STORMWATER POLLUTION PREVENTION PLAN

FOR

SHEFFIELD GARDENS

NYS Route 17K

TOWN OF MONTGOMERY
ORANGE COUNTY, NEW YORK

PREPARED BY

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

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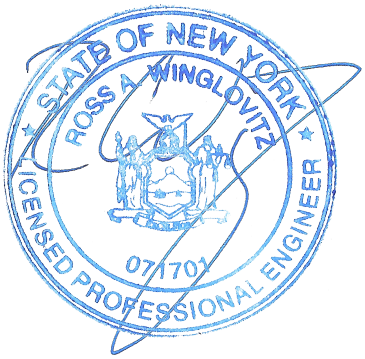
Montgomery, NY 12549



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1.0 INTRODUCTION

Engineering & Surveying Properties, PC (EP) prepared this report summarizing the impact of the proposed development of the property, known as Sheffield Gardens, will have on downstream properties and receiving waters.

1.1 PURPOSE

The purpose of the Stormwater Pollution Prevention Plan (SWPPP) is to:

a. Maintain existing drainage patterns as much as possible and continue the conveyance of upland watershed runoff;

b. Mitigate increases in stormwater runoff resulting from the proposed development without adversely affecting downstream conditions;

c. Mitigate potential stormwater impacts and prevent soil erosion and sedimentation resulting from stormwater runoff.

1.2 SCOPE

The scope of the SWPPP for Sheffield Gardens described herein is as follows:

a) Describe and estimate existing stormwater runoff conditions;

b) Describe and estimate proposed stormwater runoff conditions;

c) Describe and evaluate stormwater management facilities planned as part of the proposed development.

2.0 PROJECT DESCRIPTION

The Sheffield Gardens project site is 52.42± acres in size and is located off NYS Route 17K in the Town of Montgomery in Orange County, New York. Local tax maps identify the Site as Town of Montgomery tax lots 29 – 1 – 5.1, 5.2, 5.3, 5.4, & 5.5. A site location map is included as Figure 1 in Appendix 1.

The proposed action, known as Sheffield Gardens, consists of three residential buildings with a total of 261 apartment units. Access to the site will be from new driveway entrances located on NYS Route 17K. The project proposes 669 parking spaces for apartment residents, employees, and guests.

The project site is a rectangular shaped area of land. The existing site cover consists of mostly high canopy forest.

3.0 TOPOGRAPHY AND SOILS

The existing topography in the Sheffield Gardens project area varies across the site, ranging from approximately 389 feet above mean sea level (AMSL) to 451 feet AMSL. Most of the slopes (±77%) on the project site are gently sloped (0%-15%), and moderate sloped areas (15%-25%) consist of approximately 20.6% of the site. The area of significant slope >25% consist of approximately 2.4% of the site. The Project Site contains eight different soil groups according to the Soil Survey of Orange County, New York. The on-site soil groups include various series complexes including Canandaigua silt loam (Ca), Erie gravelly silt loam (ErB), Pittsfield gravelly loam (PtB, PtC, & PtD), and Udorthents (UH) soils. These soils are considered to be a part of the "A", "B" & "D" hydrologic soils group. A soil map is included in Appendix 2. Our office conducted exploratory geotechnical testing, areas of Pittsfield gravelly loam (PtB, PtC & PtD) are more consistent with soils which are considered to be classified as hydrologic soil group D. Test pit locations and data are included in Appendix 3.

4.0 METHODOLOGY

The methodology utilized for this analysis is based upon the U.S.D.A. Soil Conservation Service's Technical Release No. 20 and Technical Release No. 55, as utilized by the software entitled Hydraflow Hydrographs.

Hydraflow Hydrographs, developed by Intelisolve of Alpharetta, Georgia, is a Microsoft Windows based program for analyzing the hydrology and hydraulics of stormwater runoff. It utilizes the latest techniques to predict the stormwater flows from any given storm event.

Hydraflow Hydrographs has the capability of computing hydrographs (representing discharge rates characteristic of specific watershed conditions, precipitation, and geologic factors), combining hydrographs, and routing flows through pipes, streams and ponds. A drainage model can consist of four different components - subareas, combinations, reaches and reservoirs.

A subarea consists of a relatively homogeneous area of land, which produces a volume and rate of runoff unique to that watershed. A subarea combination is the hydrologic addition of two subareas in order to determine the peak runoff at a design point. A reach is a channelized conveyance structure which routes the runoff from one

point to another. A reservoir consists of a natural or man-made impoundment which temporarily stores stormwater runoff and that empties in a manner determined by various hydraulic structures located at its outlet.

This Stormwater Pollution Prevention Plan was based upon the New York State Stormwater Management Design Manual published by the New York State Department of Environmental Conservation (NYSDEC). Criteria set forth by this manual, requires analysis and determination of the required Water Quality Volume (WQv), to provide extended detention of the 1-year storm event for Stream Channel Protection (Cpv), to control the peak discharge of the 10-year storm event also known as Overbank Flood Protection Criteria (Qp), and to control the peak discharge and safely pass the 100-year storm event otherwise known as Extreme Flood Control Criteria (Qf).

The Stormwater Pollution Prevention Plan was developed by utilizing the "five-step" process for Stormwater Site Planning and Practice Selection. The five steps consists of site planning, determination of the water quality treatment volume, runoff reduction volumes applied through the use of "green technologies", application of standard stormwater management practices (SMP's) for remaining water quality volumes, and application of volume and peak rate control methods as required. Each of the five "steps" is further discussed in detail within this report.

5.0 ARCHEOLOGY

A letter dated March 14, 2023 was received from NYSOPRHP in response to the Notice of Intent for Designation of Lead Agency regarding the Proposed Action from the Town Planning Board. The letter stated "[t]he project is in an archaeologically sensitive area. Therefore, the State Historic Preservation Office/Office of Parks, Recreation and Historic Preservation (SHPO/OPRHP) recommends a Phase IA/IB archaeological survey for components of the project that will involve ground disturbance, unless substantial prior ground disturbance can be documented. A Phase IA/IB survey is designed to determine the presence or absence of archaeological sites or other cultural resources in the project's Area of Potential Effects (APE)". Based on a letter dated December 4th, 2023 it was determined there was no-impact to cultural resources. Letter is attached in Appendix 17.

Between April 2 and July 19, 2023, TRACKER Archaeology Inc. prepared a Phase 1A literature review & sensitivity analysis and a Phase 1B archaeological field survey for the Project Site. The Area of Potential Effect (APE) consists of approximately 41 acres of the larger 53-acre Project Site and excludes the wetlands.

According to the Phase 1A Analysis, there are two prehistoric sites located within a one-mile radius of the Project area. Furthermore, the APE is located near the Wallkill River and contains level to steeply sloped terrain with well-drained soil. Given these findings, the study area was determined to have an above average potential for the recovery of prehistoric sites such as a procurement/processing site from any of the prehistoric periods.

A historic site file search of a one-mile radius around the study area found two historic sites: (1) the Fowler Site (NYSHPO 7112.000323) a mid-19th century farm occupation with stone well, stone house foundation with mixed 19th-20th century artifacts, located 534 feet from the APE and (2) the Hadden House foundation from the late 18th to late 19th century, with other assorted artifacts. Based on this evidence, the project area was determined to have a higher-than-average potential for the recovery of historic sites.

6.0 STORMWATER MANAGEMENT PLANNING

6.1 INITIAL SITE PLANNING

Development of the proposed site plan within the “site planning” process was an iterative process with different conceptual layouts developed for the project site. During the planning process with the applicant, the current proposed plan was developed after careful consideration of many planning techniques and environmental impacts. The proposed site plan was devised to protect and preserve natural features, maintain natural drainage patterns, and avoid to the greatest extent practical, the disturbance of erodible soils. The site plan with proposed watershed boundaries can be seen as Figure 3 in Appendix 1.

The hydrologic and hydraulic analysis was performed by delineating the tributary watershed to the design point and then dividing these tributary areas into relatively homogeneous subareas. The separation of the watershed into subareas was dictated by watershed conditions, methods of collection, conveyance and points of discharge. Watershed characteristics for each subarea were then

assessed from topographical maps, soil surveys, site investigations and land use maps.

6.1.1 EXISTING CONDITIONS

Under existing conditions, the Site consists of two separate drainage areas and two corresponding drainage discharge points. Area A encompasses the eastern portion of the Project and some off-site areas to the north and south, which are divided from the western portion of the Site by the ridge line that runs southwest to northeast through the Site. Area A is ± 35.318 acres in size and discharges from the Site at the eastern boundary of the Project and flows into the adjacent NYSDEC wetland WD-29. Area B contains the western portion of the Site and some off-site area to the north and south. Area B is ± 23.109 acres in size and discharges southwest towards the on-site wetlands. See Appendix 1 for existing drainage conditions.

The sub-area was delineated and a contributory area, a curve number (CN) and time of concentration (Tc) was determined for the sub-area. Calculations for the CN's and Tc's are included in Appendices 4 and 5, respectively. It should be noted that the total contributory area includes off-site areas and excludes on-site areas not affected by the proposed development and therefore, the total drainage area size will differ from the project site area. Based upon soil testing results, areas in which the Soil Survey of Orange County depict Pittsfield soils have been classified as hydrologic group D.

TABLE 1: EXISTING DRAINAGE AREA CHARACTERISTICS

DRAINAGE AREA DESIGNATION	DRAINAGE AREA SIZE (Ac.)	CN	Tc (min)
EX-A	35.318	76	31.20
EX-B	23.109	64	32.40
TOTAL:	58.427		

The watershed responses to the 1-, 10-, 100-, and 500-year 24-hour storm events were computed and evaluated at the design point. The peak rates of runoff at each design point are presented in Table 8. Stormwater computations are attached at the end of this report in Appendices 8, 9, 10 and 11.

6.1.2 PROPOSED CONDITIONS

For this analysis, the existing watershed was broken down into a post-development network consisting of six subareas and three stormwater management facilities. The Area PR-A consists of runoff from sub-areas A1, A2, and A3. Areas A1 and A2 direct runoff to stormwater management areas which discharge to drainage point A. Area A3 consists of area that is undeveloped within the PR-A drainage boundary. Area PR-B consists of three sub-areas B1, B2 & B3. Area B1 and B2 direct runoff to stormwater management areas which discharge to drainage point B, where area B3 consists of area undeveloped within the PR-B drainage boundary.

The subareas under the proposed development are identified in Figure 3. The characteristics of each proposed subarea are detailed in Table 2 below. It should be noted that the total contributory area includes off-site areas and therefore, the total drainage area size is larger than the project development area.

TABLE 2: PROPOSED DRAINAGE AREA CHARACTERISTICS

DRAINAGE AREA DESIGNATION	DRAINAGE AREA SIZE (Ac.)	CN	Tc (min)
PR-A1	9.007	90	25.20
PR-A2	0.600	61	15.60
PR-A3	26.608	76	20.40
PR-B1	9.160	89	23.40
PR-B2	0.610	54	3.60*
PR-B3	12.442	58	20.40
TOTAL:	58.427		

*Utilize 6-minute Tc minimum

6.2 WATER QUALITY VOLUME

The second step of the stormwater site planning process is determination of the required water quality treatment volume (WQ_v). WQ_v is calculated using the 90% Rule as defined by NYSDEC Stormwater Management Design Manual. The 90% Rule is defined as:

$$WQ_v = [(P)(R_v)(A)] / 12$$

Where: P is the 90% Rainfall Event Number
R_v is equal to 0.05 + 0.009*I
I is the Impervious Cover in percent
A is the subarea total acreage

The WQ_v was calculated for the design point for which the proposed project will create new impervious coverage. The results of the WQ_v calculations are included in Table 3 below.

TABLE 3: REQUIRED WATER QUALITY VOLUMES

AREA	WQ_v (Ac-ft)
PR-A	0.840
PR-B	0.688

6.3 RUNOFF REDUCTION VOLUME

Step three of the stormwater site planning process is the incorporation of "green infrastructure technologies" and standard SMP's with runoff reduction volume (RR_v) capacity. The intended result of RR_v, is to treat 100% of the WQ_v and replicate pre-development hydrology, however if unattainable, provide the minimum RR_v required and provide additional treatment for the remaining WQ_v. Each of the following green technologies and standard SMP's with RR_v capacity were analyzed for implementation along with an explanation of how they are used or unable to be used on this project. The location of the green technologies used can be seen in Figure 4.

Green Technologies

- Conservation of Natural Areas
  - The proposed site is to be fully developed apart from an area of existing wetlands. Therefore, this practice may not be utilized to provide RR_v for the corresponding tributary area.
- Sheet flow to Riparian Buffers / Filter Areas
  - As previously stated this site is proposed to be fully developed and therefore riparian buffers do not exist within the project site.
- Vegetated Open Swales
  - Due to limitations in the size and slope of the site and the use of sub-surface stormwater conveyance, swales are not practicable.
- Tree Planting / Tree Box
  - The site design proposes a landscaping plan. However, the landscaping will be utilized for aesthetic purposes only and will not be designed to incorporate stormwater quality treatment.
- Disconnection of Rooftop runoff
  - Due to a lack of filter strips or grassed areas uphill of the stormwater conveyance paths, the rooftop runoff from the proposed building will be directed to catch basins.
- Stream Daylighting
  - There are no culverted/piped streams on-site therefore this technology is not applicable to this project.
- Rain Gardens
  - Due to the fact that most of the tributary drainage areas consist of areas greater than 1,000 sq.ft., rain gardens could not be utilized as a green technology on this project.
- Green Roof

- As all the areas of the proposed development, including all new rooftop areas, have been accounted for in other green technologies, the implementation of this practice is not proposed.

- Stormwater Planters
  - Stormwater planters are suitable for small runoff areas such as rooftops or plaza and courtyards. Stormwater planters work very well within urban redevelopment projects with appropriate soils. However, this project is utilizing other technologies for treatment of rooftop runoff; therefore, the green technology of stormwater planters was not implemented.
- Rain Tanks/Cistern
  - Rain Tanks and cisterns are well-suited to treat rooftop runoff, however as previously stated, rooftop runoff is directed towards the proposed drainage system.
- Porous Pavement
  - Porous pavement was not considered as paved areas were already treated under a different runoff reduction practice.
- Soil Restoration
  - Soil restoration measures must be applied to all areas of disturbance that will be re-established as non-impervious cover to recover the original properties and porosity of the soil to the greatest extent practical. Soil restoration techniques and requirements are discussed further in Section 5.6 of this report.

<u>Standard SMP's with RR_v Capacity</u>

- Infiltration Practice
  - The use of one (1) infiltration practice is proposed on site to provide RRv capacity.
- Bio-Retention

- The use of one (1) bio-retention facility is proposed on site to provide RRv capacity.

- Dry Swale (Open Channel Practice)
  - Dry swales were not utilized for this project as all areas of proposed development have been accounted in other green technologies.

The RR_v for each of the green technologies used has been calculated for the point of analysis. The total RR_v was calculated and compared to the WQ_v for the design point. The minimum RR_v is based upon the hydrological soil group (HSG) classification within the watershed and is assigned a Specific Reduction Factor (*S*). The reduction factors for each HSG are shown below in Table 4.

*TABLE 4: SPECIFIC REDUCTION FACTOR (S)**

HSG	*S*
A	0.55
B	0.40
C	0.30
D	0.20

* Watersheds with multiple HSG's utilize a weighted average

$RR_{v\ MIN}$ was calculated for each watershed in accordance with the following formula:

$$RR_{v\ MIN} = [(P)(0.95)(S)(I)] / 12$$

The total calculated RR_v provided is compared to the $RR_{v\ MIN}$ to ensure that the green technologies proposed provide the minimum reduction of the WQ_v as required. The $RR_{v\ MIN}$ and the total RR_v provided along with the revised WQ_v are shown below in Table 5. The revised WQ_v is calculated using the 90% rule as noted in Section 5.2 above, however, the contributory area and impervious area are reduced through the application of green technologies that have been utilized. The calculations for the required and adjusted water quality volumes along with the runoff reduction volumes calculations are shown in Appendix 6.

TABLE 5: RUNOFF REDUCTION VOLUMES & REVISED WQV

DESIGN POINT	$RR_{v\ MIN}$	Total RR_v (Provided)	Revised WQ_v
PR-A	0.170	0.615	0.224
PR-B	0.191	0.588	0.101

6.4 APPLICATION OF STANDARD SMP'S FOR THE REVISED WQV

The RR_v does reduce the required WQ_v treatment for design point PR-A; however, it does not completely eliminate the need to provide treatment through standard stormwater management practices. Continuing with the stormwater site planning process, step four is to ensure treatment for the remaining WQ_v is provided. The WQ_v provided in each of the standard stormwater management practices throughout the project is provided in Table 6 below.

TABLE 6: WQV PROVIDED IN STANDARD SMP'S

Basin	WQ_v Provided
Forebay A1	0.610
Forebay A2	0.044
Forebay B1	0.612
Bio-Basin B1	0.178

6.5 VOLUME AND PEAK RATE CONTROL

The fifth and final step of the stormwater site planning process is to apply volume and peak rate control as necessary through the use of standard stormwater management practices. In preparing the SWPPP, it was determined that on-site stormwater facility (Wet Extended Detention Pond) will be necessary to mitigate the potential increase in peak stormwater runoff rates from the proposed site improvements.

The on-site stormwater management facilities have been designed as Wet Extended Detention Ponds (P-3) and Infiltration Basins (I-2) which are proposed to mitigate any increase in peak runoff from the site improvements tributary to them.

6.5.1 CHANNEL PROTECTION VOLUME

The required volume control consists of Channel Protection Volume (Cp_v) which is designed to protect downstream channels from erosion. The Cp_v is achieved through providing extended detention of the 1-year storm event for a period of 24 hours. Ponds that do not meet the 24-hour extended detention period will utilize the minimum 3" orifice as required by the regulations. The Cp_v detention time is shown in Table 7 below and the calculated results are shown in Appendix 12.

TABLE 7: CPV EXTENDED DETENTION TIMES

FACILITY	Cp_v ED Time (hrs)
Basin A1	24.57
Pond A2	24.00
Pond B1	24.00

** FACILITY HAS AN EXTENDED DETENTION TIME LESS THAN 24 HOURS AND WILL UTILIZE A MINIMUM 3" ORIFICE AS REQUIRED.*

6.5.2 PEAK RATE CONTROL

The peak discharge rate is controlled utilizing the storage volume available in the stormwater pond and controlling discharge through an overflow weir. The watershed responses to the 1-, 10-, 100-, and 500- year - 24-hour storm events were computed and evaluated at the aforementioned design point. The peak rates of runoff realized at the design points are presented in Table 8. Stormwater computations are attached at the end of this report.

The total peak runoff rates at the design point for the existing condition as well as the final proposed condition have been calculated and shown below in Table 8. The peak runoff rates have been reduced in the proposed conditions during the 1-, 10-, 100- and 500-year design storms for all drainage areas on site.

TABLE 8: SUMMARY OF RESULTS AT THE DESIGN POINTS

Criteria		Design Point A	Design Point B
1 – YEAR (Cpv)	Existing (cfs)	14.07	2.18
	Proposed (cfs)	13.28	0.60
	Reduction (cfs)	-0.79	-1.58
	Reduction (%)	-5.61%	-72.48%
10 – YEAR (Qp)	Existing (cfs)	45.25	16.23
	Proposed (cfs)	42.39	7.26
	Reduction (cfs)	-2.86	-8.97
	Reduction (%)	-6.32%	-55.27%
100 – YEAR (Qf)	Existing (cfs)	106.56	50.40
	Proposed (cfs)	103.25	38.51
	Reduction (cfs)	-3.31	-11.89
	Reduction (%)	-3.11%	-23.59%
500 – YEAR	Existing (cfs)	178.28	94.55
	Proposed (cfs)	183.94	78.55
	Reduction (cfs)	+5.66	-16.00
	Reduction (%)	+3.17%	-16.92%

Since the runoff rates have been proven to decrease in the post-development condition, there will be no adverse impact to the downstream receiving waters. Therefore, the SWPPP designed for the Sheffield Gardens project site will accomplish the intent of its design.

The NYSDEC Stormwater Design Manual does not require proposed developments to provide peak rate control for 500-year storms. However at the request of the Town of Montgomery, analysis of the site under a 500-year storm event has been provided. In the event of a storm of this size, runoff will flow via emergency overflow weirs and/or over stormwater basin berms to the on-site wetlands which ultimately discharge to drainage points A and B.

6.6 SOIL RESTORATION

Soil restoration is intended to recover the original properties and porosity of the soil to the greatest extent practicable. Soil restoration measures shall be applied to any disturbed area within the project prior to establishment of permanent vegetation and installation of landscaping. Any proposed impervious areas do not require soil restoration measures. Soil restoration measures such as tilling allows for compacted soil to gather oxygen and create temporary and even permanent air voids and when combined with the incorporation of organic material, greatly improves the soils characteristics to temporarily store water and subsequent runoff reduction through infiltration and evapotranspiration.

Various soil disturbance activities related to construction of land development within various soil types and the associated minimum required soil restoration techniques are shown in Table 9.

TABLE 9: SOIL RESTORATION REQUIREMENTS

<table>
<tr><th>Type of Soil Disturbance</th><th colspan="2">Soil Restoration Requirement</th><th>Comments / Examples</th></tr>
<tr><td>No Soil Disturbance</td><td colspan="2">Restoration not permitted</td><td>Preservation of Natural Features</td></tr>
<tr><td>Minimal Soil Disturbance</td><td colspan="2">Restoration not required</td><td>Clearing and Grubbing</td></tr>
<tr><td rowspan="2">Areas where topsoil is stripped only – NO change in grade.</td><td>HSG A & B</td><td>HSG C & D</td><td rowspan="2">Protect Areas from any ongoing construction activities.</td></tr>
<tr><td>Apply 6” of topsoil</td><td>Aerate* and apply 6” of topsoil</td></tr>
<tr><td rowspan="2">Areas of cut or fill</td><td>HSG A & B</td><td>HSG C & D</td><td rowspan="2"></td></tr>
<tr><td>Aerate* and apply 6” of topsoil</td><td>Apply full Soil Restoration **</td></tr>
<tr><td>Heavy traffic areas on site (especially in a zone 5’-25’ around buildings, but not within the 5’ perimeter around the foundation walls)</td><td colspan="2">Apply full Soil Restoration** (de-compaction and compost enhancement)</td><td></td></tr>
</table>

Areas where Runoff Reduction and/or Infiltration Practices are applied.	Restoration not required, but maybe applied to enhance the reduction specified for appropriate practices	Keep construction equipment from crossings these areas. To protect newly installed practice from any ongoing construction activities construct a single phase operation fence area.
Redevelopment projects	Soil restoration is required on redevelopment projects in areas where existing impervious area will be converted to pervious area	

* Aeration includes the use of machines such as tractor-drawn implements with coulters making a narrow slit in the soil, a roller with many spikes making indentations in the soil, or prongs which function like a mini-subsoiler.

** Per “Deep Ripping and De-compaction Guidelines”, NYSDEC 2008

7.0 EROSION AND SEDIMENT CONTROL MEASURES

Soil erosion and sediment control measures have been detailed on the plans and outlined herein. The following are general measures that should be implemented:

a. Damage to surface waters resulting from erosion and sedimentation shall be minimized by stabilizing disturbed areas and by removing sediment from construction site discharges.

b. Site preparation activities shall be planned to minimize the area and duration of soil disturbance. The plans approved for construction shall contain a detailed “Erosion Control Plan” which depicts the limits of grading along with the required earth cut and fill locations (including stockpile locations if necessary). In addition, any additional site-specific erosion control measures required are shown on the approved plans for construction. The following additional requirements shall be met upon receipt of such waiver:

- The required site inspections by the qualified inspector shall occur one (1) time every seven (7) days.

- In areas where disturbance has temporarily or permanently ceased, stabilization shall be implemented within seven (7) days from the ceasing of soil disturbance activity.

c. Permanent traffic corridors shall be established, and “routes of convenience” shall be avoided. Off-site sediment tracking shall be minimized through regularly scheduled sweeping and good housekeeping of construction vehicles.

d. A qualified professional shall inspect and log the erosion and sediment control measures once every seven days once earth disturbance has commenced and continue until the site has achieved final stabilization in accordance with the requirements. During times of possible inactivity (i.e. winter months), upon the site being temporarily stabilized, the professional shall perform inspections monthly. The professional shall make recommendations to the operator on how to maintain the integrity and function of all temporary erosion control measures throughout the duration of the development process. Any deficiencies in the measures shall be corrected as soon as possible by the operator.

e. An up-to-date Construction Site Log Book which includes this SWPPP for shall be maintained on site at all times during construction. The Construction Site Log Book shall also include the items found in the most recent version of the New York Standards and Specifications for Erosion and Sediment Control.

In particular, the following measures will be implemented:

a. Pre-Construction Installation: Prior to any disturbance on site, silt fence shall be installed in accordance with the approved plans in the area of the first phase. Prior to commencement of any subsequent phase, silt fence shall be installed in the proper phase in accordance with the approved plans. Siltation barriers shall be maintained in good condition and reinforced, extended, repaired or replaced as necessary.

b. Stone Diaphragms: Until such time as final site stabilization is completed, the stone diaphragm shown on the plans at the edge of pavement shall receive

treatment with stone as to effectively trap sediment and minimize its release off-site.

c. In no case shall erodible materials be stockpiled within 25 feet of any ditch, stream or other surface water body.

d. Permanent vegetative cover: Immediately following the completion of construction activity in any portion of the site, permanent vegetation shall be established on all exposed soils by properly seeding at a coverage rate as noted on the approved plans and covered with straw. Water shall be applied to newly seeded areas as needed until grass cover is well established.

e. Washouts shall be immediately repaired, reseeded and protected from further erosion. All accumulated sediment shall be removed and contained in appropriate spoil areas. To effectively control wind erosion, water shall be applied to all exposed soils as necessary.

8.0 LONG TERM MAINTENANCE OF WATER QUALITY FEATURES

Upon completion of the project, the stormwater facilities shall be owned and maintained by the property owner. The property owner shall be responsible for ensuring that the facilities operate and function as designed through proper maintenance as follows.

a. Regular inspection and maintenance of the proposed facilities are required to ensure their long-term water quality and quantity reduction functions.

b. All stormwater facilities and roadways with associated infrastructure are proposed to be located within lands to be owned by the property owner.

c. All side slopes within the stormwater facilities are a minimum of 3:1, to allow for maintenance.

d. Catch Basins:

   i. Basins shall be inspected for accumulated sediment and trash every 6 months.

   ii. Accumulated sediment and trash shall be removed from basins annually, or at more frequent intervals, if needed.

e. Forebay & Detention Pond

i. The grass within the pond should be mowed at least 3 times per growing season, limiting the grass to a height of no more than 12 inches.

ii. Sediment removal should be done at least every five years.

f. Infiltration Basin

i. The grass within the pond should be mowed at least 3 times per growing season, limiting the grass to a height of no more than 12 inches.

ii. Sediment removal should be done at least every five years.

g. Bio-Retention Facility

i. Sediment removal in the forebay shall occur every five to six years or after 50% of total forebay capacity has been lost.

ii. The grass embankments should be mowed at least 3 times per growing season, limiting the grass to a height of no more than 12".

iii. Silt/sediment shall be removed from the filter bed when the accumulation exceeds one inch. When the filtering capacity of the filter diminishes substantially (i.e., when water ponds on the surface of the filter bed for more than 48 hours), the top few inches of discolored material shall be removed and shall be replaced with fresh material. The removed sediments shall be disposed in an acceptable manner.

9.0 SUMMARY OF FINDINGS AND CONCLUSIONS

Based on the analysis of the pre-development and post-development stormwater conditions, and the implementation of stormwater quality and sediment and erosion control measures, the potential stormwater impacts of the Britain Woods project will be mitigated to the greatest extent practical.

a. Prevent increases in flooding and flood damage through the reduction of the rate of runoff from all areas.

b. Reduce the erosion potential from the development through the reduction of the rate of runoff from the project site and through the implementation of the soil and erosion control measures outlined on the project plans and as highlighted herein.

c. Decreases non-point source pollution and water quality degradation through the use of “green technologies”.

d. Those portions of the site which do not direct runoff into a stormwater management practice, will sheet flow through proposed lawn areas and through existing vegetative cover prior to discharging from the site.

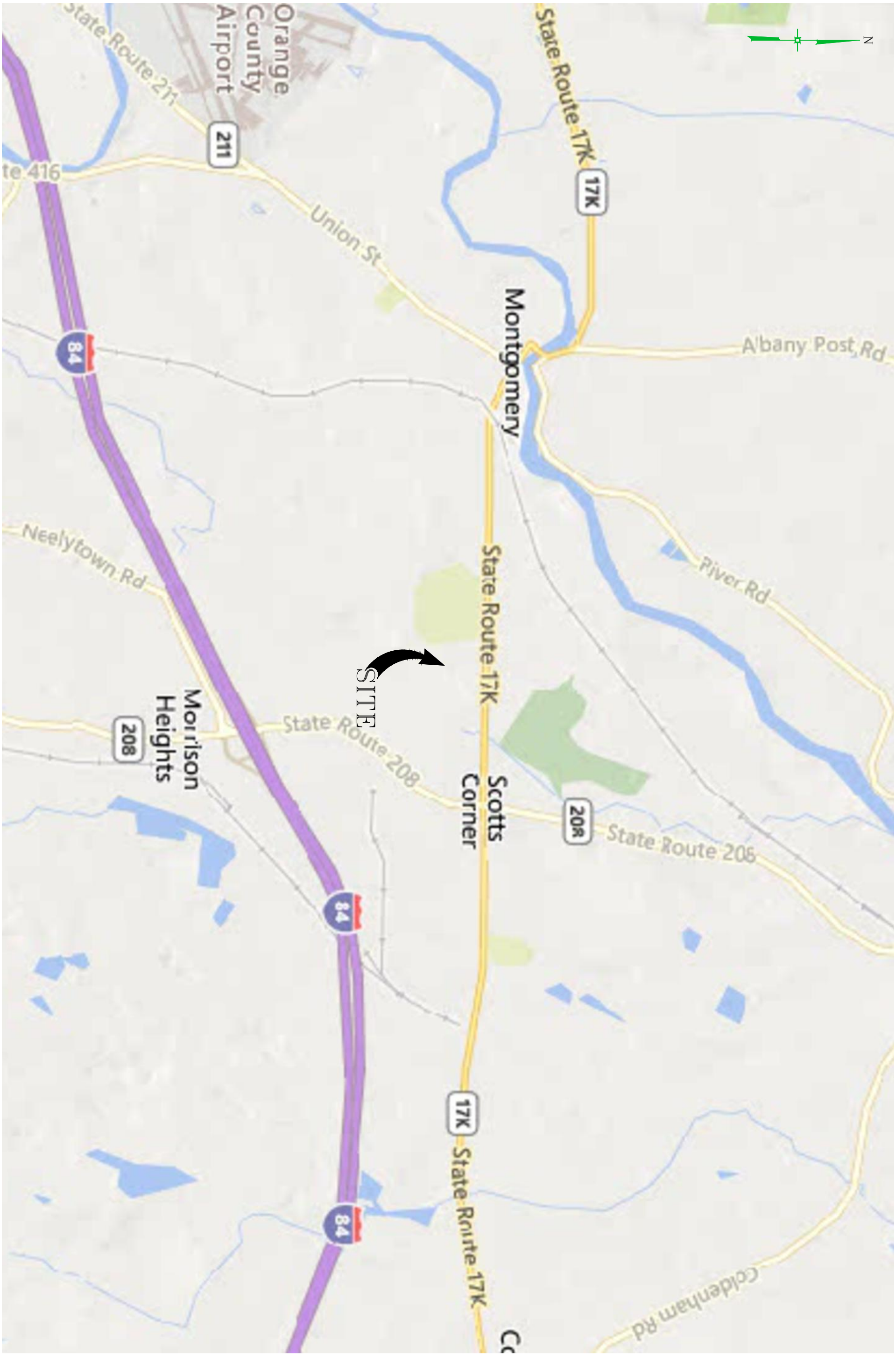
e. All criteria set forth in the New York State Stormwater Management Design Manual have been met.

f. Post-development peak discharge rates will be reduced below pre-development peak discharge rates, or their impacts minimized.

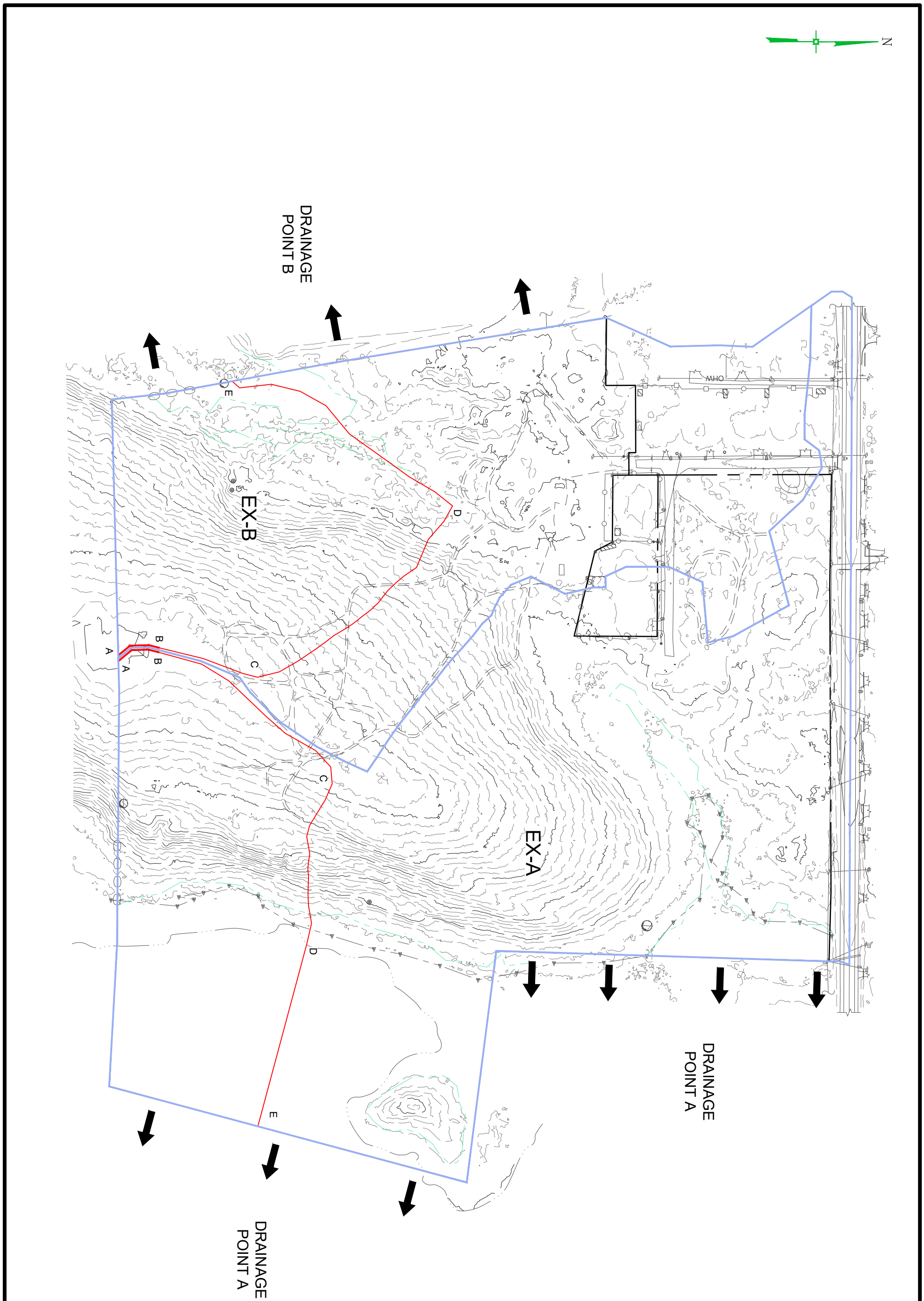
g. Sediment and erosion control measures are designed to minimize erosion loss and downstream sediment deposits.

APPENDIX 1

FIGURES



LOCATION MAP	SHEFFIELD GARDENS NYS ROUTE 17K TOWN OF MONTGOMERY ORANGE COUNTY, NEW YORK	DATE: JAN '24 SCALE: 1" = 2,000'	JOB # 103.0301 SHEET # SWM-1	ENGINEERING & SURVEYING PROPERTIES Achieving Successful Results with Innovative Designs MONTGOMERY OFFICE 71 CLINTON STREET MONTGOMERY, NY 12549 Ph: (845) 457-7727 WWW.EP-PC.COM



EXISTING DRAINAGE CONDITIONS	SHEFFIELD GARDENS NYS ROUTE 17K TOWN OF MONTGOMERY ORANGE COUNTY, NEW YORK	DATE: JAN '24 SCALE: 1" = 200'	JOB # 103.0301 SHEET # SWM-2	ENGINEERING & SURVEYING PROPERTIES Achieving Successful Results with Innovative Designs

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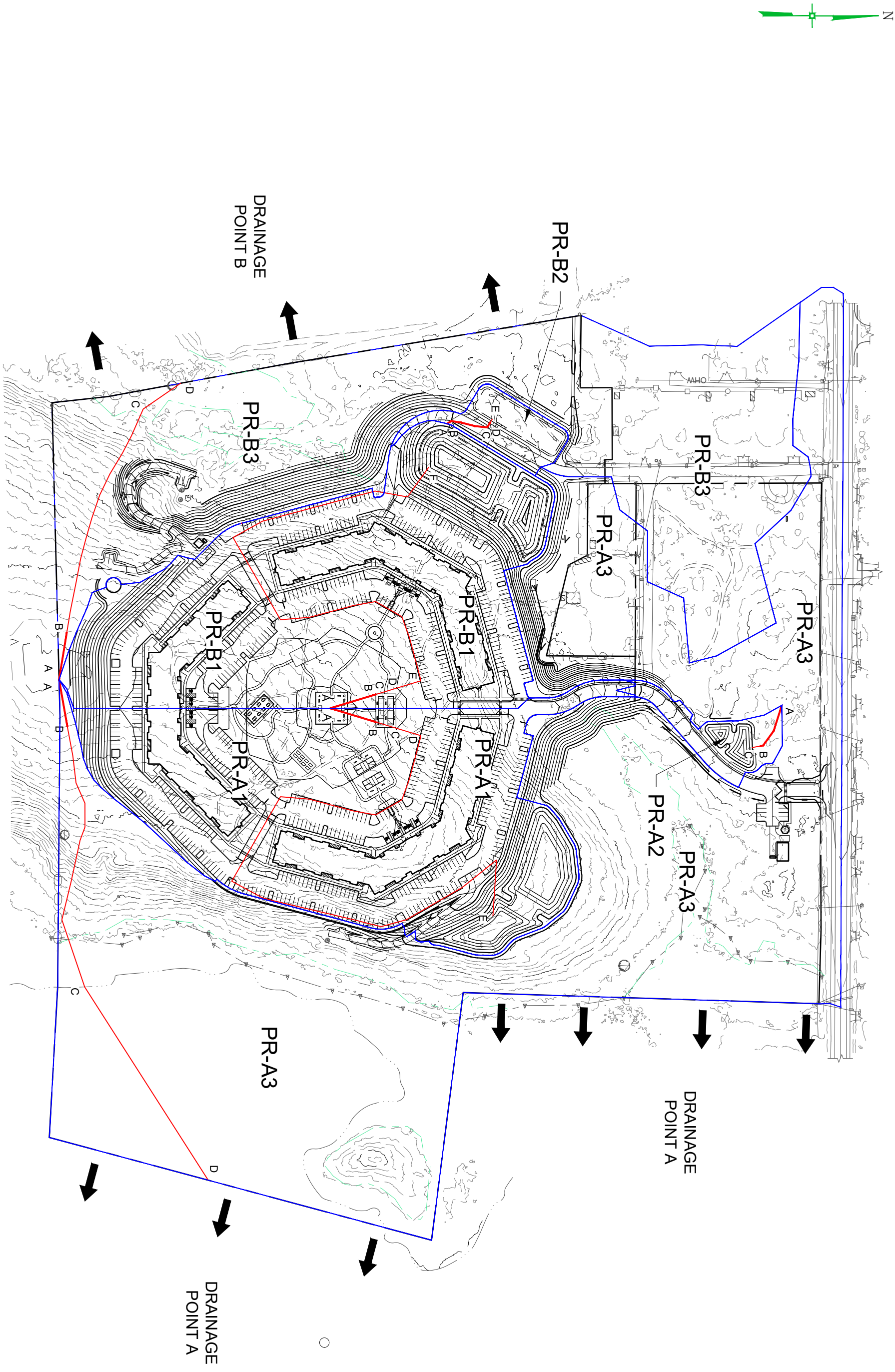

PROPOSED DRAINAGE CONDITIONS	SHEFFIELD GARDENS NYS ROUTE 17K TOWN OF MONTGOMERY ORANGE COUNTY, NEW YORK	DATE: JAN '24 SCALE: 1" = 200'	JOB # 103.0301 SHEET # SWM-3	ENGINEERING & SURVEYING PROPERTIES Achieving Successful Results with Innovative Designs	MONTGOMERY OFFICE 71 CLINTON STREET MONTGOMERY, NY 12549 Ph: (845) 457-7727 WWW.EP-PC.COM

GREEN INFRASTRUCTURE	SHEFFIELD GARDENS NYS ROUTE 17K TOWN OF MONTGOMERY ORANGE COUNTY, NEW YORK	DATE: JAN '24 SCALE: 1" = 200'	JOB # 103.0301 SHEET # SWM-4	ENGINEERING & SURVEYING PROPERTIES Achieving Successful Results with Innovative Designs

MONTGOMERY OFFICE
71 CLINTON STREET
MONTGOMERY, NY 12549
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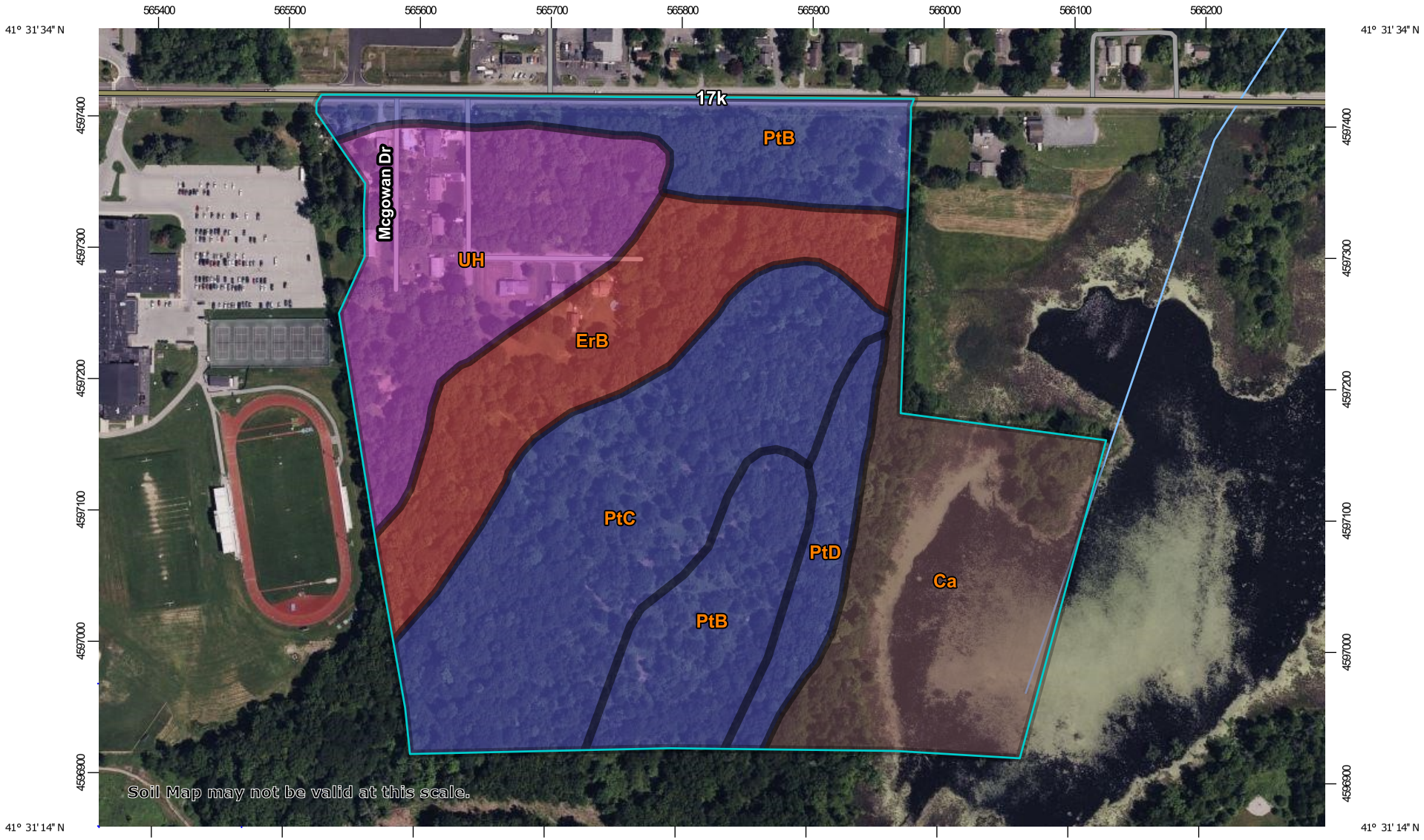
APPENDIX 2

SOILS MAP AND CLASSIFICATIONS

Hydrologic Soil Group—Orange County, New York
(SWPPP Soils)



Map Scale: 1:4,280 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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

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

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

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

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

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

Soil Survey Area: Orange County, New York
Survey Area Data: Version 24, Sep 6, 2023

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

Date(s) aerial images were photographed: May 31, 2022—Oct 27, 2022

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

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ca	Canandaigua silt loam	B/D	11.5	19.6%
ErB	Erie gravelly silt loam, 3 to 8 percent slopes	D	9.0	15.4%
PtB	Pittsfield gravelly loam, 3 to 8 percent slopes	B	10.5	18.0%
PtC	Pittsfield gravelly loam, 8 to 15 percent slopes	B	14.8	25.3%
PtD	Pittsfield gravelly loam, 15 to 25 percent slopes	B	2.7	4.7%
UH	Udorthents, smoothed	A	9.9	17.0%
Totals for Area of Interest			**58.4**	**100.0%**

Description

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

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

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

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

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

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

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

Rating Options

Aggregation Method: Dominant Condition

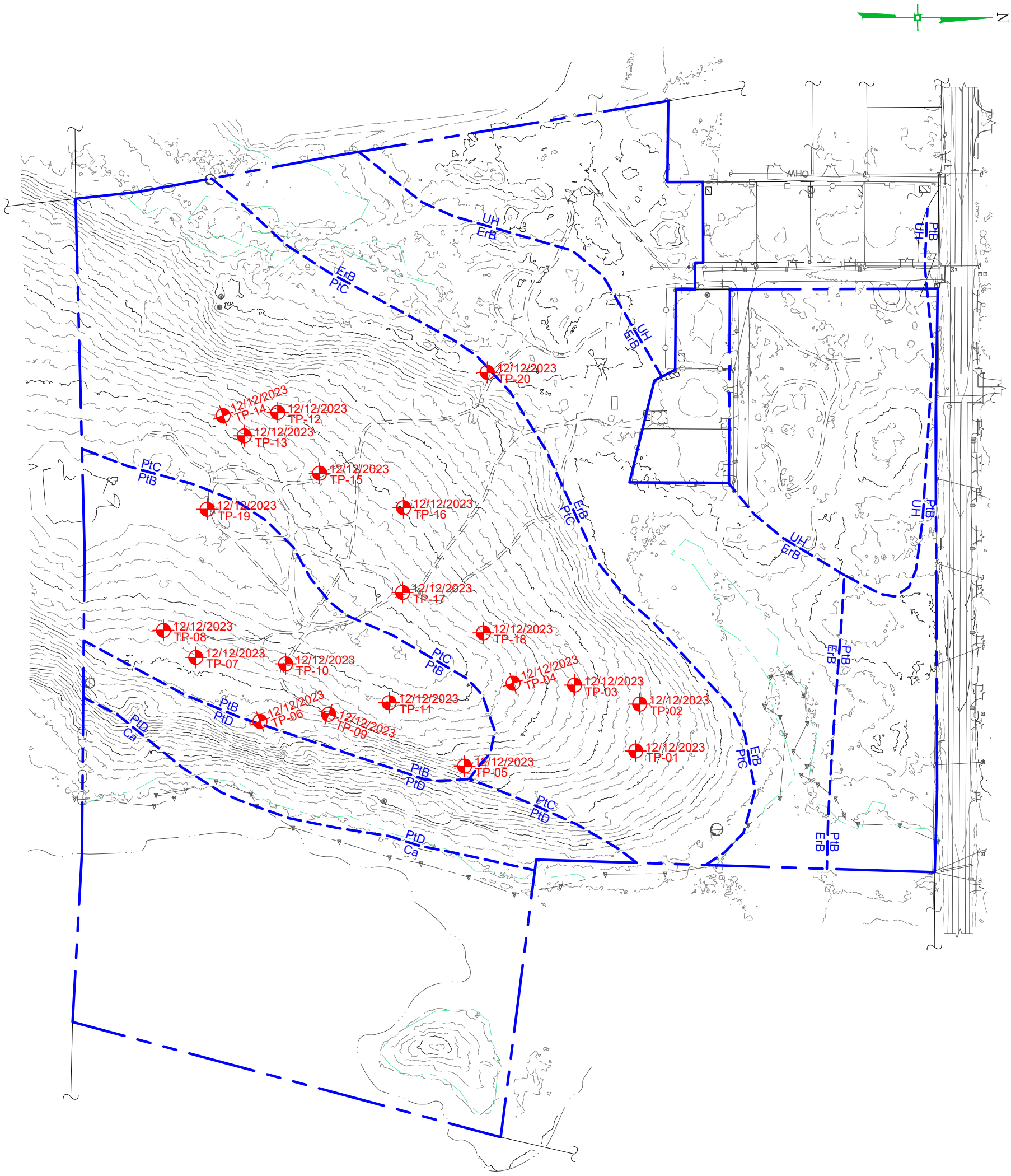
Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX 3

GEOTECHNICAL TEST

PIT DATA



SOIL TYPE	DEPTH TO BEDROCK	DEPTH TO WATER TABLE	EROSION FACTOR Kf	EROSION FACTOR Kw	PERCENT CLAY
Ca | CANANDAIGUA SILT LOAM	>200 CM	0 IN	0.49	0.49	22.2%
ErB | ERIE GRAVELLY SILT LOAM, 3 TO 8 PERCENT SLOPES	>200 CM	6 - 18 IN	0.32	0.20	22.0%
PtB | PITTSFIELD GRAVELLY LOAM, 3 TO 8 PERCENT SLOPES	>200 CM	> 80 IN	0.28	0.17	11.4%
PtC | PITTSFIELD GRAVELLY LOAM, 8 TO 15 PERCENT SLOPES	>200 CM	> 80 IN	0.28	0.17	11.3%
PtD | PITTSFIELD GRAVELLY LOAM, 15 TO 25 PERCENT SLOPES	>200 CM	> 80 IN	0.28	0.17	11.2%
UH | UDORTHENTS, SMOOTHED	>200 CM	36 - 72 IN	0.24	0.15	10.6%

SOIL TESTING LOCATIONS

SHEFFIELD GARDENS
NYS ROUTE 17K
TOWN OF MONTGOMERY
ORANGE COUNTY, NEW YORK

DATE: JAN '24
REV SEPT. '24

JOB # 103.0301

SCALE: 1" = 200'

SHEET # GT-1

ENGINEERING & SURVEYING PROPERTIES
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DEEP TEST PIT SOIL RESULTS

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**12/13/23**		**1**	**4**

PROJECT TITLE
Sheffield Gardens

LOCATION
NYS Route 17K, Montgomery, NY

CALCULATED BY
AK

APPROVED BY
RW

REF DRAWING(S)
Test Pit Locations 12-12-2023

Deep Test #	Depth	Soil Description
1 ~11:40am	0ft - 0.5ft	Topsoil
	0.5ft - 3ft	Tan Silty Clay Loam
	3ft - 11ft	Brown Silty Clay Loam
	11ft - 14ft	Brown Hard Silty Clay Loam
	Seepage	Seepage found at 7ft
2 ~11:40am	0ft - 0.5ft	Topsoil
	0.5ft - 5ft	Tan Silty Clay Loam
	5ft - 7ft	Brown Hard Silty Clay Loam
	Seepage	Seepage found at 5ft, large mottling at 5.5ft
3 ~11:40am	0ft - 0.5ft	Topsoil
	0.5ft - 4ft	Tan Silty Clay Loam
	Seepage	Seepage found at 1.5ft and below
4 ~12:00pm	0ft - 0.5ft	Topsoil
	0.5ft - 3ft	Tan Silty Clay Loam
	3ft - 9.5ft	Brown Hard Silty Clay Loam
	Seepage	Seepage found at 2ft, 3ft, and 6ft
5 ~12:20pm	0ft - 1ft	Topsoil
	1ft - 2ft	Tan Silty Clay Loam
	2ft - 4.5ft	Brown Hard Silty Clay Loam
	Seepage	Seepage found at 2ft
6 ~12:40pm	0ft - 0.5ft	Topsoil
	0.5ft - 2ft	Tan Silty Clay Loam
	2ft - 4.5ft	Brown Hard Silty Clay Loam
	Seepage	Seepage found at 1ft and below

Comments: Rocks 1 - 12" diameter commonly observed in hard clay layer.

No bedrock found. Mottling commonly found inside brown hard clay when broken. Clay would become harder with depth

Hardness of clay occassionally prevented from going deeper. Isolated G.W. seepage found in hard clay layer

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

DEEP TEST PIT SOIL RESULTS

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**12/13/23**		**2**	**4**

PROJECT TITLE
Sheffield Gardens

LOCATION
NYS Route 17K, Montgomery, NY

CALCULATED BY
AK

APPROVED BY
RW

REF DRAWING(S)
Test Pit Locations 12-12-2023

Deep Test #	Depth	Soil Description
7 ~1:10pm	0ft - 1ft 1ft - 3ft 3ft - 9.5ft Seepage	Topsoil Tan Silty Clay Loam Brown Hard Silty Clay Loam Groundwater found between 1ft - 5ft, mottling @ 3ft
8 ~1:55pm	0ft - 1ft 1ft - 4ft 4ft - 11ft Seepage	Topsoil Tan Silty Clay Loam Brown Hard Silty Clay Loam Groundwater found between 1ft - 4ft, mottling @ 4ft
9 ~2:25pm	0ft - 1ft 1ft - 4ft 4ft - 6.5ft Seepage	Topsoil Tan Silty Clay Loam Brown Hard Silty Clay Loam Groundwater found between 1ft - 4ft
10 ~3:00pm	0ft - 1ft 1ft - 3ft 3ft - 8ft 8ft - 11ft Seepage	Topsoil Tan Silty Clay Loam Brown Silty Clay Loam Brown Hard Silty Clay Loam Groundwater found between 1ft - 8ft
11 ~3:50pm	0ft - 1ft 1ft - 5ft 5ft - 13 Seepage	Topsoil Tan Silty Clay Loam Brown Hard Silty Clay Loam Groundwater seepage found between 1ft - 5ft

Comments: Rocks 1 - 12" diameter commonly observed in hard clay layer.

No bedrock found. Mottling commonly found inside brown hard clay when broken. Clay would become harder with depth

Hardness of clay occassionally prevented from going deeper. Isolated G.W. seepage found in hard clay layer

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

DEEP TEST PIT SOIL RESULTS

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**12/14/23**		**3**	**4**

PROJECT TITLE
Sheffield Gardens

LOCATION
NYS Route 17K, Montgomery, NY

CALCULATED BY
AK

APPROVED BY
RW

REF DRAWING(S)
Test Pit Locations 12-12-2023

Deep Test #	Depth	Soil Description
12 ~8:15am	0ft - 0.5ft	Topsoil
	0.5ft - 3ft	Tan Silty Clay Loam
	3ft - 5ft	Brown Hard Silty Clay Loam
	Seepage	Seepage found between 0.5ft - 3ft
13 ~8:25am	0ft - 1ft	Topsoil
	1ft - 3ft	Tan Silty Clay Loam
	3ft - 4.5ft	Brown Hard Silty Clay Loam
	Seepage	Seepage found between 1ft - 3ft
14 ~9:00am	0ft - 1ft	Topsoil
	1ft - 3ft	Tan Silty Clay Loam
	3ft - 10.5ft	Brown Hard Silty Clay Loam
	10.5ft - 11.5ft	Brown-Grey Hard Silty Clay Loam
	Seepage	Seepage found between 1ft - 11.5ft
15 ~9:45am	0ft - 1ft	Topsoil
	1ft - 3ft	Tan Silty Clay Loam
	3ft - 10.5ft	Brown Hard Silty Clay Loam
	Seepage	Seepage found between 1ft -7ft, mottling found at 7ft
16 ~10:15am	0ft - 1ft	Topsoil
	1ft - 3ft	Tan Silty Clay Loam
	3ft - 4.5ft	Brown Hard Silty Clay Loam
	Seepage	Seepage seepage found 1ft - 4.5ft
17 ~11:15am	0ft - 1ft	Topsoil
	1ft - 2.5ft	Tan Silty Clay Loam
	2.5ft - 12ft	Brown Hard Silty Clay Loam
	12ft - 13ft	Brown-Grey Hard Silty Clay Loam
	Seepage	Seepage found between 1ft - 7ft

Comments: Rocks 1 - 12" diameter commonly observed in hard clay layer.

No bedrock found. Mottling commonly found inside brown hard clay when broken. Clay would become harder with depth

Hardness of clay occassionally prevented from going deeper. Isolated G.W. seepage found in hard clay layer

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

DEEP TEST PIT SOIL RESULTS

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**12/14/23**		**4**	**4**

PROJECT TITLE
Sheffield Gardens

LOCATION
NYS Route 17K, Montgomery, NY

CALCULATED BY
AK

APPROVED BY
RW

REF DRAWING(S)
Test Pit Locations 12-12-2023

Deep Test #	Depth	Soil Description
18 ~11:40am	0ft - 1ft 1ft - 4ft 4ft - 10.5ft Seepage	Topsoil Tan Silty Clay Loam Brown Hard Silty Clay Loam Seepage found between 1ft - 7ft
19 ~12:20pm	0ft - 1ft 1ft - 3ft 3ft - 8ft Seepage	Topsoil Tan Silty Clay Loam Brown Hard Silty Clay Loam Seepage found between 1ft - 3ft
20 ~12:45pm	0ft - 1ft 1ft - 3ft 3ft - 6ft Seepage	Topsoil Tan Silty Clay Loam Brown Hard Silty Clay Loam Seepage found between 1ft - 3ft

Comments: Rocks 1 - 12" diameter commonly observed in hard clay layer.

No bedrock found. Mottling commonly found inside brown hard clay when broken. Clay would become harder with depth

Hardness of clay occassionally prevented from going deeper. Isolated G.W. seepage found in hard clay layer

APPENDIX 4

CURVE NUMBER

CALCULATIONS

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

CURVE NUMBER (CN) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**1**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

1. Runoff curve number (CN) [Existing] Proposed Subarea: **EX-A**

Soil Name & Hydrologic Group	Cover Description (cover type, treatment & conditions)	CN	Area (acres)	Product of CN x Area
	Impervious	98	1.115	109.27
A	Grass - Good Condition	39	0.233	9.09
B	Grass - Good Condition	61	0.394	24.03
D	Grass - Good Condition	80	0.301	24.08
A	Woods - Good Condition	30	2.111	63.33
B	Woods - Good Condition	55	3.154	173.47
D	Woods - Good Condition	77	22.105	1,702.09
	Water	98	5.905	578.69
		TOTAL =	35.32	2684.046

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{2684.046}{35.318}$$

CN (weighted) = 75.997 Use CN= **76**

2. Runoff S = 3.16

		Storm #1	*Storm #2*	*Storm #3*
Frequency	yr			
Rainfall, P	in			
Runoff, Q	in			

(Use P and CN with table 2-1, fig 2-1, or eqns. 2-3 and 2-4)

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

CURVE NUMBER (CN) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**2**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

1. Runoff curve number (CN) [Existing] Proposed Subarea: **EX-B**

Soil Name & Hydrologic Group	Cover Description (cover type, treatment & conditions)	CN	Area (acres)	Product of CN x Area
	Impervious	98	1.111	108.88
A	Grass - Good Condition	39	2.488	97.03
B	Grass - Good Condition	61	0.000	
D	Grass - Good Condition	80	0.461	36.88
A	Woods - Good Condition	30	5.012	150.36
B	Woods - Good Condition	55	0.000	
D	Woods - Good Condition	77	14.037	1,080.85
	Water	98	0.00	
		TOTAL =	23.11	1473.999

$$CN\ (weighted) = \frac{\text{total product}}{\text{total area}} = \frac{1473.999}{23.109}$$

CN (weighted) = 63.785 Use CN= **64**

2. Runoff S = 5.63

		Storm #1	*Storm #2*	*Storm #3*
Frequency	yr			
Rainfall, P	in			
Runoff, Q	in			

(Use P and CN with table 2-1, fig 2-1, or eqns. 2-3 and 2-4)

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

CURVE NUMBER (CN) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**3**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

1. Runoff curve number (CN) Existing [Proposed] Subarea: **PR-A1**

Soil Name & Hydrologic Group	Cover Description (cover type, treatment & conditions)	CN	Area (acres)	Product of CN x Area
	Impervious	98	5.218	511.36
A	Grass - Good Condition	39	0.000	
B	Grass - Good Condition	61	0.000	
D	Grass - Good Condition	80	3.783	302.64
A	Woods - Good Condition	30	0.000	
B	Woods - Good Condition	55	0.000	
D	Woods - Good Condition	77	0.006	0.46
	Water	98	0.000	
		TOTAL =	9.01	814.466

$$CN\ (weighted) = \frac{\text{total product}}{\text{total area}} = \frac{814.466}{9.007}$$

CN (weighted) = 90.426 Use CN= **90**

2. Runoff S = 1.11

		Storm #1	*Storm #2*	*Storm #3*
Frequency	yr			
Rainfall, P	in			
Runoff, Q	in			

(Use P and CN with table 2-1, fig 2-1, or eqns. 2-3 and 2-4)

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

CURVE NUMBER (CN) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**4**	**8**

PROJECT TITLE	LOCATION
Sheffield Gardens	**Town of Montgomery**

CALCULATED BY	APPROVED BY	REF DRAWING(S)
ZS	**RW**	

1. Runoff curve number (CN) Existing [Proposed] Subarea: **PR-A2**

Soil Name & Hydrologic Group	Cover Description (cover type, treatment & conditions)	CN	Area (acres)	Product of CN x Area
	Impervious	98	0.102	10.00
A	Grass - Good Condition	39	0.066	2.57
B	Grass - Good Condition	61	0.062	3.78
D	Grass - Good Condition	80	0.103	8.24
A	Woods - Good Condition	30	0.107	3.21
B	Woods - Good Condition	55	0.160	8.80
D	Woods - Good Condition	77	0.000	
	Water	98	0.000	
		TOTAL =	0.60	36.602

$$CN\ (weighted) = \frac{\text{total product}}{\text{total area}} = \frac{36.602}{0.6}$$

CN (weighted) = 61.003 Use CN= **61**

2. Runoff S = 6.39

		Storm #1	*Storm #2*	*Storm #3*
Frequency	yr			
Rainfall, P	in			
Runoff, Q	in			

(Use P and CN with table 2-1, fig 2-1, or eqns. 2-3 and 2-4)

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

CURVE NUMBER (CN) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**5**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

1. Runoff curve number (CN) Existing [Proposed] Subarea: **PR-A3**

Soil Name & Hydrologic Group	Cover Description (cover type, treatment & conditions)	CN	Area (acres)	Product of CN x Area
	Impervious	98	1.706	167.19
A	Grass - Good Condition	39	0.921	35.92
B	Grass - Good Condition	61	0.601	36.66
D	Grass - Good Condition	80	2.011	160.88
A	Woods - Good Condition	30	1.876	56.28
B	Woods - Good Condition	55	2.536	139.48
D	Woods - Good Condition	77	11.052	851.00
	Water	98	5.905	578.69
		TOTAL =	26.61	2026.102

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{2026.102}{26.608}$$

CN (weighted) = 76.146 Use CN= **76**

2. Runoff S = 3.16

		Storm #1	*Storm #2*	*Storm #3*
Frequency	yr			
Rainfall, P	in			
Runoff, Q	in			

(Use P and CN with table 2-1, fig 2-1, or eqns. 2-3 and 2-4)

ENGINEERING & SURVEYING PROPERTIES
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CURVE NUMBER (CN) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**6**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

1. Runoff curve number (CN) Existing [Proposed] Subarea: **PR-B1**

Soil Name & Hydrologic Group	Cover Description (cover type, treatment & conditions)	CN	Area (acres)	Product of CN x Area
	Impervious	98	4.900	480.20
A	Grass - Good Condition	39	0.110	4.29
B	Grass - Good Condition	61	0.000	
D	Grass - Good Condition	80	4.116	329.28
A	Woods - Good Condition	30	0.000	
B	Woods - Good Condition	55	0.000	
D	Woods - Good Condition	77	0.034	2.62
	Water	98	0.000	
		TOTAL =	9.16	816.388

$$CN\ (weighted) = \frac{\text{total product}}{\text{total area}} = \frac{816.388}{9.160}$$

CN (weighted) = 89.125 Use CN= **89**

2. Runoff S = 1.24

		Storm #1	*Storm #2*	*Storm #3*
Frequency	yr			
Rainfall, P	in			
Runoff, Q	in			

(Use P and CN with table 2-1, fig 2-1, or eqns. 2-3 and 2-4)

ENGINEERING & SURVEYING PROPERTIES
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CURVE NUMBER (CN) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**7**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

1. Runoff curve number (CN) Existing [Proposed] Subarea: **PR-B2**

Soil Name & Hydrologic Group	Cover Description (cover type, treatment & conditions)	CN	Area (acres)	Product of CN x Area
	Impervious	98	0.153	14.99
A	Grass - Good Condition	39	0.454	17.71
B	Grass - Good Condition	61	0.000	
D	Grass - Good Condition	80	0.003	0.24
A	Woods - Good Condition	30	0.000	
B	Woods - Good Condition	55	0.000	
D	Woods - Good Condition	77	0.000	
	Water	98	0.000	
		TOTAL =	0.61	32.94

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{32.94}{0.61}$$

CN (weighted) = 54.000 Use CN= **54**

2. Runoff S = 8.52

		Storm #1	*Storm #2*	*Storm #3*
Frequency	yr			
Rainfall, P	in			
Runoff, Q	in			

(Use P and CN with table 2-1, fig 2-1, or eqns. 2-3 and 2-4)

ENGINEERING & SURVEYING PROPERTIES
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CURVE NUMBER (CN) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**8**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

1. Runoff curve number (CN) Existing [Proposed] Subarea: **PR-B3**

Soil Name & Hydrologic Group	Cover Description (cover type, treatment & conditions)	CN	Area (acres)	Product of CN x Area
	Impervious	98	1.146	112.31
A	Grass - Good Condition	39	2.314	90.25
B	Grass - Good Condition	61	0.000	
D	Grass - Good Condition	80	1.495	119.60
A	Woods - Good Condition	30	3.817	114.51
B	Woods - Good Condition	55	0.000	
D	Woods - Good Condition	77	3.670	282.59
	Water	98	0.000	
		TOTAL =	12.44	719.254

$$\text{CN (weighted)} = \frac{\text{total product}}{\text{total area}} = \frac{719.254}{12.442}$$

CN (weighted) = 57.809 Use CN= **58**

2. Runoff S = 7.24

		Storm #1	*Storm #2*	*Storm #3*
Frequency	yr			
Rainfall, P	in			
Runoff, Q	in			

(Use P and CN with table 2-1, fig 2-1, or eqns. 2-3 and 2-4)

APPENDIX 5

TIME OF CONCENTRATION

CALCULATIONS

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

TIME OF CONCENTRATION (Tc) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**1**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

Existing / Proposed Area: **EX-A**

1. Sheet Flow

		Segment ID	A-B				
Surface Description (table 3-1)			Woods: L				
Manning's roughness coeff., 'n' (table 3-1)			0.40				
Flow length, L (total L ≤ 300 ft)	ft		100				
Two-year 24-hour rainfall, P_2	in		3.50				
Land Slope, s	ft/ft		0.018				
$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr		0.357				0.357

2. Shallow Concentrated Flow

		Segment ID	B-C	C-D	D-E		
Surface description (paved or unpaved)			Unpaved	Unpaved	Unpaved		
Flow length, L	ft		506.6	375.0	419.7		
Watercourse slope, s	ft/ft		0.016	0.135	0.010		
Average velocity, V (figure 3-1)	ft/s		2.028	5.928	1.613		
$T_t = \frac{L}{3600\,V}$	hr		0.069	0.018	0.072		0.159

3. Channel Flow

		Segment ID					
Cross sectional flow area, a	ft^2						
Wetted perimeter, p_w	ft						
Hydraulic radius, $r = a/p_w$	ft						
Channel slope, s	ft/ft						
Manning's roughness coefficient, n							
$V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$	ft/s						
Flow Length, L	ft						
$T_t = \frac{L}{3600\,V}$	hr						

Total Tc For Watershed or Subarea (Add Steps 6, 11, and 19) hr = 0.52

min = 31.20

ENGINEERING & SURVEYING PROPERTIES
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TIME OF CONCENTRATION (Tc) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**2**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

Existing | Proposed Area: **EX-B**

1. Sheet Flow

		Segment ID	A-B				
Surface Description (table 3-1)			Woods: L				
Manning's roughness coeff., 'n' (table 3-1)			0.40				
Flow length, L (total L ≤ 300 ft)	ft		100				
Two-year 24-hour rainfall, P_2	in		3.50				
Land Slope, s	ft/ft		0.018				
$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr		0.357				0.357

2. Shallow Concentrated Flow

		Segment ID	B-C	C-D	D-E		
Surface description (paved or unpaved)			Unpaved	Unpaved	Unpaved		
Flow length, L	ft		228.7	597.0	588.1		
Watercourse slope, s	ft/ft		0.013	0.082	0.009		
Average velocity, V (figure 3-1)	ft/s		1.840	4.628	1.488		
$T_t = \frac{L}{3600\,V}$	hr		0.035	0.036	0.110		0.180

3. Channel Flow

		Segment ID					
Cross sectional flow area, a	ft^2						
Wetted perimeter, p_w	ft						
Hydraulic radius, $r = a/p_w$	ft						
Channel slope, s	ft/ft						
Manning's roughness coefficient, n							
$V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$	ft/s						
Flow Length, L	ft						
$T_t = \frac{L}{3600\,V}$	hr						

Total Tc For Watershed or Subarea (Add Steps 6, 11, and 19) hr = 0.54

min = 32.40

ENGINEERING & SURVEYING PROPERTIES
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TIME OF CONCENTRATION (Tc) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**3**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

Existing | Proposed Area: **PR-A1**

1. Sheet Flow

		Segment ID: A-B				
Surface Description (table 3-1)		Grass: D				
Manning's roughness coeff., 'n' (table 3-1)		0.24				
Flow length, L (total L ≤ 300 ft)	ft	100				
Two-year 24-hour rainfall, P_2	in	3.50				
Land Slope, s	ft/ft	0.020				
$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.227				0.227

2. Shallow Concentrated Flow

		Segment ID: B-C	C-D			
Surface description (paved or unpaved)		Paved	Unpaved			
Flow length, L	ft	38.5	58.0			
Watercourse slope, s	ft/ft	0.020	0.020			
Average velocity, V (figure 3-1)	ft/s	2.875	2.282			
$T_t = \frac{L}{3600\,V}$	hr	0.004	0.007			0.011

3. Channel Flow

		Segment ID: D-E				
Cross sectional flow area, a	ft^2	1.23				
Wetted perimeter, p_w	ft	3.93				
Hydraulic radius, $r = a/p_w$	ft	0.31				
Channel slope, s	ft/ft	0.010				
Manning's roughness coefficient, n		0.035				
$V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$	ft/s	1.960				
Flow Length, L	ft	1,315.5				
$T_t = \frac{L}{3600\,V}$	hr	0.186				0.186

Total Tc For Watershed or Subarea (Add Steps 6, 11, and 19) **hr =** **0.42**

min = **25.20**

ENGINEERING & SURVEYING PROPERTIES
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TIME OF CONCENTRATION (Tc) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**4**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

Existing | Proposed Area: **PR-A2**

1. Sheet Flow

		Segment ID	A-B				
Surface Description (table 3-1)			Woods: L				
Manning's roughness coeff., 'n' (table 3-1)			0.40				
Flow length, L (total L ≤ 300 ft)	ft		100				
Two-year 24-hour rainfall, P_2	in		3.50				
Land Slope, s	ft/ft		0.039				
$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr		0.262				0.262

2. Shallow Concentrated Flow

		Segment ID	B-C				
Surface description (paved or unpaved)			Unpaved				
Flow length, L	ft		16.1				
Watercourse slope, s	ft/ft		0.111				
Average velocity, V (figure 3-1)	ft/s		5.375				
$T_t = \frac{L}{3600\,V}$	hr		0.001				0.001

3. Channel Flow

		Segment ID					
Cross sectional flow area, a	ft^2						
Wetted perimeter, p_w	ft						
Hydraulic radius, $r = a/p_w$	ft						
Channel slope, s	ft/ft						
Manning's roughness coefficient, n							
$V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$	ft/s						
Flow Length, L	ft						
$T_t = \frac{L}{3600\,V}$	hr						

Total Tc For Watershed or Subarea (Add Steps 6, 11, and 19) **hr =** **0.26**

min = **15.60**

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TIME OF CONCENTRATION (Tc) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**5**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

Existing | Proposed Area: **PR-A3**

1. Sheet Flow

		Segment ID	A-B				
Surface Description (table 3-1)			Woods: L				
Manning's roughness coeff., 'n' (table 3-1)			0.40				
Flow length, L (total L ≤ 300 ft)	ft		100				
Two-year 24-hour rainfall, P_2	in		3.50				
Land Slope, s	ft/ft		0.053				
$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr		0.232				0.232

2. Shallow Concentrated Flow

		Segment ID	B-C	C-D			
Surface description (paved or unpaved)			Unpaved	Unpaved			
Flow length, L	ft		561.7	478.1			
Watercourse slope, s	ft/ft		0.099	0.010			
Average velocity, V (figure 3-1)	ft/s		5.077	1.613			
$T_t = \frac{L}{3600\,V}$	hr		0.031	0.082			0.113

3. Channel Flow

		Segment ID					
Cross sectional flow area, a	ft^2						
Wetted perimeter, p_w	ft						
Hydraulic radius, $r = a/p_w$	ft						
Channel slope, s	ft/ft						
Manning's roughness coefficient, n							
$V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$	ft/s						
Flow Length, L	ft						
$T_t = \frac{L}{3600\,V}$	hr						

Total Tc For Watershed or Subarea (Add Steps 6, 11, and 19) **hr =** **0.34**

min = **20.40**

ENGINEERING & SURVEYING PROPERTIES
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TIME OF CONCENTRATION (Tc) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**6**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

Existing | Proposed — Area: **PR-B1**

1. Sheet Flow

		Segment ID: A-B				
Surface Description (table 3-1)		Grass: D				
Manning's roughness coeff., 'n' (table 3-1)		0.24				
Flow length, L (total L ≤ 300 ft)	ft	100				
Two-year 24-hour rainfall, P_2	in	3.50				
Land Slope, s	ft/ft	0.020				
$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.227				0.227

2. Shallow Concentrated Flow

		Segment ID: B-C	C-D	D-E		
Surface description (paved or unpaved)		Unpaved	Paved	Unpaved		
Flow length, L	ft	18.8	5.2	72.5		
Watercourse slope, s	ft/ft	0.020	0.020	0.020		
Average velocity, V (figure 3-1)	ft/s	2.282	2.875	2.282		
$T_t = \frac{L}{3600\,V}$	hr	0.002	0.001	0.009		0.012

3. Channel Flow

		Segment ID: E-F				
Cross sectional flow area, a	ft^2	1.23				
Wetted perimeter, p_w	ft	3.93				
Hydraulic radius, $r = a/p_w$	ft	0.31				
Channel slope, s	ft/ft	0.010				
Manning's roughness coefficient, n		0.035				
$V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$	ft/s	1.960				
Flow Length, L	ft	1,061.0				
$T_t = \frac{L}{3600\,V}$	hr	0.150				0.150

Total Tc For Watershed or Subarea (Add Steps 6, 11, and 19) hr = **0.39**

min = **23.40**

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TIME OF CONCENTRATION (Tc) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**7**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

Existing | Proposed Area: **PR-B2**

1. Sheet Flow

Segment ID		A-B	B-C	C-D		
Surface Description (table 3-1)		Grass: D	Paved	Grass: D		
Manning's roughness coeff., 'n' (table 3-1)		0.24	0.01	0.24		
Flow length, L (total L ≤ 300 ft)	ft	11	75	14		
Two-year 24-hour rainfall, P_2	in	3.50	3.50	3.50		
Land Slope, s	ft/ft	0.050	0.010	0.330		
$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.027	0.020	0.015		0.063

2. Shallow Concentrated Flow

Segment ID		D-E				
Surface description (paved or unpaved)		Unpaved				
Flow length, L	ft	7.0				
Watercourse slope, s	ft/ft	0.030				
Average velocity, V (figure 3-1)	ft/s	2.795				
$T_t = \frac{L}{3600\,V}$	hr	0.001				0.001

3. Channel Flow

Segment ID						
Cross sectional flow area, a	ft^2					
Wetted perimeter, p_w	ft					
Hydraulic radius, $r = a/p_w$	ft					
Channel slope, s	ft/ft					
Manning's roughness coefficient, n						
$V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$	ft/s					
Flow Length, L	ft					
$T_t = \frac{L}{3600\,V}$	hr					

Total Tc For Watershed or Subarea (Add Steps 6, 11, and 19) **hr =** **0.06**

Use a minimum of 6 min. **min =** **3.60**

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TIME OF CONCENTRATION (Tc) WORKSHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**8**	**8**

PROJECT TITLE: **Sheffield Gardens**
LOCATION: **Town of Montgomery**
CALCULATED BY: **ZS**
APPROVED BY: **RW**
REF DRAWING(S):

Existing | Proposed Area: **PR-B3**

1. Sheet Flow

		Segment ID: A-B				
Surface Description (table 3-1)		Woods: L				
Manning's roughness coeff., 'n' (table 3-1)		0.40				
Flow length, L (total L ≤ 300 ft)	ft	100				
Two-year 24-hour rainfall, P_2	in	3.50				
Land Slope, s	ft/ft	0.027				
$T_t = \frac{0.007\,(nL)^{0.8}}{P_2^{0.5}\,s^{0.4}}$	hr	0.303				0.303

2. Shallow Concentrated Flow

		Segment ID: B-C	C-D			
Surface description (paved or unpaved)		Unpaved	Unpaved			
Flow length, L	ft	495.3	94.8			
Watercourse slope, s	ft/ft	0.108	0.029			
Average velocity, V (figure 3-1)	ft/s	5.298	2.748			
$T_t = \frac{L}{3600\,V}$	hr	0.026	0.010			0.036

3. Channel Flow

		Segment ID				
Cross sectional flow area, a	ft^2					
Wetted perimeter, p_w	ft					
Hydraulic radius, $r = a/p_w$	ft					
Channel slope, s	ft/ft					
Manning's roughness coefficient, n						
$V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$	ft/s					
Flow Length, L	ft					
$T_t = \frac{L}{3600\,V}$	hr					

Total Tc For Watershed or Subarea (Add Steps 6, 11, and 19) **hr =** **0.34**

min = **20.40**

APPENDIX 6

WATER QUALITY VOLUME CALCULATIONS & RUNOFF REDUCTION VOLUME CALCULATIONS

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

WATER QUALITY VOLUME (WQ_v) CALCULATION SHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**	**Sept '24**	**1**	**2**

PROJECT TITLE	LOCATION
Sheffield Gardens	**Town of Montgomery**

CALCULATED BY	APPROVED BY	Stormwater Management Design Point Designation
ZS	**RW**	**PR-A**

$WQ_v = (P * R_v * A) / (12)$

Drainage Area	90% Rainfall Event # (**P**)	Total Drainage Area (**A**)	Total Impervious Area (**I**)	**R_v** (0.05 + 0.009*I%)	**WQ_v** Required (Ac-ft)	**WQv** Required (ft^3)
PR-A	1.40	36.215	5.984	0.199	0.840	36,590.4

HSG	**Area (Ac.)**	**%**	**S**
A	3.396	9%	0.55
B	4.315	12%	0.40
C	0.000	0%	0.30
D	28.504	79%	0.20

Minimum RRv = (P * 0.95 * S * I) / (12)

P = 1.40
S = 0.26
I = 5.98
$RR_{v\ MIN}$ **0.170** Ac-ft

Green Technology	**Implemented ?** Yes	**Implemented ?** No	Drainage Area Reduction	Contributing Drainage Area Reduction	Total Drainage Area Reduction	Total Impervious Area Reduction
Area Reduction Practices						
Conservation of Natural Areas	☐	☑	-	-	-	-
Sheet Flow to Riparian Buffers or Filter Strips	☐	☑	-	-	-	-
Tree Planting / Tree Box	☐	☑	-	-	-	-
		Subtotals			0.00	0.00

Revised WQ_v after Area Deductions	**P**	**A**	**I**	**R_v**	**WQ_v**	**$RR_{v\ AREA}$**
	1.40	36.22	5.98	0.199	0.840	**0.000**

Disconnection of Rooftop Runoff — Impervious Area Reduction: 0.00 Acres

Revised WQ_v after Impervious Disconnect	**P**	**A**	**I**	**R_v**	**WQ_v**	**$RR_{v\ IMP}$**
	1.40	36.22	5.98	0.199	0.840	**0.000**

Source Control WQ_v Treatment Practices	**Yes**	**No**	**WQ_v**	**$RR_{v\ SC}$***	**(A)** Reduction	**(I)** Reduction
Vegetated Open Swales	☐	☑	-	-	-	-
Rain Garden	☐	☑	-	-	-	-
Green Roof	☐	☑	-	-	-	-
Stormwater Planters	☐	☑	-	-	-	-
Rain Tanks / Cisterns	☐	☑	-	-	-	-
Porous Pavement	☐	☑	-	-	-	-
Standard SMP's with RRv Capacity						
Infiltration	☑	☐	0.615	0.615	9.01	5.36
Bio-Retention	☐	☑	-	-	-	-
Dry Swale (Open Channel)	☐	☑	-	-	-	-
		Subtotals	0.615	**0.615**	9.01	5.36

Is The Total **RR_v** ($RR_{v\ AREA}$ + $RR_{v\ IMP}$ + $RR_{v\ SC}$)	**0.615**	**≥ $RR_{v\ MIN}$?**	**0.170**	**YES**

WQ_v Required by Standard Practices	**P**	**A**	**I**	**R_v**	**WQ_v (Ac-ft)**	**WQ_v (ft^3)**
	1.40	27.21	0.63	0.071	0.224	9,776.3

** For Source Control (if used) RRv calculations see attached Green Technology RRv Calculation Sheets*

ENGINEERING & SURVEYING PROPERTIES
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RUNOFF REDUCTION VOLUME (RRv) CALCULATION SHEET

WO. NO.	DATE	REVISED	SHEET	OF
103.0301	**Jan '24**		**2**	**2**

PROJECT TITLE		LOCATION
Sheffield Gardens		**Town of Montgomery**
CALCULATED BY	APPROVED BY	Stormwater Management Design Point Designation
ZS	**RW**	**PR-A**

INFILTRATION PRACTICES

Requirement Checks	Yes	No	Notes:
Infiltration rate (k) $\geq$ 0.5"/$_{hr}$	☑	☐	
Pretreatment provided	☑	☐	
Design Complies with Required Elements of Practice	☑	☐	
Infiltration designed to exfiltrate through bottom of practice only?	☑	☐	

Drainage Area (Ac.)	9.007	
Impervious Area (Ac.)	5.358	
Rainfall Event # (P)	1.40	
Rv	0.585	
$WQv_{REQ'D}$	0.615	
A_t (ft^2)		Surface area of infiltration trench
d_t (ft)		depth of trench
n		porosity
V_t (ft^3)		Design Volume of Trench (WQ_v Provided)
$V_t > WQv_{REQ'D}$		
A_b (ft^2)	6,346.0	Surface area of infiltration basin
D_b (ft)	5	depth of basin
V_b (ft^3)	31,730.0	Design Volume of basin (WQ_v Provided)
V_b (ac-ft)	0.728	Design Volume of basin (WQ_v Provided)
$V_t > WQv_{REQ'D}$	**YES**	
RRv	0.615	

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

WATER QUALITY VOLUME (WQ_v) CALCULATION SHEET

WO. NO.	DATE	REVISED	SHEET	OF
1146.01	**Jan '24**	**Sept '24**	**1**	**2**

PROJECT TITLE	LOCATION
Sheffield Gardens	**Town of Montgomery**

CALCULATED BY	APPROVED BY	Stormwater Management Design Point Designation
ZS	**RW**	**PR-B**

$WQ_v = (P * R_v * A) / (12)$

Drainage Area	90% Rainfall Event # (**P**)	Total Drainage Area (**A**)	Total Impervious Area (**I**)	**R_v** (0.05 + 0.009*I%)	**WQ_v** Required (Ac-ft)	**WQv** Required (ft^3)
PR-B	1.40	22.212	5.322	0.266	0.688	29,969.3

HSG	**Area (Ac.)**	**%**	**S**
A	7.801	35%	0.55
B	0.002	0%	0.40
C	0.000	0%	0.30
D	14.409	65%	0.20

Minimum RRv = (P * 0.95 * S * I) / (12)

P =	1.40
S =	0.32
I =	5.32
$RR_{v\ MIN}$	**0.191** Ac-ft

Green Technology	**Implemented ?** Yes	**Implemented ?** No	Drainage Area Reduction	Contributing Drainage Area Reduction	Total Drainage Area Reduction	Total Impervious Area Reduction
Area Reduction Practices						
Conservation of Natural Areas	☐	☑	-	-	-	-
Sheet Flow to Riparian Buffers or Filter Strips	☐	☑	-	-	-	-
Tree Planting / Tree Box	☐	☑	-	-	-	-
		Subtotals			0.00	0.00

Revised WQ_v after Area Deductions	**P**	**A**	**I**	**R_v**	**WQ_v**	**$RR_{v\ AREA}$**
	1.40	22.21	5.32	0.266	0.688	**0.000**

Disconnection of Rooftop Runoff — Impervious Area Reduction: 0.00 Acres

Revised WQ_v after Impervious Disconnect	**P**	**A**	**I**	**R_v**	**WQ_v**	**$RR_{v\ IMP}$**
	1.40	22.21	5.32	0.266	0.688	**0.000**

Source Control WQ_v Treatment Practices	**Yes**	**No**	**WQ_v**	**$RR_{v\ SC}$***	**(A)** Reduction	**(I)** Reduction
Vegetated Open Swales	☐	☑	-	-	-	-
Rain Garden	☐	☑	-	-	-	-
Green Roof	☐	☑	-	-	-	-
Stormwater Planters	☐	☑	-	-	-	-
Rain Tanks / Cisterns	☐	☑	-	-	-	-
Porous Pavement	☐	☑	-	-	-	-
Standard SMP's with RRv Capacity						
Infiltration	☐	☑	-	-	-	-
Bio-Retention	☑	☐	0.588	0.588	9.77	5.05
Dry Swale (Open Channel)	☐	☑	-	-	-	-
		Subtotals	0.588	**0.588**	9.77	5.05

Is The Total **RR_v** ($RR_{v\ AREA}$ + $RR_{v\ IMP}$ + $RR_{v\ SC}$)	**0.588**	**≥ $RR_{v\ MIN}$?**	**0.191**	**YES**

WQ_v Required by Standard Practices	**P**	**A**	**I**	**R_v**	**WQ_v (Ac-ft)**	**WQ_v (ft^3)**
	1.40	12.44	0.27	0.069	0.101	4,393.4

** For Source Control (if used) RRv calculations see attached Green Technology RRv Calculation Sheets*

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

RUNOFF REDUCTION VOLUME (RRv) CALCULATION SHEET

WO. NO.	DATE	REVISED	SHEET	OF
1146.01	**Jan '24**		**2**	**2**

PROJECT TITLE		LOCATION
Sheffield Gardens		**Town of Montgomery**
CALCULATED BY	APPROVED BY	Stormwater Management Design Point Designation
ZS	**RW**	**PR-B**

BIO-RETENTION

Requirement Checks	Yes	No	Notes:
Runoff enters as sheet flow or through a dissipator	☐	☐	
Pretreatment provided	☐	☐	
Design Complies with Required Elements of Practice	☐	☐	
Infiltration designed to exfiltrate through bottom of practice only?	☐	☐	

Drainage Area (Ac.)	9.770	
Impervious Area (Ac.)	5.053	
Rainfall Event # (P)	1.40	
Rv	0.515	
$WQv_{REQ'D}$	0.588	
A_f (ft^2)	9,610.0	Surface area of filter bed
d_t (ft)	2.5	depth of filter bed
k (ft/day)	1.0	coefficient of permability of filter media
h_f (ft)	1.00	average height of water above filter bed
t_f (days)	2.00	design filter bed drain time
V_f (ft^3)	26,908.0	Design volume of filter (WQ_v Provided)
$V_f > WQv_{REQ'D}$	**YES**	
HSG Soil Classification	A	

RRv Reduction Allowance

Soil Group A or B	100%
Soil Group C or D	40%

RRv	0.588

APPENDIX 7

HYDROGRAPH SUMMARIES & DIAGRAMS

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point

Smoothing	Yes
State	New York
Location	New York, United States
Latitude	41.523 degrees North
Longitude	74.211 degrees West
Elevation	120 feet
Date/Time	Wed Dec 06 2023 08:27:24 GMT-0500 (Eastern Standard Time)

