	3,750	98	Paved parking, HSG D				
	3,750		100.00% Impervious Area				
To (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
12.0					Direct Entry,		

### Subcatchment 15A: Area 15A



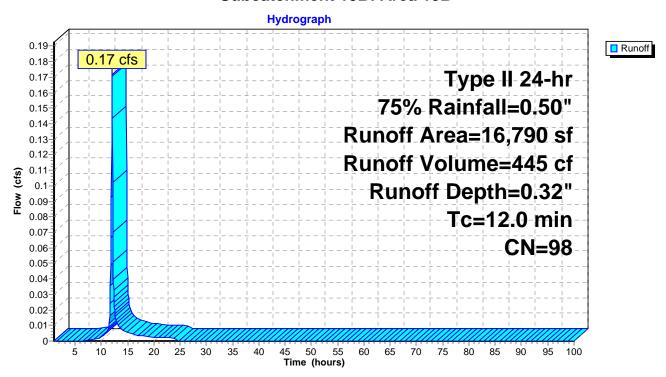
# **Summary for Subcatchment 15B: Area 15B**

Runoff = 0.17 cfs @ 12.04 hrs, Volume= 445 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

_	Α	rea (sf)	CN [	Description			
		16,790	98 F	Paved parking, HSG D			
		16,790	,	100.00% In	npervious A	Area	
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
	12.0					Direct Entry,	

### Subcatchment 15B: Area 15B



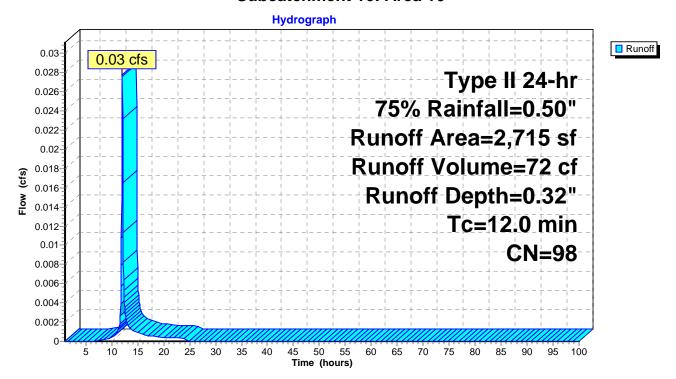
# **Summary for Subcatchment 16: Area 16**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 72 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description				
	43	80	>75% Grass cover, Good, HSG D				
	2,672	98	Paved parking, HSG D				
	2,715	98	Weighted Average				
	43		1.58% Pervious Area				
	2,672		98.42% Impervious Area				
Tc	Length	Slope	Velocity	Capacity	Description		
(min)	(feet)	(ft/ft)	,	(cfs)	2 cccptc		
12.0					Direct Entry,		

#### **Subcatchment 16: Area 16**



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## **Summary for Pond 84": 84" TRUNK SEWER**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=602)

Inflow Area = 112,891 sf, 98.39% Impervious, Inflow Depth > 0.30" for 75% event

Inflow = 0.39 cfs @ 12.04 hrs, Volume= 2,849 cf

Outflow = 0.39 cfs @ 12.04 hrs, Volume= 2,866 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.39 cfs @ 12.04 hrs, Volume= 2,866 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

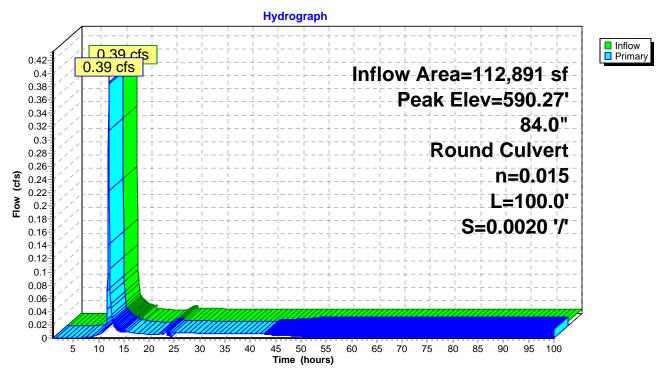
Peak Elev= 590.27' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	84.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/' Cc= 0.900
			n= 0.015 Brickwork, Flow Area= 38.48 sf

Primary OutFlow Max=0.38 cfs @ 12.04 hrs HW=590.26' (Free Discharge) 1=Culvert (Barrel Controls 0.38 cfs @ 1.22 fps)

## Pond 84": 84" TRUNK SEWER



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# Summary for Pond DI 868: DI #868

[80] Warning: Exceeded Pond DS 6 by 0.28' @ 19.70 hrs (0.11 cfs 35,314 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth = 0.13" for 75% event

Inflow = 0.10 cfs @ 12.04 hrs, Volume= 254 cf

Outflow = 0.10 cfs @ 12.04 hrs, Volume= 254 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.10 cfs @ 12.04 hrs, Volume= 254 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

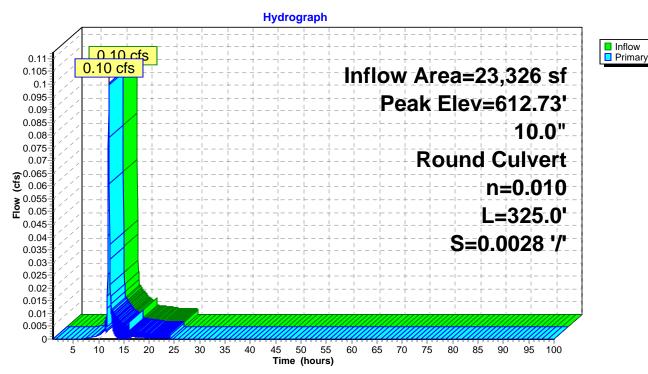
Peak Elev= 612.73' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary		10.0" Round Culvert L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf
			n= 0.010 PVC, smooth interior, Flow Area= 0.55 st

Primary OutFlow Max=0.10 cfs @ 12.04 hrs HW=612.73' TW=590.26' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.10 cfs @ 1.55 fps)

#### Pond DI 868: DI #868



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### **Summary for Pond DS 10: Planter PB-8A**

2,841 sf, 96.16% Impervious, Inflow Depth = 0.26" for 75% event Inflow Area =

0.02 cfs @ 12.04 hrs, Volume= Inflow 61 cf

1.00 hrs, Volume= Outflow 0.00 cfs @ 0 cf, Atten= 100%, Lag= 0.0 min

Primary 1.00 hrs, Volume= 0.00 cfs @ 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.82' @ 24.70 hrs Surf.Area= 391 sf Storage= 61 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

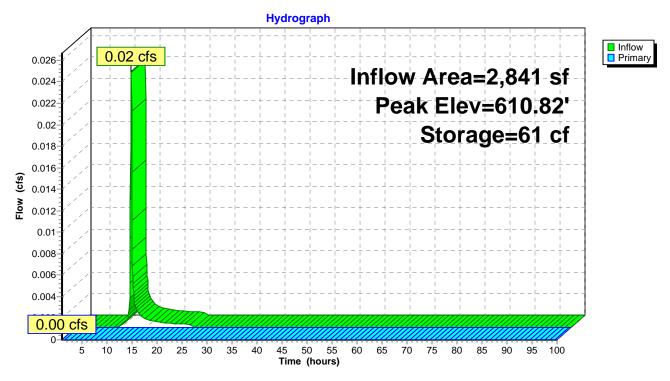
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail	l.Storage	Storage Descrip	otion			
#1	610.43'		638 cf	Storage (Prism	atic)Listed below	w (Recalc)		
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
610.4		391	0.0	0	0			
613.7		391	40.0	519	519			
613.7	<b>'</b> 6	141	20.0	1	520			
615.0	)9	141	50.0	94	614			
615.2	26	141	100.0	24	638			
Device	Routing	Inv	ert Out	let Devices				
#1	Primary	611.		' Round Culvert				
			Inle n= (	0.013 Corrugated	311.95' / 611.88'	Ke= 0.500 S= 0.0117 '/' Cc= 0.900 erior, Flow Area= 0.20 sf		
#2	Device 1	610.		' Round Culvert		. (1)		
			Inle	L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.76' / 610.76' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf				
#3	Device 2	610.	_	00 in/hr Exfiltration				
#4	Device 1	615.		0" x 24.0" Horiz. (		= 0.600		
			LIM	ited to weir flow at	i iow neads			

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.43' TW=612.27' (Dynamic Tailwater) -1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

#### Pond DS 10: Planter PB-8A



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### **Summary for Pond DS 11: Planter PB-9A**

Inflow Area = 2,159 sf, 94.58% Impervious, Inflow Depth = 0.26" for 75% event

Inflow = 0.02 cfs @ 12.04 hrs, Volume= 46 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.42' @ 24.70 hrs Surf.Area= 391 sf Storage= 46 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

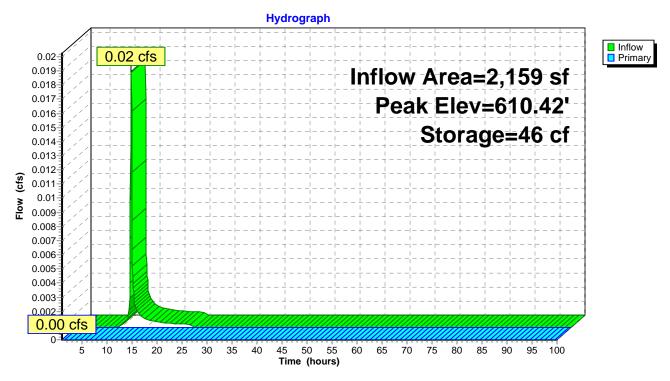
Volume	Invert	Avail.	.Storage	Storage Descript	tion		_	
#1	610.12'		664 cf	Storage (Prisma	atic)Listed below	w (Recalc)		
Elevatio	_	urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
610.1		391	0.0	0	0			
613.6	81	391	40.0	546	546			
613.6		141	20.0	1	546			
614.9		141	50.0	94	640			
615.1	2	141	100.0	24	664			
Device	Routing	Inv	ert Outle	et Devices				
#1	Primary	611.9		Round Culvert				
<b>#</b> 0	5	040	Inlet n= 0	.013 Corrugated	11.91' / 611.84	Ke= 0.500 S= 0.0117 '/' Cc= 0.900 erior, Flow Area= 0.20 sf		
#2	Device 1	610.6		Round Culvert	ection conformin	ng to fill, Ke= 0.500		
			Inlet	/ Outlet Invert= 6	10.62' / 610.62'	S= 0.0000 '/' Cc= 0.900		
0	Davidae 0	040		•	•			
#4	Device I	015.				- 0.000		
#3 #4	Device 2 Device 1	610. <sup>2</sup> 615. <sup>2</sup>	11' <b>24.0</b>	n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf  1.000 in/hr Exfiltration over Surface area  24.0" x 24.0" Horiz. Orifice/Grate C= 0.600  Limited to weir flow at low heads				

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.12' TW=612.27' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

#### Pond DS 11: Planter PB-9A



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# **Summary for Pond DS 14: DS 14**

Inflow Area =	19,614 sf, 98.41% Impervious,	Inflow Depth = 0.30" for 75% event
Inflow =	0.19 cfs @ 12.04 hrs, Volume=	488 cf
Outflow =	0.19 cfs @ 12.04 hrs, Volume=	488 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.13 cfs @ 12.04 hrs, Volume=	442 cf
Secondary =	0.05 cfs @ 12.04 hrs, Volume=	46 cf

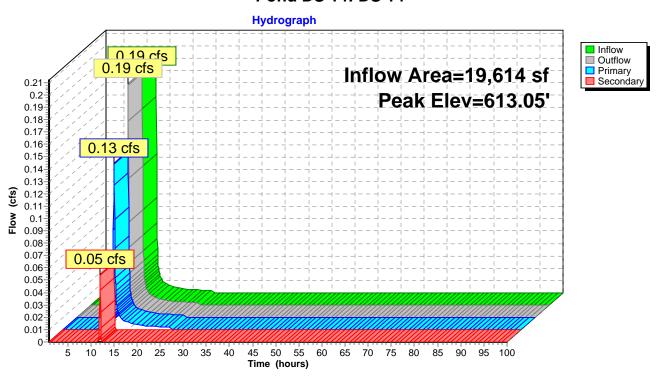
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 613.05' @ 12.04 hrs Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.80'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500
	·		Inlet / Outlet Invert= 612.80' / 612.75' S= 0.0125 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	612.90'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500
	_		Inlet / Outlet Invert= 612.90' / 612.83' S= 0.0117 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.13 cfs @ 12.04 hrs HW=613.05' TW=610.33' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.13 cfs @ 2.02 fps)

Secondary OutFlow Max=0.05 cfs @ 12.04 hrs HW=613.05' TW=612.71' (Dynamic Tailwater) = Culvert (Barrel Controls 0.05 cfs @ 1.67 fps)

#### **Pond DS 14: DS 14**



# Summary for Pond DS 15: Planter PB-4A

Inflow Area = 19,614 sf, 98.41% Impervious, Inflow Depth = 0.27" for 75% event

Inflow = 0.13 cfs @ 12.04 hrs, Volume= 442 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume = 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.05' @ 24.75 hrs Surf.Area= 1,055 sf Storage= 442 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

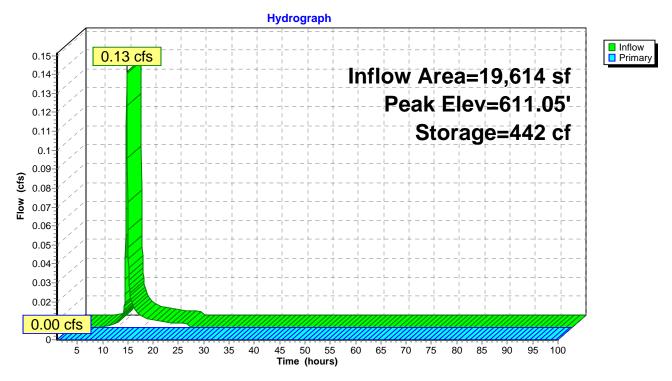
Volume	Invert	Avail	.Storag	e Storage Descr	ription			
#1	610.00'		1,803	of Storage (Prisi	matic)Listed belo	w (Recalc)		
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
610.0	-	1,055	0.0	0	0			
613.4		1,055	40.0	1,473	1,473			
613.5	50	394	20.0	1	1,474			
614.8		394	50.0	262	1,736			
615.0	00	394	100.0	67	1,803			
Device	Routing	Inv	ert C	utlet Devices				
#1	Primary	611.		.0" Round Culver				
				= 6.0' CPP, squar				
						S= 0.0117 '/' Cc= 0.900		
#2	Device 1	610.		n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf <b>6.0" Round Culvert</b>				
"-	Bovios i	010.				ng to fill, Ke= 0.500		
						S= 0.0000 '/' Cc= 0.900		
			n	= 0.010 PVC, smc	ooth interior, Flow	Area= 0.20 sf		
#3	Device 2	610.		1.000 in/hr Exfiltra				
#4	Device 1	614.		4.0" x 24.0" Horiz		C = 0.600		
			L	imited to weir flow	at low heads			

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.00' TW=612.54' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.27 cfs potential flow)

## Pond DS 15: Planter PB-4A



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# Summary for Pond DS 2: Planter PB-1A

5,276 sf, 95.77% Impervious, Inflow Depth = 0.26" for 75% event Inflow Area =

0.04 cfs @ 12.04 hrs. Volume= Inflow 113 cf

1.00 hrs, Volume= Outflow 0.00 cfs @ 0 cf, Atten= 100%, Lag= 0.0 min

Primary 1.00 hrs, Volume= 0.00 cfs @ 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.53' @ 24.70 hrs Surf.Area= 273 sf Storage= 113 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

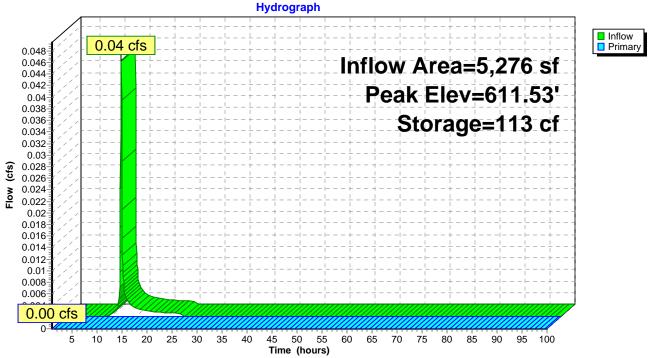
Volume	Inver	t Avai	l.Storage	Storage Descri	ption	
#1	610.50	'	610 c	Storage (Prisn	natic)Listed belo	w (Recalc)
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
610.5		273	0.0			
613.9		273 273	40.0	0 381	0 381	
614.0		273	20.0	30 I 1	382	
615.3		273	50.0	182	563	
615.5		273	100.0	46	610	
010.0	,	2.0	100.0	10	010	
Device	Routing	Inv	vert Ou	tlet Devices		
#1	Primary	612.	.64' <b>6.0</b>	" Round Culvert		
				4.0' CPP, square		
						S= 0.0125 '/' Cc= 0.900
						erior, Flow Area= 0.20 sf
#2	Device 1	611.		" Round Culvert		
						ng to fill, Ke= 0.500
						S= 0.0000 '/' Cc= 0.900
						erior, Flow Area= 0.20 sf
#3	Device 2	610.		00 in/hr Exfiltrati		
#4	Device 1	615.	.49' <b>24</b>	.0" x 24.0" Horiz.	Orifice/Grate C	C = 0.600
			Lin	nited to weir flow a	nt low heads	

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.50' TW=590.00' (Dynamic Tailwater)

-1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

#### Pond DS 2: Planter PB-1A





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# Summary for Pond DS 28: DS 28

Inflow Area = 9,492 sf, 98.75% Impervious, Inflow Depth = 0.18" for 75% event

Inflow = 0.04 cfs @ 12.04 hrs, Volume= 141 cf

Outflow = 0.04 cfs @ 12.04 hrs, Volume= 141 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.04 cfs @ 12.04 hrs, Volume= 141 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

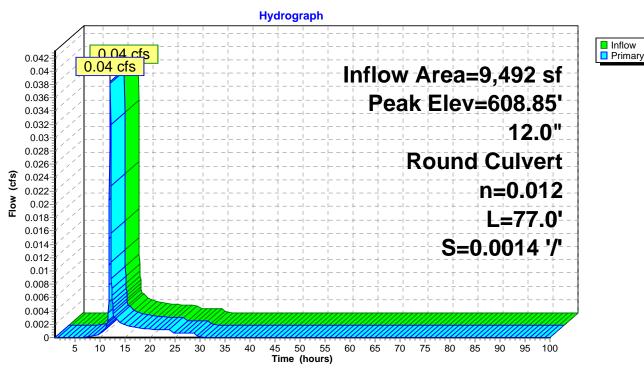
Peak Elev= 608.85' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices				
#1	Primary	608.71'	12.0" Round Culvert				
	-		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500				
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/' Cc= 0.900				
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf				

Primary OutFlow Max=0.04 cfs @ 12.04 hrs HW=608.85' TW=590.26' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.04 cfs @ 0.84 fps)

### Pond DS 28: DS 28



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### Summary for Pond DS 29: Planter PB-1B

Inflow Area = 5,742 sf, 97.93% Impervious, Inflow Depth = 0.20" for 75% event

0.03 cfs @ 12.04 hrs, Volume= Inflow 94 cf

0.00 cfs @ 13.30 hrs, Volume= Outflow 42 cf, Atten= 98%, Lag= 75.8 min

Primary 0.00 cfs @ 13.30 hrs, Volume= 42 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.65' @ 23.38 hrs Surf.Area= 101 sf Storage= 63 cf

Plug-Flow detention time= 574.6 min calculated for 42 cf (44% of inflow)

Center-of-Mass det. time= 390.7 min (1,276.2 - 885.4)

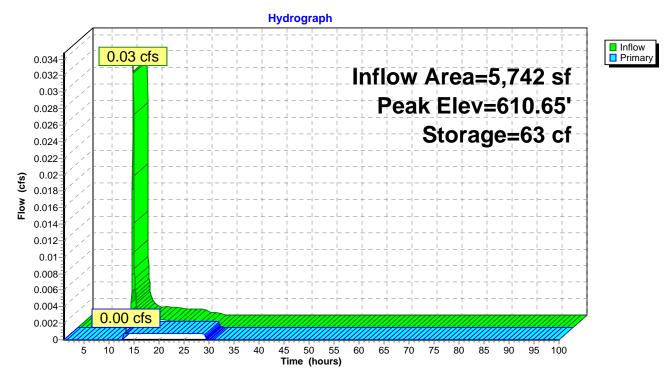
Volume	Inve	rt Ava	il.Stora	age Storage De	scription				
#1	609.10	)'	22	5 cf Storage (F	rismatic)Li	isted belo	w (Recalc)		
Elevatio		Surf.Area (sq-ft)	Void:			um.Store ibic-feet)			
609.1	0	101	0.0	,	0	0			
612.6	0	101	40.0	0 14	<b>l</b> 1	141			
612.6	51	101	20.0		0	142			
613.9		101	50.0		67	208			
614.1	0	101	100.0	) ·	7	225			
Device	Routing	In	vert	Outlet Devices					
#1	Primary	610	).41'	6.0" Round Cu					
<b>#</b> 0	Davisa 1	600	75'	L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.41' / 610.35' S= 0.0120 '/' Cc= 0. n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20					
#2	Device 1	608	).75'	<ul> <li>6.0" Round Culvert</li> <li>L= 50.0' CMP, end-section conforming to fill, Ke= 0.500</li> <li>Inlet / Outlet Invert= 609.75' / 609.75' S= 0.0000 '/' Cc= 0.9</li> </ul>					
#3 #4	Device 2 Device 1		9.10' I.00'	n= 0.013 Corrug 0.300 in/hr Exfil 24.0" x 24.0" Ho	= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf  .300 in/hr Exfiltration over Surface area  4.0" x 24.0" Horiz. Orifice/Grate C= 0.600  mited to weir flow at low heads				

Primary OutFlow Max=0.00 cfs @ 13.30 hrs HW=610.45' TW=608.75' (Dynamic Tailwater)

-1=Culvert (Passes 0.00 cfs of 0.01 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 0.14 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

#### Pond DS 29: Planter PB-1B



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### **Summary for Pond DS 3: DS 3**

Inflow Area =	34,149 sf, 98.47% Impervious,	Inflow Depth = 0.31" for 75% event
Inflow =	0.31 cfs @ 12.06 hrs, Volume=	885 cf
Outflow =	0.31 cfs @ 12.06 hrs, Volume=	885 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.31 cfs @ 12.06 hrs, Volume=	885 cf
Secondary =	0.00 cfs @ 1.00 hrs, Volume=	0 cf

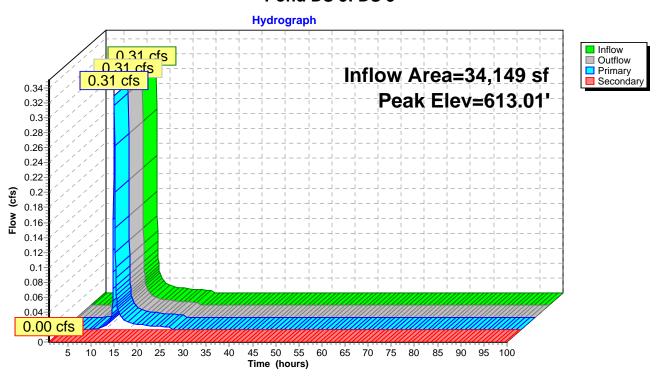
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 613.01' @ 12.06 hrs Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.60'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500
	·		Inlet / Outlet Invert= 612.60' / 612.55' S= 0.0125 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	613.60'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500
	•		Inlet / Outlet Invert= 613.60' / 613.55' S= 0.0083 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.31 cfs @ 12.06 hrs HW=613.01' TW=611.13' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.31 cfs @ 2.43 fps)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=612.60' TW=590.00' (Dynamic Tailwater) = Culvert ( Controls 0.00 cfs)

#### Pond DS 3: DS 3



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# **Summary for Pond DS 30: Planter PB-2B**

Inflow Area = 2,715 sf, 98.42% Impervious, Inflow Depth = 0.32" for 75% event

0.03 cfs @ 12.04 hrs, Volume= Inflow 72 cf

0.00 cfs @ 16.20 hrs, Volume= Outflow 14 cf, Atten= 99%, Lag= 249.8 min

0.00 cfs @ 16.20 hrs, Volume= Primary 14 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.06' @ 22.17 hrs Surf.Area= 49 sf Storage= 61 cf

Plug-Flow detention time= 608.3 min calculated for 14 cf (20% of inflow)

Center-of-Mass det. time= 460.2 min (1,276.0 - 815.8)

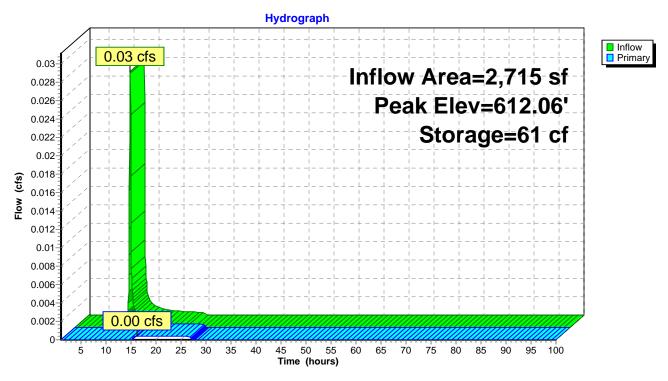
Volume	Invert	Avail.	.Storage	Storage Descripti	on			
#1	608.93'		109 cf	Storage (Prisma	tic)Listed below	(Recalc)		
Elevatio (fee		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
608.9	<i>'</i>	49	0.0	0	0			
612.4		49	40.0	69	69			
612.4	4	49	20.0	0	69			
613.7	6	49	50.0	32	101			
613.9	3	49	100.0	8	109			
Device	Routing	Inv	ert Outl	et Devices				
#1	Primary	611.8		Round Culvert				
			Inlet	9.0' CPP, square / Outlet Invert= 61 .010 PVC, smooth	1.87' / 611.20'	S= 0.0114 '/'	Cc= 0.900	
#2	Device 1	609.4		Round Culvert				
			Inlet	L= 7.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.43' / 609.43' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf				
#3	Device 2	608.9		0 in/hr Exfiltration				
#4	Device 1	613.9		" x 24.0" Horiz. On ted to weir flow at I		: 0.600		

Primary OutFlow Max=0.00 cfs @ 16.20 hrs HW=611.93' TW=610.57' (Dynamic Tailwater)

-1=Culvert (Passes 0.00 cfs of 0.01 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 0.23 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

#### Pond DS 30: Planter PB-2B



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### Summary for Pond DS 4: Planter PB-2A

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=11)

34,149 sf, 98.47% Impervious, Inflow Depth = 0.31" for 75% event Inflow Area =

Inflow 0.31 cfs @ 12.06 hrs, Volume= 885 cf

14 cf, Atten= 98%, Lag= 689.1 min Outflow 0.01 cfs @ 23.55 hrs, Volume=

0.01 cfs @ 23.55 hrs, Volume= Primary 1,906 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.59' @ 24.11 hrs Surf.Area= 990 sf Storage= 872 cf

Plug-Flow detention time= 905.0 min calculated for 14 cf (2% of inflow)

Center-of-Mass det. time= 598.0 min (1,418.0 - 820.0)

Volume	Invert	Avail	.Storage	Storage Description				
#1	610.39'		1,715 cf	Storage (Prism	atic)Listed below	w (Recalc)		
Elevatio		ırf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
610.3		990	0.0	0	0			
613.8		990	40.0	1,386	1,386			
613.9		395	20.0	1	1,387			
615.2		395	50.0	261	1,648			
615.3	39	395	100.0	67	1,715			
Device	Routing	Inv	ert Ou	tlet Devices				
#1	Primary	612.		" Round Culvert				
<b>"</b> 0	<b>D</b> : 4	040	Inle n=	0.013 Corrugated	312.48' / 612.41	Ke= 0.500 S= 0.0117 '/' Cc= 0.900 erior, Flow Area= 0.20 sf		
#2	Device 1	610.		6.0" Round Culvert				
			L= 60.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.89' / 610.89' S= 0.0000 '/' Cc= 0.900					
				n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf				
#3	Device 2	610.		00 in/hr Exfiltration				
#4	Device 1	615.		0" x 24.0" Horiz. (		= 0.600		
			Lin	nited to weir flow at	t low heads			

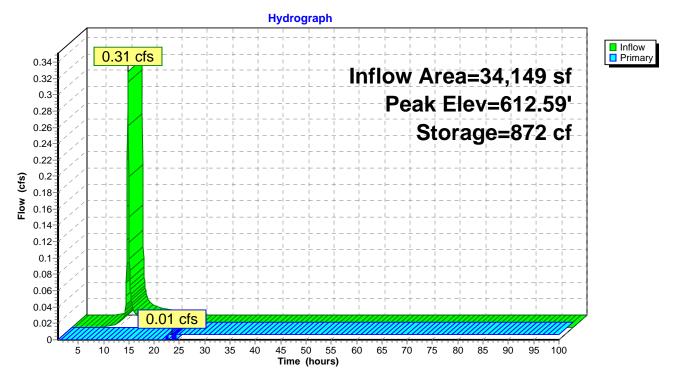
Primary OutFlow Max=0.00 cfs @ 23.55 hrs HW=612.59' TW=612.60' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

<sup>2=</sup>Culvert (Controls 0.00 cfs)
3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

<sup>-4=</sup>Orifice/Grate (Controls 0.00 cfs)

## Pond DS 4: Planter PB-2A



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# **Summary for Pond DS 5: Planter PB-3A**

Inflow Area = 2,103 sf, 92.44% Impervious, Inflow Depth = 0.26" for 75% event

Inflow = 0.02 cfs @ 12.04 hrs, Volume= 45 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.77' @ 24.70 hrs Surf.Area= 195 sf Storage= 45 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

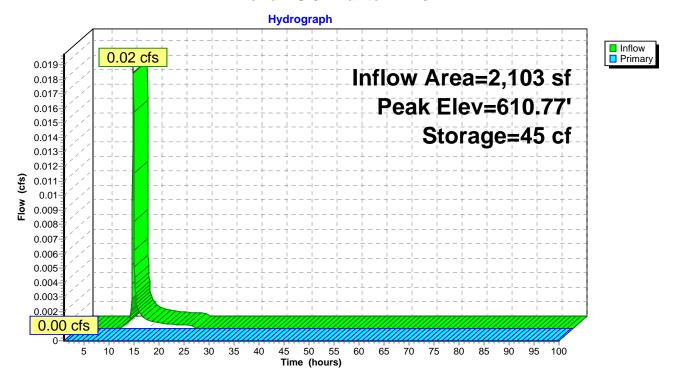
Volume	Invert	: Avai	I.Storaç	e Storage Desci	Storage Description				
#1	610.19		435	cf Storage (Pris	matic)Listed belo	w (Recalc)			
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)				
(fee									
610.1		195	0.0	0	0				
613.6		195	40.0	272	272				
613.6		195	20.0	0	273				
615.0		195	50.0	130	402				
615.1	19	195	100.0	33	435				
Device	Routing	Inv	vert C	utlet Devices					
#1	Primary	612	.37' <b>6</b>	.0" Round Culve	rt				
				L= 5.5' CPP, square edge headwall, Ke= 0.500					
			Ir	Inlet / Outlet Invert= 612.37' / 612.30' S= 0.0127 '/' Cc= 0.900					
				n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf					
#2	Device 1	610		6.0" Round Culvert					
				L= 28.0' CMP, end-section conforming to fill, Ke= 0.500					
				Inlet / Outlet Invert= 610.61' / 610.61' S= 0.0000 '/' Cc= 0.900					
				n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf					
#3	Device 2	610	_	.300 in/hr Exfiltra					
#4	Device 1	615	.18' <b>2</b>	4.0" x 24.0" Horiz	. Orifice/Grate C	= 0.600			
			L	imited to weir flow	at low heads				

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.19' TW=612.54' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

Pond DS 5: Planter PB-3A



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### **Summary for Pond DS 6: DS 6**

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=123)

[80] Warning: Exceeded Pond DS 10 by 2.23' @ 11.95 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 11 by 2.56' @ 12.00 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 9 by 2.15' @ 11.95 hrs (0.01 cfs 326 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth = 0.13" for 75% event

Inflow = 0.10 cfs @ 12.04 hrs, Volume= 254 cf

Outflow = 0.10 cfs @ 12.04 hrs, Volume= 254 cf, Atten= 0%, Lag= 0.3 min

Primary = 0.10 cfs @ 12.04 hrs, Volume= 254 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

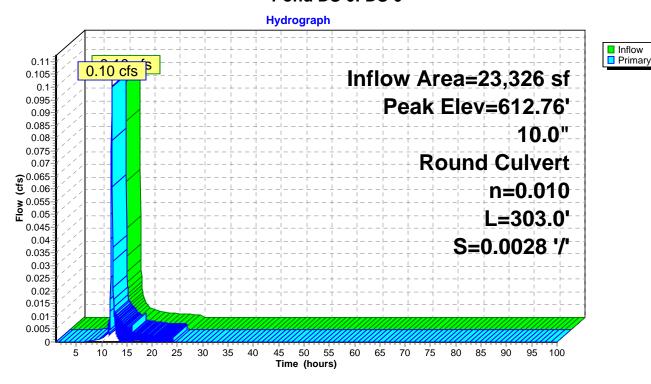
Peak Elev= 612.76' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.27'	10.0" Round Culvert
	_		L= 303.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.27' / 611.42' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC smooth interior Flow Area= 0.55 sf

Primary OutFlow Max=0.10 cfs @ 12.04 hrs HW=612.76' TW=612.73' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.10 cfs @ 0.42 fps)

#### Pond DS 6: DS 6



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### **Summary for Pond DS 7: Planter PB-5A**

Inflow Area = 3,711 sf, 98.14% Impervious, Inflow Depth = 0.32" for 75% event

Inflow = 0.04 cfs @ 12.04 hrs, Volume= 98 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.84' @ 24.70 hrs Surf.Area= 234 sf Storage= 98 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avai	I.Stora	ge Storage Desci	Storage Description			
#1	610.79'		397	cf Storage (Pris	Storage (Prismatic)Listed below (Recalc)			
Elevatio	_	urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
610.7	,	234	0.0	0	0			
614.2		234	40.0	327	327			
614.2	29	84	20.0	0	327			
615.6		84	50.0	56	383			
615.7	<b>7</b> 9	84	100.0	14	397			
Device	Routing	In	vert (	Outlet Devices				
#1	Primary	613		.0" Round Culve				
			I		613.04' / 612.97'	S= 0.0117 '/' Cc= 0.900		
#2	Device 1	611		n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf  6.0" Round Culvert				
				L= 15.0' CMP, end-section conforming to fill, Ke= 0.500				
					t / Outlet Invert= 611.29' / 611.29' S= 0.0000 '/' Cc= 0.900			
<b>"</b> 0	Davida a 0	040				erior, Flow Area= 0.20 sf		
#3 #4	Device 2 Device 1	610 615	-	.900 in/hr Exfiltra				
#4 Device 1 615.60' <b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads				- 0.000				

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.79' TW=612.27' (Dynamic Tailwater)

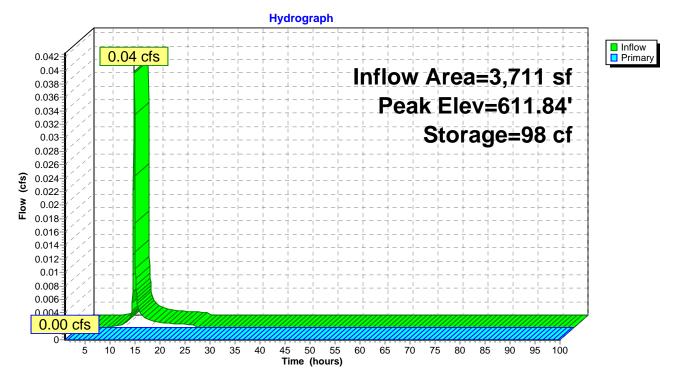
1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

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## Pond DS 7: Planter PB-5A



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# **Summary for Pond DS 9: Planter PB-7A**

Inflow Area = 3,275 sf, 96.52% Impervious, Inflow Depth = 0.26" for 75% event

Inflow = 0.03 cfs @ 12.04 hrs, Volume= 70 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.94' @ 24.70 hrs Surf.Area= 391 sf Storage= 70 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

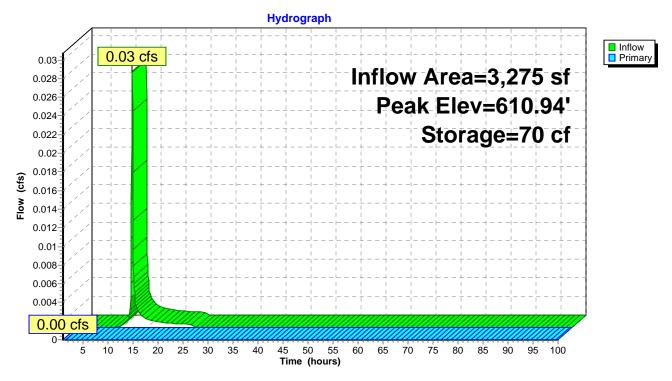
Volume	Inve	rt Ava	il.Stora	ge Storage Desc	Storage Description				
#1	610.49	9'	665	of Storage (Pris	smatic)Listed below	w (Recalc)			
Elevatio		Surf.Area (sq-ft)	Voids (%)		Cum.Store (cubic-feet)				
610.4	.9	391	0.0	•	0				
613.9	9	391	40.0	547	547				
614.0	0	141	20.0	1	548				
615.3		141	50.0		641				
615.4	.9	141	100.0	24	665				
Device	Routing	In	vert	Outlet Devices					
#1	Primary	612		6.0" Round Culvert L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.30' / 612.23' S= 0.0117 '/' Cc= 0.900					
#2	Device 1	610	).99'	n= 0.010 PVC, sm <b>6.0" Round Culve</b> L= 28.0' RCP, squ	ooth interior,  Flow ert uare edge headwal	Area= 0.20 sf I, Ke= 0.500			
#3 #4	Device 2 Device 1		).49' 5.48'	Inlet / Outlet Invert= 610.99' / 610.99' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf 0.900 in/hr Exfiltration over Surface area 24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads					

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.49' TW=612.27' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

#### Pond DS 9: Planter PB-7A



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### **Summary for Pond DS-1: DS 1**

[80] Warning: Exceeded Pond DS 15 by 2.54' @ 6.95 hrs (0.27 cfs 95,741 cf) [80] Warning: Exceeded Pond DS 4 by 2.15' @ 6.60 hrs (0.01 cfs 2,425 cf) [80] Warning: Exceeded Pond DS 5 by 2.38' @ 11.95 hrs (0.00 cfs 483 cf)

Inflow Area = 58,007 sf, 98.29% Impervious, Inflow Depth > 0.42" for 75% event

Inflow = 0.08 cfs @ 12.04 hrs, Volume= 2,008 cf

Outflow = 0.08 cfs @ 12.04 hrs, Volume= 2,009 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.08 cfs @ 12.04 hrs, Volume= 2,009 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

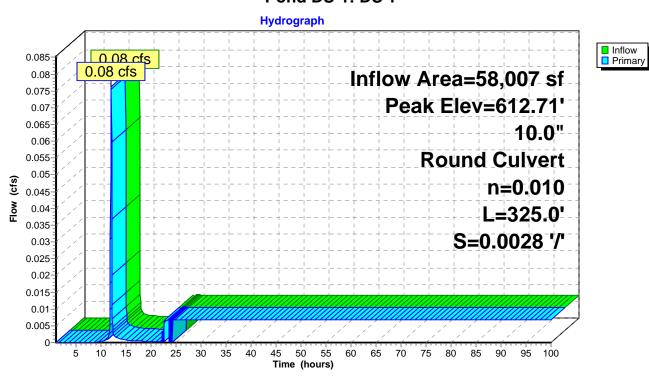
Peak Elev= 612.71' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert
			L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.07 cfs @ 12.04 hrs HW=612.71' TW=590.26' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.07 cfs @ 1.43 fps)

#### Pond DS-1: DS 1



# **Summary for Pond DS8: Planter PB-6A**

Inflow Area = 1,765 sf, 96.09% Impervious, Inflow Depth = 0.26" for 75% event

Inflow = 0.01 cfs @ 12.04 hrs, Volume= 38 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.03' @ 24.70 hrs Surf.Area= 235 sf Storage= 38 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

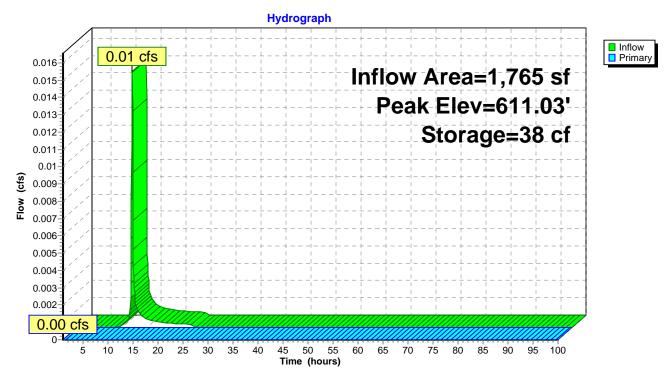
Volume	Invert	Avai	I.Stora	age	Storage Description				
#1	610.63'		399	9 cf	Storage (Prisma	atic)Listed below	w (Recalc)		
	Elevation Surf.Area Voids			Inc.Store Cum.Store					
(fee		(sq-ft)	(%		(cubic-feet)	(cubic-feet)			
610.6	3	235	0.0	)	0	0			
614.1	3	235	40.0	)	329	329			
614.1	4	84	20.0	)	0	329			
615.4	16	84	50.0	)	55	385			
615.6	3	84	100.0	)	14	399			
Device	Routing	Inv	vert	Outle	et Devices				
#1	Primary	613	.04'	6.0"	Round Culvert				
				L= 6.0' CPP, square edge headwall, Ke= 0.500					
				Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf					
#2	Device 1	611		6.0" Round Culvert					
#2	Device i	011							
				L= 14.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.13' / 611.13' S= 0.0000 '/' Cc= 0.900					
#3	Device 2	610			.013 Confugated <b>0 in/hr Exfiltratio</b>		erior, Flow Area= 0.20 sf		
		610							
#4	Device 1	615	.02		" x 24.0" Horiz. C		= 0.000		
				∟ımıı	ed to weir flow at	iow neads			

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.63' TW=612.27' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

#### Pond DS8: Planter PB-6A



Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1: Area 1 Runoff Area=5,276 sf 95.77% Impervious Runoff Depth=0.57"

Tc=12.0 min CN=97 Runoff=0.10 cfs 249 cf

Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=0.65" Subcatchment 1M: Area 1M M and T Lot

Tc=15.0 min CN=98 Runoff=0.56 cfs 1,627 cf

Subcatchment 2: Area 2 Runoff Area=3,939 sf 92.08% Impervious Runoff Depth=0.57"

Tc=12.0 min CN=97 Runoff=0.07 cfs 186 cf

Subcatchment 2M: Area 2M M and T Two Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.27 cfs 724 cf

Runoff Area=2,103 sf 92.44% Impervious Runoff Depth=0.57" Subcatchment 3: Area 3

Tc=12.0 min CN=97 Runoff=0.04 cfs 99 cf

Runoff Area=6,163 sf 94.95% Impervious Runoff Depth=0.57" Subcatchment 4: Area 4

Tc=12.0 min CN=97 Runoff=0.11 cfs 291 cf

Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=0.65" Subcatchment 4B: Area 4B

Tc=12.0 min CN=98 Runoff=0.04 cfs 115 cf

Runoff Area=3,711 sf 98.14% Impervious Runoff Depth=0.65" Subcatchment 5: Area 5

Tc=12.0 min CN=98 Runoff=0.07 cfs 200 cf

Runoff Area=1,765 sf 96.09% Impervious Runoff Depth=0.57" Subcatchment 6: Area 6

Tc=12.0 min CN=97 Runoff=0.03 cfs 83 cf

Runoff Area=3,275 sf 96.52% Impervious Runoff Depth=0.57" Subcatchment 7: Area 7

Tc=12.0 min CN=97 Runoff=0.06 cfs 154 cf

Runoff Area=2,841 sf 96.16% Impervious Runoff Depth=0.57" Subcatchment 8: Area 8

Tc=12.0 min CN=97 Runoff=0.05 cfs 134 cf

Subcatchment 9: Area 9 Runoff Area=2,159 sf 94.58% Impervious Runoff Depth=0.57"

Tc=12.0 min CN=97 Runoff=0.04 cfs 102 cf

Subcatchment 9A: Area 9A Runoff Area=4,063 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.08 cfs 219 cf

Subcatchment 9B: Area 9B Runoff Area=5,512 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.11 cfs 297 cf

Subcatchment 15: Area 15 Runoff Area=3,027 sf 97.49% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.06 cfs 163 cf

Subcatchment 15A: Area 15A Runoff Area=3,750 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.08 cfs 202 cf

Genesee St Final Prepared by Microsoft HydroCAD® 10.00-12 s/n 03757 © 20	Type II 24-hr WQv Rainfall=0.85" Printed 5/4/2015 HydroCAD Software Solutions LLC Page 207
Subcatchment 15B: Area 15B	Runoff Area=16,790 sf 100.00% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.34 cfs 904 cf
Subcatchment 16: Area 16	Runoff Area=2,715 sf 98.42% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.05 cfs 146 cf
Pond 84": 84" TRUNK SEWER 84.0	Peak Elev=590.37' Inflow=0.79 cfs 4,507 cf Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=0.79 cfs 4,523 cf
<b>Pond DI 868: DI #868</b>	Peak Elev=612.81' Inflow=0.19 cfs 515 cf .0" Round Culvert n=0.010 L=325.0' S=0.0028'/ Outflow=0.19 cfs 516 cf
Pond DS 10: Planter PB-8A	Peak Elev=611.29' Storage=134 cf Inflow=0.05 cfs 134 cf Outflow=0.00 cfs 0 cf
Pond DS 11: Planter PB-9A	Peak Elev=610.77' Storage=102 cf Inflow=0.04 cfs 102 cf Outflow=0.00 cfs 0 cf
Pond DS 14: DS 14 Prima	Peak Elev=613.15' Inflow=0.38 cfs 1,015 cf ary=0.24 cfs 870 cf Secondary=0.14 cfs 145 cf Outflow=0.38 cfs 1,015 cf
Pond DS 15: Planter PB-4A	Peak Elev=612.06' Storage=870 cf Inflow=0.24 cfs 870 cf Outflow=0.00 cfs 0 cf
Pond DS 2: Planter PB-1A	Peak Elev=612.66' Storage=236 cf Inflow=0.10 cfs 249 cf Outflow=0.00 cfs 15 cf
Pond DS 28: DS 28	Peak Elev=608.91' Inflow=0.08 cfs 401 cf 2.0" Round Culvert n=0.012 L=77.0' S=0.0014'/' Outflow=0.08 cfs 403 cf
Pond DS 29: Planter PB-1B	Peak Elev=613.16' Storage=169 cf Inflow=0.06 cfs 252 cf Outflow=0.00 cfs 199 cf
Pond DS 3: DS 3 Primar	Peak Elev=613.69' Inflow=0.62 cfs 1,813 cf y=0.62 cfs 1,576 cf Secondary=0.02 cfs 237 cf Outflow=0.62 cfs 1,813 cf
Pond DS 30: Planter PB-2B	Peak Elev=613.92' Storage=109 cf Inflow=0.05 cfs 146 cf Outflow=0.00 cfs 89 cf
Pond DS 4: Planter PB-2A	Peak Elev=613.69' Storage=1,306 cf Inflow=0.62 cfs 1,576 cf Outflow=0.01 cfs 705 cf
Pond DS 5: Planter PB-3A	Peak Elev=611.46' Storage=99 cf Inflow=0.04 cfs 99 cf Outflow=0.00 cfs 0 cf

Pond DS 6: DS 6

Peak Elev=612.86' Inflow=0.19 cfs 516 cf

10.0" Round Culvert n=0.010 L=303.0' S=0.0028 '/' Outflow=0.19 cfs 515 cf

Pond DS 9: Planter PB-7A Peak Elev=611.48' Storage=154 cf Inflow=0.06 cfs 154 cf Outflow=0.00 cfs 0 cf

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Type II 24-hr WQv Rainfall=0.85"
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Pond DS-1: DS 1 Peak Elev=612.80' Inflow=0.18 cfs 2,433 cf

10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.18 cfs 2,433 cf

Pond DS8: Planter PB-6A Peak Elev=611.52' Storage=83 cf Inflow=0.03 cfs 83 cf

Outflow=0.00 cfs 0 cf

Total Runoff Area = 112,891 sf Runoff Volume = 5,895 cf Average Runoff Depth = 0.63" 1.61% Pervious = 1,812 sf 98.39% Impervious = 111,079 sf HydroCAD® 10.00-12 s/n 03757 © 2014 HydroCAD Software Solutions LLC

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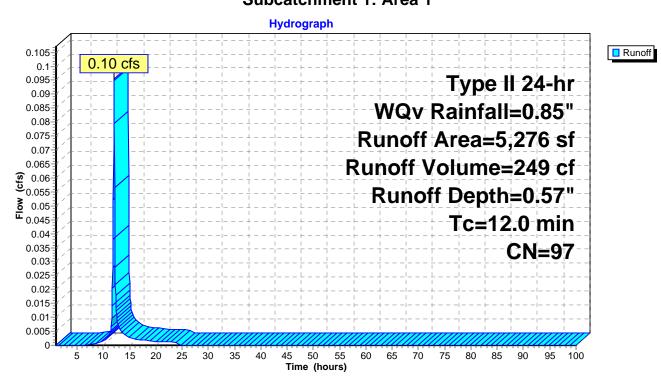
# Summary for Subcatchment 1: Area 1

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 249 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description							
	223	80	>75% Grass cover, Good, HSG D							
	5,053	98	Paved park	ing, HSG D	D					
	5,276	97	Weighted A	verage						
	223		4.23% Pervious Area							
	5,053		95.77% Imp	ervious Ar	rea					
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)								
12.0	()	(	( )	()	Direct Entry,	_				

# Subcatchment 1: Area 1



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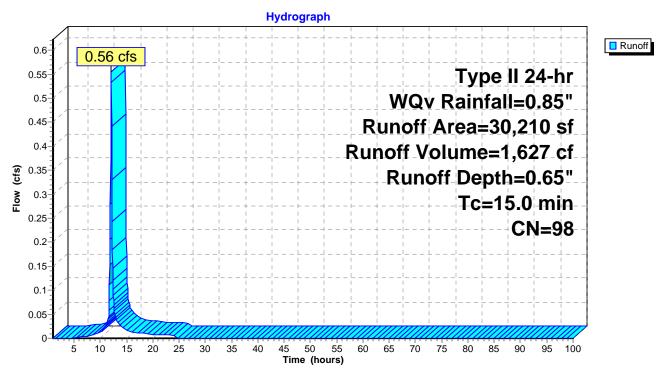
# Summary for Subcatchment 1M: Area 1M M and T Lot one

Runoff = 0.56 cfs @ 12.06 hrs, Volume= 1,627 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

Α	rea (sf)	CN	Description							
	210	80	>75% Gras	s cover, Go	Good, HSG D					
	30,000	98	Paved park	ing, HSG D	D					
	30,210	98	Weighted A	verage						
	210		0.70% Perv	rious Area						
	30,000		99.30% Imp	pervious Ar	rea					
_		01		0 "	D					
Тс	Length	Slope	e Velocity Capacity Description							
(min)	(feet)	(ft/ft	) (ft/sec)	(ft/sec) (cfs)						
15.0					Direct Entry					

### Subcatchment 1M: Area 1M M and T Lot one



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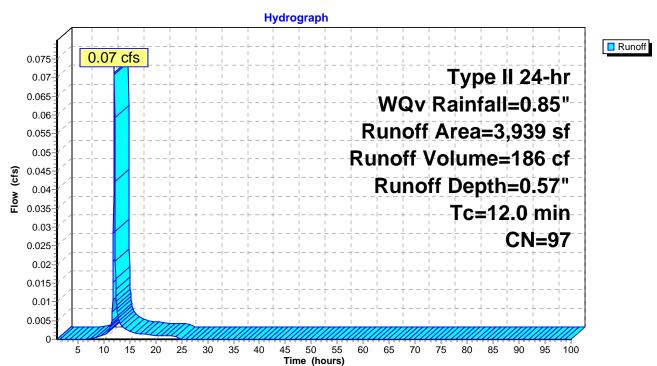
# **Summary for Subcatchment 2: Area 2**

Runoff = 0.07 cfs @ 12.04 hrs, Volume= 186 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description							
	312	80	>75% Gras	s cover, Go	ood, HSG D					
	3,627	98	Paved park	ing, HSG D	)					
	3,939	97	Weighted A	verage						
	312		7.92% Pervious Area							
	3,627		92.08% lmp	ervious Ar	ea					
Тс	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec) (cfs)							
12.0					Direct Entry,					

#### Subcatchment 2: Area 2



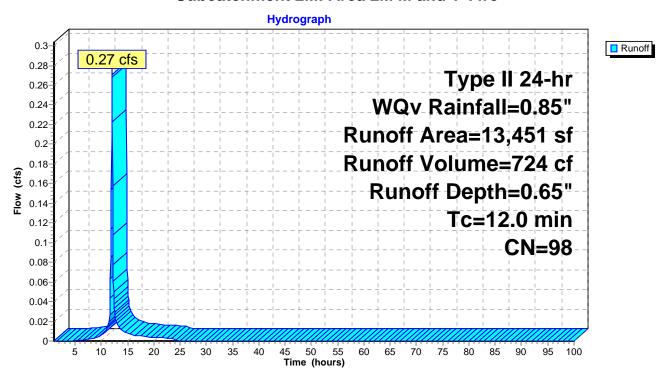
## Summary for Subcatchment 2M: Area 2M M and T Two

Runoff = 0.27 cfs @ 12.03 hrs, Volume= 724 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN [	Description								
	13,451	98 F	Paved park	Paved parking, HSG D							
	13,451	•	00.00% Impervious Area								
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description						
12.0					Direct Entry,						

#### Subcatchment 2M: Area 2M M and T Two



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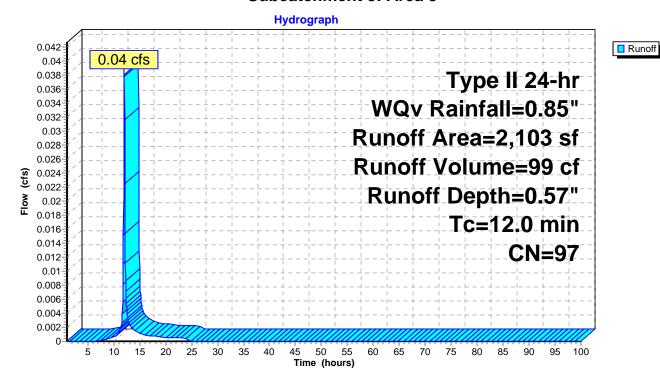
# **Summary for Subcatchment 3: Area 3**

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 99 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description				
	159	80					
	1,944 98 Paved parking, HSG D						
	2,103 97 Weighted Average						
	159		7.56% Perv	ious Area			
	1,944	1,944 92.44% Impervious Area					
Tc	Length	Slope	,	Capacity	•		
<u>(min)</u>	(feet)	(ft/ft	) (ft/sec)	(cfs)			
12.0					Direct Entry,		

#### **Subcatchment 3: Area 3**



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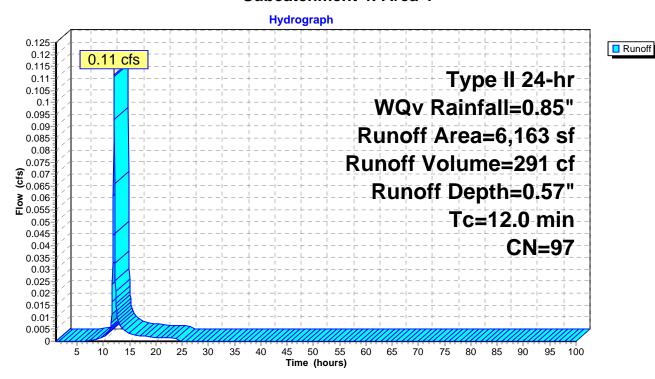
# **Summary for Subcatchment 4: Area 4**

Runoff = 0.11 cfs @ 12.04 hrs, Volume= 291 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description						
	311	80	>75% Grass cover, Good, HSG D						
	5,852	98	Paved park	ing, HSG D	)				
	6,163	97	Weighted A	Weighted Average					
	311		5.05% Perv	ious Area					
	5,852		94.95% lmp	ervious Ar	ea				
Тс	Length	Slope	Velocity	Capacity	Description				
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	•				
12.0					Direct Entry,				

#### Subcatchment 4: Area 4



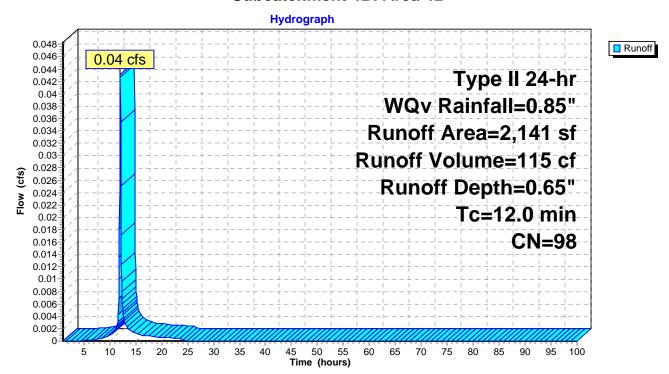
# Summary for Subcatchment 4B: Area 4B

Runoff = 0.04 cfs @ 12.03 hrs, Volume= 115 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

	A	ea (sf)	CN	Description						
		2,141	98	Paved parking, HSG D						
		2,141		100.00% Impervious Area						
(m	Tc in)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description				
12	2.0					Direct Entry,				

#### Subcatchment 4B: Area 4B



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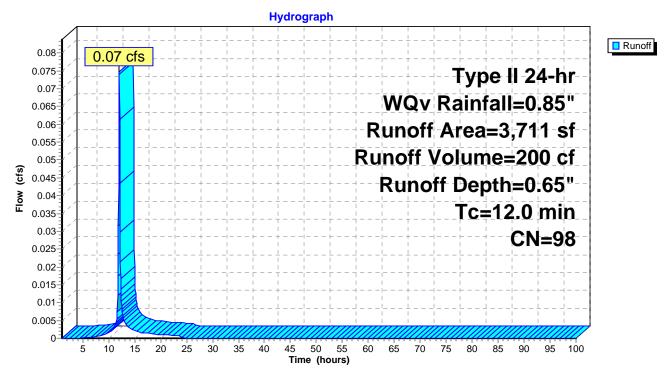
# **Summary for Subcatchment 5: Area 5**

Runoff = 0.07 cfs @ 12.03 hrs, Volume= 200 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description						
	69	80	>75% Grass cover, Good, HSG D						
	3,642	98	Paved park	ing, HSG D					
	3,711	98	Weighted A	Weighted Average					
	69		1.86% Perv	rious Area					
	3,642		98.14% lmp	pervious Ar	ea				
Тс	Length	Slope	e Velocity	Capacity	Description				
(min)	(feet)	(ft/ft)							
12.0					Direct Entry,				

### Subcatchment 5: Area 5



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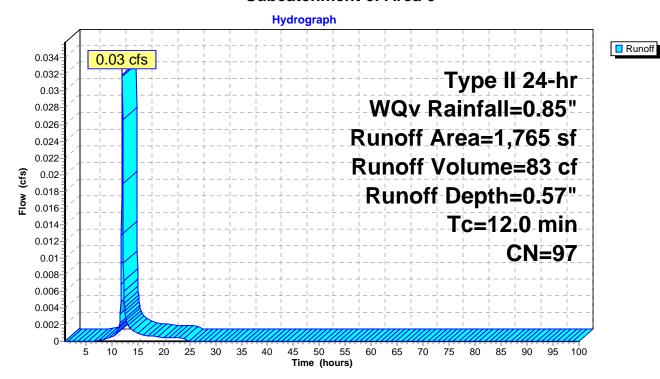
# **Summary for Subcatchment 6: Area 6**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 83 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description							
	69	80	>75% Grass cover, Good, HSG D							
	1,696	98	Paved park	ing, HSG D	D					
	1,765	97	Weighted A	Weighted Average						
	69		3.91% Pervious Area							
	1,696		96.09% Imp	pervious Ar	rea					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	•					
12.0	,		,	, ,	Direct Entry,					

#### Subcatchment 6: Area 6



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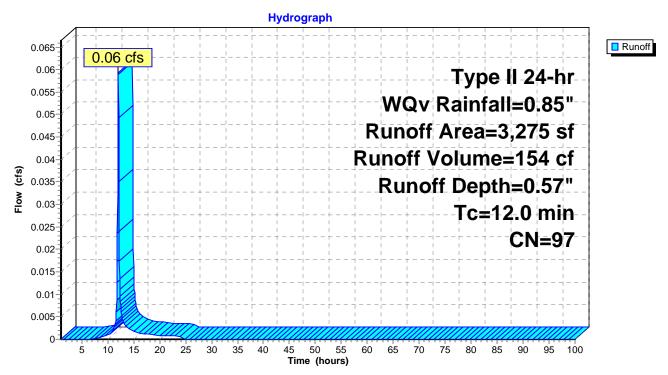
# **Summary for Subcatchment 7: Area 7**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 154 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

	Area (sf)	CN	Description							
	114	80	>75% Grass cover, Good, HSG D							
	3,161	98	Paved park	ing, HSG D	)					
	3,275	97	Weighted A	Veighted Average						
	114		3.48% Pervious Area							
	3,161		96.52% lmp	pervious Ar	ea					
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description					
12.0		•	·	·	Direct Entry,					

### **Subcatchment 7: Area 7**



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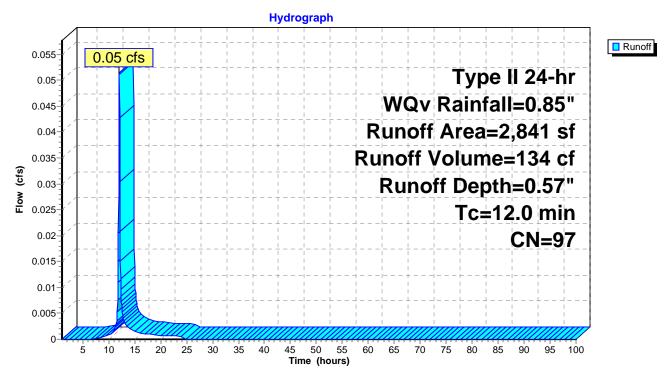
## **Summary for Subcatchment 8: Area 8**

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 134 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

	rea (sf)	CN	Description						
	109	80	>75% Grass cover, Good, HSG D						
	2,732	98	Paved park	ing, HSG D	)				
	2,841	97	Weighted A	Weighted Average					
	109		3.84% Pervious Area						
	2,732		96.16% lmp	pervious Ar	ea				
Tc	Length	Slope	Velocity	Capacity	Description				
(min)	(feet)	(ft/ft)	,	(cfs)	Decomplion				
12.0	,/	(	,,	( /	Direct Entry,				

### **Subcatchment 8: Area 8**



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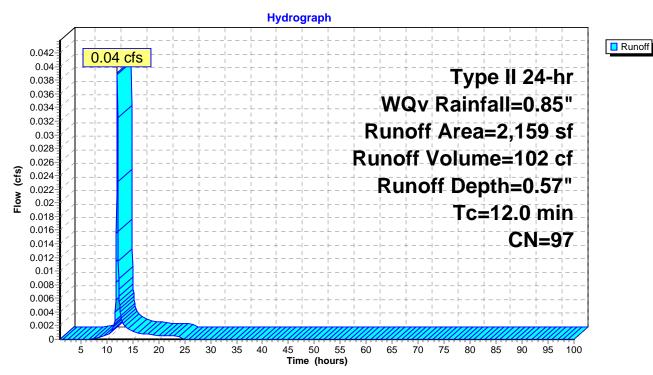
## **Summary for Subcatchment 9: Area 9**

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 102 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description							
	117	80	>75% Grass cover, Good, HSG D							
	2,042	98	Paved park	ing, HSG D	)					
	2,159	97	Weighted A	Veighted Average						
	117		5.42% Perv	ious Area						
	2,042		94.58% lmp	pervious Ar	ea					
-		01		0 ''	<b>D</b>					
Тс	Length	Slope	,	Capacity	Description					
(min)	(feet)	(ft/ft)	t) (ft/sec) (cfs)							
12.0					Direct Entry,					

### **Subcatchment 9: Area 9**



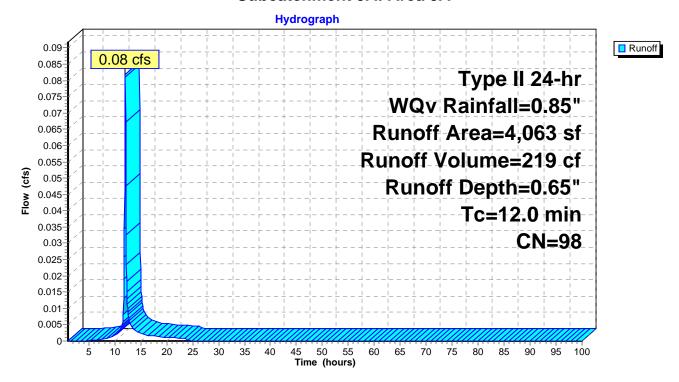
# Summary for Subcatchment 9A: Area 9A

Runoff = 0.08 cfs @ 12.03 hrs, Volume= 219 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

	Α	rea (sf)	CN	Description						
		4,063	98	Paved parking, HSG D						
		4,063		100.00% Impervious Area						
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
	12.0					Direct Entry,				

#### Subcatchment 9A: Area 9A



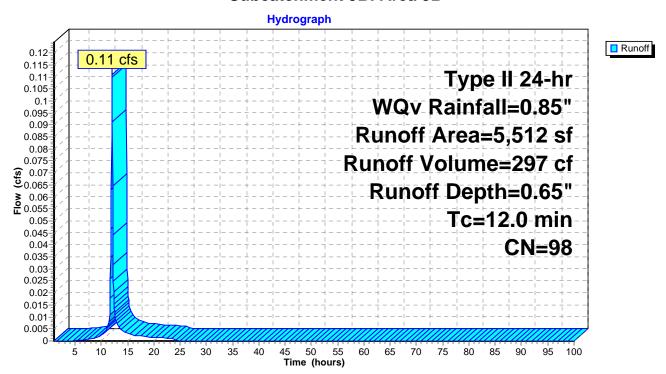
## Summary for Subcatchment 9B: Area 9B

Runoff = 0.11 cfs @ 12.03 hrs, Volume= 297 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN [	Description						
	5,512	98 F	Paved parking, HSG D						
	5,512	1	100.00% Impervious Area						
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	•				
12.0	·	•		·	Direct Entry,				

### Subcatchment 9B: Area 9B



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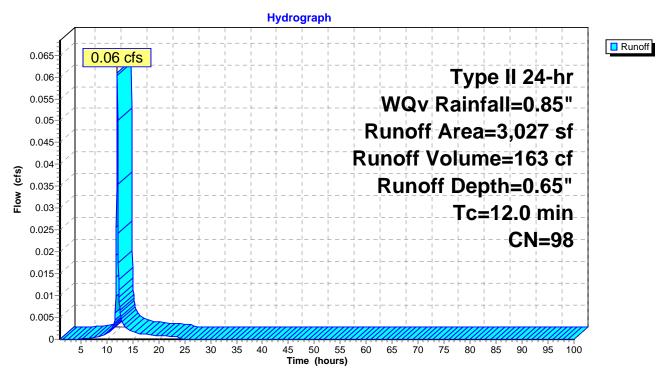
# **Summary for Subcatchment 15: Area 15**

Runoff = 0.06 cfs @ 12.03 hrs, Volume= 163 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description						
	76	80	>75% Grass cover, Good, HSG D						
	2,951	98	Paved park	ing, HSG D					
	3,027	98	Weighted A	Weighted Average					
	76		2.51% Pervious Area						
	2,951		97.49% lmp	pervious Ar	ea				
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description				
12.0	( 0 0 1)	(14,11	( 3000)	(0.0)	Direct Entry,		_		

### **Subcatchment 15: Area 15**



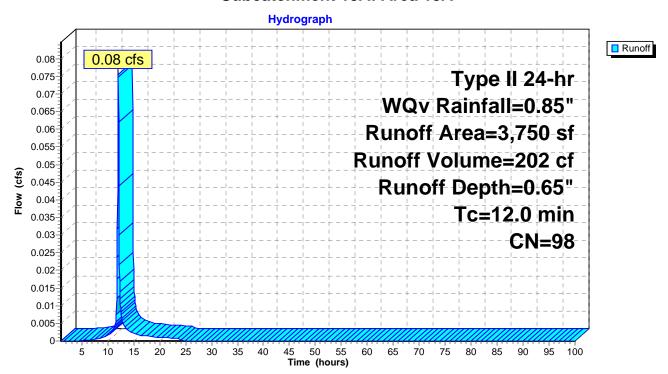
# **Summary for Subcatchment 15A: Area 15A**

Runoff = 0.08 cfs @ 12.03 hrs, Volume= 202 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

 Α	rea (sf)	CN	Description						
	3,750	98	Paved parking, HSG D						
	3,750		100.00% Impervious Area						
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description				
12.0					Direct Entry,				

### Subcatchment 15A: Area 15A



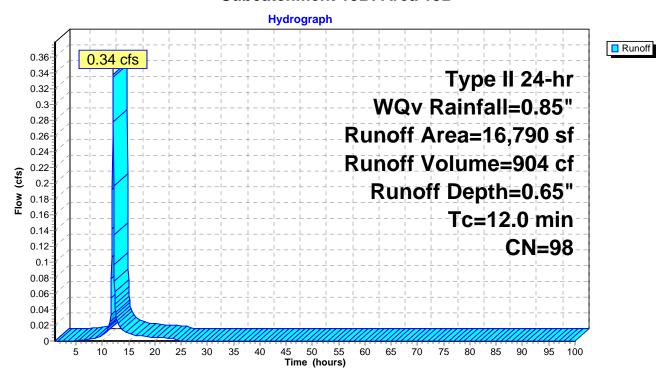
# Summary for Subcatchment 15B: Area 15B

Runoff = 0.34 cfs @ 12.03 hrs, Volume= 904 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

	Α	rea (sf)	CN	Description					
		16,790	98	Paved parking, HSG D					
		16,790		100.00% Impervious Area					
	Tc in)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description			
12	2.0					Direct Entry,			

### Subcatchment 15B: Area 15B



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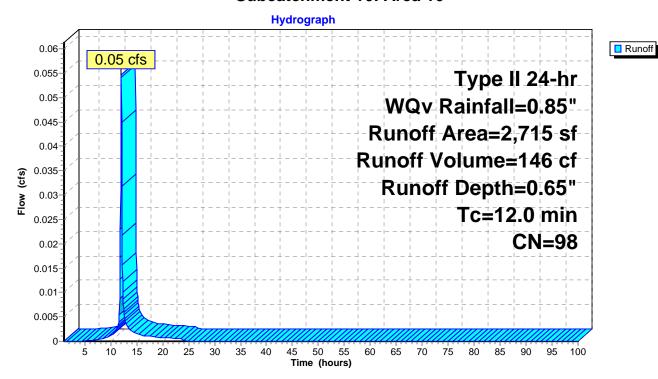
# **Summary for Subcatchment 16: Area 16**

Runoff = 0.05 cfs @ 12.03 hrs, Volume= 146 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description					
	43	80	>75% Gras	s cover, Go	ood, HSG D			
	2,672	98	Paved park	ing, HSG D	D			
	2,715	98	Weighted Average					
	43		1.58% Perv	ious Area				
	2,672		98.42% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	•			
12.0	,	,	,	,	Direct Entry,			

#### **Subcatchment 16: Area 16**



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## **Summary for Pond 84": 84" TRUNK SEWER**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=502)

Inflow Area = 112,891 sf, 98.39% Impervious, Inflow Depth > 0.48" for WQv event

Inflow = 0.79 cfs @ 12.03 hrs, Volume= 4,507 cf

Outflow = 0.79 cfs @ 12.03 hrs, Volume= 4,523 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.79 cfs @ 12.03 hrs, Volume= 4,523 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

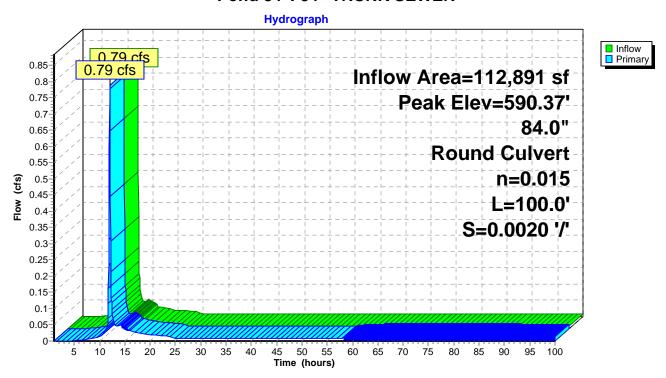
Peak Elev= 590.37' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	84.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/' Cc= 0.900
			n= 0.015 Brickwork, Flow Area= 38.48 sf

Primary OutFlow Max=0.77 cfs @ 12.03 hrs HW=590.37' (Free Discharge) 1=Culvert (Barrel Controls 0.77 cfs @ 1.53 fps)

#### Pond 84": 84" TRUNK SEWER



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## Summary for Pond DI 868: DI #868

[80] Warning: Exceeded Pond DS 6 by 0.29' @ 24.25 hrs (0.12 cfs 34,067 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth = 0.27" for WQv event

Inflow = 0.19 cfs @ 12.02 hrs, Volume= 515 cf

Outflow = 0.19 cfs @ 12.02 hrs, Volume= 516 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.19 cfs @ 12.02 hrs, Volume= 516 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

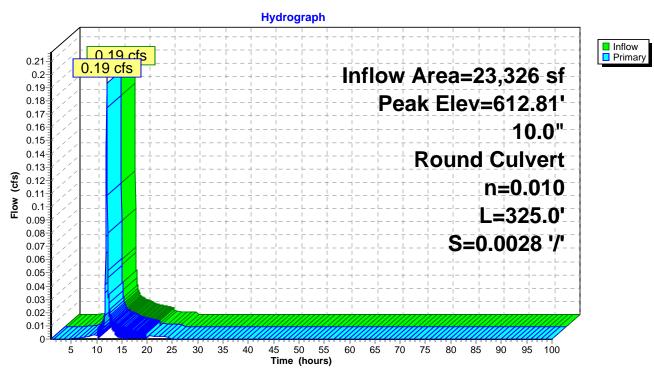
Peak Elev= 612.81' @ 12.02 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.19 cfs @ 12.02 hrs HW=612.81' TW=590.37' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.19 cfs @ 1.87 fps)

#### Pond DI 868: DI #868



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## **Summary for Pond DS 10: Planter PB-8A**

Inflow Area = 2,841 sf, 96.16% Impervious, Inflow Depth = 0.57" for WQv event

Inflow = 0.05 cfs @ 12.04 hrs, Volume= 134 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.29' @ 24.70 hrs Surf.Area= 391 sf Storage= 134 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

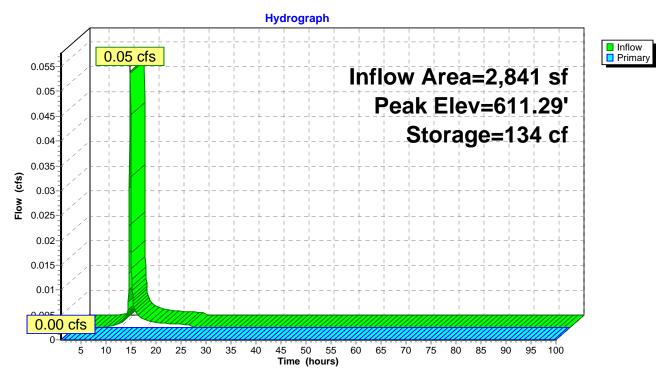
Volume	Invert	Avail.	Storage	Storage Descrip	tion		
#1	610.43'		638 cf	Storage (Prisma	atic)Listed below	w (Recalc)	
Elevatio		urf.Area \ (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
610.4		391	0.0	0	0		
613.7		391	40.0	519	519		
613.7	<b>'</b> 6	141	20.0	1	520		
615.0	)9	141	50.0	94	614		
615.2	26	141	100.0	24	638		
Device	Routing	Inve	ert Outle	et Devices			
#1	Primary	611.9		Round Culvert		14 0 700	
<b>#</b> 0	Davis 4	040	Inlet n= 0	.013 Corrugated	11.95' / 611.88'	Ke= 0.500 S= 0.0117 '/' Cc= 0.900 erior, Flow Area= 0.20 sf	
#2	Device 1	610.7		Round Culvert	ection conforming	ng to fill, Ke= 0.500	
				·		S= 0.0000 '/' Cc= 0.900	
			n= 0	.010 PVC, smoot	th interior, Flow	Area= 0.20 sf	
#3	Device 2	610.4		0 in/hr Exfiltratio			
#4	Device 1	615.2		" x 24.0" Horiz. C		= 0.600	
			Limit	ted to weir flow at	low heads		

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.43' TW=612.27' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

### Pond DS 10: Planter PB-8A



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# **Summary for Pond DS 11: Planter PB-9A**

Inflow Area = 2,159 sf, 94.58% Impervious, Inflow Depth = 0.57" for WQv event

Inflow = 0.04 cfs @ 12.04 hrs, Volume= 102 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.77' @ 24.70 hrs Surf.Area= 391 sf Storage= 102 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

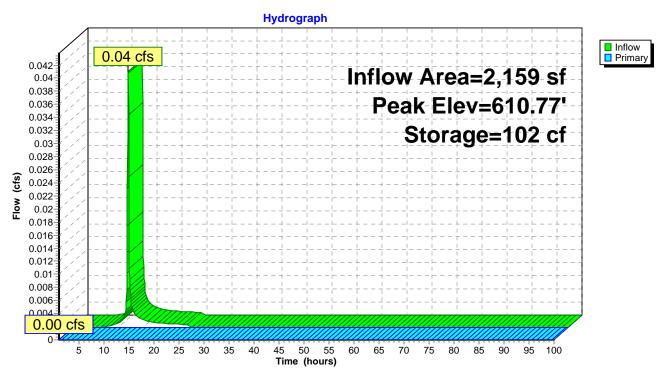
Volume	Invert	Avail.	.Storage	Storage Descript	tion		_
#1	610.12'		664 cf	Storage (Prismatic)Listed below (Recalc)		w (Recalc)	
Elevatio	_	urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
610.1		391	0.0	0	0		
613.6	81	391	40.0	546	546		
613.6		141	20.0	1	546		
614.9		141	50.0	94	640		
615.1	2	141	100.0	24	664		
Device	Routing	Inv	ert Outle	et Devices			
#1	Primary	611.9		Round Culvert			
<b>#</b> 0	5	040	Inlet n= 0	.013 Corrugated	11.91' / 611.84	Ke= 0.500 S= 0.0117 '/' Cc= 0.900 erior, Flow Area= 0.20 sf	
#2	Device 1	610.6		Round Culvert	ection conformin	ng to fill, Ke= 0.500	
			Inlet	/ Outlet Invert= 6	10.62' / 610.62'	S= 0.0000 '/' Cc= 0.900	
0	Davidae 0	040		.010 PVC, smoot	•		
#4	Device I	015.				- 0.000	
#3 #4	Device 2 Device 1	610. <sup>2</sup> 615. <sup>2</sup>	11' <b>24.0</b>	0 in/hr Exfiltratio " x 24.0" Horiz. C ted to weir flow at	Orifice/Grate C		

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.12' TW=612.27' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

### Pond DS 11: Planter PB-9A



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# **Summary for Pond DS 14: DS 14**

Inflow Area =	19,614 sf, 98.41% Impervious,	Inflow Depth = 0.62" for WQv event
Inflow =	0.38 cfs @ 12.03 hrs, Volume=	1,015 cf
Outflow =	0.38 cfs @ 12.03 hrs, Volume=	1,015 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.24 cfs @ 12.03 hrs, Volume=	870 cf
Secondary =	0.14 cfs @ 12.03 hrs, Volume=	145 cf

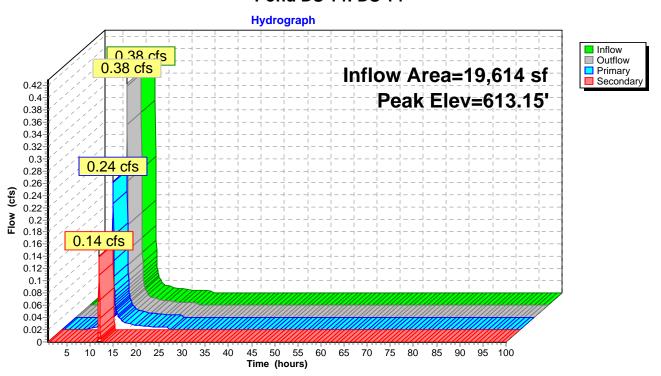
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 613.15' @ 12.03 hrs Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.80'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500
	·		Inlet / Outlet Invert= 612.80' / 612.75' S= 0.0125 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	612.90'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500
	_		Inlet / Outlet Invert= 612.90' / 612.83' S= 0.0117 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.24 cfs @ 12.03 hrs HW=613.15' TW=610.75' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.24 cfs @ 2.29 fps)

Secondary OutFlow Max=0.14 cfs @ 12.03 hrs HW=613.15' TW=612.80' (Dynamic Tailwater) = Culvert (Barrel Controls 0.14 cfs @ 2.05 fps)

#### **Pond DS 14: DS 14**



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## **Summary for Pond DS 15: Planter PB-4A**

19,614 sf, 98.41% Impervious, Inflow Depth = 0.53" for WQv event Inflow Area =

0.24 cfs @ 12.03 hrs. Volume= Inflow 870 cf

1.00 hrs, Volume= Outflow 0.00 cfs @ 0 cf, Atten= 100%, Lag= 0.0 min

Primary 1.00 hrs, Volume= 0.00 cfs @ 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.06' @ 24.70 hrs Surf.Area= 1,055 sf Storage= 870 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

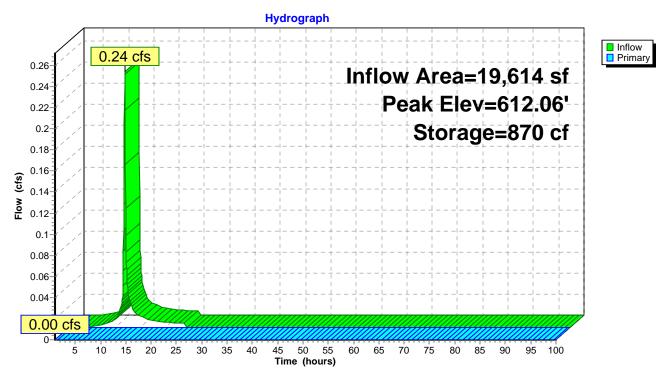
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail	.Storag	e Storage Descr	ription	
#1	610.00'		1,803	of Storage (Prisi	Storage (Prismatic)Listed below (Recalc)	
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
610.0	-	1,055	0.0	0	0	
613.4		1,055	40.0	1,473	1,473	
613.5	50	394	20.0	1	1,474	
614.8		394	50.0	262	1,736	
615.0	00	394	100.0	67	1,803	
Device	Routing	Inv	ert C	utlet Devices		
#1	Primary	611.		.0" Round Culver		
				= 6.0' CPP, squar		
						S= 0.0117 '/' Cc= 0.900 erior, Flow Area= 0.20 sf
#2	Device 1	610.		.0" Round Culver		ellor, I low Area = 0.20 Si
"-	Bovios i	010.				ng to fill, Ke= 0.500
						S= 0.0000 '/' Cc= 0.900
			n	= 0.010 PVC, smc	ooth interior, Flow	Area= 0.20 sf
#3	Device 2	610.		1.000 in/hr Exfiltra		
#4	Device 1	614.		4.0" x 24.0" Horiz		C = 0.600
			L	imited to weir flow	at low heads	

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.00' TW=612.54' (Dynamic Tailwater) -1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.27 cfs potential flow)

### Pond DS 15: Planter PB-4A



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## Summary for Pond DS 2: Planter PB-1A

Inflow Area = 5,276 sf, 95.77% Impervious, Inflow Depth = 0.57" for WQv event

Inflow 0.10 cfs @ 12.04 hrs. Volume= 249 cf

0.00 cfs @ 22.09 hrs, Volume= Outflow 15 cf, Atten= 99%, Lag= 603.3 min

Primary 0.00 cfs @ 22.09 hrs, Volume= 15 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.66' @ 22.09 hrs Surf.Area= 273 sf Storage= 236 cf

Plug-Flow detention time= 816.0 min calculated for 15 cf (6% of inflow)

Center-of-Mass det. time= 581.3 min (1,392.5 - 811.2)

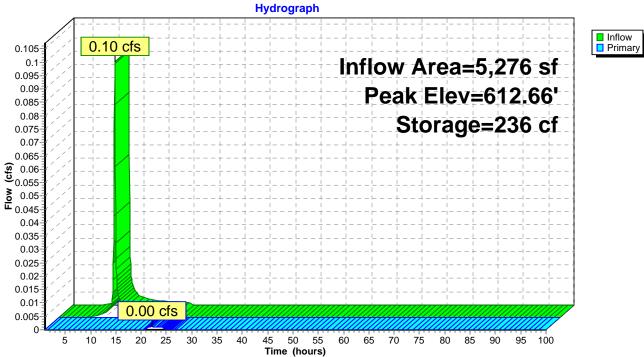
Volume	Inver	t Ava	il.Stor	age	Storage Descript	tion	
#1	610.50	'	61	0 cf	Storage (Prisma	atic)Listed below	w (Recalc)
Elevatio		orf.Area	Void		Inc.Store	Cum.Store	
(fee		(sq-ft)	(%		(cubic-feet)	(cubic-feet)	
610.5		273	0.	-	0	0	
613.9		273	40.		381	381	
614.0	00	273	20.	0	1	382	
615.3	33	273	50.	0	182	563	
615.5	50	273	100.	0	46	610	
<u>Device</u>	Routing	<u>In</u>	vert	Outl	et Devices		
#1	Primary	612	.64'	6.0"	Round Culvert		
				L=4	.0' CPP, square	edge headwall,	Ke= 0.500
				Inlet	/ Outlet Invert= 6	12.64' / 612.59'	S= 0.0125 '/' Cc= 0.900
				n=0	.013 Corrugated	PE, smooth inte	erior, Flow Area= 0.20 sf
#2	Device 1	611	.12'		Round Culvert	•	,
				L= 3	9.0' CMP, end-se	ection conforming	ng to fill, Ke= 0.500
							S= 0.0000 '/' Cc= 0.900
							erior, Flow Area= 0.20 sf
#3	Device 2	610	.50'		0 in/hr Exfiltratio	-	·
#4	Device 1		.49'		" x 24.0" Horiz. C		
,, ,	201100 1	010		_	ted to weir flow at		. 0.000

Primary OutFlow Max=0.00 cfs @ 22.09 hrs HW=612.66' TW=590.06' (Dynamic Tailwater)

-1=Culvert (Barrel Controls 0.00 cfs @ 0.60 fps)

**-2=Culvert** (Passes 0.00 cfs of 0.11 cfs potential flow) **3=Exfiltration** (Passes 0.00 cfs of 0.00 cfs potential flow)

### Pond DS 2: Planter PB-1A





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## **Summary for Pond DS 28: DS 28**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=250)

Inflow Area = 9,492 sf, 98.75% Impervious, Inflow Depth = 0.51" for WQv event

Inflow = 0.08 cfs @ 12.03 hrs, Volume= 401 cf

Outflow = 0.08 cfs @ 12.03 hrs, Volume= 403 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.08 cfs @ 12.03 hrs, Volume= 403 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

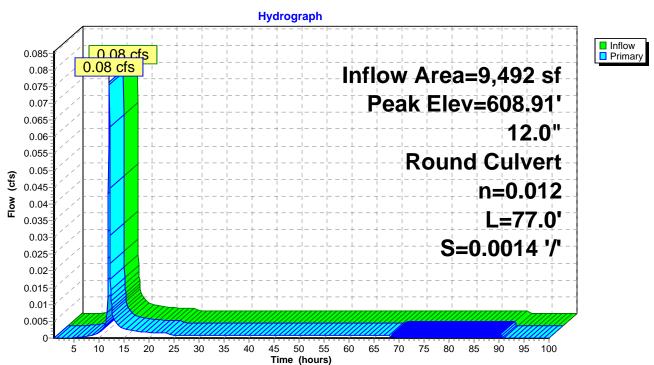
Peak Elev= 608.91' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices		
#1	Primary	608.71'	12.0" Round Culvert		
			L= 77.0' RCP, sq.cut end projecting, Ke= 0.500		
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/' Cc= 0.900		
			n= 0.012 Concrete pipe, finished. Flow Area= 0.79 sf		

Primary OutFlow Max=0.07 cfs @ 12.03 hrs HW=608.91' TW=590.37' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.07 cfs @ 1.04 fps)

### Pond DS 28: DS 28



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# Summary for Pond DS 29: Planter PB-1B

Inflow Area = 5,742 sf, 97.93% Impervious, Inflow Depth = 0.53" for WQv event

Inflow 0.06 cfs @ 12.03 hrs. Volume= 252 cf

0.00 cfs @ 12.00 hrs, Volume= Outflow 199 cf, Atten= 99%, Lag= 0.0 min

Primary 0.00 cfs @ 12.00 hrs, Volume= 199 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.16' @ 24.17 hrs Surf.Area= 101 sf Storage= 169 cf

Plug-Flow detention time= 2,238.2 min calculated for 199 cf (79% of inflow)

Center-of-Mass det. time= 1,853.7 min (3,078.6 - 1,225.0)

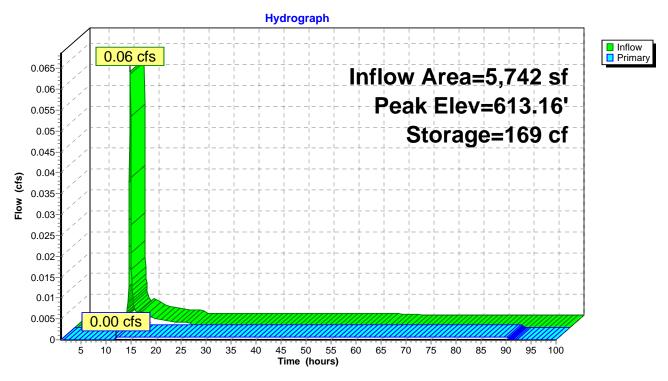
Volume	Invert	Avail	.Storage	Storage Descrip	otion	
#1	609.10'		225 cf	Storage (Prism	natic)Listed below	w (Recalc)
Elevatio	-	urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
609.1	,	101	0.0	0	0	
612.6		101	40.0	141	141	
612.6	81	101	20.0	0	142	
613.9		101	50.0	67	208	
614.1	0	101	100.0	17	225	
Device	Routing	Inv	ert Out	et Devices		
#1	Primary	610.		Round Culvert 5.0' CPP, square		Ke= 0.500
<b>#</b> 0	<b>D</b> : 4	222	Inlet n= (	t / Outlet Invert= 6 0.013 Corrugated	610.41' / 610.35' I PE, smooth inte	S= 0.0120 '/' Cc= 0.900 erior, Flow Area= 0.20 sf
#2	Device 1	609.		Round Culvert  50.0' CMP. end-s		ng to fill, Ke= 0.500
			Inle	t / Outlet Invert= 6	809.75' / 609.75'	S= 0.0000 '/' Cc= 0.900
що.	Davisa 2	000		•		erior, Flow Area= 0.20 sf
#3 #4	Device 2 Device 1	609. 614.		00 in/hr Exfiltratio )" x 24.0" Horiz. (		
π <del>-1</del>	Device 1	014.		ited to weir flow a		0.000

Primary OutFlow Max=0.00 cfs @ 12.00 hrs HW=610.52' TW=608.90' (Dynamic Tailwater)

**-1=Culvert** (Passes 0.00 cfs of 0.03 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 0.23 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

## Pond DS 29: Planter PB-1B



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## **Summary for Pond DS 3: DS 3**

Inflow Area =	34,149 sf, 98.47% Impervious,	Inflow Depth = 0.64" for WQv event
Inflow =	0.62 cfs @ 12.06 hrs, Volume=	1,813 cf
Outflow =	0.62 cfs @ 12.06 hrs, Volume=	1,813 cf, Atten= 0%, Lag= 0.0 min
Primary =	0.62 cfs @ 12.06 hrs, Volume=	1,576 cf
Secondary =	0.02 cfs @ 14.05 hrs, Volume=	237 cf

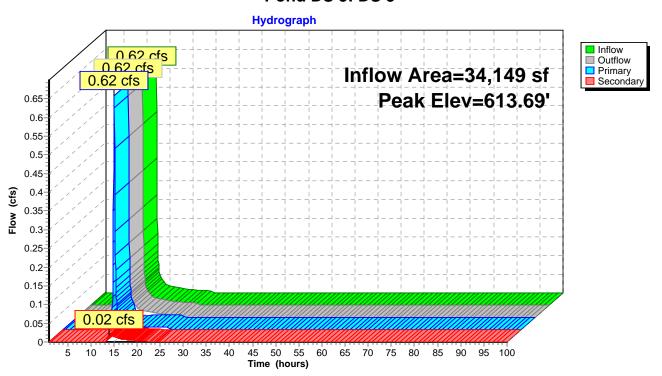
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 613.69' @ 14.05 hrs Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.60'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500
	·		Inlet / Outlet Invert= 612.60' / 612.55' S= 0.0125 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	613.60'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500
	•		Inlet / Outlet Invert= 613.60' / 613.55' S= 0.0083 '/' Cc= 0.900
			n= 0.012, Flow Area= 0.20 sf

Primary OutFlow Max=0.62 cfs @ 12.06 hrs HW=613.31' TW=612.13' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.62 cfs @ 3.14 fps)

Secondary OutFlow Max=0.02 cfs @ 14.05 hrs HW=613.69' TW=590.10' (Dynamic Tailwater) = Culvert (Barrel Controls 0.02 cfs @ 1.20 fps)

#### Pond DS 3: DS 3



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## Summary for Pond DS 30: Planter PB-2B

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=24)

2,715 sf, 98.42% Impervious, Inflow Depth = 0.65" for WQv event Inflow Area =

Inflow 0.05 cfs @ 12.03 hrs, Volume= 146 cf

Outflow 0.00 cfs @ 13.96 hrs, Volume= 89 cf, Atten= 95%, Lag= 115.7 min

0.00 cfs @ 13.96 hrs, Volume= Primary 89 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.92' @ 13.95 hrs Surf.Area= 49 sf Storage= 109 cf

Plug-Flow detention time= 1,322.7 min calculated for 89 cf (61% of inflow)

Center-of-Mass det. time= 1,219.1 min (2,014.8 - 795.7)

Volume	Invert	t Avail.	Storage	Storage Description	on		
#1	608.93	ı	109 cf	Storage (Prismat	ic)Listed below	v (Recalc)	
Elevatio	· · ·	urf.Area \ (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
608.9		49	0.0	0	0		
612.4		49	40.0	69	69		
612.4	14	49	20.0	0	69		
613.7	<b>7</b> 6	49	50.0	32	101		
613.9	93	49 ′	100.0	8	109		
Device	Routing	Inve	ert Outle	et Devices			
#1	Primary	611.8		Round Culvert			
#2	Device 1	609.4	Inlet n= 0	9.0' CPP, square / Outlet Invert= 61 <sup>2</sup> .010 PVC, smooth <b>Round Culvert</b>	1.87' / 611.20'	S= 0.0114 '/'	Cc= 0.900
#2	Device 1	009.4	L= 7 Inlet	.0' RCP, square e / Outlet Invert= 609 .010 PVC, smooth	9.43' / 609.43'	S= 0.0000 '/'	Cc= 0.900
#3 #4	Device 2 Device 1	608.9 613.9	92' <b>24.0</b>	0 in/hr Exfiltration " x 24.0" Horiz. Or	ifice/Grate C		
			Limit	ted to weir flow at lo	ow heads		

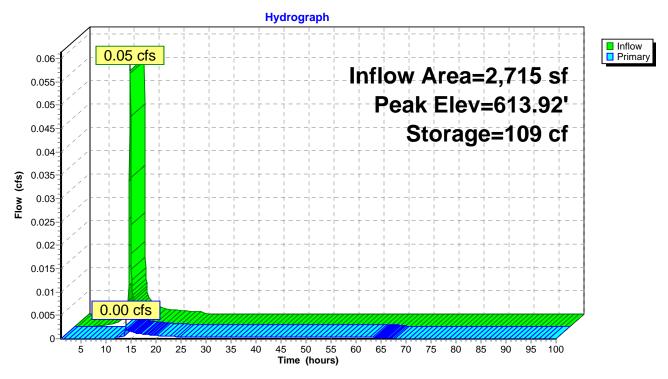
Primary OutFlow Max=0.00 cfs @ 13.96 hrs HW=613.92' TW=612.12' (Dynamic Tailwater)

**1=Culvert** (Passes 0.00 cfs of 1.02 cfs potential flow)

2=Culvert (Passes 0.00 cfs of 1.27 cfs potential flow)
3=Exfiltration (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.00 cfs @ 0.14 fps)

## Pond DS 30: Planter PB-2B



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# Summary for Pond DS 4: Planter PB-2A

[80] Warning: Exceeded Pond DS 3 by 0.98' @ 24.85 hrs (0.81 cfs 15,212 cf)

34,149 sf, 98.47% Impervious, Inflow Depth = 0.55" for WQv event Inflow Area =

Inflow 0.62 cfs @ 12.06 hrs, Volume= 1,576 cf

0.01 cfs @ 12.20 hrs, Volume= Outflow 705 cf, Atten= 99%, Lag= 8.4 min

0.01 cfs @ 12.20 hrs, Volume= Primary 2,173 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.69' @ 14.05 hrs Surf.Area= 990 sf Storage= 1,306 cf

Plug-Flow detention time= 910.8 min calculated for 705 cf (45% of inflow)

Center-of-Mass det. time= 812.0 min (1,585.1 - 773.1)

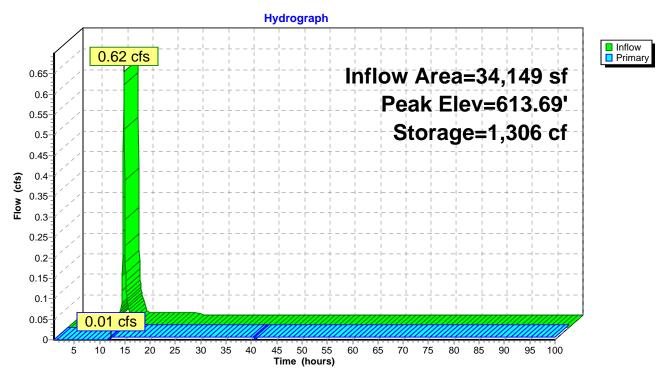
Volume	Invert	Avail.S	torage	Storage Descript	tion	
#1	610.39'	1	,715 cf	Storage (Prisma	atic)Listed below	w (Recalc)
Elevatio		rf.Area V (sq-ft)	oids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
610.3		990	0.0	0	0	
613.8			40.0	1,386	1,386	
613.9			20.0	1	1,387	
615.2	22	395	50.0	261	1,648	
615.3	89	395 1	0.00	67	1,715	
Device	Routing	Inve	t Outl	et Devices		
#1	Primary	612.48		Round Culvert		
	<b>.</b>	242.04	Inlet n= 0	.013 Corrugated	12.48' / 612.41'	Ke= 0.500 S= 0.0117 '/' Cc= 0.900 rior, Flow Area= 0.20 sf
#2	Device 1	610.89		Round Culvert	action conformin	ar to fill Ka 0 500
			Inlet n= 0	/ Outlet Invert= 6 .013 Corrugated	10.89' / 610.89' PE, smooth inte	ng to fill, Ke= 0.500 S= 0.0000 '/' Cc= 0.900 rior, Flow Area= 0.20 sf
#3	Device 2	610.39				
#4	Device 1	615.37		" <b>x 24.0" Horiz. C</b> ted to weir flow at		= 0.600

Primary OutFlow Max=0.01 cfs @ 12.20 hrs HW=612.78' TW=612.70' (Dynamic Tailwater)

**1=Culvert** (Passes 0.01 cfs of 0.14 cfs potential flow)

**2=Culvert** (Passes 0.01 cfs of 0.18 cfs potential flow) **3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Pond DS 4: Planter PB-2A



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## Summary for Pond DS 5: Planter PB-3A

Inflow Area = 2,103 sf, 92.44% Impervious, Inflow Depth = 0.57" for WQv event

0.04 cfs @ 12.04 hrs. Volume= Inflow 99 cf

1.00 hrs, Volume= Outflow 0.00 cfs @ 0 cf, Atten= 100%, Lag= 0.0 min

1.00 hrs, Volume= Primary 0.00 cfs @ 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.46' @ 24.70 hrs Surf.Area= 195 sf Storage= 99 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

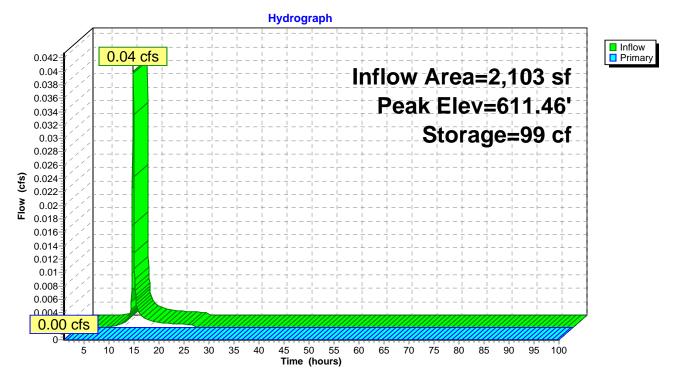
Volume	Invert	Avai	l.Storage	Storage Descri	ption			
#1	610.19'		435 c	f Storage (Prisn	natic)Listed below	w (Recalc)		
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
610.1		195	0.0	0	0			
613.6		195	40.0	272	272			
613.6	89	195	20.0	0	273			
615.0		195	50.0	130	402			
615.1	9	195	100.0	33	435			
Device	Routing	Inv	vert Ou	ıtlet Devices				
#1	Primary	612		" Round Culvert				
			Inle n=	0.010 PVC, smoo	612.37' / 612.30' oth interior, Flow	S= 0.0127 '/' Cc= 0.900		
#2	Device 1	610		" Round Culver		og to fill Mo 0 500		
			Inle	L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.61' / 610.61' S= 0.0000'/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf				
#3	Device 2	610		300 in/hr Exfiltrati				
#4	Device 1	615		.0" x 24.0" Horiz.		C= 0.600		
			Lir	nited to weir flow a	at low heads			

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.19' TW=612.54' (Dynamic Tailwater)

-1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

Pond DS 5: Planter PB-3A



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## **Summary for Pond DS 6: DS 6**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=131)

[80] Warning: Exceeded Pond DS 10 by 2.17' @ 11.90 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 11 by 2.54' @ 12.00 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 9 by 2.08' @ 11.90 hrs (0.01 cfs 472 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth = 0.27" for WQv event

Inflow = 0.19 cfs @ 12.03 hrs, Volume= 516 cf

Outflow = 0.19 cfs @ 12.02 hrs, Volume= 515 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.19 cfs @ 12.02 hrs, Volume= 515 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

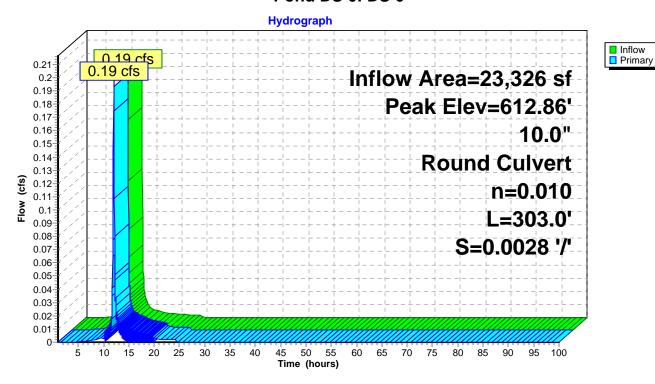
Peak Elev= 612.86' @ 12.02 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.27'	10.0" Round Culvert
			L= 303.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.27' / 611.42' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC smooth interior Flow Area= 0.55 sf

Primary OutFlow Max=0.19 cfs @ 12.02 hrs HW=612.86' TW=612.81' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.19 cfs @ 0.64 fps)

#### Pond DS 6: DS 6



Type II 24-hr WQv Rainfall=0.85"

