Appendix 9.5.2 Traditional Neighborhood Alternative SWPPP

Silo Ridge Resort Community
Traditional Neighborhood Alternative

SEQRA – Preliminary Master Stormwater Pollution Prevention Plan

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Town of Amenia
Dutchess County, New York

THE Chazen COMPANIES

Prepared for:

Higher Ground Country Club
Management Co., L.L.C.
P.O. Box 86, Route 22
Amenia, New York 12501

Silo Ridge Resort Community
Traditional Neighborhood Alternative

SEQRA – Preliminary Master Stormwater Pollution Prevention Plan

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Town of Amenia
Dutchess County, New York

June 21, 2007

Prepared by:

Dutchess County
The Chazen Companies
21 Fox Street
Poughkeepsie, New York, 12601
(845) 454-3980

PREPARER OF THE SWPPP

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 29.45 if the Penal Law."

Name:[1] Richard Chazen, P.E.

Title: Principal – The Chazen Companies

License No.: 57818

Date: June 21, 2007

[1] This is a signature of an officer of the corporation authorized in policy or decision making functions of the corporation.

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1.0 EXECUTIVE SUMMARY

The proposed Silo Ridge Resort Community – Traditional Neighborhood Development ("the project") is a master planned community incorporating a mix of commercial, recreational amenities, community facilities, up-scale hotel and spa, and a range of residential housing types, which will be designed, developed and operated with sensitivity to environmental resources and in keeping with the character of the area and local community. In addition, the existing 18-hole golf course will be reconfigured by Ernie Els Golf Design such that the experience for the average golfer continues to be unforgettable and that the course becomes one of this country's premier homes of major championship golf.

Pollutant sources anticipated at the project site include sediment, vehicle fuels and lubricants, chemicals associated with building construction and materials, and fertilizers and pesticides. Without adequate control and management there is the potential for each type of pollutant to be transported off-site in response to rainfall. However, the off-site transportation of such pollutants can be significantly reduced through the preparation of a well designed and engineered stormwater pollution prevention plan and natural resource management plan.

This Master Stormwater Pollution Prevention Plan (SWPPP) has been prepared to support the state environmental quality review (SEQR) of the proposed project. The intent of this Master SWPPP is to provide sufficient documentation for an overall SEQR determination, and to serve as the baseline for the final SWPPP that will be prepared for the proposed development, as approved. As such, design concepts are provided for stormwater collection and conveyance systems, and water quality and quantity control facilities. This report is not intended to be a final engineering document as certain detailed aspects of the project are likely to change during the site plan review process. Portions of the design were advanced to substantiate regulatory compliance determinations and to provide input pertinent to the environmental assessment of impacts of the proposed project. Final stormwater facility designs will be advanced in support of and during the site plan permitting process.

The methodology used to develop this Master SWPPP shall be adhered to for the preparation of the project's final SWPPP. Stormwater quality and quantity controls designed for this Master SWPPP are preliminary in nature and are intended to demonstrate their location, approximate size, and design concept. Detailed analysis of these practices must be performed, and their design refined as part of the final SWPPP.

The stormwater analysis identified herein follows the *NYS Standards and Specifications for Erosion and Sediment Control, the NYS Stormwater Management Design Manual and the USDA Technical Release No. 20.* This Master SWPPP and analysis are an integral part of the project's natural resource management plan which takes into consideration existing parameters of site topography, soils, erosion potential, surface waters, their connectivity and water quality, vegetative characteristics, visual resources, and the overall health of the watersheds.

A Natural Resource Management Plan (NRMP) has been developed by Audubon International, of Cary, North Carolina, to detail how the project will protect natural resources. The NRMP plan depicts "development strategies that encompass sustainability – using natural resources without depleting them, in ways that will support human activity – have been identified and evaluated, and will be implemented. By implementing the programs contained in this plan an environmentally sensitive approach to golf course and community management will be ensured."