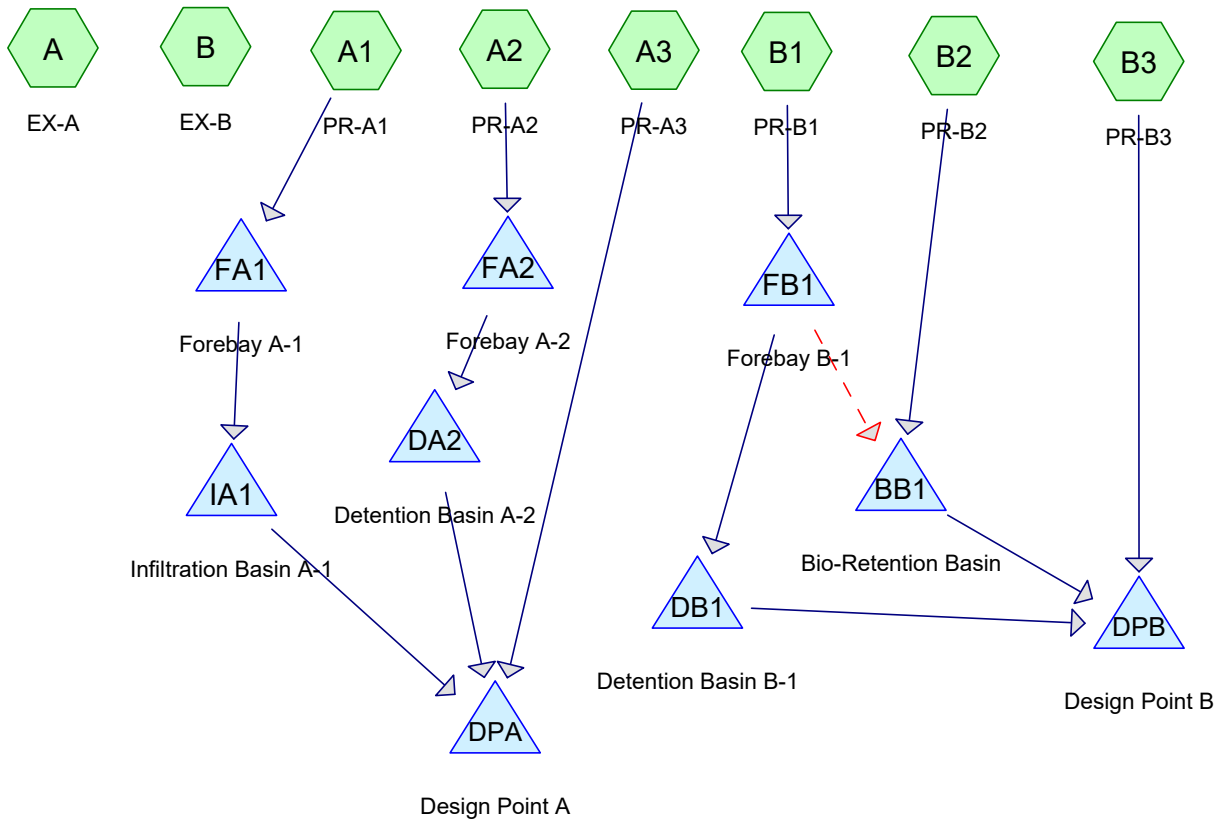
Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.32	0.50	0.62	0.81	1.01	1.26	**1yr**	0.87	1.18	1.44	1.76	2.15	2.62	3.03	**1yr**	2.32	2.91	3.37	4.01	4.66	**1yr**
2yr	0.39	0.60	0.74	0.98	1.23	1.53	**2yr**	1.06	1.42	1.75	2.14	2.61	3.17	3.61	**2yr**	2.80	3.47	3.98	4.68	5.33	**2yr**
5yr	0.45	0.71	0.89	1.19	1.52	1.91	**5yr**	1.31	1.76	2.20	2.70	3.28	3.96	4.56	**5yr**	3.50	4.38	5.01	5.76	6.53	**5yr**
10yr	0.51	0.80	1.01	1.38	1.79	2.27	**10yr**	1.54	2.06	2.61	3.21	3.89	4.69	5.44	**10yr**	4.15	5.23	5.97	6.75	7.62	**10yr**
25yr	0.59	0.95	1.20	1.67	2.22	2.84	**25yr**	1.92	2.55	3.29	4.04	4.90	5.87	6.88	**25yr**	5.19	6.61	7.53	8.32	9.36	**25yr**
50yr	0.67	1.08	1.39	1.95	2.62	3.37	**50yr**	2.26	3.00	3.91	4.81	5.82	6.96	8.22	**50yr**	6.16	7.90	8.99	9.75	10.94	**50yr**
100yr	0.77	1.24	1.60	2.27	3.09	4.01	**100yr**	2.67	3.52	4.66	5.74	6.93	8.25	9.83	**100yr**	7.30	9.45	10.73	11.44	12.80	**100yr**
200yr	0.87	1.42	1.84	2.64	3.65	4.77	**200yr**	3.15	4.15	5.55	6.83	8.24	9.80	11.76	**200yr**	8.67	11.30	12.83	13.43	14.98	**200yr**
500yr	1.04	1.72	2.24	3.26	4.56	5.99	**500yr**	3.94	5.15	6.99	8.61	10.38	12.30	14.91	**500yr**	10.89	14.34	16.25	16.61	18.47	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.45	0.55	0.74	0.91	1.08	**1yr**	0.79	1.05	1.23	1.54	1.98	2.21	2.47	**1yr**	1.96	2.38	3.00	3.63	3.93	**1yr**
2yr	0.37	0.58	0.71	0.96	1.18	1.41	**2yr**	1.02	1.38	1.60	2.05	2.56	3.05	3.48	**2yr**	2.70	3.35	3.83	4.51	5.15	**2yr**
5yr	0.42	0.64	0.80	1.10	1.39	1.64	**5yr**	1.20	1.60	1.86	2.38	2.99	3.60	4.13	**5yr**	3.19	3.97	4.56	5.25	6.00	**5yr**
10yr	0.46	0.71	0.88	1.22	1.58	1.83	**10yr**	1.36	1.79	2.08	2.67	3.36	4.07	4.70	**10yr**	3.61	4.52	5.21	5.88	6.73	**10yr**
25yr	0.52	0.80	0.99	1.42	1.87	2.11	**25yr**	1.61	2.06	2.40	3.09	3.89	4.80	5.57	**25yr**	4.25	5.35	6.18	6.86	7.91	**25yr**
50yr	0.58	0.88	1.10	1.58	2.12	2.35	**50yr**	1.83	2.29	2.68	3.47	4.37	5.43	6.35	**50yr**	4.80	6.10	7.08	7.72	8.97	**50yr**
100yr	0.65	0.98	1.22	1.77	2.42	2.62	**100yr**	2.09	2.56	3.01	3.90	4.92	6.14	7.25	**100yr**	5.43	6.97	8.12	8.82	10.20	**100yr**
200yr	0.72	1.09	1.38	2.00	2.79	2.91	**200yr**	2.40	2.85	3.36	4.41	5.53	6.90	8.29	**200yr**	6.11	7.97	9.33	10.02	11.63	**200yr**
500yr	0.85	1.26	1.62	2.36	3.36	3.37	**500yr**	2.90	3.30	3.91	5.18	6.50	8.06	9.93	**500yr**	7.14	9.55	11.24	11.89	13.93	**500yr**

Upper Confidence Limits



Subcat Reach Pond Link

Routing Diagram for 103.0301 - Hydrographs
Prepared by Engineering Surveying Properties, Printed 9/18/2024

Events for Subcatchment A: EX-A

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-YR	2.62	14.07	2.261	0.77
10-YR	4.69	45.25	6.718	2.28
100-YR	8.25	106.56	15.852	5.39
500-YR	**12.30**	**178.28**	**27.027**	**9.18**

Events for Subcatchment A1: PR-A1

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-YR	2.62	9.29	1.230	1.64
10-YR	4.69	19.75	2.686	3.58
100-YR	8.25	37.53	5.293	7.05
500-YR	**12.30**	**57.43**	**8.302**	**11.06**

Events for Subcatchment A2: PR-A2

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-YR	2.62	0.04	0.012	0.23
10-YR	4.69	0.51	0.059	1.19
100-YR	8.25	1.72	0.182	3.64
500-YR	**12.30**	**3.32**	**0.349**	**6.98**

Events for Subcatchment A3: PR-A3

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-YR	2.62	13.28	1.704	0.77
10-YR	4.69	42.39	5.061	2.28
100-YR	8.25	99.59	11.942	5.39
500-YR	**12.30**	**166.45**	**20.362**	**9.18**

Events for Subcatchment B: EX-B

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-YR	2.62	2.18	0.605	0.31
10-YR	4.69	16.23	2.663	1.38
100-YR	8.25	50.40	7.668	3.98
500-YR	**12.30**	**94.55**	**14.315**	**7.43**

Events for Subcatchment B1: PR-B1

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-YR	2.62	9.32	1.191	1.56
10-YR	4.69	20.29	2.653	3.48
100-YR	8.25	39.04	5.292	6.93
500-YR	**12.30**	**60.03**	**8.345**	**10.93**

Events for Subcatchment B2: PR-B2

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-YR	2.62	0.01	0.005	0.09
10-YR	4.69	0.41	0.039	0.78
100-YR	8.25	1.90	0.145	2.84
500-YR	**12.30**	**4.00**	**0.299**	**5.87**

Events for Subcatchment B3: PR-B3

Event	Rainfall (inches)	Runoff (cfs)	Volume (acre-feet)	Depth (inches)
1-YR	2.62	0.32	0.169	0.16
10-YR	4.69	7.26	1.039	1.00
100-YR	8.25	28.16	3.416	3.29
500-YR	**12.30**	**56.68**	**6.748**	**6.51**

Events for Pond BB1: Bio-Retention Basin

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-YR	0.53	0.47	403.81	8,394
10-YR	1.03	0.56	403.82	8,481
100-YR	2.78	1.03	403.85	8,850
500-YR	**4.99**	**3.58**	**403.98**	**10,293**

Events for Pond DA2: Detention Basin A-2

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-YR	0.00	0.00	394.00	0
10-YR	0.04	0.00	395.67	794
100-YR	1.62	0.30	396.77	1,959
500-YR	**3.31**	**2.51**	**397.34**	**2,814**

Events for Pond DB1: Detention Basin B-1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-YR	0.60	0.00	399.16	4,098
10-YR	17.74	0.45	405.04	54,382
100-YR	36.50	18.14	406.04	68,994
500-YR	**57.14**	**21.00**	**408.52**	**114,148**

Events for Pond DPA: Design Point A

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
1-YR	13.28	13.28	**0.00**	**0.000**
10-YR	42.39	42.39	0.00	0.000
100-YR	99.59	99.59	0.00	0.000
500-YR	**184.91**	**184.91**	0.00	0.000

Events for Pond DPB: Design Point B

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (acre-feet)
1-YR	0.60	0.60	**0.00**	**0.000**
10-YR	7.26	7.26	0.00	0.000
100-YR	38.51	38.51	0.00	0.000
500-YR	**78.55**	**78.55**	0.00	0.000

Events for Pond FA1: Forebay A-1

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-YR	9.29	0.89	408.09	36,190
10-YR	19.75	17.70	408.60	41,431
100-YR	37.53	36.38	408.95	45,103
500-YR	**57.43**	**56.18**	**409.21**	**48,139**

Events for Pond FA2: Forebay A-2

Event	Inflow (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-YR	0.04	0.00	396.28	507
10-YR	0.51	0.04	398.01	1,800
100-YR	1.72	1.62	398.13	1,935
500-YR	**3.32**	**3.31**	**398.21**	**2,023**

Events for Pond FB1: Forebay B-1

Event	Inflow (cfs)	Outflow (cfs)	Primary (cfs)	Secondary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-YR	9.32	1.13	0.60	0.52	408.06	31,264
10-YR	20.29	18.63	17.74	0.89	408.63	37,033
100-YR	39.04	37.56	36.50	1.06	409.01	41,114
500-YR	**60.03**	**58.33**	**57.14**	**1.19**	**409.33**	**44,728**

Events for Pond IA1: Infiltration Basin A-1

Event	Inflow (cfs)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Elevation (feet)	Storage (cubic-feet)
1-YR	0.89	0.17	0.17	0.00	403.69	12,807
10-YR	17.70	0.98	0.43	0.55	407.12	53,880
100-YR	36.38	16.46	0.54	15.92	408.36	74,465
500-YR	**56.18**	**68.20**	**6.14**	**62.06**	**488.12**	**106,749**

APPENDIX 8

1-YEAR DESIGN STORM HYDROGRAPHS

Time span=1.00-48.00 hrs, dt=0.01 hrs, 4701 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentA: EX-A Runoff Area=35.318 ac 19.88% Impervious Runoff Depth=0.77"
Tc=31.2 min CN=76 Runoff=14.07 cfs 2.261 af

SubcatchmentA1: PR-A1 Runoff Area=9.007 ac 57.93% Impervious Runoff Depth=1.64"
Tc=25.2 min CN=90 Runoff=9.29 cfs 1.230 af

SubcatchmentA2: PR-A2 Runoff Area=0.600 ac 17.00% Impervious Runoff Depth=0.23"
Tc=15.6 min CN=61 Runoff=0.04 cfs 0.012 af

SubcatchmentA3: PR-A3 Runoff Area=26.608 ac 28.60% Impervious Runoff Depth=0.77"
Tc=20.4 min CN=76 Runoff=13.28 cfs 1.704 af

SubcatchmentB: EX-B Runoff Area=23.109 ac 4.81% Impervious Runoff Depth=0.31"
Tc=32.4 min CN=64 Runoff=2.18 cfs 0.605 af

SubcatchmentB1: PR-B1 Runoff Area=9.160 ac 53.49% Impervious Runoff Depth=1.56"
Tc=23.4 min CN=89 Runoff=9.32 cfs 1.191 af

SubcatchmentB2: PR-B2 Runoff Area=0.610 ac 25.08% Impervious Runoff Depth=0.09"
Tc=6.0 min CN=54 Runoff=0.01 cfs 0.005 af

SubcatchmentB3: PR-B3 Runoff Area=12.442 ac 9.21% Impervious Runoff Depth=0.16"
Tc=20.4 min CN=58 Runoff=0.32 cfs 0.169 af

Pond BB1: Bio-Retention Basin Peak Elev=403.81' Storage=8,394 cf Inflow=0.53 cfs 0.498 af
Outflow=0.47 cfs 0.320 af

Pond DA2: Detention Basin A-2 Peak Elev=394.00' Storage=0 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond DB1: Detention Basin B-1 Peak Elev=399.16' Storage=4,098 cf Inflow=0.60 cfs 0.094 af
Outflow=0.00 cfs 0.000 af

Pond DPA: Design Point A Inflow=13.28 cfs 1.704 af
Primary=13.28 cfs 1.704 af

Pond DPB: Design Point B Inflow=0.60 cfs 0.489 af
Primary=0.60 cfs 0.489 af

Pond FA1: Forebay A-1 Peak Elev=408.09' Storage=36,190 cf Inflow=9.29 cfs 1.230 af
Outflow=0.89 cfs 0.419 af

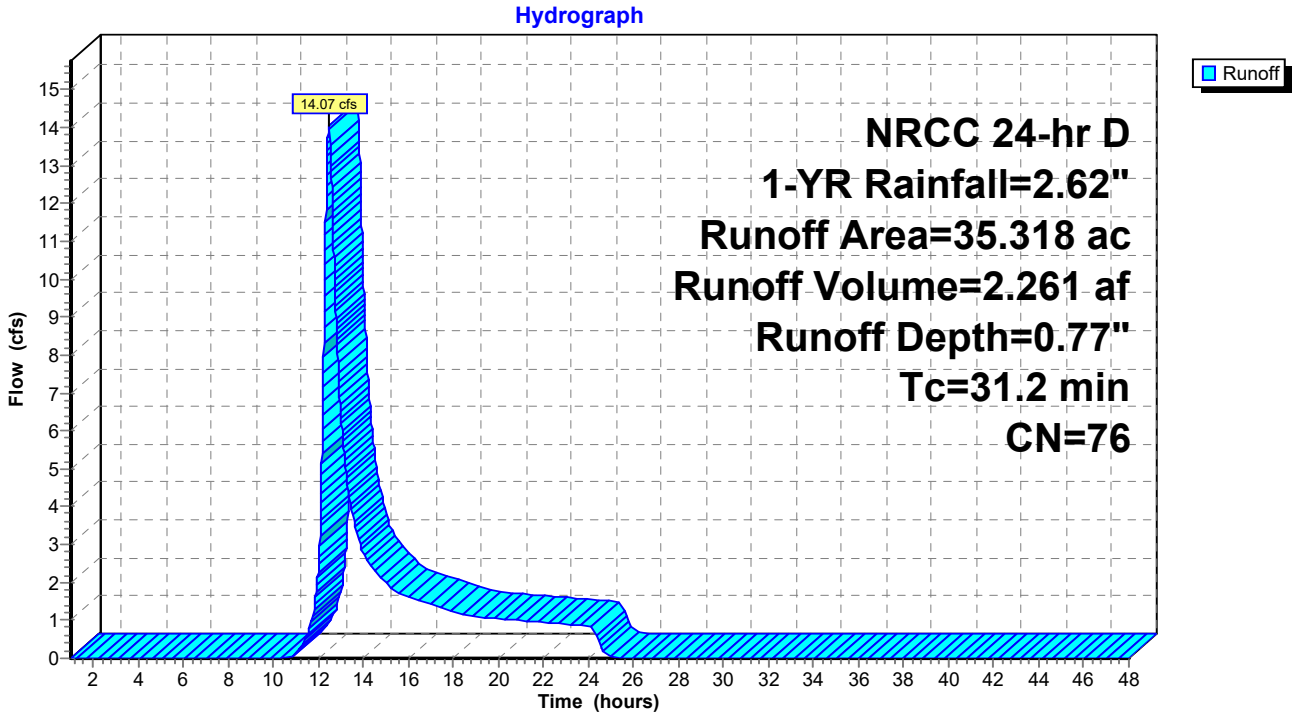
Pond FA2: Forebay A-2 Peak Elev=396.28' Storage=507 cf Inflow=0.04 cfs 0.012 af
Outflow=0.00 cfs 0.000 af

Pond FB1: Forebay B-1 Peak Elev=408.06' Storage=31,264 cf Inflow=9.32 cfs 1.191 af
Primary=0.60 cfs 0.094 af Secondary=0.52 cfs 0.493 af Outflow=1.13 cfs 0.587 af

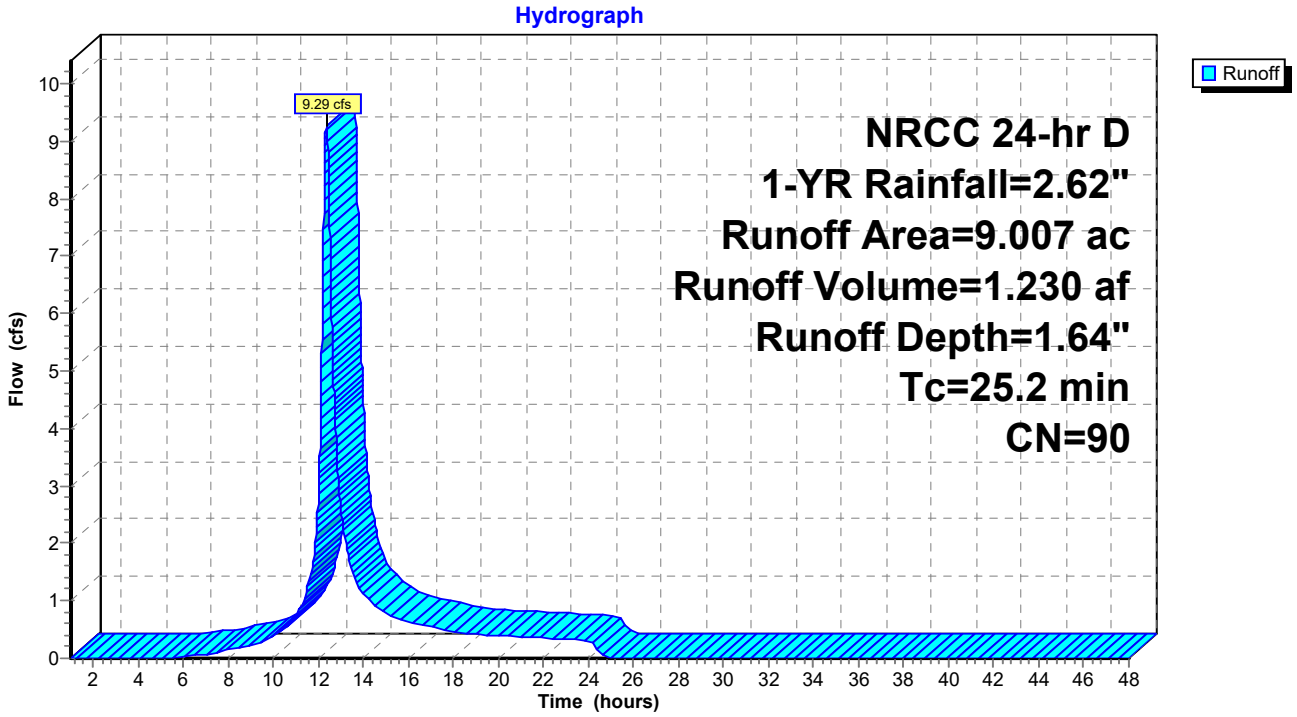
Pond IA1: Infiltration Basin A-1 Peak Elev=403.69' Storage=12,807 cf Inflow=0.89 cfs 0.419 af
Discarded=0.17 cfs 0.370 af Primary=0.00 cfs 0.000 af Outflow=0.17 cfs 0.370 af

Total Runoff Area = 116.854 ac Runoff Volume = 7.175 af Average Runoff Depth = 0.74"
76.67% Pervious = 89.593 ac 23.33% Impervious = 27.261 ac

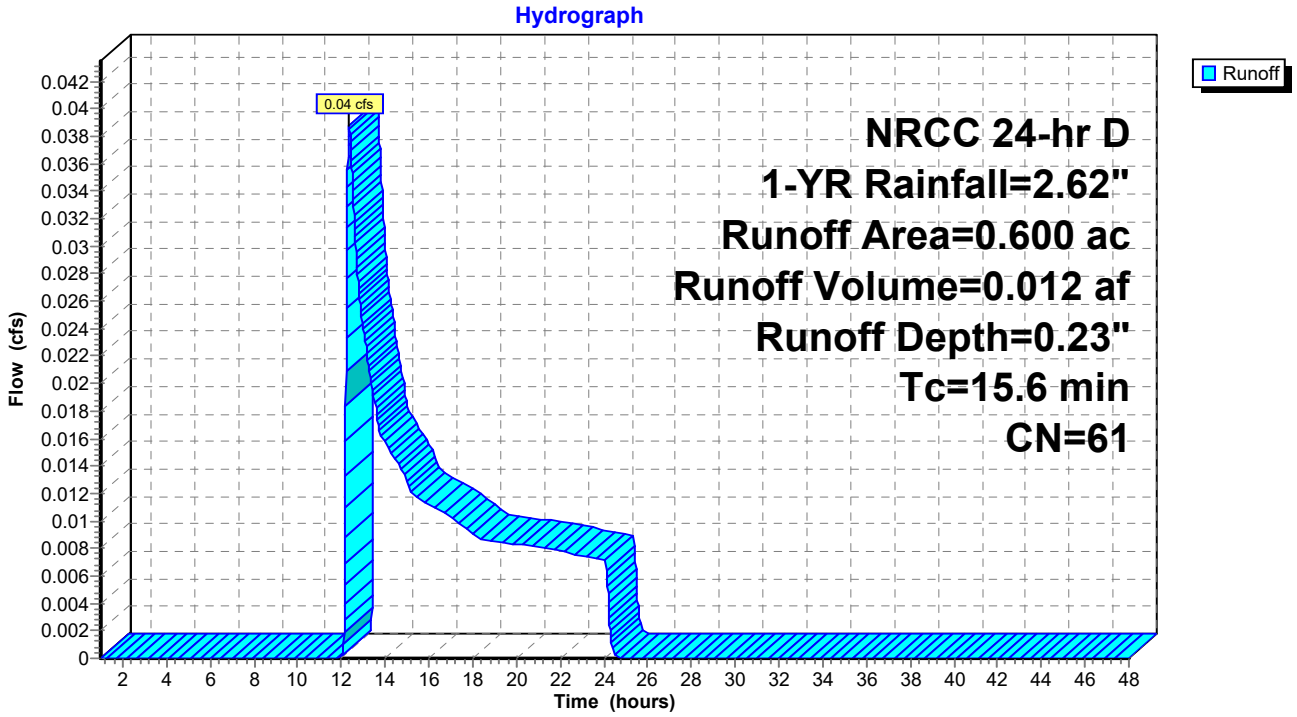
Subcatchment A: EX-A



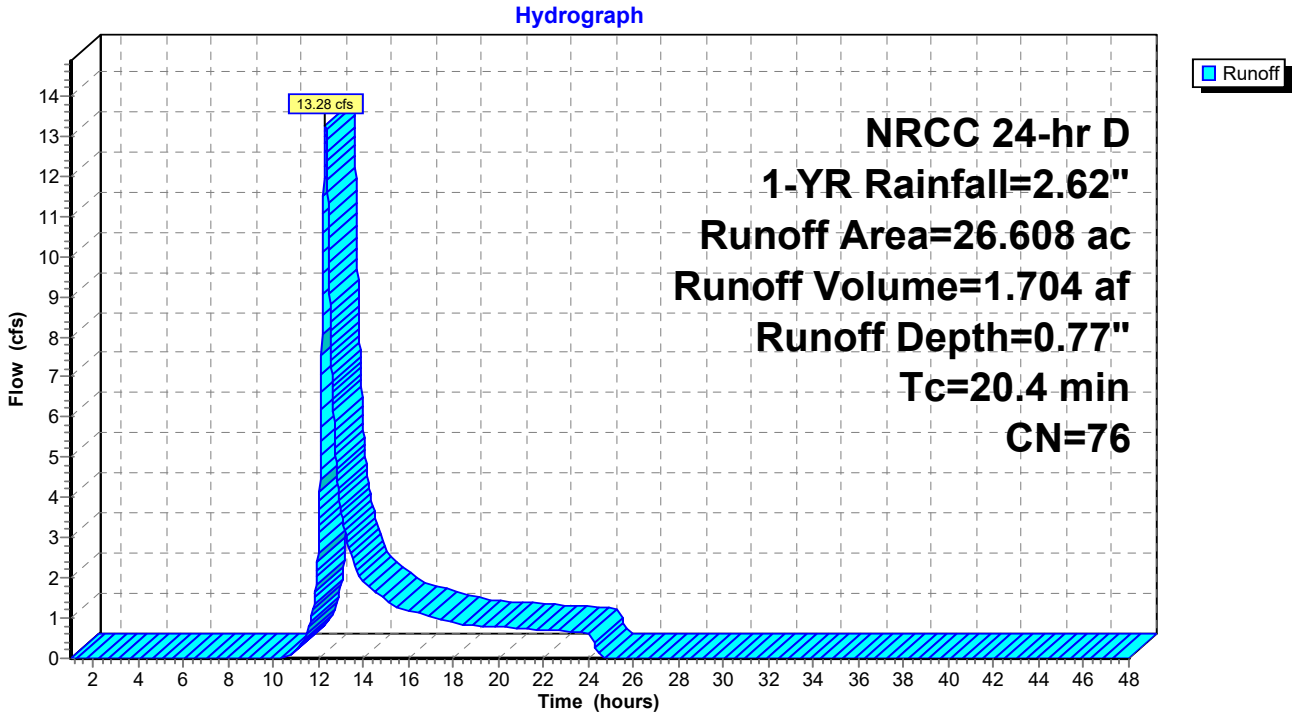
Subcatchment A1: PR-A1



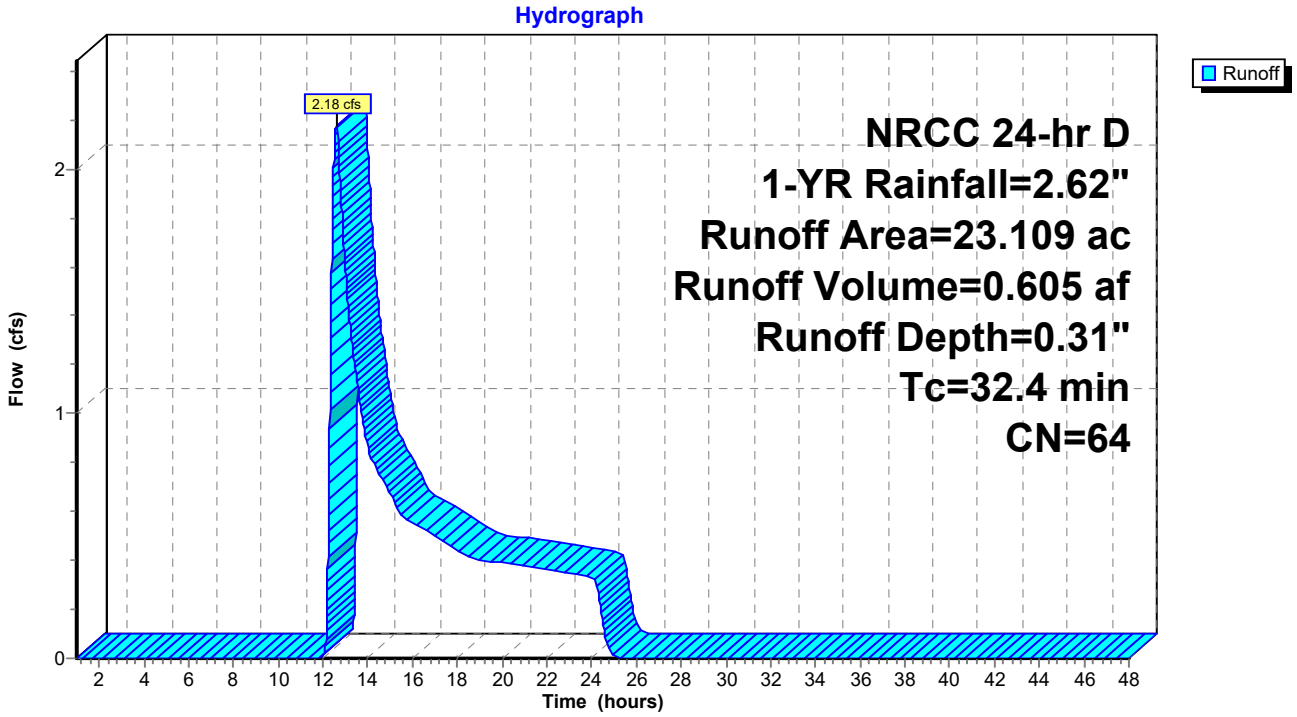
Subcatchment A2: PR-A2



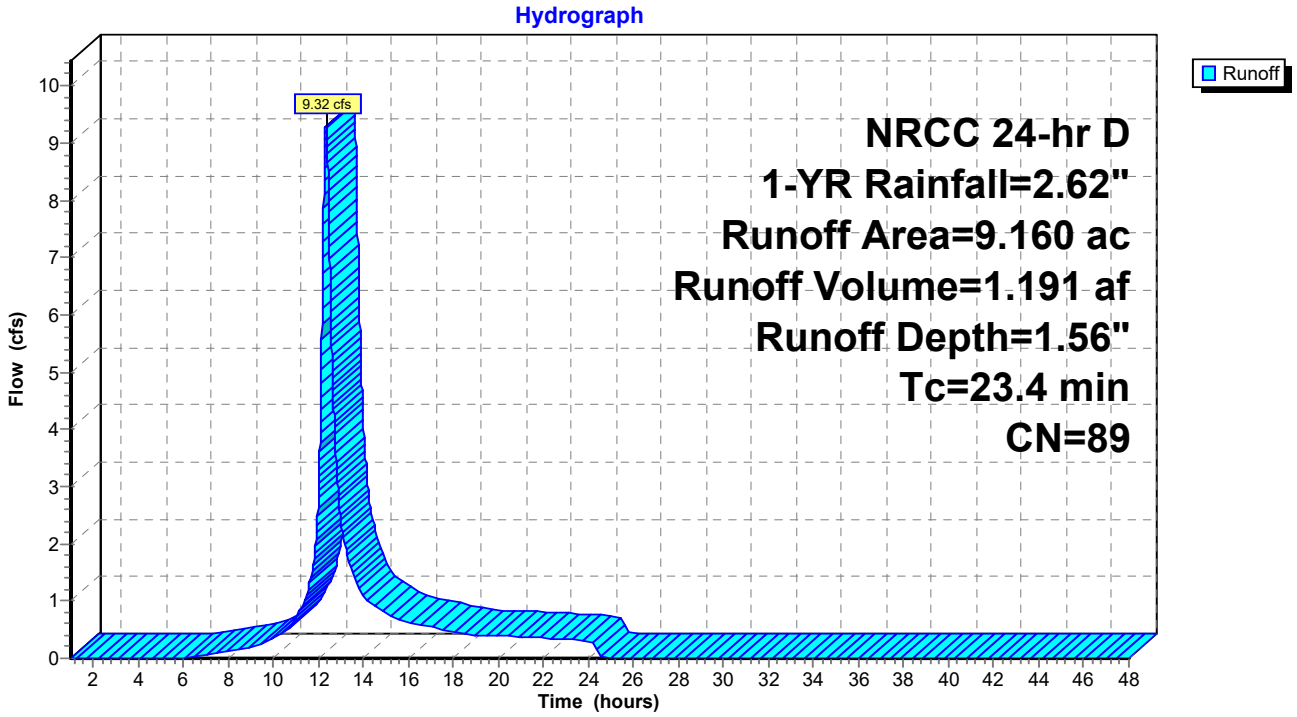
Subcatchment A3: PR-A3



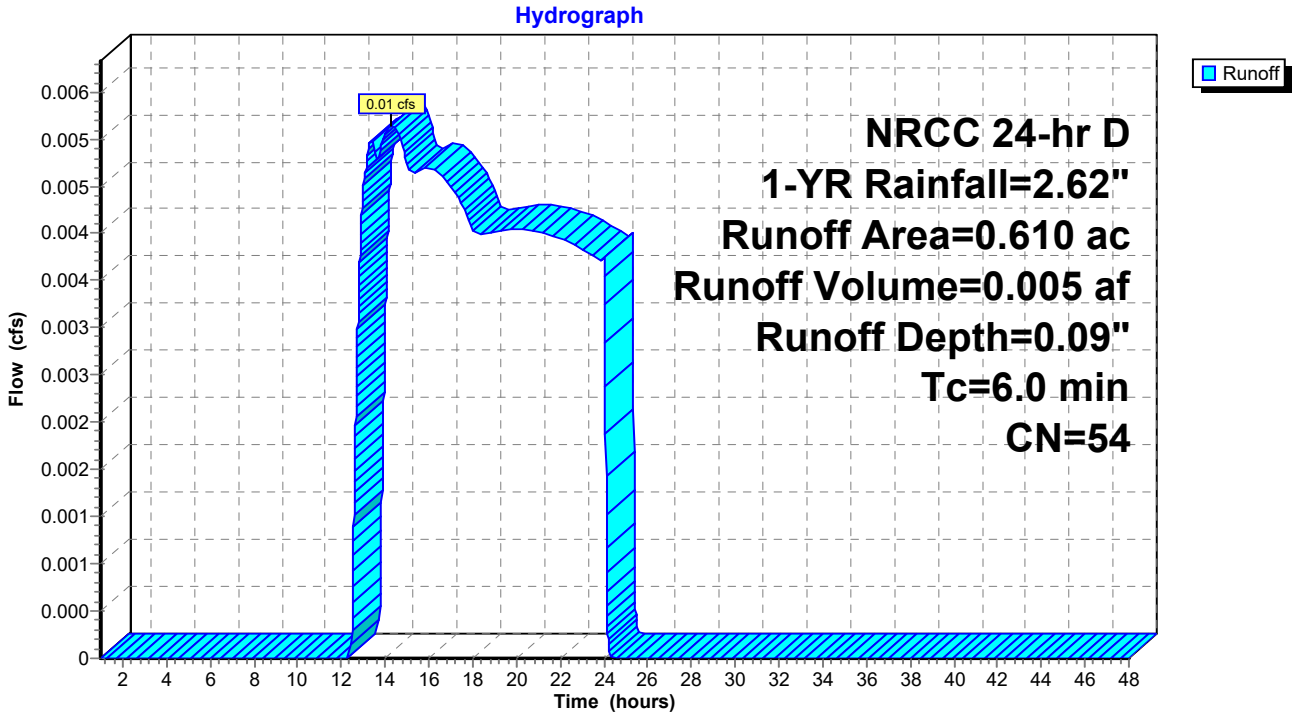
Subcatchment B: EX-B



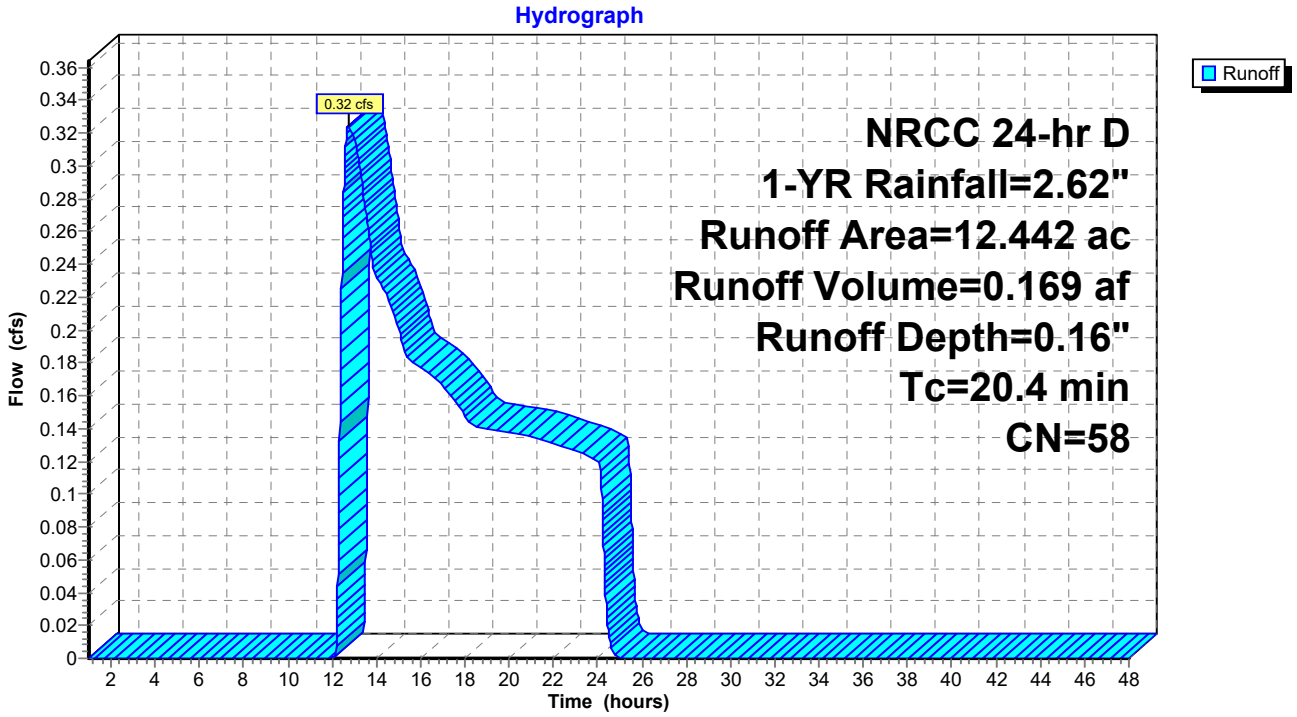
Subcatchment B1: PR-B1



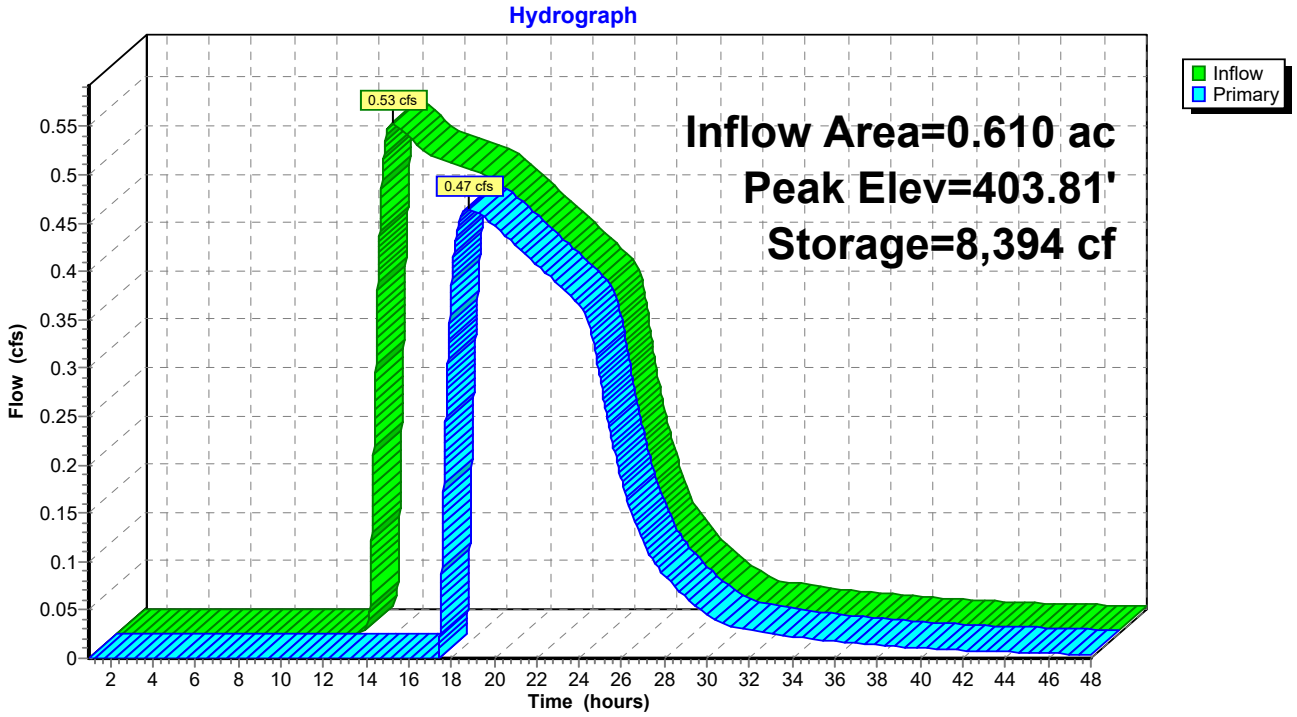
Subcatchment B2: PR-B2



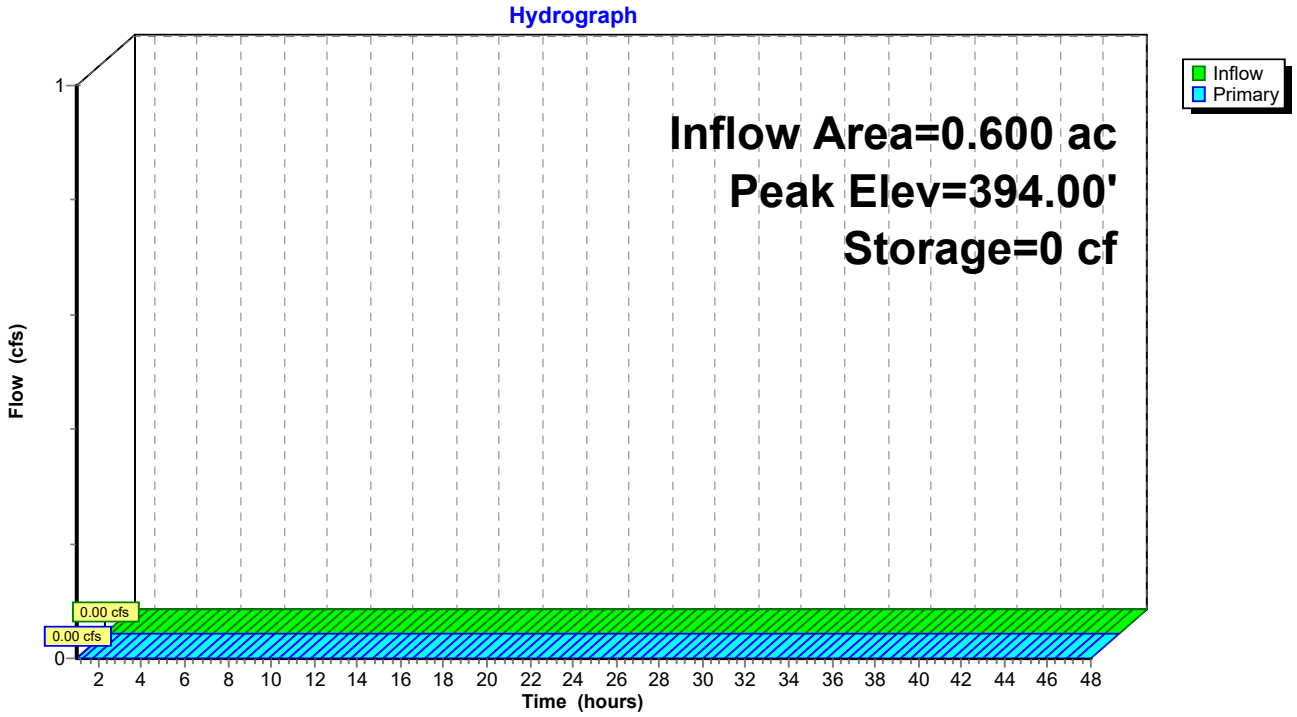
Subcatchment B3: PR-B3



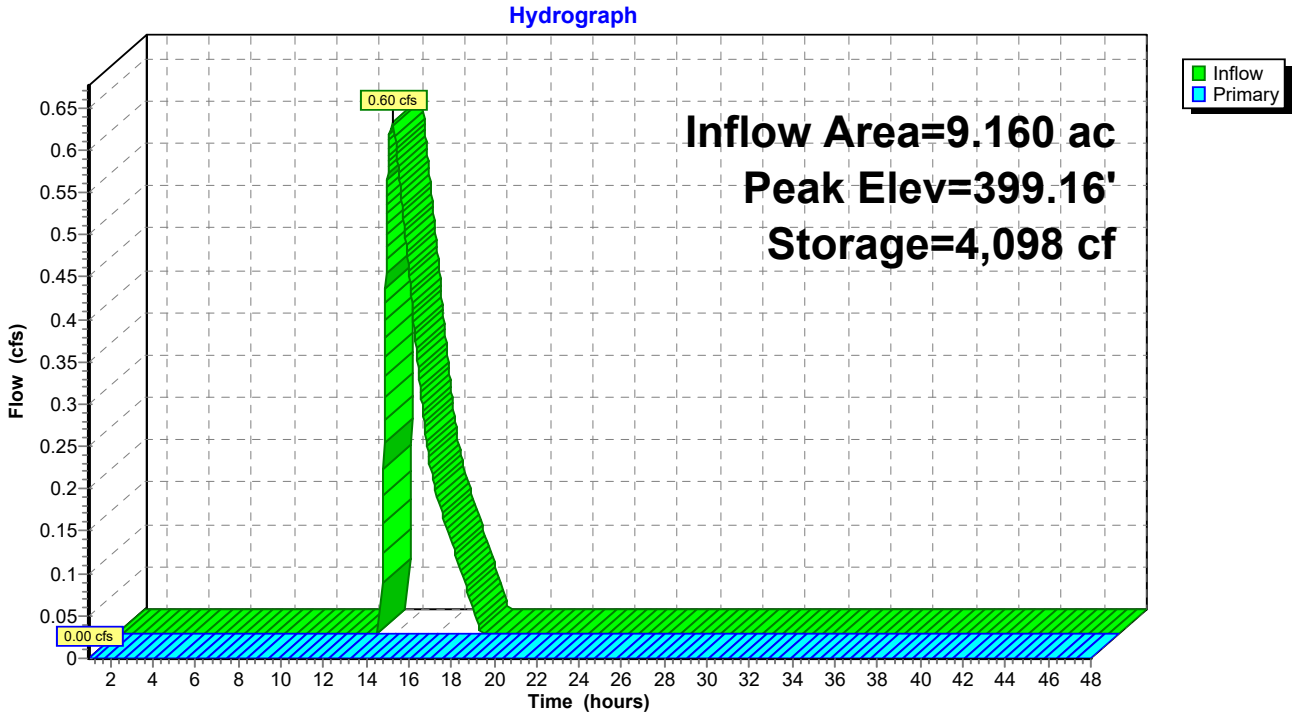
Pond BB1: Bio-Retention Basin



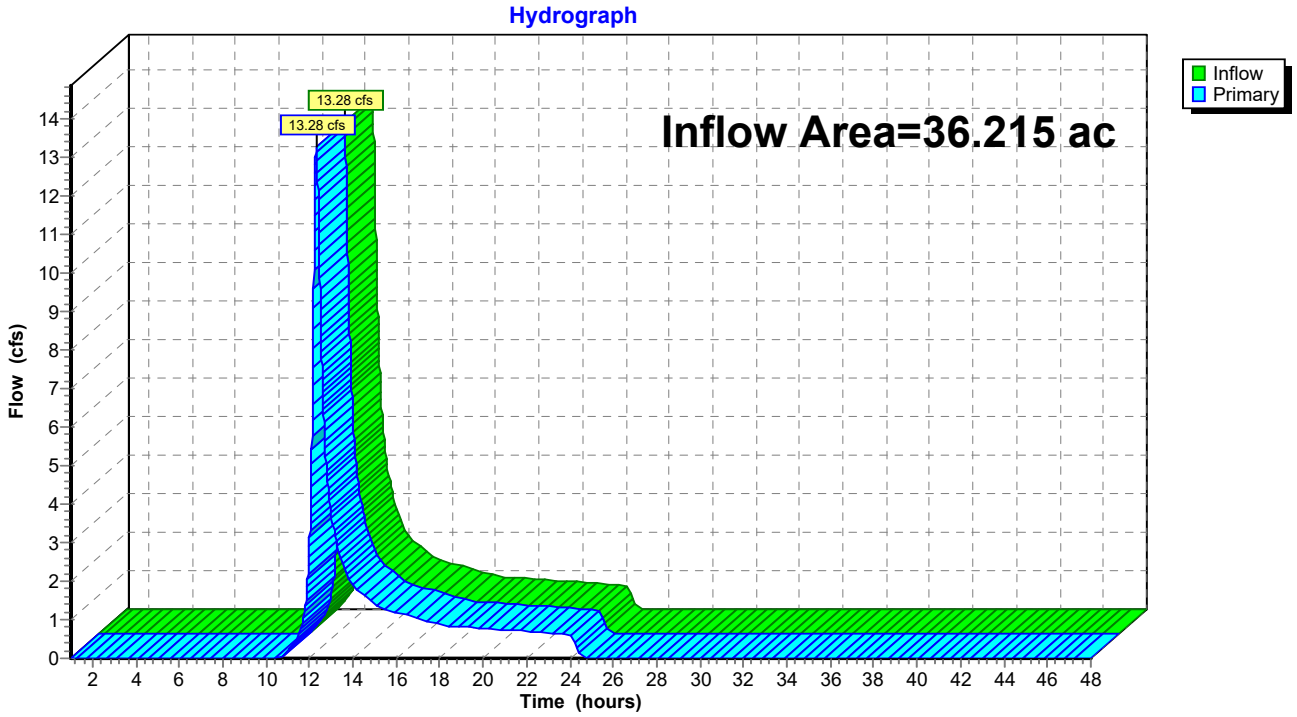
Pond DA2: Detention Basin A-2



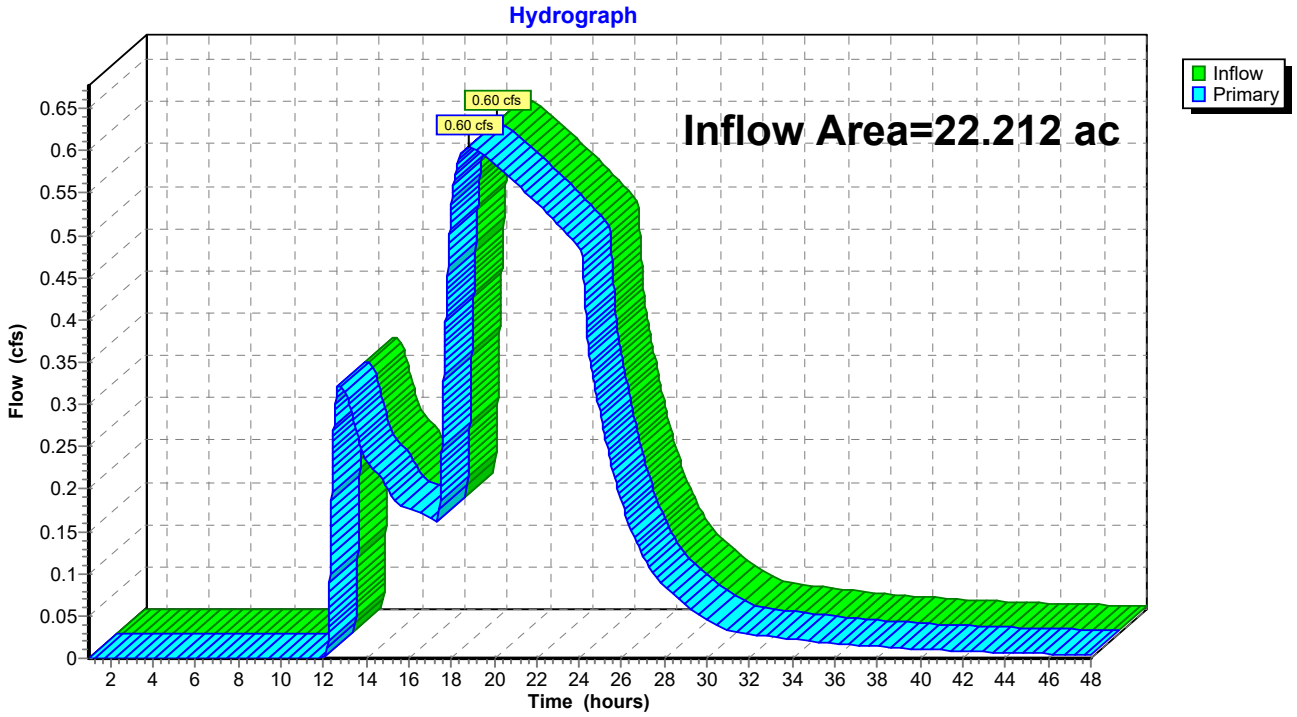
Pond DB1: Detention Basin B-1



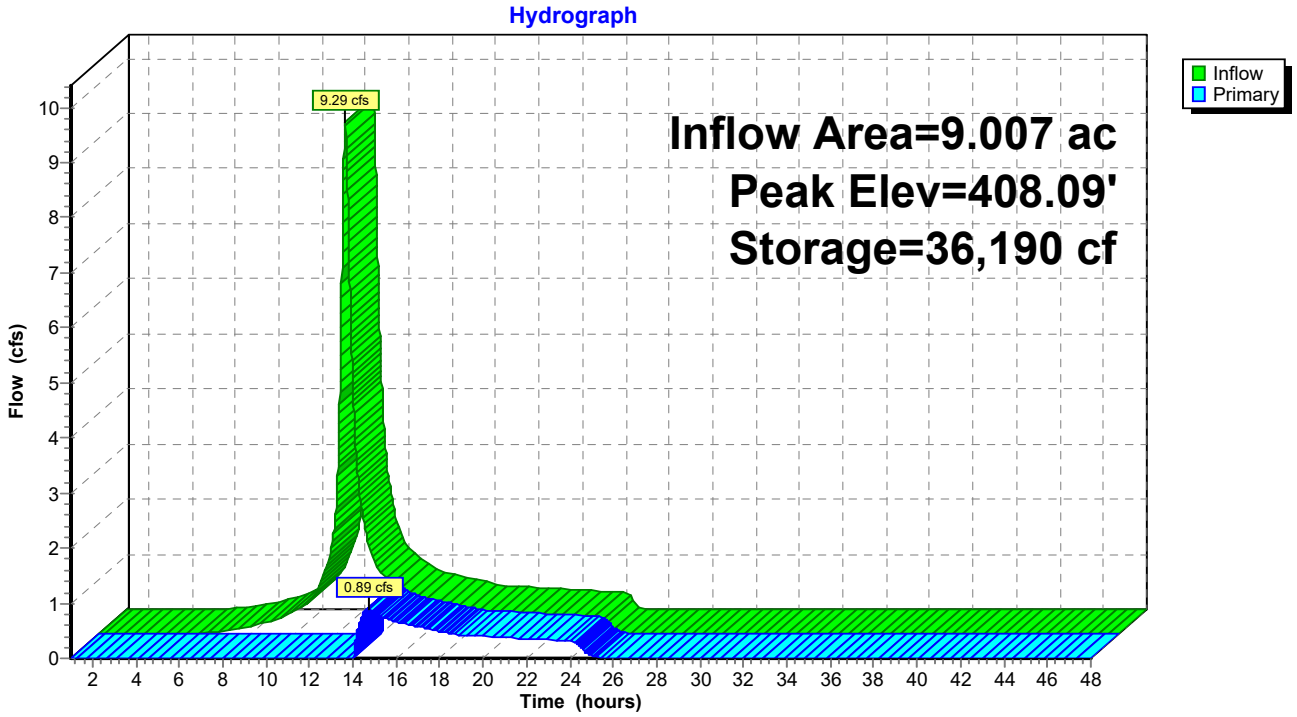
Pond DPA: Design Point A



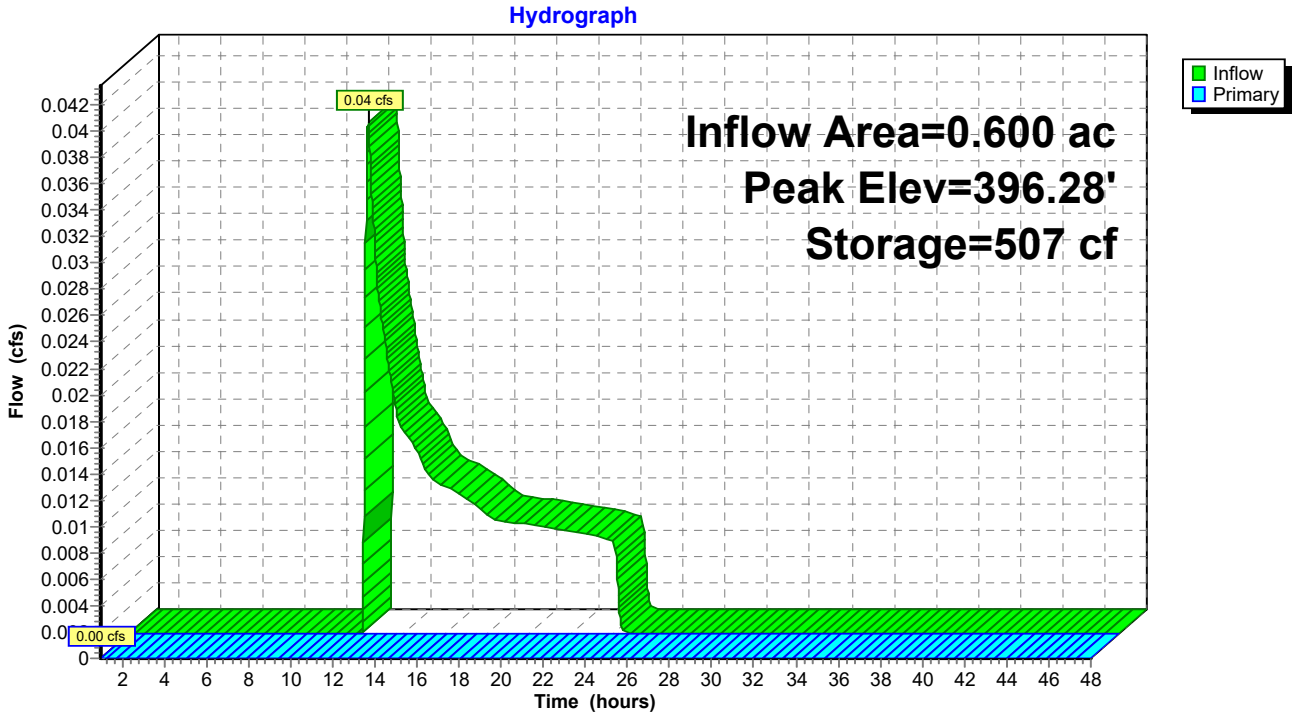
Pond DPB: Design Point B



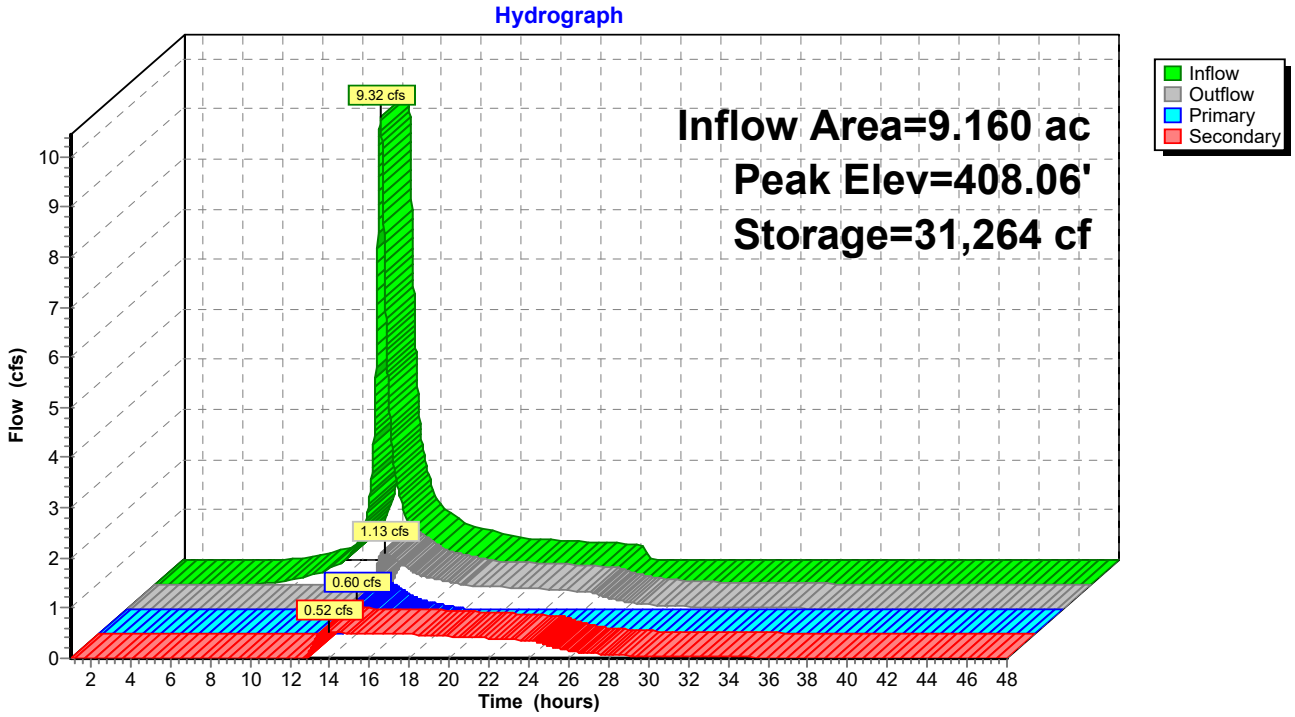
Pond FA1: Forebay A-1



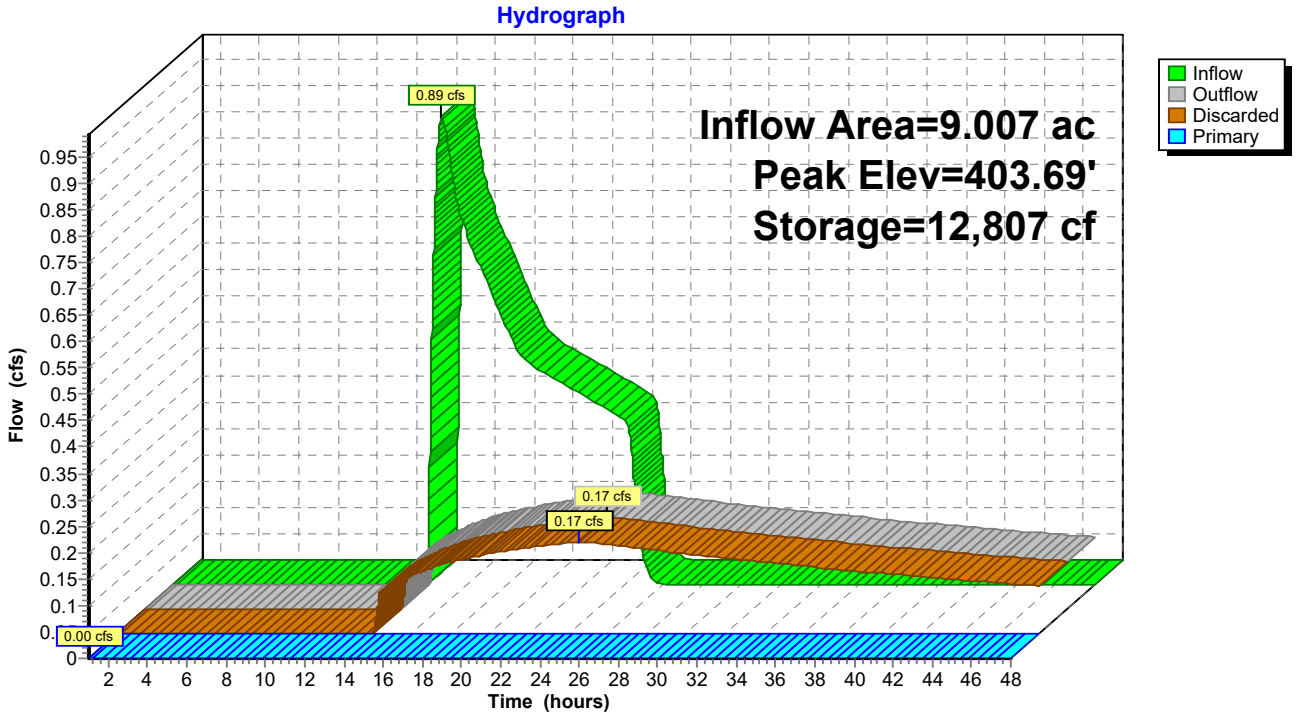
Pond FA2: Forebay A-2



Pond FB1: Forebay B-1



Pond IA1: Infiltration Basin A-1



APPENDIX 9

10-YEAR DESIGN STORM HYDROGRAPHS

Time span=1.00-48.00 hrs, dt=0.01 hrs, 4701 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentA: EX-A Runoff Area=35.318 ac 19.88% Impervious Runoff Depth=2.28"
Tc=31.2 min CN=76 Runoff=45.25 cfs 6.718 af

SubcatchmentA1: PR-A1 Runoff Area=9.007 ac 57.93% Impervious Runoff Depth=3.58"
Tc=25.2 min CN=90 Runoff=19.75 cfs 2.686 af

SubcatchmentA2: PR-A2 Runoff Area=0.600 ac 17.00% Impervious Runoff Depth=1.19"
Tc=15.6 min CN=61 Runoff=0.51 cfs 0.059 af

SubcatchmentA3: PR-A3 Runoff Area=26.608 ac 28.60% Impervious Runoff Depth=2.28"
Tc=20.4 min CN=76 Runoff=42.39 cfs 5.061 af

SubcatchmentB: EX-B Runoff Area=23.109 ac 4.81% Impervious Runoff Depth=1.38"
Tc=32.4 min CN=64 Runoff=16.23 cfs 2.663 af

SubcatchmentB1: PR-B1 Runoff Area=9.160 ac 53.49% Impervious Runoff Depth=3.48"
Tc=23.4 min CN=89 Runoff=20.29 cfs 2.653 af

SubcatchmentB2: PR-B2 Runoff Area=0.610 ac 25.08% Impervious Runoff Depth=0.78"
Tc=6.0 min CN=54 Runoff=0.41 cfs 0.039 af

SubcatchmentB3: PR-B3 Runoff Area=12.442 ac 9.21% Impervious Runoff Depth=1.00"
Tc=20.4 min CN=58 Runoff=7.26 cfs 1.039 af

Pond BB1: Bio-Retention Basin Peak Elev=403.82' Storage=8,481 cf Inflow=1.03 cfs 0.691 af
Outflow=0.56 cfs 0.513 af

Pond DA2: Detention Basin A-2 Peak Elev=395.67' Storage=794 cf Inflow=0.04 cfs 0.018 af
Outflow=0.00 cfs 0.000 af

Pond DB1: Detention Basin B-1 Peak Elev=405.04' Storage=54,382 cf Inflow=17.74 cfs 1.398 af
Outflow=0.45 cfs 0.161 af

Pond DPA: Design Point A Inflow=42.39 cfs 5.307 af
Primary=42.39 cfs 5.307 af

Pond DPB: Design Point B Inflow=7.26 cfs 1.713 af
Primary=7.26 cfs 1.713 af

Pond FA1: Forebay A-1 Peak Elev=408.60' Storage=41,431 cf Inflow=19.75 cfs 2.686 af
Outflow=17.70 cfs 1.874 af

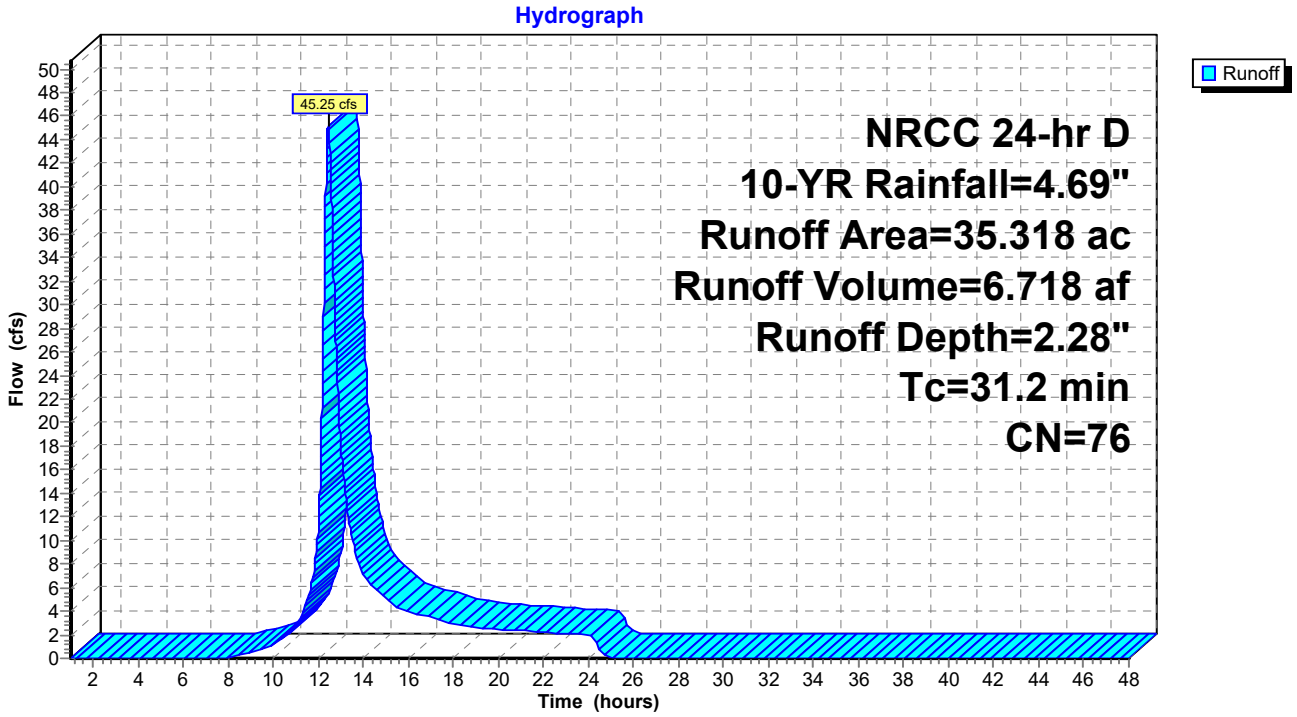
Pond FA2: Forebay A-2 Peak Elev=398.01' Storage=1,800 cf Inflow=0.51 cfs 0.059 af
Outflow=0.04 cfs 0.018 af

Pond FB1: Forebay B-1 Peak Elev=408.63' Storage=37,033 cf Inflow=20.29 cfs 2.653 af
Primary=17.74 cfs 1.398 af Secondary=0.89 cfs 0.651 af Outflow=18.63 cfs 2.050 af

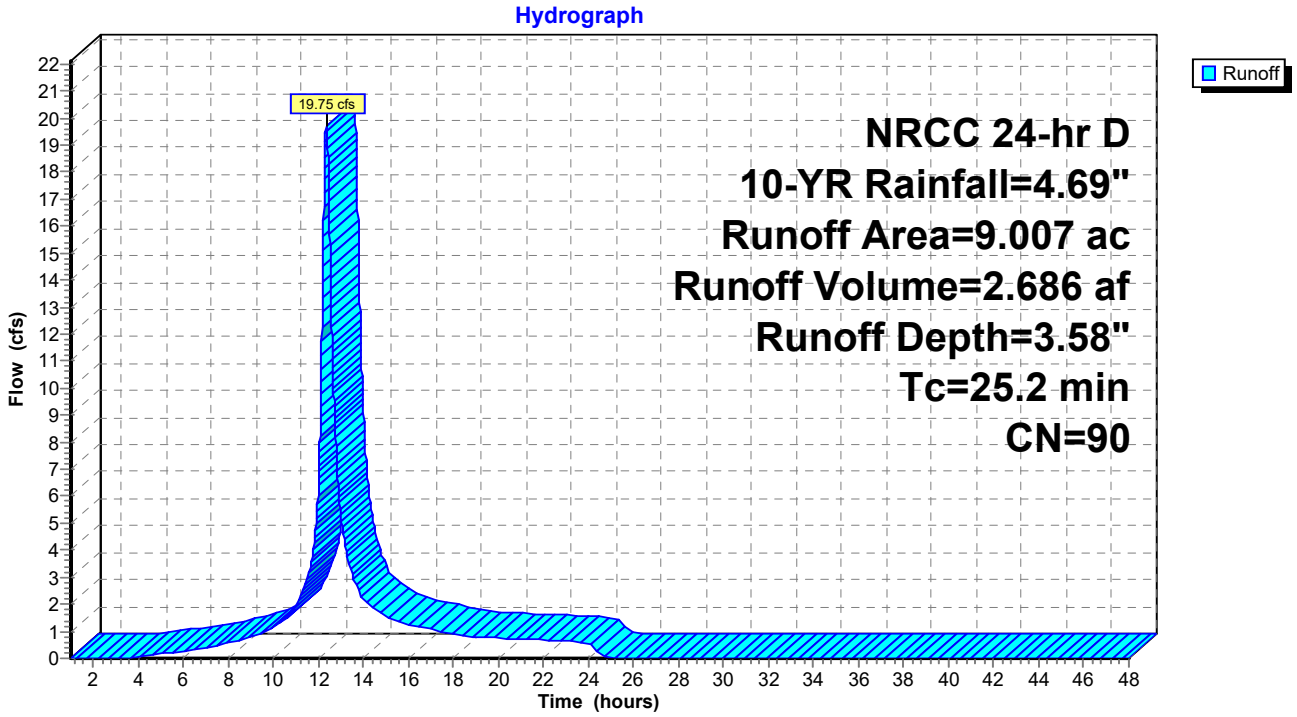
Pond IA1: Infiltration Basin A-1 Peak Elev=407.12' Storage=53,880 cf Inflow=17.70 cfs 1.874 af
Discarded=0.43 cfs 1.067 af Primary=0.55 cfs 0.246 af Outflow=0.98 cfs 1.313 af

Total Runoff Area = 116.854 ac Runoff Volume = 20.919 af Average Runoff Depth = 2.15"
76.67% Pervious = 89.593 ac 23.33% Impervious = 27.261 ac