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# Summary for Pond DS 7: Planter PB-5A

Inflow Area = 3,711 sf, 98.14% Impervious, Inflow Depth = 0.65" for WQv event

Inflow = 0.07 cfs @ 12.03 hrs, Volume= 200 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.93' @ 24.70 hrs Surf.Area= 234 sf Storage= 200 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

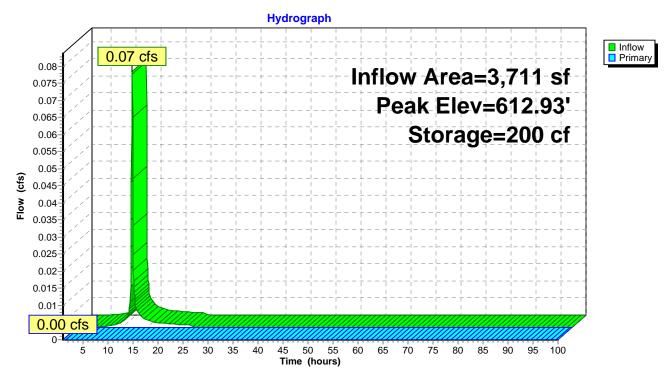
Volume	Invert	Avail.	Storage	Storage Descript	ion		
#1	610.79'		397 cf	Storage (Prisma	atic)Listed below	v (Recalc)	
Elevatio		ırf.Area ` (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
610.7		234	0.0	0	0		
614.2		234	40.0	327	327		
614.2	29	84	20.0	0	327		
615.6	62	84	50.0	56	383		
615.7	79	84	100.0	14	397		
Device	Routing	Inve	ert Outle	et Devices			
#1	Primary	613.0		Round Culvert			
			Inlet		13.04' / 612.97'	S= 0.0117 '/' Cc= 0.900	
#2	Device 1	611.2		.010 PVC, smoot Round Culvert	h interior, Flow	Area= 0.20 st	
#2	Device i	011.2			ection conformin	ng to fill, Ke= 0.500	
						S= 0.0000 '/' Cc= 0.900	
n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf							
#3	Device 2	610.7		0.900 in/hr Exfiltration over Surface area			
#4	Device 1 615.60' <b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600				= 0.600		
			Limit	ted to weir flow at	low heads		

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.79' TW=612.27' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

## Pond DS 7: Planter PB-5A



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## Summary for Pond DS 9: Planter PB-7A

Inflow Area = 3,275 sf, 96.52% Impervious, Inflow Depth = 0.57" for WQv event

0.06 cfs @ 12.04 hrs, Volume= Inflow 154 cf

1.00 hrs, Volume= Outflow 0.00 cfs @ 0 cf, Atten= 100%, Lag= 0.0 min

Primary 1.00 hrs, Volume= 0.00 cfs @ 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.48' @ 24.70 hrs Surf.Area= 391 sf Storage= 154 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.S	Storage	Storage Descript	ion	
#1	610.49'		665 cf	Storage (Prismatic)Listed below (Recalc)		
Elevation Surf.Area Voids			Inc.Store	Cum.Store		
(fee	et)	(sq-ft)	(%)	(cubic-feet)	(cubic-feet)	
610.4	<b>.</b> 9	391	0.0	0	0	
613.9	9	391	40.0	547	547	
614.0	00	141	20.0	1	548	
615.3	32	141	50.0	93	641	
615.4	9	141 1	0.00	24	665	
Device	Routing	Inve	ert Outle	et Devices		
#1	Primary	612.3	6. <b>0</b> "	Round Culvert		
	-		L= 6	.0' CPP, square	edge headwall,	Ke= 0.500
			Inlet	/ Outlet Invert= 61	12.30' / 612.23	S= 0.0117 '/' Cc= 0.900
			n= 0	.010 PVC, smoot	h interior. Flow	Area= 0.20 sf
#2	Device 1	610.9		<b>Round Culvert</b>	, ,	
				8.0' RCP, square	e edge headwall	. Ke= 0.500
						S= 0.0000 '/' Cc= 0.900
						rior, Flow Area= 0.20 sf
#3	Device 2	610.4		0 in/hr Exfiltratio		
#4	Device 1	615.4		" x 24.0" Horiz. O		
π <del>-1</del>	DOVIGO 1	010.4		ted to weir flow at		- 0.000
				ied to well flow at	iow ricaus	

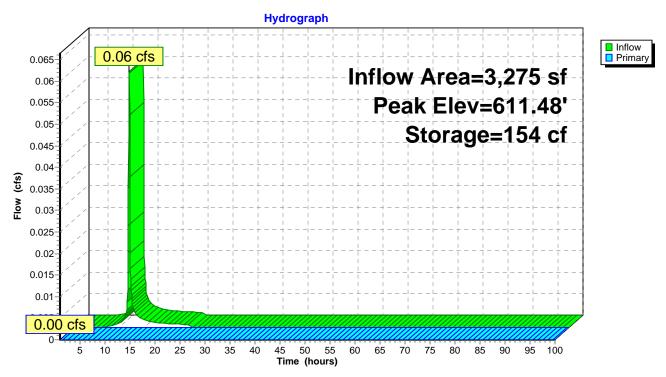
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.49' TW=612.27' (Dynamic Tailwater)

-1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

#### Pond DS 9: Planter PB-7A



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# Summary for Pond DS-1: DS 1

[80] Warning: Exceeded Pond DS 15 by 2.54' @ 4.85 hrs (0.27 cfs 95,741 cf) [80] Warning: Exceeded Pond DS 4 by 2.15' @ 4.50 hrs (0.01 cfs 1,745 cf) [80] Warning: Exceeded Pond DS 5 by 2.36' @ 6.55 hrs (0.00 cfs 483 cf)

Inflow Area = 58,007 sf, 98.29% Impervious, Inflow Depth > 0.50" for WQv event

Inflow = 0.18 cfs @ 12.03 hrs, Volume= 2,433 cf

Outflow = 0.18 cfs @ 12.03 hrs, Volume= 2,433 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.18 cfs @ 12.03 hrs, Volume= 2,433 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

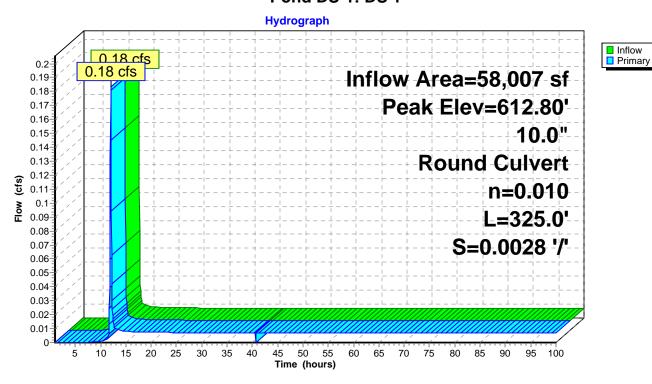
Peak Elev= 612.80' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	10.0" Round Culvert
			L= 325.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.18 cfs @ 12.03 hrs HW=612.80' TW=590.37' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.18 cfs @ 1.84 fps)

#### Pond DS-1: DS 1



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## **Summary for Pond DS8: Planter PB-6A**

Inflow Area = 1,765 sf, 96.09% Impervious, Inflow Depth = 0.57" for WQv event

Inflow = 0.03 cfs @ 12.04 hrs, Volume= 83 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.52' @ 24.70 hrs Surf.Area= 235 sf Storage= 83 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avai	I.Storaç	je Storage Descr	ription		
#1	610.63'		399	cf Storage (Pris	f Storage (Prismatic)Listed below (Recalc)		
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
610.6	•	235	0.0	0	0		
614.1		235	40.0	329	329		
614.1	14	84	20.0	0	329		
615.4		84	50.0	55	385		
615.6	33	84	100.0	14	399		
Device	Routing	In	vert C	outlet Devices			
#1	Primary	613		.0" Round Culve		14 0 700	
				= 6.0' CPP, squar			
				Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf			
#2	Device 1	611		.0" Round Culve		71101, 1 10W 71104 0.20 31	
	201.00	• • •				ng to fill, Ke= 0.500	
						S= 0.0000 '/' Cc= 0.900	
			n	= 0.013 Corrugate	ed PE, smooth inte	erior, Flow Area= 0.20 sf	
#3	Device 2	evice 2 610.63' <b>0.9</b> 0		.900 in/hr Exfiltra			
#4	Device 1	615		4.0" x 24.0" Horiz		C = 0.600	
			L	imited to weir flow	at low heads		

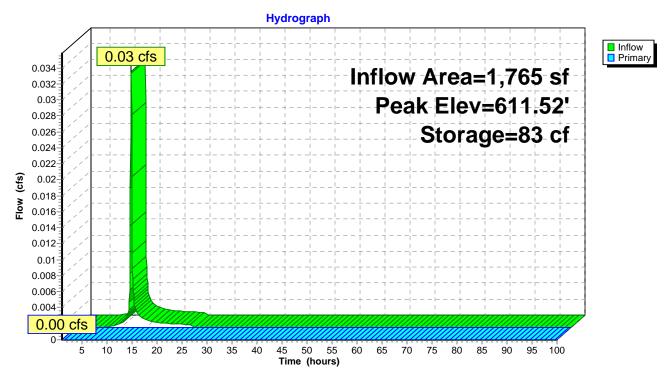
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.63' TW=612.27' (Dynamic Tailwater)

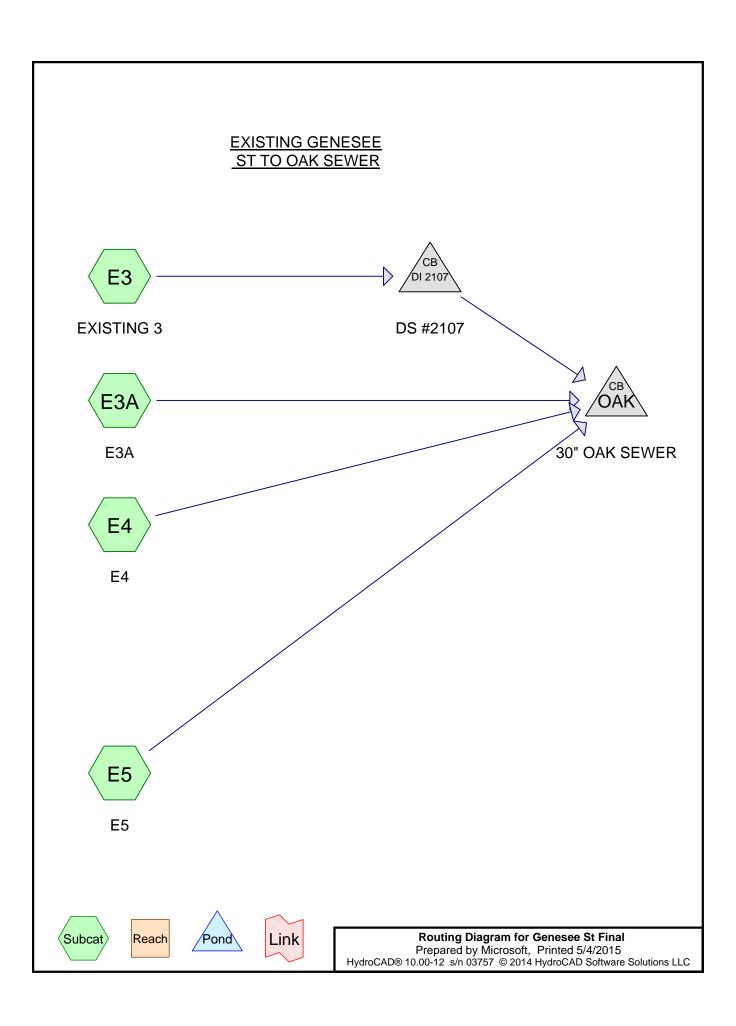
1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

#### Pond DS8: Planter PB-6A





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## **Area Listing (selected nodes)**

Area	CN	Description
 (sq-ft)		(subcatchment-numbers)
187	80	>75% Grass cover, Good, HSG D (E4, E5)
45,329	98	Paved parking, HSG D (E3, E3A, E4, E5)
45,516	98	TOTAL AREA

## Soil Listing (selected nodes)

Area	Soil	Subcatchment
(sq-ft)	Group	Numbers
0	HSG A	
0	HSG B	
0	HSG C	
45,516	HSG D	E3, E3A, E4, E5
0	Other	
45,516		<b>TOTAL AREA</b>

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Sub Nun

## **Ground Covers (selected nodes)**

HSG-A	HSG-B	HSG-C	HSG-D	Other	Total	Ground
(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	Cover
0	0	0	187	0	187	>75% Grass
						cover, Good
0	0	0	45,329	0	45,329	Paved parking
0	0	0	45,516	0	45,516	<b>TOTAL AREA</b>

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## **Pipe Listing (selected nodes)**

Line#	Node	In-Invert	Out-Invert	Length	Slope	n	Diam/Width	Height	Inside-Fill
	Number	(feet)	(feet)	(feet)	(ft/ft)		(inches)	(inches)	(inches)
1	DI 2107	608.71	608.60	100.0	0.0011	0.011	15.0	0.0	0.0
2	OAK	600.50	600.00	100.0	0.0050	0.015	30.0	0.0	0.0

Type II 24-hr 2 YR Rainfall=2.25"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E3: EXISTING 3 Runoff Area=19,424 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=1.15 cfs 3,274 cf

Subcatchment E3A: E3A Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.50 cfs 1,440 cf

Subcatchment E4: E4 Runoff Area=9,639 sf 99.01% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.57 cfs 1,624 cf

Subcatchment E5: E5 Runoff Area=7,907 sf 98.84% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.47 cfs 1,333 cf

Pond DI 2107: DS #2107 Peak Elev=609.42' Inflow=1.15 cfs 3,274 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=1.15 cfs 3,274 cf

Pond OAK: 30" OAK SEWER Peak Elev=601.26' Inflow=2.69 cfs 7,671 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=2.69 cfs 7,671 cf

Total Runoff Area = 45,516 sf Runoff Volume = 7,671 cf Average Runoff Depth = 2.02" 0.41% Pervious = 187 sf 99.59% Impervious = 45,329 sf

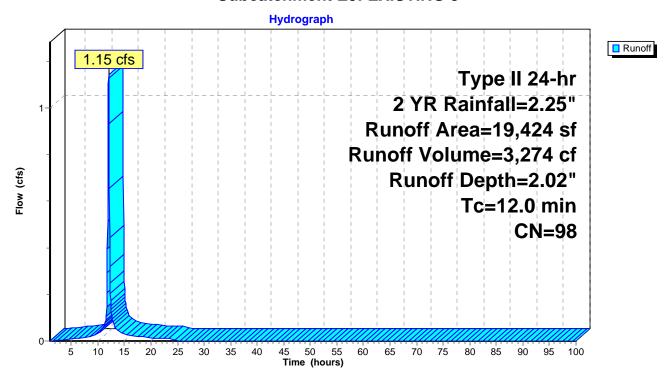
### **Summary for Subcatchment E3: EXISTING 3**

Runoff = 1.15 cfs @ 12.03 hrs, Volume= 3,274 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

_	Α	rea (sf)	CN	Description						
		19,424	98	Paved parking, HSG D						
_		19,424		100.00% Impervious Area						
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
	12.0					Direct Entry, SHEET FLOw				

#### **Subcatchment E3: EXISTING 3**



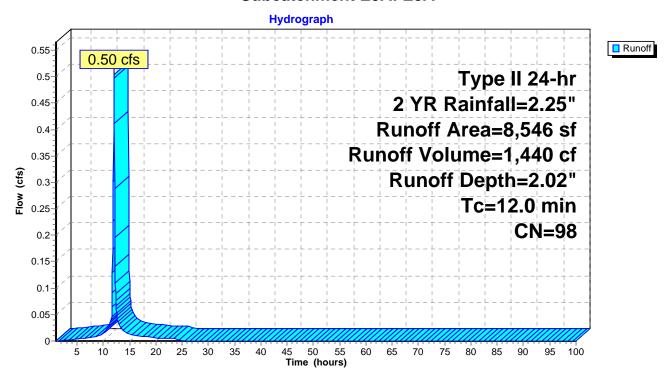
## Summary for Subcatchment E3A: E3A

Runoff = 0.50 cfs @ 12.03 hrs, Volume= 1,440 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

_	Α	rea (sf)	CN	Description						
		8,546	98	Paved parking, HSG D						
		8,546		100.00% Impervious Area						
_	Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description				
	12.0					Direct Entry, SHEET FLOw				

#### Subcatchment E3A: E3A



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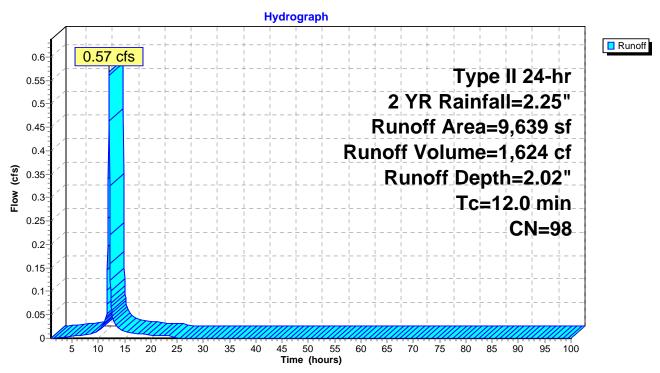
## **Summary for Subcatchment E4: E4**

Runoff = 0.57 cfs @ 12.03 hrs, Volume= 1,624 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description						
	9,544	98	Paved parking, HSG D						
	95	80	>75% Gras	s cover, Go	ood, HSG D				
	9,639	98	Weighted A	Weighted Average					
	95		0.99% Perv	ious Area					
	9,544		99.01% lmp	ervious Ar	ea				
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description				
12.0					Direct Entry, SHEET FLOw				

### Subcatchment E4: E4



### **Summary for Subcatchment E5: E5**

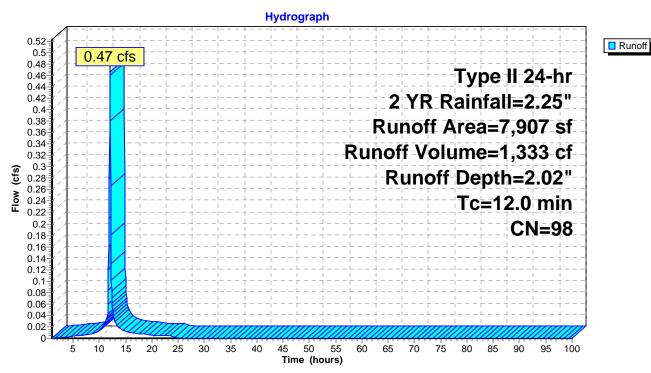
Runoff 0.47 cfs @ 12.03 hrs, Volume= 1,333 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description						
	7,815	98	Paved parking, HSG D						
	92	80	>75% Gras	s cover, Go	ood, HSG D				
	7,907	98	Weighted A	Weighted Average					
	92		1.16% Perv	rious Area					
	7,815		98.84% Imp	pervious Ar	ea				
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description				
12.0					Direct Entry, SHEET FLOw				

Direct Entry, SHEET FLOW

## **Subcatchment E5: E5**



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### Summary for Pond DI 2107: DS #2107

Inflow Area = 19,424 sf,100.00% Impervious, Inflow Depth = 2.02" for 2 YR event

Inflow = 1.15 cfs @ 12.03 hrs. Volume= 3.274 cf

Outflow = 1.15 cfs @ 12.03 hrs, Volume= 3,274 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.15 cfs @ 12.03 hrs, Volume= 3,274 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

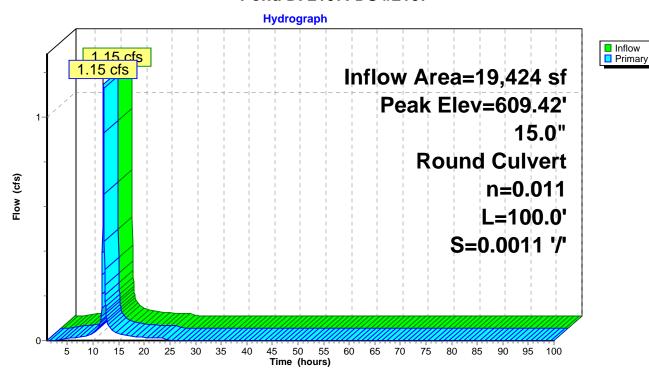
Peak Elev= 609.42' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	15.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=1.12 cfs @ 12.03 hrs HW=609.41' TW=601.25' (Dynamic Tailwater) 1=Culvert (Barrel Controls 1.12 cfs @ 2.30 fps)

#### Pond DI 2107: DS #2107



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## **Summary for Pond OAK: 30" OAK SEWER**

Inflow Area = 45,516 sf, 99.59% Impervious, Inflow Depth = 2.02" for 2 YR event

Inflow = 2.69 cfs @ 12.03 hrs, Volume= 7,671 cf

Outflow = 2.69 cfs @ 12.03 hrs, Volume= 7,671 cf, Atten= 0%, Lag= 0.0 min

Primary = 2.69 cfs @ 12.03 hrs, Volume= 7,671 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

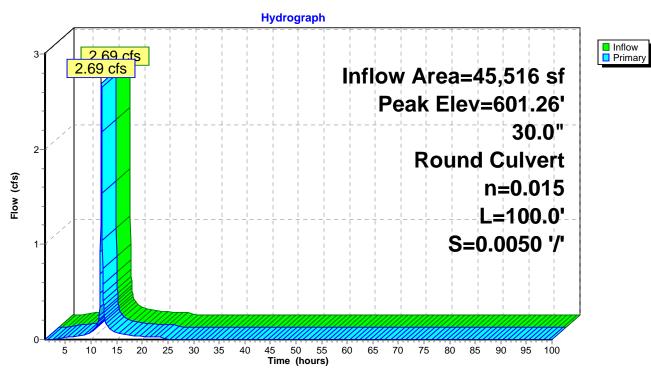
Peak Elev= 601.26' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	30.0" Round Culvert
	-		L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/' Cc= 0.900
			n= 0.015 Brickwork Flow Area= 4.91 sf

Primary OutFlow Max=2.62 cfs @ 12.03 hrs HW=601.25' (Free Discharge)
—1=Culvert (Barrel Controls 2.62 cfs @ 3.19 fps)

#### Pond OAK: 30" OAK SEWER



#### **Genesee St Final**

Type II 24-hr 25 Year Rainfall=4.00"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E3: EXISTING 3 Runoff Area=19,424 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=2.07 cfs 6,094 cf

Subcatchment E3A: E3A Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.91 cfs 2,681 cf

Subcatchment E4: E4 Runoff Area=9,639 sf 99.01% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=1.03 cfs 3,024 cf

Subcatchment E5: E5 Runoff Area=7,907 sf 98.84% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.84 cfs 2,481 cf

Pond DI 2107: DS #2107 Peak Elev=609.69' Inflow=2.07 cfs 6,094 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=2.07 cfs 6,094 cf

Pond OAK: 30" OAK SEWER Peak Elev=601.53' Inflow=4.85 cfs 14,281 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=4.85 cfs 14,281 cf

Total Runoff Area = 45,516 sf Runoff Volume = 14,281 cf Average Runoff Depth = 3.77" 0.41% Pervious = 187 sf 99.59% Impervious = 45,329 sf

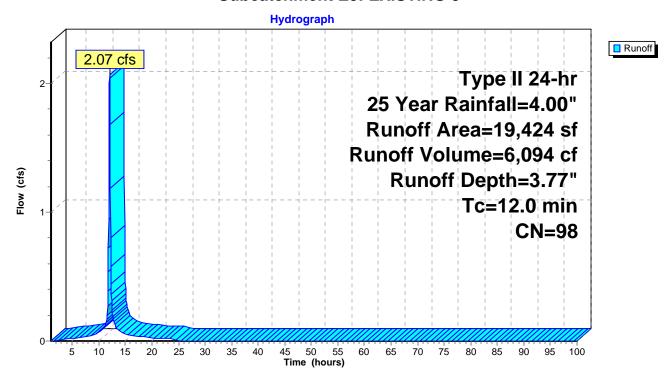
## **Summary for Subcatchment E3: EXISTING 3**

Runoff = 2.07 cfs @ 12.03 hrs, Volume= 6,094 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

_	Α	rea (sf)	CN	Description				
		19,424	98	Paved parking, HSG D				
		19,424	,	100.00% Impervious Area				
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
	12.0					Direct Entry, SHEET FLOw		

#### **Subcatchment E3: EXISTING 3**



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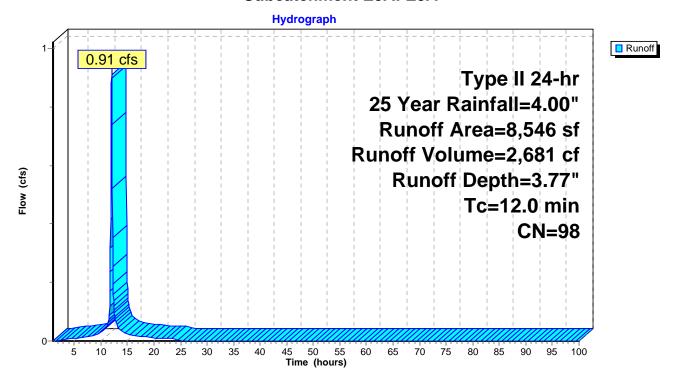
## Summary for Subcatchment E3A: E3A

Runoff = 0.91 cfs @ 12.03 hrs, Volume= 2,681 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

_	Α	rea (sf)	CN [	Description					
		8,546	98 F	Paved parking, HSG D					
		8,546	•	100.00% Impervious Area					
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
	12.0					Direct Entry, SHEET FLOw			

#### Subcatchment E3A: E3A



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## **Summary for Subcatchment E4: E4**

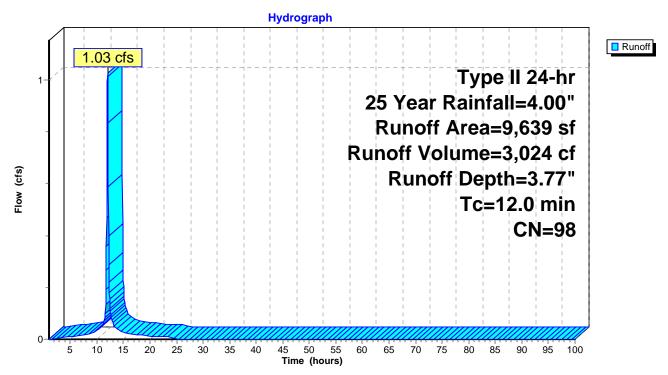
Runoff = 1.03 cfs @ 12.03 hrs, Volume= 3,024 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description						
	9,544	98	Paved parking, HSG D						
	95	80	>75% Gras	>75% Grass cover, Good, HSG D					
	9,639	98	Weighted Average						
	95		0.99% Pervious Area						
	9,544		99.01% lmp	ea					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description				
12.0					Direct Entry, SHEET FLOw				

**3** ·

#### **Subcatchment E4: E4**



100

15 20 25

30

35 40

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#### **Summary for Subcatchment E5: E5**

Runoff = 0.84 cfs @ 12.03 hrs, Volume= 2,481 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description					
	7,815	98	Paved park	ing, HSG D				
	92	80	>75% Grass cover, Good, HSG D					
	7,907	98	Weighted Average					
	92		1.16% Perv	rious Area				
	7,815		98.84% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description			
12.0					Direct Entry, SHEET FLOw			

# Subcatchment E5: E5

#### Hydrograph Runoff 0.9 0.84 cfs 0.85 Type II 24-hr 0.8 25 Year Rainfall=4.00" 0.75 0.7 Runoff Area=7,907 sf 0.65 Runoff Volume=2,481 cf 0.55 Runoff Depth=3.77" 0.5 0.45 Tc=12.0 min 0.4 CN=98 0.35 0.3 0.25 0.2 0.15 0.1 0.05

50

Time (hours)

55

65

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## Summary for Pond DI 2107: DS #2107

Inflow Area = 19,424 sf,100.00% Impervious, Inflow Depth = 3.77" for 25 Year event

Inflow = 2.07 cfs @ 12.03 hrs, Volume= 6,094 cf

Outflow = 2.07 cfs @ 12.03 hrs, Volume= 6,094 cf, Atten= 0%, Lag= 0.0 min

Primary = 2.07 cfs @ 12.03 hrs, Volume= 6,094 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

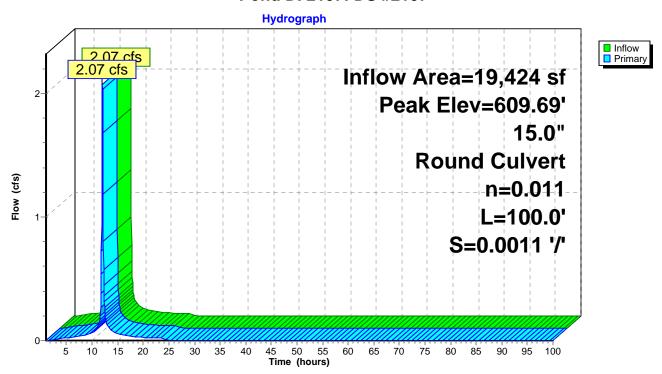
Peak Elev= 609.69' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	15.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=2.02 cfs @ 12.03 hrs HW=609.67' TW=601.52' (Dynamic Tailwater) 1=Culvert (Barrel Controls 2.02 cfs @ 2.75 fps)

#### Pond DI 2107: DS #2107



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## **Summary for Pond OAK: 30" OAK SEWER**

Inflow Area = 45,516 sf, 99.59% Impervious, Inflow Depth = 3.77" for 25 Year event

Inflow = 4.85 cfs @ 12.03 hrs, Volume= 14,281 cf

Outflow = 4.85 cfs @ 12.03 hrs, Volume= 14,281 cf, Atten= 0%, Lag= 0.0 min

Primary = 4.85 cfs @ 12.03 hrs, Volume= 14,281 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

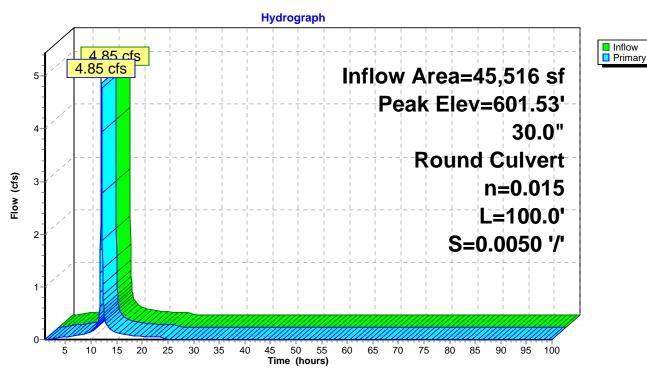
Peak Elev= 601.53' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	30.0" Round Culvert
	-		L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 4.91 sf

Primary OutFlow Max=4.74 cfs @ 12.03 hrs HW=601.52' (Free Discharge) 1=Culvert (Barrel Controls 4.74 cfs @ 3.73 fps)

#### Pond OAK: 30" OAK SEWER



Type II 24-hr 50% Rainfall=0.35"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E3: EXISTING 3 Runoff Area=19,424 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.12 cfs 301 cf

Subcatchment E3A: E3A Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.05 cfs 133 cf

Subcatchment E4: E4 Runoff Area=9,639 sf 99.01% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.06 cfs 150 cf

Subcatchment E5: E5 Runoff Area=7,907 sf 98.84% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.05 cfs 123 cf

Pond DI 2107: DS #2107 Peak Elev=608.94' Inflow=0.12 cfs 301 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=0.12 cfs 302 cf

Pond OAK: 30" OAK SEWER Peak Elev=600.75' Inflow=0.28 cfs 707 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=0.28 cfs 708 cf

Total Runoff Area = 45,516 sf Runoff Volume = 706 cf Average Runoff Depth = 0.19" 0.41% Pervious = 187 sf 99.59% Impervious = 45,329 sf

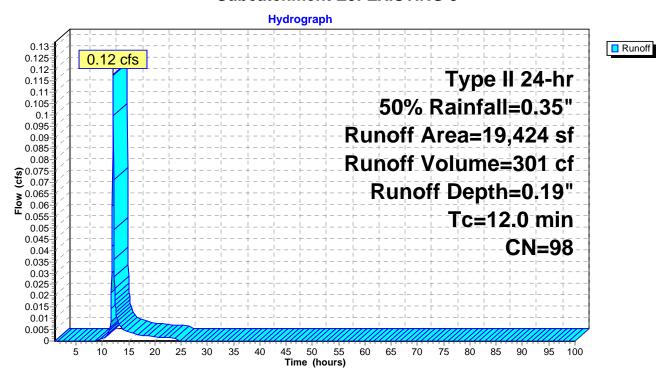
## **Summary for Subcatchment E3: EXISTING 3**

Runoff = 0.12 cfs @ 12.04 hrs, Volume= 301 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

 Α	rea (sf)	CN	Description				
	19,424	98	Paved parking, HSG D				
	19,424		100.00% Im	npervious A	rea		
 Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
12.0					Direct Entry, SHEET FLOw		

#### **Subcatchment E3: EXISTING 3**



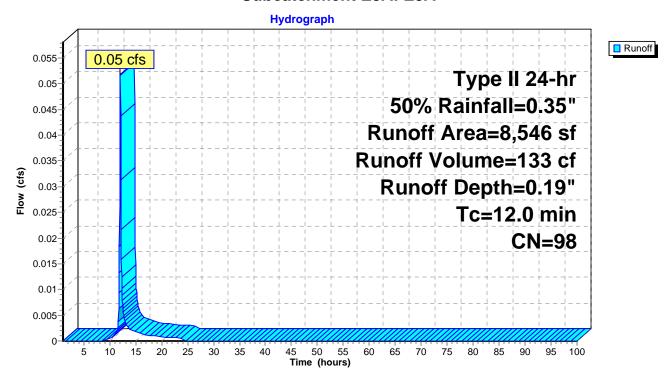
### Summary for Subcatchment E3A: E3A

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 133 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

_	Α	rea (sf)	CN	Description					
		8,546	98	Paved parking, HSG D					
		8,546		100.00% Impervious Area					
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
	12.0					Direct Entry, SHEET FLOw			

#### Subcatchment E3A: E3A



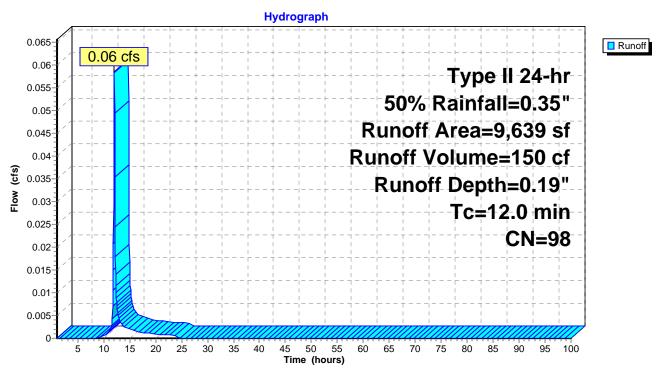
### **Summary for Subcatchment E4: E4**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 150 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description						
	9,544	98	Paved parking, HSG D						
	95	80	>75% Gras	>75% Grass cover, Good, HSG D					
	9,639	98	Weighted Average						
	95		0.99% Perv	ious Area					
	9,544		99.01% Impervious Area						
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description				
12.0					Direct Entry, SHEET FLOw				

### **Subcatchment E4: E4**



### **Summary for Subcatchment E5: E5**

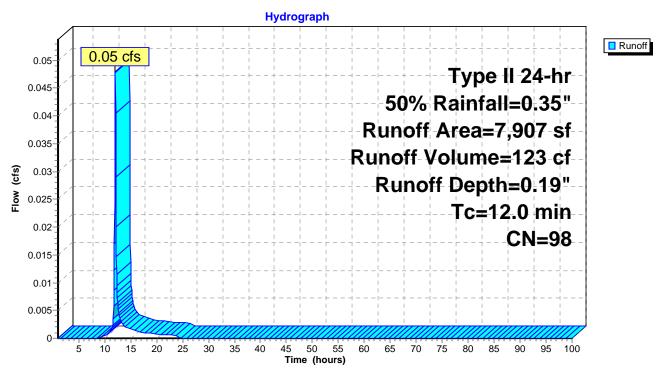
Runoff = 0.05 cfs @ 12.04 hrs, Volume= 123 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description					
	7,815	98	Paved park	ing, HSG D				
	92	80	>75% Grass cover, Good, HSG D					
	7,907	98	Weighted Average					
	92		1.16% Perv	rious Area				
	7,815		98.84% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description			
12.0					Direct Entry, SHEET FLOw			

#### •

### **Subcatchment E5: E5**



## Summary for Pond DI 2107: DS #2107

Inflow Area = 19,424 sf,100.00% Impervious, Inflow Depth = 0.19" for 50% event

Inflow = 0.12 cfs @ 12.04 hrs, Volume= 301 cf

Outflow = 0.12 cfs @ 12.04 hrs, Volume= 302 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.12 cfs @ 12.04 hrs, Volume= 302 cf

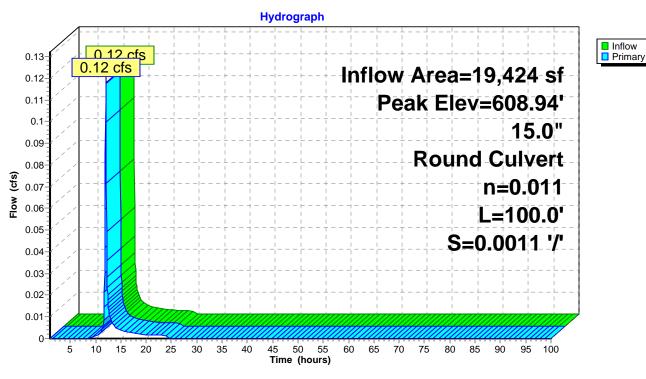
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 608.94' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	15.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean. Flow Area= 1.23 sf

Primary OutFlow Max=0.12 cfs @ 12.04 hrs HW=608.94' TW=600.74' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.12 cfs @ 1.13 fps)

#### Pond DI 2107: DS #2107



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## **Summary for Pond OAK: 30" OAK SEWER**

Inflow Area = 45,516 sf, 99.59% Impervious, Inflow Depth = 0.19" for 50% event

Inflow = 0.28 cfs @ 12.04 hrs. Volume= 707 cf

Outflow = 0.28 cfs @ 12.04 hrs, Volume= 708 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.28 cfs @ 12.04 hrs, Volume= 708 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

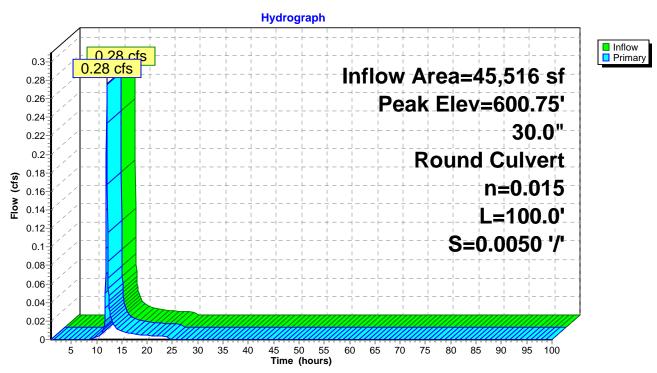
Peak Elev= 600.75' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	30.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/' Cc= 0.900
			n= 0.015 Brickwork, Flow Area= 4.91 sf

Primary OutFlow Max=0.27 cfs @ 12.04 hrs HW=600.74' (Free Discharge) 1=Culvert (Barrel Controls 0.27 cfs @ 1.68 fps)

#### Pond OAK: 30" OAK SEWER



Type II 24-hr 75% Rainfall=0.50"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E3: EXISTING 3 Runoff Area=19,424 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.20 cfs 515 cf

Subcatchment E3A: E3A Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.09 cfs 226 cf

Subcatchment E4: E4 Runoff Area=9,639 sf 99.01% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.10 cfs 255 cf

Subcatchment E5: E5 Runoff Area=7,907 sf 98.84% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.08 cfs 209 cf

Pond DI 2107: DS #2107 Peak Elev=609.01' Inflow=0.20 cfs 515 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=0.20 cfs 515 cf

Pond OAK: 30" OAK SEWER Peak Elev=600.82' Inflow=0.47 cfs 1,206 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=0.47 cfs 1,207 cf

Total Runoff Area = 45,516 sf Runoff Volume = 1,206 cf Average Runoff Depth = 0.32" 0.41% Pervious = 187 sf 99.59% Impervious = 45,329 sf

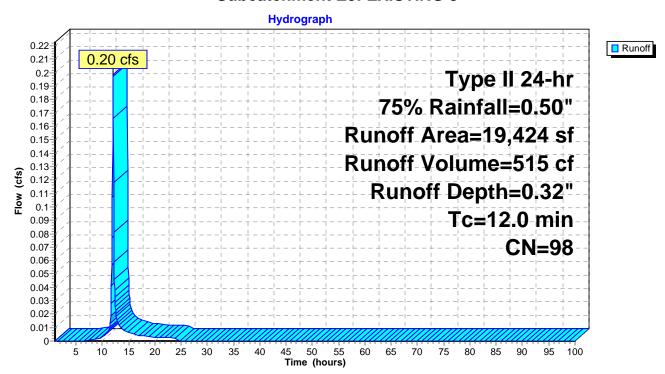
## **Summary for Subcatchment E3: EXISTING 3**

Runoff = 0.20 cfs @ 12.04 hrs, Volume= 515 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

_	Α	rea (sf)	CN I	Description				
		19,424	98	Paved parking, HSG D				
		19,424		100.00% Impervious Area				
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
	12.0					Direct Entry, SHEET FLOw		

#### **Subcatchment E3: EXISTING 3**



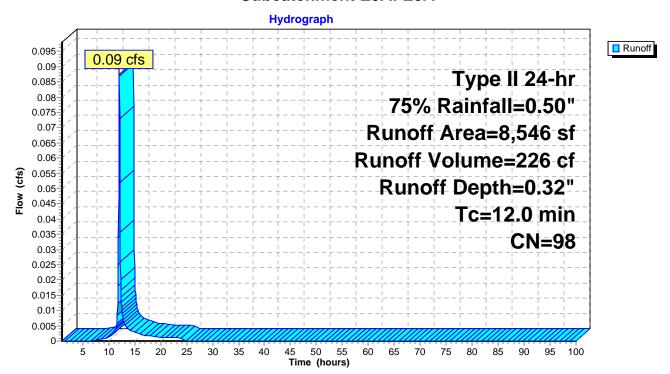
### Summary for Subcatchment E3A: E3A

Runoff = 0.09 cfs @ 12.04 hrs, Volume= 226 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

_	Α	rea (sf)	CN	Description				
		8,546	98	Paved parking, HSG D				
		8,546		100.00% Impervious Area				
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
	12.0					Direct Entry, SHEET FLOw		

#### Subcatchment E3A: E3A



### **Summary for Subcatchment E4: E4**

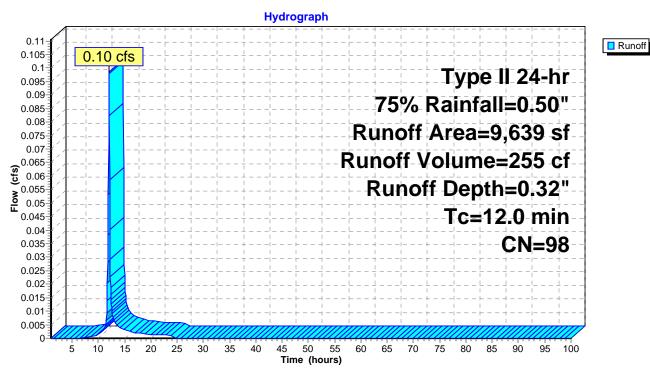
Runoff = 0.10 cfs @ 12.04 hrs, Volume= 255 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description				
	9,544	98	Paved parking, HSG D				
	95	80	>75% Grass cover, Good, HSG D				
	9,639	98	Weighted Average				
	95		0.99% Pervious Area				
	9,544		99.01% Impervious Area				
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description		
12.0					Direct Entry, SHEET FLOw		

#### -

### **Subcatchment E4: E4**



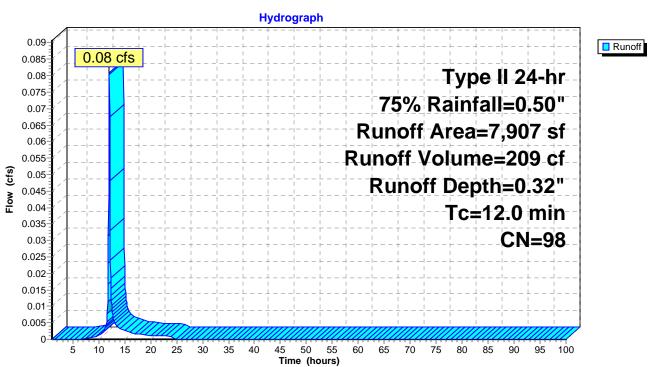
### **Summary for Subcatchment E5: E5**

Runoff 0.08 cfs @ 12.04 hrs, Volume= 209 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description							
	7,815	98	Paved park	Paved parking, HSG D						
	92	80	>75% Gras	75% Grass cover, Good, HSG D						
	7,907	98	Weighted Average							
	92		1.16% Pervious Area							
	7,815		98.84% lmp	ea						
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description					
12.0					Direct Entry, SHEET FLOw					

### Subcatchment E5: E5



### Summary for Pond DI 2107: DS #2107

Inflow Area = 19,424 sf,100.00% Impervious, Inflow Depth = 0.32" for 75% event

Inflow = 0.20 cfs @ 12.04 hrs, Volume= 515 cf

Outflow = 0.20 cfs @ 12.04 hrs, Volume= 515 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.20 cfs @ 12.04 hrs, Volume= 515 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

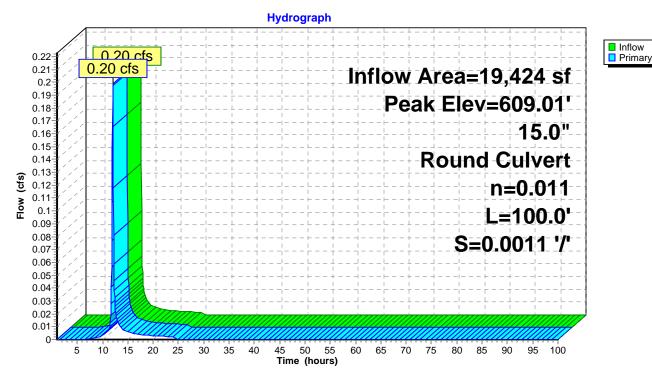
Peak Elev= 609.01' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	15.0" Round Culvert
	_		L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=0.19 cfs @ 12.04 hrs HW=609.00' TW=600.81' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.19 cfs @ 1.34 fps)

#### Pond DI 2107: DS #2107



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### **Summary for Pond OAK: 30" OAK SEWER**

Inflow Area = 45,516 sf, 99.59% Impervious, Inflow Depth = 0.32" for 75% event

Inflow = 0.47 cfs @ 12.04 hrs, Volume= 1,206 cf

Outflow = 0.47 cfs @ 12.04 hrs, Volume= 1,207 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.47 cfs @ 12.04 hrs, Volume= 1,207 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

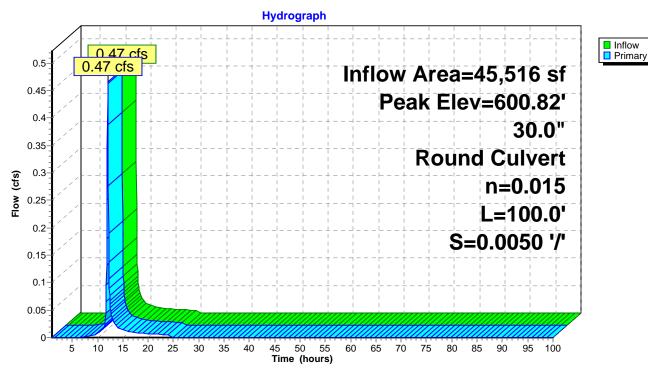
Peak Elev= 600.82' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	30.0" Round Culvert
	-		L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 4.91 sf

Primary OutFlow Max=0.46 cfs @ 12.04 hrs HW=600.81' (Free Discharge) 1=Culvert (Barrel Controls 0.46 cfs @ 1.95 fps)

### Pond OAK: 30" OAK SEWER



Type II 24-hr WQv Rainfall=0.85"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E3: EXISTING 3 Runoff Area=19,424 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.39 cfs 1,046 cf

Subcatchment E3A: E3A Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.17 cfs 460 cf

Subcatchment E4: E4 Runoff Area=9,639 sf 99.01% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.19 cfs 519 cf

Subcatchment E5: E5 Runoff Area=7,907 sf 98.84% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.16 cfs 426 cf

Pond DI 2107: DS #2107 Peak Elev=609.12' Inflow=0.39 cfs 1,046 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=0.39 cfs 1,046 cf

Pond OAK: 30" OAK SEWER Peak Elev=600.94' Inflow=0.92 cfs 2,451 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=0.92 cfs 2,452 cf

Total Runoff Area = 45,516 sf Runoff Volume = 2,451 cf Average Runoff Depth = 0.65" 0.41% Pervious = 187 sf 99.59% Impervious = 45,329 sf

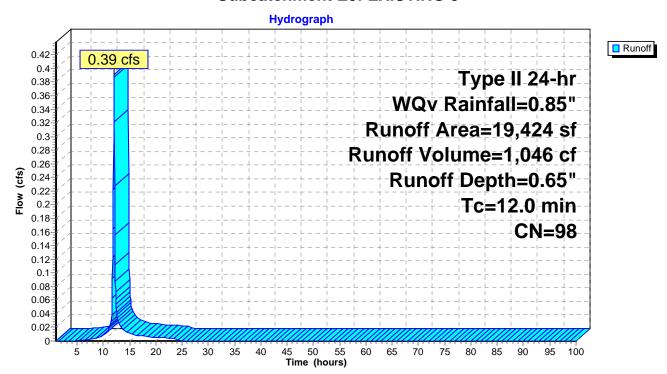
### **Summary for Subcatchment E3: EXISTING 3**

Runoff = 0.39 cfs @ 12.03 hrs, Volume= 1,046 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

 Α	rea (sf)	CN	Description					
	19,424	98	Paved parking, HSG D					
	19,424	100.00% Impervious Area						
 Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
12.0					Direct Entry, SHEET FLOw			

#### **Subcatchment E3: EXISTING 3**



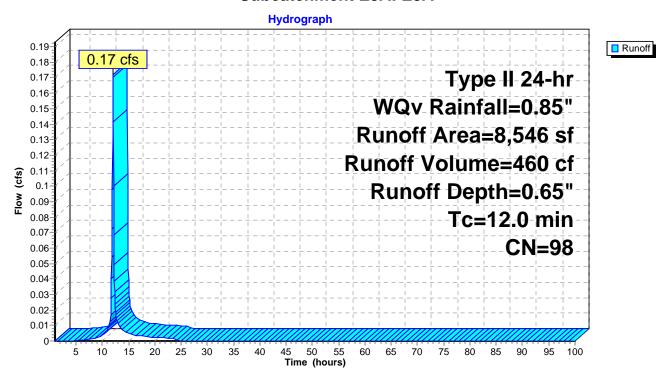
### Summary for Subcatchment E3A: E3A

Runoff = 0.17 cfs @ 12.03 hrs, Volume= 460 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

_	Α	rea (sf)	CN	Description					
		8,546	98	Paved parking, HSG D					
		8,546		100.00% Impervious Area					
	Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description			
_	12.0	·	•			Direct Entry, SHEET FLOw			

#### Subcatchment E3A: E3A



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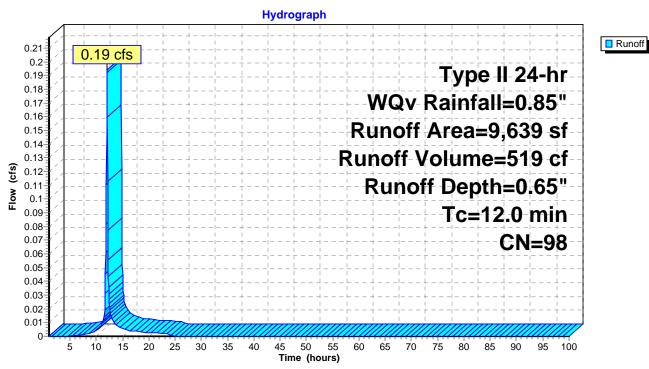
### **Summary for Subcatchment E4: E4**

Runoff = 0.19 cfs @ 12.03 hrs, Volume= 519 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description							
	9,544	98	Paved park	Paved parking, HSG D						
	95	80	>75% Gras	>75% Grass cover, Good, HSG D						
	9,639	98	Weighted Average							
	95		0.99% Pervious Area							
	9,544		99.01% lmp	ea						
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description					
12.0					Direct Entry, SHEET FLOw					

# Subcatchment E4: E4



15 20 25 30

35 40

10

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### **Summary for Subcatchment E5: E5**

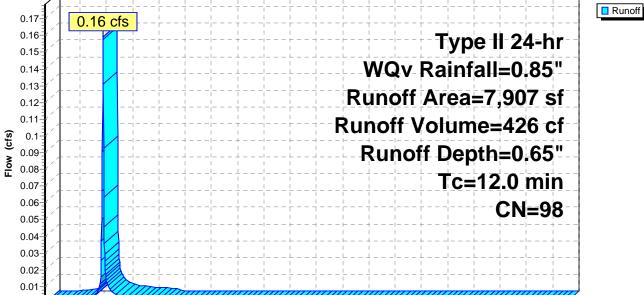
Runoff 0.16 cfs @ 12.03 hrs, Volume= 426 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description							
	7,815	98	Paved park	Paved parking, HSG D						
	92	80	>75% Gras	>75% Grass cover, Good, HSG D						
	7,907	98	Weighted Average							
	92		1.16% Pervious Area							
	7,815		98.84% lmp	ea						
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description					
12.0					Direct Entry, SHEET FLOw					

# Subcatchment E5: E5

# Hydrograph 0.17 0.16 cfs



50

Time (hours)

55

65

75 80 100

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### Summary for Pond DI 2107: DS #2107

Inflow Area = 19,424 sf,100.00% Impervious, Inflow Depth = 0.65" for WQv event

Inflow = 0.39 cfs @ 12.03 hrs, Volume= 1,046 cf

Outflow = 0.39 cfs @ 12.03 hrs, Volume= 1,046 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.39 cfs @ 12.03 hrs, Volume= 1,046 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

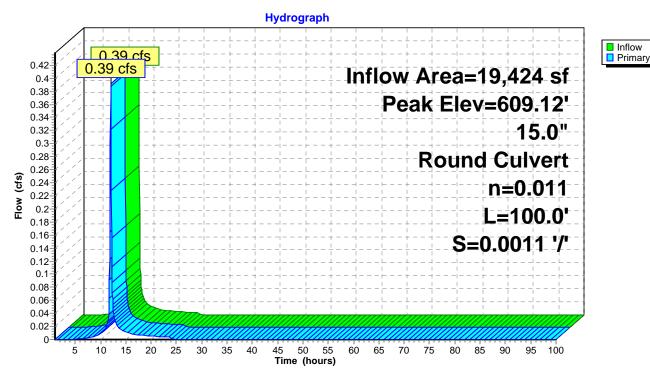
Peak Elev= 609.12' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices			
#1	Primary	608.71'	15.0" Round Culvert			
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500			
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900			
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf			

Primary OutFlow Max=0.38 cfs @ 12.03 hrs HW=609.12' TW=600.94' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.38 cfs @ 1.65 fps)

#### Pond DI 2107: DS #2107



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### **Summary for Pond OAK: 30" OAK SEWER**

Inflow Area = 45,516 sf, 99.59% Impervious, Inflow Depth = 0.65" for WQv event

Inflow = 0.92 cfs @ 12.03 hrs, Volume= 2,451 cf

Outflow = 0.92 cfs @ 12.03 hrs, Volume= 2,452 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.92 cfs @ 12.03 hrs, Volume= 2,452 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

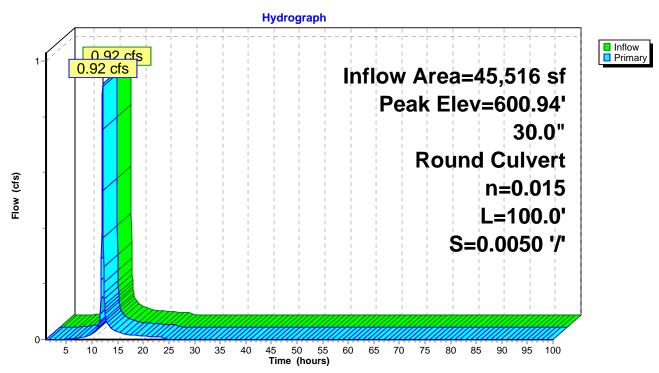
Peak Elev= 600.94' @ 12.03 hrs

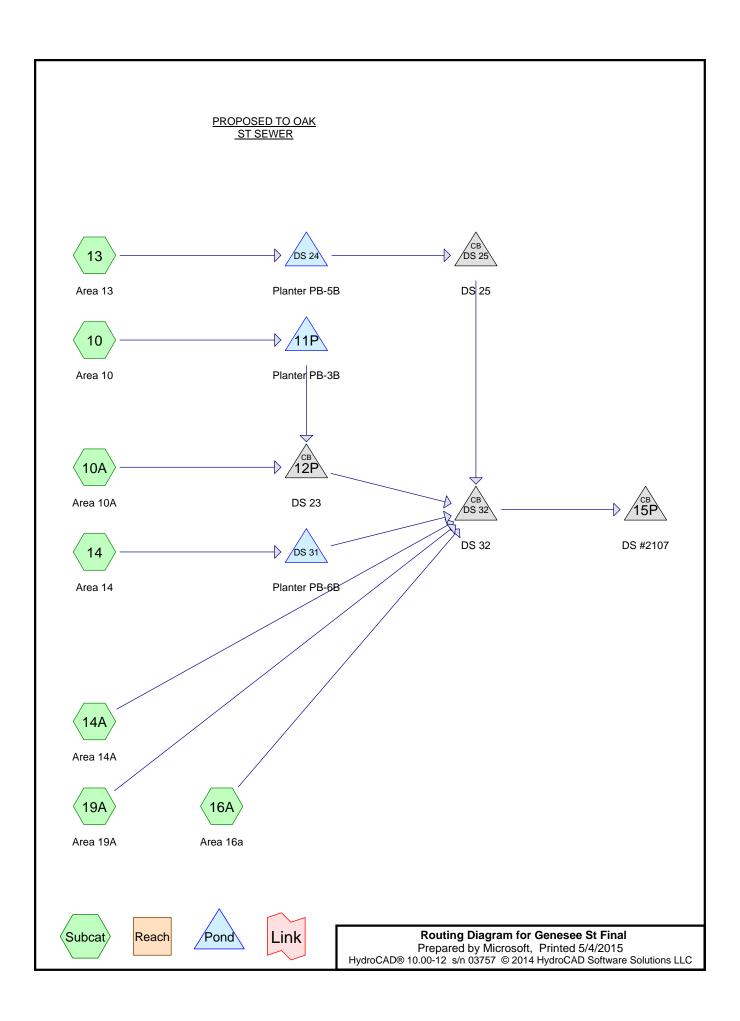
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	30.0" Round Culvert
	-		L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 4.91 sf

Primary OutFlow Max=0.90 cfs @ 12.03 hrs HW=600.94' (Free Discharge) 1=Culvert (Barrel Controls 0.90 cfs @ 2.37 fps)

#### Pond OAK: 30" OAK SEWER





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## **Area Listing (selected nodes)**

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
379	80	>75% Grass cover, Good, HSG D (10, 13, 14, 16A)
35,681	98	Paved parking, HSG D (10, 10A, 13, 14, 14A, 16A, 19A)
36,060	98	TOTAL AREA

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# Soil Listing (selected nodes)

Area	Soil	Subcatchment
(sq-ft)	Group	Numbers
0	HSG A	
0	HSG B	
0	HSG C	
36,060	HSG D	10, 10A, 13, 14, 14A, 16A, 19A
0	Other	
36,060		TOTAL AREA

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Sub Nun

## **Ground Covers (selected nodes)**

HSG-A	HSG-B	HSG-C	HSG-D	Other	Total	Ground
(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	Cover
0	0	0	379	0	379	>75% Grass
						cover, Good
0	0	0	35,681	0	35,681	Paved parking
0	0	0	36,060	0	36,060	<b>TOTAL AREA</b>

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# **Pipe Listing (selected nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
	Number	(1661)	(1661)	(ieet)	(1011)		(11101163)	(IIICIIC3)	(11101103)
1	11P	612.67	612.60	6.0	0.0117	0.013	6.0	0.0	0.0
2	11P	610.61	610.61	47.0	0.0000	0.010	6.0	0.0	0.0
3	12P	612.13	611.59	125.0	0.0043	0.010	10.0	0.0	0.0
4	15P	608.71	608.60	100.0	0.0011	0.011	15.0	0.0	0.0
5	DS 24	611.57	611.50	6.0	0.0117	0.010	6.0	0.0	0.0
6	DS 24	609.64	609.64	35.0	0.0000	0.010	6.0	0.0	0.0
7	DS 25	610.48	610.00	77.0	0.0062	0.010	10.0	0.0	0.0
8	DS 31	610.37	610.31	5.0	0.0120	0.013	6.0	0.0	0.0
9	DS 31	609.25	609.25	42.0	0.0000	0.010	6.0	0.0	0.0
10	DS 32	608.71	608.60	77.0	0.0014	0.012	12.0	0.0	0.0

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10: Area 10 Runoff Area=4,155 sf 97.18% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=0.24 cfs 664 cf

Subcatchment 10A: Area 10A Runoff Area=4,995 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.29 cfs 842 cf

Subcatchment 13: Area 13 Runoff Area=6,143 sf 98.68% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.36 cfs 1,035 cf

Subcatchment 14: Area 14 Runoff Area=3,043 sf 95.60% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=0.17 cfs 486 cf

Subcatchment 14A: Area 14A Runoff Area=1,224 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.07 cfs 206 cf

Subcatchment 16A: Area 16a Runoff Area=7,954 sf 99.41% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.47 cfs 1,340 cf

Subcatchment 19A: Area 19A Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.50 cfs 1,440 cf

Pond 11P: Planter PB-3B Peak Elev=615.10' Storage=565 cf Inflow=0.24 cfs 664 cf

Outflow=0.00 cfs 260 cf

Pond 12P: DS 23 Peak Elev=612.44' Inflow=0.30 cfs 1,101 cf

10.0" Round Culvert n=0.010 L=125.0' S=0.0043 '/' Outflow=0.30 cfs 1,104 cf

Pond 15P: DS #2107 Peak Elev=609.60' Inflow=1.76 cfs 5,421 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=1.76 cfs 5,423 cf

Pond DS 24: Planter PB-5B Peak Elev=614.19' Storage=254 cf Inflow=0.36 cfs 1,035 cf

Outflow=0.42 cfs 924 cf

Pond DS 25: DS 25 Peak Elev=610.83' Inflow=0.42 cfs 924 cf

10.0" Round Culvert n=0.010 L=77.0' S=0.0062 '/' Outflow=0.42 cfs 926 cf

Pond DS 31: Planter PB-6B Peak Elev=613.76' Storage=297 cf Inflow=0.17 cfs 486 cf

Outflow=0.07 cfs 400 cf

Pond DS 32: DS 32 Peak Elev=609.88' Inflow=1.76 cfs 5,416 cf

12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=1.76 cfs 5,421 cf

Total Runoff Area = 36,060 sf Runoff Volume = 6,014 cf Average Runoff Depth = 2.00" 1.05% Pervious = 379 sf 98.95% Impervious = 35,681 sf

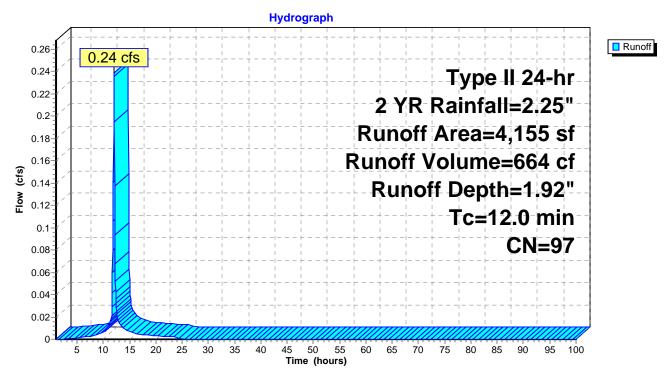
### **Summary for Subcatchment 10: Area 10**

Runoff = 0.24 cfs @ 12.03 hrs, Volume= 664 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description								
	117	80	>75% Grass cover, Good, HSG D								
	4,038	98	Paved parking, HSG D								
	4,155	97	Veighted Average								
	117		2.82% Pervious Area								
	4,038		97.18% Impervious Area								
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	•						
12.0	( 0 0 0)	(1411)	( )	(0.0)	Direct Entry,	_					

#### **Subcatchment 10: Area 10**



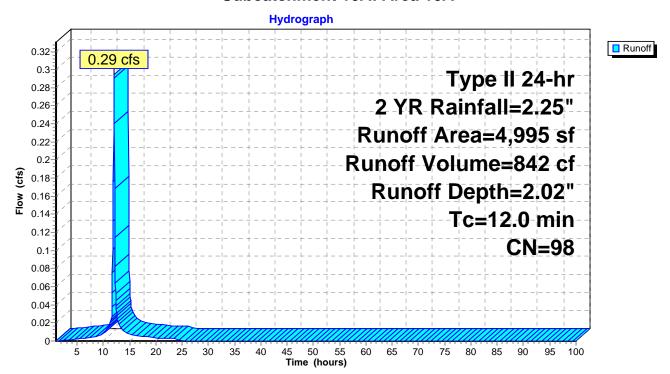
### Summary for Subcatchment 10A: Area 10A

Runoff = 0.29 cfs @ 12.03 hrs, Volume= 842 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

 Α	rea (sf)	CN	Description						
	4,995	98	Paved parking, HSG D						
	4,995		100.00% Impervious Area						
 Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description				
12.0					Direct Entry,				

### Subcatchment 10A: Area 10A



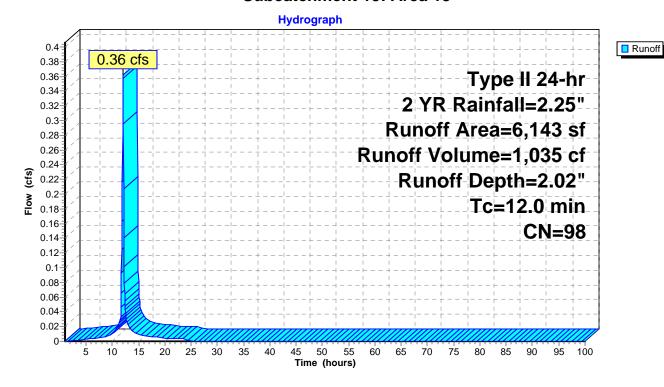
### **Summary for Subcatchment 13: Area 13**

Runoff = 0.36 cfs @ 12.03 hrs, Volume= 1,035 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description								
	81	80	>75% Grass cover, Good, HSG D								
	6,062	98	Paved park	Paved parking, HSG D							
	6,143	98	Weighted Average								
	81		1.32% Pervious Area								
	6,062		98.68% Impervious Area								
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	·						
12.0	( 0 0 0)	(1411)		(0.0)	Direct Entry,						

#### **Subcatchment 13: Area 13**



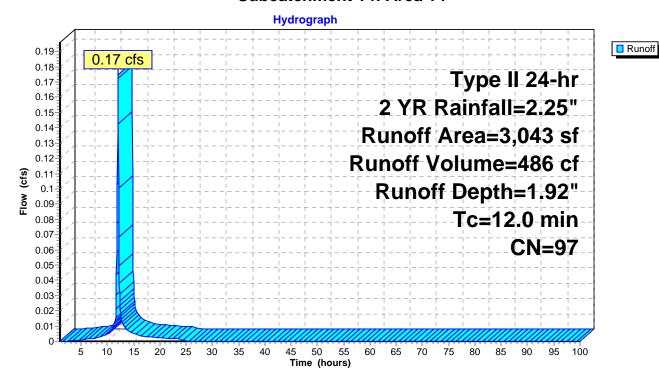
### **Summary for Subcatchment 14: Area 14**

Runoff = 0.17 cfs @ 12.03 hrs, Volume= 486 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description								
	134	80	>75% Grass cover, Good, HSG D								
	2,909	98	Paved park	aved parking, HSG D							
	3,043	97	Weighted Average								
	134		4.40% Pervious Area								
	2,909		95.60% Impervious Area								
Tc	Length	Slope	e Velocity	Capacity	Description						
(min)	(feet)	(ft/ft	,	(cfs)							
12.0	·				Direct Entry,						

#### Subcatchment 14: Area 14



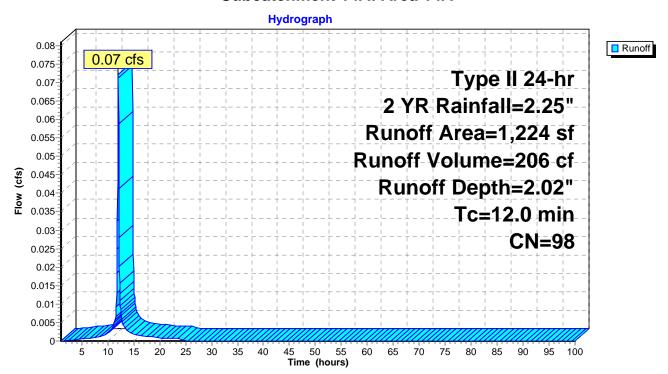
### **Summary for Subcatchment 14A: Area 14A**

Runoff = 0.07 cfs @ 12.03 hrs, Volume= 206 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN [	Description						
	1,224	98 F	Paved parking, HSG D						
	1,224	1	100.00% Impervious Area						
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
12.0	-				Direct Entry,				

#### Subcatchment 14A: Area 14A



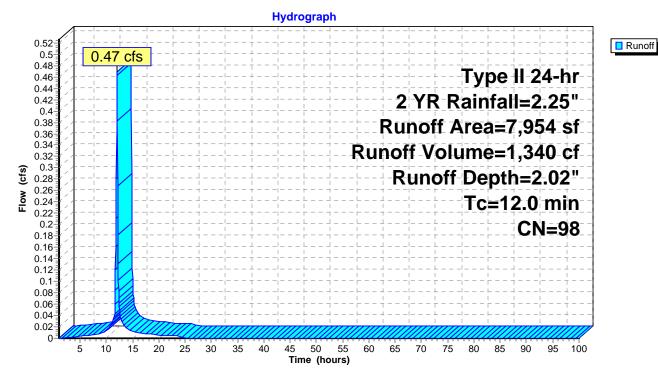
### **Summary for Subcatchment 16A: Area 16a**

Runoff = 0.47 cfs @ 12.03 hrs, Volume= 1,340 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

Α	rea (sf)	CN	Description									
	47	80	>75% Gras	75% Grass cover, Good, HSG D								
	7,907	98	Paved park	aved parking, HSG D								
	7,954	98	Veighted Average									
	47		0.59% Perv	0.59% Pervious Area								
	7,907		99.41% Imp	99.41% Impervious Area								
_		0.1		•	<b>5</b>							
Tc	Length	Slope	,	Capacity	Description							
(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)								
12 0					Direct Entry							

### Subcatchment 16A: Area 16a



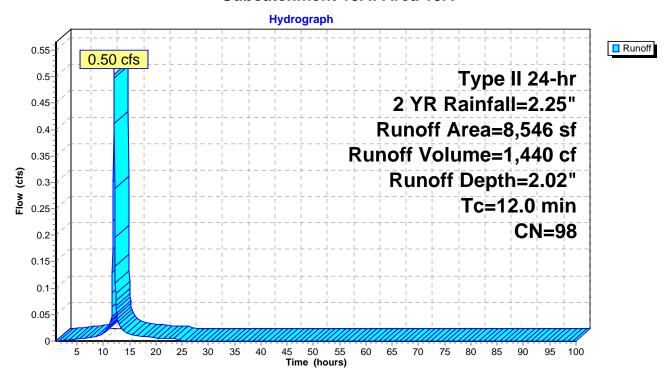
### Summary for Subcatchment 19A: Area 19A

Runoff = 0.50 cfs @ 12.03 hrs, Volume= 1,440 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

 Α	rea (sf)	CN	Description						
	8,546	98	Paved parking, HSG D						
	8,546		100.00% Impervious Area						
 Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	•				
12.0					Direct Entry,				

### Subcatchment 19A: Area 19A



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### **Summary for Pond 11P: Planter PB-3B**

Inflow Area = 4,155 sf, 97.18% Impervious, Inflow Depth = 1.92" for 2 YR event

Inflow 0.24 cfs @ 12.03 hrs. Volume= 664 cf

0.00 cfs @ 16.45 hrs, Volume= Outflow 260 cf, Atten= 98%, Lag= 265.1 min

Primary 0.00 cfs @ 16.45 hrs, Volume= 260 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 615.10' @ 16.45 hrs Surf.Area= 254 sf Storage= 565 cf

Plug-Flow detention time= 2,099.3 min calculated for 259 cf (39% of inflow)

Center-of-Mass det. time= 1,966.8 min (2,744.5 - 777.7)

Volume	Inver	t Avai	l.Storage	e Storage Descr	ription		
#1	610.11	1	567 c	f Storage (Prisi	matic)Listed belo	w (Recalc)	
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
610.1		254	0.0	0	0		
613.6	51	254	40.0	356	356		
613.6	52	254	20.0	1	356		
614.9		254	50.0	168	524		
615.1	1	254	100.0	43	567		
Device	Routing	ln	vert O	utlet Devices			_
#1	Primary	612		0" Round Culver			
			In	et / Outlet Invert=		S= 0.0117 '/' Cc= 0.900	
<b>"</b> 0	D. 14	040		•	•	erior, Flow Area= 0.20 sf	
#2	Device 1	610	-	O" Round Culver		ng to fill, Ke= 0.500	
						S= 0.0000 '/' Cc= 0.900	
					oth interior, Flow		
#3	Device 2	610		•	tion over Surface		
#4	Device 1	615	.10' <b>24</b>	.0" x 24.0" Horiz	. Orifice/Grate C	C= 0.600	
			Lii	mited to weir flow	at low heads		

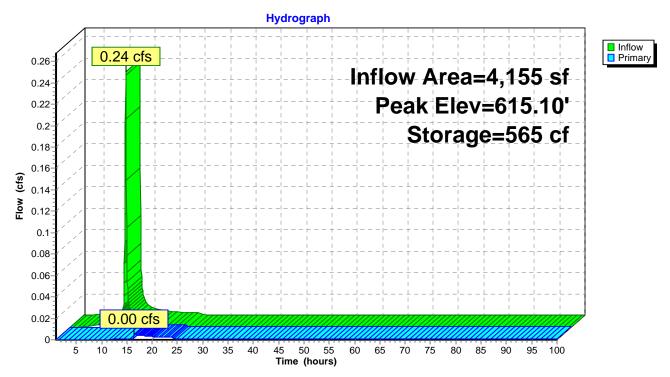
Primary OutFlow Max=0.00 cfs @ 16.45 hrs HW=615.10' TW=612.19' (Dynamic Tailwater)

**-1=Culvert** (Passes 0.00 cfs of 1.40 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 1.28 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.00 cfs @ 0.18 fps)

### Pond 11P: Planter PB-3B



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### Summary for Pond 12P: DS 23

Inflow Area = 9,150 sf, 98.72% Impervious, Inflow Depth > 1.44" for 2 YR event

Inflow = 0.30 cfs @ 12.03 hrs, Volume= 1,101 cf

Outflow = 0.30 cfs @ 12.03 hrs, Volume= 1,104 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.30 cfs @ 12.03 hrs, Volume= 1,104 cf

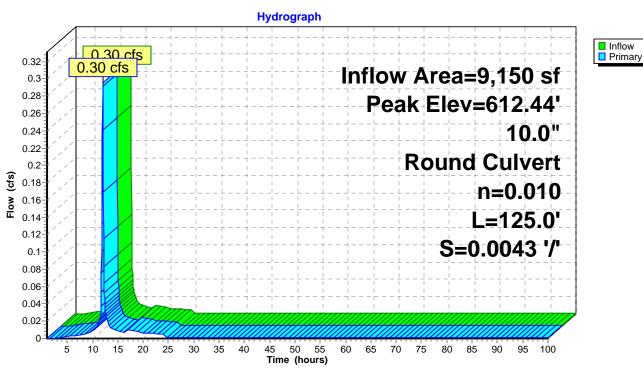
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 612.44' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.13'	10.0" Round Culvert
			L= 125.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.13' / 611.59' S= 0.0043 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.29 cfs @ 12.03 hrs HW=612.43' TW=609.85' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.29 cfs @ 2.39 fps)

### Pond 12P: DS 23



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# Summary for Pond 15P: DS #2107

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth > 1.80" for 2 YR event

Inflow = 1.76 cfs @ 12.04 hrs, Volume= 5,421 cf

Outflow = 1.76 cfs @ 12.04 hrs, Volume= 5,423 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.76 cfs @ 12.04 hrs, Volume= 5,423 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

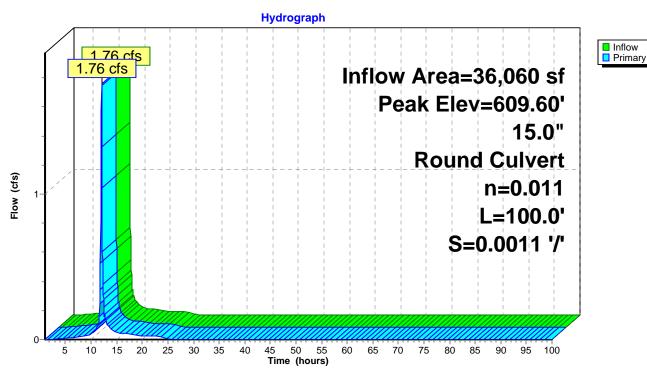
Peak Elev= 609.60' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices				
#1	Primary	608.71'	15.0" Round Culvert				
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500				
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900				
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf				

Primary OutFlow Max=1.71 cfs @ 12.04 hrs HW=609.59' (Free Discharge) 1=Culvert (Barrel Controls 1.71 cfs @ 2.61 fps)

#### Pond 15P: DS #2107



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### Summary for Pond DS 24: Planter PB-5B

[93] Warning: Storage range exceeded by 0.05'

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=8)

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 2.02" for 2 YR event

Inflow 0.36 cfs @ 12.03 hrs, Volume= 1,035 cf

0.42 cfs @ 12.05 hrs, Volume= Outflow 924 cf, Atten= 0%, Lag= 0.9 min

0.42 cfs @ 12.05 hrs. Volume= Primary 924 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 614.19' @ 12.05 hrs Surf.Area= 114 sf Storage= 254 cf

Plug-Flow detention time= 353.9 min calculated for 924 cf (89% of inflow)

Center-of-Mass det. time= 298.8 min (1,065.1 - 766.3)

Volume	Inve	rt Ava	il.Stor	age	Storage Descript	tion		
#1	#1 609.14' 254 cf		4 cf	Storage (Prisma	atic)Listed below	w (Recalc)		
Florestic		Curf Araa	\/aid		Ina Ctara	Cum Store		
Elevatio		Surf.Area	Void		Inc.Store	Cum.Store		
(fee		(sq-ft)	(%		(cubic-feet)	(cubic-feet)		
609.1	4	114	0.	0	0	0		
612.6	54	114	40.	0	160	160		
612.6	55	114	20.	0	0	160		
613.9	7	114	50.	0	75	235		
614.1	4	114	100.	0	19	254		
Device	Routing	In	vert	Outl	et Devices			
#1	Primary	611	.57'	6.0"	<b>Round Culvert</b>			
	,			L= 6	5.0' CPP, square	edge headwall,	Ke= 0.500	
							S= 0.0117 '/' Cc=	0.900
					.010 PVC, smoot			
#2	Device 1	609	9.64'		Round Culvert	,,		
			_			ection conformir	ng to fill, Ke= 0.500	
							S= 0.0000 '/' Cc=	
					.010 PVC, smoot			0.000
#3	Device 2	600	9.14'		0 in/hr Exfiltratio	,		
#4	Device 1		1.13'		" x 24.0" Horiz. C			
π <b>-</b>	DOVICE I	017	r. 10	_	ted to weir flow at		- 0.000	

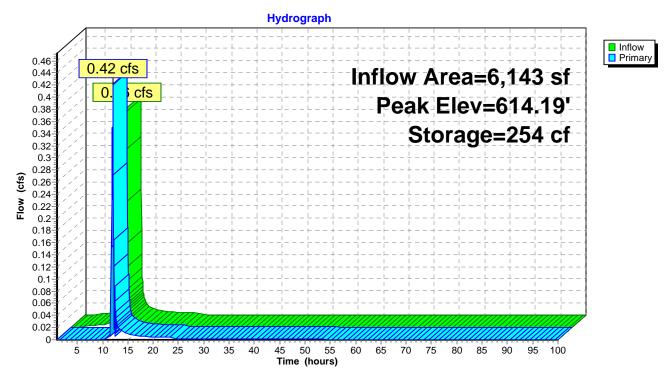
Primary OutFlow Max=0.41 cfs @ 12.05 hrs HW=614.19' TW=610.82' (Dynamic Tailwater)

**1=Culvert** (Passes 0.41 cfs of 1.46 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 1.44 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.41 cfs @ 0.82 fps)

### Pond DS 24: Planter PB-5B



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### Summary for Pond DS 25: DS 25

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 1.81" for 2 YR event

Inflow = 0.42 cfs @ 12.05 hrs, Volume= 924 cf

Outflow = 0.42 cfs @ 12.05 hrs, Volume= 926 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.42 cfs @ 12.05 hrs, Volume= 926 cf

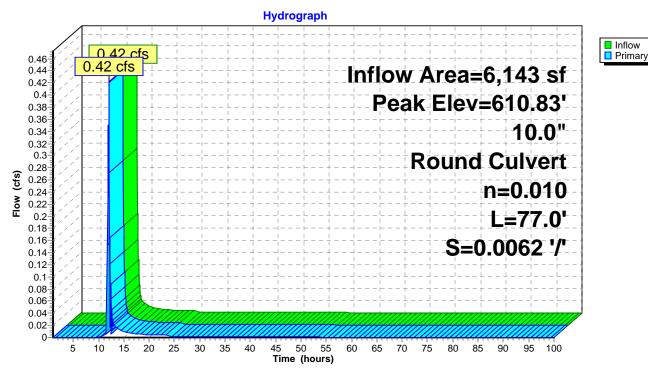
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3 Peak Elev= 610.83' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	610.48'	10.0" Round Culvert
	•		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 610.48' / 610.00' S= 0.0062 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.41 cfs @ 12.05 hrs HW=610.82' TW=609.87' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.41 cfs @ 2.86 fps)

### Pond DS 25: DS 25



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### **Summary for Pond DS 31: Planter PB-6B**

[93] Warning: Storage range exceeded by 0.01'

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

3,043 sf, 95.60% Impervious, Inflow Depth = 1.92" for 2 YR event Inflow Area =

Inflow 0.17 cfs @ 12.03 hrs, Volume= 486 cf

Outflow 0.07 cfs @ 12.30 hrs, Volume= 400 cf, Atten= 59%, Lag= 16.2 min =

0.07 cfs @ 12.30 hrs, Volume= Primary 400 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.76' @ 12.30 hrs Surf.Area= 133 sf Storage= 297 cf

Plug-Flow detention time= 1,494.4 min calculated for 400 cf (82% of inflow)

Center-of-Mass det. time= 1,421.1 min (2,198.8 - 777.7)

Volume	Inve	rt Ava	il.Stor	age	Storage Description				
#1 608.75'		5'	297 cf		Storage (Prismatic)Listed below (Recalc)				
Elevatio		Surf.Area (sq-ft)			Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
608.7		133	0.		0	0			
612.2		133	40.	-	186	186			
612.2	_	133	20.	-	0	186			
613.5	8	133	50.	0	88	274			
613.7	75	133	100.	0	23	297			
Device	Routing	In	vert	Outl	et Devices				
#1	#1 Primary 610.37'				6.0" Round Culvert				
			L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.37' / 610.31' S= 0.0120 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf						
#2	Device 1	evice 1 609			Round Culvert				
				Inlet	2.0' RCP, square / Outlet Invert= 6 0.010 PVC, smoot	09.25' / 609.25'	S= 0.0000 '/' Cc= 0	).900	
#3	Device 2								
#4 Device 1 613.74' <b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads				S= 0.600					

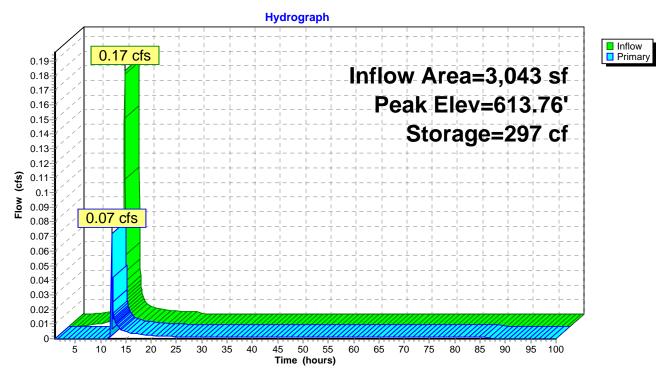
Primary OutFlow Max=0.07 cfs @ 12.30 hrs HW=613.76' TW=609.23' (Dynamic Tailwater)

-1=Culvert (Passes 0.07 cfs of 1.68 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 1.56 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.07 cfs @ 0.45 fps)

### Pond DS 31: Planter PB-6B



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### **Summary for Pond DS 32: DS 32**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth > 1.80" for 2 YR event

Inflow = 1.76 cfs @ 12.04 hrs, Volume= 5,416 cf

Outflow = 1.76 cfs @ 12.04 hrs, Volume= 5,421 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.76 cfs @ 12.04 hrs, Volume= 5,421 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

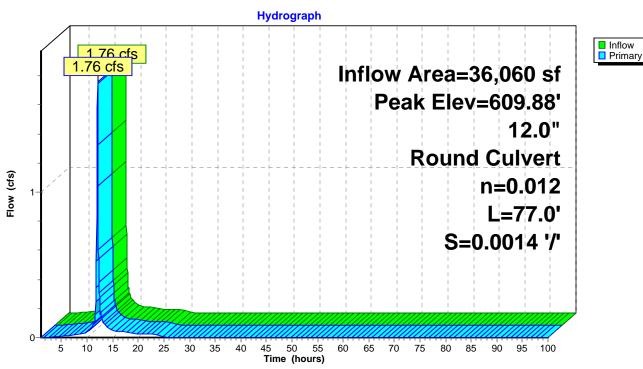
Peak Elev= 609.88' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	12.0" Round Culvert
	_		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.71 cfs @ 12.04 hrs HW=609.86' TW=609.59' (Dynamic Tailwater) 1=Culvert (Outlet Controls 1.71 cfs @ 2.38 fps)

### Pond DS 32: DS 32



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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10: Area 10 Runoff Area=4,155 sf 97.18% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=0.44 cfs 1,264 cf

Subcatchment 10A: Area 10A Runoff Area=4,995 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.53 cfs 1,567 cf

Subcatchment 13: Area 13 Runoff Area=6,143 sf 98.68% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.66 cfs 1,927 cf

Subcatchment 14: Area 14 Runoff Area=3,043 sf 95.60% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=0.32 cfs 926 cf

Subcatchment 14A: Area 14A Runoff Area=1,224 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.13 cfs 384 cf

Subcatchment 16A: Area 16a Runoff Area=7,954 sf 99.41% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.85 cfs 2,496 cf

Subcatchment 19A: Area 19A Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.91 cfs 2,681 cf

Pond 11P: Planter PB-3B Peak Elev=615.17' Storage=567 cf Inflow=0.44 cfs 1,264 cf

Outflow=0.50 cfs 860 cf

Pond 12P: DS 23 Peak Elev=612.75' Inflow=1.02 cfs 2,427 cf

10.0" Round Culvert n=0.010 L=125.0' S=0.0043 '/' Outflow=1.02 cfs 2,429 cf

Pond 15P: DS #2107 Peak Elev=610.26' Inflow=3.98 cfs 10,653 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=3.98 cfs 10,655 cf

Pond DS 24: Planter PB-5B Peak Elev=614.22' Storage=254 cf Inflow=0.66 cfs 1,927 cf

Outflow=0.66 cfs 1,817 cf

Pond DS 25: DS 25 Peak Elev=611.75' Inflow=0.66 cfs 1,817 cf

10.0" Round Culvert n=0.010 L=77.0' S=0.0062 '/' Outflow=0.66 cfs 1,818 cf

Pond DS 31: Planter PB-6B Peak Elev=613.81' Storage=297 cf Inflow=0.32 cfs 926 cf

Outflow=0.46 cfs 840 cf

Pond DS 32: DS 32 Peak Elev=611.68' Inflow=3.98 cfs 10,648 cf

12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=3.98 cfs 10,653 cf

Total Runoff Area = 36,060 sf Runoff Volume = 11,246 cf Average Runoff Depth = 3.74" 1.05% Pervious = 379 sf 98.95% Impervious = 35,681 sf

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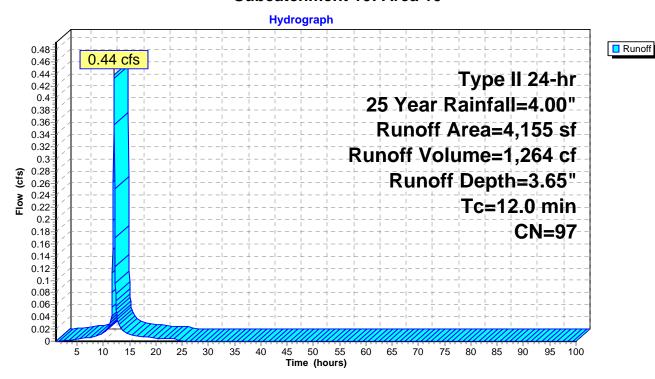
### **Summary for Subcatchment 10: Area 10**

Runoff = 0.44 cfs @ 12.03 hrs, Volume= 1,264 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description					
	117	80	>75% Grass cover, Good, HSG D					
	4,038	98	Paved parking, HSG D					
	4,155	97	Weighted Average					
	117		2.82% Pervious Area					
	4,038		97.18% Impervious Area					
Тс	Length	Slope	,	Capacity	•			
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
12.0					Direct Entry,			

#### **Subcatchment 10: Area 10**



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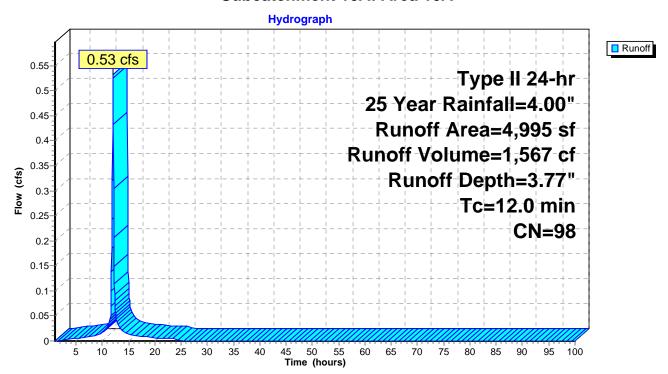
# Summary for Subcatchment 10A: Area 10A

Runoff = 0.53 cfs @ 12.03 hrs, Volume= 1,567 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

	A	ea (sf)	CN	Description					
		4,995	98	Paved parking, HSG D					
		4,995		100.00% Impervious Area					
(m	Tc iin)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
1:	2.0					Direct Entry,			

### Subcatchment 10A: Area 10A



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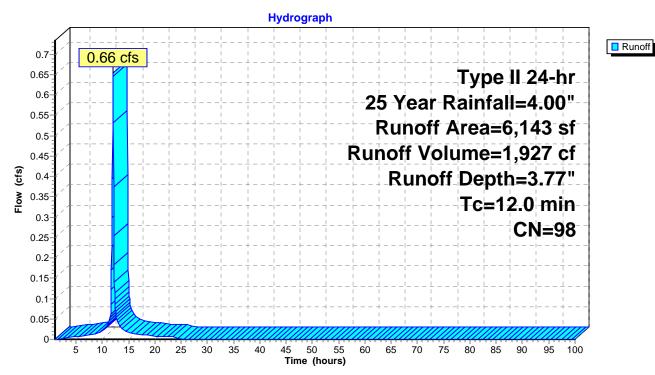
## **Summary for Subcatchment 13: Area 13**

Runoff = 0.66 cfs @ 12.03 hrs, Volume= 1,927 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

_	Α	rea (sf)	CN	Description						
		81	80	>75% Gras	s cover, Go	ood, HSG D				
		6,062	98	Paved park	Paved parking, HSG D					
		6,143	98	Weighted A	Veighted Average					
		81		1.32% Perv	ious Area					
		6,062		98.68% Imp	ervious Ar	ea				
	т.	ما المحمد ا	Class	. \/alaaitu	Canadhi	Decemention				
	Tc	Length	Slope	,	Capacity	Description				
	(min)	(feet)	(ft/ft	it) (ft/sec) (cfs)						
-	12.0					Direct Entry				

### **Subcatchment 13: Area 13**



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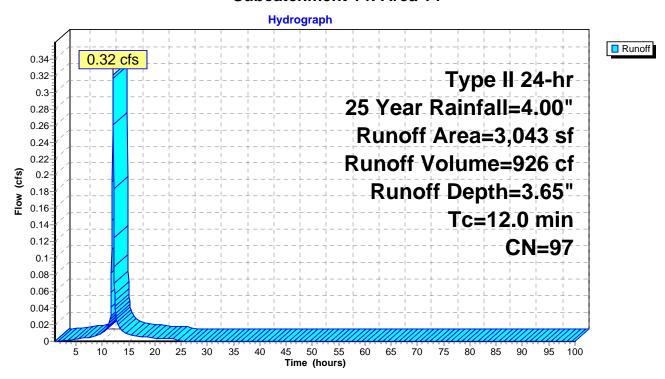
# **Summary for Subcatchment 14: Area 14**

Runoff = 0.32 cfs @ 12.03 hrs, Volume= 926 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description						
	134	80	>75% Gras	s cover, Go	od, HSG D				
	2,909	98	Paved park	Paved parking, HSG D					
	3,043	97	Weighted A	Veighted Average					
	134		4.40% Perv	ious Area					
	2,909		95.60% lmp	pervious Ar	ea				
Tc	Length	Slope	e Velocity	Capacity	Description				
(min)	(feet)	(ft/ft	,	(cfs)					
12.0	·				Direct Entry,				

#### Subcatchment 14: Area 14



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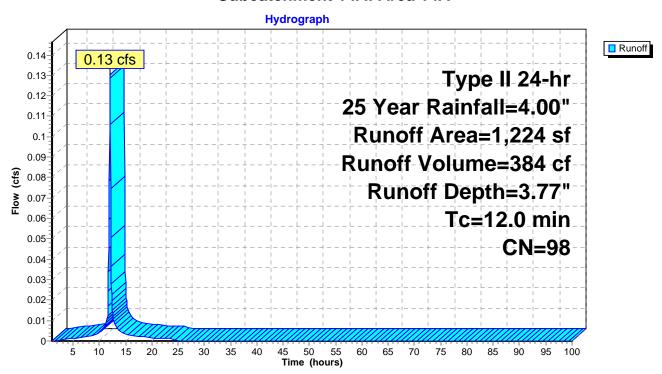
# Summary for Subcatchment 14A: Area 14A

Runoff = 0.13 cfs @ 12.03 hrs, Volume= 384 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN [	Description				
	1,224	98 F	Paved parking, HSG D				
	1,224	1	100.00% Impervious Area				
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
12.0	-				Direct Entry,		

#### Subcatchment 14A: Area 14A



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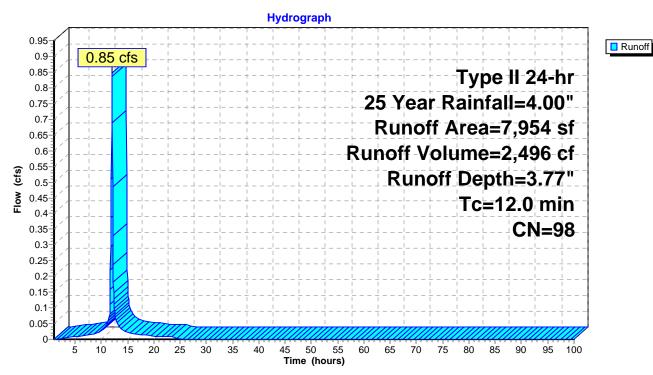
# **Summary for Subcatchment 16A: Area 16a**

Runoff = 0.85 cfs @ 12.03 hrs, Volume= 2,496 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

	Α	rea (sf)	CN	Description						
		47	80	>75% Gras	s cover, Go	ood, HSG D				
		7,907	98	Paved park	Paved parking, HSG D					
		7,954	98	Weighted A	Veighted Average					
		47		0.59% Perv	ious Area					
		7,907		99.41% Imp	ervious Ar	ea				
	_		01		<b>O</b> :	<b>.</b>				
	Tc	Length	Slope	e Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)					
•	12 0					Direct Entry				

#### Subcatchment 16A: Area 16a



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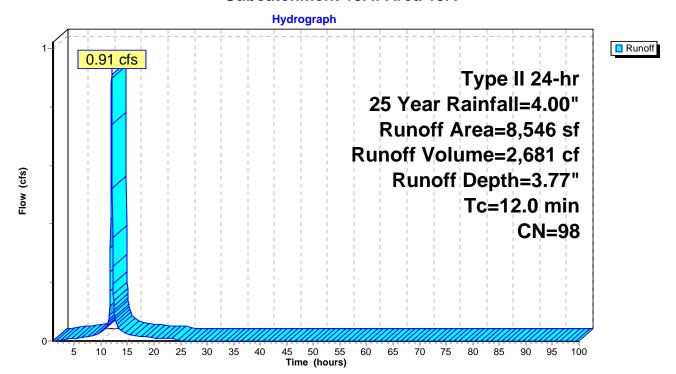
# Summary for Subcatchment 19A: Area 19A

Runoff = 0.91 cfs @ 12.03 hrs, Volume= 2,681 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

 Α	rea (sf)	CN	Description				
	8,546	98	Paved parking, HSG D				
	8,546		100.00% Impervious Area				
 Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	•		
12.0					Direct Entry,		

## Subcatchment 19A: Area 19A



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# **Summary for Pond 11P: Planter PB-3B**

[93] Warning: Storage range exceeded by 0.06'

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=7)

Inflow Area = 4,155 sf, 97.18% Impervious, Inflow Depth = 3.65" for 25 Year event

Inflow 0.44 cfs @ 12.03 hrs, Volume= 1,264 cf

0.50 cfs @ 12.06 hrs, Volume= Outflow 860 cf, Atten= 0%, Lag= 1.8 min

0.50 cfs @ 12.06 hrs. Volume= Primary 860 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 615.17' @ 12.05 hrs Surf.Area= 254 sf Storage= 567 cf

Plug-Flow detention time= 739.5 min calculated for 860 cf (68% of inflow)

Center-of-Mass det. time= 641.1 min (1,403.5 - 762.4)

Volume	Inve	rt Ava	il.Stor	age	Storage Descrip	otion		
#1	610.11	<b>'</b>	56	7 cf	Storage (Prism	Storage (Prismatic)Listed below (Recalc)		
Elevation	on S	Surf.Area	Void	S	Inc.Store	Cum.Store		
(fee	et)	(sq-ft)			(cubic-feet)	(cubic-feet)		
610.1	1	254	0.0	0	0	0		
613.6	61	254	40.	0	356	356		
613.6	62	254	20.	0	1	356		
614.9	94	254	50.	0	168	524		
615.1	1	254	100.	0	43	567		
<u>Device</u>	Routing	<u>In</u>	vert	Outl	et Devices			
#1	Primary	612	2.67'	6.0"	Round Culvert			
					5.0' CPP, square	•		
							S= 0.0117 '/' Cc= 0.900	
				n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf				
#2	Device 1	610	).61'		Round Culvert			
							ng to fill, Ke= 0.500	
							S= 0.0000 '/' Cc= 0.900	
					.010 PVC, smoo			
#3	Device 2				0 in/hr Exfiltration			
#4	Device 1	615	5.10'	_	" x 24.0" Horiz.		S = 0.600	
				Limi	ted to weir flow a	t low heads		

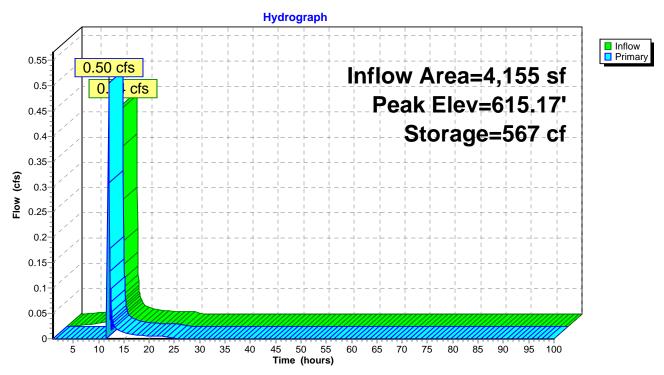
Primary OutFlow Max=0.44 cfs @ 12.06 hrs HW=615.17' TW=612.72' (Dynamic Tailwater)

**1=Culvert** (Passes 0.44 cfs of 1.42 cfs potential flow)

**2=Culvert** (Passes 0.00 cfs of 1.28 cfs potential flow) **3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.44 cfs @ 0.84 fps)

# Pond 11P: Planter PB-3B



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## **Summary for Pond 12P: DS 23**

Inflow Area = 9,150 sf, 98.72% Impervious, Inflow Depth > 3.18" for 25 Year event

Inflow = 1.02 cfs @ 12.06 hrs. Volume= 2.427 cf

Outflow = 1.02 cfs @ 12.06 hrs, Volume= 2,429 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.02 cfs @ 12.06 hrs, Volume= 2,429 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

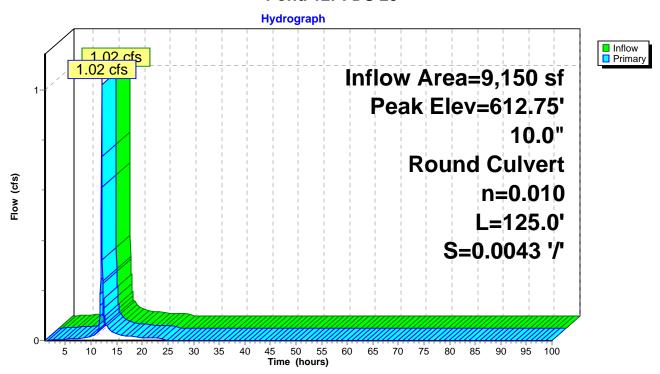
Peak Elev= 612.75' @ 12.06 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.13'	10.0" Round Culvert
			L= 125.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.13' / 611.59' S= 0.0043 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.97 cfs @ 12.06 hrs HW=612.73' TW=611.53' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.97 cfs @ 3.23 fps)

#### Pond 12P: DS 23



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# Summary for Pond 15P: DS #2107

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth > 3.54" for 25 Year event

Inflow = 3.98 cfs @ 12.05 hrs, Volume= 10,653 cf

Outflow = 3.98 cfs @ 12.05 hrs, Volume= 10,655 cf, Atten= 0%, Lag= 0.0 min

Primary = 3.98 cfs @ 12.05 hrs, Volume= 10,655 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

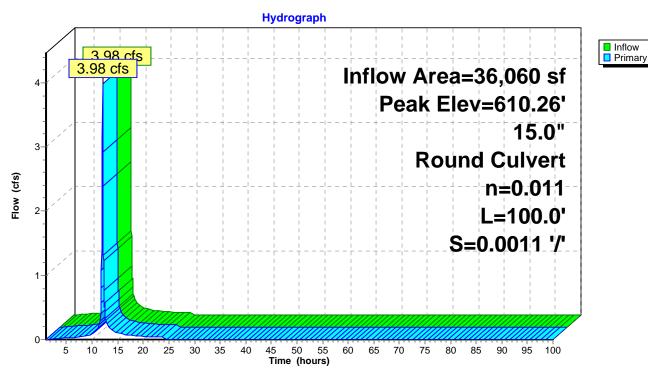
Peak Elev= 610.26' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	15.0" Round Culvert L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean. Flow Area= 1.23 sf

Primary OutFlow Max=3.94 cfs @ 12.05 hrs HW=610.24' (Free Discharge) 1=Culvert (Barrel Controls 3.94 cfs @ 3.34 fps)

#### Pond 15P: DS #2107



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## Summary for Pond DS 24: Planter PB-5B

[93] Warning: Storage range exceeded by 0.08'

6,143 sf, 98.68% Impervious, Inflow Depth = 3.77" for 25 Year event Inflow Area =