Stormwater mitigation measures primarily involve preventing soil erosion and sedimentation resulting from stormwater run-off during and after construction. During construction, this is accomplished by sequencing site disturbance activities to establish erosion controls, minimize disturbed areas, maintain existing vegetation as much as possible, and stabilize newly disturbed areas as soon as possible. Stormwater pollutant controls utilized during construction will include temporary sediment barriers and sediment traps designed in accordance with the *"NYS Standards and Specifications for Erosion and Sediment Control*". Stormwater pollutant controls utilized after construction will include stormwater quality control facilities designed in accordance with the *"NYS Stormwater Management Design Manual".*

The watercourse that ultimately receives all stormwater run-off from the project site is the Amenia/Cascade Brook. This watercourse is identified as a NYSDEC Class "C(Ts)" stream. Thermal impacts are a concern in trout waters, where cold temperatures are critical for species survival. To mitigate thermal impacts, the NYSDEC Design Manual allows the detention requirement for the 1-year, 24-hour storm event to be reduced from 24-hours to 12-hours when discharging to trout waters. Therefore, the stormwater quantity controls for this project have been designed to detain the 1-year, 24-hour storm event for approximately 12 hours, thereby minimizing the temperature increase to the extent practicable.

Land development can also have an affect on site hydrology. Impervious areas such as rooftops, roads, driveways, and parking lots can cause rainfall to rapidly convert into stormwater runoff. Increases in runoff can cause stream bank erosion and floodplain expansion. To mitigate these impacts, stormwater quantity controls will

be implemented to capture and release run-off at less than pre-development discharge rates. A hydrologic and hydraulic analysis was performed using computer modeling and an evaluation of the proposed improvements across the project site. A conventional stormwater management system was developed, consisting of centralized stormwater management facilities designed to meet the requirements of the NYS stormwater management design manual.

The development plan, for the most part, allows for the maintenance of existing drainage patterns while continuing the conveyance of upland watershed areas. The stormwater management system has been designed to attenuate runoff generated during the 1-, 2-, 10-, 25-, 50- and 100- year storm events such that the peak rates realized at the designated design points will not exceed the rates that existed prior to development of the project.

There are two relatively large unnamed NYSDEC Class "C" ponds, DEC #1121 (i.e. Irrigation Pond) and #1122 (Island Green Pond), in the central portion of the project site. These ponds are not surrounded by wetland fringe, but are rather surrounded by limited fringe vegetation, and are maintained to the water's edge. The existing Silo Ridge Golf Club draws water from the Irrigation Pond to irrigate the golf course during the summer months. The existing on-site water supply wells are not used to supplement golf course irrigation at any time. During irrigation operations the water demands can outpace the natural supply of this pond causing a noticeable drop (approximately 8-feet) in water level. To offset this drop in water level, an existing system of valves allows the golf course operators to transfer water from pond the Island Green Pond to the Irrigation Pond as necessary.

Because the golf course will not be expanded with additional holes, it is anticipated that the water demand for irrigation purposes will not significantly increase. For aesthetic reasons and in order to supplement and minimize draw-down from these ponds, treated wastewater will be pumped from the wastewater treatment plant indirectly into pond #1122. As the project site becomes developed and occupied, it is anticipated that pond #1122 will become the primary source of golf course irrigation water, with pond #1121 providing only supplemental "make-up" water during the most severe droughts. The recycling of highly treated "clean" wastewater effluent is a sustainable design feature of the project that will assist in the preservation of ground water resources.

Several managed areas of proposed golf course are located such that the topography or adjacent constraints make it impractical to incorporate stormwater quality facilities. Based on TCC's experience with similar development projects, the NYSDEC will likely require that this project obtain coverage under NYSDEC State Pollutant Discharge Elimination System (SPDES) – Permit NY-2C for Industrial Activities. In support of this associated SPDES permit, the NYSDEC will most likely require that an Integrated Pest Management Plan, Risk Assessment and Water Quality Monitoring Program be developed in support of the proposed development, inclusive of the golf course; the protocol of which is outlined in the above-mentioned Natural Resource Management Plan.

The *"NYS Standards and Specifications for Erosion and Sediment Control"* identifies that no more than 5-acres of soil may be disturbed at any given time. The major developmental components of this project will involve a golf course, village center with a hotel and spa, cluster developments, and residential single-family dwellings with roadways in excess of a mile long. As such, it is anticipated that site construction will need to proceed with greater than 5-acres of soil disturbed at a given time. As the development plan is refined during the site plan review and permitting process a waiver to disturb greater than 5-acres of soil will be requested from the NYSDEC. Typically NYSDEC will grant such a waiver provided that engineering cut and fill models justify each sequence of construction, and that every attempt is made to minimize erosion and establish vegetation as quickly as possible.