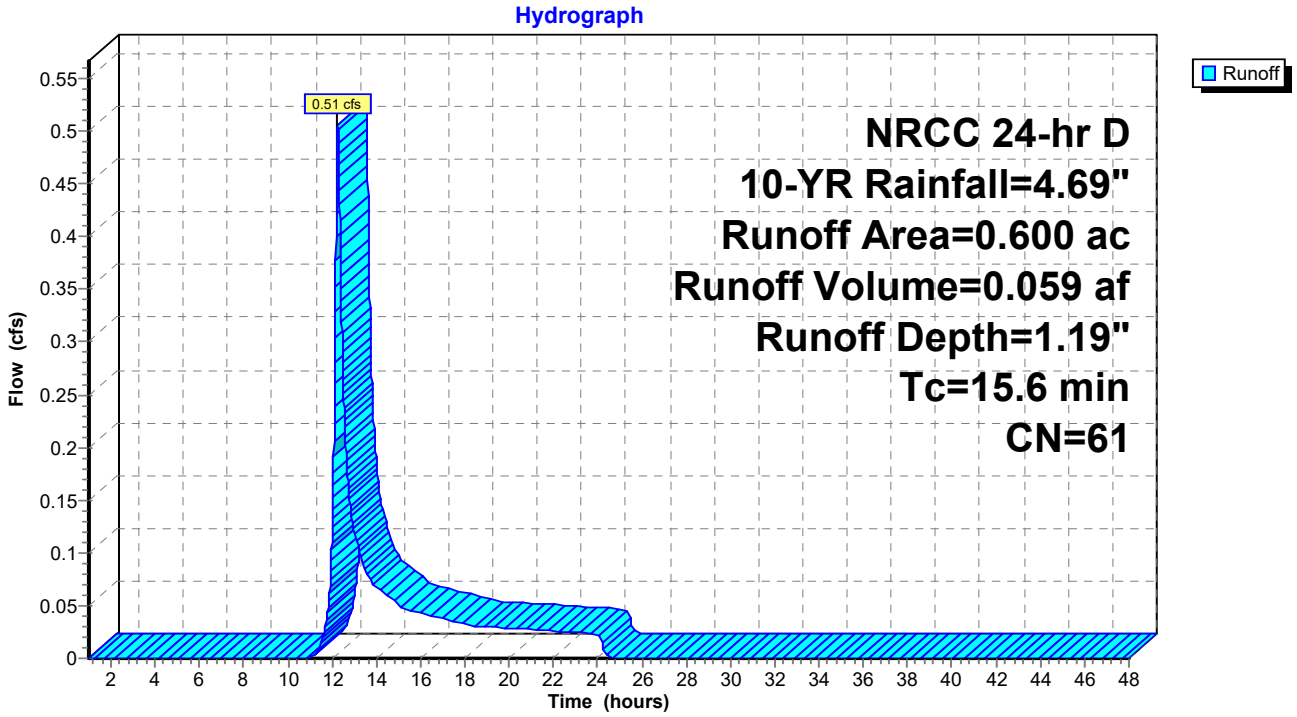
Subcatchment A: EX-A



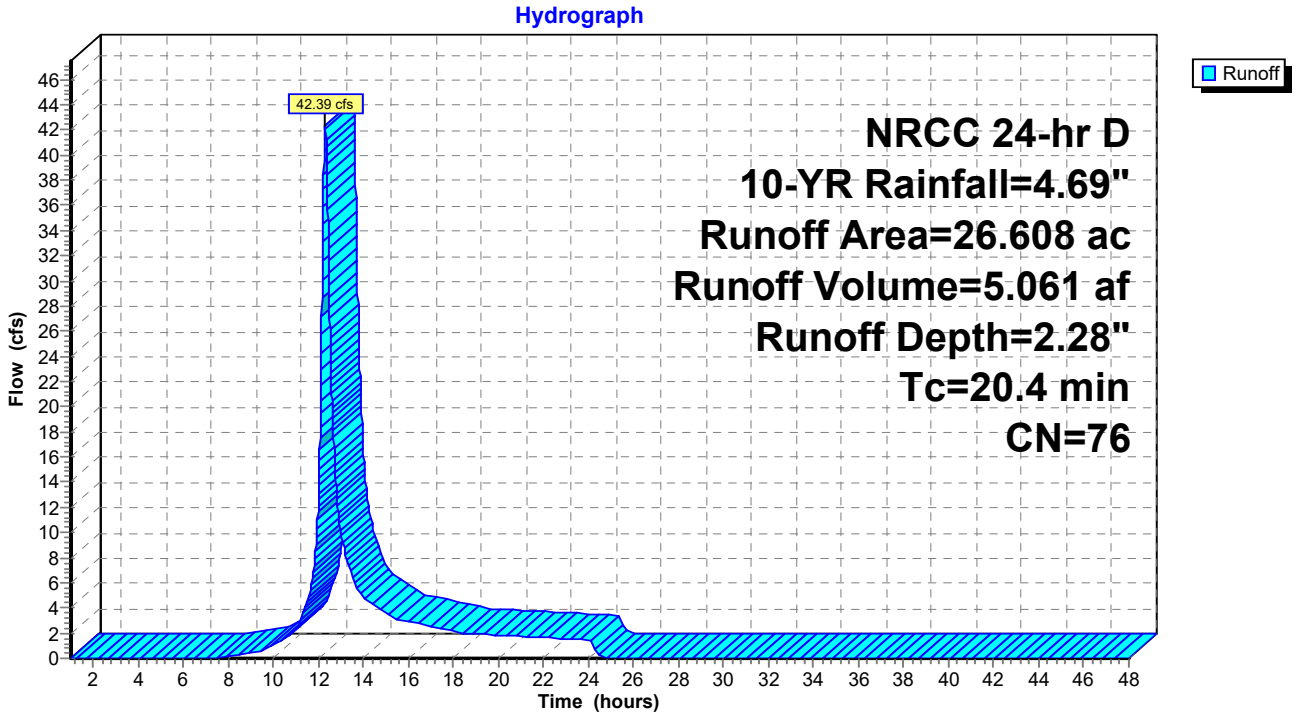
Subcatchment A1: PR-A1



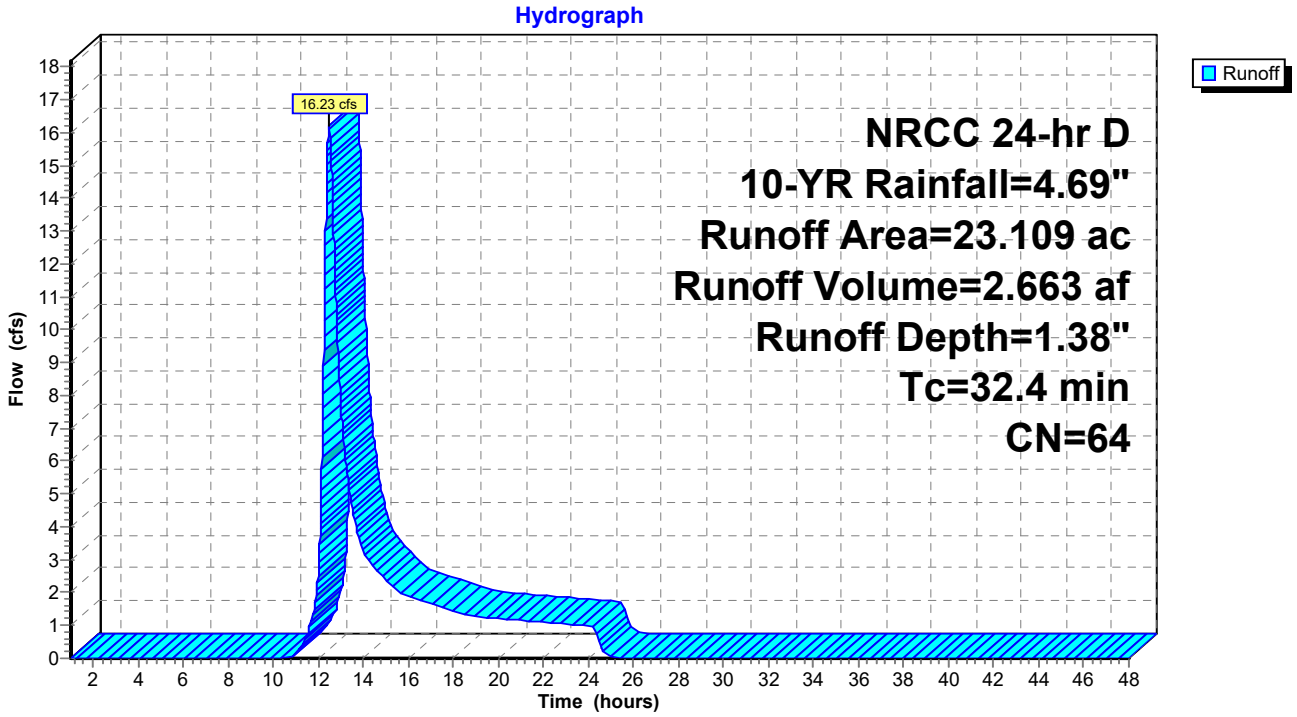
Subcatchment A2: PR-A2



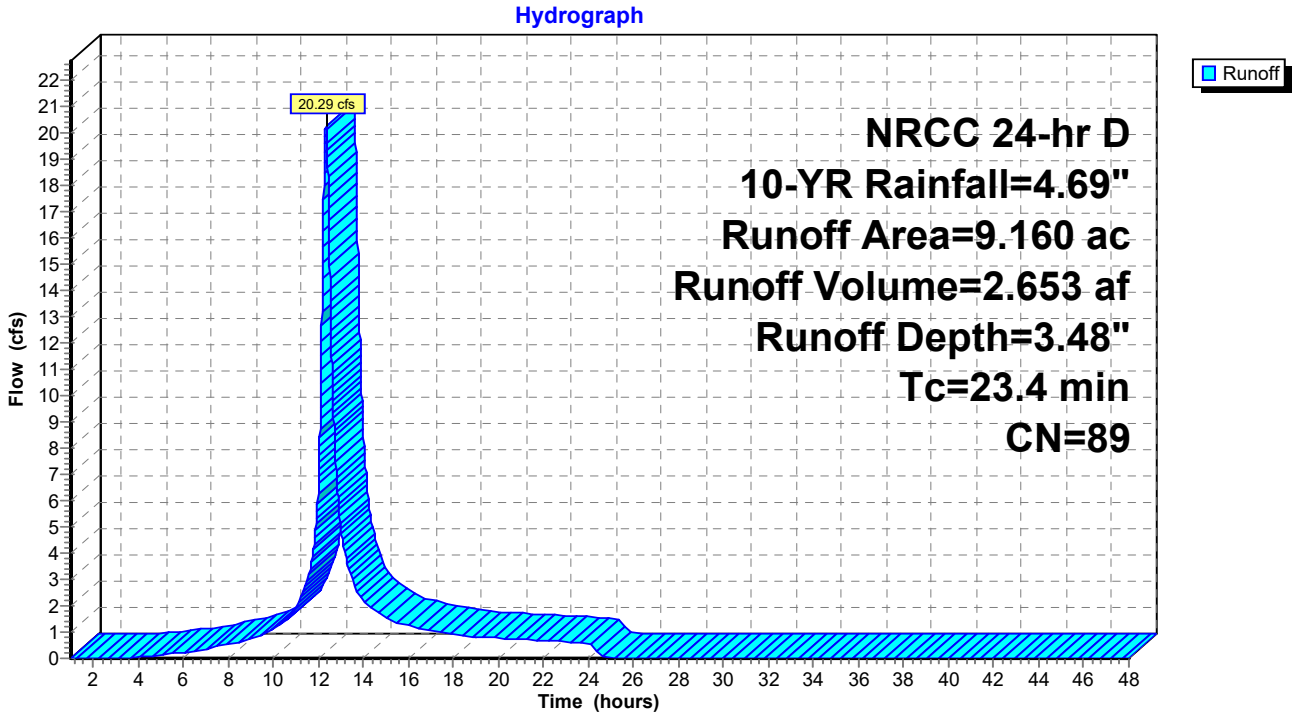
Subcatchment A3: PR-A3



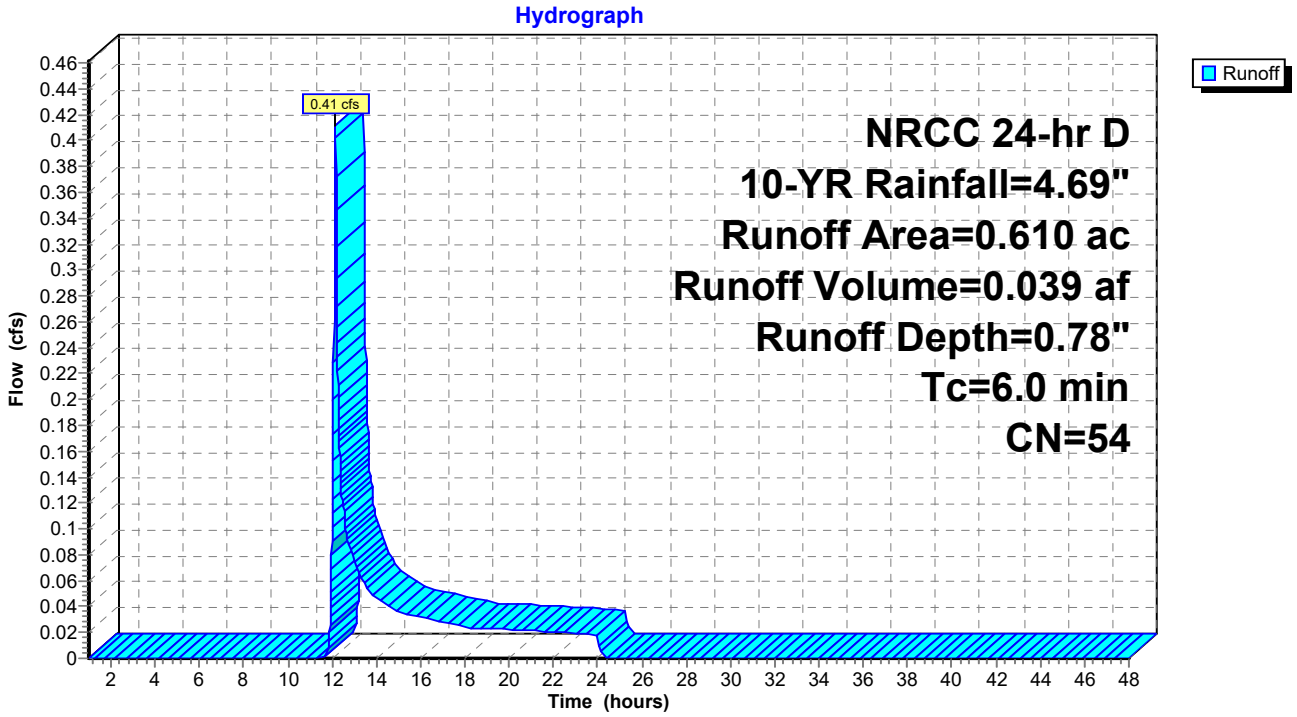
Subcatchment B: EX-B



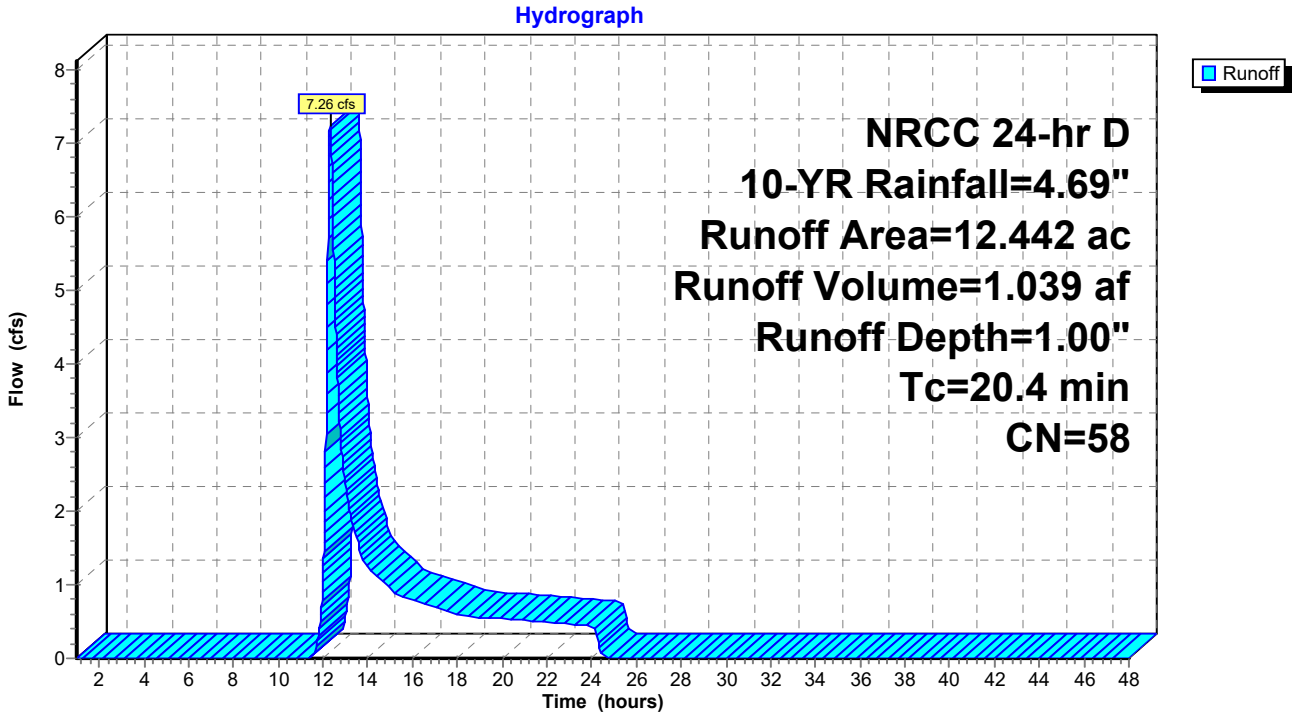
Subcatchment B1: PR-B1



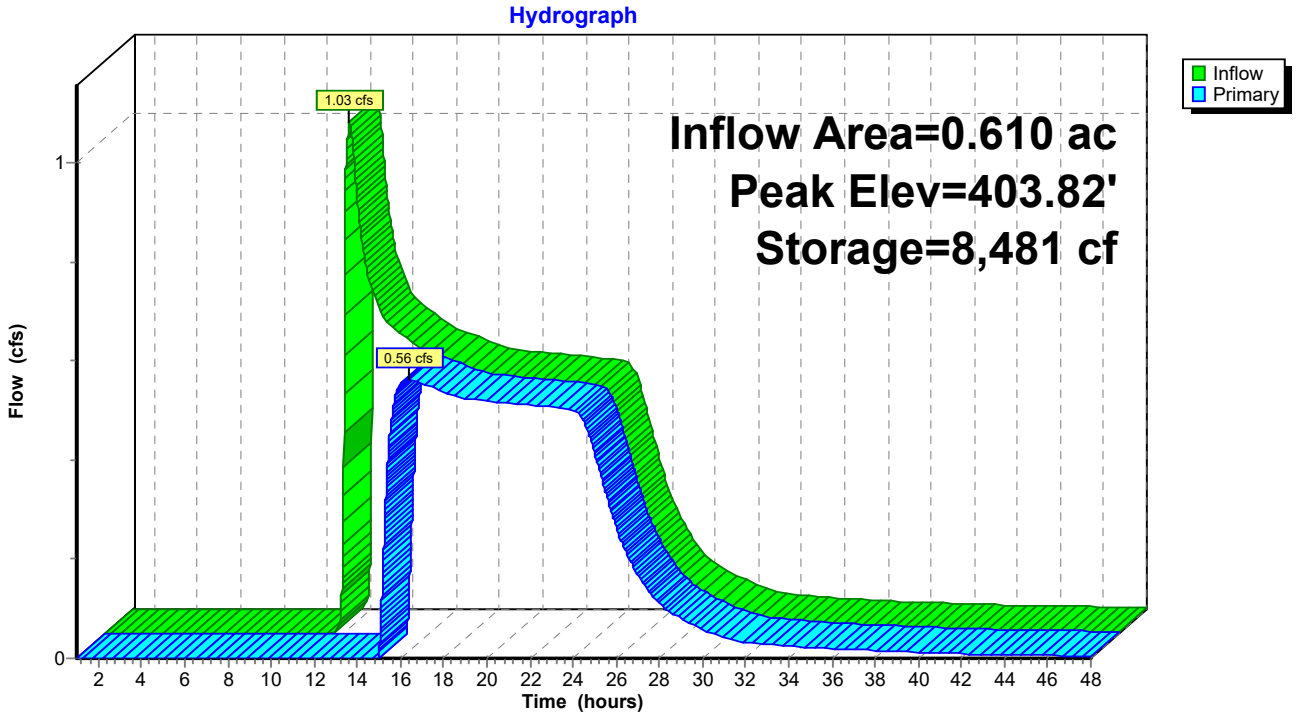
Subcatchment B2: PR-B2



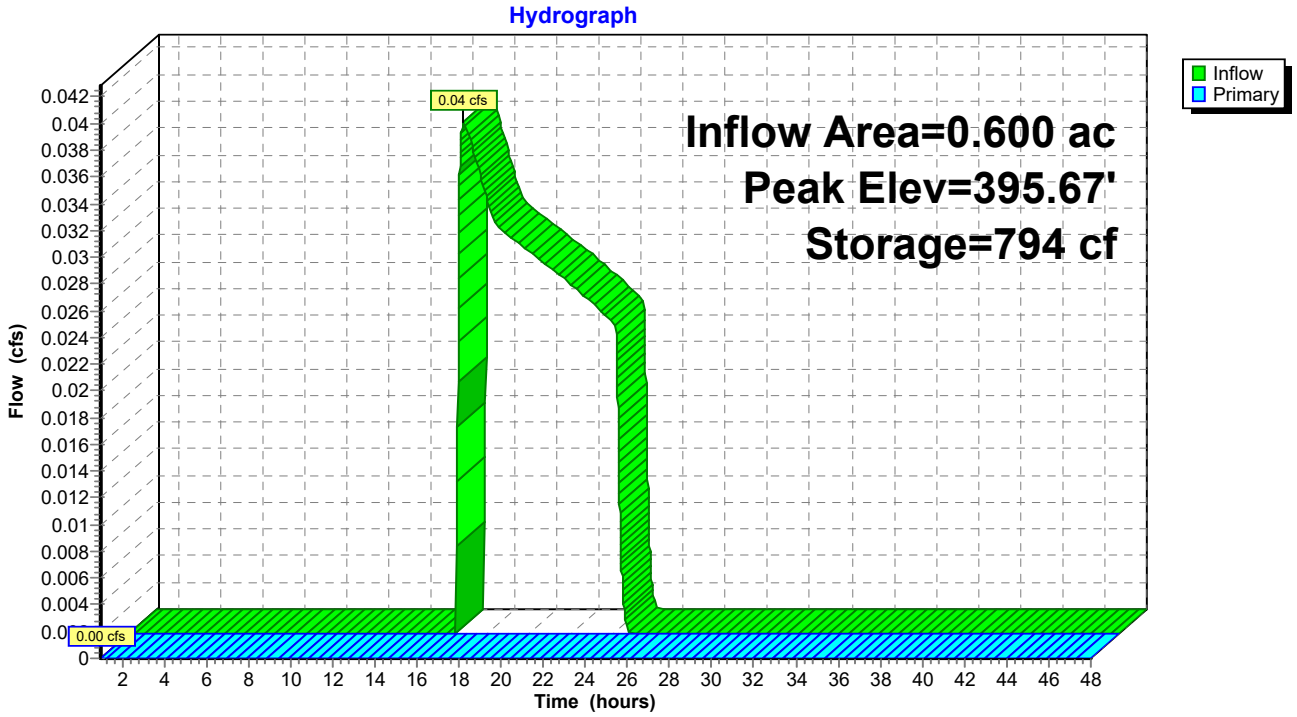
Subcatchment B3: PR-B3



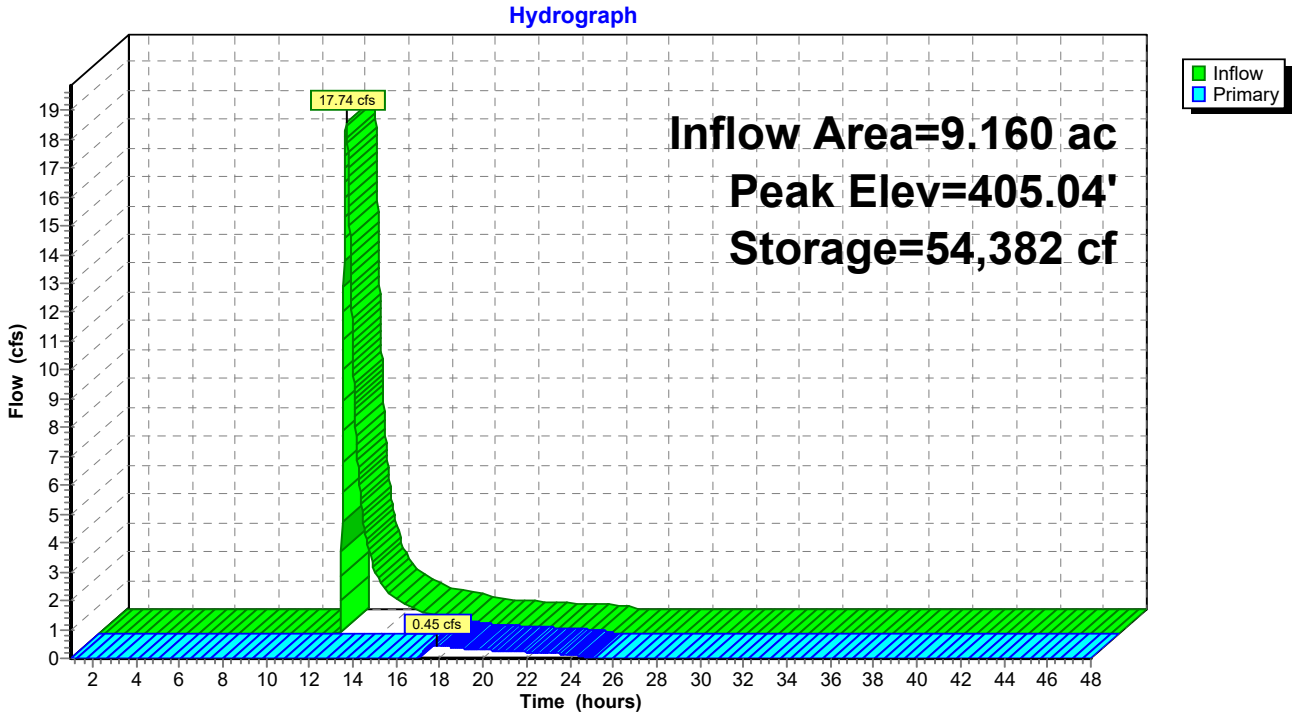
Pond BB1: Bio-Retention Basin



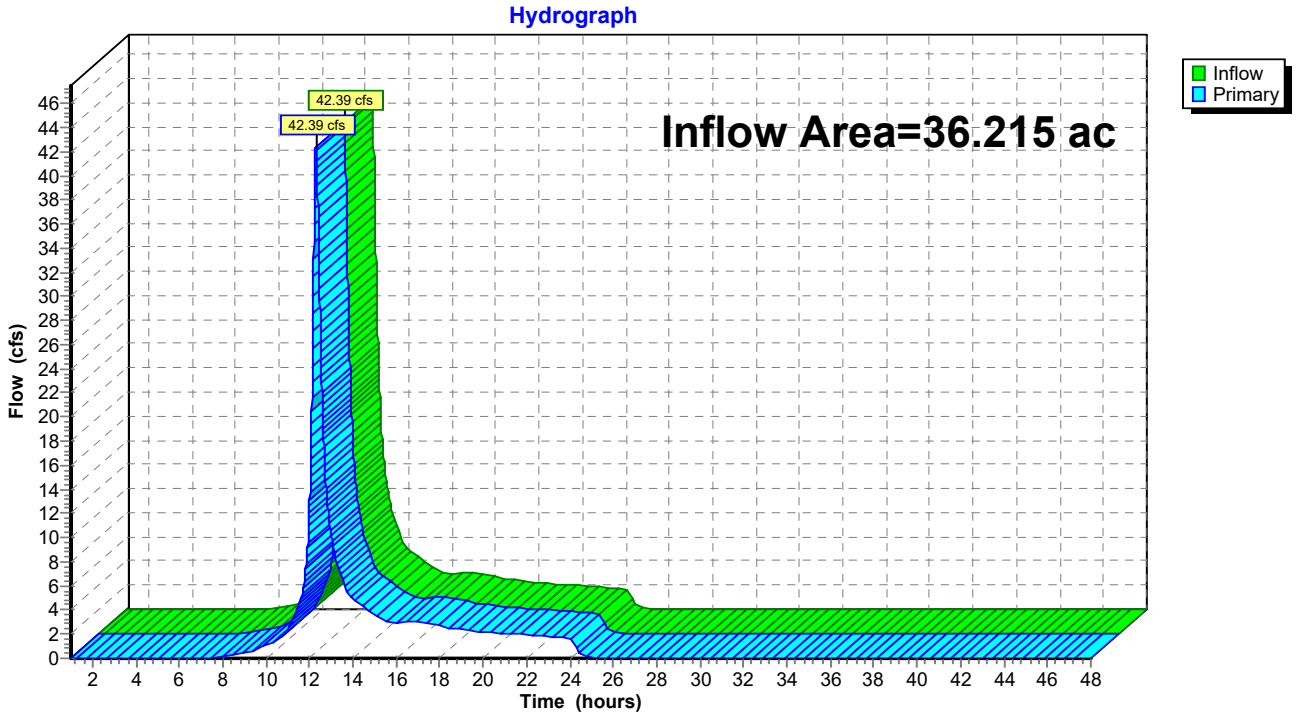
Pond DA2: Detention Basin A-2



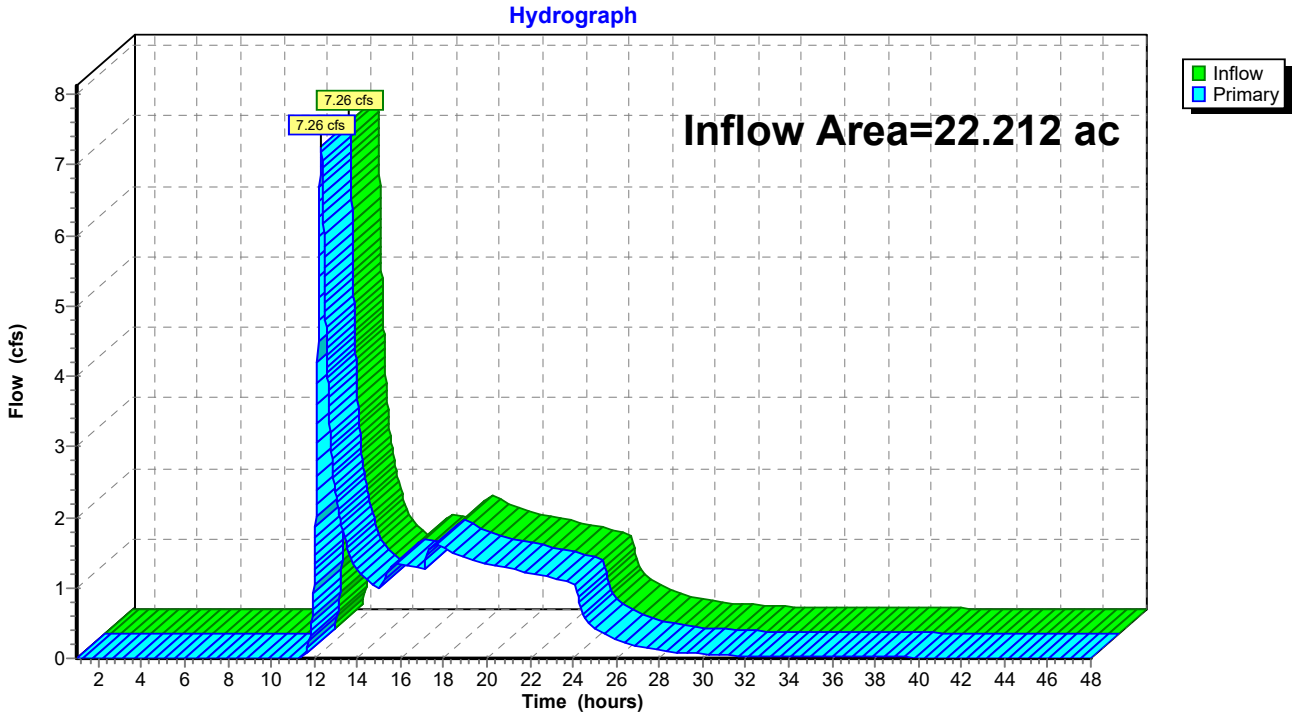
Pond DB1: Detention Basin B-1



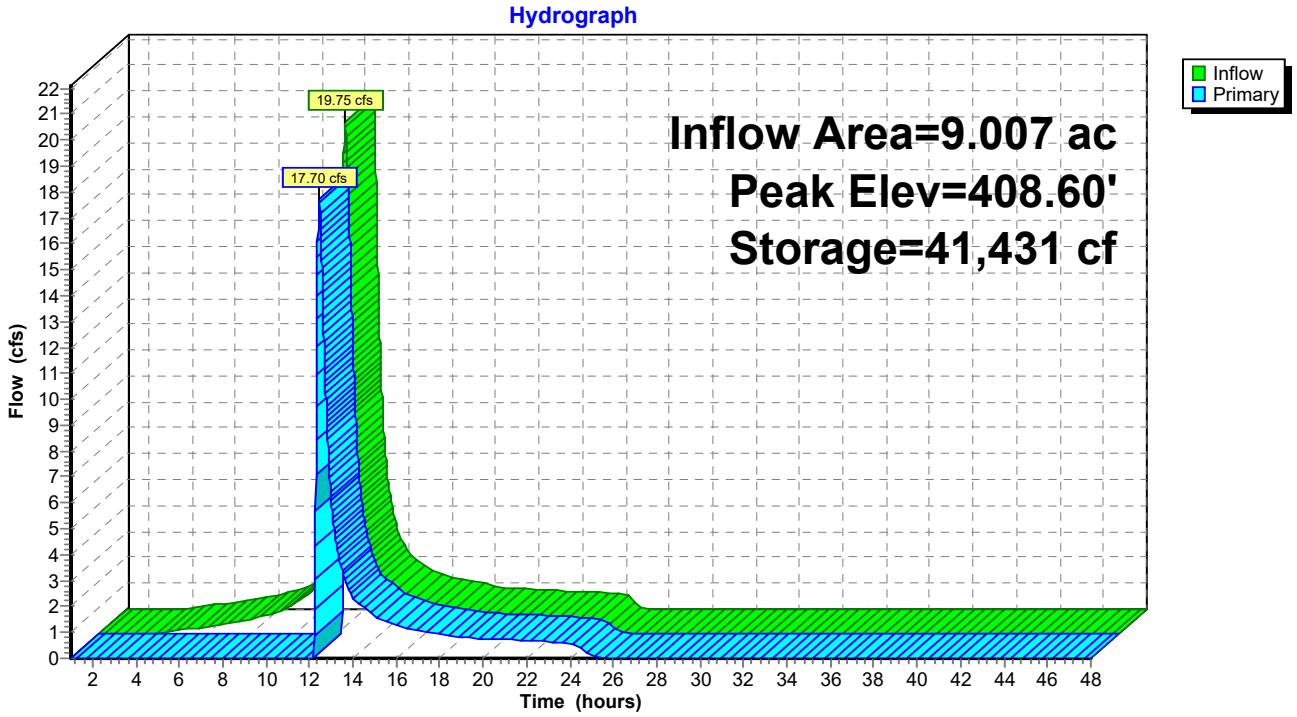
Pond DPA: Design Point A



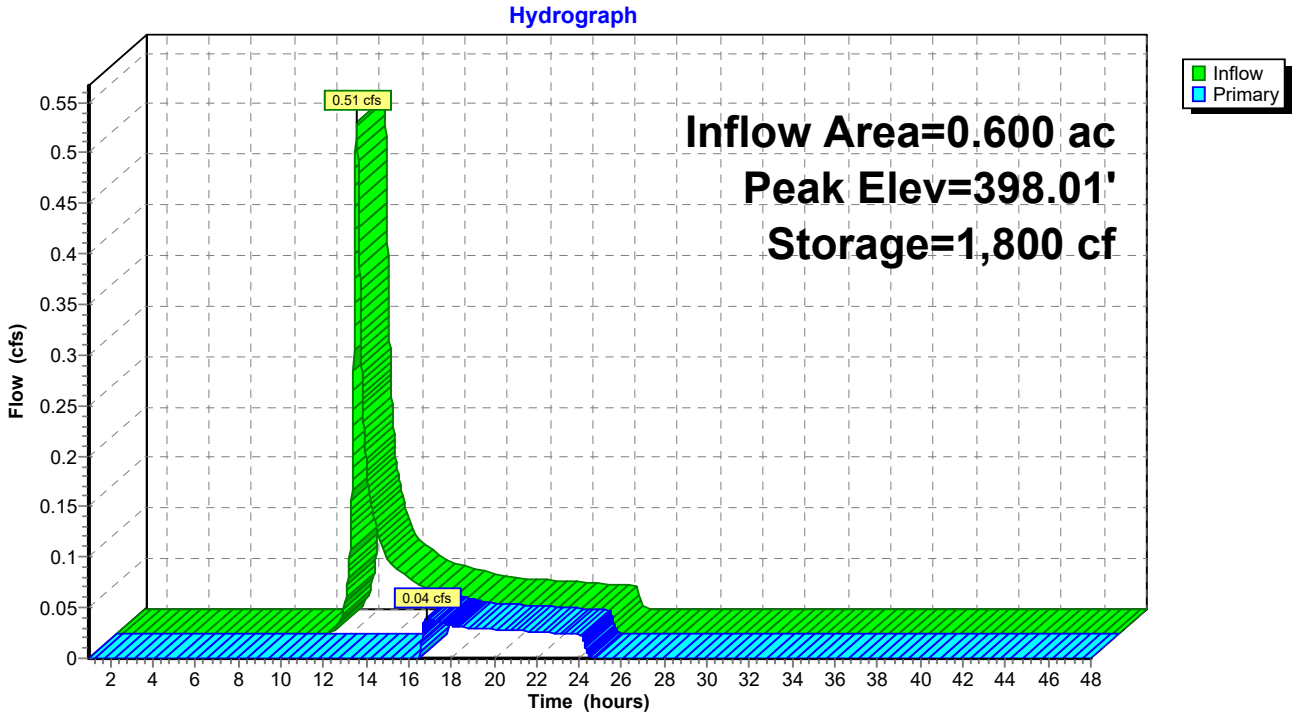
Pond DPB: Design Point B



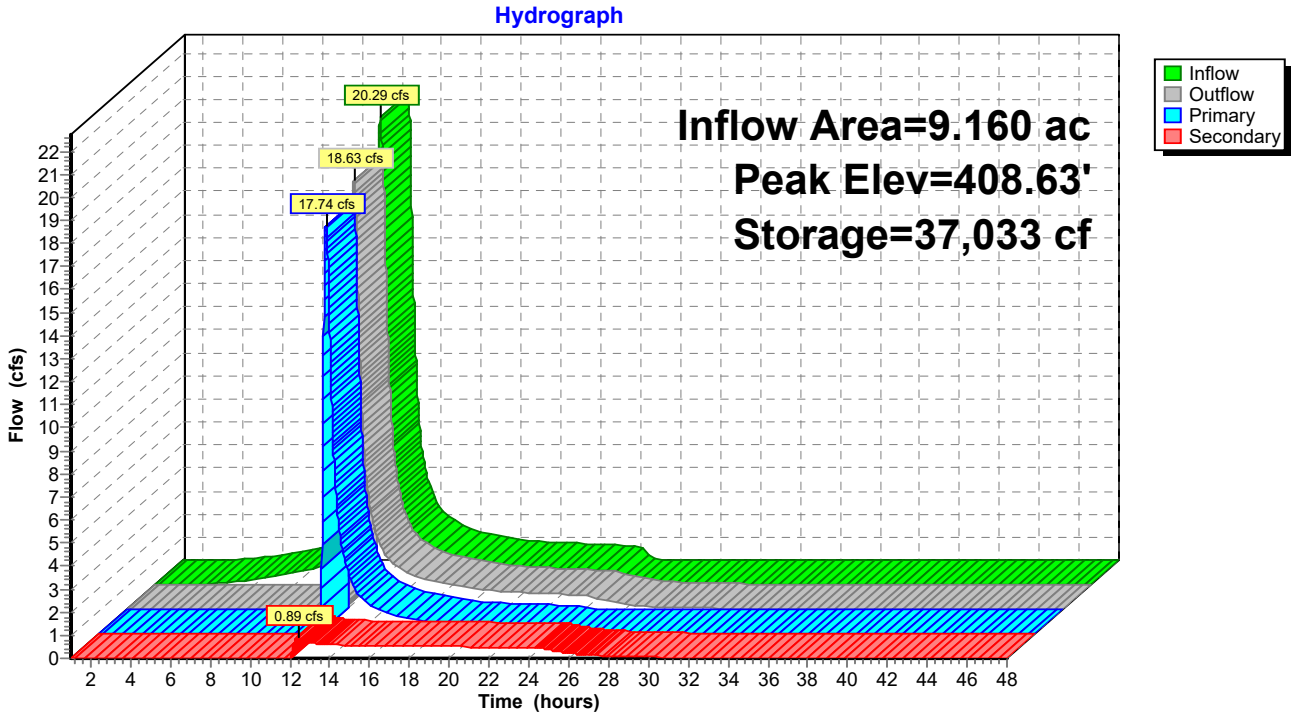
Pond FA1: Forebay A-1



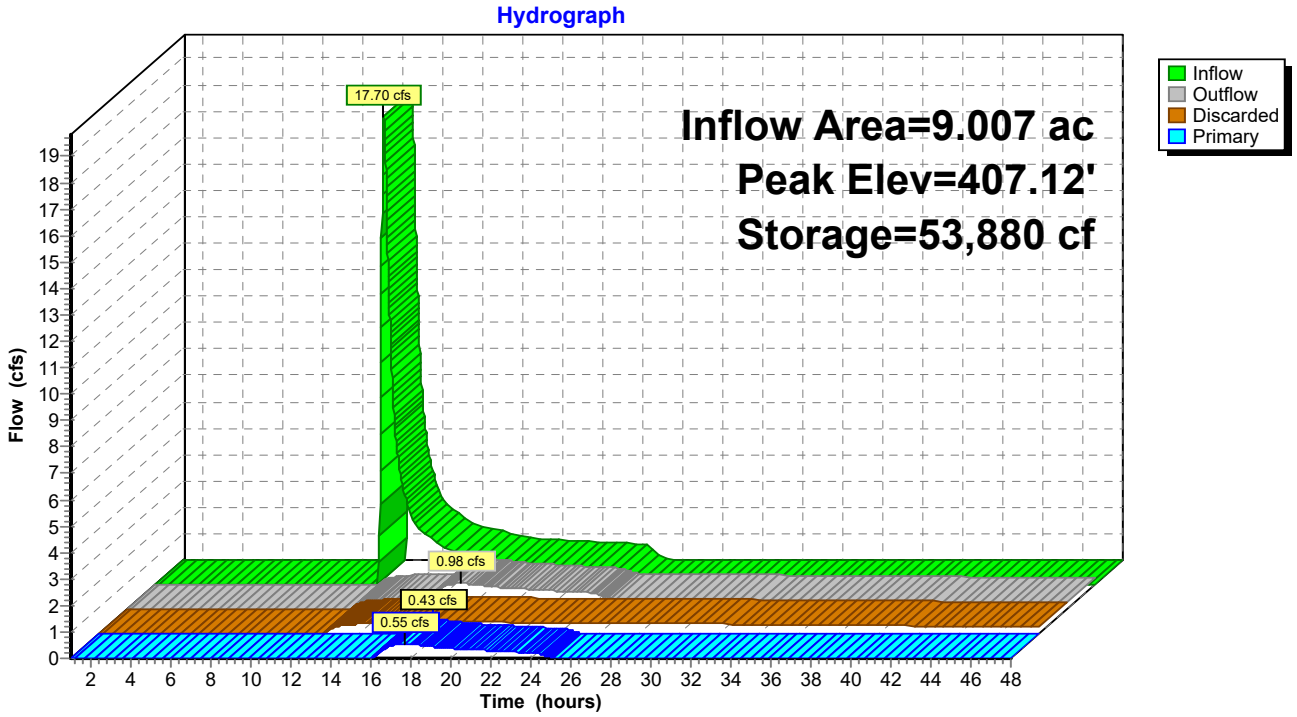
Pond FA2: Forebay A-2



Pond FB1: Forebay B-1



Pond IA1: Infiltration Basin A-1



APPENDIX 10

100-YEAR DESIGN STORM

Time span=1.00-48.00 hrs, dt=0.01 hrs, 4701 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentA: EX-A Runoff Area=35.318 ac 19.88% Impervious Runoff Depth=5.39"
Tc=31.2 min CN=76 Runoff=106.56 cfs 15.852 af

SubcatchmentA1: PR-A1 Runoff Area=9.007 ac 57.93% Impervious Runoff Depth=7.05"
Tc=25.2 min CN=90 Runoff=37.53 cfs 5.293 af

SubcatchmentA2: PR-A2 Runoff Area=0.600 ac 17.00% Impervious Runoff Depth=3.64"
Tc=15.6 min CN=61 Runoff=1.72 cfs 0.182 af

SubcatchmentA3: PR-A3 Runoff Area=26.608 ac 28.60% Impervious Runoff Depth=5.39"
Tc=20.4 min CN=76 Runoff=99.59 cfs 11.942 af

SubcatchmentB: EX-B Runoff Area=23.109 ac 4.81% Impervious Runoff Depth=3.98"
Tc=32.4 min CN=64 Runoff=50.40 cfs 7.668 af

SubcatchmentB1: PR-B1 Runoff Area=9.160 ac 53.49% Impervious Runoff Depth=6.93"
Tc=23.4 min CN=89 Runoff=39.04 cfs 5.292 af

SubcatchmentB2: PR-B2 Runoff Area=0.610 ac 25.08% Impervious Runoff Depth=2.84"
Tc=6.0 min CN=54 Runoff=1.90 cfs 0.145 af

SubcatchmentB3: PR-B3 Runoff Area=12.442 ac 9.21% Impervious Runoff Depth=3.29"
Tc=20.4 min CN=58 Runoff=28.16 cfs 3.416 af

Pond BB1: Bio-Retention Basin Peak Elev=403.85' Storage=8,850 cf Inflow=2.78 cfs 0.962 af
Outflow=1.03 cfs 0.784 af

Pond DA2: Detention Basin A-2 Peak Elev=396.77' Storage=1,959 cf Inflow=1.62 cfs 0.141 af
Outflow=0.30 cfs 0.104 af

Pond DB1: Detention Basin B-1 Peak Elev=406.04' Storage=68,994 cf Inflow=36.50 cfs 3.870 af
Outflow=18.14 cfs 2.633 af

Pond DPA: Design Point A Inflow=99.59 cfs 14.817 af
Primary=99.59 cfs 14.817 af

Pond DPB: Design Point B Inflow=38.51 cfs 6.833 af
Primary=38.51 cfs 6.833 af

Pond FA1: Forebay A-1 Peak Elev=408.95' Storage=45,103 cf Inflow=37.53 cfs 5.293 af
Outflow=36.38 cfs 4.482 af

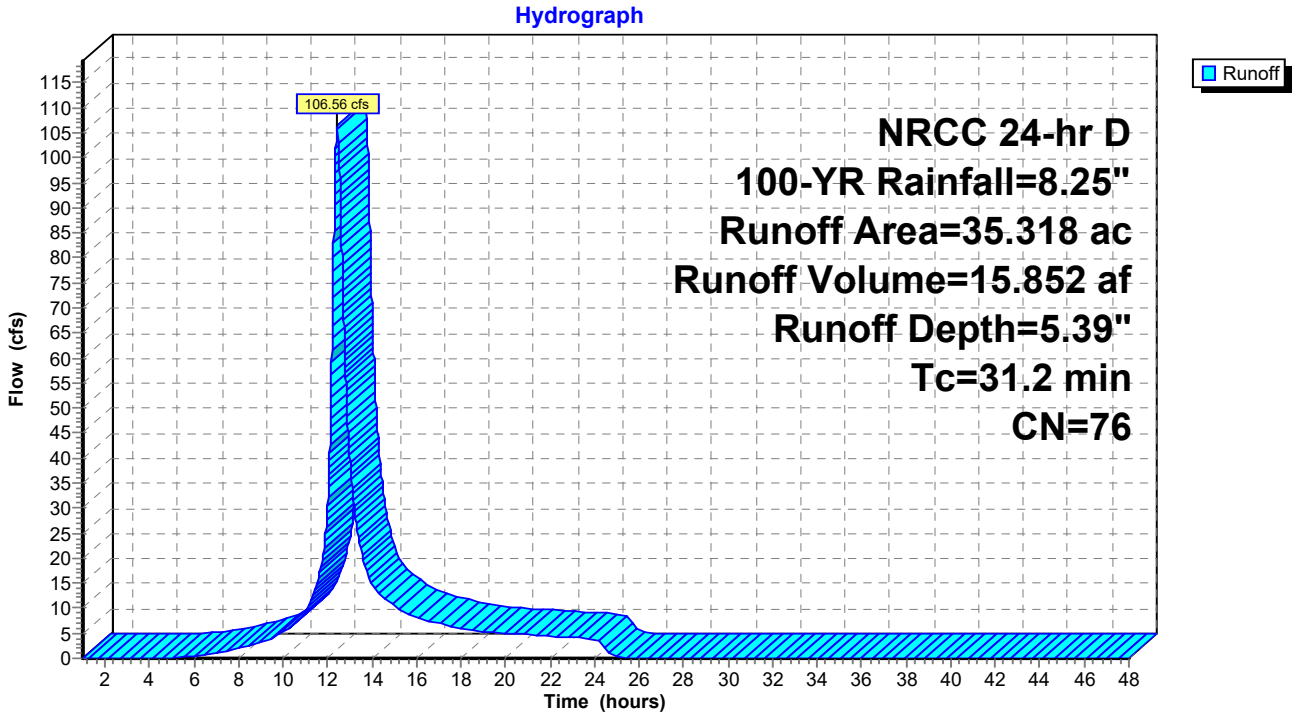
Pond FA2: Forebay A-2 Peak Elev=398.13' Storage=1,935 cf Inflow=1.72 cfs 0.182 af
Outflow=1.62 cfs 0.141 af

Pond FB1: Forebay B-1 Peak Elev=409.01' Storage=41,114 cf Inflow=39.04 cfs 5.292 af
Primary=36.50 cfs 3.870 af Secondary=1.06 cfs 0.817 af Outflow=37.56 cfs 4.688 af

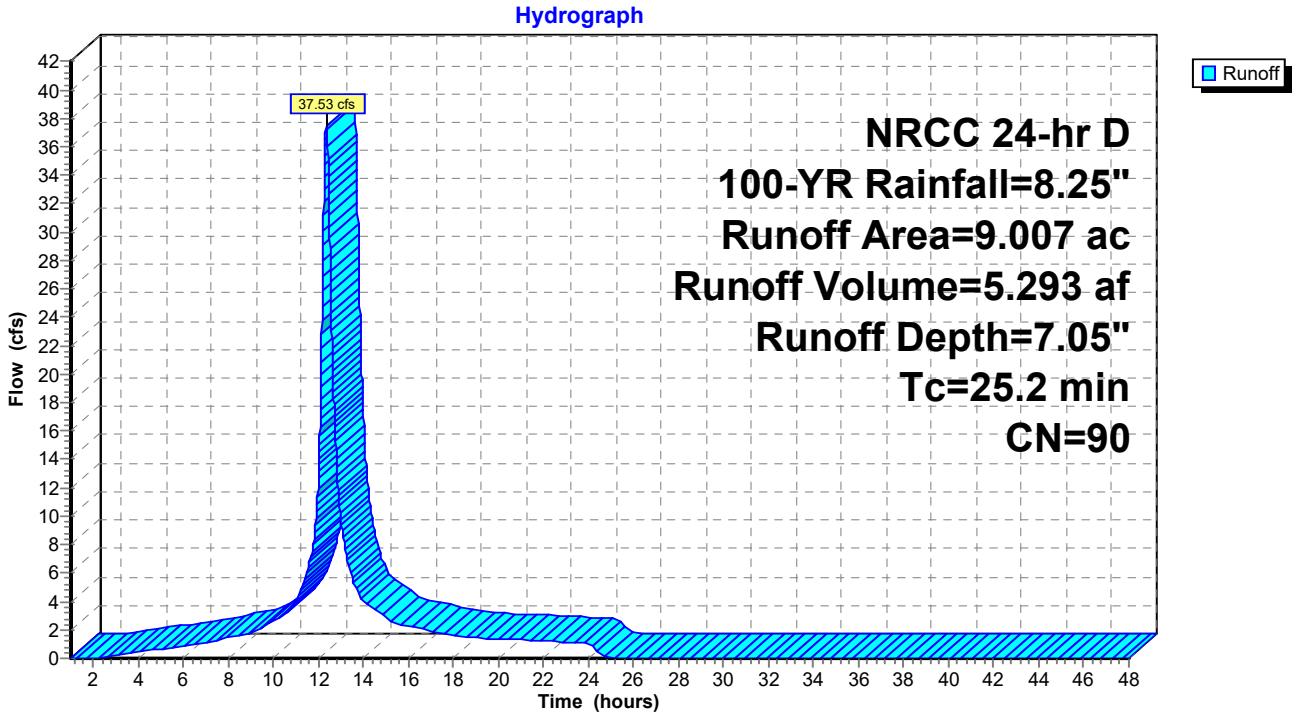
Pond IA1: Infiltration Basin A-1 Peak Elev=408.36' Storage=74,465 cf Inflow=36.38 cfs 4.482 af
Discarded=0.54 cfs 1.140 af Primary=15.92 cfs 2.771 af Outflow=16.46 cfs 3.911 af

Total Runoff Area = 116.854 ac Runoff Volume = 49.788 af Average Runoff Depth = 5.11"
76.67% Pervious = 89.593 ac 23.33% Impervious = 27.261 ac

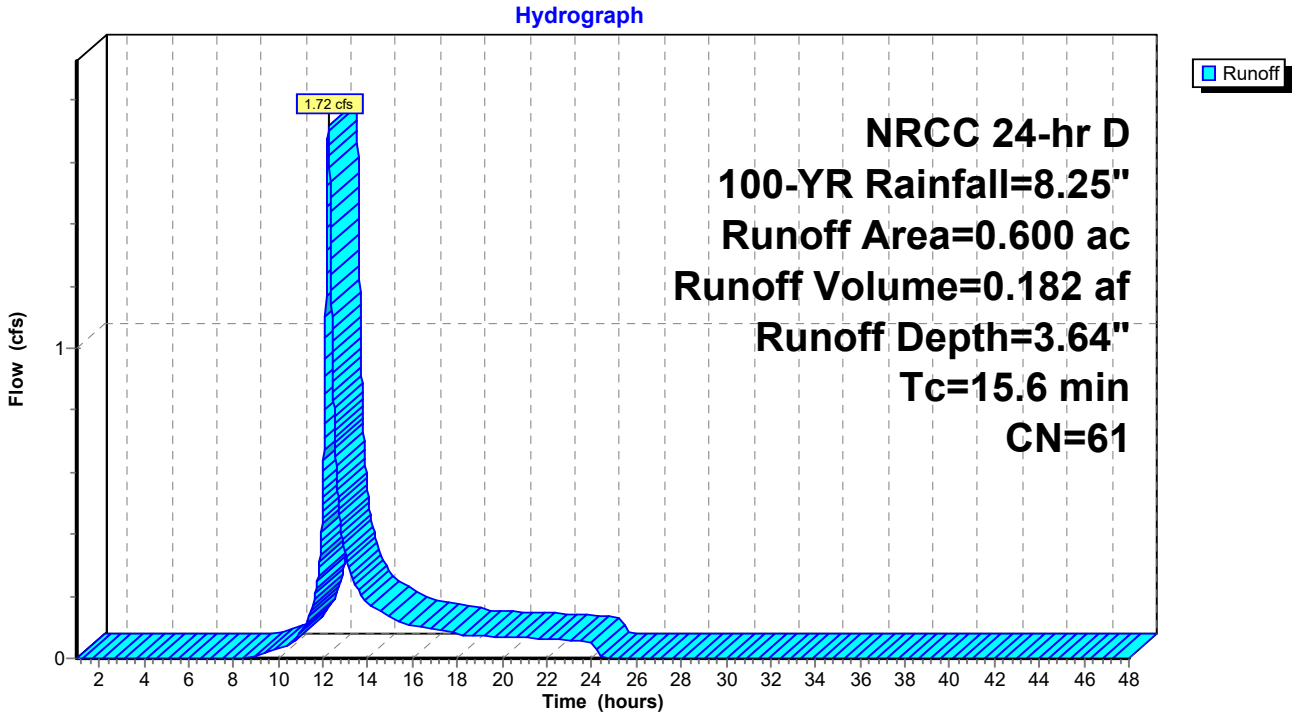
Subcatchment A: EX-A



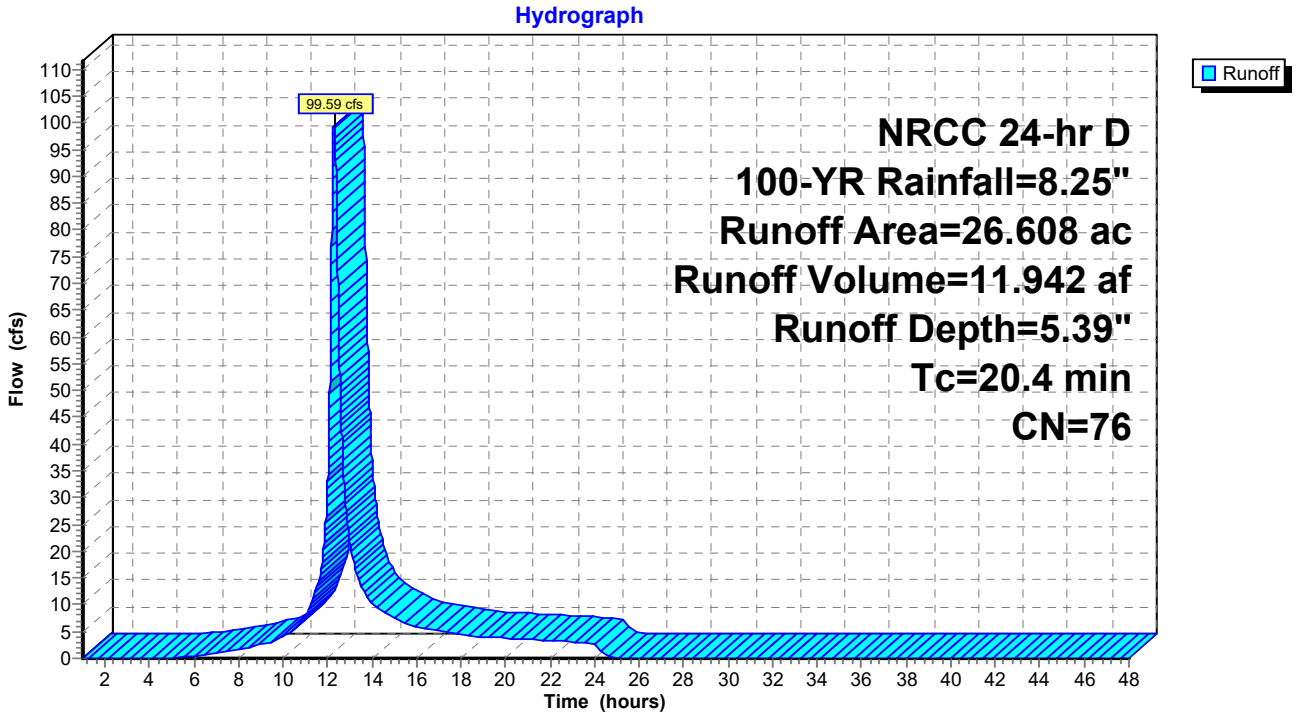
Subcatchment A1: PR-A1



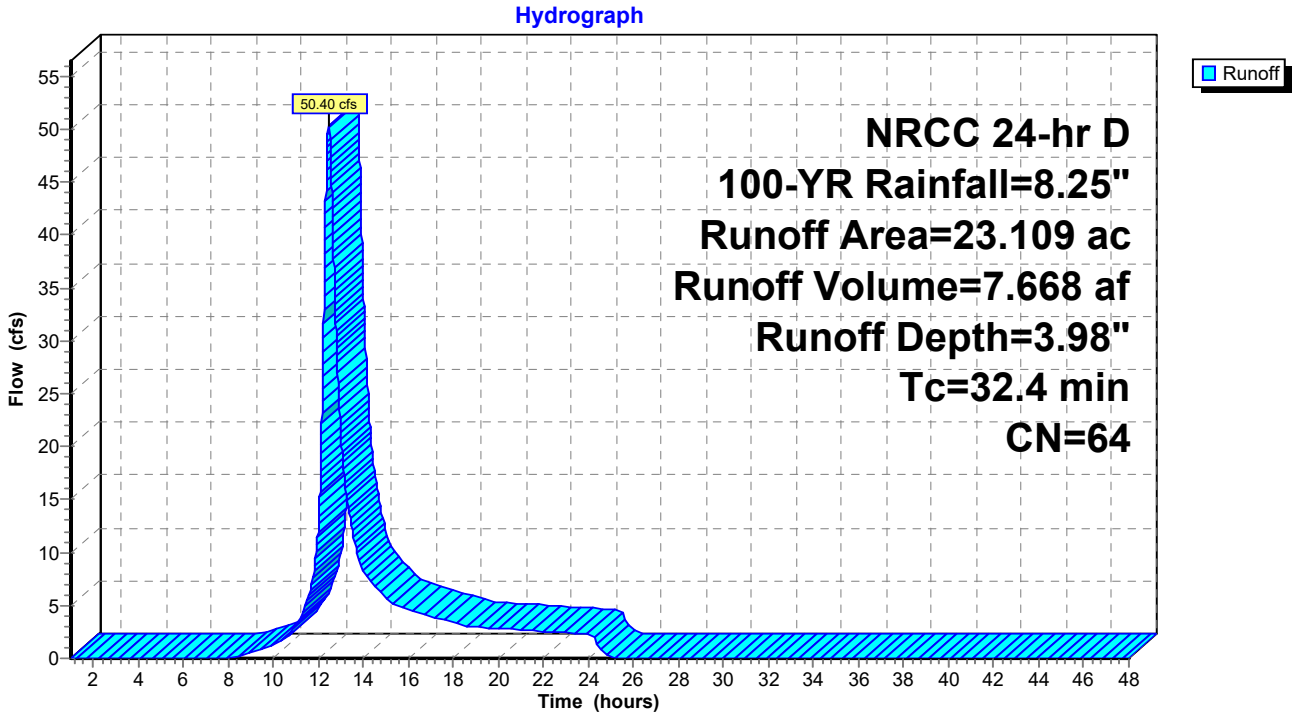
Subcatchment A2: PR-A2



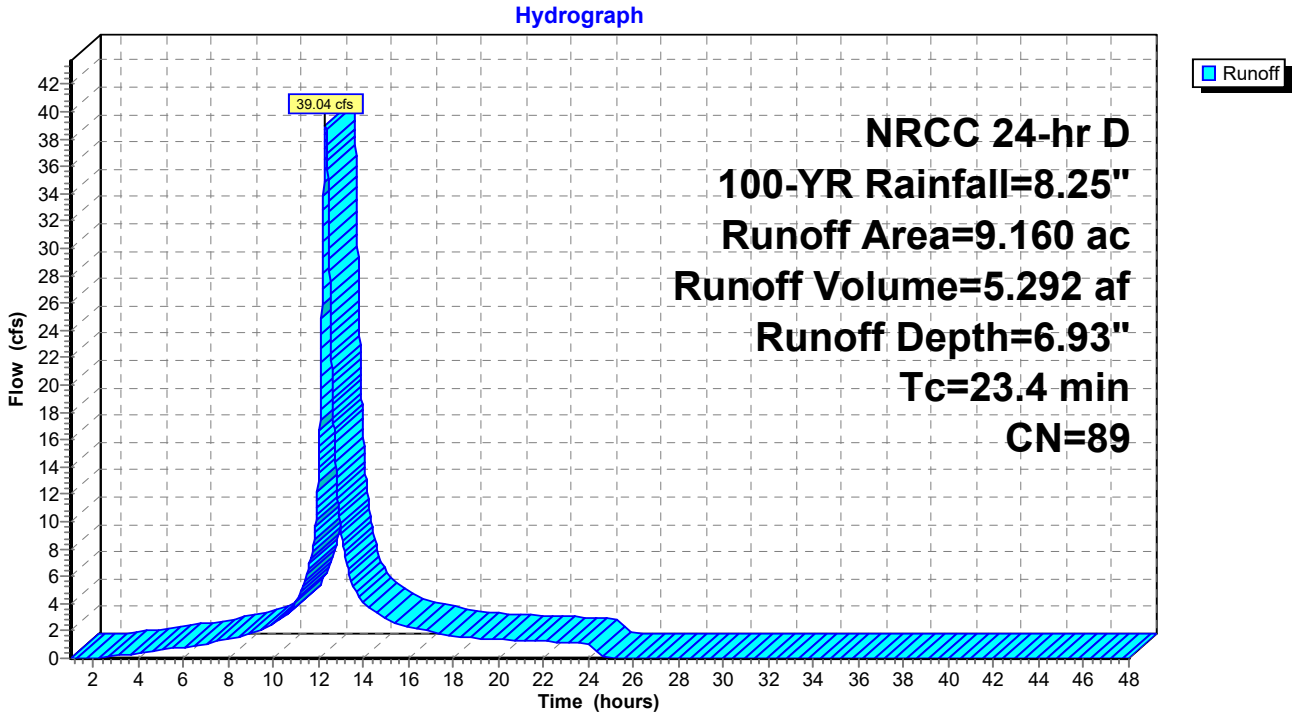
Subcatchment A3: PR-A3



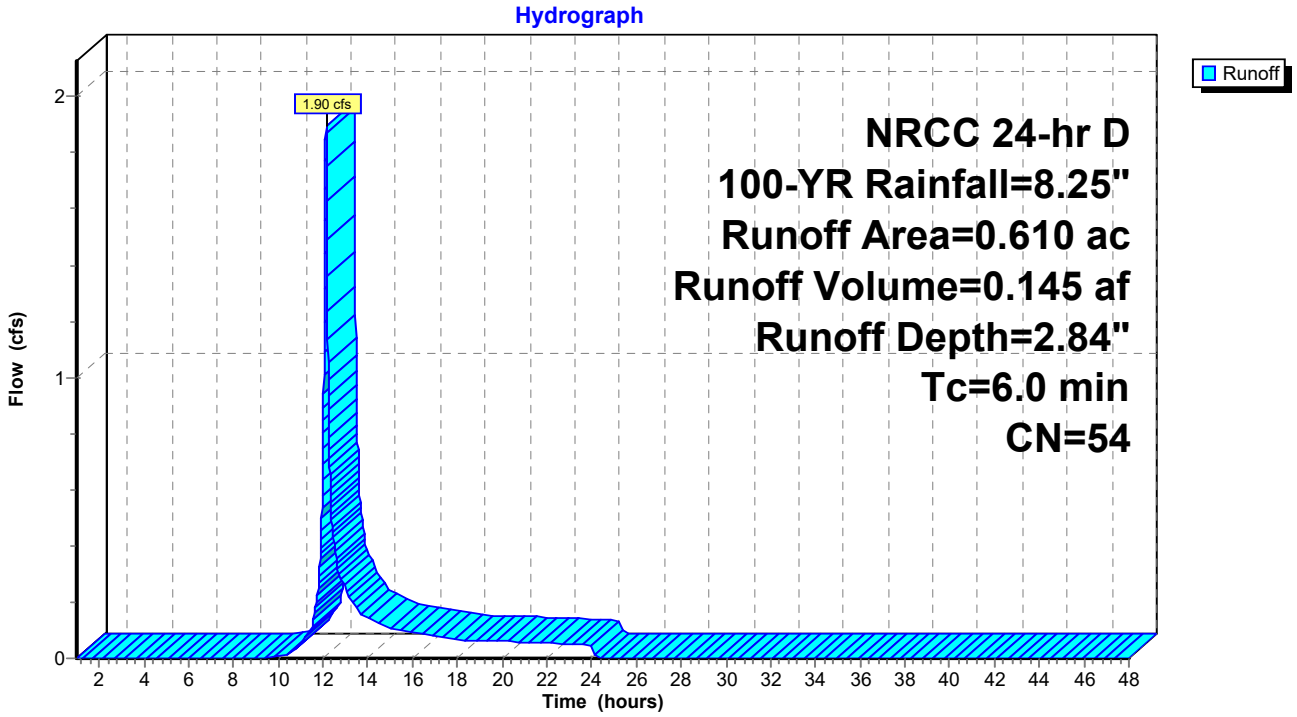
Subcatchment B: EX-B



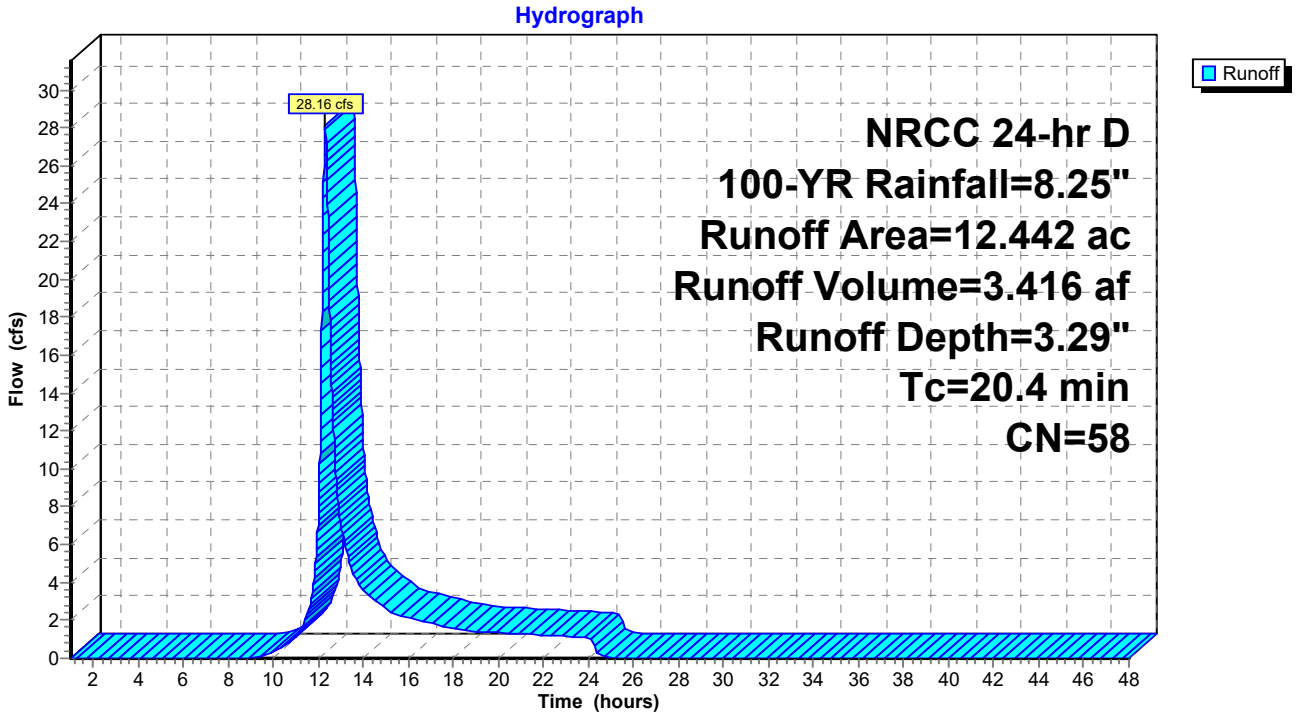
Subcatchment B1: PR-B1



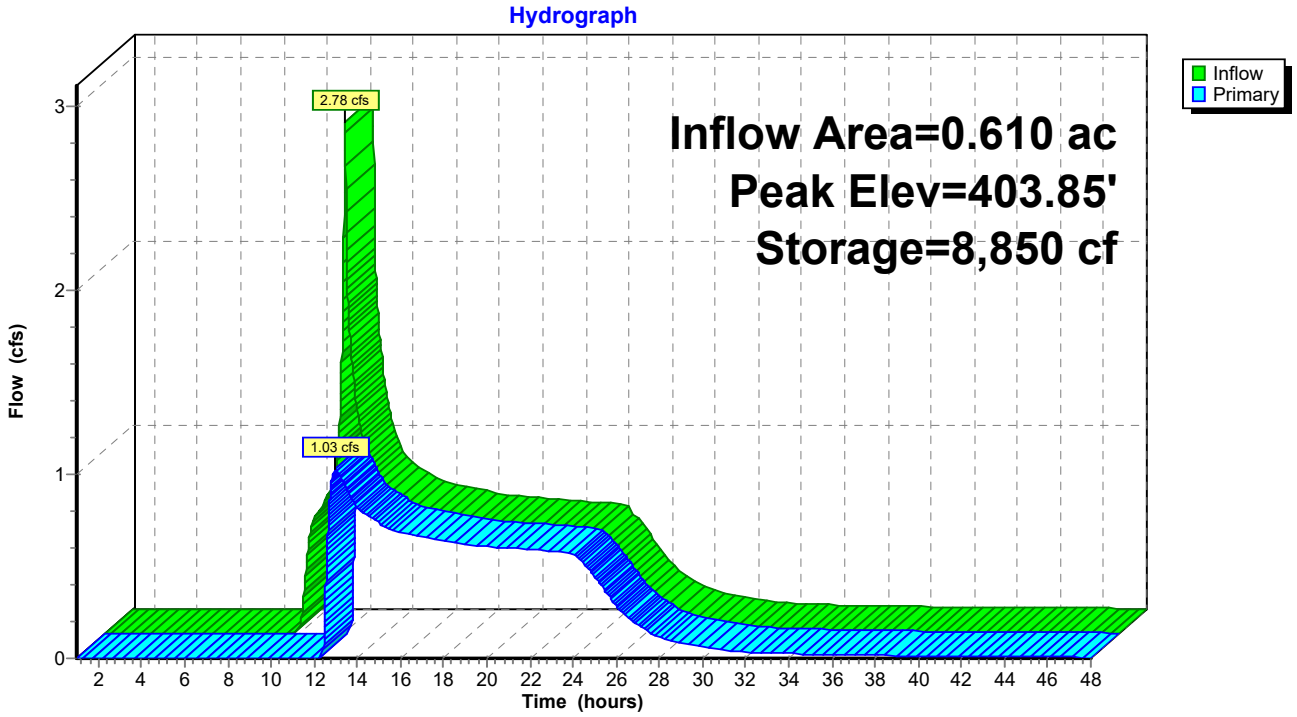
Subcatchment B2: PR-B2



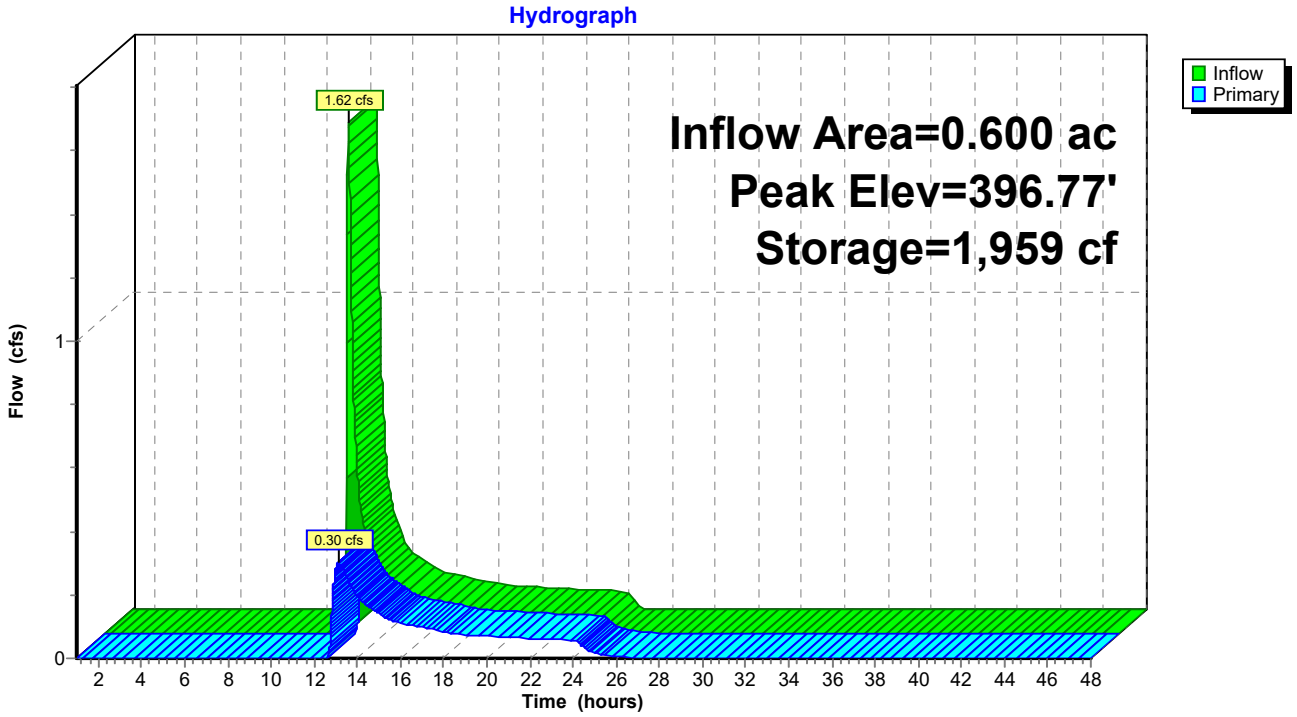
Subcatchment B3: PR-B3



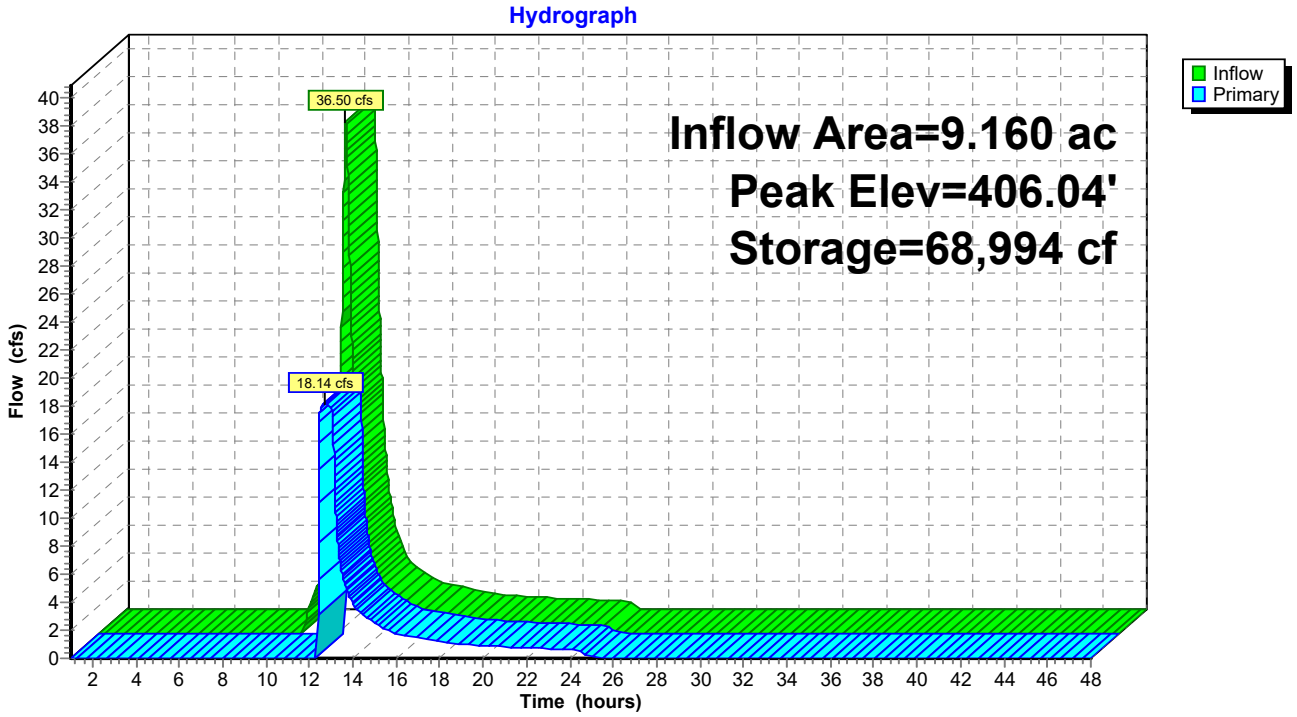
Pond BB1: Bio-Retention Basin



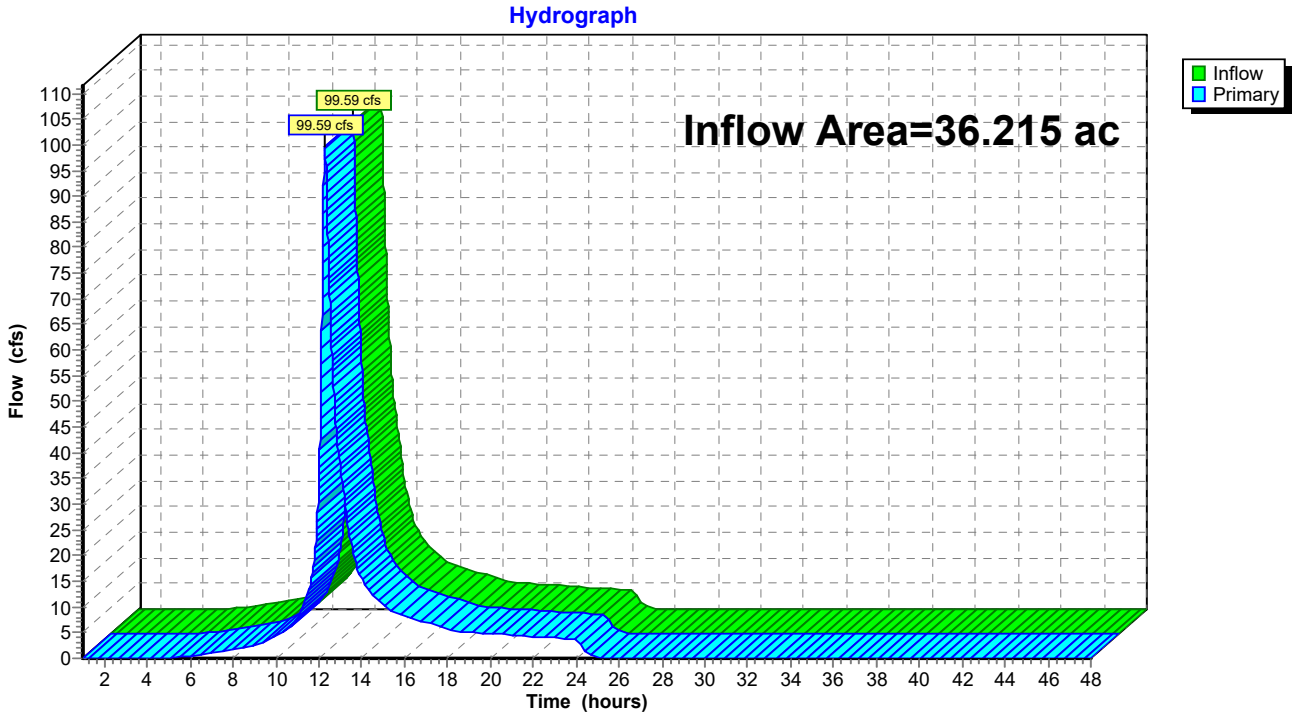
Pond DA2: Detention Basin A-2



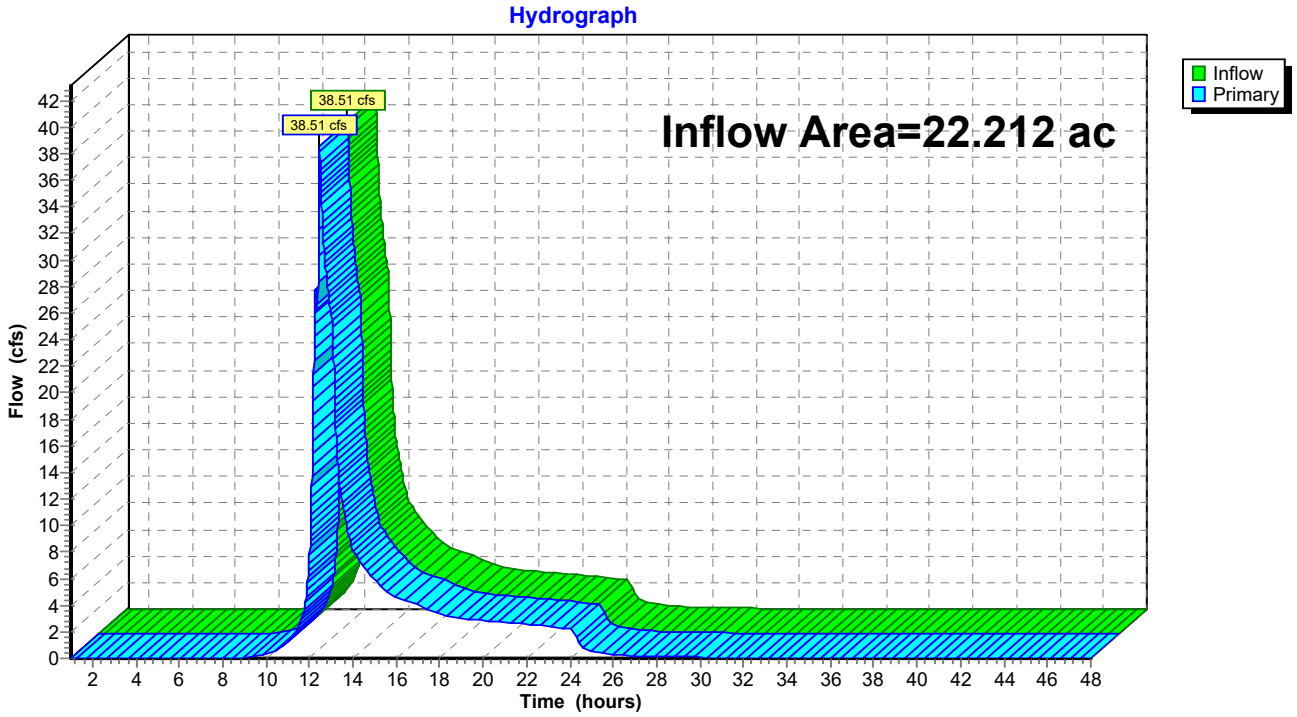
Pond DB1: Detention Basin B-1



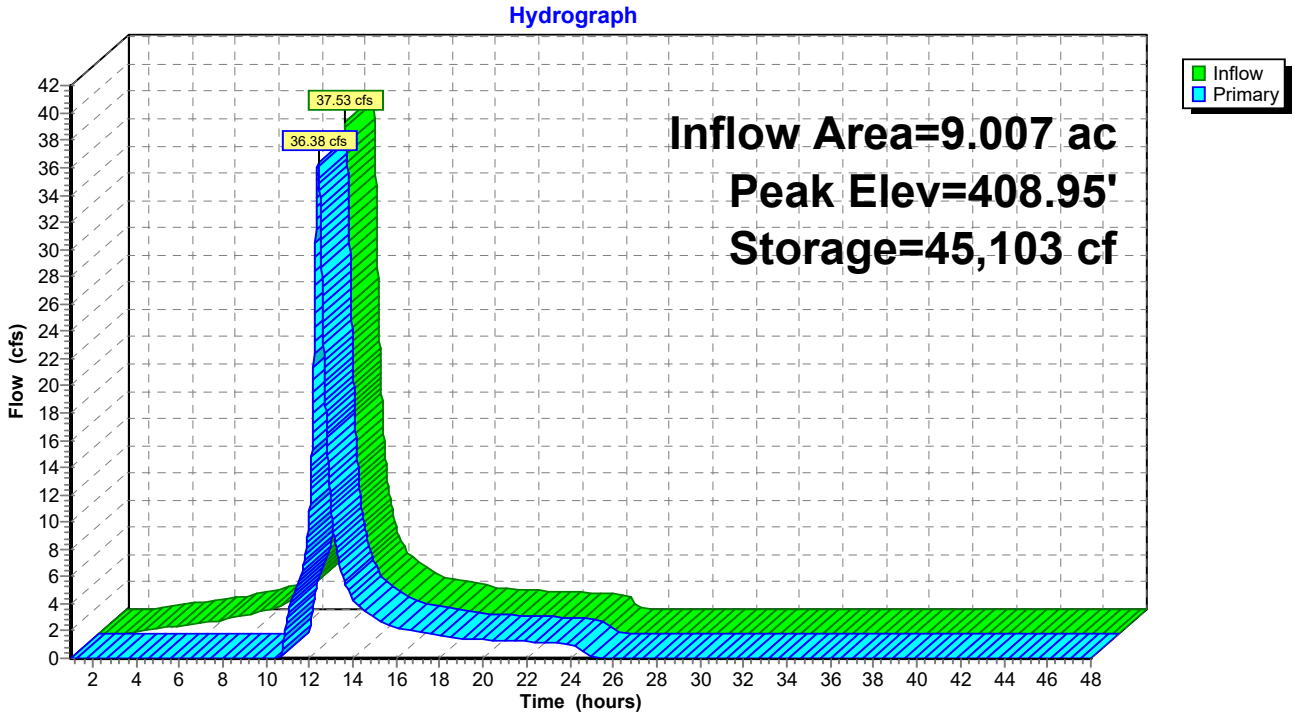
Pond DPA: Design Point A



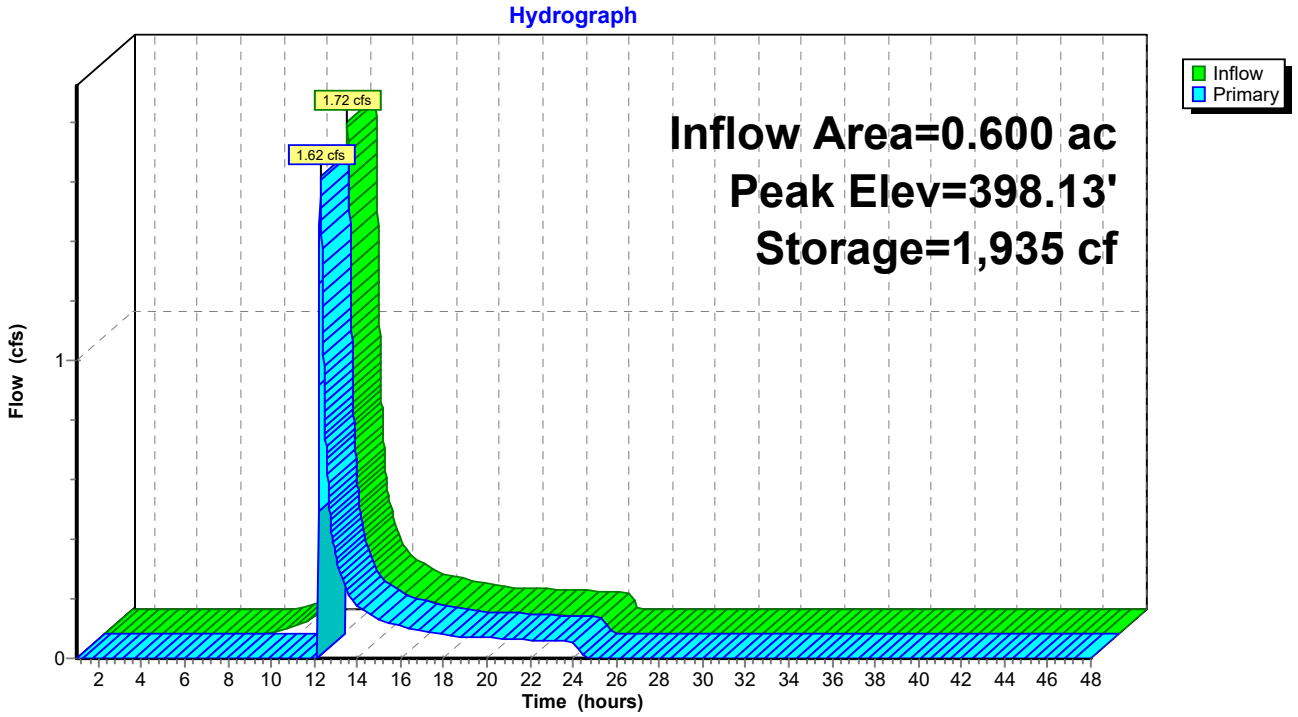
Pond DPB: Design Point B



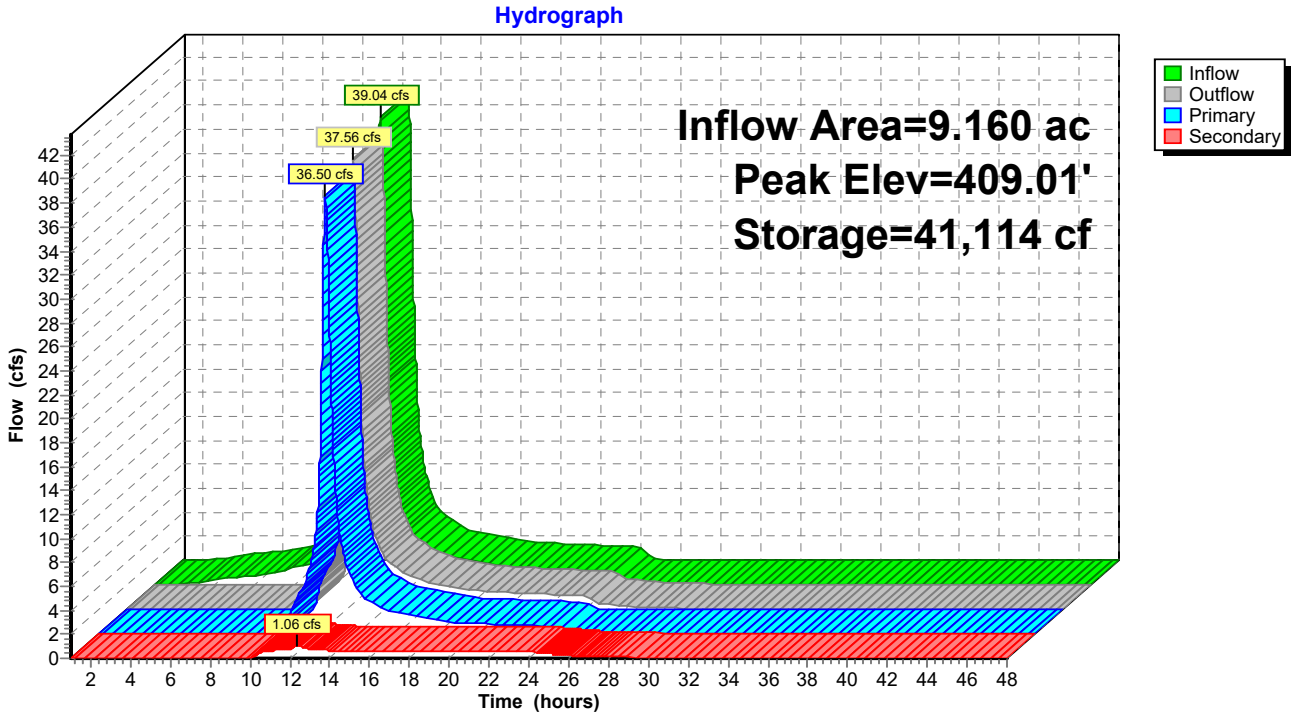
Pond FA1: Forebay A-1



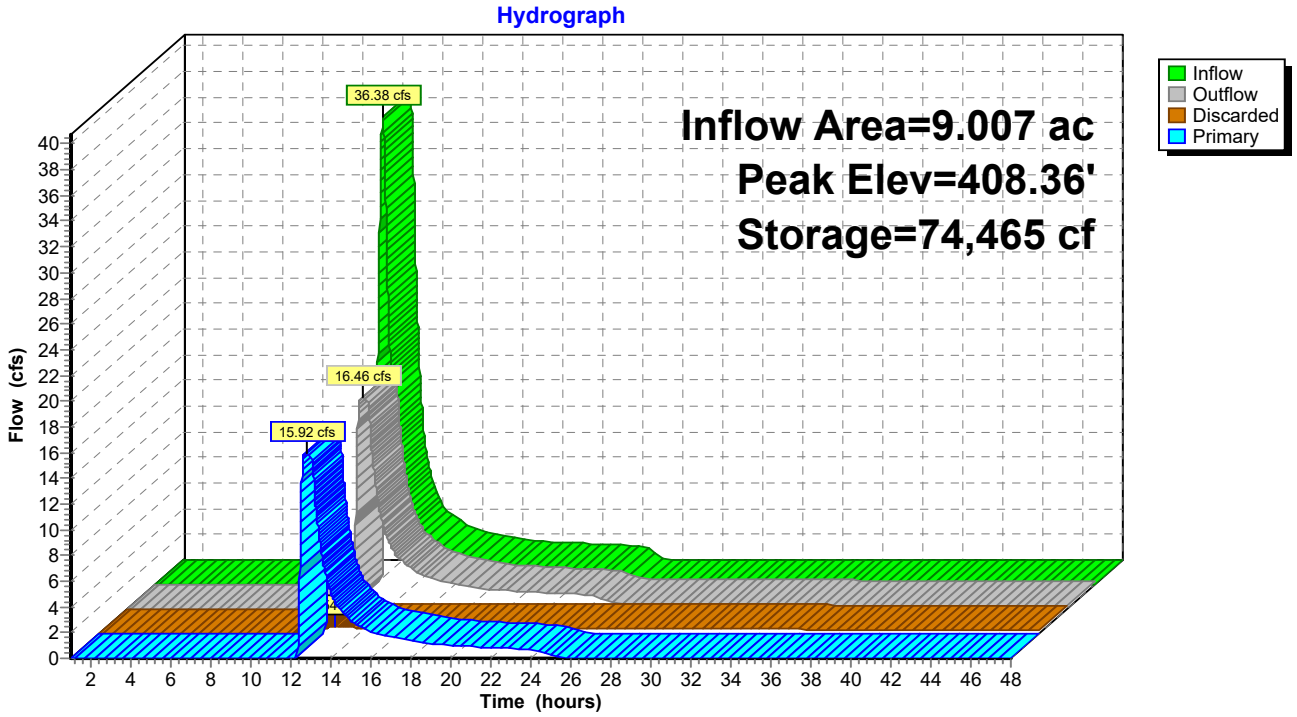
Pond FA2: Forebay A-2



Pond FB1: Forebay B-1



Pond IA1: Infiltration Basin A-1



APPENDIX 11

500-YEAR DESIGN STORM HYDROGRAPHS

Time span=1.00-48.00 hrs, dt=0.01 hrs, 4701 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentA: EX-A Runoff Area=35.318 ac 19.88% Impervious Runoff Depth=9.18"
Tc=31.2 min CN=76 Runoff=178.28 cfs 27.027 af

SubcatchmentA1: PR-A1 Runoff Area=9.007 ac 57.93% Impervious Runoff Depth=11.06"
Tc=25.2 min CN=90 Runoff=57.43 cfs 8.302 af

SubcatchmentA2: PR-A2 Runoff Area=0.600 ac 17.00% Impervious Runoff Depth=6.98"
Tc=15.6 min CN=61 Runoff=3.32 cfs 0.349 af

SubcatchmentA3: PR-A3 Runoff Area=26.608 ac 28.60% Impervious Runoff Depth=9.18"
Tc=20.4 min CN=76 Runoff=166.45 cfs 20.362 af

SubcatchmentB: EX-B Runoff Area=23.109 ac 4.81% Impervious Runoff Depth=7.43"
Tc=32.4 min CN=64 Runoff=94.55 cfs 14.315 af

SubcatchmentB1: PR-B1 Runoff Area=9.160 ac 53.49% Impervious Runoff Depth=10.93"
Tc=23.4 min CN=89 Runoff=60.03 cfs 8.345 af

SubcatchmentB2: PR-B2 Runoff Area=0.610 ac 25.08% Impervious Runoff Depth=5.87"
Tc=6.0 min CN=54 Runoff=4.00 cfs 0.299 af

SubcatchmentB3: PR-B3 Runoff Area=12.442 ac 9.21% Impervious Runoff Depth=6.51"
Tc=20.4 min CN=58 Runoff=56.68 cfs 6.748 af

Pond BB1: Bio-Retention Basin Peak Elev=403.98' Storage=10,293 cf Inflow=4.99 cfs 1.283 af
Outflow=3.58 cfs 1.105 af

Pond DA2: Detention Basin A-2 Peak Elev=397.34' Storage=2,814 cf Inflow=3.31 cfs 0.308 af
Outflow=2.51 cfs 0.270 af

Pond DB1: Detention Basin B-1 Peak Elev=408.52' Storage=114,148 cf Inflow=57.14 cfs 6.757 af
Outflow=21.00 cfs 5.519 af

Pond DPA: Design Point A Inflow=184.91 cfs 26.290 af
Primary=184.91 cfs 26.290 af

Pond DPB: Design Point B Inflow=78.55 cfs 13.372 af
Primary=78.55 cfs 13.372 af

Pond FA1: Forebay A-1 Peak Elev=409.21' Storage=48,139 cf Inflow=57.43 cfs 8.302 af
Outflow=56.18 cfs 7.490 af