Inflow 0.66 cfs @ 12.03 hrs, Volume= 1,927 cf

0.66 cfs @ 12.03 hrs, Volume= Outflow 1,817 cf, Atten= 0%, Lag= 0.0 min

0.66 cfs @ 12.03 hrs, Volume= Primary 1,817 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 614.22' @ 12.03 hrs Surf.Area= 114 sf Storage= 254 cf

Plug-Flow detention time= 206.4 min calculated for 1,817 cf (94% of inflow)

Center-of-Mass det. time= 171.6 min (925.2 - 753.5)

Volume	Invert	Avail.S	torage	Storage Descript	tion		
#1	609.14'	609.14' 25		Storage (Prisma	atic)Listed below	w (Recalc)	
Elevatio		urf.Area Vo	oids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
609.1		114	0.0	0	0		
612.6			10.0	160	160		
612.6	65	114 2	20.0	0	160		
613.9	97	114 5	50.0	75	235		
614.1	14	114 10	0.00	19	254		
Device	Routing	Inver	t Outl	et Devices			
#1	Primary	611.57		Round Culvert	odgo boodwall	Ko- 0 500	
L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.57' / 611.50' S= 0.0117 n= 0.010 PVC, smooth interior, Flow Area= 0.20 #2 Device 1 609.64' <b>6.0" Round Culvert</b>				S= 0.0117 '/' Cc= 0.900			
""	Device 1	000.0	L= 3 Inlet	5.0' CMP, end-se	09.64' / 609.64'	ng to fill, Ke= 0.500 S= 0.0000 '/' Cc= 0.900 Area= 0.20 sf	
#3	Device 2	609.14		0 in/hr Exfiltratio			
#4	Device 1	614.13	_	" x 24.0" Horiz. Coted to weir flow at		= 0.600	

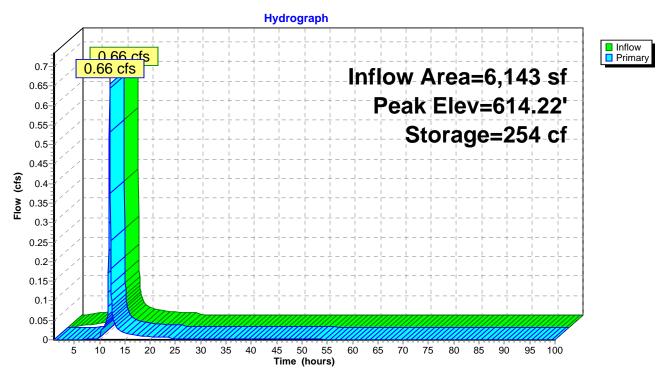
Primary OutFlow Max=0.64 cfs @ 12.03 hrs HW=614.21' TW=611.48' (Dynamic Tailwater)

**1=Culvert** (Passes 0.64 cfs of 1.46 cfs potential flow)

2=Culvert (Passes 0.00 cfs of 1.45 cfs potential flow)
3=Exfiltration (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.64 cfs @ 0.95 fps)

#### Pond DS 24: Planter PB-5B



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## **Summary for Pond DS 25: DS 25**

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 3.55" for 25 Year event

Inflow = 0.66 cfs @ 12.03 hrs, Volume= 1,817 cf

Outflow = 0.66 cfs @ 12.03 hrs, Volume= 1,818 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.66 cfs @ 12.03 hrs, Volume= 1,818 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

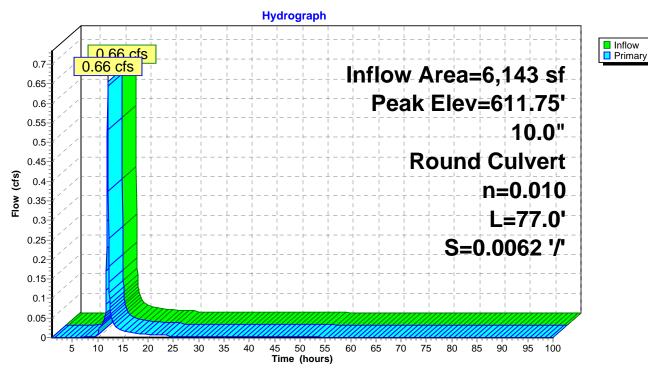
Peak Elev= 611.75' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	610.48'	10.0" Round Culvert
	-		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 610.48' / 610.00' S= 0.0062 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.88 cfs @ 12.03 hrs HW=611.48' TW=611.35' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.88 cfs @ 1.69 fps)

## Pond DS 25: DS 25



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## **Summary for Pond DS 31: Planter PB-6B**

[93] Warning: Storage range exceeded by 0.06'

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=6)

Inflow Area = 3,043 sf, 95.60% Impervious, Inflow Depth = 3.65" for 25 Year event

Inflow 0.32 cfs @ 12.03 hrs, Volume= 926 cf

0.46 cfs @ 12.05 hrs, Volume= Outflow 840 cf, Atten= 0%, Lag= 1.1 min

0.46 cfs @ 12.05 hrs. Volume= Primary 840 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.81' @ 12.05 hrs Surf.Area= 133 sf Storage= 297 cf

Plug-Flow detention time= 750.6 min calculated for 839 cf (91% of inflow)

Center-of-Mass det. time= 703.0 min (1,465.4 - 762.4)

Volume	Invert	Avail.St	orage	Storage Descript	ion	
#1 608.75' 297 d		297 cf	Storage (Prisma	atic)Listed below	(Recalc)	
Elevation	on Su	rf.Area Vo	ids	Inc.Store	Cum.Store	
(fee			(%)	(cubic-feet)	(cubic-feet)	
608.7		<u> </u>	0.0	0	0	
612.2			0.0	186	186	
612.2	26	133 2	0.0	0	186	
613.5			0.0	88	274	
613.7	75	133 10	0.0	23	297	
Device	Routing	Invert	Outl	et Devices		
#1	Primary	610.37		Round Culvert		
				5.0' CPP, square	•	
						S= 0.0120 '/' Cc= 0.900
#2	Device 1	609.25		Round Culvert	PE, smooth interi	or, Flow Area= 0.20 sf
#2	Device i	009.23		2.0' RCP, square	edge headwall	Ke= 0.500
					•	S= 0.0000 '/' Cc= 0.900
				.010 PVC, smoot		
#3	Device 2	608.75	0.30	0 in/hr Exfiltratio	n over Surface a	irea
#4	Device 1	613.74	24.0	" x 24.0" Horiz. O	rifice/Grate C=	0.600
			Limi	ted to weir flow at	low heads	

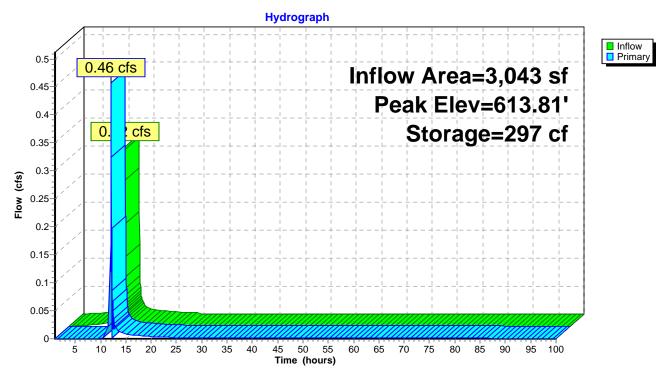
Primary OutFlow Max=0.44 cfs @ 12.05 hrs HW=613.81' TW=611.64' (Dynamic Tailwater)

**1=Culvert** (Passes 0.44 cfs of 1.39 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 1.25 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.44 cfs @ 0.84 fps)

## Pond DS 31: Planter PB-6B



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## **Summary for Pond DS 32: DS 32**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth > 3.54" for 25 Year event

Inflow = 3.98 cfs @ 12.05 hrs. Volume= 10.648 cf

Outflow = 3.98 cfs @ 12.05 hrs, Volume= 10,653 cf, Atten= 0%, Lag= 0.0 min

Primary = 3.98 cfs @ 12.05 hrs, Volume= 10,653 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

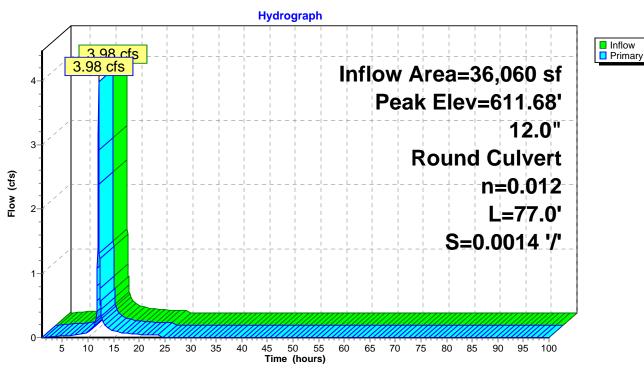
Peak Elev= 611.68' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	12.0" Round Culvert
	_		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished. Flow Area= 0.79 sf

Primary OutFlow Max=3.93 cfs @ 12.05 hrs HW=611.63' TW=610.24' (Dynamic Tailwater) 1=Culvert (Outlet Controls 3.93 cfs @ 5.01 fps)

## Pond DS 32: DS 32



Prepared by Microsoft

Pond DS 24: Planter PB-5B

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10: Area 10 Runoff Area=4,155 sf 97.18% Impervious Runoff Depth=0.14"

Tc=12.0 min CN=97 Runoff=0.02 cfs 48 cf

Subcatchment 10A: Area 10A Runoff Area=4,995 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.03 cfs 78 cf

Subcatchment 13: Area 13 Runoff Area=6,143 sf 98.68% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.04 cfs 95 cf

Subcatchment 14: Area 14 Runoff Area = 3,043 sf 95.60% Impervious Runoff Depth = 0.14"

Tc=12.0 min CN=97 Runoff=0.01 cfs 35 cf

Subcatchment 14A: Area 14A Runoff Area=1,224 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.01 cfs 19 cf

Subcatchment 16A: Area 16a Runoff Area=7,954 sf 99.41% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.05 cfs 123 cf

Subcatchment 19A: Area 19A Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.05 cfs 133 cf

Peak Elev=611.23' Storage=95 cf Inflow=0.04 cfs 95 cf

Pond 11P: Planter PB-3B Peak Elev=610.58' Storage=48 cf Inflow=0.02 cfs 48 cf

Outflow=0.00 cfs 0 cf

Pond 12P: DS 23 Peak Elev=612.23' Inflow=0.03 cfs 78 cf

10.0" Round Culvert n=0.010 L=125.0' S=0.0043 '/' Outflow=0.03 cfs 78 cf

Pond 15P: DS #2107 Peak Elev=608.96' Inflow=0.14 cfs 354 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=0.14 cfs 354 cf

Outflow=0.00 cfs 0 cf

Pond DS 25: DS 25 Peak Elev=610.48' Inflow=0.00 cfs 0 cf

10.0" Round Culvert n=0.010 L=77.0' S=0.0062 '/' Outflow=0.00 cfs 0 cf

Pond DS 31: Planter PB-6B Peak Elev=609.41' Storage=35 cf Inflow=0.01 cfs 35 cf

Outflow=0.00 cfs 0 cf

Pond DS 32: DS 32 Peak Elev=609.04' Inflow=0.14 cfs 353 cf

12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=0.14 cfs 354 cf

Total Runoff Area = 36,060 sf Runoff Volume = 531 cf Average Runoff Depth = 0.18" 1.05% Pervious = 379 sf 98.95% Impervious = 35,681 sf

Type II 24-hr 50% Rainfall=0.35" Printed 5/4/2015

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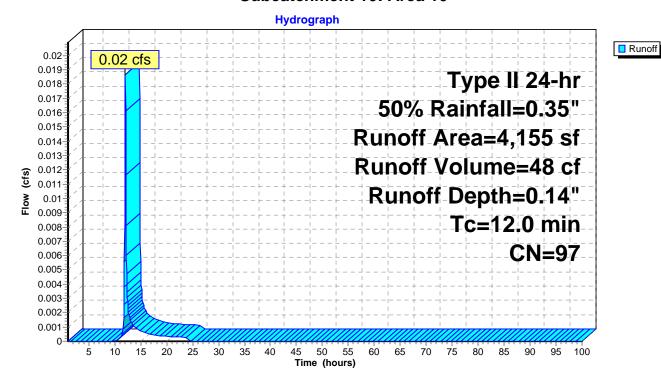
# **Summary for Subcatchment 10: Area 10**

0.02 cfs @ 12.04 hrs, Volume= 48 cf, Depth= 0.14" Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

_	Α	rea (sf)	CN	Description						
		117	80	>75% Grass cover, Good, HSG D						
_		4,038	98	Paved park	Paved parking, HSG D					
		4,155	97	Weighted A	Weighted Average					
		117		2.82% Pervious Area						
		4,038		97.18% Imp	pervious Ar	ea				
	т.	1 0	01		0 '(	December Co.				
	Tc	Length	Slope	e Velocity	Capacity	Description				
_	(min)	(feet)	(ft/ft	t) (ft/sec) (cfs)						
_	12 0			•		Direct Entry				

#### **Subcatchment 10: Area 10**



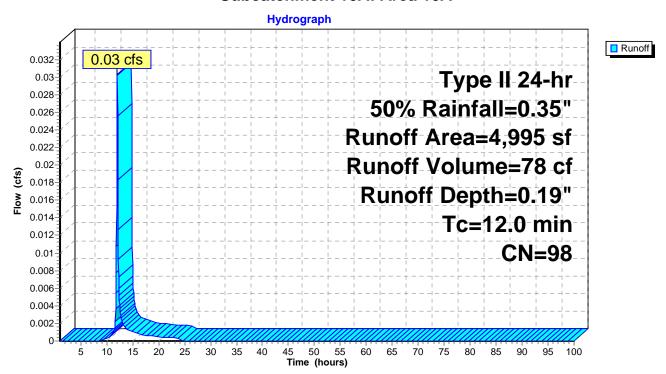
# Summary for Subcatchment 10A: Area 10A

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 78 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

	Α	rea (sf)	CN	Description						
		4,995	98	Paved park	aved parking, HSG D					
		4,995		100.00% Impervious Area						
(m	Tc nin)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
1:	2.0					Direct Entry,				

#### Subcatchment 10A: Area 10A



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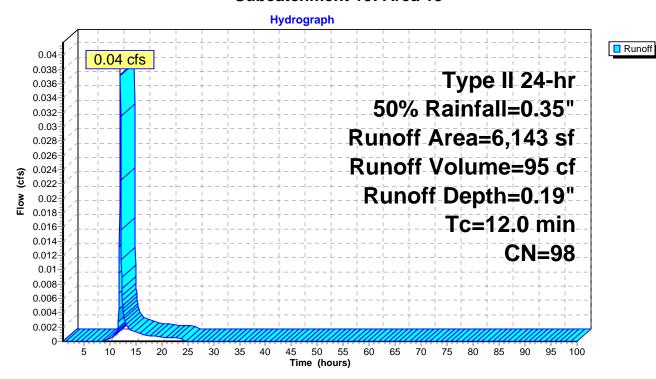
# **Summary for Subcatchment 13: Area 13**

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 95 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description						
	81	80	>75% Grass cover, Good, HSG D						
	6,062	98	Paved park	Paved parking, HSG D					
	6,143	98	Weighted A	Veighted Average					
	81		1.32% Pervious Area						
	6,062		98.68% lmp	pervious Ar	rea				
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	·				
12.0	( 0 0 0)	(1411)	Direct Entry,						

#### **Subcatchment 13: Area 13**



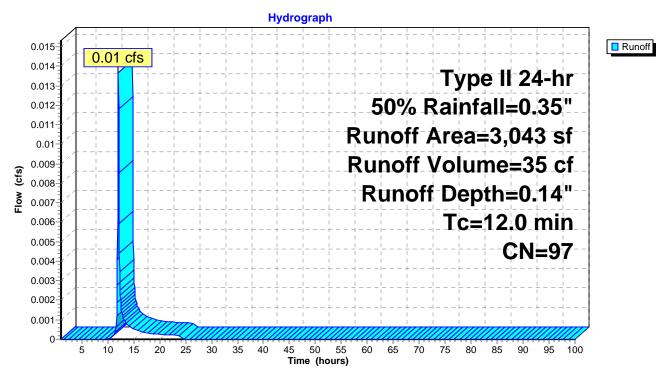
# **Summary for Subcatchment 14: Area 14**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 35 cf, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

	rea (sf)	CN	Description						
	134	80	>75% Grass cover, Good, HSG D						
	2,909	98	Paved park	Paved parking, HSG D					
	3,043	97	Weighted A	Veighted Average					
	134		4.40% Pervious Area						
	2,909		95.60% Imp	pervious Ar	ea				
Tc	Longth	Slope	\/olocity	Canacity	Description				
_	Length	•							
<u>(min)</u>	(feet)	(ft/ft)	t) (ft/sec) (cfs)						
12.0			Direct Entry,						

#### Subcatchment 14: Area 14



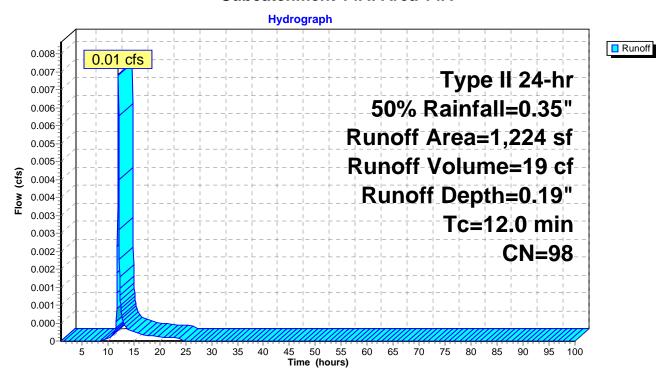
## **Summary for Subcatchment 14A: Area 14A**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 19 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

	Α	rea (sf)	CN I	Description				
		1,224	98 I	Paved parking, HSG D				
		1,224	•	100.00% Impervious Area				
(	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
	12.0					Direct Entry,		

#### Subcatchment 14A: Area 14A



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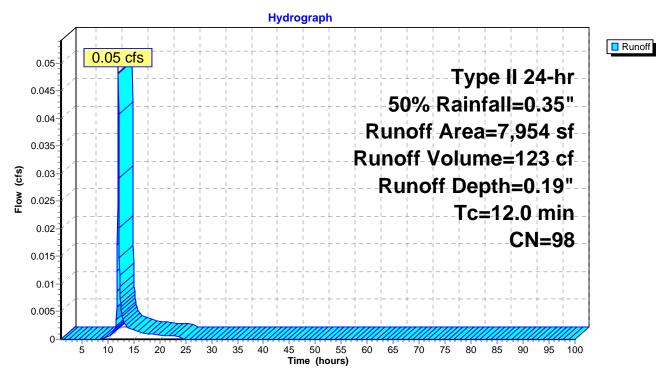
Runoff = 0.05 cfs @ 12.04 hrs, Volume= 123 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

**Summary for Subcatchment 16A: Area 16a** 

A	rea (sf)	CN	Description					
	47	80 :	>75% Grass cover, Good, HSG D					
	7,907	98	Paved parking, HSG D					
	7,954	98	Weighted Average					
	47		0.59% Pervious Area					
	7,907	,	99.41% lmp	pervious Ar	ea			
_		•						
	Length	Slope	,	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
12.0			•	•	Direct Entry		<u> </u>	

#### Subcatchment 16A: Area 16a



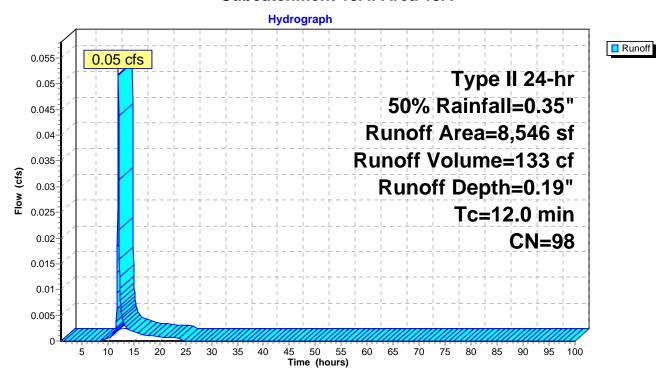
# Summary for Subcatchment 19A: Area 19A

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 133 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

 Α	rea (sf)	CN	Description					
	8,546	98	Paved parking, HSG D					
	8,546		100.00% Impervious Area					
 Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	•			
12.0					Direct Entry,			

#### Subcatchment 19A: Area 19A



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## **Summary for Pond 11P: Planter PB-3B**

4,155 sf, 97.18% Impervious, Inflow Depth = 0.14" for 50% event Inflow Area =

0.02 cfs @ 12.04 hrs, Volume= Inflow 48 cf

1.00 hrs, Volume= Outflow 0.00 cfs @ 0 cf, Atten= 100%, Lag= 0.0 min

1.00 hrs, Volume= Primary 0.00 cfs @ 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.58' @ 24.70 hrs Surf.Area= 254 sf Storage= 48 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.S	Storage	Storage Descrip	tion	
#1	610.11'		567 cf	Storage (Prisma	atic)Listed below	w (Recalc)
Elevatio		ırf.Area V (sq-ft)	oids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
610.1	•	254	0.0	0	0	
613.6			40.0	356	356	
613.6	52	254	20.0	1	356	
614.9		254	50.0	168	524	
615.1	1	254 1	0.00	43	567	
Device	Routing	Inve	rt Outle	et Devices		
#1	Primary	612.6		Round Culvert		
			Inlet		12.67' / 612.60'	Ke= 0.500 S= 0.0117 '/' Cc= 0.900 erior, Flow Area= 0.20 sf
#2	Device 1	610.6	1' <b>6.0"</b>	Round Culvert		
						ng to fill, Ke= 0.500
				.010 PVC, smoot		S= 0.0000 '/' Cc= 0.900
#3	Device 2	610.1		0 in/hr Exfiltratio	•	
#4	Device 1	615.1		" x 24.0" Horiz. C		
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		ted to weir flow at		

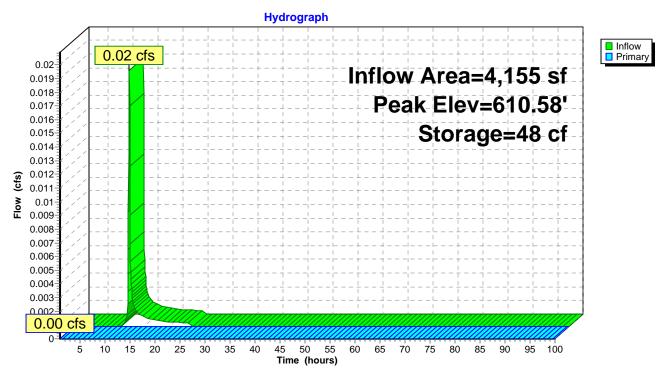
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.11' TW=612.13' (Dynamic Tailwater)

-1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

# Pond 11P: Planter PB-3B



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# Summary for Pond 12P: DS 23

Inflow Area = 9,150 sf, 98.72% Impervious, Inflow Depth = 0.10" for 50% event

Inflow = 0.03 cfs @ 12.04 hrs. Volume= 78 cf

Outflow = 0.03 cfs @ 12.04 hrs, Volume= 78 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.03 cfs @ 12.04 hrs, Volume= 78 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

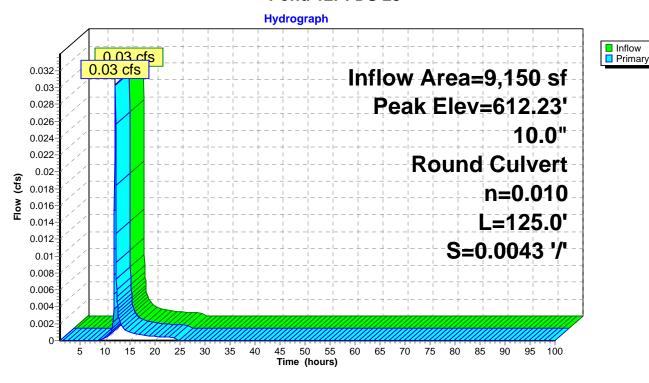
Peak Elev= 612.23' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.13'	10.0" Round Culvert
			L= 125.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.13' / 611.59' S= 0.0043 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.03 cfs @ 12.04 hrs HW=612.23' TW=609.03' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.03 cfs @ 1.26 fps)

#### Pond 12P: DS 23



# Summary for Pond 15P: DS #2107

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth = 0.12" for 50% event

Inflow = 0.14 cfs @ 12.04 hrs, Volume= 354 cf

Outflow = 0.14 cfs @ 12.04 hrs, Volume= 354 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.14 cfs @ 12.04 hrs, Volume= 354 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

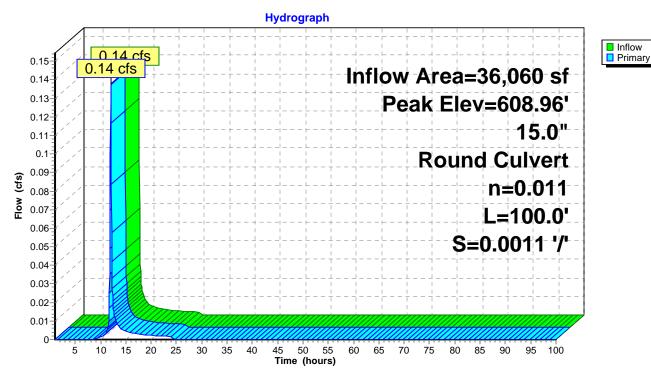
Peak Elev= 608.96' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	15.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

Primary OutFlow Max=0.14 cfs @ 12.04 hrs HW=608.96' (Free Discharge) 1=Culvert (Barrel Controls 0.14 cfs @ 1.19 fps)

#### Pond 15P: DS #2107



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# Summary for Pond DS 24: Planter PB-5B

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 0.19" for 50% event

Inflow = 0.04 cfs @ 12.04 hrs, Volume= 95 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.23' @ 24.70 hrs Surf.Area= 114 sf Storage= 95 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.	.Storage	Storage Descrip	tion		
#1	609.14'		254 cf	Storage (Prism	atic)Listed below	w (Recalc)	
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
609.1	•	114	0.0	0	0		
612.6		114	40.0	160	160		
612.6	S5	114	20.0	0	160		
613.9	97	114	50.0	75	235		
614.1	14	114	100.0	19	254		
Device	Routing	Inv	ert Outle	et Devices			
#1	Primary	611.		Round Culvert			
			Inlet n= 0	.010 PVC, smoo	11.57' / 611.50'	S= 0.0117 '/' Cc= 0.900	
#2	Device 1	609.6		Round Culvert	action conformir	og to fill Ko 0 500	
	Inlet			L= 35.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 609.64' / 609.64' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf			
#3	Device 2	609.		0 in/hr Exfiltration			
#4	Device 1	614.		" <b>x 24.0" Horiz. (</b> ted to weir flow at		= 0.600	
			LIIIII	ied to well liow at	. IOW HEAUS		

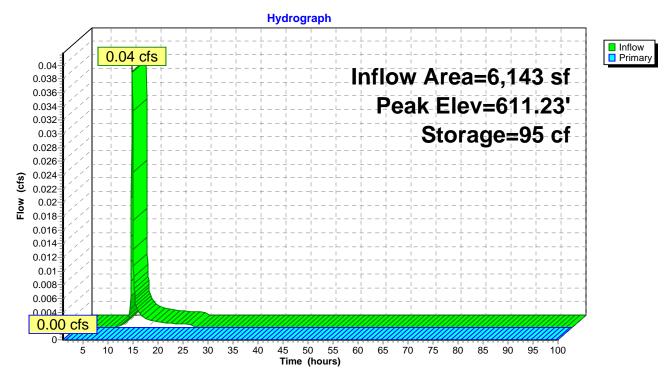
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=609.14' TW=610.48' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 24: Planter PB-5B



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## **Summary for Pond DS 25: DS 25**

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 0.00" for 50% event

Inflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume = 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

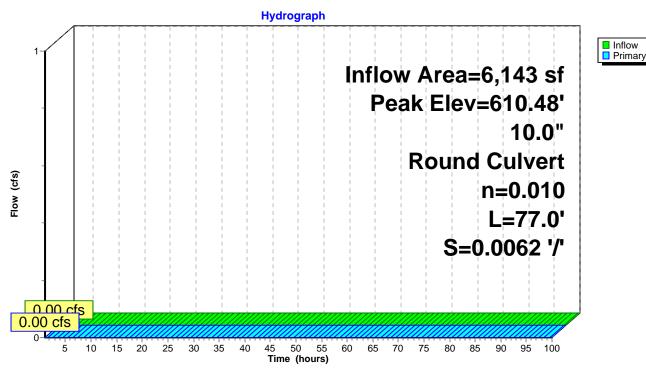
Peak Elev= 610.48' @ 1.00 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	610.48'	10.0" Round Culvert
	-		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 610.48' / 610.00' S= 0.0062 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.48' TW=608.71' (Dynamic Tailwater) 1=Culvert (Controls 0.00 cfs)

## Pond DS 25: DS 25



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## Summary for Pond DS 31: Planter PB-6B

Inflow Area = 3,043 sf, 95.60% Impervious, Inflow Depth = 0.14" for 50% event

Inflow = 0.01 cfs @ 12.04 hrs, Volume= 35 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.41' @ 24.70 hrs Surf.Area= 133 sf Storage= 35 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avai	l.Stora	ge Storage Description			
#1	608.75'		297	cf Storage (Pris	matic)Listed below	w (Recalc)	
Elevatio	_	urf.Area (sq-ft)	Voids (%)		Cum.Store (cubic-feet)		
608.7		133 (		, ,	0		
612.2		133	40.0		186		
612.26		133	20.0	0	186		
613.5		133	50.0		274		
613.7	<b>7</b> 5	133	100.0	23	297		
Device	Routing	lnv	vert	Outlet Devices			
#1							
				n= 0.013 Corrugate	610.37' / 610.31' ed PE, smooth inte	Ke= 0.500 S= 0.0120 '/' Cc= 0.900 erior, Flow Area= 0.20 sf	
#2	Device 1	609		6.0" Round Culve			
				L= 42.0' RCP, squa Inlet / Outlet Invert= n= 0.010 PVC, smo	609.25' / 609.25'	S= 0.0000 '/' Cc= 0.900	
#3	Device 2						
#4	Device 1	613.74'		<b>24.0"</b> x <b>24.0"</b> Horiz. Orifice/Grate C= 0.600			
				Limited to weir flow	at low heads		

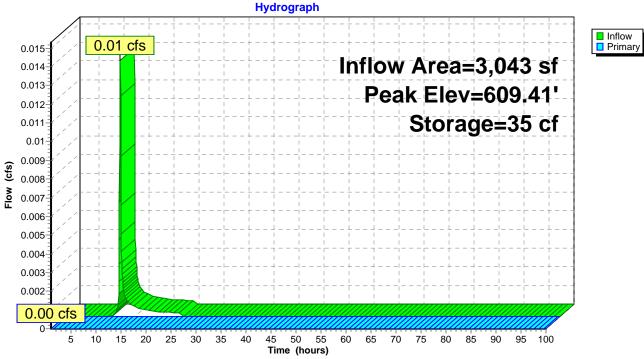
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=608.75' TW=608.71' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

# Pond DS 31: Planter PB-6B





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## **Summary for Pond DS 32: DS 32**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth = 0.12" for 50% event

Inflow = 0.14 cfs @ 12.04 hrs, Volume= 353 cf

Outflow = 0.14 cfs @ 12.04 hrs, Volume= 354 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.14 cfs @ 12.04 hrs, Volume= 354 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

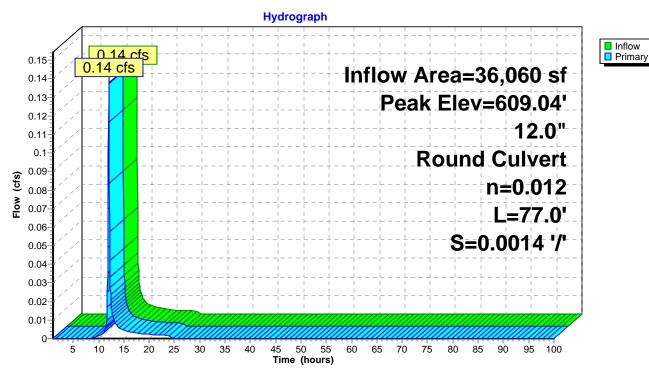
Peak Elev= 609.04' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	12.0" Round Culvert
	-		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.04 hrs HW=609.03' TW=608.96' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.14 cfs @ 0.92 fps)

#### Pond DS 32: DS 32



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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10: Area 10 Runoff Area=4,155 sf 97.18% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.03 cfs 89 cf

Subcatchment 10A: Area 10A Runoff Area=4,995 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.05 cfs 132 cf

Subcatchment 13: Area 13 Runoff Area=6,143 sf 98.68% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.06 cfs 163 cf

Subcatchment 14: Area 14 Runoff Area=3,043 sf 95.60% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.03 cfs 65 cf

Subcatchment 14A: Area 14A Runoff Area=1,224 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.01 cfs 32 cf

Subcatchment 16A: Area 16a Runoff Area=7,954 sf 99.41% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.08 cfs 211 cf

Subcatchment 19A: Area 19A Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.09 cfs 226 cf

Pond 11P: Planter PB-3B Peak Elev=610.99' Storage=89 cf Inflow=0.03 cfs 89 cf

Outflow=0.00 cfs 0 cf

Pond 12P: DS 23 Peak Elev=612.26' Inflow=0.05 cfs 132 cf

10.0" Round Culvert n=0.010 L=125.0' S=0.0043 '/' Outflow=0.05 cfs 133 cf

Pond 15P: DS #2107 Peak Elev=609.03' Inflow=0.23 cfs 655 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=0.23 cfs 655 cf

Pond DS 24: Planter PB-5B Peak Elev=611.80' Storage=121 cf Inflow=0.06 cfs 163 cf

Outflow=0.00 cfs 52 cf

Pond DS 25: DS 25 Peak Elev=610.50' Inflow=0.00 cfs 52 cf

10.0" Round Culvert n=0.010 L=77.0' S=0.0062 '/' Outflow=0.00 cfs 52 cf

Pond DS 31: Planter PB-6B Peak Elev=609.97' Storage=65 cf Inflow=0.03 cfs 65 cf

Outflow=0.00 cfs 0 cf

Pond DS 32: DS 32 Peak Elev=609.12' Inflow=0.23 cfs 655 cf

12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=0.23 cfs 655 cf

Total Runoff Area = 36,060 sf Runoff Volume = 919 cf Average Runoff Depth = 0.31" 1.05% Pervious = 379 sf 98.95% Impervious = 35,681 sf

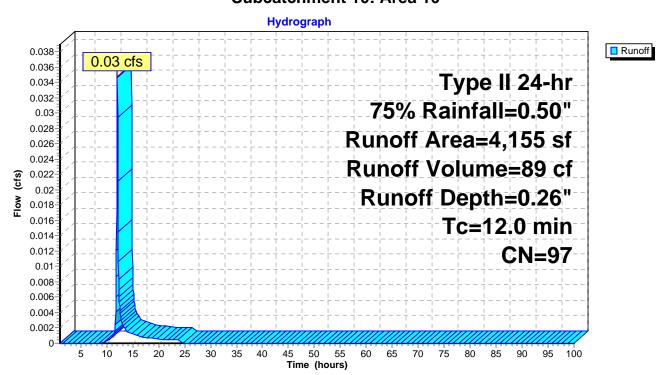
# **Summary for Subcatchment 10: Area 10**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 89 cf, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description				
	117	80	>75% Grass cover, Good, HSG D				
	4,038	98	Paved parking, HSG D				
	4,155	97	Weighted Average				
	117		2.82% Pervious Area				
	4,038		97.18% Impervious Area				
Tc	Length	Slope	Velocity	Capacity	Description		
(min)	(feet)	(ft/ft)	,	(cfs)			
12.0	·	·			Direct Entry,		

### **Subcatchment 10: Area 10**



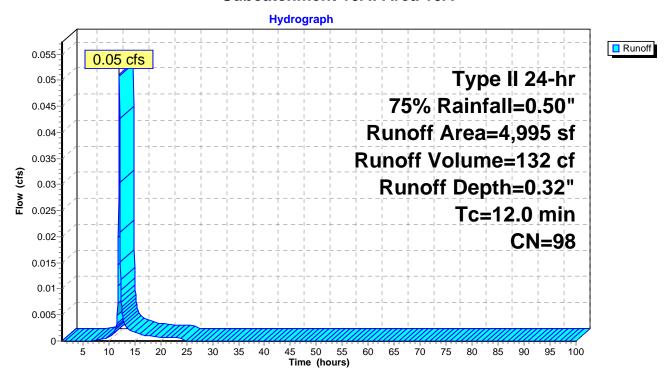
# Summary for Subcatchment 10A: Area 10A

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 132 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

	A	ea (sf)	CN	Description				
		4,995	98	Paved parking, HSG D				
		4,995		100.00% Impervious Area				
(m	Tc iin)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
1:	2.0					Direct Entry,		

#### Subcatchment 10A: Area 10A



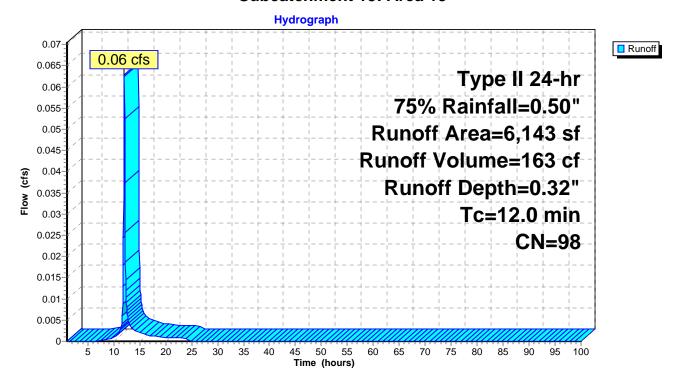
### **Summary for Subcatchment 13: Area 13**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 163 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description							
	81	80	>75% Grass cover, Good, HSG D							
	6,062	98	Paved park	Paved parking, HSG D						
	6,143	98	Weighted A	Veighted Average						
	81		1.32% Pervious Area							
	6,062		98.68% lmp	pervious Ar	rea					
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	·					
12.0	( 0 0 0)	(1411)		(0.0)	Direct Entry,					

#### **Subcatchment 13: Area 13**



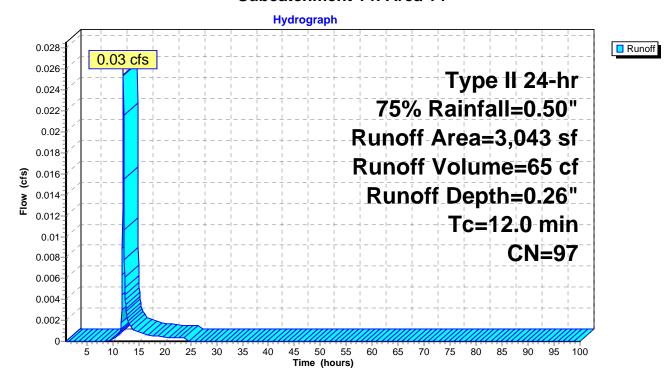
### **Summary for Subcatchment 14: Area 14**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 65 cf, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description						
	134	80	>75% Grass cover, Good, HSG D						
	2,909	98	Paved park	ing, HSG D	D				
	3,043	97	Weighted Average						
	134		4.40% Pervious Area						
	2,909		95.60% Imp	pervious Ar	rea				
Tc	Length	Slope	Velocity	Capacity	Description				
(min)	(feet)	(ft/ft)	,	(cfs)	•				
12.0	(.501)	(1011)	(.2000)	(0.0)	Direct Entry,				
12.0					2.1.00t 2.1tt.y,				

#### Subcatchment 14: Area 14



## **Summary for Subcatchment 14A: Area 14A**

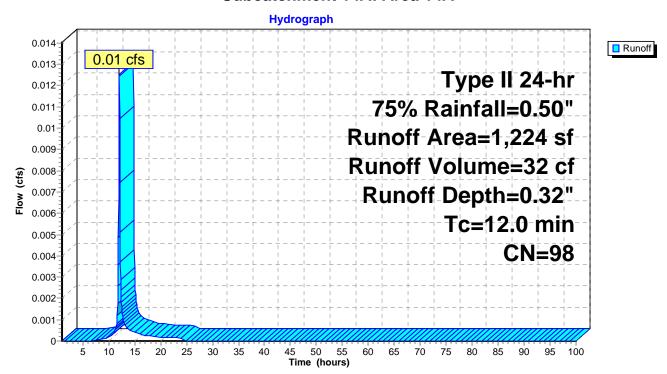
Runoff = 0.01 cfs @ 12.04 hrs, Volume= 32 cf, De

32 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

 Α	rea (sf)	CN	Description					
	1,224	98	Paved parking, HSG D					
	1,224		100.00% Im	npervious A	Area			
 Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
12.0					Direct Entry,			

#### Subcatchment 14A: Area 14A



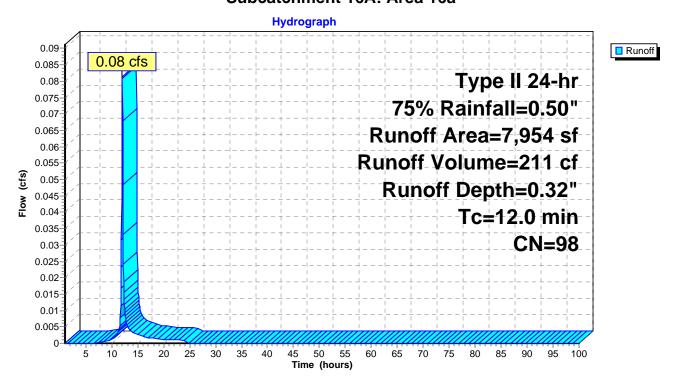
## **Summary for Subcatchment 16A: Area 16a**

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 211 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description							
	47	80	>75% Grass cover, Good, HSG D							
	7,907	98	Paved park	Paved parking, HSG D						
	7,954	98	Weighted A	Veighted Average						
	47		0.59% Pervious Area							
	7,907		99.41% lmp	ervious Ar	ea					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description					
12.0					Direct Entry,					

#### Subcatchment 16A: Area 16a



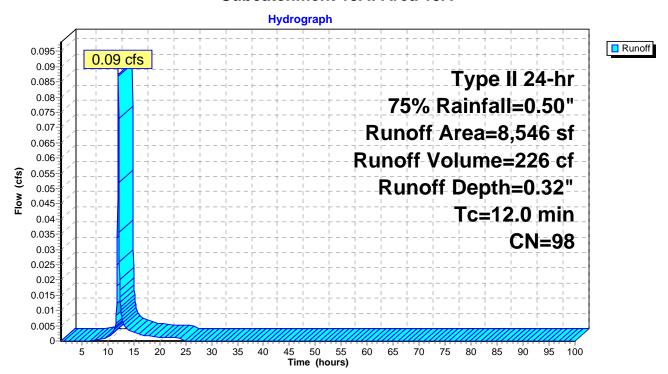
## Summary for Subcatchment 19A: Area 19A

Runoff = 0.09 cfs @ 12.04 hrs, Volume= 226 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

_	Α	rea (sf)	CN [	Description					
		8,546	98 F	Paved parking, HSG D					
		8,546	,	100.00% Im	npervious A	Area			
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	·			
	12.0					Direct Entry,			

#### Subcatchment 19A: Area 19A



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## **Summary for Pond 11P: Planter PB-3B**

Inflow Area = 4,155 sf, 97.18% Impervious, Inflow Depth = 0.26" for 75% event

Inflow = 0.03 cfs @ 12.04 hrs, Volume= 89 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume = 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.99' @ 24.70 hrs Surf.Area= 254 sf Storage= 89 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.S	Storage	Storage Descrip	tion	
#1	610.11'		567 cf	Storage (Prisma	atic)Listed below	w (Recalc)
Elevatio		ırf.Area V (sq-ft)	oids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
610.1	•	254	0.0	0	0	
613.6			40.0	356	356	
613.6	52	254	20.0	1	356	
614.9		254	50.0	168	524	
615.1	1	254 1	0.00	43	567	
Device	Routing	Inve	rt Outle	et Devices		
#1	Primary	612.6		Round Culvert		
	L= 6.0' CPP, square edge headwall, Inlet / Outlet Invert= 612.67' / 612.60' n= 0.013 Corrugated PE, smooth inte			S= 0.0117 '/' Cc= 0.900		
#2	Device 1	610.6	1' <b>6.0"</b>	Round Culvert		
						ng to fill, Ke= 0.500
				.010 PVC, smoot		S= 0.0000 '/' Cc= 0.900
#3	Device 2	610.1		0 in/hr Exfiltratio	•	
#4	Device 1	615.1		" x 24.0" Horiz. C		
		310.11		ted to weir flow at		

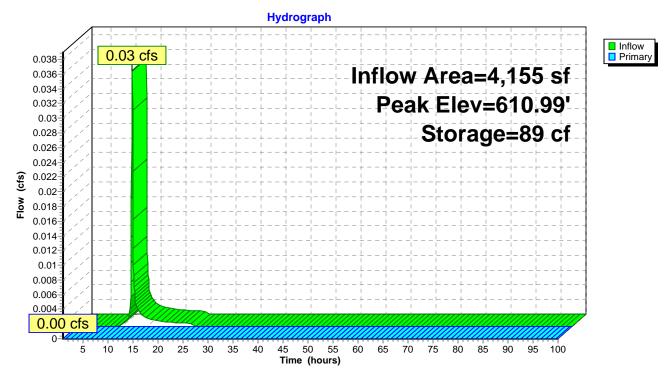
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.11' TW=612.13' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

## Pond 11P: Planter PB-3B



# Summary for Pond 12P: DS 23

Inflow Area = 9,150 sf, 98.72% Impervious, Inflow Depth = 0.17" for 75% event

Inflow = 0.05 cfs @ 12.04 hrs, Volume= 132 cf

Outflow = 0.05 cfs @ 12.04 hrs, Volume= 133 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.05 cfs @ 12.04 hrs, Volume= 133 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

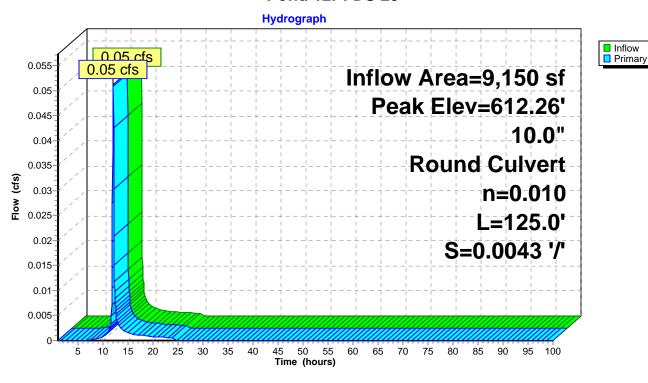
Peak Elev= 612.26' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.13'	10.0" Round Culvert
			L= 125.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.13' / 611.59' S= 0.0043 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.05 cfs @ 12.04 hrs HW=612.26' TW=609.12' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.05 cfs @ 1.46 fps)

#### Pond 12P: DS 23



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# Summary for Pond 15P: DS #2107

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth = 0.22" for 75% event

Inflow = 0.23 cfs @ 12.04 hrs, Volume= 655 cf

Outflow = 0.23 cfs @ 12.04 hrs, Volume= 655 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.23 cfs @ 12.04 hrs, Volume= 655 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

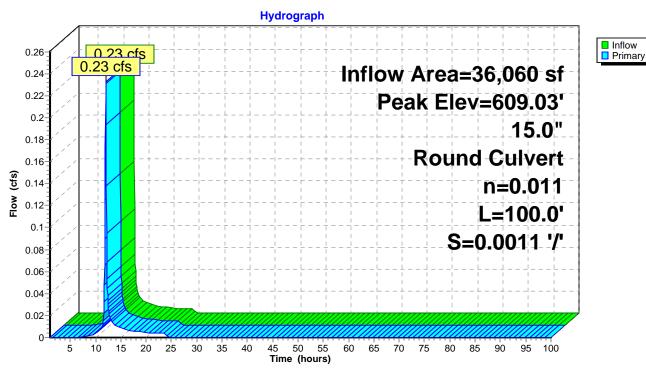
Peak Elev= 609.03' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	15.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean. Flow Area= 1.23 sf

Primary OutFlow Max=0.23 cfs @ 12.04 hrs HW=609.03' (Free Discharge) 1=Culvert (Barrel Controls 0.23 cfs @ 1.40 fps)

### Pond 15P: DS #2107



### **Summary for Pond DS 24: Planter PB-5B**

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 0.32" for 75% event

0.06 cfs @ 12.04 hrs, Volume= Inflow 163 cf

0.00 cfs @ 13.60 hrs, Volume= Outflow 52 cf, Atten= 98%, Lag= 93.8 min

Primary 0.00 cfs @ 13.60 hrs, Volume= 52 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.80' @ 17.04 hrs Surf.Area= 114 sf Storage= 121 cf

Plug-Flow detention time= 435.0 min calculated for 52 cf (32% of inflow)

Center-of-Mass det. time= 307.0 min (1,122.8 - 815.8)

Volume	Invert	Avail.	.Storage	Storage Descrip	tion		
#1	609.14'		254 cf	Storage (Prism	atic)Listed belov	w (Recalc)	
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
609.1	•	114	0.0	0	0		
612.6		114	40.0	160	160		
612.6	S5	114	20.0	0	160		
613.9	97	114	50.0	75	235		
614.1	14	114	100.0	19	254		
Device	Routing	Inv	ert Outle	et Devices			
#1	Primary	611.		Round Culvert			
	L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.57' / 611.50' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf					S= 0.0117 '/' Cc= 0.900	
#2	Device 1	609.6		Round Culvert	action conformir	og to fill Ko 0 500	
			L= 35.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 609.64' / 609.64' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf				
#3	Device 2	609.		.500 in/hr Exfiltration over Surface area			
#4	Device 1	614.		" <b>x 24.0" Horiz. (</b> ted to weir flow at		= 0.600	
			LIIIII	ied to well liow at	. IOW HEAUS		

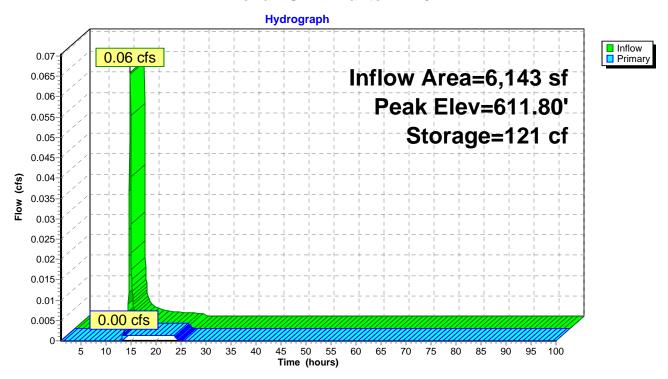
Primary OutFlow Max=0.00 cfs @ 13.60 hrs HW=611.65' TW=610.50' (Dynamic Tailwater)

**-1=Culvert** (Passes 0.00 cfs of 0.02 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 0.25 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Controls 0.00 cfs)

#### Pond DS 24: Planter PB-5B



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### **Summary for Pond DS 25: DS 25**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=136)

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 0.10" for 75% event

Inflow = 0.00 cfs @ 13.60 hrs, Volume= 52 cf

Outflow = 0.00 cfs @ 23.35 hrs, Volume= 52 cf, Atten= 0%, Lag= 585.0 min

Primary = 0.00 cfs @ 23.35 hrs, Volume= 52 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

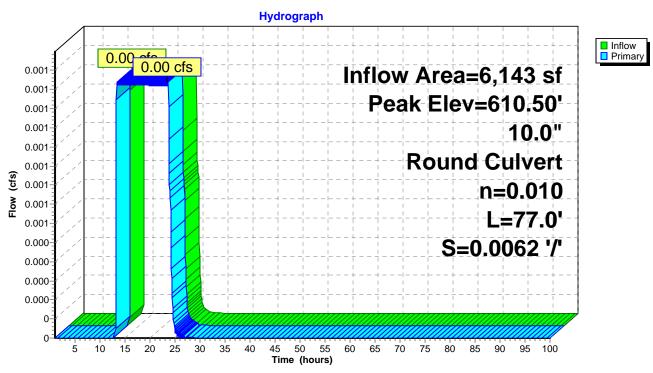
Peak Elev= 610.50' @ 23.35 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	610.48'	10.0" Round Culvert
			L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 610.48' / 610.00' S= 0.0062 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.00 cfs @ 23.35 hrs HW=610.50' TW=608.78' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.00 cfs @ 0.53 fps)

#### Pond DS 25: DS 25



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## Summary for Pond DS 31: Planter PB-6B

Inflow Area = 3,043 sf, 95.60% Impervious, Inflow Depth = 0.26" for 75% event

Inflow = 0.03 cfs @ 12.04 hrs, Volume= 65 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.97' @ 24.70 hrs Surf.Area= 133 sf Storage= 65 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avai	I.Stor	age	Storage Descript	ion		
#1	608.75'		29	7 cf	Storage (Prisma	atic)Listed below	w (Recalc)	
Elevatio		urf.Area (sq-ft)	Void:		Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
608.7		133	0.0	•	0	0		
612.2		133	40.		186	186		
612.2		133	20.		0	186		
613.5		133	50.		88	274		
613.7	<b>7</b> 5	133	100.	0	23	297		
Device	Routing	Inv	vert	Outl	et Devices			
#1	Primary	610	.37'		Round Culvert			
				Inlet n= 0	.013 Corrugated	10.37' / 610.31	Ke= 0.500 S= 0.0120 '/' Cc= 0.900 erior, Flow Area= 0.20 sf	ļ
#2	Device 1	609	.25'		Round Culvert			
				L= 42.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.25' / 609.25' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf				ļ
#3	Device 2	608			0 in/hr Exfiltratio			
#4	Device 1	613	./4'		" <b>x 24.0" Horiz. O</b> ted to weir flow at		S= 0.600	
					ted to well flow at	IUW HEAUS		

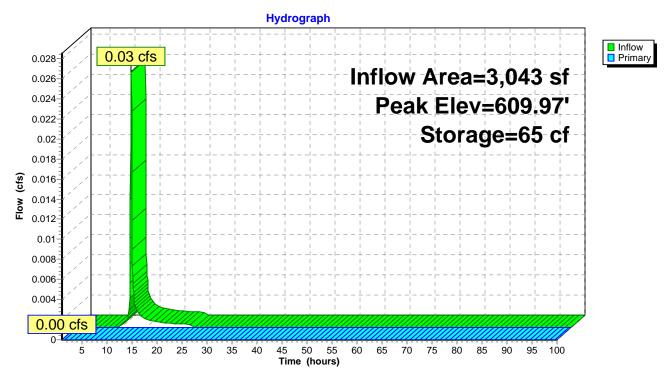
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=608.75' TW=608.71' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

#### Pond DS 31: Planter PB-6B



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# Summary for Pond DS 32: DS 32

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth = 0.22" for 75% event

Inflow = 0.23 cfs @ 12.04 hrs. Volume= 655 cf

Outflow = 0.23 cfs @ 12.04 hrs, Volume= 655 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.23 cfs @ 12.04 hrs, Volume= 655 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

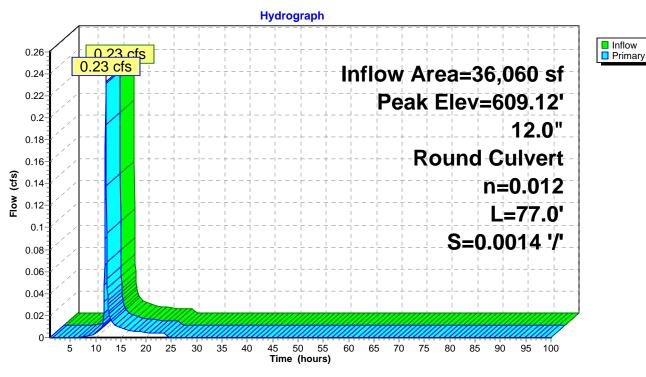
Peak Elev= 609.12' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	12.0" Round Culvert
	-		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.04 hrs HW=609.12' TW=609.03' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.23 cfs @ 1.11 fps)

### Pond DS 32: DS 32



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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 10: Area 10 Runoff Area = 4,155 sf 97.18% Impervious Runoff Depth = 0.57"

Tc=12.0 min CN=97 Runoff=0.08 cfs 196 cf

Subcatchment 10A: Area 10A Runoff Area=4,995 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.10 cfs 269 cf

Subcatchment 13: Area 13 Runoff Area=6,143 sf 98.68% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.12 cfs 331 cf

Subcatchment 14: Area 14 Runoff Area=3,043 sf 95.60% Impervious Runoff Depth=0.57"

Tc=12.0 min CN=97 Runoff=0.06 cfs 144 cf

Subcatchment 14A: Area 14A Runoff Area=1,224 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.02 cfs 66 cf

Subcatchment 16A: Area 16a Runoff Area=7,954 sf 99.41% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.16 cfs 428 cf

Subcatchment 19A: Area 19A Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.17 cfs 460 cf

Pond 11P: Planter PB-3B Peak Elev=612.04' Storage=196 cf Inflow=0.08 cfs 196 cf

Outflow=0.00 cfs 0 cf

Pond 12P: DS 23 Peak Elev=612.31' Inflow=0.10 cfs 269 cf

10.0" Round Culvert n=0.010 L=125.0' S=0.0043 '/' Outflow=0.10 cfs 269 cf

Pond 15P: DS #2107 Peak Elev=609.15' Inflow=0.46 cfs 1,505 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=0.46 cfs 1,506 cf

Pond DS 24: Planter PB-5B Peak Elev=614.13' Storage=254 cf Inflow=0.12 cfs 331 cf

Outflow=0.00 cfs 220 cf

Pond DS 25: DS 25 Peak Elev=610.51' Inflow=0.00 cfs 220 cf

10.0" Round Culvert n=0.010 L=77.0' S=0.0062 '/' Outflow=0.00 cfs 221 cf

Pond DS 31: Planter PB-6B Peak Elev=610.80' Storage=109 cf Inflow=0.06 cfs 144 cf

Outflow=0.00 cfs 57 cf

Pond DS 32: DS 32 Peak Elev=609.28' Inflow=0.46 cfs 1,503 cf

12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=0.46 cfs 1,505 cf

Total Runoff Area = 36,060 sf Runoff Volume = 1,894 cf Average Runoff Depth = 0.63" 1.05% Pervious = 379 sf 98.95% Impervious = 35,681 sf

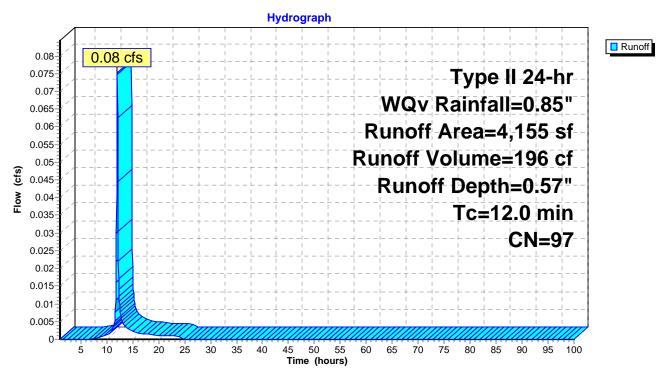
### **Summary for Subcatchment 10: Area 10**

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 196 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description						
	117	80 :	>75% Grass cover, Good, HSG D						
	4,038	98	Paved park	ing, HSG D	)				
	4,155	97	Weighted Average						
	117	2	2.82% Perv	ious Area					
	4,038	!	97.18% lmp	pervious Ar	ea				
_									
Tc	Length	Slope	,	Capacity	Description				
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
12.0	•			•	Direct Entry				

#### **Subcatchment 10: Area 10**



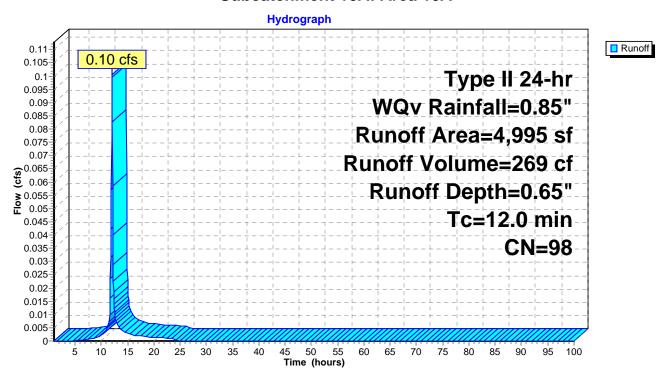
## Summary for Subcatchment 10A: Area 10A

Runoff = 0.10 cfs @ 12.03 hrs, Volume= 269 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

	Α	rea (sf)	CN	Description					
		4,995	98	Paved parking, HSG D					
		4,995		100.00% Im	npervious A	Area			
(m	Tc nin)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
1:	2.0					Direct Entry,			

#### Subcatchment 10A: Area 10A



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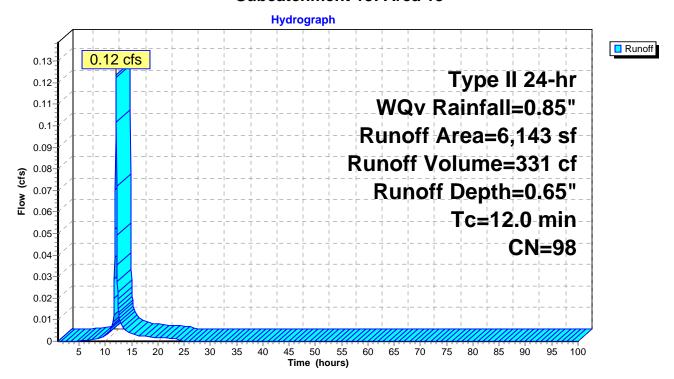
## **Summary for Subcatchment 13: Area 13**

Runoff = 0.12 cfs @ 12.03 hrs, Volume= 331 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description						
	81	80	>75% Gras	s cover, Go	ood, HSG D				
	6,062	98	Paved park	ing, HSG D	D				
	6,143	98	Weighted Average						
	81		1.32% Pervious Area						
	6,062		98.68% lmp	pervious Ar	rea				
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	·				
12.0	( 0 0 0)	(1411)		(0.0)	Direct Entry,				

#### **Subcatchment 13: Area 13**



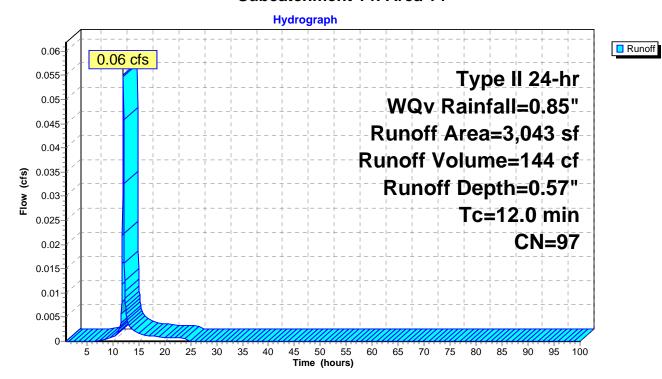
### **Summary for Subcatchment 14: Area 14**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 144 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description						
	134	80	>75% Grass cover, Good, HSG D						
	2,909	98	Paved park	ing, HSG D					
	3,043	97	Weighted Average						
	134		4.40% Pervious Area						
	2,909		95.60% lmp	pervious Ar	ea				
Tc	Length	Slope	e Velocity	Capacity	Description				
(min)	(feet)	(ft/ft	,	(cfs)					
12.0	·				Direct Entry,				

#### **Subcatchment 14: Area 14**



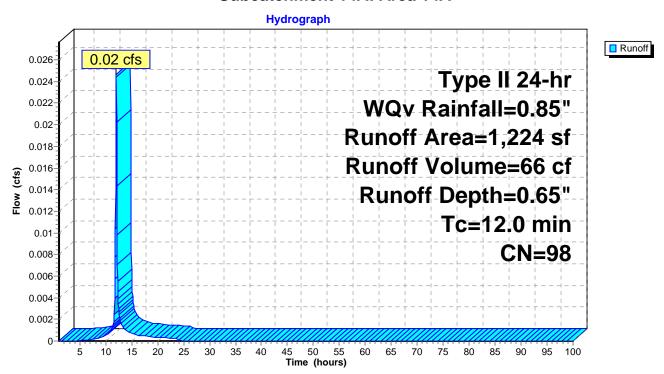
# Summary for Subcatchment 14A: Area 14A

Runoff = 0.02 cfs @ 12.03 hrs, Volume= 66 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

	Α	rea (sf)	CN I	Description					
		1,224	98 I	Paved parking, HSG D					
		1,224	•	100.00% In	npervious A	Area			
(	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
	12.0					Direct Entry,			

#### Subcatchment 14A: Area 14A



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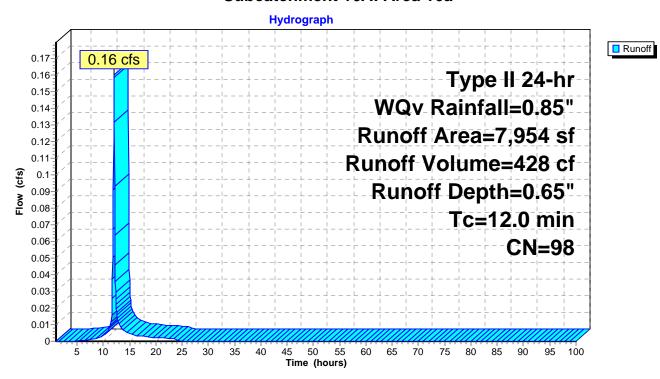
## **Summary for Subcatchment 16A: Area 16a**

Runoff = 0.16 cfs @ 12.03 hrs, Volume= 428 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description						
	47	80	>75% Grass cover, Good, HSG D						
	7,907	98	Paved park	ing, HSG D					
	7,954	98	Weighted Average						
	47		0.59% Pervious Area						
	7,907		99.41% lmp	ervious Ar	ea				
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description				
12.0					Direct Entry,				

#### Subcatchment 16A: Area 16a



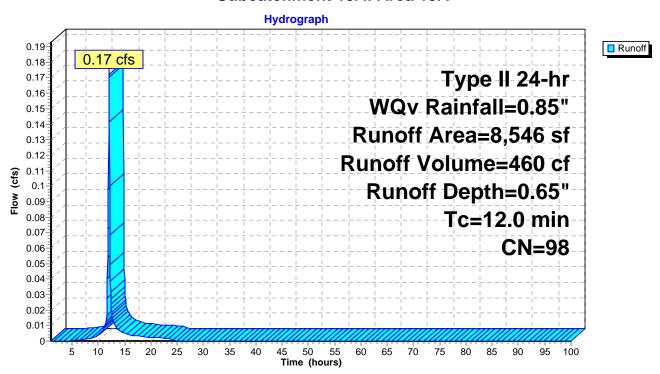
## Summary for Subcatchment 19A: Area 19A

Runoff = 0.17 cfs @ 12.03 hrs, Volume= 460 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN I	Description					
	8,546	98 I	Paved parking, HSG D					
	8,546	•	100.00% Im	npervious A	Area			
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
12.0					Direct Entry,			

#### Subcatchment 19A: Area 19A



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## **Summary for Pond 11P: Planter PB-3B**

Inflow Area = 4,155 sf, 97.18% Impervious, Inflow Depth = 0.57" for WQv event

Inflow = 0.08 cfs @ 12.04 hrs, Volume= 196 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.04' @ 24.70 hrs Surf.Area= 254 sf Storage= 196 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail	.Storage	Storage Descrip	otion		
#1	610.11'		567 cf	Storage (Prism	atic)Listed below	w (Recalc)	
Elevatio	_	urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
610.1		254	0.0	0	0		
613.6	61	254	40.0	356	356		
613.6	62	254	20.0	1	356		
614.9		254	50.0	168	524		
615.1	11	254	100.0	43	567		
Device	Routing	Inv	ert Out	let Devices			
#1	Primary	612.		' Round Culvert			
			Inle n= (	0.013 Corrugated	12.67' / 612.60'	Ke= 0.500 S= 0.0117 '/' Cc= 0.900 erior, Flow Area= 0.20 sf	
#2	Device 1	610.		Round Culvert		. (1) 14 0 500	
			Inle		310.61' / 610.61'	ng to fill, Ke= 0.500 S= 0.0000 '/' Cc= 0.900 Area= 0.20 sf	
#3	Device 2	610.	• • • • • • • • • • • • • • • • • • • •	00 in/hr Exfiltration			
#4	Device 1	615.		<b>)" x 24.0" Horiz. (</b> ited to weir flow at		S = 0.600	
			LIIII	ited to well llow at	liow neads		

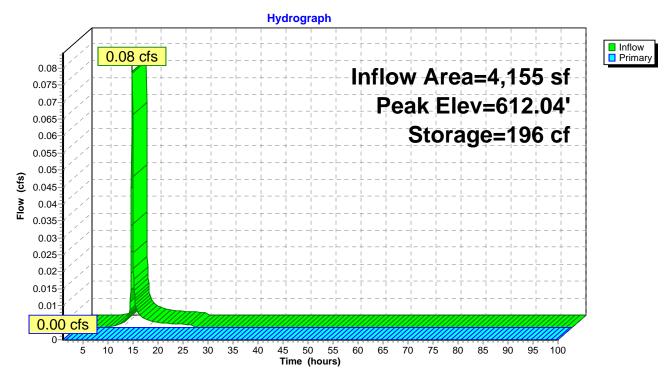
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=610.11' TW=612.13' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

#### Pond 11P: Planter PB-3B



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## **Summary for Pond 12P: DS 23**

Inflow Area = 9,150 sf, 98.72% Impervious, Inflow Depth = 0.35" for WQv event

Inflow = 0.10 cfs @ 12.03 hrs, Volume= 269 cf

Outflow = 0.10 cfs @ 12.03 hrs, Volume= 269 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.10 cfs @ 12.03 hrs, Volume= 269 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

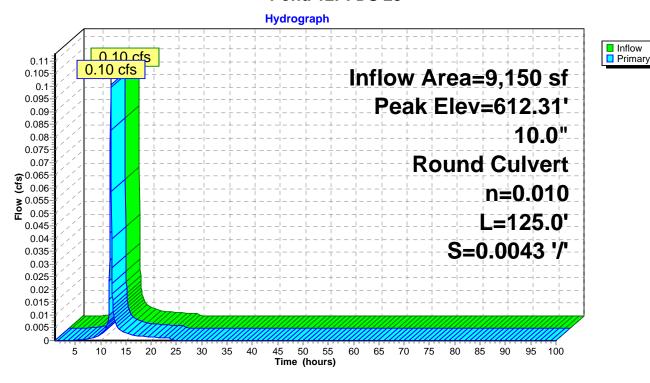
Peak Elev= 612.31' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.13'	10.0" Round Culvert
			L= 125.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 612.13' / 611.59' S= 0.0043 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.10 cfs @ 12.03 hrs HW=612.31' TW=609.27' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.10 cfs @ 1.78 fps)

#### Pond 12P: DS 23



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# Summary for Pond 15P: DS #2107

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth = 0.50" for WQv event

Inflow = 0.46 cfs @ 12.03 hrs, Volume= 1,505 cf

Outflow = 0.46 cfs @ 12.03 hrs, Volume= 1,506 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.46 cfs @ 12.03 hrs, Volume= 1,506 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

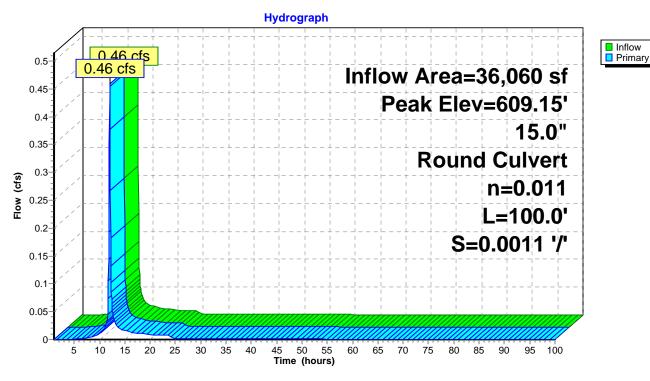
Peak Elev= 609.15' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	15.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean. Flow Area= 1.23 sf

Primary OutFlow Max=0.45 cfs @ 12.03 hrs HW=609.15' (Free Discharge) 1=Culvert (Barrel Controls 0.45 cfs @ 1.74 fps)

#### Pond 15P: DS #2107



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### **Summary for Pond DS 24: Planter PB-5B**

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 0.65" for WQv event

Inflow 0.12 cfs @ 12.03 hrs. Volume= 331 cf

0.00 cfs @ 15.11 hrs, Volume= Outflow 220 cf, Atten= 97%, Lag= 184.8 min

Primary 0.00 cfs @ 15.11 hrs, Volume= 220 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 614.13' @ 15.10 hrs Surf.Area= 114 sf Storage= 254 cf

Plug-Flow detention time= 1,203.9 min calculated for 220 cf (67% of inflow)

Center-of-Mass det. time= 1,103.7 min (1,899.4 - 795.7)

Volume	Inver	t Ava	il.Stor	age	Storage Descrip	ption		
#1	609.14	.'	25	4 cf	Storage (Prism	natic)Listed below	w (Recalc)	
Elevatio		Surf.Area (sq-ft)	Void:		Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
609.1	-	114	0.0		0	0		
612.6	64	114	40.0	C	160	160		
612.6	65	114	20.0	)	0	160		
613.9		114	50.0		75	235		
614.1	4	114	100.0	)	19	254		
Device	Routing	In	vert	Outl	et Devices			
#1	Primary	611	.57'		Round Culvert			
#2	Davies 4	000	0.641	Inlet n= 0	/ Outlet Invert= 6 .010 PVC, smooth	oth interior, Flow	S= 0.0117 '/' Cc= 0.900	
#2	Device 1	608	).64'		Round Culvert		ng to fill, Ke= 0.500	
					·		S= 0.0000 '/' Cc= 0.900	
					,	oth interior, Flow		
#3	Device 2					on over Surface		
#4	Device 1	614	.13'	_		Orifice/Grate C	C= 0.600	
				Limi	ted to weir flow a	it low heads		

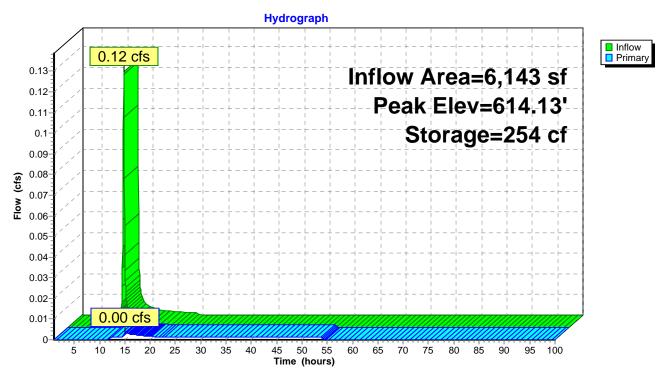
Primary OutFlow Max=0.00 cfs @ 15.11 hrs HW=614.13' TW=610.51' (Dynamic Tailwater)

**-1=Culvert** (Passes 0.00 cfs of 1.44 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 1.42 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.00 cfs @ 0.14 fps)

## Pond DS 24: Planter PB-5B



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### Summary for Pond DS 25: DS 25

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=280)

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 0.43" for WQv event

Inflow = 0.00 cfs @ 15.11 hrs, Volume= 220 cf

Outflow = 0.00 cfs @ 15.11 hrs, Volume= 221 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.00 cfs @ 15.11 hrs, Volume= 221 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

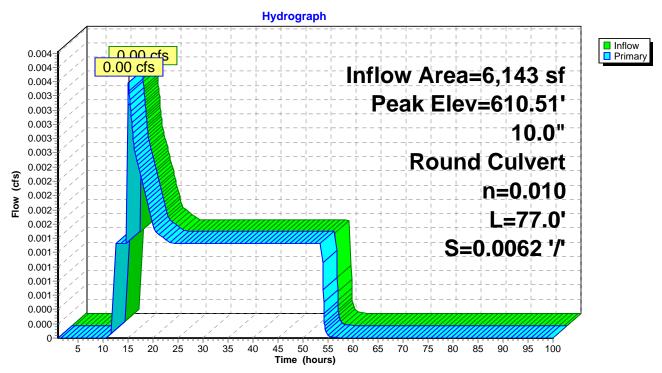
Peak Elev= 610.51' @ 15.10 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	610.48'	10.0" Round Culvert
			L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 610.48' / 610.00' S= 0.0062 '/' Cc= 0.900
			n= 0.010 PVC, smooth interior. Flow Area= 0.55 sf

Primary OutFlow Max=0.00 cfs @ 15.11 hrs HW=610.51' TW=608.84' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.00 cfs @ 0.75 fps)

#### Pond DS 25: DS 25



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### Summary for Pond DS 31: Planter PB-6B

Inflow Area = 3,043 sf, 95.60% Impervious, Inflow Depth = 0.57" for WQv event

Inflow = 0.06 cfs @ 12.04 hrs, Volume= 144 cf

Outflow = 0.00 cfs @ 12.50 hrs, Volume= 57 cf, Atten= 98%, Lag= 27.9 min

Primary = 0.00 cfs @ 12.50 hrs, Volume= 57 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.80' @ 18.61 hrs Surf.Area= 133 sf Storage= 109 cf

Plug-Flow detention time= 577.5 min calculated for 57 cf (40% of inflow)

Center-of-Mass det. time= 455.5 min (1,266.7 - 811.2)

Invert	Avail	l.Storage	Storage Description				
608.75'		297 cf	Storage (Prism	natic)Listed below	w (Recalc)		
		Voids (%)	Inc.Store	Cum.Store			
•		` '	0	0			
	133	40.0	186	186			
26	133	20.0	0	186			
8	133	50.0	88	274			
75	133	100.0	23	297			
Routing	Inv	ert Out	let Devices				
Primary	610.		6.0" Round Culvert				
		Inle n=	t / Outlet Invert= 6 0.013 Corrugated	310.37' / 610.31' I PE, smooth inte	S= 0.0120 '/' Cc= 0.900		
Device 1	609.				l Va 0.500		
		Inle	Inlet / Outlet Invert= 609.25' / 609.25' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf				
Device 2			0.300 in/hr Exfiltration over Surface area				
					G= 0.600		
֡	608.75' on Sit) 75 25 68 75 Routing Primary	608.75' on Surf.Area et) (sq-ft) 75 133 25 133 26 133 275 133  Routing Inv Primary 610  Device 1 609  Device 2 608	608.75' 297 cf  on Surf.Area Voids (sq-ft) (%) (5 133 0.0 (25 133 40.0 (26 133 20.0 (27 133 100.0) (28 133 50.0 (27 133 100.0) (28 133 50.0 (29 133 100.0) (20 1 10 10 10 10 10 10 10 10 10 10 10 10	608.75' 297 cf Storage (Prism on Surf.Area Voids Inc.Store (sq-ft) (%) (cubic-feet) (5 133 0.0 0 (25 133 40.0 186 (26 133 20.0 0 (28 133 50.0 88 (27 133 100.0 23 (28 133 100.0 23 (29 10 10 10 10 10 10 10 10 10 10 10 10 10	608.75' 297 cf Storage (Prismatic) Listed below on Surf. Area Voids Inc. Store Cum. Store (sq-ft) (%) (cubic-feet) (cubic-feet) (cubic-feet) (5 133 0.0 0 0 0 0 0.5 133 40.0 186 186 186 186 186 183 20.0 0 186 186 186 186 183 50.0 88 274 187 133 100.0 23 297 180 190 190 190 190 190 190 190 190 190 19		

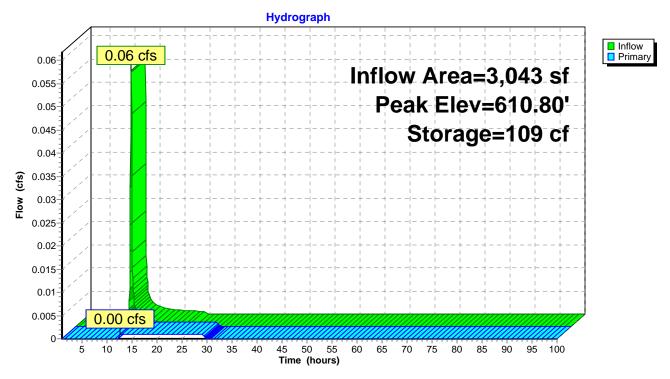
Primary OutFlow Max=0.00 cfs @ 12.50 hrs HW=610.40' TW=608.93' (Dynamic Tailwater)

-1=Culvert (Passes 0.00 cfs of 0.00 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 0.16 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Controls 0.00 cfs)

### Pond DS 31: Planter PB-6B



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## **Summary for Pond DS 32: DS 32**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth = 0.50" for WQv event

Inflow = 0.46 cfs @ 12.03 hrs, Volume= 1,503 cf

Outflow = 0.46 cfs @ 12.03 hrs, Volume= 1,505 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.46 cfs @ 12.03 hrs, Volume= 1,505 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

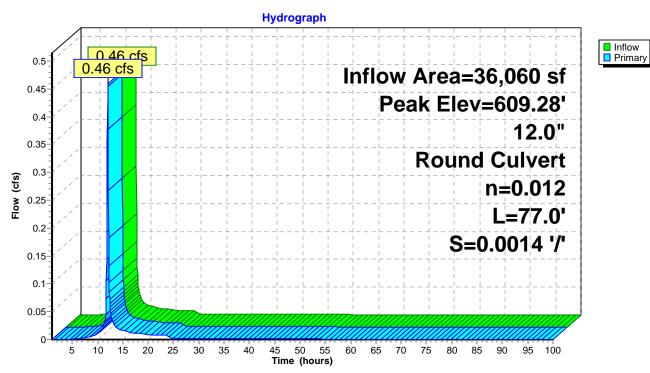
Peak Elev= 609.28' @ 12.03 hrs

Flood Elev= 647.22'

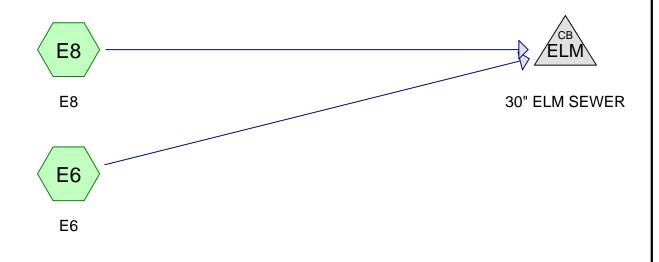
Device	Routing	Invert	Outlet Devices		
#1	Primary	608.71'	12.0" Round Culvert		
	-		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500		
			Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/' Cc= 0.900		
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf		

Primary OutFlow Max=0.45 cfs @ 12.03 hrs HW=609.27' TW=609.15' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.45 cfs @ 1.43 fps)

#### Pond DS 32: DS 32



# EXISTING GENESEE ST - TO ELM ST SEWER











## **Genesee St Final**

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# **Area Listing (selected nodes)**

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
30,342	98	Paved parking, HSG D (E6, E8)
30,342	98	TOTAL AREA

# Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
30,342	HSG D	E6, E8
0	Other	
30,342		<b>TOTAL AREA</b>

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# **Ground Covers (selected nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcatchment Numbers
0	0	0	30,342	0	30,342	Paved parking	E 6, E 8
0	0	0	30,342	0	30,342	TOTAL AREA	

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# **Pipe Listing (selected nodes)**

Line#	Node In-Invert		Out-Invert Length		Slope	n	Diam/Width	Height	Inside-Fill
	Number	(feet)	(feet)	(feet)	(ft/ft)		(inches)	(inches)	(inches)
1	ELM	600.50	600.00	100.0	0.0050	0.015	30.0	0.0	0.0

Type II 24-hr 2 YR Rainfall=2.25"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E6: E6 Runoff Area=17,099 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=1.01 cfs 2,882 cf

Subcatchment E8: E8 Runoff Area=13,243 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.78 cfs 2,232 cf

Pond ELM: 30" ELM SEWER Peak Elev=601.12' Inflow=1.79 cfs 5,114 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=1.79 cfs 5,114 cf

Total Runoff Area = 30,342 sf Runoff Volume = 5,114 cf Average Runoff Depth = 2.02" 0.00% Pervious = 0 sf 100.00% Impervious = 30,342 sf

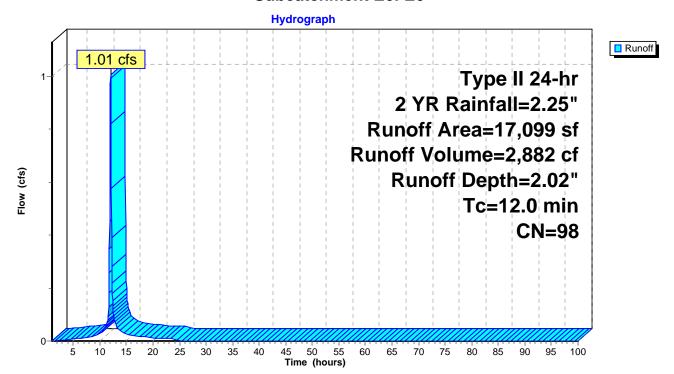
### **Summary for Subcatchment E6: E6**

Runoff = 1.01 cfs @ 12.03 hrs, Volume= 2,882 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

_	Α	rea (sf)	CN	Description						
		17,099	98	Paved parking, HSG D						
		17,099		100.00% Impervious Area						
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
	12.0					Direct Entry, SHEET FLOw				

## Subcatchment E6: E6



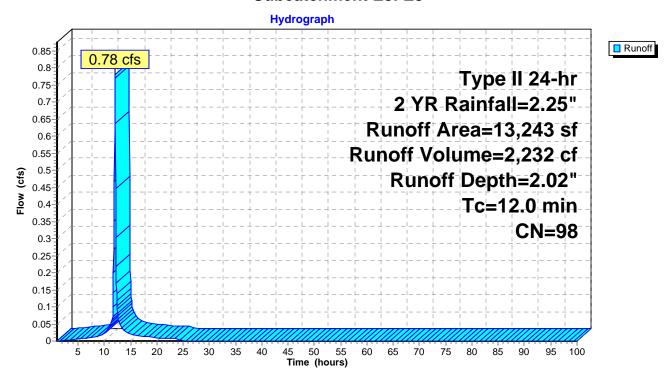
## **Summary for Subcatchment E8: E8**

Runoff = 0.78 cfs @ 12.03 hrs, Volume= 2,232 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

_	Α	rea (sf)	CN I	Description					
		13,243	98	Paved parking, HSG D					
		13,243		100.00% Impervious Area					
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
	12.0					Direct Entry, SHEET FLOw			

#### **Subcatchment E8: E8**



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## **Summary for Pond ELM: 30" ELM SEWER**

Inflow Area = 30,342 sf,100.00% Impervious, Inflow Depth = 2.02" for 2 YR event

Inflow = 1.79 cfs @ 12.03 hrs, Volume= 5,114 cf

Outflow = 1.79 cfs @ 12.03 hrs, Volume= 5,114 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.79 cfs @ 12.03 hrs, Volume= 5,114 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

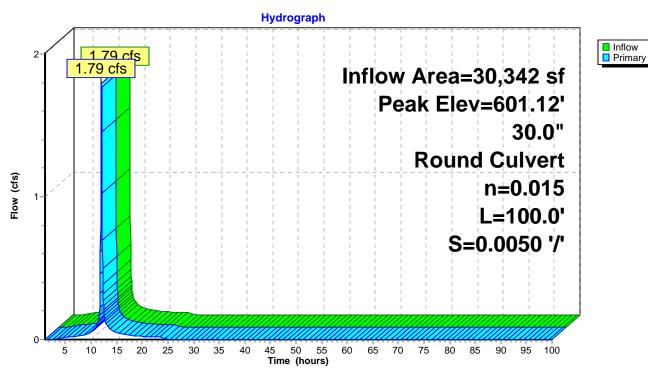
Peak Elev= 601.12' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	30.0" Round Culvert
	-		L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 4.91 sf

Primary OutFlow Max=1.75 cfs @ 12.03 hrs HW=601.11' (Free Discharge) 1=Culvert (Barrel Controls 1.75 cfs @ 2.86 fps)

#### Pond ELM: 30" ELM SEWER



Type II 24-hr 25 Year Rainfall=4.00"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E6: E6 Runoff Area=17,099 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=1.82 cfs 5,365 cf

Subcatchment E8: E8 Runoff Area=13,243 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=1.41 cfs 4,155 cf

Pond ELM: 30" ELM SEWER Peak Elev=601.33' Inflow=3.24 cfs 9,520 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=3.24 cfs 9,520 cf

Total Runoff Area = 30,342 sf Runoff Volume = 9,520 cf Average Runoff Depth = 3.77" 0.00% Pervious = 0 sf 100.00% Impervious = 30,342 sf Prepared by Microsoft HydroCAD® 10.00-12 s/n 03757 © 2014 HydroCAD Software Solutions LLC

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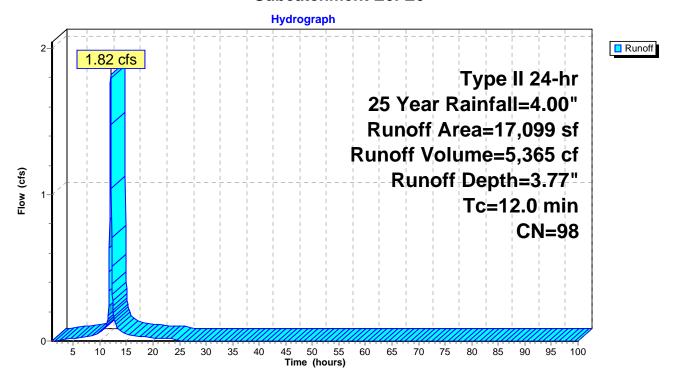
## **Summary for Subcatchment E6: E6**

1.82 cfs @ 12.03 hrs, Volume= Runoff 5,365 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

_	Α	rea (sf)	CN [	Description					
		17,099	98 F	Paved parking, HSG D					
_		17,099	1	100.00% Impervious Area					
_	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
	12.0	•	•			Direct Entry, SHEET FLOw			

#### Subcatchment E6: E6



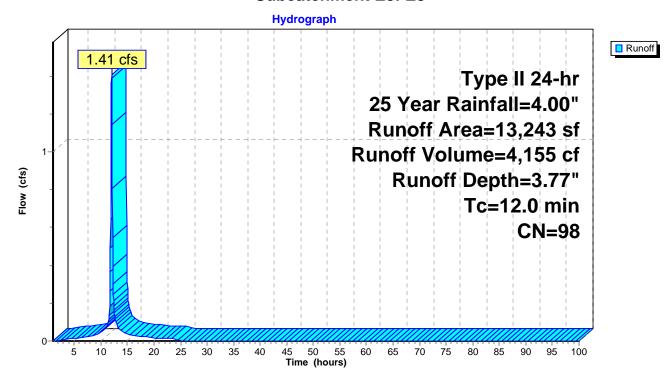
## **Summary for Subcatchment E8: E8**

Runoff = 1.41 cfs @ 12.03 hrs, Volume= 4,155 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

_	Α	rea (sf)	CN	Description						
		13,243	98	Paved parking, HSG D						
-		13,243		100.00% Impervious Area						
	Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description				
	12.0					Direct Entry, SHEET FLOw				

#### **Subcatchment E8: E8**



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# Summary for Pond ELM: 30" ELM SEWER

Inflow Area = 30,342 sf,100.00% Impervious, Inflow Depth = 3.77" for 25 Year event

Inflow = 3.24 cfs @ 12.03 hrs, Volume= 9,520 cf

Outflow = 3.24 cfs @ 12.03 hrs, Volume= 9,520 cf, Atten= 0%, Lag= 0.0 min

Primary = 3.24 cfs @ 12.03 hrs, Volume= 9,520 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

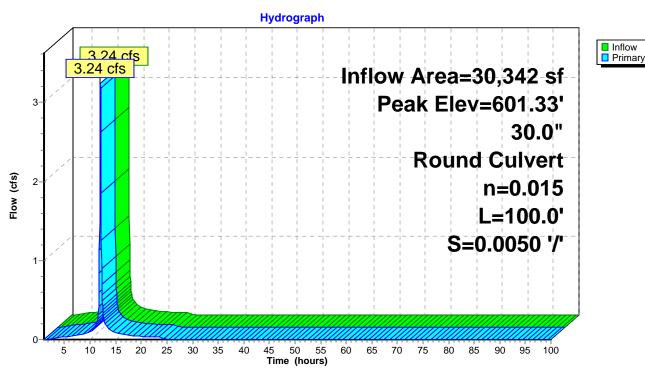
Peak Elev= 601.33' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	30.0" Round Culvert
	-		L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 4.91 sf

Primary OutFlow Max=3.16 cfs @ 12.03 hrs HW=601.32' (Free Discharge) 1=Culvert (Barrel Controls 3.16 cfs @ 3.35 fps)

#### Pond ELM: 30" ELM SEWER



Type II 24-hr 50% Rainfall=0.35"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E6: E6 Runoff Area=17,099 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.10 cfs 265 cf

Subcatchment E8: E8 Runoff Area=13,243 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.08 cfs 206 cf

Pond ELM: 30" ELM SEWER Peak Elev=600.70' Inflow=0.18 cfs 471 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=0.18 cfs 472 cf

Total Runoff Area = 30,342 sf Runoff Volume = 471 cf Average Runoff Depth = 0.19" 0.00% Pervious = 0 sf 100.00% Impervious = 30,342 sf

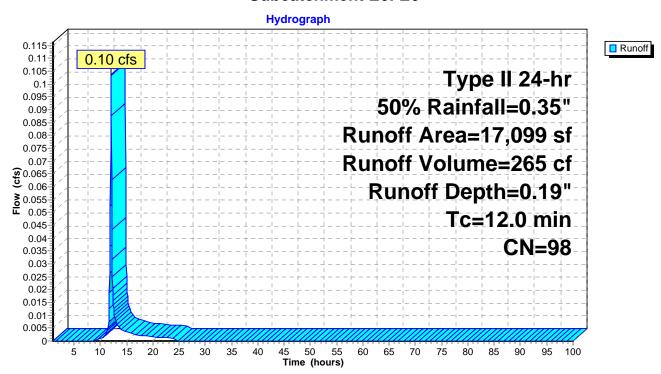
## **Summary for Subcatchment E6: E6**

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 265 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

_	Α	rea (sf)	CN	Description					
		17,099	98	Paved parking, HSG D					
		17,099	,	100.00% Impervious Area					
_	Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description			
	12.0					Direct Entry, SHEET FLOw			

#### Subcatchment E6: E6



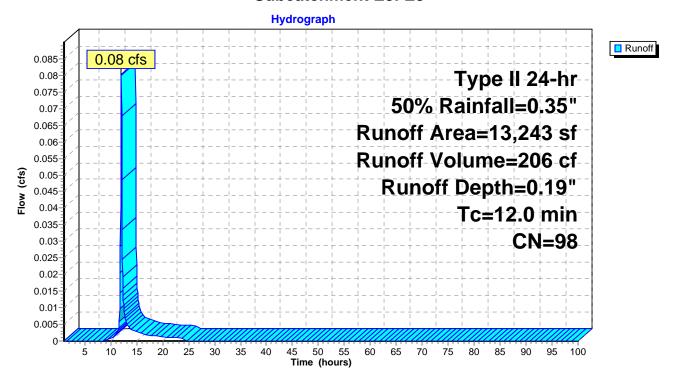
## **Summary for Subcatchment E8: E8**

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 206 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

_	Α	rea (sf)	CN	Description						
		13,243	98	Paved parking, HSG D						
-		13,243		100.00% Impervious Area						
	Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description				
	12.0					Direct Entry, SHEET FLOw				

#### Subcatchment E8: E8



## **Summary for Pond ELM: 30" ELM SEWER**

Inflow Area = 30,342 sf,100.00% Impervious, Inflow Depth = 0.19" for 50% event

Inflow = 0.18 cfs @ 12.04 hrs, Volume= 471 cf

Outflow = 0.18 cfs @ 12.04 hrs, Volume= 472 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.18 cfs @ 12.04 hrs, Volume= 472 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

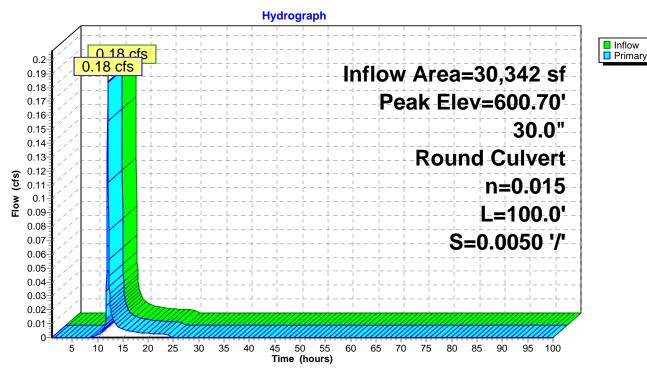
Peak Elev= 600.70' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	30.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 4.91 sf

Primary OutFlow Max=0.18 cfs @ 12.04 hrs HW=600.70' (Free Discharge) 1=Culvert (Barrel Controls 0.18 cfs @ 1.49 fps)

## Pond ELM: 30" ELM SEWER



Type II 24-hr 75% Rainfall=0.50"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E6: E6 Runoff Area=17,099 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.18 cfs 453 cf

Subcatchment E8: E8 Runoff Area=13,243 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.14 cfs 351 cf

Pond ELM: 30" ELM SEWER Peak Elev=600.76' Inflow=0.31 cfs 804 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=0.31 cfs 805 cf

Total Runoff Area = 30,342 sf Runoff Volume = 804 cf Average Runoff Depth = 0.32" 0.00% Pervious = 0 sf 100.00% Impervious = 30,342 sf

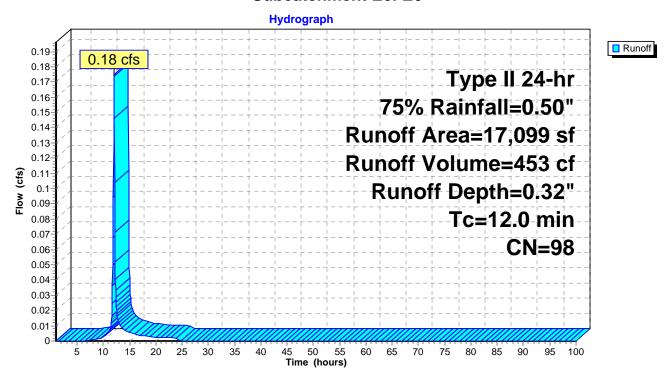
## **Summary for Subcatchment E6: E6**

Runoff = 0.18 cfs @ 12.04 hrs, Volume= 453 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

_	Α	rea (sf)	CN	Description					
		17,099	98	Paved parking, HSG D					
_		17,099		100.00% Impervious Area					
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
	12.0	•		·	·	Direct Entry, SHEET FLOw			

## Subcatchment E6: E6



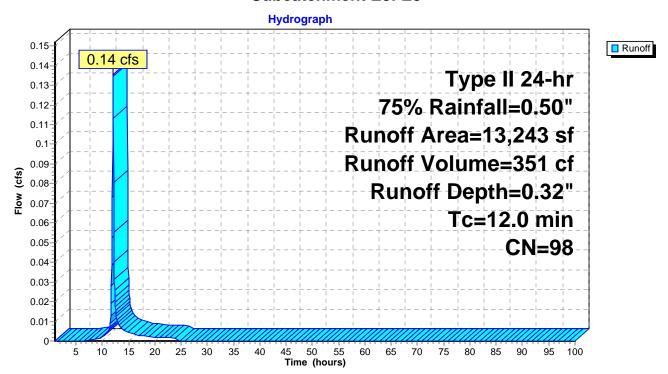
## **Summary for Subcatchment E8: E8**

Runoff = 0.14 cfs @ 12.04 hrs, Volume= 351 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

_	Α	rea (sf)	CN	Description		
		13,243	98	Paved park	ing, HSG D	
-		13,243		100.00% Im	npervious A	rea
	Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description
	12.0					Direct Entry, SHEET FLOw

#### Subcatchment E8: E8



# Summary for Pond ELM: 30" ELM SEWER

Inflow Area = 30,342 sf,100.00% Impervious, Inflow Depth = 0.32" for 75% event

Inflow = 0.31 cfs @ 12.04 hrs. Volume= 804 cf

Outflow = 0.31 cfs @ 12.04 hrs, Volume= 805 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.31 cfs @ 12.04 hrs, Volume= 805 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

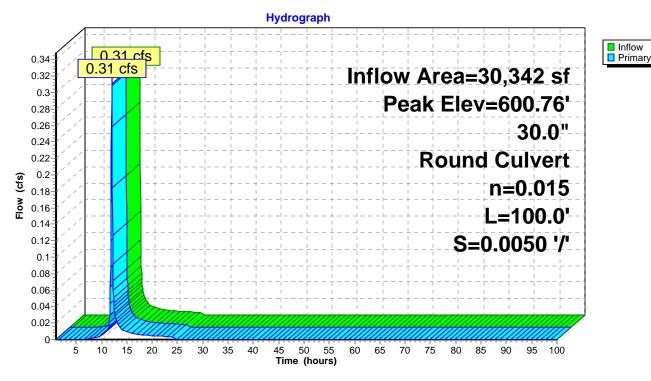
Peak Elev= 600.76' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	30.0" Round Culvert
			L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/' Cc= 0.900
			n= 0.015 Brickwork, Flow Area= 4.91 sf

Primary OutFlow Max=0.30 cfs @ 12.04 hrs HW=600.76' (Free Discharge) 1=Culvert (Barrel Controls 0.30 cfs @ 1.73 fps)

#### Pond ELM: 30" ELM SEWER



Type II 24-hr WQv Rainfall=0.85"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment E6: E6 Runoff Area=17,099 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.34 cfs 921 cf

Subcatchment E8: E8 Runoff Area=13,243 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.27 cfs 713 cf

Pond ELM: 30" ELM SEWER Peak Elev=600.86' Inflow=0.61 cfs 1,634 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=0.61 cfs 1,635 cf

Total Runoff Area = 30,342 sf Runoff Volume = 1,634 cf Average Runoff Depth = 0.65" 0.00% Pervious = 0 sf 100.00% Impervious = 30,342 sf

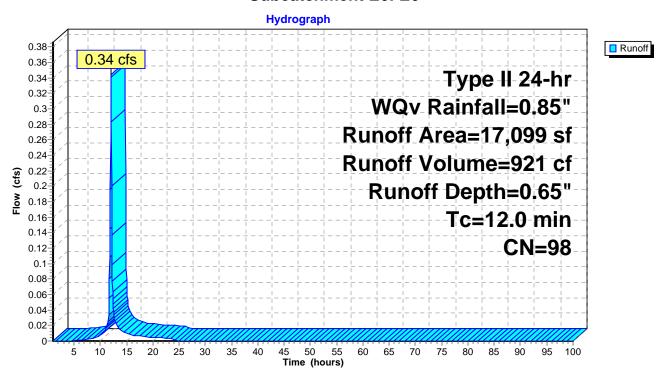
## **Summary for Subcatchment E6: E6**

Runoff = 0.34 cfs @ 12.03 hrs, Volume= 921 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

_	Α	rea (sf)	CN	Description		
		17,099	98	Paved park	ing, HSG D	
_		17,099		100.00% In	npervious A	rea
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	12.0	•		·	·	Direct Entry, SHEET FLOw

#### Subcatchment E6: E6



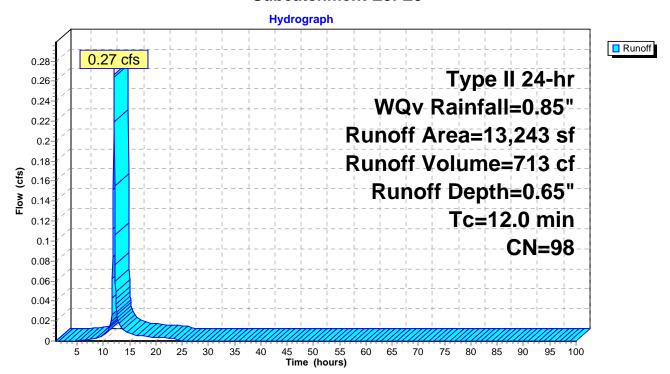
### **Summary for Subcatchment E8: E8**

Runoff = 0.27 cfs @ 12.03 hrs, Volume= 713 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

_	Α	rea (sf)	CN I	Description		
		13,243	98	Paved park	ing, HSG D	
		13,243		100.00% Im	npervious A	rea
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	12.0					Direct Entry, SHEET FLOw

#### **Subcatchment E8: E8**



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# Summary for Pond ELM: 30" ELM SEWER

Inflow Area = 30,342 sf,100.00% Impervious, Inflow Depth = 0.65" for WQv event

Inflow = 0.61 cfs @ 12.03 hrs, Volume= 1,634 cf

Outflow = 0.61 cfs @ 12.03 hrs, Volume= 1,635 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.61 cfs @ 12.03 hrs, Volume= 1,635 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