2.0 NYSDEC SPDES GENERAL PERMIT GP-02-01

Although it is anticipated that the NYSDEC will likely require that this project obtain coverage under a NYSDEC State Pollutant Discharge Elimination System (SPDES) – Permit NY-2C for Industrial Activities, this project must still be developed in conformance with NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activities, Permit No.: GP-02-01.

A summary of responsibilities and obligations of all parties involved with compliance with the NYSDEC SPDES General Permit GP-02-01 conditions are outlined in the subsequent sections. For a complete listing of the responsibilities and obligations refer to the SPDES General Permit GP-02-01 presented in Appendix A.

2.1 Definitions

1. "General Permit" shall mean the general stormwater permit for construction activities issued by the United States Environmental Protection Agency, New York State Department of Environmental Conservation or a comparable general permit issued by local or other appropriate governmental agency.

2. "Operator" shall be any party (or parties) that has (or have) either (a) operational control over construction plans and specifications, including the ability to make modification to those plans and specifications or (b) day-to-day operational control of those activities at a project which are necessary to ensure compliance with the SWPPP for the site or other permit conditions. There may be occasions during the course of a project in which there are multiple Operators, all of which will need to file and maintain the appropriate SWPPP documents and plans, including without limitation, the Notice of Intent (NOI) and Notice of Termination (NOT).

3. "Operator's Engineer" shall be that person or entity retained by an Operator to design and oversee the implementation of the SWPPP.

4. "Contractor" shall be that person or entity identified as such in the construction contract with the Operator. The term "Contractor" shall also include the Contractor's authorized representative, as well as any and all subcontractors retained by the Contractor.

5. "Qualified Professional" shall be a person knowledgeable in the practices of erosion and sediment controls, such as a NYS professional engineer or Certified Professional in Erosion and Sediment Control (CPESC).

2.2 Operator's Responsibilities

1. Have an authorized corporate officer sign the NOI and SWPPP Operator's Certification forms.

2. Submit the signed form along with any required fees and attachments to the following:

   NYS DEC "Notice of Intent"
   Bureau of Permit
   625 Broadway
   Albany, New York 12233-3505

   Town of Amenia Planning Board
   P.O. Box 126
   36B Mechanic Street
   Amenia, New York 12501

3. Retain the services of a "Qualified Professional" as defined under Section 2.1 "Definitions" to provide the services outlined in Section 2.3 "Operator's Engineer's Responsibilities".

4. Schedule a pre-construction meeting which shall include the Town representative, Operator's Engineer, Contractor, and their sub-contractors to discuss responsibilities as they relate to the implementation of this SWPPP.

5. Require the Contractor to fully implement the SWPPP prepared for the site by the Operator's Engineer.

6. Forward a copy of the original acknowledgement of receipt of the NOI received from the regulatory agency to the Operator's Engineer for project records, and to the Contractor for display at the job site.

7. Keep a copy of the SWPPP, all NOI's, original acknowledgement of receipt of the NOI, permit language, Spill Prevention, Countermeasures, and Cleanup ("SPCC") Plan, inspection records, and other required records on the job site so that they may be made available to the regulatory agencies.

8. Post at the site, in a publicly-accessible location, a summary of the site inspection activities on a monthly basis.

9. Prepare a written summary of projects status with respect to compliance with the general permit at a minimum frequency of every three months during which coverage under the permit exists. The summary should address the status of achieving the overall goal of the SWPPP. The summary shall be handled in the same manner as prescribed for SWPPP's under Part III, subsection B of the NYSDEC SPDES General Permit GP-02-01.

10. Submit a Notice of Termination (NOT) form (see Appendix G) within 48 hours of receipt the Operator's Engineer's certification of final site stabilization to the following:

    NYS DEC "Notice of Termination"
    Bureau of Permit
    625 Broadway
    Albany, New York 12233-3505

    Town of Amenia Planning Board
    P.O. Box 126
    36B Mechanic Street
    Amenia, New York 12501

11. Request and receive all SWPPP records from the Operator's Engineer and archive those records for a minimum of three years after the NOT is filed.