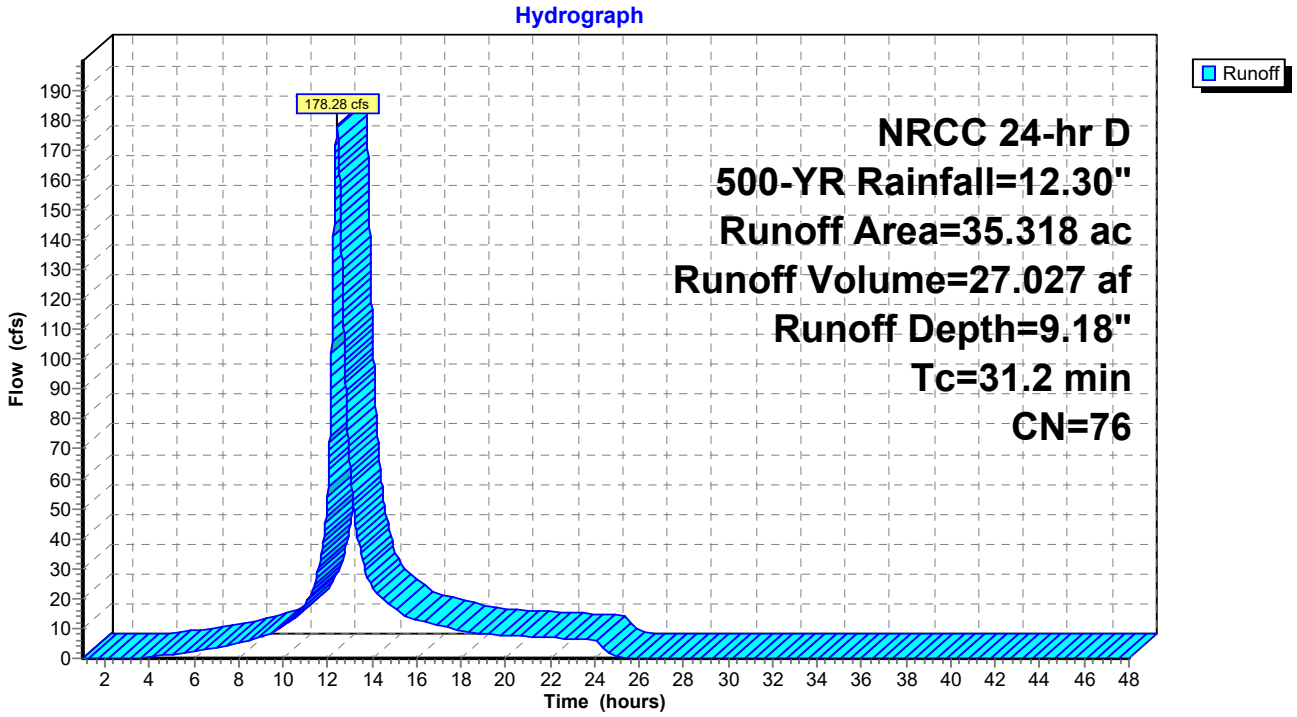
Pond FA2: Forebay A-2 Peak Elev=398.21' Storage=2,023 cf Inflow=3.32 cfs 0.349 af
Outflow=3.31 cfs 0.308 af

Pond FB1: Forebay B-1 Peak Elev=409.33' Storage=44,728 cf Inflow=60.03 cfs 8.345 af
Primary=57.14 cfs 6.757 af Secondary=1.19 cfs 0.984 af Outflow=58.33 cfs 7.741 af

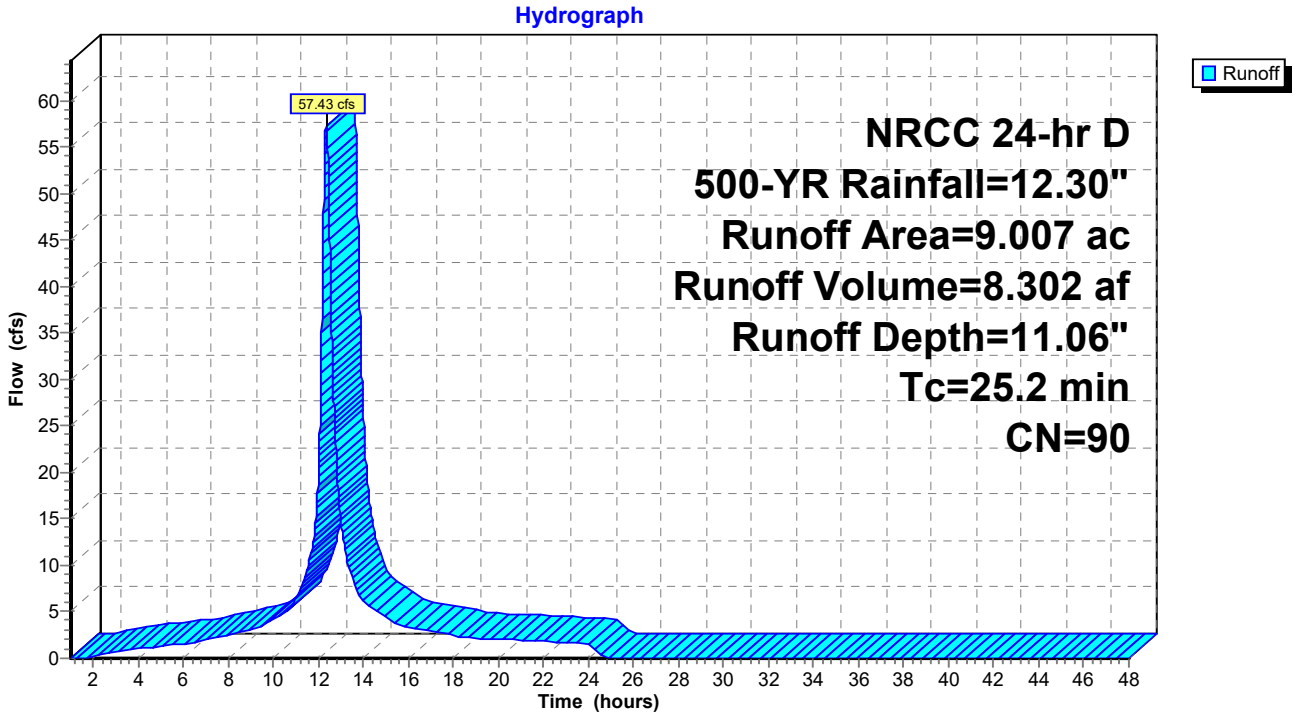
Pond IA1: Infiltration Basin A-1 Peak Elev=488.12' Storage=106,749 cf Inflow=56.18 cfs 7.490 af
Discarded=6.14 cfs 1.260 af Primary=62.06 cfs 5.658 af Outflow=68.20 cfs 6.918 af

Total Runoff Area = 116.854 ac Runoff Volume = 85.746 af Average Runoff Depth = 8.81"
76.67% Pervious = 89.593 ac 23.33% Impervious = 27.261 ac

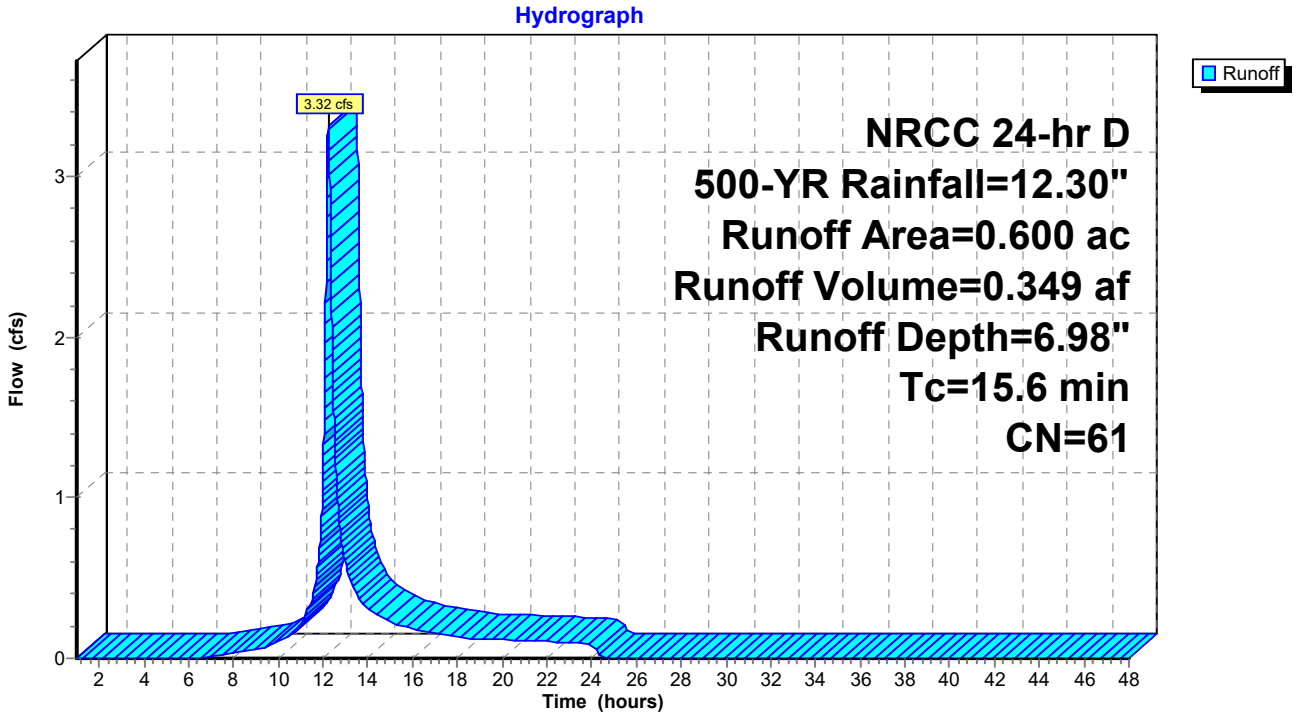
Subcatchment A: EX-A



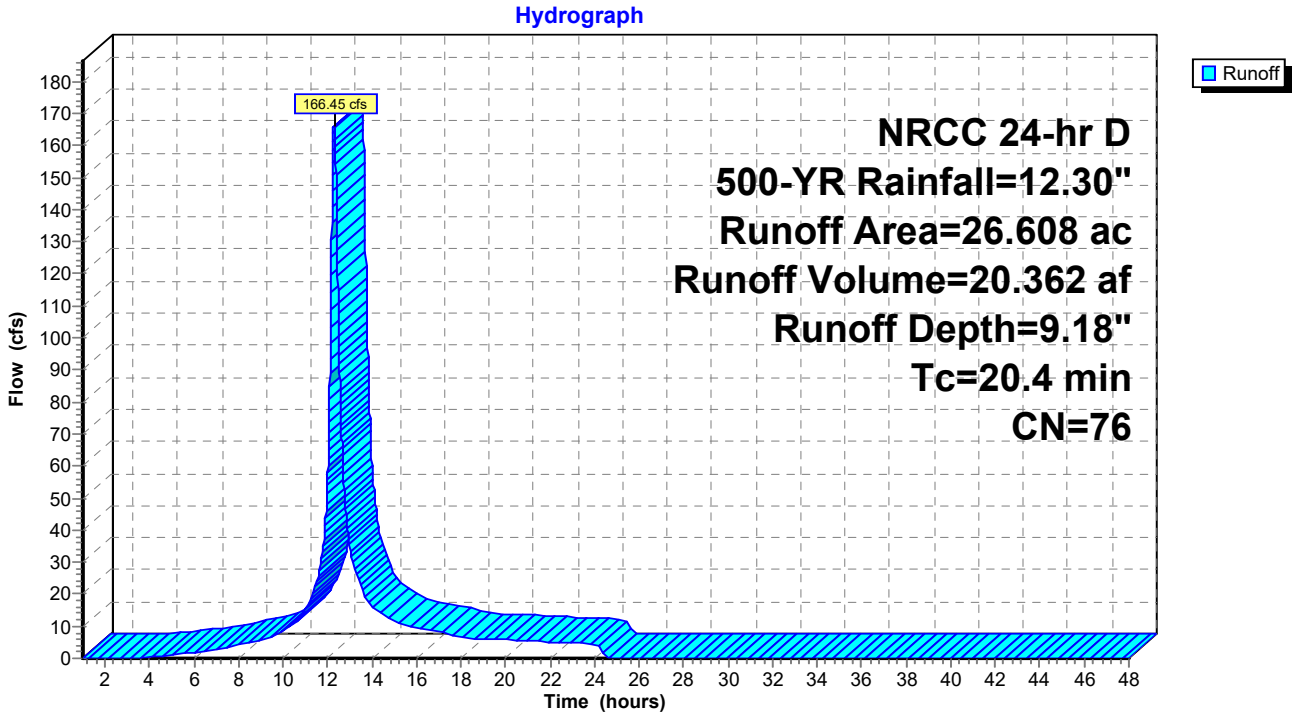
Subcatchment A1: PR-A1



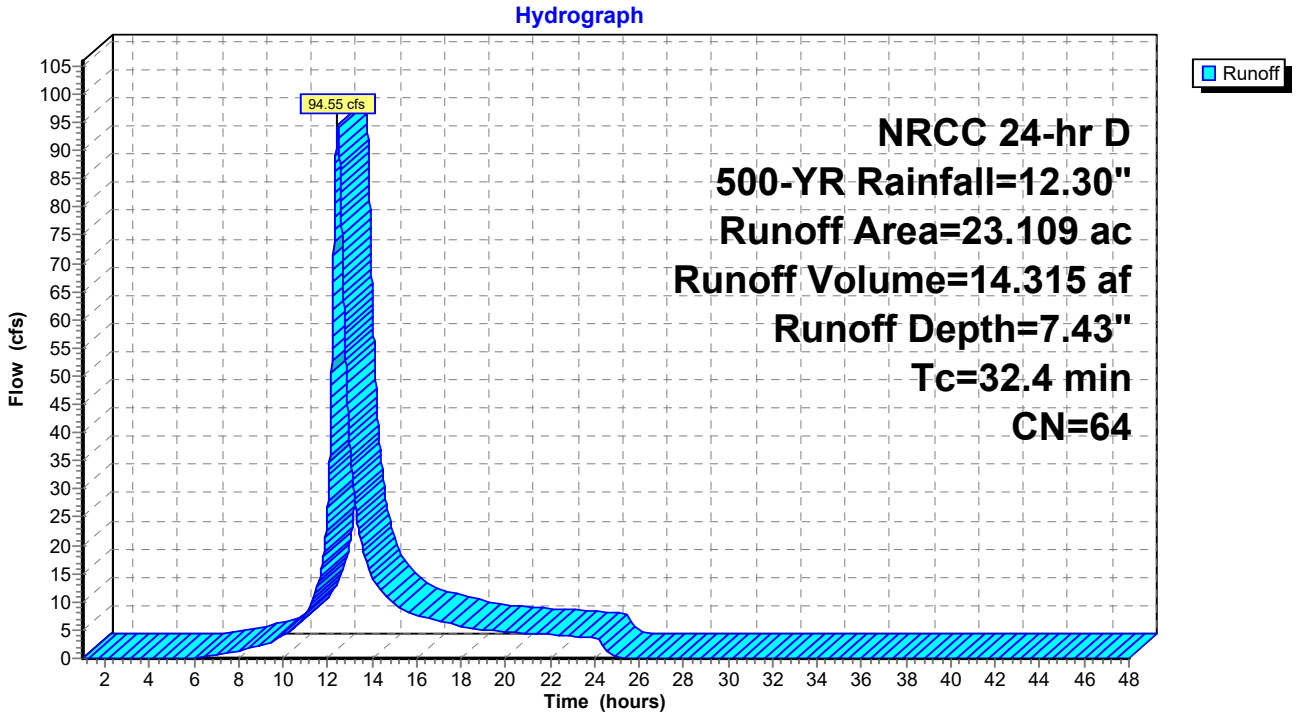
Subcatchment A2: PR-A2



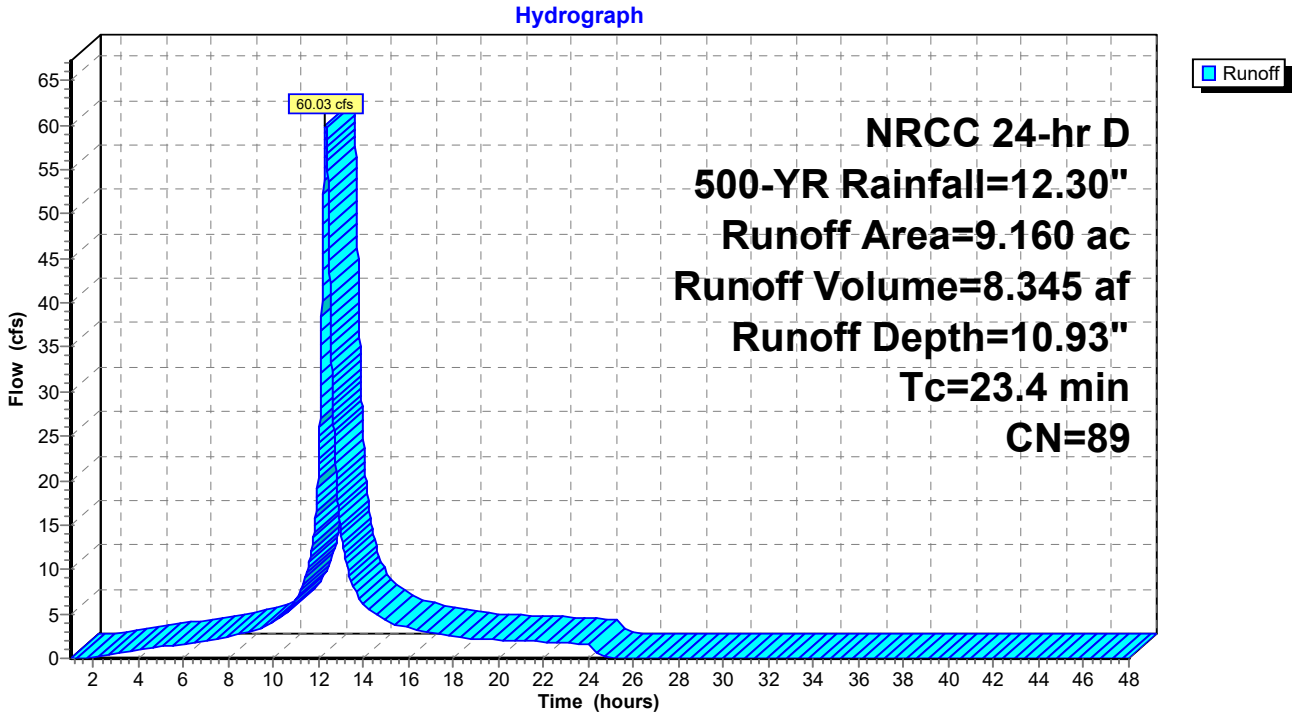
Subcatchment A3: PR-A3



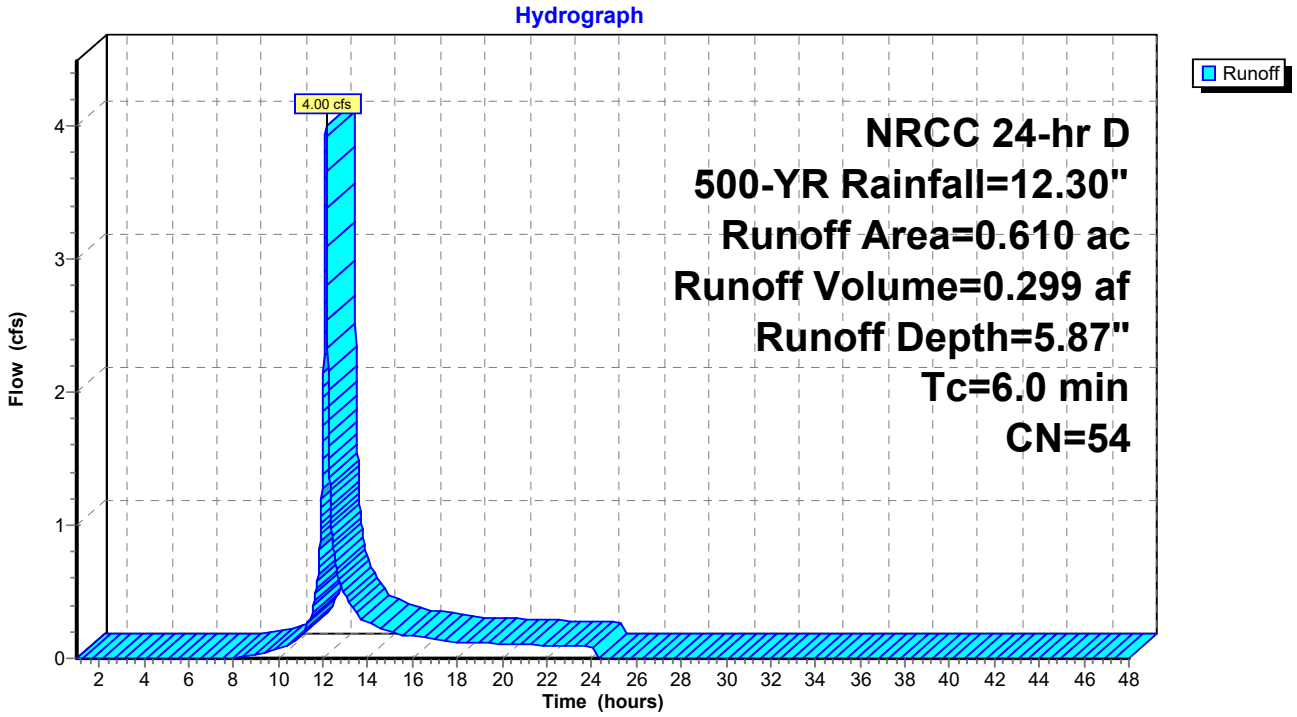
Subcatchment B: EX-B



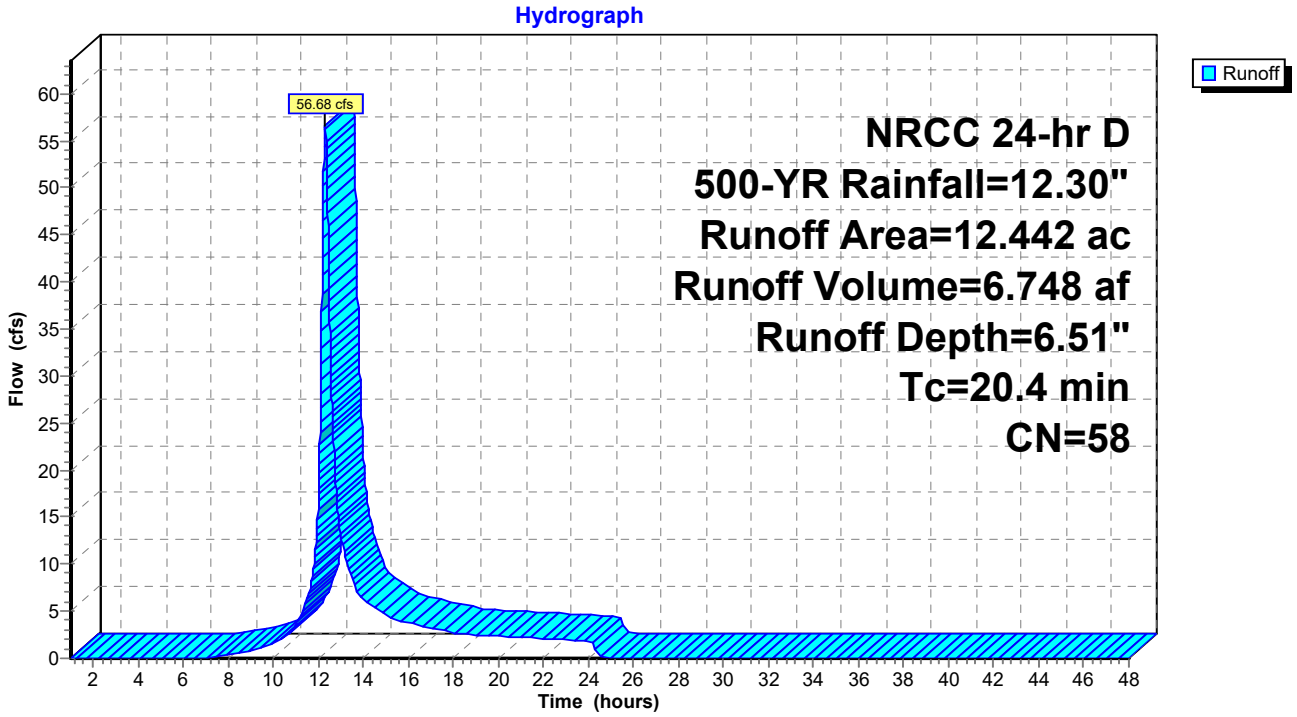
Subcatchment B1: PR-B1



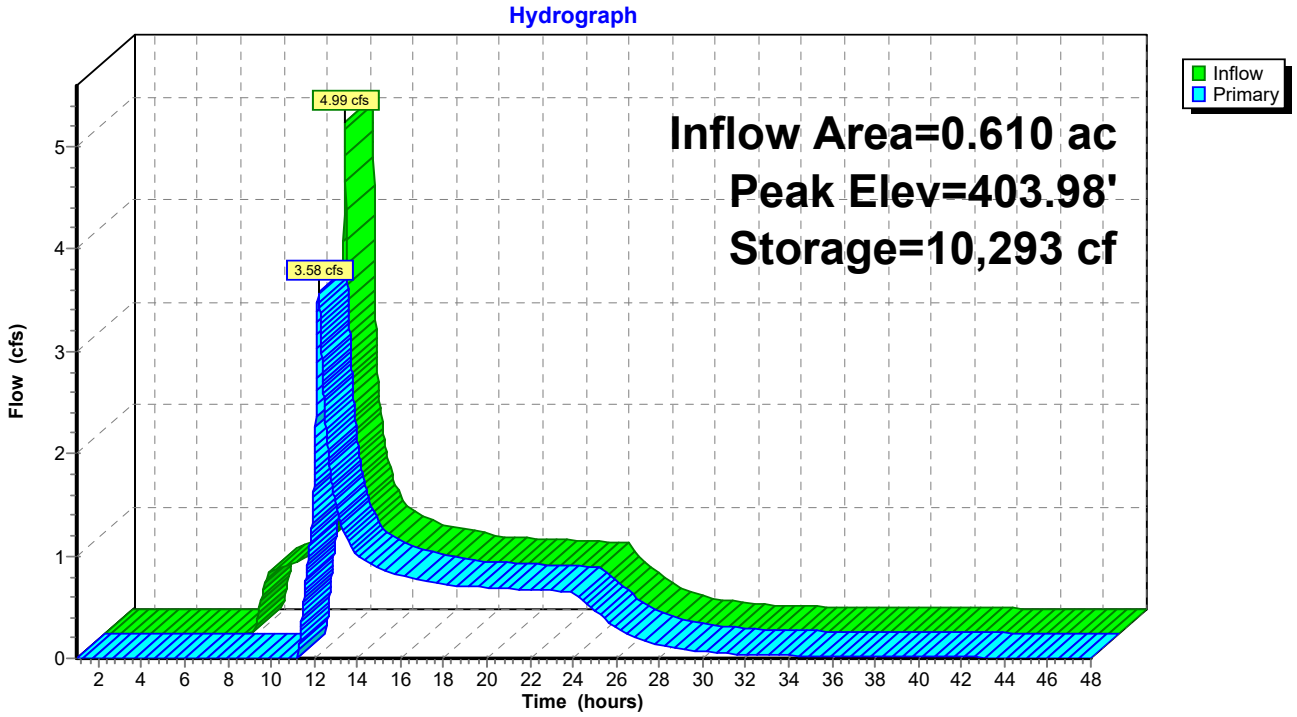
Subcatchment B2: PR-B2



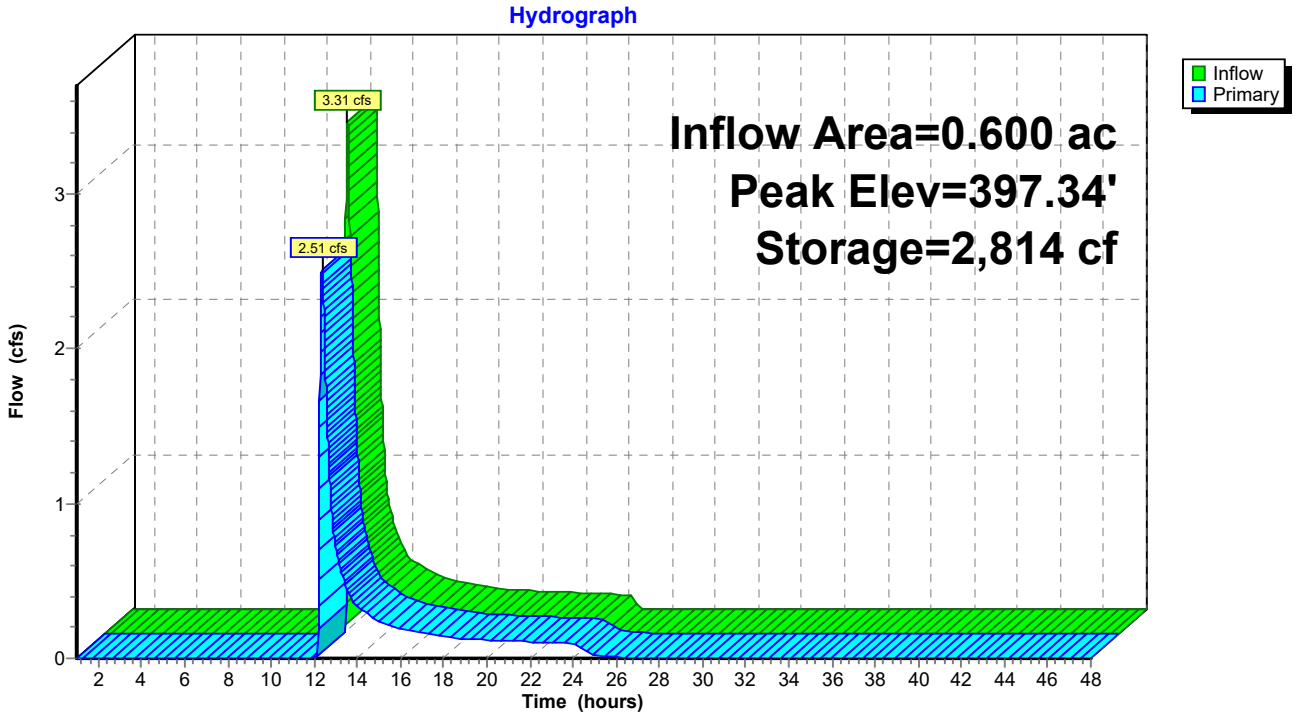
Subcatchment B3: PR-B3



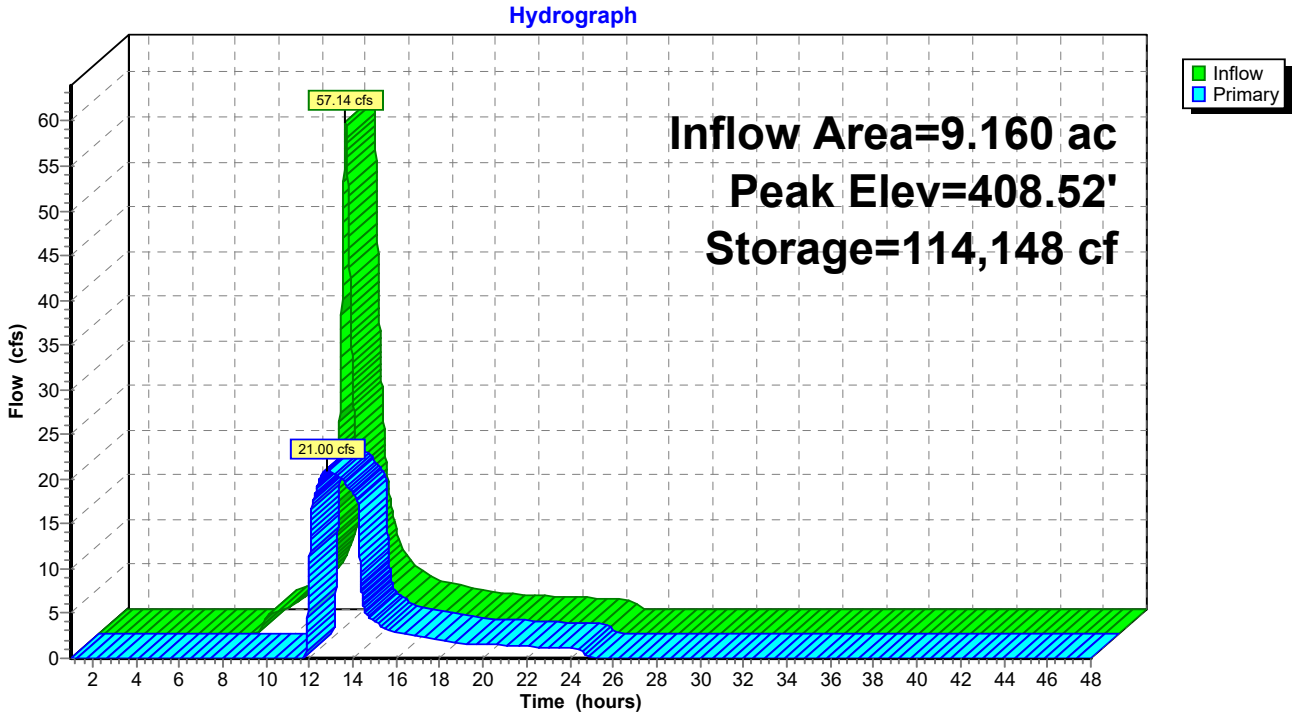
Pond BB1: Bio-Retention Basin



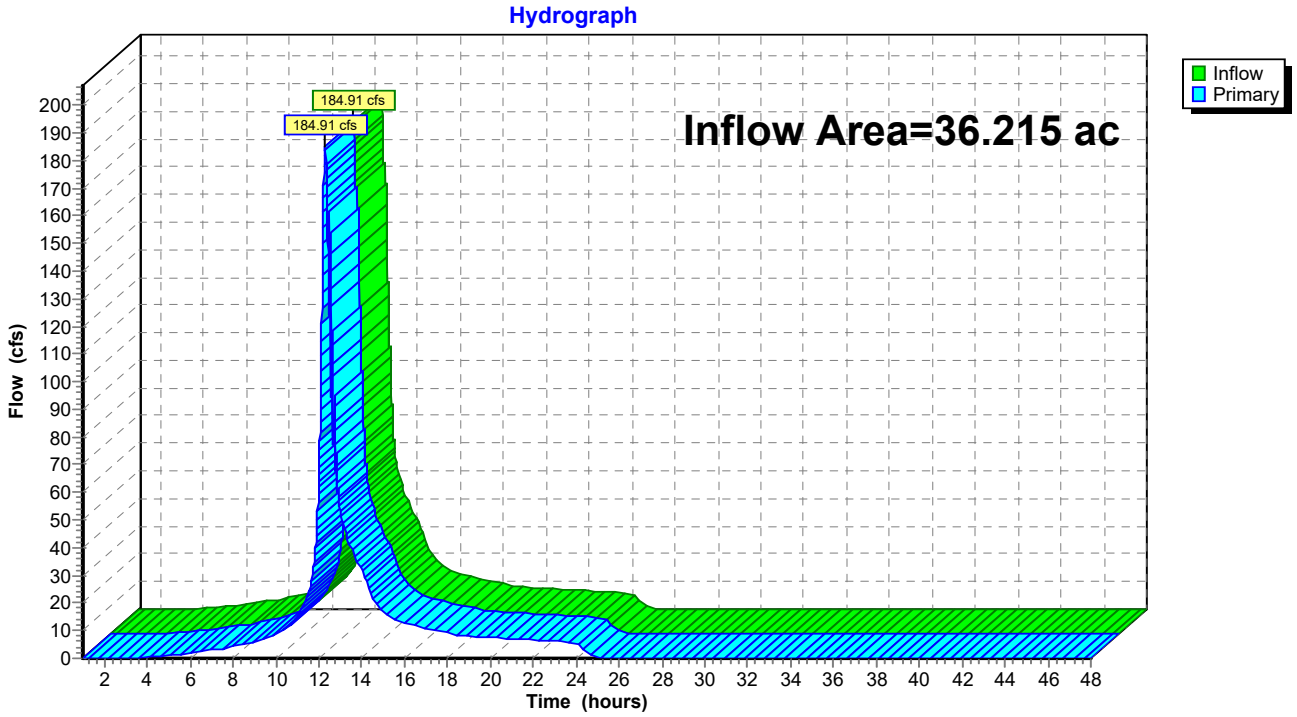
Pond DA2: Detention Basin A-2



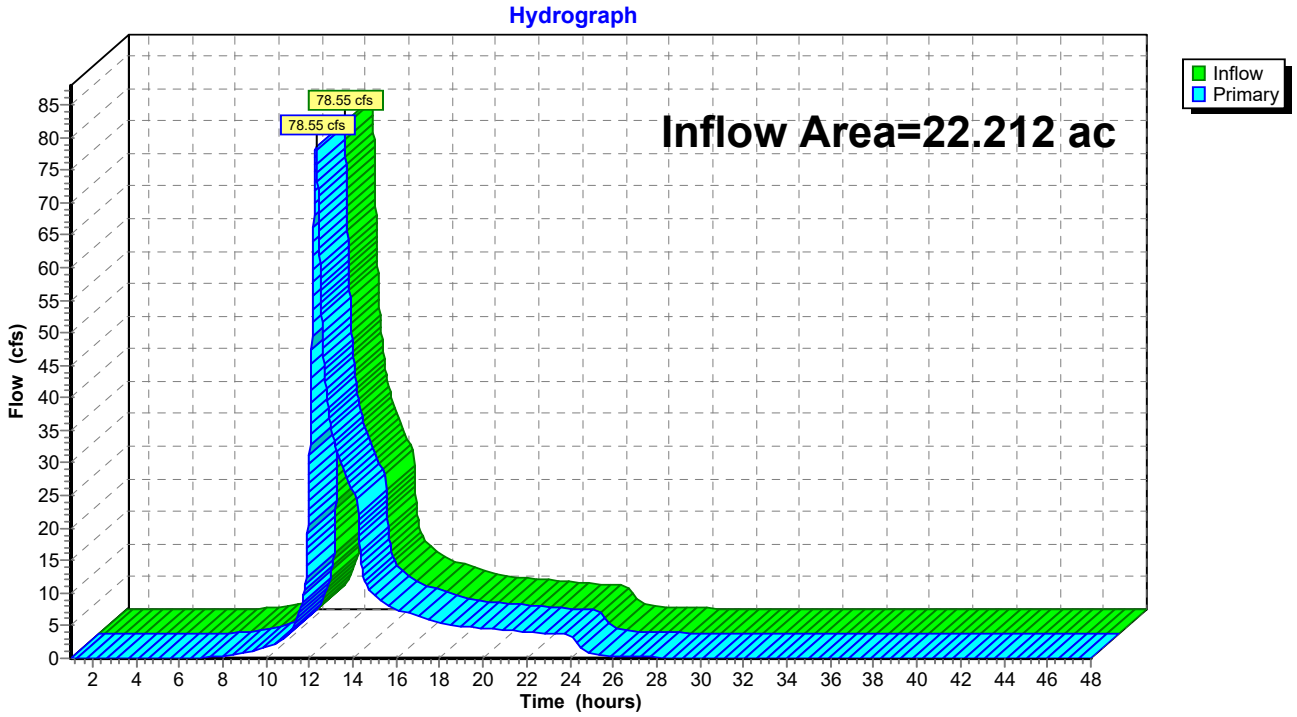
Pond DB1: Detention Basin B-1



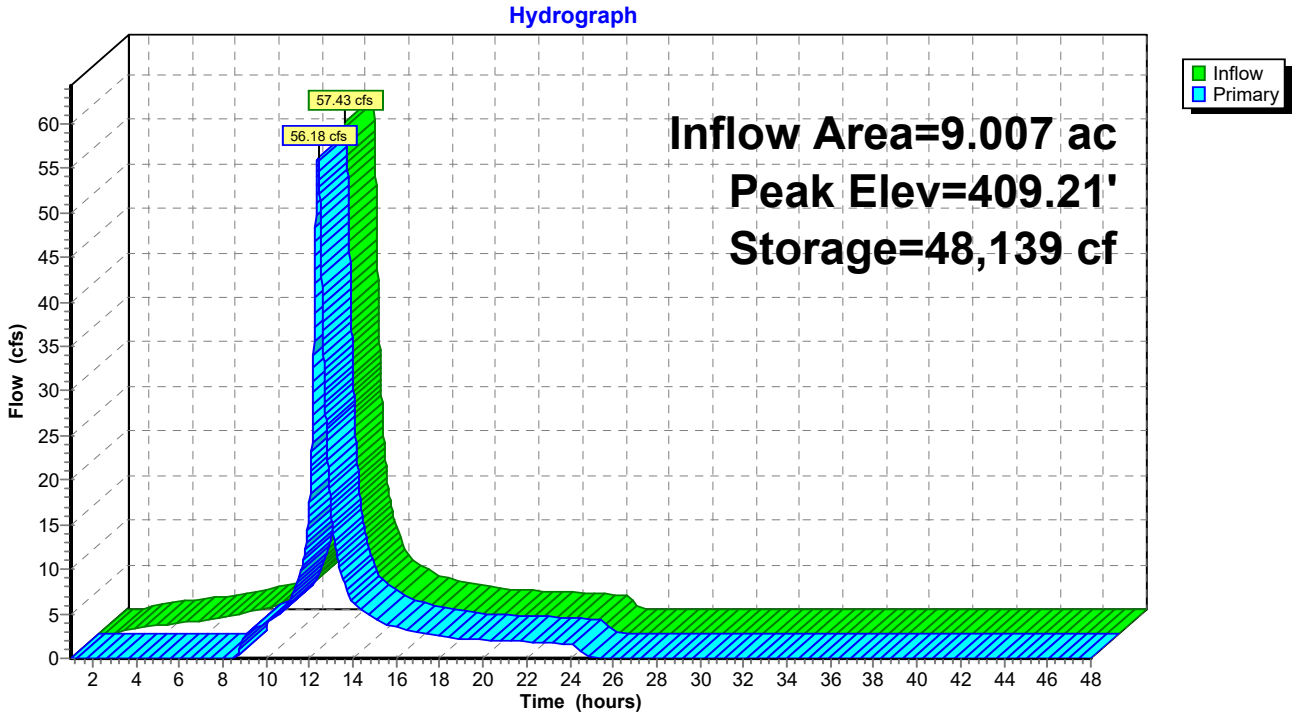
Pond DPA: Design Point A



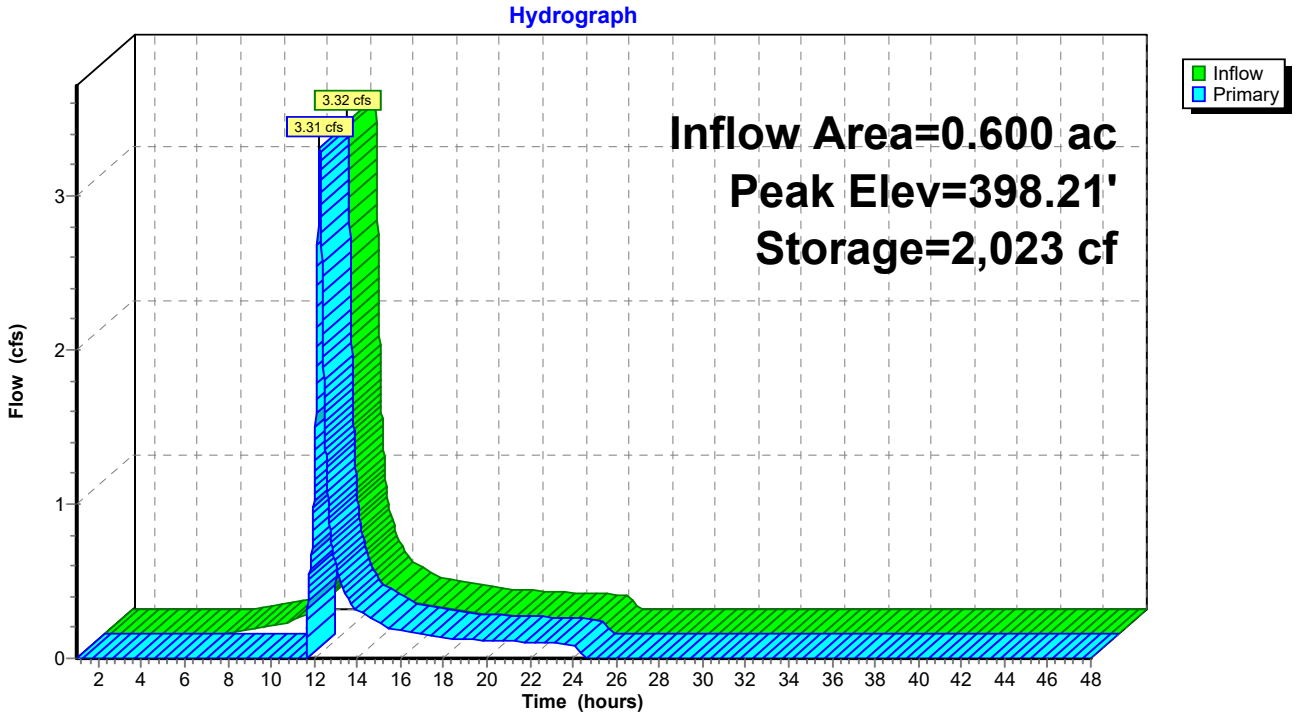
Pond DPB: Design Point B



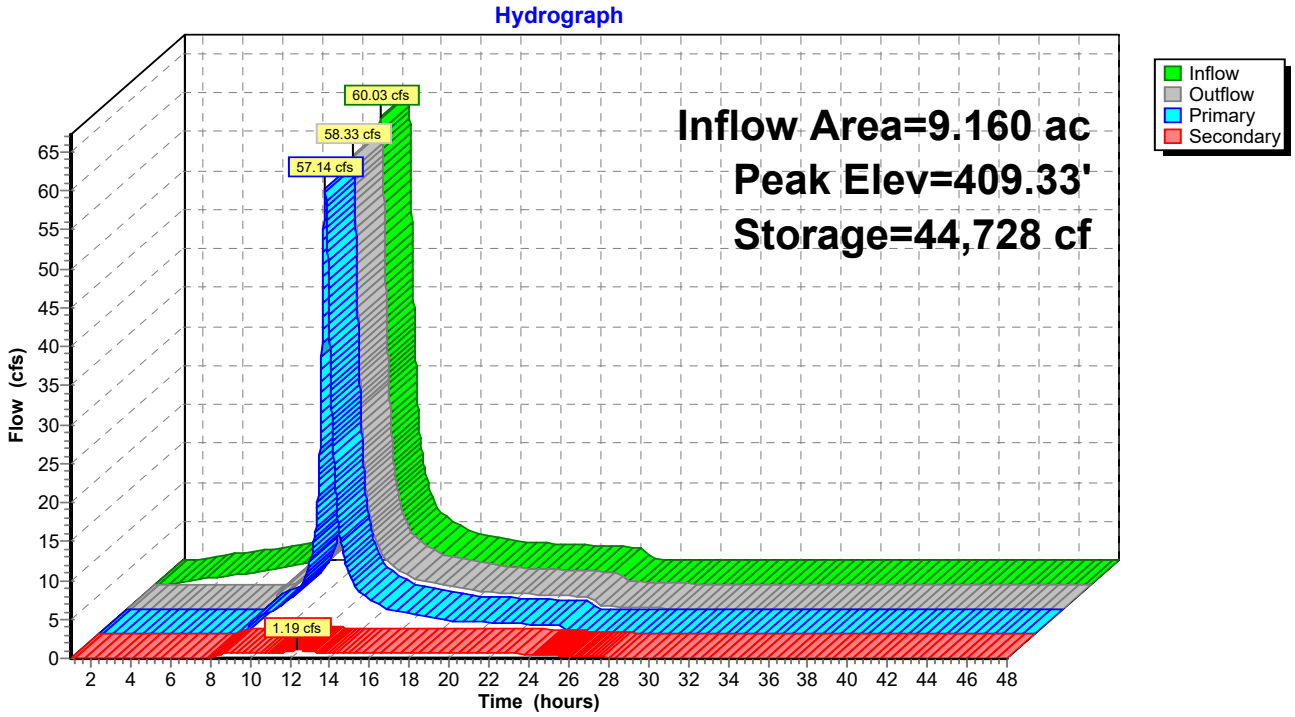
Pond FA1: Forebay A-1



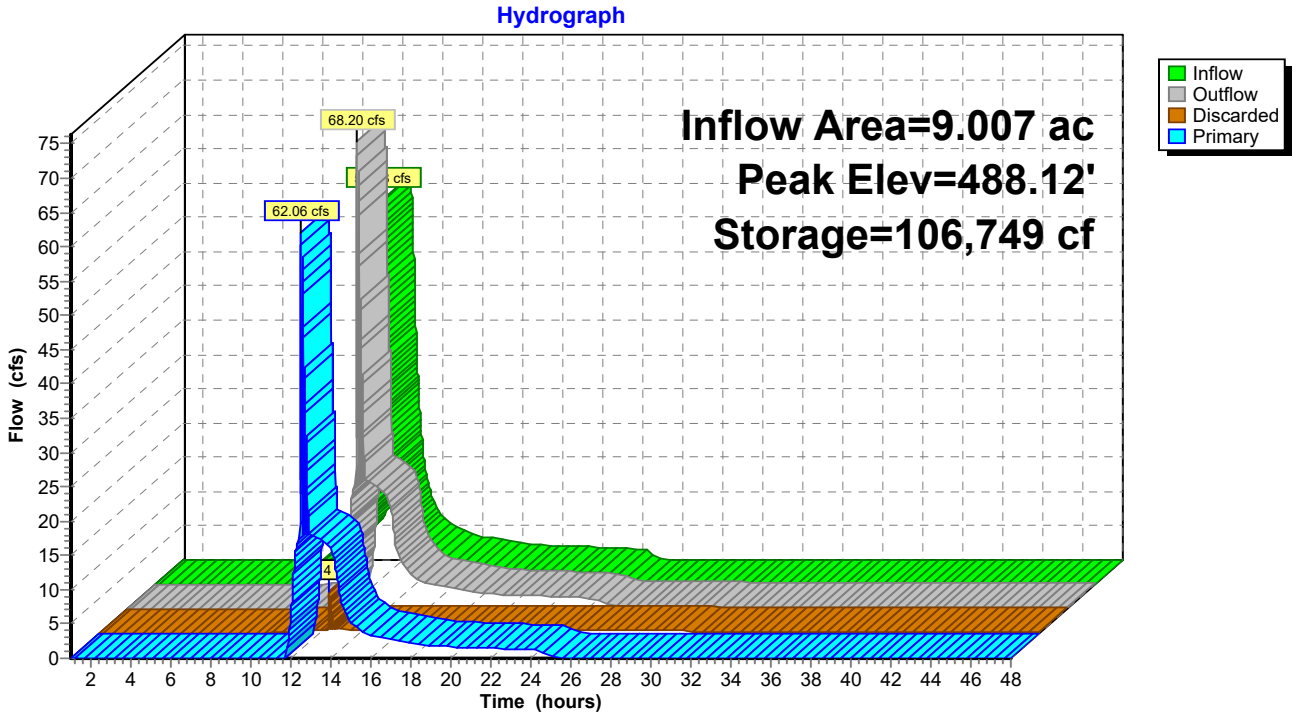
Pond FA2: Forebay A-2



Pond FB1: Forebay B-1



Pond IA1: Infiltration Basin A-1



APPENDIX 12

RESERVOIR REPORTS & CPV CALCULATIONS

Summary for Pond BB1: Bio-Retention Basin

Inflow Area = 0.610 ac, 25.08% Impervious, Inflow Depth > 9.79" for 1-YR event
Inflow = 0.53 cfs @ 13.91 hrs, Volume= 0.498 af
Outflow = 0.47 cfs @ 18.83 hrs, Volume= 0.320 af, Atten= 12%, Lag= 294.9 min
Primary = 0.47 cfs @ 18.83 hrs, Volume= 0.320 af
Routed to Pond DPB : Design Point B

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 403.81' @ 18.83 hrs Surf.Area= 11,160 sf Storage= 8,394 cf

Plug-Flow detention time= 362.4 min calculated for 0.320 af (64% of inflow)
Center-of-Mass det. time= 185.0 min (1,384.2 - 1,199.3)

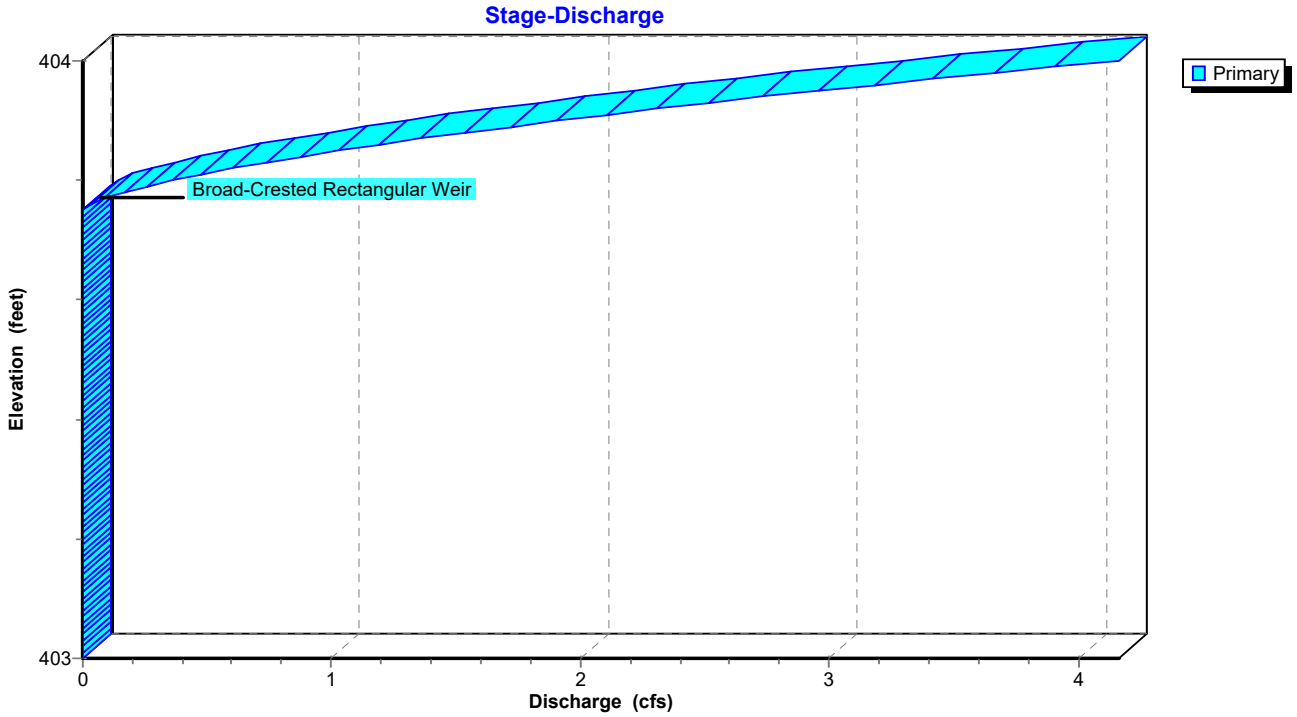
Volume	Invert	Avail.Storage	Storage Description
#1	403.00'	10,562 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
403.00	9,610	0	0	9,610
404.00	11,543	10,562	10,562	11,577

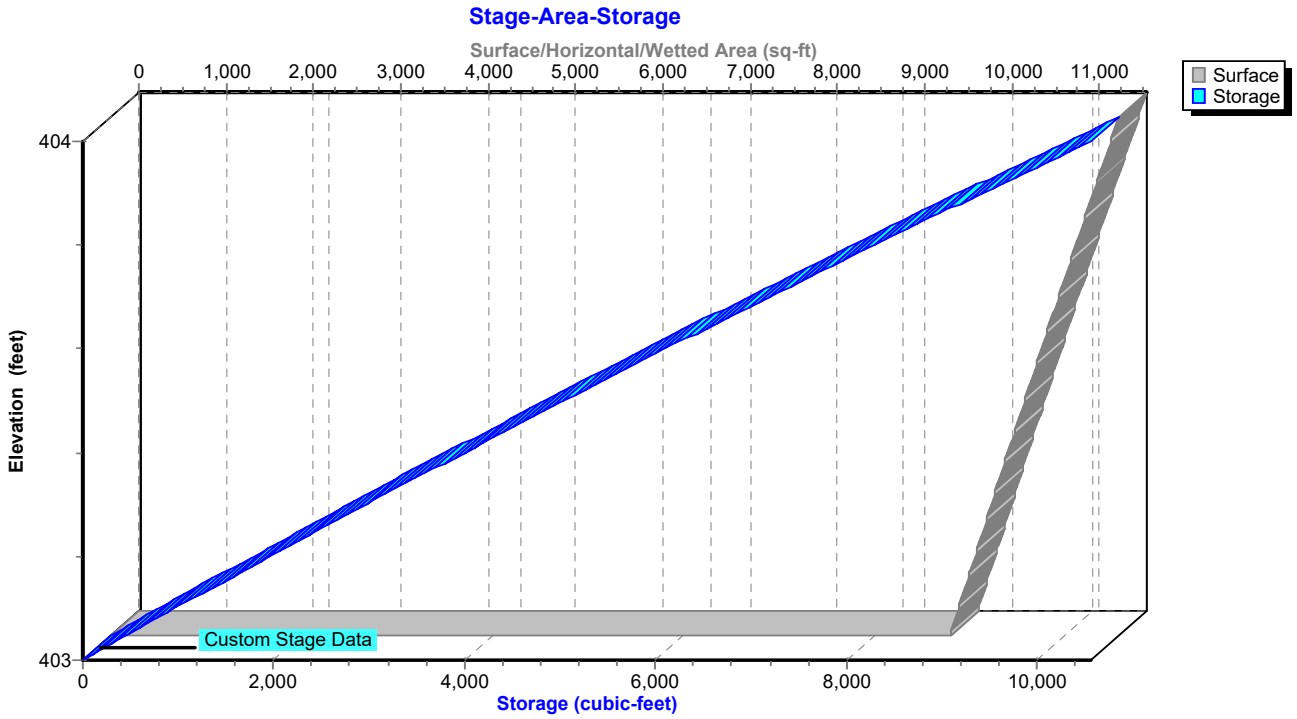
Device	Routing	Invert	Outlet Devices
#1	Primary	403.75'	**12.0' long + 2.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.46 cfs @ 18.83 hrs HW=403.81' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.46 cfs @ 0.65 fps)

Pond BB1: Bio-Retention Basin



Pond BB1: Bio-Retention Basin



Stage-Discharge for Pond BB1: Bio-Retention Basin

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
403.00	0.00	403.52	0.00
403.01	0.00	403.53	0.00
403.02	0.00	403.54	0.00
403.03	0.00	403.55	0.00
403.04	0.00	403.56	0.00
403.05	0.00	403.57	0.00
403.06	0.00	403.58	0.00
403.07	0.00	403.59	0.00
403.08	0.00	403.60	0.00
403.09	0.00	403.61	0.00
403.10	0.00	403.62	0.00
403.11	0.00	403.63	0.00
403.12	0.00	403.64	0.00
403.13	0.00	403.65	0.00
403.14	0.00	403.66	0.00
403.15	0.00	403.67	0.00
403.16	0.00	403.68	0.00
403.17	0.00	403.69	0.00
403.18	0.00	403.70	0.00
403.19	0.00	403.71	0.00
403.20	0.00	403.72	0.00
403.21	0.00	403.73	0.00
403.22	0.00	403.74	0.00
403.23	0.00	403.75	0.00
403.24	0.00	403.76	0.03
403.25	0.00	403.77	0.09
403.26	0.00	403.78	0.17
403.27	0.00	403.79	0.26
403.28	0.00	403.80	0.36
403.29	0.00	403.81	0.48
403.30	0.00	403.82	0.60
403.31	0.00	403.83	0.74
403.32	0.00	403.84	0.88
403.33	0.00	403.85	1.03
403.34	0.00	403.86	1.19
403.35	0.00	403.87	1.36
403.36	0.00	403.88	1.53
403.37	0.00	403.89	1.72
403.38	0.00	403.90	1.91
403.39	0.00	403.91	2.10
403.40	0.00	403.92	2.31
403.41	0.00	403.93	2.51
403.42	0.00	403.94	2.73
403.43	0.00	403.95	2.95
403.44	0.00	403.96	3.18
403.45	0.00	403.97	3.42
403.46	0.00	403.98	3.66
403.47	0.00	403.99	3.91
403.48	0.00	404.00	**4.16**
403.49	0.00		
403.50	0.00		
403.51	0.00		

Stage-Area-Storage for Pond BB1: Bio-Retention Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
403.00	9,610	0
403.01	9,628	96
403.02	9,647	193
403.03	9,665	289
403.04	9,684	386
403.05	9,702	483
403.06	9,721	580
403.07	9,740	677
403.08	9,758	775
403.09	9,777	872
403.10	9,795	970
403.11	9,814	1,068
403.12	9,833	1,167
403.13	9,851	1,265
403.14	9,870	1,364
403.15	9,889	1,462
403.16	9,907	1,561
403.17	9,926	1,660
403.18	9,945	1,760
403.19	9,964	1,859
403.20	9,982	1,959
403.21	10,001	2,059
403.22	10,020	2,159
403.23	10,039	2,259
403.24	10,058	2,360
403.25	10,077	2,461
403.26	10,096	2,561
403.27	10,114	2,663
403.28	10,133	2,764
403.29	10,152	2,865
403.30	10,171	2,967
403.31	10,190	3,069
403.32	10,209	3,171
403.33	10,228	3,273
403.34	10,247	3,375
403.35	10,266	3,478
403.36	10,285	3,580
403.37	10,305	3,683
403.38	10,324	3,787
403.39	10,343	3,890
403.40	10,362	3,993
403.41	10,381	4,097
403.42	10,400	4,201
403.43	10,419	4,305
403.44	10,439	4,409
403.45	10,458	4,514
403.46	10,477	4,619
403.47	10,496	4,723
403.48	10,516	4,829
403.49	10,535	4,934
403.50	10,554	5,039
403.51	10,574	5,145
403.52	10,593	5,251
403.53	10,612	5,357
403.54	10,632	5,463
403.55	10,651	5,569
403.56	10,671	5,676
403.57	10,690	5,783
403.58	10,710	5,890
403.59	10,729	5,997
403.60	10,749	6,104
403.61	10,768	6,212
403.62	10,788	6,320
403.63	10,807	6,428
403.64	10,827	6,536
403.65	10,846	6,644
403.66	10,866	6,753
403.67	10,886	6,862
403.68	10,905	6,971
403.69	10,925	7,080
403.70	10,945	7,189
403.71	10,964	7,299
403.72	10,984	7,408
403.73	11,004	7,518
403.74	11,023	7,628
403.75	11,043	7,739
403.76	11,063	7,849
403.77	11,083	7,960
403.78	11,103	8,071
403.79	11,122	8,182
403.80	11,142	8,293
403.81	11,162	8,405
403.82	11,182	8,517
403.83	11,202	8,629
403.84	11,222	8,741
403.85	11,242	8,853
403.86	11,262	8,965
403.87	11,282	9,078
403.88	11,302	9,191
403.89	11,322	9,304
403.90	11,342	9,418
403.91	11,362	9,531
403.92	11,382	9,645
403.93	11,402	9,759
403.94	11,422	9,873
403.95	11,442	9,987
403.96	11,462	10,102
403.97	11,482	10,216
403.98	11,503	10,331
403.99	11,523	10,446
404.00	**11,543**	**10,562**

Summary for Pond DA2: Detention Basin A-2

Inflow Area = 0.600 ac, 17.00% Impervious, Inflow Depth = 0.00" for 1-YR event
Inflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Routed to Pond DPA : Design Point A

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 394.00' @ 1.00 hrs Surf.Area= 209 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no inflow)

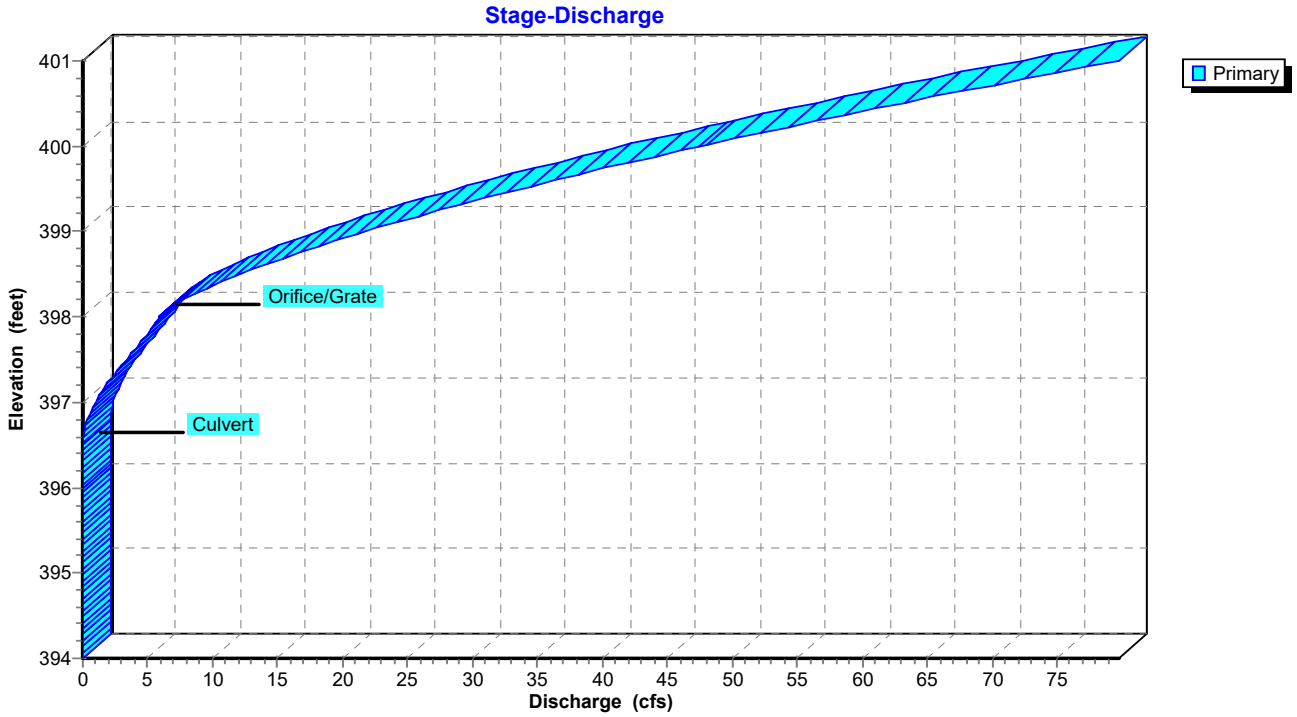
Volume	Invert	Avail.Storage	Storage Description
#1	394.00'	9,474 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
394.00	209	0	0	209
396.00	963	1,080	1,080	980
398.00	2,063	2,957	4,037	2,113
400.00	3,431	5,436	9,474	3,530

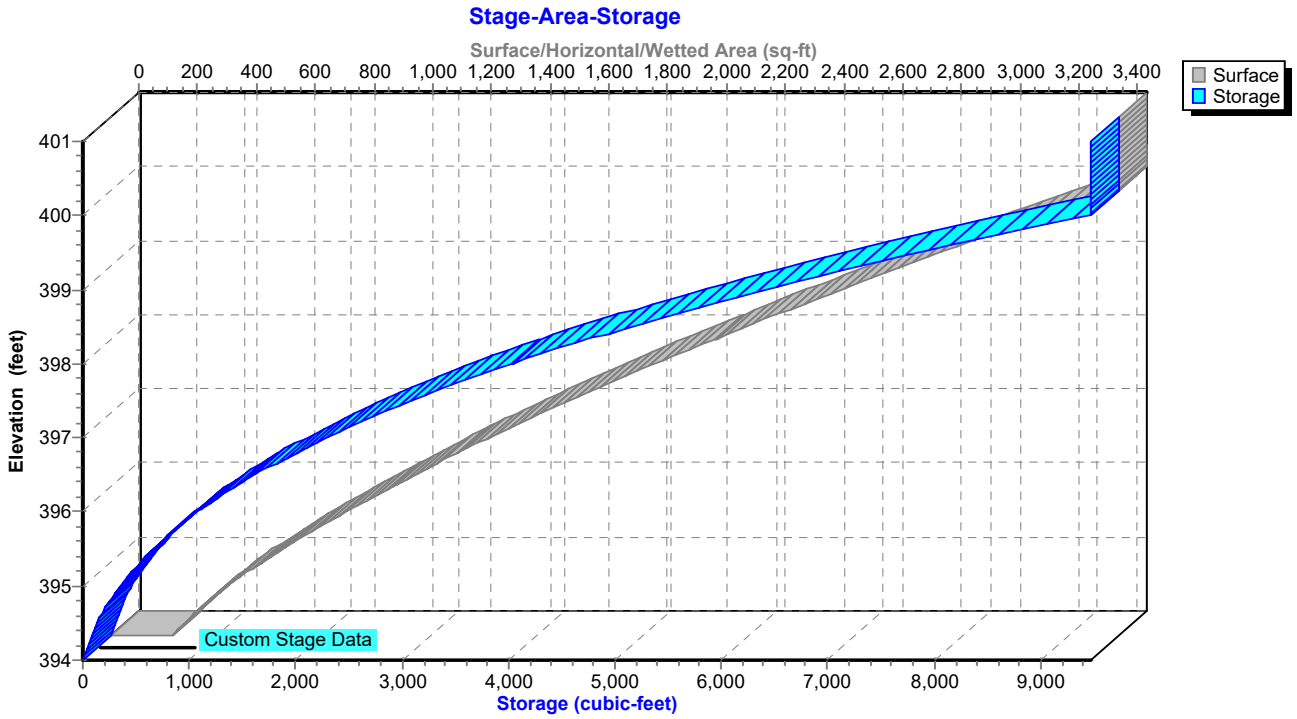
Device	Routing	Invert	Outlet Devices
#1	Primary	396.50'	**18.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 396.50' / 396.00' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Primary	398.00'	**48.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=394.00' (Free Discharge)
1=Culvert (Controls 0.00 cfs)
2=Orifice/Grate (Controls 0.00 cfs)

Pond DA2: Detention Basin A-2



Pond DA2: Detention Basin A-2



Stage-Discharge for Pond DA2: Detention Basin A-2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
394.00	0.00	396.60	0.04	399.20	26.26
394.05	0.00	396.65	0.10	399.25	27.44
394.10	0.00	396.70	0.17	399.30	28.65
394.15	0.00	396.75	0.26	399.35	29.87
394.20	0.00	396.80	0.37	399.40	31.12
394.25	0.00	396.85	0.50	399.45	32.38
394.30	0.00	396.90	0.64	399.50	33.66
394.35	0.00	396.95	0.80	399.55	34.97
394.40	0.00	397.00	0.98	399.60	36.28
394.45	0.00	397.05	1.17	399.65	37.62
394.50	0.00	397.10	1.37	399.70	38.97
394.55	0.00	397.15	1.59	399.75	40.35
394.60	0.00	397.20	1.82	399.80	41.73
394.65	0.00	397.25	2.06	399.85	43.14
394.70	0.00	397.30	2.30	399.90	44.56
394.75	0.00	397.35	2.56	399.95	46.00
394.80	0.00	397.40	2.82	400.00	47.46
394.85	0.00	397.45	3.09	400.05	48.93
394.90	0.00	397.50	3.36	400.10	50.41
394.95	0.00	397.55	3.64	400.15	51.92
395.00	0.00	397.60	3.92	400.20	53.44
395.05	0.00	397.65	4.19	400.25	54.97
395.10	0.00	397.70	4.46	400.30	56.52
395.15	0.00	397.75	4.73	400.35	58.08
395.20	0.00	397.80	4.99	400.40	59.66
395.25	0.00	397.85	5.23	400.45	61.26
395.30	0.00	397.90	5.46	400.50	62.86
395.35	0.00	397.95	5.66	400.55	64.49
395.40	0.00	398.00	5.82	400.60	66.12
395.45	0.00	398.05	6.15	400.65	67.78
395.50	0.00	398.10	6.60	400.70	69.44
395.55	0.00	398.15	7.12	400.75	71.12
395.60	0.00	398.20	7.70	400.80	72.82
395.65	0.00	398.25	8.32	400.85	74.52
395.70	0.00	398.30	8.99	400.90	76.24
395.75	0.00	398.35	9.70	400.95	77.98
395.80	0.00	398.40	10.45	401.00	**79.73**
395.85	0.00	398.45	11.23		
395.90	0.00	398.50	12.05		
395.95	0.00	398.55	12.90		
396.00	0.00	398.60	13.77		
396.05	0.00	398.65	14.68		
396.10	0.00	398.70	15.61		
396.15	0.00	398.75	16.57		
396.20	0.00	398.80	17.55		
396.25	0.00	398.85	18.56		
396.30	0.00	398.90	19.59		
396.35	0.00	398.95	20.65		
396.40	0.00	399.00	21.73		
396.45	0.00	399.05	22.83		
396.50	0.00	399.10	23.95		
396.55	0.01	399.15	25.09		

Stage-Area-Storage for Pond DA2: Detention Basin A-2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
394.00	209	0
394.10	234	22
394.20	260	47
394.30	287	74
394.40	316	104
394.50	346	137
394.60	378	173
394.70	410	213
394.80	445	256
394.90	480	302
395.00	517	352
395.10	556	405
395.20	595	463
395.30	637	524
395.40	679	590
395.50	723	660
395.60	768	735
395.70	815	814
395.80	863	898
395.90	912	987
396.00	963	1,080
396.10	1,008	1,179
396.20	1,054	1,282
396.30	1,102	1,390
396.40	1,150	1,502
396.50	1,199	1,620
396.60	1,250	1,742
396.70	1,301	1,870
396.80	1,353	2,003
396.90	1,407	2,141
397.00	1,461	2,284
397.10	1,517	2,433
397.20	1,573	2,587
397.30	1,631	2,748
397.40	1,690	2,914
397.50	1,749	3,085
397.60	1,810	3,263
397.70	1,872	3,447
397.80	1,934	3,638
397.90	1,998	3,834
398.00	2,063	4,037
398.10	2,123	4,247
398.20	2,184	4,462
398.30	2,246	4,684
398.40	2,309	4,911
398.50	2,373	5,145
398.60	2,437	5,386
398.70	2,502	5,633
398.80	2,569	5,886
398.90	2,636	6,147
399.00	2,704	6,414
399.10	2,773	6,687
399.20	2,842	6,968
399.30	2,913	7,256
399.40	2,984	7,551
399.50	3,057	7,853
399.60	3,130	8,162
399.70	3,204	8,479
399.80	3,279	8,803
399.90	3,354	9,134
400.00	**3,431**	**9,474**
400.10	3,431	9,474
400.20	3,431	9,474
400.30	3,431	9,474
400.40	3,431	9,474
400.50	3,431	9,474
400.60	3,431	9,474
400.70	3,431	9,474
400.80	3,431	9,474
400.90	3,431	9,474
401.00	3,431	9,474

Summary for Pond DB1: Detention Basin B-1

Inflow Area = 9.160 ac, 53.49% Impervious, Inflow Depth = 0.12" for 1-YR event
Inflow = 0.60 cfs @ 13.91 hrs, Volume= 0.094 af
Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Routed to Pond DPB : Design Point B

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 399.16' @ 18.08 hrs Surf.Area= 4,218 sf Storage= 4,098 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

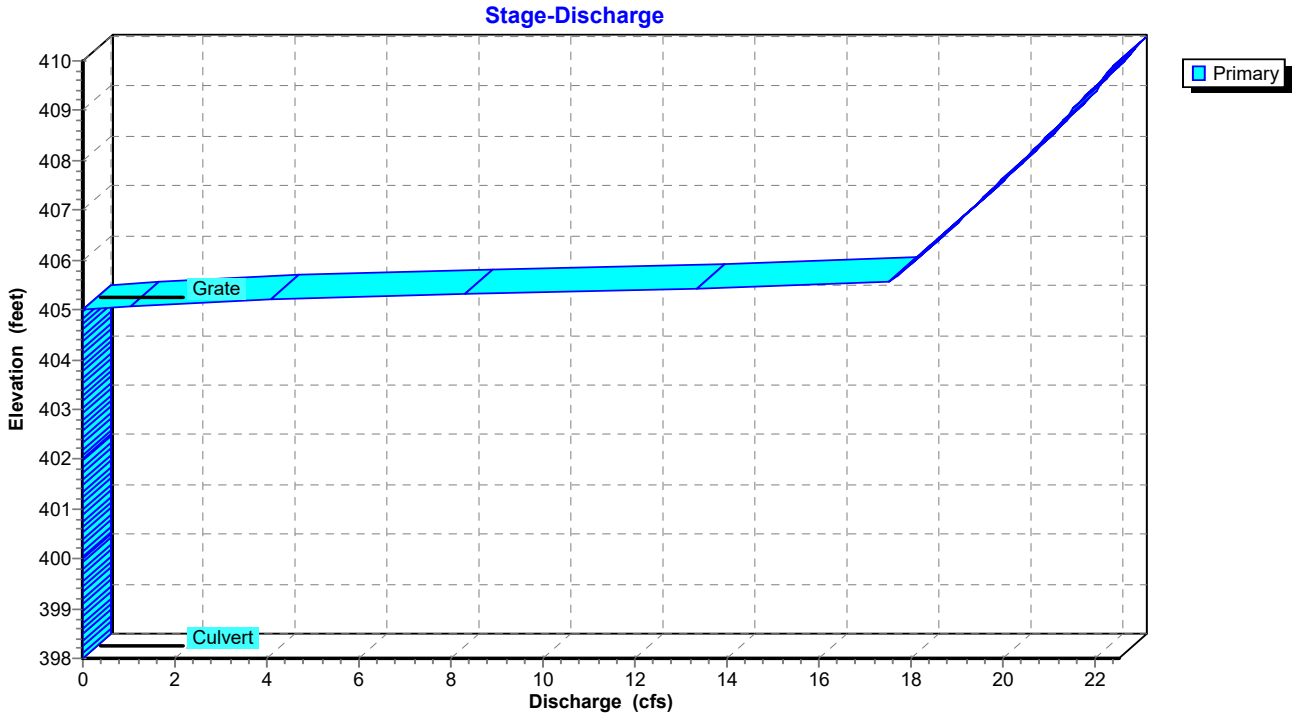
Volume	Invert	Avail.Storage	Storage Description
#1	398.00'	147,816 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
398.00	2,899	0	0	2,899
400.00	5,332	8,108	8,108	5,373
402.00	8,246	13,473	21,581	8,345
404.00	11,630	19,779	41,360	11,801
406.00	15,480	27,018	68,379	15,738
408.00	19,788	35,180	103,559	20,147
410.00	24,555	44,257	147,816	25,030

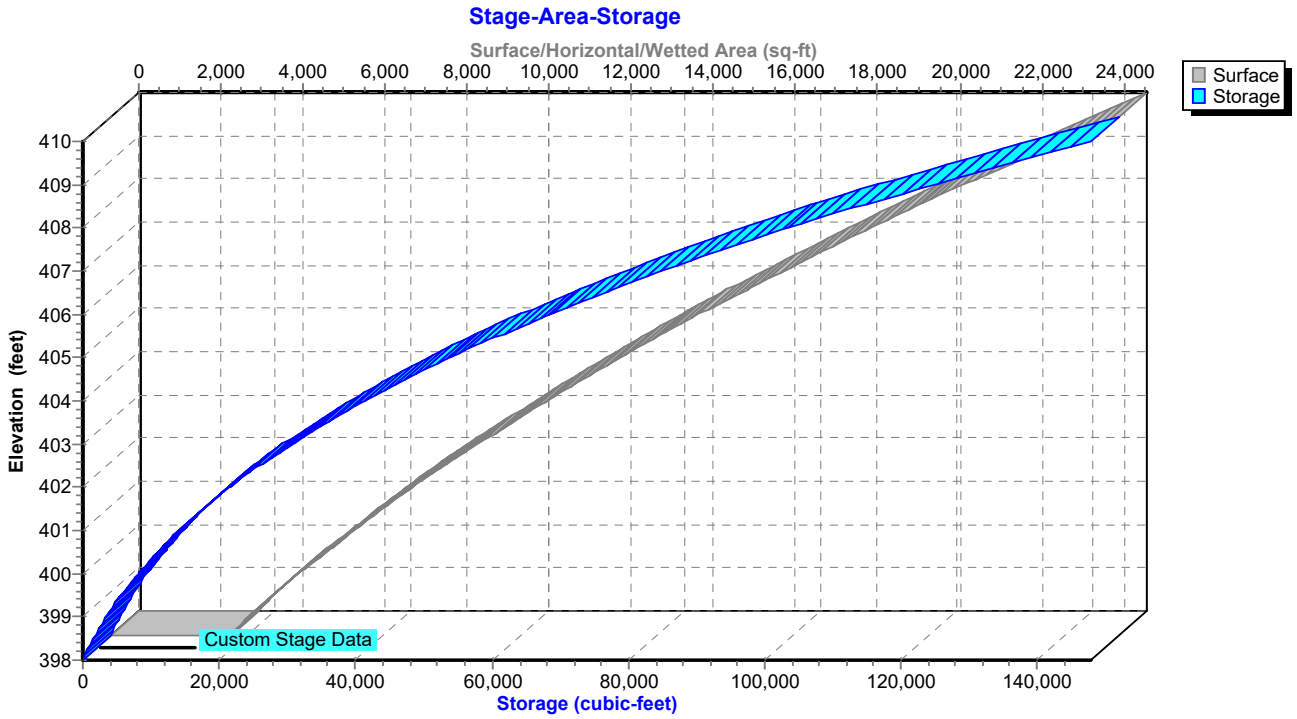
Device	Routing	Invert	Outlet Devices
#1	Primary	398.00'	**18.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 398.00' / 396.00' S= 0.0267 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Device 1	405.00'	**48.0" x 36.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=398.00' (Free Discharge)
↑—**1=Culvert** (Controls 0.00 cfs)
↑—**2=Grate** (Controls 0.00 cfs)

Pond DB1: Detention Basin B-1



Pond DB1: Detention Basin B-1



Stage-Discharge for Pond DB1: Detention Basin B-1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
398.00	0.00	403.20	0.00	408.40	20.87
398.10	0.00	403.30	0.00	408.50	20.98
398.20	0.00	403.40	0.00	408.60	21.08
398.30	0.00	403.50	0.00	408.70	21.19
398.40	0.00	403.60	0.00	408.80	21.30
398.50	0.00	403.70	0.00	408.90	21.40
398.60	0.00	403.80	0.00	409.00	21.51
398.70	0.00	403.90	0.00	409.10	21.61
398.80	0.00	404.00	0.00	409.20	21.72
398.90	0.00	404.10	0.00	409.30	21.82
399.00	0.00	404.20	0.00	409.40	21.92
399.10	0.00	404.30	0.00	409.50	22.02
399.20	0.00	404.40	0.00	409.60	22.13
399.30	0.00	404.50	0.00	409.70	22.23
399.40	0.00	404.60	0.00	409.80	22.33
399.50	0.00	404.70	0.00	409.90	22.43
399.60	0.00	404.80	0.00	410.00	**22.53**
399.70	0.00	404.90	0.00		
399.80	0.00	405.00	0.00		
399.90	0.00	405.10	1.45		
400.00	0.00	405.20	4.09		
400.10	0.00	405.30	7.52		
400.20	0.00	405.40	11.58		
400.30	0.00	405.50	16.19		
400.40	0.00	405.60	17.58		
400.50	0.00	405.70	17.71		
400.60	0.00	405.80	17.84		
400.70	0.00	405.90	17.96		
400.80	0.00	406.00	18.09		
400.90	0.00	406.10	18.21		
401.00	0.00	406.20	18.34		
401.10	0.00	406.30	18.46		
401.20	0.00	406.40	18.58		
401.30	0.00	406.50	18.70		
401.40	0.00	406.60	18.82		
401.50	0.00	406.70	18.94		
401.60	0.00	406.80	19.06		
401.70	0.00	406.90	19.18		
401.80	0.00	407.00	19.29		
401.90	0.00	407.10	19.41		
402.00	0.00	407.20	19.53		
402.10	0.00	407.30	19.64		
402.20	0.00	407.40	19.76		
402.30	0.00	407.50	19.87		
402.40	0.00	407.60	19.98		
402.50	0.00	407.70	20.10		
402.60	0.00	407.80	20.21		
402.70	0.00	407.90	20.32		
402.80	0.00	408.00	20.43		
402.90	0.00	408.10	20.54		
403.00	0.00	408.20	20.65		
403.10	0.00	408.30	20.76		

Stage-Area-Storage for Pond DB1: Detention Basin B-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
398.00	2,899	0
398.20	3,109	601
398.40	3,327	1,244
398.60	3,552	1,932
398.80	3,784	2,665
399.00	4,024	3,446
399.20	4,271	4,275
399.40	4,525	5,155
399.60	4,787	6,086
399.80	5,056	7,070
400.00	5,332	8,108
400.20	5,595	9,201
400.40	5,864	10,347
400.60	6,140	11,547
400.80	6,422	12,803
401.00	6,710	14,116
401.20	7,004	15,488
401.40	7,305	16,918
401.60	7,613	18,410
401.80	7,926	19,964
402.00	8,246	21,581
402.20	8,558	23,261
402.40	8,876	25,005
402.60	9,200	26,812
402.80	9,530	28,685
403.00	9,865	30,625
403.20	10,207	32,632
403.40	10,554	34,708
403.60	10,907	36,854
403.80	11,265	39,071
404.00	11,630	41,360
404.20	11,990	43,722
404.40	12,356	46,157
404.60	12,727	48,665
404.80	13,104	51,248
405.00	13,486	53,907
405.20	13,874	56,643
405.40	14,267	59,457
405.60	14,666	62,350
405.80	15,070	65,324
406.00	15,480	68,379
406.20	15,887	71,515
406.40	16,299	74,734
406.60	16,717	78,035
406.80	17,140	81,421
407.00	17,568	84,892
407.20	18,001	88,448
407.40	18,440	92,093
407.60	18,884	95,825
407.80	19,333	99,647
408.00	19,788	103,559
408.20	20,242	107,561
408.40	20,700	111,656
408.60	21,164	115,842
408.80	21,633	120,122
409.00	22,107	124,496
409.20	22,587	128,965
409.40	23,071	133,530
409.60	23,560	138,194
409.80	24,055	142,955
410.00	**24,555**	**147,816**

Summary for Pond DPA: Design Point A

Inflow Area = 36.215 ac, 35.71% Impervious, Inflow Depth = 0.56" for 1-YR event
Inflow = 13.28 cfs @ 12.31 hrs, Volume= 1.704 af
Primary = 13.28 cfs @ 12.31 hrs, Volume= 1.704 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond DPB: Design Point B

Inflow Area = 22.212 ac, 27.91% Impervious, Inflow Depth > 0.26" for 1-YR event
Inflow = 0.60 cfs @ 18.79 hrs, Volume= 0.489 af
Primary = 0.60 cfs @ 18.79 hrs, Volume= 0.489 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond FA1: Forebay A-1

Inflow Area = 9.007 ac, 57.93% Impervious, Inflow Depth = 1.64" for 1-YR event
Inflow = 9.29 cfs @ 12.35 hrs, Volume= 1.230 af
Outflow = 0.89 cfs @ 14.70 hrs, Volume= 0.419 af, Atten= 90%, Lag= 141.0 min
Primary = 0.89 cfs @ 14.70 hrs, Volume= 0.419 af
Routed to Pond IA1 : Infiltration Basin A-1

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 408.09' @ 14.70 hrs Surf.Area= 9,756 sf Storage= 36,190 cf

Plug-Flow detention time= 422.8 min calculated for 0.419 af (34% of inflow)
Center-of-Mass det. time= 256.3 min (1,108.7 - 852.4)

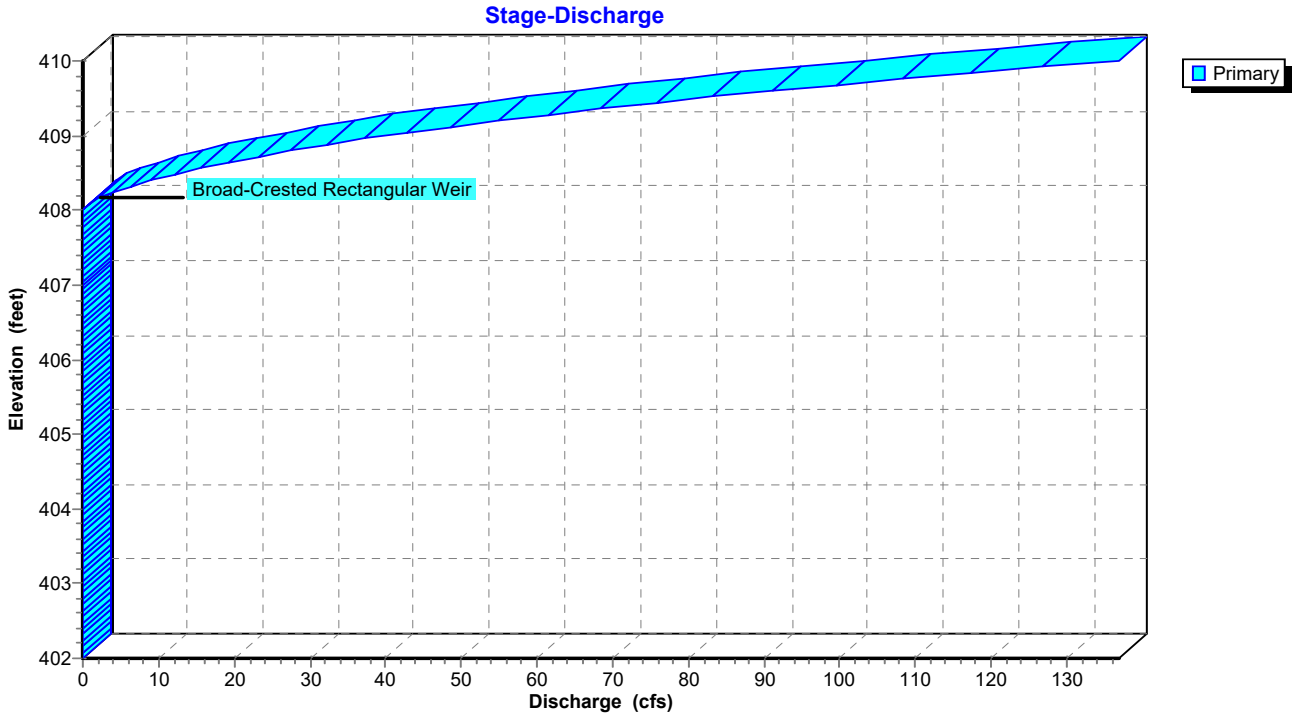
Volume	Invert	Avail.Storage	Storage Description
#1	402.00'	57,653 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
402.00	2,804	0	0	2,804
404.00	4,651	7,378	7,378	4,700
406.00	6,917	11,493	18,871	7,029
407.00	8,212	7,555	26,426	8,360
408.00	9,627	8,910	35,336	9,814
410.00	12,763	22,316	57,653	13,038