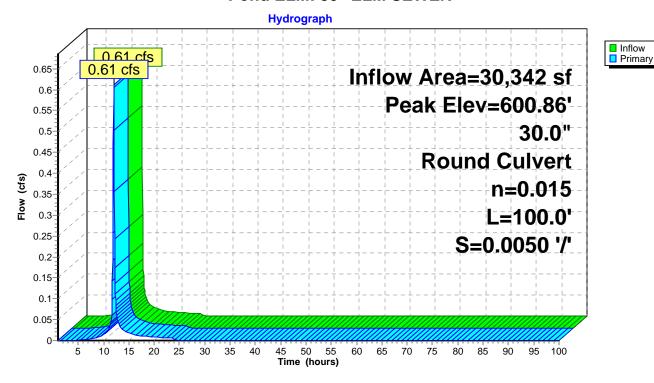
Peak Elev= 600.86' @ 12.03 hrs

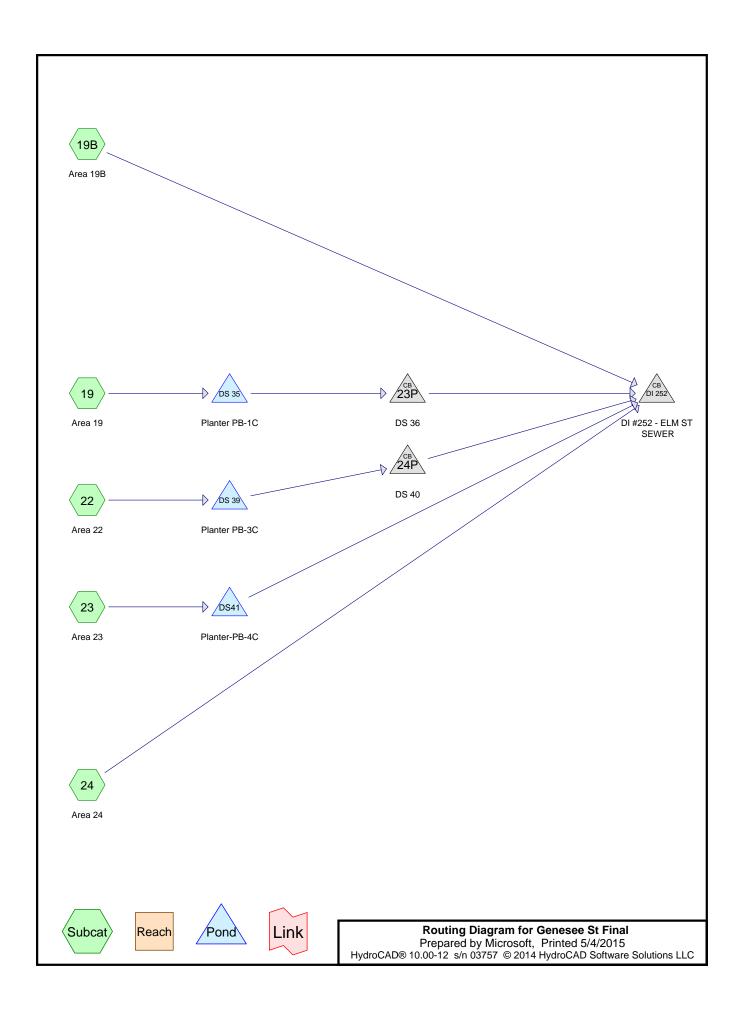
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	30.0" Round Culvert
	-		L= 100.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/' Cc= 0.900
			n= 0.015 Brickwork. Flow Area= 4.91 sf

Primary OutFlow Max=0.60 cfs @ 12.03 hrs HW=600.86' (Free Discharge) 1=Culvert (Barrel Controls 0.60 cfs @ 2.11 fps)

#### Pond ELM: 30" ELM SEWER





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# **Area Listing (selected nodes)**

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
598	80	>75% Grass cover, Good, HSG D (19, 19B, 22, 23, 24)
29,324	98	Paved parking, HSG D (19, 19B, 22, 23, 24)
29,922	98	TOTAL AREA

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# Soil Listing (selected nodes)

Area	Soil	Subcatchment
(sq-ft)	Group	Numbers
0	HSG A	
0	HSG B	
0	HSG C	
29,922	HSG D	19, 19B, 22, 23, 24
0	Other	
29,922		TOTAL AREA

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Sub Nun

# **Ground Covers (selected nodes)**

HSG-A	HSG-B	HSG-C	HSG-D	Other	Total	Ground
(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	(sq-ft)	Cover
0	0	0	598	0	598	>75% Grass
						cover, Good
0	0	0	29,324	0	29,324	Paved parking
0	0	0	29,922	0	29,922	<b>TOTAL AREA</b>

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# **Pipe Listing (selected nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	23P	609.10	608.04	48.0	0.0221	0.012	12.0	0.0	0.0
2	24P	608.18	608.10	77.0	0.0010	0.012	12.0	0.0	0.0
3	DI 252	608.31	607.45	46.0	0.0187	0.011	12.0	0.0	0.0
4	DS 35	609.81	609.75	5.0	0.0120	0.013	6.0	0.0	0.0
5	DS 35	608.78	608.78	48.0	0.0000	0.010	6.0	0.0	0.0
6	DS 39	608.24	608.18	5.0	0.0120	0.013	6.0	0.0	0.0
7	DS 39	607.39	607.39	59.0	0.0000	0.010	6.0	0.0	0.0
8	DS41	608.24	608.18	5.0	0.0120	0.013	6.0	0.0	0.0
9	DS41	607.39	607.39	49.0	0.0000	0.010	6.0	0.0	0.0

Type II 24-hr 2 YR Rainfall=2.25"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 19: Area 19 Runoff Area=6,022 sf 97.38% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.36 cfs 1,015 cf

Subcatchment 19B: Area 19B Runoff Area=4,435 sf 98.74% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.26 cfs 747 cf

Subcatchment 22: Area 22 Runoff Area=3,376 sf 95.56% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=0.19 cfs 539 cf

Subcatchment 23: Area 23 Runoff Area=1,842 sf 91.86% Impervious Runoff Depth=1.92"

Tc=12.0 min CN=97 Runoff=0.11 cfs 294 cf

Subcatchment 24: Area 24 Runoff Area=14,247 sf 99.41% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.84 cfs 2,401 cf

Pond 23P: DS 36 Peak Elev=609.43' Inflow=0.37 cfs 892 cf

12.0" Round Culvert n=0.012 L=48.0' S=0.0221 '/' Outflow=0.37 cfs 895 cf

Pond 24P: DS 40 Peak Elev=608.63' Inflow=0.01 cfs 431 cf

12.0" Round Culvert n=0.012 L=77.0' S=0.0010 '/' Outflow=0.01 cfs 431 cf

Pond DI 252: DI #252 - ELM ST SEWER Peak Elev=608.94' Inflow=1.43 cfs 4,854 cf

12.0" Round Culvert n=0.011 L=46.0' S=0.0187 '/' Outflow=1.43 cfs 4,856 cf

Pond DS 35: Planter PB-1C Peak Elev=613.32' Storage=446 cf Inflow=0.36 cfs 1,015 cf

Outflow=0.37 cfs 892 cf

Pond DS 39: Planter PB-3C Peak Elev=611.78' Storage=427 cf Inflow=0.19 cfs 539 cf

Outflow=0.01 cfs 431 cf

Pond DS41: Planter-PB-4C Peak Elev=609.83' Storage=238 cf Inflow=0.11 cfs 294 cf

Outflow=0.00 cfs 180 cf

Total Runoff Area = 29,922 sf Runoff Volume = 4,997 cf Average Runoff Depth = 2.00" 2.00% Pervious = 598 sf 98.00% Impervious = 29.324 sf

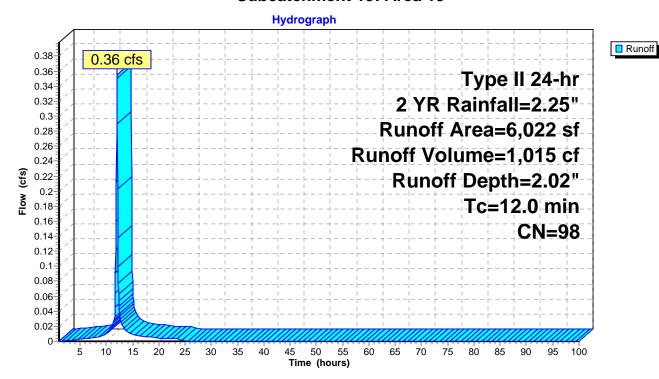
## **Summary for Subcatchment 19: Area 19**

Runoff = 0.36 cfs @ 12.03 hrs, Volume= 1,015 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description					
	158	80	75% Grass cover, Good, HSG D					
	5,864	98	Paved park	Paved parking, HSG D				
	6,022	98	Weighted A	Veighted Average				
	158		2.62% Perv	ious Area				
	5,864		97.38% Imp	ervious Are	ea			
Тс	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
12.0					Direct Entry,			

#### **Subcatchment 19: Area 19**



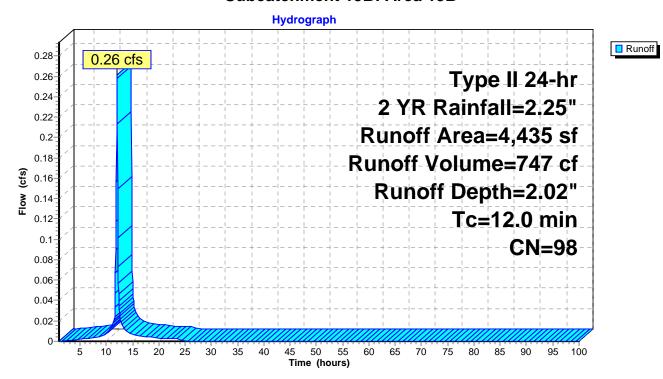
## **Summary for Subcatchment 19B: Area 19B**

Runoff = 0.26 cfs @ 12.03 hrs, Volume= 747 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

A	rea (sf)	CN	Description	<u> </u>			
	56	80	75% Grass cover, Good, HSG D				
	4,379	98	Paved parking, HSG D				
	4,435	98	Weighted A	Veighted Average			
	56		1.26% Perv	ious Area			
	4,379		98.74% Imp	ervious Ar	ea		
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description		
12.0	(1001)	(1010)	(14,000)	(0.0)	Direct Entry,		

#### Subcatchment 19B: Area 19B



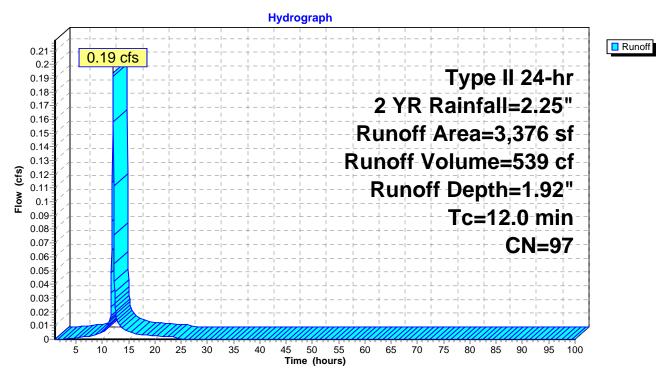
## **Summary for Subcatchment 22: Area 22**

Runoff = 0.19 cfs @ 12.03 hrs, Volume= 539 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

	Α	rea (sf)	CN	Description						
		150	80	>75% Gras	75% Grass cover, Good, HSG D					
		3,226	98	Paved park	Paved parking, HSG D					
		3,376	97	Weighted A	Veighted Average					
		150		4.44% Perv	rious Area					
		3,226		95.56% lmp	pervious Ar	rea				
	Тс	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	,	(cfs)	Description				
_	12.0	(1001)	(1010	(1.7000)	Direct Entry,					
	12.0					Direct Lift,				

### Subcatchment 22: Area 22



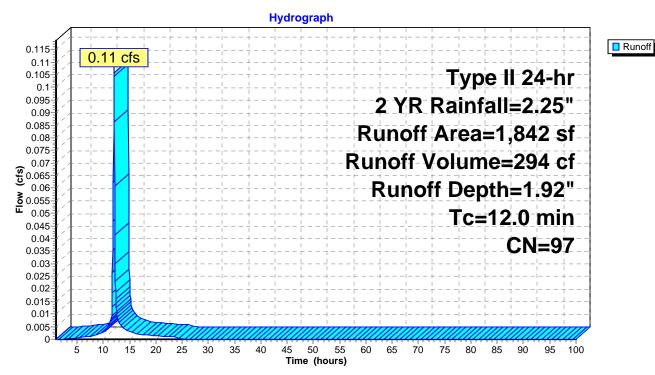
## **Summary for Subcatchment 23: Area 23**

Runoff = 0.11 cfs @ 12.03 hrs, Volume= 294 cf, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

	Area (sf)	CN	Description				
	150	80	>75% Grass cover, Good, HSG D				
	1,692	98	Paved parking, HSG D				
	1,842	97	7 Weighted Average				
	150		8.14% Pervious Area				
	1,692		91.86% Impervious Area				
Tc	Longth	Slope	Velocity	Capacity	Description		
(min)	- 3	Slope	,	(cfs)	Description		
	(feet)	(ft/ft)	(II/Sec)	(015)			—
12.0					Direct Entry,		

#### Subcatchment 23: Area 23



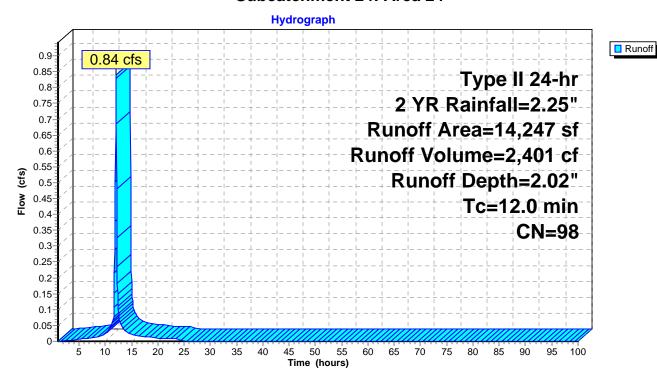
## **Summary for Subcatchment 24: Area 24**

Runoff = 0.84 cfs @ 12.03 hrs, Volume= 2,401 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 2 YR Rainfall=2.25"

	Area (sf)	CN	Description				
	14,163	98	Paved parking, HSG D				
	84	80	>75% Grass cover, Good, HSG D				
	14,247	47 98 Weighted Average					
	84 0.59% Pervious Area						
	14,163		99.41% lmp	ervious Ar	rea		
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	·		
12.0					Direct Entry,		

#### Subcatchment 24: Area 24



## **Summary for Pond 23P: DS 36**

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 1.78" for 2 YR event

Inflow = 0.37 cfs @ 12.07 hrs, Volume= 892 cf

Outflow = 0.37 cfs @ 12.07 hrs, Volume= 895 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.37 cfs @ 12.07 hrs, Volume= 895 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

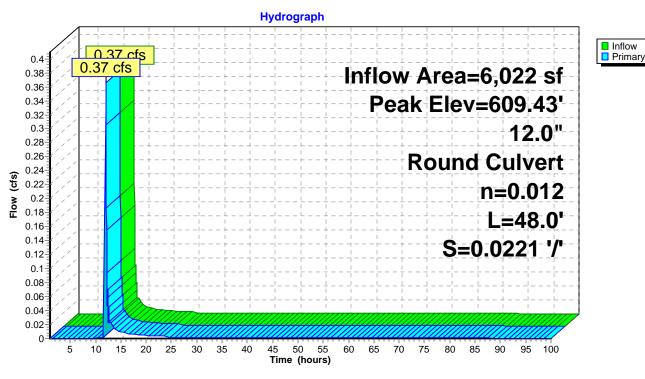
Peak Elev= 609.43' @ 12.07 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	609.10'	12.0" Round Culvert
			L= 48.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 609.10' / 608.04' S= 0.0221 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.32 cfs @ 12.07 hrs HW=609.39' TW=608.92' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.32 cfs @ 2.57 fps)

#### Pond 23P: DS 36



## **Summary for Pond 24P: DS 40**

[80] Warning: Exceeded Pond DS 39 by 0.23' @ 11.75 hrs (0.00 cfs 1 cf)

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth > 1.53" for 2 YR event

Inflow = 0.01 cfs @ 15.01 hrs, Volume= 431 cf

Outflow = 0.01 cfs @ 15.01 hrs, Volume= 431 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.01 cfs @ 15.01 hrs, Volume= 431 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

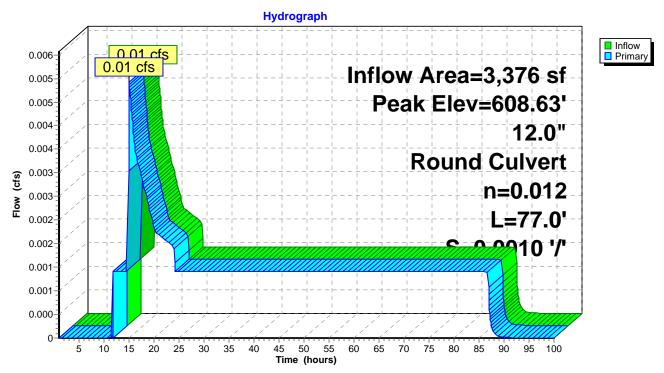
Peak Elev= 608.63' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.18'	12.0" Round Culvert L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.18' / 608.10' S= 0.0010 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 15.01 hrs HW=608.36' TW=608.41' (Dynamic Tailwater) 1=Culvert (Controls 0.00 cfs)

### Pond 24P: DS 40



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## Summary for Pond DI 252: DI #252 - ELM ST SEWER

[80] Warning: Exceeded Pond 24P by 0.33' @ 11.70 hrs (0.23 cfs 17,280 cf) [80] Warning: Exceeded Pond DS41 by 1.45' @ 3.55 hrs (0.00 cfs 272 cf)

Inflow Area = 29,922 sf, 98.00% Impervious, Inflow Depth = 1.95" for 2 YR event

Inflow = 1.43 cfs @ 12.06 hrs, Volume= 4,854 cf

Outflow = 1.43 cfs @ 12.06 hrs, Volume= 4,856 cf, Atten= 0%, Lag= 0.0 min

Primary = 1.43 cfs @ 12.06 hrs, Volume= 4,864 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

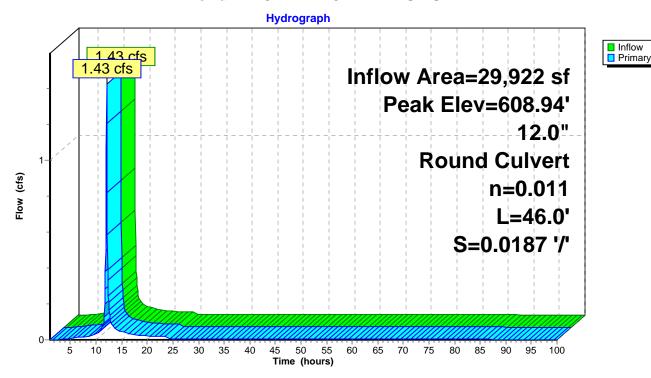
Peak Elev= 608.94' @ 12.06 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.31'	12.0" Round Culvert
	-		L= 46.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.31' / 607.45' S= 0.0187 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=1.39 cfs @ 12.06 hrs HW=608.94' (Free Discharge)
1=Culvert (Inlet Controls 1.39 cfs @ 2.69 fps)

#### Pond DI 252: DI #252 - ELM ST SEWER



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## **Summary for Pond DS 35: Planter PB-1C**

[93] Warning: Storage range exceeded by 0.04'

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=4)

6,022 sf, 97.38% Impervious, Inflow Depth = 2.02" for 2 YR event Inflow Area =

Inflow 0.36 cfs @ 12.03 hrs, Volume= 1,015 cf

0.37 cfs @ 12.07 hrs, Volume= Outflow 892 cf, Atten= 0%, Lag= 2.4 min

0.37 cfs @ 12.07 hrs. Volume= Primary 892 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.32' @ 12.05 hrs Surf.Area= 200 sf Storage= 446 cf

Plug-Flow detention time= 1,071.4 min calculated for 892 cf (88% of inflow)

Center-of-Mass det. time= 1,012.1 min (1,778.4 - 766.3)

Volume	Inver	t Ava	il.Stor	age	Storage Descript	tion				
#1	608.28	'	44	6 cf	Storage (Prisma	atic)Listed below	w (Recalc)			
Clayatia	<u> </u>	urf Araa	\/oio		In a Ctara	Cum Store				
Elevatio		Surf.Area	Voic		Inc.Store	Cum.Store				
(fee	•	(sq-ft)	(%		(cubic-feet)	(cubic-feet)				
608.2	8	200	0.	0	0	0				
611.7	8	200	40.	0	280	280				
611.7	9	200	20.	0	0	280				
613.1	1	200	50.	0	132	412				
613.2	8	200	100.	0	34	446				
Device	Routing	In	vert	Outl	et Devices					
#1	Primary	609	.81'	6.0"	Round Culvert					
	,			L= 5	5.0' CPP, square	edge headwall,	Ke= 0.500			
					•	•	S= 0.0120 '/' Cc= 0.900			
							erior, Flow Area= 0.20 sf			
#2	Device 1	608	3.78'		Round Culvert	_, _,				
					8.0' RCP, square	e edge headwal	L Ke= 0.500			
				Inlet / Outlet Invert= 608.78' / 608.78' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf						
#3	Device 2	608	3.28'		0.300 in/hr Exfiltration over Surface area					
#4	Device 1		3.27'		" x 24.0" Horiz. C					
<i>11</i> T	DOVIGO 1	010	,. <u>~</u> 1	_	ted to weir flow at		,_ 0.000			

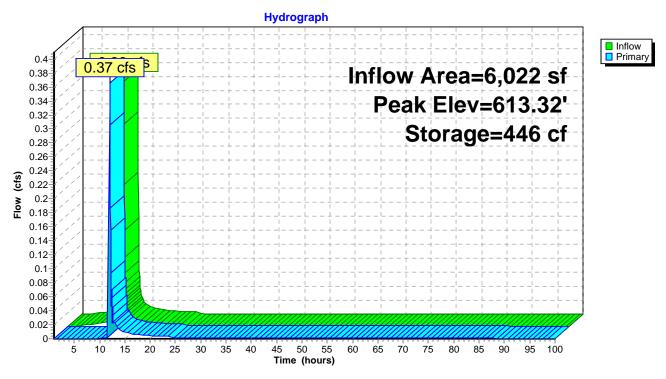
Primary OutFlow Max=0.32 cfs @ 12.07 hrs HW=613.32' TW=609.39' (Dynamic Tailwater)

**1=Culvert** (Passes 0.32 cfs of 1.71 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 1.53 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.32 cfs @ 0.75 fps)

## Pond DS 35: Planter PB-1C



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# **Summary for Pond DS 39: Planter PB-3C**

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 1.92" for 2 YR event

Inflow 0.19 cfs @ 12.03 hrs. Volume= 539 cf

0.01 cfs @ 15.01 hrs, Volume= Outflow 431 cf, Atten= 97%, Lag= 178.5 min

Primary 0.01 cfs @ 15.01 hrs, Volume= 431 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.78' @ 15.01 hrs Surf.Area= 202 sf Storage= 427 cf

Plug-Flow detention time= 2,053.2 min calculated for 431 cf (80% of inflow)

Center-of-Mass det. time= 1,974.6 min (2,752.3 - 777.7)

Volume	Inve	rt Ava	il.Stor	age	Storage Descrip	otion			
#1	606.90	0'	42	9 cf	Storage (Prism	natic)Listed below	w (Recalc)		
Elevatio		Surf.Area	Void		Inc.Store	Cum.Store			
(fee	•	(sq-ft)	(%		(cubic-feet)	(cubic-feet)			
606.9	90	202	0.	0	0	0			
610.4	10	202	40.	0	283	283			
610.4	<b>!</b> 1	202	20.	0	0	283			
611.7	<b>7</b> 3	202	50.	0	133	417			
611.7	<b>7</b> 9	202	100.	0	12	429			
Device	Routing	<u> </u>	vert	Outl	et Devices				
#1	Primary	608	3.24'	6.0"	Round Culvert				
					.0' CPP, square				
							S= 0.0120 '/' Cc		
				n=0	.013 Corrugated	l PE, smooth inte	erior, Flow Area= 0	).20 sf	
#2	Device 1	607	'.39'	6.0"	Round Culvert				
				L=5	9.0' RCP, squar	re edge headwal	I, Ke= 0.500		
				Inlet	/ Outlet Invert= 6	607.39' / 607.39'	S= 0.0000 '/' Cc	= 0.900	
				n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf					
#3	Device 2	606	5.90'	0.30	0 in/hr Exfiltration	on over Surface	area		
#4	Device 1	611	.78'	24.0	" x 24.0" Horiz.	Orifice/Grate C	= 0.600		
				Limi	ted to weir flow a	t low heads			

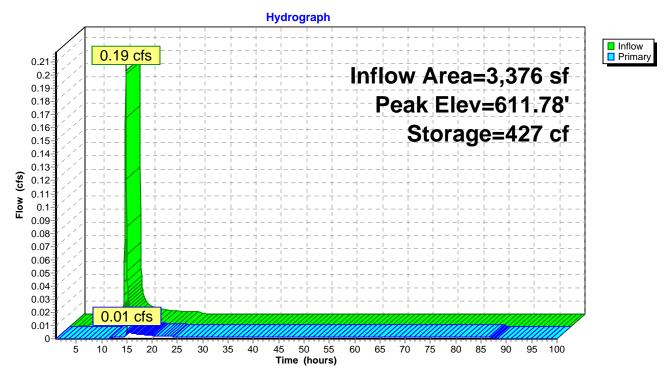
Primary OutFlow Max=0.01 cfs @ 15.01 hrs HW=611.78' TW=608.36' (Dynamic Tailwater)

**-1=Culvert** (Passes 0.01 cfs of 1.72 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 1.41 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.00 cfs @ 0.17 fps)

## Pond DS 39: Planter PB-3C



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## Summary for Pond DS41: Planter-PB-4C

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=58)

1,842 sf, 91.86% Impervious, Inflow Depth = 1.92" for 2 YR event Inflow Area =

0.11 cfs @ 12.03 hrs, Volume= Inflow 294 cf

0.00 cfs @ 12.15 hrs, Volume= Outflow 180 cf, Atten= 99%, Lag= 7.1 min

0.00 cfs @ 12.15 hrs, Volume= 380 cf Primary

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.83' @ 19.43 hrs Surf.Area= 202 sf Storage= 238 cf

Plug-Flow detention time= 1,151.8 min calculated for 179 cf (61% of inflow)

Center-of-Mass det. time= 1,048.7 min (1,826.4 - 777.7)

<u>Volume</u>	Inve	ert Ava	il.Stora	ge Storage Desci	ription				
#1	606.8	9'	451	cf Storage (Pris	matic)Listed below	w (Recalc)			
Elevation	n	Surf.Area	Voids		Cum.Store				
(fee	t)	(sq-ft)	(%)	(cubic-feet)	(cubic-feet)				
606.8	89	202	0.0	0	0				
610.3	88	202	40.0	282	282				
610.3	39	202	20.0	0	282				
611.7	<b>'</b> 2	202	50.0	134	417				
611.8	39	202	100.0	34	451				
Device	Routing	In	vert (	Outlet Devices					
#1	Primary	608	3.24' (	6.0" Round Culve	rt				
				_= 5.0' CPP, squa	re edge headwall,	Ke= 0.500			
				nlet / Outlet Invert=	: 608.24' / 608.18'	S= 0.0120 '/' Cc= 0.900			
			ı	n= 0.013 Corrugate	ed PE, smooth inte	erior, Flow Area= 0.20 sf			
#2	Device 1	607	'.39' (	6.0" Round Culve	rt				
				_= 49.0' RCP, squ	are edge headwal	I, Ke= 0.500			
				nlet / Outlet Invert=	: 607.39' / 607.39'	S= 0.0000 '/' Cc= 0.900			
			ı	n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf					
#3	Device 2	606		0.300 in/hr Exfiltra					
#4	Device 1	611	.88'	24.0" x 24.0" Horiz	. Orifice/Grate C	C = 0.600			
				imited to weir flow					
			l	innited to well now	at low neads				

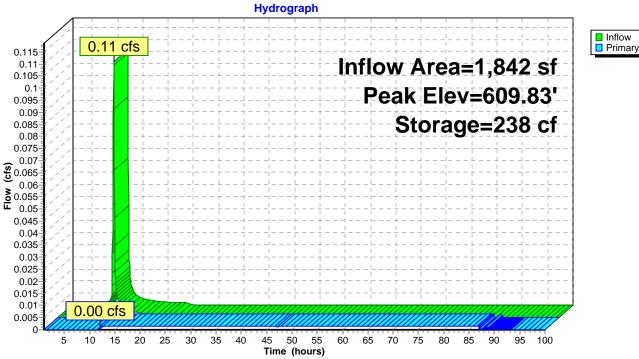
Primary OutFlow Max=0.00 cfs @ 12.15 hrs HW=608.93' TW=608.77' (Dynamic Tailwater)

**1=Culvert** (Passes 0.00 cfs of 0.38 cfs potential flow)

**2=Culvert** (Passes 0.00 cfs of 0.32 cfs potential flow) **3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Controls 0.00 cfs)

# Pond DS41: Planter-PB-4C





Type II 24-hr 25 Year Rainfall=4.00"

Prepared by Microsoft
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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method

Subcatchment 19: Area 19 Runoff Area=6,022 sf 97.38% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.64 cfs 1,889 cf

Subcatchment 19B: Area 19B Runoff Area=4,435 sf 98.74% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.47 cfs 1,392 cf

Subcatchment 22: Area 22 Runoff Area=3,376 sf 95.56% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=0.36 cfs 1,027 cf

Subcatchment 23: Area 23 Runoff Area=1,842 sf 91.86% Impervious Runoff Depth=3.65"

Tc=12.0 min CN=97 Runoff=0.19 cfs 560 cf

Subcatchment 24: Area 24 Runoff Area=14,247 sf 99.41% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=1.52 cfs 4,470 cf

Pond 23P: DS 36 Peak Elev=609.72' Inflow=0.67 cfs 1,767 cf

12.0" Round Culvert n=0.012 L=48.0' S=0.0221 '/' Outflow=0.67 cfs 1,769 cf

Pond 24P: DS 40 Peak Elev=609.59' Inflow=0.63 cfs 919 cf

12.0" Round Culvert n=0.012 L=77.0' S=0.0010 '/' Outflow=0.63 cfs 917 cf

Pond DI 252: DI #252 - ELM ST SEWER Peak Elev=609.56' Inflow=3.27 cfs 8,995 cf

12.0" Round Culvert n=0.011 L=46.0' S=0.0187 '/' Outflow=3.27 cfs 8,996 cf

Pond DS 35: Planter PB-1C Peak Elev=613.36' Storage=446 cf Inflow=0.64 cfs 1,889 cf

Outflow=0.67 cfs 1,767 cf

Pond DS 39: Planter PB-3C Peak Elev=611.86' Storage=429 cf Inflow=0.36 cfs 1,027 cf

Outflow=0.63 cfs 919 cf

Pond DS41: Planter-PB-4C Peak Elev=611.88' Storage=450 cf Inflow=0.19 cfs 560 cf

Outflow=0.01 cfs 446 cf

Total Runoff Area = 29,922 sf Runoff Volume = 9,339 cf Average Runoff Depth = 3.75" 2.00% Pervious = 598 sf 98.00% Impervious = 29.324 sf

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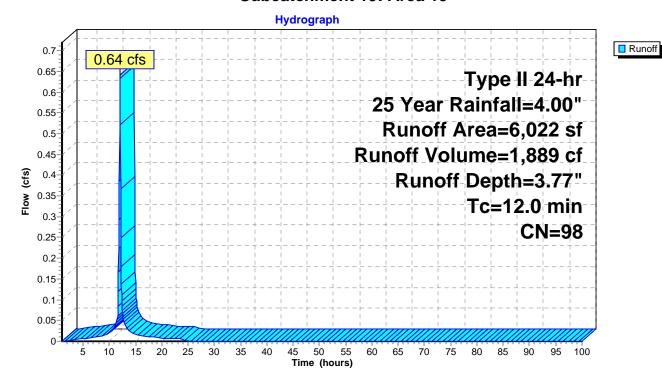
# **Summary for Subcatchment 19: Area 19**

Runoff = 0.64 cfs @ 12.03 hrs, Volume= 1,889 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description							
	158	80	>75% Grass cover, Good, HSG D							
	5,864	98	Paved park	ing, HSG D	D					
	6,022	98	Weighted A	Veighted Average						
	158		2.62% Perv	ious Area						
	5,864		97.38% lmp	pervious Ar	rea					
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)								
12.0					Direct Entry,					

#### **Subcatchment 19: Area 19**



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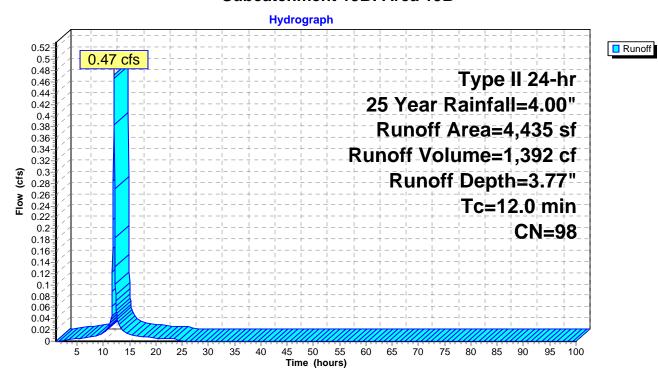
# Summary for Subcatchment 19B: Area 19B

Runoff = 0.47 cfs @ 12.03 hrs, Volume= 1,392 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description							
	56	80	>75% Grass cover, Good, HSG D							
	4,379	98	Paved park	ing, HSG D						
	4,435	98	Weighted A	verage						
	56		1.26% Perv	ious Area						
	4,379		98.74% Imp	ervious Ar	ea					
Tc (min)	Length (feet)	Slope (ft/ft)								
12.0	(1001)	(1010)	(14,000)	(0.0)	Direct Entry,					

#### Subcatchment 19B: Area 19B



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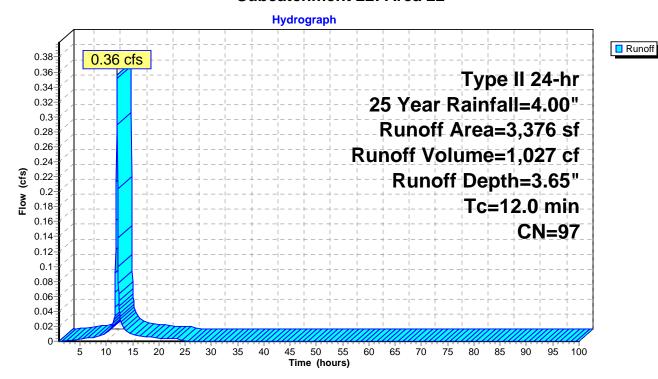
# **Summary for Subcatchment 22: Area 22**

Runoff = 0.36 cfs @ 12.03 hrs, Volume= 1,027 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

A	rea (sf)	CN	Description							
	150	80	>75% Grass cover, Good, HSG D							
	3,226	98	Paved park	ing, HSG D	)					
	3,376	97	Weighted A	Veighted Average						
	150		4.44% Perv	ious Area						
	3,226		95.56% lmp	ervious Ar	ea					
Tc (min)	Length (feet)	Slope (ft/ft)								
12.0					Direct Entry,					

#### Subcatchment 22: Area 22



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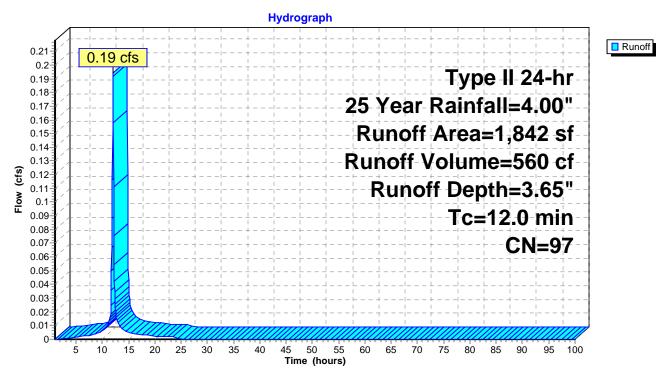
# **Summary for Subcatchment 23: Area 23**

Runoff = 0.19 cfs @ 12.03 hrs, Volume= 560 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

	Area (sf)	CN	Description							
	150	80	>75% Grass cover, Good, HSG D							
	1,692	98	Paved park	ing, HSG D						
	1,842	97	Weighted A	Veighted Average						
	150		8.14% Perv	rious Area						
	1,692		91.86% lmp	pervious Ar	ea					
Tc	Longth	Slope	\/olocity	Canacity	Description					
(min)	- 3	Slope								
	(feet)	(ft/ft)	(ft/sec)	(cfs)						
12.0					Direct Entry,					

#### Subcatchment 23: Area 23



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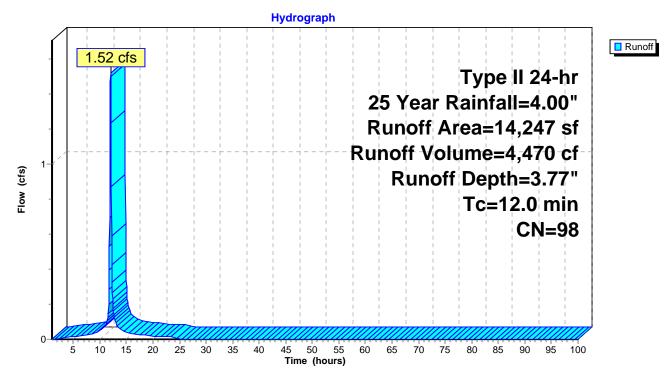
# **Summary for Subcatchment 24: Area 24**

Runoff = 1.52 cfs @ 12.03 hrs, Volume= 4,470 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 25 Year Rainfall=4.00"

Area (	sf) CN	Description								
14,1	63 98	Paved park	Paved parking, HSG D							
	84 80	>75% Gras	s cover, Go	Good, HSG D						
14,2	47 98	Weighted A	Weighted Average							
	84	0.59% Perv	ious Area							
14,1	63	99.41% lmp	ervious Ar	rea						
Tc Len (min) (fe	gth Slop eet) (ft/	,	Capacity (cfs)	•						
12.0				Direct Entry,						

#### Subcatchment 24: Area 24



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# Summary for Pond 23P: DS 36

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 3.52" for 25 Year event

Inflow = 0.67 cfs @ 12.04 hrs, Volume= 1,767 cf

Outflow = 0.67 cfs @ 12.04 hrs, Volume= 1,769 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.67 cfs @ 12.04 hrs, Volume= 1,769 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

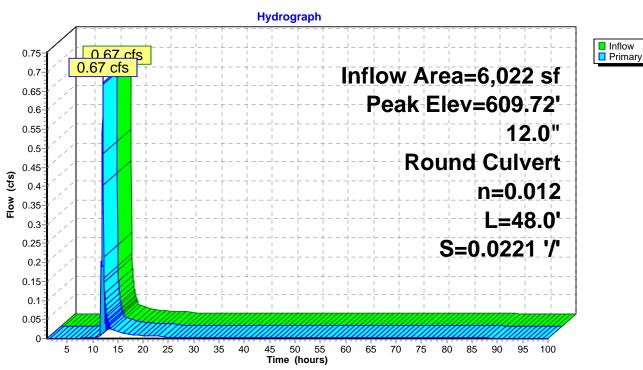
Peak Elev= 609.72' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	609.10'	12.0" Round Culvert
	•		L= 48.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 609.10' / 608.04' S= 0.0221 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.67 cfs @ 12.04 hrs HW=609.68' TW=609.50' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.67 cfs @ 2.03 fps)

#### **Pond 23P: DS 36**



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## **Summary for Pond 24P: DS 40**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=49)

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 3.27" for 25 Year event

Inflow = 0.63 cfs @ 12.05 hrs, Volume= 919 cf

Outflow = 0.63 cfs @ 12.05 hrs, Volume= 917 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.63 cfs @ 12.05 hrs, Volume= 917 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

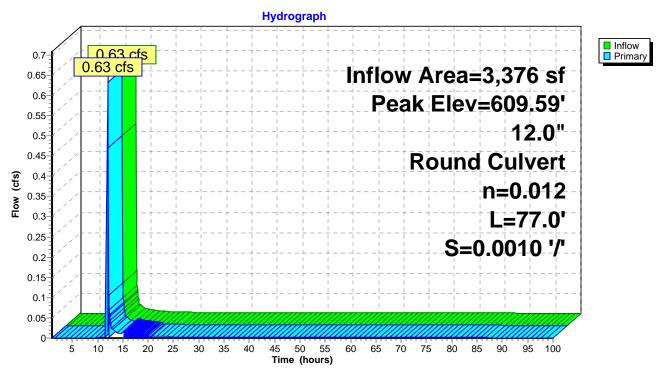
Peak Elev= 609.59' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.18'	12.0" Round Culvert
			L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.18' / 608.10' S= 0.0010 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.63 cfs @ 12.05 hrs HW=609.59' TW=609.55' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.63 cfs @ 0.80 fps)

### Pond 24P: DS 40



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# Summary for Pond DI 252: DI #252 - ELM ST SEWER

[80] Warning: Exceeded Pond 24P by 0.29' @ 11.85 hrs (0.94 cfs 16,559 cf) [80] Warning: Exceeded Pond DS41 by 1.46' @ 2.25 hrs (0.00 cfs 63 cf)

Inflow Area = 29,922 sf, 98.00% Impervious, Inflow Depth = 3.61" for 25 Year event

Inflow = 3.27 cfs @ 12.04 hrs, Volume= 8,995 cf

Outflow = 3.27 cfs @ 12.04 hrs, Volume= 8,996 cf, Atten= 0%, Lag= 0.0 min

Primary = 3.27 cfs @ 12.04 hrs, Volume= 9,002 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

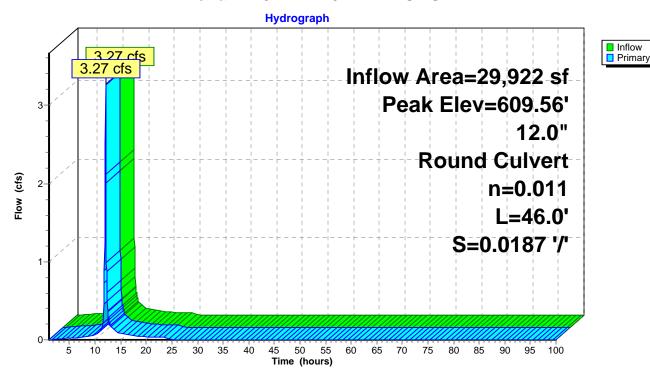
Peak Elev= 609.56' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.31'	12.0" Round Culvert
			L= 46.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.31' / 607.45' S= 0.0187 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

Primary OutFlow Max=3.19 cfs @ 12.04 hrs HW=609.52' (Free Discharge)
1=Culvert (Inlet Controls 3.19 cfs @ 4.06 fps)

#### Pond DI 252: DI #252 - ELM ST SEWER



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## **Summary for Pond DS 35: Planter PB-1C**

[93] Warning: Storage range exceeded by 0.08'

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=12)

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 3.77" for 25 Year event

Inflow 0.64 cfs @ 12.03 hrs, Volume= 1,889 cf

0.67 cfs @ 12.04 hrs, Volume= Outflow 1,767 cf, Atten= 0%, Lag= 0.6 min

0.67 cfs @ 12.04 hrs. Volume= Primary 1.767 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.36' @ 12.04 hrs Surf.Area= 200 sf Storage= 446 cf

Plug-Flow detention time= 574.6 min calculated for 1,767 cf (94% of inflow)

Center-of-Mass det. time= 536.8 min (1,290.3 - 753.5)

Volume	Inve	ert Ava	il.Stor	age	Storage Descrip	otion	
#1	608.2	8'	44	6 cf	Storage (Prism	atic)Listed below	w (Recalc)
Elevatio	_	Surf.Area (sq-ft)	Voic		Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
608.2		200	0.		0	0	
611.7		200	40.	-	280	280	
611.7		200	20.		0	280	
613.1		200	50.		132	412	
613.2		200	100.		34	446	
Device	Routing	In	vert	Outl	et Devices		
#1	Primary	609	9.81'	6.0"	<b>Round Culvert</b>		
				L= 5	5.0' CPP, square	edge headwall,	Ke= 0.500
							S= 0.0120 '/' Cc= 0.900
						PE, smooth inte	erior, Flow Area= 0.20 sf
#2	Device 1	608	3.78'		Round Culvert		
					8.0' RCP, squar	•	The state of the s
							S= 0.0000 '/' Cc= 0.900
<b>"</b> 0	Davidaa 0	000	001		.010 PVC, smoo		
#3	Device 2		3.28'		0 in/hr Exfiltratio		
#4	Device 1	613	3.27'	_	" <b>x 24.0" Horiz. (</b> ted to weir flow at		J= 0.600
					ted to well flow at	liow neads	

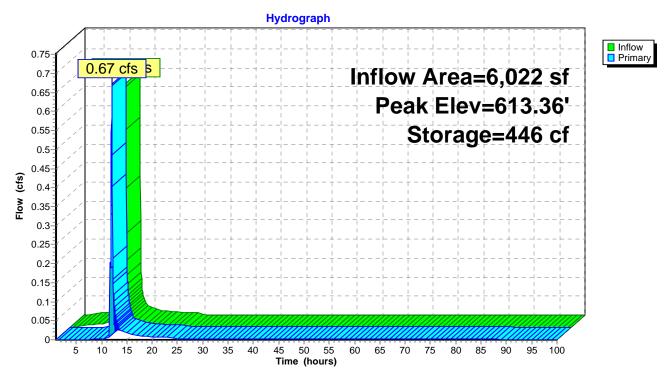
Primary OutFlow Max=0.65 cfs @ 12.04 hrs HW=613.36' TW=609.68' (Dynamic Tailwater)

**1=Culvert** (Passes 0.65 cfs of 1.72 cfs potential flow)

**2=Culvert** (Passes 0.00 cfs of 1.53 cfs potential flow) **3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.65 cfs @ 0.95 fps)

## Pond DS 35: Planter PB-1C



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## Summary for Pond DS 39: Planter PB-3C

[93] Warning: Storage range exceeded by 0.07'

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=4)

3,376 sf, 95.56% Impervious, Inflow Depth = 3.65" for 25 Year event Inflow Area =

Inflow 0.36 cfs @ 12.03 hrs, Volume= 1,027 cf

0.63 cfs @ 12.05 hrs, Volume= Outflow 919 cf, Atten= 0%, Lag= 1.2 min

0.63 cfs @ 12.05 hrs. Volume= Primary 919 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.86' @ 12.05 hrs Surf.Area= 202 sf Storage= 429 cf

Plug-Flow detention time= 1,014.4 min calculated for 919 cf (89% of inflow)

Center-of-Mass det. time= 960.3 min (1,722.7 - 762.4)

Volume	Inve	ert Ava	il.Sto	rage	Storage Descrip	tion		
#1	606.9	0'	42	29 cf	Storage (Prism	atic)Listed below	w (Recalc)	
Clayatia		Curf Araa	Voic	مام	Ina Ctara	Cum Store		
Elevatio		Surf.Area	Void		Inc.Store	Cum.Store		
(fee	•	(sq-ft)	(%		(cubic-feet)	(cubic-feet)		
606.9		202	0	-	0	0		
610.4	10	202	40	.0	283	283		
610.4		202	20	.0	0	283		
611.7	<b>7</b> 3	202	50	.0	133	417		
611.7	<b>7</b> 9	202	100	.0	12	429		
Device	Routing	Ir	vert	Outl	et Devices			
#1	Primary	608	3.24'	6.0"	<b>Round Culvert</b>			
	-			L= 5	5.0' CPP, square	edge headwall,	Ke = 0.500	
				Inlet	/ Outlet Invert= 6	08.24' / 608.18'	S= 0.0120 '/'	Cc = 0.900
				n=0	0.013 Corrugated	PE, smooth inte	rior, Flow Area	a= 0.20 sf
#2	Device 1	607	7.39'		Round Culvert		·	
				L= 5	9.0' RCP, squar	e edge headwal	l, Ke= 0.500	
				Inlet	/ Outlet Invert= 6	07.39' / 607.39'	S= 0.0000 '/'	Cc = 0.900
				n=0	0.010 PVC, smoo	th interior, Flow	Area= 0.20 sf	
#3	Device 2	606	3.90'	0.30	0 in/hr Exfiltration	on over Surface	area	
#4	Device 1	611	1.78'	24.0	" x 24.0" Horiz. (	Orifice/Grate C	= 0.600	
				Limi	ted to weir flow at	low heads		

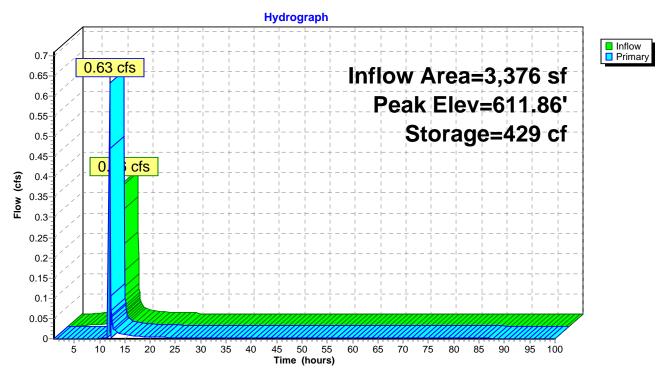
Primary OutFlow Max=0.63 cfs @ 12.05 hrs HW=611.86' TW=609.59' (Dynamic Tailwater)

**1=Culvert** (Passes 0.63 cfs of 1.43 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 1.15 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.63 cfs @ 0.94 fps)

# Pond DS 39: Planter PB-3C



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## Summary for Pond DS41: Planter-PB-4C

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=4)

1,842 sf, 91.86% Impervious, Inflow Depth = 3.65" for 25 Year event Inflow Area =

Inflow 0.19 cfs @ 12.03 hrs, Volume= 560 cf

Outflow 0.01 cfs @ 14.95 hrs, Volume= 446 cf, Atten= 97%, Lag= 175.2 min

0.01 cfs @ 14.95 hrs, Volume= 446 cf Primary

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.88' @ 14.95 hrs Surf.Area= 202 sf Storage= 450 cf

Plug-Flow detention time= 2,166.6 min calculated for 446 cf (79% of inflow)

Center-of-Mass det. time= 2,086.7 min (2,849.1 - 762.4)

Volume	Inver	t Avai	I.Stora	ge Storage Desci	ription	
#1	606.89	1	451	cf Storage (Pris	matic)Listed belo	w (Recalc)
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
606.8		202	0.0	0	0	
610.3		202	40.0	282	282	
610.3		202	20.0	0 134	282 417	
611.7		202	50.0		417 451	
611.8	9	202	100.0	34	431	
Device	Routing	In	vert (	Outlet Devices		
#1	Primary	608		.0" Round Culve		
				.= 5.0' CPP, squa	•	
						S= 0.0120 '/' Cc= 0.900
						erior, Flow Area= 0.20 sf
#2	Device 1	607		.0" Round Culve		
				.= 49.0' RCP, squ		
						S= 0.0000 '/' Cc= 0.900
				= 0.010 PVC, smo	•	
#3	Device 2	606		.300 in/hr Exfiltra		
#4	Device 1	611		4.0" x 24.0" Horiz		€= 0.600
			L	imited to weir flow	at low heads	

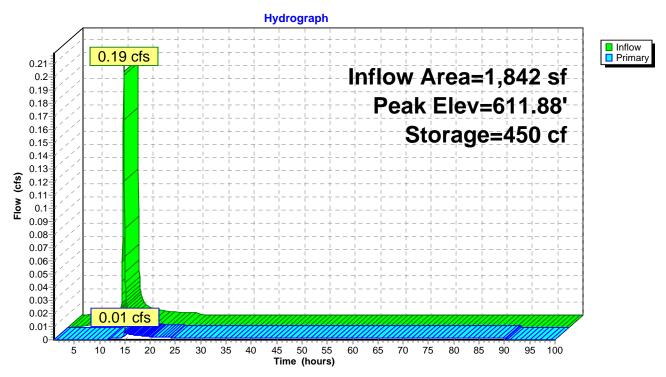
Primary OutFlow Max=0.01 cfs @ 14.95 hrs HW=611.88' TW=608.45' (Dynamic Tailwater)

**1=Culvert** (Passes 0.01 cfs of 1.74 cfs potential flow)

2=Culvert (Passes 0.00 cfs of 1.50 cfs potential flow)
3=Exfiltration (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Weir Controls 0.00 cfs @ 0.17 fps)

Pond DS41: Planter-PB-4C



Type II 24-hr 50% Rainfall=0.35"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 19: Area 19 Runoff Area=6,022 sf 97.38% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.04 cfs 93 cf

Subcatchment 19B: Area 19B Runoff Area=4,435 sf 98.74% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.03 cfs 69 cf

Subcatchment 22: Area 22 Runoff Area=3,376 sf 95.56% Impervious Runoff Depth=0.14"

Tc=12.0 min CN=97 Runoff=0.02 cfs 39 cf

Subcatchment 23: Area 23 Runoff Area=1,842 sf 91.86% Impervious Runoff Depth=0.14"

Tc=12.0 min CN=97 Runoff=0.01 cfs 21 cf

Subcatchment 24: Area 24 Runoff Area=14,247 sf 99.41% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.09 cfs 221 cf

Pond 23P: DS 36 Peak Elev=609.10' Inflow=0.00 cfs 0 cf

12.0" Round Culvert n=0.012 L=48.0' S=0.0221 '/' Outflow=0.00 cfs 0 cf

Pond 24P: DS 40 Peak Elev=608.18' Inflow=0.00 cfs 0 cf

12.0" Round Culvert n=0.012 L=77.0' S=0.0010 '/' Outflow=0.00 cfs 0 cf

Pond DI 252: DI #252 - ELM ST SEWER Peak Elev=608.47' Inflow=0.11 cfs 290 cf

12.0" Round Culvert n=0.011 L=46.0' S=0.0187 '/' Outflow=0.11 cfs 290 cf

Pond DS 35: Planter PB-1C Peak Elev=609.45' Storage=93 cf Inflow=0.04 cfs 93 cf

Outflow=0.00 cfs 0 cf

Pond DS 39: Planter PB-3C Peak Elev=607.38' Storage=39 cf Inflow=0.02 cfs 39 cf

Outflow=0.00 cfs 0 cf

Pond DS41: Planter-PB-4C Peak Elev=607.15' Storage=21 cf Inflow=0.01 cfs 21 cf

Outflow=0.00 cfs 0 cf

Total Runoff Area = 29,922 sf Runoff Volume = 444 cf Average Runoff Depth = 0.18" 2.00% Pervious = 598 sf 98.00% Impervious = 29,324 sf

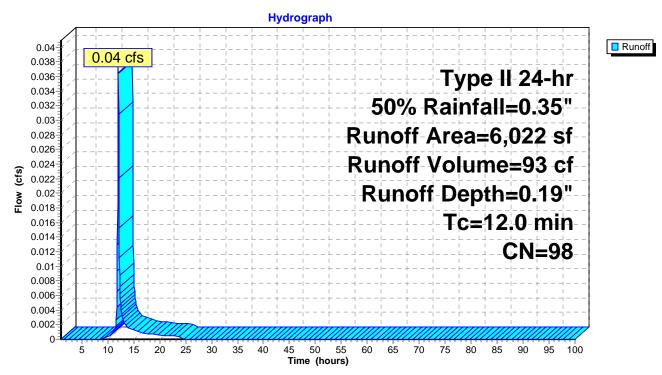
# **Summary for Subcatchment 19: Area 19**

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 93 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description							
	158	80	>75% Gras	75% Grass cover, Good, HSG D						
	5,864	98	Paved park	ing, HSG D	)					
	6,022		Weighted A							
	158		2.62% Perv							
	5,864		97.38% lmp	pervious Ar						
Тс	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft	,	(cfs)	'					
12.0	·	·			Direct Entry,					

#### **Subcatchment 19: Area 19**



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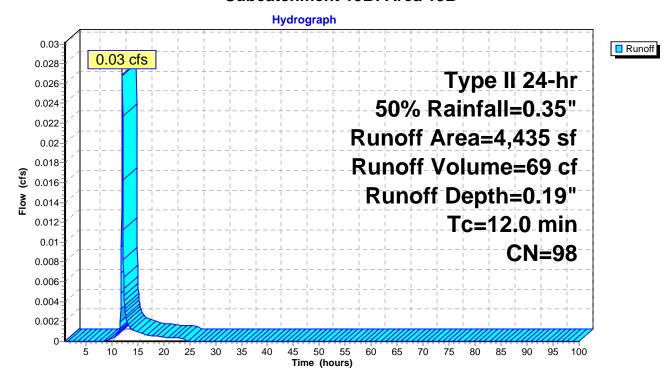
## **Summary for Subcatchment 19B: Area 19B**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 69 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description						
	56	80	75% Grass cover, Good, HSG D						
	4,379	98	Paved park	ing, HSG D	)				
	4,435	98	Weighted A	verage					
	56		1.26% Pervious Area						
	4,379		98.74% lmp	ervious Ar					
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description				
12.0	(1000)	(1411)	(14000)	(0.0)	Direct Entry,				

#### Subcatchment 19B: Area 19B



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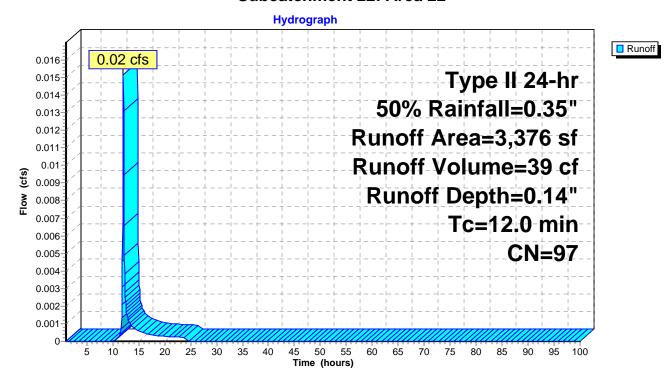
# **Summary for Subcatchment 22: Area 22**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 39 cf, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description					
	150	80	75% Grass cover, Good, HSG D					
	3,226	98	Paved park	ing, HSG D				
	3,376	97	Weighted A	verage				
	150		4.44% Pervious Area					
	3,226	!	95.56% Impervious Area					
Тс	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	•			
12.0					Direct Entry,			

#### Subcatchment 22: Area 22



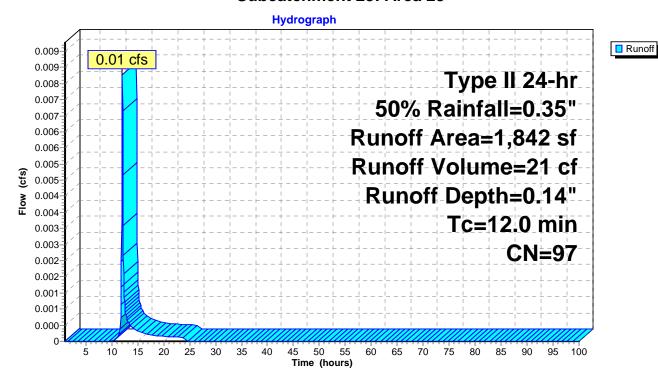
## **Summary for Subcatchment 23: Area 23**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 21 cf, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

A	rea (sf)	CN	Description						
	150	80	75% Grass cover, Good, HSG D						
	1,692	98	Paved park	ing, HSG D	D				
	1,842	97	Weighted A	verage					
	150		8.14% Pervious Area						
	1,692		91.86% Impervious Area						
Тс	Length	Slope	,	Capacity	Description				
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)					
12.0					Direct Entry,				

#### Subcatchment 23: Area 23



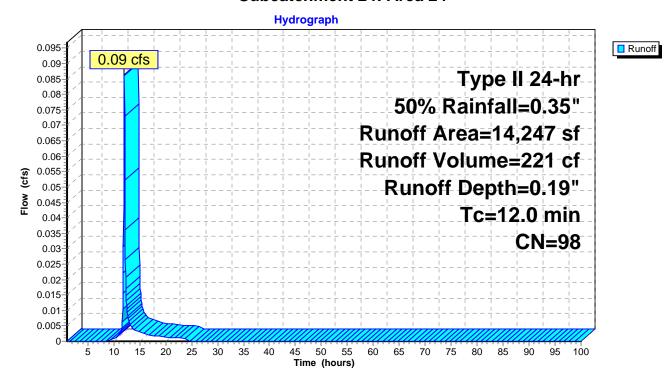
# **Summary for Subcatchment 24: Area 24**

Runoff = 0.09 cfs @ 12.04 hrs, Volume= 221 cf, Depth= 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 50% Rainfall=0.35"

	Area (sf)	CN	Description							
	14,163	98	Paved park	Paved parking, HSG D						
	84	80	>75% Gras	s cover, Go	ood, HSG D					
	14,247	98	Weighted A	verage						
	84		0.59% Perv	ious Area						
	14,163		99.41% lmp	ervious Ar	rea					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	·					
12.0					Direct Entry,					

#### Subcatchment 24: Area 24



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### **Summary for Pond 23P: DS 36**

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 0.00" for 50% event

Inflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume = 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

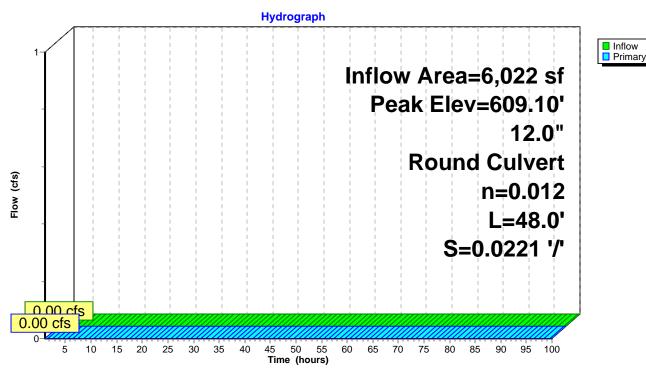
Peak Elev= 609.10' @ 1.00 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	609.10'	12.0" Round Culvert
			L= 48.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 609.10' / 608.04' S= 0.0221 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=609.10' TW=608.31' (Dynamic Tailwater) 1=Culvert (Controls 0.00 cfs)

#### **Pond 23P: DS 36**



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## **Summary for Pond 24P: DS 40**

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 0.00" for 50% event

Inflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume = 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

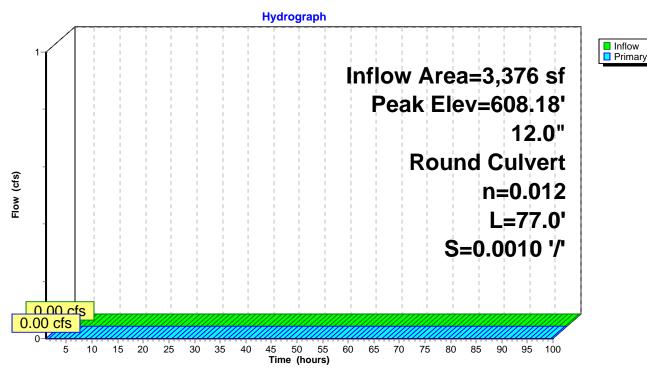
Peak Elev= 608.18' @ 1.00 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.18'	12.0" Round Culvert
			L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.18' / 608.10' S= 0.0010 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=608.18' TW=608.31' (Dynamic Tailwater) 1=Culvert (Controls 0.00 cfs)

#### Pond 24P: DS 40



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# Summary for Pond DI 252: DI #252 - ELM ST SEWER

[80] Warning: Exceeded Pond 24P by 0.29' @ 12.05 hrs (0.16 cfs 10,673 cf) [80] Warning: Exceeded Pond DS41 by 1.53' @ 12.00 hrs (0.00 cfs 500 cf)

Inflow Area = 29,922 sf, 98.00% Impervious, Inflow Depth = 0.12" for 50% event

Inflow = 0.11 cfs @ 12.04 hrs, Volume= 290 cf

Outflow = 0.11 cfs @ 12.04 hrs, Volume= 290 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.11 cfs @ 12.04 hrs, Volume= 290 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

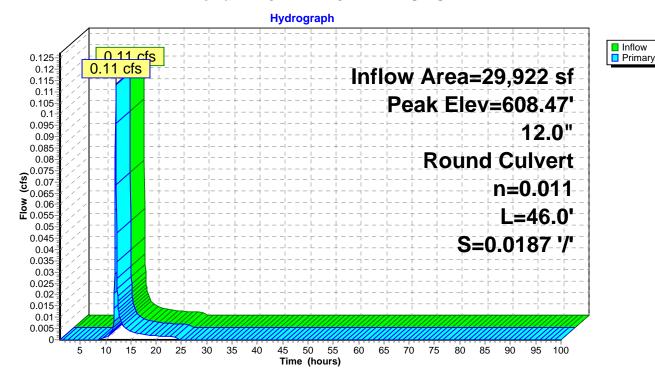
Peak Elev= 608.47' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.31'	12.0" Round Culvert
	-		L= 46.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.31' / 607.45' S= 0.0187 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean. Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 12.04 hrs HW=608.47' (Free Discharge)
1=Culvert (Inlet Controls 0.11 cfs @ 1.36 fps)

#### **Pond DI 252: DI #252 - ELM ST SEWER**



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## **Summary for Pond DS 35: Planter PB-1C**

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 0.19" for 50% event

Inflow = 0.04 cfs @ 12.04 hrs, Volume= 93 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume = 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.45' @ 24.70 hrs Surf.Area= 200 sf Storage= 93 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Inver	t Avai	I.Stora	ge Storage Desci	ription		
#1	608.28	1	446	cf Storage (Pris	matic)Listed belo	w (Recalc)	
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
608.2		200	0.0	0	0		
611.7	<b>'</b> 8	200	40.0	280	280		
611.7	<b>7</b> 9	200	20.0	0	280		
613.1		200	50.0	132	412		
613.2	28	200	100.0	34	446		
Device	Routing	In	vert C	Outlet Devices			
#1	Primary	609		<b>.0" Round Culve</b> = 5.0' CPP, squa		Ko- 0 500	
<b>#</b> 0	D. L. A	222	lı n	nlet / Outlet Invert= = 0.013 Corrugate	ed PE, smooth inte	S= 0.0120 '/' Cc= 0.900 erior, Flow Area= 0.20 sf	
#2	Device 1	608		5.0" Round Culve = 48.0' RCP, squ		I Ke- 0 500	
			lı	nlet / Outlet Invert=	: 608.78' / 608.78'	S= 0.0000 '/' Cc= 0.900	
"0	<b>D</b> : 0	000		= 0.010 PVC, smo			
#3	Device 2	608		.300 in/hr Exfiltra			
#4	Device 1	613		4.0" x 24.0" Horiz imited to weir flow		<i>y</i> = 0.000	
			L	innited to well flow	at low Heads		

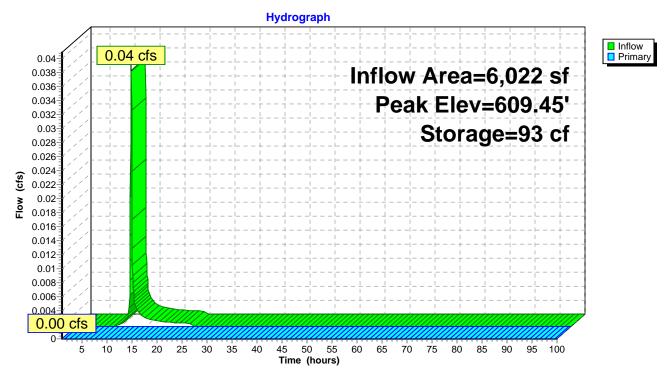
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=608.28' TW=609.10' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

## Pond DS 35: Planter PB-1C



# **Summary for Pond DS 39: Planter PB-3C**

3,376 sf, 95.56% Impervious, Inflow Depth = 0.14" for 50% event Inflow Area =

0.02 cfs @ 12.04 hrs, Volume= Inflow 39 cf

1.00 hrs, Volume= Outflow 0.00 cfs @ 0 cf, Atten= 100%, Lag= 0.0 min

Primary 1.00 hrs, Volume= 0.00 cfs @ 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 607.38' @ 24.70 hrs Surf.Area= 202 sf Storage= 39 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	: Avai	I.Stora	age Storage Desc	ription		
#1	606.90'		429	of Storage (Pris	smatic)Listed belo	w (Recalc)	
Elevatio		urf.Area (sq-ft)	Voids (%)		Cum.Store (cubic-feet)		
606.9		202	0.0	'	0		
610.4		202	40.0		283		
610.4		202	20.0		283		
611.7		202	50.0		417		
611.7	<b>'</b> 9	202	100.0	) 12	429		
Device	Routing	In	vert	Outlet Devices			
#1	Primary	608		6.0" Round Culve			
				L= 5.0' CPP, squa		Ke= 0.500 S= 0.0120 '/' Cc= 0.900	
						erior, Flow Area= 0.20 sf	
#2	Device 1	607		6.0" Round Culve			
				L= 59.0' RCP, squ	ıare edge headwal	I, Ke= 0.500	
				Inlet / Outlet Invert=	= 607.39' / 607.39'	S= 0.0000 '/' Cc= 0.900	
				n= 0.010 PVC, sm	,		
#3	Device 2	606		0.300 in/hr Exfiltra			
#4	Device 1	611		24.0" x 24.0" Horiz		C = 0.600	
				Limited to weir flow	at low heads		

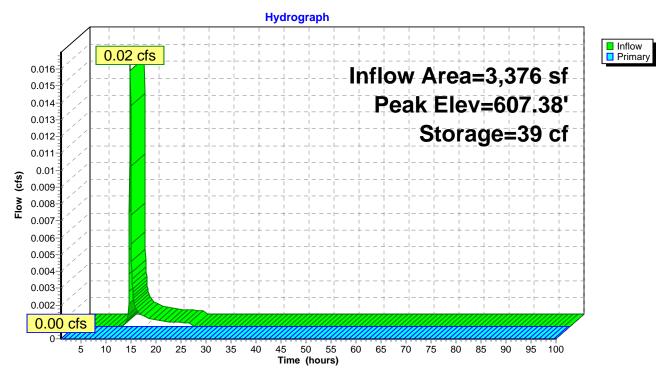
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=606.90' TW=608.18' (Dynamic Tailwater)

-1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

# Pond DS 39: Planter PB-3C



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### **Summary for Pond DS41: Planter-PB-4C**

Inflow Area = 1,842 sf, 91.86% Impervious, Inflow Depth = 0.14" for 50% event

Inflow = 0.01 cfs @ 12.04 hrs, Volume= 21 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 607.15' @ 24.70 hrs Surf.Area= 202 sf Storage= 21 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.	Storage	Storage Descript	tion		
#1	606.89'		451 cf	Storage (Prisma	atic)Listed belov	w (Recalc)	
Elevatio		ırf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
606.8		202	0.0	0	0		
610.3		202	40.0	282	282		
610.3		202	20.0	0	282		
611.7		202	50.0	134	417		
611.8	39	202	100.0	34	451		
Device	Routing	Inv	ert Outle	et Devices			
#1	Primary	608.2		Round Culvert			
			Inlet n= 0	.013 Corrugated	08.24' / 608.18'	Ke= 0.500 S= 0.0120 '/' Cc= 0.900 rior, Flow Area= 0.20 sf	
#2	Device 1	607.3		Round Culvert			
			Inlet	9.0' RCP, square / Outlet Invert= 60 .010 PVC, smoot	07.39' / 607.39'	S= 0.0000 '/' Cc= 0.900	
#3	Device 2	606.8		0 in/hr Exfiltration over Surface area			
#4	Device 1	611.8		" x 24.0" Horiz. C		= 0.600	
			Limi	ted to weir flow at	low heads		

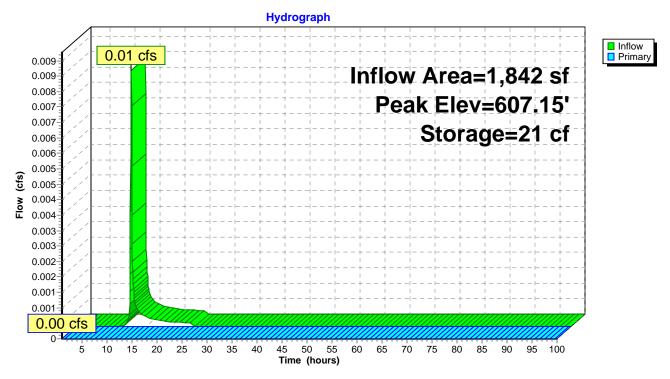
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=606.89' TW=608.31' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

## Pond DS41: Planter-PB-4C



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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 19: Area 19 Runoff Area=6,022 sf 97.38% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.06 cfs 160 cf

Subcatchment 19B: Area 19B Runoff Area=4,435 sf 98.74% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.05 cfs 117 cf

Subcatchment 22: Area 22 Runoff Area=3,376 sf 95.56% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.03 cfs 72 cf

Subcatchment 23: Area 23 Runoff Area=1,842 sf 91.86% Impervious Runoff Depth=0.26"

Tc=12.0 min CN=97 Runoff=0.02 cfs 39 cf

Subcatchment 24: Area 24 Runoff Area=14,247 sf 99.41% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.15 cfs 377 cf

Pond 23P: DS 36 Peak Elev=609.12' Inflow=0.00 cfs 37 cf

12.0" Round Culvert n=0.012 L=48.0' S=0.0221 '/' Outflow=0.00 cfs 37 cf

Pond 24P: DS 40 Peak Elev=608.18' Inflow=0.00 cfs 0 cf

12.0" Round Culvert n=0.012 L=77.0' S=0.0010 '/' Outflow=0.00 cfs 0 cf

Pond DI 252: DI #252 - ELM ST SEWER Peak Elev=608.52' Inflow=0.19 cfs 532 cf

12.0" Round Culvert n=0.011 L=46.0' S=0.0187 '/' Outflow=0.19 cfs 533 cf

Pond DS 35: Planter PB-1C Peak Elev=609.85' Storage=126 cf Inflow=0.06 cfs 160 cf

Outflow=0.00 cfs 37 cf

Pond DS 39: Planter PB-3C Peak Elev=607.79' Storage=72 cf Inflow=0.03 cfs 72 cf

Outflow=0.00 cfs 0 cf

Pond DS41: Planter-PB-4C Peak Elev=607.38' Storage=39 cf Inflow=0.02 cfs 39 cf

Outflow=0.00 cfs 0 cf

Total Runoff Area = 29,922 sf Runoff Volume = 766 cf Average Runoff Depth = 0.31" 2.00% Pervious = 598 sf 98.00% Impervious = 29,324 sf

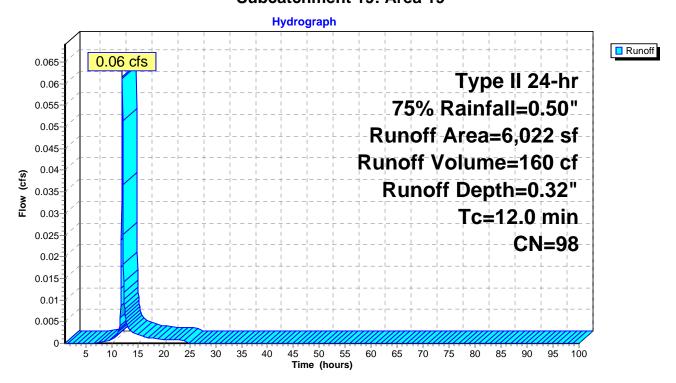
#### **Summary for Subcatchment 19: Area 19**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 160 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description						
	158	80	>75% Grass cover, Good, HSG D						
	5,864	98	Paved park	ing, HSG D	D				
	6,022	98	Weighted A	/eighted Average					
	158		2.62% Pervious Area						
	5,864		97.38% lmp	pervious Ar	rea				
Tc	Length	Slope	Velocity	Capacity	Description				
(min)	(feet)	(ft/ft)							
12.0			Direct Entry,						

#### Subcatchment 19: Area 19



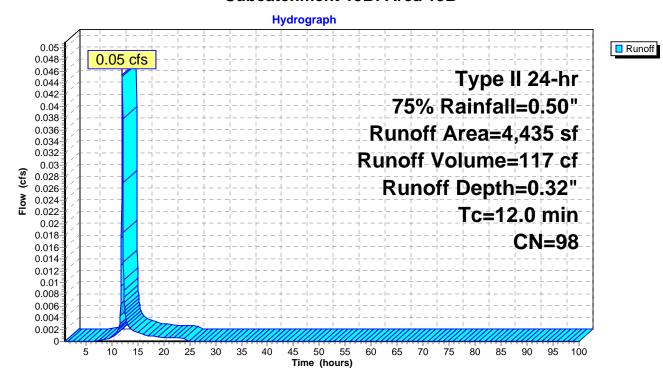
#### Summary for Subcatchment 19B: Area 19B

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 117 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description						
	56	80	>75% Gras	s cover, Go	od, HSG D				
	4,379	98	Paved park	ing, HSG D					
	4,435	98	Weighted A	Veighted Average					
	56		1.26% Perv	ious Area					
	4,379	!	98.74% Imp	ervious Ar	ea				
Tc	Length	Slope	Velocity	Capacity	Description				
(min)	(feet)	(ft/ft)	, , , , , , , , , , , , , , , , , , , ,						
	(1661)	(11/11)	(10/360)	(615)					
12.0			Direct Entry,						

#### Subcatchment 19B: Area 19B



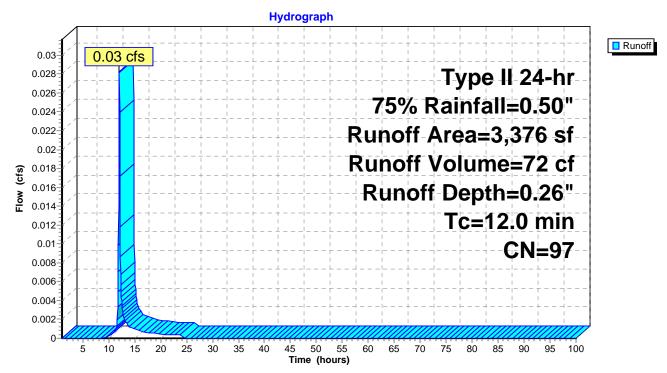
#### **Summary for Subcatchment 22: Area 22**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 72 cf, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

_	Α	rea (sf)	CN	Description							
		150	80	>75% Gras	>75% Grass cover, Good, HSG D						
		3,226	98	Paved park	ing, HSG D	)					
		3,376	97	Weighted A	eighted Average						
		150		4.44% Perv	ious Area						
		3,226		95.56% Imp	ervious Ar	ea					
	т.	ما در می در ا	Class	. \/alaaitu	Canadhi	Decemention					
	Tc	Length	Slope	,	Capacity	Description					
	(min)	(feet)	(ft/ft	) (ft/sec) (cfs)							
-	12.0					Direct Entry					

#### Subcatchment 22: Area 22



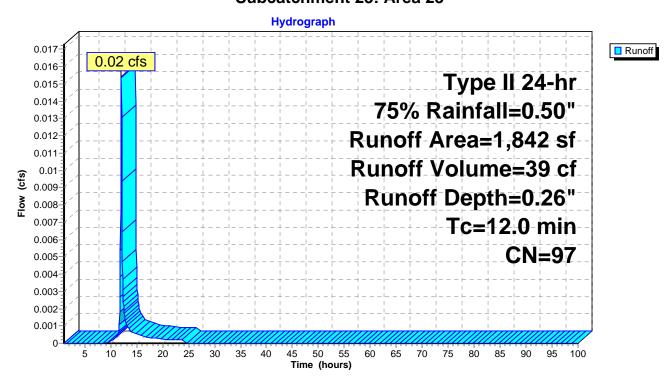
#### **Summary for Subcatchment 23: Area 23**

0.02 cfs @ 12.04 hrs, Volume= 39 cf, Depth= 0.26" Runoff

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

A	rea (sf)	CN	Description						
	150	80	>75% Grass cover, Good, HSG D						
	1,692	98	Paved park	ing, HSG D	D				
	1,842	97	Weighted A	Veighted Average					
	150		8.14% Pervious Area						
	1,692		91.86% lmp	ervious Ar	rea				
Тс	Length	Slope	,	Capacity	Description				
<u>(min)</u>	(feet)	(ft/ft)	) (ft/sec) (cfs)						
12.0			Direct Entry,						

#### Subcatchment 23: Area 23



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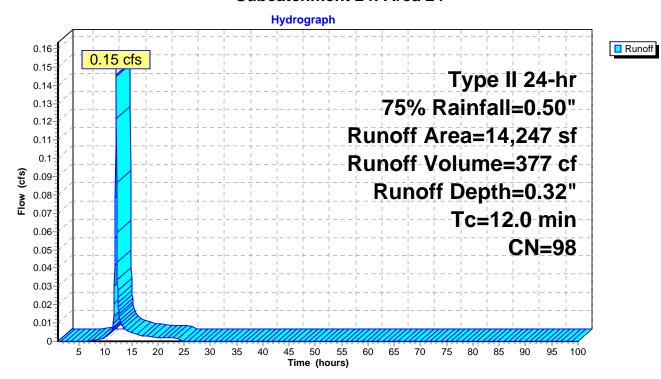
#### **Summary for Subcatchment 24: Area 24**

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 377 cf, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr 75% Rainfall=0.50"

	Α	rea (sf)	CN	Description							
		14,163	98	Paved park	ing, HSG D	)					
		84	80	>75% Gras	s cover, Go	ood, HSG D					
		14,247	98	Weighted A	Veighted Average						
		84		0.59% Perv	ious Area						
		14,163		99.41% Imp	pervious Ar	ea					
	т.	1	Ola m	. Valaaltii	0	Dagawintian					
	Тс	Length	Slope	,	Capacity	Description					
	(min)	(feet)	(ft/ft	) (ft/sec) (cfs)							
•	12.0	•		•		Direct Entry					

#### Subcatchment 24: Area 24



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#### Summary for Pond 23P: DS 36

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 0.07" for 75% event

Inflow = 0.00 cfs @ 17.65 hrs, Volume= 37 cf

Outflow = 0.00 cfs @ 15.50 hrs, Volume= 37 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.00 cfs @ 15.50 hrs, Volume= 37 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

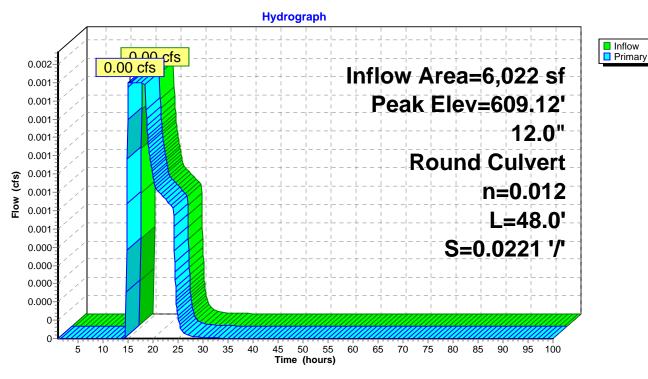
Peak Elev= 609.12' @ 15.00 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	609.10'	12.0" Round Culvert
			L= 48.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 609.10' / 608.04' S= 0.0221 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 15.50 hrs HW=609.12' TW=608.35' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.00 cfs @ 0.64 fps)

#### Pond 23P: DS 36



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#### **Summary for Pond 24P: DS 40**

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 0.00" for 75% event

Inflow = 0.00 cfs @ 1.00 hrs. Volume = 0 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume = 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

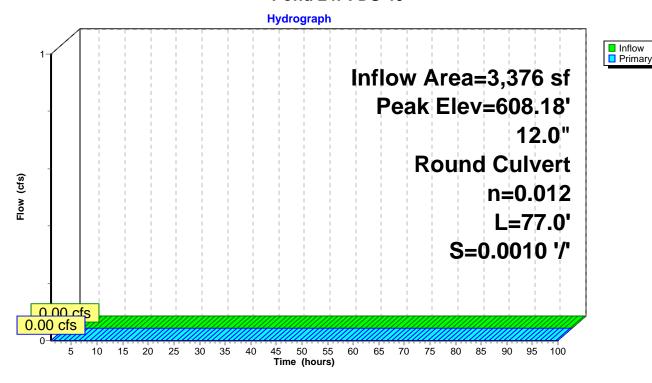
Peak Elev= 608.18' @ 1.00 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.18'	12.0" Round Culvert
	-		L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.18' / 608.10' S= 0.0010 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=608.18' TW=608.31' (Dynamic Tailwater) 1=Culvert (Controls 0.00 cfs)

#### Pond 24P: DS 40



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#### Summary for Pond DI 252: DI #252 - ELM ST SEWER

[80] Warning: Exceeded Pond 24P by 0.34' @ 12.05 hrs (0.22 cfs 11,128 cf) [80] Warning: Exceeded Pond DS41 by 1.51' @ 11.95 hrs (0.00 cfs 500 cf)

Inflow Area = 29,922 sf, 98.00% Impervious, Inflow Depth = 0.21" for 75% event

Inflow = 0.19 cfs @ 12.04 hrs, Volume= 532 cf

Outflow = 0.19 cfs @ 12.04 hrs, Volume= 533 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.19 cfs @ 12.04 hrs, Volume= 533 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

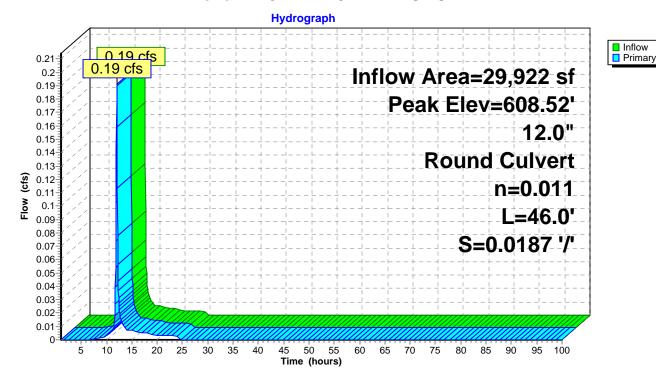
Peak Elev= 608.52' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.31'	12.0" Round Culvert
	-		L= 46.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.31' / 607.45' S= 0.0187 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean. Flow Area= 0.79 sf

Primary OutFlow Max=0.19 cfs @ 12.04 hrs HW=608.52' (Free Discharge) 1=Culvert (Inlet Controls 0.19 cfs @ 1.56 fps)

#### **Pond DI 252: DI #252 - ELM ST SEWER**



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#### **Summary for Pond DS 35: Planter PB-1C**

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 0.32" for 75% event

Inflow 0.06 cfs @ 12.04 hrs. Volume= 160 cf

0.00 cfs @ 17.65 hrs, Volume= Outflow 37 cf, Atten= 98%, Lag= 336.8 min

Primary 0.00 cfs @ 17.65 hrs, Volume= 37 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.85' @ 16.40 hrs Surf.Area= 200 sf Storage= 126 cf

Plug-Flow detention time= 468.2 min calculated for 37 cf (23% of inflow)

Center-of-Mass det. time= 329.1 min (1,144.9 - 815.8)

Volume	Inver	t Avai	I.Stora	ge Storage Desci	ription		
#1	608.28	1	446	cf Storage (Pris	matic)Listed belo	w (Recalc)	
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
608.2		200	0.0	0	0		
611.7	<b>'</b> 8	200	40.0	280	280		
611.7	<b>7</b> 9	200	20.0	0	280		
613.1		200	50.0	132	412		
613.2	28	200	100.0	34	446		
Device	Routing	In	vert C	Outlet Devices			
#1	Primary	609		<b>.0" Round Culve</b> = 5.0' CPP, squa		Ko- 0 500	
<b>#</b> 0	D. L. A	222	lı n	nlet / Outlet Invert= = 0.013 Corrugate	ed PE, smooth inte	S= 0.0120 '/' Cc= 0.900 erior, Flow Area= 0.20 sf	
#2	Device 1	608		5.0" Round Culve = 48.0' RCP, squ		I Ke- 0 500	
			lı	nlet / Outlet Invert=	: 608.78' / 608.78'	S= 0.0000 '/' Cc= 0.900	
"0	<b>D</b> : 0	000		= 0.010 PVC, smo			
#3	Device 2	608		.300 in/hr Exfiltra			
#4	Device 1	613		4.0" x 24.0" Horiz imited to weir flow		<i>y</i> = 0.000	
			L	innited to well flow	at low Heads		

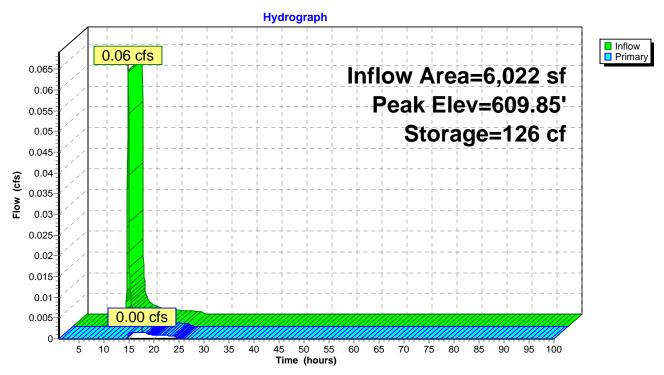
Primary OutFlow Max=0.00 cfs @ 17.65 hrs HW=609.84' TW=609.12' (Dynamic Tailwater)

-1=Culvert (Passes 0.00 cfs of 0.00 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 0.15 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Controls 0.00 cfs)

#### Pond DS 35: Planter PB-1C



#### Summary for Pond DS 39: Planter PB-3C

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 0.26" for 75% event

Inflow = 0.03 cfs @ 12.04 hrs, Volume= 72 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 607.79' @ 24.70 hrs Surf.Area= 202 sf Storage= 72 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	: Avai	I.Stora	age Storage Desc	e Storage Description			
#1	606.90'		429	of Storage (Pris	Storage (Prismatic)Listed below (Recalc)			
Elevatio		urf.Area (sq-ft)	Voids (%)		Cum.Store (cubic-feet)			
606.9		202	0.0	'	0			
610.4		202	40.0		283			
610.4		202	20.0		283			
611.7		202	50.0		417			
611.7	<b>'</b> 9	202	100.0	) 12	429			
Device	Routing	In	vert	Outlet Devices				
#1	Primary	608		6.0" Round Culve				
				L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.24' / 608.18' S= 0.0120 '/' Cc= 0.900				
				n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf				
#2	Device 1	607		6.0" Round Culvert				
				L= 59.0' RCP, squ	ıare edge headwal	I, Ke= 0.500		
				Inlet / Outlet Invert=	= 607.39' / 607.39'	S= 0.0000 '/' Cc= 0.900		
				n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf				
#3	Device 2	606		0.300 in/hr Exfiltra				
#4	Device 1	611		24.0" x 24.0" Horiz		C = 0.600		
				Limited to weir flow	at low heads			

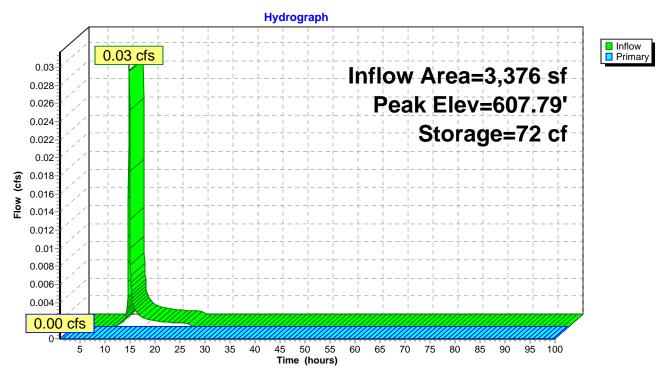
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=606.90' TW=608.18' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

#### Pond DS 39: Planter PB-3C



#### Summary for Pond DS41: Planter-PB-4C

Inflow Area = 1,842 sf, 91.86% Impervious, Inflow Depth = 0.26" for 75% event

Inflow = 0.02 cfs @ 12.04 hrs, Volume= 39 cf

Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min

Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 607.38' @ 24.70 hrs Surf.Area= 202 sf Storage= 39 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.	Storage	e Storage Description			_	
#1	606.89'		451 cf	Storage (Prismatic)Listed below (Recalc)				
Elevatio		ırf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
606.8		202	0.0	0	0			
610.3		202	40.0	282	282			
610.3		202	20.0	0	282			
611.7		202	50.0	134	417			
611.8	39	202	100.0	34	451			
Device	Routing	Inv	ert Outle	et Devices				
#1	Primary	608.2		Round Culvert				
			Inlet n= 0	.013 Corrugated	08.24' / 608.18'	Ke= 0.500 S= 0.0120 '/' Cc= 0.900 erior, Flow Area= 0.20 sf		
#2	Device 1	607.3		6.0" Round Culvert				
			Inlet	L= 49.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 607.39' / 607.39' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf				
#3	Device 2	606.8		0 in/hr Exfiltratio				
#4	Device 1	611.8		" x 24.0" Horiz. C		= 0.600		
			Limi	ted to weir flow at	low heads			

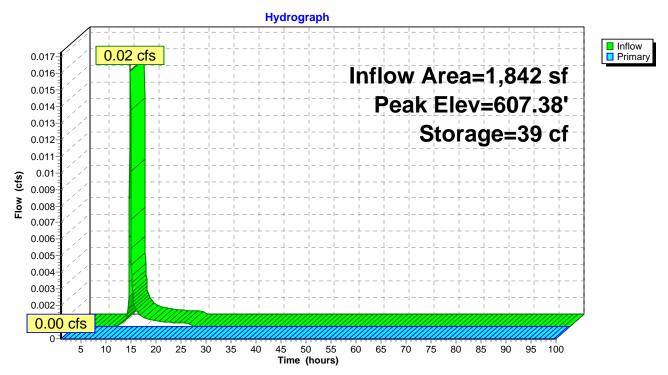
Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=606.89' TW=608.31' (Dynamic Tailwater)

1=Culvert (Controls 0.00 cfs)

-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

#### Pond DS41: Planter-PB-4C



Type II 24-hr WQv Rainfall=0.85"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 19: Area 19 Runoff Area=6,022 sf 97.38% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.12 cfs 324 cf

Subcatchment 19B: Area 19B Runoff Area=4,435 sf 98.74% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.09 cfs 239 cf

Subcatchment 22: Area 22 Runoff Area=3,376 sf 95.56% Impervious Runoff Depth=0.57"

Tc=12.0 min CN=97 Runoff=0.06 cfs 159 cf

Subcatchment 23: Area 23 Runoff Area=1,842 sf 91.86% Impervious Runoff Depth=0.57"

Tc=12.0 min CN=97 Runoff=0.03 cfs 87 cf

Subcatchment 24: Area 24 Runoff Area=14,247 sf 99.41% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.29 cfs 767 cf

Pond 23P: DS 36 Peak Elev=609.12' Inflow=0.00 cfs 202 cf

12.0" Round Culvert n=0.012 L=48.0' S=0.0221 '/' Outflow=0.00 cfs 203 cf

Pond 24P: DS 40 Peak Elev=608.57' Inflow=0.00 cfs 51 cf

12.0" Round Culvert n=0.012 L=77.0' S=0.0010 '/' Outflow=0.00 cfs 51 cf

Pond DI 252: DI #252 - ELM ST SEWER Peak Elev=608.61' Inflow=0.38 cfs 1,260 cf

12.0" Round Culvert n=0.011 L=46.0' S=0.0187 '/' Outflow=0.38 cfs 1,261 cf

Pond DS 35: Planter PB-1C Peak Elev=611.58' Storage=264 cf Inflow=0.12 cfs 324 cf

Outflow=0.00 cfs 202 cf

Pond DS 39: Planter PB-3C Peak Elev=608.36' Storage=118 cf Inflow=0.06 cfs 159 cf

Outflow=0.00 cfs 51 cf

Pond DS41: Planter-PB-4C Peak Elev=607.97' Storage=87 cf Inflow=0.03 cfs 87 cf

Outflow=0.00 cfs 0 cf

Total Runoff Area = 29,922 sf Runoff Volume = 1,576 cf Average Runoff Depth = 0.63" 2.00% Pervious = 598 sf 98.00% Impervious = 29,324 sf

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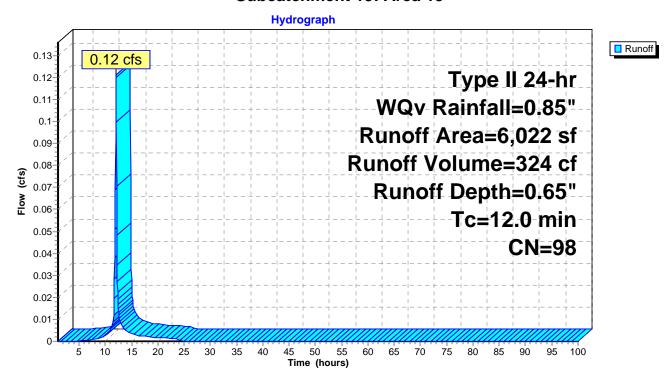
#### **Summary for Subcatchment 19: Area 19**

Runoff = 0.12 cfs @ 12.03 hrs, Volume= 324 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description						
	158	80	>75% Grass cover, Good, HSG D						
	5,864	98	Paved park	ing, HSG D	D				
	6,022	98	Weighted A	/eighted Average					
	158		2.62% Pervious Area						
	5,864		97.38% lmp	pervious Ar	rea				
Tc	Length	Slope	Velocity	Capacity	Description				
(min)	(feet)	(ft/ft)							
12.0			Direct Entry,						

#### **Subcatchment 19: Area 19**



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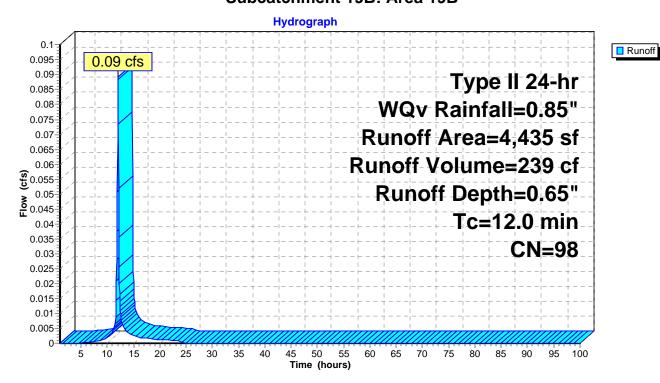
#### Summary for Subcatchment 19B: Area 19B

Runoff = 0.09 cfs @ 12.03 hrs, Volume= 239 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

A	rea (sf)	CN	Description						
	56	80	>75% Gras	s cover, Go	ood, HSG D				
	4,379	98	Paved park	ing, HSG D	)				
	4,435	98	Weighted A	Weighted Average					
	56		1.26% Pervious Area						
	4,379		98.74% lmp	ervious Ar	ea				
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description				
12.0	(100)	(1411)	(14000)	(0.0)	Direct Entry,				

#### Subcatchment 19B: Area 19B



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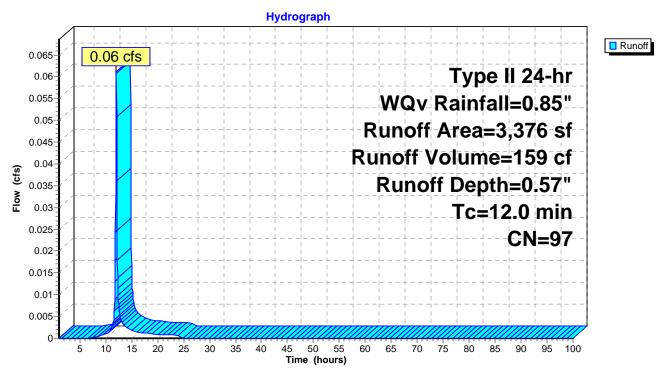
#### **Summary for Subcatchment 22: Area 22**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 159 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

	Α	rea (sf)	CN	Description					
		150	80	>75% Gras	s cover, Go	ood, HSG D			
		3,226	98	Paved park	ing, HSG D	D			
		3,376	97	Weighted A	verage				
		150		4.44% Pervious Area					
		3,226		95.56% lmp	pervious Ar	rea			
	Тс	Length	Slope	Velocity	Capacity	Description			
	(min)	(feet)	(ft/ft)	,	(cfs)	Description			
_	12.0	(1001)	(1010	(1.7000)	(613)	Direct Entry,			
	12.0					Direct Lift,			

#### Subcatchment 22: Area 22



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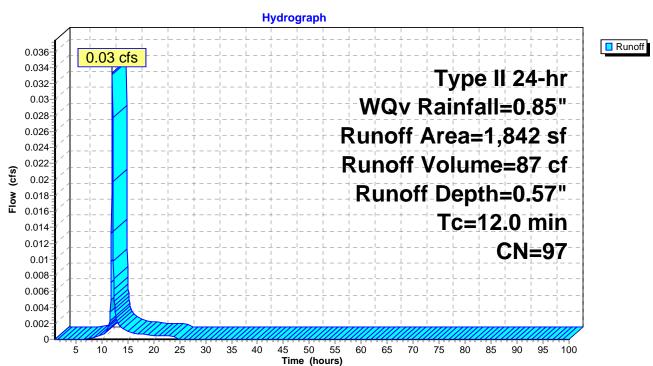
#### **Summary for Subcatchment 23: Area 23**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 87 cf, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

	Area (sf)	CN	Description					
	150	80	>75% Gras	s cover, Go	od, HSG D			
	1,692	98	Paved park	ing, HSG D				
	1,842	97	Weighted A	verage				
	150		8.14% Pervious Area					
	1,692		91.86% lmp	pervious Ar	ea			
Tc	Longth	Slope	Velocity	Capacity	Description			
(min)	- 3	Slope	,	(cfs)	Description			
	(feet)	(ft/ft)	(II/Sec)	(015)				
12.0					Direct Entry,			

#### Subcatchment 23: Area 23



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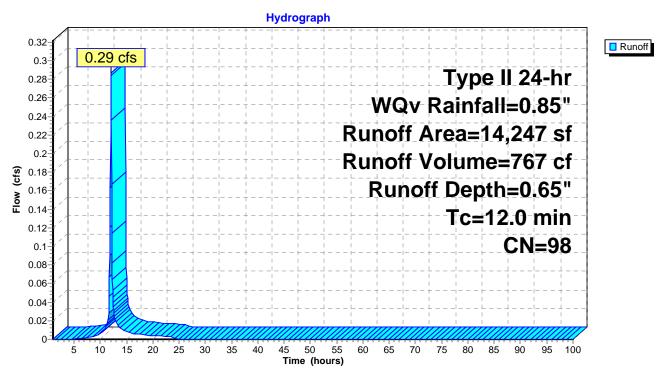
#### **Summary for Subcatchment 24: Area 24**

Runoff = 0.29 cfs @ 12.03 hrs, Volume= 767 cf, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs Type II 24-hr WQv Rainfall=0.85"

_	Α	rea (sf)	CN	Description			
		14,163	98	Paved park	ing, HSG D		
		84	80	>75% Gras	s cover, Go	od, HSG D	
		14,247	98	Weighted A	verage		
		84		0.59% Perv	rious Area		
		14,163		99.41% Imp	pervious Ar	ea	
	Tc	Length	Slope	e Velocity	Capacity	Description	
	_	-		,		Description	
-	(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)		
	12.0					Direct Entry	

#### Subcatchment 24: Area 24



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#### **Summary for Pond 23P: DS 36**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=465)

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 0.40" for WQv event

Inflow = 0.00 cfs @ 12.05 hrs, Volume= 202 cf

Outflow = 0.00 cfs @ 12.05 hrs, Volume= 203 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.00 cfs @ 12.05 hrs, Volume= 203 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

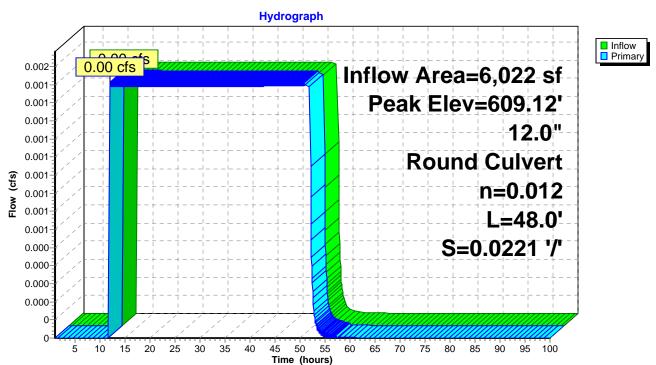
Peak Elev= 609.12' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	609.10'	12.0" Round Culvert L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 609.10' / 608.04' S= 0.0221 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.05 hrs HW=609.12' TW=608.61' (Dynamic Tailwater) 1=Culvert (Outlet Controls 0.00 cfs @ 0.54 fps)

#### Pond 23P: DS 36



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#### **Summary for Pond 24P: DS 40**

[80] Warning: Exceeded Pond DS 39 by 1.17' @ 11.95 hrs (0.00 cfs 1 cf)

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 0.18" for WQv event

Inflow = 0.00 cfs @ 13.30 hrs, Volume= 51 cf

Outflow = 0.00 cfs @ 13.30 hrs, Volume= 51 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.00 cfs @ 13.30 hrs, Volume= 51 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

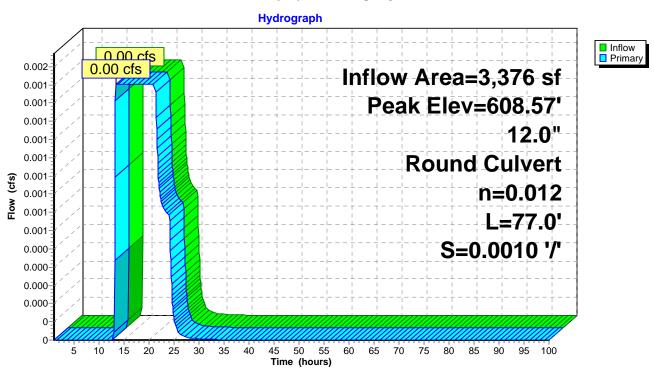
Peak Elev= 608.57' @ 11.95 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.18'	12.0" Round Culvert
			L= 77.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.18' / 608.10' S= 0.0010 '/' Cc= 0.900
			n= 0.012 Concrete pipe, finished. Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 13.30 hrs HW=608.24' TW=608.38' (Dynamic Tailwater) 1=Culvert (Controls 0.00 cfs)

#### Pond 24P: DS 40



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#### Summary for Pond DI 252: DI #252 - ELM ST SEWER

[80] Warning: Exceeded Pond 24P by 0.36' @ 12.15 hrs (0.24 cfs 12,618 cf) [80] Warning: Exceeded Pond DS41 by 1.44' @ 7.40 hrs (0.00 cfs 500 cf)

Inflow Area = 29,922 sf, 98.00% Impervious, Inflow Depth = 0.51" for WQv event

Inflow = 0.38 cfs @ 12.03 hrs, Volume= 1,260 cf

Outflow = 0.38 cfs @ 12.03 hrs, Volume= 1,261 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.38 cfs @ 12.03 hrs, Volume= 1,261 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

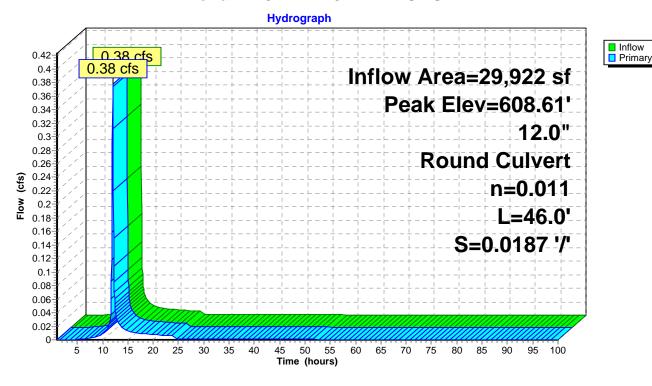
Peak Elev= 608.61' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.31'	12.0" Round Culvert
	-		L= 46.0' RCP, sq.cut end projecting, Ke= 0.500
			Inlet / Outlet Invert= 608.31' / 607.45' S= 0.0187 '/' Cc= 0.900
			n= 0.011 Concrete pipe, straight & clean. Flow Area= 0.79 sf

Primary OutFlow Max=0.37 cfs @ 12.03 hrs HW=608.61' (Free Discharge) 1=Culvert (Inlet Controls 0.37 cfs @ 1.86 fps)

#### Pond DI 252: DI #252 - ELM ST SEWER



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#### **Summary for Pond DS 35: Planter PB-1C**

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 0.65" for WQv event

Inflow 0.12 cfs @ 12.03 hrs. Volume= 324 cf

0.00 cfs @ 12.05 hrs, Volume= Outflow 202 cf, Atten= 99%, Lag= 1.0 min

Primary 0.00 cfs @ 12.05 hrs, Volume= 202 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.58' @ 21.70 hrs Surf.Area= 200 sf Storage= 264 cf

Plug-Flow detention time= 1,241.6 min calculated for 202 cf (62% of inflow)

Center-of-Mass det. time= 1,137.8 min (1,933.5 - 795.7)

Volume	Inver	t Avai	I.Stora	ge Storage Desci	ription		
#1	608.28	1	446	cf Storage (Pris	matic)Listed belo	w (Recalc)	
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
608.2		200	0.0	0	0		
611.7	<b>'</b> 8	200	40.0	280	280		
611.7	<b>7</b> 9	200	20.0	0	280		
613.1		200	50.0	132	412		
613.2	28	200	100.0	34	446		
Device	Routing	In	vert C	Outlet Devices			
#1	Primary	609		<b>.0" Round Culve</b> = 5.0' CPP, squa		Ko- 0 500	
<b>#</b> 0	D. L. A	222	lı n	nlet / Outlet Invert= = 0.013 Corrugate	ed PE, smooth inte	S= 0.0120 '/' Cc= 0.900 erior, Flow Area= 0.20 sf	
#2	Device 1	608		.0" Round Culve		I Ke- 0 500	
			lı	L= 48.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.78' / 608.78' S= 0.0000 '/' Cc= 0.900			
"0	<b>D</b> : 0	000		= 0.010 PVC, smo			
#3	Device 2	608		.300 in/hr Exfiltra			
#4	Device 1	613		4.0" x 24.0" Horiz imited to weir flow		<i>y</i> = 0.000	
			L	innited to well flow	at low Heads		

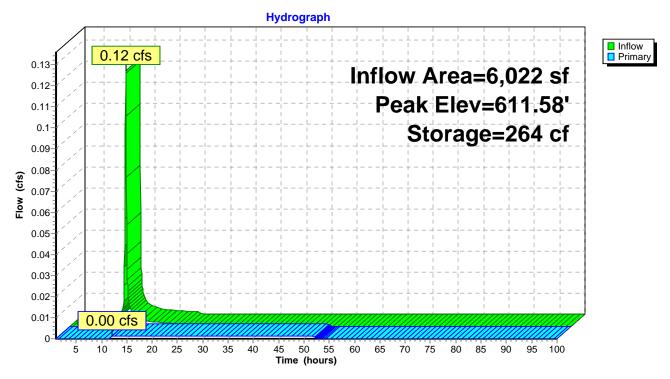
Primary OutFlow Max=0.00 cfs @ 12.05 hrs HW=609.97' TW=609.12' (Dynamic Tailwater)

**-1=Culvert** (Passes 0.00 cfs of 0.06 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 0.33 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Controls 0.00 cfs)

#### Pond DS 35: Planter PB-1C



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#### **Summary for Pond DS 39: Planter PB-3C**

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 0.57" for WQv event

Inflow 0.06 cfs @ 12.04 hrs. Volume= 159 cf

0.00 cfs @ 13.30 hrs, Volume= Outflow 51 cf, Atten= 98%, Lag= 75.9 min

Primary 0.00 cfs @ 13.30 hrs, Volume= 51 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 608.36' @ 16.14 hrs Surf.Area= 202 sf Storage= 118 cf

Plug-Flow detention time= 421.0 min calculated for 51 cf (32% of inflow)

Center-of-Mass det. time= 292.7 min (1,103.9 - 811.2)

Volume	Invert	Avail	.Storage	Storage Descrip	otion		
#1	606.90'		429 cf	Storage (Prism	atic)Listed below	w (Recalc)	
Elevatio		urf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)		
606.9	•	202	0.0	0	0		
610.4	10	202	40.0	283	283		
610.4	11	202	20.0	0	283		
611.7		202	50.0	133	417		
611.7	79	202	100.0	12	429		
Device	Routing	lnv	ert Out	let Devices			
#1	Primary	608.		Round Culvert		14 0 500	
<b>#</b> 0	<b>5</b>	007	Inle n= (	0.013 Corrugated	08.24' / 608.18'	Ke= 0.500 S= 0.0120 '/' Cc= 0.900 erior, Flow Area= 0.20 sf	
#2	Device 1	607.		' Round Culvert	e edge headwal	I Ke- 0 500	
			Inle n= (	= 59.0' RCP, square edge headwall, Ke= 0.500 hlet / Outlet Invert= 607.39' / 607.39' S= 0.0000 '/' Cc= 0.900 he 0.010 PVC, smooth interior, Flow Area= 0.20 sf			
#3	Device 2	606.		00 in/hr Exfiltration			
#4	Device 1	611.		)" x 24.0" Horiz. (		= 0.600	
			LIM	ited to weir flow at	riow neads		

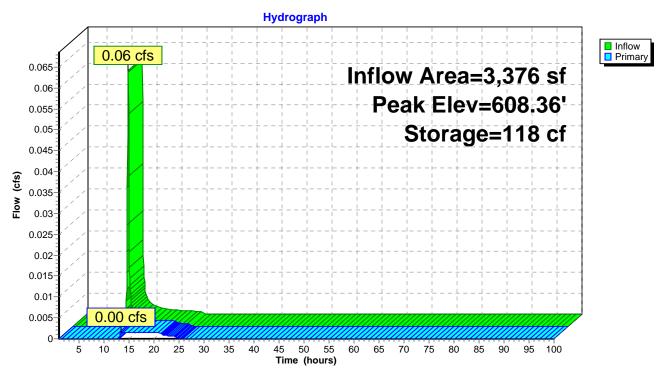
Primary OutFlow Max=0.00 cfs @ 13.30 hrs HW=608.27' TW=608.24' (Dynamic Tailwater)

-1=Culvert (Passes 0.00 cfs of 0.00 cfs potential flow)

**-2=Culvert** (Passes 0.00 cfs of 0.13 cfs potential flow) **-3=Exfiltration** (Exfiltration Controls 0.00 cfs)

-4=Orifice/Grate (Controls 0.00 cfs)

#### Pond DS 39: Planter PB-3C



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#### Summary for Pond DS41: Planter-PB-4C

Inflow Area = 1,842 sf, 91.86% Impervious, Inflow Depth = 0.57" for WQv event

0.03 cfs @ 12.04 hrs, Volume= Inflow 87 cf

1.00 hrs, Volume= Outflow 0.00 cfs @ 0 cf, Atten= 100%, Lag= 0.0 min

Primary 1.00 hrs, Volume= 0.00 cfs @ 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 607.97' @ 24.70 hrs Surf.Area= 202 sf Storage= 87 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.	Storage	Storage Description				
#1	606.89'		451 cf	Storage (Prismatic)Listed below (Recalc)		w (Recalc)		
Elevatio		ırf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
606.8		202	0.0	0	0			
610.3		202	40.0	282	282			
610.3		202	20.0	0	282			
611.7		202	50.0	134	417			
611.8	39	202	100.0	34	451			
Device	Routing	Inv	ert Outle	et Devices				
#1	Primary	608.2		Round Culvert				
			Inlet n= 0	.013 Corrugated	08.24' / 608.18'	Ke= 0.500 S= 0.0120 '/' Cc= 0.900 erior, Flow Area= 0.20 sf		
#2	Device 1	607.3		Round Culvert				
			Inlet	= 49.0' RCP, square edge headwall, Ke= 0.500 let / Outlet Invert= 607.39' / 607.39' S= 0.0000 '/' Cc= 0.900 = 0.010 PVC, smooth interior, Flow Area= 0.20 sf				
#3	Device 2	606.8		0 in/hr Exfiltratio				
#4	Device 1	611.8		" x 24.0" Horiz. C		= 0.600		
			Limi	ted to weir flow at	low heads			

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=606.89' TW=608.31' (Dynamic Tailwater)

-1=Culvert (Controls 0.00 cfs)

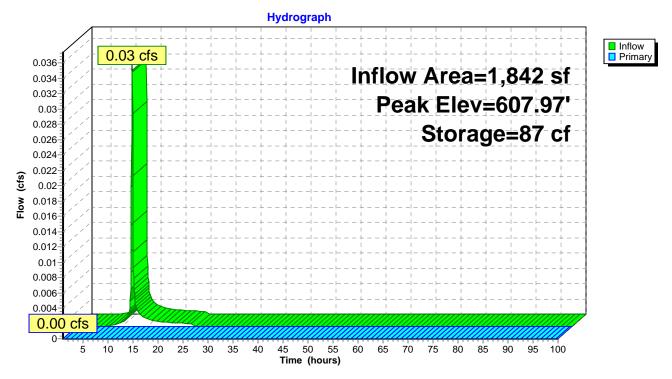
-2=Culvert (Controls 0.00 cfs)
-3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)

-4=Orifice/Grate (Controls 0.00 cfs)

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#### Pond DS41: Planter-PB-4C



# KENMORE AVENUE RECONSTRUCTION KLAUDER ROAD TO MAIN STREET NYSDOT PIN 5757.18

### CITY OF BUFFALO ERIE COUNTY, NEW YORK

#### POROUS PAVEMENT TECHNICAL MEMORANDUM

Prepared for:

#### **Buffalo Sewer Authority**

1038 City Hall 65 Niagara Square Buffalo, New York 14202-3378

Prepared by:



2009.0003.00 December 2014

## KENMORE AVENUE RECONSTRUCTION BUFFALO, NEW YORK

## POROUS PAVEMENT TECHNICAL MEMORANDUM TABLE OF CONTENTS

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#### **APPENDICES**

Appendix A: Location Map

**Appendix B:** Drainage Area Plans

**Appendix C:** Pervious Pavement Details

**Appendix D:** Boring Logs

**Appendix E:** Porous Pavement Sizing Calculations

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This document has been prepared by KHEOPS Architecture, Engineering & Survey, DPC to describe the porous pavement treatment that will be implemented to mitigate negative impacts from stormwater runoff within the Kenmore Avenue Reconstruction area. The project area is shown in Appendix A – Location Map.