12. Require the implementation of the Post-Construction Inspections and Maintenance procedures outlined in Appendix H.

2.3 Operator's Engineers Responsibilities

1. Prepare the SWPPP using good engineering practices, best management practices, and in compliance with all federal, state, and local regulatory requirements.

2. Prepare the Notice of Intent Form (NOI) form (see Appendix B) and forward to Operator for signature.

3. Prepare and forward the SWPPP Operator Certification form for Operator's signature (see Appendix C).

4. Include a signed NOI and Operator Certification forms in the SWPPP prepared for the job site.

5. Provide copies of the SWPPP to the Town of Amenia once all signatures and attachments are complete.

6. Prepare a construction site log book to be used in maintaining a record of all inspection reports generated throughout the duration of construction.

7. Participate at pre-construction meeting with the Town representative, Operator, Contractor, and their sub-contractors to discuss responsibilities as they relate to the implementation of this SWPPP.

8. Enter Contractor's information in Section 2.5 "SWPPP Participants" once a Contractor is selected by the Operator.

9. Conduct an initial site assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment control measures described within this SWPPP and required by Part III.D of the NYSDEC General Permit, GP-02-01, have been adequately installed and implemented to ensure overall preparedness of the site.

10. Provide on-site inspections at least every seven (7) calendar days and within 24 hours of the end of a storm event of ½-inch or greater to determine compliance with the SWPPP. The written inspection reports shall be provided to the Operator within 24 hours of the field inspection with any deficiencies identified. A description of Construction Phase Inspections and Maintenance requirements are presented in Appendix D. A sample inspection form is provided in Appendix E.

11. Review the Contractor's SWPPP records on a periodic basis to ensure compliance with the requirements for daily reports and inspections and maintenance logs.

12. Maintain the construction site log book throughout the duration of construction.

13. Update the SWPPP each time there is a significant modification to the pollution prevention measures or a change of the principal Contractor working on the project who may disturb site soil.

14. Provide the Operator certification that an inspection has been completed verifying that the site has undergone final stabilization using appropriate measures and that all temporary erosion and sediment controls have been removed.

15. Transfer the SWPPP documents, along with all NOI's, permit certificates, NOT's, construction site log book, and written records required by the General Permit to the Operator for archiving.

2.4 Contractor's Responsibilities

1. Send all notifications required by SPDES General Permit Number GP-02-01 via certified mail with return receipt. Copies of mailing receipts shall be kept on record at the project site with the SWPPP and shall be considered part of the contract documents.

2. Sign the SWPPP Contractor's Certification form contained within Appendix C and forward to the Operator's Engineer for inclusion into the Site Log Book.

3. Provide the names and addresses of all subcontractors working on the project site. Require all subcontractors who will be involved with the major construction activities that will result in soil disturbance sign a copy of the Contractor's Certification Form and forward to the Operator's Engineer for inclusion into the Site Log Book. This information must be retained as part of the SWPPP.

4. Participate in pre-construction meeting which shall include the Town representative, Operator, Operator's Engineer, and all sub-contractors to discuss responsibilities as they relate to the implementation of this SWPPP.

5. Implement site stabilization, erosion and sediment control measures, and other requirements of the SWPPP.

6. Conduct daily inspections, prepare, and retain written documentation of inspections as well as all repairs/maintenance activities performed on erosion and sediment control measures.

7. Maintain a record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated, until such time as the NOT is filed. A log for keeping such records is provided in Appendix F.

8. Provide monthly training sessions for all entities and subcontractors involved with installing, applying, performing, maintaining and inspecting measures outlined within this SWPPP.

2.5 SWPPP Participants

1. Operator's Engineer:

The Chazen Companies
21 Fox Street
Poughkeepsie, NY 12601
Phone: (845) 454-3980
Fax: (845) 454-4026

2. Operator:

Mr. Robert F. Caeners
Silo Ridge Country Club
P.O. Box 86
NYS Route 22
Amenia, NY 12501
Phone: (845) 373-7000
Fax: (845) 373-8847

3. Contractor[2]:

Name and Title: _____
Company Name: _____
Mailing Address: _____
_____
Phone: _____
Fax: _____

[2] Contractor's information to be entered once the Contractor has been selected.