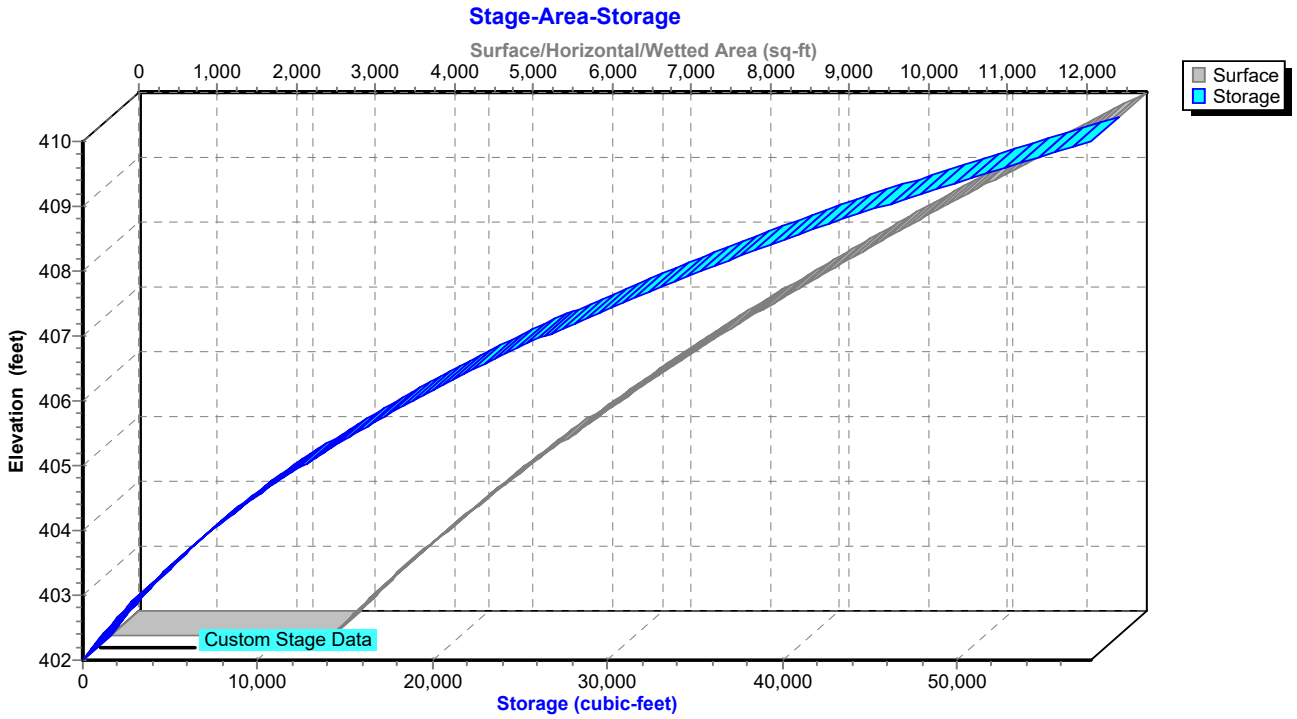
Device	Routing	Invert	Outlet Devices
#1	Primary	408.00'	**12.0' long + 4.0 '/' SideZ x 50.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.86 cfs @ 14.70 hrs HW=408.09' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.86 cfs @ 0.79 fps)

Pond FA1: Forebay A-1



Pond FA1: Forebay A-1



Stage-Discharge for Pond FA1: Forebay A-1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
402.00	0.00	404.60	0.00	407.20	0.00	409.80	112.80
402.05	0.00	404.65	0.00	407.25	0.00	409.85	118.59
402.10	0.00	404.70	0.00	407.30	0.00	409.90	124.53
402.15	0.00	404.75	0.00	407.35	0.00	409.95	130.63
402.20	0.00	404.80	0.00	407.40	0.00	410.00	**136.87**
402.25	0.00	404.85	0.00	407.45	0.00		
402.30	0.00	404.90	0.00	407.50	0.00		
402.35	0.00	404.95	0.00	407.55	0.00		
402.40	0.00	405.00	0.00	407.60	0.00		
402.45	0.00	405.05	0.00	407.65	0.00		
402.50	0.00	405.10	0.00	407.70	0.00		
402.55	0.00	405.15	0.00	407.75	0.00		
402.60	0.00	405.20	0.00	407.80	0.00		
402.65	0.00	405.25	0.00	407.85	0.00		
402.70	0.00	405.30	0.00	407.90	0.00		
402.75	0.00	405.35	0.00	407.95	0.00		
402.80	0.00	405.40	0.00	408.00	0.00		
402.85	0.00	405.45	0.00	408.05	0.36		
402.90	0.00	405.50	0.00	408.10	1.04		
402.95	0.00	405.55	0.00	408.15	1.94		
403.00	0.00	405.60	0.00	408.20	3.03		
403.05	0.00	405.65	0.00	408.25	4.30		
403.10	0.00	405.70	0.00	408.30	5.73		
403.15	0.00	405.75	0.00	408.35	7.32		
403.20	0.00	405.80	0.00	408.40	9.07		
403.25	0.00	405.85	0.00	408.45	10.95		
403.30	0.00	405.90	0.00	408.50	12.98		
403.35	0.00	405.95	0.00	408.55	15.15		
403.40	0.00	406.00	0.00	408.60	17.47		
403.45	0.00	406.05	0.00	408.65	19.81		
403.50	0.00	406.10	0.00	408.70	22.27		
403.55	0.00	406.15	0.00	408.75	24.83		
403.60	0.00	406.20	0.00	408.80	27.50		
403.65	0.00	406.25	0.00	408.85	30.42		
403.70	0.00	406.30	0.00	408.90	33.48		
403.75	0.00	406.35	0.00	408.95	36.66		
403.80	0.00	406.40	0.00	409.00	39.98		
403.85	0.00	406.45	0.00	409.05	43.51		
403.90	0.00	406.50	0.00	409.10	47.18		
403.95	0.00	406.55	0.00	409.15	51.00		
404.00	0.00	406.60	0.00	409.20	54.97		
404.05	0.00	406.65	0.00	409.25	59.03		
404.10	0.00	406.70	0.00	409.30	63.24		
404.15	0.00	406.75	0.00	409.35	67.58		
404.20	0.00	406.80	0.00	409.40	72.07		
404.25	0.00	406.85	0.00	409.45	76.63		
404.30	0.00	406.90	0.00	409.50	81.33		
404.35	0.00	406.95	0.00	409.55	86.16		
404.40	0.00	407.00	0.00	409.60	91.13		
404.45	0.00	407.05	0.00	409.65	96.32		
404.50	0.00	407.10	0.00	409.70	101.67		
404.55	0.00	407.15	0.00	409.75	107.16		

Stage-Area-Storage for Pond FA1: Forebay A-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
402.00	2,804	0
402.10	2,885	284
402.20	2,968	577
402.30	3,051	878
402.40	3,136	1,187
402.50	3,222	1,505
402.60	3,309	1,832
402.70	3,398	2,167
402.80	3,487	2,511
402.90	3,578	2,865
403.00	3,669	3,227
403.10	3,762	3,599
403.20	3,856	3,980
403.30	3,952	4,370
403.40	4,048	4,770
403.50	4,146	5,180
403.60	4,244	5,599
403.70	4,344	6,028
403.80	4,445	6,468
403.90	4,548	6,918
404.00	4,651	7,378
404.10	4,754	7,848
404.20	4,857	8,328
404.30	4,962	8,819
404.40	5,068	9,321
404.50	5,175	9,833
404.60	5,284	10,356
404.70	5,393	10,890
404.80	5,504	11,435
404.90	5,615	11,991
405.00	5,728	12,558
405.10	5,842	13,136
405.20	5,957	13,726
405.30	6,073	14,328
405.40	6,190	14,941
405.50	6,308	15,566
405.60	6,428	16,202
405.70	6,549	16,851
405.80	6,670	17,512
405.90	6,793	18,185
406.00	6,917	18,871
406.10	7,042	19,569
406.20	7,167	20,279
406.30	7,294	21,002
406.40	7,422	21,738
406.50	7,551	22,487
406.60	7,681	23,248
406.70	7,812	24,023
406.80	7,944	24,811
406.90	8,078	25,612
407.00	8,212	26,426
407.10	8,348	27,254
407.20	8,486	28,096
407.30	8,625	28,951
407.40	8,765	29,821
407.50	8,905	30,704
407.60	9,048	31,602
407.70	9,191	32,514
407.80	9,335	33,440
407.90	9,480	34,381
408.00	9,627	35,336
408.10	9,773	36,306
408.20	9,921	37,291
408.30	10,069	38,290
408.40	10,219	39,305
408.50	10,370	40,334
408.60	10,521	41,379
408.70	10,674	42,439
408.80	10,828	43,514
408.90	10,984	44,604
409.00	11,140	45,710
409.10	11,297	46,832
409.20	11,456	47,970
409.30	11,615	49,123
409.40	11,776	50,293
409.50	11,938	51,479
409.60	12,100	52,681
409.70	12,264	53,899
409.80	12,430	55,133
409.90	12,596	56,385
410.00	**12,763**	**57,653**

Summary for Pond FA2: Forebay A-2

Inflow Area = 0.600 ac, 17.00% Impervious, Inflow Depth = 0.23" for 1-YR event
Inflow = 0.04 cfs @ 12.36 hrs, Volume= 0.012 af
Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Routed to Pond DA2 : Detention Basin A-2

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 396.28' @ 24.90 hrs Surf.Area= 471 sf Storage= 507 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

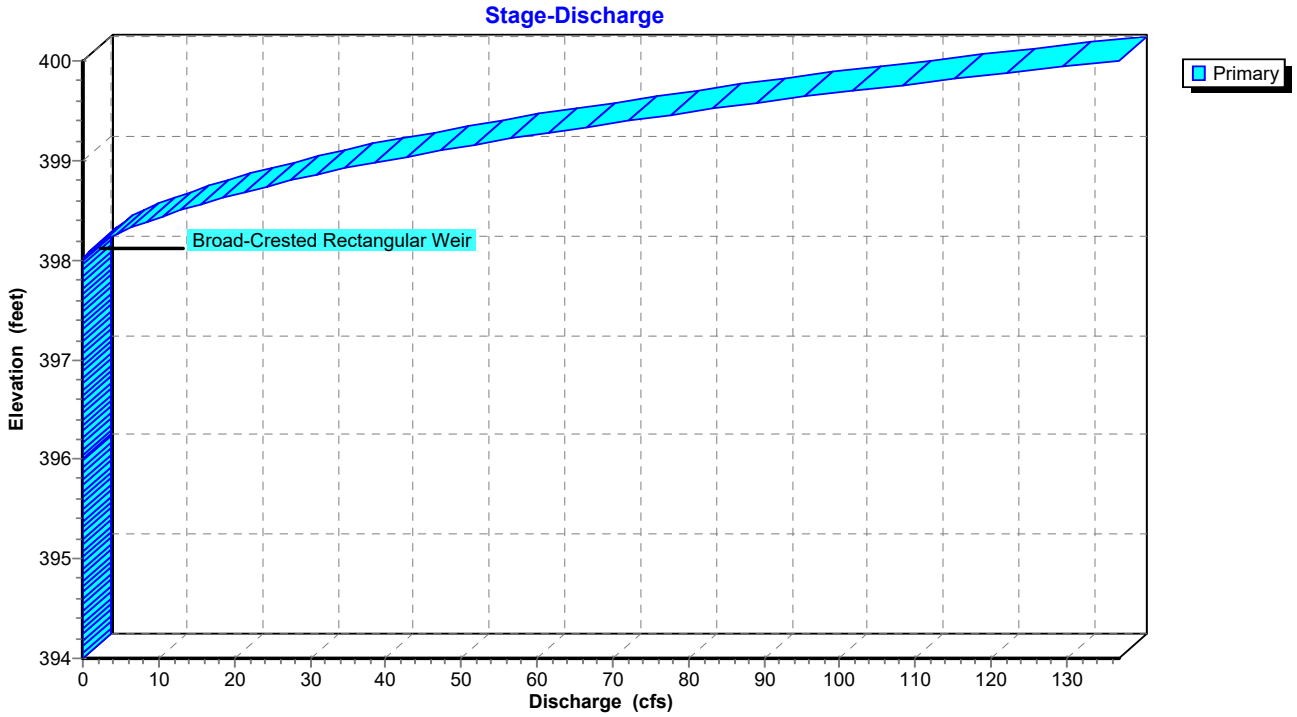
Volume	Invert	Avail.Storage	Storage Description
#1	394.00'	4,774 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
394.00	46	0	0	46
396.00	398	386	386	411
398.00	1,060	1,405	1,791	1,098
400.00	1,969	2,982	4,774	2,047

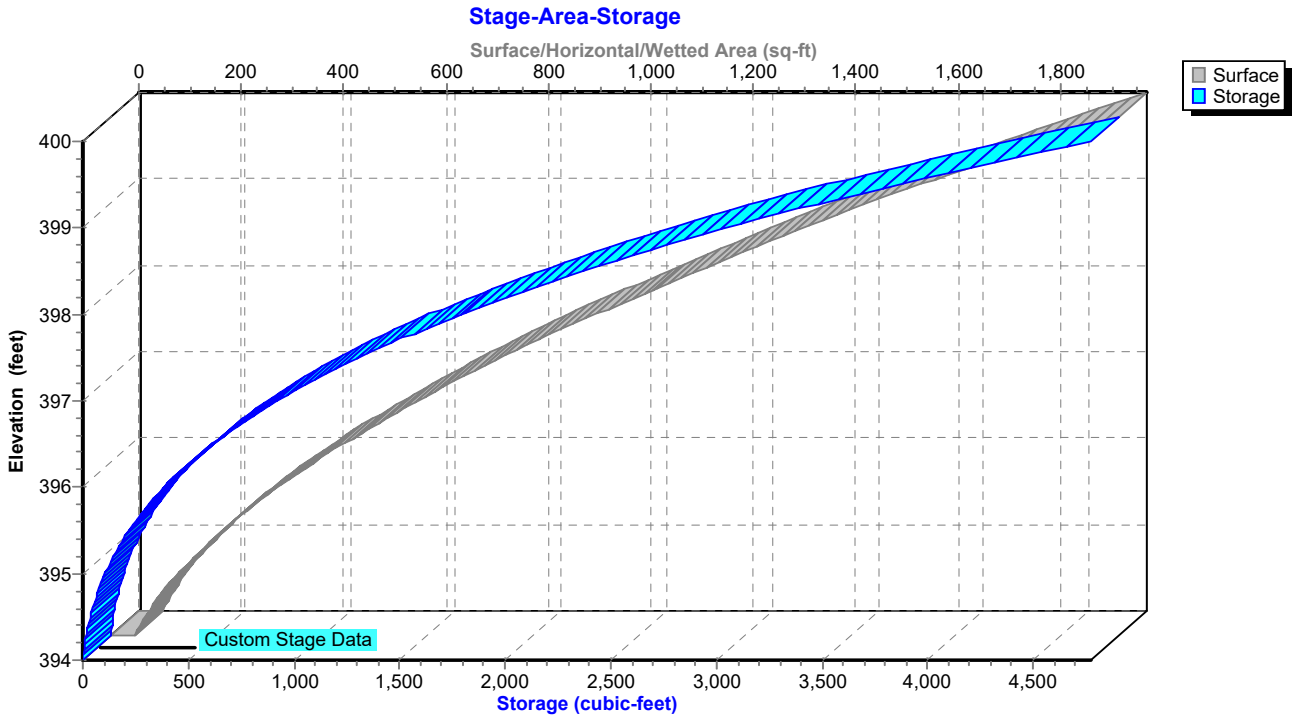
Device	Routing	Invert	Outlet Devices
#1	Primary	398.00'	**12.0' long + 4.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=394.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond FA2: Forebay A-2



Pond FA2: Forebay A-2



Stage-Discharge for Pond FA2: Forebay A-2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
394.00	0.00	396.60	0.00	399.20	54.97
394.05	0.00	396.65	0.00	399.25	59.03
394.10	0.00	396.70	0.00	399.30	63.24
394.15	0.00	396.75	0.00	399.35	67.58
394.20	0.00	396.80	0.00	399.40	72.07
394.25	0.00	396.85	0.00	399.45	76.63
394.30	0.00	396.90	0.00	399.50	81.33
394.35	0.00	396.95	0.00	399.55	86.16
394.40	0.00	397.00	0.00	399.60	91.13
394.45	0.00	397.05	0.00	399.65	96.32
394.50	0.00	397.10	0.00	399.70	101.67
394.55	0.00	397.15	0.00	399.75	107.16
394.60	0.00	397.20	0.00	399.80	112.80
394.65	0.00	397.25	0.00	399.85	118.59
394.70	0.00	397.30	0.00	399.90	124.53
394.75	0.00	397.35	0.00	399.95	130.63
394.80	0.00	397.40	0.00	400.00	**136.87**
394.85	0.00	397.45	0.00		
394.90	0.00	397.50	0.00		
394.95	0.00	397.55	0.00		
395.00	0.00	397.60	0.00		
395.05	0.00	397.65	0.00		
395.10	0.00	397.70	0.00		
395.15	0.00	397.75	0.00		
395.20	0.00	397.80	0.00		
395.25	0.00	397.85	0.00		
395.30	0.00	397.90	0.00		
395.35	0.00	397.95	0.00		
395.40	0.00	398.00	0.00		
395.45	0.00	398.05	0.36		
395.50	0.00	398.10	1.04		
395.55	0.00	398.15	1.94		
395.60	0.00	398.20	3.03		
395.65	0.00	398.25	4.30		
395.70	0.00	398.30	5.73		
395.75	0.00	398.35	7.32		
395.80	0.00	398.40	9.07		
395.85	0.00	398.45	10.95		
395.90	0.00	398.50	12.98		
395.95	0.00	398.55	15.15		
396.00	0.00	398.60	17.47		
396.05	0.00	398.65	19.81		
396.10	0.00	398.70	22.27		
396.15	0.00	398.75	24.83		
396.20	0.00	398.80	27.50		
396.25	0.00	398.85	30.42		
396.30	0.00	398.90	33.48		
396.35	0.00	398.95	36.66		
396.40	0.00	399.00	39.98		
396.45	0.00	399.05	43.51		
396.50	0.00	399.10	47.18		
396.55	0.00	399.15	51.00		

Stage-Area-Storage for Pond FA2: Forebay A-2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
394.00	46	0
394.10	55	5
394.20	66	11
394.30	77	18
394.40	89	26
394.50	101	36
394.60	115	47
394.70	130	59
394.80	145	73
394.90	161	88
395.00	179	105
395.10	197	124
395.20	216	144
395.30	235	167
395.40	256	192
395.50	277	218
395.60	300	247
395.70	323	278
395.80	347	312
395.90	372	348
396.00	398	386
396.10	424	427
396.20	450	471
396.30	477	517
396.40	505	566
396.50	534	618
396.60	563	673
396.70	594	731
396.80	625	792
396.90	657	856
397.00	689	923
397.10	723	994
397.20	757	1,068
397.30	792	1,145
397.40	828	1,226
397.50	865	1,311
397.60	902	1,399
397.70	940	1,491
397.80	979	1,587
397.90	1,019	1,687
398.00	1,060	1,791
398.10	1,099	1,899
398.20	1,138	2,011
398.30	1,179	2,127
398.40	1,219	2,247
398.50	1,261	2,371
398.60	1,303	2,499
398.70	1,346	2,631
398.80	1,390	2,768
398.90	1,434	2,910
399.00	1,480	3,055
399.10	1,525	3,205
399.20	1,572	3,360
399.30	1,619	3,520
399.40	1,667	3,684
399.50	1,716	3,853
399.60	1,765	4,027
399.70	1,815	4,206
399.80	1,866	4,390
399.90	1,917	4,579
400.00	**1,969**	**4,774**

Summary for Pond FB1: Forebay B-1

Inflow Area = 9.160 ac, 53.49% Impervious, Inflow Depth = 1.56" for 1-YR event
Inflow = 9.32 cfs @ 12.34 hrs, Volume= 1.191 af
Outflow = 1.13 cfs @ 13.91 hrs, Volume= 0.587 af, Atten= 88%, Lag= 94.2 min
Primary = 0.60 cfs @ 13.91 hrs, Volume= 0.094 af
Routed to Pond DB1 : Detention Basin B-1
Secondary = 0.52 cfs @ 13.91 hrs, Volume= 0.493 af
Routed to Pond BB1 : Bio-Retention Basin

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 408.06' @ 13.91 hrs Surf.Area= 9,541 sf Storage= 31,264 cf

Plug-Flow detention time= 439.9 min calculated for 0.587 af (49% of inflow)
Center-of-Mass det. time= 294.2 min (1,150.7 - 856.5)

Volume	Invert	Avail.Storage	Storage Description
#1	400.00'	52,992 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

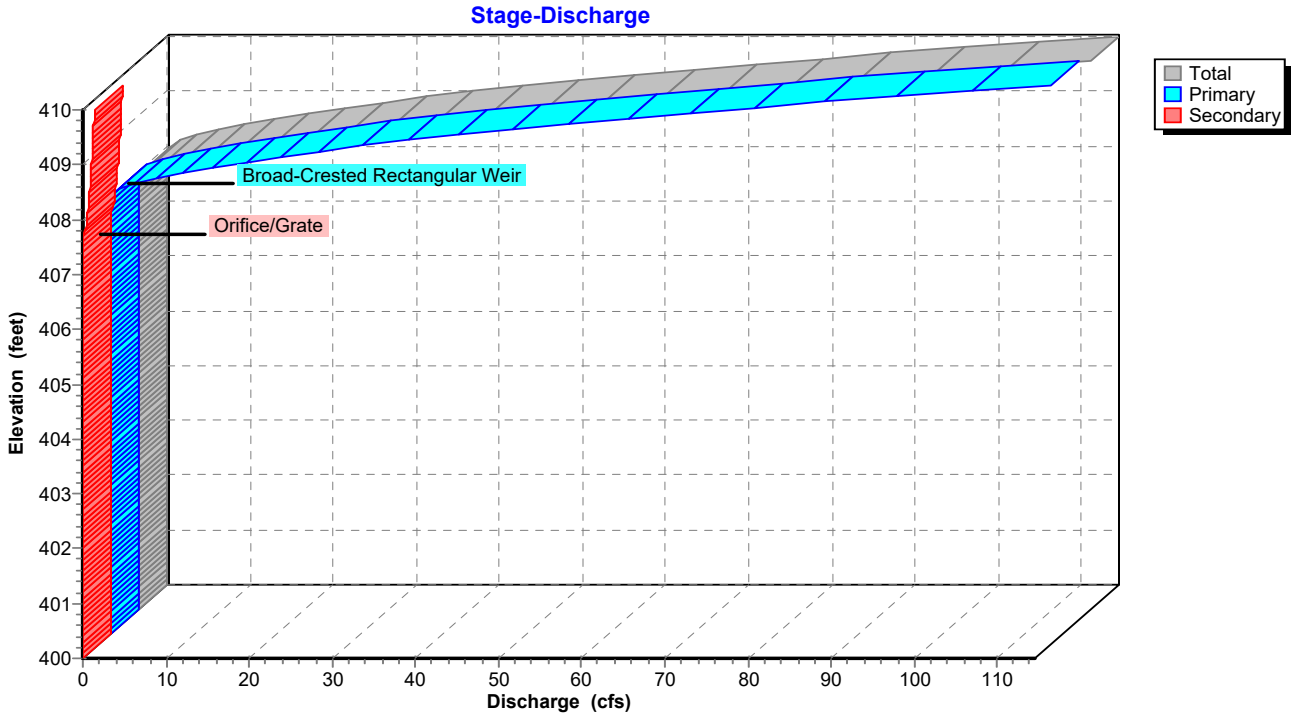
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
400.00	285	0	0	285
402.00	1,516	1,639	1,639	1,532
404.00	3,381	4,774	6,413	3,428
406.00	5,764	9,040	15,453	5,858
407.50	8,645	10,734	26,187	8,774
408.00	9,447	4,522	30,708	9,594
410.00	12,928	22,284	52,992	13,154

Device	Routing	Invert	Outlet Devices
#1	Primary	408.00'	**12.0' long + 2.0 '/' SideZ x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Secondary	407.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

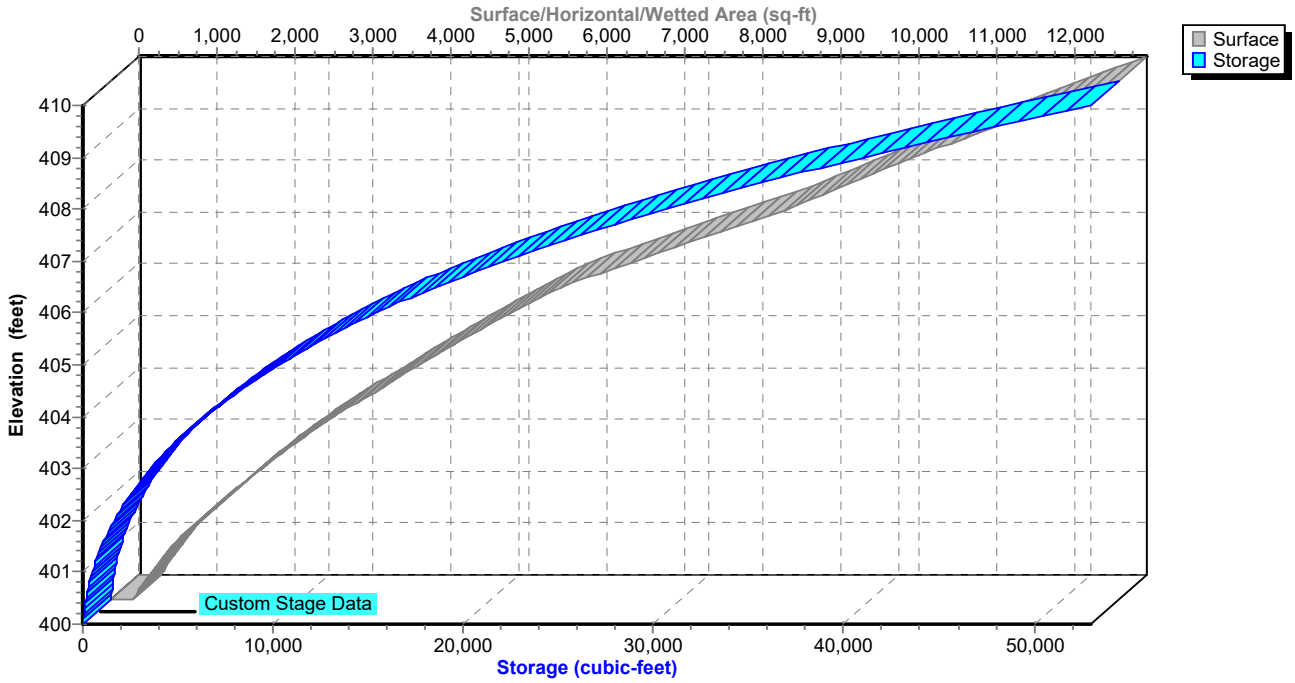
Primary OutFlow Max=0.46 cfs @ 13.91 hrs HW=408.06' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 0.46 cfs @ 0.65 fps)

Secondary OutFlow Max=0.53 cfs @ 13.91 hrs HW=408.06' (Free Discharge)
2=Orifice/Grate (Orifice Controls 0.53 cfs @ 2.67 fps)

Pond FB1: Forebay B-1



Pond FB1: Forebay B-1



Stage-Discharge for Pond FB1: Forebay B-1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
400.00	0.00	0.00	0.00
400.10	0.00	0.00	0.00
400.20	0.00	0.00	0.00
400.30	0.00	0.00	0.00
400.40	0.00	0.00	0.00
400.50	0.00	0.00	0.00
400.60	0.00	0.00	0.00
400.70	0.00	0.00	0.00
400.80	0.00	0.00	0.00
400.90	0.00	0.00	0.00
401.00	0.00	0.00	0.00
401.10	0.00	0.00	0.00
401.20	0.00	0.00	0.00
401.30	0.00	0.00	0.00
401.40	0.00	0.00	0.00
401.50	0.00	0.00	0.00
401.60	0.00	0.00	0.00
401.70	0.00	0.00	0.00
401.80	0.00	0.00	0.00
401.90	0.00	0.00	0.00
402.00	0.00	0.00	0.00
402.10	0.00	0.00	0.00
402.20	0.00	0.00	0.00
402.30	0.00	0.00	0.00
402.40	0.00	0.00	0.00
402.50	0.00	0.00	0.00
402.60	0.00	0.00	0.00
402.70	0.00	0.00	0.00
402.80	0.00	0.00	0.00
402.90	0.00	0.00	0.00
403.00	0.00	0.00	0.00
403.10	0.00	0.00	0.00
403.20	0.00	0.00	0.00
403.30	0.00	0.00	0.00
403.40	0.00	0.00	0.00
403.50	0.00	0.00	0.00
403.60	0.00	0.00	0.00
403.70	0.00	0.00	0.00
403.80	0.00	0.00	0.00
403.90	0.00	0.00	0.00
404.00	0.00	0.00	0.00
404.10	0.00	0.00	0.00
404.20	0.00	0.00	0.00
404.30	0.00	0.00	0.00
404.40	0.00	0.00	0.00
404.50	0.00	0.00	0.00
404.60	0.00	0.00	0.00
404.70	0.00	0.00	0.00
404.80	0.00	0.00	0.00
404.90	0.00	0.00	0.00
405.00	0.00	0.00	0.00
405.10	0.00	0.00	0.00
405.20	0.00	0.00	0.00
405.30	0.00	0.00	0.00
405.40	0.00	0.00	0.00
405.50	0.00	0.00	0.00
405.60	0.00	0.00	0.00
405.70	0.00	0.00	0.00
405.80	0.00	0.00	0.00
405.90	0.00	0.00	0.00
406.00	0.00	0.00	0.00
406.10	0.00	0.00	0.00
406.20	0.00	0.00	0.00
406.30	0.00	0.00	0.00
406.40	0.00	0.00	0.00
406.50	0.00	0.00	0.00
406.60	0.00	0.00	0.00
406.70	0.00	0.00	0.00
406.80	0.00	0.00	0.00
406.90	0.00	0.00	0.00
407.00	0.00	0.00	0.00
407.10	0.00	0.00	0.00
407.20	0.00	0.00	0.00
407.30	0.00	0.00	0.00
407.40	0.00	0.00	0.00
407.50	0.00	0.00	0.00
407.60	0.03	0.00	0.03
407.70	0.11	0.00	0.11
407.80	0.23	0.00	0.23
407.90	0.36	0.00	0.36
408.00	0.47	0.00	0.47
408.10	1.59	1.03	0.56
408.20	3.59	2.95	0.63
408.30	6.22	5.52	0.70
408.40	9.40	8.63	0.76
408.50	13.04	12.22	0.82
408.60	17.13	16.26	0.87
408.70	21.44	20.52	0.92
408.80	26.06	25.09	0.97
408.90	31.25	30.24	1.01
409.00	36.83	35.77	1.06
409.10	42.93	41.83	1.10
409.20	49.45	48.31	1.14
409.30	56.27	55.10	1.18
409.40	63.49	62.27	1.21
409.50	70.96	69.71	1.25
409.60	78.79	77.50	1.29
409.70	87.13	85.81	1.32
409.80	95.86	94.51	1.35
409.90	104.98	103.59	1.39
410.00	**114.49**	**113.07**	**1.42**

Stage-Area-Storage for Pond FB1: Forebay B-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
400.00	285	0
400.10	323	30
400.20	364	65
400.30	408	103
400.40	453	146
400.50	502	194
400.60	552	247
400.70	605	305
400.80	661	368
400.90	719	437
401.00	779	512
401.10	842	593
401.20	907	680
401.30	974	774
401.40	1,045	875
401.50	1,117	983
401.60	1,192	1,099
401.70	1,269	1,222
401.80	1,349	1,353
401.90	1,431	1,492
402.00	1,516	1,639
402.10	1,592	1,794
402.20	1,669	1,957
402.30	1,749	2,128
402.40	1,830	2,307
402.50	1,913	2,494
402.60	1,998	2,690
402.70	2,085	2,894
402.80	2,173	3,107
402.90	2,264	3,329
403.00	2,356	3,560
403.10	2,450	3,800
403.20	2,546	4,050
403.30	2,644	4,309
403.40	2,744	4,579
403.50	2,846	4,858
403.60	2,949	5,148
403.70	3,054	5,448
403.80	3,161	5,759
403.90	3,270	6,080
404.00	3,381	6,413
404.10	3,485	6,756
404.20	3,591	7,110
404.30	3,698	7,474
404.40	3,807	7,850
404.50	3,918	8,236
404.60	4,030	8,633
404.70	4,143	9,042
404.80	4,258	9,462
404.90	4,375	9,894
405.00	4,494	10,337
405.10	4,613	10,792
405.20	4,735	11,260
405.30	4,858	11,739
405.40	4,983	12,231
405.50	5,109	12,736
405.60	5,237	13,253
405.70	5,366	13,783
405.80	5,497	14,327
405.90	5,630	14,883
406.00	5,764	15,453
406.10	5,938	16,038
406.20	6,115	16,640
406.30	6,294	17,261
406.40	6,475	17,899
406.50	6,660	18,556
406.60	6,847	19,231
406.70	7,036	19,925
406.80	7,228	20,638
406.90	7,423	21,371
407.00	7,620	22,123
407.10	7,820	22,895
407.20	8,022	23,687
407.30	8,227	24,500
407.40	8,435	25,333
407.50	8,645	26,187
407.60	8,803	27,059
407.70	8,962	27,947
407.80	9,122	28,851
407.90	9,284	29,772
408.00	9,447	30,708
408.10	9,608	31,661
408.20	9,771	32,630
408.30	9,934	33,615
408.40	10,100	34,617
408.50	10,266	35,635
408.60	10,434	36,670
408.70	10,603	37,722
408.80	10,774	38,791
408.90	10,946	39,877
409.00	11,119	40,980
409.10	11,294	42,101
409.20	11,470	43,239
409.30	11,648	44,395
409.40	11,826	45,568
409.50	12,007	46,760
409.60	12,188	47,970
409.70	12,371	49,198
409.80	12,555	50,444
409.90	12,741	51,709
410.00	**12,928**	**52,992**

Summary for Pond IA1: Infiltration Basin A-1

Inflow Area = 9.007 ac, 57.93% Impervious, Inflow Depth = 0.56" for 1-YR event
Inflow = 0.89 cfs @ 14.70 hrs, Volume= 0.419 af
Outflow = 0.17 cfs @ 24.56 hrs, Volume= 0.370 af, Atten= 80%, Lag= 591.7 min
Discarded = 0.17 cfs @ 24.56 hrs, Volume= 0.370 af
Primary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Routed to Pond DPA : Design Point A

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 403.69' @ 24.56 hrs Surf.Area= 8,904 sf Storage= 12,807 cf

Plug-Flow detention time= 741.1 min calculated for 0.370 af (88% of inflow)
Center-of-Mass det. time= 699.5 min (1,808.2 - 1,108.7)

Volume	Invert	Avail.Storage	Storage Description
#1	402.00'	106,749 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

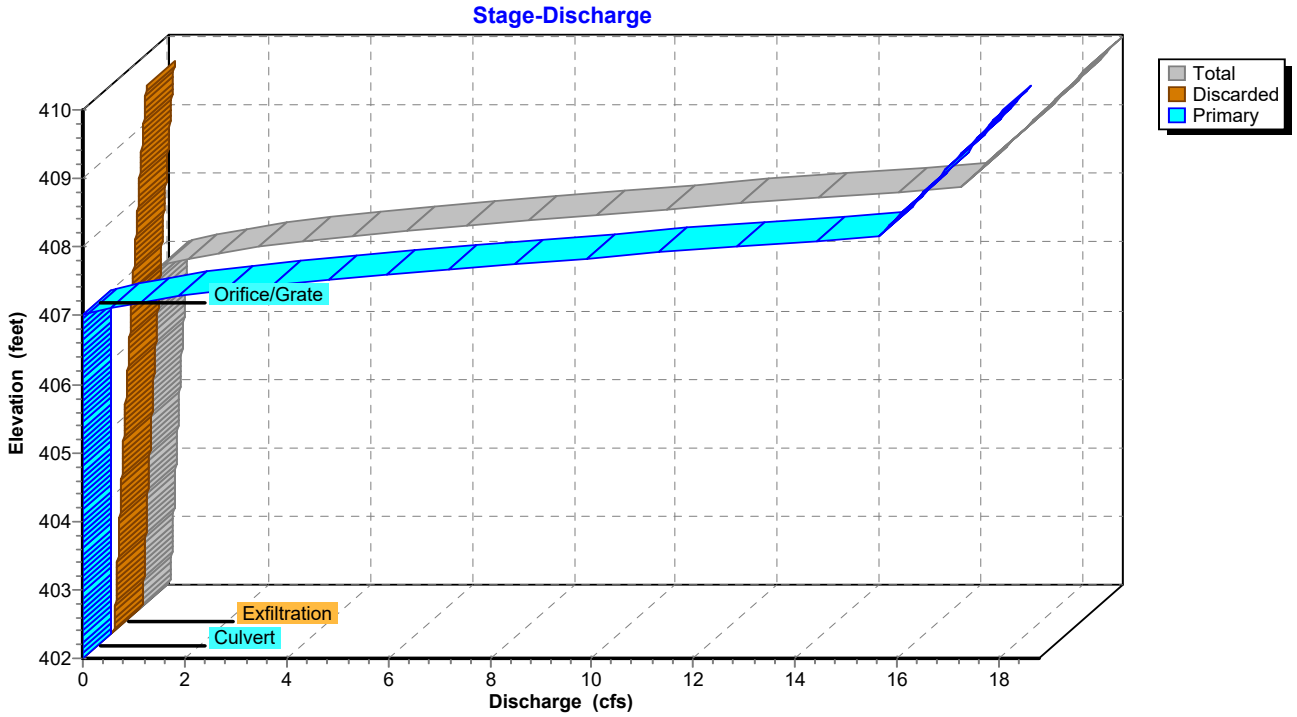
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
402.00	6,346	0	0	6,346
404.00	9,425	15,670	15,670	9,488
406.00	13,034	22,362	38,032	13,174
408.00	17,109	30,051	68,082	17,340
410.00	21,647	38,667	106,749	21,984

Device	Routing	Invert	Outlet Devices
#1	Primary	402.00'	**18.0" Round Culvert** L= 100.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 402.00' / 400.00' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Device 1	407.00'	**48.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	402.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 400.00'

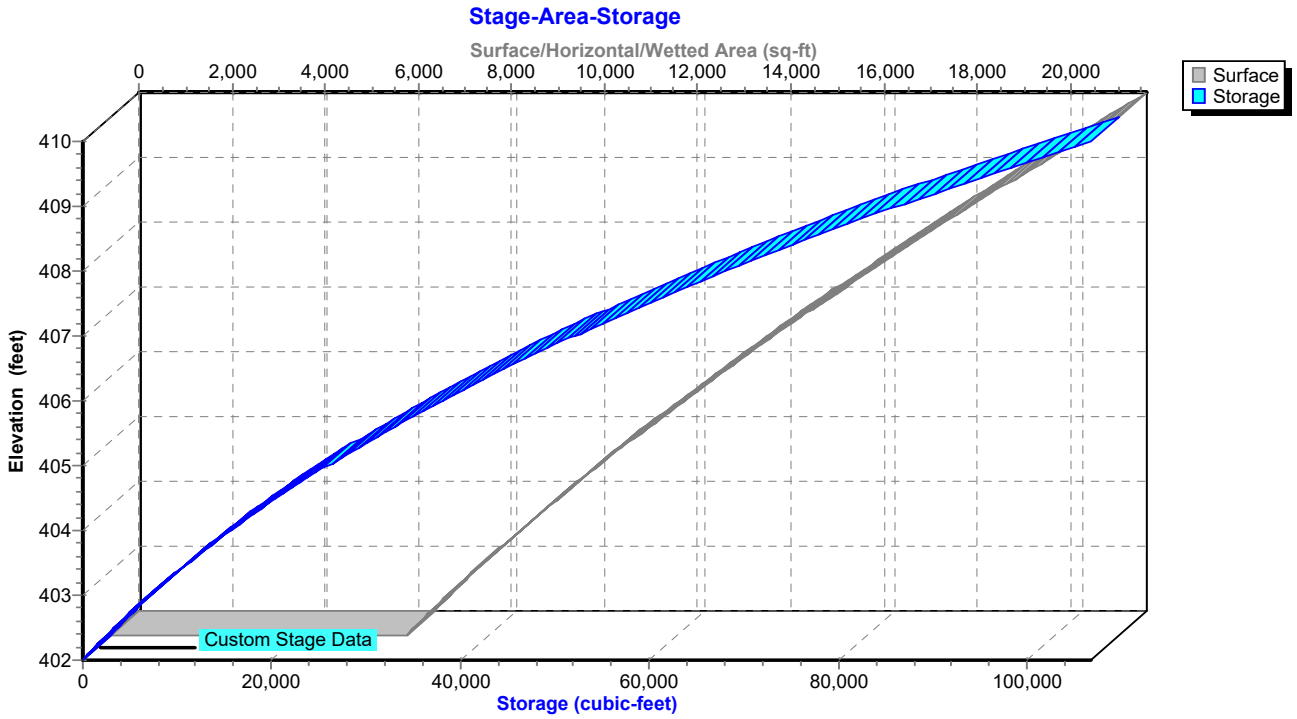
Discarded OutFlow Max=0.17 cfs @ 24.56 hrs HW=403.69' (Free Discharge)
└**3=Exfiltration** (Controls 0.17 cfs)

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=402.00' (Free Discharge)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond IA1: Infiltration Basin A-1



Pond IA1: Infiltration Basin A-1



Stage-Discharge for Pond IA1: Infiltration Basin A-1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
402.00	0.00	0.00	0.00
402.10	0.08	0.08	0.00
402.20	0.08	0.08	0.00
402.30	0.09	0.09	0.00
402.40	0.10	0.10	0.00
402.50	0.10	0.10	0.00
402.60	0.11	0.11	0.00
402.70	0.11	0.11	0.00
402.80	0.12	0.12	0.00
402.90	0.12	0.12	0.00
403.00	0.13	0.13	0.00
403.10	0.14	0.14	0.00
403.20	0.14	0.14	0.00
403.30	0.15	0.15	0.00
403.40	0.16	0.16	0.00
403.50	0.16	0.16	0.00
403.60	0.17	0.17	0.00
403.70	0.17	0.17	0.00
403.80	0.18	0.18	0.00
403.90	0.19	0.19	0.00
404.00	0.20	0.20	0.00
404.10	0.20	0.20	0.00
404.20	0.21	0.21	0.00
404.30	0.22	0.22	0.00
404.40	0.22	0.22	0.00
404.50	0.23	0.23	0.00
404.60	0.24	0.24	0.00
404.70	0.24	0.24	0.00
404.80	0.25	0.25	0.00
404.90	0.26	0.26	0.00
405.00	0.27	0.27	0.00
405.10	0.27	0.27	0.00
405.20	0.28	0.28	0.00
405.30	0.29	0.29	0.00
405.40	0.30	0.30	0.00
405.50	0.30	0.30	0.00
405.60	0.31	0.31	0.00
405.70	0.32	0.32	0.00
405.80	0.33	0.33	0.00
405.90	0.33	0.33	0.00
406.00	0.34	0.34	0.00
406.10	0.35	0.35	0.00
406.20	0.36	0.36	0.00
406.30	0.37	0.37	0.00
406.40	0.37	0.37	0.00
406.50	0.38	0.38	0.00
406.60	0.39	0.39	0.00
406.70	0.40	0.40	0.00
406.80	0.41	0.41	0.00
406.90	0.42	0.42	0.00
407.00	0.42	0.42	0.00
407.10	0.84	0.43	0.41
407.20	1.59	0.44	1.15
407.30	2.56	0.45	2.11
407.40	3.71	0.46	3.25
407.50	5.01	0.47	4.54
407.60	6.44	0.48	5.97
407.70	8.00	0.48	7.52
407.80	9.68	0.49	9.19
407.90	11.46	0.50	10.96
408.00	13.35	0.51	12.84
408.10	15.33	0.52	14.81
408.20	16.21	0.53	15.68
408.30	16.36	0.54	15.83
408.40	16.51	0.55	15.97
408.50	16.66	0.56	16.11
408.60	16.81	0.56	16.25
408.70	16.96	0.57	16.39
408.80	17.11	0.58	16.52
408.90	17.25	0.59	16.66
409.00	17.40	0.60	16.79
409.10	17.54	0.61	16.93
409.20	17.68	0.62	17.06
409.30	17.82	0.63	17.19
409.40	17.96	0.64	17.32
409.50	18.10	0.65	17.45
409.60	18.24	0.66	17.58
409.70	18.38	0.67	17.71
409.80	18.51	0.68	17.84
409.90	18.65	0.69	17.96
410.00	**18.78**	**0.70**	**18.09**

Stage-Area-Storage for Pond IA1: Infiltration Basin A-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
402.00	6,346	0
402.10	6,486	642
402.20	6,627	1,297
402.30	6,769	1,967
402.40	6,913	2,651
402.50	7,059	3,350
402.60	7,206	4,063
402.70	7,355	4,791
402.80	7,505	5,534
402.90	7,656	6,292
403.00	7,810	7,065
403.10	7,964	7,854
403.20	8,121	8,658
403.30	8,278	9,478
403.40	8,438	10,314
403.50	8,598	11,166
403.60	8,761	12,034
403.70	8,924	12,918
403.80	9,090	13,818
403.90	9,257	14,736
404.00	9,425	15,670
404.10	9,592	16,621
404.20	9,760	17,588
404.30	9,929	18,573
404.40	10,100	19,574
404.50	10,273	20,593
404.60	10,446	21,629
404.70	10,622	22,682
404.80	10,799	23,753
404.90	10,977	24,842
405.00	11,157	25,948
405.10	11,338	27,073
405.20	11,520	28,216
405.30	11,704	29,377
405.40	11,890	30,557
405.50	12,077	31,755
405.60	12,266	32,972
405.70	12,455	34,208
405.80	12,647	35,464
405.90	12,840	36,738
406.00	13,034	38,032
406.10	13,225	39,344
406.20	13,417	40,677
406.30	13,610	42,028
406.40	13,805	43,399
406.50	14,001	44,789
406.60	14,198	46,199
406.70	14,397	47,629
406.80	14,598	49,078
406.90	14,799	50,548
407.00	15,002	52,038
407.10	15,207	53,549
407.20	15,413	55,080
407.30	15,620	56,631
407.40	15,828	58,204
407.50	16,038	59,797
407.60	16,250	61,411
407.70	16,462	63,047
407.80	16,677	64,704
407.90	16,892	66,382
408.00	17,109	68,082
408.10	17,323	69,804
408.20	17,539	71,547
408.30	17,756	73,312
408.40	17,974	75,098
408.50	18,194	76,907
408.60	18,414	78,737
408.70	18,637	80,589
408.80	18,860	82,464
408.90	19,085	84,362
409.00	19,311	86,281
409.10	19,539	88,224
409.20	19,768	90,189
409.30	19,998	92,177
409.40	20,230	94,189
409.50	20,463	96,223
409.60	20,697	98,281
409.70	20,932	100,363
409.80	21,169	102,468
409.90	21,407	104,597
410.00	**21,647**	**106,749**

Summary for Pond BB1: Bio-Retention Basin

Inflow Area = 0.610 ac, 25.08% Impervious, Inflow Depth > 13.59" for 10-YR event
Inflow = 1.03 cfs @ 12.35 hrs, Volume= 0.691 af
Outflow = 0.56 cfs @ 16.35 hrs, Volume= 0.513 af, Atten= 46%, Lag= 240.2 min
Primary = 0.56 cfs @ 16.35 hrs, Volume= 0.513 af
Routed to Pond DPB : Design Point B

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 403.82' @ 16.35 hrs Surf.Area= 11,176 sf Storage= 8,481 cf

Plug-Flow detention time= 291.4 min calculated for 0.513 af (74% of inflow)
Center-of-Mass det. time= 146.7 min (1,303.0 - 1,156.3)

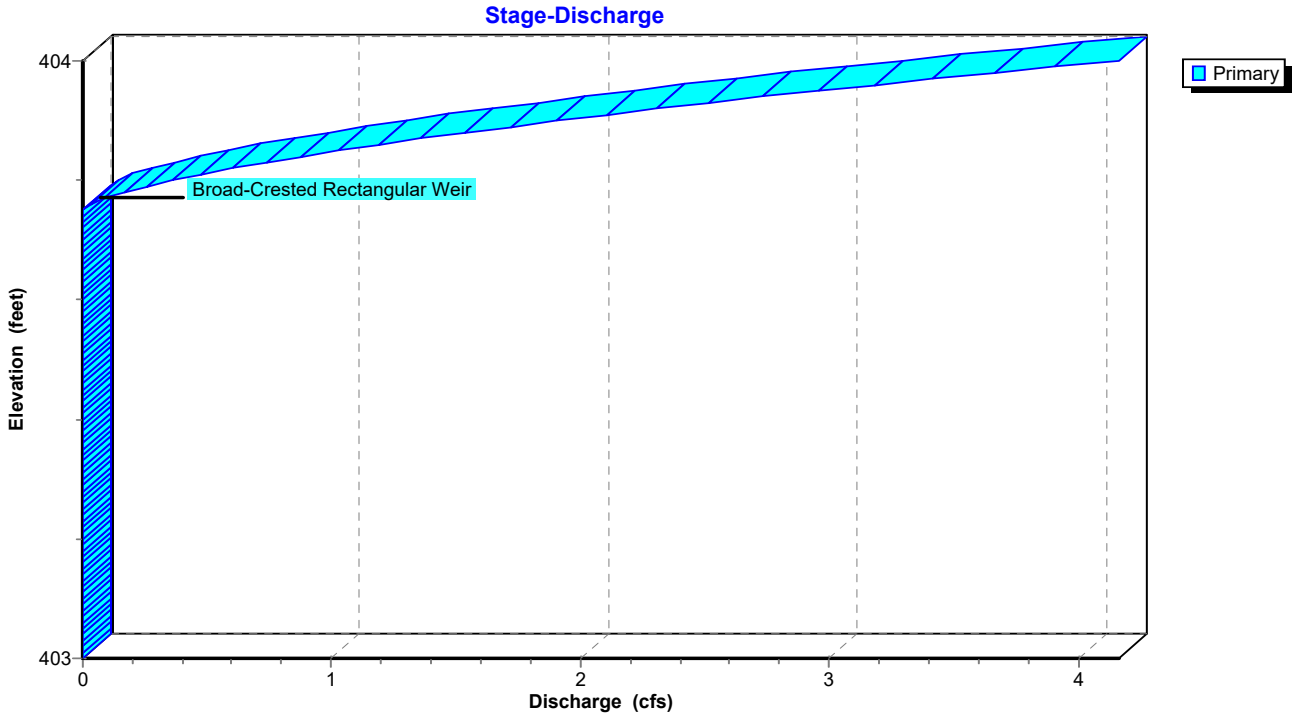
Volume	Invert	Avail.Storage	Storage Description
#1	403.00'	10,562 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
403.00	9,610	0	0	9,610
404.00	11,543	10,562	10,562	11,577

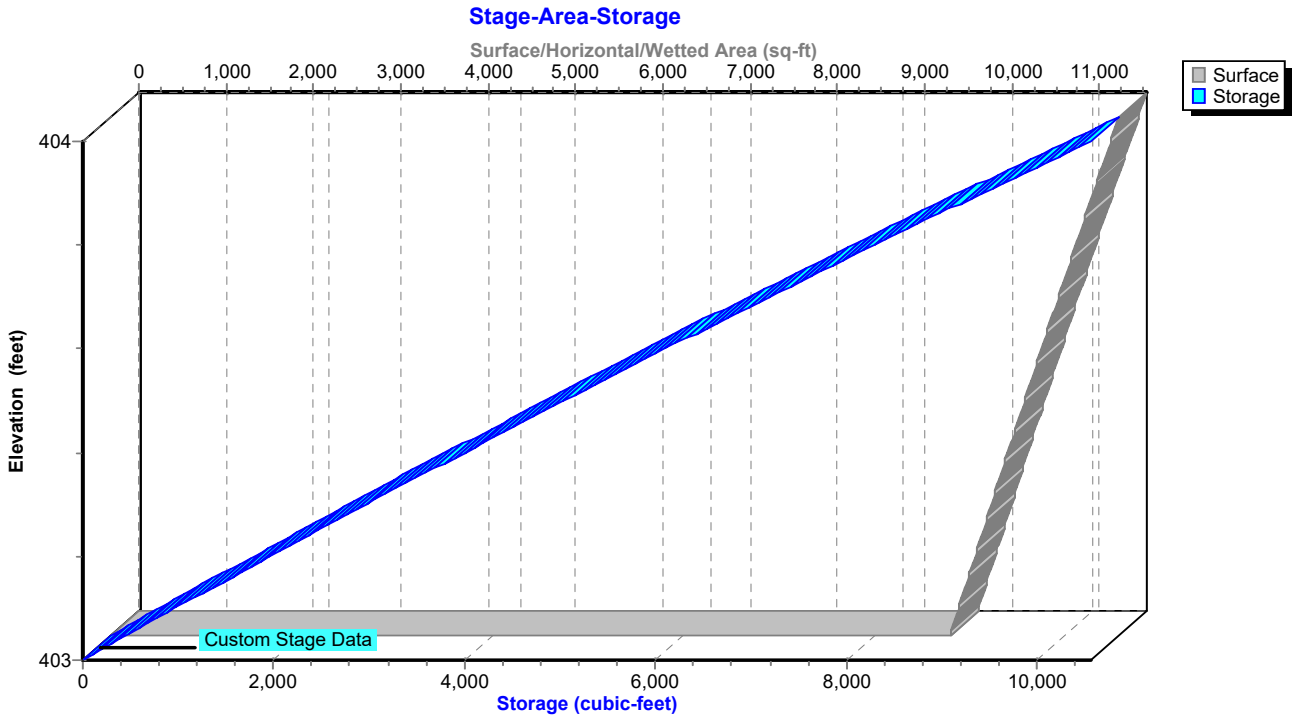
Device	Routing	Invert	Outlet Devices
#1	Primary	403.75'	**12.0' long + 2.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.56 cfs @ 16.35 hrs HW=403.82' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.56 cfs @ 0.69 fps)

Pond BB1: Bio-Retention Basin



Pond BB1: Bio-Retention Basin



Stage-Discharge for Pond BB1: Bio-Retention Basin

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
403.00	0.00	403.52	0.00
403.01	0.00	403.53	0.00
403.02	0.00	403.54	0.00
403.03	0.00	403.55	0.00
403.04	0.00	403.56	0.00
403.05	0.00	403.57	0.00
403.06	0.00	403.58	0.00
403.07	0.00	403.59	0.00
403.08	0.00	403.60	0.00
403.09	0.00	403.61	0.00
403.10	0.00	403.62	0.00
403.11	0.00	403.63	0.00
403.12	0.00	403.64	0.00
403.13	0.00	403.65	0.00
403.14	0.00	403.66	0.00
403.15	0.00	403.67	0.00
403.16	0.00	403.68	0.00
403.17	0.00	403.69	0.00
403.18	0.00	403.70	0.00
403.19	0.00	403.71	0.00
403.20	0.00	403.72	0.00
403.21	0.00	403.73	0.00
403.22	0.00	403.74	0.00
403.23	0.00	403.75	0.00
403.24	0.00	403.76	0.03
403.25	0.00	403.77	0.09
403.26	0.00	403.78	0.17
403.27	0.00	403.79	0.26
403.28	0.00	403.80	0.36
403.29	0.00	403.81	0.48
403.30	0.00	403.82	0.60
403.31	0.00	403.83	0.74
403.32	0.00	403.84	0.88
403.33	0.00	403.85	1.03
403.34	0.00	403.86	1.19
403.35	0.00	403.87	1.36
403.36	0.00	403.88	1.53
403.37	0.00	403.89	1.72
403.38	0.00	403.90	1.91
403.39	0.00	403.91	2.10
403.40	0.00	403.92	2.31
403.41	0.00	403.93	2.51
403.42	0.00	403.94	2.73
403.43	0.00	403.95	2.95
403.44	0.00	403.96	3.18
403.45	0.00	403.97	3.42
403.46	0.00	403.98	3.66
403.47	0.00	403.99	3.91
403.48	0.00	404.00	**4.16**
403.49	0.00		
403.50	0.00		
403.51	0.00		

Stage-Area-Storage for Pond BB1: Bio-Retention Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
403.00	9,610	0
403.01	9,628	96
403.02	9,647	193
403.03	9,665	289
403.04	9,684	386
403.05	9,702	483
403.06	9,721	580
403.07	9,740	677
403.08	9,758	775
403.09	9,777	872
403.10	9,795	970
403.11	9,814	1,068
403.12	9,833	1,167
403.13	9,851	1,265
403.14	9,870	1,364
403.15	9,889	1,462
403.16	9,907	1,561
403.17	9,926	1,660
403.18	9,945	1,760
403.19	9,964	1,859
403.20	9,982	1,959
403.21	10,001	2,059
403.22	10,020	2,159
403.23	10,039	2,259
403.24	10,058	2,360
403.25	10,077	2,461
403.26	10,096	2,561
403.27	10,114	2,663
403.28	10,133	2,764
403.29	10,152	2,865
403.30	10,171	2,967
403.31	10,190	3,069
403.32	10,209	3,171
403.33	10,228	3,273
403.34	10,247	3,375
403.35	10,266	3,478
403.36	10,285	3,580
403.37	10,305	3,683
403.38	10,324	3,787
403.39	10,343	3,890
403.40	10,362	3,993
403.41	10,381	4,097
403.42	10,400	4,201
403.43	10,419	4,305
403.44	10,439	4,409
403.45	10,458	4,514
403.46	10,477	4,619
403.47	10,496	4,723
403.48	10,516	4,829
403.49	10,535	4,934
403.50	10,554	5,039
403.51	10,574	5,145
403.52	10,593	5,251
403.53	10,612	5,357
403.54	10,632	5,463
403.55	10,651	5,569
403.56	10,671	5,676
403.57	10,690	5,783
403.58	10,710	5,890
403.59	10,729	5,997
403.60	10,749	6,104
403.61	10,768	6,212
403.62	10,788	6,320
403.63	10,807	6,428
403.64	10,827	6,536
403.65	10,846	6,644
403.66	10,866	6,753
403.67	10,886	6,862
403.68	10,905	6,971
403.69	10,925	7,080
403.70	10,945	7,189
403.71	10,964	7,299
403.72	10,984	7,408
403.73	11,004	7,518
403.74	11,023	7,628
403.75	11,043	7,739
403.76	11,063	7,849
403.77	11,083	7,960
403.78	11,103	8,071
403.79	11,122	8,182
403.80	11,142	8,293
403.81	11,162	8,405
403.82	11,182	8,517
403.83	11,202	8,629
403.84	11,222	8,741
403.85	11,242	8,853
403.86	11,262	8,965
403.87	11,282	9,078
403.88	11,302	9,191
403.89	11,322	9,304
403.90	11,342	9,418
403.91	11,362	9,531
403.92	11,382	9,645
403.93	11,402	9,759
403.94	11,422	9,873
403.95	11,442	9,987
403.96	11,462	10,102
403.97	11,482	10,216
403.98	11,503	10,331
403.99	11,523	10,446
404.00	**11,543**	**10,562**

Summary for Pond DA2: Detention Basin A-2

Inflow Area = 0.600 ac, 17.00% Impervious, Inflow Depth = 0.36" for 10-YR event
Inflow = 0.04 cfs @ 16.89 hrs, Volume= 0.018 af
Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af
Routed to Pond DPA : Design Point A

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 395.67' @ 47.10 hrs Surf.Area= 803 sf Storage= 794 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

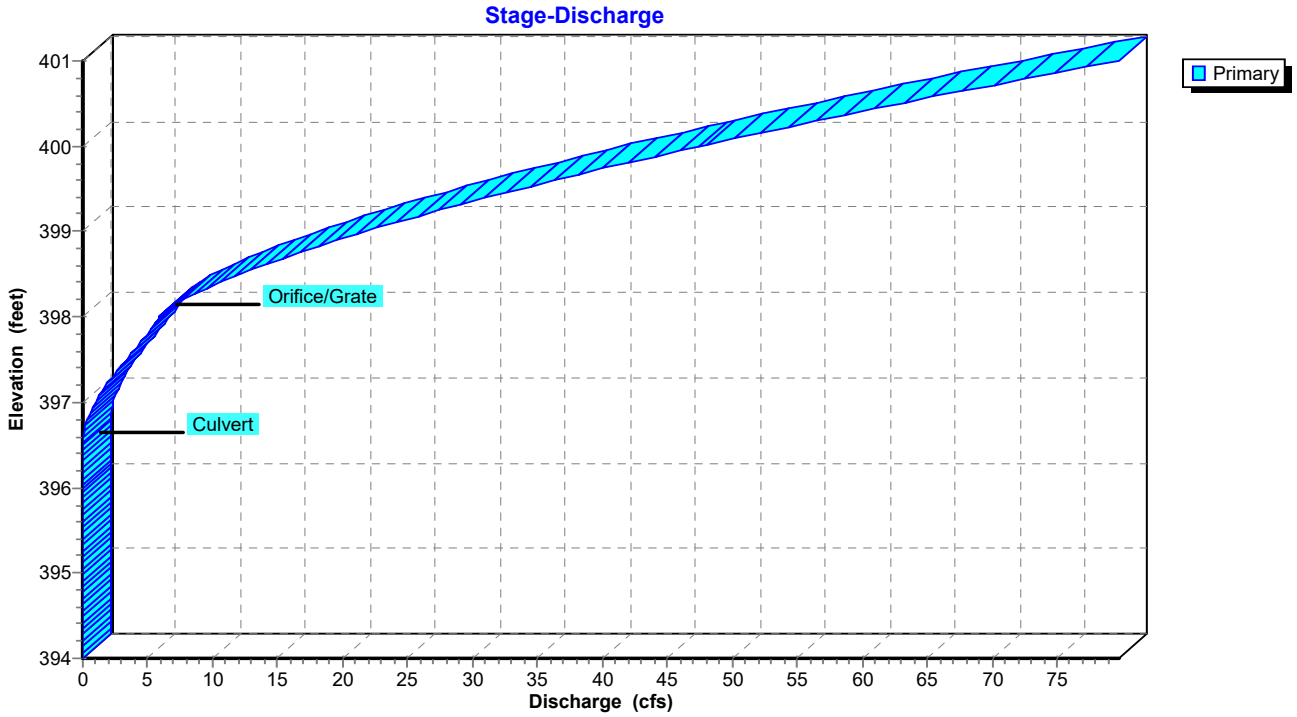
Volume	Invert	Avail.Storage	Storage Description
#1	394.00'	9,474 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
394.00	209	0	0	209
396.00	963	1,080	1,080	980
398.00	2,063	2,957	4,037	2,113
400.00	3,431	5,436	9,474	3,530

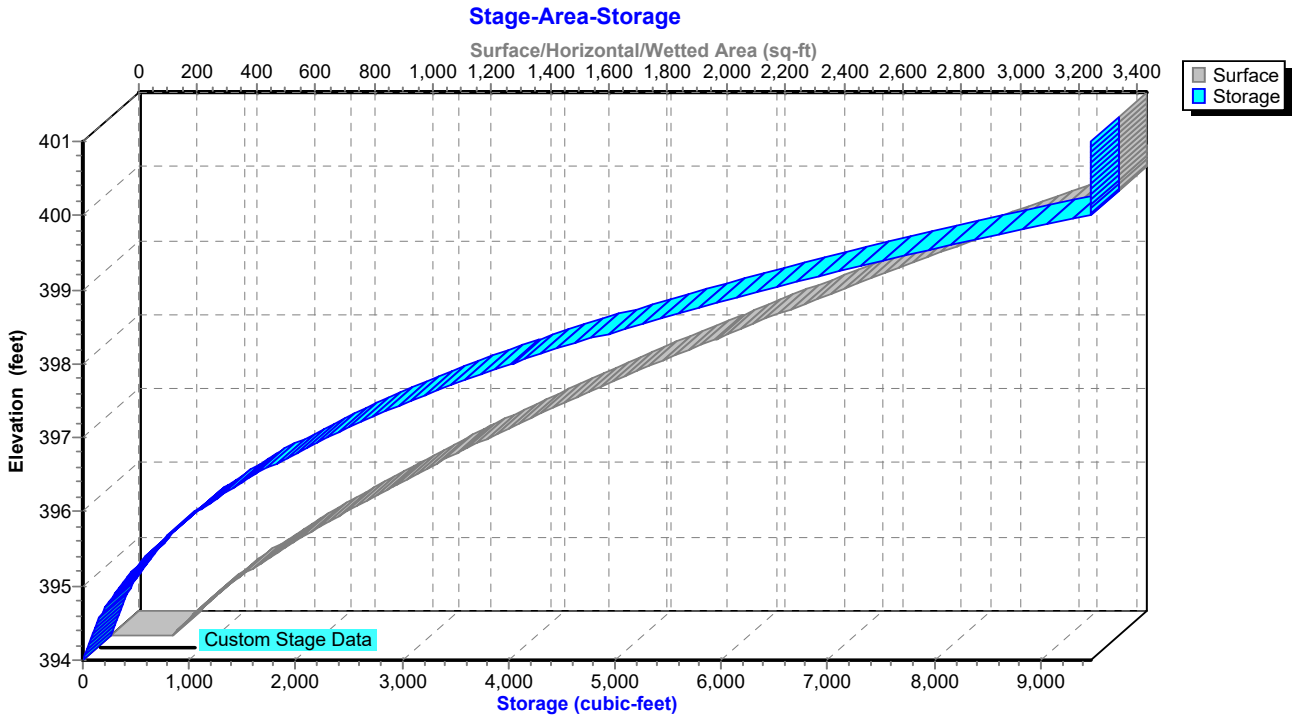
Device	Routing	Invert	Outlet Devices
#1	Primary	396.50'	**18.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 396.50' / 396.00' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Primary	398.00'	**48.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 1.00 hrs HW=394.00' (Free Discharge)
1=Culvert (Controls 0.00 cfs)
2=Orifice/Grate (Controls 0.00 cfs)

Pond DA2: Detention Basin A-2



Pond DA2: Detention Basin A-2



Stage-Discharge for Pond DA2: Detention Basin A-2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
394.00	0.00	396.60	0.04	399.20	26.26
394.05	0.00	396.65	0.10	399.25	27.44
394.10	0.00	396.70	0.17	399.30	28.65
394.15	0.00	396.75	0.26	399.35	29.87
394.20	0.00	396.80	0.37	399.40	31.12
394.25	0.00	396.85	0.50	399.45	32.38
394.30	0.00	396.90	0.64	399.50	33.66
394.35	0.00	396.95	0.80	399.55	34.97
394.40	0.00	397.00	0.98	399.60	36.28
394.45	0.00	397.05	1.17	399.65	37.62
394.50	0.00	397.10	1.37	399.70	38.97
394.55	0.00	397.15	1.59	399.75	40.35
394.60	0.00	397.20	1.82	399.80	41.73
394.65	0.00	397.25	2.06	399.85	43.14
394.70	0.00	397.30	2.30	399.90	44.56
394.75	0.00	397.35	2.56	399.95	46.00
394.80	0.00	397.40	2.82	400.00	47.46
394.85	0.00	397.45	3.09	400.05	48.93
394.90	0.00	397.50	3.36	400.10	50.41
394.95	0.00	397.55	3.64	400.15	51.92
395.00	0.00	397.60	3.92	400.20	53.44
395.05	0.00	397.65	4.19	400.25	54.97
395.10	0.00	397.70	4.46	400.30	56.52
395.15	0.00	397.75	4.73	400.35	58.08
395.20	0.00	397.80	4.99	400.40	59.66
395.25	0.00	397.85	5.23	400.45	61.26
395.30	0.00	397.90	5.46	400.50	62.86
395.35	0.00	397.95	5.66	400.55	64.49
395.40	0.00	398.00	5.82	400.60	66.12
395.45	0.00	398.05	6.15	400.65	67.78
395.50	0.00	398.10	6.60	400.70	69.44
395.55	0.00	398.15	7.12	400.75	71.12
395.60	0.00	398.20	7.70	400.80	72.82
395.65	0.00	398.25	8.32	400.85	74.52
395.70	0.00	398.30	8.99	400.90	76.24
395.75	0.00	398.35	9.70	400.95	77.98
395.80	0.00	398.40	10.45	401.00	**79.73**
395.85	0.00	398.45	11.23		
395.90	0.00	398.50	12.05		
395.95	0.00	398.55	12.90		
396.00	0.00	398.60	13.77		
396.05	0.00	398.65	14.68		
396.10	0.00	398.70	15.61		
396.15	0.00	398.75	16.57		
396.20	0.00	398.80	17.55		
396.25	0.00	398.85	18.56		
396.30	0.00	398.90	19.59		
396.35	0.00	398.95	20.65		
396.40	0.00	399.00	21.73		
396.45	0.00	399.05	22.83		
396.50	0.00	399.10	23.95		
396.55	0.01	399.15	25.09		

Stage-Area-Storage for Pond DA2: Detention Basin A-2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
394.00	209	0
394.10	234	22
394.20	260	47
394.30	287	74
394.40	316	104
394.50	346	137
394.60	378	173
394.70	410	213
394.80	445	256
394.90	480	302
395.00	517	352
395.10	556	405
395.20	595	463
395.30	637	524
395.40	679	590
395.50	723	660
395.60	768	735
395.70	815	814
395.80	863	898
395.90	912	987
396.00	963	1,080
396.10	1,008	1,179
396.20	1,054	1,282
396.30	1,102	1,390
396.40	1,150	1,502
396.50	1,199	1,620
396.60	1,250	1,742
396.70	1,301	1,870
396.80	1,353	2,003
396.90	1,407	2,141
397.00	1,461	2,284
397.10	1,517	2,433
397.20	1,573	2,587
397.30	1,631	2,748
397.40	1,690	2,914
397.50	1,749	3,085
397.60	1,810	3,263
397.70	1,872	3,447
397.80	1,934	3,638
397.90	1,998	3,834
398.00	2,063	4,037
398.10	2,123	4,247
398.20	2,184	4,462
398.30	2,246	4,684
398.40	2,309	4,911
398.50	2,373	5,145
398.60	2,437	5,386
398.70	2,502	5,633
398.80	2,569	5,886
398.90	2,636	6,147
399.00	2,704	6,414
399.10	2,773	6,687
399.20	2,842	6,968
399.30	2,913	7,256
399.40	2,984	7,551
399.50	3,057	7,853
399.60	3,130	8,162
399.70	3,204	8,479
399.80	3,279	8,803
399.90	3,354	9,134
400.00	**3,431**	**9,474**
400.10	3,431	9,474
400.20	3,431	9,474
400.30	3,431	9,474
400.40	3,431	9,474
400.50	3,431	9,474
400.60	3,431	9,474
400.70	3,431	9,474
400.80	3,431	9,474
400.90	3,431	9,474
401.00	3,431	9,474

Summary for Pond DB1: Detention Basin B-1

Inflow Area = 9.160 ac, 53.49% Impervious, Inflow Depth = 1.83" for 10-YR event
Inflow = 17.74 cfs @ 12.41 hrs, Volume= 1.398 af
Outflow = 0.45 cfs @ 17.85 hrs, Volume= 0.161 af, Atten= 97%, Lag= 326.2 min
Primary = 0.45 cfs @ 17.85 hrs, Volume= 0.161 af
Routed to Pond DPB : Design Point B

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 405.04' @ 17.85 hrs Surf.Area= 13,554 sf Storage= 54,382 cf

Plug-Flow detention time= 470.0 min calculated for 0.161 af (11% of inflow)
Center-of-Mass det. time= 366.8 min (1,207.3 - 840.5)

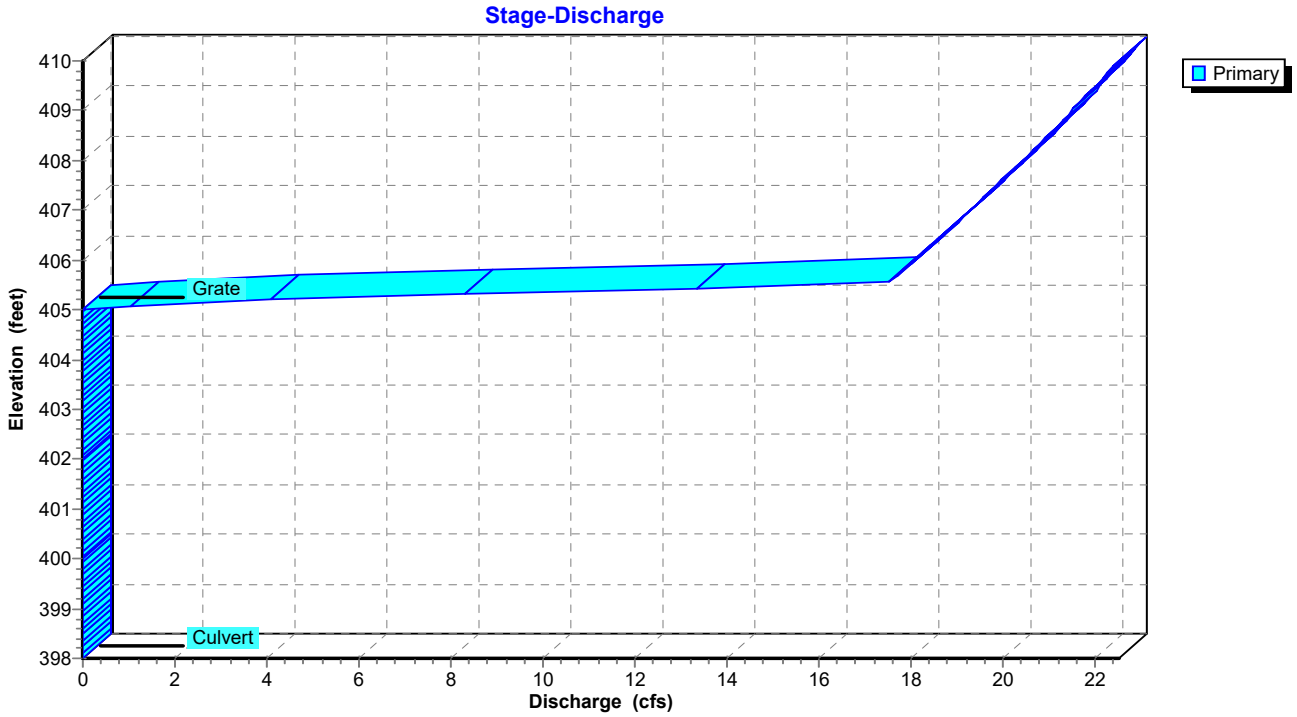
Volume	Invert	Avail.Storage	Storage Description
#1	398.00'	147,816 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
398.00	2,899	0	0	2,899
400.00	5,332	8,108	8,108	5,373
402.00	8,246	13,473	21,581	8,345
404.00	11,630	19,779	41,360	11,801
406.00	15,480	27,018	68,379	15,738
408.00	19,788	35,180	103,559	20,147
410.00	24,555	44,257	147,816	25,030

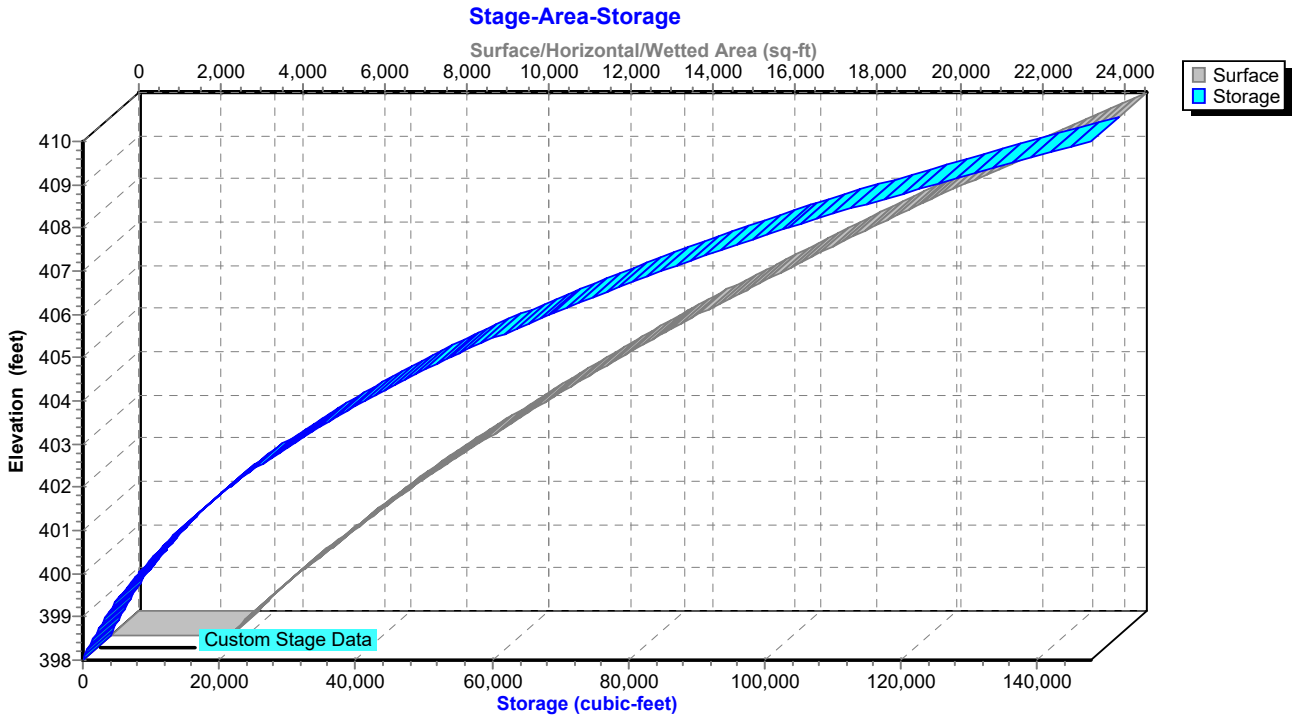
Device	Routing	Invert	Outlet Devices
#1	Primary	398.00'	**18.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 398.00' / 396.00' S= 0.0267 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Device 1	405.00'	**48.0" x 36.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.30 cfs @ 17.85 hrs HW=405.04' (Free Discharge)
↑—**1=Culvert** (Passes 0.30 cfs of 16.84 cfs potential flow)
↑—**2=Grate** (Weir Controls 0.30 cfs @ 0.61 fps)

Pond DB1: Detention Basin B-1



Pond DB1: Detention Basin B-1



Stage-Discharge for Pond DB1: Detention Basin B-1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
398.00	0.00	403.20	0.00	408.40	20.87
398.10	0.00	403.30	0.00	408.50	20.98
398.20	0.00	403.40	0.00	408.60	21.08
398.30	0.00	403.50	0.00	408.70	21.19
398.40	0.00	403.60	0.00	408.80	21.30
398.50	0.00	403.70	0.00	408.90	21.40
398.60	0.00	403.80	0.00	409.00	21.51
398.70	0.00	403.90	0.00	409.10	21.61
398.80	0.00	404.00	0.00	409.20	21.72
398.90	0.00	404.10	0.00	409.30	21.82
399.00	0.00	404.20	0.00	409.40	21.92
399.10	0.00	404.30	0.00	409.50	22.02
399.20	0.00	404.40	0.00	409.60	22.13
399.30	0.00	404.50	0.00	409.70	22.23
399.40	0.00	404.60	0.00	409.80	22.33
399.50	0.00	404.70	0.00	409.90	22.43
399.60	0.00	404.80	0.00	410.00	**22.53**
399.70	0.00	404.90	0.00		
399.80	0.00	405.00	0.00		
399.90	0.00	405.10	1.45		
400.00	0.00	405.20	4.09		
400.10	0.00	405.30	7.52		
400.20	0.00	405.40	11.58		
400.30	0.00	405.50	16.19		
400.40	0.00	405.60	17.58		
400.50	0.00	405.70	17.71		
400.60	0.00	405.80	17.84		
400.70	0.00	405.90	17.96		
400.80	0.00	406.00	18.09		
400.90	0.00	406.10	18.21		
401.00	0.00	406.20	18.34		
401.10	0.00	406.30	18.46		
401.20	0.00	406.40	18.58		
401.30	0.00	406.50	18.70		
401.40	0.00	406.60	18.82		
401.50	0.00	406.70	18.94		
401.60	0.00	406.80	19.06		
401.70	0.00	406.90	19.18		
401.80	0.00	407.00	19.29		
401.90	0.00	407.10	19.41		
402.00	0.00	407.20	19.53		
402.10	0.00	407.30	19.64		
402.20	0.00	407.40	19.76		
402.30	0.00	407.50	19.87		
402.40	0.00	407.60	19.98		
402.50	0.00	407.70	20.10		
402.60	0.00	407.80	20.21		
402.70	0.00	407.90	20.32		
402.80	0.00	408.00	20.43		
402.90	0.00	408.10	20.54		
403.00	0.00	408.20	20.65		
403.10	0.00	408.30	20.76		

Stage-Area-Storage for Pond DB1: Detention Basin B-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
398.00	2,899	0
398.20	3,109	601
398.40	3,327	1,244
398.60	3,552	1,932
398.80	3,784	2,665
399.00	4,024	3,446
399.20	4,271	4,275
399.40	4,525	5,155
399.60	4,787	6,086
399.80	5,056	7,070
400.00	5,332	8,108
400.20	5,595	9,201
400.40	5,864	10,347
400.60	6,140	11,547
400.80	6,422	12,803
401.00	6,710	14,116
401.20	7,004	15,488
401.40	7,305	16,918
401.60	7,613	18,410
401.80	7,926	19,964
402.00	8,246	21,581
402.20	8,558	23,261
402.40	8,876	25,005
402.60	9,200	26,812
402.80	9,530	28,685
403.00	9,865	30,625
403.20	10,207	32,632
403.40	10,554	34,708
403.60	10,907	36,854
403.80	11,265	39,071
404.00	11,630	41,360
404.20	11,990	43,722
404.40	12,356	46,157
404.60	12,727	48,665
404.80	13,104	51,248
405.00	13,486	53,907
405.20	13,874	56,643
405.40	14,267	59,457
405.60	14,666	62,350
405.80	15,070	65,324
406.00	15,480	68,379
406.20	15,887	71,515
406.40	16,299	74,734
406.60	16,717	78,035
406.80	17,140	81,421
407.00	17,568	84,892
407.20	18,001	88,448
407.40	18,440	92,093
407.60	18,884	95,825
407.80	19,333	99,647
408.00	19,788	103,559
408.20	20,242	107,561
408.40	20,700	111,656
408.60	21,164	115,842
408.80	21,633	120,122
409.00	22,107	124,496
409.20	22,587	128,965
409.40	23,071	133,530
409.60	23,560	138,194
409.80	24,055	142,955
410.00	**24,555**	**147,816**

Summary for Pond DPA: Design Point A

Inflow Area = 36.215 ac, 35.71% Impervious, Inflow Depth = 1.76" for 10-YR event
Inflow = 42.39 cfs @ 12.30 hrs, Volume= 5.307 af
Primary = 42.39 cfs @ 12.30 hrs, Volume= 5.307 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond DPB: Design Point B

Inflow Area = 22.212 ac, 27.91% Impervious, Inflow Depth > 0.93" for 10-YR event
Inflow = 7.26 cfs @ 12.33 hrs, Volume= 1.713 af
Primary = 7.26 cfs @ 12.33 hrs, Volume= 1.713 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond FA1: Forebay A-1

Inflow Area = 9.007 ac, 57.93% Impervious, Inflow Depth = 3.58" for 10-YR event
Inflow = 19.75 cfs @ 12.35 hrs, Volume= 2.686 af
Outflow = 17.70 cfs @ 12.45 hrs, Volume= 1.874 af, Atten= 10%, Lag= 6.0 min
Primary = 17.70 cfs @ 12.45 hrs, Volume= 1.874 af
Routed to Pond IA1 : Infiltration Basin A-1

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 408.60' @ 12.45 hrs Surf.Area= 10,529 sf Storage= 41,431 cf

Plug-Flow detention time= 208.3 min calculated for 1.874 af (70% of inflow)
Center-of-Mass det. time= 93.1 min (917.0 - 823.9)

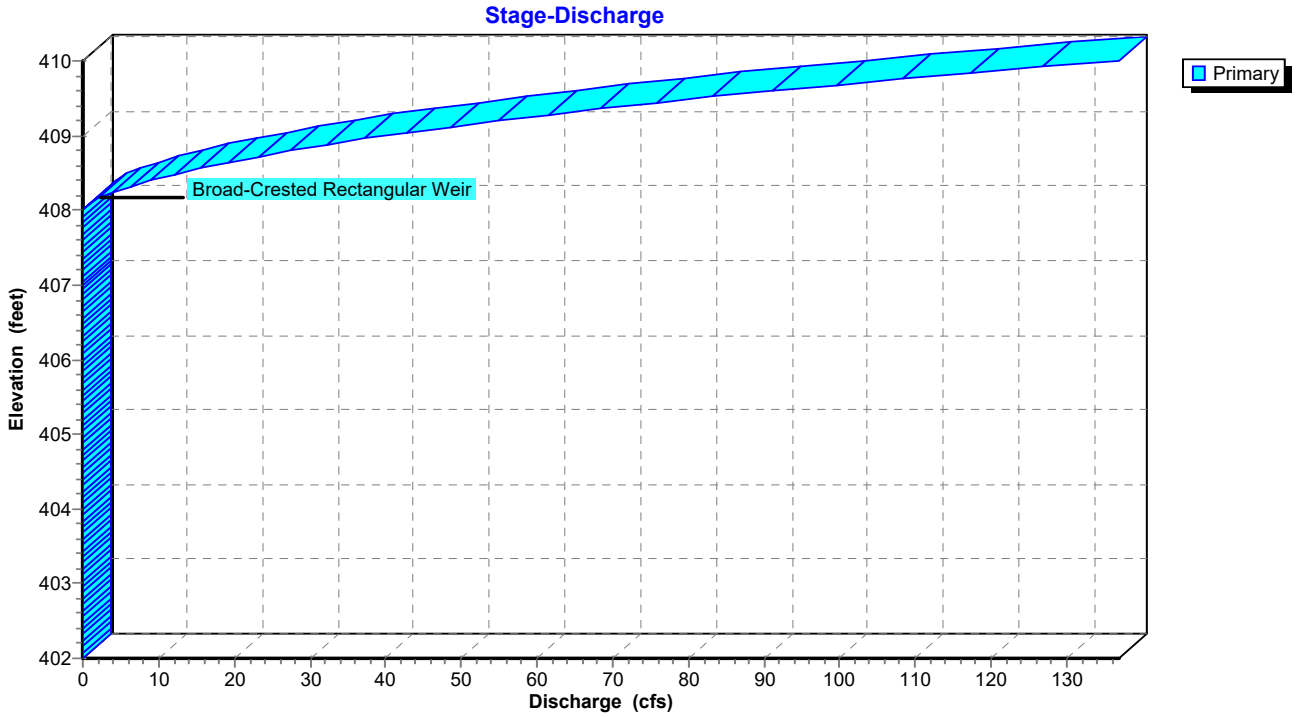
Volume	Invert	Avail.Storage	Storage Description
#1	402.00'	57,653 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
402.00	2,804	0	0	2,804
404.00	4,651	7,378	7,378	4,700
406.00	6,917	11,493	18,871	7,029
407.00	8,212	7,555	26,426	8,360
408.00	9,627	8,910	35,336	9,814
410.00	12,763	22,316	57,653	13,038

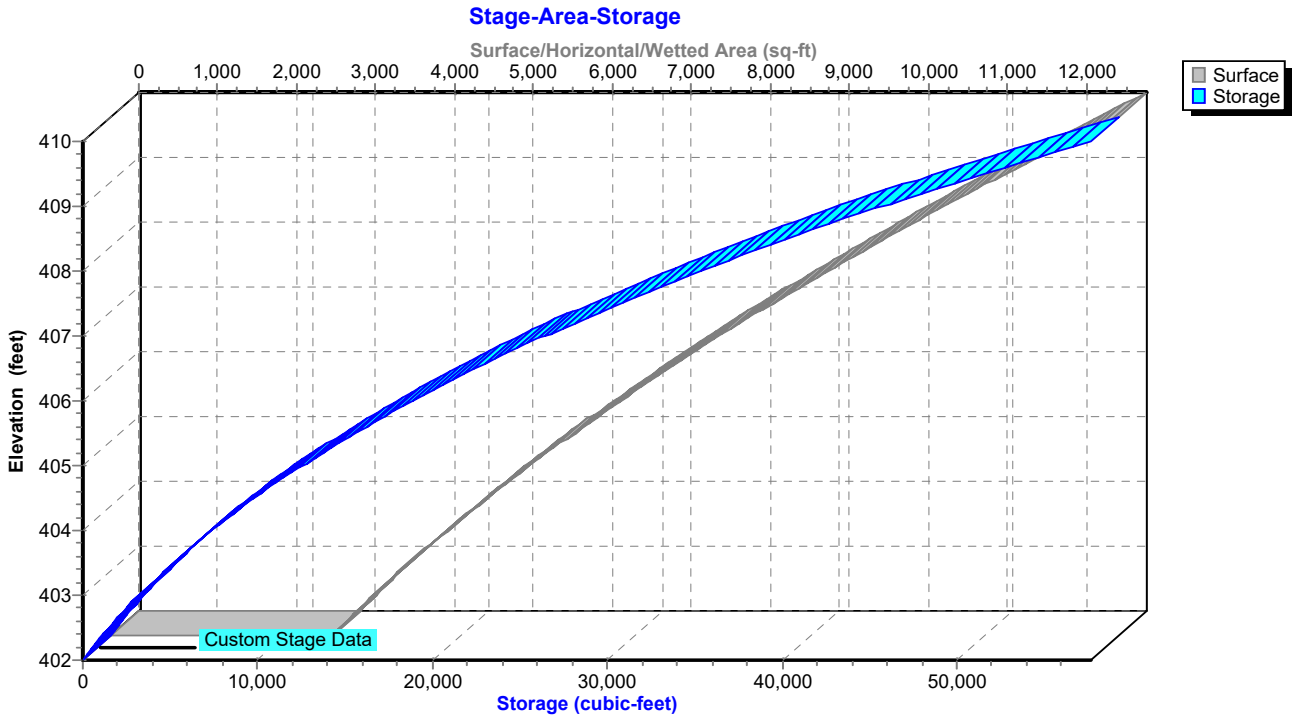
Device	Routing	Invert	Outlet Devices
#1	Primary	408.00'	**12.0' long + 4.0 '/' SideZ x 50.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=17.69 cfs @ 12.45 hrs HW=408.60' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 17.69 cfs @ 2.03 fps)