#### I. INTRODUCTION

#### A. **Project Description**

The project involves the reconstruction of Kenmore Avenue between North Parker Avenue and Main Street. The north side of the road is part of the Town of Tonawanda and Town of Amherst sewer districts, while the south side of the road is located within the City of Buffalo, New York. The existing pavement, curbs, and sidewalk are in poor condition throughout the project corridor. The proposed project involves full depth reconstruction of the roadway between North Parker Avenue and Englewood Avenue, and a mill and overlay treatment between Englewood Avenue and Main Street. Throughout the corridor, the project will include replacement of curbing, replacement of sidewalks and installation of ADA compliant curb ramps, replacement of driveway aprons, replacement of signage and striping including safety upgrades, and landscaping improvements. Additionally, the existing roadway will be increased in width by approximately 3 linear feet along the south side of the roadway to allow the inclusion of a dedicated bicycle lane. Porous pavement will be installed along the Kenmore Avenue south bicycle lane to reduce the stormwater runoff entering the combined sewer system.

#### B. <u>Existing (Pre-Developed) On-Site Conditions</u>

Within the City of Buffalo, the project corridor consists of primarily commercial properties west of Radcliffe Road, and primarily residential properties east of Radcliffe Road. The project area generally drains to the north west.

Soil borings and pavement cores of the project corridor were collected by SJB Services, Inc in November 2009. Twelve soil borings (B-6, B-8, B-10, B-12, B-14, B-15, SC-12, SC-16, SC-19, SC-21, SC-23, and SC-24) were taken along the City of Buffalo side of the corridor. The six borings taken along Kenmore Avenue (B-X) were drilled to a final depth of 12 feet, while the borings at side street locations were drilled to a final depth of 8 feet. All twelve borings found clayey silts below the pavement and subbase layers. The groundwater surface elevation was not reached at any of the locations. The boring logs and location maps are provided in Appendix D.

#### C. <u>Proposed (Post-Developed) On-Site Conditions</u>

The proposed project includes the rehabilitation of the existing roadway, curbs, and sidewalks, including a five foot wide porous pavement bike lane along the south edge of pavement. The porous pavement section will utilize 9 inches of pervious asphalt, and 2.75 feet of gravel subbase for stormwater storage. The gravel subbase storage area will include an 8 inch perforated underdrain to convey un-infiltrated stormwater to the

Kenmore Avenue Reconstruction

combined sewer system. Appendix C – MD-1 and MD-2 show the proposed pervious pavement features.

#### D. <u>Environmental Impact</u>

Correspondence with the New York State Department of Environmental Conservation dated February 10, 2010 confirmed that there are "no records of rare or state listed animals or plants, significant natural communities or other significant habitats, on or in the immediate vicinity" of this project site. No further investigation or coordination regarding protected plants and animals is required.

Correspondence with the New York State Office of Parks, Recreation and Historic Preservation (SHPO) dated January 26, 2010 stated that "it is SHPO's opinion that your project will have No Effect upon cultural resources in or eligible for inclusion in the National Register's of Historic Places." No further coordination with SHPO is required.

### II. POROUS PAVEMENT CAPTURE AREA AND CAPACITY

# A. <u>Capture Area of Porous Pavement</u>

The capture area of the porous pavement was determined to be 5.17 acres, using project topographic survey, United States Department of Interior Geologic Survey (USGS) topographic mapping, and proposed project reconstruction plans. The capture area primarily encompasses the area between the crown of the road and the back of the sidewalk, with the exception of a few parking areas that were field verified to drain toward the pervious asphalt bike lane.

A review of the available USGS topographic mapping determined that the stormwater generally drains to the north west throughout the corridor. The USGS topographic mapping is shown in Appendix A – Location Map. A profile of Kenmore Avenue within the project limits shows that the corridor drains eastward from the western limit toward approximately 400 Kenmore Avenue, and westward from Main Street to 400 Kenmore Avenue, as shown in Appendix B – Drainage Area Plans.

## B. **Porous Pavement Sizing and Capacity**

Review of the soil boring and pavement cores in Appendix D reveal a general presence of clayey silts below the existing fill layer. While these soils tend to be somewhat poorly drained, the low groundwater elevation will allow additional time for stormwater to infiltrate into the native soils.

Below the pervious asphalt, the porous pavement will be supported on 2.75 feet of gravel subbase for stormwater storage. Per New York State Stormwater Management Design Manual (August 2010) guidance, the required porous surface area for this capture area is 11,819 square-feet. Calculations for the porous pavement sizing are included in Appendix E.

The provided porous pavement bicycle lane area will cover 22,882 square-feet of roadway. The gravel subbase reservoir provided is capable of storing almost double the required stormwater volume.

Table II-1: Porous Pavement Sizing and Capacity				
Required Provided				
Porous Pavement Area	11,819 SF	22,882 SF		
Storage Volume	13,001 CF	25,170 CF		

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December 2014

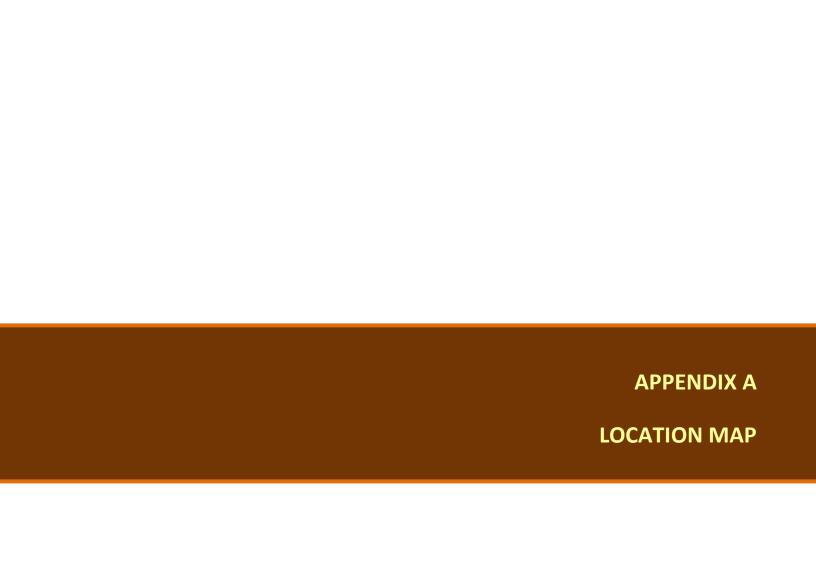
# III. PERVIOUS ASPHALT MAINTENANCE

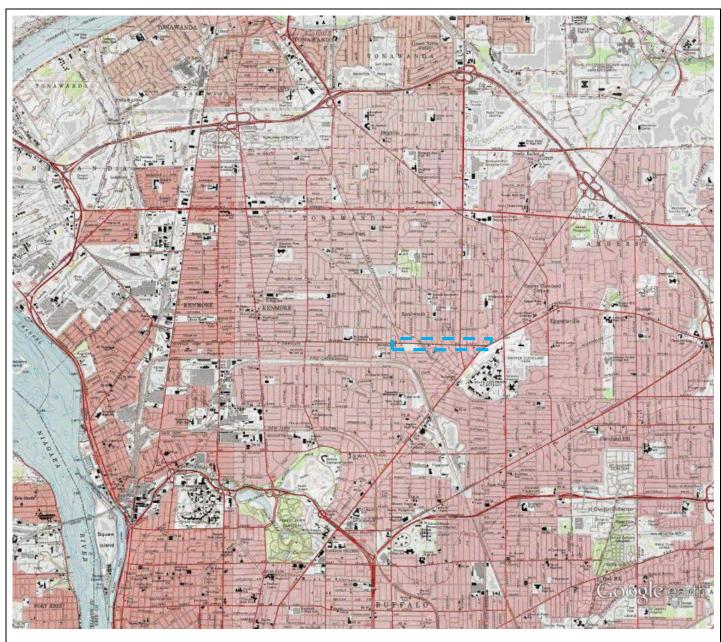
All porous pavements, including pervious asphalt, are highly susceptible to clogging and must be properly maintained to preserve infiltration rates and the long term permeability of the pavement. It is critical that sand and cinders are not used as deicing agents in porous pavement areas as they will quickly clog the pavement pores. The New York State Stormwater Management Design Manual (August 2010) recommends the following maintenance activities for permeable paving.

TABLE III-1 PERVIOUS ASPHALT MAINTENANCE SCHEDULE				
Activity Frequency				
Ensure that paving area is clean of debris	monthly			
Ensure that paving area dewaters between storms	monthly and after storm >0.5" rainfall			
Ensure that the area is clean of sediments	monthly			
Mow upland and adjacent areas	as needed			
Vacuum sweep to keep surface free of sediments	3 - 4 times a year			
Inspect the surface for deterioration	annually			

December 2014

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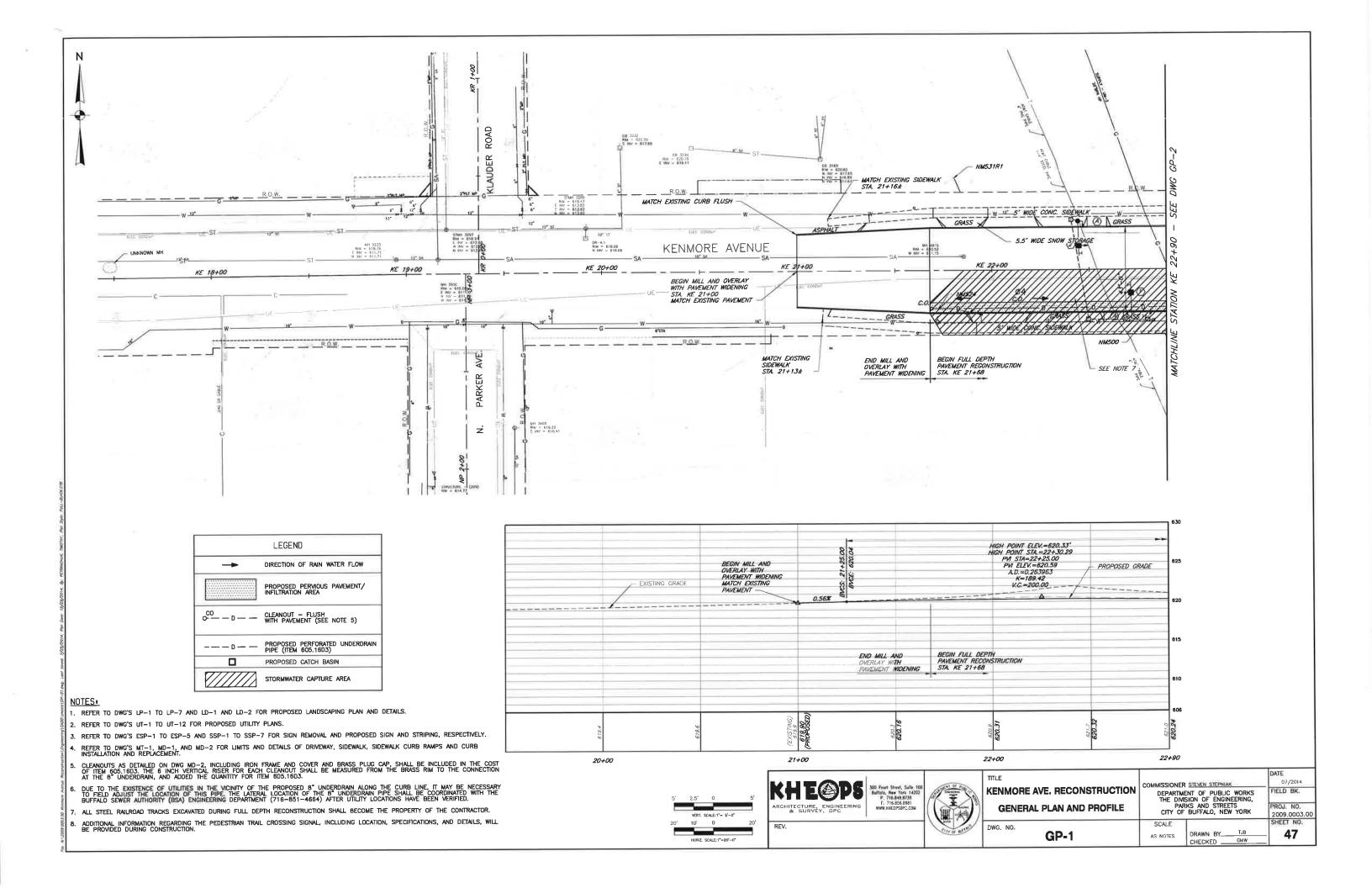
POROUS PAVEMENT TECHNICAL MEMORANDUM

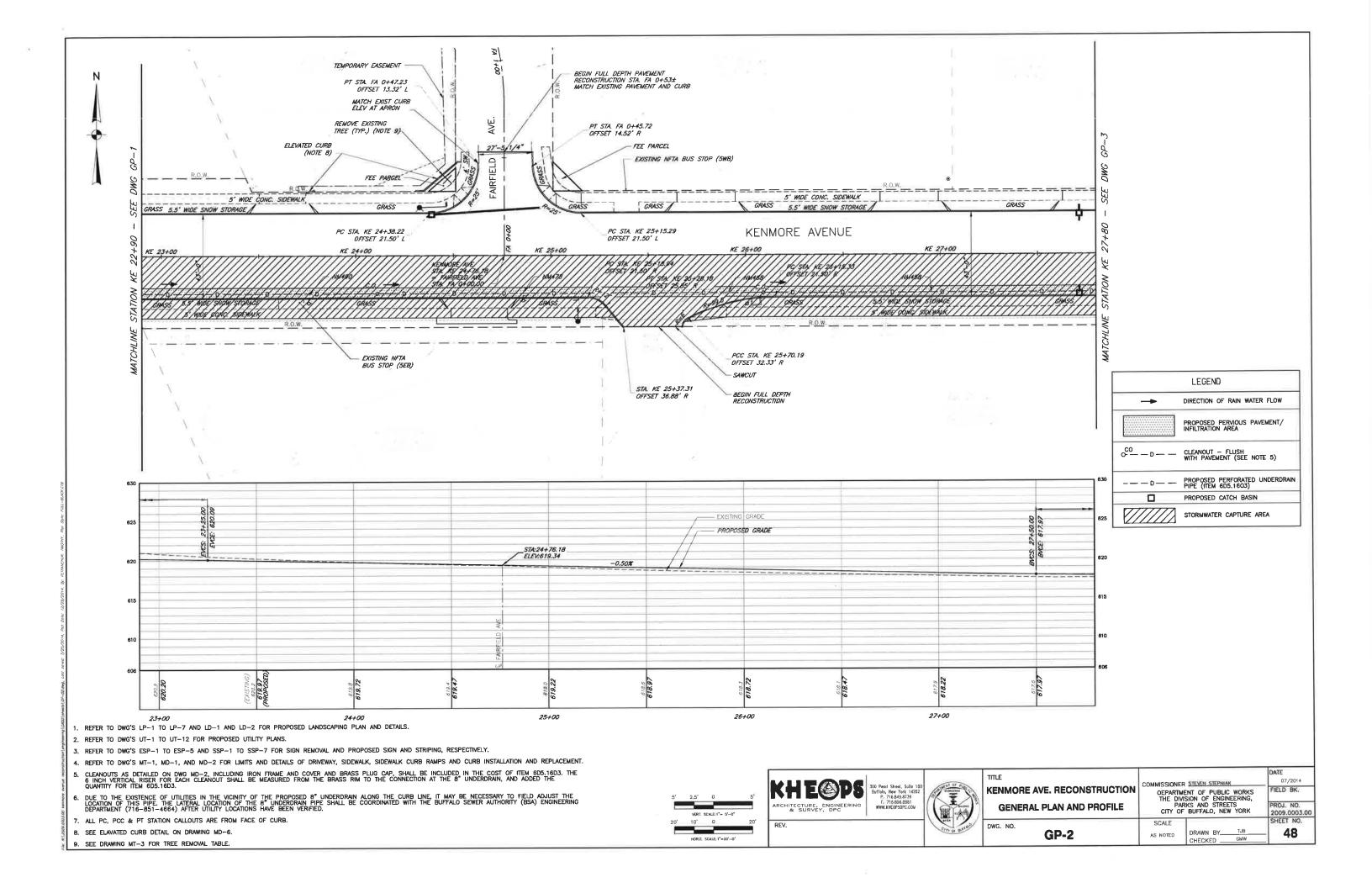
KENMORE AVENUE BUFFALO, NY

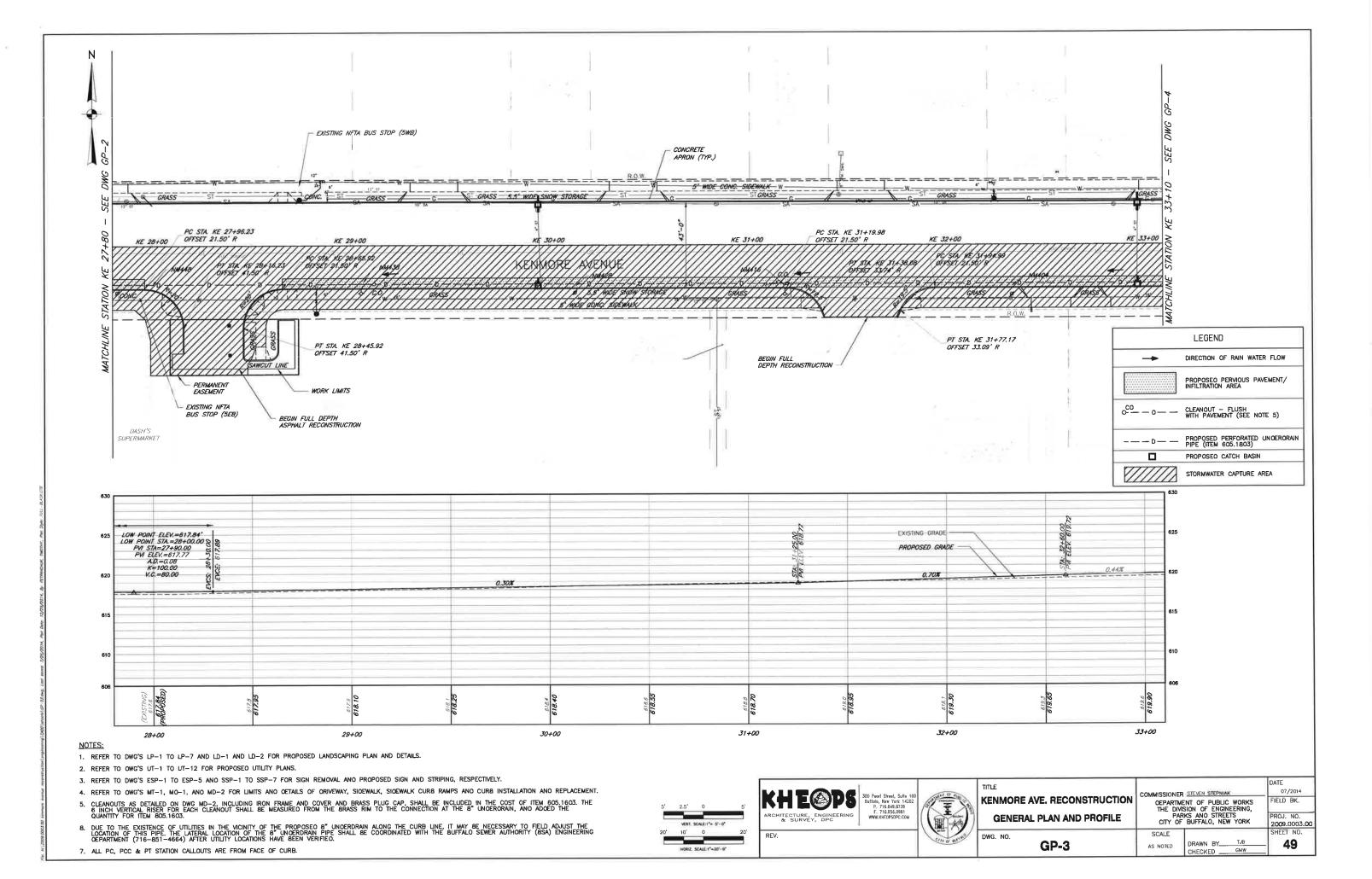
FIGURE 1: REGIONAL LOCATION MAP

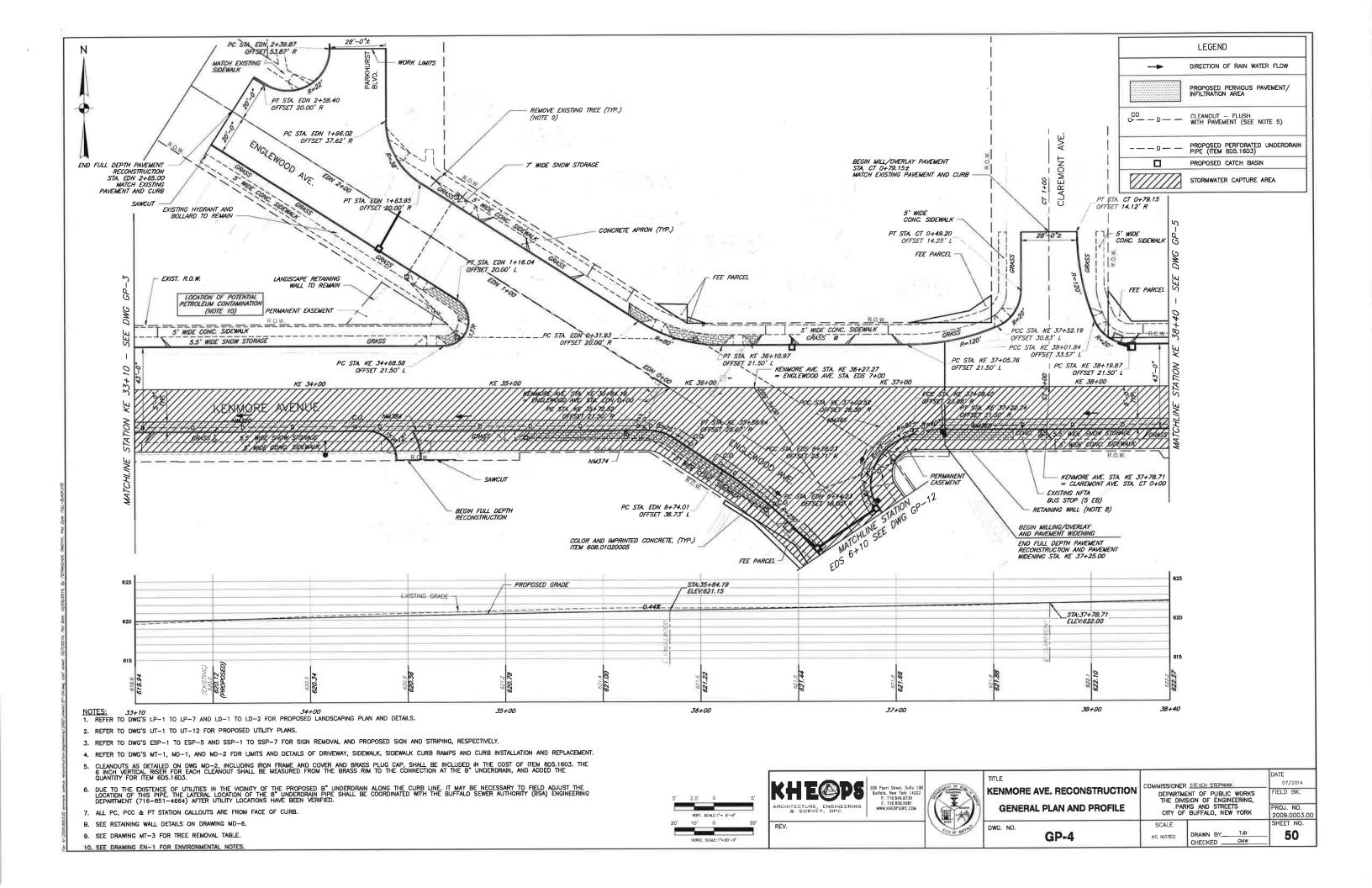
OCTOBER 2014

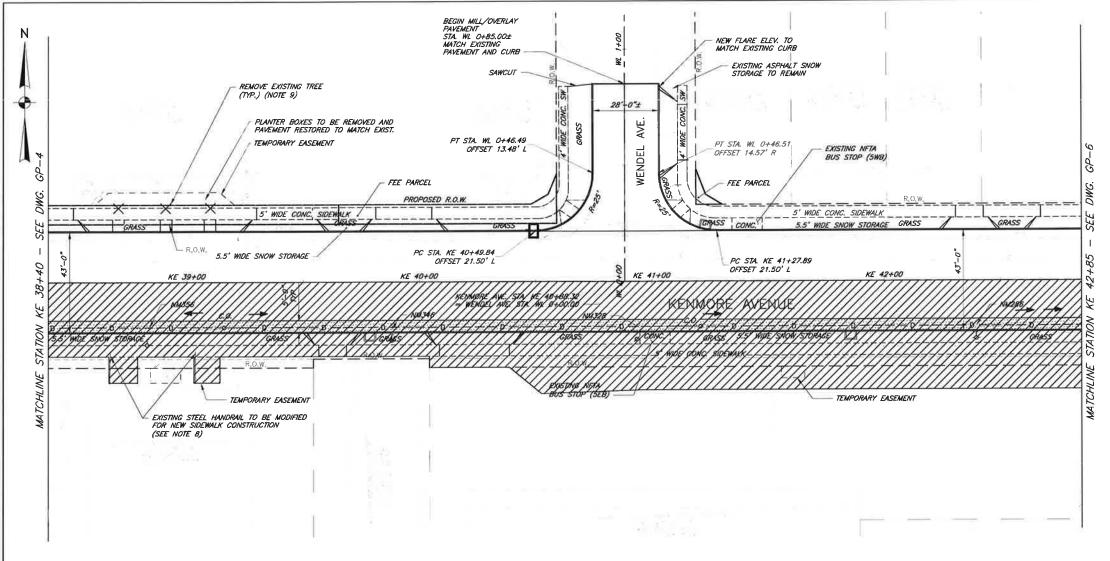


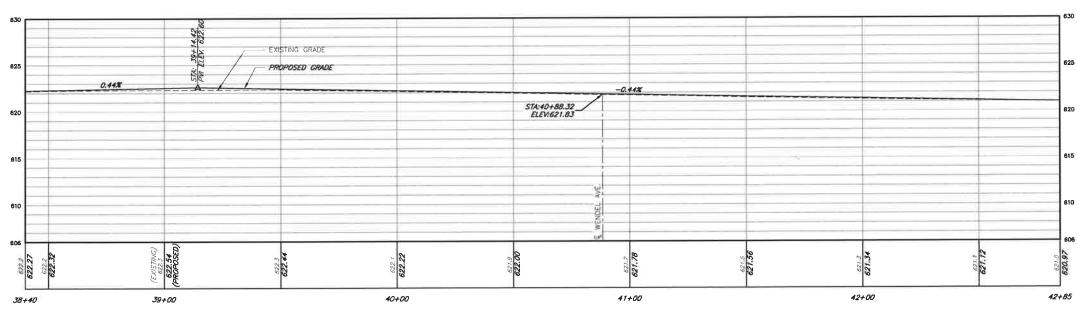


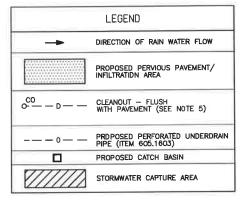






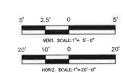






#### NOTES:

- REFER TD DWG'S LP-1 TD LP-7 AND LD-1 TD LD-2 FOR PROPOSED LANDSCAPING PLAN AND DETAILS.
- 2. REFER TO DWG'S UT-1 TD UT-12 FOR PROPOSED UTILITY PLANS.
- REFER TD DWG'S ESP-1 TO ESP-5 AND SSP-1 TO SSP-7 FOR SIGN REMOVAL AND PROPOSED SIGN AND STRIPING, RESPECTIVELY.
- REFER TD DWG'S MT-1, MD-1, AND MD-2 FDR LIMITS AND DETAILS OF DRIVEWAY, SIDEWALK, SIDEWALK CURB RAMPS AND CURB INSTALLATION AND REPLACEMENT.
- 5. CLEANOUTS AS DETAILED ON DG MD-2, INCLUDING IRON FRAME AND COVER AND BRASS PLUG CAP, SHALL BE INCLUDED IN THE COST OF ITEM 605,1603. THE 6 INCH VERTICAL RISER FOR EACH CLEANOUT SHALL BE MEASURED FROM THE BRASS RIM TO THE CONNECTION AT THE 8" UNDERDRAIN, AND ADDED THE QUANTITY FOR ITEM 605,1603.
- 6. DUE TO THE EXISTENCE OF UTILITIES IN THE VICINITY OF THE PROPOSED 8" UNDERDRAIN ALONG THE CURB LINE, IT MAY BE NECESSARY TO FIELD ADJUST THE LOCATION OF THIS PIPE. THE LATERAL LOCATION OF THE 8" UNDERDRAIN PIPE SHALL BE COORDINATED WITH THE BUFFALO SEWER AUTHORITY (BSA) ENGINEERING DEPARTMENT (716-851-4664) AFTER UTILITY LOCATIONS HAVE BEEN VERIFIED.
- 7. ALL PC, PCC & PT STATION CALLOUTS ARE FROM FACE OF CURB.
- 8. SEE HANDRAIL MODIFICATIONS DETAIL DN DRAWING MD-6.
- 9. SEE DRAWING MT-3 FOR TREE REMOVAL TABLE.





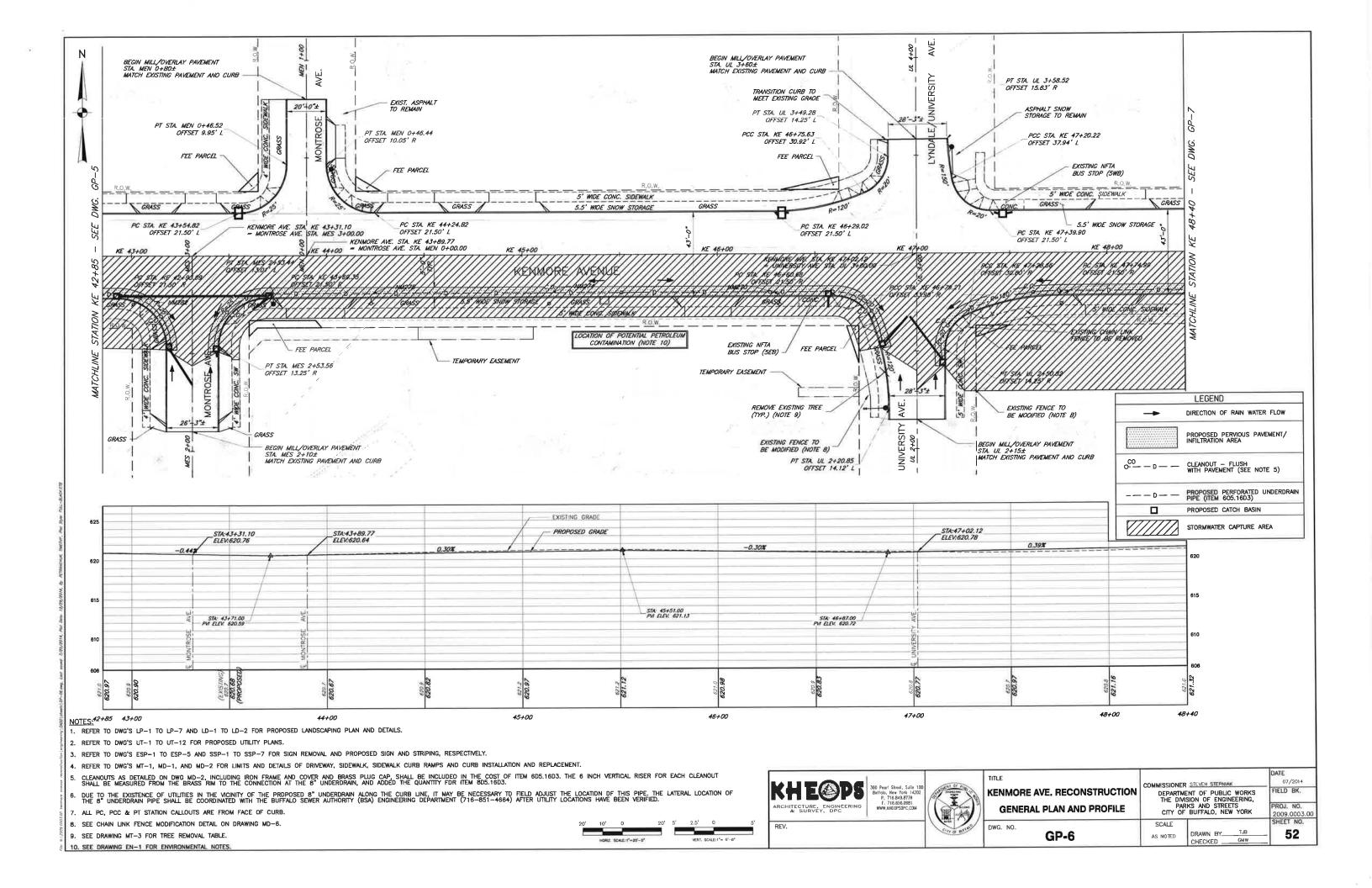


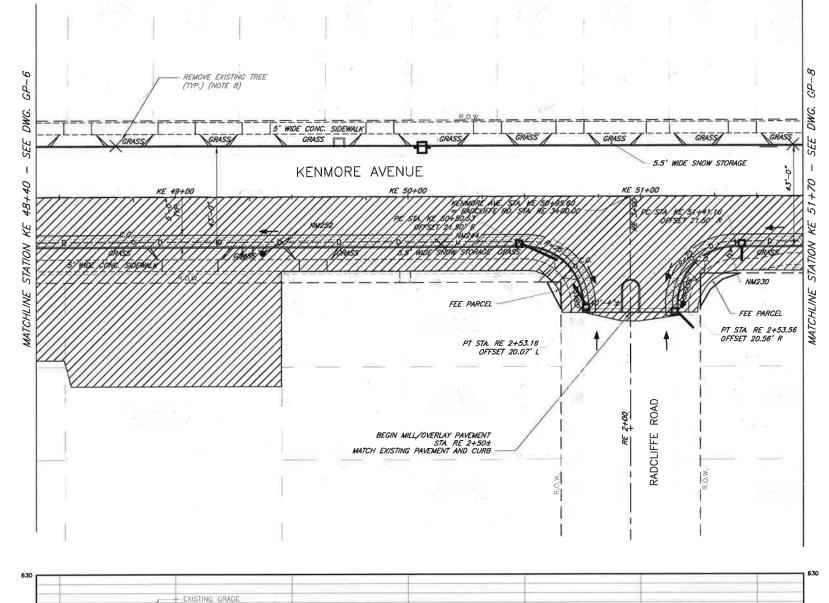
(		ŀ
1	GENERAL PLAN AND PROFILE	
	KENMORE AVE. RECONSTRUCTION	ľ
	TITLE	

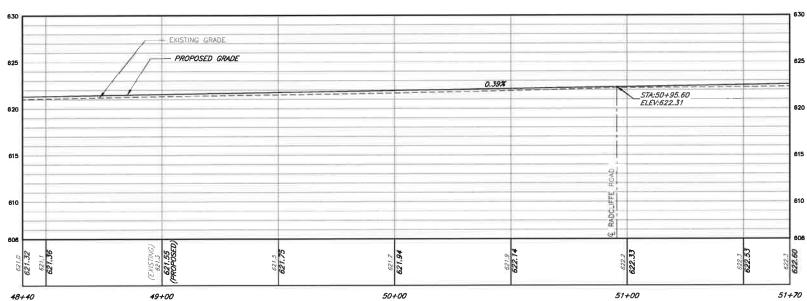
COMMISSIONER STEVEN STEPNIAK FIELD BK. OEPARTMENT OF PUBLIC WORKS
THE DIVISION OF ENGINEERING,
PARKS AND STREETS
CITY OF BUFFALO, NEW YORK PROJ. NO. SCALE

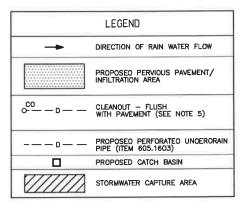
GP-5

2009.0003.00 SHEET NO. 51 DRAWN BY\_\_\_ AS NOTED CHECKED \_



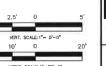






#### NOTES:

- 1. REFER TO DWG'S LP-1 TO LP-7 AND LD-1 TO LD-2 FOR PROPOSED LANDSCAPING PLAN AND DETAILS.
- 2. REFER TO DWG'S UT-1 TO UT-12 FOR PROPOSED UTILITY PLANS.
- REFER TO DWG'S ESP-1 TO ESP-5 AND SSP-1 TO SSP-7 FOR SIGN REMOVAL AND PROPOSED SIGN AND STRIPING, RESPECTIVELY.
- REFER TO DWG'S MT-1, MD-1, AND MD-2 FOR LIMITS AND DETAILS OF DRIVEWAY, SIDEWALK, SIDEWALK CURB RAMPS AND CURB INSTALLATION AND REPLACEMENT.
- CLEANOUTS AS DETAILED ON DWG MD-2, INCLUDING IRON FRAME AND COVER AND BRASS PLUG CAP, SHALL BE INCLUDED IN THE COST OF ITEM 605.1603. THE 6 INCH VERTICAL RISER FOR EACH CLEANOUT SHALL BE MEASURED FROM THE BRASS RIM TO THE CONNECTION AT THE 8 UNDERDRAIN, AND ADDED THE QUANTITY FOR ITEM 605.1603.
- B. DUE TO THE EXISTENCE OF UTILITIES IN THE VICINITY OF THE PROPOSED B" UNDERDRAIN ALONG THE CURB LINE, IT MAY BE NECESSARY TO FIELD ADJUST THE LOCATION OF THIS PIPE. THE LATERAL LOCATION OF THE B" UNDERDRAIN PIPE SHALL BE COORDINATED WITH THE BUFFALO SEWER AUTHORITY (BSA) ENGINEERING DEPARTMENT (716-B51-4664) AFTER UTILITY LOCATIONS HAVE BEEN VERIFIED.
- 7. ALL PC, PCC & PT STATION CALLOUTS ARE FROM FACE OF CURB.
- 8. SEE DRAWING MT-3 FOR TREE REMOVAL TABLE.





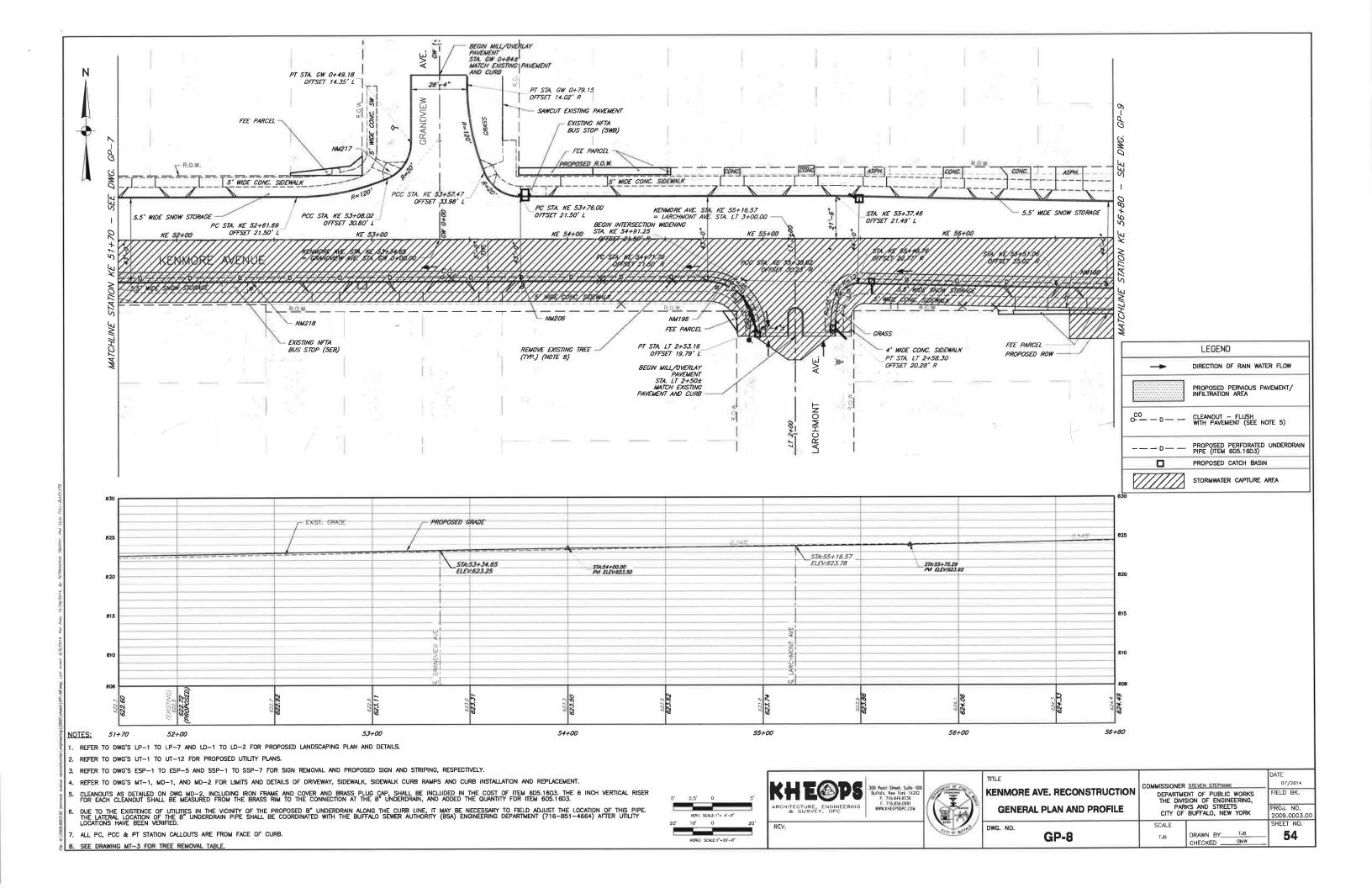


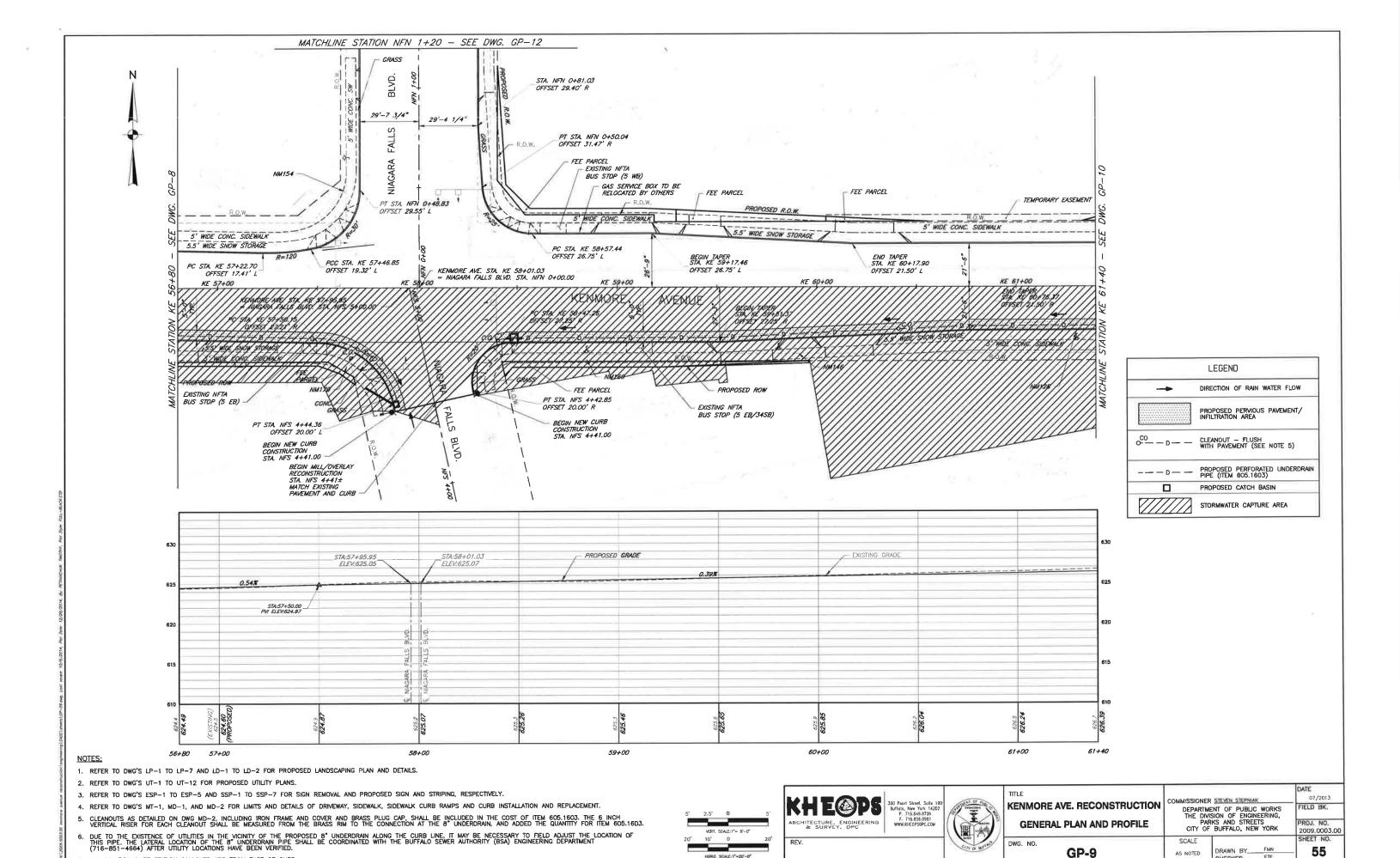
KENMORE AVE. RECONSTRUCTION GENERAL PLAN AND PROFILE	COMMISSIONER SIEVEN STEPMAK  DEPARTMENT OF PUBLIC WORKS THE OMISION OF ENGINEERING, PARKS AND STREETS CITY OF BUFFALO, NEW YORK		
DWG. NO.	SCALE		
GP-7	AS NOTED	DRAWN BY TJB	

07/2014 FIELD BK.

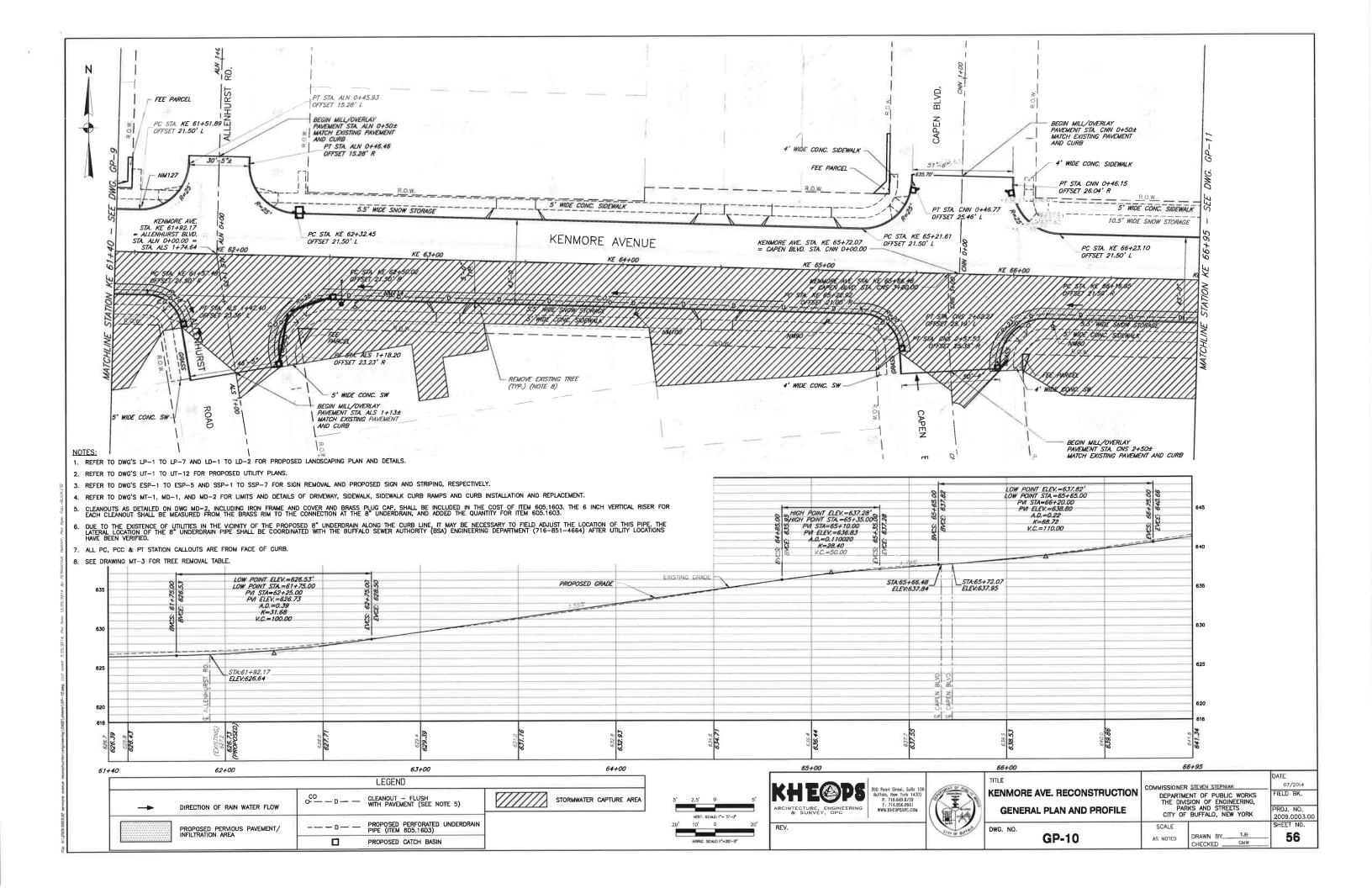
PROJ. NO.

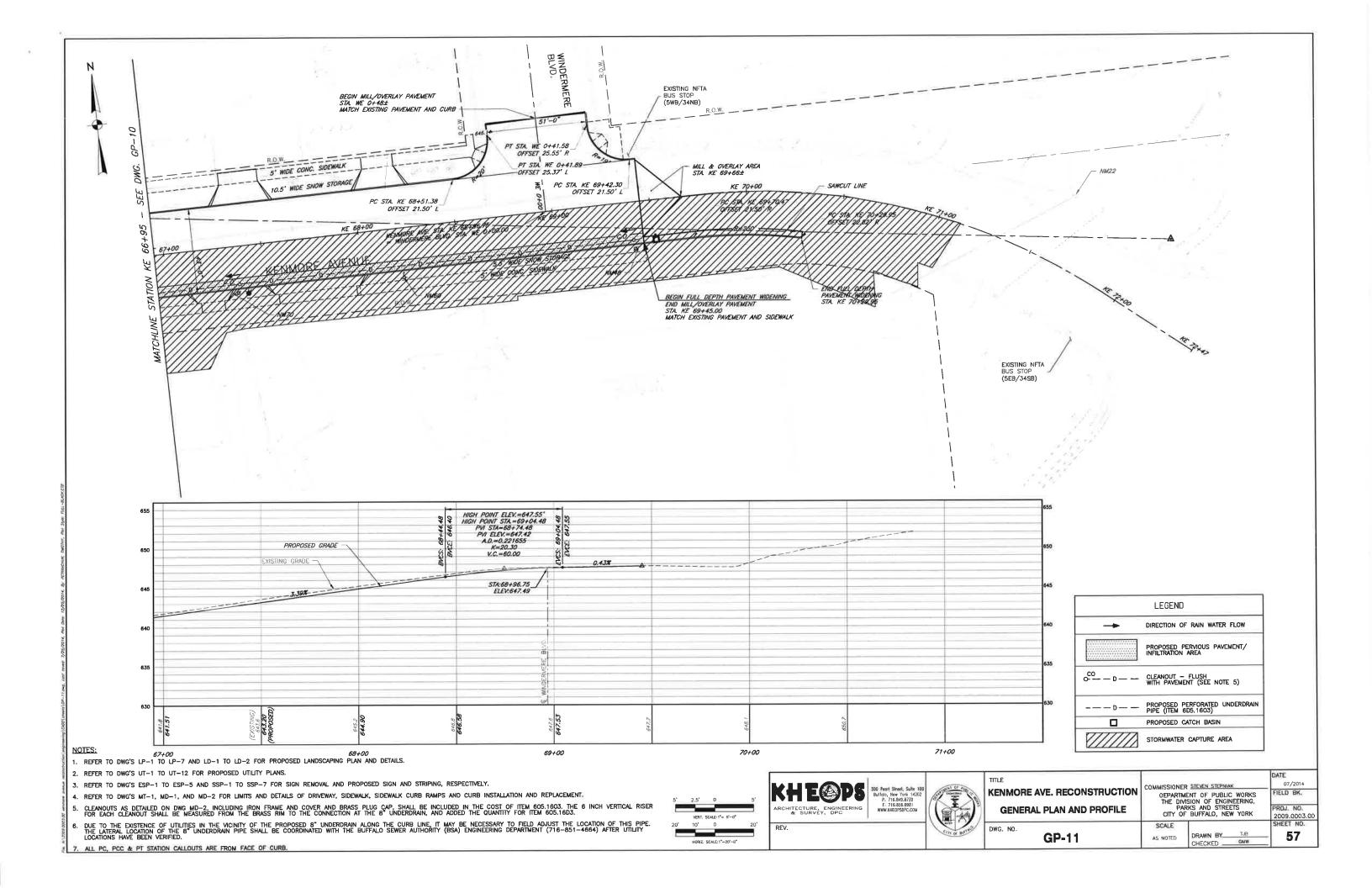
2009.0003.00 SHEET NO. 53

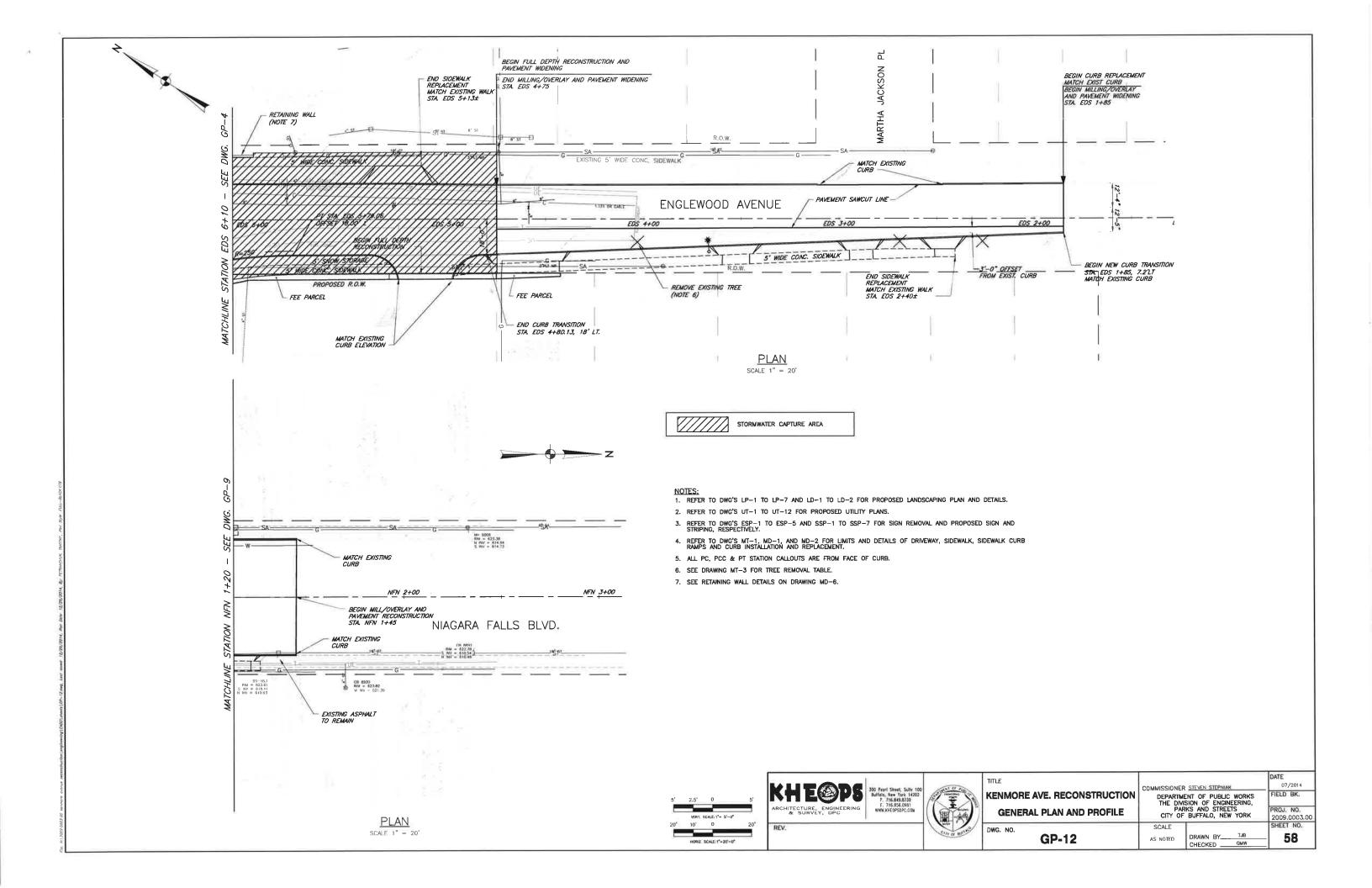




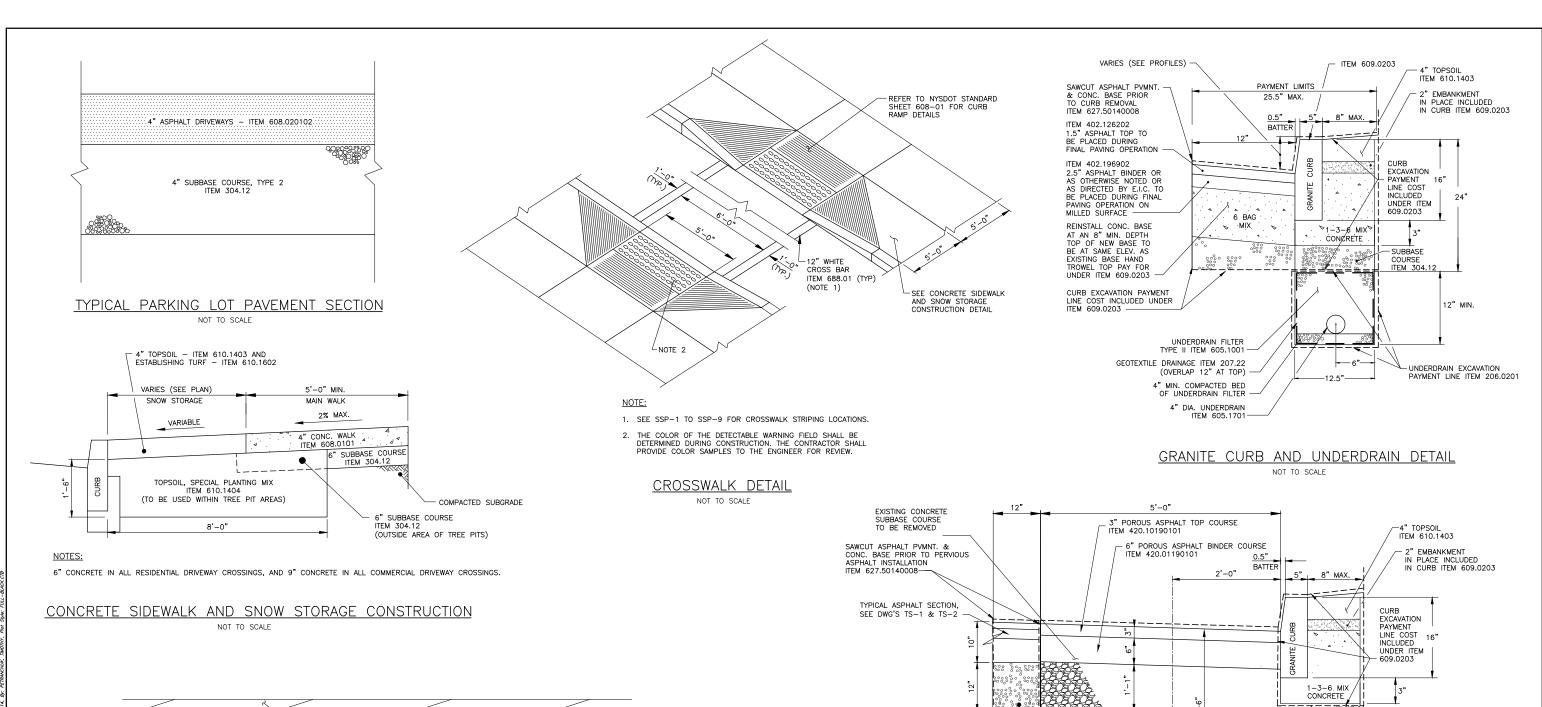
7. ALL PC, PCC & PT STATION CALLOUTS ARE FROM FACE OF CURB.











CONCRETE

4"

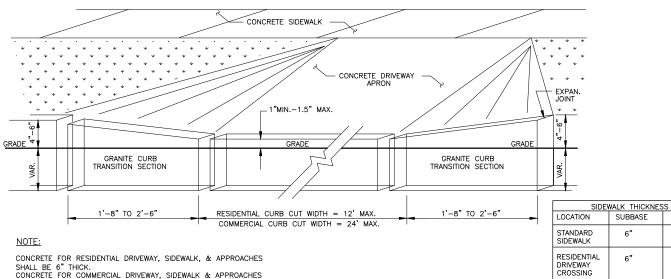
9"

CROSSING

DRIVEWAY CROSSING

COMMERCIAL

6"



## PAVEMENT EXCAVATION PAYMENT LINE COST INCLUDED UNDER ITEM 203.02 SUBBASE COURSE ITEM 304.15 PERVIOUS PAVEMENT EXCAVATION PAYMENT LINE. COST INCLUDED UNDER SUBBASE COURSE ITEM 203.02 ITEM 304.01000010 PERVIOUS PAVEMENT 8" DIA. PERFORATED SDR-35 PVC UNDERDRAIN ITEM 605.1603 EXCAVATION PAYMENT LINE ITEM 203.02 NOTE:

### GRANITE CURB AND UNDERDRAIN DETAIL IN PERVIOUS PAVEMENT AREA

300 Pearl Street, Suite 10 Buffalo, New York 14202 P. 716.849.8739 F. 716.856.0981 WWW.KHEOPSDPC.COM ARCHITECTURE, ENGINEERING & SURVEY, DPC

1. COST FOR ANY NECESSARY PIPE FITTINGS (CONNECTIONS TO DRAINAGE INLETS CLEANOLITS

REV.

ETC.) TO BE INCLUDED IN THE PRICE BID FOR ITEM 605.1603

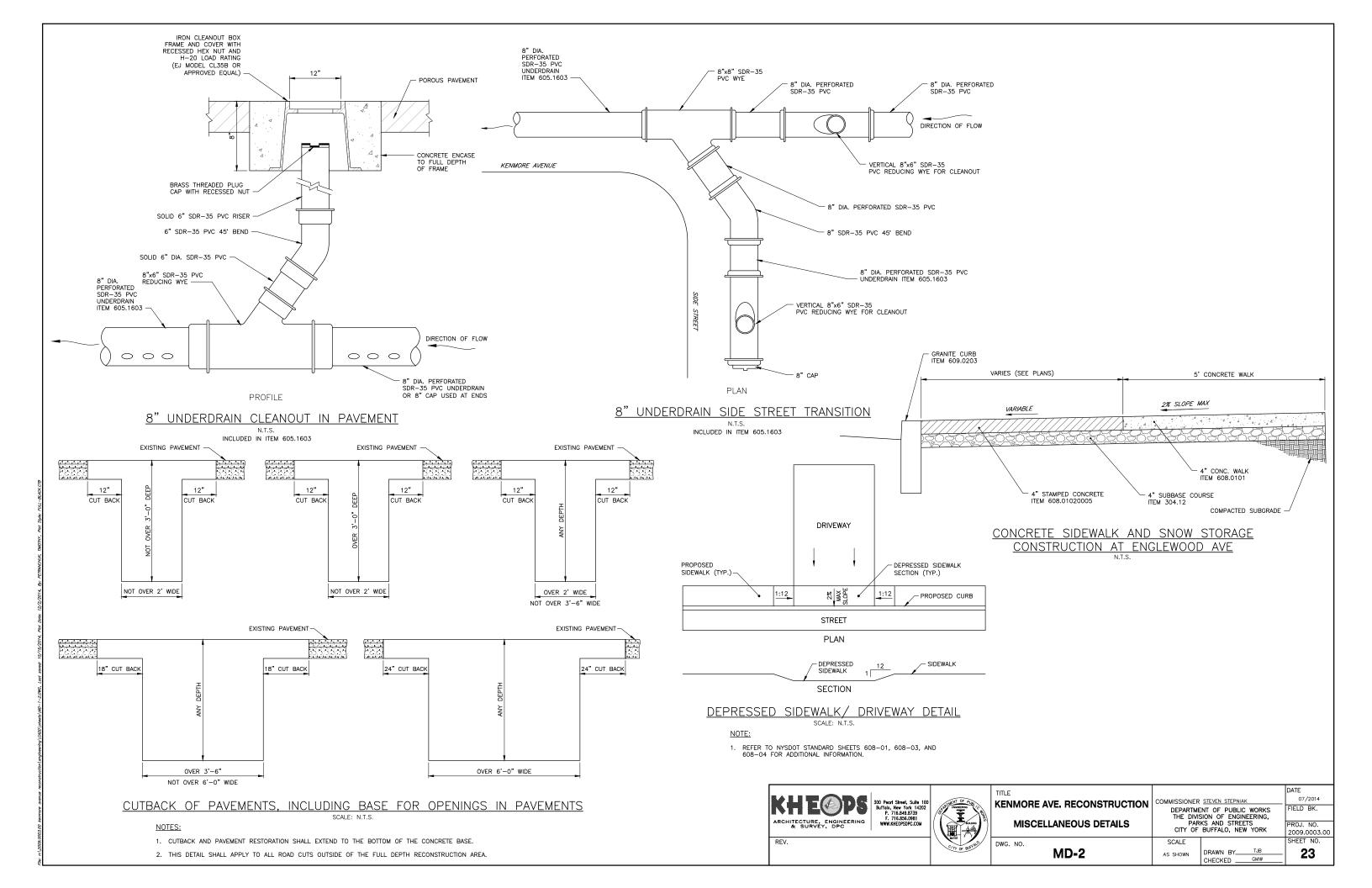


NOT TO SCALE				
TITLE				DATE
KENMORE AVE. RECONSTRUCTION MISCELLANEOUS DETAILS		COMMISSIONER STEVEN STEPNIAK  DEPARTMENT OF PUBLIC WORKS THE DIVISION OF ENGINEERING.		05/2014
				FIELD BK.
		PAR	PROJ. NO.	
		CITY OF	BUFFALO, NEW YORK	2009.0003.00
DWG. NO.		SCALE		SHEET NO.
M	D-1	AS SHOWN	DRAWN BYTJB CHECKED GMW	22

CURB DRIVEWAY TRANSITION & APRON

SHALL BE 9" THICK AND INCLUDE WIRE MESH, A.O.B.E.

NOT TO SCALE



APPENDIX D
BORING LOGS



### Contract Drilling and Testing

#### ☐ CORPORATE/ BUFFALO OFFICE

5167 South Park Avenue Hamburg, NY 14075 Phone: (716) 649-8110 Fax: (716) 649-8051

## ALBANY OFFICE PO Box 2199

PO Box 2199 Ballston Spa, NY 12020

5 Knabner Road Mechanicville, NY 12118 Phone: (518) 899-7491 Fax: (518) 899-7496

#### ☐ CORTLAND OFFICE

60 Miller Street Cortland NY 13045 Phone: (607) 758-7182 Fax: (607) 758-7188

#### ☐ ROCHESTER OFFICE

535 Summit Point Drive Henrietta, NY 14467 Phone: (585) 359-2730 Fax: (585) 359-9668

### SITE INVESTIGATION REPORT KENMORE AVENUE RECONSTRUCTION VARIOUS LOCATIONS BUFFALO, NEW YORK

#### PREPARED FOR:

TVGA CONSULTANTS 1000 MAPLE ROAD ELMA, NEW YORK 14059

PREPARED BY:

SJB SERVICES, INC. JANUARY 2010

SJB # BD-09-125

#### SITE INVESTIGATION REPORT KENMORE AVENUE RECONSTRUCTION VARIOUS LOCATIONS BUFFALO, NEW YORK

#### I. INTRODUCTION

SJB Services, Inc. drilling personnel were present at various locations along Kenmore Avenue from Starin Avenue to Main Street in Buffalo, New York on November 23<sup>rd</sup> through 30<sup>th</sup>, 2009 to perform a subsurface investigation for proposed road reconstruction. The work was requested and authorized by Mr. Edward Stachura of TVGA Consultants, 1000 Maple Road, Elma, New York 14086.

A total of forty (40) test borings were advanced along Kenmore Avenue and associated side streets ranging in depth from 3.0 feet to 12.0 feet below existing ground surface. The location of each of these borings was provided to SJB Services, Inc. on plans prepared by the client prior to commencing drilling operations. Field locations were also established by the client utilizing standard techniques. The actual "as drilled" locations are summarized in the attached table.

#### II. METHOD OF INVESTIGATION

#### A. Cored Locations

A total of eleven (11) pavement cores (designated B-#/ C-#) were completed as part of this project. The existing pavement was initially cored utilizing a portable coring machine equipped with a 4- inch I.D. diamond thinwall core barrel. The core was retrieved from the core hole, and the underlying subbase was then hand excavated and measured for thickness. Standard drilling and sampling methods were then utilized to advance the test boring to a depth of 12- feet below grade. The recovered core was returned to our Hamburg, New York laboratory for measurement and photographs.

#### B. Augered Locations

A total of twenty- nine (29) augered borings (designated SC-#) were also performed as part of this project. Standard drilling and sampling methods were utilized to advance hollow stem augers through the asphalt and into the underlying soils. Augered borings were sampled to a depth of 8- feet below grade.

The recovered samples were classified in the field by our drill foreman and transported to our Buffalo, New York office where visual classification was performed by a Geologist. Included in this report is a "General Information Key to Subsurface Logs" as a supplement to explain the terms, symbols and definitions, which are utilized in our visual classifications.

#### III. GENERAL SITE CONDITIONS

The following table summarizes the results of the test borings completed as part of this project:

	Summary of Test Boring Results Kenmore Ave. Reconstruction Various Location				
Bore/Core Number	Street Address	Pavement Thickness	Subbase Thickness	Soils Types Encountered	
B-1/C-1	719 Kenmore	6" Asphalt 6" Concrete	1 3/4"	Clayey Silts to 12'	
B-2/C-2	691 Kenmore	6" Asphalt 5 ½" Concrete	N/A	Fills to 2' Clayey Silts 2' to 12'	
B-3/C-3	650 Kenmore	4 ¾" Asphalt	4"	Clayey Silts to 12'	
B-4/C-4	601 Kenmore	6 ¾" Asphalt	4"	Fills to 2' Clayey Silts 2' to 12'	
B-5	Kenmore at Parker	0.3' Asphalt	0.4'	Clayey Silts to 12'	
B-6/C-5	501 Kenmore	2 ½" Asphalt	5 ½"	Fills to 2' Cla <b>yey</b> Silts 2' – 12'	
B-7	447 Kenmore	0.4'	0.4'	Fills to 2' Silty Clay 2' to 4' Clayey Silts 4' to 12'	
B-8/C-6	Kenmore at Englewood	5 ½" Asphalt 6 ½" Concrete	N/A	Fills to 2' Clayey Silts 2' to 12'	
B-9/C-7	353 Kenmore	3 ½" Asphalt 7" Concrete	N/A	Fills to 2' Clayey Silts 2' to 12'	
B-10/C-8	299 Kenmore	5 1/4" Asphalt 6" Concrete	N/A	Fills to 2' Silty Sand to 4' Clayey Silts 4' to 12'	
B-11	251 Kenmore	None	None	Fills to 2' Clayey Silts 2' to 12'	
B-12/C-9	199 Kenmore	14" Asphalt	4"	Fills to 2' Clayey Silts 2' to 12'	
B-13/C-10	143 Kenmore	14" Asphalt	4"	Fills to 2' Clayey Silts 2' to 12'	
B-14	99 Kenmore	0.3' Asphalt	0.2	Fills to Approx 3.5'	

		0.5' Concrete		Weathered Rock 3.5 to 6.7'
B-15/ C-11	41 Kenmore	8.5" Asphalt	5"	Fills to 2' Clayey Silts 2' to 12
SC-1	Starin at Kenmore	0.4' Asphalt	0.6'	Fills to 2' Clayey Silts 2' to 8
SC-2	Fairbanks at Kenmore	0.5' Asphalt	N/A	Fills to 2' Clayey Silts 2' to 8
SC-3	Alden At Kenmore	0.5' Asphalt	0.5'	Clayey Silts to 8'
SC-4	Byron at Kenmore	0.5' Asphalt	0.4'	Clayey Silts to 8'
SC-5	Hecla at Kenmore	0.5 Asphalt	1.0'	Clayey Silts to 8'
SC-6	St. John's at Kenmore	0.5 Asphalt	0.5'	Clayey Silts to 8'
SC-7	Rosemary at Kenmore	0.6' Asphalt	0.4'	Fills to 2' Clayey Silts 2' to 8
SC-8	Parker at Kenmore	0.5' Asphalt	0.5'	Fills to 2' Clayey Silts 2' to 8
SC-9	North Parker at Kenmore	0.4' Asphalt	0.6	Clayey Silts to 8'
SC-10	Klaunder at Kenmore	0.6' Asphalt	0.4'	Clayey Silts to 8'
SC-11	Fairfield at Kenmore	0.4 Asphalt 0.8' Concrete	N/A	Fills to 2' Clayey Silts 2' to 8
SC-12	Englewood at Kenmore	0.4' Asphalt	0.6	Clayey Silts to 8'
SC-13	Englewood at Kenmore	0.5' Asphalt	0.4'	Fills to 2' Clayey Silts 2' to 8
SC-14	Claremont at Kenmore	0.4' Asphalt	0.6'	Clayey Silts to 8'
SC-15	Wendel at Kenmore	0.5' Asphalt	0.5'	Fills to 2' Clayey Silts 2' to 8
SC-16	Montrose at Kenmore	0.6' Asphalt	0.3	Clayey Silts to 8'
SC-17	Montrose at Kenmore	0.3' Asphalt	0.7'	Limestone Rock Fragments to 3.0'
SC-18	University at Kenmore	0.4 Asphalt	0.6'	Fills to 2' Clayey Silts 2' to 8
SC-19	Radcliff at University	0.4' Asphait	0.5'	Fills to 2' Clayey Silts 2' to 8
SC-20	Grandview at Hawthorn	0.5' Asphalt	0.5'	Clayey Silts to 8'
SC-21	Larchmont at Kenmore	0.5' Asphalt	0.4'	Clayey Silts to 8'
SC-22	Niagara Falls	0.9' Asphalt	0.6	Fills to 2'

	Blvd. At Kenmore			Clayey Silts 2' to 8'
SC-23	Allenhurst at Kenmore	0.1' Asphalt	0.5'	Fills to 5' Clayey Silts 5' to 8'
SC-24	Capen at Kenmore	0.4' Asphalt 3.2' Concrete	0.1'	Clayey Silts 4' to 8'
SC-25	Windermere at Kenmore	0.5' Asphalt	0.5'	Fills to 8'

Please consult the attached boring logs for more specific details such as "N" values, soil classification, and water level conditions. Photographs of the cored locations are included as part of this report.

The stratification lines shown on the boring logs are approximate, where as in-situ the changes between strata may be more gradual. The subsurface information represented by the attached logs indicates the conditions present only at the location or depth of each sample taken at the borehole specified.

The following pages contain data recorded in the field by our drill foreman. The data, along with the recovered soil samples and their visual classification constitutes the subsurface investigation report.

All recovered samples will be retained for approximately sixty (60) days, at which time the samples will be destroyed unless directed otherwise.

It has been a pleasure working with you on this project. If you have any questions or wish to discuss this report further, please contact our office at any time.

If we can be of further service to you, please let us know. SJB Services, Inc. offers a full range of construction testing services (concrete, asphalt, soil, steel), should you have a need for these items at a later date.

SJB SERVICES, INC.

Frank R. Minnolera Jr.

Staff Geologist

kmh

SUBSURFACE LOGS

STARTED FINISHED OF	SJB SERVICES, INC. SUBSURFACE LOG	PROJ. No.  HOLE No.  SURF. ELEV.  G.W. DEPTH
PROJECT	LOCATION	
O DEPTH (f) SAMPLES SAMPLES SAMPLES 12 18 12 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	1001	NOTES
	8 7 10 3" TOPSOIL  15 Brown SILT, some Sand, trace clay, ML  50/.5 (Moist-Loose)	Groundwater at 10' upon completion, and 5' 24 hrs. after
1 2 3 4	Gray SHALE, medium hard, weathered, thin bedded, some fractures  (5) 6  (numbered features explained on reverse)	Completion
TABLE I	TABLE III	
Split Spoon Sample	Identification of soil type is made on basis of an estimate of particle sizes, and in the case of fine grained soils also on basis of plasticity.  The following terms are used in classifying so consisting of mixtures of two or more soil type. The estimate is based on weight of total same	
Challes Take	Soil Type   Soil Particle Size	









Soil Type	Soil Particle Size	
Boulder	>12"	
Cobble	3" - 12"	
Gravel - Coarse	3" - 3/4"	Coarse Grained
- Fine	3/4" - #4	(Granular)
Sand - Coarse	#4 - #10	
- Medium	#10 - #40	
- Fine	#40 - #200	
Silt - Non Plastic Clay - Plastic (Co		Fine Grained

Term	Percent of Total Sample
"and"	35 - 50
"some"	20 - 35
"little"	10 - 20
"trace"	less than 10

(When sampling gravelly soils with a standard split spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter.)

#### TABLE IV

The relative compactness or consistency is described in accordance with the following terms:

## Granular Soils

#### **Cohesive Soils**

			15 17 5
Term	Blows per Foot, N	Term	Blows per Foot, N
Loose	0 - 4	Very Soft	0 - 2
Loose Firm	4 - 10 10 - 30	Soft Medium	2 - 4 4 - 8
Compact	30 - 50	Stiff Very Stiff	8 - 15 15 - 30
Very Compact	>50	Hard	>30

(Large particles in the soils will often significantly influence the blows per foot recorded during the penetration test)

#### TABLE V

Varved	Horizontal uniform layers or seams of soil(s).
Layer	Soil deposit more than 6" thick.
Seam	Soil deposit less than 6" thick.
Parting	Soil deposit less than 1/8" thick.
Laminated	Irregular, horizontal and angled seams and partings of soil(s).