3.0 INTRODUCTION

Higher Ground Country Club Management Co. L.L.C. is proposing the improvement of the existing 670 (+/-) acre Silo Ridge Country Club into a master planned traditional neighborhood community complex incorporating recreational amenities, community facilities, up-scale hotel and spa, and a range of residential housing types, which will be designed, developed and operated with sensitivity to environmental resources and in keeping with the character of the area and local community. The existing 18-hole golf course will be reconfigured by Ernie Els Golf Design such that the experience for the average golfer continues to be unforgettable and that the course becomes one of this country's premier homes of major championship golf.

In order to treat and attenuate additional stormwater run-off produced from the proposed development, stormwater management facilities will be strategically incorporated into residential, village and golf course areas. Where practical, these facilities will be designed and constructed as amenities and/or golf course hazards.

A variety of housing configurations will be oriented to various lifestyles using architectural themes compatible with the natural setting of the site and consistent with the character of the local community. The project will include all necessary infrastructure, including an on-site central water supply, treatment storage and distribution network, a wastewater collection, conveyance and treatment system, drainage facilities and extensive natural resource conservation, protection and enhancement areas.

This Master SWPPP has been prepared for major activities associated with construction of Silo Ridge Country Club Golf Resort Community – Traditional Neighborhood Alternative in the Town of Amenia, Dutchess County, New York. This Master SWPPP includes the elements necessary to comply with the national baseline general permit for construction activities enacted by the U.S. Environmental Protection Agency (EPA) under the National Pollutant Discharge Elimination System (NPDES) program and all local governing agency requirements. A final detailed SWPPP conforming to the intent of this Master SWPPP will be prepared in support of and during the site plan permitting process. This detailed SWPPP must be implemented at the start of construction.

3.1 Project Description

The proposed 670-acre Silo Ridge Resort Community – Traditional Neighborhood Alternative is located west of New York State (NYS) Route 22 and split (into a "north" and "south" area) by US 44 in the Town of Amenia, Dutchess County, New York ("project site"). The project site is identified as the Town of Amenia Tax Parcel Numbers 7066-00-732810, 7066-00-860725, 7066-00-742300, 7066-00-670717, 7067-00-709177 and 7067-00-628131 by the Town of Amenia Tax Map and is currently developed with an 18-hole golf course and clubhouse and amenities on approximately 170-acres. There is also an unoccupied single-family residence located north of US Route 44.

The development will consist of a mix of commercial, recreational amenities, community facilities, up-scale hotel and spa, and a range of residential housing types, as well as, improved golf course and clubhouse facilities. Construction will consist primarily of site grading, roadway grading and paving, storm drainage, water supply and sanitary sewage collection and treatment.

3.2 Generalized Construction Phasing

It is the intent of the Applicant to commence with construction in the following order:

Construction Phase 1

a. *Modification of the Existing Golf Course:* There currently is an 18-hole golf course with practice greens and driving range on the project site. In support of the proposed development, multiple greens and fairways will require modification. Construction will include the relocation and re-grading of tees, greens and fairways and the enhancement and incorporation of new stormwater management facilities.

b. *Village Green "Core" Area and Winery:* The construction of the first of a two phased hotel, spa, existing golf club house renovation, winery, and Village Green Townhomes (Blocks "A" thru "D").

c. *Major Site Infrastructure:* The construction of the water supply, treatment and storage system, and wastewater treatment plant with associated roadway and infrastructure.

Construction Phase 2

Phase 2 Hotel and Residential: Construction of residential communities consisting of townhomes and single-family residences (Blocks "E" thru "L"), and the second of a two phased hotel with associated roadway and infrastructure. The exact construction order and timeframe of the associated "Blocks" will depend on market demand.

Construction Phase 3

Vineyard Townhomes and Associated Amenities Building: Construction of residential Vineyard Townhomes and associated Amenities Building north of US Route 44 with roadway and infrastructure. The exact timeframe of this development area will depend on market demand.