Pond FA1: Forebay A-1



Pond FA1: Forebay A-1



Stage-Discharge for Pond FA1: Forebay A-1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
402.00	0.00	404.60	0.00	407.20	0.00	409.80	112.80
402.05	0.00	404.65	0.00	407.25	0.00	409.85	118.59
402.10	0.00	404.70	0.00	407.30	0.00	409.90	124.53
402.15	0.00	404.75	0.00	407.35	0.00	409.95	130.63
402.20	0.00	404.80	0.00	407.40	0.00	410.00	**136.87**
402.25	0.00	404.85	0.00	407.45	0.00		
402.30	0.00	404.90	0.00	407.50	0.00		
402.35	0.00	404.95	0.00	407.55	0.00		
402.40	0.00	405.00	0.00	407.60	0.00		
402.45	0.00	405.05	0.00	407.65	0.00		
402.50	0.00	405.10	0.00	407.70	0.00		
402.55	0.00	405.15	0.00	407.75	0.00		
402.60	0.00	405.20	0.00	407.80	0.00		
402.65	0.00	405.25	0.00	407.85	0.00		
402.70	0.00	405.30	0.00	407.90	0.00		
402.75	0.00	405.35	0.00	407.95	0.00		
402.80	0.00	405.40	0.00	408.00	0.00		
402.85	0.00	405.45	0.00	408.05	0.36		
402.90	0.00	405.50	0.00	408.10	1.04		
402.95	0.00	405.55	0.00	408.15	1.94		
403.00	0.00	405.60	0.00	408.20	3.03		
403.05	0.00	405.65	0.00	408.25	4.30		
403.10	0.00	405.70	0.00	408.30	5.73		
403.15	0.00	405.75	0.00	408.35	7.32		
403.20	0.00	405.80	0.00	408.40	9.07		
403.25	0.00	405.85	0.00	408.45	10.95		
403.30	0.00	405.90	0.00	408.50	12.98		
403.35	0.00	405.95	0.00	408.55	15.15		
403.40	0.00	406.00	0.00	408.60	17.47		
403.45	0.00	406.05	0.00	408.65	19.81		
403.50	0.00	406.10	0.00	408.70	22.27		
403.55	0.00	406.15	0.00	408.75	24.83		
403.60	0.00	406.20	0.00	408.80	27.50		
403.65	0.00	406.25	0.00	408.85	30.42		
403.70	0.00	406.30	0.00	408.90	33.48		
403.75	0.00	406.35	0.00	408.95	36.66		
403.80	0.00	406.40	0.00	409.00	39.98		
403.85	0.00	406.45	0.00	409.05	43.51		
403.90	0.00	406.50	0.00	409.10	47.18		
403.95	0.00	406.55	0.00	409.15	51.00		
404.00	0.00	406.60	0.00	409.20	54.97		
404.05	0.00	406.65	0.00	409.25	59.03		
404.10	0.00	406.70	0.00	409.30	63.24		
404.15	0.00	406.75	0.00	409.35	67.58		
404.20	0.00	406.80	0.00	409.40	72.07		
404.25	0.00	406.85	0.00	409.45	76.63		
404.30	0.00	406.90	0.00	409.50	81.33		
404.35	0.00	406.95	0.00	409.55	86.16		
404.40	0.00	407.00	0.00	409.60	91.13		
404.45	0.00	407.05	0.00	409.65	96.32		
404.50	0.00	407.10	0.00	409.70	101.67		
404.55	0.00	407.15	0.00	409.75	107.16		

Stage-Area-Storage for Pond FA1: Forebay A-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
402.00	2,804	0
402.10	2,885	284
402.20	2,968	577
402.30	3,051	878
402.40	3,136	1,187
402.50	3,222	1,505
402.60	3,309	1,832
402.70	3,398	2,167
402.80	3,487	2,511
402.90	3,578	2,865
403.00	3,669	3,227
403.10	3,762	3,599
403.20	3,856	3,980
403.30	3,952	4,370
403.40	4,048	4,770
403.50	4,146	5,180
403.60	4,244	5,599
403.70	4,344	6,028
403.80	4,445	6,468
403.90	4,548	6,918
404.00	4,651	7,378
404.10	4,754	7,848
404.20	4,857	8,328
404.30	4,962	8,819
404.40	5,068	9,321
404.50	5,175	9,833
404.60	5,284	10,356
404.70	5,393	10,890
404.80	5,504	11,435
404.90	5,615	11,991
405.00	5,728	12,558
405.10	5,842	13,136
405.20	5,957	13,726
405.30	6,073	14,328
405.40	6,190	14,941
405.50	6,308	15,566
405.60	6,428	16,202
405.70	6,549	16,851
405.80	6,670	17,512
405.90	6,793	18,185
406.00	6,917	18,871
406.10	7,042	19,569
406.20	7,167	20,279
406.30	7,294	21,002
406.40	7,422	21,738
406.50	7,551	22,487
406.60	7,681	23,248
406.70	7,812	24,023
406.80	7,944	24,811
406.90	8,078	25,612
407.00	8,212	26,426
407.10	8,348	27,254
407.20	8,486	28,096
407.30	8,625	28,951
407.40	8,765	29,821
407.50	8,905	30,704
407.60	9,048	31,602
407.70	9,191	32,514
407.80	9,335	33,440
407.90	9,480	34,381
408.00	9,627	35,336
408.10	9,773	36,306
408.20	9,921	37,291
408.30	10,069	38,290
408.40	10,219	39,305
408.50	10,370	40,334
408.60	10,521	41,379
408.70	10,674	42,439
408.80	10,828	43,514
408.90	10,984	44,604
409.00	11,140	45,710
409.10	11,297	46,832
409.20	11,456	47,970
409.30	11,615	49,123
409.40	11,776	50,293
409.50	11,938	51,479
409.60	12,100	52,681
409.70	12,264	53,899
409.80	12,430	55,133
409.90	12,596	56,385
410.00	**12,763**	**57,653**

Summary for Pond FA2: Forebay A-2

Inflow Area = 0.600 ac, 17.00% Impervious, Inflow Depth = 1.19" for 10-YR event
Inflow = 0.51 cfs @ 12.25 hrs, Volume= 0.059 af
Outflow = 0.04 cfs @ 16.89 hrs, Volume= 0.018 af, Atten= 92%, Lag= 278.0 min
Primary = 0.04 cfs @ 16.89 hrs, Volume= 0.018 af
Routed to Pond DA2 : Detention Basin A-2

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 398.01' @ 16.89 hrs Surf.Area= 1,063 sf Storage= 1,800 cf

Plug-Flow detention time= 475.7 min calculated for 0.018 af (31% of inflow)
Center-of-Mass det. time= 287.7 min (1,210.1 - 922.4)

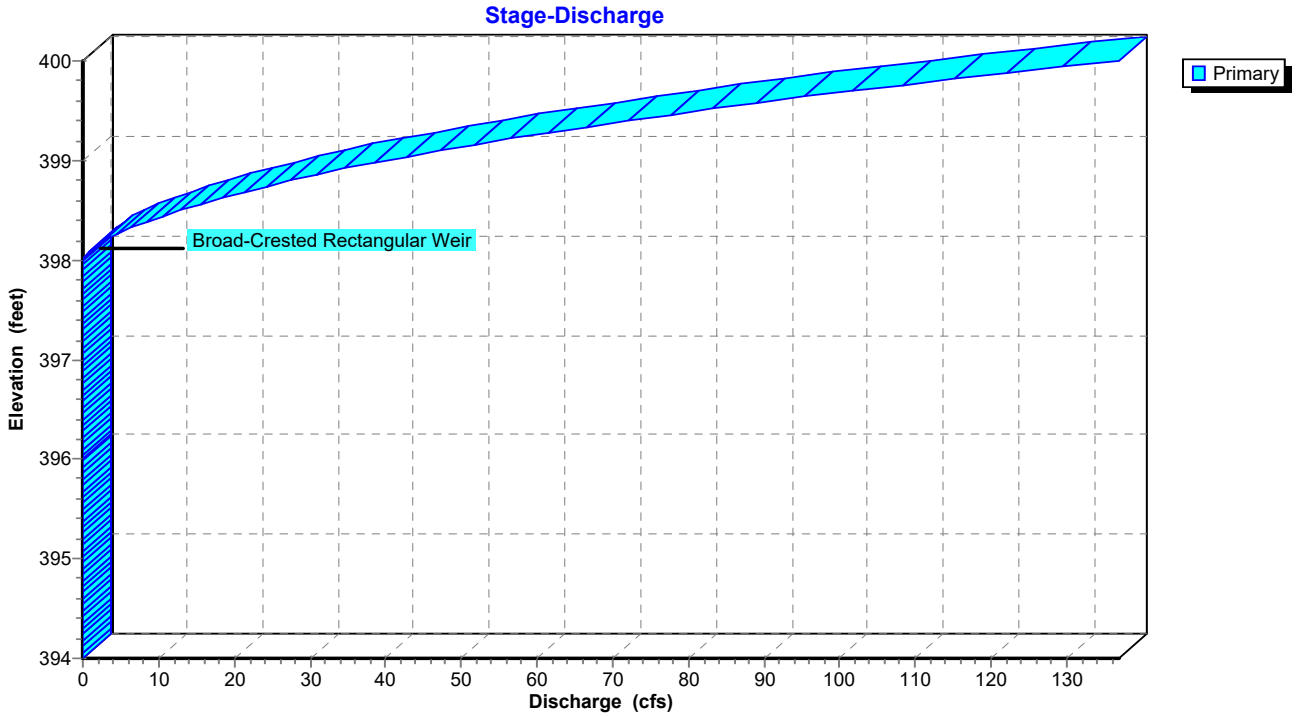
Volume	Invert	Avail.Storage	Storage Description
#1	394.00'	4,774 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
394.00	46	0	0	46
396.00	398	386	386	411
398.00	1,060	1,405	1,791	1,098
400.00	1,969	2,982	4,774	2,047

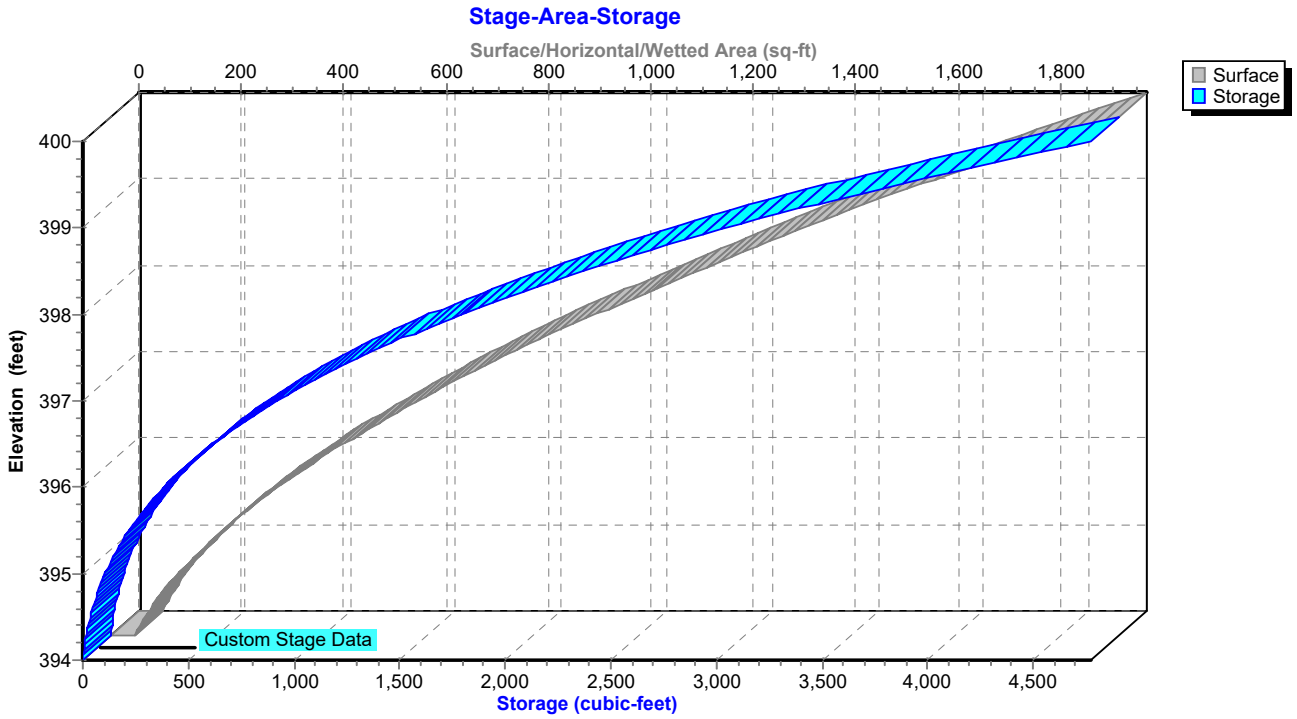
Device	Routing	Invert	Outlet Devices
#1	Primary	398.00'	**12.0' long + 4.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.02 cfs @ 16.89 hrs HW=398.01' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.02 cfs @ 0.25 fps)

Pond FA2: Forebay A-2



Pond FA2: Forebay A-2



Stage-Discharge for Pond FA2: Forebay A-2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
394.00	0.00	396.60	0.00	399.20	54.97
394.05	0.00	396.65	0.00	399.25	59.03
394.10	0.00	396.70	0.00	399.30	63.24
394.15	0.00	396.75	0.00	399.35	67.58
394.20	0.00	396.80	0.00	399.40	72.07
394.25	0.00	396.85	0.00	399.45	76.63
394.30	0.00	396.90	0.00	399.50	81.33
394.35	0.00	396.95	0.00	399.55	86.16
394.40	0.00	397.00	0.00	399.60	91.13
394.45	0.00	397.05	0.00	399.65	96.32
394.50	0.00	397.10	0.00	399.70	101.67
394.55	0.00	397.15	0.00	399.75	107.16
394.60	0.00	397.20	0.00	399.80	112.80
394.65	0.00	397.25	0.00	399.85	118.59
394.70	0.00	397.30	0.00	399.90	124.53
394.75	0.00	397.35	0.00	399.95	130.63
394.80	0.00	397.40	0.00	400.00	**136.87**
394.85	0.00	397.45	0.00		
394.90	0.00	397.50	0.00		
394.95	0.00	397.55	0.00		
395.00	0.00	397.60	0.00		
395.05	0.00	397.65	0.00		
395.10	0.00	397.70	0.00		
395.15	0.00	397.75	0.00		
395.20	0.00	397.80	0.00		
395.25	0.00	397.85	0.00		
395.30	0.00	397.90	0.00		
395.35	0.00	397.95	0.00		
395.40	0.00	398.00	0.00		
395.45	0.00	398.05	0.36		
395.50	0.00	398.10	1.04		
395.55	0.00	398.15	1.94		
395.60	0.00	398.20	3.03		
395.65	0.00	398.25	4.30		
395.70	0.00	398.30	5.73		
395.75	0.00	398.35	7.32		
395.80	0.00	398.40	9.07		
395.85	0.00	398.45	10.95		
395.90	0.00	398.50	12.98		
395.95	0.00	398.55	15.15		
396.00	0.00	398.60	17.47		
396.05	0.00	398.65	19.81		
396.10	0.00	398.70	22.27		
396.15	0.00	398.75	24.83		
396.20	0.00	398.80	27.50		
396.25	0.00	398.85	30.42		
396.30	0.00	398.90	33.48		
396.35	0.00	398.95	36.66		
396.40	0.00	399.00	39.98		
396.45	0.00	399.05	43.51		
396.50	0.00	399.10	47.18		
396.55	0.00	399.15	51.00		

Stage-Area-Storage for Pond FA2: Forebay A-2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
394.00	46	0
394.10	55	5
394.20	66	11
394.30	77	18
394.40	89	26
394.50	101	36
394.60	115	47
394.70	130	59
394.80	145	73
394.90	161	88
395.00	179	105
395.10	197	124
395.20	216	144
395.30	235	167
395.40	256	192
395.50	277	218
395.60	300	247
395.70	323	278
395.80	347	312
395.90	372	348
396.00	398	386
396.10	424	427
396.20	450	471
396.30	477	517
396.40	505	566
396.50	534	618
396.60	563	673
396.70	594	731
396.80	625	792
396.90	657	856
397.00	689	923
397.10	723	994
397.20	757	1,068
397.30	792	1,145
397.40	828	1,226
397.50	865	1,311
397.60	902	1,399
397.70	940	1,491
397.80	979	1,587
397.90	1,019	1,687
398.00	1,060	1,791
398.10	1,099	1,899
398.20	1,138	2,011
398.30	1,179	2,127
398.40	1,219	2,247
398.50	1,261	2,371
398.60	1,303	2,499
398.70	1,346	2,631
398.80	1,390	2,768
398.90	1,434	2,910
399.00	1,480	3,055
399.10	1,525	3,205
399.20	1,572	3,360
399.30	1,619	3,520
399.40	1,667	3,684
399.50	1,716	3,853
399.60	1,765	4,027
399.70	1,815	4,206
399.80	1,866	4,390
399.90	1,917	4,579
400.00	**1,969**	**4,774**

Summary for Pond FB1: Forebay B-1

Inflow Area = 9.160 ac, 53.49% Impervious, Inflow Depth = 3.48" for 10-YR event
Inflow = 20.29 cfs @ 12.33 hrs, Volume= 2.653 af
Outflow = 18.63 cfs @ 12.41 hrs, Volume= 2.050 af, Atten= 8%, Lag= 5.0 min
Primary = 17.74 cfs @ 12.41 hrs, Volume= 1.398 af
Routed to Pond DB1 : Detention Basin B-1
Secondary = 0.89 cfs @ 12.41 hrs, Volume= 0.651 af
Routed to Pond BB1 : Bio-Retention Basin

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 408.63' @ 12.41 hrs Surf.Area= 10,493 sf Storage= 37,033 cf

Plug-Flow detention time= 216.2 min calculated for 2.050 af (77% of inflow)
Center-of-Mass det. time= 117.8 min (944.9 - 827.1)

Volume	Invert	Avail.Storage	Storage Description
#1	400.00'	52,992 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

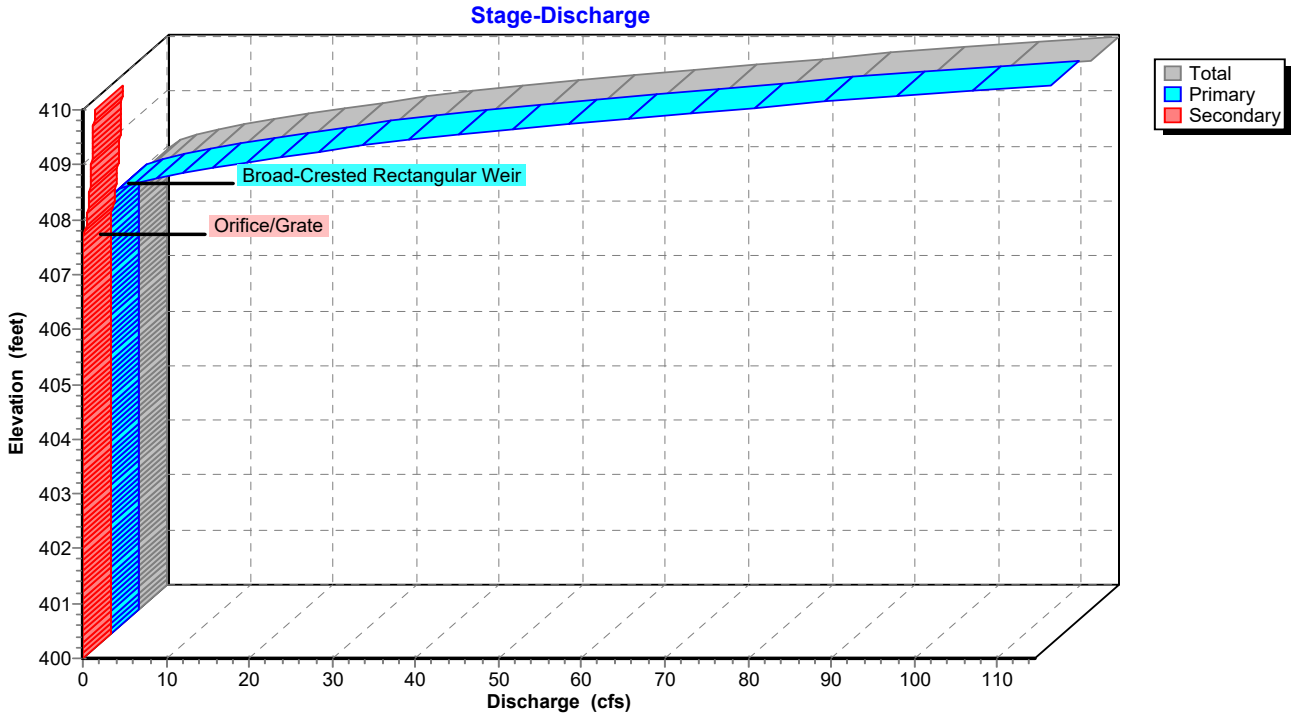
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
400.00	285	0	0	285
402.00	1,516	1,639	1,639	1,532
404.00	3,381	4,774	6,413	3,428
406.00	5,764	9,040	15,453	5,858
407.50	8,645	10,734	26,187	8,774
408.00	9,447	4,522	30,708	9,594
410.00	12,928	22,284	52,992	13,154

Device	Routing	Invert	Outlet Devices
#1	Primary	408.00'	**12.0' long + 2.0 '/' SideZ x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Secondary	407.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

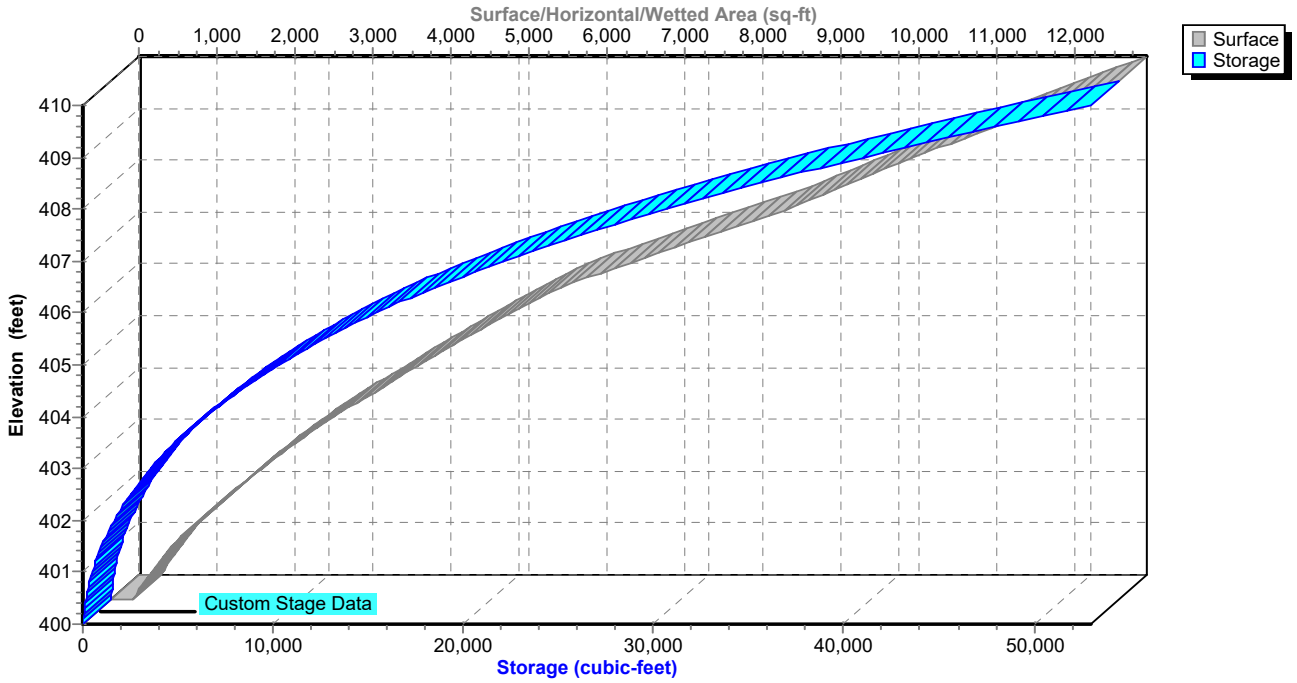
Primary OutFlow Max=17.70 cfs @ 12.41 hrs HW=408.63' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 17.70 cfs @ 2.10 fps)

Secondary OutFlow Max=0.89 cfs @ 12.41 hrs HW=408.63' (Free Discharge)
2=Orifice/Grate (Orifice Controls 0.89 cfs @ 4.53 fps)

Pond FB1: Forebay B-1



Pond FB1: Forebay B-1



Stage-Discharge for Pond FB1: Forebay B-1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
400.00	0.00	0.00	0.00
400.10	0.00	0.00	0.00
400.20	0.00	0.00	0.00
400.30	0.00	0.00	0.00
400.40	0.00	0.00	0.00
400.50	0.00	0.00	0.00
400.60	0.00	0.00	0.00
400.70	0.00	0.00	0.00
400.80	0.00	0.00	0.00
400.90	0.00	0.00	0.00
401.00	0.00	0.00	0.00
401.10	0.00	0.00	0.00
401.20	0.00	0.00	0.00
401.30	0.00	0.00	0.00
401.40	0.00	0.00	0.00
401.50	0.00	0.00	0.00
401.60	0.00	0.00	0.00
401.70	0.00	0.00	0.00
401.80	0.00	0.00	0.00
401.90	0.00	0.00	0.00
402.00	0.00	0.00	0.00
402.10	0.00	0.00	0.00
402.20	0.00	0.00	0.00
402.30	0.00	0.00	0.00
402.40	0.00	0.00	0.00
402.50	0.00	0.00	0.00
402.60	0.00	0.00	0.00
402.70	0.00	0.00	0.00
402.80	0.00	0.00	0.00
402.90	0.00	0.00	0.00
403.00	0.00	0.00	0.00
403.10	0.00	0.00	0.00
403.20	0.00	0.00	0.00
403.30	0.00	0.00	0.00
403.40	0.00	0.00	0.00
403.50	0.00	0.00	0.00
403.60	0.00	0.00	0.00
403.70	0.00	0.00	0.00
403.80	0.00	0.00	0.00
403.90	0.00	0.00	0.00
404.00	0.00	0.00	0.00
404.10	0.00	0.00	0.00
404.20	0.00	0.00	0.00
404.30	0.00	0.00	0.00
404.40	0.00	0.00	0.00
404.50	0.00	0.00	0.00
404.60	0.00	0.00	0.00
404.70	0.00	0.00	0.00
404.80	0.00	0.00	0.00
404.90	0.00	0.00	0.00
405.00	0.00	0.00	0.00
405.10	0.00	0.00	0.00
405.20	0.00	0.00	0.00
405.30	0.00	0.00	0.00
405.40	0.00	0.00	0.00
405.50	0.00	0.00	0.00
405.60	0.00	0.00	0.00
405.70	0.00	0.00	0.00
405.80	0.00	0.00	0.00
405.90	0.00	0.00	0.00
406.00	0.00	0.00	0.00
406.10	0.00	0.00	0.00
406.20	0.00	0.00	0.00
406.30	0.00	0.00	0.00
406.40	0.00	0.00	0.00
406.50	0.00	0.00	0.00
406.60	0.00	0.00	0.00
406.70	0.00	0.00	0.00
406.80	0.00	0.00	0.00
406.90	0.00	0.00	0.00
407.00	0.00	0.00	0.00
407.10	0.00	0.00	0.00
407.20	0.00	0.00	0.00
407.30	0.00	0.00	0.00
407.40	0.00	0.00	0.00
407.50	0.00	0.00	0.00
407.60	0.03	0.00	0.03
407.70	0.11	0.00	0.11
407.80	0.23	0.00	0.23
407.90	0.36	0.00	0.36
408.00	0.47	0.00	0.47
408.10	1.59	1.03	0.56
408.20	3.59	2.95	0.63
408.30	6.22	5.52	0.70
408.40	9.40	8.63	0.76
408.50	13.04	12.22	0.82
408.60	17.13	16.26	0.87
408.70	21.44	20.52	0.92
408.80	26.06	25.09	0.97
408.90	31.25	30.24	1.01
409.00	36.83	35.77	1.06
409.10	42.93	41.83	1.10
409.20	49.45	48.31	1.14
409.30	56.27	55.10	1.18
409.40	63.49	62.27	1.21
409.50	70.96	69.71	1.25
409.60	78.79	77.50	1.29
409.70	87.13	85.81	1.32
409.80	95.86	94.51	1.35
409.90	104.98	103.59	1.39
410.00	**114.49**	**113.07**	**1.42**

Stage-Area-Storage for Pond FB1: Forebay B-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
400.00	285	0
400.10	323	30
400.20	364	65
400.30	408	103
400.40	453	146
400.50	502	194
400.60	552	247
400.70	605	305
400.80	661	368
400.90	719	437
401.00	779	512
401.10	842	593
401.20	907	680
401.30	974	774
401.40	1,045	875
401.50	1,117	983
401.60	1,192	1,099
401.70	1,269	1,222
401.80	1,349	1,353
401.90	1,431	1,492
402.00	1,516	1,639
402.10	1,592	1,794
402.20	1,669	1,957
402.30	1,749	2,128
402.40	1,830	2,307
402.50	1,913	2,494
402.60	1,998	2,690
402.70	2,085	2,894
402.80	2,173	3,107
402.90	2,264	3,329
403.00	2,356	3,560
403.10	2,450	3,800
403.20	2,546	4,050
403.30	2,644	4,309
403.40	2,744	4,579
403.50	2,846	4,858
403.60	2,949	5,148
403.70	3,054	5,448
403.80	3,161	5,759
403.90	3,270	6,080
404.00	3,381	6,413
404.10	3,485	6,756
404.20	3,591	7,110
404.30	3,698	7,474
404.40	3,807	7,850
404.50	3,918	8,236
404.60	4,030	8,633
404.70	4,143	9,042
404.80	4,258	9,462
404.90	4,375	9,894
405.00	4,494	10,337
405.10	4,613	10,792
405.20	4,735	11,260
405.30	4,858	11,739
405.40	4,983	12,231
405.50	5,109	12,736
405.60	5,237	13,253
405.70	5,366	13,783
405.80	5,497	14,327
405.90	5,630	14,883
406.00	5,764	15,453
406.10	5,938	16,038
406.20	6,115	16,640
406.30	6,294	17,261
406.40	6,475	17,899
406.50	6,660	18,556
406.60	6,847	19,231
406.70	7,036	19,925
406.80	7,228	20,638
406.90	7,423	21,371
407.00	7,620	22,123
407.10	7,820	22,895
407.20	8,022	23,687
407.30	8,227	24,500
407.40	8,435	25,333
407.50	8,645	26,187
407.60	8,803	27,059
407.70	8,962	27,947
407.80	9,122	28,851
407.90	9,284	29,772
408.00	9,447	30,708
408.10	9,608	31,661
408.20	9,771	32,630
408.30	9,934	33,615
408.40	10,100	34,617
408.50	10,266	35,635
408.60	10,434	36,670
408.70	10,603	37,722
408.80	10,774	38,791
408.90	10,946	39,877
409.00	11,119	40,980
409.10	11,294	42,101
409.20	11,470	43,239
409.30	11,648	44,395
409.40	11,826	45,568
409.50	12,007	46,760
409.60	12,188	47,970
409.70	12,371	49,198
409.80	12,555	50,444
409.90	12,741	51,709
410.00	**12,928**	**52,992**

Summary for Pond IA1: Infiltration Basin A-1

Inflow Area = 9.007 ac, 57.93% Impervious, Inflow Depth = 2.50" for 10-YR event
Inflow = 17.70 cfs @ 12.45 hrs, Volume= 1.874 af
Outflow = 0.98 cfs @ 17.66 hrs, Volume= 1.313 af, Atten= 94%, Lag= 312.6 min
Discarded = 0.43 cfs @ 17.66 hrs, Volume= 1.067 af
Primary = 0.55 cfs @ 17.66 hrs, Volume= 0.246 af
Routed to Pond DPA : Design Point A

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 407.12' @ 17.66 hrs Surf.Area= 15,251 sf Storage= 53,880 cf

Plug-Flow detention time= 833.6 min calculated for 1.312 af (70% of inflow)
Center-of-Mass det. time= 715.2 min (1,632.2 - 917.0)

Volume	Invert	Avail.Storage	Storage Description
#1	402.00'	106,749 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

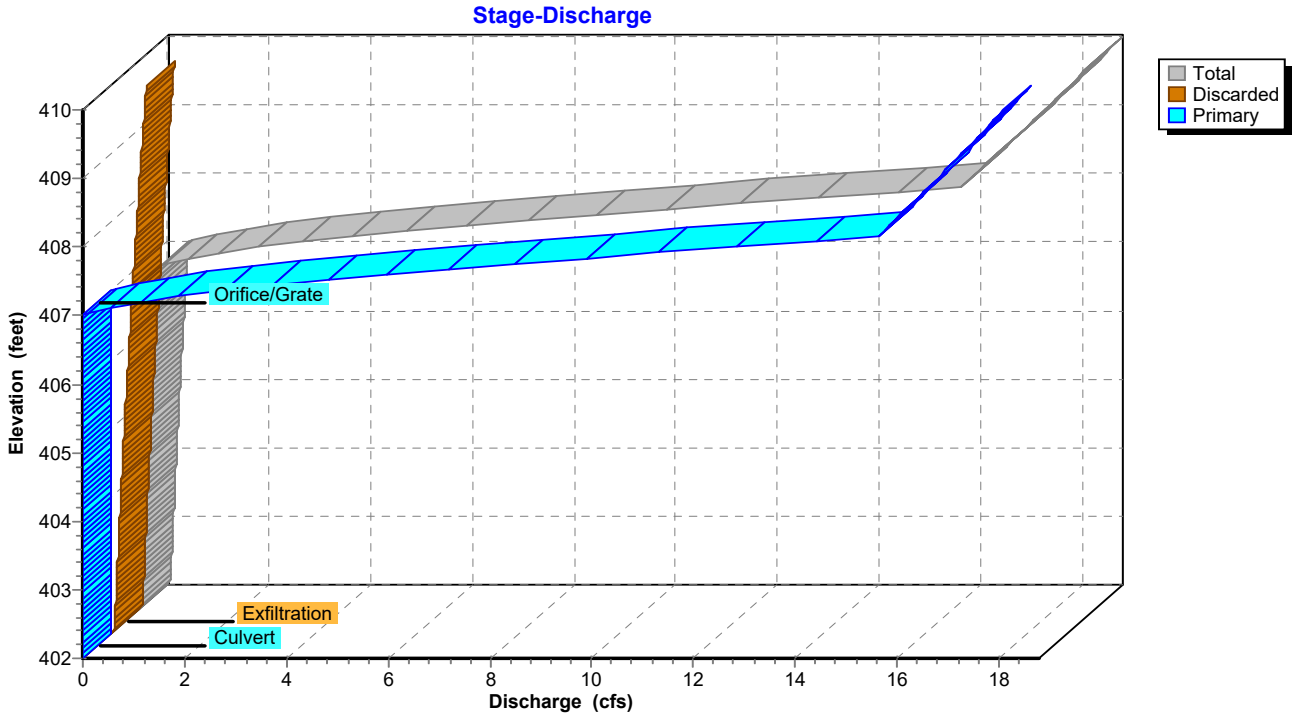
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
402.00	6,346	0	0	6,346
404.00	9,425	15,670	15,670	9,488
406.00	13,034	22,362	38,032	13,174
408.00	17,109	30,051	68,082	17,340
410.00	21,647	38,667	106,749	21,984

Device	Routing	Invert	Outlet Devices
#1	Primary	402.00'	**18.0" Round Culvert** L= 100.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 402.00' / 400.00' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Device 1	407.00'	**48.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	402.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 400.00'

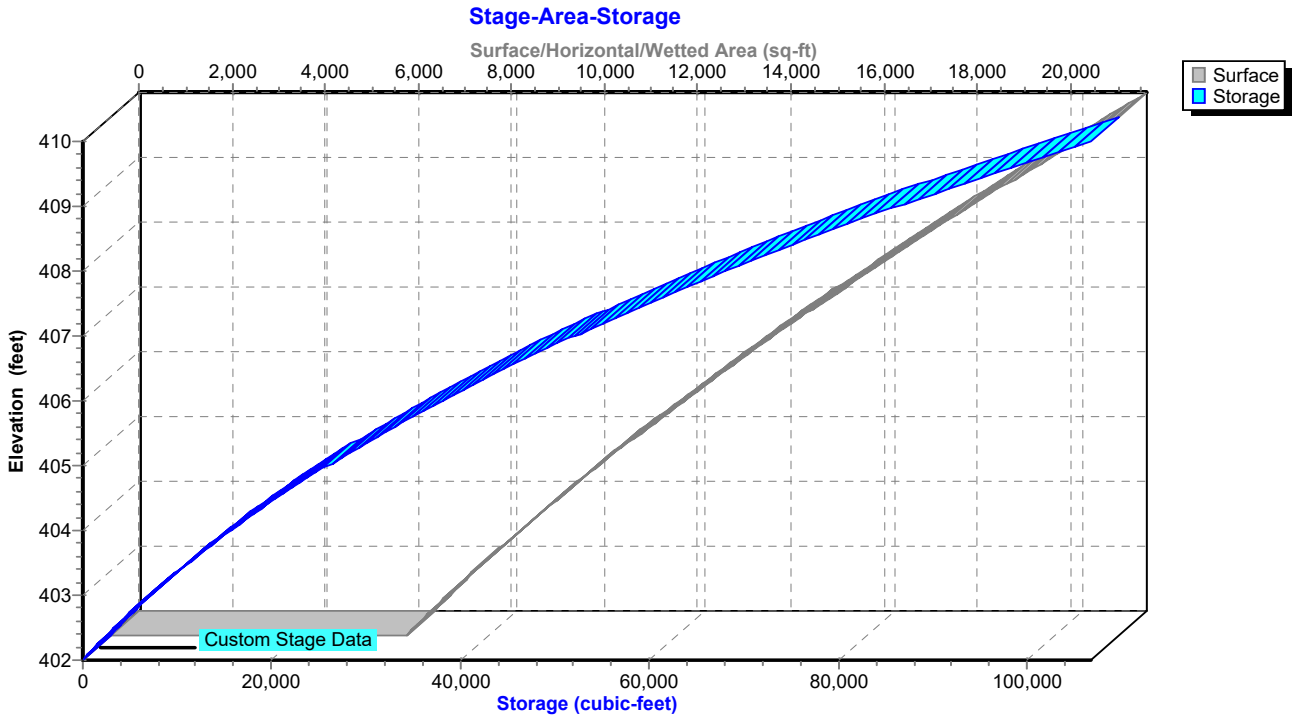
Discarded OutFlow Max=0.43 cfs @ 17.66 hrs HW=407.12' (Free Discharge)
└**3=Exfiltration** (Controls 0.43 cfs)

Primary OutFlow Max=0.55 cfs @ 17.66 hrs HW=407.12' (Free Discharge)
└**1=Culvert** (Passes 0.55 cfs of 14.05 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 0.55 cfs @ 1.12 fps)

Pond IA1: Infiltration Basin A-1



Pond IA1: Infiltration Basin A-1



Stage-Discharge for Pond IA1: Infiltration Basin A-1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
402.00	0.00	0.00	0.00
402.10	0.08	0.08	0.00
402.20	0.08	0.08	0.00
402.30	0.09	0.09	0.00
402.40	0.10	0.10	0.00
402.50	0.10	0.10	0.00
402.60	0.11	0.11	0.00
402.70	0.11	0.11	0.00
402.80	0.12	0.12	0.00
402.90	0.12	0.12	0.00
403.00	0.13	0.13	0.00
403.10	0.14	0.14	0.00
403.20	0.14	0.14	0.00
403.30	0.15	0.15	0.00
403.40	0.16	0.16	0.00
403.50	0.16	0.16	0.00
403.60	0.17	0.17	0.00
403.70	0.17	0.17	0.00
403.80	0.18	0.18	0.00
403.90	0.19	0.19	0.00
404.00	0.20	0.20	0.00
404.10	0.20	0.20	0.00
404.20	0.21	0.21	0.00
404.30	0.22	0.22	0.00
404.40	0.22	0.22	0.00
404.50	0.23	0.23	0.00
404.60	0.24	0.24	0.00
404.70	0.24	0.24	0.00
404.80	0.25	0.25	0.00
404.90	0.26	0.26	0.00
405.00	0.27	0.27	0.00
405.10	0.27	0.27	0.00
405.20	0.28	0.28	0.00
405.30	0.29	0.29	0.00
405.40	0.30	0.30	0.00
405.50	0.30	0.30	0.00
405.60	0.31	0.31	0.00
405.70	0.32	0.32	0.00
405.80	0.33	0.33	0.00
405.90	0.33	0.33	0.00
406.00	0.34	0.34	0.00
406.10	0.35	0.35	0.00
406.20	0.36	0.36	0.00
406.30	0.37	0.37	0.00
406.40	0.37	0.37	0.00
406.50	0.38	0.38	0.00
406.60	0.39	0.39	0.00
406.70	0.40	0.40	0.00
406.80	0.41	0.41	0.00
406.90	0.42	0.42	0.00
407.00	0.42	0.42	0.00
407.10	0.84	0.43	0.41
407.20	1.59	0.44	1.15
407.30	2.56	0.45	2.11
407.40	3.71	0.46	3.25
407.50	5.01	0.47	4.54
407.60	6.44	0.48	5.97
407.70	8.00	0.48	7.52
407.80	9.68	0.49	9.19
407.90	11.46	0.50	10.96
408.00	13.35	0.51	12.84
408.10	15.33	0.52	14.81
408.20	16.21	0.53	15.68
408.30	16.36	0.54	15.83
408.40	16.51	0.55	15.97
408.50	16.66	0.56	16.11
408.60	16.81	0.56	16.25
408.70	16.96	0.57	16.39
408.80	17.11	0.58	16.52
408.90	17.25	0.59	16.66
409.00	17.40	0.60	16.79
409.10	17.54	0.61	16.93
409.20	17.68	0.62	17.06
409.30	17.82	0.63	17.19
409.40	17.96	0.64	17.32
409.50	18.10	0.65	17.45
409.60	18.24	0.66	17.58
409.70	18.38	0.67	17.71
409.80	18.51	0.68	17.84
409.90	18.65	0.69	17.96
410.00	**18.78**	**0.70**	**18.09**

Stage-Area-Storage for Pond IA1: Infiltration Basin A-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
402.00	6,346	0
402.10	6,486	642
402.20	6,627	1,297
402.30	6,769	1,967
402.40	6,913	2,651
402.50	7,059	3,350
402.60	7,206	4,063
402.70	7,355	4,791
402.80	7,505	5,534
402.90	7,656	6,292
403.00	7,810	7,065
403.10	7,964	7,854
403.20	8,121	8,658
403.30	8,278	9,478
403.40	8,438	10,314
403.50	8,598	11,166
403.60	8,761	12,034
403.70	8,924	12,918
403.80	9,090	13,818
403.90	9,257	14,736
404.00	9,425	15,670
404.10	9,592	16,621
404.20	9,760	17,588
404.30	9,929	18,573
404.40	10,100	19,574
404.50	10,273	20,593
404.60	10,446	21,629
404.70	10,622	22,682
404.80	10,799	23,753
404.90	10,977	24,842
405.00	11,157	25,948
405.10	11,338	27,073
405.20	11,520	28,216
405.30	11,704	29,377
405.40	11,890	30,557
405.50	12,077	31,755
405.60	12,266	32,972
405.70	12,455	34,208
405.80	12,647	35,464
405.90	12,840	36,738
406.00	13,034	38,032
406.10	13,225	39,344
406.20	13,417	40,677
406.30	13,610	42,028
406.40	13,805	43,399
406.50	14,001	44,789
406.60	14,198	46,199
406.70	14,397	47,629
406.80	14,598	49,078
406.90	14,799	50,548
407.00	15,002	52,038
407.10	15,207	53,549
407.20	15,413	55,080
407.30	15,620	56,631
407.40	15,828	58,204
407.50	16,038	59,797
407.60	16,250	61,411
407.70	16,462	63,047
407.80	16,677	64,704
407.90	16,892	66,382
408.00	17,109	68,082
408.10	17,323	69,804
408.20	17,539	71,547
408.30	17,756	73,312
408.40	17,974	75,098
408.50	18,194	76,907
408.60	18,414	78,737
408.70	18,637	80,589
408.80	18,860	82,464
408.90	19,085	84,362
409.00	19,311	86,281
409.10	19,539	88,224
409.20	19,768	90,189
409.30	19,998	92,177
409.40	20,230	94,189
409.50	20,463	96,223
409.60	20,697	98,281
409.70	20,932	100,363
409.80	21,169	102,468
409.90	21,407	104,597
410.00	**21,647**	**106,749**

Summary for Pond BB1: Bio-Retention Basin

Inflow Area = 0.610 ac, 25.08% Impervious, Inflow Depth > 18.92" for 100-YR event
Inflow = 2.78 cfs @ 12.14 hrs, Volume= 0.962 af
Outflow = 1.03 cfs @ 13.00 hrs, Volume= 0.784 af, Atten= 63%, Lag= 51.9 min
Primary = 1.03 cfs @ 13.00 hrs, Volume= 0.784 af
Routed to Pond DPB : Design Point B

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 403.85' @ 13.00 hrs Surf.Area= 11,241 sf Storage= 8,850 cf

Plug-Flow detention time= 223.6 min calculated for 0.784 af (81% of inflow)
Center-of-Mass det. time= 106.7 min (1,176.8 - 1,070.1)

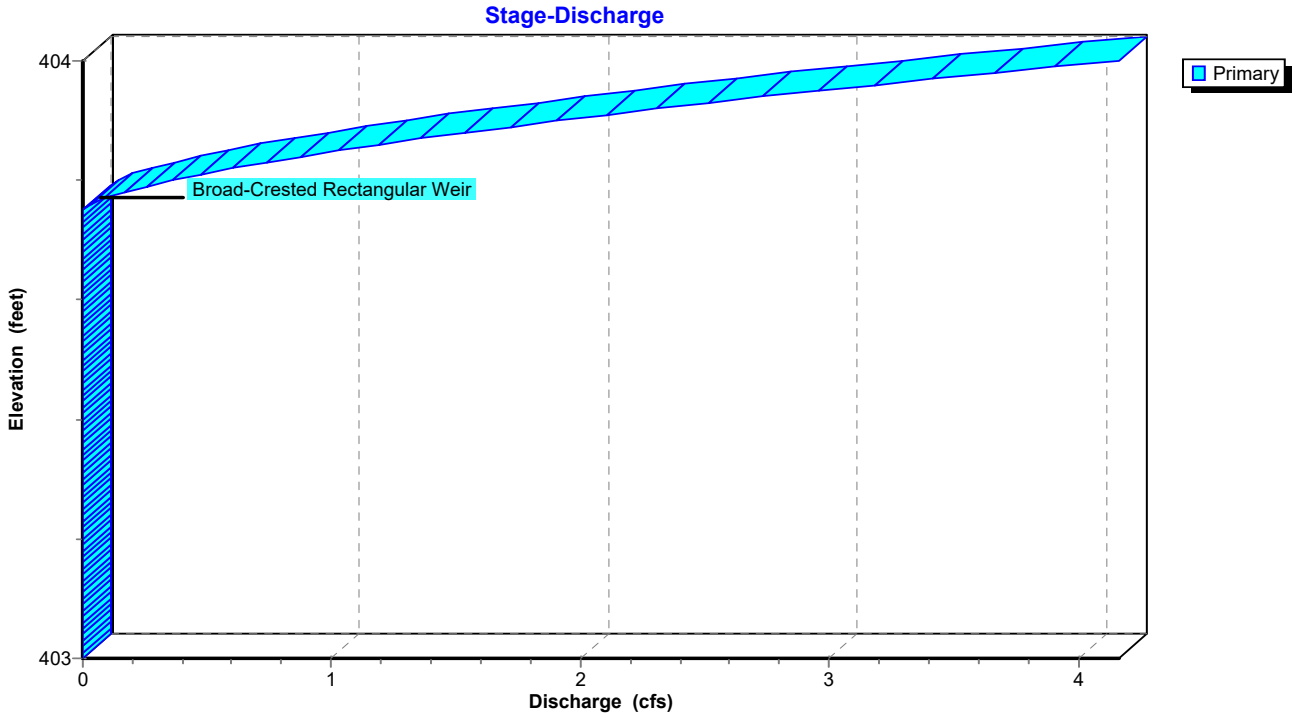
Volume	Invert	Avail.Storage	Storage Description
#1	403.00'	10,562 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
403.00	9,610	0	0	9,610
404.00	11,543	10,562	10,562	11,577

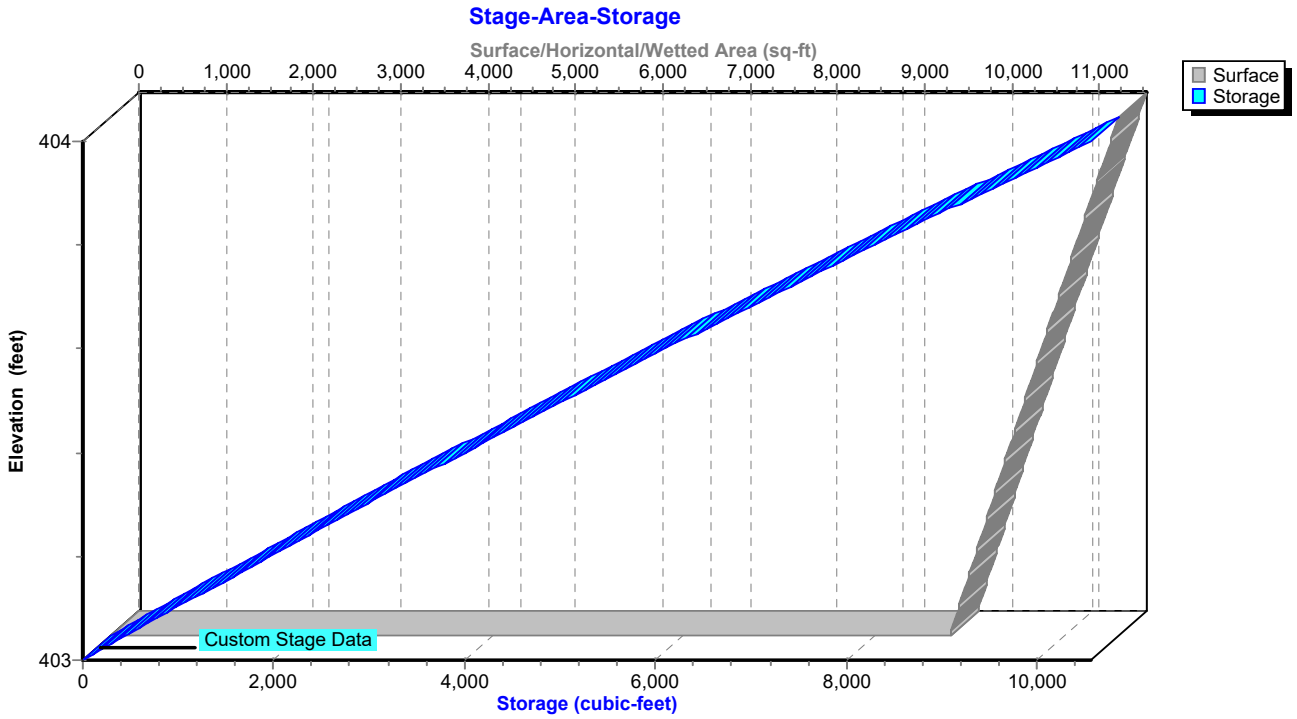
Device	Routing	Invert	Outlet Devices
#1	Primary	403.75'	**12.0' long + 2.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.03 cfs @ 13.00 hrs HW=403.85' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 1.03 cfs @ 0.84 fps)

Pond BB1: Bio-Retention Basin



Pond BB1: Bio-Retention Basin



Stage-Discharge for Pond BB1: Bio-Retention Basin

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
403.00	0.00	403.52	0.00
403.01	0.00	403.53	0.00
403.02	0.00	403.54	0.00
403.03	0.00	403.55	0.00
403.04	0.00	403.56	0.00
403.05	0.00	403.57	0.00
403.06	0.00	403.58	0.00
403.07	0.00	403.59	0.00
403.08	0.00	403.60	0.00
403.09	0.00	403.61	0.00
403.10	0.00	403.62	0.00
403.11	0.00	403.63	0.00
403.12	0.00	403.64	0.00
403.13	0.00	403.65	0.00
403.14	0.00	403.66	0.00
403.15	0.00	403.67	0.00
403.16	0.00	403.68	0.00
403.17	0.00	403.69	0.00
403.18	0.00	403.70	0.00
403.19	0.00	403.71	0.00
403.20	0.00	403.72	0.00
403.21	0.00	403.73	0.00
403.22	0.00	403.74	0.00
403.23	0.00	403.75	0.00
403.24	0.00	403.76	0.03
403.25	0.00	403.77	0.09
403.26	0.00	403.78	0.17
403.27	0.00	403.79	0.26
403.28	0.00	403.80	0.36
403.29	0.00	403.81	0.48
403.30	0.00	403.82	0.60
403.31	0.00	403.83	0.74
403.32	0.00	403.84	0.88
403.33	0.00	403.85	1.03
403.34	0.00	403.86	1.19
403.35	0.00	403.87	1.36
403.36	0.00	403.88	1.53
403.37	0.00	403.89	1.72
403.38	0.00	403.90	1.91
403.39	0.00	403.91	2.10
403.40	0.00	403.92	2.31
403.41	0.00	403.93	2.51
403.42	0.00	403.94	2.73
403.43	0.00	403.95	2.95
403.44	0.00	403.96	3.18
403.45	0.00	403.97	3.42
403.46	0.00	403.98	3.66
403.47	0.00	403.99	3.91
403.48	0.00	404.00	**4.16**
403.49	0.00		
403.50	0.00		
403.51	0.00		

Stage-Area-Storage for Pond BB1: Bio-Retention Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
403.00	9,610	0
403.01	9,628	96
403.02	9,647	193
403.03	9,665	289
403.04	9,684	386
403.05	9,702	483
403.06	9,721	580
403.07	9,740	677
403.08	9,758	775
403.09	9,777	872
403.10	9,795	970
403.11	9,814	1,068
403.12	9,833	1,167
403.13	9,851	1,265
403.14	9,870	1,364
403.15	9,889	1,462
403.16	9,907	1,561
403.17	9,926	1,660
403.18	9,945	1,760
403.19	9,964	1,859
403.20	9,982	1,959
403.21	10,001	2,059
403.22	10,020	2,159
403.23	10,039	2,259
403.24	10,058	2,360
403.25	10,077	2,461
403.26	10,096	2,561
403.27	10,114	2,663
403.28	10,133	2,764
403.29	10,152	2,865
403.30	10,171	2,967
403.31	10,190	3,069
403.32	10,209	3,171
403.33	10,228	3,273
403.34	10,247	3,375
403.35	10,266	3,478
403.36	10,285	3,580
403.37	10,305	3,683
403.38	10,324	3,787
403.39	10,343	3,890
403.40	10,362	3,993
403.41	10,381	4,097
403.42	10,400	4,201
403.43	10,419	4,305
403.44	10,439	4,409
403.45	10,458	4,514
403.46	10,477	4,619
403.47	10,496	4,723
403.48	10,516	4,829
403.49	10,535	4,934
403.50	10,554	5,039
403.51	10,574	5,145
403.52	10,593	5,251
403.53	10,612	5,357
403.54	10,632	5,463
403.55	10,651	5,569
403.56	10,671	5,676
403.57	10,690	5,783
403.58	10,710	5,890
403.59	10,729	5,997
403.60	10,749	6,104
403.61	10,768	6,212
403.62	10,788	6,320
403.63	10,807	6,428
403.64	10,827	6,536
403.65	10,846	6,644
403.66	10,866	6,753
403.67	10,886	6,862
403.68	10,905	6,971
403.69	10,925	7,080
403.70	10,945	7,189
403.71	10,964	7,299
403.72	10,984	7,408
403.73	11,004	7,518
403.74	11,023	7,628
403.75	11,043	7,739
403.76	11,063	7,849
403.77	11,083	7,960
403.78	11,103	8,071
403.79	11,122	8,182
403.80	11,142	8,293
403.81	11,162	8,405
403.82	11,182	8,517
403.83	11,202	8,629
403.84	11,222	8,741
403.85	11,242	8,853
403.86	11,262	8,965
403.87	11,282	9,078
403.88	11,302	9,191
403.89	11,322	9,304
403.90	11,342	9,418
403.91	11,362	9,531
403.92	11,382	9,645
403.93	11,402	9,759
403.94	11,422	9,873
403.95	11,442	9,987
403.96	11,462	10,102
403.97	11,482	10,216
403.98	11,503	10,331
403.99	11,523	10,446
404.00	**11,543**	**10,562**

Summary for Pond DA2: Detention Basin A-2

Inflow Area = 0.600 ac, 17.00% Impervious, Inflow Depth = 2.81" for 100-YR event
Inflow = 1.62 cfs @ 12.29 hrs, Volume= 0.141 af
Outflow = 0.30 cfs @ 13.15 hrs, Volume= 0.104 af, Atten= 81%, Lag= 51.4 min
Primary = 0.30 cfs @ 13.15 hrs, Volume= 0.104 af
Routed to Pond DPA : Design Point A

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 396.77' @ 13.15 hrs Surf.Area= 1,336 sf Storage= 1,959 cf

Plug-Flow detention time= 210.2 min calculated for 0.104 af (74% of inflow)
Center-of-Mass det. time= 99.4 min (1,033.2 - 933.8)

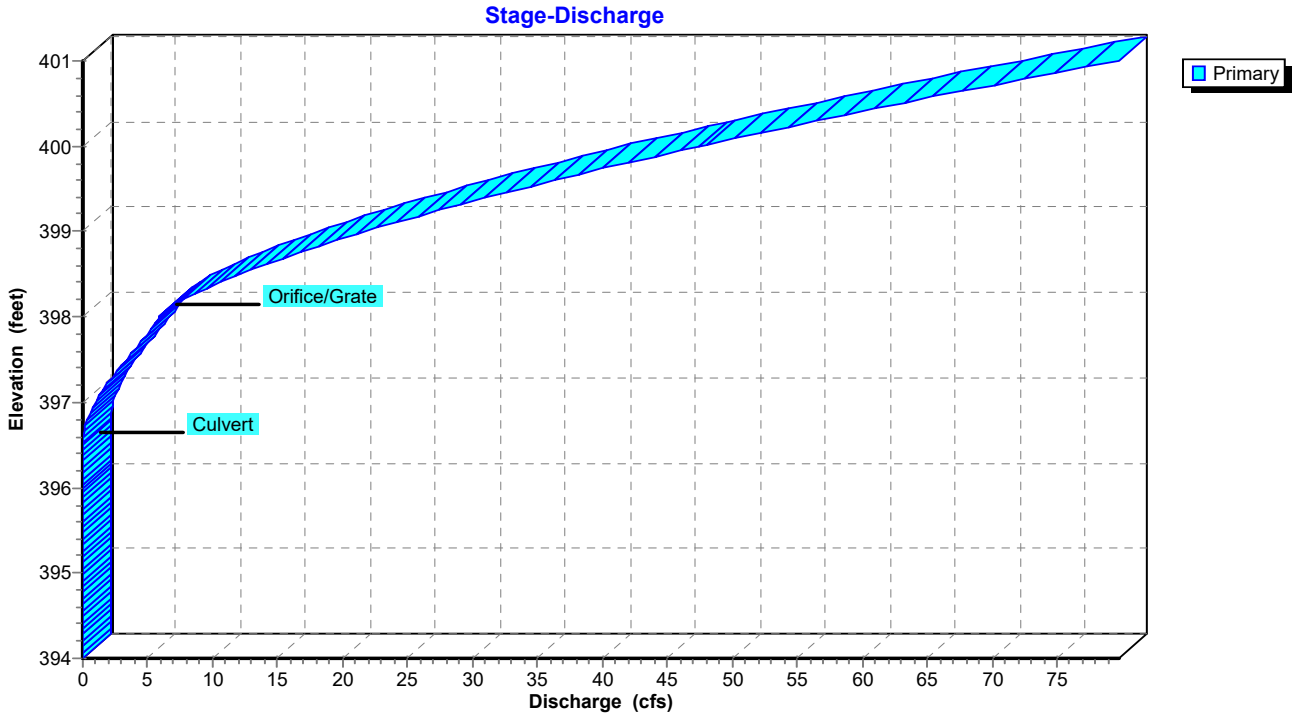
Volume	Invert	Avail.Storage	Storage Description
#1	394.00'	9,474 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
394.00	209	0	0	209
396.00	963	1,080	1,080	980
398.00	2,063	2,957	4,037	2,113
400.00	3,431	5,436	9,474	3,530

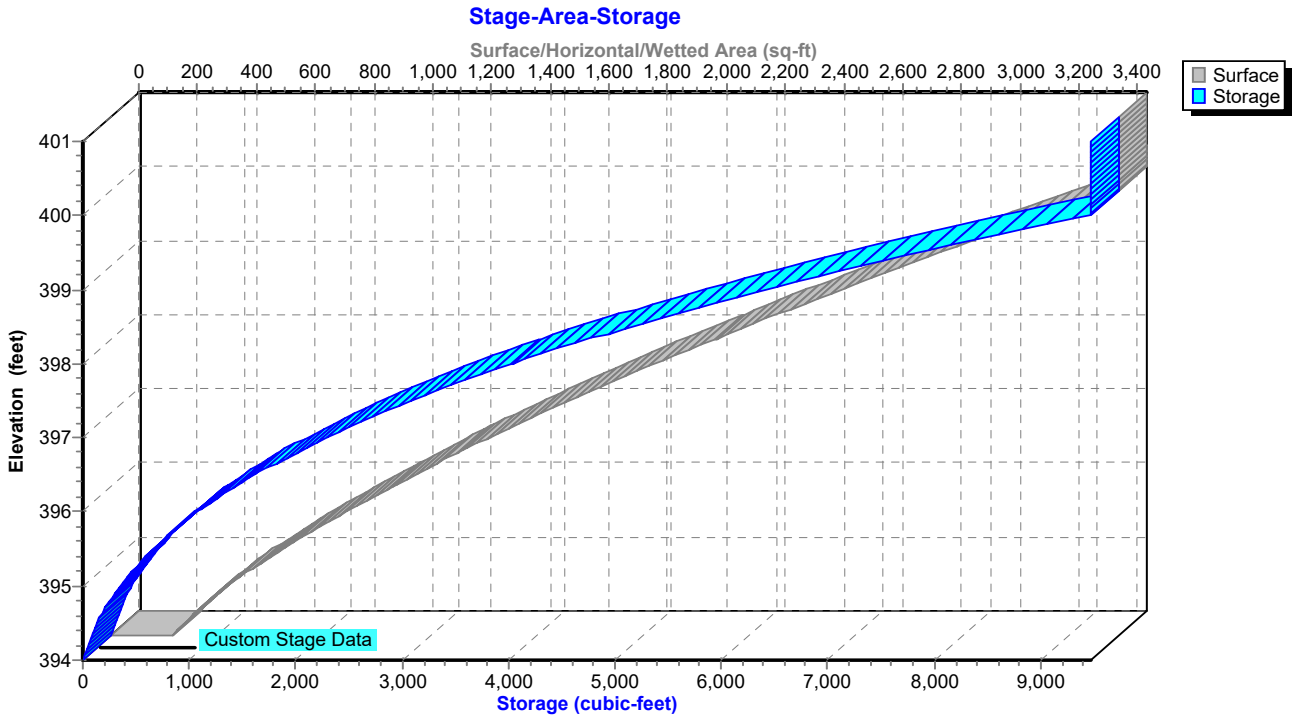
Device	Routing	Invert	Outlet Devices
#1	Primary	396.50'	**18.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 396.50' / 396.00' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Primary	398.00'	**48.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.30 cfs @ 13.15 hrs HW=396.77' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.30 cfs @ 1.39 fps)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond DA2: Detention Basin A-2



Pond DA2: Detention Basin A-2



Stage-Discharge for Pond DA2: Detention Basin A-2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
394.00	0.00	396.60	0.04	399.20	26.26
394.05	0.00	396.65	0.10	399.25	27.44
394.10	0.00	396.70	0.17	399.30	28.65
394.15	0.00	396.75	0.26	399.35	29.87
394.20	0.00	396.80	0.37	399.40	31.12
394.25	0.00	396.85	0.50	399.45	32.38
394.30	0.00	396.90	0.64	399.50	33.66
394.35	0.00	396.95	0.80	399.55	34.97
394.40	0.00	397.00	0.98	399.60	36.28
394.45	0.00	397.05	1.17	399.65	37.62
394.50	0.00	397.10	1.37	399.70	38.97
394.55	0.00	397.15	1.59	399.75	40.35
394.60	0.00	397.20	1.82	399.80	41.73
394.65	0.00	397.25	2.06	399.85	43.14
394.70	0.00	397.30	2.30	399.90	44.56
394.75	0.00	397.35	2.56	399.95	46.00
394.80	0.00	397.40	2.82	400.00	47.46
394.85	0.00	397.45	3.09	400.05	48.93
394.90	0.00	397.50	3.36	400.10	50.41
394.95	0.00	397.55	3.64	400.15	51.92
395.00	0.00	397.60	3.92	400.20	53.44
395.05	0.00	397.65	4.19	400.25	54.97
395.10	0.00	397.70	4.46	400.30	56.52
395.15	0.00	397.75	4.73	400.35	58.08
395.20	0.00	397.80	4.99	400.40	59.66
395.25	0.00	397.85	5.23	400.45	61.26
395.30	0.00	397.90	5.46	400.50	62.86
395.35	0.00	397.95	5.66	400.55	64.49
395.40	0.00	398.00	5.82	400.60	66.12
395.45	0.00	398.05	6.15	400.65	67.78
395.50	0.00	398.10	6.60	400.70	69.44
395.55	0.00	398.15	7.12	400.75	71.12
395.60	0.00	398.20	7.70	400.80	72.82
395.65	0.00	398.25	8.32	400.85	74.52
395.70	0.00	398.30	8.99	400.90	76.24
395.75	0.00	398.35	9.70	400.95	77.98
395.80	0.00	398.40	10.45	401.00	**79.73**
395.85	0.00	398.45	11.23		
395.90	0.00	398.50	12.05		
395.95	0.00	398.55	12.90		
396.00	0.00	398.60	13.77		
396.05	0.00	398.65	14.68		
396.10	0.00	398.70	15.61		
396.15	0.00	398.75	16.57		
396.20	0.00	398.80	17.55		
396.25	0.00	398.85	18.56		
396.30	0.00	398.90	19.59		
396.35	0.00	398.95	20.65		
396.40	0.00	399.00	21.73		
396.45	0.00	399.05	22.83		
396.50	0.00	399.10	23.95		
396.55	0.01	399.15	25.09		

Stage-Area-Storage for Pond DA2: Detention Basin A-2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
394.00	209	0
394.10	234	22
394.20	260	47
394.30	287	74
394.40	316	104
394.50	346	137
394.60	378	173
394.70	410	213
394.80	445	256
394.90	480	302
395.00	517	352
395.10	556	405
395.20	595	463
395.30	637	524
395.40	679	590
395.50	723	660
395.60	768	735
395.70	815	814
395.80	863	898
395.90	912	987
396.00	963	1,080
396.10	1,008	1,179
396.20	1,054	1,282
396.30	1,102	1,390
396.40	1,150	1,502
396.50	1,199	1,620
396.60	1,250	1,742
396.70	1,301	1,870
396.80	1,353	2,003
396.90	1,407	2,141
397.00	1,461	2,284
397.10	1,517	2,433
397.20	1,573	2,587
397.30	1,631	2,748
397.40	1,690	2,914
397.50	1,749	3,085
397.60	1,810	3,263
397.70	1,872	3,447
397.80	1,934	3,638
397.90	1,998	3,834
398.00	2,063	4,037
398.10	2,123	4,247
398.20	2,184	4,462
398.30	2,246	4,684
398.40	2,309	4,911
398.50	2,373	5,145
398.60	2,437	5,386
398.70	2,502	5,633
398.80	2,569	5,886
398.90	2,636	6,147
399.00	2,704	6,414
399.10	2,773	6,687
399.20	2,842	6,968
399.30	2,913	7,256
399.40	2,984	7,551
399.50	3,057	7,853
399.60	3,130	8,162
399.70	3,204	8,479
399.80	3,279	8,803
399.90	3,354	9,134
400.00	**3,431**	**9,474**
400.10	3,431	9,474
400.20	3,431	9,474
400.30	3,431	9,474
400.40	3,431	9,474
400.50	3,431	9,474
400.60	3,431	9,474
400.70	3,431	9,474
400.80	3,431	9,474
400.90	3,431	9,474
401.00	3,431	9,474

Summary for Pond DB1: Detention Basin B-1

Inflow Area = 9.160 ac, 53.49% Impervious, Inflow Depth = 5.07" for 100-YR event
Inflow = 36.50 cfs @ 12.38 hrs, Volume= 3.870 af
Outflow = 18.14 cfs @ 12.71 hrs, Volume= 2.633 af, Atten= 50%, Lag= 20.0 min
Primary = 18.14 cfs @ 12.71 hrs, Volume= 2.633 af
Routed to Pond DPB : Design Point B

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 406.04' @ 12.71 hrs Surf.Area= 15,560 sf Storage= 68,994 cf

Plug-Flow detention time= 159.2 min calculated for 2.633 af (68% of inflow)
Center-of-Mass det. time= 67.9 min (899.7 - 831.8)

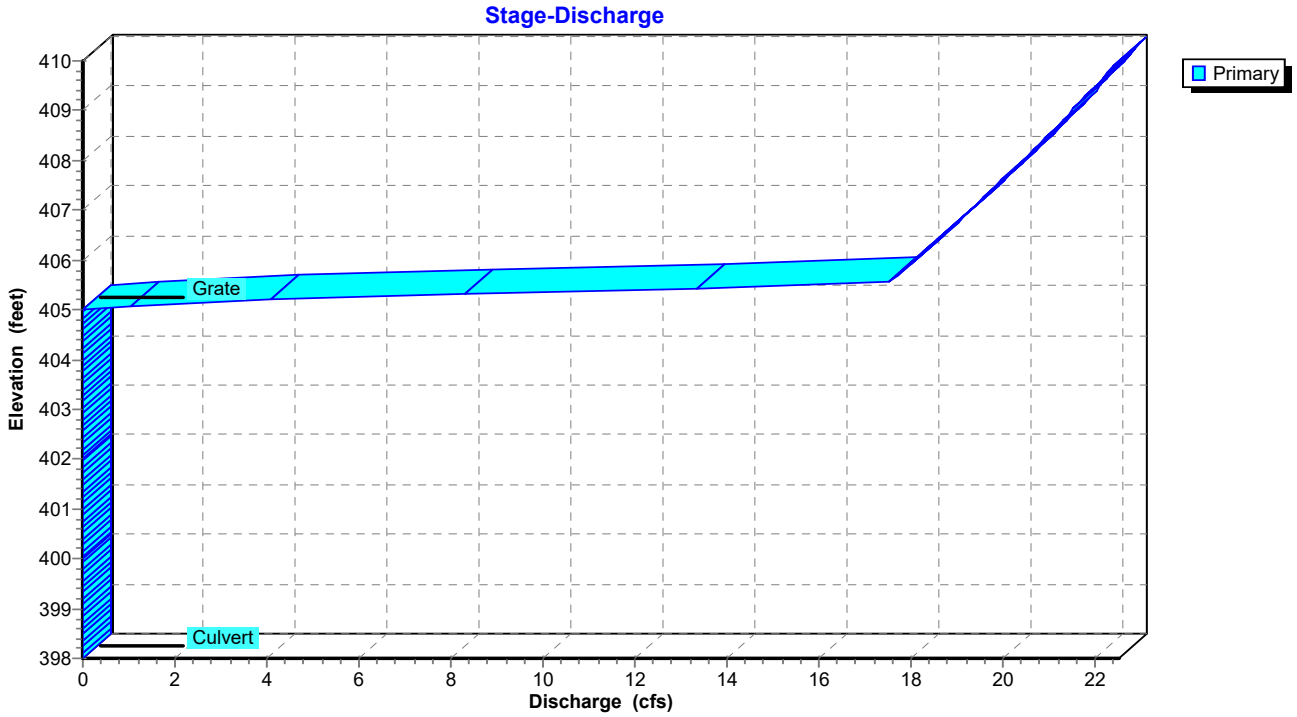
Volume	Invert	Avail.Storage	Storage Description
#1	398.00'	147,816 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
398.00	2,899	0	0	2,899
400.00	5,332	8,108	8,108	5,373
402.00	8,246	13,473	21,581	8,345
404.00	11,630	19,779	41,360	11,801
406.00	15,480	27,018	68,379	15,738
408.00	19,788	35,180	103,559	20,147
410.00	24,555	44,257	147,816	25,030

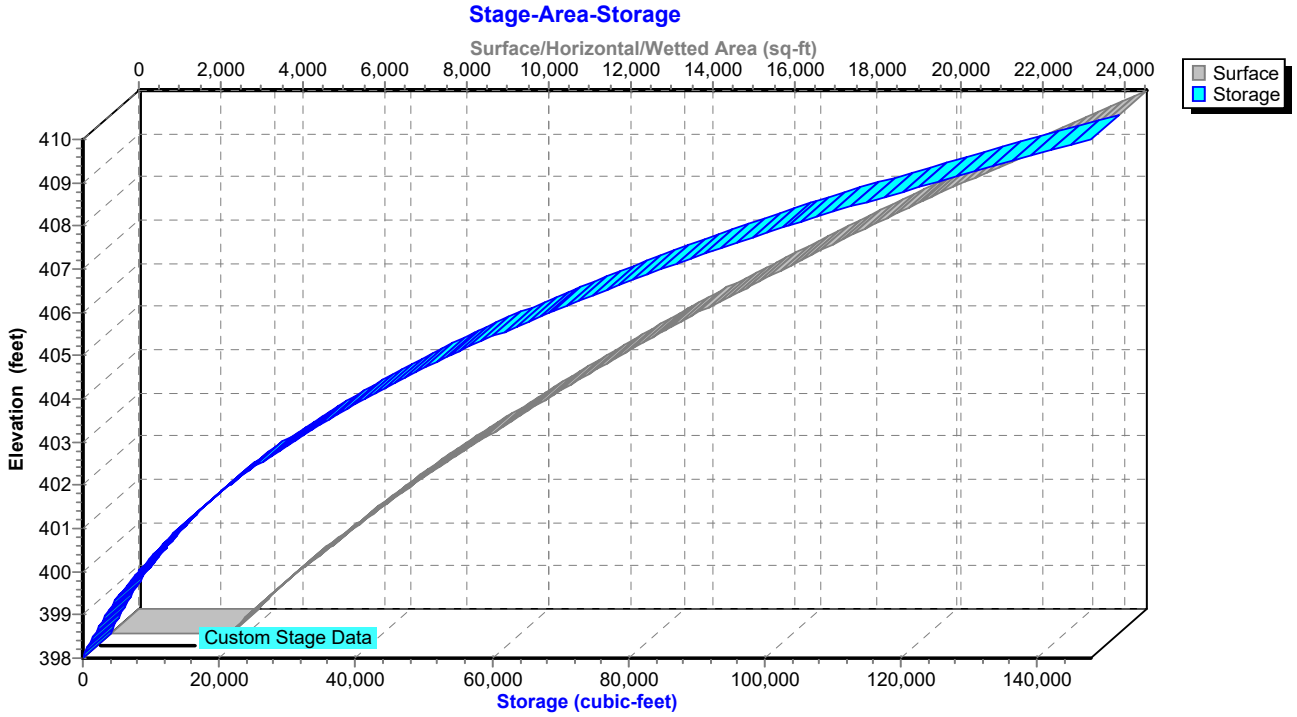
Device	Routing	Invert	Outlet Devices
#1	Primary	398.00'	**18.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 398.00' / 396.00' S= 0.0267 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Device 1	405.00'	**48.0" x 36.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=18.14 cfs @ 12.71 hrs HW=406.04' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 18.14 cfs @ 10.26 fps)
↑—**2=Grate** (Passes 18.14 cfs of 48.52 cfs potential flow)

Pond DB1: Detention Basin B-1



Pond DB1: Detention Basin B-1



Stage-Discharge for Pond DB1: Detention Basin B-1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
398.00	0.00	403.20	0.00	408.40	20.87
398.10	0.00	403.30	0.00	408.50	20.98
398.20	0.00	403.40	0.00	408.60	21.08
398.30	0.00	403.50	0.00	408.70	21.19
398.40	0.00	403.60	0.00	408.80	21.30
398.50	0.00	403.70	0.00	408.90	21.40
398.60	0.00	403.80	0.00	409.00	21.51
398.70	0.00	403.90	0.00	409.10	21.61
398.80	0.00	404.00	0.00	409.20	21.72
398.90	0.00	404.10	0.00	409.30	21.82
399.00	0.00	404.20	0.00	409.40	21.92
399.10	0.00	404.30	0.00	409.50	22.02
399.20	0.00	404.40	0.00	409.60	22.13
399.30	0.00	404.50	0.00	409.70	22.23
399.40	0.00	404.60	0.00	409.80	22.33
399.50	0.00	404.70	0.00	409.90	22.43
399.60	0.00	404.80	0.00	410.00	**22.53**
399.70	0.00	404.90	0.00		
399.80	0.00	405.00	0.00		
399.90	0.00	405.10	1.45		
400.00	0.00	405.20	4.09		
400.10	0.00	405.30	7.52		
400.20	0.00	405.40	11.58		
400.30	0.00	405.50	16.19		
400.40	0.00	405.60	17.58		
400.50	0.00	405.70	17.71		
400.60	0.00	405.80	17.84		
400.70	0.00	405.90	17.96		
400.80	0.00	406.00	18.09		
400.90	0.00	406.10	18.21		
401.00	0.00	406.20	18.34		
401.10	0.00	406.30	18.46		
401.20	0.00	406.40	18.58		
401.30	0.00	406.50	18.70		
401.40	0.00	406.60	18.82		
401.50	0.00	406.70	18.94		
401.60	0.00	406.80	19.06		
401.70	0.00	406.90	19.18		
401.80	0.00	407.00	19.29		
401.90	0.00	407.10	19.41		
402.00	0.00	407.20	19.53		
402.10	0.00	407.30	19.64		
402.20	0.00	407.40	19.76		
402.30	0.00	407.50	19.87		
402.40	0.00	407.60	19.98		
402.50	0.00	407.70	20.10		
402.60	0.00	407.80	20.21		
402.70	0.00	407.90	20.32		
402.80	0.00	408.00	20.43		
402.90	0.00	408.10	20.54		
403.00	0.00	408.20	20.65		
403.10	0.00	408.30	20.76		

Stage-Area-Storage for Pond DB1: Detention Basin B-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
398.00	2,899	0
398.20	3,109	601
398.40	3,327	1,244
398.60	3,552	1,932
398.80	3,784	2,665
399.00	4,024	3,446
399.20	4,271	4,275
399.40	4,525	5,155
399.60	4,787	6,086
399.80	5,056	7,070
400.00	5,332	8,108
400.20	5,595	9,201
400.40	5,864	10,347
400.60	6,140	11,547
400.80	6,422	12,803
401.00	6,710	14,116
401.20	7,004	15,488
401.40	7,305	16,918
401.60	7,613	18,410
401.80	7,926	19,964
402.00	8,246	21,581
402.20	8,558	23,261
402.40	8,876	25,005
402.60	9,200	26,812
402.80	9,530	28,685
403.00	9,865	30,625
403.20	10,207	32,632
403.40	10,554	34,708
403.60	10,907	36,854
403.80	11,265	39,071
404.00	11,630	41,360
404.20	11,990	43,722
404.40	12,356	46,157
404.60	12,727	48,665
404.80	13,104	51,248
405.00	13,486	53,907
405.20	13,874	56,643
405.40	14,267	59,457
405.60	14,666	62,350
405.80	15,070	65,324
406.00	15,480	68,379
406.20	15,887	71,515
406.40	16,299	74,734
406.60	16,717	78,035
406.80	17,140	81,421
407.00	17,568	84,892
407.20	18,001	88,448
407.40	18,440	92,093
407.60	18,884	95,825
407.80	19,333	99,647
408.00	19,788	103,559
408.20	20,242	107,561
408.40	20,700	111,656
408.60	21,164	115,842
408.80	21,633	120,122
409.00	22,107	124,496
409.20	22,587	128,965
409.40	23,071	133,530
409.60	23,560	138,194
409.80	24,055	142,955
410.00	**24,555**	**147,816**

Summary for Pond DPA: Design Point A

Inflow Area = 36.215 ac, 35.71% Impervious, Inflow Depth = 4.91" for 100-YR event
Inflow = 99.59 cfs @ 12.29 hrs, Volume= 14.817 af
Primary = 99.59 cfs @ 12.29 hrs, Volume= 14.817 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond DPB: Design Point B

Inflow Area = 22.212 ac, 27.91% Impervious, Inflow Depth > 3.69" for 100-YR event
Inflow = 38.51 cfs @ 12.45 hrs, Volume= 6.833 af
Primary = 38.51 cfs @ 12.45 hrs, Volume= 6.833 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond FA1: Forebay A-1

Inflow Area = 9.007 ac, 57.93% Impervious, Inflow Depth = 7.05" for 100-YR event
Inflow = 37.53 cfs @ 12.35 hrs, Volume= 5.293 af
Outflow = 36.38 cfs @ 12.40 hrs, Volume= 4.482 af, Atten= 3%, Lag= 2.9 min
Primary = 36.38 cfs @ 12.40 hrs, Volume= 4.482 af
Routed to Pond IA1 : Infiltration Basin A-1

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 408.95' @ 12.40 hrs Surf.Area= 11,054 sf Storage= 45,103 cf

Plug-Flow detention time= 141.9 min calculated for 4.482 af (85% of inflow)
Center-of-Mass det. time= 65.1 min (866.3 - 801.1)

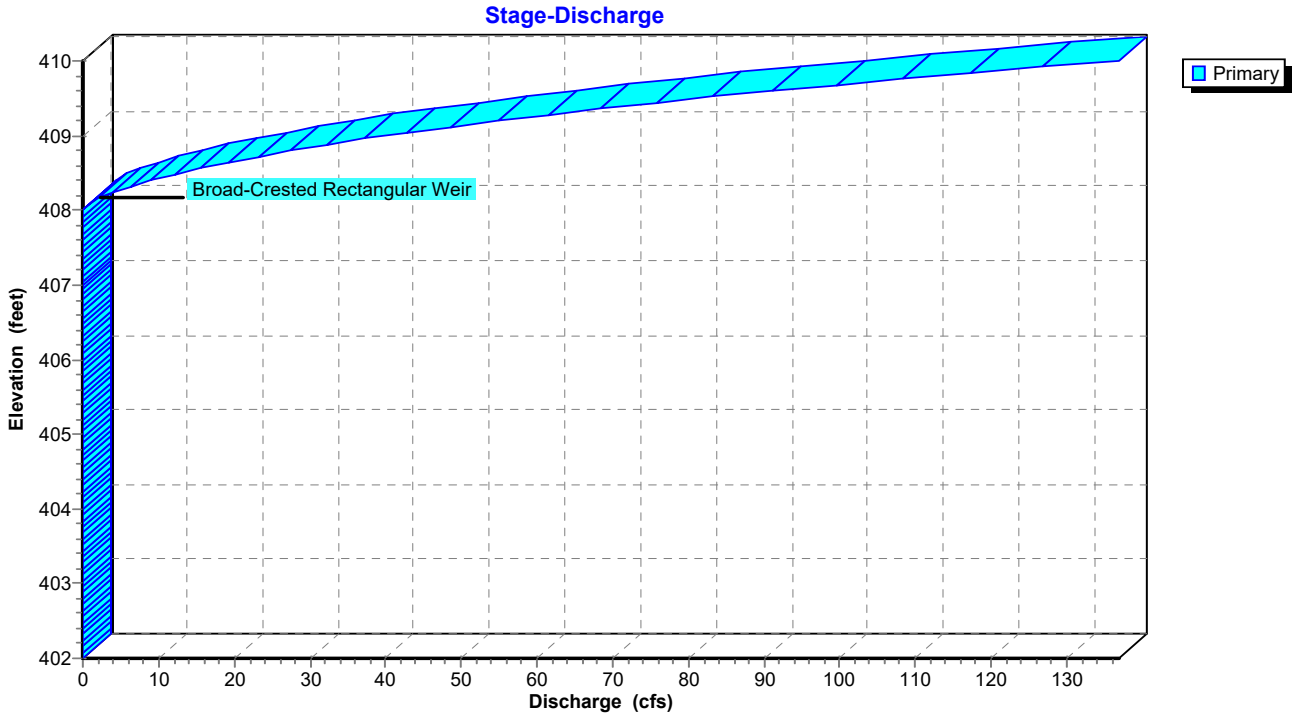
Volume	Invert	Avail.Storage	Storage Description
#1	402.00'	57,653 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
402.00	2,804	0	0	2,804
404.00	4,651	7,378	7,378	4,700
406.00	6,917	11,493	18,871	7,029
407.00	8,212	7,555	26,426	8,360
408.00	9,627	8,910	35,336	9,814
410.00	12,763	22,316	57,653	13,038

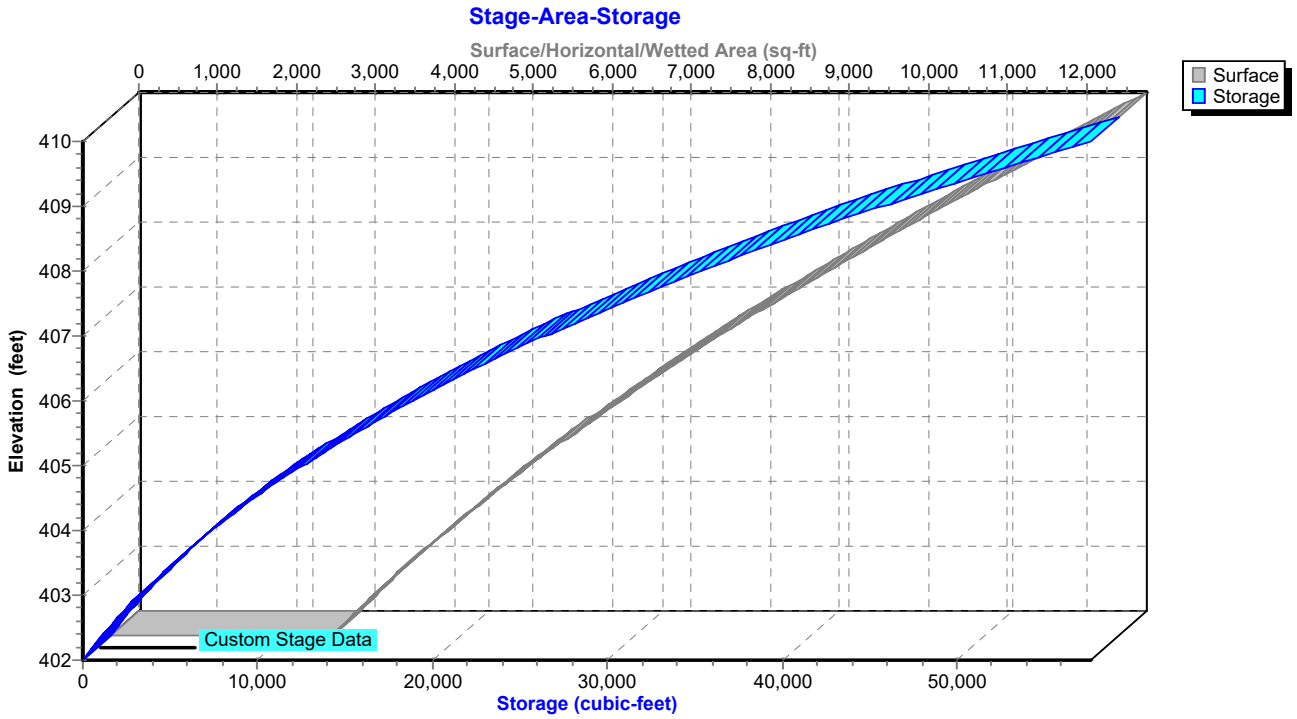
Device	Routing	Invert	Outlet Devices
#1	Primary	408.00'	**12.0' long + 4.0 '/' SideZ x 50.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=36.34 cfs @ 12.40 hrs HW=408.95' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 36.34 cfs @ 2.44 fps)