#### TABLE VI

Rock Classification Term Meaning	Rock Classification Term	Meaning	
Hardness - Soft Scratched by fingerr - Medium Hard Scratched easily by - Hard Scratched with diffic - Very Hard Cannot be scratched Weathering - Very Weathered - Weathered disintegration, iron strecovery, clay seams	enknife - Thin Bedded  by by penknife - Bedded  by penknife - Thick Bedded  re amounts of ning, core - Massive  (Fracturing refers to natural brea	(<1") (1" - 4") (4" - 12") (12" - 36") (>36") ks in the rock (	Natural breaks in Rock Layers priented at some

START

11/23/2009

FINISH

11/23/2009

SHEET

1 OF 1

### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-1/C-1

PROJECT: KENMORE AVE. RECONSTRUCTION LOCATION: IN FRONT OF 719 KENMORE AVE. PROJ. NO.: BD-09-125 BUFFALO, NY			
PROJ. NO.: BD-09-125 BUFFALO, NY	PROJECT:	KENMORE AVE. RECONSTRUCTION	LOCATION: IN FRONT OF 719 KENMORE AVE.
	PROJ. NO.:	BD-09-125	BUFFALO, NY

No.   No.	DEPTH		SMPL		BLO	ws on s	AMPLER	SOIL OR ROCK	NOTES
8	FT.		NO.	0/6	6/12	12/18	N	CLASSIFICATION	
Red- Brown Clayey SILT, little f-c Sand, tr. gravel (molst, ML)  Refer to core photo for details.				С	0	R	E	ASPHALTIC CONCRETE	Driller noted approximately
Refer to core photo for details.    1		4							6" asphalt, 6" concrete,
2 3 5									and 1 3/4" subbase.
6   12   17   17   (v. stiff)	V	1	3				Red- Brown Clayey SILT, little f-c Sand, tr. gravel		
12 17 17 (v. stiff)  3 10 14 28 4 4 36 24 4 32 36 56 (hard)  8 5 18 18 5 20 27 38 Becomes Brown  10 6 28 30 59 12 Boning Complete at 12.0'  Boning Complete at 12.0'  No Free Standing Water Reading Obtained at Boning Completion	2	VI				I constant		(moist, ML)	Refer to core photo
4 3 10 14 28 4 4 36 24 4 32 36 56 (hard)  8 5 18 18 8 8 8 8 20 27 38 8 8 8 20 27 38 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8			2	3	5				for details.
14 16 28  4 36 24  32 36 56 (hard)  8 5 18 18	0.000	1 //		12	17		17	(v. stiff)	
14 16 28  4 36 24  32 36 56 (hard)  8 5 18 18		]/[		-seves					
14 16 28  4 36 24  32 36 56 (hard)  8 5 18 18		]/ [							
14 16 28  4 36 24  32 36 56 (hard)  8 5 18 18	4	1							
6			3	10	14				
4   36   24		1 /1		14	16		28		
4   36   24	8	1/1							
4   36   24	2.00	1/ [							
32 36 56	6	1							
32 36 56			4	36	24				
Becomes Brown    10		1 /1		32	36		56	(hard)	
10	_	1/1							
10	S==	1/ [							
10	8	1							
10	-	1	5	18	18			Becomes Brown	
12   Boring Complete at 12.0   No Free Standing Water   Reading Obtained at   Boring Completion	_	1 /1		20	27		38		-
12   Boring Complete at 12.0   No Free Standing Water   Reading Obtained at   Boring Completion	£1	1/1	C C						- CE
12   Boring Complete at 12.0   No Free Standing Water   Reading Obtained at   Boring Completion		1/ [							
Boring Complete at 12.0'  No Free Standing Water Reading Obtained at Boring Completion	10	V							
Boring Complete at 12.0'  No Free Standing Water Reading Obtained at Boring Completion	_		6	28	30				
Boring Complete at 12.0'  No Free Standing Water Reading Obtained at Boring Completion		1/		29	34		59		
Boring Complete at 12.0'  No Free Standing Water Reading Obtained at Boring Completion	_	1/1							
Boring Complete at 12.0'  No Free Standing Water Reading Obtained at Boring Completion		1/ [							
Reading Obtained at Boring Completion	12	1							
Reading Obtained at Boring Completion									
Boring Completion	· ·	1 [						Boring Complete at 12,0'	
Boring Completion									
									Boring Completion
16	14								
16		1							
16			1 10 10 10 10 10 10						
16									
16	_								
	16								

N = NO BLOWS	TO DRIVE 2-11	ICH SPOON 12-INCH	ES WITH A 140 LB PIN WT. FALI	JING 30-INCHES PER BLOW	CLASSIFIED BY:	Geologist
DRILLER.	S, GO	RSKI	DRILL RIG TYPE :	CME-45C		
METHOD OF INV	ESTIGATION	ASTM D-1588 USIN	G HOLLOW STEM AUGERS			

START

11/30/2009

FINISH

11/30/2009

SHEET

1 OF 1

## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-2/C2 SURF, ELEV

PRC PRC		CT: NO.:	KEN BD-			VE. R	ECO	NSTRUCTION LOCATION: FRONT OF 6 BUFFALO, N	
DEPTH	Т	SMPL	T			AMPLER		SOIL OR ROCK	NOTES
FT.		NO.	0/6	6/12	12/18	N		CLASSIFICATION	2244223
	18		С	0	R	E		ASPHALTIC CONCRETE	Driller noted approximately
	介							CONCRETE	6" asphalt and 5 1/2"
	4	, 1	3	5				Red- Brown Clayey SILT, little f-c Sand, tr. gravel	concrete
	1/							(moist, FILL)	Refer to core photo
_ 2 _	1								for details.
-	1	2	6	8				Brown Clayey SILT, little f-c Sand, tr. gravel	<del>-</del>
-	47		11	19		19		(moist, v. stiff, ML)	
_	$\exists I$		-						
, n <del></del>	-								-
_ 4 _	+-,	3	7	10					_
-	- 1	3	22	21		32		(hard)	-
-	$\exists I$			41		J.E.		(Marky)	-
	$\exists I$								_
6	∜								
		4	21	23					
-	7/		18	20		41			-
	1/								
	7/								
8	7								_
	II	5	18	22					
-	$\perp /$		23	28		45			
_	4/								-
_	4		_						-
10	1								-
-	-1/	6	28	25		50	-		_
_	4/		27	34		52		-	-
-	-   /								-
12	-V				-				
- '-	+		_			-	-		
-	1							Boring Complete at 12.0'	No Free Standing Water
-	1 1								Encountered at Boring
-									Completion
14	11								
	7								
									_
-	1								

N = NO. BLOWS	TO DRIVE 2-INCH SPOON 12-IN	ICHES WITH A 140 LB, PIN WT FALLI	NG 30-INCHES PER BLOW	CLASSIFIED BY:	Geologist
DRILLER:	S. GORSKI	DRILL RIG TYPE :	CME-45C		
METHOD OF IN	VESTIGATION ASTM D-1588 U	ISING HOLLOW STEM AUGERS			

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SHEET

1 OF 1

## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-3/C-3 SURF. ELEV

PROJECT:	KENMORE AVE. R	ECONSTRUCTION	LOCATION:	FRONT OF 65	0 KENMORE AVE.	
PROJ. NO.:	BD-09-125			BUFFALO, NY	·	
	0):					

DEPTH	П	SMPL		BLO	WS ON S	AMPLER	SOIL OR ROCK	NOTES
FT.		NO.	0/6	6/12	12/18	N	CLASSIFICATION	
	1		С	0	R	E	ASPHALTIC CONCRETE	Driller noted approximately
								4 3/4" asphalt and
	T.	1	12	7			Red- Brown Clayey SILT, little f-c Sand, tr. gravel	4" subbase.
=	1 /		1.57				(moist, ML)	Refer to core photo
2	1/1						(	for details.
-	1	2	12	11				
7.11	1/		12	17		23	(v. stiff)	-
-	1/1		1,500					_
-	1/	-						-
4	V ŀ							
-	1	3	7	11				_
	1/	-	13	14		24		-
-	1/1							_
-	1/  -							-
5 5	√ ŀ		_					1
-	+	4	16	20				_
-	1		18	15		38	(hard)	· Personal Control of
	1/1		10	10		00	(India)	-
_	1/  -						-	Ē-
8	√ ŀ		-				-	_
	+	5	12	20			Becomes Brown	_
_	<i>   </i>	0	22	23		42		
	1/-		- 22	20		72	_	
	1/  -						-	_
10	∦ ŀ			_			-	_
_ '' _	1	6	21	24			-	_
	} /}	O	24	20		48		-
	1/-		44	2.0	-	40	-	_
_	1/  -							(
12	∦ ŀ							-
_ 12	$\vdash$				_			·
-	<del> </del>			-			Boring Complete at 12.0	No Free Standing Water
-	1 +			-			Bonning Complete at 1210	Reading Obtained at
-	1 +				-		_	Boring Completion
14	1 +				_		-	
	1 -						-	_
_	1 +		-					_
	1 1							
_	1 -			-			-	-
16	1			_			-	1
10			-				- La-	1

N = NO BLOWS	TO DRIVE 2-INCH SPOON 12-INCHES	WITH A 140 LB, PIN WT, FALLIN	NG 30-INCHES PER BLOW	CLASSIFIED BY:	Geologist
ORILLER:	S. GORSKI	DRILL RIG TYPE:	CME-45C		
METHOD OF INV	ESTIGATION ASTM D-1586 USING	HOLLOW STEM AUGERS			

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1 OF 1

## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-4/C-4
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: KENMORE AVE. RECONSTRUCTION LOCATION: FRONT OF 601 KENMORE AVE.
PROJ. NO.: BD-09-125 BUFFALO, NY

DEPTH		SMPL		BLO	ws on s	AMPLER		SOIL OR ROCK	NOTES
FT.		NO.	0/5	6/12	12/18	N		CLASSIFICATION	
Manager School			С	0	R	E		ASPHALTIC CONCRETE	Driller noted approximately
									6 3/4" asphalt and
-	T	- 1	2	5				Brown- Black Clayey SILT, little f-c Sand	4" subbase.
	1							(moist, FILL)	
2	1/1		-					(most, rice)	Refer to core photo
	H		10	10		-	_	Dad Drawn Claver Cli T to little for Canal	for details.
-	1	2	10	12				Red- Brown Clayey SILT, tr little f-c Sand,	lor details.
-			16	15		28		tr. gravel (moist, v. stiff, ML)	
	1/1								<u>-</u>
	1/ 1								
4	1								<u></u>
		3	16	14					
	1 /1		20	14		34		(hard)	
	1/1								
	1/ 1		-0.0						
6	V t			_				-	_
- ° -	$\vdash$	4	20	24		-			· —
1,000	1	-4	-	-	-	C 4	_		
			27	29		51			
2	1/								
	1/								
- 8									_
	1	5	16	22					
7	/		27	34		49			
	] [								
	1/ [								
10	Vi								·=
		6	20	23					
	1		19	25		42			_
; <del></del>			1.0	20		77 for			_
200									_
	/								_
_ 12	$\perp$								
-								Boring Complete at 12.0'	No Free Standing Water
									Reading Obtained at
						-2.5			Boring Completion
14									
-		-							
-	1								
===									
16	-								_
10	لب							L	

N = NO, BLOWS	TO DRIVE 2-INCH SPOON 12-INCHES	WITH A 140 LB, PIN WT, FALLIN	IG 30-INCHES PER BLOW	CLASSIFIED BY,	Geologist
DRILLER.	S. GORSKI	DRILL RIG TYPE	CME-45C		
METHOD OF INV	/ESTIGATION ASTM D-1586 USING F	OLLOW STEM AUGERS			

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## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-5
SURF. ELEV
G.W. DEPTH See Notes

тн	SMPL	1	BLO	WS ON S	AMPLER		SOIL OR ROCK	NOTES
2	NO.	0/6	6/12	12/18	N		CLASSIFICATION	99975119569
	1	-		*****			ASPHALTIC CONCRETE	Driller noted approximatel
$\Box$		Α	U	G	E	R		0.3' asphalt and
	1	3	5				Red- Brown Clayey SILT, little f-c Sand, tr. gravel	0.4' subbase.
-	/	-					(moist, ML)	
$\dashv$	1	-				_		
-	2	12	13		20		() chiff)	
-	/	12	13		20		(v. stiff)	
-1	-						•	
$\neg$	-							
+	3	4	9					
$\neg$		12	20		21			
	/							
$\Box /$								
	4	15	18				van as	
	/	21	23		39		(hard)	
$\dashv$								
-//								
1	1-	_	7.7					
	5	9	11		25		(v. stiff)	
-	/	14	17		23	-	(v. stiii)	
$\dashv$ /			-					
$\neg$								
	6	15	18			_		
		17	20		35		(hard)	
							1	
		100000						
1								
_								
_							Boring Complete at 12.0'	No Free Standing Water
-								Reading Obtained at
-								Boring Completion
-			-		_			
			-	$\rightarrow$				

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1 OF 1

### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. <u>B-6/C-5</u>

SURF. ELEV

G.W. DEPTH See Notes

4	SMPL		BI O	WS ON 9	AMPLER	SOIL OR ROCK	NOTES
	NO.	0/6	6/12	12/18	N	CLASSIFICATION	NOTES
		C	0	R	E	ASPHALTIC CONCRETE	Driller noted approximate
	1	9	7	4	11	Brown f-c SAND, little- some f-c Gravel, little Silt	2 1/2" asphalt and
- /	<del></del>	<u> </u>				(moist, FILL)	5 1/2" subbase.
$\dashv$						(110131, 1101)	Refer to core photo
$\dashv$							for details.
-	2	7	9			Red- Brown Clayey SILT, little f-c Sand, tr. gravel	
- 1		12	15		21	(moist, v. stiff, ML)	
$\dashv I$	_	16	1.0			- (moist, v. still, live)	
$\dashv I$		-					
-		-					
-	3	9	19			-	
+ $/$	3	12	14	-	31	(hard)	
$\dashv I$		12	14		31	(hard)	
$\dashv I$						<del></del>	
$\dashv$						-	
+	4	16	18			-	
$\dashv I$		25	30		43		
+1		23	30		43		
$\dashv /$						-	
$\dashv$	-		-				
+	5	4.4	1.4			-	
- 1	- 5	11	14 21		32		
$\exists I$		10	21	-	32		
- /						-	
-//						<del></del>	
+ 1	6	15	17				
- 1	- 0	24	28		41		
-		24	20		41	-	
$\dashv / \mid$	_	-					
-							
-						Paring Complete at 49.01	No Eroo Standing Water
				-		Boring Complete at 12.0'	No Free Standing Water Reading Obtained at
-							Boring Completion
-						-	Boning Completion
-						-	
4						-	
-							
-							
-						-	

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### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-7
SURF. ELEV
G.W. DEPTH See Notes

гн		SMPL		81.0	WS ON S	AMPLER		SOIL OR ROCK	NOTES
		NO.	0/6	6/12	12/18	N		CLASSIFICATION	
	î							CONCRETE	Driller noted approximate
			Α	U	G	E	R		0.4' asphalt and
	<u>  ~   </u>	1	2	3				Black f-c SAND, some Silt, tr. gravel (moist, FILL)	0.4' subbase.
	]/[								
	$V \perp$								_
		2	5	6				Brown- Grey Silty CLAY, tr. sand (moist, stiff, CL)	
			9	16		15			
	1/[								
	1/ 1								
	1	3	9	10				Red- Brown Clayey SILT, tr little f-c Sand	
	1/		13	15		23		(moist, v, stiff, ML)	
	1							_	
	1	4	16	26					
			24	29		50		(hard)	
_	1/1								
_	/								
	1	5	10	13				Becomes Brown	
	/		20	22		33			
_	1							_	
	/  -							_	
_					-				
_	1	6	14	19		19.9		-	
_	/-		25	28		44		-	
-	1			-	-			-	
_	/ }				_			-	
_	_								
_	-				_			Paring Complete at 12.01	No Free Standing Water
-	-		_			-		Boring Complete at 12.0'	Reading Obtained at
-	-							-	Boring Completion
-	-	_							Doning Completion
-	-							-	
-	-	-						-	
-	-		-				-	-	
-	-			-				-	
-	-			-		-		-	
_								L	

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1 OF 1

SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-8/C-6 SURF. ELEV

G.W. DEPTH See Notes

PROJECT: KENMORE AVE. RECONSTRUCTION LOCATION: KENMORE AT ENGLEWOOD
PROJ. NO.: BD-09-125 WEST SIDE OF INTERSECTION

EPTH	S	MPL		BLO	WS ON S		SOIL OR ROCK	NOTES	
=т.	1	10.	0/6	6/12	12/18	N	CLASSIFICATION		_
	H		С	0	R	E		Driller noted approximatel	ly
								5 1/2" asphalt and	
	7	1	15	10			Brown- Grey f-c SAND and f-c Gravel, little Silt	6 1/2" concrete.	
							(moist, FILL)	Refer to core photo for	
2 7								details	
		2	9	9			Red- Brown Clayey SILT, little f-c Sand, tr. gravel		
			15	16		24	(moist, v. stiff, ML)		
-	$/ \vdash$								
-/	-			-					
		-	_						
-	-	3	11	13			-	No Recovery Sample #3	
-	1	0	13	10		26	-	The factorery cample we	
_	/-	-	13	10		2.0	-		
		-					management of the second of th		
//	-				-		<b>—</b>		
-	-	,	40						
	1	4	12	14					
	/		13	16		27	_		
_//									
3									
		5	15	11					
	/		14	13		25			
0									
	1	6	18	16					
			16	20		32	(hard)		
$\neg$									
2									
	_								-
-							Boring Complete at 12.0'	No Free Standing Water	
-			-					Reading Obtained at	
	-		-					Boring Completion	
4		$\neg$							
_		-							
		-		- 1					
	-								
	-	-	-		-		-		
_	-	-		-					
6									_

N = NO. BLOWS	TO DRIVE 2-INCH SPOON 12-INCH	ES WITH A 140 LB: PIN WT. FALLIN	G 30-INCHES PER BLOW	CLASSIFIED BY.	Geologist
DRILLER:	S. GORSKI	DRILL RIG TYPE	CME-45C	I (	
METHOD OF INV	ESTIGATION ASTM D-1586 USIN	IG HOLLOW STEM AUGERS			

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1 OF 1

## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-9/C-7
SURF. ELEV

G.W. DEPTH See Notes

PROJECT: KENMORE AVE. RECONSTRUCTION LOCATION: FRONT OF 353 KENMORE AVE. PROJ. NO.: BD-09-125 BUFFALO, NY

EPTH		SMPL		8LO	WS ON S		SOIL OR ROCK	NOTES
Ť.		NO.	0/6	6/12	12/18	N	CLASSIFICATION	
			С	0	R	E	ASPHALTIC CONCRETE	Driller noted approximately
	1						CONCRETE	3 1/2" asphalt and
	1	1	6	3			Black Clayey SILT, little f-c Sand (moist, FILL)	7" concrete.
	1/1							
2	1/1							
_		2	10	8			Red- Brown Clayey SILT, little f-c Sand, tr. gravel	Refer to core photo
1-	1 /1		8	7		16	(moist, v. stiff, ML)	for details.
-	1/1			<u> </u>			- (····	13
-	1/ 1							
. =	1							
_	$\vdash$	3	12	10			-	
9-	1	3	14	17	_	24	-	
-	1		14	17		24	-	
	1/							
2-							_	
_	$\square$							
_	1	4	18	16				
	1/1		19	23		25	(hard)	
	// L							
	V							
	1	5	20	22				
-	1		22	28		44		
	11							
-	1/ [					F. T. C		
	V							
-	1	6	15	19				
2-	/-	0	23	27	-	42		
	//		20	4.1		7.6.	-	
-	1/						_	
-	/			-	-			
2	$\vdash$							
_	-						Basing Consulate at 10.01	No Free Standing Water
_							Boring Complete at 12.0'	
_								Reading Obtained at
	Ļ							Boring Completion
4_							_	
6	1							

N = NO. BLOWS 1	O DRIVE 2-1	NCH SPOON 12-INCH	HES WITH A 140 LB. PIN WT FALL	ING 30-INCHES PER BLOW	CLASSIFIED BY:	Geologist
DRILLER	S. GO	RSKI	DRILL RIG TYPE	CME-45C		
METHOD OF INVE	ESTIGATION	ASTM D-1586 USI	NG HOLLOW STEM AUGERS			

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1 OF 1

## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-10/C-8
SURF. ELEV
G.W. DEPTH See Notes

PROJE PROJ.	09-12		VE. R	EUU	NSTRUCTION LOCATION: FRONT OF 299 KENMORE AVE. BUFFALO, NY				
ЕРТН	SMPL		8LO	ws on s	AMPLER		SOIL OR ROCK	NOTES	
T.	NO.	0/6	6/12	12/18	N		CLASSIFICATION		
		С	0	R	E		ASPHALTIC CONCRETE CONCRETE	Driller noted approximately 5 1/4" asphalt and 6" concrete.	
2 -/	1	2	4				Brown- Black f-c SAND, some Silt (moist- wet, FILL)		
	2	5	6				Red- Brown f-c SAND, some Silt, tr. gravel	Refer to core photo	
		9	8		15		(moist, firm, SM)	for details.	
$\Box$								-	
* 🛨	3	15	12				Red- Brown Clayey SILT, tr little f-c Sand,		
$\exists I$		14	17		26		tr., gravel (moist, v. stiff, ML)		
$\dashv$									
3 1									
- 1	4_	16 18	13 15		24		(In a set)		
$\dashv$		10	15		31		(hard)		
$\exists$ /									
-	5	10	16						
$\dashv$	-3-	18	23		34				
$\exists$ /									
o —/									
	6	18	21						
-1/		23	20		44				
2									
							Boring Complete at 12.0'	No Free Standing Water	
-				-				Reading Obtained at Boring Completion	
٠									
_			_						
ĵ .							L		

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1 OF 1

### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-11
SURF. ELEV
G.W. DEPTH See Notes

Т	SMPL	,	BLO	WS ON S	AMPLER	SOIL OR ROCK	NOTES
	NO.	0/6	6/12	12/18	N	CLASSIFICATION	999.033997 (200
1	1 1	3	4			Brown- Black Clayey SILT, little f-c Sand (moist, FILL)	
	/	4	5		8		
7/							
-1/							
7							
	2	6	6			Red- Brown Clayey SILT, little f-c Sand	
		5	5		11	(moist, stiff, ML)	
$\Box I$							
$\rfloor /$							
1							
	3	2	8			Contains tr. gravel (v. stiff)	
1	/	9	12		17		
4/							
4/		-					
1	-	-				<del>_</del>	
4	1_4_	20	17		40	/4	
-11	<b>/</b>	23	27		40	(hard)	
$\dashv I$	-	-				<u> </u>	
$-\parallel$	-	+	-	-			
-	5	7	12			-	
+	5	15	13		28	(v. stiff)	
$\dashv$ /	-	10	23		20	(V. 5011)	
$\dashv$	-	+				<del> </del>	
$\forall$		+					
+	6	28	35			Contains tr. sand (hard)	
7	/ <del></del>	32	39		67		
$\exists /$							
7/							
$\mathbb{I}$							
						Boring Complete at 12,0'	No Free Standing Water
							Reading Obtained at
		-					Boring Completion
4							
-							
-		-					
		-	-				
-	-	-				_	
	1	1					
						2-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW C	LASSIFIED BY Geologist

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## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-12/C-9
SURF. ELEV
G.W. DEPTH See Notes

-1		SMPL		BLO	WS ON S	AMPLER	SOIL OR ROCK	NOTES
		NO.	0/6	6/12	12/18	N	CLASSIFICATION	
			С	0	R	E	ASPHALTIC CONCRETE	Driller noted approximate
								14" asphalt and
		1	10	13			Brown- Grey Crushed STONE and f-c Sand,	4" subbase.
_	/						little Silt (moist, FILL)	
_	1		40				<del>-</del>	
	1	2	10	14		40	Red- Brown Clayey SILT, little f-c Sand, tr. gravel	Refer to core photo
	{		12	14		16	(moist, v. stiff, ML)	for details.
-	1/  -						-	
	V H							
	1	3	10	11			_	
	1		14	19		25	_	
	1/1							
-	1/							
	1							
	1	4	18	16				
	1/[		19	23		25	(hard)	
	1/1							
_	1	5	18	19				
-		-	21	26	-	40	_	
T				-				
-	/							
-	-	6	8	15	-			
_	/ -	-	21	27		36	_	
	//							
	1							
	/ [							
							Boring Complete at 12.0'	No Free Standing Water
								Reading Obtained at
								Boring Completion
							_	
_	-							
_	-							
_	-						-	
-	H						-	
			1				1	

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## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-13/C-10 SURF. ELEV

G.W. DEPTH See Notes

PROJ. NO.: BD-09-125  PTH SMPL BLOWS ON SAMPLER  NO. 0/6 6/12 12/18 N							T	BUFFALO, N	
Ή		SMPL NO.	0/6	BLO1 6/12	WS ON SA	N N		SOIL OR ROCK CLASSIFICATION	NOTES
		IVU.	C	0	R	E		ASPHALTIC CONCRETE	Driller noted approximate
_									14" asphalt and 4" subbase.
_	7	1	3	7			Red- Bro	wn and Black Clayey SILT, little f-c Sand,	4 Suppase.
	V						tr. gravel	(moist, FILL)	
1150	1	2	8	9		10	Red- Bro (moist, st	wn Clayey SILT, tr little f-c Sand, tr. gravel	Refer to core photo for details.
	1/1		0	Э		10	- (moist, si	uiii, iviL)	lor details.
		3	6	5					
_	1	3	5	11		10			
	1/1								
_	1		-						
_	1	4	9	12					
	1/		16	15		28	(v. stiff)		
	/						_		
	1								
	1	5	14	13					
			15	18		28			
	1/								
	/ [		0.0						
	1	6	20 26	23 30		49	(hard)		
							A) (55 ( 55 )		
_	$\vdash$					-			
								Boring Complete at 12.0'	No Free Standing Water
									Reading Obtained at Boring Completion
									Doring Completion
	-								

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

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## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. B-14 SURF. ELEV G.W. DEPTH See Notes

PRC PRC				IMOF 09-12		VE. R	ECO	NSTRUCTION LOCATION: ACROSS FRO BUFFALO, N	
DEPTH	1	SMPL				AMPLER		SOIL OR ROCK	NOTES
FT		NO.	0/6	6/12	12/18	N		CLASSIFICATION	1150.1.450
	1		Α	Ų	G	Ē	R	ASPHALTIC CONCRETE  CONCRETE	Driller noted approximately
_	*	1	2	1				Red- Brown and Black Clayey SILT, little f-c Sand (moist, FILL)	and 0.2' subbase.
2 _	1	2	1	2					_
-	1/		4	6		6			_
_	1								_
_ 4 _	1	3	19	47				Tan- Brown Weathered DOLOSTONE Rock	_
-	}/		53	50/0 0		100		(moist)	
6	1								REF= Sample Spoon Refusal
	Z	4	50/0.2			REF			
-								Boring Complete with Sample Spoon Refusal at 6.2' and Auger Refusal at 6.7'	No Free Standing Water Obtained at Boring
_ 8 _									Completion
_									_
10									
_									
_									=
_ 12 _	}								_
14	-								_
									_
_									_
16	1								
								NCHES WITH A 140 LB, PIN WT, FALLING 30-INCHES PER BLOW C	LASSIFIED BY: Geologist
								USING HOLLOW STEM AUGERS	

START

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HOLE NO, B-15/C-11 SURF. ELEV

PROJECT:	KENMORE AVE. RECONSTRUCTION	LOCATION: FRONT OF 41	KENMORE AVE.
PROJ. NO.:	BD-09-125	BUFFALO, NY	

DEPTH		SMPL		BLO	WS ON S	AMPLER	SOIL OR ROCK	NOTES
FT.		NO.	0/6	6/12	12/18	N	CLASSIFICATION	
		Made of Page	С	0	R	Е	ASPHALTIC CONCRETE	Driller noted approximately
	7							8 1/2" asphalt and
-	14	1	7	5			Grey- Brown Crushed STONE (moist- wet, FILL)	5" subbase.
-	1/1							_
2	Vi							_
-		2	6	8			Red- Brown Clayey SILT, little f-c Sand, tr. gravel	Refer to core photo
-	1/1		15	17		23	(moist, v. stiff, ML)	for details.
-	1/1							_
	1/ [							_
4	7 1							
-		3	12	18				_
	1/1		20	24		38	(hard)	_
	1/1							_
_	1/ [							
6	1							-
	1	4	20	22				_
	1 /1		26	40		48		_
	1/1			11380				
-	1/1							· ·
8 -	∜ Ì							_
-		5	30	16				_
1	1 /		22	25		38		_
-	1/1							_
1	1/1		-					_
10	∜ †							
_		6	25	27			Contains occasional boulder fragments	_
5 <del></del>	1 /		26	28		53	Sometime occasional sociator magnification	_
(5)	1/1	-						_
-	1/ [							_
12	∜ I							_
- "-	$\vdash$							
10	1 1			_	_		Boring Complete at 12.0'	No Free Standing Water
	1 1						Bonnig complete at 12.0	Reading Obtained at
0.00	1 1	_						Boring Completion
14	1 1		-					
- "-	1 1							_
-	1						-	_
*****	1 1							-
10 <del>1111</del>	1 1		-	-				_
16	1 1							:
10	1-1							L

N = NO. BLOWS T	O DRIVE 2-IN	ICH SPOON 12-INCHES WI	THA 140 LB PIN WT. FALLIN	G 30-INCHES PER BLOW	CLASSIFIED BY.	Geologist
DRILLER.	S. GO	RSKL	DRILL RIG TYPE	CME-45C		
METHOD OF INVE	STIGATION	AŞTM D-1586 USING HO	LLOW STEM AUGERS			

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### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-1
SURF. ELEV
G.W. DEPTH See Notes

PRO PRO			KEN BD-(			VE. R	ECOI	NSTRUCTION LOCATION: STARIN AT K	ENMORE OF INTERSECTION
DEPTH		SMPL	$\overline{}$		WS ON S	AMPI EP		SOIL OR ROCK	NOTES
FT.		NO.	0/6	6/12	12/18	N		CLASSIFICATION	
	A		Α	U	G	E	R	ASPHALTIC CONCRETE	Driller noted approximately
									0.4' asphalt and
	1	1	3	4				Red- Brown and Black Clayey SILT, little f-c Sand	0.6' subbase.
-	1/1							(moist, FILL)	
_ 2	1		40	4.4				Dad David Olave Cli T little for Cond to supply	-
-	1	2	10	14		28		Red- Brown Clayey SILT, little f-c Sand, tr. gravel (moist, v. stiff, ML)	
_	1/		14	- 22	-	20		(Moist, V. Still, IVIL)	-
-	1/		-						-
4	1								
		3	9	9					
_	] /		14	14		23		(hard)	
_	]/								
_	1/								
6 _	1			-00	_				
-	1/	4	20	22		44		-	
_	1/		22	24	-	*+**	_		-
-	1/				-				
8	٧I								
3.000	]							Boring Complete at 8.0'	No Free Standing Water
-									Reading Obtained at
_					-			-	Boring Completion
10	1								-
-	+				-				-
_	1				-				·
-	1		-	-					
12	1 1								
	1								=
-									_
-									121=
-								-	-
_ 14	1				-			1	
-	1		-						_
-	1				-				
-	1								
16	1								
	DR	ILLER		S	. GOF	RSKI		NCHES WITH A 140 LB, PIN WT, FALLING 30-INCHES PER BLOW  DRILL RIG TYPE:  CME-45C  USING HOLLOW STEM AUGERS	CLASSIFIED BY: Geologist

START

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SHEET \_\_\_\_ OF \_\_\_1

## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-2
SURF. ELEV
G.W. DEPTH See Notes

1	SMPL		BLO	WS ON S	AMPLER		SOIL OR ROCK	NOTES
	NO.	0/6	6/12	12/18	N		CLASSIFICATION	
4		Α	U	G	Ε	R	ASPHALTIC CONCRETE	Driller noted approximat
_ <b>v</b>	1	10	5	7	12		Brown- Black Clayey SILT, little f-c Sand	0.5' asphalt.
							(moist, FILL)	
_//								
1								
1	2	12	7				Red- Brown Clayey SILT, little f-c Sand, tr. gravel	
_  /		12	17		19		(moist, v. stiff, ML)	
4/1								
_]/ ]								
1								
_  /	3	11	22					No Recovery Sample #3
4/		15	19		37			
4/1								
4/								
-		40		-				
-1 /	4	13	5	-	2.4	-	(Marine all)	
-		16	18		31		(hard)	1
- I								
-//		_						
-								
-							Boring Complete at 8.0'	No Free Standing Water
-						-	Doring Complete at 0.0	Reading Obtained at
-		-						Boring Completion
+ +	-							Donning Completion
1								
-								
7 1								
7 1								
7 1								
7								
7 1								
7 1								
7								
7 1								
7								
7 1								

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1 OF 1

## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-3
SURF. ELEV
G.W. DEPTH See Notes

	PROJECT: KENMORE AVE. RECO BD-09-125							NSTRUCTION LOCATION: ALDEN AVE. SOUTH SIDE	AT KENMORE AVE. OF INTERSECTION
DEPTH		SMPL			WS ON 5			SOIL OR ROCK	NOTES
FT.		NO.	0/6	6/12	12/18	N	- 5	CLASSIFICATION	Driller noted approximately
-	1		Α_	U	G	E	R		0.5' asphalt and
_	٧	1	3	5				Red- Brown Clayey SILT, little f-c Sand, tr. gravel	0.5' subbase.
	1							(moist, ML)	
2	1								
		2	7	7					
_	/		13	12		20		(v. stiff)	-
_	/					-			
	<b>∦</b> }								-
4	$\vdash$	3	9	11					
1.	1		17	24		28			
( ====	11					35.0			
6									
_	1	4	31	29					
-	1		28	26		57		(hard)	
8==	1/		_		-				я
8 —	1				-				9
° -	$\vdash$								
-	1							Boring Complete at 8.0'	No Free Standing Water
-									Reading Obtained at
									Boring Completion
10								c	
_									9
-	-								
-	1					_			
12	1								
_	1								
-									
					L				
14									
200									
-	-	-							3
16	1							1	

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# SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-4
SURF. ELEV
G.W. DEPTH See Notes

н		SMPL		BLOV	WS ON S	AMPLER		SOIL OR ROCK	NOTES
_		NO.	0/6	8/12	12/18	N		CLASSIFICATION	
	1		A	U	G	E	R	ASPHALTIC CONCRETE	Driller noted approximate
_		1	4	7				Pod Prown Clavay SILT little for Sand (majet ML)	0.5' asphalt and 0.4' subbase.
_	7		4	-				Red- Brown Clayey SILT, little f-c Sand (moist, ML)	0.4 Subbase,
-	VI								
_		2	11	12				Contains tr. gravel (hard)	
_	] /[		20	17		32			
_	/								
-									
-	$\vdash$	3	28	31		-			Poor Recovery Sample #
	1	0	25	23		56			Troof Noodvery Gample #
-	1								
_	1	4	17	19					
			22	24		41			
-									
_	1				-				
_									
								Boring Complete at 8.0'	No Free Standing Water
									Reading Obtained at
_									Boring Completion
_	ŀ			-					
	1					1			
-	-								
-	-				-				
_	-								
								Lugar - was the same and the sa	

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## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-5
SURF. ELEV
G.W. DEPTH See Notes

PROJE PROJ.		BD-			V L. 13		SOUTH SIE	DE OF INTERSECTION
DEPTH	SMPL		BLO	WS ON S	AMPLER		SOIL OR ROCK	NOTES
FT.	NO.	0/6	6/12	12/18	N		CLASSIFICATION	000000000000000000000000000000000000000
4	-	-					ASPHALTIC CONCRETE	Driller noted approximately
-		Α	U	G	E	R		0.5' asphalt and
17		27.00				100 00		1.0' subbase.
- +	,							
2 -1/	1	4					Red- Brown Clayey SILT, little f-c Sand	
	2	9	11			-	(moist, ML)	-
-1	-	16	23		27			-
$\dashv I$		10	20					-
-1			-					-
, -/		-				-		_
• " —	3	8	11	-			Contains tr. gravel (v. stiff)	-
	-	14	16		25		Contains tr. graver (v. still)	-
		14	10		25	-		-
1/		-	-					=
/		_						-
6								-
-	4	12	14				West and	-
-11		18	20		32		(hard)	-
-1/								-
8								
-							Boring Complete at 8.0'	No Free Standing Water
								Reading Obtained at
_								Boring Completion
10								
								-
				0.000				
12								
0.000								
14								
. –								
-								
2.5								
16	-							-
10		1					L	

DRILLER: S. GORSKI DRILL RIG TYPE: CME-45C

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

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SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-6
SURF. ELEV
G.W. DEPTH See Notes

PROJECT:	KENMORE AVE. RECONSTRUCTION	LOCATION: ST. JOHN'S A'	VE. AT KENMORE AVE.
PROJ. NO.:	BD-09-125	NORTH SIDE	OF INTERSECTION

DEPTH	$\Box$	SMPL		BLO	WS ON S	AMPLER		SOIL OR ROCK	NOTES	
FT.		NO.	0/6	6/12	12/18	N		CLASSIFICATION		
- V-W-	介		-		/ Table 1	ACCUMUM NAME OF THE PARTY.		ASPHALTIC CONCRETE	Driller noted approximately	
	1111		A	U	G	E	R		0.5' asphalt and	-
	14	1	3	7				Red- Brown Clayey SILT, little f-c Sand, tr. gravel	0.5' subbase.	
	1/1					=======================================		(moist, ML)		-
2	1/1							1		-
	11	2	8	9				1		-
100	1 /		12	16		21		(v. stiff)		-
-	1/1		-					(		_
-	1/1									-
4	1									-
	$\forall$	3	13	14					!	-
-	1 /		14	17		28				-
-	1/1					2.0				-
-	1/		-							-
6	∜ ŀ									-
_ ` _	1	4	16	24					No Recovery Sample #4	-
-	1/1		24	28		48			No Necovery Cample #4	
-	1/1		24	20		40			1	-
_	{/			-	-					-
	<b>∦</b> ⊦			-					1	=
8 —	$\vdash$									-
-	+ +					-		Daving Consulate at 9.01	No Erro Ctanding Water	-
-	1	_						Boring Complete at 8.0'	No Free Standing Water	
-	1					-			Reading Obtained at	-
	1								Boring Completion	
10	1				_					
-	-									_
-	1									
										-
_										-
12										_
124										_
_									1	_
14									1	
										_
	11 10									
										-

N = NO. BLOWS	TO DRIVE 2-IN	ICH SPOON 12-INCHES	WITH A 140 LB PIN WT FALLIN	IG 30-INCHES PER BLOW	CLASSIFIED BY:	Geologist
DRILLER	S, GO	RSKI	ORILL RIG TYPE	CME-45C		
METHOD OF INV	ESTIGATION	ASTM D-1586 USING H	HOLLOW STEM AUGERS			

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### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-7
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: KENMORE AVE. RECONSTRUCTION LOCATION: ROSEMARY AVE. AT KENN	
THOSE OF THE MOTE AVE. HE O ONO THOSE TON TO THE TOTAL THE TENT	ORE AVE.
PROJ. NO.: BD-09-125 NORTH SIDE OF INTERSEC	CTION

DEPTH		SMPL		BLO	ws on s	AMPLER		SOIL OR ROCK	NOTES
FT.		NO.	G/6	6/12	12/18	N		CLASSIFICATION	
	4		1/20=					ASPHALTIC CONCRETE	Driller noted approximately
			Α	U	G	E	R		0.6' asphalt and
-	$\dashv$	1	4	7				Brown- Red Clayey SILT, little f-c Sand, tr. gravel	0.4' subbase.
_	1/1							(moist, FILL)	
2	1/1								1
-		2	4	9			-	Brown Clayey SILT, little f-c Sand, tr. gravel	7 -
-	1 /		11	14		20		(moist, v. stiff, ML)	_
_	1/1							()	_
2/17/17	1/1								-
4	∜ I		-			- T			-
_	1	3	8	14					-
-	1/	3	15	18	-	29	-	-	-
-	1/		10	10		25			-
-	1/					-			-
_	IJŀ	-						-	-
6	$\vdash$		10					5 15	-
-	1	4	16	14				Becomes Red- Brown (hard)	-
	1/1		18	20		32			-
	1/1								_
	1/								-
8									
-									
_								Boring Complete at 8.0'	No Free Standing Water
_									Reading Obtained at
									Boring Completion
10	l								_
	] [								
	] [								
-	1 [		1000						
12	1		3.71%						
-	1 1								
-	1 1								
-	1								-
-	1 1								
14 -	1 1						-		-
	1								-
-	1								
-	1								-
4-	-	-1-11				_			-
-	-								-
16									

N = NO BLOWS	TO DRIVE 2-IN	CLASSIFIED BY	Geologist			
DRILLER:	S. GORSKI		DRILL RIG TYPE :	CME-45C	_	
METHOD OF INV	/ESTIGATION	ASTM D-1586 USIN	NG HOLLOW STEM AUGERS			

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SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-8
SURF. ELEV

PROJECT: KENMORE AVE. F PROJ. NO.: BD-09-125		ECO!	ECONSTRUCTION LOCATION: PARKER BLVD. AT KENMORE AVI							
TH SMPL		SMPL	BLOWS ON SAMPLER					SOIL OR ROCK	NOTES	
-		NO.	0/6	6/12	12/18	N		CLASSIFICATION		
-	1							ASPHALTIC CONCRETE	Driller noted approximate	
4	₩		A	U	G	E	R		0.5' asphalt and	
4	1	1	3	5				Red- Brown and Black Clayey SILT, little f-c Sand,	0.5' subbase.	
-	/	_	-					tr. gravel (moist, FILL)		
-	1	2	10	12	_			Dod Prove Clayou Cl. T. by and by ground		
-	1		12	16	-	24		Red- Brown Clayey SILT, tr. sand, tr. gravel (moist, v. stiff, ML)		
+	/		12	10		24		(Moist, V. still, ML)		
+	/ t		-		-					
-	1									
1	1	3	7	13						
1	/		14	18		27				
1	1									
1	/									
V	Ī									
1	1	4	11	30				Contains little f-c Sand (hard)		
1			21	21		51				
	/[									
	/ [									
1										
4	1									
4	-	_		-				Boring Complete at 8,0'	No Free Standing Water	
4	-					-			Reading Obtained at	
+	-								Boring Completion	
Η	-				-					
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METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

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# SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-9
SURF. ELEV
G.W. DEPTH See Notes

							70 ma 2020 de
SMPL				AMPLER.		SOIL OR ROCK	NOTES
NO.	0/6	6/12	12/18	N	HORSEST STREET	CLASSIFICATION	
	-	10007				ASPHALTIC CONCRETE	Driller noted approximatel
	Α	U	G	E	R		0.4' asphalt and
1	4	7				Red- Brown Clayey SILT, little f-c Sand, tr. gravel	0.6' subbase.
						(moist, ML)	
2	7	9					No Recovery Sample #2
	12	15		21			
3	13	13					
	16	20		29		(v. stiff)	
4	18	19				Contains tr. sand (hard)	
	21	20		40			
						Boring Complete at 8.0'	No Free Standing Water
							Reading Obtained at
							Boring Completion
100							
Lia min							CLASSIFIED BY Geologist
NO BLO	)WS	TC TC	TO DRIVE	TO DRIVE 2-INC	TO DRIVE 2-INCH SPOO	TO DRIVE 2-INCH SPOON 12-IN	TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB PIN WT FALLING 30-INCHES PER BLOW

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SUBSURFACE LOG 1 OF 1



HOLE NO. SC-10 SURF. ELEV G.W. DEPTH See Notes

PROJECT:	KENMORE AVE. REC	CONSTRUCTION	LOCATION: KLAUNDER F	D. AT KENMORE AVE.
PROJ. NO.:	BD-09-125		NORTH SIDE	OF INTERSECTION

DEPTH		SMPL		BLO	WS ON S	AMPLER		SOIL OR ROCK	NOTES
FT.		NO.	0/6	6/12	12/18	N		CLASSIFICATION	
	11							ASPHALTIC CONCRETE	Driller noted approximately
	1    [		Α	U	G	Е	R		0.6' asphalt and
	14	1	6	5				Red- Brown Clayey SILT, little f-c Sand, tr. gravel	0.4' subbase.
-	1/1							(moist, ML)	
2	1								
)		2	7	9					
	1 /1		14	20		23		(v. stiff)	
	1/1								
-	1/1								
4	۱ ۱								
	$\Box$	3	7	9					
_	1 /1		13	14		22			
	1/1						100.00		
-	1/ 1								
6	V I								
-		4	13	19	_		-		
-	1 /1		18	24		37		(hard)	1
-	1		1.0	<b>4</b> 1		- 07		(1010)	
-	1/								
8 —	1			_					
-									<del></del>
-	1					_		Boring Complete at 8.0'	No Free Standing Water
S .	1							Bonning Complete at 0.0	Reading Obtained at
-	1	_						•	Boring Completion
0 -	1								Bonnig Completion
_	1				_		-		
-	1								
:==	1 1			-	_				1
(=	1	-		-					1
2	1			_					
	1					-			
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	1					-			
-	1								
. –	1				-				
4	1								
-	1								
-									
_									
16									

N = NO_BLOWS	TO DRIVE 2-IN	NCH SPOON 12-INCHES	WITH A 140 LB. PIN WT. FALLI	NG 30-INCHES PER BLOW	CLASSIFIED BY.	Geologist
DRILLER:	S. GO	RSKI	DRILL RIG TYPE	CME-45C		
METHOD OF INV	ESTIGATION	ASTM D-1586 USING H	HOLLOW STEM AUGERS			

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### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-11
SURF. ELEV
G.W. DEPTH See Notes

	J. NO.: BD-09-125					VE. R	RECO		AT KENMORE AVE. E OF INTERSECTION		
ЕРТН	SMPL BLOWS ON SAMPLER NO. 0/6 8/12 12/16 N			SOIL OR ROCK	NOTES						
FT.		NO.	0/6		_			CLASSIFICATION			
A HOUSE WA	11		-	name is		-		ASPHALTIC CONCRETE	Driller noted approximately		
*	1111		Α	U	G	Е	R	CONCRETE	0.4' asphalt and		
_	1111								0.8' concrete.		
*	₩	1	1					Black Clayey SILT, little fine Sand (moist, FILL)			
2 -			-					and one of the state of the sta			
_		2	2	4				Red- Brown Clayey SILT, tr little f-c Sand,			
<u> </u>	1		10	17		14					
	11	_	10	17		14		tr. gravel (moist, stiff, ML)			
			-								
-	//		-								
4	Ш		-								
-	1	3	4	7							
	/		12	13		19		(v. stiff)			
	1/ [										
6	1										
_		4	14	10							
			15	17		25					
-					7						
-	1/ }		$\vdash$								
8 —	V 1				_						
_											
-	1						-	Bering Complete et 9.01	No Free Standing Water		
-	1							Boring Complete at 8.0'			
-									Reading Obtained at		
									Boring Completion		
0											
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2											
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-	İ										
_	1										
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6											

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### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-12
SURF. ELEV
G.W. DEPTH See Notes

	PROJECT: KENMORE AVE. RECOI BD-09-125					VE. F	RECO	NSTRUCTION LOCATION: ENGLEWOOD AT KENMORE AVENUE SOUTH SIDE OF INTERSECTION					
									NOTES				
DEPTH FT.		SMPL NO.	0/6	6/12	12/18	AMPLER N		SOIL OR ROCK CLASSIFICATION	NOTES				
	A	NO.	0/6	0/12	12/10	- 14		ASPHALTIC CONCRETE	Driller noted approximately				
	۱TI		A	U	G	Е	R	7.01111/10/00/10/12/12	0.4' asphalt and				
	*	1	4	5			1,	Red- Brown Clayey SILT, little f-c Sand, tr. gravel	0.6' subbase.				
	1/							(moist, ML)					
2	V					10-21							
_		2	6	8				1					
-	] /[		11	14		19		(v. stiff)					
	]/[							, or an area ( )					
	1/ 1												
_ 4 _									_				
-	1	3	7	9					_				
_	4 / 1		13	16		22							
7	4/1					_							
	$\parallel \parallel$								_				
6	+		- 11	- 40					_				
	1 A	4_	14	18 24		40		(hard)	-				
-	1/1		22	24		40		(hard)	<del>7 - 1</del>				
: :	1/ }		-		-	_			_				
8 —	√ ŀ		-						_				
	$\vdash$												
(100	1 1	-						Boring Complete at 8.0'	No Free Standing Water				
-	1 1								Reading Obtained at				
3.	1								Boring Completion				
10	1 [												
	] [												
-									_				
-													
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	1 1								_				
- <sup>14</sup> -	1			-					_				
_	1	-											
3777	1 1								_				
-	1 }							•	_				
16	1 1												
	DRI	LLER		S.	GOR	SKI		NCHES WITH A 140 LB PIN WT FALLING 30-INCHES PER BLOW C  DRILL RIG TYPE: CME-45C  USING HOLLOW STEM AUGERS	LASSIFIED BY Geologist				

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SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-13
SURF. ELEV
G.W. DEPTH See Notes

LOCATION: ENGLEWOOD AT KENMORE AVE. KENMORE AVE. RECONSTRUCTION PROJECT: BD-09-125 NORTH SIDE OF INTERSECTION PROJ. NO.: NOTES SOIL OR ROCK BLOWS ON SAMPLER 6/12 12/16 N CLASSIFICATION NO. Driller noted approximately **ASPHALTIC CONCRETE** Α G Ε 0.5' asphalt and U R 6 9 Black- Brown f-c SAND and Silt, tr. gravel 0.4' subbase. (moist. FILL) Red- Brown Clayey SILT, tr.- little f-c Sand, 2 3 6 9 15 tr. gravel (moist, stiff, ML) 10 10 9 22 13 16 (v. stiff) 12 13 Becomes Brown (hard) 20 33 21 No Free Standing Water Boring Complete at 8.0' Reading Obtained at **Boring Completion** 

N = NO BLOWS	TO DRIVE 2-INCH SPOON 12-INCHE	S WITH A 140 LB PIN WT FALLIN	G 30-INCHES PER BLOW	CLASSIFIED BY	Geologist
DRILLER	S GORSKI	DRILL RIG TYPE :	CME-45C		
METHOD OF IN	/ESTIGATION ASTM D-1586 USING	HOLLOW STEM AUGER\$			

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## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-14
SURF. ELEV
G.W. DEPTH See Notes

	PROJECT: KENMORE AVE. RECC PROJ. NO.: BD-09-125							NSTRUCTION LOCATION: CLAREMONT NORTH SIDE	AVE. AT KENMORE AVE. OF INTERSECTION
DEPTH		distinces		_				SOIL OR ROCK	NOTES
ET.	_	NO.	0/6	6/12	12/18	N	-	CLASSIFICATION ASPHALTIC CONCRETE	Driller noted approximately
-	111		Α	U	G	E	R	ASPHALITE CONCRETE	0.4' asphalt and
-	1	. 1	3	7	-		1.5		0.6' subbase
-	1/		1 30/						
2	1								No Recovery Sample #1
-		2	8	5				Brown Clayey SILT, little f-c Sand, tr. gravel	
	] /		12	15		17		(moist, v. stiff, ML)	
-	4/1		ļ						
	-//			-		-			
_ 4 _	1		-	0				Bassing Bad Braum	
-	- /	3	9	8 14		19		Becomes Red- Brown	
	1/		21,1	14		19	-		-
C177	1/								
6	√								_
-		4	16	2.0					-
3	1 /		20	20		40		(hard)	
3,000	1/1							350 8	
	]/ [								-
. 8									
	4 1							Boring Complete at 8.0'	No Free Standing Water
10	1								Reading Obtained at
10	-								Boring Completion
10	1								_
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16	1								L
								NCHES WITH A 140 L6 PIN WT FALLING 30-INCHES PER BLOW C	LASSIFIED BY Geologist

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METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-15
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: KENMORE AVE. RECONSTRUCTION LOCATION: WENDEL AVE. AT KENMORE AVE. PROJ. NO .: BD-09-125 NORTH SIDE OF INTERSECTION NOTES SOIL OR ROCK BLOWS ON SAMPLER 6/12 12/18 CLASSIFICATION ASPHALTIC CONCRETE Driller noted approximately U G E 0.5' asphalt and 5 8 0.5' subbase. Brown- Black Clayey SILT, little f-c Sand, tr. gravel (moist, FILL) Red- Brown Clayey SILT, tr.- little f-c Sand 12 14 19 21 33 (moist, hard, ML) 21 14 21 25 35 21 25 20 21 45 Boring Complete at 8.0' No Free Standing Water Reading Obtained at **Boring Completion** N = NO BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY. Geologist DRILLER: S. GORSKI DRILL RIG TYPE: CME-45C

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### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-16 SURF. ELEV

G.W. DEPTH See Notes

PROJECT: KENMORE AVE. RECONSTRUCTION LOCATION: MONTROSE AVE. AT KENMORE AVE. SOUTH SIDE OF INTERSECTION PROJ. NO.: BD-09-125

DEPTH	$\Box$	SMPL		BLO	WS ON S	AMPLER		SOIL OR ROCK	NOTES
FT.		NO.	0/6	6/12	12/16	N		CLASSIFICATION	
	n	NO.	-viii-iv						Driller noted approximately
	1][[		Α	U	G	Е	R		0.6' asphalt and
-	Ň	1	2	4				Brown Clayey SILT, tr little f-c Sand (moist, ML)	0.3' subbase.
-	1/1								
2	1/1								
1000	11	2	8	8					
-	1 /		11	13		19		(v. stiff)	
-	1/1							23	
-	1/1		-						
4 -	╢								
_	+	3	2	9					
_	1/		10	19		19			
-	-	_	10	19		19			
-	4/1								
V	-//				-				
6	1								
-	1	4	13	15					
	1/1		12	16		27			
_	]/]								
	1/ 1								
8	1								
100								Boring Complete at 8.0'	No Free Standing Water
0.000									Reading Obtained at
-									Boring Completion
0	1								
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16									

N = NO BLOWS	TO DRIVE 2-IN	NCH SPOON 12-INCHES	WITH A 140 LB. PIN WT. FALLIN	IG 30-INCHES PER BLOW	CLASSIFIED BY	Geologist
DRILLER	S. GO	RSKI	DRILL RIĞ TYPE : CME-450			
METHOD OF IN	ESTIGATION	ASTM D-1586 USING H	HOLLOW STEM AUGERS			

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## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-17
SURF. ELEV

G.W. DEPTH See Notes

PROJECT: KENMORE AVE. RECONSTRUCTION LOCATION: MONTROSE AVE. AT KENMORE AVE. PROJ. NO.: BD-09-125 LOCATION: MONTROSE AVE. AT KENMORE AVE. NORTH SIDE OF INTERSECTION

DEPTH		SMPL		BLO	WS ON S	AMPLER		SOIL OR ROCK	NOTES	
FT.		NO.	0/6	6/12	12/18	N		CLASSIFICATION		
	4							ASPHALTIC CONCRETE	Driller noted approximatel	ly
-			Α	U	G	Е	R		0.3' asphalt and	,
-	*	1	14	11					0.7' subbase.	
2	7	-	0.55	- 1			_	-	o., sappaoo.	
_	1/1				-		-	-	No Recovery Sample #1	
2	$\longrightarrow$								No Recovery Sample #1	
	1	2	10	7	50/0.0	REF		Brown- Grey LIMESTONE Rock fragments (wet)		
-	1/1									
	-									
								Boring Complete with Sample Spoon Refusal at 3.0'	No Free Standing Water	
4									Reading Obtained at	
-								1	Boring Completion	
_	1							1		
-	1								REF= Sample Spoon	
-	1				-	-			Refusal	
	-			_	_			-	Relusal	
-	-									
-										
7.										
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4 _	-									
16	1									

N = NO BLOWS TO	DRIVE 2-INCH SPOON 12-INCHES W	ITH A 140 LB. PIN WT. FALLIN	G 30-INCHES PER BLOW	CLASSIFIED BY:	Geologist
DRILLER:	S. GORSKI	DRILL RIG TYPE	CME-45C		
METHOD OF INVES	TIGATION ASTM D-1586 USING HO	DLLOW STEM AUGERS			

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S, GORSKI

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-18
SURF. ELEV
G.W. DEPTH See Notes

PROJECT: KENMORE AVE. RECONSTRUCTION LOCATION: UNIVERSITY AVE. AT KENMORE AVE. NORTH SIDE OF INTERSECTION PROJ. NO.: BD-09-125 NOTES SOIL OR ROCK BLOWS ON SAMPLER 6/12 12/18 N CLASSIFICATION Driller noted approximately ASPHALTIC CONCRETE 0.4' asphalt and R Brown- Red Clayey SILT, little f-c Sand, tr. gravel 0.6' subbase. 3 5 (moist, FILL) Red- Brown Clayey SILT, little f-c Sand, tr. gravel 10 15 21 20 36 (moist, hard, ML) 38 11 15 53 20 22 17 19 21 41 No Free Standing Water Boring Complete at 8.0' Reading Obtained at **Boring Completion** 10 Geologist N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB, PIN WT. FALLING 30-INCHES PER BLOW. CLASSIFIED BY:

DRILL RIG TYPE CME-45C

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## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-19
SURF. ELEV
G.W. DEPTH See Notes

н		SMPL		BLO	ws on s	AMPLER		SOIL OR ROCK	NOTES
and the same		NO.	0/6	6/12	12/18	N	-	CLASSIFICATION	
_1	1							ASPHALTIC CONCRETE	Driller noted approximatel
	ļĹ		Α	U	G	E	R		0.4' asphalt and
	1	1	8	8				Grey- Black Crushed STONE and Silt (moist, FILL)	0.5' subbase.
	L							L	
_/									
		2	7	7				Red- Brown Clayey SILT, little f-c Sand, tr. gravel	
	/		12	12		19		(moist, v. stiff, ML)	
									1
1									
	1	3	9	17				Contains tr little f-c Sand	
	$/\!\!\!\!/$	-	13	18		30			
			W=200						
7									
		4	12	12					
	$\prod$		15	17		27			
$\Box$ /									
7									
								Boring Complete at 8.0'	No Free Standing Water
									Reading Obtained at
									Boring Completion
						7070-			
								1	

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### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-20 SURF. ELEV G.W. DEPTH See Notes

						×
PROJECT:	KENMORE AVE. R	ECONSTRUCTION	LOCATION: GRAND	VIEW	AT HAWTHORN	
PROJ. NO.:	BD-09-125		NORTH	SIDE	OF INTERSECTION	

EPTH		SMPL		BLO	WS ON S	AMPLER		SOIL OR ROCK	NOTES
τ.		NO.	0/6	6/12	12/18	N		CLASSIFICATION	
	1							ASPHALTIC CONCRETE	Driller noted approximately
			Α	U	G	Е	R		0.5' asphalt and
:\=	H	1	7	6			ж.	Red- Brown Clayey SILT, little fine Sand	0.5' subbase.
0	1/[							(moist, ML)	
2	1								
_		2	8	7					
37	1/1		7	5		14		(stiff)	
_	1/1								
_	1/ [								
4 —	V t								
-		3	8	12				1	2
-	1		14	13		26		(v. stiff)	
	1/								
-	1/								
3	<b>∀</b>							-	
_	1	4	10	12		_		f	
-	1		13	16		25		-	
-	1		10	10		20			
7	1/							1	
	{/ }				-				
8	$\vdash$								
_	1			_				Boring Complete at 8.0'	No Free Standing Water
7.	} }			_				Boring Complete at 6.0	Reading Obtained at
5	} }				_		_	-	Boring Completion
	}							-	Botting Completion
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N = NO BLOWS	TO DRIVE 2-18	VCH SPOON 12-INCHE	S WITH A 140 LB PIN WT FALLIN	G 30-INCHES PER BLOW	CLASSIFIED BY	Geologist
DRILLER:	S. GO	RSKI	DRILL RIG TYPE (	CME-450		
METHOD OF IN	ESTIGATION		HOLLOW STEM AUGERS			

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## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-21
SURF. ELEV
G.W. DEPTH See Notes

PRO.	J. N	10.:	BD-0	09-12	25			SOUTH SIDE	OF INTERSECTION
DEPTH		SMPL		BLO	ws on s	AMPLER		SOIL OR ROCK	NOTES
FT.		NO.	0/6	5/12	12/18	N		CLASSIFICATION	
	Î							ASPHALTIC CONCRETE	Driller noted approximately
			Α	U	G	E	R		0.5' asphalt and
	1	1	2	4				Red- Brown Clayey SILT, little f-c Sand, tr. gravel	0.4' subbase.
	/							(moist, ML)	
2	/								
	1	2	8	8					
			13	14		21		(v, stiff)	1
-	1								
_	/								
4									
_	1	3	18	19		4.4		Tom conserve	
-	/		21	20		40		(hard)	
-	1					-			-
	/ }								
6	-		46						
-	1	4	15	18		40	-		-
-	/	-	22	25		40			
-	11								,
$\sim$	/		_		_				•
8 _	-								
-	-							Boring Complete at 8.0'	No Free Standing Water
_	+							Borning Complete at 6.0	Reading Obtained at
-	-								Boring Completion
0	+				_				Bonnig Compication
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2	1								9
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4									
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6			W/===						
		NO, BLO		D DRIV	E 2-INC	CH SPO	ON 12-II	NCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW C	LASSIFIED BY: Geologist

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## SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-22
SURF. ELEV
G.W. DEPTH See Notes

KENMORE AVE. RECONSTRUCTION PROJECT: LOCATION: NIAGARA FALLS BLVD. AT KENMORE BD-09-125 PROJ. NO.: NORTH SIDE OF INTERSECTION NOTES SOIL OR ROCK BLOWS ON SAMPLER NO. 6/12 12/18 CLASSIFICATION ASPHALTIC CONCRETE Driller noted approximately A U E G R 0.9' asphalt and 0.6' subbase. 12 Brown- Grey Crushed STONE (moist, FILL) Red- Brown Clayey SILT, little f-c Sand, tr. gravel 10 10 10 20 11 (moist, v. stiff, ML) 7 11 18 11 18 21 21 32 42 (hard) Boring Complete at 8.0' No Free Standing Water Reading Obtained at **Boring Completion** 10

N = NO BLOWS TO DRIVE 2-in	CH SPOON 12-INCHES WITH A 140 LB. PIN WT	FALLING 30-INCHES PER BLOW	CLASSIFIED BY	Geologist
DRILLER: S. GO	RSKI DRILL RIG TYPE	CME-45C		
METHOD OF INVESTIGATION	ASTM D-1586 USING HOLLOW STEM AUGER	5		

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### SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-23 SURF. ELEV G.W. DEPTH See Notes

PROJECT:	KENMORE AVE. R	RECONSTRUCTION	LOCATION: ALLENHURS	AT KENMORE AVE.
PROJ. NO.:	BD-09-125		SOUTH SIDE	OF INTERSECTION

DEPTH	T	SMPL		BLO	ws on s	AMPLER		SOIL OR ROCK	NOTES
FT.		NO.	0/6	6/12	12/18	N		CLASSIFICATION	
	1							ASPHALTIC CONCRETE	Driller noted approximately
_	ا إإ ٦		Α	U	G	Е	R		0.1' asphalt and
W==	Ľ	- 1	2	3				Brown- Red and Black Clayey SILT, little f-c Sand,	0.5' subbase.
	7/1							tr. gravel (moist, FILL)	
2	1/1								
_	1	2	3	4					
0.	-		4	7		8			_
-	1/1		780						-
\ <u></u>	-1/1								
	$\forall$			-					_
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(1	-1 /1	3							- ·
	-1/1		3	5		5	-		_
B <del></del>	4/1								-
	4/								
6	4								_
	1	4	8	10				Red- Brown Clayey SILT, little f-c Sand, tr. gravel	
794	] /		13	13		23		(moist, v. stiff, ML)	
-	]/[								
	]/ [								_
8	1								
	7 [							Boring Complete at 8.0'	No Free Standing Water
									Reading Obtained at
	1								Boring Completion
10									
_	7 1								
1)	1 1								
-	1 1								
	1 1								
12	1 1								1
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·	4							-	_
	4								
	4							-	_
16									

N = NO, BLOWS T	O DRIVE 2-II	NCH SPOON 12-INCH	ES WITH A 140 LB, PIN WT, FALLIN	G 30-INCHES PER BLOW	CLASSIFIED BY:	Geologist
DRILLER:	S. GO	RSKI	DRILL RIG TYPE:	CME-45C		
METHOD OF INVE	ESTIGATION	ASTM D-1586 USIN	IG HOLLOW STEM AUGERS			

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# SJB SERVICES, INC. SUBSURFACE LOG



HOLE NO. SC-24
SURF. ELEV
G.W. DEPTH See Notes

ROJ ROJ		10.:				VE. R	ECO	NSTRUCTION LOCATION: CAPEN BLVE SOUTH SIDE	OF INTERSECTION	
РТН		SMPL		BLOV	NS ON S	AMPLER		SOIL OR ROCK	NOTES	
		NO.	0/6	6/12	12/18	N		CLASSIFICATION		
	介					The state of the s	Annua III	ASPHALTIC CONCRETE	Driller noted approximately	
			Α	U	G	Е	R		0.4' asphalt and	
								CONCRETE	0.1' subbase and	
	11								3.2' concrete.	
2	11									
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SHEET

1 OF 1

# SJB SERVICES, INC. SUBSURFACE LOG



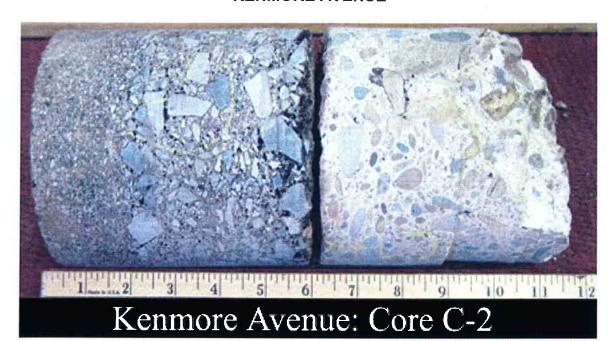
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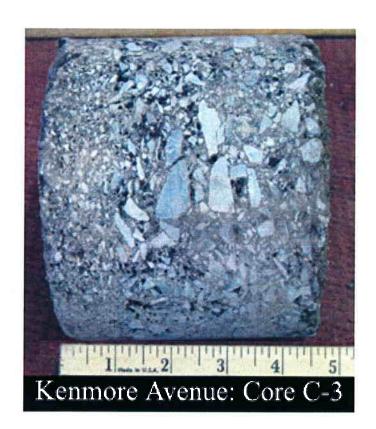
**CORE PHOTOGRAPHS** 



CORE NUMBER	DESCRIPTION
C-1	TOTAL CORE LENGTH = 12.5"  Core broken in three pieces  TOTAL ASPHALT = 6.0"  1st Top Layer = 1.18"  Aggregate = 0.125" gravel Broken in two pieces  1st Binder Layer = 1.48"  Aggregate = 0.25" gravel  2nd Binder Layer = 2.06"  Aggregate = 0.5" gravel  3nd Binder Layer = 1.28"  Aggregate = 0.5" gravel  TOTAL CONCRETE = 6.5"  Gravel aggregate = 0.5"
	<ul><li>Gravel aggregate = 0.5"</li><li>No Rebar</li></ul>



CORE NUMBER	DESCRIPTION
C-2	TOTAL CORE LENGTH = 11.5"  Core broken in two pieces  TOTAL ASPHALT = 6.0"  1st Top Layer = 0.74" - Aggregate = 0.125" gravel  2nd Top Layer = 1.15" - Aggregate = 0.125" gravel  1st Binder Layer = 1.21" - Aggregate = 0.325" gravel  2nd Binder Layer = 1.25" - Aggregate = 0.325" gravel  3nd Binder Layer = 1.65" - Aggregate = 0.5" gravel
	TOTAL CONCRETE = 5.5"  Gravel aggregate = 0.5"  No Rebar



CORE NUMBER	DESCRIPTION
	TOTAL CORE LENGTH = 4.74"  TOTAL ASPHALT = 4.74"
C-3	<ul> <li>1st Top Layer = 1.34" <ul> <li>Aggregate = 0.125" gravel</li> </ul> </li> <li>1st Binder Layer = 1.67" <ul> <li>Aggregate = 0.325" gravel</li> </ul> </li> <li>2nd Binder Layer = 1.73" <ul> <li>Aggregate = 0.325" gravel</li> </ul> </li> </ul>



CORE NUMBER	DESCRIPTION
C-4	TOTAL CORE LENGTH = 6.4"  TOTAL ASPHALT = 6.0"  - 1 <sup>st</sup> Top Layer = 1.4" - Aggregate = 0.125" gravel - 1 <sup>st</sup> Binder Layer = 1.51" - Aggregate = 0.325" gravel - 2 <sup>nd</sup> Binder Layer = 1.67" - Aggregate = 0.5" gravel - 3 <sup>rd</sup> Binder Layer = 0.99" - Aggregate = 0.5" gravel - 4 <sup>th</sup> Binder Layer = 0.83" - Aggregate = 0.5" gravel
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CORE NUMBER	DESCRIPTION
C-5	TOTAL CORE LENGTH = 2.82"  - Core broken in 3 pieces.  TOTAL ASPHALT = 2.82"  - 1st Top Layer = 1.23" - Aggregate = 0.25" gravel  - 1st Binder Layer = 1.25" - Aggregate = 0.5" gravel  - 2nd Binder Layer = 0.34" - Aggregate = 0.5" gravel



CORE NUMBER	DESCRIPTION
C-7	TOTAL CORE LENGTH = 11.25"  Core broken in two pieces  TOTAL ASPHALT = 3.45"  1st Top Layer = 0.8" - Aggregate = 0.25" gravel  1st Binder Layer = 1.34" - Aggregate = 0.5" gravel  2nd Binder Layer = 1.31" - Aggregate = 0.5" gravel  TOTAL CONCRETE = 7.8"  Gravel aggregate = 0.625" No Rebar



CORE NUMBER	DESCRIPTION
C-8	TOTAL CORE LENGTH = 11.45"  Core broken in two pieces  TOTAL ASPHALT = 5.28"  1st Top Layer = 0.83" - Aggregate = 0.125" gravel 2nd Top Layer = 0.66" - Aggregate = 0.25" gravel 1st Binder Layer = 1.03" - Aggregate = 0.5" gravel 2nd Binder Layer = 2.76" - Aggregate = 0.625" gravel  TOTAL CONCRETE = 6.17"  Gravel aggregate = 0.625" No Rebar



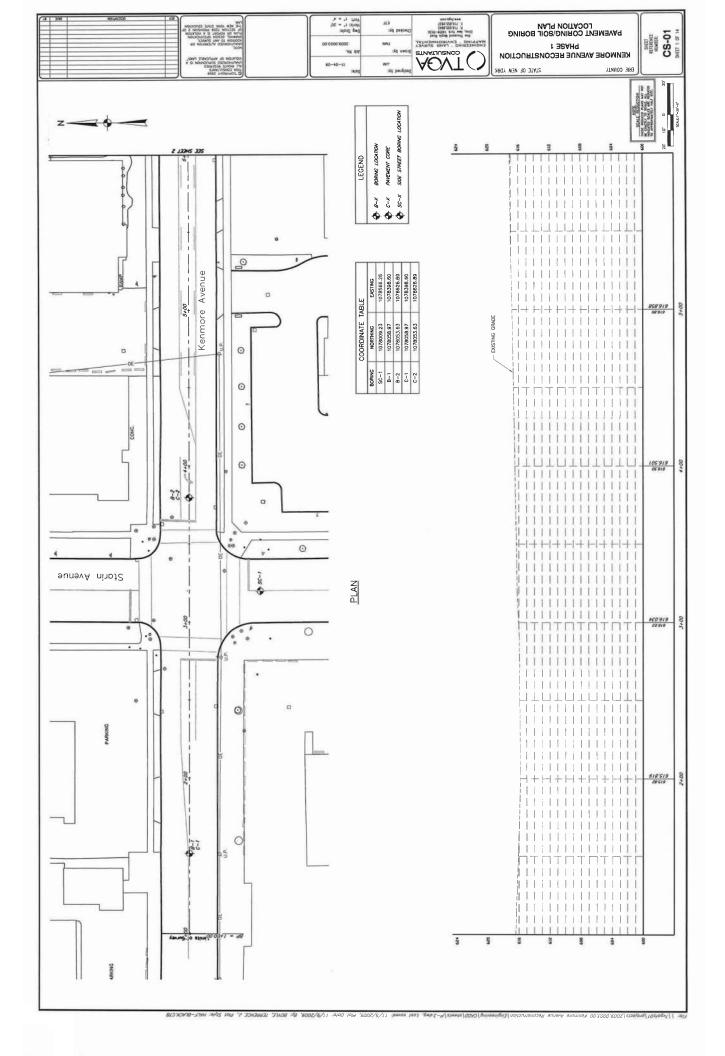
CORE NUMBER	DESCRIPTION
C-9	TOTAL CORE LENGTH = 13.21"  Core broken in two pieces  TOTAL ASPHALT = 13.21"  1st Top Layer = 1.47" - Aggregate = 0.25" gravel  1st Binder Layer = 2.22" - Aggregate = 0.5" gravel  2nd Binder Layer = 2.64" - Aggregate = 0.5" gravel  3rd Binder Layer = 3.41" - Aggregate = 0.625" gravel  4th Binder Layer = 3.47" - Aggregate = 0.625" gravel

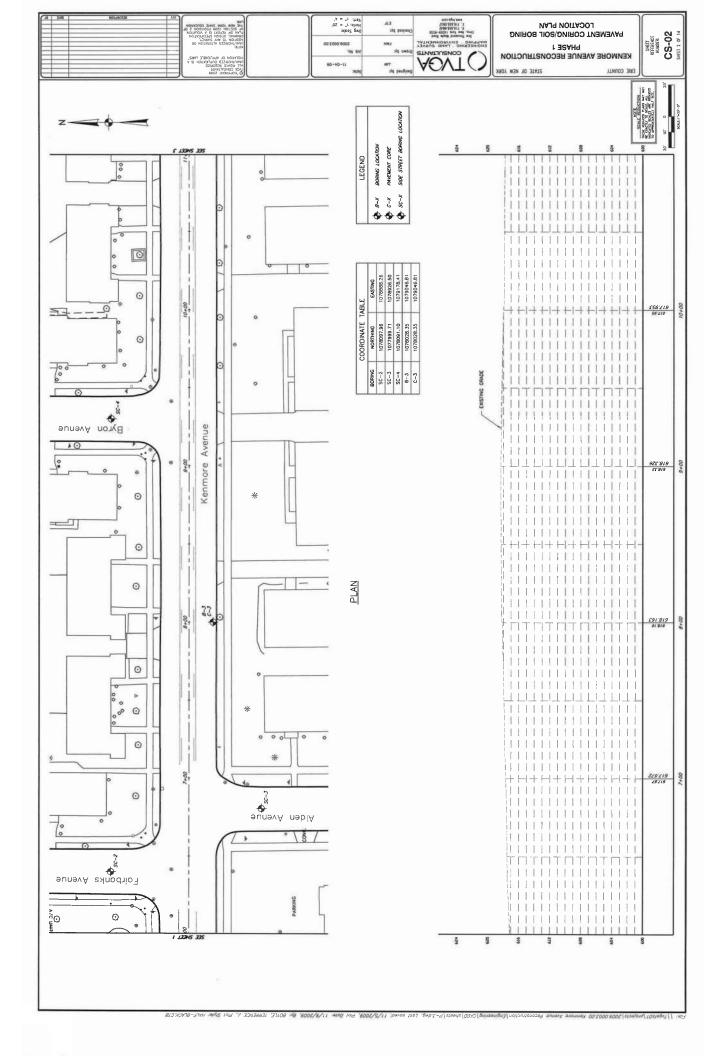


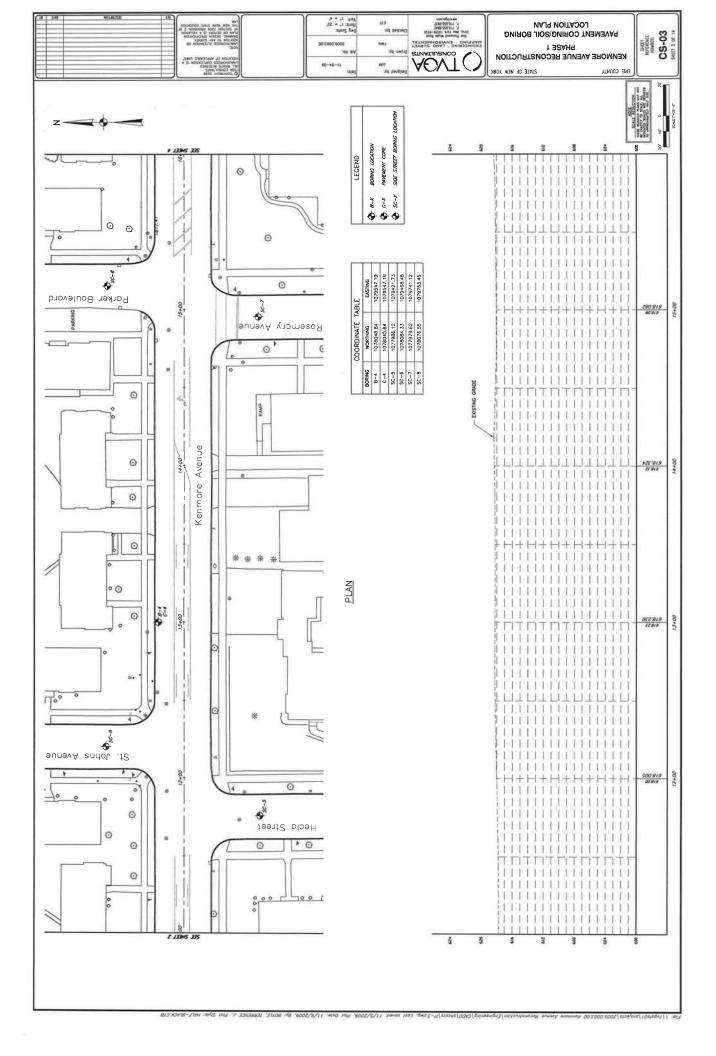
CORE NUMBER	DESCRIPTION
C-10	TOTAL CORE LENGTH = 14.2"  - Core broken in two pieces  TOTAL ASPHALT = 14.2"  - 1st Top Layer = 1.94" - Aggregate = 0.25" gravel  - 1st Binder Layer = 2.63" - Aggregate = 0.5" gravel  - 2nd Binder Layer = 2.55" - Aggregate = 0.625" gravel  - 3rd Binder Layer = 3.51" - Aggregate = 0.5" gravel  - 4th Binder Layer = 3.57" - Aggregate = 0.625" gravel

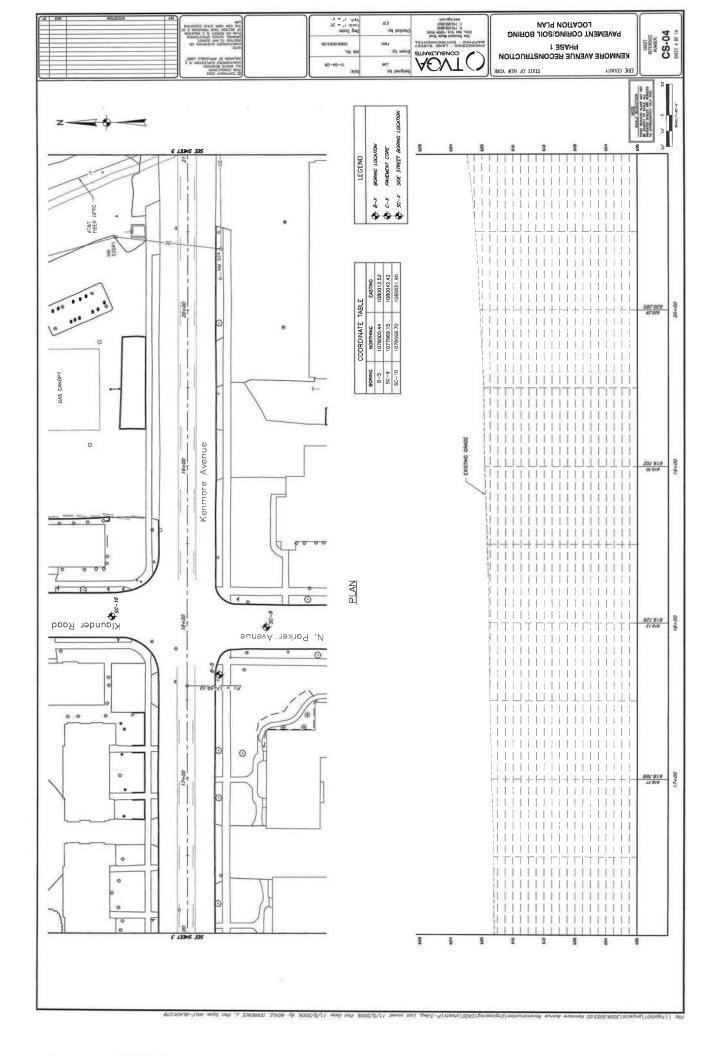


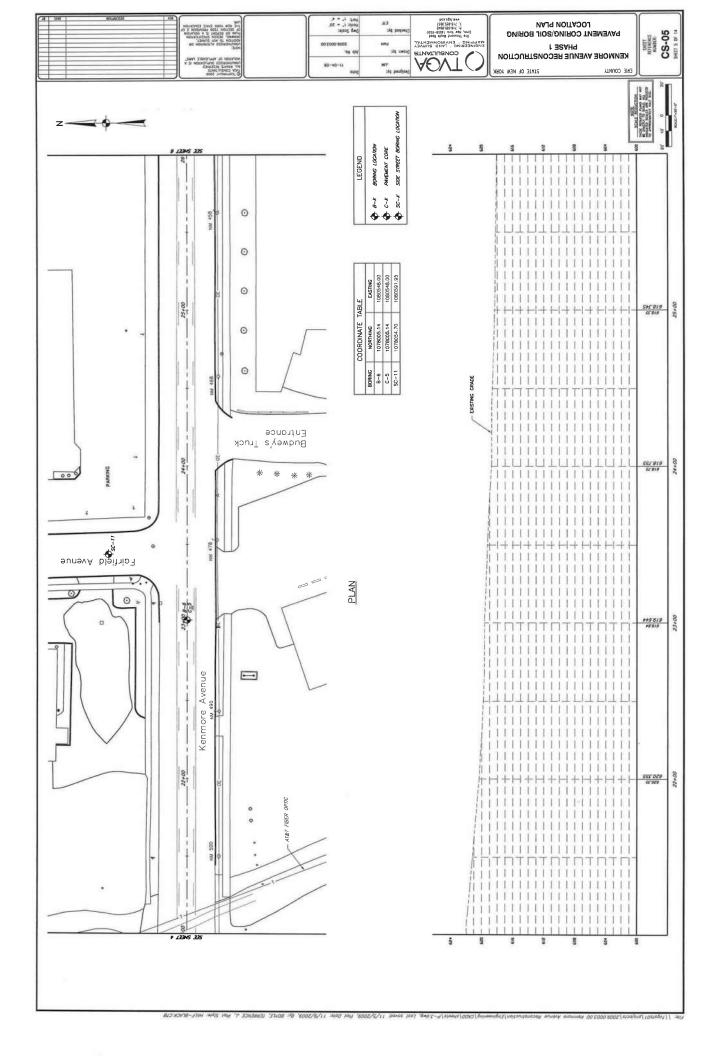
CORE NUMBER	DESCRIPTION
	TOTAL CORE LENGTH = 8.55"  TOTAL ASPHALT = 8.55"
C-11	<ul> <li>1st Top Layer = 1.62" <ul> <li>Aggregate = 0.25" gravel</li> </ul> </li> <li>1st Binder Layer = 1.30" <ul> <li>Aggregate = 0.5" gravel</li> </ul> </li> <li>2nd Binder Layer = 1.49" <ul> <li>Aggregate = 0.5" gravel</li> </ul> </li> <li>3rd Binder Layer = 2.36" <ul> <li>Aggregate = 0.625" gravel</li> </ul> </li> <li>4th Binder Layer = 1.78" <ul> <li>Aggregate = 0.625" gravel</li> </ul> </li> </ul>

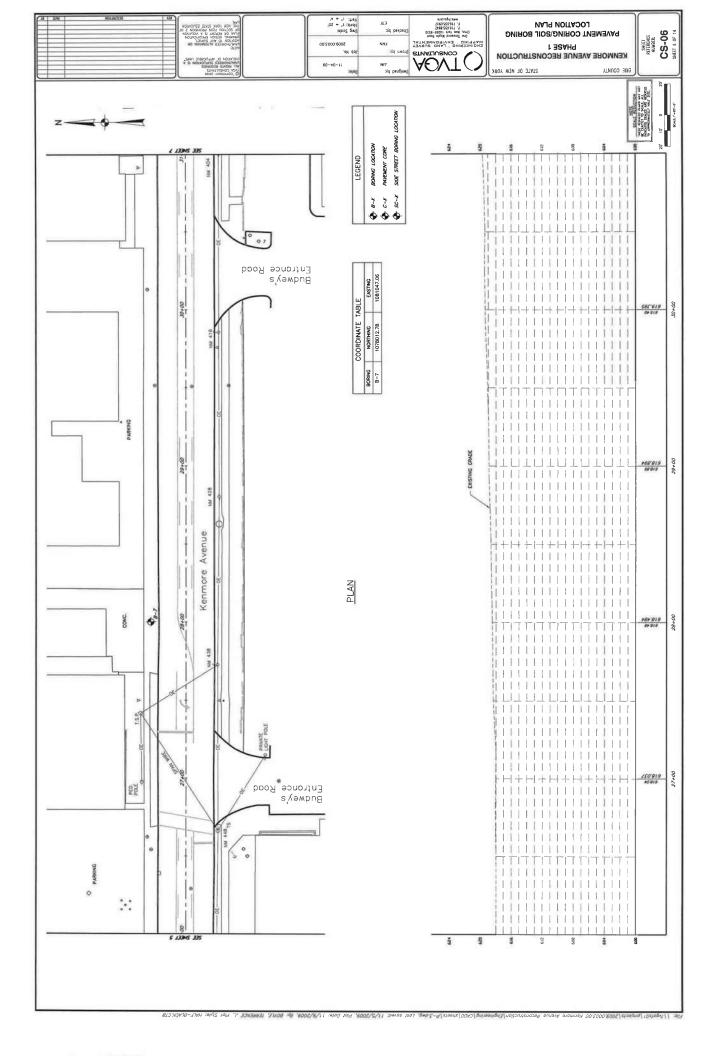


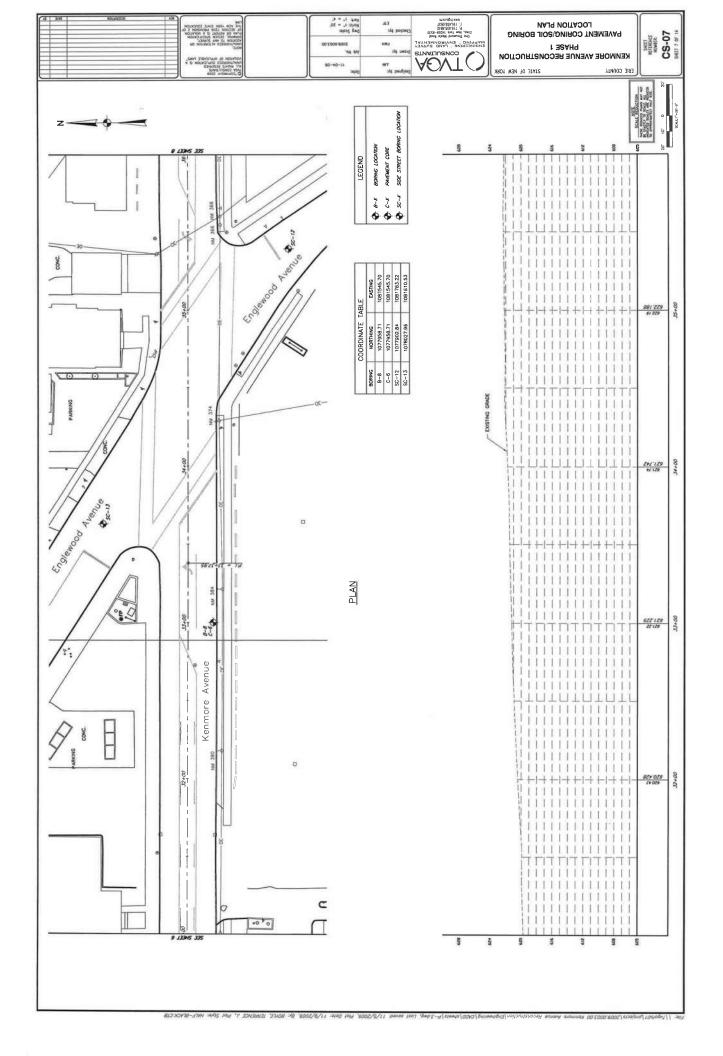


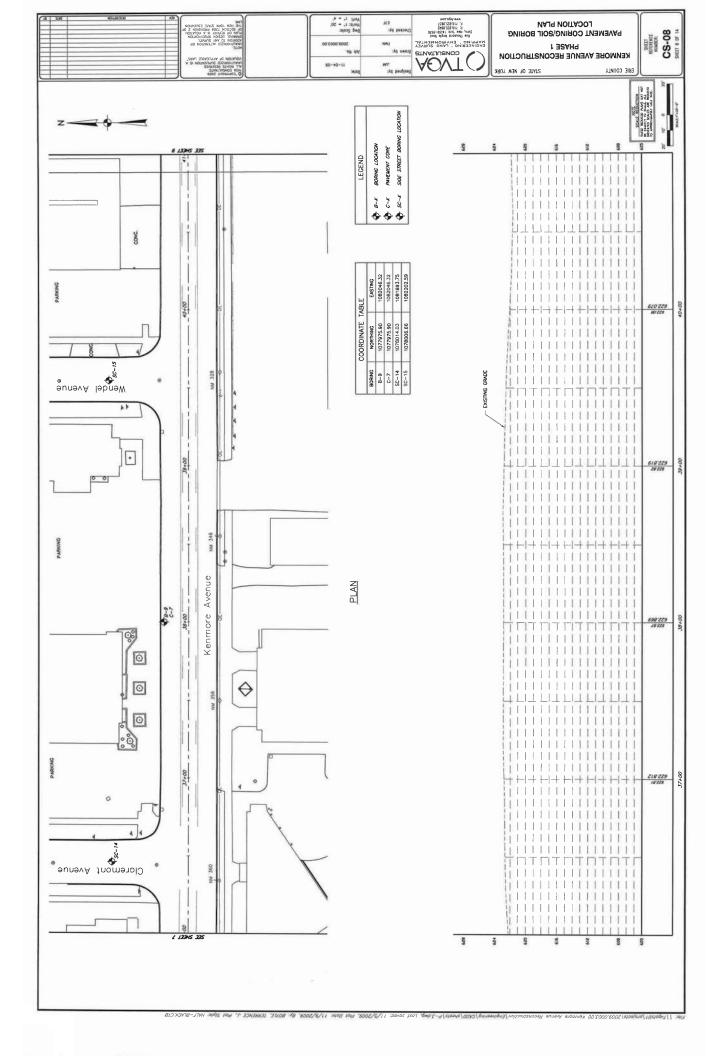


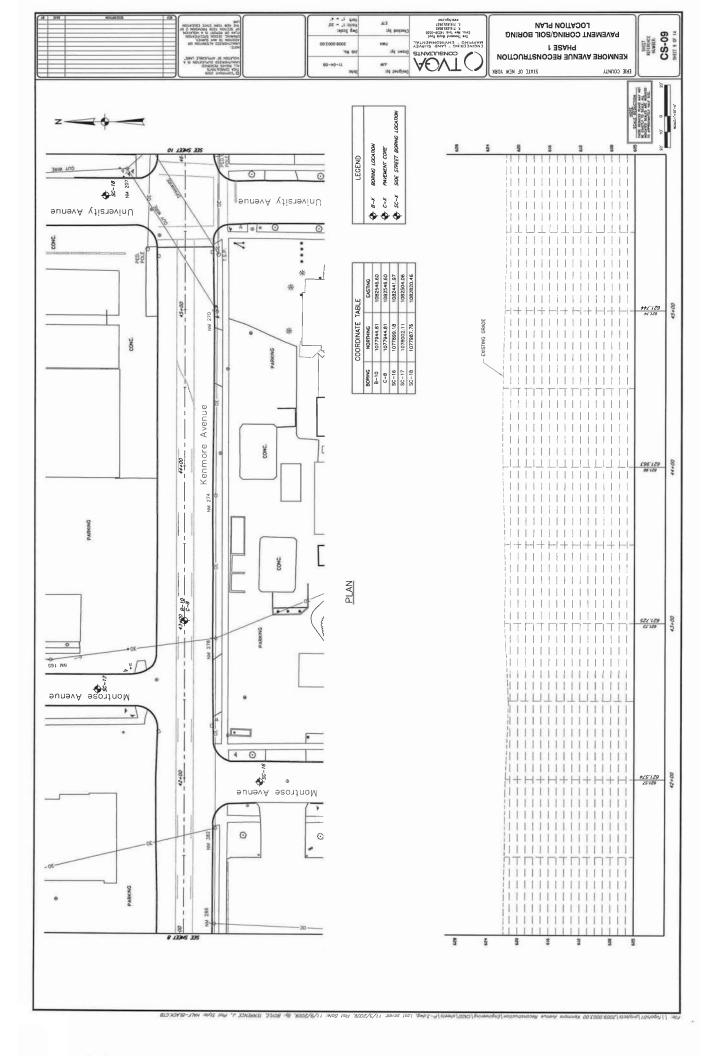


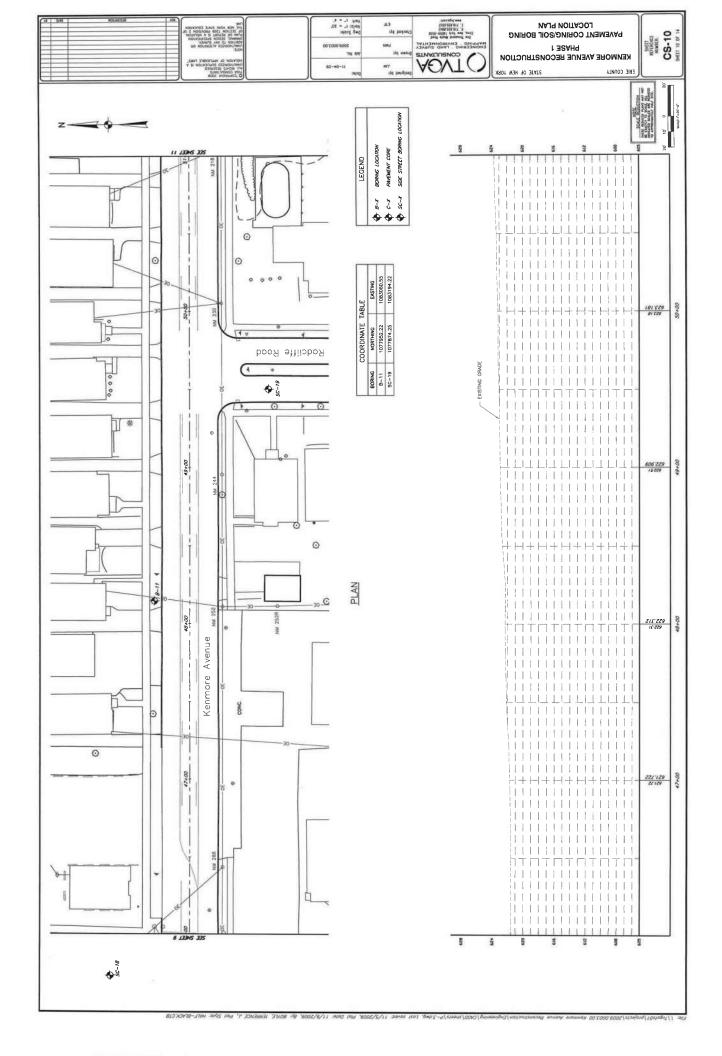


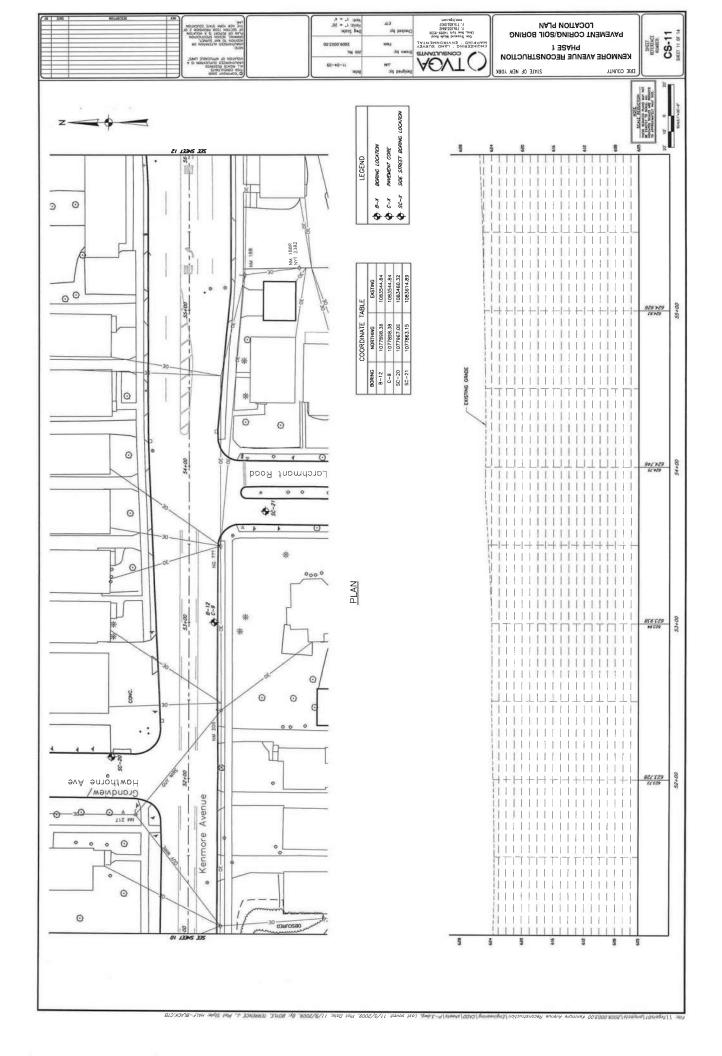


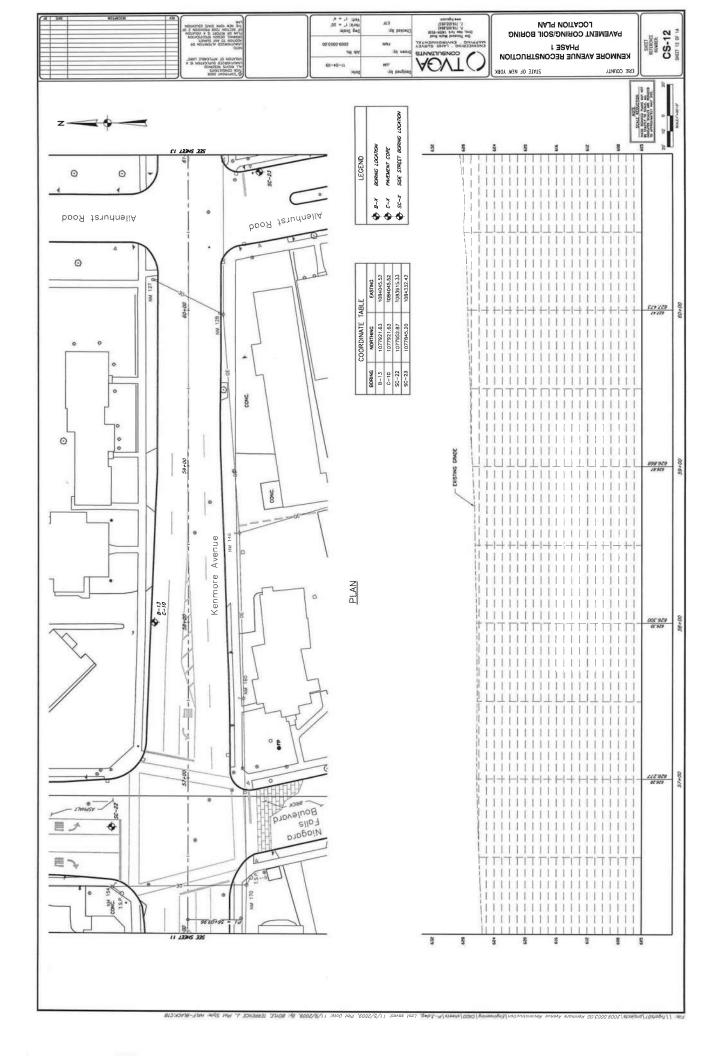


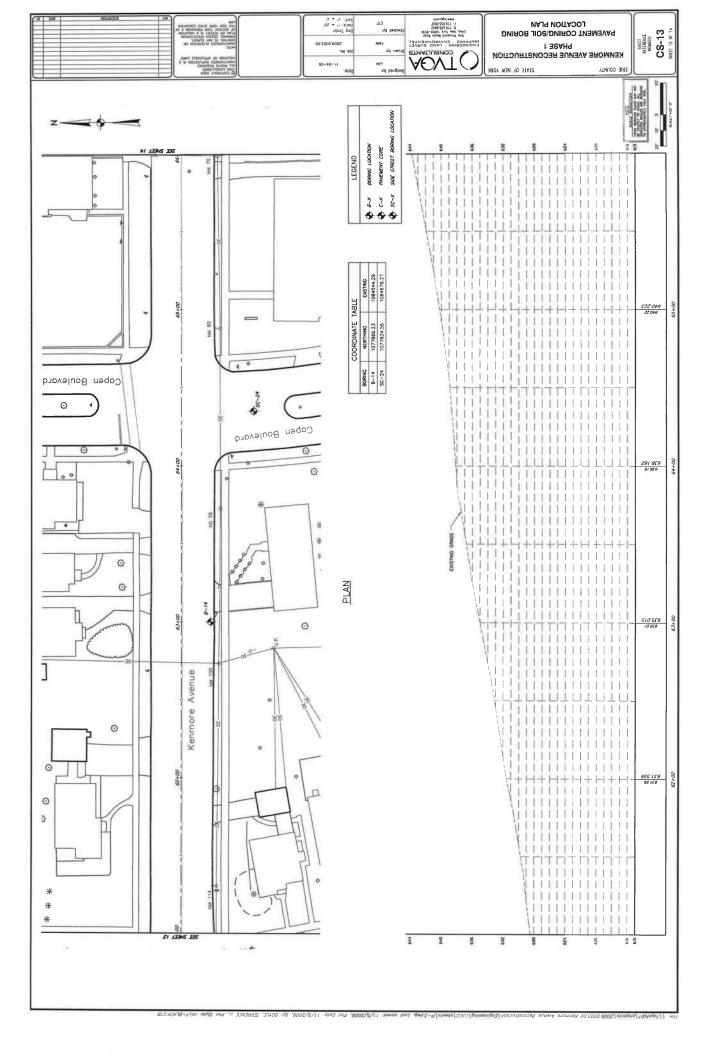


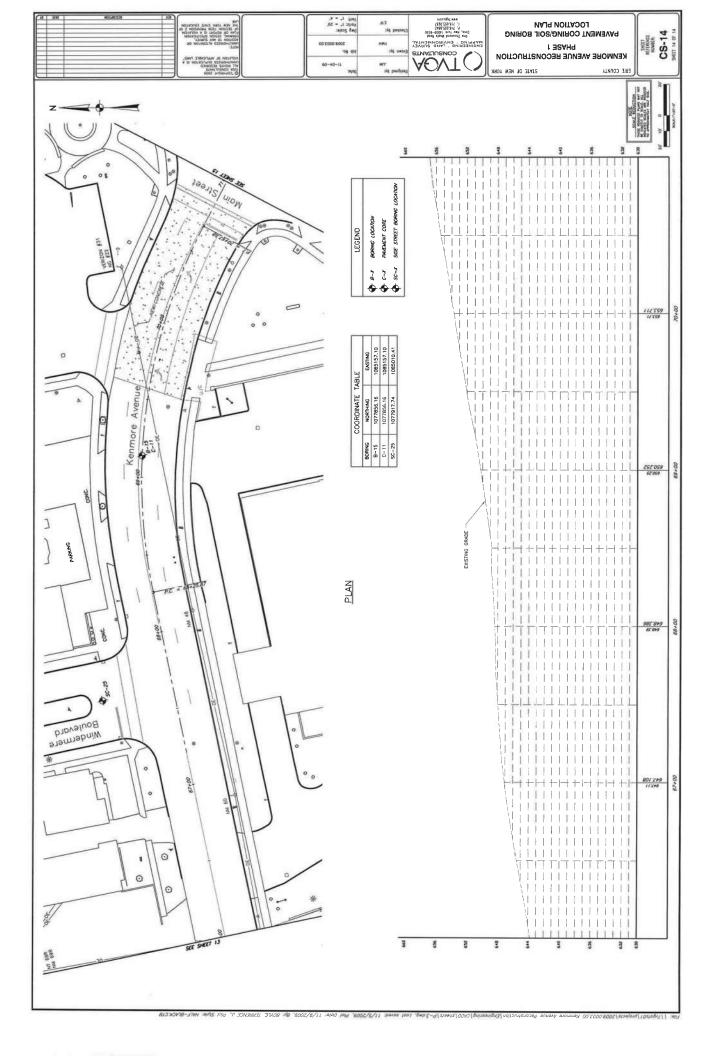
















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## Ohio Street and Inner Harbor Infrastructure Improvements PIN No. 5760.26

# Green Infrastructure Design Summary May 28, 2013



This memo is being provided to summarize the green infrastructure elements used in the Ohio Street and Inner Harbor Infrastructure Improvement project. The goals of the project were to incorporate green infrastructure to meet NYSDEC standards for water quality. The current design is in compliance with NYSDEC regulations and any additional green infrastructure beyond what is required by NYSDEC would be considered a betterment and would not be eligible for federal reimbursement.

Coordinated efforts among stakeholders in the project, including the Buffalo Sewer Authority, led to the use of the following green infrastructure elements as shown in the current plans:

- 1. Reduction in the number of travel lanes resulting in a reduction in the road surface area of more than 30 percent.
- 2. Implementation of porous pavement for the shared use path along the west side for a majority of the length of project.
- 3. Implementation of porous pavement for parking lanes along the west side on the north end of the project.
- 4. Creation of a 5 to 13 foot wide green snow storage area between the road and the path/sidewalk on the east and west sides for the entire length of the project. This area will be constructed of 12 inches of topsoil which equates to 5,000 cubic yards.
- 5. Over 260 trees will be planted throughout the length of the project with other areas landscaping.
- 6. Removing and disposing of thousands of tons of soil that potentially could be contaminated.
- 7. All new drainage structures that catch runoff from the road surface contain a 2' deep sump that collects debris and sediments prior to entering the main storm sewer line. These structures also have a hood at the outlet the prevent floatables from entering the main storm sewer line.
- 8. For a 10-year design storm, implementation of the green infrastructure elements as shown in the plans would reduce stormwater volume by 162,000 gallons (0.5 acre-ft) and reduce the stormwater peak flow by 3200 gpm (7 cfs).

Documentation of these coordinated efforts and supporting calculations are provided in the attachments to this memo. These attachments include:

- Minutes from a meeting where green infrastructure was discussed with the representatives of the Buffalo Sewer Authority, Erie Canal Harbor Development Corporation, and other departments at the City of Buffalo.
- Calculations documenting the 30% reduction in impervious area.
- A conference log showing NYS DEC concurrence with the definition of porous pavement as a permeable surface for calculation of water quality volume and runoff reduction volumes.
- Design drawings showing potential locations for green infrastructure elements.

Ohio Street and Inner Harbor Infrastructure Improvements PIN NO. 5760.26 Green Infrastructure Design Summary May 28, 2013 – Page 2



The existing corridor consists of 4 travel lanes of impervious surface throughout the project length. Very little green space exists within the highway boundary. The proposed road section reduces the number of lanes from 4 to 2 north of the Ohio Street Lift Bridge and reduces the number of lanes from 4 to 3 south of the Ohio Street Lift Bridge. The project also includes the addition of green areas on both the west and east side consisting of 12" of topsoil, grass and plantings. A porous paved shared use path and parking lane will be constructed on the west side. With these changes the percentage of impervious area from existing conditions to post construction conditions is reduced by more than 30%.

The design team did look at including other green infrastructure elements, but for cost, technical and maintenance reasons these were not implemented. For example, the use of porous pavement in the travel lanes was discussed, but the increased cost combined with concerns about the use of this material along with maintenance concerns on a high traffic roadway removed this option from consideration. Based on soil classifications obtained from the soil boring program, the permeability characteristics of in-situ soils would make them unsuitable for use with infiltration elements such as bioretention areas.

A meeting was conducted with NYSDEC regarding the Ohio Street Improvement Project and through a review of the NYSDEC regulations for redevelopment projects it was determined that water quality controls were not required for this project. That is not to say that water quality controls for storm water were ignored for this project as a reduction of the impervious area will improve water quality. A follow up meeting was conducted with the Buffalo Sewer Authority and they agreed with our assessment that the design presented met their needs.



# Niagara Street Phase II Green Infrastructure Report

Prepared by Bergmann Associates and Joy Kuebler Landscape Architect for the City of Buffalo and the Buffalo Sewer Authority

June 2015









# Niagara Street Phase II Green Infrastructure Report Niagara Street Phase II Project, Erie County, City of Buffalo

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- 1 Location Map
- 2 Context Map

#### **APPENDICES**

- A. Green Infrastructure Streetscape Plan
- B. Typical Green Infrastructure Cross Sections
- C. Drainage Area Plans (Capture Area Limits)
- D. Storm Water Storage Area Sizing Calculations
- E. Green Infrastructure Systems and Landscaping Contract Requirements
- F. Niagara Street Rain Garden Care & Maintenance Guide

This Report has been prepared by Bergmann Associates, with information provided by Joy Kuebler Landscape Architects, to describe and document the green infrastructure elements that have been included within the Niagara Street Phase II Project.

#### INTRODUCTION

#### A. PROJECT DESCRIPTION

The Niagara Street Phase II project, between Porter Avenue and Virginia Street, is located in Erie County, adjacent to downtown Buffalo (Figure 1). Niagara Street is a west side signature gateway for traffic exiting Interstate 190 heading into the downtown area that radiates northwesterly from the center of the City at Niagara Square where City Hall is located. Phase II is a continuation of the Phase I Project that extends from City Hall north to Virginia Street. The project corridor encompasses a distance of approximately 3,500 feet or 0.65 miles, from the end of Phase I roughly at Virginia Street north to Porter Avenue at Prospect Park (Figure 2). The existing poor and dilapidated pavement, curb, signage, signaling and striping conditions will be improved to increase overall safety and quality of life for area residents and visitors. Improvements will generally include the milling and overlay of roadway pavement and select curb and full sidewalk replacement, with provisions for landscaping amenities, traffic calming measures and storm water management facilities to reduce the volume of storm water entering the combined sanitary/storm water sewer system.

#### B. EXISTING (PRE-IMPROVED) CONDITIONS

The project corridor is a well-developed urban arterial with commercial, educational, medical, retail business and multi-family residential housing. With few exceptions, development occurs within a shallow setback to the Right-Of-Way (ROW) of Niagara Street. The project area generally drains to the south as it approaches City Hall (and the north limit of Niagara Street Phase I Improvements). There is approximately 40 feet of elevation difference between Porter Avenue to the north and Virginia Street to the south. Intersecting side streets on the east side drain toward Niagara Street, and the corresponding west side streets drain westerly away from Niagara Street. Within the limits of the project corridor (ROW to ROW) exists approximately 320,606 SF (7.4 acres) of impervious surface. For the purposes of this report, it is assumed that no pervious surface exists within the corridor. The few grass areas and tree pits that do occur are highly compacted and are not assumed to infiltrate much surface runoff.

#### C. PROPOSED (POST-IMPROVED) CONDITIONS

The proposed project includes the rehabilitation of the existing roadway (mill and overlay) and full sidewalk replacement with bump outs, tree pits and landscaped areas. Where possible, excess sidewalk has been replaced with turf, new tree pits, or rain garden landscaped beds in order to reduce the overall amount of paved impervious surface area within the project corridor. In addition, structural soil and open-graded permeable aggregate will be placed under much of the new sidewalk and bump out areas in order to capture and store storm water. The Buffalo Sewer Authority (BSA) has a goal for its green infrastructure to capture 100 percent of the 90% rainfall event for the entire project corridor. The project has been designed to capture and store all surface runoff entering and generated from within the project corridor. See Appendix A, Green

Infrastructure Streetscape Plan for an overall view of the proposed green infrastructure improvements.

#### II. GREEN INFRASTRUCTURE

#### A. NIAGARA STREET GREEN INFRASTRUCTURE

Various methods of green infrastructure were assessed for use on the Niagara Street Phase II Project. First and foremost was the goal to reduce the amount of impervious surface area within the public ROW in order to decrease the resultant rainfall runoff. Green space was increased in several ways: by reducing the width of over-wide sidewalks; by increasing the size of existing tree pits; and by reducing the roadway width with new landscaped or lawn bump outs. Rain gardens and non-lawn landscaped areas were included only when an adjacent land owner agreed to maintain them.

To capture the runoff volume generated by the reduced impervious area, open-graded permeable aggregate will be used underneath the new sidewalk and bump out areas. Within new tree pits and adjacent to existing trees to remain, structural soil will be used in lieu of the open-graded permeable aggregate to facilitate tree growth. Structural soil exhibits the same structural characteristics as the open-graded permeable aggregate needed to support load-bearing infrastructure (pavements) with the added benefit of being able to support vegetative growth. These materials will be placed to an approximate depth of 3 feet to create an underground reservoir for storm water storage. Catch basins located within the roadway will direct water into the open-graded permeable aggregate and structural soil storage areas beneath the sidewalk. Curb cuts at rain garden locations will also accept surface runoff from the roadway directly into the rain gardens where it will be stored while it infiltrates into the open-graded permeable aggregate and structural soil reservoirs below. The new sidewalk areas will drain into trench drains that are tied directly into the permeable subbase, or into adjacent tree pits, landscaped beds, or turf areas. Open-graded permeable aggregate will also be used under the rain gardens and beneath some of the landscaped and lawn areas. Perforated underdrain within these storm water reservoirs will convey un-infiltrated storm water from the underground storage areas to the combined sewer system in the event the reservoir storage is at capacity. For typical cross sectional details refer to Appendix B.

No porous pavement types were utilized in this project.

#### B. CAPTURE AREA

The capture area of the project corridor within the ROW limits was determined to be 7.4 acres of contiguous impervious surface from Porter Avenue south to just north of Virginia Street (the ending limit of Phase I). Recent topographic mapping generated for this project was utilized to determine drainage patterns within the corridor.

The capture area was assumed to be from ROW to ROW throughout the length of the project corridor and included minor areas at the side street intersections that drain into the project corridor. Existing tree pits and curb lawns were assumed to be impervious due to years of compaction or significant root development. Appendix C, Drainage Area Plans, illustrates the capture area limits per block for the project corridor.

#### C. CAPTURE AREA SIZING AND CAPACITY

The New York State Stormwater Management Design Manual (January 2015) provides guidance on the required storage area needed to capture the BSA's goal of 100% of the 90% rainfall event. The original project capture area of 7.4 acres was reduced to 6.8 acres (an 8.1% reduction in impervious area) with the conversion of paved area into lawn or landscaped area with the new streetscape design. The new capture area of 6.8 acres will generate approximately 0.46 acre-feet of storm water runoff at the 90% rainfall event. Therefore, along the length of the project corridor, a minimum of 0.46 acre-feet of storage must be provided to meet the BSA capture goal.

As already noted, underground storage will be provided by the approximately 3-feet deep layer of open-graded permeable aggregate and structural soil. The assumed porosity of both mediums is 20%. Given the volume of both the open-graded permeable aggregate and structural soil used in the project, this equates to approximately 0.68 acre-feet of storage available. Therefore the proposed storm water reservoir is capable of storing the required volume of 0.46 acre-feet. In fact, the proposed storm water reservoir is able to accommodate almost 1.5 times the required volume. This additional storage area is beneficial to allow for potential runoff from areas outside the ROW that were not mapped as part of this project as well as to accommodate for some siltation and resulting decreased permeability of the subbase material that may occur over time. Refer to Appendix D, Storm Water Storage Area Sizing Calculations, for detailed storage area sizing calculations provided by the Niagara Street Phase II design.

TABLE II – 1 STORAGE AREA

Storage Area Required		0.46 ac-ft		
Storage Area Provided				
Structural Soil	0.29 ac-ft	0.68 ac-ft		
Open-Graded Permeable Aggregate	0.39 ac-ft	1		

100% of the 90% rainfall event will be collected and conveyed to the green infrastructure system.