3.3 Purpose

Pollutant sources anticipated at the project site include sediment, vehicle fuels and lubricants, chemicals associated with building construction and materials, and fertilizers and pesticides. Without adequate control there is the potential for each type of pollutant to be transported off-site in response to rainfall. However, the off-site transportation of such pollutants can be significantly reduced through the preparation of a well designed and engineered SWPPP and NRMP.

This report considers the impacts associated with the intended development with the purpose of:

1. Maintaining existing drainage patterns as much as possible while continuing the conveyance of upland watershed runoff;

2. Controlling increases in the rate of stormwater runoff resulting from the proposed development in order to not adversely impact downstream conditions;

3. Mitigating potential stormwater quality impacts and preventing soil erosion and sedimentation resulting from stormwater runoff generated both during and after construction.

To demonstrate this, pre- and post-development stormwater runoff conditions have been estimated and proposed stormwater management facilities have been described and evaluated.

The hydrologic and hydraulic analyses were completed in accordance with the following standards and guidelines:

- *New York State Stormwater Management Design Manual* (August 2003).

- *New York State Standards and Specifications for Erosion and Sediment Control* (August 2005).

The analysis and design completed and documented in this report is intended to be part of the application made for the Silo Ridge Resort Community – Traditional Neighborhood Alternative completed on behalf of the Higher Ground Country Club Management Co. L.L.C.

This Master SWPPP, the accompanying SEQRA drawings entitled "Silo Ridge Golf Resort Community – Traditional Neighborhood Alternative" (The Chazen Companies) and natural resource management plan entitled "Natural Resource Management Plan for Silo Ridge Resort Community – Traditional Neighborhood Alternative" (Audubon International) have been submitted as a set. These drawings and natural resource management plan are considered an integral part of this Master SWPPP, therefore this Master SWPPP is not considered complete without them. References made herein to "the plans" or to a specific "sheet" refer to the above-mentioned drawings, while references made to "the NRMP" refer to the above-mentioned natural resource management plan.

A location map of the project site has been provided in Appendix I, as Figure 1.

4.0 TYPICAL SITE DEVELOPMENT CONSTRUCTION SEQUENCE

Described below are the major construction activities that are the subject of this SWPPP. They are presented in the order (or sequence) they are expected to begin, but each activity will not necessarily be completed before the next begins. Also, these activities could occur in a different order if necessary to maintain adequate erosion and sediment control.

The Contractor will be responsible for implementing the following erosion and sediment control measures. The Contractor may designate these tasks to certain subcontractors as he sees fit, but the ultimate responsibility for implementing these controls and ensuring their proper function remains with the Contractor. The order of activities will be as follows:

1. Selectively clear only the areas required for the installation of the stabilized construction entrances/exits and temporary sediment and erosion measures.

2. Install stabilized construction entrances/exits for all construction entrances/exits. This will be the first construction work on the project.

3. Install sediment control barriers down slope from construction activities that disturb site soil.

4. Install protective measures at the locations of all grate inlets, curb inlets, and at the ends of all exposed storm sewer pipes.

5. Install temporary sediment traps.

6. Begin clearing and grubbing operations. Clearing and grubbing shall be done only in areas where earthwork will be performed and only in areas where construction is planned to commence within 14 days after clearing and grubbing.

7. Frequent watering of the excavation and fill areas shall be done to minimize wind erosion.

8. Commence site grading.

9. Disturbed areas of the site, where construction activity has ceased for more than 14 days, shall be temporarily or permanently seeded, mulched, and watered.

10. Construct all utilities, curb or gutter, gutter inlets, area inlets, and storm sewer manholes, as shown on the plans. Inlet protection may be removed temporarily for this construction. Place required rip-rap at locations shown on the plans.

11. Finalize pavement sub-grade preparation.

12. Install sub-base material as required for pavement.

13. Remove protective measures around inlets and manholes no more than 24 hours prior to placing stabilized base course.

14. Carry out final grading, seeding, mulching, and landscaping.

15. Install asphalt pavement.

16. Remove silt fencing only after all paving is complete and exposed tributary surfaces are stabilized.

17. Remove stabilized construction entrances only prior to pavement construction in these areas (These areas are to be paved last).