Pond FA1: Forebay A-1



Pond FA1: Forebay A-1



Stage-Discharge for Pond FA1: Forebay A-1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
402.00	0.00	404.60	0.00	407.20	0.00	409.80	112.80
402.05	0.00	404.65	0.00	407.25	0.00	409.85	118.59
402.10	0.00	404.70	0.00	407.30	0.00	409.90	124.53
402.15	0.00	404.75	0.00	407.35	0.00	409.95	130.63
402.20	0.00	404.80	0.00	407.40	0.00	410.00	**136.87**
402.25	0.00	404.85	0.00	407.45	0.00		
402.30	0.00	404.90	0.00	407.50	0.00		
402.35	0.00	404.95	0.00	407.55	0.00		
402.40	0.00	405.00	0.00	407.60	0.00		
402.45	0.00	405.05	0.00	407.65	0.00		
402.50	0.00	405.10	0.00	407.70	0.00		
402.55	0.00	405.15	0.00	407.75	0.00		
402.60	0.00	405.20	0.00	407.80	0.00		
402.65	0.00	405.25	0.00	407.85	0.00		
402.70	0.00	405.30	0.00	407.90	0.00		
402.75	0.00	405.35	0.00	407.95	0.00		
402.80	0.00	405.40	0.00	408.00	0.00		
402.85	0.00	405.45	0.00	408.05	0.36		
402.90	0.00	405.50	0.00	408.10	1.04		
402.95	0.00	405.55	0.00	408.15	1.94		
403.00	0.00	405.60	0.00	408.20	3.03		
403.05	0.00	405.65	0.00	408.25	4.30		
403.10	0.00	405.70	0.00	408.30	5.73		
403.15	0.00	405.75	0.00	408.35	7.32		
403.20	0.00	405.80	0.00	408.40	9.07		
403.25	0.00	405.85	0.00	408.45	10.95		
403.30	0.00	405.90	0.00	408.50	12.98		
403.35	0.00	405.95	0.00	408.55	15.15		
403.40	0.00	406.00	0.00	408.60	17.47		
403.45	0.00	406.05	0.00	408.65	19.81		
403.50	0.00	406.10	0.00	408.70	22.27		
403.55	0.00	406.15	0.00	408.75	24.83		
403.60	0.00	406.20	0.00	408.80	27.50		
403.65	0.00	406.25	0.00	408.85	30.42		
403.70	0.00	406.30	0.00	408.90	33.48		
403.75	0.00	406.35	0.00	408.95	36.66		
403.80	0.00	406.40	0.00	409.00	39.98		
403.85	0.00	406.45	0.00	409.05	43.51		
403.90	0.00	406.50	0.00	409.10	47.18		
403.95	0.00	406.55	0.00	409.15	51.00		
404.00	0.00	406.60	0.00	409.20	54.97		
404.05	0.00	406.65	0.00	409.25	59.03		
404.10	0.00	406.70	0.00	409.30	63.24		
404.15	0.00	406.75	0.00	409.35	67.58		
404.20	0.00	406.80	0.00	409.40	72.07		
404.25	0.00	406.85	0.00	409.45	76.63		
404.30	0.00	406.90	0.00	409.50	81.33		
404.35	0.00	406.95	0.00	409.55	86.16		
404.40	0.00	407.00	0.00	409.60	91.13		
404.45	0.00	407.05	0.00	409.65	96.32		
404.50	0.00	407.10	0.00	409.70	101.67		
404.55	0.00	407.15	0.00	409.75	107.16		

Stage-Area-Storage for Pond FA1: Forebay A-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
402.00	2,804	0
402.10	2,885	284
402.20	2,968	577
402.30	3,051	878
402.40	3,136	1,187
402.50	3,222	1,505
402.60	3,309	1,832
402.70	3,398	2,167
402.80	3,487	2,511
402.90	3,578	2,865
403.00	3,669	3,227
403.10	3,762	3,599
403.20	3,856	3,980
403.30	3,952	4,370
403.40	4,048	4,770
403.50	4,146	5,180
403.60	4,244	5,599
403.70	4,344	6,028
403.80	4,445	6,468
403.90	4,548	6,918
404.00	4,651	7,378
404.10	4,754	7,848
404.20	4,857	8,328
404.30	4,962	8,819
404.40	5,068	9,321
404.50	5,175	9,833
404.60	5,284	10,356
404.70	5,393	10,890
404.80	5,504	11,435
404.90	5,615	11,991
405.00	5,728	12,558
405.10	5,842	13,136
405.20	5,957	13,726
405.30	6,073	14,328
405.40	6,190	14,941
405.50	6,308	15,566
405.60	6,428	16,202
405.70	6,549	16,851
405.80	6,670	17,512
405.90	6,793	18,185
406.00	6,917	18,871
406.10	7,042	19,569
406.20	7,167	20,279
406.30	7,294	21,002
406.40	7,422	21,738
406.50	7,551	22,487
406.60	7,681	23,248
406.70	7,812	24,023
406.80	7,944	24,811
406.90	8,078	25,612
407.00	8,212	26,426
407.10	8,348	27,254
407.20	8,486	28,096
407.30	8,625	28,951
407.40	8,765	29,821
407.50	8,905	30,704
407.60	9,048	31,602
407.70	9,191	32,514
407.80	9,335	33,440
407.90	9,480	34,381
408.00	9,627	35,336
408.10	9,773	36,306
408.20	9,921	37,291
408.30	10,069	38,290
408.40	10,219	39,305
408.50	10,370	40,334
408.60	10,521	41,379
408.70	10,674	42,439
408.80	10,828	43,514
408.90	10,984	44,604
409.00	11,140	45,710
409.10	11,297	46,832
409.20	11,456	47,970
409.30	11,615	49,123
409.40	11,776	50,293
409.50	11,938	51,479
409.60	12,100	52,681
409.70	12,264	53,899
409.80	12,430	55,133
409.90	12,596	56,385
410.00	**12,763**	**57,653**

Summary for Pond FA2: Forebay A-2

Inflow Area = 0.600 ac, 17.00% Impervious, Inflow Depth = 3.64" for 100-YR event
Inflow = 1.72 cfs @ 12.24 hrs, Volume= 0.182 af
Outflow = 1.62 cfs @ 12.29 hrs, Volume= 0.141 af, Atten= 6%, Lag= 3.0 min
Primary = 1.62 cfs @ 12.29 hrs, Volume= 0.141 af
Routed to Pond DA2 : Detention Basin A-2

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 398.13' @ 12.29 hrs Surf.Area= 1,111 sf Storage= 1,935 cf

Plug-Flow detention time= 154.2 min calculated for 0.141 af (77% of inflow)
Center-of-Mass det. time= 54.9 min (933.8 - 878.9)

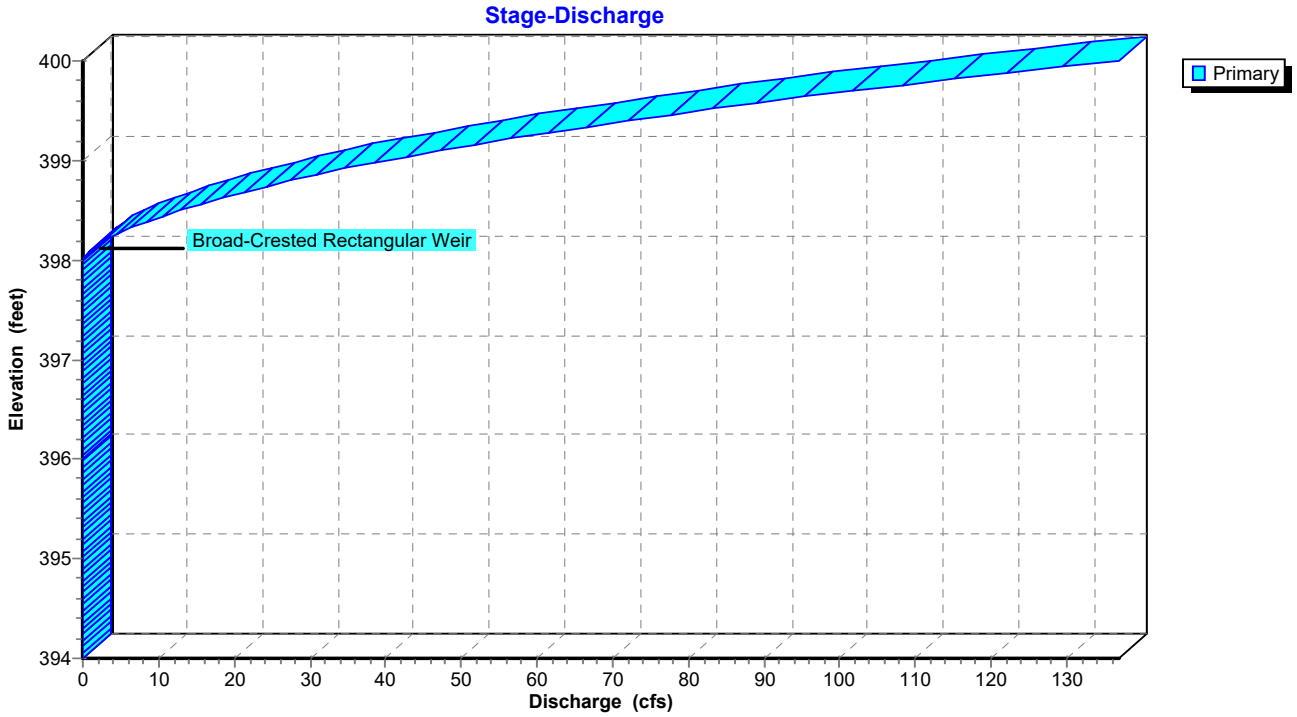
Volume	Invert	Avail.Storage	Storage Description
#1	394.00'	4,774 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
394.00	46	0	0	46
396.00	398	386	386	411
398.00	1,060	1,405	1,791	1,098
400.00	1,969	2,982	4,774	2,047

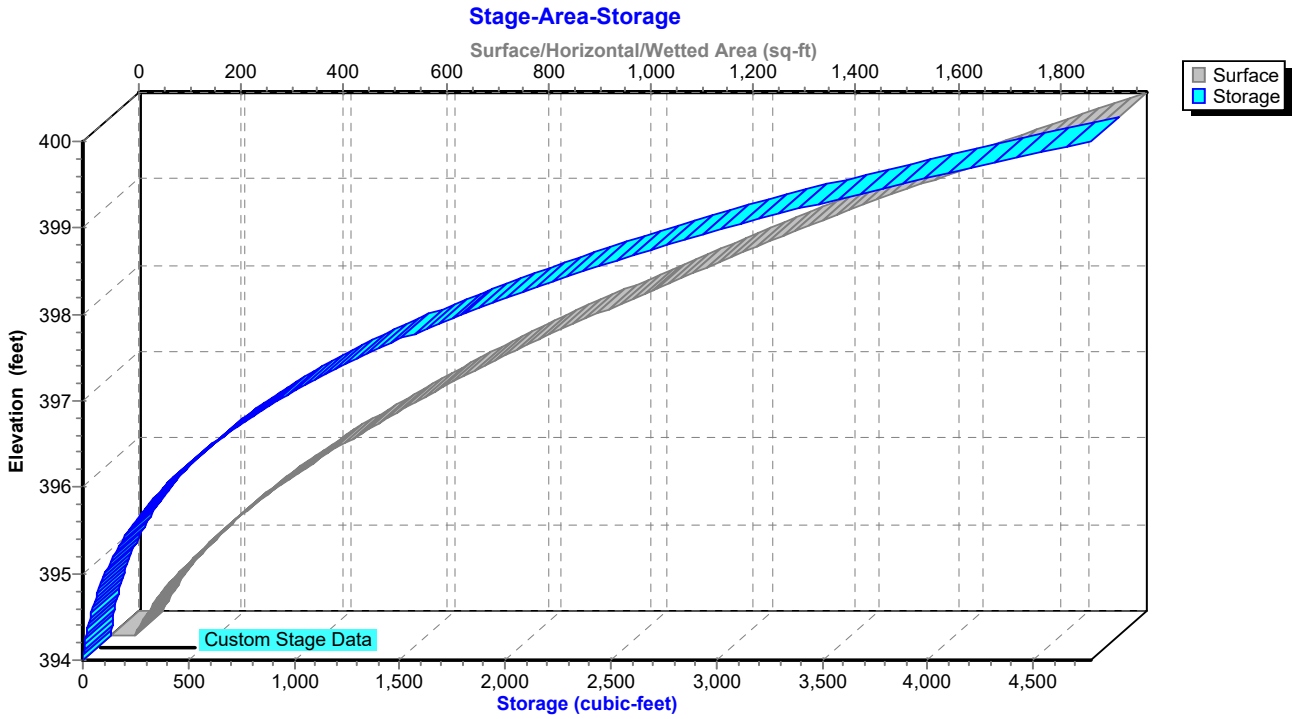
Device	Routing	Invert	Outlet Devices
#1	Primary	398.00'	**12.0' long + 4.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.60 cfs @ 12.29 hrs HW=398.13' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 1.60 cfs @ 0.97 fps)

Pond FA2: Forebay A-2



Pond FA2: Forebay A-2



Stage-Discharge for Pond FA2: Forebay A-2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
394.00	0.00	396.60	0.00	399.20	54.97
394.05	0.00	396.65	0.00	399.25	59.03
394.10	0.00	396.70	0.00	399.30	63.24
394.15	0.00	396.75	0.00	399.35	67.58
394.20	0.00	396.80	0.00	399.40	72.07
394.25	0.00	396.85	0.00	399.45	76.63
394.30	0.00	396.90	0.00	399.50	81.33
394.35	0.00	396.95	0.00	399.55	86.16
394.40	0.00	397.00	0.00	399.60	91.13
394.45	0.00	397.05	0.00	399.65	96.32
394.50	0.00	397.10	0.00	399.70	101.67
394.55	0.00	397.15	0.00	399.75	107.16
394.60	0.00	397.20	0.00	399.80	112.80
394.65	0.00	397.25	0.00	399.85	118.59
394.70	0.00	397.30	0.00	399.90	124.53
394.75	0.00	397.35	0.00	399.95	130.63
394.80	0.00	397.40	0.00	400.00	**136.87**
394.85	0.00	397.45	0.00		
394.90	0.00	397.50	0.00		
394.95	0.00	397.55	0.00		
395.00	0.00	397.60	0.00		
395.05	0.00	397.65	0.00		
395.10	0.00	397.70	0.00		
395.15	0.00	397.75	0.00		
395.20	0.00	397.80	0.00		
395.25	0.00	397.85	0.00		
395.30	0.00	397.90	0.00		
395.35	0.00	397.95	0.00		
395.40	0.00	398.00	0.00		
395.45	0.00	398.05	0.36		
395.50	0.00	398.10	1.04		
395.55	0.00	398.15	1.94		
395.60	0.00	398.20	3.03		
395.65	0.00	398.25	4.30		
395.70	0.00	398.30	5.73		
395.75	0.00	398.35	7.32		
395.80	0.00	398.40	9.07		
395.85	0.00	398.45	10.95		
395.90	0.00	398.50	12.98		
395.95	0.00	398.55	15.15		
396.00	0.00	398.60	17.47		
396.05	0.00	398.65	19.81		
396.10	0.00	398.70	22.27		
396.15	0.00	398.75	24.83		
396.20	0.00	398.80	27.50		
396.25	0.00	398.85	30.42		
396.30	0.00	398.90	33.48		
396.35	0.00	398.95	36.66		
396.40	0.00	399.00	39.98		
396.45	0.00	399.05	43.51		
396.50	0.00	399.10	47.18		
396.55	0.00	399.15	51.00		

Stage-Area-Storage for Pond FA2: Forebay A-2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
394.00	46	0
394.10	55	5
394.20	66	11
394.30	77	18
394.40	89	26
394.50	101	36
394.60	115	47
394.70	130	59
394.80	145	73
394.90	161	88
395.00	179	105
395.10	197	124
395.20	216	144
395.30	235	167
395.40	256	192
395.50	277	218
395.60	300	247
395.70	323	278
395.80	347	312
395.90	372	348
396.00	398	386
396.10	424	427
396.20	450	471
396.30	477	517
396.40	505	566
396.50	534	618
396.60	563	673
396.70	594	731
396.80	625	792
396.90	657	856
397.00	689	923
397.10	723	994
397.20	757	1,068
397.30	792	1,145
397.40	828	1,226
397.50	865	1,311
397.60	902	1,399
397.70	940	1,491
397.80	979	1,587
397.90	1,019	1,687
398.00	1,060	1,791
398.10	1,099	1,899
398.20	1,138	2,011
398.30	1,179	2,127
398.40	1,219	2,247
398.50	1,261	2,371
398.60	1,303	2,499
398.70	1,346	2,631
398.80	1,390	2,768
398.90	1,434	2,910
399.00	1,480	3,055
399.10	1,525	3,205
399.20	1,572	3,360
399.30	1,619	3,520
399.40	1,667	3,684
399.50	1,716	3,853
399.60	1,765	4,027
399.70	1,815	4,206
399.80	1,866	4,390
399.90	1,917	4,579
400.00	**1,969**	**4,774**

Summary for Pond FB1: Forebay B-1

Inflow Area = 9.160 ac, 53.49% Impervious, Inflow Depth = 6.93" for 100-YR event
Inflow = 39.04 cfs @ 12.32 hrs, Volume= 5.292 af
Outflow = 37.56 cfs @ 12.38 hrs, Volume= 4.688 af, Atten= 4%, Lag= 3.3 min
Primary = 36.50 cfs @ 12.38 hrs, Volume= 3.870 af
Routed to Pond DB1 : Detention Basin B-1
Secondary = 1.06 cfs @ 12.38 hrs, Volume= 0.817 af
Routed to Pond BB1 : Bio-Retention Basin

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 409.01' @ 12.38 hrs Surf.Area= 11,140 sf Storage= 41,114 cf

Plug-Flow detention time= 136.8 min calculated for 4.688 af (89% of inflow)
Center-of-Mass det. time= 75.5 min (878.9 - 803.4)

Volume	Invert	Avail.Storage	Storage Description
#1	400.00'	52,992 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

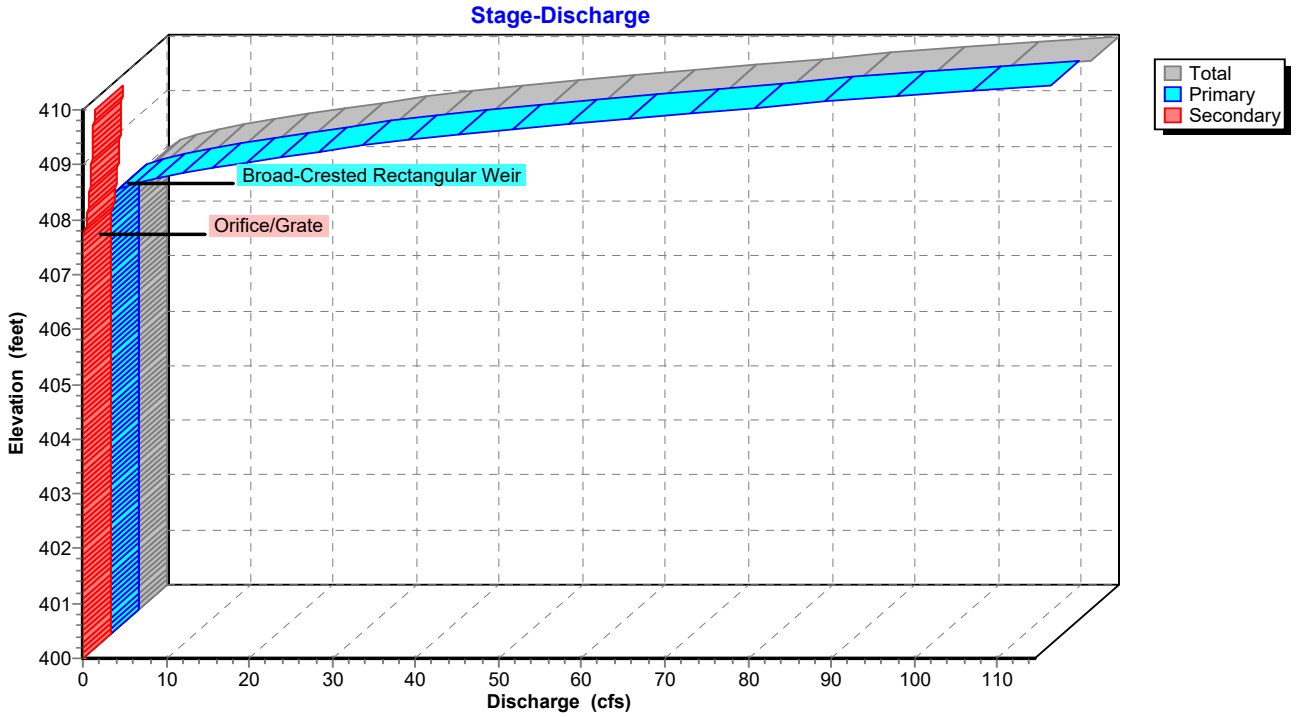
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
400.00	285	0	0	285
402.00	1,516	1,639	1,639	1,532
404.00	3,381	4,774	6,413	3,428
406.00	5,764	9,040	15,453	5,858
407.50	8,645	10,734	26,187	8,774
408.00	9,447	4,522	30,708	9,594
410.00	12,928	22,284	52,992	13,154

Device	Routing	Invert	Outlet Devices
#1	Primary	408.00'	**12.0' long + 2.0 '/' SideZ x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Secondary	407.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

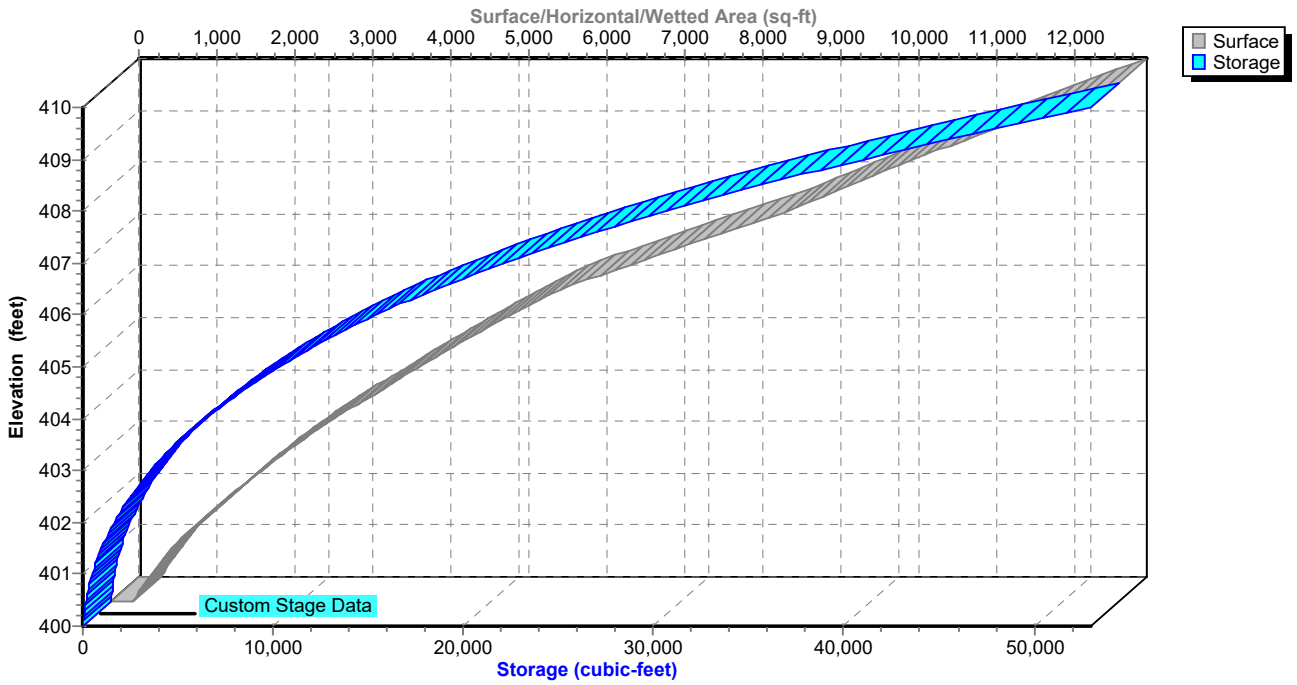
Primary OutFlow Max=36.47 cfs @ 12.38 hrs HW=409.01' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 36.47 cfs @ 2.57 fps)

Secondary OutFlow Max=1.06 cfs @ 12.38 hrs HW=409.01' (Free Discharge)
2=Orifice/Grate (Orifice Controls 1.06 cfs @ 5.41 fps)

Pond FB1: Forebay B-1



Pond FB1: Forebay B-1



Stage-Discharge for Pond FB1: Forebay B-1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
400.00	0.00	0.00	0.00
400.10	0.00	0.00	0.00
400.20	0.00	0.00	0.00
400.30	0.00	0.00	0.00
400.40	0.00	0.00	0.00
400.50	0.00	0.00	0.00
400.60	0.00	0.00	0.00
400.70	0.00	0.00	0.00
400.80	0.00	0.00	0.00
400.90	0.00	0.00	0.00
401.00	0.00	0.00	0.00
401.10	0.00	0.00	0.00
401.20	0.00	0.00	0.00
401.30	0.00	0.00	0.00
401.40	0.00	0.00	0.00
401.50	0.00	0.00	0.00
401.60	0.00	0.00	0.00
401.70	0.00	0.00	0.00
401.80	0.00	0.00	0.00
401.90	0.00	0.00	0.00
402.00	0.00	0.00	0.00
402.10	0.00	0.00	0.00
402.20	0.00	0.00	0.00
402.30	0.00	0.00	0.00
402.40	0.00	0.00	0.00
402.50	0.00	0.00	0.00
402.60	0.00	0.00	0.00
402.70	0.00	0.00	0.00
402.80	0.00	0.00	0.00
402.90	0.00	0.00	0.00
403.00	0.00	0.00	0.00
403.10	0.00	0.00	0.00
403.20	0.00	0.00	0.00
403.30	0.00	0.00	0.00
403.40	0.00	0.00	0.00
403.50	0.00	0.00	0.00
403.60	0.00	0.00	0.00
403.70	0.00	0.00	0.00
403.80	0.00	0.00	0.00
403.90	0.00	0.00	0.00
404.00	0.00	0.00	0.00
404.10	0.00	0.00	0.00
404.20	0.00	0.00	0.00
404.30	0.00	0.00	0.00
404.40	0.00	0.00	0.00
404.50	0.00	0.00	0.00
404.60	0.00	0.00	0.00
404.70	0.00	0.00	0.00
404.80	0.00	0.00	0.00
404.90	0.00	0.00	0.00
405.00	0.00	0.00	0.00
405.10	0.00	0.00	0.00
405.20	0.00	0.00	0.00
405.30	0.00	0.00	0.00
405.40	0.00	0.00	0.00
405.50	0.00	0.00	0.00
405.60	0.00	0.00	0.00
405.70	0.00	0.00	0.00
405.80	0.00	0.00	0.00
405.90	0.00	0.00	0.00
406.00	0.00	0.00	0.00
406.10	0.00	0.00	0.00
406.20	0.00	0.00	0.00
406.30	0.00	0.00	0.00
406.40	0.00	0.00	0.00
406.50	0.00	0.00	0.00
406.60	0.00	0.00	0.00
406.70	0.00	0.00	0.00
406.80	0.00	0.00	0.00
406.90	0.00	0.00	0.00
407.00	0.00	0.00	0.00
407.10	0.00	0.00	0.00
407.20	0.00	0.00	0.00
407.30	0.00	0.00	0.00
407.40	0.00	0.00	0.00
407.50	0.00	0.00	0.00
407.60	0.03	0.00	0.03
407.70	0.11	0.00	0.11
407.80	0.23	0.00	0.23
407.90	0.36	0.00	0.36
408.00	0.47	0.00	0.47
408.10	1.59	1.03	0.56
408.20	3.59	2.95	0.63
408.30	6.22	5.52	0.70
408.40	9.40	8.63	0.76
408.50	13.04	12.22	0.82
408.60	17.13	16.26	0.87
408.70	21.44	20.52	0.92
408.80	26.06	25.09	0.97
408.90	31.25	30.24	1.01
409.00	36.83	35.77	1.06
409.10	42.93	41.83	1.10
409.20	49.45	48.31	1.14
409.30	56.27	55.10	1.18
409.40	63.49	62.27	1.21
409.50	70.96	69.71	1.25
409.60	78.79	77.50	1.29
409.70	87.13	85.81	1.32
409.80	95.86	94.51	1.35
409.90	104.98	103.59	1.39
410.00	**114.49**	**113.07**	**1.42**

Stage-Area-Storage for Pond FB1: Forebay B-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
400.00	285	0
400.10	323	30
400.20	364	65
400.30	408	103
400.40	453	146
400.50	502	194
400.60	552	247
400.70	605	305
400.80	661	368
400.90	719	437
401.00	779	512
401.10	842	593
401.20	907	680
401.30	974	774
401.40	1,045	875
401.50	1,117	983
401.60	1,192	1,099
401.70	1,269	1,222
401.80	1,349	1,353
401.90	1,431	1,492
402.00	1,516	1,639
402.10	1,592	1,794
402.20	1,669	1,957
402.30	1,749	2,128
402.40	1,830	2,307
402.50	1,913	2,494
402.60	1,998	2,690
402.70	2,085	2,894
402.80	2,173	3,107
402.90	2,264	3,329
403.00	2,356	3,560
403.10	2,450	3,800
403.20	2,546	4,050
403.30	2,644	4,309
403.40	2,744	4,579
403.50	2,846	4,858
403.60	2,949	5,148
403.70	3,054	5,448
403.80	3,161	5,759
403.90	3,270	6,080
404.00	3,381	6,413
404.10	3,485	6,756
404.20	3,591	7,110
404.30	3,698	7,474
404.40	3,807	7,850
404.50	3,918	8,236
404.60	4,030	8,633
404.70	4,143	9,042
404.80	4,258	9,462
404.90	4,375	9,894
405.00	4,494	10,337
405.10	4,613	10,792
405.20	4,735	11,260
405.30	4,858	11,739
405.40	4,983	12,231
405.50	5,109	12,736
405.60	5,237	13,253
405.70	5,366	13,783
405.80	5,497	14,327
405.90	5,630	14,883
406.00	5,764	15,453
406.10	5,938	16,038
406.20	6,115	16,640
406.30	6,294	17,261
406.40	6,475	17,899
406.50	6,660	18,556
406.60	6,847	19,231
406.70	7,036	19,925
406.80	7,228	20,638
406.90	7,423	21,371
407.00	7,620	22,123
407.10	7,820	22,895
407.20	8,022	23,687
407.30	8,227	24,500
407.40	8,435	25,333
407.50	8,645	26,187
407.60	8,803	27,059
407.70	8,962	27,947
407.80	9,122	28,851
407.90	9,284	29,772
408.00	9,447	30,708
408.10	9,608	31,661
408.20	9,771	32,630
408.30	9,934	33,615
408.40	10,100	34,617
408.50	10,266	35,635
408.60	10,434	36,670
408.70	10,603	37,722
408.80	10,774	38,791
408.90	10,946	39,877
409.00	11,119	40,980
409.10	11,294	42,101
409.20	11,470	43,239
409.30	11,648	44,395
409.40	11,826	45,568
409.50	12,007	46,760
409.60	12,188	47,970
409.70	12,371	49,198
409.80	12,555	50,444
409.90	12,741	51,709
410.00	**12,928**	**52,992**

Summary for Pond IA1: Infiltration Basin A-1

Inflow Area = 9.007 ac, 57.93% Impervious, Inflow Depth = 5.97" for 100-YR event
Inflow = 36.38 cfs @ 12.40 hrs, Volume= 4.482 af
Outflow = 16.46 cfs @ 12.79 hrs, Volume= 3.911 af, Atten= 55%, Lag= 23.8 min
Discarded = 0.54 cfs @ 12.79 hrs, Volume= 1.140 af
Primary = 15.92 cfs @ 12.79 hrs, Volume= 2.771 af
Routed to Pond DPA : Design Point A

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 408.36' @ 12.79 hrs Surf.Area= 17,897 sf Storage= 74,465 cf

Plug-Flow detention time= 336.8 min calculated for 3.911 af (87% of inflow)
Center-of-Mass det. time= 273.1 min (1,139.4 - 866.3)

Volume	Invert	Avail.Storage	Storage Description
#1	402.00'	106,749 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

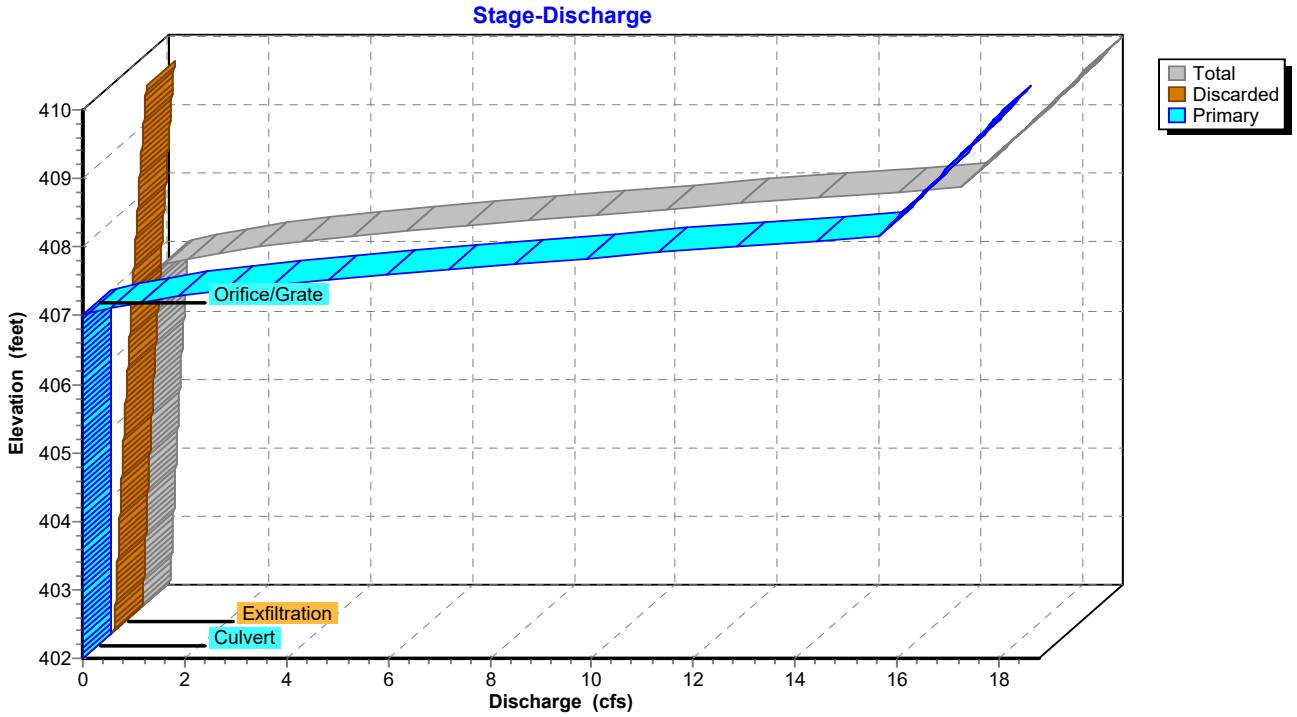
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
402.00	6,346	0	0	6,346
404.00	9,425	15,670	15,670	9,488
406.00	13,034	22,362	38,032	13,174
408.00	17,109	30,051	68,082	17,340
410.00	21,647	38,667	106,749	21,984

Device	Routing	Invert	Outlet Devices
#1	Primary	402.00'	**18.0" Round Culvert** L= 100.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 402.00' / 400.00' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Device 1	407.00'	**48.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	402.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 400.00'

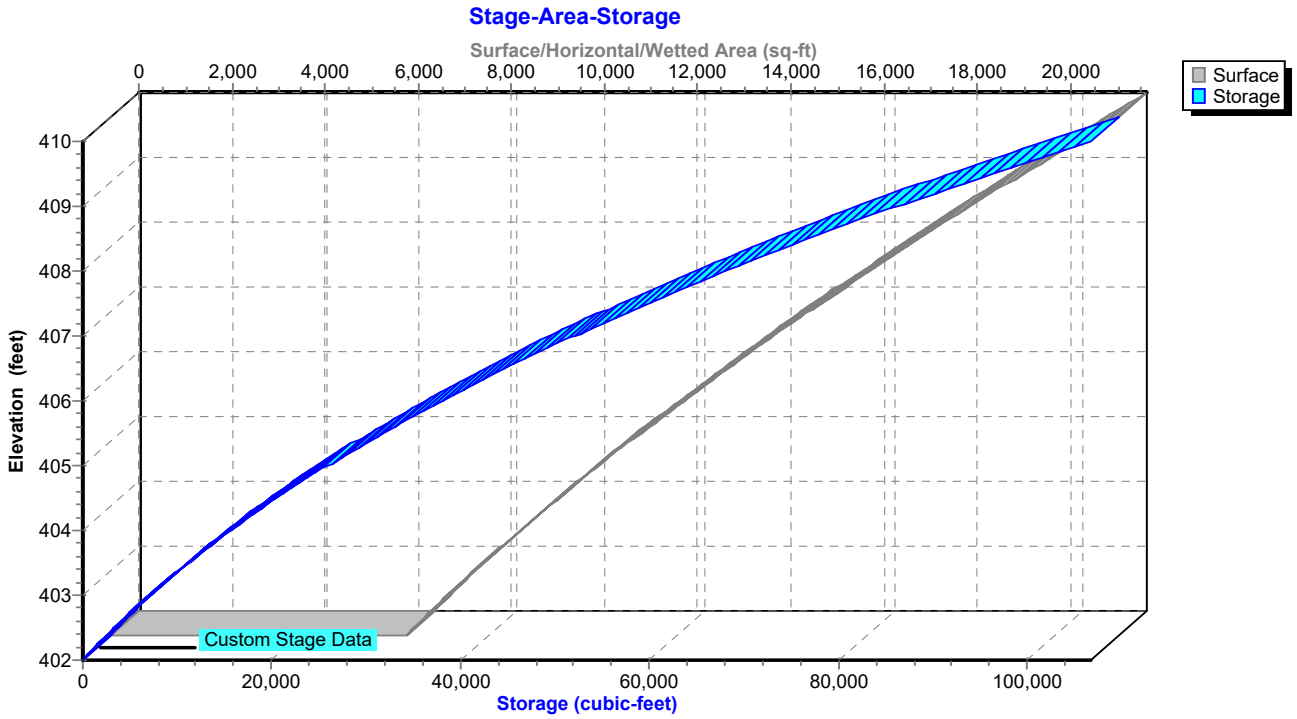
Discarded OutFlow Max=0.54 cfs @ 12.79 hrs HW=408.36' (Free Discharge)
└**3=Exfiltration** (Controls 0.54 cfs)

Primary OutFlow Max=15.92 cfs @ 12.79 hrs HW=408.36' (Free Discharge)
└**1=Culvert** (Inlet Controls 15.92 cfs @ 9.01 fps)
└**2=Orifice/Grate** (Passes 15.92 cfs of 20.47 cfs potential flow)

Pond IA1: Infiltration Basin A-1



Pond IA1: Infiltration Basin A-1



Stage-Discharge for Pond IA1: Infiltration Basin A-1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
402.00	0.00	0.00	0.00
402.10	0.08	0.08	0.00
402.20	0.08	0.08	0.00
402.30	0.09	0.09	0.00
402.40	0.10	0.10	0.00
402.50	0.10	0.10	0.00
402.60	0.11	0.11	0.00
402.70	0.11	0.11	0.00
402.80	0.12	0.12	0.00
402.90	0.12	0.12	0.00
403.00	0.13	0.13	0.00
403.10	0.14	0.14	0.00
403.20	0.14	0.14	0.00
403.30	0.15	0.15	0.00
403.40	0.16	0.16	0.00
403.50	0.16	0.16	0.00
403.60	0.17	0.17	0.00
403.70	0.17	0.17	0.00
403.80	0.18	0.18	0.00
403.90	0.19	0.19	0.00
404.00	0.20	0.20	0.00
404.10	0.20	0.20	0.00
404.20	0.21	0.21	0.00
404.30	0.22	0.22	0.00
404.40	0.22	0.22	0.00
404.50	0.23	0.23	0.00
404.60	0.24	0.24	0.00
404.70	0.24	0.24	0.00
404.80	0.25	0.25	0.00
404.90	0.26	0.26	0.00
405.00	0.27	0.27	0.00
405.10	0.27	0.27	0.00
405.20	0.28	0.28	0.00
405.30	0.29	0.29	0.00
405.40	0.30	0.30	0.00
405.50	0.30	0.30	0.00
405.60	0.31	0.31	0.00
405.70	0.32	0.32	0.00
405.80	0.33	0.33	0.00
405.90	0.33	0.33	0.00
406.00	0.34	0.34	0.00
406.10	0.35	0.35	0.00
406.20	0.36	0.36	0.00
406.30	0.37	0.37	0.00
406.40	0.37	0.37	0.00
406.50	0.38	0.38	0.00
406.60	0.39	0.39	0.00
406.70	0.40	0.40	0.00
406.80	0.41	0.41	0.00
406.90	0.42	0.42	0.00
407.00	0.42	0.42	0.00
407.10	0.84	0.43	0.41
407.20	1.59	0.44	1.15
407.30	2.56	0.45	2.11
407.40	3.71	0.46	3.25
407.50	5.01	0.47	4.54
407.60	6.44	0.48	5.97
407.70	8.00	0.48	7.52
407.80	9.68	0.49	9.19
407.90	11.46	0.50	10.96
408.00	13.35	0.51	12.84
408.10	15.33	0.52	14.81
408.20	16.21	0.53	15.68
408.30	16.36	0.54	15.83
408.40	16.51	0.55	15.97
408.50	16.66	0.56	16.11
408.60	16.81	0.56	16.25
408.70	16.96	0.57	16.39
408.80	17.11	0.58	16.52
408.90	17.25	0.59	16.66
409.00	17.40	0.60	16.79
409.10	17.54	0.61	16.93
409.20	17.68	0.62	17.06
409.30	17.82	0.63	17.19
409.40	17.96	0.64	17.32
409.50	18.10	0.65	17.45
409.60	18.24	0.66	17.58
409.70	18.38	0.67	17.71
409.80	18.51	0.68	17.84
409.90	18.65	0.69	17.96
410.00	**18.78**	**0.70**	**18.09**

Stage-Area-Storage for Pond IA1: Infiltration Basin A-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
402.00	6,346	0
402.10	6,486	642
402.20	6,627	1,297
402.30	6,769	1,967
402.40	6,913	2,651
402.50	7,059	3,350
402.60	7,206	4,063
402.70	7,355	4,791
402.80	7,505	5,534
402.90	7,656	6,292
403.00	7,810	7,065
403.10	7,964	7,854
403.20	8,121	8,658
403.30	8,278	9,478
403.40	8,438	10,314
403.50	8,598	11,166
403.60	8,761	12,034
403.70	8,924	12,918
403.80	9,090	13,818
403.90	9,257	14,736
404.00	9,425	15,670
404.10	9,592	16,621
404.20	9,760	17,588
404.30	9,929	18,573
404.40	10,100	19,574
404.50	10,273	20,593
404.60	10,446	21,629
404.70	10,622	22,682
404.80	10,799	23,753
404.90	10,977	24,842
405.00	11,157	25,948
405.10	11,338	27,073
405.20	11,520	28,216
405.30	11,704	29,377
405.40	11,890	30,557
405.50	12,077	31,755
405.60	12,266	32,972
405.70	12,455	34,208
405.80	12,647	35,464
405.90	12,840	36,738
406.00	13,034	38,032
406.10	13,225	39,344
406.20	13,417	40,677
406.30	13,610	42,028
406.40	13,805	43,399
406.50	14,001	44,789
406.60	14,198	46,199
406.70	14,397	47,629
406.80	14,598	49,078
406.90	14,799	50,548
407.00	15,002	52,038
407.10	15,207	53,549
407.20	15,413	55,080
407.30	15,620	56,631
407.40	15,828	58,204
407.50	16,038	59,797
407.60	16,250	61,411
407.70	16,462	63,047
407.80	16,677	64,704
407.90	16,892	66,382
408.00	17,109	68,082
408.10	17,323	69,804
408.20	17,539	71,547
408.30	17,756	73,312
408.40	17,974	75,098
408.50	18,194	76,907
408.60	18,414	78,737
408.70	18,637	80,589
408.80	18,860	82,464
408.90	19,085	84,362
409.00	19,311	86,281
409.10	19,539	88,224
409.20	19,768	90,189
409.30	19,998	92,177
409.40	20,230	94,189
409.50	20,463	96,223
409.60	20,697	98,281
409.70	20,932	100,363
409.80	21,169	102,468
409.90	21,407	104,597
410.00	**21,647**	**106,749**

Summary for Pond BB1: Bio-Retention Basin

Inflow Area = 0.610 ac, 25.08% Impervious, Inflow Depth > 25.23" for 500-YR event
Inflow = 4.99 cfs @ 12.13 hrs, Volume= 1.283 af
Outflow = 3.58 cfs @ 12.20 hrs, Volume= 1.105 af, Atten= 28%, Lag= 4.1 min
Primary = 3.58 cfs @ 12.20 hrs, Volume= 1.105 af
Routed to Pond DPB : Design Point B

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 403.98' @ 12.20 hrs Surf.Area= 11,496 sf Storage= 10,293 cf

Plug-Flow detention time= 181.0 min calculated for 1.105 af (86% of inflow)
Center-of-Mass det. time= 85.1 min (1,082.3 - 997.2)

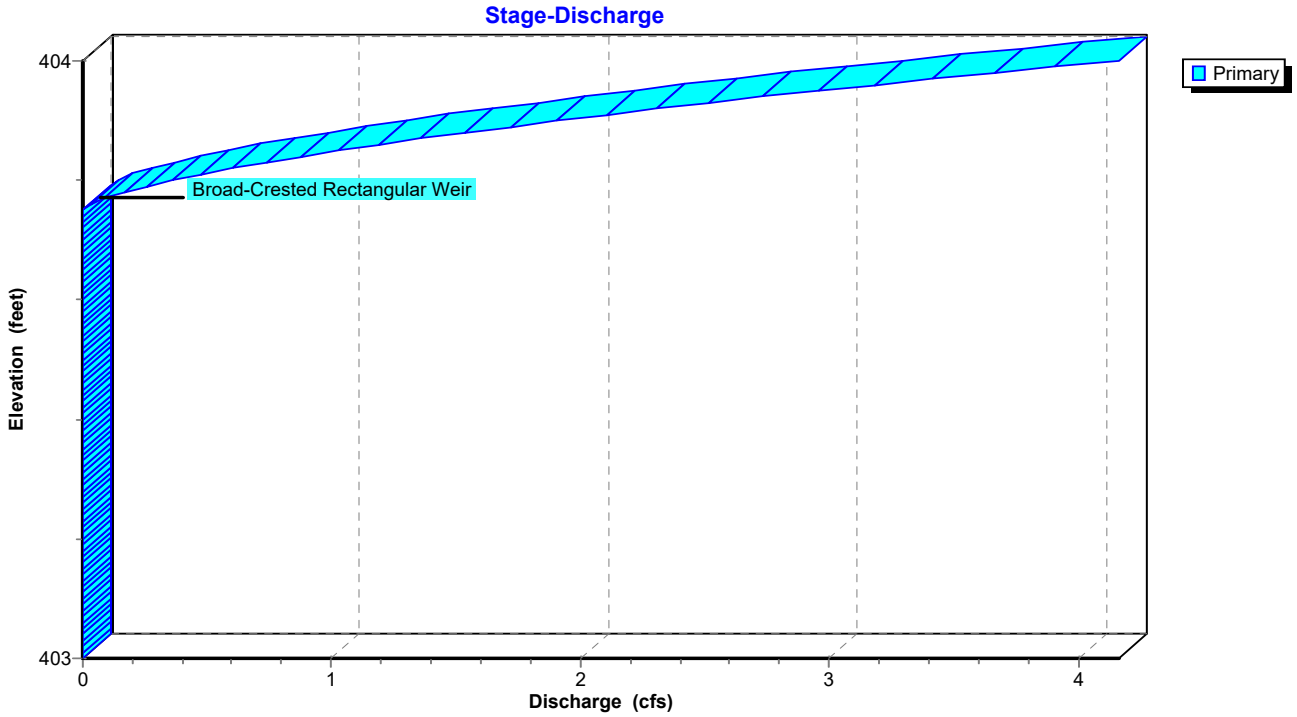
Volume	Invert	Avail.Storage	Storage Description
#1	403.00'	10,562 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
403.00	9,610	0	0	9,610
404.00	11,543	10,562	10,562	11,577

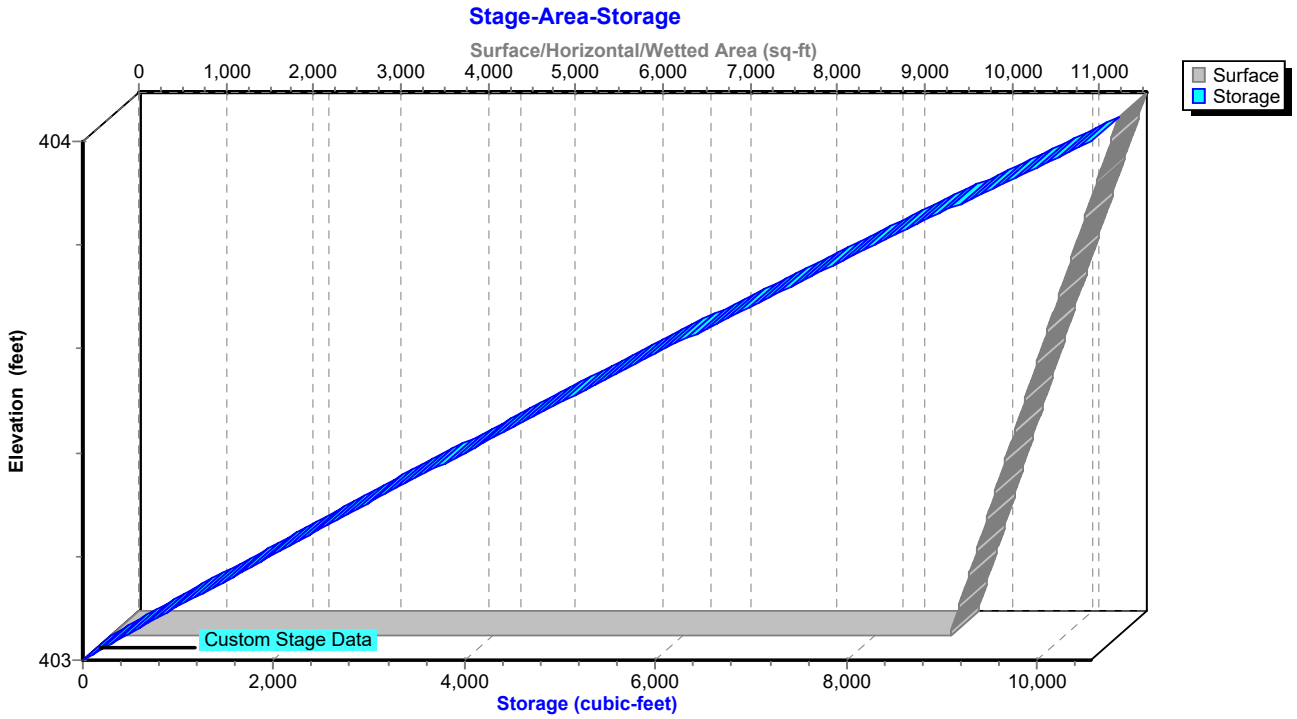
Device	Routing	Invert	Outlet Devices
#1	Primary	403.75'	**12.0' long + 2.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=3.58 cfs @ 12.20 hrs HW=403.98' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 3.58 cfs @ 1.27 fps)

Pond BB1: Bio-Retention Basin



Pond BB1: Bio-Retention Basin



Stage-Discharge for Pond BB1: Bio-Retention Basin

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
403.00	0.00	403.52	0.00
403.01	0.00	403.53	0.00
403.02	0.00	403.54	0.00
403.03	0.00	403.55	0.00
403.04	0.00	403.56	0.00
403.05	0.00	403.57	0.00
403.06	0.00	403.58	0.00
403.07	0.00	403.59	0.00
403.08	0.00	403.60	0.00
403.09	0.00	403.61	0.00
403.10	0.00	403.62	0.00
403.11	0.00	403.63	0.00
403.12	0.00	403.64	0.00
403.13	0.00	403.65	0.00
403.14	0.00	403.66	0.00
403.15	0.00	403.67	0.00
403.16	0.00	403.68	0.00
403.17	0.00	403.69	0.00
403.18	0.00	403.70	0.00
403.19	0.00	403.71	0.00
403.20	0.00	403.72	0.00
403.21	0.00	403.73	0.00
403.22	0.00	403.74	0.00
403.23	0.00	403.75	0.00
403.24	0.00	403.76	0.03
403.25	0.00	403.77	0.09
403.26	0.00	403.78	0.17
403.27	0.00	403.79	0.26
403.28	0.00	403.80	0.36
403.29	0.00	403.81	0.48
403.30	0.00	403.82	0.60
403.31	0.00	403.83	0.74
403.32	0.00	403.84	0.88
403.33	0.00	403.85	1.03
403.34	0.00	403.86	1.19
403.35	0.00	403.87	1.36
403.36	0.00	403.88	1.53
403.37	0.00	403.89	1.72
403.38	0.00	403.90	1.91
403.39	0.00	403.91	2.10
403.40	0.00	403.92	2.31
403.41	0.00	403.93	2.51
403.42	0.00	403.94	2.73
403.43	0.00	403.95	2.95
403.44	0.00	403.96	3.18
403.45	0.00	403.97	3.42
403.46	0.00	403.98	3.66
403.47	0.00	403.99	3.91
403.48	0.00	404.00	**4.16**
403.49	0.00		
403.50	0.00		
403.51	0.00		

Stage-Area-Storage for Pond BB1: Bio-Retention Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
403.00	9,610	0
403.01	9,628	96
403.02	9,647	193
403.03	9,665	289
403.04	9,684	386
403.05	9,702	483
403.06	9,721	580
403.07	9,740	677
403.08	9,758	775
403.09	9,777	872
403.10	9,795	970
403.11	9,814	1,068
403.12	9,833	1,167
403.13	9,851	1,265
403.14	9,870	1,364
403.15	9,889	1,462
403.16	9,907	1,561
403.17	9,926	1,660
403.18	9,945	1,760
403.19	9,964	1,859
403.20	9,982	1,959
403.21	10,001	2,059
403.22	10,020	2,159
403.23	10,039	2,259
403.24	10,058	2,360
403.25	10,077	2,461
403.26	10,096	2,561
403.27	10,114	2,663
403.28	10,133	2,764
403.29	10,152	2,865
403.30	10,171	2,967
403.31	10,190	3,069
403.32	10,209	3,171
403.33	10,228	3,273
403.34	10,247	3,375
403.35	10,266	3,478
403.36	10,285	3,580
403.37	10,305	3,683
403.38	10,324	3,787
403.39	10,343	3,890
403.40	10,362	3,993
403.41	10,381	4,097
403.42	10,400	4,201
403.43	10,419	4,305
403.44	10,439	4,409
403.45	10,458	4,514
403.46	10,477	4,619
403.47	10,496	4,723
403.48	10,516	4,829
403.49	10,535	4,934
403.50	10,554	5,039
403.51	10,574	5,145
403.52	10,593	5,251
403.53	10,612	5,357
403.54	10,632	5,463
403.55	10,651	5,569
403.56	10,671	5,676
403.57	10,690	5,783
403.58	10,710	5,890
403.59	10,729	5,997
403.60	10,749	6,104
403.61	10,768	6,212
403.62	10,788	6,320
403.63	10,807	6,428
403.64	10,827	6,536
403.65	10,846	6,644
403.66	10,866	6,753
403.67	10,886	6,862
403.68	10,905	6,971
403.69	10,925	7,080
403.70	10,945	7,189
403.71	10,964	7,299
403.72	10,984	7,408
403.73	11,004	7,518
403.74	11,023	7,628
403.75	11,043	7,739
403.76	11,063	7,849
403.77	11,083	7,960
403.78	11,103	8,071
403.79	11,122	8,182
403.80	11,142	8,293
403.81	11,162	8,405
403.82	11,182	8,517
403.83	11,202	8,629
403.84	11,222	8,741
403.85	11,242	8,853
403.86	11,262	8,965
403.87	11,282	9,078
403.88	11,302	9,191
403.89	11,322	9,304
403.90	11,342	9,418
403.91	11,362	9,531
403.92	11,382	9,645
403.93	11,402	9,759
403.94	11,422	9,873
403.95	11,442	9,987
403.96	11,462	10,102
403.97	11,482	10,216
403.98	11,503	10,331
403.99	11,523	10,446
404.00	**11,543**	**10,562**

Summary for Pond DA2: Detention Basin A-2

Inflow Area = 0.600 ac, 17.00% Impervious, Inflow Depth = 6.15" for 500-YR event
Inflow = 3.31 cfs @ 12.25 hrs, Volume= 0.308 af
Outflow = 2.51 cfs @ 12.37 hrs, Volume= 0.270 af, Atten= 24%, Lag= 7.0 min
Primary = 2.51 cfs @ 12.37 hrs, Volume= 0.270 af
Routed to Pond DPA : Design Point A

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 397.34' @ 12.37 hrs Surf.Area= 1,655 sf Storage= 2,814 cf

Plug-Flow detention time= 102.0 min calculated for 0.270 af (88% of inflow)
Center-of-Mass det. time= 42.1 min (929.5 - 887.4)

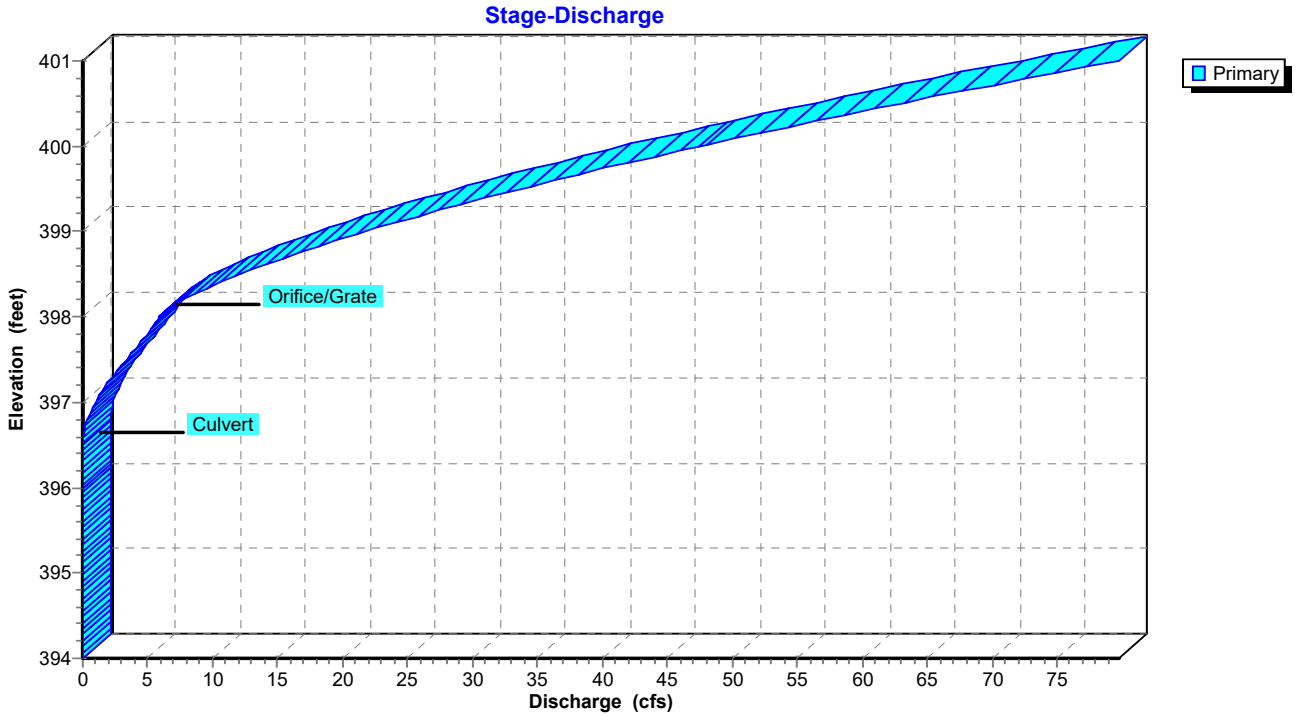
Volume	Invert	Avail.Storage	Storage Description
#1	394.00'	9,474 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
394.00	209	0	0	209
396.00	963	1,080	1,080	980
398.00	2,063	2,957	4,037	2,113
400.00	3,431	5,436	9,474	3,530

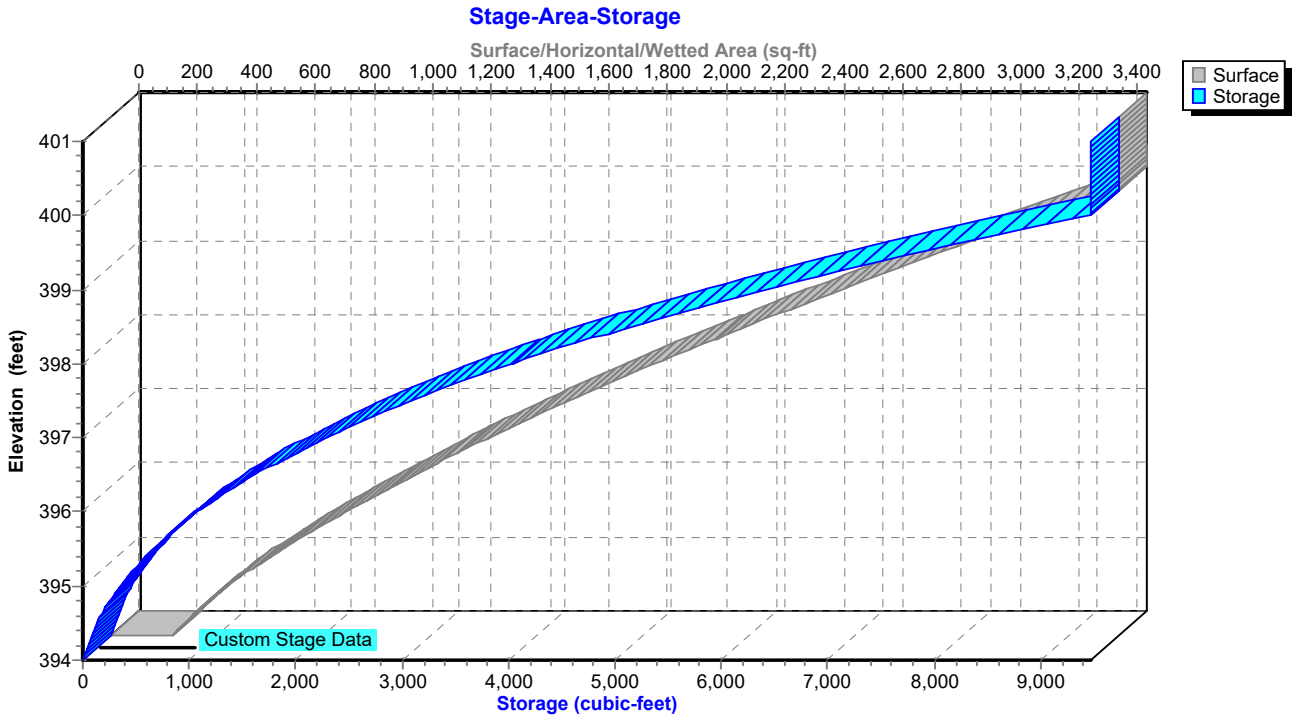
Device	Routing	Invert	Outlet Devices
#1	Primary	396.50'	**18.0" Round Culvert** L= 50.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 396.50' / 396.00' S= 0.0100 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Primary	398.00'	**48.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.51 cfs @ 12.37 hrs HW=397.34' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.51 cfs @ 2.46 fps)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Pond DA2: Detention Basin A-2



Pond DA2: Detention Basin A-2



Stage-Discharge for Pond DA2: Detention Basin A-2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
394.00	0.00	396.60	0.04	399.20	26.26
394.05	0.00	396.65	0.10	399.25	27.44
394.10	0.00	396.70	0.17	399.30	28.65
394.15	0.00	396.75	0.26	399.35	29.87
394.20	0.00	396.80	0.37	399.40	31.12
394.25	0.00	396.85	0.50	399.45	32.38
394.30	0.00	396.90	0.64	399.50	33.66
394.35	0.00	396.95	0.80	399.55	34.97
394.40	0.00	397.00	0.98	399.60	36.28
394.45	0.00	397.05	1.17	399.65	37.62
394.50	0.00	397.10	1.37	399.70	38.97
394.55	0.00	397.15	1.59	399.75	40.35
394.60	0.00	397.20	1.82	399.80	41.73
394.65	0.00	397.25	2.06	399.85	43.14
394.70	0.00	397.30	2.30	399.90	44.56
394.75	0.00	397.35	2.56	399.95	46.00
394.80	0.00	397.40	2.82	400.00	47.46
394.85	0.00	397.45	3.09	400.05	48.93
394.90	0.00	397.50	3.36	400.10	50.41
394.95	0.00	397.55	3.64	400.15	51.92
395.00	0.00	397.60	3.92	400.20	53.44
395.05	0.00	397.65	4.19	400.25	54.97
395.10	0.00	397.70	4.46	400.30	56.52
395.15	0.00	397.75	4.73	400.35	58.08
395.20	0.00	397.80	4.99	400.40	59.66
395.25	0.00	397.85	5.23	400.45	61.26
395.30	0.00	397.90	5.46	400.50	62.86
395.35	0.00	397.95	5.66	400.55	64.49
395.40	0.00	398.00	5.82	400.60	66.12
395.45	0.00	398.05	6.15	400.65	67.78
395.50	0.00	398.10	6.60	400.70	69.44
395.55	0.00	398.15	7.12	400.75	71.12
395.60	0.00	398.20	7.70	400.80	72.82
395.65	0.00	398.25	8.32	400.85	74.52
395.70	0.00	398.30	8.99	400.90	76.24
395.75	0.00	398.35	9.70	400.95	77.98
395.80	0.00	398.40	10.45	401.00	**79.73**
395.85	0.00	398.45	11.23		
395.90	0.00	398.50	12.05		
395.95	0.00	398.55	12.90		
396.00	0.00	398.60	13.77		
396.05	0.00	398.65	14.68		
396.10	0.00	398.70	15.61		
396.15	0.00	398.75	16.57		
396.20	0.00	398.80	17.55		
396.25	0.00	398.85	18.56		
396.30	0.00	398.90	19.59		
396.35	0.00	398.95	20.65		
396.40	0.00	399.00	21.73		
396.45	0.00	399.05	22.83		
396.50	0.00	399.10	23.95		
396.55	0.01	399.15	25.09		

Stage-Area-Storage for Pond DA2: Detention Basin A-2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
394.00	209	0
394.10	234	22
394.20	260	47
394.30	287	74
394.40	316	104
394.50	346	137
394.60	378	173
394.70	410	213
394.80	445	256
394.90	480	302
395.00	517	352
395.10	556	405
395.20	595	463
395.30	637	524
395.40	679	590
395.50	723	660
395.60	768	735
395.70	815	814
395.80	863	898
395.90	912	987
396.00	963	1,080
396.10	1,008	1,179
396.20	1,054	1,282
396.30	1,102	1,390
396.40	1,150	1,502
396.50	1,199	1,620
396.60	1,250	1,742
396.70	1,301	1,870
396.80	1,353	2,003
396.90	1,407	2,141
397.00	1,461	2,284
397.10	1,517	2,433
397.20	1,573	2,587
397.30	1,631	2,748
397.40	1,690	2,914
397.50	1,749	3,085
397.60	1,810	3,263
397.70	1,872	3,447
397.80	1,934	3,638
397.90	1,998	3,834
398.00	2,063	4,037
398.10	2,123	4,247
398.20	2,184	4,462
398.30	2,246	4,684
398.40	2,309	4,911
398.50	2,373	5,145
398.60	2,437	5,386
398.70	2,502	5,633
398.80	2,569	5,886
398.90	2,636	6,147
399.00	2,704	6,414
399.10	2,773	6,687
399.20	2,842	6,968
399.30	2,913	7,256
399.40	2,984	7,551
399.50	3,057	7,853
399.60	3,130	8,162
399.70	3,204	8,479
399.80	3,279	8,803
399.90	3,354	9,134
400.00	**3,431**	**9,474**
400.10	3,431	9,474
400.20	3,431	9,474
400.30	3,431	9,474
400.40	3,431	9,474
400.50	3,431	9,474
400.60	3,431	9,474
400.70	3,431	9,474
400.80	3,431	9,474
400.90	3,431	9,474
401.00	3,431	9,474

Summary for Pond DB1: Detention Basin B-1

Inflow Area = 9.160 ac, 53.49% Impervious, Inflow Depth = 8.85" for 500-YR event
Inflow = 57.14 cfs @ 12.37 hrs, Volume= 6.757 af
Outflow = 21.00 cfs @ 12.82 hrs, Volume= 5.519 af, Atten= 63%, Lag= 27.2 min
Primary = 21.00 cfs @ 12.82 hrs, Volume= 5.519 af
Routed to Pond DPB : Design Point B

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 408.52' @ 12.82 hrs Surf.Area= 20,977 sf Storage= 114,148 cf

Plug-Flow detention time= 140.4 min calculated for 5.519 af (82% of inflow)
Center-of-Mass det. time= 65.0 min (884.2 - 819.2)

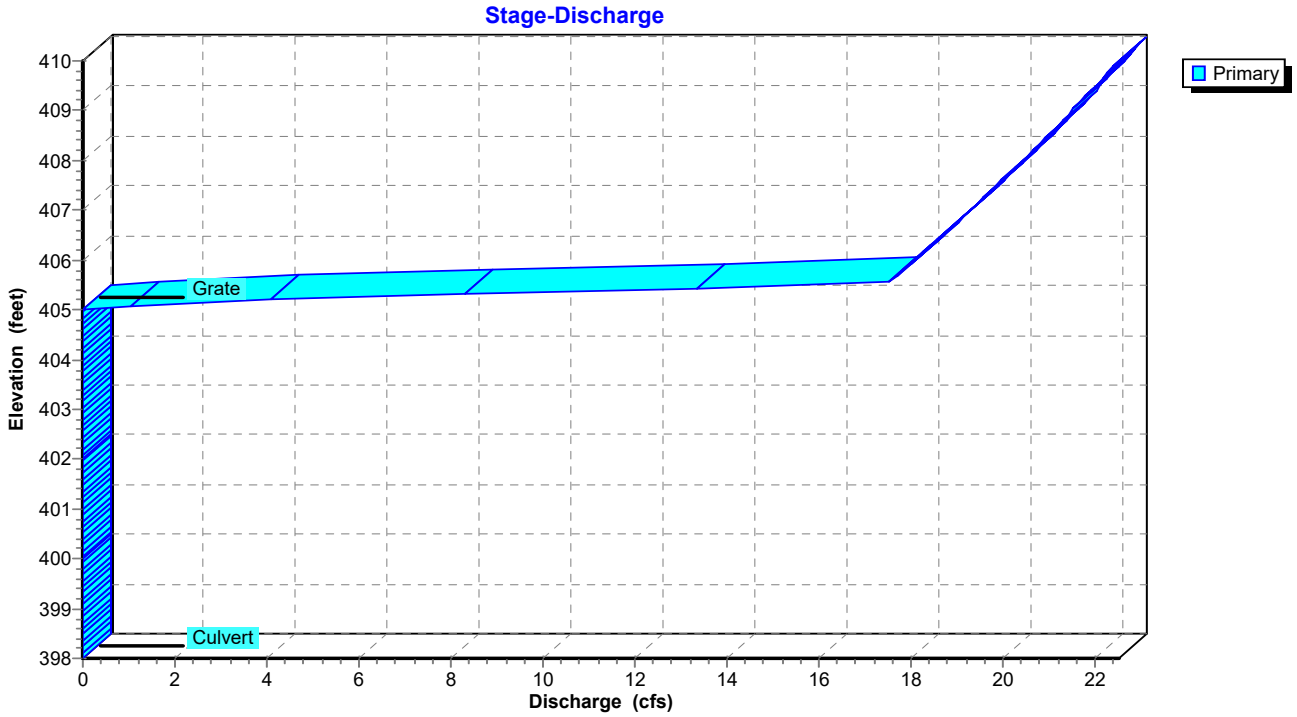
Volume	Invert	Avail.Storage	Storage Description
#1	398.00'	147,816 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
398.00	2,899	0	0	2,899
400.00	5,332	8,108	8,108	5,373
402.00	8,246	13,473	21,581	8,345
404.00	11,630	19,779	41,360	11,801
406.00	15,480	27,018	68,379	15,738
408.00	19,788	35,180	103,559	20,147
410.00	24,555	44,257	147,816	25,030

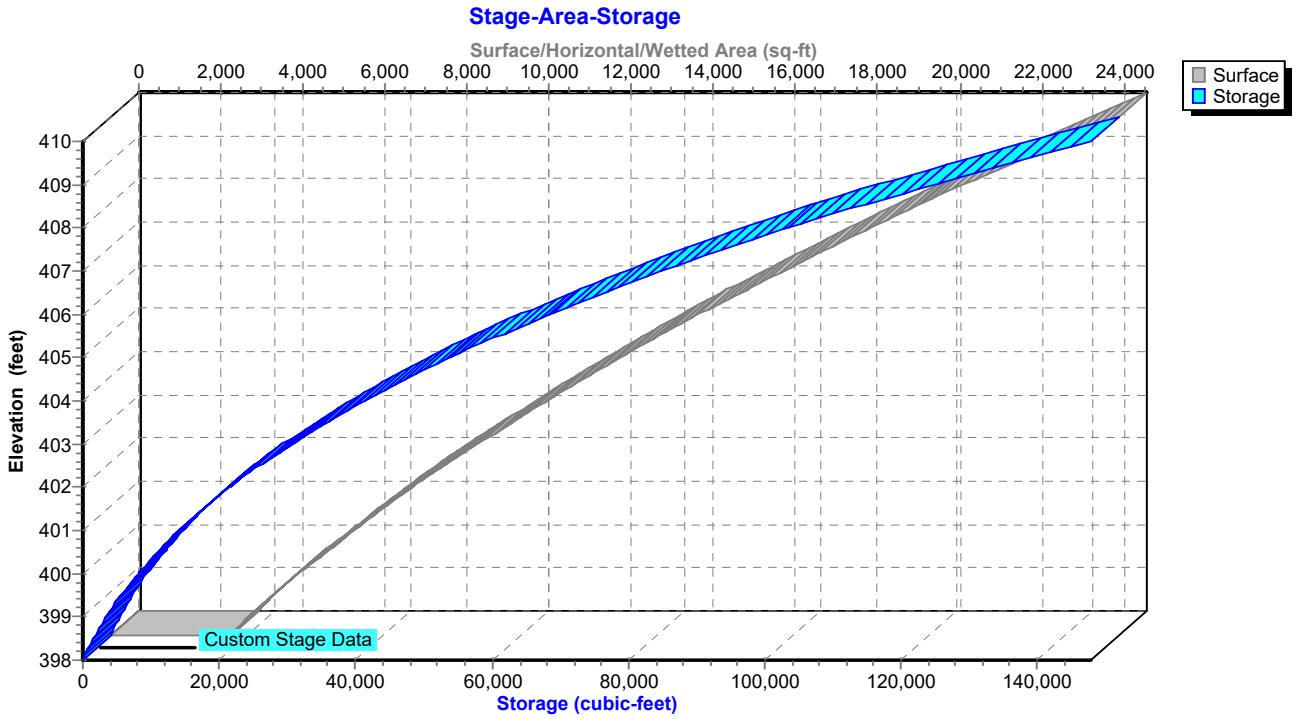
Device	Routing	Invert	Outlet Devices
#1	Primary	398.00'	**18.0" Round Culvert** L= 75.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 398.00' / 396.00' S= 0.0267 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Device 1	405.00'	**48.0" x 36.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=21.00 cfs @ 12.82 hrs HW=408.52' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 21.00 cfs @ 11.88 fps)
↑—**2=Grate** (Passes 21.00 cfs of 108.40 cfs potential flow)

Pond DB1: Detention Basin B-1



Pond DB1: Detention Basin B-1



Stage-Discharge for Pond DB1: Detention Basin B-1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
398.00	0.00	403.20	0.00	408.40	20.87
398.10	0.00	403.30	0.00	408.50	20.98
398.20	0.00	403.40	0.00	408.60	21.08
398.30	0.00	403.50	0.00	408.70	21.19
398.40	0.00	403.60	0.00	408.80	21.30
398.50	0.00	403.70	0.00	408.90	21.40
398.60	0.00	403.80	0.00	409.00	21.51
398.70	0.00	403.90	0.00	409.10	21.61
398.80	0.00	404.00	0.00	409.20	21.72
398.90	0.00	404.10	0.00	409.30	21.82
399.00	0.00	404.20	0.00	409.40	21.92
399.10	0.00	404.30	0.00	409.50	22.02
399.20	0.00	404.40	0.00	409.60	22.13
399.30	0.00	404.50	0.00	409.70	22.23
399.40	0.00	404.60	0.00	409.80	22.33
399.50	0.00	404.70	0.00	409.90	22.43
399.60	0.00	404.80	0.00	410.00	**22.53**
399.70	0.00	404.90	0.00		
399.80	0.00	405.00	0.00		
399.90	0.00	405.10	1.45		
400.00	0.00	405.20	4.09		
400.10	0.00	405.30	7.52		
400.20	0.00	405.40	11.58		
400.30	0.00	405.50	16.19		
400.40	0.00	405.60	17.58		
400.50	0.00	405.70	17.71		
400.60	0.00	405.80	17.84		
400.70	0.00	405.90	17.96		
400.80	0.00	406.00	18.09		
400.90	0.00	406.10	18.21		
401.00	0.00	406.20	18.34		
401.10	0.00	406.30	18.46		
401.20	0.00	406.40	18.58		
401.30	0.00	406.50	18.70		
401.40	0.00	406.60	18.82		
401.50	0.00	406.70	18.94		
401.60	0.00	406.80	19.06		
401.70	0.00	406.90	19.18		
401.80	0.00	407.00	19.29		
401.90	0.00	407.10	19.41		
402.00	0.00	407.20	19.53		
402.10	0.00	407.30	19.64		
402.20	0.00	407.40	19.76		
402.30	0.00	407.50	19.87		
402.40	0.00	407.60	19.98		
402.50	0.00	407.70	20.10		
402.60	0.00	407.80	20.21		
402.70	0.00	407.90	20.32		
402.80	0.00	408.00	20.43		
402.90	0.00	408.10	20.54		
403.00	0.00	408.20	20.65		
403.10	0.00	408.30	20.76		

Stage-Area-Storage for Pond DB1: Detention Basin B-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
398.00	2,899	0
398.20	3,109	601
398.40	3,327	1,244
398.60	3,552	1,932
398.80	3,784	2,665
399.00	4,024	3,446
399.20	4,271	4,275
399.40	4,525	5,155
399.60	4,787	6,086
399.80	5,056	7,070
400.00	5,332	8,108
400.20	5,595	9,201
400.40	5,864	10,347
400.60	6,140	11,547
400.80	6,422	12,803
401.00	6,710	14,116
401.20	7,004	15,488
401.40	7,305	16,918
401.60	7,613	18,410
401.80	7,926	19,964
402.00	8,246	21,581
402.20	8,558	23,261
402.40	8,876	25,005
402.60	9,200	26,812
402.80	9,530	28,685
403.00	9,865	30,625
403.20	10,207	32,632
403.40	10,554	34,708
403.60	10,907	36,854
403.80	11,265	39,071
404.00	11,630	41,360
404.20	11,990	43,722
404.40	12,356	46,157
404.60	12,727	48,665
404.80	13,104	51,248
405.00	13,486	53,907
405.20	13,874	56,643
405.40	14,267	59,457
405.60	14,666	62,350
405.80	15,070	65,324
406.00	15,480	68,379
406.20	15,887	71,515
406.40	16,299	74,734
406.60	16,717	78,035
406.80	17,140	81,421
407.00	17,568	84,892
407.20	18,001	88,448
407.40	18,440	92,093
407.60	18,884	95,825
407.80	19,333	99,647
408.00	19,788	103,559
408.20	20,242	107,561
408.40	20,700	111,656
408.60	21,164	115,842
408.80	21,633	120,122
409.00	22,107	124,496
409.20	22,587	128,965
409.40	23,071	133,530
409.60	23,560	138,194
409.80	24,055	142,955
410.00	**24,555**	**147,816**

Summary for Pond DPA: Design Point A

Inflow Area = 36.215 ac, 35.71% Impervious, Inflow Depth = 8.71" for 500-YR event
Inflow = 184.91 cfs @ 12.29 hrs, Volume= 26.290 af
Primary = 184.91 cfs @ 12.29 hrs, Volume= 26.290 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond DPB: Design Point B

Inflow Area = 22.212 ac, 27.91% Impervious, Inflow Depth = 7.22" for 500-YR event
Inflow = 78.55 cfs @ 12.30 hrs, Volume= 13.372 af
Primary = 78.55 cfs @ 12.30 hrs, Volume= 13.372 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond FA1: Forebay A-1

Inflow Area = 9.007 ac, 57.93% Impervious, Inflow Depth = 11.06" for 500-YR event
Inflow = 57.43 cfs @ 12.35 hrs, Volume= 8.302 af
Outflow = 56.18 cfs @ 12.38 hrs, Volume= 7.490 af, Atten= 2%, Lag= 2.3 min
Primary = 56.18 cfs @ 12.38 hrs, Volume= 7.490 af
Routed to Pond IA1 : Infiltration Basin A-1

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 409.21' @ 12.38 hrs Surf.Area= 11,479 sf Storage= 48,139 cf

Plug-Flow detention time= 107.5 min calculated for 7.490 af (90% of inflow)
Center-of-Mass det. time= 52.3 min (840.2 - 787.9)

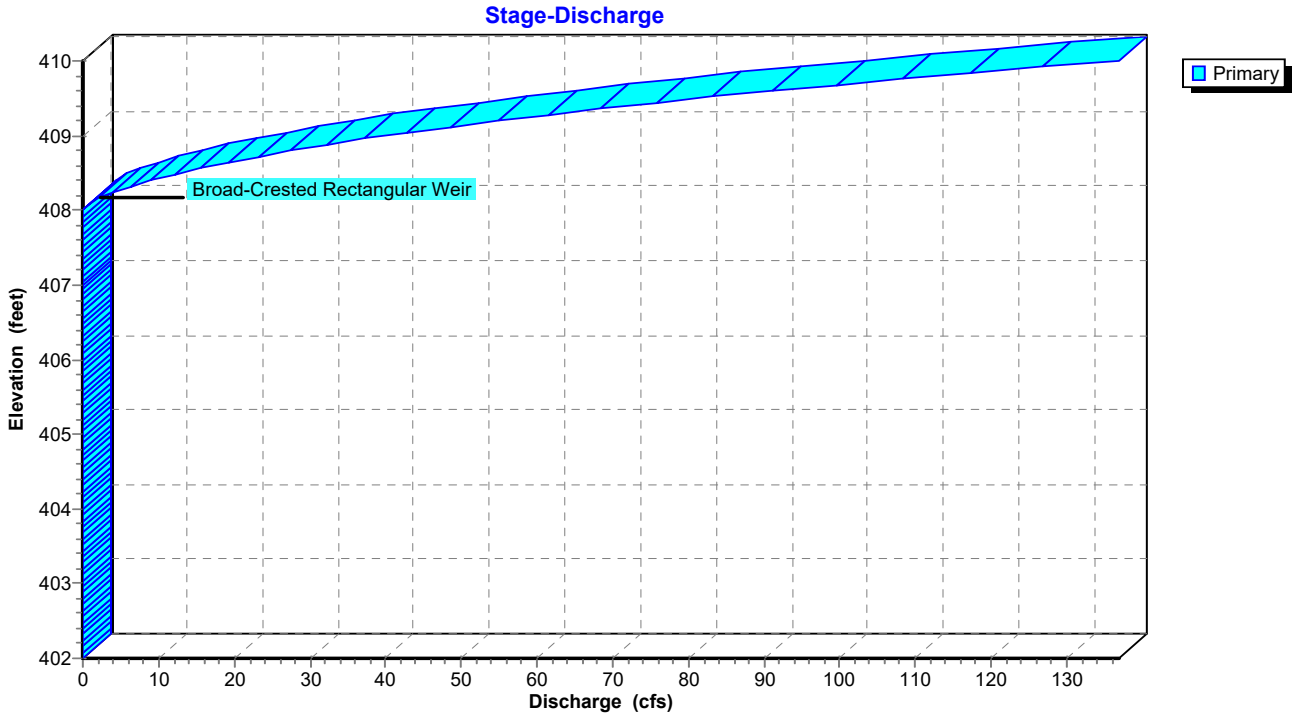
Volume	Invert	Avail.Storage	Storage Description
#1	402.00'	57,653 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
402.00	2,804	0	0	2,804
404.00	4,651	7,378	7,378	4,700
406.00	6,917	11,493	18,871	7,029
407.00	8,212	7,555	26,426	8,360
408.00	9,627	8,910	35,336	9,814
410.00	12,763	22,316	57,653	13,038

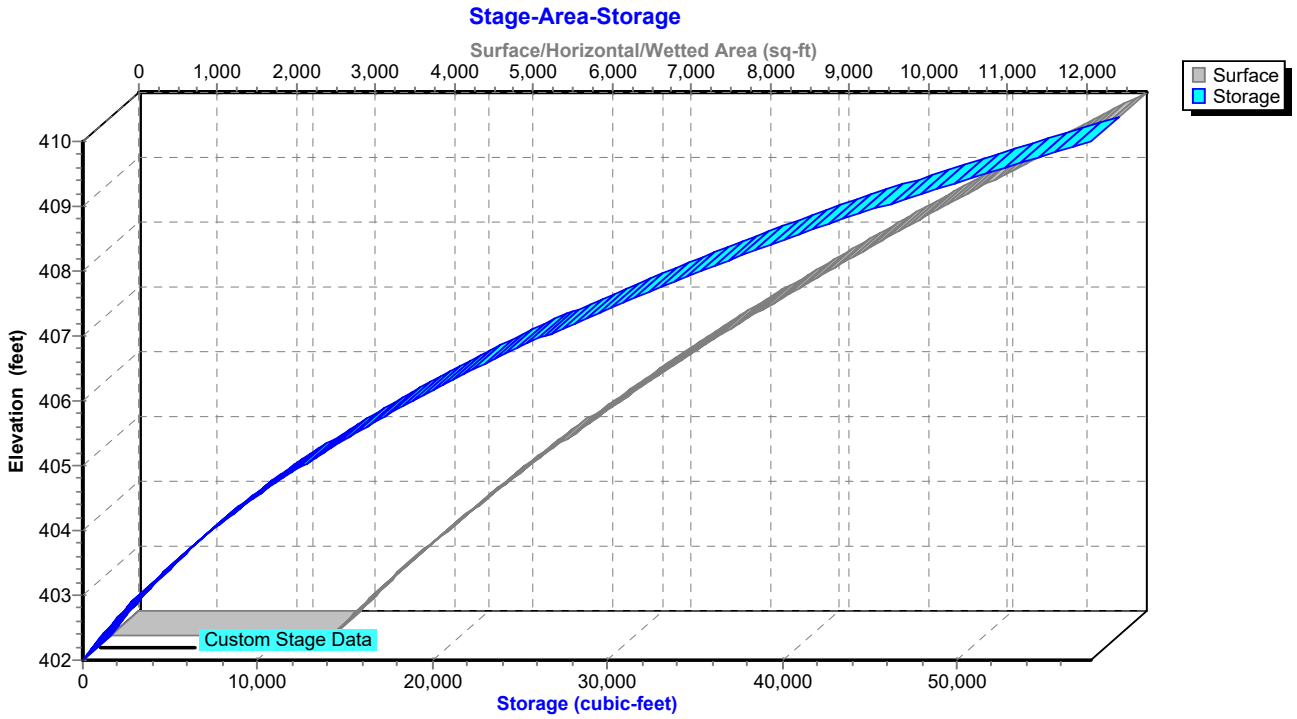
Device	Routing	Invert	Outlet Devices
#1	Primary	408.00'	**12.0' long + 4.0 '/' SideZ x 50.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=56.14 cfs @ 12.38 hrs HW=409.21' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 56.14 cfs @ 2.74 fps)