#### III. GREEN INFRASTRUCTURE MAINTENANCE

#### A. CONTRACTOR RESPONSIBILITIES

As part of the green infrastructure installation, the contractor will be expected to test the permeability of permeable aggregate and structural soil in four sample locations for each material after placement and compaction to ensure adequate drainage of in-place material.

Once all special aggregate subbase layers have been placed to their proper depths and compaction densities (and tested successfully), and all sock-filled underdrain pipe has been installed and connected to their respective drainage structures, the green infrastructure system shall be tested prior to placement of any final top surfaces. This testing is to ensure the free-flow of water from the open-graded permeable aggregate or structural soil into the underdrain and drainage structure overflow system.

The installation of landscaping features including all growing media, mulch, trees, shrubs, ornamental grasses, perennials, groundcover, and sod shall be performed by a Landscape Contractor licensed to do business in the City of Buffalo. The successful bidder on this project must provide proof of being licensed as a City of Buffalo Landscape Contractor to execute the contract and maintain said license throughout the project.

The licensed Landscape Contractor who installs all landscaping will be expected to enter into a maintenance contract with the Buffalo Sewer Authority to provide maintenance of all landscaping features placed under the construction contract. This Maintenance Contract will have a period of two (2) years from the date of Construction Contract acceptance. A more detailed description of the green infrastructure systems and landscaping maintenance and testing requirements that were included as part of the construction contract for Niagara Street Phase II can be found in Appendix E.

#### **B. CAREGIVER RESPONSIBILITIES**

As noted earlier, rain gardens and/or landscaped green areas (other than turf or lawn) were included within the project corridor only when an adjacent property owner agreed to assume care and maintenance responsibilities. Success of the planted material is vital in the performance of rain gardens to capture, store, and treat storm water before it infiltrates naturally into the ground or makes its way to the overflow storm system. The two (2) year maintenance contract by the installing Landscape Contractor is envisioned to get the rain gardens established, healthy and thriving before the adjacent property owner takes over maintenance responsibilities. Once established, periodic removal of trash and debris (at least once a month and immediately following a major rainfall event) by the responsible landowner, along with a more scheduled maintenance regime for the plant material, will be required. Inlets and/or concrete dissipators leading into the rain gardens should be kept clear of debris and sediment, and shredded hardwood mulch should be replaced over bare or eroded soil. Refer to Appendix F for a complete maintenance guide and seasonal task list expected to be performed by the agreeing landowner.

#### IV. PROBABLE COSTS

The green infrastructure incorporated into the Niagara Street Project Phase II consists of underground storage reservoirs of open-graded permeable aggregate and structural soil. When not covered by paved surfaces, the underground reservoirs are landscaped with rain gardens and lawn areas. Successful bidder unit bid prices are noted below in Table IV-1 for the open-graded permeable aggregate and structural soil material.

TABLE IV – 1
GREEN INSTRASTRUCTURE SIZING, CAPACITY & ESTIMATE COST

	QTY	BID UNIT	BID COST	STORAGE	COST PER
		COST		CAPACITY	AC-FT
					STORAGE
Structural Soil*	2370 CY	\$75/CY	\$177,750	0.29 ac-ft	\$605,000
Open-Graded Permeable	3120 CY	\$60.50/CY	\$188,760	0.39 ac-ft	\$488,033
Aggregate*					
*Assumes 20% porosity					



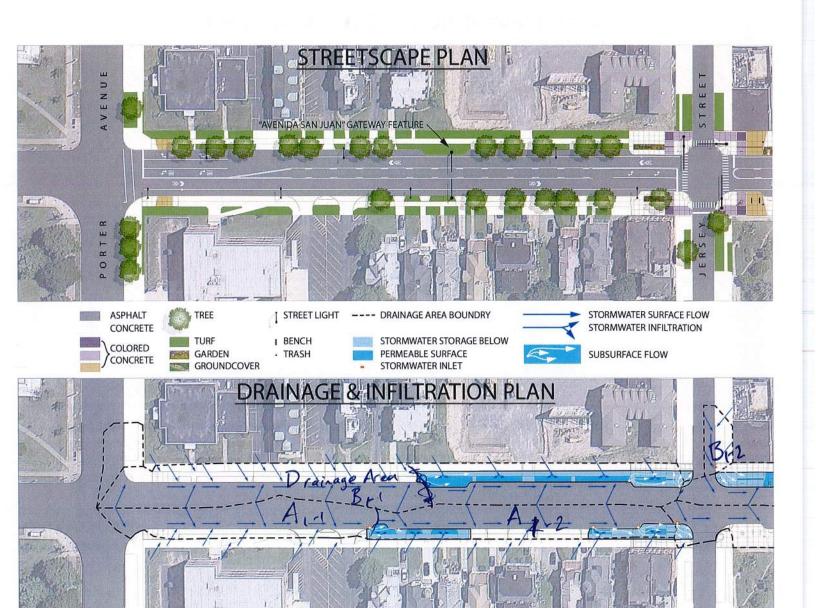
**Project Limits** 

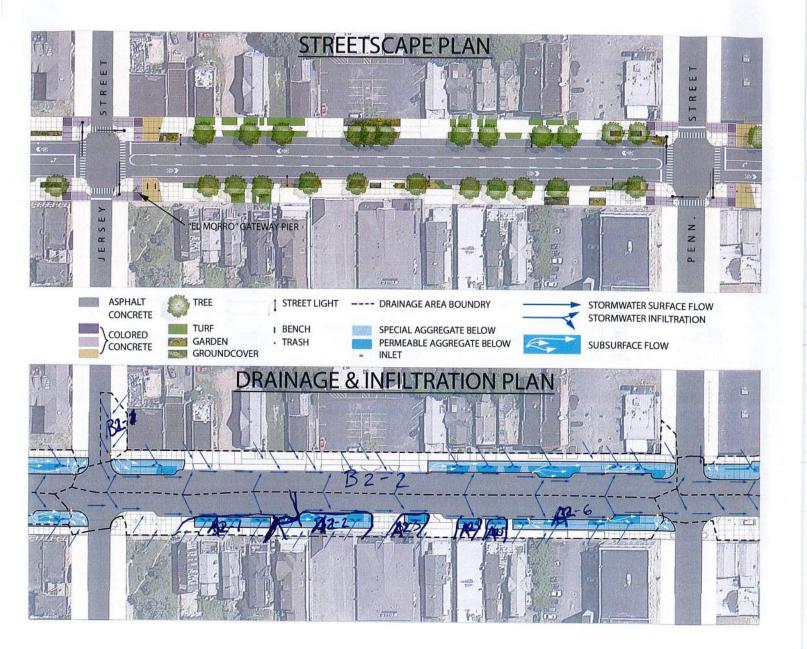
LOCATION MAP FIGURE 1

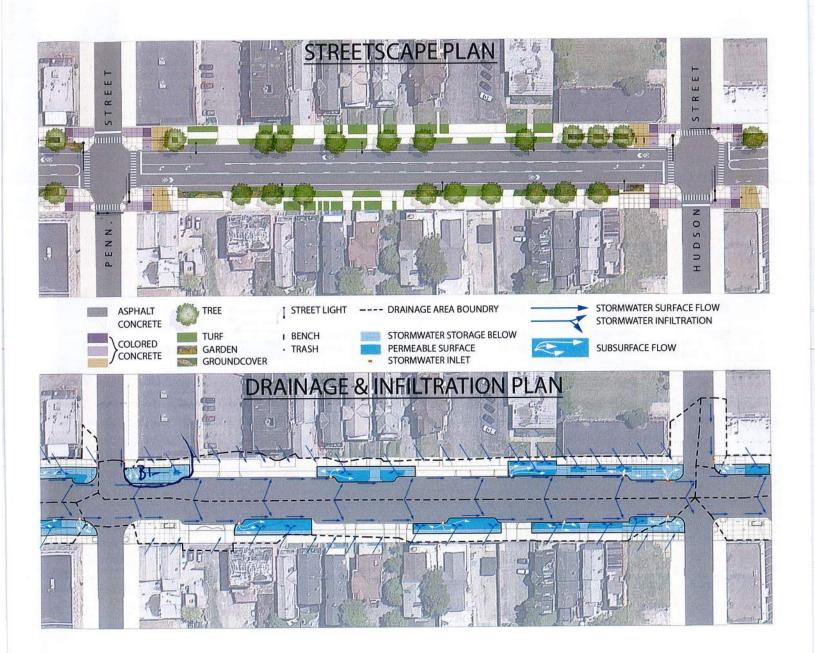


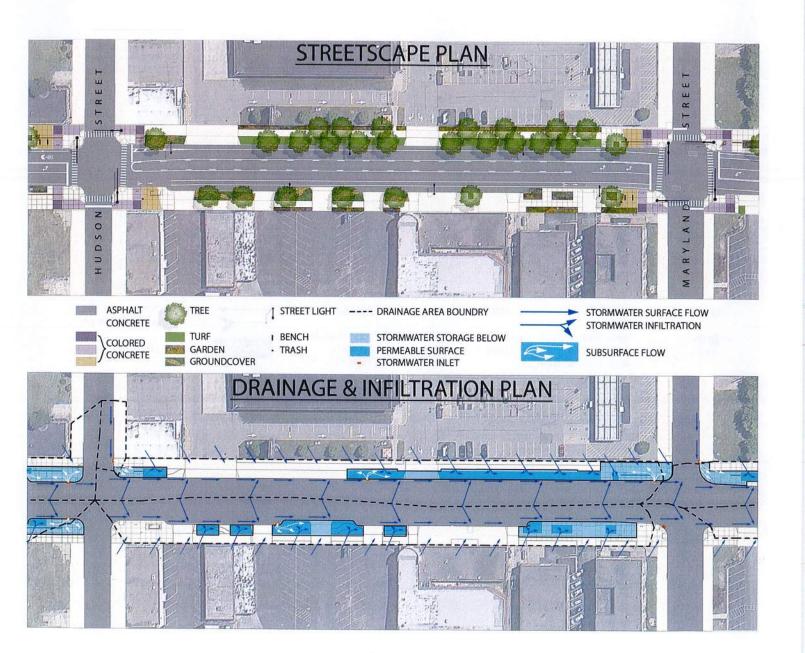
### Appendix A

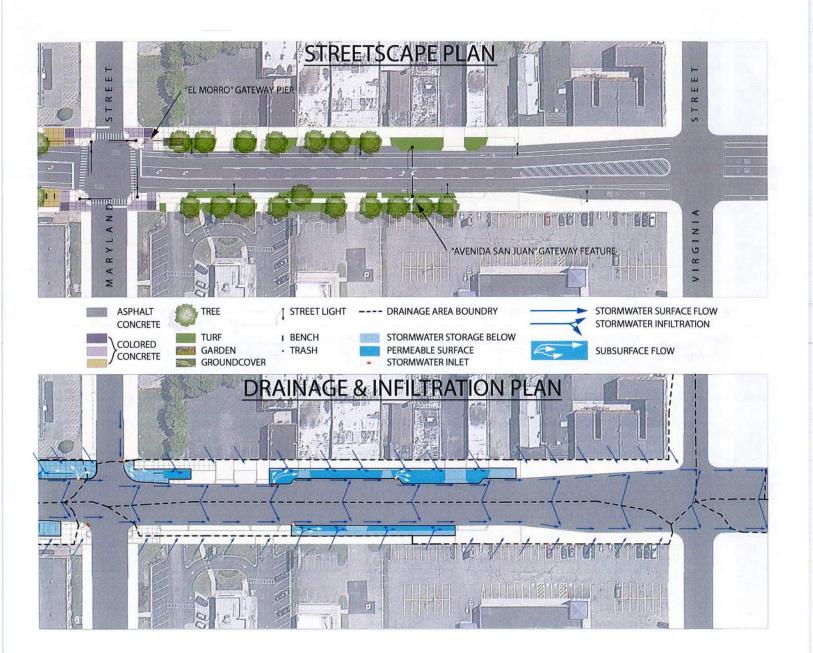
### **Green Infrastructure Streetscape Plan**









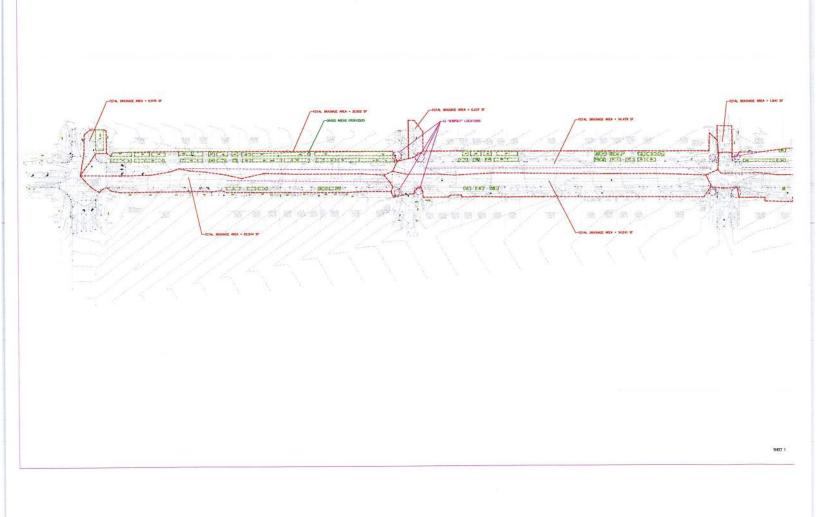


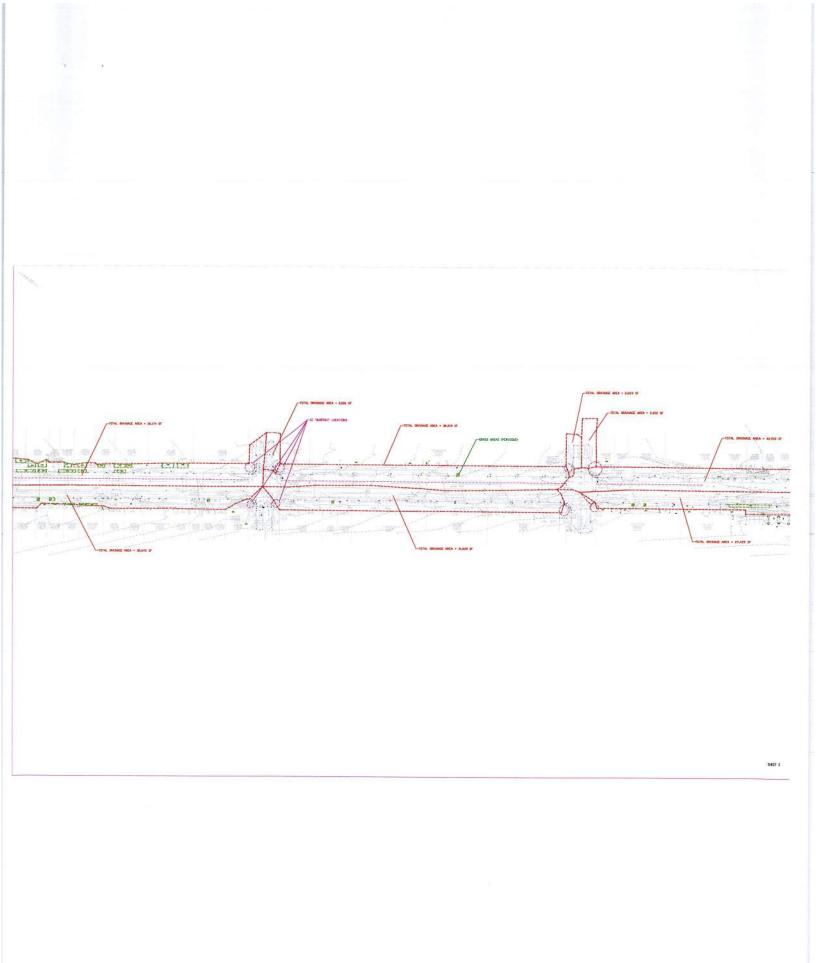
### **Appendix B**

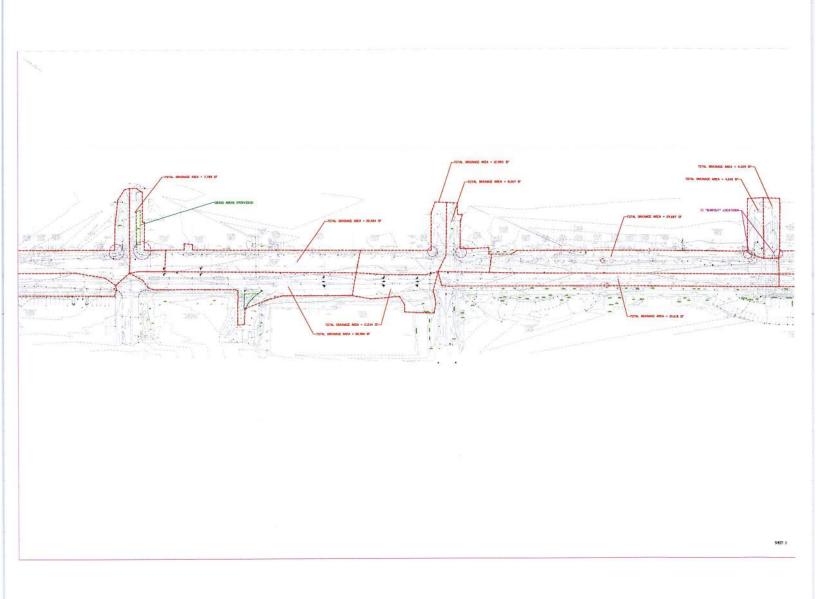
### **Typical Green Infrastructure Cross Sections**

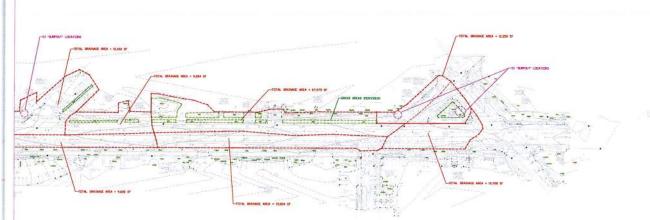
### **Appendix C**

### **Drainage Area Plans (Capture Area Limits)**



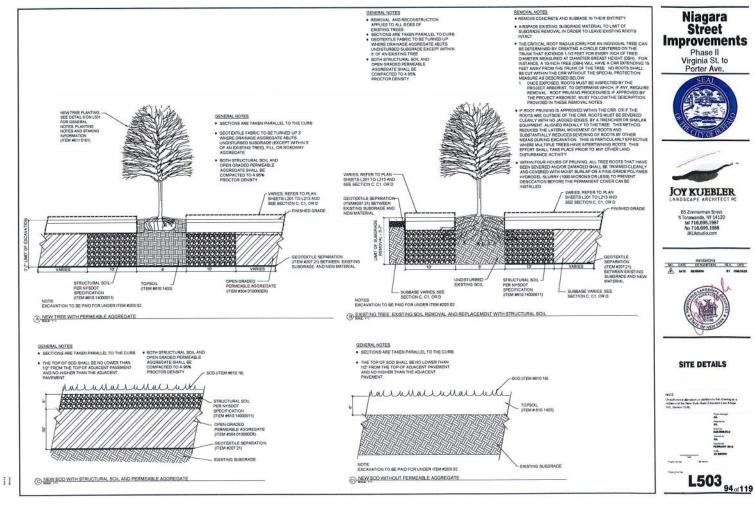




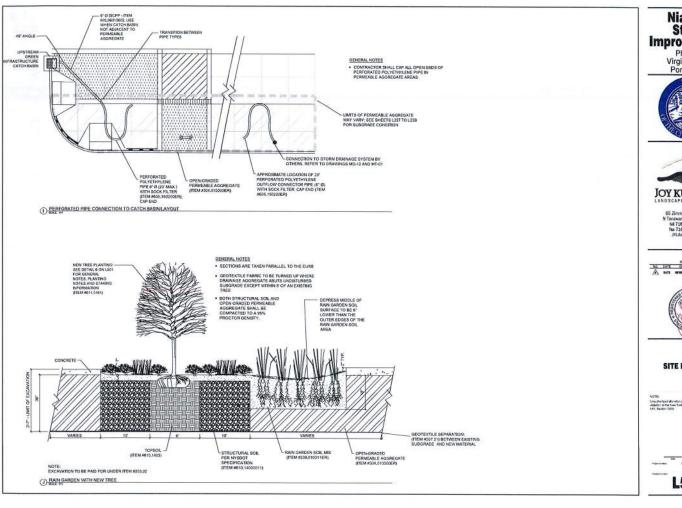


### **Appendix D**

### **Storm Water Storage Area Sizing Calculations**







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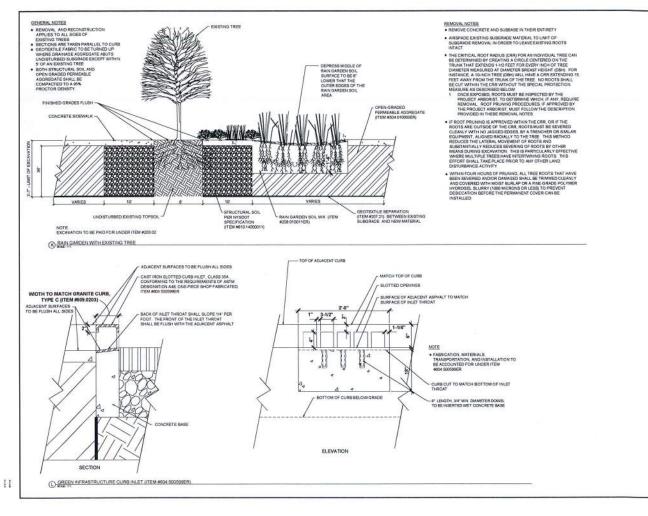
# Niagara Street Improvements Phase II Virginia St. to Porter Ave.





#### SITE DETAILS

L506 97 of 119



### Niagara Street **Improvements**

Phase II Virginia St. to Porter Ave.



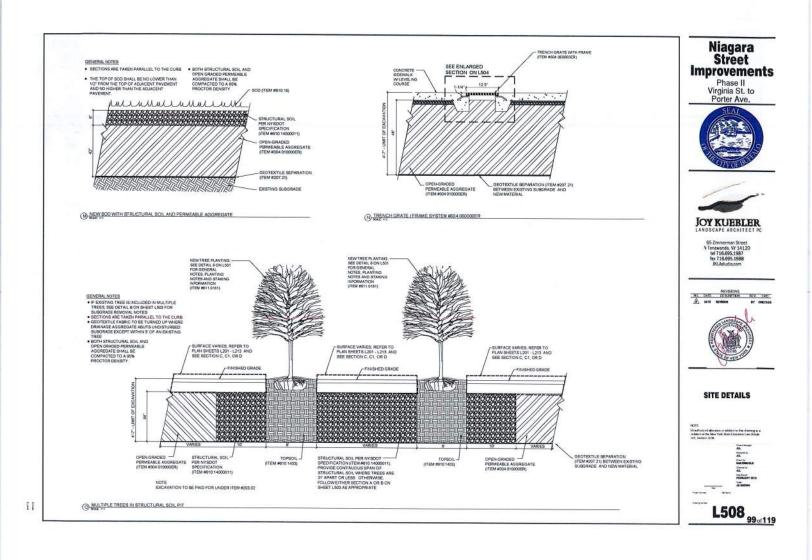


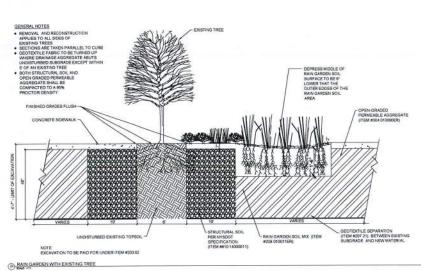
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#### SITE DETAILS

L507<sub>98 of 119</sub>





# Niagara Street Improvements Phase II Virginia St. to Porter Ave.





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#### SITE DETAILS

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11

# **Appendix E**

# Green Infrastructure Systems and Landscaping Contract Requirements

MARYLAND TO THE END OF PLASE II 90% RULE (CH. 4: UNIFIED STN SIZING CRITERIA) NO(V= [(PX(RVX/A)]/12 P= 0.86 R/= 0.95 (ASSUMES 100% IMPERANTUSINESS)

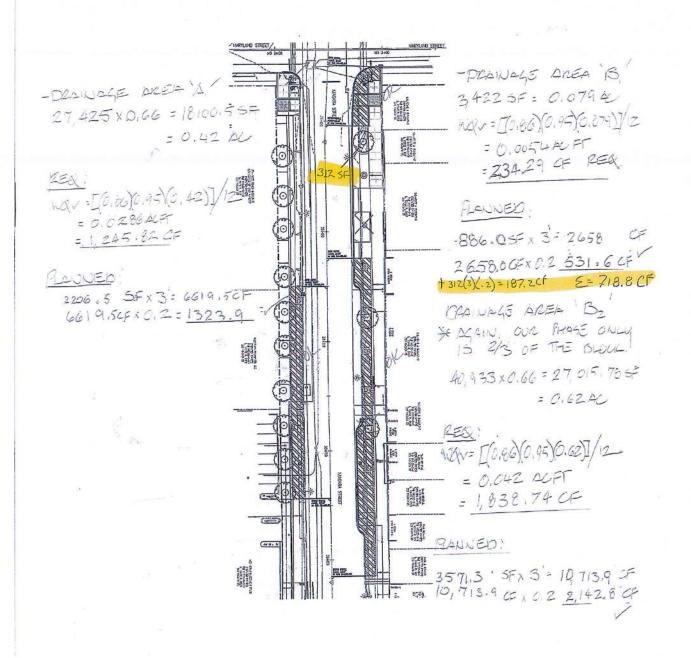
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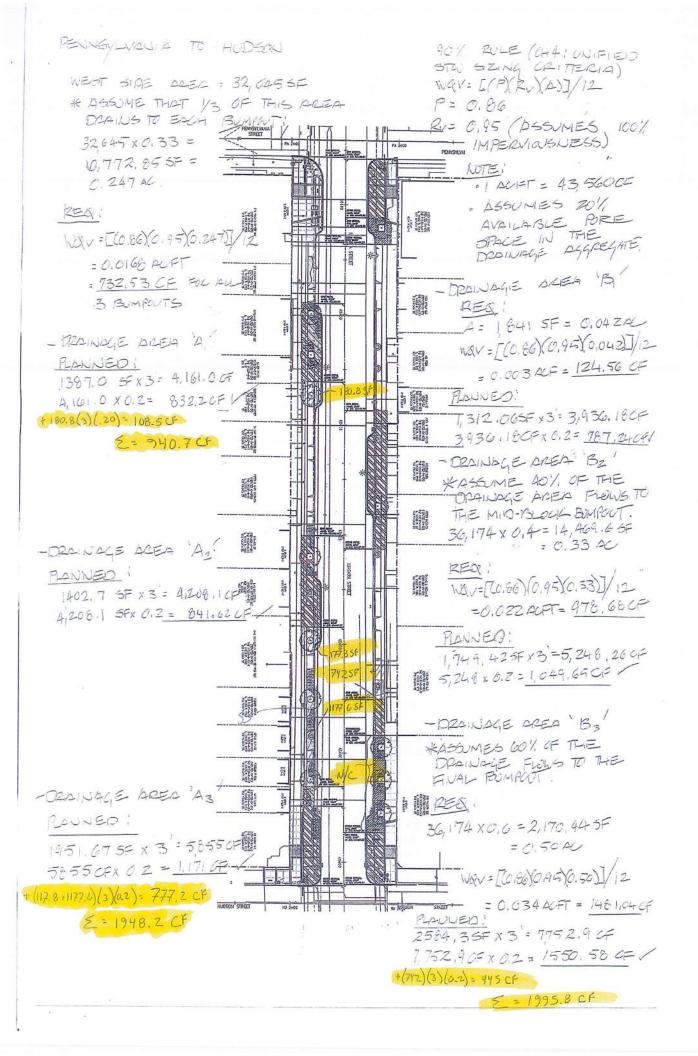
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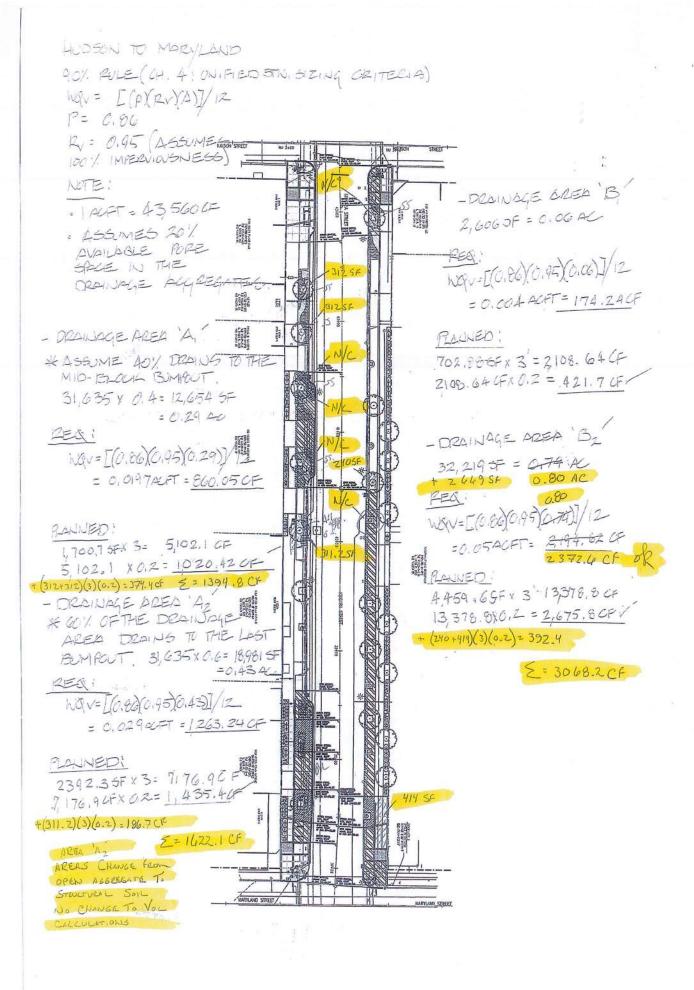
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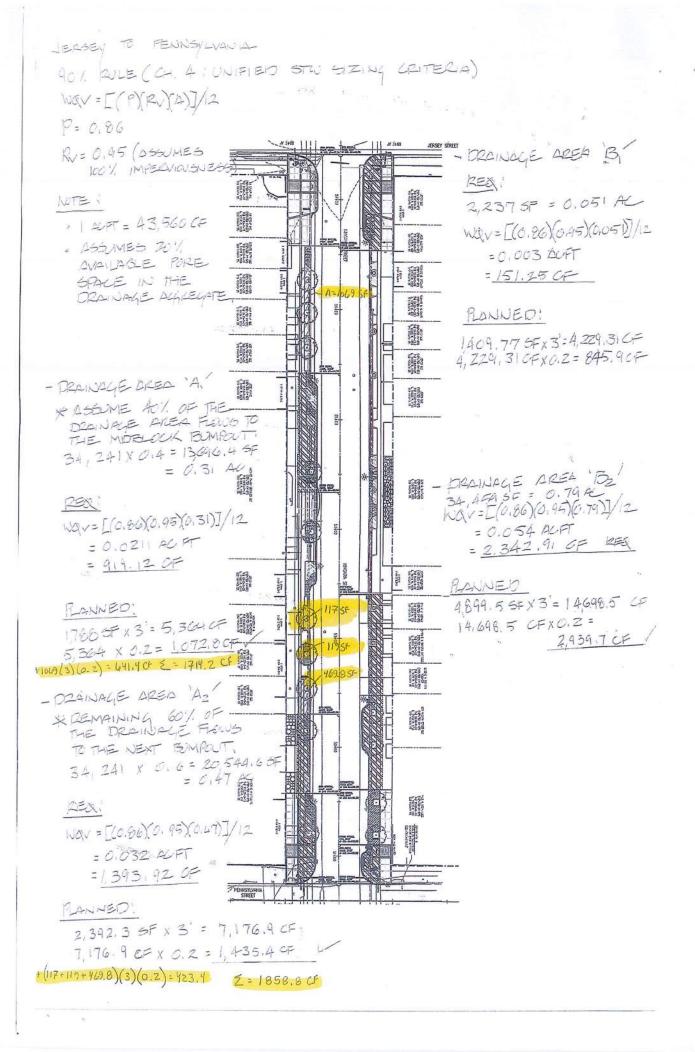
AVAILABLE RIPE SPACE
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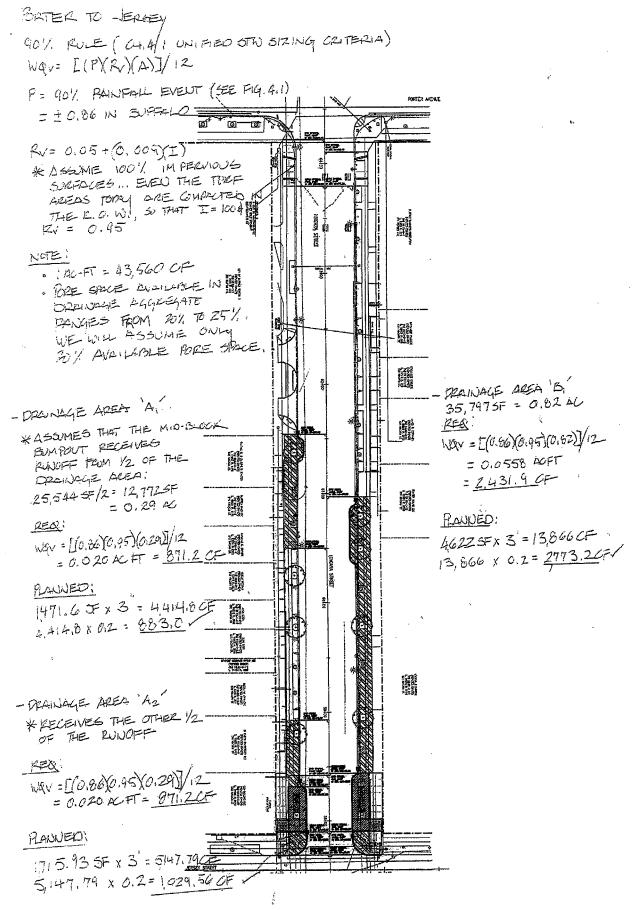
\* THE PHOSE II RIPTION IS APPRIX, 3/3 OF THE BLOCK.











Stormwater
Storage Area Sizing
Calculations

	Weed planting beds as needed						
OC	OCTOBER 16 - NOVEMBER 30						
	Document and photograph any potential hazards to public safety or welfare						
	Document and photograph any instances of erosion or of standing water						
	Remove trash, sediment and debris from all surface storm water conveyance features as needed (including but not limited to gutters, inlets, grates, trench drains and dissipaters)						
	Remove litter and dead plant material from planting beds and all other surface features						
	Re-contour any planting bed areas that have been disturbed or scoured by erosion						
	Remove spent blooms from flowering shrubs and perennials						
	Mow turf grasses on a weekly basis, or as necessary						
	Water planting beds as needed, depending on weather						
	Weed planting beds as needed						

#### JUNE 1 - JULY 31

Ш	Document and photograph any potential hazards to public safety or welfare
	Document and photograph any instances of erosion or of standing water
	Remove trash, sediment and debris from all surface storm water conveyance features as
	needed (including but not limited to gutters, inlets, grates, trench drains and dissipaters)
	Remove litter and dead plant material from planting beds and all other surface features
	Re-contour any planting bed areas that have been disturbed or scoured by erosion
	Remove spent blooms from flowering shrubs and perennials
	Inspect plants and trees for disease and address as needed (pesticide and herbicide use is prohibited)
	Mow turf grasses on a weekly basis, or as necessary
	Water planting beds as needed, depending on weather
	Weed planting beds as needed
ΑU	GUST 1 - AUGUST 31
	Document and photograph any potential hazards to public safety or welfare
	Document and photograph any instances of erosion or of standing water
	Remove trash, sediment and debris from all surface storm water conveyance features as needed (including but not limited to gutters, inlets, grates, trench drains and dissipaters)
	Remove litter and dead plant material from planting beds and all other surface features
	Re-contour any planting bed areas that have been disturbed or scoured by erosion
	Remove spent blooms from flowering shrubs and perennials
	Inspect plants and trees for disease and treat as needed
	Mow turf grasses on a weekly basis, or as necessary
	Water planting beds as needed, depending on weather
	Weed planting beds as needed
	Remove sediment and debris from inlets and catch basins (once annually)
SEI	PTEMBER 1 - OCTOBER 15
	Document and photograph any potential hazards to public safety or welfare
	Document and photograph any instances of erosion or of standing water
	Remove trash, sediment and debris from all surface storm water conveyance features as needed (including but not limited to gutters, inlets, grates, trench drains and dissipaters)
	Remove litter and dead plant material from planting beds and all other surface features
	Re-contour any planting bed areas that have been disturbed or scoured by erosion
	Remove spent blooms from flowering shrubs and perennials
	Mow turf grasses on a weekly basis, or as necessary
	Water planting beds as needed, depending on weather

### Landscape Maintenance Checklist:

APRIL 1 - APRIL 15

	Document and photograph any potential hazards to public safety or welfare			
	Document and photograph any instances of erosion or of standing water in all planting areas			
	Remove trash, sediment and debris from all surface storm water conveyance features as needed (including but not limited to gutters, inlets, grates, trench drains and dissipaters)			
	Remove litter and dead plant material from planting beds and all other surface features			
	Re-contour any planting bed areas that have been disturbed or scoured by erosion			
	Procure seed for top-seeding and patching turf grass as necessary			
	Procure mulch for planting beds			
	Cut dormant ornamental grasses to 8" from soil line			
	Prune trees and woody plants while still dormant as necessary to maintain public safety and plant condition			
	Mow turf grasses on a weekly basis, or as necessary			
	Water planting beds as needed, depending on weather			
	Weed planting beds as needed			
APRIL 16 - MAY 31				
	Document and photograph any potential hazards to public safety or welfare			
	Document and photograph any instances of erosion or of standing water in all planting areas			
	Remove trash, sediment and debris from all surface storm water conveyance features as needed (including but not limited to gutters, inlets, grates, trench drains and dissipaters)			
	Remove litter and dead plant material from planting beds and all other surface features			
	Do contains any planting had assess that have have Park III III III III			
	Re-contour any planting bed areas that have been disturbed or scoured by erosion			
	Assess planting bed areas that have been disturbed or scoured by erosion  Assess planting beds referencing the planting plan and a plant identification manual to identify individual plants that have not survived			
	Assess planting beds referencing the planting plan and a plant identification manual to			
	Assess planting beds referencing the planting plan and a plant identification manual to identify individual plants that have not survived			
	Assess planting beds referencing the planting plan and a plant identification manual to identify individual plants that have not survived  Procure and plant replacement plants for those that have not survived			
	Assess planting beds referencing the planting plan and a plant identification manual to identify individual plants that have not survived  Procure and plant replacement plants for those that have not survived  Top-seed and patch turf grass as needed  Top off planting beds with at least 1" of new mulch, adding more in areas where it has been			
	Assess planting beds referencing the planting plan and a plant identification manual to identify individual plants that have not survived  Procure and plant replacement plants for those that have not survived  Top-seed and patch turf grass as needed  Top off planting beds with at least 1" of new mulch, adding more in areas where it has been depleted to ensure that all mulched areas are a minimum of 3" thick			
	Assess planting beds referencing the planting plan and a plant identification manual to identify individual plants that have not survived  Procure and plant replacement plants for those that have not survived  Top-seed and patch turf grass as needed  Top off planting beds with at least 1" of new mulch, adding more in areas where it has been depleted to ensure that all mulched areas are a minimum of 3" thick  Inspect plants and trees for disease and treat as needed			
	Assess planting beds referencing the planting plan and a plant identification manual to identify individual plants that have not survived  Procure and plant replacement plants for those that have not survived  Top-seed and patch turf grass as needed  Top off planting beds with at least 1" of new mulch, adding more in areas where it has been depleted to ensure that all mulched areas are a minimum of 3" thick  Inspect plants and trees for disease and treat as needed  Mow turf grasses on a weekly basis, or as necessary			

the Preliminary Maintenance Walkthrough Punchlist can serve as the Final Maintenance Punchlist. At that time the BSA representative will schedule a final maintenance walkthrough with the Contractor. If deficiencies still exist, they must be corrected by the Contractor. After the acceptance of the Final Maintenance Walkthrough Punchlist, as prepared by the BSA representative, the Maintenance period by the Contractor is complete.

2. The Maintenance Bond will be held by the BSA representative until BSA certifies that all maintenance work defined under this section has been satisfactorily completed. When the Contractor satisfactorily completes the work, the bond will be returned. No partial releases of funds will be made.

- Maintain plantings by pruning dead plant material as needed, cultivating, watering, weeding, fertilizing, mulching, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as often as needed to establish healthy, viable plantings. Maintain three inch depth of mulch around all trees and in all landscape and groundcover areas. Pesticides and herbicide use is prohibited in City of Buffalo rights-of-way.
  - a. Use integrated pest management practices whenever possible to minimize and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.
  - b. Avoid spraying water into the roadway or onto private property. Do not allow water to puddle on pavement or turf areas.
- 2. Cut back ornamental grasses and all *Liriope* during the first maintenance period in the spring.

During the final inspection period at the end of the two-year maintenance period, the Contractor shall remove nursery tags, stakes, gator bags, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and project site.

#### B. Turf maintenance:

- 1. Neither pesticides nor herbicides are allowed in the City of Buffalo rights-of-way.
- 2. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
- 3. Water turf with fine spray at a minimum rate of one inch per week unless rainfall precipitation is adequate.
- 4. Mow lawns as soon as there is enough top growth to cut the grass to the height below. Repeat mowing as required to maintain the height specified below. Remove no more than 40 percent of grass leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Time initial and subsequent mowings to maintain following grass height:
  - a. Mow grass from 2 inches to 2-1/2 inches high. Do not mow to less than 2 inches.
  - b. Pick-up of grass clippings shall be required during or immediately after each mowing, if clippings are an average of 1 inch or longer in length.
- 5. Turf Post-fertilization: Apply fertilizer after initial mowing and when grass is dry.
  - a. Use fertilizer that will provide actual nitrogen of at least 1 lbs./1000 sq. ft. to turf area.

#### C. Preliminary and Final Maintenance Walkthrough:

1. The Contractor shall schedule a preliminary walkthrough with the designated BSA representative to occur during the final inspection period at the end of the two-year maintenance period. At the time of the preliminary maintenance walkthrough, all necessary plant replacements have occurred and all routine maintenance activities have been completed by the Contractor. Any deficiencies noted in the Preliminary Maintenance Walkthrough Punchlist (prepared by the BSA representative) shall be corrected by the Contractor. If no deficiencies were noted by the Buffalo Sewer Authority representative,

Inspection of the landscape plants and sod by the Contactor shall occur no less than six times during each growing season. The Contractor shall submit a completed inspection checklist, within five business days from the end of the inspection period, to the designated BSA representative, who will be identified at the time of final project acceptance following the construction phase. A copy of this checklist is included at the end of this document. Please note that the required maintenance activities listed above must be performed as-needed and may need to occur multiple times during any maintenance period. The Contractor shall note all specific landscape plant, sod, or groundcover issues encountered, the locations where problems were observed, and the corrective measures used to address the problems. Pictorial documentation of these issues also is required to be submitted. Routine maintenance activities performed by the Contractor shall be listed on the form with the dates they were performed. Periodic review of the completed inspection forms will occur prior to the processing of payment requests by the Contractor. The minimum required inspection periods are listed below:

- 1. Insp. Period 1: Apr. 1 to Apr. 15
- 2. Insp. Period 2: Apr. 16 to May 31
- 3. Insp. Period 3: June 1 to July 31
- 4. Insp. Period 4: Aug. 1 to Aug. 31
- 5. Insp. Period 5: Sept. 1 to Oct. 15
- 6. Insp. Period 6: Oct. 16 to Nov. 30
- P. Thriving landscape plants will be evidenced by the presence of new live plant shoots arising from at least 95 percent of its branching (if a tree or shrub) or two-thirds of the clump (if a perennial or ornamental grass).
- Q. Thriving sod will be evidenced by stands of green grass, free of weeds and with no bare spots.
- R. Make plant replacements under the guarantee as required during the period of June 1 to September 15. Replace plants prior to the next landscape inspection. Replacement plants shall be of the exact genus, species, and size as indicated in the project plant list. No substitutions are allowed during the guarantee period without the prior permission of the Landscape Architect. Any plants that die during a season unfavorable for planting must be replaced during the first month of the following favorable planting season.
- S. During maintenance activities, the Contractor shall keep adjacent pavement and turf clean and in an orderly condition, and all adjacent sidewalks passable.
- T. All removed landscape plants, sod, and groundcover shall be disposed of properly by the Contractor according to local codes.
- U. The Contractor is solely responsible for the expenses of all repairs and replacement to public and private property damaged during maintenance activities. The Contractor shall notify the designated BSA contact immediately upon recognition that the damage has occurred. The Contractor shall not undertake repairs or replacements to damaged property unless directed to do so by the BSA contact. The contact information for the Buffalo Sewer Authority representative will be provided during by the time of final project acceptance following the construction phase.

#### 3.2 EXECUTION OF LANDSCAPE MAINTENANCE ACTIVITIES

A. Tree, shrub, ornamental grass, and groundcover plant maintenance:

- I. Period of Guarantee and Maintenance: Guarantee all trees, shrubs, ornamental grasses, perennials, and sod for a minimum of two years for these plantings to become established and to achieve a vigorous growing condition from final acceptance at the end of Construction Contract until the end of the Guarantee and Maintenance Period. Maintain trees, shrubs, sod, and other plants throughout each required maintenance inspection period through the end of the guarantee period.
- J. Maintain trees, shrubs, and other plants by pruning, watering, fertilizing, mulching, removing dead foliage, and weeding as required for healthy growth and an attractive streetscape. Restore planting saucers. Tighten and repair stake and guy supports and reset trees and shrubs to proper grades or vertical position as required. Maintain and fill the gator bags with water for the new trees. Remove all debris and trash from planting areas. Maintain as required to keep trees and shrubs free of insects and disease. Dead or diseased plants shall be replaced by the Contractor. Each landscape plant area, including the mulched areas around trees, shall be free of weeds and undesirable grasses throughout the guarantee period.
- K. Maintain groundcover areas (consisting of *Liriope spicata* or species of *Sedum*) by watering, fertilizing, mulching, and weeding as required until a full, dense mass of groundcover is achieved, with no gaps between plants greater than six square inches after one full growing season, except where utility covers or other man-made structures occur. At the end of the second growing season, no gaps greater than three square inches should be visible, except where utility covers or other man-made structures occur. Dead or diseased plants shall be replaced by the Contractor in order to meet the required density of groundcover. Each groundcover area shall be free of weeds and undesirable grasses at the end of the guarantee period.
- L. Maintain sodded areas by watering, spot weeding, fertilizing, mowing, repatching dead areas with new sod of the exact same species, and the removal of trash and debris, as required until a full, uniform stand of turf, free of weeds, undesirable grass species, disease, and pests, with no bare spots exceeding a 3-inch by 3-inch area, is achieved and accepted at the end of the guarantee period. Dead or diseased portions of sod shall be replaced by the Contractor.
- M. All plant replacements shall be the Contractor's sole expense except for replacements resulting from:
  - 1. vandalism
  - 2. snow plowing and snow removal operations
  - 3. proven animal damage
  - 4. subsequent utility and construction work
- N. Water will not be available along the project corridor; the Contractor shall provide all water required to ensure tree, landscape plant, and turf vigor.
- O. All maintenance work must be performed by personnel with current landscape contractor licenses from the City of Buffalo.

- open-graded permeable aggregate or structural soil into the underdrain and drainage structure overflow system.
- 2. One representative location shall be tested to ensure proper functioning of the green infrastructure system. The selected location will be determined in the field by the Resident Engineer. Contractor shall provide sufficient water quantities to ensure adequate saturation of the permeable layer to produce an overflow situation. Drainage inlets and/or the nearest downstream manhole shall be observed for water infiltration resulting from the test. If testing results reveal poor infiltration of excess water into the overflow system, the subgrade shall be removed and reinstalled until the required results are obtained at no additional cost to the Contract.
- 3. Costs for testing the green infrastructure system shall be paid under Item 304.01000010 Open-Graded Permeable Aggregate and Item 610.14000011 Structural Soil.

#### PART THREE - EXECUTION

#### 3.1 MAINTENANCE OF LANDSCAPING

- A. The Contractor agrees to manage and maintain the properties professionally and in good faith and shall ensure that it will maintain prompt and courteous service to the public. The Contractor must provide an Operations Manager to act as single point of communication with the BSA.
- B. The Contractor shall provide and properly supervise all personnel required to safely maintain each property. A staffing plan must be submitted with each proposal.
- C. The Contractor shall be responsible for the maintenance indicated. The BSA reserves the right to perform routine property inspections, to insure proper maintenance is being performed. The BSA reserves the right to direct Contractor's maintenance and specific repairs.
- D. The BSA reserves the right to alter and delete tasks listed above as per available funding and at the discretion of the General Manager during contract performance. Decisions may be informed by site conditions and weather.
- E. The Contractor shall communicate and coordinate maintenance with community volunteer groups and neighbors that perform planting bed maintenance or tree plantings in designated properties.
- F. The Contractor shall be responsible for security of employees and equipment.
- G. Acts of theft or vandalism shall be reported to the Commissioner of Public Works, Parks and Streets within 24 hours of discovery.
- H. The Contractor shall be responsible for providing and maintaining all equipment needed to complete their work.

The contractor shall use its good faith efforts to achieve the utilization of minority group members, women and other disadvantaged workforce members consistent the City of Buffalo Code § 96-13 (F); Article 15A of NYS Executive Law; and federal Equal Employment Opportunity and Disadvantaged Business Enterprise laws, where applicable.

- E. Living and/or Prevailing Wage. BSA contractors are required to execute an Affirmation of Understanding and Agreement that they will comply with the City of Buffalo Living Wage provisions, contained City of Buffalo Code § 96-19; NYS Prevailing Wage law; and the Davis Bacon Act, where applicable.
- F. Residency. In support of City of Buffalo Code § 96-17, the Landscape Contractor agrees that (i) in the hiring of any employees, subcontractor(s), or person(s) acting on behalf of the subcontractor, preference shall first be given to qualified persons who have resided in the City of Buffalo for at least six (6) consecutive months immediately prior to the commencement of their employment for the performance of work, and, (ii) the Landscape Contractor and any subcontractor(s) will work towards ensuring a minimum residency goal of 25% of workforce to include qualified residents in the City of Buffalo. Landscape Contractors shall report residency on the provided Equal Employment Opportunity Staffing Plan.

#### **PART TWO - TESTING**

#### 2.1 SYSTEM TESTING

- A. Permeability of the Drainage Aggregates Testing:
  - 1. The Contractor shall test the permeability of permeable aggregate and structural soil in four sample locations for each material. The Contractor shall conduct the test in the following manner after compaction is complete:
    - a. Pour a gallon of water through a 2-inch diameter pipe held ½-inch above the aggregate surface.
    - b. Measure the diameter in which the water spreads across the surface of the compacted aggregate bed. Highly permeable bases should not allow water to spread more than 20 inches before it infiltrates through the material.
    - c. This test will be conducted with the Resident Engineer present.
    - d. The test report shall note the specific location of each test and the maximum diameter of the spread of water.
    - e. If testing results reveal excessive spread, the permeable bases will be removed and reinstalled until the required results are obtained at no additional cost to the Contract.
    - f. Costs for testing the permeable base material shall be paid under Item 610.14000011 Structural Soil.

#### B. Testing of Green Infrastructure:

1. Once all special aggregate subbase layers have been placed to their proper depths and compaction densities, and all sock-filtered underdrain pipe has been installed and connected to their respective drainage structures, the green infrastructure system shall be tested prior to placement of any final top surfaces. The testing is to ensure the free-flow of water from the

#### GREEN INFRASTRUCTURE SYSTEMS AND LANDSCAPING

#### PART ONE - CONTRACT

#### 1.1 CONSTRUCTION CONTRACT REQUIREMENTS

- A. The installation of landscaping features including all growing media, mulch, trees, shrubs, ornamental grasses, perennials, groundcover, and sod shall be performed by a Landscape Contractor licensed to do business in the City of Buffalo. The successful bidder on this project must provide proof of being licensed as a City of Buffalo Landscape Contractor to execute the contract and maintain said license throughout the project.
- B. The installation of Green Infrastructure elements as detailed in the contract documents shall be subject to a Performance Bond in the value of 100% of the full contract bid price excluding any Add Alternates included in the Bid Documents. All applicable aspects of Article 111 shall apply as detailed to all aspects of the proper work including the Green Infrastructure Systems and Landscaping.
- C. The Performance Bond shall specifically identify the City of Buffalo and the Buffalo Sewer Authority (BSA) as additionally insured parties and shall stay in force until final acceptance of the Construction Contract by the City of Buffalo.

#### 1.2 MAINTENANCE CONTRACT REQUIREMENTS

- A. The licensed Landscape Contractor who installed all landscaping will be expected to enter into a Maintenance Contract with the BSA to provide maintenance of all landscaping features placed under the Construction Contract. This Maintenance Contract will have a period of two (2) years from the date of Construction Contract acceptance.
- B. The licensed Landscape Contractor shall submit a bid cost to supply the detailed maintenance and guarantee landscaping in accordance with the requirements in Section 3.1 for the duration of the Guarantee and Maintenance Period. Progress payments should be issued to the licensed Landscape Contractor in accordance with the Inspections Periods listed below.
- C. A Maintenance Bond would be provided by the licensed City of Buffalo Landscape Contractor for the growing media, mulch and establishment of trees, shrubs, ornamental grasses, perennials, groundcover, and sod through the end of said Guarantee and Maintenance Period. The bond value shall equal the green infrastructure maintenance contract amount. At the successful conclusion and acceptance of the Maintenance Contract, the Maintenance Bond would be released.
- D. Workforce Diversity. The BSA encourages our contracting partners to adopt business methods and models that foster and result in a diverse workforce, with at least 30% participation for minority and 30% participation for women. The Landscape Contractor shall provide a copy of their Equal Employment Opportunity Policy (EEO) and complete the provided Equal Employment Opportunity Staffing Plan.



# Niagara Street Rain Garden Care & Maintenance Guide



# **Appendix F**

Niagara Street Rain Garden Care & Maintenance Guide

# **Table of Contents**

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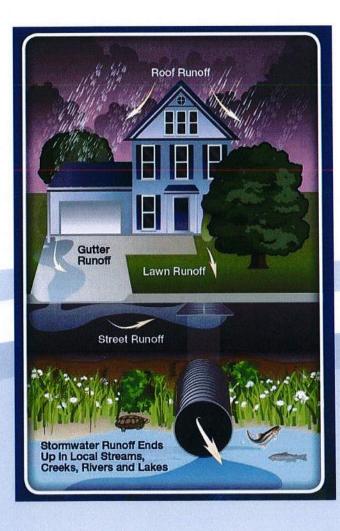


#### The Reason for Rain Gardens

All around the nation, cities are starting to build more and more rain gardens into streets, sidewalks, and public spaces. What is a rain garden and why are they helpful?

Think about it this way: before Buffalo was a city, the area we live in was mostly covered in forests and meadows. When it rained (or when snow melted) most of that water would be absorbed into the thick layer of soil that blankets the ground. Very slowly, it would percolate through the ground, getting filtered along the way until it finally reached underground aquifers or found its way into local creeks, rivers, and lakes.

In a city, storm water follows a very different path. It lands on many hard surfaces that can't absorb water, such as rooftops, roads, parking lots and sidewalks. The water flows across these surfaces and into the underground storm sewer system that sends the water directly into local streams, rivers, and lakes. This works great to prevent flooding, but it also causes a few unintended problems.





<u>Pollution:</u> Contaminants on the ground such as fertilizers, pesticides, oils, car fluids, soaps and pet waste get washed into our waterways. This can harm fish and wildlife, and make the water usafe for people

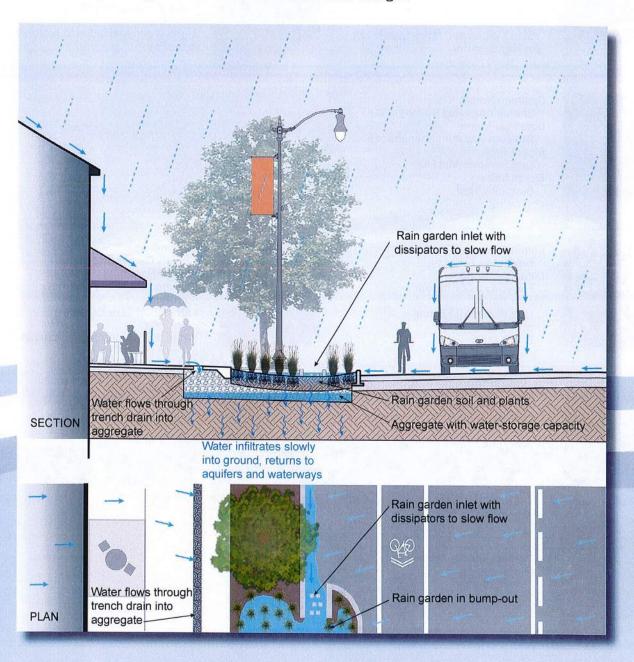


<u>Erosion:</u> During heavy storms, water is channeled into the stream so quickly that it can cause erosion of streams and river banks. This erosion can destroy important habitat for fish and other wildlife.



#### How Does a Rain Garden Work?

Your rain garden is part of the solution! The rain garden adjacent your property is designed to take in a portion of storm water and hold onto it for a while. It is full of a specially engineered soil mix that will filter out pollutants and allow the water to slowly absorb into the ground, the way nature intended. The plants in your rain garden have been selected to be able to thrive when partially submerged, but also survive when it's dry. Your rain garden improves the water quality by slowing the water's journey to local waterways AND making sure it arrives cleaner. That's an important job... and it looks beautiful while doing it.



#### The Plants

The following are the plants you will find in Niagara Street Rain Gardens. They have been selected for their ability to survive in the specific conditions of an in-street rain garden.

#### **Ornamental Grasses**



Common Name:
 Overdam Reed Grass
Botanical Name:
 Calamagrostis x acutiflora 'Overdam'
Bloom Time:
 Late Spring-Early Summer
Bloom Color:
 Starts green and fades to pale tan
in late Summer



Common Name:
Northern Sea Oats
Botanical Name:
Chasmanthium latifolia
Bloom Time:
Mid Summer-Early Fall
Bloom Color:
Starts green and fades to bronze/tan in the Fall



Common Name:
Shenandoah Red Switchgrass
Botanical Name:
Panicum virgatum 'Shenandoah'
Bloom Time:
Late Summer-Mid Fall
Bloom Color:
Burgundy/Red

#### Shrubs



Common Name:
Goldilocks Forsythia
Botanical Name:
Forsythia x 'Courtacour'
Bloom Time:
Late Winter-Mid Spring
Bloom Color:
Bright Yellow



Common Name:
Henry's Garnet Sweetspire
Botanical Name:
Itea virginica 'Henry's Garnet'
Bloom Time:
Late Spring-Early Summer
Bloom Color:
White, Foliage turns dark maroon in Fall



Common Name:
Sea Green Juniper
Botanical Name:
Juniperus Chinensis 'Sea Green'
Bloom Time:
Evergreen
Bloom Color:
None



Common Name:
Gro-Low Sumac
Botanical Name:
Rhus aromatic 'Gro-Low'
Bloom Time:
Mid Spring
Bloom Color:
Pale Yellow, Foliage turns bright red in



Common Name:
 Midnight Wine Weigela
Botanical Name:
 Weigela florida 'Elvera'
Bloom Time:
 Late Spring-Early Summer
Bloom Color:
 Pink, with burgundy foliage



The Plants, Continued...

#### Perennials



Common Name:
Lucifer Crocosmia
Botanical Name:
Crocosmia x'Lucifer'
Bloom Time:
Mid Summer
Bloom Color:
Bright Red



Common Name:
Caesar's Brother Siberian Iris
Botanical Name:
Iris sibirica 'Caesar's Brother
Bloom Time:
Late Spring-Early Summer
Bloom Color:
Purple and White



Common Name:
Big Blue Lily Turf
Botanical Name:
Liriope muscari 'Big Blue'
Bloom Time:
Late Summer-Early Fall
Bloom Color:
Violet/Lavender



Common Name:
Creeping Lily Turf
Botanical Name:
Liriope spicata
Bloom Time:
Late Summer-Early Fall
Bloom Color:
Violet/Lavender



Common Name:
Walker's Low Catmint
Botanical Name:
Nepeta x faassenii 'Walker's Low'
Bloom Time:
Late Spring-Mid Fall
Bloom Color:
Blue-Violet



Common Name:
Little Spire Russian Sage
Botanical Name:
Perovskia atriplicifolia 'Little Spire'
Bloom Time:
Late Spring-Early Fall
Bloom Color:
Blue-Violet



Common Name:
Fireworks Goldenrod
Botanical Name:
Solidago rugose 'Fireworks'
Bloom Time:
Late Summer-Early Fall
Bloom Color:
Gold (Yellow-Orange)



Assorted Stonecrop
Botanical Name:
Sedum, Assorted
Bloom Time:
Varies
Bloom Color:
Varies (Yellow, White, Pink, Red)

Common Name:



#### The Weeds

Weeds are nothing more than a wild plant growing where it is not wanted. They can rob the plants you're trying to grow of the nutrients and root space they need to thrive. Maintaining a 3" thick layer of shredded wood mulch will help limit the number of weeds that take root in your garden... but no matter what you do, there will always be unwanted weeds that sprout in your garden.

In a rain garden, pulling weeds out by hand is the only way to control them without compromising the function of the garden. Never apply herbicide to your rain garden! Weeds can have deep and aggressive roots so it's important to remove as much of the root as possible. Always grasp the weed from the very base, near the soil surface, and pull directly up. For stubborn weeds, it may be helpful to dig the whole thing out, roots and all, using your trowel.

To pull or not to pull? Since there are hundreds of kinds of weeds found in our region, the best way to avoid pulling a desirable plant is to get to know them. A full list of "friendly" plants can be found on pages 4 and 5. Once you are familiar with them, you can assume everything else is a weed. Below are some of the most common weeds.



Common Name: Red Clover Botanical Name: Trifolium pretense



Common Name: White Clover Botanical Name: Trifolium repens



Common Name: Dandelion Botanical Name: Taraxacum



Common Name: Broadleaf Plantain Botanical Name: Plantago major



Common Name: Japanese Knotweed Botanical Name: Fallopia japonica



Common Name: Lamb's Quarters Botanical Name: Chenopodium berlandieri



Common Name: Tree of Heaven Botanical Name: Ailanthus altissima



Common Name:
Bull Thistle / Spear Thistle
Botanical Name:
Cirsium vulgare



Common Name: Garlic Mustard Botanical Name: Alliaria petiolate



Common Name: Wild Carrot / Queen Anne's Lace Botanical Name: Daucus carota

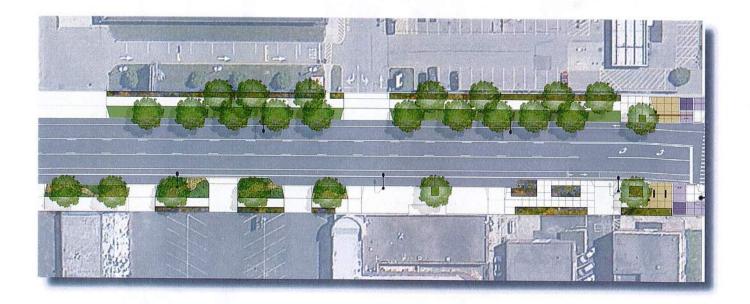


# Caring for Your Rain Garden

#### Safety First

Caring for your rain garden will require you to be in the public right-of-way. Here are a few safety concerns you'll want to keep in mind:

- Ensure you are visible to traffic; wear brightly colored clothing and only work on your rain garden during daylight hours.
- Be aware of the locations of vehicles, cyclists, pedestrians and pets at all times.
- Keep supplies and tools out of the path of travel of vehicles, cyclists and pedestrians.
- Anything that lands on the street or sidewalk could wash into your rain garden. Some of these objects could be sharp or dangerous to handle. Proceed with caution when removing and handling debris to avoid injury.
- Dispose of any medical waste or hypodermic needles found in your rain garden using methods that are approved for medical waste.
- Never handle dead animal carcasses without gloves or grabbers. Double bag any carcass and dispose of in an appropriate garbage facility.
- Wildlife or insects (such as rodents or bees) could be present in your rain garden. Proceed with caution to avoid surprise encounters.



# Caring for Your Rain Garden

### Equipment



# Monthly Care

The following tasks should be performed monthly, and after each heavy rain storm.



Remove trash or debris (including tree and leaf litter) from the rain garden and any inlets.



Sweep Inlets



If rainwater has carved a channel or displaced soil in your garden contact RainCheck to request maintenance.



Always ensure that there is a 3" cover of shredded hardwood mulch in your rain garden. If the storm has disturbed it, redistribute to achieve a uniform thickness. Only use shredded hardwood mulch in your rain garden as wood chip mulches tend to float and wash away.

Editor's Note: Images above to be replaced with new images photographed after project construction is complete

# Seasonal Care

Here are a few tasks to perform during each specific season.

# **SPRING**

- 1. If water is ponding in garden or inlet for more than 48 hours, contact RainCheck to request maintenance.
- 2. Cut all ornamental grasses to 6" tall.
- 3. Remove weeds.
- 4. Top-off shredded hardwood mulch as needed to achieve uniform 3" thick cover.
- 5. Remove Trash

# **SUMMER**

- 1. If water is ponding in garden or inlet for more than 48 hours, contact RainCheck to request maintenance.
- 2. Remove weeds.
- 3. Water garden if any plants begin to wilt during extended drought or high temperatures.
- 4. Identify any plants that have died and notify Raincheck to request replacement.
  - 5. Remove Trash

# WINTER

- 1. If water is ponding in garden or inlet for more than 48 hours, contact RainCheck to request maintenance.
- 2. Remove leaf litter.
- 3. Clear snow & ice from inlets. (No need to remove snow from garden).
- 4. Remove Trash

# **FALL**

- 1. If water is ponding in garden or inlet for more than 48 hours, contact RainCheck to request maintenance.
- 2. Remove weeds.
- 3. Remove leaf litter.
- 4. Allow dried ornamental grass foliage to remain throughout the winter.
- 5. Remove Trash



# Caring for Your Rain Garden

#### Personalizing Your Garden

It's normal to want to add your own personal touch to the look of your garden. There's definitely room for that, but there are a few things to consider so the garden can continue to function properly.

#### **Plants**

The plants in your rain garden have been specially selected to be able to thrive in these specific conditions. Not all plants are able to withstand the extremes of inundation, drought, and road salt. It is not recommended to remove any of these plants or to introduce new species. If you discover that one of these plants has died, contact RainCheck to arrange for replacement. It is possible to add your own personal touch by adding spring bulbs to your rain garden, but it is recommended that they be planted near the edges where they will be less likely to be exposed to excessive moisture.

#### **Rocks and Statuary**

Adding heavy objects like rocks and statuary to your rain garden could compress the soil and reduce its ability to take in water. Keep this in mind if adding ornamental objects to your garden. It's best to keep heavy items to a minimum.

#### Soil

The soil in your rain garden is a specially engineered mix designed to provide just the right amount of nutrients to the plants, while still allowing water to flow through at the desired rate. Adding ordinary soil, peat, sand or other growing media to your rain garden could stop the rain garden from functioning properly. If you need to add any new soil to your rain garden, contact RainCheck.

#### Fertilizer

Do not add fertilizer to your rain garden. It can wash through the soil and add to pollution in local waterways. The specially designed soil mix in your rain garden has all of the nutrients required to keep the plants healthy. Additionally, the natural decomposition of the mulch layer in your rain garden will provide a continuous source of renewed nutrients.



# Caring for Your Rain Garden

#### Troubleshooting

#### Ponding

It is normal to find standing water in your rain garden immediately after a storm, but it should drain through within 24-48 hours. If water is ponding or backing up for more than two days, contact RainCheck to request maintenance.

#### Erosion

If the flow of rain water has carved deep channels or displaced your soil, contact RainCheck to request maintenance.

#### **Dead Plants**

If spring is coming to an end and you've noticed that one or more plants in your garden is dead, contact RainCheck to request maintenance.

#### Pest Management

If you notice that any of your plants are being damaged by insects or other pests, contact RainCheck to request maintenence. DO NOT apply pesticide to your rain garden.



CONTACT INFORMATION:

WEBSITE: raincheckbuffalo.org

EMAIL: raincheck@sa.ci.buffalo.ny.us TELEPHONE: 716-851-4664 x 4254





May 12, 2015

Mr. John Bidell Associate Engineer Department of Public Works City Hall, Room 515 Buffalo, New York 14202

RE: Niagara Street Improvements Phase II

Stormwater Capture Report

Dear Mr. Bidell:

We are transmitting two (2) copies of the Stormwater Capture Report for the subject project area for your review and comment. In addition, we will send one (1) additional copy to Buffalo Sewer Authority for their concurrent review and use as requested.

Should you have any questions and/or comments to be addressed, please contact me at (716) 852-3211, Ext. 864.

Sincerely,

Bergmann Associates

Kelly M. Thompson, P.E.

Business Segment Leader - Traffic Operations & ITS Services

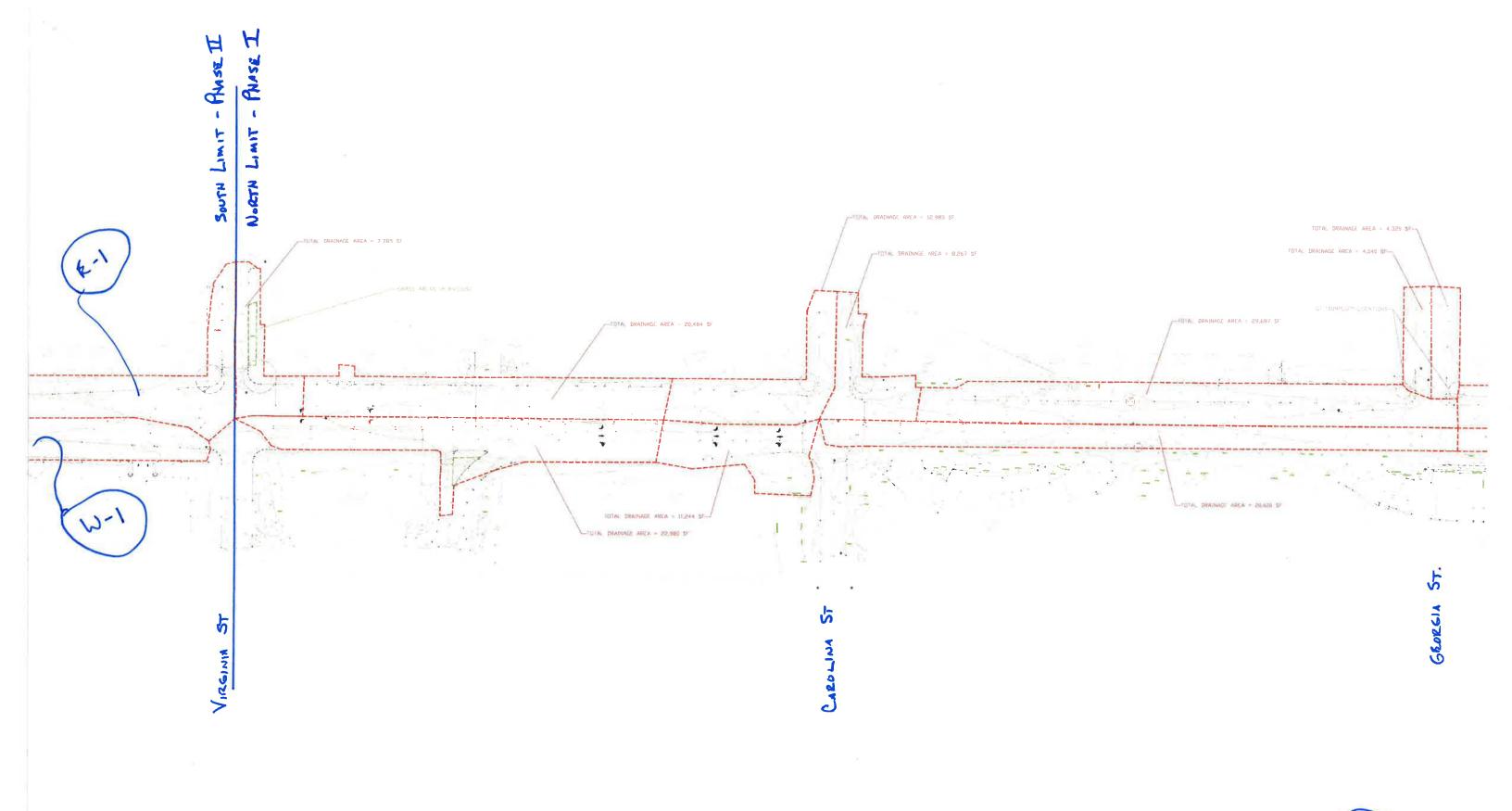
Enclosures

cc: T. Duk, City of Buffalo DPW w/attachment

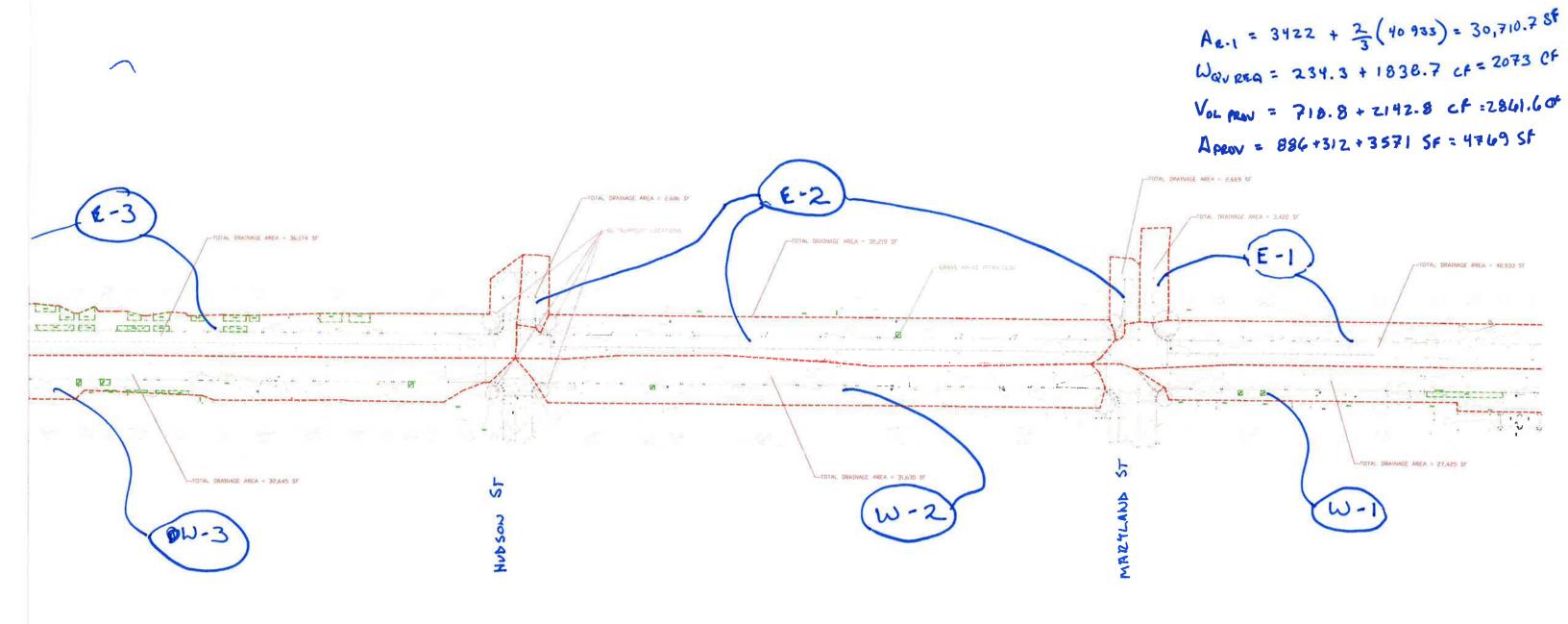
J. O'Neill, Buffalo Sewer Authority w/attachment



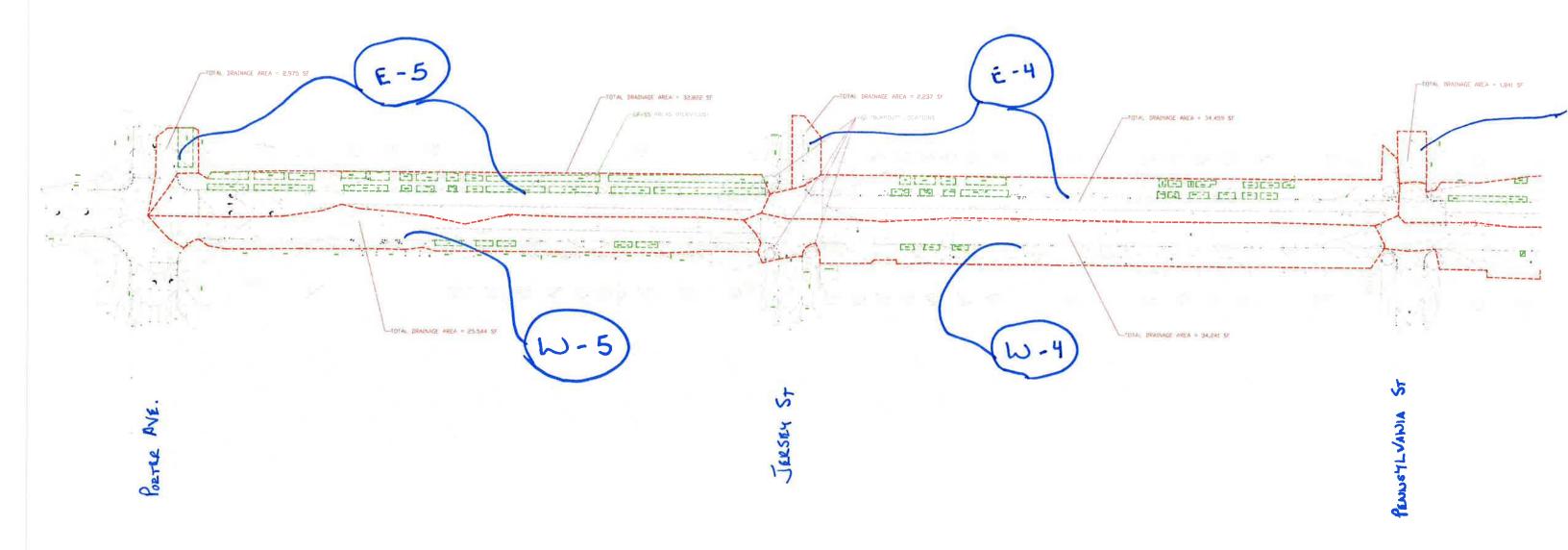
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SUB-AREAS
7/13/15



DRAINACE SUB-ARRAS 7/13/15



DEAINAGE SUB-ARÉAS 7/13/15

# Niagara Street Reconstruction - Phase II Virginia Street to Porter Avenue

## Drainage sub-Area Calculations

					1	1
				Proposed		
				Management		
		WQv (CF)		Volume (CF)	Actual	
		(Assuming	Proposed	(Assuming	Storm	
Drainage	Tributary Area	P=0.86 in;	Management	pore space =0.20;	Designed	Vol(pro)/
Area ID	(SF)	Rv=0.95)	Area (SF)	Depth =3 ft)	for (in)	WQv
E-1	30710.7	2090.9	4769.0	2861.4	1.18	137%
W-1	18283.3	1244.8	2206.3	1323.8	0.91	106%
E-2	37094.0	2525.5	5162.5	3097.5	1.05	123%
W-2	31635.0	2153.8	4716.7	2830.0	1.13	131%
E-3	38015.0	2588.2	6387.4	3832.4	1.27	148%
W-3	32645.0	2222.6	6216.7	3730.0	1.44	168%
E-4	36696.0	2498.4	6308.0	3784.8	1.30	151%
W-4	34241.0	2331.2	4180.0	2508.0	0.93	108%
E-5	35797.0	2437.2	4622.0	2773.2	0.98	114%
W-5	25554.0	1739.8	3187.5	1912.5	0.95	110%
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		0		0	#DIV/0!	
		0		0	#DIV/0!	
	320671	21832	47756	28654		131%

#### PROPOSED CONDITION:

TOTAL AREA COMBINED = 554,769 SF 12.74 AC.

TOTAL IMP AREA COMBINED = 310,280 SF 7.12 AC.

TOTAL % IMP COMBINED = 56%

#### EXISTING CONDITION:

TOTAL AREA COMBINED = 554,769 SF 12.74 AC.

TOTAL IMP AREA COMBINED = 450,425 SF 10.34 AC.

TOTAL % IMP COMBINED = 81%

TOTAL IMPERVIOUS AREA REDUCTION = 31%, [(10.34 AC. - 7.12 AC.)/10.34 AC.] 31% > 25%

THEREFORE, WATER QUALITY AND QUANTITY REDUCTION CRITERIA ACHIEVED PER DEC REGULATIONS (STORM WATER DESIGN MANUAL, CHAPT. 9, SECTION B-I)

#### **PUSH Blue GI parcels Status**

		Scheduled to	
Properties		Start	Type of site
	Winter	complete	rain garden
	Winter	complete	rain garden
16	Winter	complete	rain garden
16	19th Street	complete	rain garden
37	19th Street	complete	rain garden
40-42-44	Winter	complete	stormwater capture for urban farming site
41-43	Lawrence	2015	rain garden/recreation
	Winter	· ·	stormwater capture for urban farming site
	18th Street		rain garden
111	18th Street	complete	rain garden
	18th Street		stormwater capture for urban farming site
133	Chenango	complete	rain garden
	Hampshire	complete	storm water capture
	Hampshire		community garden
297	Hampshire	complete	
309 & 315	14th St		storm water capture community garden
	Hampshire		rain garden
	Massachusetts	.1	rain garden
	Rhode Island		bioswales/nursery
405	Massachusetts	2015	rain garden
445	W Ferry	complete	rain garden/permeable paver
456	Massachusetts	complete	rain garden
494	Massachusetts	2015	rain garden
527	W. Utica		green roof
	W. Utica	•	rain garden
608	W. Utica	complete	rain garden
247	Massachusetts	complete	rain garden
99	Chenango	complete	rain garden
335	Massachusetts	complete	rain garden

### Attachment F to the Semi-Annual Status Report: September 2015

Monthly Monitoring Reports Submitted to NYSDEC (USEPA copy only)



## **CSO / SPP Inspection Report**

Viewing Records 1-2356 of 2356

								V ICVVII	ig Recolus 1-2	2330 01 230	0
Report ID	Report Date	AM/PM	Weather	Inspector	Assistant	SPP ID	Conn. Open?	DWOF	Remarks	DWOF Reason	Action Taken
68597	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP342B	Υ	N			
68620	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP336A	Υ	N			
68619	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP336B	Υ	N			
68618	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP165A	Υ	N			
68617	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP165B	Y	N			
68616	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP164	Υ	N			
68615	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP165	Υ	N			
68614	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP163	Υ	N			
68613	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP204	Y	N			
68612	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP203	Υ	N			
68611	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP202	Υ	N			
68610	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP201	Υ	N			
68609	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP337	Υ	N			
68608	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP200B	Υ	N			
68607	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP200A	Υ	N			
68606	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP338	Υ	N			
68605	7/1/2015	AM	Rain	R. Logalbo	No Assistant	SPP339	Υ	N			
68604	7/1/2015	AM	Rain	R. Logalbo	No Assistant	SPP340	Y	N			
68603	7/1/2015	AM	Rain	R. Logalbo	No Assistant	SPP157	Y	N			
68602	7/1/2015	AM	Rain	R.	No	SPP156	Υ	N			
68601	7/1/2015	AM	Rain	R.	Assistant No	SPP156B	Υ	N			
68600	7/1/2015	AM	Rain	R.	Assistant No	SDD156A	Y	N			
				Logalbo	Assistant						

68599	7/1/2015	AM	Rain	R. Logalbo	No Assistant	SPP341A	Υ	N
68598	7/1/2015	АМ	Rain	R. Logalbo	No Assistant	SPP342A	Υ	N
68577	6/30/2015	АМ	Rain	R. Logalbo	No Assistant	SPP331	Υ	N
68596	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP175	Υ	N
68595	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP176	Υ	N
68594	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP177	Y	N
68593	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP244	Y	N
68592	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP245	Υ	N
68591	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP247	Υ	N
68590	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP335B	Υ	N
68589	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP335A	Υ	N
68588	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP334B	Υ	N
68587	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP334A	Υ	N
68586	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP229A	Υ	N
68585	6/30/2015	АМ	Rain	R. Logalbo	No Assistant	SPP229	Y	N
68584	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP345	Υ	N
68583	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP333	Υ	N
68582	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP170B	Y	N
68581	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP170A	Υ	N
68580	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP179	Υ	N
68579	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP332	Υ	N
68578	6/30/2015	AM	Rain	R. Logalbo	No Assistant	SPP180	Υ	N
68528	6/25/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP193	Υ	N
68576	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP024	Y	N
68575	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP023	Y	N
68574	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP296	Υ	N
68573	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP022	Υ	N

68572	6/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP021	Υ	N
68571	6/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP020	Υ	N
68570	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP019	Y	N
68569	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP243	Υ	N
68568	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP015	Υ	N
68567	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP014B	Υ	N
68566	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP014A	Υ	N
68565	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP237	Υ	N
68564	6/25/2015	AM	Sunny	R. Logalbo -	No Assistant	SPP236	Υ	N
68563	6/25/2015	AM	Sunny	R. Logalbo -	No Assistant	SPP238	Υ	N
68562	6/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP235	Υ	N
68561	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP239	Υ	N
68560	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP240	Υ	N
68559	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP241	Υ	N
68558	6/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP234	Υ	N
68557	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP233	Υ	N
68556	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP232	Υ	N
68555	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP231	Υ	N
68554	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP230	Υ	N
68553	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP181	Υ	N
68552	6/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP182	Υ	N
68551	6/25/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP013	Υ	N
68550	6/25/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP195	Υ	N
68549	6/25/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP215	Υ	N
68548	6/25/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP214	Υ	N
68547	6/25/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP213	Υ	N
68546	6/25/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP011	Υ	N

68545	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP010	Υ	N
68544	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP009	Y	N
68543	6/25/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP008	Υ	N
68542	6/25/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP184	Υ	N
68541	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP007	Υ	N
68540	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP185	Υ	N
68539	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP186	Υ	N
68538	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP005	Υ	N
68537	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP004	Υ	N
68536	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP003	Υ	N
68535	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP001	Υ	N
68534	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP188	Υ	N
68533	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP190	Υ	N
68532	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP189	Y	N
68531	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP280	Υ	N
68530	6/25/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP187	Υ	N
68529	6/25/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP191	Υ	N
68506	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP105	Υ	N
68527	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP283	Υ	N
68526	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP129	Υ	N
68525	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP131	Υ	N
68524	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP132	Υ	N
68523	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP133	Υ	N
68522	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP279	Y	N
68521	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP135A	Υ	N
68520	6/24/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP136A	Υ	N
68519	6/24/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP137	Υ	N

68518	6/24/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP209	Υ	N
68517	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP322	Υ	N
68516	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP212	Υ	N
68515	6/24/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP211	Υ	N
68514	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP291	Υ	N
68513	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP292	Υ	N
68512	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP293	Υ	N
68511	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP294	Υ	N
68510	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP295	Y	N
68509	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP329	Υ	N
68508	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP106	Υ	N
68507	6/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP307	Υ	N
68485	6/23/2015	АМ	Rain	R. Logalbo	No Assistant	SPP121	Υ	N
68505	6/23/2015	АМ	Rain	R. Logalbo	No Assistant	SPP107	Y	N
68504	6/23/2015	АМ	Rain	R. Logalbo	No Assistant	SPP107A	Υ	N
68503	6/23/2015	AM	Rain	R. Logalbo	No Assistant	SPP310	Υ	N
68502	6/23/2015	АМ	Rain	R. Logalbo	No Assistant	SPP309	Y	N
68501	6/23/2015	AM	Rain	R. Logalbo	No Assistant	SPP308B	Υ	N
68500	6/23/2015	AM	Rain	R. Logalbo	No Assistant	SPP308A	Υ	N
68499	6/23/2015	AM	Rain	R. Logalbo	No Assistant	SPP308	Υ	N
68498	6/23/2015	AM	Rain	R. Logalbo	No Assistant	SPP114	Υ	N
68497	6/23/2015	AM	Rain	R. Logalbo	No Assistant	SPP113	Υ	N
68496	6/23/2015	AM	Rain	R. Logalbo	No Assistant	SPP122	Υ	N
68495	6/23/2015	AM	Rain	R. Logalbo	No Assistant	SPP311	Υ	N
68494	6/23/2015	AM	Rain	R. Logalbo	No Assistant	SPP227A	Υ	N
68493	6/23/2015	AM	Rain	R. Logalbo	No Assistant	SPP227	Υ	N
68492	6/23/2015	АМ	Rain	R. Logalbo	No Assistant	SPP226	Υ	N

68491	6/23/2015	AM	Rain	R. Logalbo	No Assistant	SPP225	Υ	N
68490	6/23/2015	АМ	Rain	R. Logalbo	No Assistant	SPP224	Υ	N
68489	6/23/2015	АМ	Rain	R. Logalbo	No Assistant	SPP223	Υ	N
68488	6/23/2015	АМ	Rain	R. Logalbo	No Assistant	SPP222	Υ	N
68487	6/23/2015	AM	Rain	R. Logalbo	No Assistant	SPP221	Υ	N
68486	6/23/2015	АМ	Rain	R. Logalbo	No Assistant	SPP220	Υ	N
68458	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP104	Υ	N
68484	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP128	Υ	N
68483	6/22/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP130	Υ	N
68482	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP146	Υ	N
68481	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP145	Υ	N
68480	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP138	Υ	N
68479	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP326	Υ	N
68478	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP282	Υ	N
68477	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP281	Υ	N
68476	6/22/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP125	Υ	N
68475	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP125A	Υ	N
68474	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP126	Υ	N
68473	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP097	Y	N
68472	6/22/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP097A	Y	N
68471	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP124	Y	N
68470	6/22/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP208	Y	N
68469	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP123C	Y	N
68468	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP123A	Υ	N
68467	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP123B	Y	N
68466	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP115	Υ	N
68465	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP118	Y	N

68464	6/22/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP119	Υ	N
68463	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP120	Υ	N
68462	6/22/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP099	Υ	N
68461	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP100	Υ	N
68460	6/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP101	Υ	N
68459	6/22/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP103	Υ	N
68437	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP218	Υ	N
68457	6/19/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP249	Y	N
68456	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP152	Υ	N
68455	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP199C	Υ	N
68454	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP199B	Υ	N
68453	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP199A	Υ	N
68452	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP151	Υ	N
68451	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP248	Y	N
68450	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP198A	Υ	N
68449	6/19/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP150	Y	N
68448	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP277	Υ	N
68447	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP149	Υ	N
68446	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP148	Υ	N
68445	6/19/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP320	Υ	N
68444	6/19/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP319	Υ	N
68443	6/19/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP318	Υ	N
68442	6/19/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP317	Υ	N
68441	6/19/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP316	Υ	N
68440	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP315	Υ	N
68439	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP314	Υ	N
68438	6/19/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP217	Υ	N

68419	6/18/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP074	Y	N
68436	6/18/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP094	Υ	N
68435	6/18/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP091	Y	N
68434	6/18/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP092	Υ	N
68433	6/18/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP090	Υ	N
68432	6/18/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP088	Υ	N
68431	6/18/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP089	Υ	N
68430	6/18/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP087	Υ	N
68429	6/18/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP084	Υ	N
68428	6/18/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP086	Υ	N
68427	6/18/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP085	Υ	N
68426	6/18/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP082	Υ	N
68425	6/18/2015	ΑM	Pt. Cloudy	R. Logalbo	No Assistant	SPP081	Υ	N
68424	6/18/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP080	Υ	N
68423	6/18/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP079	Υ	N
68422	6/18/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP078	Υ	N
68421	6/18/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP077	Υ	N
68420	6/18/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP075	Υ	N
68393	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP304	Υ	N
68418	6/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP073	Υ	N
68417	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP072	Υ	N
68416	6/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP070	Υ	N
68415	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP068	Υ	N
68414	6/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP069	Υ	N
68413	6/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP059	Υ	N
68412	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP065	Υ	N
68411	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP058	Υ	N

68410	6/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP056	Υ	N
68409	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP054	Υ	N
68408	6/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP053	Υ	N
68407	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP052	Υ	N
68406	6/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP146	Υ	N
68405	6/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP051	Υ	N
68404	6/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP051A	Υ	N
68403	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP050	Υ	N
68402	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP327	Υ	N
68401	6/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP048	Υ	N
68400	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP047	Υ	N
68399	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP045A	Y	N
68398	6/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP042	Y	N
68397	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP036	Y	N
68396	6/17/2015	ΑM	Rain	R. Logalbo	No Assistant	SPP035	Υ	N
68395	6/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP206B	Υ	N
68394	6/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP206A	Y	N
68351	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP331	Υ	N
68392	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP342A	Υ	N
68391	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP342B	Υ	N
68390	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP341A	Υ	N
68389	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP156	Υ	N
68388	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP156B	Υ	N
68387	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP156A	Υ	N
68386	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP157	Υ	N
68385	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP340	Υ	N
68384	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP339	Υ	N

68383	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP338	Υ	N
68382	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP200B	Υ	N
68381	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP200A	Υ	N
68380	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP337	Υ	N
68379	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP201	Υ	N
68378	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP202	Υ	N
68377	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP203	Υ	N
68376	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP204	Υ	N
68375	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP163	Υ	N
68374	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP165A	Υ	N
68373	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP164	Υ	N
68372	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP165	Y	N
68371	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP165B	Y	N
68370	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP336A	Υ	N
68369	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP336B	Υ	N
68368	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP175	Y	N
68367	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP176	Υ	N
68366	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP177	Υ	N
68365	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP247	Y	N
68364	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP335B	Y	N
68363	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP335A	Y	N
68362	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP334B	Υ	N
68361	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP334A	Y	N
68360	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP229A	Υ	N
68359	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP229	Υ	N
68358	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP333	Υ	N
68357	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP170B	Υ	N

68356	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP170A	Y	N
68355	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP178	Υ	N
68354	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP179	Y	N
68353	6/15/2015	АМ	Rain	R. Logalbo	No Assistant	SPP332	Υ	N
68352	6/15/2015	AM	Rain	R. Logalbo	No Assistant	SPP180	Υ	N
68324	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP183	Υ	N
68350	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP237	Υ	N
68349	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP236	Υ	N
68348	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP238	Υ	N
68347	6/12/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP244	Υ	N
68346	6/12/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP245	Υ	N
68345	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP235	Υ	N
68344	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP239	Υ	N
68343	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP241	Υ	N
68342	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP240	Υ	N
68341	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP234	Υ	N
68340	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP233	Υ	N
68339	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP232	Υ	N
68338	6/12/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP231	Υ	N
68337	6/12/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP230	Υ	N
68336	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP023	Υ	N
68335	6/12/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP296	Υ	N
68334	6/12/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP022	Υ	N
68333	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP021	Υ	N
68332	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP020	Υ	N
68331	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP019	Υ	N
68330	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP243	Υ	N

68329	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP015	Y	N
68328	6/12/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP014B	Υ	N
68327	6/12/2015	AM	Sunny	R. Logalbo	No Assistant	SPP014A	Υ	N
68326	6/12/2015	ΑM	Sunny	R. Logalbo	No Assistant	SPP181	Υ	N
68325	6/12/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP182	Υ	N
68301	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP193	Υ	N
68323	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP215	Υ	N
68322	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP214	Υ	N
68321	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP213	Υ	N
68320	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP195	Υ	N
68319	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP013	Υ	N
68318	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP011	Υ	N
68317	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP010	Υ	N
68316	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP184	Υ	N
68315	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP185	Υ	N
68314	6/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP186	Υ	N
68313	6/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP009	Υ	N
68312	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP008	Υ	N
68311	6/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP007	Υ	N
68310	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP005	Υ	N
68309	6/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP004	Υ	N
68308	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP003	Υ	N
68307	6/11/2015	ΑM	Sunny	R. Logalbo	No Assistant	SPP001	Υ	N
68306	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP188	Υ	N
68305	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP190	Υ	N
68304	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP189	Υ	N
68303	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP187	Y	N

68302	6/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP191	Υ	N
68280	6/10/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP105	Υ	N
68300	6/10/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP283	Υ	N
68299	6/10/2015	ΑM	Pt. Sunny	R. Logalbo	No Assistant	SPP129	Υ	N
68298	6/10/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP131	Υ	N
68297	6/10/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP137	Υ	N
68296	6/10/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP136A	Υ	N
68295	6/10/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP135A	Υ	N
68294	6/10/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP132	Υ	N
68293	6/10/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP279	Υ	N
68292	6/10/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP133	Υ	N
68291	6/10/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP322	Υ	N
68290	6/10/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP211	Υ	N
68289	6/10/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP212	Υ	N
68288	6/10/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP291	Υ	N
68287	6/10/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP292	Υ	N
68286	6/10/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP293	Υ	N
68285	6/10/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP294	Υ	N
68284	6/10/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP295	Υ	N
68283	6/10/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP329	Υ	N
68282	6/10/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP106	Υ	N
68281	6/10/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP307	Υ	N
68261	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP107	Y	N
68279	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP113	Υ	N
68278	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP114	Υ	N
68277	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP308	Υ	N
68276	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP308A	Υ	N

68275	6/4/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP308B	Υ	N
68274	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP309	Υ	N
68273	6/4/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP310	Y	N
68272	6/4/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP222	Y	N
68271	6/4/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP221	Υ	N
68270	6/4/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP220	Υ	N
68269	6/4/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP223	Υ	N
68268	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP224	Υ	N
68267	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP225	Υ	N
68266	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP122	Υ	N
68265	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP227A	Υ	N
68264	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP227	Υ	N
68263	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP226	Υ	Υ
68262	6/4/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP107A	Υ	N
68237	6/3/2015	AM	Sunny	R. Logalbo	No Assistant	SPP104	Υ	N
68260	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP138	Υ	N
68259	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP145	Υ	N
68258	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP326	Υ	N
68257	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP282	Υ	N
68256	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP281	Υ	N
68255	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP097	Y	N
68254	6/3/2015	AM	Sunny	R. Logalbo	No Assistant	SPP097A	Υ	N
68253	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP126	Υ	N
68252	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP125A	Y	N
68251	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP125	Υ	N
68250	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP124	Υ	N
68249	6/3/2015	AM	Sunny	R. Logalbo	No Assistant	SPP208	Υ	N

68248	6/3/2015	AM	Sunny	R. Logalbo	No Assistant	SPP123C	Υ	N
68247	6/3/2015	AM	Sunny	R. Logalbo	No Assistant	SPP123B	Y	N
68246	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP123A	Y	N
68245	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP115	Y	N
68244	6/3/2015	AM	Sunny	R. Logalbo	No Assistant	SPP118	Υ	N
68243	6/3/2015	AM	Sunny	R. Logalbo	No Assistant	SPP119	Υ	N
68242	6/3/2015	AM	Sunny	R. Logalbo	No Assistant	SPP120	Υ	N
68241	6/3/2015	AM	Sunny	R. Logalbo	No Assistant	SPP099	Υ	N
68240	6/3/2015	AM	Sunny	R. Logalbo	No Assistant	SPP100	Υ	N
68239	6/3/2015	AM	Sunny	R. Logalbo	No Assistant	SPP101	Υ	N
68238	6/3/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP103	Υ	N
68236	6/2/2015	AM	Sunny	R. Logalbo	No Assistant	SPP249	Υ	N
68233	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP199B	Υ	N
68235	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP152	Υ	N
68234	6/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP199A	Υ	N
68232	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP199C	Y	N
68231	6/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP151	Υ	N
68230	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP248	Υ	N
68229	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP198A	Υ	N
68228	6/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP150	Υ	N
68227	6/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP277	Y	N
68226	6/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP149	Υ	N
68225	6/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP148	Y	N
68224	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP320	Y	N
68223	6/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP319	Y	N
68222	6/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP318	Υ	N
68221	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP317	Y	N

68220	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP316	Υ	N
68219	6/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP315	Υ	N
68218	6/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP314	Y	N
68217	6/1/2015	ΑM	Sunny	R. Logalbo	No Assistant	SPP218	Υ	N
68216	6/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP094	Υ	N
68215	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP092	Υ	N
68214	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP091	Υ	N
68213	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP088	Υ	N
68212	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP090	Υ	N
68211	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP087	Υ	N
68210	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP089	Υ	N
68209	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP082	Υ	N
68208	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP081	Υ	N
68207	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP078	Y	N
68206	6/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP079	Υ	N
68205	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP080	Y	N
68204	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP077	Υ	N
68203	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP075	Υ	N
68202	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP074	Υ	N
68201	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP073	Y	N
68200	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP072	Y	N
68199	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP070	Y	N
68198	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP068	Y	N
68197	6/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP069	Υ	N
68172	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP304	Υ	N
68196	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP065	Y	N
68195	5/29/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP059	Υ	N

68194	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP067	Y	N
68193	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP058	Y	N
68192	5/29/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP055	Υ	N
68191	5/29/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP056	Υ	N
68190	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP128	Υ	N
68189	5/29/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP054	Υ	N
68188	5/29/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP053	Υ	N
68187	5/29/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP052	Υ	N
68186	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP130	Υ	N
68185	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP146	Υ	N
68184	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP051	Υ	N
68183	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP051A	Y	N
68182	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP050	Υ	N
68181	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP327	Υ	N
68180	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP048	Υ	N
68179	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP047	Υ	N
68178	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP045A	Υ	N
68177	5/29/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP042	Υ	N
68176	5/29/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP036	Υ	N
68175	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP035	Υ	N
68174	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP206B	Υ	N
68173	5/29/2015	AM	Sunny	R. Logalbo	No Assistant	SPP206A	Υ	N
68149	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP165B	Υ	N
68171	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP156	Υ	N
68170	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP342B	Y	N
68169	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP342A	Υ	N
68168	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP341A	Υ	N

68167	5/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP340	Υ	N
68166	5/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP156B	Υ	N
68165	5/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP156A	Υ	N
68164	5/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP157	Υ	N
68163	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP339	Υ	N
68162	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP338	Υ	N
68161	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP200B	Υ	N
68160	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP200A	Υ	N
68159	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP337	Y	N
68158	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP201	Y	N
68157	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP202	Υ	N
68156	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP203	Υ	N
68155	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP204	Υ	N
68154	5/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP165A	Υ	N
68153	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP163	Υ	N
68152	5/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP164	Υ	N
68151	5/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP336A	Υ	N
68150	5/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP336B	Υ	N
68127	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP331	Υ	N
68148	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP334B	Υ	N
68147	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP334A	Υ	N
68146	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP335A	Υ	N
68145	5/27/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP335B	Υ	N
68144	5/27/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP247	Υ	N
68143	5/27/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP166	Υ	N
68142	5/27/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP175	Υ	N
68141	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP176	Υ	N

68140	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP177	Υ	N
68139	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP244	Υ	N
68138	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP245	Υ	N
68137	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP345	Υ	N
68136	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP229A	Υ	N
68135	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP229	Υ	N
68134	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP333	Υ	N
68133	5/27/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP170B	Υ	N
68132	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP170A	Υ	N
68131	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP178	Υ	N
68130	5/27/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP179	Υ	N
68129	5/27/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP332	Υ	N
68128	5/27/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP180	Υ	N
68099	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP183	Υ	N
68126	5/26/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP024	Υ	N
68125	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP023	Υ	N
68124	5/26/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP296	Υ	N
68123	5/26/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP022	Υ	N
68122	5/26/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP021	Y	N
68121	5/26/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP020	Υ	N
68120	5/26/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP019	Υ	N
68119	5/26/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP243	Υ	N
68118	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP015	Υ	N
68117	5/26/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP017	Υ	N
68116	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP018	Υ	N
68115	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP014B	Υ	N
68114	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP014A	Υ	N

68113	5/26/2015	ΑM	Sunny	R. Logalbo	No Assistant	SPP237	Υ	N
68112	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP238	Υ	N
68111	5/26/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP236	Υ	N
68110	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP239	Υ	N
68109	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP235	Υ	N
68108	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP241	Υ	N
68107	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP240	Υ	N
68106	5/26/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP234	Υ	N
68105	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP233	Υ	N
68104	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP232	Υ	N
68103	5/26/2015	ΑM	Sunny	R. Logalbo	No Assistant	SPP231	Υ	N
68102	5/26/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP230	Υ	N
68101	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP181	Υ	N
68100	5/26/2015	AM	Sunny	R. Logalbo	No Assistant	SPP182	Y	N
68075	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP193	Υ	N
68098	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP013	Υ	N
68097	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP195	Υ	N
68096	5/22/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP213	Υ	N
68095	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP214	Υ	N
68094	5/22/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP215	Υ	N
68093	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP011	Υ	N
68092	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP010	Υ	N
68091	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP009	Υ	N
68090	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP008	Υ	N
68089	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP184	Υ	N
68088	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP185	Υ	N
68087	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP186	Υ	N