18. Complete on-site stabilization.

19. Remove temporary sediment controls only after all paving is complete and exposed surfaces are completely stabilized, and cleanout all stormwater collection conveyance, and treatment facilities.

Refer to the accompanying plans for clarifications and specifications regarding the construction sequencing schedule.

5.0 SITE DESCRIPTION

5.1 Land Use

The entire project site is located west of New York State Route 22. The majority of the project site lies south of US Route 44, with a small portion of the project site lying north of US Route 44. On the north portion of the project site (north of US Route 44) there is an unoccupied single-family residence which gains access via a gravel driveway from US Route 44. On the central portion of the project site (south of US Route 44) there is an 18-hole golf course, club house, and parking areas, as well as other miscellaneous golf course amenities.

The Amenia Stream (otherwise known as the Amenia/Cascade Brook) traverses along the eastern edge of the project site and exits via a box culvert near the existing golf course entrance on NYS Route 22. Along the western portion of the project site the land is comprised of open meadows and large wooded areas which contain an existing dirt trail system. It should be noted that there are numerous wetlands scattered throughout the project site, specifically a large NYSDEC wetland exists near the southeast property corner. Please refer to the accompanying plan set for more information.

The project site lies primarily within the Town of Amenia's RA, Agricultural Density, with a small portion along NYS Route 22 in the Town's M, Industrial, districts.

Generally, stormwater on the project site flows in an easterly direction and drains off-site. Specifically, north of US Route 44 stormwater flows southeasterly under US Route 44 via culverts, and discharges back onto the project site south of US Route 44. Stormwater runoff, then flows across the project site via overland flow, stormwater underdrains, culverts, or ponds and channels, and eventually reaches the Amenia/Cascade Brook (which flows from north to south). The Amenia/Cascade Brook then discharges off-site via a large box culvert located near the existing golf course entrance on NYS Route 22.

With the exception of approximately 1,400 linear feet of the existing golf course entrance road and area immediately adjacent, the remainder of the project site drains west to east to a large NYSDEC regulated wetland (Wetland L/LL, refer to the accompanying plans) located near the southeast property corner. This wetland drains off-site via a 30-inch culvert located under NYS Route 22.

Generally stormwater that drains to the NYSDEC wetland flows through a series of ponds, culverts and/or streams located throughout the central portion of the project site prior to reaching this wetland. Lastly, the 1,400 linear feet of the existing golf course entrance road and area immediately adjacent drain to two ponds located on either side of the subject entrance (refer to the accompanying plans).

5.2 Soils

The United States Department of Agriculture (USDA) Soil Conservation Service (SCS) Soil Survey for Dutchess County was reviewed and provided surficial soil conditions for the study area. The SCS identified the presence of Copake, Dutchess-Cardigan complex, Fluvaquents-Udifluvents complex, Galway-Farmington complex, Georgia, Hollis-Chatfield-Rock outcrop complex, Nassau-Cardigan complex, Nassau-Rock outcrop complex, Palms muck, Stockbridge, Stockbridge-Farmington complex, Sun, Udorthents, Udorthents, and Wayland series soil types. Soil data was provided by the SCS and is presented in Table 1.

Table 1: USDA Soil Data

MAP SYMBOL/ DESCRIPTION	HYDRO-LOGIC SOIL GROUP	SLOPE (%)	SOIL PROFILE		K VALUE	DEPTH TO WATER TABLE (FT)	DEPTH TO BEDROCK (IN)
			DEPTH (IN)	USDA TEXTURE			
CuC / Copake gravelly silt loam, nearly level	B	5 to 16	0-6 6-36 36-80	Gravelly silt loam. Gravelly loam, gravelly silt loam, fine sandy loam. Stratified gravelly loamy fine sand to very gravelly coarse sand.	0.10-0.24	> 6.0	> 60
CuD / Copake gravelly silt loam, rolling	B	15 to 30	0-6 6-36 36-80	Gravelly silt loam. Gravelly loam, gravelly silt loam, fine sandy loam. Stratified gravelly loamy fine sand to very gravelly coarse sand.	0.10-0.24	> 6.0	> 60
CwB / Copake channery silt loam, 3 to 8 % slopes	B	3 to 8	0-6 6-36 36-80	Channery silt loam. Channery loam, channery silt loam, fine sandy loam. Stratified channery loamy fine sand to channery coarse sand.	0.10-0.24	3.0 to 6.0	> 60
DwB / Dutchess-Cardigan complex, undulating	B	1 to 6	0-8 8-28 28-86	Silt loam. Silt loam, channery silt loam, gravelly loam. Channery silt loam, very channery fine sandy loam, very gravelly sandy loam.	0.32-0.37	> 6.0	20 to 40 & > 60
DwD / Dutchess-Cardigan complex,	B	15 to 30	0-8 8-28	Silt loam. Silt loam, channery	0.32-0.37	> 6.0	20 to 40, > 60 & rock