Pond FA1: Forebay A-1



Pond FA1: Forebay A-1



Stage-Discharge for Pond FA1: Forebay A-1

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
402.00	0.00	404.60	0.00	407.20	0.00	409.80	112.80
402.05	0.00	404.65	0.00	407.25	0.00	409.85	118.59
402.10	0.00	404.70	0.00	407.30	0.00	409.90	124.53
402.15	0.00	404.75	0.00	407.35	0.00	409.95	130.63
402.20	0.00	404.80	0.00	407.40	0.00	410.00	**136.87**
402.25	0.00	404.85	0.00	407.45	0.00		
402.30	0.00	404.90	0.00	407.50	0.00		
402.35	0.00	404.95	0.00	407.55	0.00		
402.40	0.00	405.00	0.00	407.60	0.00		
402.45	0.00	405.05	0.00	407.65	0.00		
402.50	0.00	405.10	0.00	407.70	0.00		
402.55	0.00	405.15	0.00	407.75	0.00		
402.60	0.00	405.20	0.00	407.80	0.00		
402.65	0.00	405.25	0.00	407.85	0.00		
402.70	0.00	405.30	0.00	407.90	0.00		
402.75	0.00	405.35	0.00	407.95	0.00		
402.80	0.00	405.40	0.00	408.00	0.00		
402.85	0.00	405.45	0.00	408.05	0.36		
402.90	0.00	405.50	0.00	408.10	1.04		
402.95	0.00	405.55	0.00	408.15	1.94		
403.00	0.00	405.60	0.00	408.20	3.03		
403.05	0.00	405.65	0.00	408.25	4.30		
403.10	0.00	405.70	0.00	408.30	5.73		
403.15	0.00	405.75	0.00	408.35	7.32		
403.20	0.00	405.80	0.00	408.40	9.07		
403.25	0.00	405.85	0.00	408.45	10.95		
403.30	0.00	405.90	0.00	408.50	12.98		
403.35	0.00	405.95	0.00	408.55	15.15		
403.40	0.00	406.00	0.00	408.60	17.47		
403.45	0.00	406.05	0.00	408.65	19.81		
403.50	0.00	406.10	0.00	408.70	22.27		
403.55	0.00	406.15	0.00	408.75	24.83		
403.60	0.00	406.20	0.00	408.80	27.50		
403.65	0.00	406.25	0.00	408.85	30.42		
403.70	0.00	406.30	0.00	408.90	33.48		
403.75	0.00	406.35	0.00	408.95	36.66		
403.80	0.00	406.40	0.00	409.00	39.98		
403.85	0.00	406.45	0.00	409.05	43.51		
403.90	0.00	406.50	0.00	409.10	47.18		
403.95	0.00	406.55	0.00	409.15	51.00		
404.00	0.00	406.60	0.00	409.20	54.97		
404.05	0.00	406.65	0.00	409.25	59.03		
404.10	0.00	406.70	0.00	409.30	63.24		
404.15	0.00	406.75	0.00	409.35	67.58		
404.20	0.00	406.80	0.00	409.40	72.07		
404.25	0.00	406.85	0.00	409.45	76.63		
404.30	0.00	406.90	0.00	409.50	81.33		
404.35	0.00	406.95	0.00	409.55	86.16		
404.40	0.00	407.00	0.00	409.60	91.13		
404.45	0.00	407.05	0.00	409.65	96.32		
404.50	0.00	407.10	0.00	409.70	101.67		
404.55	0.00	407.15	0.00	409.75	107.16		

Stage-Area-Storage for Pond FA1: Forebay A-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
402.00	2,804	0
402.10	2,885	284
402.20	2,968	577
402.30	3,051	878
402.40	3,136	1,187
402.50	3,222	1,505
402.60	3,309	1,832
402.70	3,398	2,167
402.80	3,487	2,511
402.90	3,578	2,865
403.00	3,669	3,227
403.10	3,762	3,599
403.20	3,856	3,980
403.30	3,952	4,370
403.40	4,048	4,770
403.50	4,146	5,180
403.60	4,244	5,599
403.70	4,344	6,028
403.80	4,445	6,468
403.90	4,548	6,918
404.00	4,651	7,378
404.10	4,754	7,848
404.20	4,857	8,328
404.30	4,962	8,819
404.40	5,068	9,321
404.50	5,175	9,833
404.60	5,284	10,356
404.70	5,393	10,890
404.80	5,504	11,435
404.90	5,615	11,991
405.00	5,728	12,558
405.10	5,842	13,136
405.20	5,957	13,726
405.30	6,073	14,328
405.40	6,190	14,941
405.50	6,308	15,566
405.60	6,428	16,202
405.70	6,549	16,851
405.80	6,670	17,512
405.90	6,793	18,185
406.00	6,917	18,871
406.10	7,042	19,569
406.20	7,167	20,279
406.30	7,294	21,002
406.40	7,422	21,738
406.50	7,551	22,487
406.60	7,681	23,248
406.70	7,812	24,023
406.80	7,944	24,811
406.90	8,078	25,612
407.00	8,212	26,426
407.10	8,348	27,254
407.20	8,486	28,096
407.30	8,625	28,951
407.40	8,765	29,821
407.50	8,905	30,704
407.60	9,048	31,602
407.70	9,191	32,514
407.80	9,335	33,440
407.90	9,480	34,381
408.00	9,627	35,336
408.10	9,773	36,306
408.20	9,921	37,291
408.30	10,069	38,290
408.40	10,219	39,305
408.50	10,370	40,334
408.60	10,521	41,379
408.70	10,674	42,439
408.80	10,828	43,514
408.90	10,984	44,604
409.00	11,140	45,710
409.10	11,297	46,832
409.20	11,456	47,970
409.30	11,615	49,123
409.40	11,776	50,293
409.50	11,938	51,479
409.60	12,100	52,681
409.70	12,264	53,899
409.80	12,430	55,133
409.90	12,596	56,385
410.00	**12,763**	**57,653**

Summary for Pond FA2: Forebay A-2

Inflow Area = 0.600 ac, 17.00% Impervious, Inflow Depth = 6.98" for 500-YR event
Inflow = 3.32 cfs @ 12.24 hrs, Volume= 0.349 af
Outflow = 3.31 cfs @ 12.25 hrs, Volume= 0.308 af, Atten= 0%, Lag= 0.8 min
Primary = 3.31 cfs @ 12.25 hrs, Volume= 0.308 af
Routed to Pond DA2 : Detention Basin A-2

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 398.21' @ 12.25 hrs Surf.Area= 1,143 sf Storage= 2,023 cf

Plug-Flow detention time= 93.1 min calculated for 0.308 af (88% of inflow)
Center-of-Mass det. time= 32.8 min (887.4 - 854.7)

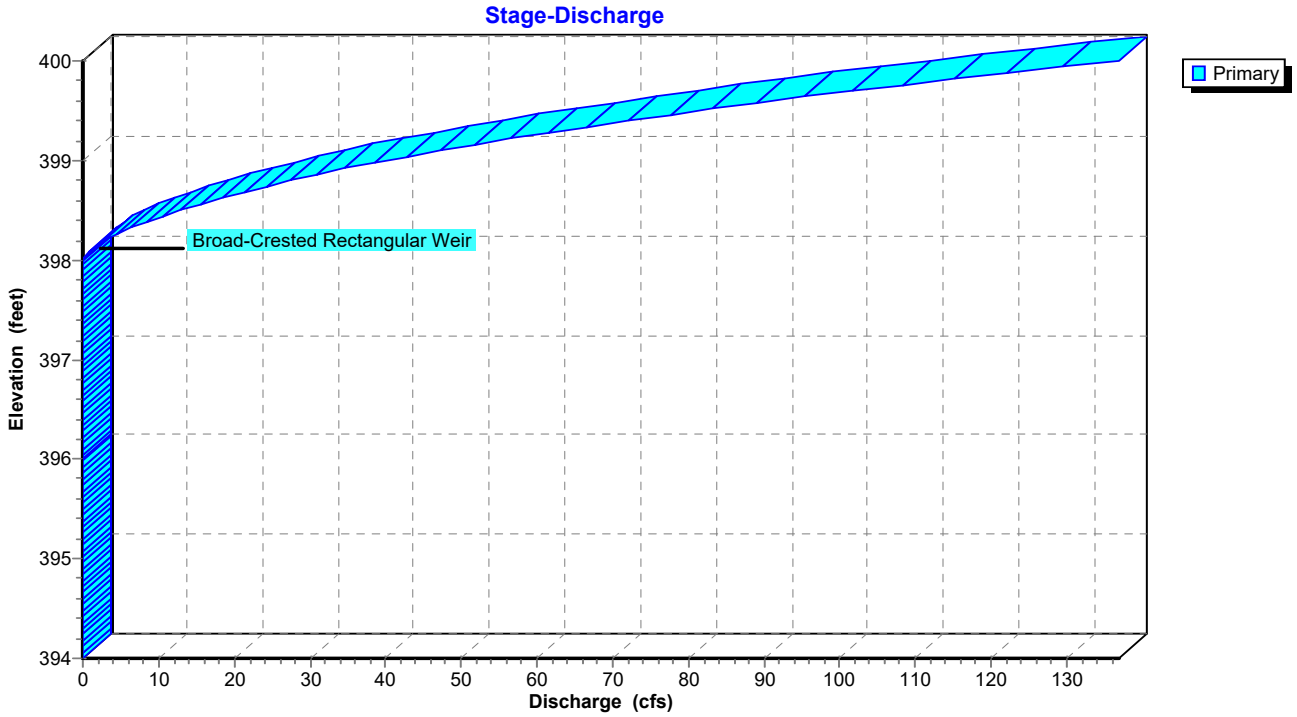
Volume	Invert	Avail.Storage	Storage Description
#1	394.00'	4,774 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
394.00	46	0	0	46
396.00	398	386	386	411
398.00	1,060	1,405	1,791	1,098
400.00	1,969	2,982	4,774	2,047

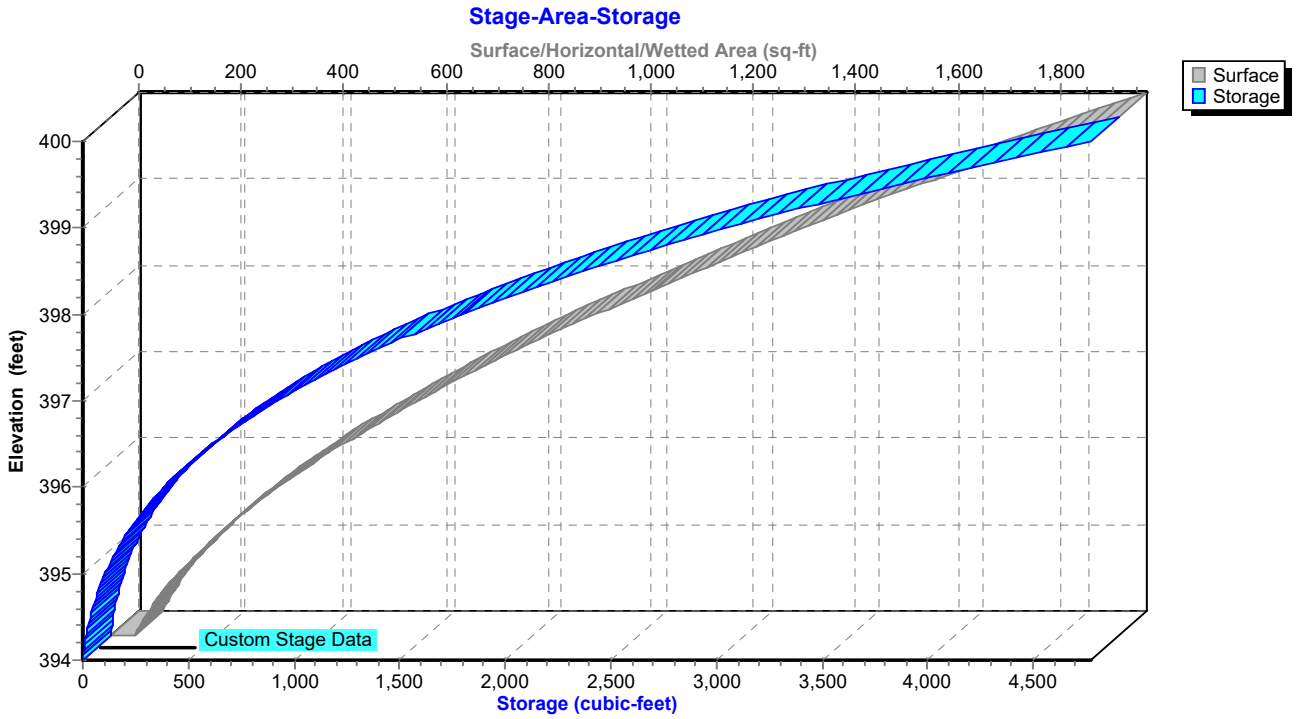
Device	Routing	Invert	Outlet Devices
#1	Primary	398.00'	**12.0' long + 4.0 '/' SideZ x 30.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=3.29 cfs @ 12.25 hrs HW=398.21' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 3.29 cfs @ 1.21 fps)

Pond FA2: Forebay A-2



Pond FA2: Forebay A-2



Stage-Discharge for Pond FA2: Forebay A-2

Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)	Elevation (feet)	Primary (cfs)
394.00	0.00	396.60	0.00	399.20	54.97
394.05	0.00	396.65	0.00	399.25	59.03
394.10	0.00	396.70	0.00	399.30	63.24
394.15	0.00	396.75	0.00	399.35	67.58
394.20	0.00	396.80	0.00	399.40	72.07
394.25	0.00	396.85	0.00	399.45	76.63
394.30	0.00	396.90	0.00	399.50	81.33
394.35	0.00	396.95	0.00	399.55	86.16
394.40	0.00	397.00	0.00	399.60	91.13
394.45	0.00	397.05	0.00	399.65	96.32
394.50	0.00	397.10	0.00	399.70	101.67
394.55	0.00	397.15	0.00	399.75	107.16
394.60	0.00	397.20	0.00	399.80	112.80
394.65	0.00	397.25	0.00	399.85	118.59
394.70	0.00	397.30	0.00	399.90	124.53
394.75	0.00	397.35	0.00	399.95	130.63
394.80	0.00	397.40	0.00	400.00	**136.87**
394.85	0.00	397.45	0.00		
394.90	0.00	397.50	0.00		
394.95	0.00	397.55	0.00		
395.00	0.00	397.60	0.00		
395.05	0.00	397.65	0.00		
395.10	0.00	397.70	0.00		
395.15	0.00	397.75	0.00		
395.20	0.00	397.80	0.00		
395.25	0.00	397.85	0.00		
395.30	0.00	397.90	0.00		
395.35	0.00	397.95	0.00		
395.40	0.00	398.00	0.00		
395.45	0.00	398.05	0.36		
395.50	0.00	398.10	1.04		
395.55	0.00	398.15	1.94		
395.60	0.00	398.20	3.03		
395.65	0.00	398.25	4.30		
395.70	0.00	398.30	5.73		
395.75	0.00	398.35	7.32		
395.80	0.00	398.40	9.07		
395.85	0.00	398.45	10.95		
395.90	0.00	398.50	12.98		
395.95	0.00	398.55	15.15		
396.00	0.00	398.60	17.47		
396.05	0.00	398.65	19.81		
396.10	0.00	398.70	22.27		
396.15	0.00	398.75	24.83		
396.20	0.00	398.80	27.50		
396.25	0.00	398.85	30.42		
396.30	0.00	398.90	33.48		
396.35	0.00	398.95	36.66		
396.40	0.00	399.00	39.98		
396.45	0.00	399.05	43.51		
396.50	0.00	399.10	47.18		
396.55	0.00	399.15	51.00		

Stage-Area-Storage for Pond FA2: Forebay A-2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
394.00	46	0
394.10	55	5
394.20	66	11
394.30	77	18
394.40	89	26
394.50	101	36
394.60	115	47
394.70	130	59
394.80	145	73
394.90	161	88
395.00	179	105
395.10	197	124
395.20	216	144
395.30	235	167
395.40	256	192
395.50	277	218
395.60	300	247
395.70	323	278
395.80	347	312
395.90	372	348
396.00	398	386
396.10	424	427
396.20	450	471
396.30	477	517
396.40	505	566
396.50	534	618
396.60	563	673
396.70	594	731
396.80	625	792
396.90	657	856
397.00	689	923
397.10	723	994
397.20	757	1,068
397.30	792	1,145
397.40	828	1,226
397.50	865	1,311
397.60	902	1,399
397.70	940	1,491
397.80	979	1,587
397.90	1,019	1,687
398.00	1,060	1,791
398.10	1,099	1,899
398.20	1,138	2,011
398.30	1,179	2,127
398.40	1,219	2,247
398.50	1,261	2,371
398.60	1,303	2,499
398.70	1,346	2,631
398.80	1,390	2,768
398.90	1,434	2,910
399.00	1,480	3,055
399.10	1,525	3,205
399.20	1,572	3,360
399.30	1,619	3,520
399.40	1,667	3,684
399.50	1,716	3,853
399.60	1,765	4,027
399.70	1,815	4,206
399.80	1,866	4,390
399.90	1,917	4,579
400.00	**1,969**	**4,774**

Summary for Pond FB1: Forebay B-1

Inflow Area = 9.160 ac, 53.49% Impervious, Inflow Depth = 10.93" for 500-YR event
Inflow = 60.03 cfs @ 12.32 hrs, Volume= 8.345 af
Outflow = 58.33 cfs @ 12.37 hrs, Volume= 7.741 af, Atten= 3%, Lag= 2.8 min
Primary = 57.14 cfs @ 12.37 hrs, Volume= 6.757 af
Routed to Pond DB1 : Detention Basin B-1
Secondary = 1.19 cfs @ 12.37 hrs, Volume= 0.984 af
Routed to Pond BB1 : Bio-Retention Basin

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 409.33' @ 12.37 hrs Surf.Area= 11,699 sf Storage= 44,728 cf

Plug-Flow detention time= 100.1 min calculated for 7.741 af (93% of inflow)
Center-of-Mass det. time= 57.5 min (847.0 - 789.5)

Volume	Invert	Avail.Storage	Storage Description
#1	400.00'	52,992 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

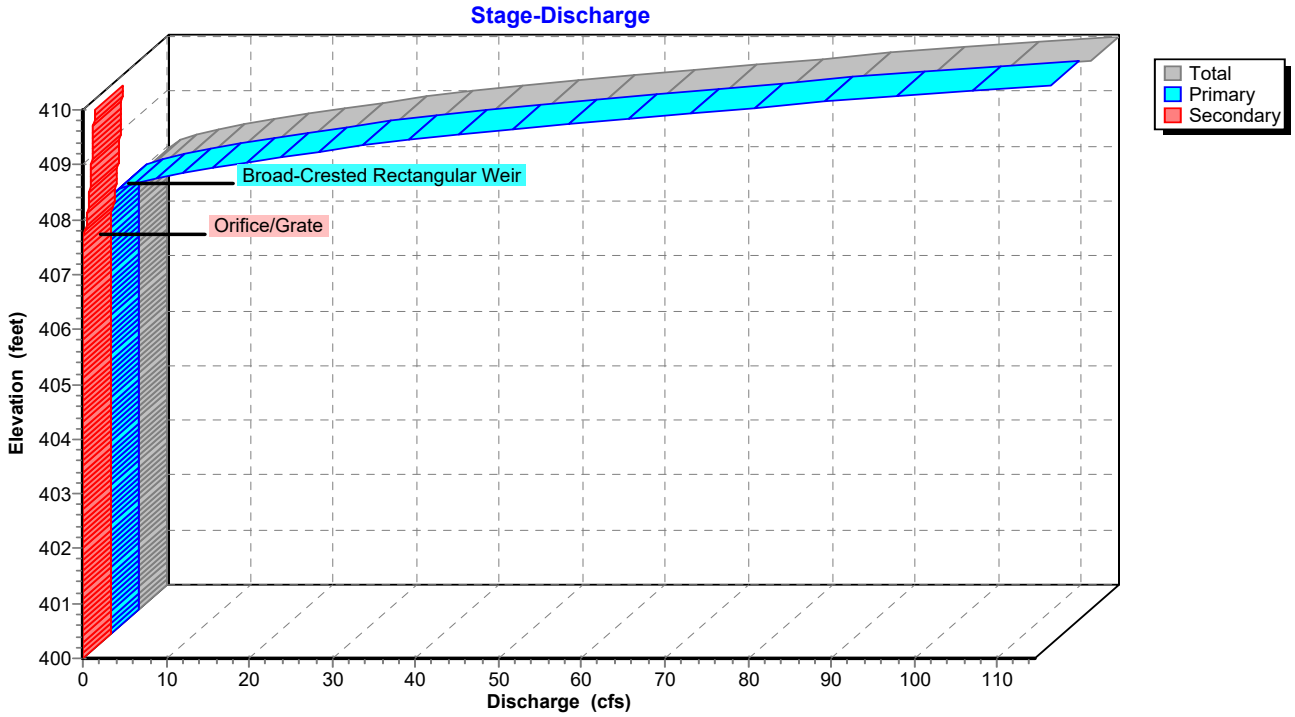
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
400.00	285	0	0	285
402.00	1,516	1,639	1,639	1,532
404.00	3,381	4,774	6,413	3,428
406.00	5,764	9,040	15,453	5,858
407.50	8,645	10,734	26,187	8,774
408.00	9,447	4,522	30,708	9,594
410.00	12,928	22,284	52,992	13,154

Device	Routing	Invert	Outlet Devices
#1	Primary	408.00'	**12.0' long + 2.0 '/' SideZ x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Secondary	407.50'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

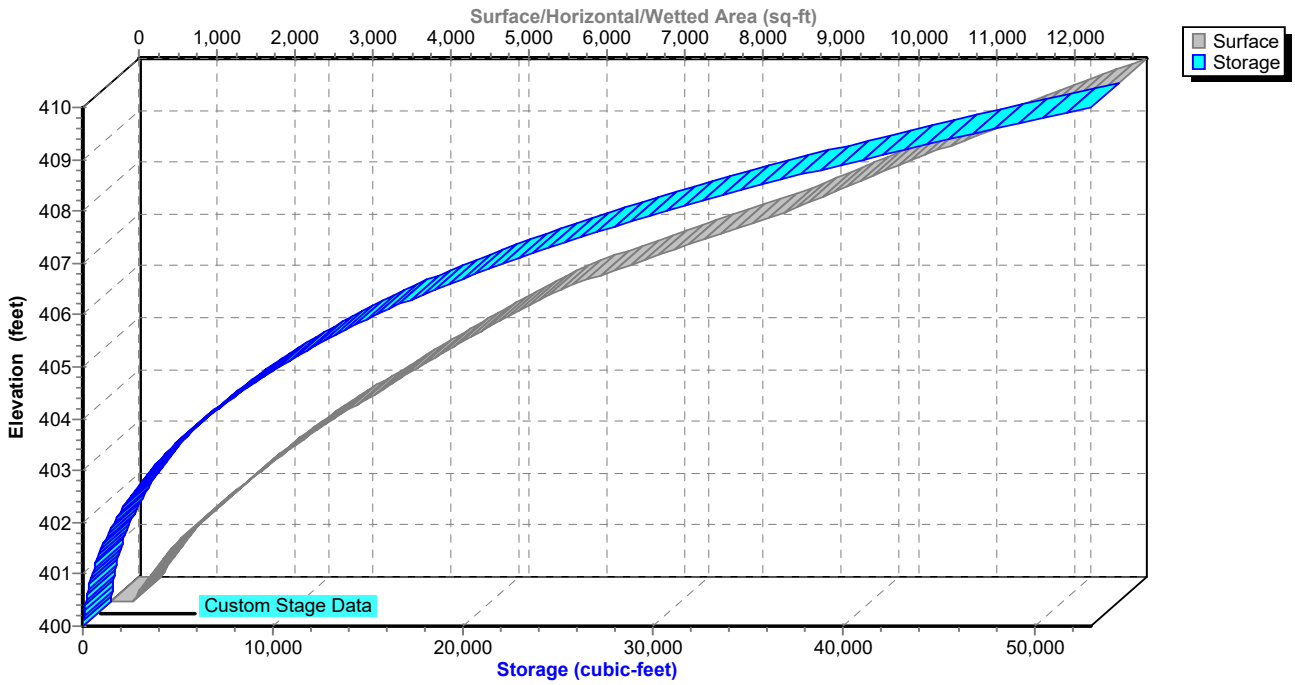
Primary OutFlow Max=57.10 cfs @ 12.37 hrs HW=409.33' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 57.10 cfs @ 2.93 fps)

Secondary OutFlow Max=1.19 cfs @ 12.37 hrs HW=409.33' (Free Discharge)
2=Orifice/Grate (Orifice Controls 1.19 cfs @ 6.05 fps)

Pond FB1: Forebay B-1



Pond FB1: Forebay B-1



Stage-Discharge for Pond FB1: Forebay B-1

Elevation (feet)	Discharge (cfs)	Primary (cfs)	Secondary (cfs)
400.00	0.00	0.00	0.00
400.10	0.00	0.00	0.00
400.20	0.00	0.00	0.00
400.30	0.00	0.00	0.00
400.40	0.00	0.00	0.00
400.50	0.00	0.00	0.00
400.60	0.00	0.00	0.00
400.70	0.00	0.00	0.00
400.80	0.00	0.00	0.00
400.90	0.00	0.00	0.00
401.00	0.00	0.00	0.00
401.10	0.00	0.00	0.00
401.20	0.00	0.00	0.00
401.30	0.00	0.00	0.00
401.40	0.00	0.00	0.00
401.50	0.00	0.00	0.00
401.60	0.00	0.00	0.00
401.70	0.00	0.00	0.00
401.80	0.00	0.00	0.00
401.90	0.00	0.00	0.00
402.00	0.00	0.00	0.00
402.10	0.00	0.00	0.00
402.20	0.00	0.00	0.00
402.30	0.00	0.00	0.00
402.40	0.00	0.00	0.00
402.50	0.00	0.00	0.00
402.60	0.00	0.00	0.00
402.70	0.00	0.00	0.00
402.80	0.00	0.00	0.00
402.90	0.00	0.00	0.00
403.00	0.00	0.00	0.00
403.10	0.00	0.00	0.00
403.20	0.00	0.00	0.00
403.30	0.00	0.00	0.00
403.40	0.00	0.00	0.00
403.50	0.00	0.00	0.00
403.60	0.00	0.00	0.00
403.70	0.00	0.00	0.00
403.80	0.00	0.00	0.00
403.90	0.00	0.00	0.00
404.00	0.00	0.00	0.00
404.10	0.00	0.00	0.00
404.20	0.00	0.00	0.00
404.30	0.00	0.00	0.00
404.40	0.00	0.00	0.00
404.50	0.00	0.00	0.00
404.60	0.00	0.00	0.00
404.70	0.00	0.00	0.00
404.80	0.00	0.00	0.00
404.90	0.00	0.00	0.00
405.00	0.00	0.00	0.00
405.10	0.00	0.00	0.00
405.20	0.00	0.00	0.00
405.30	0.00	0.00	0.00
405.40	0.00	0.00	0.00
405.50	0.00	0.00	0.00
405.60	0.00	0.00	0.00
405.70	0.00	0.00	0.00
405.80	0.00	0.00	0.00
405.90	0.00	0.00	0.00
406.00	0.00	0.00	0.00
406.10	0.00	0.00	0.00
406.20	0.00	0.00	0.00
406.30	0.00	0.00	0.00
406.40	0.00	0.00	0.00
406.50	0.00	0.00	0.00
406.60	0.00	0.00	0.00
406.70	0.00	0.00	0.00
406.80	0.00	0.00	0.00
406.90	0.00	0.00	0.00
407.00	0.00	0.00	0.00
407.10	0.00	0.00	0.00
407.20	0.00	0.00	0.00
407.30	0.00	0.00	0.00
407.40	0.00	0.00	0.00
407.50	0.00	0.00	0.00
407.60	0.03	0.00	0.03
407.70	0.11	0.00	0.11
407.80	0.23	0.00	0.23
407.90	0.36	0.00	0.36
408.00	0.47	0.00	0.47
408.10	1.59	1.03	0.56
408.20	3.59	2.95	0.63
408.30	6.22	5.52	0.70
408.40	9.40	8.63	0.76
408.50	13.04	12.22	0.82
408.60	17.13	16.26	0.87
408.70	21.44	20.52	0.92
408.80	26.06	25.09	0.97
408.90	31.25	30.24	1.01
409.00	36.83	35.77	1.06
409.10	42.93	41.83	1.10
409.20	49.45	48.31	1.14
409.30	56.27	55.10	1.18
409.40	63.49	62.27	1.21
409.50	70.96	69.71	1.25
409.60	78.79	77.50	1.29
409.70	87.13	85.81	1.32
409.80	95.86	94.51	1.35
409.90	104.98	103.59	1.39
410.00	**114.49**	**113.07**	**1.42**

Stage-Area-Storage for Pond FB1: Forebay B-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
400.00	285	0
400.10	323	30
400.20	364	65
400.30	408	103
400.40	453	146
400.50	502	194
400.60	552	247
400.70	605	305
400.80	661	368
400.90	719	437
401.00	779	512
401.10	842	593
401.20	907	680
401.30	974	774
401.40	1,045	875
401.50	1,117	983
401.60	1,192	1,099
401.70	1,269	1,222
401.80	1,349	1,353
401.90	1,431	1,492
402.00	1,516	1,639
402.10	1,592	1,794
402.20	1,669	1,957
402.30	1,749	2,128
402.40	1,830	2,307
402.50	1,913	2,494
402.60	1,998	2,690
402.70	2,085	2,894
402.80	2,173	3,107
402.90	2,264	3,329
403.00	2,356	3,560
403.10	2,450	3,800
403.20	2,546	4,050
403.30	2,644	4,309
403.40	2,744	4,579
403.50	2,846	4,858
403.60	2,949	5,148
403.70	3,054	5,448
403.80	3,161	5,759
403.90	3,270	6,080
404.00	3,381	6,413
404.10	3,485	6,756
404.20	3,591	7,110
404.30	3,698	7,474
404.40	3,807	7,850
404.50	3,918	8,236
404.60	4,030	8,633
404.70	4,143	9,042
404.80	4,258	9,462
404.90	4,375	9,894
405.00	4,494	10,337
405.10	4,613	10,792
405.20	4,735	11,260
405.30	4,858	11,739
405.40	4,983	12,231
405.50	5,109	12,736
405.60	5,237	13,253
405.70	5,366	13,783
405.80	5,497	14,327
405.90	5,630	14,883
406.00	5,764	15,453
406.10	5,938	16,038
406.20	6,115	16,640
406.30	6,294	17,261
406.40	6,475	17,899
406.50	6,660	18,556
406.60	6,847	19,231
406.70	7,036	19,925
406.80	7,228	20,638
406.90	7,423	21,371
407.00	7,620	22,123
407.10	7,820	22,895
407.20	8,022	23,687
407.30	8,227	24,500
407.40	8,435	25,333
407.50	8,645	26,187
407.60	8,803	27,059
407.70	8,962	27,947
407.80	9,122	28,851
407.90	9,284	29,772
408.00	9,447	30,708
408.10	9,608	31,661
408.20	9,771	32,630
408.30	9,934	33,615
408.40	10,100	34,617
408.50	10,266	35,635
408.60	10,434	36,670
408.70	10,603	37,722
408.80	10,774	38,791
408.90	10,946	39,877
409.00	11,119	40,980
409.10	11,294	42,101
409.20	11,470	43,239
409.30	11,648	44,395
409.40	11,826	45,568
409.50	12,007	46,760
409.60	12,188	47,970
409.70	12,371	49,198
409.80	12,555	50,444
409.90	12,741	51,709
410.00	**12,928**	**52,992**

Summary for Pond IA1: Infiltration Basin A-1

Inflow Area = 9.007 ac, 57.93% Impervious, Inflow Depth = 9.98" for 500-YR event
Inflow = 56.18 cfs @ 12.38 hrs, Volume= 7.490 af
Outflow = 68.20 cfs @ 12.51 hrs, Volume= 6.918 af, Atten= 0%, Lag= 7.5 min
Discarded = 6.14 cfs @ 12.51 hrs, Volume= 1.260 af
Primary = 62.06 cfs @ 12.51 hrs, Volume= 5.658 af
Routed to Pond DPA : Design Point A

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 488.12' @ 12.51 hrs Surf.Area= 21,647 sf Storage= 106,749 cf

Plug-Flow detention time= 222.7 min calculated for 6.918 af (92% of inflow)
Center-of-Mass det. time= 180.0 min (1,020.2 - 840.2)

Volume	Invert	Avail.Storage	Storage Description
#1	402.00'	106,749 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

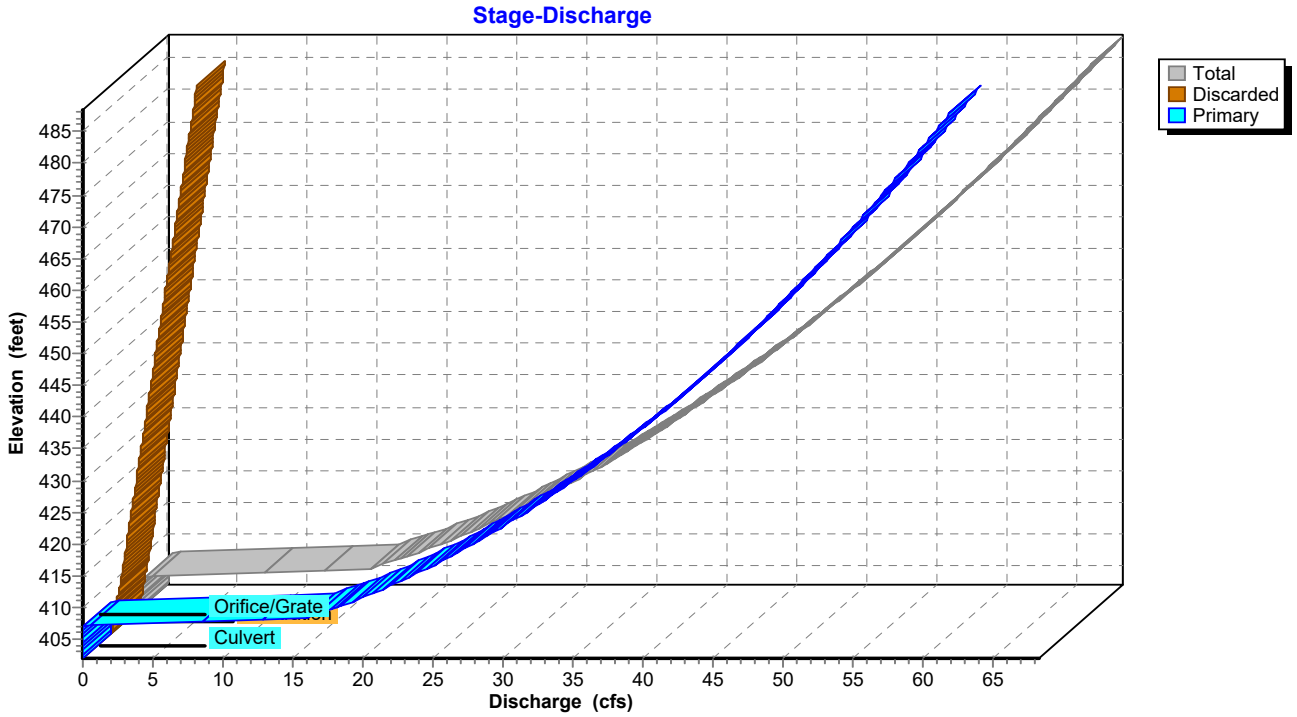
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
402.00	6,346	0	0	6,346
404.00	9,425	15,670	15,670	9,488
406.00	13,034	22,362	38,032	13,174
408.00	17,109	30,051	68,082	17,340
410.00	21,647	38,667	106,749	21,984

Device	Routing	Invert	Outlet Devices
#1	Primary	402.00'	**18.0" Round Culvert** L= 100.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 402.00' / 400.00' S= 0.0200 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 1.77 sf
#2	Device 1	407.00'	**48.0" W x 36.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Discarded	402.00'	**0.500 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 400.00'

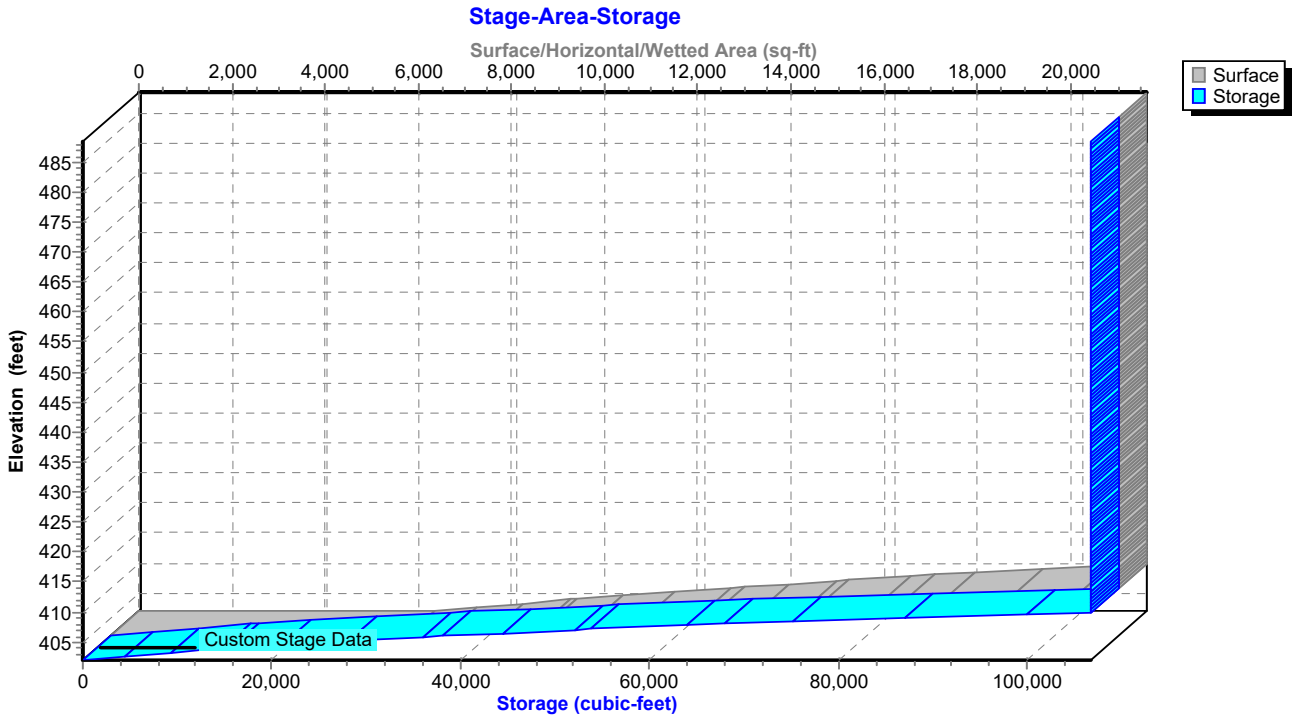
Discarded OutFlow Max=6.10 cfs @ 12.51 hrs HW=487.56' (Free Discharge)
└**3=Exfiltration** (Controls 6.10 cfs)

Primary OutFlow Max=62.06 cfs @ 12.51 hrs HW=488.12' (Free Discharge)
└**1=Culvert** (Inlet Controls 62.06 cfs @ 35.12 fps)
└**2=Orifice/Grate** (Passes 62.06 cfs of 515.55 cfs potential flow)

Pond IA1: Infiltration Basin A-1



Pond IA1: Infiltration Basin A-1



Stage-Discharge for Pond IA1: Infiltration Basin A-1

Elevation (feet)	Discharge (cfs)	Discarded (cfs)	Primary (cfs)
402.00	0.00	0.00	0.00
403.00	0.13	0.13	0.00
404.00	0.20	0.20	0.00
405.00	0.27	0.27	0.00
406.00	0.34	0.34	0.00
407.00	0.42	0.42	0.00
408.00	13.35	0.51	12.84
409.00	17.40	0.60	16.79
410.00	18.78	0.70	18.09
411.00	20.06	0.77	19.29
412.00	21.27	0.84	20.43
413.00	22.41	0.91	21.51
414.00	23.51	0.98	22.53
415.00	24.56	1.04	23.51
416.00	25.57	1.11	24.45
417.00	26.54	1.18	25.36
418.00	27.49	1.25	26.23
419.00	28.40	1.32	27.08
420.00	29.29	1.39	27.90
421.00	30.16	1.46	28.70
422.00	31.01	1.53	29.47
423.00	31.83	1.60	30.23
424.00	32.64	1.67	30.97
425.00	33.43	1.74	31.69
426.00	34.20	1.81	32.39
427.00	34.96	1.88	33.08
428.00	35.71	1.95	33.75
429.00	36.44	2.02	34.42
430.00	37.16	2.09	35.07
431.00	37.86	2.16	35.70
432.00	38.56	2.23	36.33
433.00	39.24	2.30	36.95
434.00	39.92	2.37	37.55
435.00	40.59	2.44	38.15
436.00	41.24	2.51	38.73
437.00	41.89	2.58	39.31
438.00	42.53	2.65	39.88
439.00	43.16	2.72	40.44
440.00	43.78	2.79	41.00
441.00	44.40	2.86	41.55
442.00	45.01	2.93	42.08
443.00	45.61	3.00	42.62
444.00	46.21	3.07	43.14
445.00	46.80	3.13	43.66
446.00	47.38	3.20	44.18
447.00	47.96	3.27	44.68
448.00	48.53	3.34	45.19
449.00	49.10	3.41	45.68
450.00	49.66	3.48	46.17
451.00	50.21	3.55	46.66
452.00	50.76	3.62	47.14
453.00	51.31	3.69	47.62
454.00	51.85	3.76	48.09
455.00	52.39	3.83	48.56
456.00	52.92	3.90	49.02
457.00	53.45	3.97	49.48
458.00	53.97	4.04	49.93
459.00	54.49	4.11	50.38
460.00	55.01	4.18	50.83
461.00	55.52	4.25	51.27
462.00	56.03	4.32	51.71
463.00	56.53	4.39	52.14
464.00	57.03	4.46	52.57
465.00	57.53	4.53	53.00
466.00	58.02	4.60	53.42
467.00	58.51	4.67	53.84
468.00	59.00	4.74	54.26
469.00	59.48	4.81	54.68
470.00	59.96	4.88	55.09
471.00	60.44	4.95	55.50
472.00	60.92	5.02	55.90
473.00	61.39	5.09	56.30
474.00	61.86	5.15	56.70
475.00	62.32	5.22	57.10
476.00	62.79	5.29	57.49
477.00	63.25	5.36	57.88
478.00	63.71	5.43	58.27
479.00	64.16	5.50	58.66
480.00	64.61	5.57	59.04
481.00	65.06	5.64	59.42
482.00	65.51	5.71	59.80
483.00	65.96	5.78	60.18
484.00	66.40	5.85	60.55
485.00	66.84	5.92	60.92
486.00	67.28	5.99	61.29
487.00	67.72	6.06	61.66
488.00	**68.15**	**6.13**	**62.02**

Stage-Area-Storage for Pond IA1: Infiltration Basin A-1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
402.00	6,346	0
403.00	7,810	7,065
404.00	9,425	15,670
405.00	11,157	25,948
406.00	13,034	38,032
407.00	15,002	52,038
408.00	17,109	68,082
409.00	19,311	86,281
410.00	**21,647**	**106,749**
411.00	21,647	106,749
412.00	21,647	106,749
413.00	21,647	106,749
414.00	21,647	106,749
415.00	21,647	106,749
416.00	21,647	106,749
417.00	21,647	106,749
418.00	21,647	106,749
419.00	21,647	106,749
420.00	21,647	106,749
421.00	21,647	106,749
422.00	21,647	106,749
423.00	21,647	106,749
424.00	21,647	106,749
425.00	21,647	106,749
426.00	21,647	106,749
427.00	21,647	106,749
428.00	21,647	106,749
429.00	21,647	106,749
430.00	21,647	106,749
431.00	21,647	106,749
432.00	21,647	106,749
433.00	21,647	106,749
434.00	21,647	106,749
435.00	21,647	106,749
436.00	21,647	106,749
437.00	21,647	106,749
438.00	21,647	106,749
439.00	21,647	106,749
440.00	21,647	106,749
441.00	21,647	106,749
442.00	21,647	106,749
443.00	21,647	106,749
444.00	21,647	106,749
445.00	21,647	106,749
446.00	21,647	106,749
447.00	21,647	106,749
448.00	21,647	106,749
449.00	21,647	106,749
450.00	21,647	106,749
451.00	21,647	106,749
452.00	21,647	106,749
453.00	21,647	106,749
454.00	21,647	106,749
455.00	21,647	106,749
456.00	21,647	106,749
457.00	21,647	106,749
458.00	21,647	106,749
459.00	21,647	106,749
460.00	21,647	106,749
461.00	21,647	106,749
462.00	21,647	106,749
463.00	21,647	106,749
464.00	21,647	106,749
465.00	21,647	106,749
466.00	21,647	106,749
467.00	21,647	106,749
468.00	21,647	106,749
469.00	21,647	106,749
470.00	21,647	106,749
471.00	21,647	106,749
472.00	21,647	106,749
473.00	21,647	106,749
474.00	21,647	106,749
475.00	21,647	106,749
476.00	21,647	106,749
477.00	21,647	106,749
478.00	21,647	106,749
479.00	21,647	106,749
480.00	21,647	106,749
481.00	21,647	106,749
482.00	21,647	106,749
483.00	21,647	106,749
484.00	21,647	106,749
485.00	21,647	106,749
486.00	21,647	106,749
487.00	21,647	106,749
488.00	21,647	106,749

APPENDIX 13

FOREBAY & WQV

CALCULATIONS

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

WQv Provided in SMP

WO. NO.	DATE	REVISED	SHEET	OF
1146.01	**Jan '24**	**Sept '24**	**1**	**4**

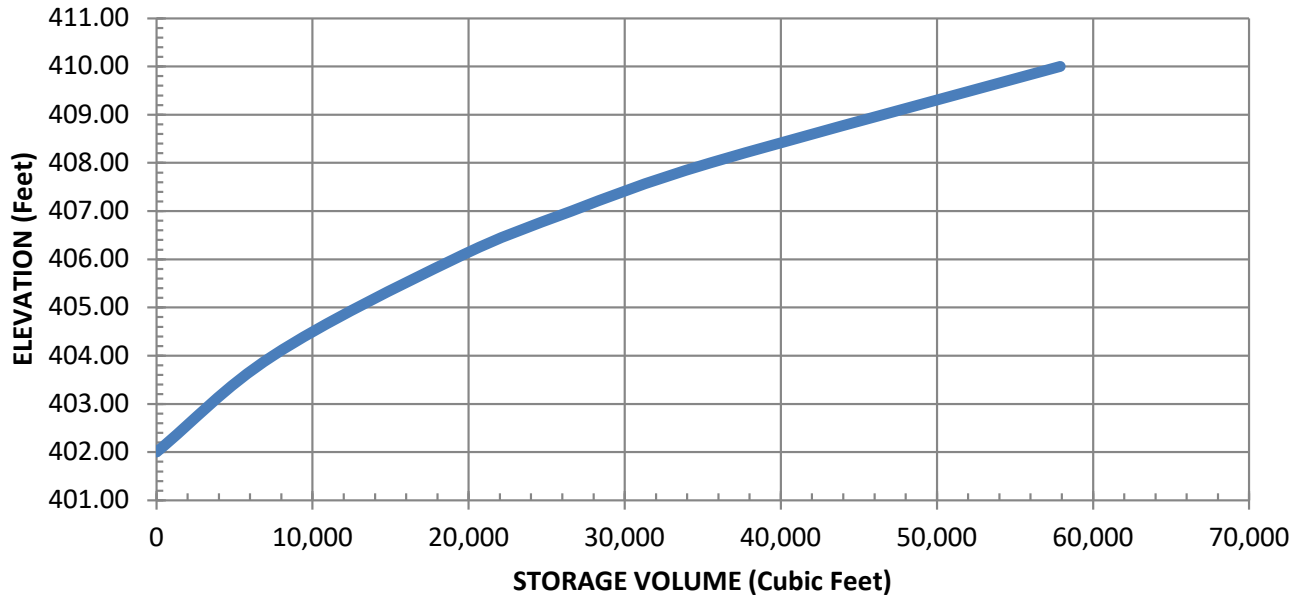
PROJECT TITLE	LOCATION
Sheffield Gardens	**Town of Montgomery**

CALCULATED BY	APPROVED BY	REF DRAWING(S)
ZS	**RW**	

Basin **Forebay A1** WQv provided: 0.610 ac-ft

Water Surface Elevation (Feet)	Surface Area (Square Feet)	Average Area (Square Feet)	Difference in Elevation (Feet)	Incremental Storage (Cubic Feet)	Total Storage Volume (Cubic Feet)
402.00	2,804.0	--	--	--	0.0
404.00	4,651.0	3,727.5	2.0	7,455.0	7,455.0
406.00	6,917.0	5,784.0	2.0	11,568.0	19,023.0
407.00	8,212.0	7,564.5	1.0	7,564.5	26,587.5
408.00	9,627.0	8,919.5	1.0	8,919.5	35,507.0
410.00	12,763.0	11,195.0	2.0	22,390.0	57,897.0

Stage Storage Curve



ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

WQv Provided in SMP

WO. NO.	DATE	REVISED	SHEET	OF
1146.01	**Jan '24**	**Sept '24**	**2**	**4**

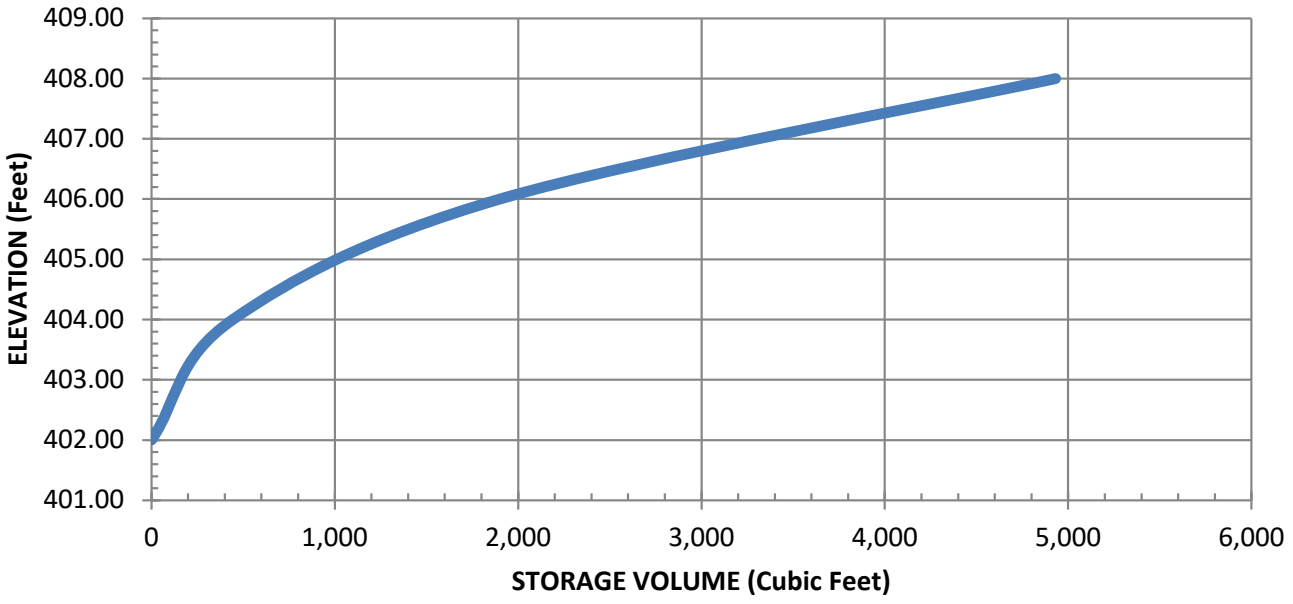
PROJECT TITLE	LOCATION
Sheffield Gardens	**Town of Montgomery**

CALCULATED BY	APPROVED BY	REF DRAWING(S)
ZS	**RW**	

Basin **Forebay A2** WQv provided: 0.044 ac-ft

Water Surface Elevation (Feet)	Surface Area (Square Feet)	Average Area (Square Feet)	Difference in Elevation (Feet)	Incremental Storage (Cubic Feet)	Total Storage Volume (Cubic Feet)
402.00	46.0	--	--	--	0.0
404.00	398.0	222.0	2.0	444.0	444.0
406.00	1,060.0	729.0	2.0	1,458.0	1,902.0
408.00	1,969.0	1,514.5	2.0	3,029.0	4,931.0

Stage Storage Curve



ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

WQv Provided in SMP

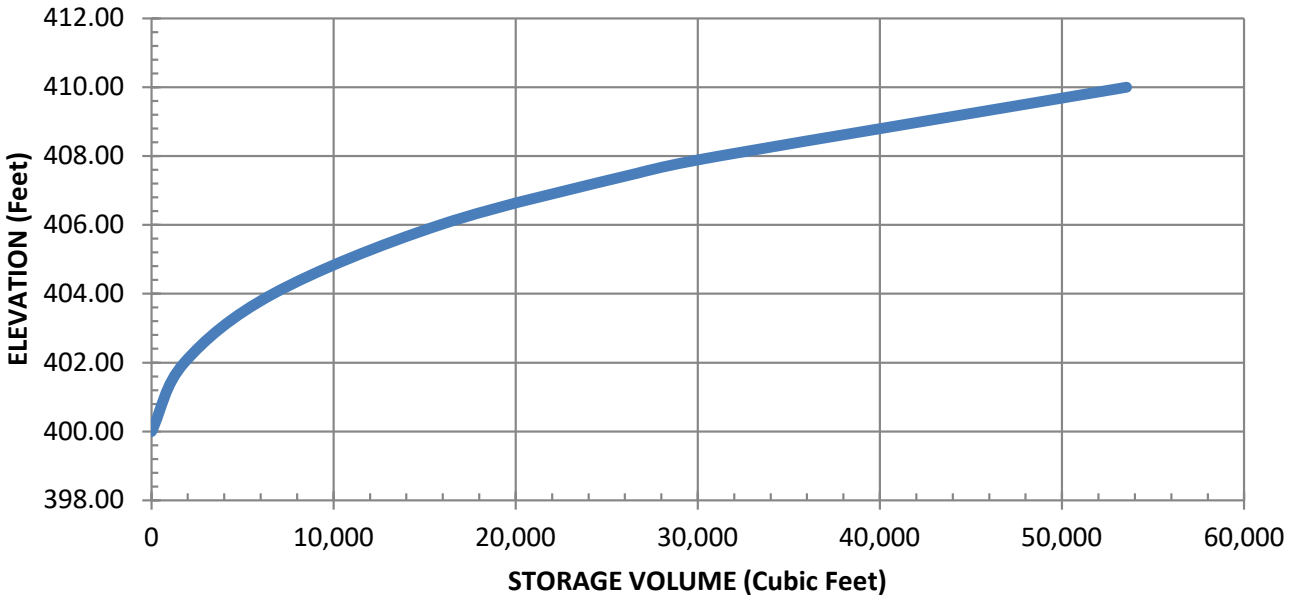
WO. NO.	DATE	REVISED	SHEET	OF
1146.01	**Jan '24**	**Sept '24**	**3**	**4**

PROJECT TITLE	LOCATION
Sheffield Gardens	**Town of Montgomery**
CALCULATED BY: **ZS** / APPROVED BY: **RW**	REF DRAWING(S)

Basin **Forebay B1** WQv provided: 0.612 ac-ft

Water Surface Elevation (Feet)	Surface Area (Square Feet)	Average Area (Square Feet)	Difference in Elevation (Feet)	Incremental Storage (Cubic Feet)	Total Storage Volume (Cubic Feet)
400.00	285.0	--	--	--	0.0
402.00	1,516.0	900.5	2.0	1,801.0	1,801.0
404.00	3,381.0	2,448.5	2.0	4,897.0	6,698.0
406.00	5,764.0	4,572.5	2.0	9,145.0	15,843.0
407.50	8,647.0	7,205.5	1.5	10,808.3	26,651.3
408.00	9,447.0	9,047.0	0.5	4,523.5	31,174.8
410.00	12,928.0	11,187.5	2.0	22,375.0	53,549.8

Stage Storage Curve



ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

WQv Provided in SMP

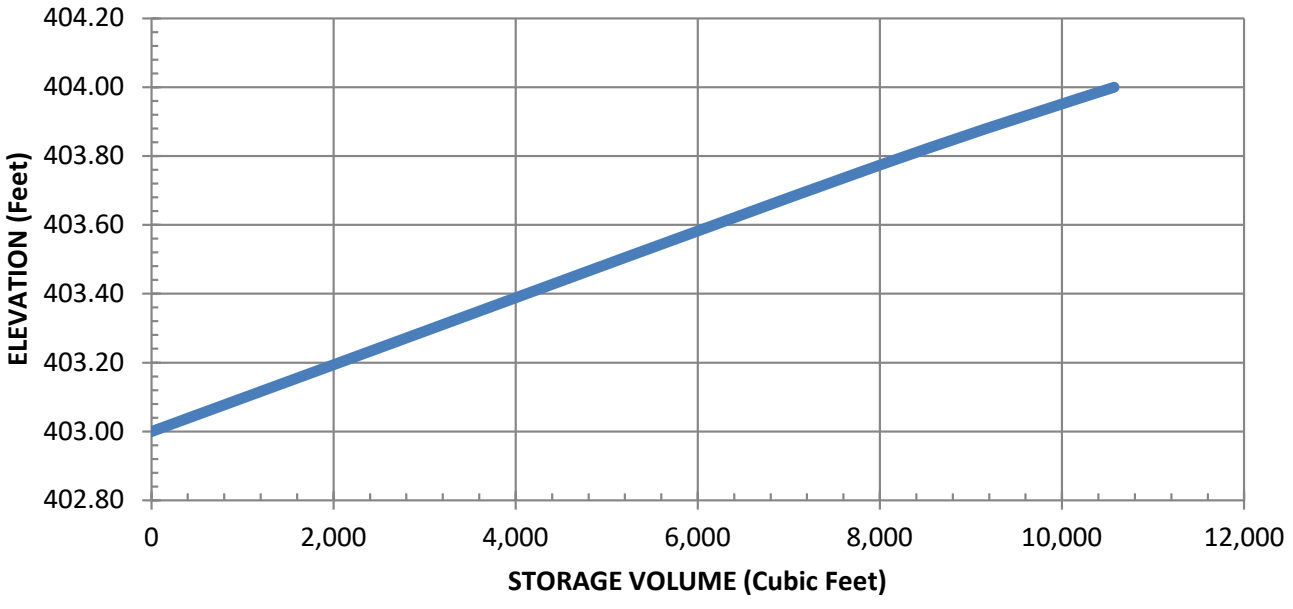
WO. NO.	DATE	REVISED	SHEET	OF
1146.01	**Jan '24**	**Sept '24**	**4**	**4**

PROJECT TITLE	LOCATION
Sheffield Gardens	**Town of Montgomery**
CALCULATED BY: **ZS** / APPROVED BY: **RW**	REF DRAWING(S)

Basin **Forebay B1** WQv provided: 0.178 ac-ft

Water Surface Elevation (Feet)	Surface Area (Square Feet)	Average Area (Square Feet)	Difference in Elevation (Feet)	Incremental Storage (Cubic Feet)	Total Storage Volume (Cubic Feet)
403.00	9,610.0	--	--	--	0.0
403.75	11,050.0	10,330.0	0.8	7,747.5	7,747.5
404.00	11,543.0	11,296.5	0.3	2,824.1	10,571.6

Stage Storage Curve



ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

WATER QUALITY VOLUME CALCULATIONS

WO. NO.	DATE	REVISED	SHEET	OF
1146.01	**Jan '24**	**Sept '24**	**1**	**1**

PROJECT TITLE
Sheffield Gardens

LOCATION
Town of Montgomery

CALCULATED BY
ZS

APPROVED BY
RW

REF DRAWING(S)

$$WQ_v = (P * R_v * A) / (12)$$

Drainage Area	90% Rainfall Event Number (**P**)	Impervious Area (**I**)	Drainage Area (**A**)	**R_v** (0.05 + 0.009 * I%)	**WQ_v** (Ac-ft)
PR - A1	1.40	4.823	8.933	0.536	24,330 0.559
PR - A2	1.40	0.102	0.600	0.203	610 0.014
PR - B1	1.40	4.692	9.168	0.511	23,790 0.546
PR - B2	1.40	0.153	0.61	0.276	855 0.020

APPENDIX 14

DRAINAGE PIPE

CALCULATIONS

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

STORM DRAINAGE PIPE DESIGN WORKSHEET

WO. NO.	DATE	REVISED	SHEET
103.0301	09/17/24		1 OF 5

PROJECT TITLE	LOCATION	STORM FREQUENCY	PIPE TYPE
Sheffield Gardens	Town of Montgomery	10 Year	HDPE

CALCULATED BY	APPROVED BY	REF DRAWING(S)	RAINFALL CURVE
ZS	RW	DWG LAST REV. 09/17/2024	Orange County, NY

LOCATION		ROAD	ACRES		" C "	CA	ΣCA	TIME CONC. - MIN			" i "	" Q "		PIPE								DROP	INV	INV	GRATE	Depth to	Cover	Cover
FROM	TO	STA.	SUB.	TOTAL				Inlet	Pipe	TOTAL		Des.	Cap.	" n "	Size	Height	V Des	V Cap	Slope	Lgth.	Fall	(feet)	Upper	Lower	Elev	INV	Upper	Lower
CB1	CB2		0.31 0.23	0.54	0.90 0.30	0.35	0.35	5.00	-	5.00	6.78	2.4	8.40	0.010	15		5.9	6.8	1.00%	87	0.87	0.00	419.23	418.36	422.48	3.25	2.00	2.87
CB2	CB3		0.37 0.21	1.13	0.90 0.30	0.40	0.75	5.00	0.25	5.25	6.78	5.1	8.40	0.010	15		7.2	6.8	1.00%	48	0.48	0.00	418.36	417.88	422.48	4.12	2.87	4.14
CB3	CB4		0.13 0.04	1.30	0.90 0.30	0.13	0.88	5.25	0.11	5.36	6.71	5.9	8.40	0.010	15		7.4	6.8	1.00%	55	0.55	0.00	417.88	417.33	423.27	5.39	4.14	4.69
CB4	CB5		0.13 0.04	1.47	0.90 0.30	0.13	1.01	5.36	0.12	5.48	6.68	6.8	8.40	0.010	15		7.6	6.8	1.00%	48	0.48	0.00	417.33	416.85	423.27	5.94	4.69	4.38
CB5	CB6		0.37 0.21	2.05	0.90 0.30	0.39	1.41	5.48	0.11	5.59	6.64	9.3	13.66	0.010	18		8.3	7.7	1.00%	87	0.87	0.25	416.60	415.73	422.48	5.88	4.38	5.25
CB6	DMH7		0.28 0.26	2.59	0.90 0.30	0.33	2.58	5.59	0.18	5.76	6.62	17.1	29.41	0.010	24		9.7	9.4	1.00%	62	0.62	0.50	415.23	414.61	422.48	7.25	5.25	7.28
DMH7	DMH8		- -	2.59	0.90 0.30	-	3.42	5.76	0.11	5.87	6.57	22.5	29.41	0.010	24		10.3	9.4	1.00%	213	2.13	0.00	414.61	412.48	423.89	9.28	7.28	9.64
DMH8	CB9		- -	2.59	0.90 0.30	-	4.41	5.87	0.34	6.22	6.54	28.8	29.41	0.010	24		10.7	9.4	1.00%	79	0.79	0.00	412.48	411.69	424.12	11.64	9.64	8.41
CB9	CB10		0.35 0.09	3.02	0.90 0.30	0.34	4.74	6.22	0.12	6.34	6.45	30.6	53.32	0.010	30		11.2	10.9	1.00%	247	2.47	0.50	411.19	408.72	422.10	10.91	8.41	10.45
CB10	CB11		0.36 0.07	3.45	0.90 0.30	0.34	5.087	6.34	0.37	6.71	6.42	32.7	53.32	0.010	30		11.4	10.9	1.00%	58	0.58	0.00	408.72	408.14	421.67	12.95	10.45	11.68
CB11	CB12		0.20 0.02	3.67	0.90 0.30	0.19	5.28	6.71	0.09	6.79	6.33	33.4	53.32	0.010	30		11.4	10.9	1.00%	127	1.27	0.00	408.14	406.87	422.32	14.18	11.68	13.31
CB12	ES13		0.12 0.01	3.79	0.90 0.30	0.11	5.38	6.79	0.18	6.98	6.31	34.0	99.15	0.010	30		18.2	20.2	3.46%	83	2.87	0.00	406.87	404.00	422.68	15.81	13.31	**-406.50**

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

STORM DRAINAGE PIPE DESIGN WORKSHEET

WO. NO.	DATE	REVISED	SHEET
103.0301	09/17/24		1 OF 5

PROJECT TITLE	LOCATION	STORM FREQUENCY	PIPE TYPE
Sheffield Gardens	Town of Montgomery	10 Year	HDPE

CALCULATED BY	APPROVED BY	REF DRAWING(S)	RAINFALL CURVE
ZS	RW	DWG LAST REV. 09/17/2024	Orange County, NY

LOCATION		ROAD	ACRES		" C "	CA	ΣCA	TIME CONC. - MIN			" i "	" Q "		PIPE								DROP	INV	INV	GRATE	Depth to	Cover	Cover
FROM	TO	STA.	SUB.	TOTAL				Inlet	Pipe	TOTAL		Des.	Cap.	" n "	Size	Height	V Des	V Cap	Slope	Lgth.	Fall	(feet)	Upper	Lower	Elev	INV	Upper	Lower
CB13	CB14		0.12 0.05	0.17	0.90 0.30	0.12	0.12	5.00	-	5.00	6.78	0.8	8.40	0.010	15		4.3	6.8	1.00%	48	0.48	0.00	420.52	420.04	423.77	3.25	2.00	1.69
CB14	CB15		0.34 0.24	0.75	0.90 0.30	0.38	0.50	5.00	0.18	5.18	6.78	3.4	14.55	0.010	15		9.5	11.9	3.00%	87	2.61	0.00	420.04	417.43	422.98	2.94	1.69	4.30
CB15	DMH7		0.29 0.24	1.29	0.90 0.30	0.34	0.84	5.18	0.15	5.34	6.73	5.7	16.75	0.010	15		12.3	13.7	3.98%	52	2.07	0.00	417.43	415.36	422.98	5.55	4.30	-416.61
CB16	CB17		0.57 0.40	0.97	0.90 0.30	0.63	0.63	-	-	-	8.63	5.4	8.40	0.010	15		7.3	6.8	1.00%	247	2.47	1.25	418.92	416.45	422.17	3.25	2.00	4.90
CB17	DMH8		0.35 0.15	1.46	0.90 0.30	0.36	0.99	-	0.57	0.57	8.63	8.5	29.95	0.010	18		14.5	16.9	4.81%	67	3.22	0.25	416.20	412.97	422.60	6.40	4.90	-414.47

ENGINEERING & SURVEYING PROPERTIES

Achieving Successful Results with Innovative Designs

STORM DRAINAGE PIPE DESIGN WORKSHEET

WO. NO.	DATE	REVISED	SHEET
103.0301	09/17/24		1 OF 5

PROJECT TITLE		LOCATION	STORM FREQUENCY	PIPE TYPE
Sheffield Gardens		**Town of Montgomery**	**10 Year**	**HDPE**
CALCULATED BY	APPROVED BY	REF DRAWING(S)	RAINFALL CURVE	
ZS	**RW**	**DWG LAST REV. 09/17/2024**	**Orange County, NY**	

LOCATION		ROAD	ACRES		" C "	CA	ΣCA	TIME CONC. - MIN			" i "	" Q "		PIPE								DROP	INV	INV	GRATE	Depth to	Cover	Cover
FROM	TO	STA.	SUB.	TOTAL				Inlet	Pipe	TOTAL		Des.	Cap.	" n "	Size	Height	V Des	V Cap	Slope	Lgth.	Fall	(feet)	Upper	Lower	Elev	INV	Upper	Lower
			0.04		0.90																							
CB18	CB19		0.01	0.04	0.30	0.04	0.04	5.00	-	5.00	6.78	0.2	5.94	0.010	15		2.3	4.8	0.50%	21	0.11	0.00	407.68	407.57	410.93	3.25	2.00	2.11
			0.03		0.90																							
CB19	CB21		-	0.07	0.30	0.02	0.06	5.00	0.15	5.15	6.78	0.4	5.94	0.010	15		2.7	4.8	0.50%	86	0.43	0.00	407.57	407.14	410.93	3.36	2.11	9.79
			0.11		0.90																							
CB21	DMH22		0.03	0.20	0.30	0.10	0.22	5.15	0.53	5.68	6.74	1.5	5.94	0.010	15		4.0	4.8	0.50%	112	0.56	0.00	407.14	406.58	418.18	11.04	9.79	14.84
			-		0.90																							
DMH22	CB23		-	0.20	0.30	-	0.22	5.68	0.47	6.16	6.59	1.4	8.40	0.010	15		5.1	6.8	1.00%	37	0.37	0.00	406.58	406.21	422.67	16.09	14.84	14.49
			0.26		0.90																							
CB23	CB24		0.06	0.52	0.30	0.25	0.47	6.16	0.12	6.28	6.47	3.1	8.40	0.010	15		6.2	6.8	1.00%	262	2.62	0.00	406.21	403.59	421.95	15.74	14.49	16.83
			0.43		0.90																							
CB24	ES1		0.06	1.01	0.30	0.41	0.88	6.28	0.70	6.98	6.44	5.6	10.35	0.010	15		8.6	8.4	1.52%	104	1.58	0.00	403.59	402.00	421.67	18.08	16.83	**-403.25**
			0.06		0.90																							
CB20	CB21		0.01		0.30	0.06	0.06	-	-	-	8.63	0.5	25.99	0.010	15		7.9	21.2	9.58%	21	2.01	1.25	409.15	407.13	418.18	9.03	7.78	**-408.38**
					0.90																							
-				-	0.30	-	-	-	-	-	8.63	-	-	0.010			-	-			-	0.00	-	-		-	**0.00**	**0.00**
					0.90																							
-				-	0.30	-	-	-	-	-	8.63	-	-	0.010			-	-			-	0.00	-	-		-	**0.00**	**0.00**
					0.90																							
-				-	0.30	-	-	-	-	-	8.63	-	-	0.010			-	-			-	0.00	-	-		-	**0.00**	**0.00**
					0.90																							
-				-	0.30	-	-	-	-	-	8.63	-	-	0.010			-	-			-	0.00	-	-		-	**0.00**	**0.00**

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

STORM DRAINAGE PIPE DESIGN WORKSHEET

WO. NO.	DATE	REVISED	SHEET
103.0301	09/17/24		1 OF 5

PROJECT TITLE	LOCATION	STORM FREQUENCY	PIPE TYPE
Sheffield Gardens	Town of Montgomery	10 Year	HDPE

CALCULATED BY	APPROVED BY	REF DRAWING(S)	RAINFALL CURVE
ZS	RW	DWG LAST REV. 09/17/2024	Orange County, NY

LOCATION		ROAD	ACRES		" C "	CA	ΣCA	TIME CONC. - MIN			" i "	" Q "		PIPE								DROP	INV	INV	GRATE	Depth to	Cover	Cover
FROM	TO	STA.	SUB.	TOTAL				Inlet	Pipe	TOTAL		Des.	Cap.	" n "	Size	Height	V Des	V Cap	Slope	Lgth.	Fall	(feet)	Upper	Lower	Elev	INV	Upper	Lower
CB25	CB26		0.30 0.25	0.54	0.90 0.30	0.34	0.34	5.00	-	5.00	6.78	2.3	8.40	0.010	15		5.8	6.8	1.00%	87	0.87	0.00	419.23	418.36	422.48	3.25	2.00	2.87
CB26	CB27		0.33 0.26	1.13	0.90 0.30	0.37	0.71	5.00	0.25	5.25	6.78	4.8	8.40	0.010	15		7.1	6.8	1.00%	48	0.48	0.00	418.36	417.88	422.48	4.12	2.87	4.14
CB27	CB28		0.09 0.08	1.30	0.90 0.30	0.11	0.82	5.25	0.11	5.36	6.71	5.5	8.40	0.010	15		7.3	6.8	1.00%	55	0.55	0.00	417.88	417.33	423.27	5.39	4.14	4.69
CB28	CB29		0.10 0.07	1.47	0.90 0.30	0.11	0.93	5.36	0.13	5.49	6.68	6.2	8.40	0.010	15		7.5	6.8	1.00%	48	0.48	0.00	417.33	416.85	423.27	5.94	4.69	4.38
CB29	CB30		0.33 0.25	2.05	0.90 0.30	0.37	1.30	5.49	0.11	5.60	6.64	8.7	13.66	0.010	18		8.1	7.7	1.00%	87	0.87	0.25	416.60	415.73	422.48	5.88	4.38	5.25
CB30	DMH31		0.30 0.24	2.59	0.90 0.30	0.34	2.49	5.60	0.18	5.78	6.61	16.4	29.41	0.010	24		9.6	9.4	1.00%	53	0.53	0.50	415.23	414.70	422.48	7.25	5.25	7.08
DMH31	DMH32		- -	2.59	0.90 0.30	-	3.19	5.78	0.09	5.87	6.57	21.0	29.41	0.010	24		10.1	9.4	1.00%	196	1.96	0.00	414.70	412.74	423.78	9.08	7.08	9.38
DMH32	CB33		- -	2.59	0.90 0.30	-	4.28	5.87	0.32	6.19	6.54	28.0	29.41	0.010	24		10.6	9.4	1.00%	26	0.26	0.00	412.74	412.48	424.12	11.38	9.38	7.22
CB33	CB34		0.34 0.10	3.02	0.90 0.30	0.33	4.61	6.19	0.04	6.23	6.46	29.8	53.32	0.010	30		11.1	10.9	1.00%	269	2.69	0.50	411.98	409.29	421.70	9.72	7.22	10.07
CB34	CB35		0.29 0.04	3.36	0.90 0.30	0.28	4.887	6.23	0.40	6.63	6.45	31.5	53.32	0.010	30		11.3	10.9	1.00%	74	0.74	0.00	409.29	408.55	421.86	12.57	10.07	11.27
CB35	CB36		0.22 0.02	3.60	0.90 0.30	0.20	5.09	6.63	0.11	6.74	6.35	32.3	53.32	0.010	30		11.4	10.9	1.00%	163	1.63	0.00	408.55	406.92	422.32	13.77	11.27	12.90
CB36	ES3		0.20 0.02	3.82	0.90 0.30	0.19	5.94	6.74	0.24	6.98	6.32	37.5	60.68	0.010	30		12.9	12.4	1.30%	71	0.92	0.00	406.92	406.00	422.32	15.40	12.90	-408.50

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

STORM DRAINAGE PIPE DESIGN WORKSHEET

WO. NO.	DATE	REVISED	SHEET
103.0301	09/17/24		1 OF 5

PROJECT TITLE	LOCATION	STORM FREQUENCY	PIPE TYPE
Sheffield Gardens	Town of Montgomery	10 Year	HDPE

CALCULATED BY	APPROVED BY	REF DRAWING(S)	RAINFALL CURVE
ZS	RW	DWG LAST REV. 09/17/2024	Orange County, NY

LOCATION		ROAD	ACRES		" C "	CA	ΣCA	TIME CONC. - MIN			" i "	" Q "		PIPE								DROP	INV	INV	GRATE	Depth to	Cover	Cover
FROM	TO	STA.	SUB.	TOTAL				Inlet	Pipe	TOTAL		Des.	Cap.	" n "	Size	Height	V Des	V Cap	Slope	Lgth.	Fall	(feet)	Upper	Lower	Elev	INV	Upper	Lower
CB42	CB43		0.58 0.70	1.28	0.90 0.30	0.73	0.73	5.00	-	5.00	6.78	5.0	8.40	0.010	15		7.1	6.8	1.00%	226	2.26	0.00	418.92	416.66	422.17	3.25	2.00	4.57
CB43	CB44		0.21 0.07	1.56	0.90 0.30	0.21	0.94	5.00	0.53	5.53	6.78	6.4	8.40	0.010	15		7.5	6.8	1.00%	63	0.63	0.00	416.66	416.03	422.48	5.82	4.57	5.99
CB44	DMH32		0.13 0.08	1.77	0.90 0.30	0.14	1.08	5.53	0.14	5.67	6.63	7.2	13.66	0.010	18		7.8	7.7	1.00%	37	0.37	0.25	415.78	415.41	423.27	7.49	5.99	**-416.91**
CB39	CB40		0.11 0.06	0.17	0.90 0.30	0.12	0.12	-	-	-	8.63	1.0	8.40	0.010	15		4.6	6.8	1.00%	48	0.48	1.25	420.50	420.02	423.77	3.27	2.02	1.71
CB40	CB41		0.33 0.25	0.75	0.90 0.30	0.37	0.49	-	0.18	0.18	8.63	4.2	8.40	0.010	15		6.8	6.8	1.00%	87	0.87	0.00	420.02	419.15	422.98	2.96	1.71	2.58
CB41	DMH31		0.29 0.25	1.29	0.90 0.30	0.34	0.83	0.18	0.21	0.39	8.55	7.1	13.66	0.010	18		7.8	7.7	1.00%	67	0.67	0.25	418.90	418.23	422.98	4.08	2.58	**-419.73**
CB37	CB38		0.32 0.08	0.40	0.90 0.30	0.32	0.32	-	-	-	8.63	2.7	15.21	0.010	15		9.3	12.4	3.28%	262	8.59	1.25	418.70	410.10	421.95	3.25	2.00	10.32
CB38	CB36		0.36 0.07	0.83	0.90 0.30	0.34	0.66	-	0.47	0.47	8.63	5.7	15.21	0.010	15		11.4	12.4	3.28%	59	1.94	0.00	410.10	408.16	421.67	11.57	10.32	**-409.41**

APPENDIX 15

CONSTRUCTION SITE INSPECTION FORM, NOTICE OF INTENT & MS4 ACCEPTANCE

SWPPP INSPECTION REPORT

ENGINEERING & SURVEYING PROPERTIES
Achieving Successful Results with Innovative Designs

W.O. No.:	Date:	Greater than 5 Ac. Of Disturbance? Waiver?	Page Of
Project Name:		Weather Conditions: ☐ Dry ☐ Rain ☐ Snow	
		Soil Conditions: ☐ Dry ☐ Wet ☐ Saturated	
Location:		Arrival Time :	Photographs Taken? ☐ Yes ☐ No
		Departing Time:	

Owner:	**Phone:**	**Documents on-site?**		SWPPP:	
Contractor:	**Phone:**	Weekly Inspections:		NOI:	

1. Description of current activities onsite and phase of construction (attach sketch showing areas of stabilization, current work, and photo locations):

2. Description of the condition of the runoff at all points of discharge from the construction site (including onsite conveyance systems):	3. Description of the condition of all natural surface water bodies located within, or immediately adjacent to the construction site:

4. Identify all erosion and sediment control practices that require repair and/or maintenance:	5. Identify all erosion and sediment control practices that were not installed properly or are not functioning as designed:

6. Identify current status of construction for all post-construction stormwater management practices:	7. Corrective action(s) required to erosion and sediment control measures and post-construction stormwater management practices:

Was the owner and contractor(s) notified of the deficiencies and repairs needed within one (1) business day? ☐ Yes ☐ No

Qualified Inspector

Notice:

This inspection was performed solely for the purpose of determining compliance with NYSDEC SPDES General Permit:

☐ GP-02-01
☐ GP-08-001
☐ GP-10-001

Name and Title _____ Signature _____

0644089821

RESET

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR _____ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-20-001

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-
RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

Owner/Operator Contact Person First Name

Owner/Operator Mailing Address

City

State

Zip -

Phone (Owner/Operator) - -

Fax (Owner/Operator) - -

Email (Owner/Operator)

FED TAX ID - (not required for individuals)

Project Site Information

Project/Site Name

Street Address (NOT P.O. BOX)

Side of Street

○ **North** ○ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)

State N Y Zip - County DEC Region

Name of Nearest Cross Street

Distance to Nearest Cross Street (Feet)

Project In Relation to Cross Street

○ **North** ○ **South** ○ **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site. To do this, go to the NYSDEC Stormwater Interactive Map on the DEC website at:

https://gisservices.dec.ny.gov/gis/stormwater/

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located the centroid of your project site, go to the bottom right hand corner of the map for the X, Y coordinates. Enter the coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)

-7

Ex. -73.749

Y Coordinates (Northing)

4

Ex. 42.652

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- ○ FOREST
- ○ PASTURE/OPEN LAND
- ○ CULTIVATED LAND
- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY
- ○ PARKING LOT
- ○ OTHER

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME
- ○ SINGLE FAMILY SUBDIVISION — Number of Lots
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ MUNICIPAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ CLEARING/GRADING ONLY
- ○ DEMOLITION, NO REDEVELOPMENT
- ○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
- ○ OTHER

***Note**: for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	**Total Area To Be Disturbed**	**Existing Impervious Area To Be Disturbed**	**Future Impervious Area Within Disturbed Area**
.	.	.	.

5. Do you plan to disturb more than 5 acres of soil at any one time? ○ **Yes** ○ **No**

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	**B**	**C**	**D**
%	%	%	%

7. Is this a phased project? ○ **Yes** ○ **No**

8. Enter the planned start and end dates of the disturbance activities.

Start Date / / - **End Date** / /

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-20-001? ○ **Yes** ○ **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-20-001? ○ **Yes** ○ **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ○ **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ○ **No**
If Yes, what is the acreage to be disturbed?

.

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ○ **No**

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ○ **Yes** ○ **No** ○ **Unknown**

16. What is the name of the municipality/entity that owns the separate storm sewer system?

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ **Yes** ○ **No** ○ **Unknown**

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ **Yes** ○ **No**

19. Is this property owned by a state authority, state agency, federal government or local government? ○ **Yes** ○ **No**

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ **Yes** ○ **No**

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ○ **Yes** ○ **No**

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ○ **Yes** ○ **No**
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ○ **Yes** ○ **No**

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ○ **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer

Contact Name (Last, Space, First)

Mailing Address

City

State Zip -

Phone - -

Fax - -

Email

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-20-001. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name **MI**

Last Name

Signature

Date / /

25. Has a construction sequence schedule for the planned management practices been prepared? ○ Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ○ Silt Fence
- ○ Stabilized Construction Entrance
- ○ Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ○ Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ○ **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ○ **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ○ All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

			.				**acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area(acres)
RR Techniques (Area Reduction)			
○ Conservation of Natural Areas (RR-1)	___.___	and/or	___.___
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)	___.___	and/or	___.___
○ Tree Planting/Tree Pit (RR-3)	___.___	and/or	___.___
○ Disconnection of Rooftop Runoff (RR-4)	___.___	and/or	___.___
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			___.___
○ Rain Garden (RR-6)			___.___
○ Stormwater Planter (RR-7)			___.___
○ Rain Barrel/Cistern (RR-8)			___.___
○ Porous Pavement (RR-9)			___.___
○ Green Roof (RR-10)			___.___
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			___.___
○ Infiltration Basin (I-2)			___.___
○ Dry Well (I-3)			___.___
○ Underground Infiltration System (I-4)			___.___
○ Bioretention (F-5)			___.___
○ Dry Swale (O-1)			___.___
Standard SMPs			
○ Micropool Extended Detention (P-1)			___.___
○ Wet Pond (P-2)			___.___
○ Wet Extended Detention (P-3)			___.___
○ Multiple Pond System (P-4)			___.___
○ Pocket Pond (P-5)			___.___
○ Surface Sand Filter (F-1)			___.___
○ Underground Sand Filter (F-2)			___.___
○ Perimeter Sand Filter (F-3)			___.___
○ Organic Filter (F-4)			___.___
○ Shallow Wetland (W-1)			___.___
○ Extended Detention Wetland (W-2)			___.___
○ Pond/Wetland System (W-3)			___.___
○ Pocket Wetland (W-4)			___.___
○ Wet Swale (O-2)			___.___

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area(acres)
○ **Hydrodynamic**	
○ **Wet Vault**	
○ **Media Filter**	
○ **Other**	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

. **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ○ **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

. **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

○ **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

[ ][ ][ ].[ ][ ][ ] **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). [ ][ ][ ].[ ][ ][ ]

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ○ **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

[ ][ ][ ].[ ][ ][ ] **acre-feet**

CPv Provided

[ ][ ][ ].[ ][ ][ ] **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

[ ][ ][ ].[ ][ ][ ] **CFS**

Post-development

[ ][ ][ ].[ ][ ][ ] **CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

[ ][ ][ ].[ ][ ][ ] **CFS**

Post-development

[ ][ ][ ].[ ][ ][ ] **CFS**

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ○ **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP [N][Y][R][ ][ ][ ][ ][ ][ ]
- ○ Other [ ]
- ○ None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ○ **Yes** ○ **No**
If Yes, Indicate Size of Impact. [ ][ ][ ][ ][ ].[ ]

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ○ **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ○ **Yes** ○ **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. [N][Y][R][ ][ ][ ][ ][ ][ ]

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name **MI**

Print Last Name

Owner/Operator Signature

Date / /

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information
1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:
II. Project Site Information
5. Project/Site Name:
6. Street Address:
7. City/State/Zip:
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information
8. SWPPP Reviewed by:
9. Title/Position:
10. Date Final SWPPP Reviewed and Accepted:
IV. Regulated MS4 Information
11. Name of MS4:
12. MS4 SPDES Permit Identification Number: NYR20A _____
13. Contact Person:
14. Street Address:
15. City/State/Zip:
16. Telephone Number:

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

APPENDIX 16

CONSTRUCTION WASTE MANAGEMENT & SPILL PREVENTION PLANS

CONSTRUCTION WASTE MANAGEMENT & SPILL PREVENTION PLAN

Early in the construction activities, land clearing materials will be collected and recycled either off site or re-used on site as erosion control materials. During early phase construction activities, cardboard, concrete, metal, wood and general trash collection dumpsters will be on site for collection and processing. As the project progresses, concrete dumpsters will be changed over to drywall collection, site clearing dumpsters will be changed over to finish material containers, etc. Typically, (4) open top containers will be on site for the duration of the project. General waste and cardboard/paper containers will be on site for the duration of the project. The contractor will be responsible for organizing and placing containers on site and timely removal/replacement when containers are filled to capacity. As necessary, the contractor will provide areas of collection or hoppers for subcontractors to utilize for intermediate storage of construction and demolition (CD) materials. All containers will be clearly identified with signage indicating stored materials.

Those CD materials generated on this project will be salvaged and re-processed as listed. The contractor will research available processing sources specific to the job site and make all trades aware of project qualifying CD recyclable materials as follows:

Brick: Materials will be stored on site and palletized by processor who will resell as product.

Cardboard: Materials will be separated on the jobsite and stored within dedicated on-site dumpster and delivered loose to processor. Processor will bale materials and deliver/resell to end market users.

Concrete: Scrap and loose materials will either be crushed on site and used for aggregate or stored within dedicated on-site dumpster and delivered to processor. Processor will reuse or resell materials as clean fill back or crush and use for aggregate.

Metals: Materials will be sorted and stored within dedicated on-site dumpster and delivered to processor. Processor will sell materials to metal recyclers (steel, aluminum, brass, copper, lead, stainless).

Stone and Granite: Materials will be collected on site in piles or containers and processor will palletize and haul materials. Processor will re-sell as product or crushed and use as aggregate.

Plastic, paper goods, and aluminum cans: Materials will be collected on job site within construction trailers, cantina areas, etc. and stored in on-site trailers. Materials will be hauled/recycled by processor.

Drywall: Waste materials will be sorted and collected in dedicated on-site containers or materials will be ground on site and used as an erosion control product. Hauled materials to processor will be processed as a soil amendment or used in alternate fuel mixture.

Wood or Lumber: Materials will be sorted and stored on-site within dedicated on-site containers and either resold as retail lumber by processor or ground and mixed with commercial land

clearing and/or approved materials for erosion control applications. Lumber will need to be clean, no paint or other wood treatment.

Land Clearing Debris: Woody materials (stumps, large limbs) will be ground on-site and used for soil erosion control products or hauled to processor to be ground as re-sold as erosion control products.

Roofing Shingles: Materials will be stored on site and processed as temporary road base, mixed into hot asphalt mix or used as alternate fuel blend or hauled offsite via appropriate methods to an authorized disposal/recycling facility.

Fuel Tanks: On site storage of fuel chemicals shall be equipped with a spill kit. The contractor must provide secondary containment for storing any hazardous chemicals on site.

Equipment storage: All equipment stored on site shall be inspected daily by the contractor for any oil or lubricant spills or leaks. Any leaks shall be repaired immediately. In addition all equipment must be closely inspected prior to working in the Village R.O.W.

Spill Response: All petroleum spills that occur within New York State must be reported to the NYS Spill Hotline (1-800-457-7362) within 2 hours of discovery, except spills which meet **all of the following criteria**:

1. The quantity is known to be less than 5 gallons; and
2. The spill is contained and under the control of the spiller; and
3. The spill has not and will not reach the State's water or any land; and
4. The spill is cleaned up within 2 hours of discovery.

A spill is considered to have not impacted land if it occurs on a paved surface such as asphalt or concrete. A spill in a dirt or gravel parking lot is considered to have impacted land is reportable.

Hazardous Material Spills & Waste: Materials deemed to be hazardous (ie, antifreeze, fertilizers, paint, pesticides), as defined by State and Federal regulations, shall be stored in their approved containers, and maintained in good condition. All spills of hazardous materials shall be cleaned sufficiently, in accordance with all State and Federal regulations, and documented accordingly. All hazardous material waste shall be properly collected, handled and transported to an approved hazardous waste processing facility.

This Plan will be displayed in the construction jobsite trailer at all times.

APPENDIX 17

NEW YORK STATE

RECREATION AND HISTORIC

PRESERVATION

DETERMINATION

New York State
Parks, Recreation and
Historic Preservation

KATHY HOCHUL
Governor

ERIK KULLESEID
Commissioner

December 4, 2023

Jane Samuelson
Professional Engineer
Engineering & Surveying Properties
71 Clinton Street
Montgomery, NY 12549

Re: SEQRA
Sheffield Gardens: Subdivision and Multi-use Development
State Route 17K, Montgomery, NY 12549
23PR02059

Dear Jane Samuelson:

Thank you for requesting the comments of the Division for Historic Preservation of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the submitted materials in accordance with the New York State Historic Preservation Act of 1980 (section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the Division for Historic Preservation and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project.

OPRHP has reviewed the Phase IB Archaeological Survey report for the Sheffield Gardens: Subdivision and Multi-use Development project (23PR02059) prepared by TRACKER Archaeology, Inc., Consulting Archaeologists (August 2023; 23SR00607). OPRHP concurs with the report recommendation that no additional archaeological investigation is warranted.

Based upon this review, it is OPRHP's opinion that no properties, including archaeological and/or historic resources, listed in or eligible for the New York State and National Registers of Historic Places will be impacted by this project.

If you have any questions, I can be reached at Bradley.Russell@parks.ny.gov.

Sincerely,

Brad Russell

Bradley W. Russell, Ph.D.
Historic Preservation Specialist - Archaeology