68086	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP007	Υ	N
68085	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP005	Υ	N
68084	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP004	Υ	N
68083	5/22/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP003	Υ	N
68082	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP001	Υ	N
68081	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP188	Υ	N
68080	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP189	Υ	N
68079	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP190	Υ	N
68078	5/22/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP187	Υ	N
68077	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP280	Υ	N
68076	5/22/2015	AM	Sunny	R. Logalbo	No Assistant	SPP191	Υ	N
68053	5/21/2015	ΑM	Sunny	R. Logalbo	No Assistant	SPP105	Υ	N
68074	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP283	Υ	N
68073	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP209	Υ	N
68072	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP137	Υ	N
68071	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP136A	Υ	N
68070	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP135A	Υ	N
68069	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP279	Υ	N
68068	5/21/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP133	Υ	N
68067	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP132	Υ	N
68066	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP131	Υ	N
68065	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP129	Υ	N
68064	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP322	Υ	N
68063	5/21/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP212	Υ	N
68062	5/21/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP211	Υ	N
68061	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP291	Υ	N
68060	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP292	Υ	N

68059	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP293	Υ	N
68058	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP294	Υ	N
68057	5/21/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP295	Υ	N
68056	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP329	Υ	N
68055	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP106	Y	N
68054	5/21/2015	AM	Sunny	R. Logalbo	No Assistant	SPP307	Υ	N
68032	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP113	Υ	N
68052	5/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP107	Υ	N
68051	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP107A	Υ	N
68050	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP122	Υ	N
68049	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP227A	Υ	N
68048	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP227	Υ	N
68047	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP226	Υ	N
68046	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP225	Υ	N
68045	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP224	Υ	N
68044	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP223	Υ	N
68043	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP121	Υ	N
68042	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP311	Υ	N
68041	5/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP220	Υ	N
68040	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP221	Υ	N
68039	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP222	Υ	N
68038	5/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP109	Υ	N
68037	5/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP310	Υ	N
68036	5/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP309	Υ	N
68035	5/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP308B	Υ	N
68034	5/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP308A	Υ	N
68033	5/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP308	Υ	N

68008	5/19/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP103	Y	N
68031	5/19/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP114	Υ	N
68030	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP138	Υ	N
68029	5/19/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP145	Υ	N
68028	5/19/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP281	Υ	N
68027	5/19/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP282	Υ	N
68026	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP326	Υ	N
68025	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP097	Υ	N
68024	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP097A	Υ	N
68023	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP123B	Υ	N
68022	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP123A	Υ	N
68021	5/19/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP123C	Υ	N
68020	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP208	Υ	N
68019	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP124	Υ	N
68018	5/19/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP125A	Y	N
68017	5/19/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP125	Y	N
68016	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP126	Υ	N
68015	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP115	Υ	N
	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP118	Υ	N
68013	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP119	Υ	N
	5/19/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP120	Υ	N
68011	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP099	Υ	N
68010	5/19/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP100	Υ	N
68009	5/19/2015	AM	Sunny	R. Logalbo	No Assistant	SPP101	Υ	N
67986	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP217	Υ	N
68007	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP104	Υ	N
68006	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP249	Υ	N

68005	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP152	Y	N
68004	5/18/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP199C	Υ	N
68003	5/18/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP199B	Υ	N
68002	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP199A	Υ	N
68001	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP151	Υ	N
68000	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP248	Υ	N
67999	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP198A	Υ	N
67998	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP150	Υ	N
67997	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP277	Υ	N
67996	5/18/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP149	Υ	N
67995	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP148	Υ	N
67994	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP218	Υ	N
67993	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP320	Υ	N
67992	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP319	Υ	N
67991	5/18/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP318	Υ	N
67990	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP317	Υ	N
67989	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP316	Y	N
67988	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP315	Υ	N
67987	5/18/2015	AM	Sunny	R. Logalbo	No Assistant	SPP314	Y	N
67963	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP068	Y	N
67985	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP094	Y	N
67984	5/15/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP091	Υ	N
67983	5/15/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP092	Υ	N
67982	5/15/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP090	Υ	N
67981	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP088	Υ	N
67980	5/15/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP087	Y	N
67979	5/15/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP089	Υ	N

67978	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP084	Υ	N
67977	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP086	Υ	N
67976	5/15/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP085	Υ	N
67975	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP082	Υ	N
67974	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP081	Υ	N
67973	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP078	Υ	N
67972	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP079	Υ	N
67971	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP080	Υ	N
67970	5/15/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP077	Υ	N
67969	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP075	Υ	N
67968	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP074	Υ	N
67967	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP073	Υ	N
67966	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP072	Υ	N
67965	5/15/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP070	Υ	N
67964	5/15/2015	AM	Cloudy	R. Logalbo -	No Assistant	SPP069	Υ	N
67938	5/14/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP304	Y	N
67962	5/14/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP059	Υ	N
67961	5/14/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP065	Y	N
67960	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP067	Y	N
67959	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP056	Υ	N
67958	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP058	Υ	N
67957	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP055	Υ	N
67956	5/14/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP054	Υ	N
67955	5/14/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP128	Υ	N
67954	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP130	Υ	N
67953	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP146	Υ	N
67952	5/14/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP053	Υ	N

67951	5/14/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP052	Υ	N
67950	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP051	Υ	N
67949	5/14/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP051A	Υ	N
67948	5/14/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP050	Υ	N
67947	5/14/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP327	Υ	N
67946	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP048	Υ	N
67945	5/14/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP047	Y	N
67944	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP045A	Y	N
67943	5/14/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP042	Υ	N
67942	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP036	Υ	N
67941	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP035	Υ	N
67940	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP206B	Υ	N
67939	5/14/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP206A	Υ	N
67915	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP165B	Υ	N
67937	5/13/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP342B	Υ	N
67936	5/13/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP342A	Υ	N
67935	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP341A	Υ	N
67934	5/13/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP340	Υ	N
67933	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP157	Υ	N
67932	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP156A	Υ	N
67931	5/13/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP156B	Υ	N
67930	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP339	Υ	N
67929	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP338	Υ	N
67928	5/13/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP337	Υ	N
67927	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP200B	Υ	N
67926	5/13/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP200A	Υ	N
67925	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP201	Υ	N

67924	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP202	Υ	N
67923	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP203	Υ	N
67922	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP204	Υ	N
67921	5/13/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP165A	Υ	N
67920	5/13/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP163	Υ	N
67919	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP164	Υ	N
67918	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP165	Y	N
67917	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP336B	Υ	N
67916	5/13/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP336A	Υ	N
67866	5/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP014A	Y	N
67914	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP166	Υ	N
67913	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP247	Υ	N
67912	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP335B	Y	N
67911	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP335A	Υ	N
67910	5/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP334B	Υ	N
67909	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP334A	Υ	N
67908	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP175	Υ	N
67907	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP176	Υ	N
67906	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP177	Υ	N
67905	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP229A	Υ	N
67904	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP178	Υ	N
67903	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP229	Υ	N
67902	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP333	Υ	N
67901	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP170B	Υ	N
67900	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP345	Υ	N
67899	5/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP170A	Υ	N
67898	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP179	Υ	N

67897	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP332	Υ	N
67896	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP180	Υ	N
67895	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP331	Υ	N
67894	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP244	Υ	N
67893	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP245	Υ	N
67892	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP237	Υ	N
67891	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP238	Υ	N
67890	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP236	Υ	N
67889	5/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP239	Υ	N
67888	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP235	Υ	N
67887	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP241	Υ	N
67886	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP240	Υ	N
67885	5/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP234	Υ	N
67884	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP233	Υ	N
67883	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP232	Υ	N
67882	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP230	Υ	N
67881	5/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP181	Υ	N
67880	5/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP182	Υ	N
67879	5/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP183	Υ	N
67878	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP024	Y	N
67877	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP023	Υ	N
67876	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP296	Υ	N
67875	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP022	Υ	N
67874	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP021	Υ	N
67873	5/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP020	Υ	N
67872	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP019	Υ	N
67871	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP018	Υ	N

67870	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP017	Υ	N
67869	5/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP243	Υ	N
67868	5/11/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP015	Υ	N
67867	5/11/2015	AM	Sunny	R. Logalbo	No Assistant	SPP014B	Υ	N
67842	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP193	Υ	N
67865	5/8/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP013	Υ	N
67864	5/8/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP195	Y	N
67863	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP215	Υ	N
67862	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP214	Υ	N
67861	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP213	Υ	N
67860	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP011	Υ	N
67859	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP010	Υ	N
67858	5/8/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP009	Υ	N
67857	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP008	Υ	N
67856	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP184	Υ	N
67855	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP185	Υ	N
67854	5/8/2015	ΑM	Sunny	R. Logalbo	No Assistant	SPP186	Υ	N
67853	5/8/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP007	Υ	N
67852	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP005	Y	N
67851	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP004	Υ	N
67850	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP003	Υ	N
67849	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP001	Υ	N
67848	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP189	Υ	N
67847	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP188	Υ	N
67846	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP190	Υ	N
67845	5/8/2015	AM	Sunny	R. Logalbo	No Assistant	SPP280	Υ	N
67844	5/8/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP187	Υ	N

67843	5/8/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP191	Y	N
67820	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP105	Υ	N
67841	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP283	Υ	N
67840	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP209	Υ	N
67839	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP137	Υ	N
67838	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP136A	Υ	N
67837	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP135A	Υ	N
67836	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP279	Υ	N
67835	5/7/2015	AM	Sunny	R. Logalbo	No Assistant	SPP133	Υ	N
67834	5/7/2015	AM	Sunny	R. Logalbo	No Assistant	SPP132	Υ	N
67833	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP131	Υ	N
67832	5/7/2015	AM	Sunny	R. Logalbo	No Assistant	SPP129	Υ	N
67831	5/7/2015	AM	Sunny	R. Logalbo	No Assistant	SPP322	Y	N
67830	5/7/2015	AM	Sunny	R. Logalbo	No Assistant	SPP212	Y	N
67829	5/7/2015	AM	Sunny	R. Logalbo	No Assistant	SPP211	Υ	N
67828	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP291	Υ	N
67827	5/7/2015	AM	Sunny	R. Logalbo	No Assistant	SPP292	Υ	N
67826	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP293	Υ	N
67825	5/7/2015	AM	Sunny	R. Logalbo	No Assistant	SPP294	Υ	N
67824	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP295	Υ	N
67823	5/7/2015	AM	Sunny	R. Logalbo	No Assistant	SPP329	Υ	N
67822	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP106	Υ	N
67821	5/7/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP307	Υ	N
67798	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP114	Υ	N
67819	5/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP107	Υ	N
67818	5/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP107A	Υ	N
67817	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP122	Υ	N

67816	5/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP311	Y	N
67815	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP227A	Y	N
67814	5/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP227	Υ	N
67813	5/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP226	Υ	N
67812	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP225	Υ	N
67811	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP224	Υ	N
67810	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP223	Υ	N
67809	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP220	Υ	N
67808	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP221	Υ	N
67807	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP222	Υ	N
67806	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP109	Υ	N
67805	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP121	Υ	N
67804	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP310	Υ	N
67803	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP309	Y	N
67802	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP308B	Y	N
67801	5/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP308A	Υ	N
67800	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP308	Y	N
67799	5/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP113	Υ	N
67776	5/5/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP104	Υ	N
67797	5/5/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP138	Υ	N
67796	5/5/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP145	Υ	N
67795	5/5/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP281	Υ	N
67794	5/5/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP282	Υ	N
67793	5/5/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP326	Υ	N
67792	5/5/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP123C	Υ	N
67791	5/5/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP123B	Υ	N
67790	5/5/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP123A	Υ	N

67789	5/5/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP124	Υ	N
67788	5/5/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP208	Υ	N
67787	5/5/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP097	Υ	N
67786	5/5/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP097A	Υ	N
67785	5/5/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP126	Υ	N
67784	5/5/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP115	Y	N
67783	5/5/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP118	Υ	N
67782	5/5/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP119	Υ	N
67781	5/5/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP120	Y	N
67780	5/5/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP099	Υ	N
67779	5/5/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP100	Υ	N
67778	5/5/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP101	Υ	N
67777	5/5/2015	AM	Cloudy	R. Logalbo -	No Assistant	SPP103	Υ	Ν
67755	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP217	Υ	N
67775	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP249	Υ	N
67774	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP152	Υ	N
67773	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP199B	Υ	N
67772	5/4/2015	AM	Sunny	R. Logalbo -	No Assistant	SPP199A	Υ	N
67771	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP199C	Y	Ν
67770	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP151	Y	N
67769	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP248	Υ	N
67768	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP198A	Υ	N
67767	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP150	Υ	N
67766	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP277	Υ	N
67765	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP149	Υ	N
67764	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP148	Y	N
67763	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP218	Υ	N

67762	5/4/2015	AM	Sunny	R. Logalbo	No Assistant	SPP320	Y	N
67761	5/4/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP319	Υ	N
67760	5/4/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP318	Υ	N
67759	5/4/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP317	Υ	N
67758	5/4/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP316	Υ	N
67757	5/4/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP315	Υ	N
67756	5/4/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP314	Υ	N
67732	5/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP068	Υ	N
67754	5/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP094	Υ	N
67753	5/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP087	Υ	N
67752	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP088	Υ	N
67751	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP092	Υ	N
67750	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP091	Υ	N
67749	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP090	Y	N
67748	5/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP089	Υ	N
67747	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP084	Y	N
67746	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP086	Υ	N
67745	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP085	Υ	N
67744	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP082	Y	N
67743	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP081	Υ	N
67742	5/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP078	Υ	N
67741	5/1/2015	АМ	Sunny	R. Logalbo -	No Assistant	SPP079	Υ	N
67740	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP080	Υ	N
67739	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP077	Υ	N
67738	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP073	Υ	N
67737	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP074	Υ	N
67736	5/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP075	Υ	N

67735	5/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP072	Υ	N
67734	5/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP070	Υ	N
67733	5/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP069	Υ	N
67707	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP304	Υ	N
67731	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP067	Υ	N
67730	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP058	Υ	N
67729	4/30/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP056	Υ	N
67728	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP055	Υ	N
67727	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP054	Υ	N
67726	4/30/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP128	Υ	N
67725	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP130	Y	N
67724	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP065	Υ	N
67723	4/30/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP059	Υ	N
67722	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP053	Υ	N
67721	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP052	Υ	N
67720	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP051	Υ	N
67719	4/30/2015	ΑM	Pt. Sunny	R. Logalbo	No Assistant	SPP051A	Υ	N
67718	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP146	Υ	N
67717	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP050	Υ	N
67716	4/30/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP327	Υ	N
67715	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP048	Υ	N
67714	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP047	Υ	N
67713	4/30/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP045A	Υ	N
67712	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP042	Υ	N
67711	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP036	Υ	N
67710	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP035	Υ	N
67709	4/30/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP206B	Υ	N

67708	4/30/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP206A	Υ	N
67683	4/29/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP165B	Y	N
67706	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP342A	Υ	N
67705	4/29/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP342B	Υ	N
67704	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP341A	Υ	N
67703	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP156	Υ	N
67702	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP156A	Υ	N
67701	4/29/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP156B	Υ	N
67700	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP340	Υ	N
67699	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP157	Υ	N
67698	4/29/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP339	Υ	N
67697	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP338	Υ	N
67696	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP200B	Υ	N
67695	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP200A	Υ	N
67694	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP337	Υ	N
67693	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP201	Υ	N
67692	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP202	Υ	N
67691	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP203	Υ	N
67690	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP204	Υ	N
67689	4/29/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP165A	Υ	N
67688	4/29/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP163	Υ	N
67687	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP336B	Υ	N
67686	4/29/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP336A	Υ	N
67685	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP164	Υ	N
67684	4/29/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP165	Υ	N
67664	4/28/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP331	Υ	N
67682	4/28/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP175	Y	N

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6	7681	4/28/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP176	Y	N			
6	7680	4/28/2015	AM	Pt. Sunny	R. Logalbo	No Assistant		Υ	N			
6	7679	4/28/2015	AM	Pt. Sunny	R. Logalbo	No Assistant		Υ	N			
6	7678	4/28/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP335B	N	Υ	report attached	debris in line	cleaned out debris
6	7677	4/28/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP335A	Y	N			dobija
6	7676	4/28/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP334B	Υ	N			
6	7675	4/28/2015	ΑM	Pt. Sunny	R. Logalbo	No Assistant	SPP334A	Υ	N			
6	7674	4/28/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP229A	Υ	N			
6	7673	4/28/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP229	Υ	N			
6	7672	4/28/2015	ΑM	Pt. Sunny	R. Logalbo	No Assistant	SPP333	Υ	N			
6	7671	4/28/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP170B	Υ	N			
6	7670	4/28/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP345	Υ	N			
6	7669	4/28/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP170A	Υ	N			
67	7668	4/28/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP178	Υ	N			
67	7667	4/28/2015	AM	Pt. Sunny	R. Logalbo	Ma	CDD470	Υ	N			
67	7666	4/28/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP332	Y	N			
67	7665	4/28/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP180	Y	N			
67	7620	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP003	Υ	N			
67	7663	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP244	Υ	N			
67	7662	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP245	Υ	N			
67	7661	4/27/2015	AM	Rain	R. Logalbo	Na	CDD007	Υ	Ν			
67	7660	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP238	Υ	N			
67	7659	4/27/2015	ΑM	Rain	R. Logalbo	No Assistant	SPP236	Υ	N			
67	7658	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP235	Y	N			
67	7657	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP239	Υ	N			
67	7656	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP241	Y	N			
67	7655	4/27/2015	АМ	Rain	R.	No	SPP240	Υ	N			

				Logalbo	Assistant			
67654	4/27/2015	AM	Rain	R. Logalbo -	No Assistant	SPP234	Υ	N
67653	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP233	Υ	N
67652	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP232	Υ	N
67651	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP231	Y	N
67650	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP230	Υ	N
67649	4/27/2015	ΑM	Rain	R. Logalbo	No Assistant	SPP181	Υ	N
67648	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP182	Υ	N
67647	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP183	Υ	N
67646	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP024	Y	N
67645	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP023	Υ	N
67644	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP296	Υ	N
67643	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP022	Υ	N
67642	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP021	Υ	N
67641	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP020	Υ	N
67640	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP019	Υ	N
67639	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP015	Υ	N
67638	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP243	Υ	N
67637	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP014A	Υ	N
67636	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP014B	Υ	N
67635	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP195	Υ	N
67634	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP213	Υ	N
67633	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP214	Υ	N
67632	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP215	Υ	N
67631	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP013	Y	N
67630	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP011	Υ	N
67629	4/27/2015	АМ	Rain	R. Logalbo R.	No Assistant No	SPP010	Y	N
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67628	4/27/2015	АМ	Rain	Logalbo	Assistant	SDD194	Υ	N
07020	4/2//2015	Alvi	IXalii	R.		3PP 104	Ť	IN
67627	4/27/2015	AM	Rain	k. Logalbo	No Assistant	SPP185	Υ	Ν
67626	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP186	Υ	N
67625	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP009	Υ	N
67624	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP008	Υ	N
67623	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP007	Υ	N
67622	4/27/2015	АМ	Rain	R. Logalbo	No Assistant	SPP004	Υ	N
67621	4/27/2015	AM	Rain	R. Logalbo	No Assistant	SPP005	Υ	N
67613	4/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP193	Υ	N
67619	4/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP001	Υ	N
67618	4/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP187	Υ	N
67617	4/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP188	Υ	N
67616	4/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP189	Υ	N
67615	4/24/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP190	Υ	N
67614	4/24/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP191	Υ	N
67600	4/23/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP211	Υ	N
67599	4/23/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP291	Υ	N
67598	4/23/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP292	Υ	N
67597	4/23/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP293	Υ	N
67596	4/23/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP294	Υ	N
67595	4/23/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP295	Υ	N
67594	4/23/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP329	Υ	N
67593	4/23/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP106	Υ	N
67592	4/23/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP307	Υ	N
67591	4/23/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP105	Υ	N
67612	4/23/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP283	Υ	N
67611	4/23/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP209	Υ	N
				R.	No			

67610	4/23/2015	АМ	Cloudy	Logalbo	Assistant	SPP137	Y	N
67609	4/23/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP136A	Υ	N
67608	4/23/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP135A	Υ	N
67607	4/23/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP279	Υ	N
67606	4/23/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP133	Υ	N
67605	4/23/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP132	Υ	N
67604	4/23/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP131	Υ	N
67603	4/23/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP129	Υ	N
67602	4/23/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP322	Υ	N
67601	4/23/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP212	Υ	N
67573	4/22/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP113	Υ	N
67590	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP107	Y	N
67589	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP107A	Y	N
67588	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP122	Y	N
67587	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP311	Y	N
67586	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP121	Υ	N
67585	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP225	Υ	N
67584	4/22/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP224	Υ	N
67583	4/22/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP223	Υ	N
67582	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP221	Υ	N
67581	4/22/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP222	Υ	N
67580	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP109	Υ	N
67579	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP310	Υ	N
67578	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP309	Υ	N
67577	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP308B	Υ	N
67576	4/22/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP308A	Υ	N
67575	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP308	Υ	N

67574	4/22/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP114	Υ	N
67549	4/21/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP104	Υ	N
67572	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP145	Υ	N
67571	4/21/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP138	Υ	N
67570	4/21/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP281	Υ	N
67569	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP282	Y	N
67568	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP326	Y	N
67567	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP123C	Y	N
67566	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP123B	Υ	N
67565	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP123A	Υ	N
67564	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP208	Υ	N
67563	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP124	Y	N
67562	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP125A	Υ	N
67561	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP125	Y	N
67560	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP126	Υ	N
67559	4/21/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP097	Υ	N
67558	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP097A	Υ	N
67557	4/21/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP115	Υ	N
67556	4/21/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP118	Υ	N
67555	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP119	Y	N
67554	4/21/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP120	Y	N
67553	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP099	Υ	N
67552	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP100	Y	N
67551	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP101	Y	N
67550	4/21/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP103	Υ	N
67528	4/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP218	Υ	N
67548	4/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP249	Υ	N

67547	4/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP152	Υ	N
67546	4/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP199C	Υ	N
67545	4/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP199B	Υ	N
67544	4/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP199A	Υ	N
67543	4/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP151	Υ	N
67542	4/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP248	Υ	N
67541	4/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP198A	Y	N
67540	4/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP150	Y	N
67539	4/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP277	Υ	N
67538	4/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP149	Υ	N
67537	4/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP148	Υ	N
67536	4/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP320	Υ	N
67535	4/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP319	Υ	N
67534	4/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP318	Υ	N
67533	4/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP317	Υ	N
67532	4/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP316	Υ	N
67531	4/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP315	Υ	N
67530	4/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP314	Υ	N
67529	4/20/2015	ΑM	Cloudy	R. Logalbo	No Assistant	SPP217	Υ	N
67505	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP068	Υ	N
67527	4/17/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP094	Υ	N
67526	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP092	Υ	N
67525	4/17/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP091	Υ	N
67524	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP090	Υ	N
67523	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP088	Υ	N
67522	4/17/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP087	Υ	N
67521	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP089	Υ	N

67520	4/17/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP084	Y	N
67519	4/17/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP086	Υ	N
67518	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP085	Y	N
67517	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP082	Υ	N
67516	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP081	Υ	N
67515	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP079	Υ	N
67514	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP080	Υ	N
67513	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP078	Υ	N
67512	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP077	Υ	N
67511	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP075	Υ	N
67510	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP074	Υ	N
67509	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP073	Υ	N
67508	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP072	Υ	N
67507	4/17/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP070	Υ	N
67506	4/17/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP069	Υ	N
67480	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP304	Y	N
67504	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP067	Υ	N
67503	4/16/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP058	Υ	N
67502	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP055	Υ	N
67501	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP056	Υ	N
67500	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP054	Υ	N
67499	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP059	Υ	N
67498	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP065	Υ	N
	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP128	Υ	N
67496	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP130	Υ	N
67495	4/16/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP146	Υ	N
67494	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP053	Υ	N

07493	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP052	Υ	N			
67492	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP051	Y	N			
67491	4/16/2015	AM	Sunny	R. Logalbo		SPP051A	Υ	N			
67490	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP050	Y	N			
67489	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP327	Y	N			
67488	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP048	Y	N			
67487	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP047	Y	N			
67486	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP045A	Υ	N			
67485	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP042	Y	N			
67484	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP036	Y	N			
67483	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP035	Y	N			
67482	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP206B	Υ	N			
67481	4/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP206A	Υ	N			
67457	4/15/2015	АМ	Sunny	R.	No	ODD004		V	report attached of	4.1.1	cleaned debris
			Curry	Logalbo	No Assistant	SPP024	N	Υ	report attached (	aebris	from outlet
	4/15/2015	АМ	Sunny	R. Logalbo	No	CDD242D	Y	Y N	report attached (	Jedns	from
67479			·	R.	No Assistant	SPP342B			report attached (	Jedns	from
67479 67478	4/15/2015	АМ	Sunny	R. Logalbo R.	No Assistant No	SPP342B	Υ	N	report attached (	Jedns	from
67479 67478 67477	4/15/2015 4/15/2015	AM AM	Sunny	R. Logalbo R. Logalbo R.	No Assistant No Assistant No	SPP342B SPP342A SPP341A	Y Y	N N	report attached (	Jedns	from
67479 67478 67477 67476	4/15/2015 4/15/2015 4/15/2015	AM AM AM	Sunny Sunny Sunny	R. Logalbo R. Logalbo R. Logalbo R.	No Assistant No Assistant No Assistant	SPP342B SPP342A SPP341A	Y Y Y	N N N	report attached (	Jedns	from
67479 67478 67477 67476 67475	4/15/2015 4/15/2015 4/15/2015 4/15/2015	AM AM AM	Sunny Sunny Sunny Sunny	R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R.	No Assistant No Assistant No Assistant No Assistant	SPP342B SPP342A SPP341A SPP156A	Y Y Y	N N N	report attached to	Jedns	from
67479 67478 67477 67476 67475	4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015	AM AM AM AM	Sunny Sunny Sunny Sunny Sunny	R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R.	No Assistant No Assistant No Assistant No Assistant No Assistant	SPP342A SPP341A SPP156A SPP156B	Y Y Y Y	Z Z Z Z Z	report attached C	Jedns	from
67479 67478 67477 67476 67475 67474 67473	4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015	AM AM AM AM AM	Sunny Sunny Sunny Sunny Sunny Sunny	R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R.	No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant	SPP342B SPP342A SPP341A SPP156A SPP156B SPP340	Y Y Y Y Y Y	2 2 2 2 2	report attached to	Jedns	from
67479 67478 67477 67476 67475 67474 67473	4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015	AM AM AM AM AM AM	Sunny Sunny Sunny Sunny Sunny Sunny Sunny	R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R.	No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant	SPP342B SPP342A SPP341A SPP156A SPP156B SPP340 SPP339	Y Y Y Y Y Y Y	2 2 2 2 2 2	report attached C	Debris	from
67479 67478 67477 67476 67475 67474 67473 67472 67471	4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015	AM AM AM AM AM AM AM AM	Sunny Sunny Sunny Sunny Sunny Sunny Sunny Sunny	R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo	No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant	SPP342B SPP342A SPP341A SPP156A SPP156B SPP340 SPP339 SPP157	Y Y Y Y Y Y Y Y	2 2 2 2 2 2 2 2	report attached C	Debris	from
67479 67478 67477 67476 67475 67474 67473 67472 67471	4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015	AM AM AM AM AM AM AM AM	Sunny Sunny Sunny Sunny Sunny Sunny Sunny Sunny Sunny	R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R.	No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant	SPP342B SPP342A SPP341A SPP156A SPP156B SPP340 SPP339 SPP157 SPP338	Y Y Y Y Y Y Y Y Y	2 2 2 2 2 2 2 2	report attached C	Debris	from
67479 67478 67477 67476 67475 67474 67473 67472 67471 67470 67469	4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015 4/15/2015	AM AM AM AM AM AM AM AM AM	Sunny Sunny Sunny Sunny Sunny Sunny Sunny Sunny Sunny Sunny	R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo R. Logalbo	No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant No Assistant	SPP342B SPP342A SPP341A SPP156A SPP156B SPP340 SPP339 SPP157 SPP338 SPP337	Y Y Y Y Y Y Y Y Y	2 2 2 2 2 2 2 2 2	report attached C	Jedns	from

67467         4/15/2015         AM         Sunny         Logalbo           67466         4/15/2015         AM         Sunny         R. Logalbo           67465         4/15/2015         AM         Sunny         R. Logalbo           67464         4/15/2015         AM         Sunny         R. Logalbo           67463         4/15/2015         AM         Sunny         R. Logalbo           67461         4/15/2015         AM         Sunny         R. Logalbo           67460         4/15/2015         AM         Sunny         R. Logalbo           67459         4/15/2015         AM         Sunny         R. Logalbo           67458         4/15/2015         AM         Sunny         Logalbo           67459         4/14/2015         AM         Sunny         R. Logalbo           67456         4/14/2015         AM         Sunny         R. Logalbo           67457         4/14/2015         AM         Sunny         R. Logalbo           67456         4/14/2015         AM         Sunny         R. Logalbo           67451         4/14/2015         AM         Sunny         R. Logalbo           67452         4/14/2015         AM <td< th=""><th></th><th></th><th></th></td<>			
67465         4/15/2015         AM         Sunny         Logalbo           67464         4/15/2015         AM         Sunny         R. Logalbo           67464         4/15/2015         AM         Sunny         R. Logalbo           67463         4/15/2015         AM         Sunny         R. Logalbo           67462         4/15/2015         AM         Sunny         R. Logalbo           67461         4/15/2015         AM         Sunny         R. Logalbo           67460         4/15/2015         AM         Sunny         R. Logalbo           67459         4/15/2015         AM         Sunny         R. Logalbo           67458         4/15/2015         AM         Sunny         R. Logalbo           67454         4/14/2015         AM         Sunny         R. Logalbo           67455         4/14/2015         AM         Sunny         R. Logalbo           67454         4/14/2015         AM         Sunny         R. Logalbo           67453         4/14/2015         AM         Sunny         R. Logalbo           67451         4/14/2015         AM         Sunny         R. Logalbo           67452         4/14/2015         AM	Assistant SPP201	Υ	N
67464         4/15/2015         AM         Sunny         Logalbo           67464         4/15/2015         AM         Sunny         R. Logalbo           67463         4/15/2015         AM         Sunny         R. Logalbo           67462         4/15/2015         AM         Sunny         R. Logalbo           67460         4/15/2015         AM         Sunny         R. Logalbo           67459         4/15/2015         AM         Sunny         R. Logalbo           67458         4/15/2015         AM         Sunny         R. Logalbo           67457         4/14/2015         AM         Sunny         R. Logalbo           67456         4/14/2015         AM         Sunny         R. Logalbo           67455         4/14/2015         AM         Sunny         R. Logalbo           67454         4/14/2015         AM         Sunny         R. Logalbo           67453         4/14/2015         AM         Sunny         R. Logalbo           67452         4/14/2015         AM         Sunny         R. Logalbo           67451         4/14/2015         AM         Sunny         R. Logalbo           67449         4/14/2015         AM	No Assistant SPP202	Υ	N
67464         4/15/2015         AM         Sunny         Logalbo           67463         4/15/2015         AM         Sunny         R. Logalbo           67462         4/15/2015         AM         Sunny         R. Logalbo           67461         4/15/2015         AM         Sunny         R. Logalbo           67460         4/15/2015         AM         Sunny         R. Logalbo           67459         4/15/2015         AM         Sunny         R. Logalbo           67458         4/15/2015         AM         Sunny         R. Logalbo           67457         4/14/2015         AM         Sunny         R. Logalbo           67456         4/14/2015         AM         Sunny         R. Logalbo           67454         4/14/2015         AM         Sunny         R. Logalbo           67454         4/14/2015         AM         Sunny         R. Logalbo           67453         4/14/2015         AM         Sunny         R. Logalbo           67452         4/14/2015         AM         Sunny         R. Logalbo           67450         4/14/2015         AM         Sunny         R. Logalbo           67449         4/14/2015         AM	No Assistant SPP203	Υ	N
67462 4/15/2015 AM Sunny R. Logalbo 67461 4/15/2015 AM Sunny R. Logalbo 67460 4/15/2015 AM Sunny R. Logalbo 67459 4/15/2015 AM Sunny R. Logalbo 67458 4/15/2015 AM Sunny R. Logalbo 67456 4/14/2015 AM Sunny R. Logalbo 67456 4/14/2015 AM Sunny R. Logalbo 67457 4/14/2015 AM Sunny R. Logalbo 67458 4/14/2015 AM Sunny R. Logalbo 67456 4/14/2015 AM Sunny R. Logalbo 67457 4/14/2015 AM Sunny R. Logalbo 67450 4/14/2015 AM Sunny R. Logalbo 67451 4/14/2015 AM Sunny R. Logalbo 67450 4/14/2015 AM Sunny R. Logalbo 67450 4/14/2015 AM Sunny R. Logalbo 67449 4/14/2015 AM Sunny R. Logalbo 67449 4/14/2015 AM Sunny R. Logalbo 67449 4/14/2015 AM Sunny R. Logalbo 67448 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo	No Assistant SPP204	Υ	N
67462         4/15/2015         AM         Sunny         Logalbo           67461         4/15/2015         AM         Sunny         R. Logalbo           67460         4/15/2015         AM         Sunny         R. Logalbo           67459         4/15/2015         AM         Sunny         R. Logalbo           67458         4/15/2015         AM         Sunny         R. Logalbo           67437         4/14/2015         AM         Sunny         R. Logalbo           67456         4/14/2015         AM         Sunny         R. Logalbo           67455         4/14/2015         AM         Sunny         R. Logalbo           67454         4/14/2015         AM         Sunny         R. Logalbo           67453         4/14/2015         AM         Sunny         R. Logalbo           67452         4/14/2015         AM         Sunny         R. Logalbo           67450         4/14/2015         AM         Sunny         R. Logalbo           67449         4/14/2015         AM         Sunny         R. Logalbo           67446         4/14/2015         AM         Sunny         R. Logalbo           67445         4/14/2015         AM	No Assistant SPP163	Y	N
67461 4/15/2015 AM Sunny Logalbo 67460 4/15/2015 AM Sunny R. Logalbo 67459 4/15/2015 AM Sunny R. Logalbo 67458 4/15/2015 AM Sunny R. Logalbo 67437 4/14/2015 AM Sunny R. Logalbo 67456 4/14/2015 AM Sunny R. Logalbo 67455 4/14/2015 AM Sunny R. Logalbo 67454 4/14/2015 AM Sunny R. Logalbo 67453 4/14/2015 AM Sunny R. Logalbo 67454 4/14/2015 AM Sunny R. Logalbo 67450 4/14/2015 AM Sunny R. Logalbo 67451 4/14/2015 AM Sunny R. Logalbo 67450 4/14/2015 AM Sunny R. Logalbo 67449 4/14/2015 AM Sunny R. Logalbo 67449 4/14/2015 AM Sunny R. Logalbo 67449 4/14/2015 AM Sunny R. Logalbo 67448 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo	No Assistant SPP336A	Y	N
67459 4/15/2015 AM Sunny R. Logalbo 67458 4/15/2015 AM Sunny R. Logalbo 67437 4/14/2015 AM Sunny R. Logalbo 67456 4/14/2015 AM Sunny R. Logalbo 67455 4/14/2015 AM Sunny R. Logalbo 67454 4/14/2015 AM Sunny R. Logalbo 67453 4/14/2015 AM Sunny R. Logalbo 67454 4/14/2015 AM Sunny R. Logalbo 67450 4/14/2015 AM Sunny R. Logalbo 67450 4/14/2015 AM Sunny R. Logalbo 67449 4/14/2015 AM Sunny R. Logalbo 67448 4/14/2015 AM Sunny R. Logalbo 67448 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo	No Assistant SPP336B	Y	N
67459         4/15/2015         AM         Sunny         Logalbo           67458         4/15/2015         AM         Sunny         R. Logalbo           67437         4/14/2015         AM         Sunny         R. Logalbo           67456         4/14/2015         AM         Sunny         R. Logalbo           67455         4/14/2015         AM         Sunny         R. Logalbo           67454         4/14/2015         AM         Sunny         R. Logalbo           67453         4/14/2015         AM         Sunny         R. Logalbo           67452         4/14/2015         AM         Sunny         R. Logalbo           67451         4/14/2015         AM         Sunny         R. Logalbo           67449         4/14/2015         AM         Sunny         R. Logalbo           67448         4/14/2015         AM         Sunny         R. Logalbo           67446         4/14/2015         AM         Sunny         R. Logalbo           67445         4/14/2015         AM         Sunny         R. Logalbo           67444         4/14/2015         AM         Sunny         R. Logalbo           67444         4/14/2015         AM	No Assistant SPP164	Y	N
67436         4/14/2015         AM         Sunny         Logalbo           67437         4/14/2015         AM         Sunny         R. Logalbo           67456         4/14/2015         AM         Sunny         R. Logalbo           67455         4/14/2015         AM         Sunny         R. Logalbo           67454         4/14/2015         AM         Sunny         R. Logalbo           67453         4/14/2015         AM         Sunny         R. Logalbo           67452         4/14/2015         AM         Sunny         R. Logalbo           67451         4/14/2015         AM         Sunny         R. Logalbo           67450         4/14/2015         AM         Sunny         R. Logalbo           67449         4/14/2015         AM         Sunny         R. Logalbo           67448         4/14/2015         AM         Sunny         R. Logalbo           67446         4/14/2015         AM         Sunny         R. Logalbo           67445         4/14/2015         AM         Sunny         R. Logalbo           67444         4/14/2015         AM         Sunny         R. Logalbo           67444         4/14/2015         AM	No Assistant SPP165	Υ	N
67457 4/14/2015 AM Sunny Logalbo 67456 4/14/2015 AM Sunny R. Logalbo 67455 4/14/2015 AM Sunny R. Logalbo 67454 4/14/2015 AM Sunny R. Logalbo 67453 4/14/2015 AM Sunny R. Logalbo 67452 4/14/2015 AM Sunny R. Logalbo 67451 4/14/2015 AM Sunny R. Logalbo 67450 4/14/2015 AM Sunny R. Logalbo 67449 4/14/2015 AM Sunny R. Logalbo 67448 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo	No Assistant SPP165B	Y	N
67456         4/14/2015         AM         Sunny         Logalbo           67455         4/14/2015         AM         Sunny         R. Logalbo           67454         4/14/2015         AM         Sunny         R. Logalbo           67453         4/14/2015         AM         Sunny         R. Logalbo           67452         4/14/2015         AM         Sunny         R. Logalbo           67451         4/14/2015         AM         Sunny         R. Logalbo           67450         4/14/2015         AM         Sunny         R. Logalbo           67449         4/14/2015         AM         Sunny         R. Logalbo           67448         4/14/2015         AM         Sunny         R. Logalbo           67446         4/14/2015         AM         Sunny         R. Logalbo           67445         4/14/2015         AM         Sunny         R. Logalbo           67444         4/14/2015         AM         Sunny         R. Logalbo           67443         4/14/2015         AM         Sunny         R. Logalbo	No Assistant SPP245	Υ	N
67453         4/14/2015         AM         Sunny         Logalbo           67454         4/14/2015         AM         Sunny         R. Logalbo           67453         4/14/2015         AM         Sunny         R. Logalbo           67452         4/14/2015         AM         Sunny         R. Logalbo           67451         4/14/2015         AM         Sunny         R. Logalbo           67450         4/14/2015         AM         Sunny         R. Logalbo           67449         4/14/2015         AM         Sunny         R. Logalbo           67448         4/14/2015         AM         Sunny         R. Logalbo           67447         4/14/2015         AM         Sunny         R. Logalbo           67445         4/14/2015         AM         Sunny         R. Logalbo           67444         4/14/2015         AM         Sunny         R. Logalbo           67444         4/14/2015         AM         Sunny         R. Logalbo           67443         4/14/2015         AM         Sunny         R.	No Assistant SPP175	Y	N
67454 4/14/2015 AM Sunny Logalbo 67453 4/14/2015 AM Sunny R. Logalbo 67452 4/14/2015 AM Sunny R. Logalbo 67451 4/14/2015 AM Sunny R. Logalbo 67450 4/14/2015 AM Sunny R. Logalbo 67449 4/14/2015 AM Sunny R. Logalbo 67448 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67445 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo	No Assistant SPP176	Υ	N
67453 4/14/2015 AM Sunny Logalbo 67452 4/14/2015 AM Sunny R. Logalbo 67451 4/14/2015 AM Sunny R. Logalbo 67450 4/14/2015 AM Sunny R. Logalbo 67449 4/14/2015 AM Sunny R. Logalbo 67448 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67445 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R. Logalbo	No Assistant SPP177	Y	N
67452 4/14/2015 AM Sunny Logalbo 67451 4/14/2015 AM Sunny R. Logalbo 67450 4/14/2015 AM Sunny R. Logalbo 67449 4/14/2015 AM Sunny R. Logalbo 67448 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67445 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R. Logalbo	No Assistant SPP247	Υ	N
67451 4/14/2015 AM Sunny Logalbo 67450 4/14/2015 AM Sunny R. Logalbo 67449 4/14/2015 AM Sunny R. Logalbo 67448 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67445 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R. Logalbo	No Assistant SPP335B	Υ	N
67449 4/14/2015 AM Sunny Logalbo 67448 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67445 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R. Logalbo	No Assistant SPP334B	Υ	N
67449 4/14/2015 AM Sunny Logalbo 67448 4/14/2015 AM Sunny R. Logalbo 67447 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67445 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R. Logalbo	No Assistant SPP334A	Υ	N
67447 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67445 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R.	No Assistant SPP229A	Υ	N
67447 4/14/2015 AM Sunny Logalbo 67446 4/14/2015 AM Sunny R. Logalbo 67445 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R.	No Assistant SPP229	Υ	N
67445 4/14/2015 AM Sunny R. Logalbo 67444 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R. Logalbo 67443 4/14/2015 AM Sunny R.	No Assistant SPP333	Υ	N
67444 4/14/2015 AM Sunny Logalbo 67443 4/14/2015 AM Sunny R. Logalbo R7443 4/14/2015 AM Sunny R.	No Assistant SPP170B	Υ	N
67443 4/14/2015 AM Sunny R.	No Assistant SPP345	Υ	N
DIAAS ALIAIZUIS AM SUUDV	No Assistant SPP170A	Υ	N
	No Assistant SPP178	Υ	N
67442 4/14/2015 AM Sunny R. Logalbo	No Assistant SPP179	Υ	N
67441 4/14/2015 AM Sunny R. Logalbo	No Assistant SPP332	Υ	N
R.	No		

67440	4/14/2015	АМ	Sunny	Logalbo	Assistant	SPP180	Υ	N
67439	4/14/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP331	Υ	N
67438	4/14/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP244	Υ	N
67409	4/13/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP183	Υ	N
67436	4/13/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP024	Υ	N
67435	4/13/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP023	Y	N
67434	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP296	Υ	N
67433	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP022	Υ	N
67432	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP021	Y	N
67431	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP020	Υ	N
67430	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP019	Y	N
67429	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP243	Υ	N
67428	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP015	Υ	N
67427	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP017	Υ	N
67426	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP018	Υ	N
67425	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP014B	Υ	N
67424	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP014A	Υ	N
67423	4/13/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP237	Υ	N
67422	4/13/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP238	Υ	N
67421	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP236	Υ	N
67420	4/13/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP239	Υ	N
67419	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP235	Υ	N
67418	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP241	Υ	N
67417	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP240	Υ	N
67416	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP234	Υ	N
67415	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP233	Υ	N
67414	4/13/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP232	Υ	N

67413	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP231	Y	N
67412	4/13/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP230	Y	N
67411	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP181	Υ	N
67410	4/13/2015	AM	Sunny	R. Logalbo	No Assistant	SPP182	Υ	N
67386	4/10/2015	AM	Rain	R. Logalbo	No Assistant	SPP193	Υ	N
67408	4/10/2015	AM	Rain	R. Logalbo	No Assistant	SPP013	Υ	N
67407	4/10/2015	AM	Rain	R. Logalbo	No Assistant	SPP215	Y	N
67406	4/10/2015	АМ	Rain	R. Logalbo	No Assistant	SPP214	Υ	N
67405	4/10/2015	AM	Rain	R. Logalbo	No Assistant	SPP213	Υ	N
67404	4/10/2015	AM	Rain	R. Logalbo	No Assistant	SPP195	Υ	N
67403	4/10/2015	AM	Rain	R. Logalbo	No Assistant	SPP011	Y	N
67402	4/10/2015	АМ	Rain	R. Logalbo	No Assistant	SPP010	Υ	N
67401	4/10/2015	АМ	Rain	R. Logalbo	No Assistant	SPP009	Υ	N
67400	4/10/2015	AM	Rain	R. Logalbo	No Assistant	SPP008	Υ	N
67399	4/10/2015	АМ	Rain	R. Logalbo	No Assistant	SPP184	Y	N
67398	4/10/2015	АМ	Rain	R. Logalbo	No Assistant	SPP007	Y	N
67397	4/10/2015	ΑM	Rain	R. Logalbo	No Assistant	SPP185	Y	N
67396	4/10/2015	АМ	Rain	R. Logalbo	No Assistant	SPP186	Υ	N
67395	4/10/2015	АМ	Rain	R. Logalbo	No Assistant	SPP005	Υ	N
67394	4/10/2015	АМ	Rain	R. Logalbo	No Assistant	SPP004	Υ	N
67393	4/10/2015	AM	Rain	R. Logalbo	No Assistant	SPP003	Υ	N
67392	4/10/2015	АМ	Rain	R. Logalbo	No Assistant	SPP001	Υ	N
67391	4/10/2015	AM	Rain	R. Logalbo	No Assistant	SPP187	Υ	N
67390	4/10/2015	АМ	Rain	R. Logalbo	No Assistant	SPP189	Υ	N
67389	4/10/2015	АМ	Rain	R. Logalbo	No Assistant	SPP188	Υ	N
67388	4/10/2015	AM	Rain	R. Logalbo	No Assistant	SPP190	Υ	N
67387	4/10/2015	AM	Rain	R. Logalbo	No Assistant	SPP191	Υ	N

67364	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP105	Y	N
67385	4/9/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP209	Υ	N
67384	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP137	Υ	N
67383	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP136A	Υ	N
67382	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP135A	Υ	N
67381	4/9/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP132	Υ	N
67380	4/9/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP131	Υ	N
67379	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP129	Υ	N
67378	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP279	Υ	N
67377	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP133	Υ	N
67376	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP283	Υ	N
67375	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP322	Υ	N
67374	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP212	Υ	N
67373	4/9/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP211	Υ	N
67372	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP291	Υ	N
67371	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP292	Υ	N
67370	4/9/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP293	Υ	N
67369	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP294	Υ	N
67368	4/9/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP295	Υ	N
67367	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP329	Υ	N
67366	4/9/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP106	Υ	N
67365	4/9/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP307	Υ	N
67342	4/8/2015	АМ	Rain	R. Logalbo	No Assistant	SPP113	Υ	N
67363	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP107	Υ	N
67362	4/8/2015	АМ	Rain	R. Logalbo	No Assistant	SPP107A	Υ	N
67361	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP122	Υ	N
67360	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP311	Υ	N

67359	4/8/2015	АМ	Rain	R. Logalbo	No Assistant	SPP227A	Υ	N
67358	4/8/2015	АМ	Rain	R. Logalbo	No Assistant	SPP227	Υ	N
67357	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP226	Υ	N
67356	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP225	Υ	N
67355	4/8/2015	АМ	Rain	R. Logalbo	No Assistant	SPP224	Υ	N
67354	4/8/2015	АМ	Rain	R. Logalbo	No Assistant	SPP223	Υ	N
67353	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP109	Υ	N
67352	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP222	Y	N
67351	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP221	Y	N
67350	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP220	Υ	N
67349	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP121	Y	N
67348	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP309	Υ	N
67347	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP308B	Υ	N
67346	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP310	Υ	N
67345	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP308A	Υ	N
67344	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP308	Υ	N
67343	4/8/2015	AM	Rain	R. Logalbo	No Assistant	SPP114	Y	N
67318	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP104	Υ	N
67341	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP281	Υ	N
67340	4/7/2015	АМ	Cloudy	R. Logalbo -	No Assistant	SPP282	Υ	N
67339	4/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP326	Υ	N
67338	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP138	Υ	N
67337	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP145	Υ	N
67336	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP123C	Υ	Ν
67335	4/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP123A	Υ	N
67334	4/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP123B	Υ	N
67333	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP208	Υ	N

67332	4/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP124	Υ	N
67331	4/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP097A	Y	N
67330	4/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP097	Y	N
67329	4/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP126	Y	N
67328	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP125A	Υ	N
67327	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP125	Υ	N
67326	4/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP115	Υ	N
67325	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP118	Υ	N
67324	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP119	Υ	N
67323	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP120	Υ	N
67322	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP099	Υ	N
67321	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP100	Υ	N
67320	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP101	Υ	N
67319	4/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP103	Υ	N
67297	4/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP218	Υ	N
67317	4/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP249	Y	N
67316	4/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP152	Y	N
67315	4/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP199C	Y	N
67314	4/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP199B	Y	N
67313	4/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP199A	Υ	N
67312	4/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP151	Y	N
67311	4/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP248	Υ	N
67310	4/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP198A	Υ	N
67309	4/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP150	Υ	N
67308	4/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP277	Υ	N
67307	4/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP149	Υ	N
67306	4/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP148	Υ	N
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67305	4/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP320	Y	N
67304	4/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP319	Υ	N
67303	4/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP318	Υ	N
67302	4/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP317	Υ	N
67301	4/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP316	Y	N
67300	4/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP315	Υ	N
67299	4/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP314	Υ	N
67298	4/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP217	Υ	N
67275	4/2/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP069	Υ	N
67296	4/2/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP094	Υ	N
67295	4/2/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP091	Υ	N
67294	4/2/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP092	Υ	N
67293	4/2/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP090	Υ	N
67292	4/2/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP088	Υ	N
67291	4/2/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP087	Υ	N
67290	4/2/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP084	Υ	N
67289	4/2/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP086	Υ	N
67288	4/2/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP085	Υ	N
67287	4/2/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP082	Υ	N
67286	4/2/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP081	Υ	N
67285	4/2/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP080	Υ	N
67284	4/2/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP079	Υ	N
67283	4/2/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP078	Υ	N
67282	4/2/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP077	Υ	N
67281	4/2/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP075	Υ	N
67280	4/2/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP074	Υ	N

67279	4/2/2015	AM	Pt. Sunny	R. Logalbo	No Assistant	SPP073	Υ	N
67278	4/2/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP072	Υ	N
67277	4/2/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP070	Υ	N
67276	4/2/2015	АМ	Pt. Sunny	R. Logalbo	No Assistant	SPP068	Y	N
67270	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP128	Υ	N
67269	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP056	Y	N
67268	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP054	Y	N
67267	4/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP053	Υ	N
67266	4/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP130	Y	N
67265	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP146	Υ	N
67264	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP052	Υ	N
67263	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP051	Υ	N
67262	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP051A	Υ	N
67261	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP050	Υ	N
67260	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP327	Υ	N
67259	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP048	Υ	N
67258	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP047	Υ	N
67257	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP045A	Υ	N
67256	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP042	Υ	N
67255	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP036	Υ	N
67254	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP035	Υ	N
67253	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP206B	Υ	N
67252	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP206A	Υ	N
67251	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP304	Υ	N
67274	4/1/2015	AM	Sunny	R. Logalbo	No Assistant	SPP059	Υ	N
67273	4/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP065	Υ	N
67272	4/1/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP067	Υ	N

67271	4/1/2015	АМ	Sunny	R.	No	SPP055	Y	N	
67234	3/31/2015	АМ	Cloudy	Logalbo R.	Assistant No	SPP331	Y	N	
07204	0/01/2010	AIVI	Cloudy	Logalbo	Assistant	357331	1	IN	
67250	3/31/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP341A	Υ	N	
67249	3/31/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP342B	Y	Ν	
67248	3/31/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP342A	Y	N	
67247	3/31/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP340	Υ	N	
67246	3/31/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP339	Υ	N	
67245	3/31/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP200B	Υ	N	
67244	3/31/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP200A	Υ	N	
67243	3/31/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP338	Υ	N	
67242	3/31/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP336B	Υ	N	
67241	3/31/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP336A	Υ	N	
67240	3/31/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP165B	Υ	N	
67239	3/31/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP333	Υ	N	
67238	3/31/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP229A	Υ	N	
67237	3/31/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP178	Υ	N	
67236	3/31/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP332	Υ	N	
67235	3/31/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP180	Υ	N	
67193	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP183	Υ	N	
67233	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP175	Y	N	
67232	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP176	Y	N	
67231	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP177	Y	N	
67230	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP247	Y	N	
67229	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP335A	Υ	N	
67228	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP335B	Υ	N	cleaned/running high
67227	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP334B	Y	N	cleaned /running high
67226	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP334A	Υ	N	

67225	3/27/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP229	Υ	N
67224	3/27/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP170B	Υ	N
67223	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP345	Υ	N
67222	3/27/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP170A	Υ	N
67221	3/27/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP179	Υ	N
67220	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP024	Υ	N
67219	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP023	Υ	N
67218	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP296	Υ	N
67217	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP022	Υ	N
67216	3/27/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP021	Υ	N
67215	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP020	Υ	N
67214	3/27/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP019	Υ	N
67213	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP015	Υ	N
67212	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP243	Υ	N
67211	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP245	Υ	N
67210	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP244	Υ	N
67209	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP241	Υ	N
67208	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP240	Υ	N
67207	3/27/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP239	Υ	N
67206	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP238	Υ	N
67205	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP237	Υ	N
67204	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP236	Υ	N
67203	3/27/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP235	Υ	N
67202	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP234	Υ	N
67201	3/27/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP233	Υ	N
67200	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP232	Y	N
67199	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP231	Υ	N

67198	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP014B	Υ	N	
67197	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP014A	Υ	N	
67196	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP230	Υ	N	
67195	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP181	Y	N	
67194	3/27/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP182	Υ	N	
67169	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP193	Υ	N	snow melt
67192	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP013	Y	N	
67191	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP195	Υ	N	
67190	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP213	Υ	N	
67189	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP214	Υ	N	
67188	3/26/2015	АМ	Rain	R. Logalbo	No Assistant	SPP215	Y	N	
67187	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP011	Υ	N	
67186	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP010	Y	N	
67185	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP009	Υ	N	
67184	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP008	Y	N	
67183	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP007	Υ	N	
67182	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP005	Υ	N	
67181	3/26/2015	АМ	Rain	R. Logalbo	No Assistant	SPP184	Υ	N	
67180	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP185	Υ	N	
67179	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP186	Υ	N	
67178	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP004	Υ	N	
67177	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP003	Υ	N	
67176	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP001	Υ	N	snow melt
67175	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP188	Υ	N	
67174	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP190	Υ	N	
67173	3/26/2015	АМ	Rain	R. Logalbo	No Assistant	SPP187	Υ	N	
67172	3/26/2015	АМ	Rain	R. Logalbo	No Assistant	SPP189	Υ	N	

67171	3/26/2015	АМ	Rain	R. Logalbo	No Assistant	SPP280	Υ	N	
67170	3/26/2015	AM	Rain	R. Logalbo	No Assistant	SPP191	Υ	N	
67147	3/25/2015	AM	Rain	R. Logalbo	No Assistant	SPP105	Υ	N	
67168	3/25/2015	AM	Rain	R. Logalbo	No Assistant	SPP209	Υ	N	
67167	3/25/2015	AM	Rain	R. Logalbo	No Assistant	SPP137	Υ	N	
67166	3/25/2015	AM	Rain	R. Logalbo	No Assistant	SPP136A	Υ	N	
67165	3/25/2015	AM	Rain	R. Logalbo	No Assistant	SPP135A	Υ	N	
67164	3/25/2015	AM	Rain	R. Logalbo	No Assistant	SPP132	Υ	N	
67163	3/25/2015	АМ	Rain	R. Logalbo	No Assistant	SPP131	Υ	N	
67162	3/25/2015	АМ	Rain	R. Logalbo	No Assistant	SPP129	Υ	N	
67161	3/25/2015	АМ	Rain	R. Logalbo	No Assistant	SPP279	Υ	N	
67160	3/25/2015	АМ	Rain	R. Logalbo	No Assistant	SPP133	Υ	N	
67159	3/25/2015	AM	Rain	R. Logalbo	No Assistant	SPP283	Υ	N	
67158	3/25/2015	АМ	Rain	R. Logalbo	No Assistant	SPP322	Y	N	
67157	3/25/2015	AM	Rain	R. Logalbo	No Assistant	SPP212	Υ	N	
67156	3/25/2015	АМ	Rain	R. Logalbo	No Assistant	SPP211	Υ	N	
67155	3/25/2015	АМ	Rain	R. Logalbo	No Assistant	SPP291	Υ	N	
67154	3/25/2015	AM	Rain	R. Logalbo	No Assistant	SPP292	Υ	N	
67153	3/25/2015	АМ	Rain	R. Logalbo	No Assistant	SPP293	Υ	N	
67152	3/25/2015	АМ	Rain	R. Logalbo	No Assistant	SPP294	Υ	N	
67151	3/25/2015	АМ	Rain	R. Logalbo	No Assistant	SPP295	Υ	N	
67150	3/25/2015	ΑM	Rain	R. Logalbo	No Assistant	SPP329	Υ	N	cleaned on 3/25
67149	3/25/2015	АМ	Rain	R. Logalbo	No Assistant	SPP106	Υ	N	
67148	3/25/2015	AM	Rain	R. Logalbo	No Assistant	SPP307	Υ	N	
67126	3/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP113	Υ	N	
67146	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP107	Υ	N	
67145	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP107A	Υ	N	

67144	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP227	Υ	N
67143	3/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP227A	Υ	N
67142	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP122	Υ	N
67141	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP311	Υ	N
67140	3/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP225	Υ	N
67139	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP224	Y	N
67138	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP223	Υ	N
67137	3/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP121	Υ	N
67136	3/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP109	Υ	N
67135	3/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP222	Υ	N
67134	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP221	Υ	N
67133	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP220	Υ	N
67132	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP310	Y	N
67131	3/24/2015	ΑM	Sunny	R. Logalbo	No Assistant	SPP309	Υ	N
67130	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP308B	Υ	N
67129	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP308A	Υ	N
67128	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP308	Υ	N
67127	3/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP114	Υ	N
67036	3/23/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP304	Υ	N
67125	3/23/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP138	Υ	N
67124	3/23/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP145	Υ	N
67123	3/23/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP281	Υ	N
67122	3/23/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP282	Υ	N
67121	3/23/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP326	Υ	N
67120	3/23/2015	AM	Sunny	R. Logalbo	No Assistant	SPP123C	Υ	N
67119	3/23/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP123B	Υ	N
67118	3/23/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP123A	Υ	N
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67117	3/23/2015	AM	Sunny	R. Logalbo	No Assistant	SPP208	Υ	N
67116	3/23/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP097A	Υ	N
67115	3/23/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP097	Υ	N
67114	3/23/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP124	Y	N
67113	3/23/2015	ΑM	Sunny	R. Logalbo	No Assistant	SPP126	Υ	N
67112	3/23/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP125A	Υ	N
67111	3/23/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP125	Y	N
67110	3/23/2015	AM	Sunny	R. Logalbo	No Assistant	SPP115	Υ	N
67109	3/23/2015	AM	Sunny	R. Logalbo	No Assistant	SPP118	Y	N
67108	3/23/2015	AM	Sunny	R. Logalbo	No Assistant	SPP119	Y	N
67107	3/23/2015	AM	Sunny	R. Logalbo	No Assistant	SPP120	Υ	N
67106	3/23/2015	AM	Sunny	R. Logalbo	No Assistant	SPP099	Y	N
67105	3/23/2015	AM	Sunny	R. Logalbo	No Assistant	SPP100	Υ	N
67104	3/23/2015	AM	Sunny	R. Logalbo	No Assistant	SPP101	Y	N
67103	3/23/2015	AM	Sunny	R. Logalbo	No Assistant	SPP103	Y	N
67102	3/23/2015	AM	Sunny	R. Logalbo	No Assistant	SPP104	Υ	N
67058	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP067	Υ	N
67057	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP055	Υ	N
67056	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP058	Y	N
67055	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP056	Υ	N
67054	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP146	Υ	N
67053	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP130	Υ	N
67052	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP128	Υ	N
67051	3/23/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP054	Υ	N
67050	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP059	Υ	N
67049	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP065	Y	N
67048	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP053	Y	N

67047	3/23/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP052	Υ	N	
67046	3/23/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP051	Υ	N	
67045	3/23/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP051A	Υ	N	
67044	3/23/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP050	Υ	N	
67043	3/23/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP327	Υ	N	
67042	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP045A	Y	N	
67041	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP042	Y	N	
67040	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP036	Y	N	
67039	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP035	Y	N	
67038	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP206B	Y	N	under construction
67037	3/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP206A	Y	N	under construction
67081	3/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP218	Y	N	
67101	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP249	Υ	N	
67100	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP152	Υ	N	
67099	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP199C	Υ	N	
67098	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP199B	Υ	N	
67097	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP199A	Υ	N	
67096	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP151	Υ	N	
67095	3/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP248	Υ	N	
67094	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP198A	Y	N	
67093	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP150	Υ	N	
67092	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP277	Υ	N	
67091	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP149	Y	N	
67090	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP148	Υ	N	
67089	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP320	Υ	N	
67088	3/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP319	Υ	N	
67087	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP318	Υ	N	

67086	3/20/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP317	Υ	N
67085	3/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP316	Υ	N
67084	3/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP315	Y	N
67083	3/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP314	Y	N
67082	3/20/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP217	Y	N
67059	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP069	Υ	N
67080	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP094	Υ	N
67079	3/17/2015	ΑM	Rain	R. Logalbo	No Assistant	SPP092	Υ	N
67078	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP087	Υ	N
67077	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP088	Υ	N
67076	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP091	Υ	N
67075	3/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP090	Y	N
67074	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP089	Y	N
67073	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP084	Υ	N
67072	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP086	Y	N
67071	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP085	Υ	N
67070	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP082	Υ	N
67069	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP081	Y	N
67068	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP080	Υ	N
67067	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP079	Υ	N
67066	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP078	Υ	N
67065	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP077	Υ	N
67064	3/17/2015	AM	Rain	R. Logalbo	Assistant	SPP075	Υ	N
67063	3/17/2015	АМ	Rain	R. Logalbo	No Assistant	SPP074	Υ	N
67062	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP073	Υ	N
67061	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP070	Υ	N
67060	3/17/2015	AM	Rain	R. Logalbo	No Assistant	SPP068	Υ	N

67013	3/13/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP165B	Υ	N
67035	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP342A	Υ	N
67034	3/13/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP342B	Υ	N
67033	3/13/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP156	Υ	N
67032	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP156A	Υ	N
67031	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP156B	Υ	N
67030	3/13/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP341A	Υ	N
67029	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP340	Υ	N
67028	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP339	Υ	N
67027	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP338	Υ	N
67026	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP200B	Υ	N
67025	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP200A	Υ	N
67024	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP337	Υ	N
67023	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP201	Υ	N
67022	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP202	Υ	N
67021	3/13/2015	ΑM	Pt. Cloudy	R. Logalbo	No Assistant	SPP203	Υ	N
67020	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP204	Υ	N
67019	3/13/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP165A	Υ	N
67018	3/13/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP163	Υ	N
67017	3/13/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP336B	Y	N
67016	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP336A	Y	N
67015	3/13/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP164	Υ	N
67014	3/13/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP165	Υ	N
66993	3/9/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP331	Υ	N
67012	3/9/2015	AM	Sunny	R. Logalbo	No Assistant	SPP345	Υ	N
67011	3/9/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP175	Υ	N
67010	3/9/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP176	Υ	N

67009	3/9/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP177	Y	N
67008	3/9/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP166	Υ	N
67007	3/9/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP247	Υ	N
67006	3/9/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP335B	Υ	N
67005	3/9/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP335A	Υ	N
67004	3/9/2015	AM	Sunny	R. Logalbo	No Assistant	SPP334B	Υ	N
67003	3/9/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP334A	Υ	N
67002	3/9/2015	AM	Sunny	R. Logalbo	No Assistant	SPP229A	Υ	N
67001	3/9/2015	AM	Sunny	R. Logalbo	No Assistant	SPP229	Υ	N
67000	3/9/2015	AM	Sunny	R. Logalbo	No Assistant	SPP333	Υ	N
66999	3/9/2015	AM	Sunny	R. Logalbo	No Assistant	SPP170B	Υ	N
66998	3/9/2015	AM	Sunny	R. Logalbo	No Assistant	SPP170A	Υ	N
66997	3/9/2015	AM	Sunny	R. Logalbo	No Assistant	SPP178	Υ	N
66996	3/9/2015	АМ	Sunny	R. Logalbo -	No Assistant	SPP179	Υ	N
66995	3/9/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP332	Υ	N
66994	3/9/2015	AM	Sunny	R. Logalbo -	No Assistant	SPP180	Υ	N
66963	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP183	Y	N
66992	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP243	Y	N
66991	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP024	Υ	N
66990	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP023	Υ	N
66989	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP296	Y	N
66988	3/6/2015	AM	Cloudy	R. Logalbo R.	No Assistant No	SPP022	Υ	N
66987	3/6/2015	AM	Cloudy	Logalbo	Assistant	SPP021	Υ	N
66986	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP020	Υ	N
66985	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP019	Υ	N
66984	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP018	Υ	N
66983	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP017	Υ	N

66982	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP015	Υ	N
66981	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP014B	Υ	N
66980	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP014A	Υ	N
66979	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP244	Υ	N
66978	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP245	Υ	Ν
66977	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP241	Υ	N
66976	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP240	Υ	N
66975	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP239	Y	N
66974	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP238	Υ	N
66973	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP237	Υ	N
66972	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP236	Υ	N
66971	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP235	Y	N
66970	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP234	Υ	N
66969	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP233	Υ	N
66968	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP232	Υ	N
66967	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP231	Υ	N
66966	3/6/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP230	Υ	N
66965	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP181	Υ	N
66964	3/6/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP182	Υ	N
66941	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP193	Υ	N
66962	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP013	Υ	N
66961	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP195	Υ	N
66960	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP213	Υ	N
66959	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP214	Υ	N
66958	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP215	Υ	N
66957	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP011	Υ	N
66956	3/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP010	Υ	N

66955	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP009	Y	N
66954	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP008	Y	N
66953	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP007	Y	N
66952	3/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP184	Υ	N
66951	3/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP185	Υ	N
66950	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP186	Υ	N
66949	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP004	Υ	N
66948	3/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP003	Υ	N
66947	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP001	Υ	N
66946	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP187	Υ	N
66945	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP188	Υ	N
66944	3/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP190	Υ	N
66943	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP280	Υ	N
66942	3/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP191	Υ	N
66920	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP105	Υ	N
66940	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP209	Υ	N
66939	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP137	Υ	N
66938	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP136A	Υ	N
66937	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP135A	Υ	N
66936	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP132	Υ	N
66935	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP131	Υ	N
66934	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP129	Υ	N
66933	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP279	Y	N
66932	2/27/2015	АМ	Snow	R. Logalbo	No Assistant	SPP133	Υ	N
66931	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP322	Υ	N
66930	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP212	Υ	N
66929	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP211	Υ	N

66928	8 2/27/2015	АМ	Snow	R. Logalbo	No Assistant	SPP295	Y	N
66927	7 2/27/2015	АМ	Snow	R. Logalbo	No Assistant	SPP294	Υ	N
66926	3 2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP293	Υ	N
66925	5 2/27/2015	АМ	Snow	R. Logalbo	No Assistant	SPP292	Υ	N
66924	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP291	Υ	N
66923	3 2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP329	Υ	N
66922	2 2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP106	Υ	N
66921	2/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP307	Υ	N
66898	3 2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP107	Υ	N
66919	2/26/2015	AM	Cloudy	R. Logalbo -	No Assistant	SPP114	Υ	N
66918	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP113	Υ	N
66917	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP308	Υ	N
66916	2/26/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP308A	Y	N
66915	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP310	Y	N
66914	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP309	Υ	N
66913	2/26/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP308B	Y	N
66912	2/26/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP121	Υ	N
66911	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP109	Y	N
66910	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP222	Y	N
66909	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP221	Υ	N
66908	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP220	Υ	N
66907	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP223	Υ	N
66906	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP224	Υ	N
66905	2/26/2015	ΑM	Cloudy	R. Logalbo	No Assistant	SPP225	Υ	N
66904	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP311	Υ	N
66903	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP122	Y	N
66902	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP227A	Y	N

66901	2/26/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP227	Υ	N
66900	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP226	Υ	N
66899	2/26/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP107A	Υ	N
66874	2/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP104	Υ	N
66897	2/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP138	Υ	N
66896	2/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP145	Υ	N
66895	2/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP281	Υ	N
66894	2/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP282	Y	N
66893	2/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP326	Υ	N
66892	2/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP123C	Υ	N
66891	2/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP123B	Υ	N
66890	2/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP123A	Υ	N
66889	2/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP097	Υ	N
66888	2/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP097A	Υ	N
66887	2/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP126	Υ	N
66886	2/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP125A	Υ	N
66885	2/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP125	Υ	N
66884	2/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP124	Υ	N
66883	2/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP208	Υ	N
66882	2/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP118	Υ	N
66881	2/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP115	Υ	N
66880	2/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP119	Υ	N
66879	2/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP120	Υ	N
66878	2/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP099	Υ	N
66877	2/25/2015	AM	Sunny	R. Logalbo	No Assistant	SPP100	Υ	N
66876	2/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP101	Υ	N
66875	2/25/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP103	Υ	N

66853	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP218	Υ	N
66873	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP249	Υ	N
66872	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP152	Υ	N
66871	2/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP199C	Υ	N
66870	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP199B	Υ	N
66869	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP199A	Υ	N
66868	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP151	Y	N
66867	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP248	Y	N
66866	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP198A	Υ	N
66865	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP150	Υ	N
66864	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP277	Υ	N
66863	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP149	Y	N
66862	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP148	Y	N
66861	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP320	Y	N
66860	2/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP319	Y	N
66859	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP318	Y	N
66858	2/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP317	Y	N
66857	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP316	Y	N
66856	2/24/2015	AM	Sunny	R. Logalbo	No Assistant	SPP315	Y	N
66855	2/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP314	Y	N
66854	2/24/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP217	Υ	N
66830	2/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP069	Υ	N
66852	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP094	Υ	N
66851	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP090	Y	N
66850	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP092	Υ	N
66849	2/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP091	Y	N
66848	2/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP089	Y	N

66847	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP088	Υ	N
66846	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP087	Υ	N
66845	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP086	Y	N
66844	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP085	Υ	N
66843	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP084	Υ	N
66842	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP082	Υ	N
66841	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP081	Υ	N
66840	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP080	Υ	N
66839	2/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP079	Υ	N
66838	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP078	Υ	N
66837	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP077	Υ	N
66836	2/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP075	Υ	N
66835	2/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP074	Υ	N
66834	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP073	Υ	N
66833	2/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP072	Υ	N
66832	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP070	Υ	N
66831	2/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP068	Y	N
66806	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP304	Υ	N
66829	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP067	Y	N
66828	2/17/2015	АМ	Snow	R. Logalbo	No Assistant	SPP055	Υ	N
66827	2/17/2015	АМ	Snow	R. Logalbo	No Assistant	SPP058	Y	N
66826	2/17/2015	АМ	Snow	R. Logalbo	No Assistant	SPP056	Y	N
66825	2/17/2015	АМ	Snow	R. Logalbo	No Assistant	SPP054	Y	N
66824	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP065	Υ	N
66823	2/17/2015	АМ	Snow	R. Logalbo	No Assistant	SPP059	Y	N
66822	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP053	Υ	N
66821	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP130	Υ	N

66820	2/17/2015	АМ	Snow	R. Logalbo	No Assistant	SPP146	Y	N	
66819	2/17/2015	АМ	Snow	R. Logalbo	No Assistant	SPP052	Υ	N	
66818	2/17/2015	АМ	Snow	R. Logalbo	No Assistant	SPP051	Υ	N	
66817	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP051A	Υ	N	
66816	2/17/2015	АМ	Snow	R. Logalbo	No Assistant	SPP050	Υ	N	
66815	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP327	Υ	N	
66814	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP048	Υ	N	
66813	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP047	Υ	N	
66812	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP045A	Υ	N	
66811	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP042	Υ	N	
66810	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP036	Υ	N	
66809	2/17/2015	АМ	Snow	R. Logalbo	No Assistant	SPP035	Υ	N	
66808	2/17/2015	AM	Snow	R. Logalbo	No Assistant	SPP206B	Υ	N	under const.
66807	2/17/2015	АМ	Snow	R. Logalbo	No Assistant	SPP206A	Υ	N	under const.
66792	2/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP180	Υ	N	
66805	2/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP334B	Υ	N	
66804	2/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP334A	Υ	N	
66803	2/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP335B	Υ	N	
66802	2/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP335A	Υ	N	
66801	2/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP247	Υ	N	
66800	2/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP229A	Υ	N	
66799	2/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP229	Υ	N	
66798	2/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP333	Υ	N	
66797	2/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP170B	Υ	N	
66796	2/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP170A	Υ	N	
66795	2/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP179	Υ	N	
66794	2/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP331	Υ	N	

66793	2/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP332	Y	N
66766	2/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP165	Υ	N
66791	2/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP178	Υ	N
66790	2/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP177	Υ	N
66789	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP176	Υ	N
66788	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP175	Υ	N
66787	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP342B	Υ	N
66786	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP342A	Υ	N
66785	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP156	Υ	N
66784	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP341A	Υ	N
66783	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP156A	Υ	N
66782	2/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP157	Υ	N
66781	2/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP156B	Y	N
66780	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP340	Υ	N
66779	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP339	Υ	N
66778	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP338	Υ	N
66777	2/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP337	Υ	N
66776	2/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP200B	Υ	N
66775	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP200A	Υ	N
66774	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP201	Υ	N
66773	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP202	Υ	N
66772	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP203	Υ	N
66771	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP204	Υ	N
66770	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP336B	Υ	N
66769	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP336A	Υ	N
66768	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP163	Υ	N
66767	2/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP164	Υ	N

66750	2/11/2015	АМ	Snow	R. Logalbo	No Assistant	SPP230	Y	N
66765	2/11/2015	АМ	Snow	R. Logalbo	No Assistant	SPP165B	Y	N
66764	2/11/2015	АМ	Snow	R. Logalbo	No Assistant	SPP165A	Υ	N
66763	2/11/2015	AM	Snow	R. Logalbo	No Assistant	SPP244	Υ	N
66762	2/11/2015	АМ	Snow	R. Logalbo	No Assistant	SPP245	Υ	N
66761	2/11/2015	AM	Snow	R. Logalbo	No Assistant	SPP237	Υ	N
66760	2/11/2015	AM	Snow	R. Logalbo	No Assistant	SPP238	Υ	N
66759	2/11/2015	AM	Snow	R. Logalbo	No Assistant	SPP236	Υ	N
66758	2/11/2015	AM	Snow	R. Logalbo	No Assistant	SPP239	Υ	N
66757	2/11/2015	AM	Snow	R. Logalbo	No Assistant	SPP235	Υ	N
66756	2/11/2015	AM	Snow	R. Logalbo	No Assistant	SPP241	Υ	N
66755	2/11/2015	AM	Snow	R. Logalbo	No Assistant	SPP240	Υ	N
66754	2/11/2015	AM	Snow	R. Logalbo	No Assistant	SPP234	Υ	N
66753	2/11/2015	AM	Snow	R. Logalbo	No Assistant	SPP233	Y	N
66752	2/11/2015	АМ	Snow	R. Logalbo	No Assistant	SPP232	Υ	N
66751	2/11/2015	AM	Snow	R. Logalbo	No Assistant	SPP231	Y	N
66735	2/6/2015	АМ	Snow	R. Logalbo	No Assistant	SPP183	Y	N
66749	2/6/2015	AM	Snow	R. Logalbo	No Assistant	SPP024	Υ	N
66748	2/6/2015	AM	Snow	R. Logalbo	No Assistant	SPP023	Υ	N
66747	2/6/2015	АМ	Snow	R. Logalbo	No Assistant	SPP296	Υ	N
66746	2/6/2015	AM	Snow	R. Logalbo	No Assistant	SPP022	Υ	N
66745	2/6/2015	AM	Snow	R. Logalbo	No Assistant	SPP021	Υ	N
66744	2/6/2015	АМ	Snow	R. Logalbo	No Assistant	SPP020	Υ	N
66743	2/6/2015	AM	Snow	R. Logalbo	No Assistant	SPP019	Υ	N
66742	2/6/2015	AM	Snow	R. Logalbo	No Assistant	SPP018	Υ	N
66741	2/6/2015	AM	Snow	R. Logalbo	No Assistant	SPP243	Υ	N
66740	2/6/2015	AM	Snow	R. Logalbo	No Assistant	SPP017	Υ	N

66739	2/6/2015	AM	Snow	R. Logalbo	No Assistant	SPP015	Υ	N
66738	2/6/2015	АМ	Snow	R. Logalbo	No Assistant	SPP014B	Y	N
66737	2/6/2015	AM	Snow	R. Logalbo	No Assistant	SPP014A	Y	N
66736	2/6/2015	AM	Snow	R. Logalbo	No Assistant	SPP182	Υ	N
66712	2/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP190	Y	N
66734	2/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP013	Υ	N
66733	2/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP195	Υ	N
66732	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP213	Y	N
66731	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP214	Υ	N
66730	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP215	Υ	N
66729	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP011	Υ	N
66728	2/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP010	Υ	N
66727	2/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP009	Υ	N
66726	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP008	Υ	N
66725	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP007	Υ	N
66724	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP184	Υ	N
66723	2/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP185	Υ	N
66722	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP186	Υ	N
66721	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP005	Υ	N
66720	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP004	Y	N
66719	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP003	Υ	N
66718	2/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP001	Y	N
66717	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP187	Υ	N
66716	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP193	Υ	N
66715	2/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP280	Υ	N
66714	2/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP189	Υ	N
66713	2/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP188	Υ	N

66690	2/4/2015	АМ	Snow	R. Logalbo	No Assistant	SPP105	Y	N
66711	2/4/2015	АМ	Snow	R. Logalbo	No Assistant	SPP283	Y	N
66710	2/4/2015	АМ	Snow	R. Logalbo	No Assistant	SPP209	Υ	N
66709	2/4/2015	АМ	Snow	R. Logalbo	No Assistant	SPP137	Υ	N
66708	2/4/2015	AM	Snow	R. Logalbo	No Assistant	SPP136A	Υ	N
66707	2/4/2015	АМ	Snow	R. Logalbo	No Assistant	SPP135A	Υ	N
66706	2/4/2015	AM	Snow	R. Logalbo	No Assistant	SPP132	Y	N
66705	2/4/2015	АМ	Snow	R. Logalbo	No Assistant	SPP131	Υ	N
66704	2/4/2015	AM	Snow	R. Logalbo	No Assistant	SPP129	Υ	N
66703	2/4/2015	AM	Snow	R. Logalbo	No Assistant	SPP279	Υ	N
66702	2/4/2015	АМ	Snow	R. Logalbo	No Assistant	SPP133	Υ	N
66701	2/4/2015	АМ	Snow	R. Logalbo	No Assistant	SPP322	Υ	N
66700	2/4/2015	AM	Snow	R. Logalbo	No Assistant	SPP212	Y	N
66699	2/4/2015	АМ	Snow	R. Logalbo	No Assistant	SPP211	Y	N
66698	2/4/2015	AM	Snow	R. Logalbo	No Assistant	SPP291	Υ	N
66697	2/4/2015	AM	Snow	R. Logalbo	No Assistant	SPP292	Υ	N
66696	2/4/2015	AM	Snow	R. Logalbo	No Assistant	SPP293	Υ	N
66695	2/4/2015	AM	Snow	R. Logalbo	No Assistant	SPP294	Υ	N
66694	2/4/2015	АМ	Snow	R. Logalbo	No Assistant	SPP295	Υ	N
66693	2/4/2015	AM	Snow	R. Logalbo	No Assistant	SPP329	Υ	N
66692	2/4/2015	AM	Snow	R. Logalbo 	No Assistant	SPP106	Υ	N
66691	2/4/2015	АМ	Snow	R. Logalbo	No Assistant	SPP307	Υ	N
66669	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP113	Υ	N
66689	2/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP107	Υ	N
66688	2/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP107A	Y	N
66687	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP122	Y	N
66686	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP311	Υ	N

66685	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP227A	Υ	N
66684	2/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP227	Y	N
66683	2/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP226	Υ	N
66682	2/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP225	Y	N
66681	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP224	Υ	N
66680	2/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP223	Υ	N
66679	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP109	Υ	N
66678	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP222	Υ	N
66677	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP221	Υ	N
66676	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP220	Υ	N
66675	2/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP308	Υ	N
66674	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP308A	Υ	N
66673	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP308B	Υ	N
66672	2/3/2015	АМ	Snow	R. Logalbo	No Assistant	SPP309	Υ	N
66671	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP310	Υ	N
66670	2/3/2015	AM	Snow	R. Logalbo	No Assistant	SPP114	Υ	N
66645	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP104	Y	N
66646	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP103	Y	N
66647	2/2/2015	АМ	Snow	R. Logalbo	No Assistant	SPP101	Y	N
66648	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP100	Υ	N
66649	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP099	Υ	N
66650	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP120	Y	N
66651	2/2/2015	АМ	Snow	R. Logalbo	No Assistant	SPP119	Υ	N
66652	2/2/2015	АМ	Snow	R. Logalbo	No Assistant	SPP118	Υ	N
66653	2/2/2015	АМ	Snow	R. Logalbo	No Assistant	SPP115	Υ	N
66654	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP126	Υ	N
66655	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP125A	Υ	N

66656	2/2/2015	АМ	Snow	R. Logalbo	No Assistant	SPP125	Υ	N
66657	2/2/2015	АМ	Snow	R. Logalbo	No Assistant	SPP097A	Υ	N
66658	2/2/2015	АМ	Snow	R. Logalbo	No Assistant	SPP097	Υ	N
66659	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP124	Υ	N
66660	2/2/2015	АМ	Snow	R. Logalbo	No Assistant	SPP208	Υ	N
66661	2/2/2015	АМ	Snow	R. Logalbo	No Assistant	SPP123C	Υ	N
66662	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP123B	Υ	N
66663	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP123A	Y	N
66664	2/2/2015	ΑM	Snow	R. Logalbo	No Assistant	SPP145	Υ	N
66665	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP138	Υ	N
66666	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP281	Y	N
66667	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP282	Υ	N
66668	2/2/2015	AM	Snow	R. Logalbo	No Assistant	SPP326	Υ	N
66534	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP217	Y	N
66574	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP249	Υ	N
66573	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP152	Υ	N
66568	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP199C	Υ	N
66567	1/30/2015	АМ	Snow	R. Logalbo	No Assistant	SPP199B	Υ	N
66566	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP199A	Υ	N
66565	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP151	Υ	N
66562	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP248	Υ	N
66561	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP198A	Υ	N
66558	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP150	Υ	N
66557	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP277	Υ	N
66554	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP149	Υ	N
66553	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP148	Υ	N
66550	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP218	Υ	N

66549	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP320	Y	N
66546	1/30/2015	АМ	Snow	R. Logalbo	No Assistant	SPP319	Υ	N
66545	1/30/2015	АМ	Snow	R. Logalbo	No Assistant	SPP318	Υ	N
66542	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP317	Υ	N
66541	1/30/2015	АМ	Snow	R. Logalbo	No Assistant	SPP316	Υ	N
66538	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP315	Υ	N
66537	1/30/2015	AM	Snow	R. Logalbo	No Assistant	SPP314	Υ	N
66493	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP069	Υ	N
66533	1/29/2015	АМ	Snow	R. Logalbo	No Assistant	SPP091	Υ	N
66529	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP088	Υ	N
66528	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP090	Υ	N
66525	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP089	Υ	N
66524	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP087	Υ	N
66521	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP094	Υ	N
66520	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP084	Υ	N
66517	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP086	Υ	N
66516	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP085	Υ	N
66513	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP082	Y	N
66512	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP081	Υ	N
66509	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP080	Υ	N
66508	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP079	Y	N
66507	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP078	Υ	N
66503	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP077	Y	N
66502	1/29/2015	АМ	Snow	R. Logalbo	No Assistant	SPP075	Υ	N
66498	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP074	Υ	N
66497	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP073	Y	N
66496	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP072	Y	N

66494	1/29/2015	AM	Snow	R. Logalbo	No Assistant	SPP068	Y	N
66450	1/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP304	Y	N
66489	1/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP067	Υ	N
66487	1/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP059	Υ	N
66486	1/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP128	Y	N
66483	1/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP058	Υ	N
66482	1/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP056	Υ	N
66479	1/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP055	Υ	N
66478	1/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP054	Υ	N
66475	1/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP053	Υ	N
66474	1/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP052	Υ	N
66471	1/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP051	Υ	N
66470	1/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP051A	Υ	N
66467	1/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP050	Υ	N
66466	1/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP146	Υ	N
66463	1/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP327	Υ	N
66462	1/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP048	Υ	N
66459	1/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP047	Υ	N
66458	1/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP045A	Υ	N
66455	1/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP042	Υ	N
66454	1/28/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP036	Υ	N
66451	1/28/2015	AM	Sunny	R. Logalbo	No Assistant	SPP035	Υ	N
66403	1/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP163	Y	N
66447	1/27/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP204	Y	N
66446	1/27/2015	AM	Sunny	R. Logalbo	No Assistant	SPP203	Υ	N
66443	1/27/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP202	Y	N
66442	1/27/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP337	Υ	N

66439	1/27/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP201	Υ	N
66438	1/27/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP200B	Υ	N
66437	1/27/2015	AM	Sunny	R. Logalbo	No Assistant	SPP200A	Υ	N
66433	1/27/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP156	Υ	N
66432	1/27/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP338	Υ	N
66429	1/27/2015	AM	Sunny	R. Logalbo	No Assistant	SPP157	Υ	N
66428	1/27/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP339	Υ	N
66425	1/27/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP340	Υ	N
66424	1/27/2015	AM	Sunny	R. Logalbo	No Assistant	SPP156B	Υ	N
66421	1/27/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP156A	Υ	N
66420	1/27/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP341A	Υ	N
66417	1/27/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP342A	Υ	N
66416	1/27/2015	AM	Sunny	R. Logalbo	No Assistant	SPP342B	Υ	N
66412	1/27/2015	АМ	Snow	R. Logalbo	No Assistant	SPP165	Υ	N
66411	1/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP164	Y	N
66408	1/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP165B	Y	N
66407	1/27/2015	АМ	Snow	R. Logalbo	No Assistant	SPP336A	Y	N
66404	1/27/2015	AM	Snow	R. Logalbo	No Assistant	SPP336B	Y	N
66381	1/23/2015	AM	Snow	R. Logalbo	No Assistant	SPP333	Υ	N
66400	1/23/2015	AM	Snow	R. Logalbo	No Assistant	SPP175	Υ	N
66399	1/23/2015	AM	Snow	R. Logalbo	No Assistant	SPP176	Υ	N
66396	1/23/2015	AM	Snow	R. Logalbo	No Assistant	SPP177	Y	N
66395	1/23/2015	AM	Snow	R. Logalbo	No Assistant	SPP247	Y	N
66392	1/23/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP335A	Y	N
66391	1/23/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP335B	Y	N
66388	1/23/2015	АМ	Snow	R. Logalbo	No Assistant	SPP334A	Y	N
66387	1/23/2015	AM	Snow	R. Logalbo	No Assistant	SPP334B	Y	N

66384	1/23/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP345	Υ	N
66382	1/23/2015	АМ	Snow	R. Logalbo	No Assistant	SPP229	Υ	N
66310	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP183	Υ	N
66376	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP170A	Υ	N
66375	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP178	Υ	N
66372	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP179	Υ	N
66371	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP180	Υ	N
66370	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP331	Υ	N
66367	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP024	Υ	N
66366	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP023	Υ	N
66363	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP296	Υ	N
66362	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP022	Υ	N
66359	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP021	Υ	N
66358	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP020	Y	N
66355	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP019	Υ	N
66354	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP243	Y	N
66351	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP015	Y	N
66350	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP017	Υ	N
66347	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP018	Υ	N
66346	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP014B	Υ	N
66343	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP014A	Υ	N
66342	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP244	Υ	N
66339	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP245	Υ	N
66338	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP237	Υ	N
66335	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP236	Υ	N
66334	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP238	Υ	N
66331	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP235	Υ	N

66330	1/22/2015	АМ	Pt. Cloudy	К. Logalbo	No Assistant	SPP239	Y	N
66327	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP241	Υ	N
66326	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP240	Υ	N
66323	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP234	Υ	N
66322	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP233	Υ	N
66319	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP232	Υ	N
66318	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP231	Υ	N
66315	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP230	Υ	N
66314	1/22/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP181	Υ	N
66311	1/22/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP182	Υ	N
66266	1/21/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP193	Υ	N
66307	1/21/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP013	Υ	N
66306	1/21/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP011	Υ	N
66303	1/21/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP195	Υ	N
66302	1/21/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP213	Υ	N
66299	1/21/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP214	Υ	N
66298	1/21/2015	AM	Pt. Cloudy		No Assistant	SPP215	Υ	N
66295	1/21/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP010	Υ	N
66294	1/21/2015	ΑM	Pt. Cloudy	R. Logalbo	No Assistant	SPP009	Υ	Ν
66292	1/21/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP008	Υ	N
66291	1/21/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP184	Υ	N
66288	1/21/2015	AM	Pt. Cloudy	•	No Assistant	SPP185	Υ	N
66287	1/21/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP186	Υ	N
66284	1/21/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP007	Υ	N
66283	1/21/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP005	Υ	N
66280	1/21/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP004	Υ	N
66279	1/21/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP003	Y	N

66276	1/21/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP001	Y	N
66275	1/21/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP189	Y	N
66272	1/21/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP190	Y	N
66270	1/21/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP187	Y	N
66269	1/21/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP280	Υ	N
66617	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP105	Υ	N
66644	1/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP209	Υ	N
66643	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP137	Υ	N
66642	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP136A	Υ	N
66641	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP279	Υ	N
66640	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP135A	Υ	N
66639	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP129	Υ	N
66638	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP281	Υ	N
66637	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP282	Υ	N
66636	1/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP326	Υ	N
66635	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP132	Υ	N
66634	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP131	Υ	N
66633	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP133	Υ	N
66632	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP130	Υ	N
66631	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP145	Y	N
66630	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP138	Y	N
66629	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP283	Υ	N
66628	1/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP322	Y	N
66627	1/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP212	Υ	N
66626	1/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP211	Υ	N
66625	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP291	Υ	N
66624	1/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP292	Υ	N

66623	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP293	Υ	N
66622	1/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP294	Υ	N
66621	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP295	Y	N
66620	1/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP329	Y	N
66619	1/20/2015	AM	Snow	R. Logalbo	No Assistant	SPP106	Υ	N
66618	1/20/2015	АМ	Snow	R. Logalbo	No Assistant	SPP307	Υ	N
66595	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP113	Υ	N
66616	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP107	Υ	N
66615	1/16/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP107A	Υ	N
66614	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP122	Υ	N
66613	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP227A	Υ	N
66612	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP227	Υ	N
66611	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP226	Υ	N
66610	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP225	Υ	N
66609	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP224	Υ	N
66608	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP223	Υ	N
66607	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP109	Υ	N
66606	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP222	Υ	N
66605	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP221	Y	N
66604	1/16/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP220	Υ	N
66603	1/16/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP311	Υ	N
66602	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP121	Υ	N
66601	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP310	Υ	N
66600	1/16/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP309	Υ	N
66599	1/16/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP308B	Υ	N
66598	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP308A	Υ	N
66597	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP308	Y	N

66596	1/16/2015	AM	Sunny	R. Logalbo	No Assistant	SPP114	Y	N
66576	1/15/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP104	Υ	N
66594	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP125	Υ	N
66593	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP125A	Υ	N
66592	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP126	Υ	N
66591	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP124	Υ	N
66590	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP208	Υ	N
66589	1/15/2015	ΑM	Pt. Cloudy	R. Logalbo	No Assistant	SPP123C	Y	N
66588	1/15/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP123A	Υ	N
66587	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP123B	Υ	N
66586	1/15/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP118	Υ	N
66585	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP115	Y	N
66584	1/15/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP119	Υ	N
66583	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP120	Υ	N
66582	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP097	Y	N
66581	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP097A	Υ	N
66580	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP099	Υ	N
66579	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP100	Υ	N
66578	1/15/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP101	Υ	N
66577	1/15/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP103	Υ	N
66535	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP217	Υ	N
66575	1/14/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP249	Υ	N
66572	1/14/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP152	Υ	N
66571	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP199C	Υ	N
66570	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP199B	Υ	N
66569	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP199A	Υ	N
66564	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP151	Υ	N

66563	1/14/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP248	Υ	N
66560	1/14/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP198A	Υ	N
66559	1/14/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP150	Υ	N
66556	1/14/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP277	Υ	N
66555	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP149	Υ	N
66552	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP148	Υ	N
66551	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP218	Υ	N
66548	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP320	Υ	N
66547	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP319	Υ	N
66544	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP318	Υ	N
66543	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP317	Υ	N
66540	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP316	Υ	N
66539	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP315	Υ	N
66536	1/14/2015	AM	Sunny	R. Logalbo	No Assistant	SPP314	Y	N
66491	1/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP069	Υ	N
66532	1/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP092	Υ	N
66531	1/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP091	Υ	N
66530	1/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP088	Υ	N
66527	1/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP090	Υ	N
66526	1/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP089	Υ	N
66523	1/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP087	Υ	N
66522	1/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP094	Υ	N
66519	1/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP084	Υ	N
66518	1/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP086	Υ	N
66515	1/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP085	Υ	N
66514	1/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP082	Υ	N
66511	1/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP081	Υ	N

66510	1/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP080	Y	N
66506	1/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP079	Υ	N
66505	1/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP078	Υ	N
66504	1/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP077	Υ	N
66501	1/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP075	Υ	N
66500	1/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP074	Υ	N
66499	1/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP073	Υ	N
66495	1/13/2015	АМ	Snow	R. Logalbo	No Assistant	SPP072	Υ	N
66492	1/13/2015	AM	Snow	R. Logalbo	No Assistant	SPP068	Υ	N
66452	1/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP035	Υ	N
66490	1/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP067	Y	N
66488	1/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP059	Υ	N
66485	1/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP128	Υ	N
66484	1/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP058	Y	N
66481	1/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP056	Y	N
66480	1/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP055	Y	N
66477	1/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP054	Υ	N
66476	1/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP053	Υ	N
66473	1/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP052	Y	N
66472	1/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP051	Υ	N
66469	1/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP051A	Υ	N
66468	1/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP050	Υ	N
66465	1/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP146	Υ	N
66464	1/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP327	Υ	N
66461	1/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP048	Y	N
66460	1/12/2015	AM	Snow	R. Logalbo	No Assistant	SPP047	Υ	N
66457	1/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP045A	Υ	N

66456	1/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP042	Υ	N
66453	1/12/2015	АМ	Snow	R. Logalbo	No Assistant	SPP036	Υ	N
66415	1/9/2015	АМ	Snow	R. Logalbo	No Assistant	0000400	Υ	N
66449	1/9/2015	АМ	Snow	R. Logalbo	No Assistant	SPP304	Υ	N
66448	1/9/2015	АМ	Snow	R. Logalbo	No Assistant	000004	Υ	N
66445	1/9/2015	AM	Snow	R. Logalbo	No Assistant	SPP203	Υ	N
66444	1/9/2015	АМ	Snow	R. Logalbo	No Assistant	SPP202	Υ	N
66441	1/9/2015	AM	Snow	R. Logalbo	No Assistant		Υ	N
66440	1/9/2015	AM	Snow	R. Logalbo	No Assistant	SPP201	Y	N
66436	1/9/2015	AM	Snow	R. Logalbo	No Assistant	SPP200B	Υ	N
66435	1/9/2015	AM	Snow	R. Logalbo	No Assistant	SPP200A	Υ	N
66434	1/9/2015	АМ	Snow	R. Logalbo	No Assistant	SPP156	Y	N
66431	1/9/2015	AM	Snow	R. Logalbo	No Assistant	SPP338	Υ	N
66430	1/9/2015	АМ	Snow	R. Logalbo	No Assistant	SPP157	Y	N
66427	1/9/2015	AM	Snow	R. Logalbo	No Assistant	SPP339	Υ	N
66426	1/9/2015	AM	Snow	R. Logalbo	No Assistant	SPP340	Υ	N
66423	1/9/2015	AM	Snow	R. Logalbo	No Assistant	SPP156B	Υ	N
66422	1/9/2015	AM	Snow	R. Logalbo	No Assistant	SPP156A	Υ	N
66419	1/9/2015	AM	Snow	R. Logalbo	No Assistant	SPP341A	Υ	N .
66418	1/9/2015	АМ	Snow	R. Logalbo	No Assistant	SPP342A	Υ	N
66402	1/8/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP163	Υ	N
66414	1/8/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP342B	Υ	N
66413	1/8/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP165	Υ	N
66410	1/8/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP164	Υ	N
66409	1/8/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP165B	Υ	N
66406	1/8/2015	АМ	Pt. Cloudy	R. Logalbo	No Assistant	SPP336A	Υ	N
66405	1/8/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP336B	Υ	N

66379	1///2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP1/0B	Y	N
66401	1/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP175	Υ	N
66398	1/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP176	Υ	N
66397	1/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP177	Υ	N
66394	1/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP247	Υ	N
66393	1/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP335A	Υ	N
66390	1/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP335B	Υ	N
66389	1/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP334A	Υ	N
66386	1/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP334B	Υ	N
66385	1/7/2015	АМ	Cloudy	R. Logalbo	No Assistant	SPP345	Υ	N
66383	1/7/2015	AM	Cloudy	R. Logalbo	No Assistant	SPP229	Υ	N
66380	1/7/2015	AM	Pt. Cloudy	R. Logalbo	No Assistant	SPP333	Y	N
66309	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP183	Υ	N
66378	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP170B	Y	N
66377	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP170A	Y	N
66374	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP178	Υ	N
66373	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP179	Υ	N
66369	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP331	Υ	N
66368	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP024	Y	N
66365	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP023	Y	N
66364	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP296	Υ	N
66361	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP022	Y	N
66360	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP021	Y	N
66357	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP020	Υ	N
66356	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP019	Y	N
66353	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP243	Υ	N
66352	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP015	Υ	N
				J =				

66349	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP017	Υ	N
66348	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP018	Υ	N
66345	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP014B	Υ	N
66344	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP014A	Υ	N
66341	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP244	Υ	N
66340	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP245	Y	N
66337	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP237	Y	N
66336	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP236	Υ	N
66333	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP238	Υ	N
66332	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP235	Υ	N
66329	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP239	Υ	N
66328	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP241	Υ	N
66325	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP240	Υ	N
66324	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP234	Υ	N
66321	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP233	Υ	N
66320	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP232	Υ	N
66317	1/6/2015	AM	Sunny	R. Logalbo	No Assistant	SPP231	Υ	N
66316	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP230	Υ	N
66313	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP181	Υ	N
66312	1/6/2015	АМ	Sunny	R. Logalbo	No Assistant	SPP182	Υ	N
66265	1/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP193	Y	N
66267	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP191	Υ	N
66268	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP280	Υ	N
66271	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP187	Υ	N
66273	1/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP190	Y	N
66274	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP189	Υ	N
66277	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP001	Υ	N

66278	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP003	Υ	N
66281	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP004	Y	N
66282	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP005	Υ	N
66285	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP007	Υ	N
66286	1/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP186	Υ	N
66289	1/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP185	Υ	N
66290	1/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP184	Υ	N
66293	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP008	Υ	N
66296	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP010	Υ	N
66297	1/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP215	Υ	N
66300	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP214	Y	N
66301	1/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP213	Υ	N
66304	1/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP195	Υ	N
66305	1/5/2015	АМ	Snow	R. Logalbo	No Assistant	SPP011	Υ	N
66308	1/5/2015	AM	Snow	R. Logalbo	No Assistant	SPP013	Υ	N

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SPP ID:	View All				▼
	Date: From	01/01/2015		To 07/01/2015	
			Inspector:	View All	▼
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To: DEC Water Contact JEFFREY KONSELLA

#### New York State Department of Environmental Conservation Division of Water



DEC Boolons

## Report of Noncompliance Event

Report Type:	_5 Day Permi	Violation	Order Violation		Bypass/Overflow _ Other
SECTION 2					
SPDES #: NY- 0028410	Facility:	BUFFALO SEWE	ER AUTHORITY		<del>-</del>
Date of noncompliance	04 / 15 / 15	Location (Ou	tfall, Treatment	Unit, or Pump Station): <u>O</u>	UTFALL
Description of noncom	pliance(s) and cau	ise(s): DRY WE	ATHER OVERFLOW	OCCURRED AT 10:15 AM ON 04	/15/15 SPP # 23 & 24 & 296
THROUGH OUTFALL#12. LI	NE WAS PLUGGED W	ITH DEBRIS			
Has event ceased? (Yes	) (No) If so, when	n? 04/15/15	Was event di	ie to plant unset? (Ves) (N	No) SPDES limits violated? (Yes) (No)
					5 / 15 , 11 : 13 (AM) (PM)
					itacted: ROBERT SMYTHE(EMAIL)
Immediate corrective a					
				···.	
Preventive (long term)	corrective actions	:			
(					
SECTION 3					
Complete this section if ev	ent was a bypass:				
	Bypass amount:		Was prior DEC au	thorization received for this evo	ent? (Yes) (No)
	DEC Official co	ntacted:		Date of DEC approval:	<u></u>
Describe event in "Descri	ntion of noncompli	ance and cause	" area in Section 2	Detail the start and end do	tes and times in Section 2 also.
SECTION 4	L or women's			vanie env omit anu enu ua	es and times in Decide 2 8180.
Facility Repre	sentative: MICHA	EL LETINA	1	Title: TREATMENT PLANT SU	PT. <b>Date:</b> 04 / 15 / 15
	Phone #: <u>(</u> _	716 ) 851	- 4664 X5201	Fax #: ( 716 ) 883 -	3789

I Certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

ete. Signature of Principal Executive
Officer or Authorized Agent
Cultiful # 7014 2120 0001 9660 0021



### New York State Department of Environmental Conservation Division of Water



# Report of Noncompliance Event

	To: DE	C Water	Contact JEFFREY KO	ONSELLA	DE	C Region: 9
Report	Туре:	5 Day _	Permit Violation _	Order Violation	Anticipated Noncompliance _	Bypass/Overflow<_ Other
SECTION 2						
SPDES #: NY	0028410		Facility: BUFFALO SE	WER AUTHORITY		
				_	nt Unit, or Pump Station): OUTF	FALL
					W OCCURRED AT 9:30 AM ON 04/28/1	
THROUGH OUTF	ALL#53. L	INE WAS PL	LUGGED WITH DEBRIS			
Start date, tim	e of ever	nt: <u>04 / 2</u>	28 / 15 , 9: :30	(AM)(PM) End	date, time of event: 04 / 28 /	
)ate, time ora	l notifica	tion mad	e to DEC? 04 / 28 /	15 , 11 : 00 (A	(PM) DEC Official contac	ted: ROBERT SMYTHE(EMAIL)
mmediate cor	rective a	ections: BS	SA STAFF CLEANED CH	AMBER OF ALL DE	BRIS	
			•			
	· 					
Preventive (lor	g term)	correctiv	e actions:			
				· · · · · · · · · · · · · · · · · · ·	e e	
ECTION 3						
Somothe ineset	anne i i Ni	and an area of			oten (d.180) er ekstero <del>rena karat</del> - 2013-	Scorped a call there is be to produce the first own of which
				T. Marking Combiners	mina je isane e enega tija din isanue.	
		n de	iamini compositel		a Mary offin Schap in pact 1 at	
te edhe eratik					a Pedicolog op monetus.	
ECTION 4	STATE COLLEGE SEE	District of the	H-MACHINE HANDING	es or paradeciatable		
Facility	y Repre	sentative	Roberta Gaiek		Title: TREATMENT PLANT ADMINISTRA	ATOR Date: 04 / 28 / 15
		Pho	ne #: <u>( 716</u> ) 851	- 4664 X5208	Fax #: ( 716 ) 883 - 3789	) 
prepared under my to assure that qual submitted. Based o or those persons d	direction of direc	or supervisio anel properly iry of the per onsible for g	cument and all attachments n in accordance with a sys- gather and evaluate the in son or persons who manag athering the information, the and belief, true, accurate,	stem designed information ge the system, the information	Signature of Principal Executiv	We we

Officer or Authorized Agent

CERTIFIED MAIL#7010 1870 0000 3618 9115

I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.