MAP SYMBOL/ DESCRIPTION	HYDRO-LOGIC SOIL GROUP	SLOPE (%)	SOIL PROFILE		K VALUE	DEPTH TO WATER TABLE (FT)	DEPTH TO BEDROCK (IN)
			DEPTH (IN)	USDA TEXTURE			
hilly, rocky			28-86	silt loam, gravelly loam. Channery silt loam, very channery fine sandy loam, very gravelly sandy loam.			outcropping
Ff / Fluvaquents-Udifluvents complex, frequently flooded	D	0 to 3	0-5 5-72	Silt loam. Very gravelly sand, gravelly silt loam, silty clay loam.	0.28-0.32	+0.5 to 1.5 & 2.0 to 6.0	> 60
GfD / Galway-Farmington complex, hilly	B	15 to 30	0-7* 7-15* 15*	Loam.* Silt loam, loam, gravelly fine sandy loam.* Unweathered bedrock*	0.24-0.32	1.5 to 3.0 & >60	10-20, 20-40, & rock outcropping
GsB / Georgia silt loam, 3 to 8 % slopes	C	3 to 8	0-8 8-27 27-80	Silt loam. Loam, silt loam, very gravelly fine sandy loam. Loam, very gravelly fine sandy loam, silt loam gravelly fine sandy loam.	0.32	1.5 to 3.0	> 60
GsC / Georgia silt loam, 8 to 15 % slopes	C	8 to 15	0-8 8-27 27-80	Silt loam. Loam, silt loam, very gravelly fine sandy loam. Loam, very gravelly fine sandy loam, silt loam gravelly fine sandy loam.	0.32	1.5 to 3.0	> 60
HoE / Hollis-Chatfield-Rock outcrop complex, steep	C/D	25 to 45	0-3** 3-15** 15**	Loam.** Gravelly fine sandy loam, sandy loam, loam.** Unweathered bedrock.**	0.24-0.32	> 6.0	10-20, 20-40, & rock outcropping
NwC / Nassau-Cardigan complex, rolling, very rocky	B	5 to 16	0-5*** 5-16*** 16***	Channey silt loam.*** Very channery silt loam, very channery loam.*** Unweathered bedrock.***	0.20-0.37	> 6.0	10-20, 20-40, & rock outcropping
NwD / Nassau-Cardigan complex, hilly, very rocky	C	15 to 30	0-5*** 5-16*** 16***	Channey silt loam.*** Very channery silt loam, very channery loam.*** Unweathered bedrock.***	0.20-0.37	> 6.0	10-20, 20-40, & rock outcropping
NxE / Nassau-Rock outcrop complex, steep	C	25 to 45	0-5 5-16 16	Channery silt loam. Very channery silt loam, very channery loam. Unweathered bedrock.	0.20	>6.0	10-20 & rock outcropping
NxF / Nassau-Rock outcrop complex, very steep	C	45 to 70	0-5 5-16 16	Channery silt loam. Very channery silt loam, very channery loam. Unweathered bedrock.	0.20	>6.0	10-20 & rock outcropping

MAP SYMBOL/ DESCRIPTION	HYDRO-LOGIC SOIL GROUP	SLOPE (%)	SOIL PROFILE		K VALUE	DEPTH TO WATER TABLE (FT)	DEPTH TO BEDROCK (IN)
			DEPTH (IN)	USDA TEXTURE			
Pc / Palms muck	A/D	0 to 2	0-12 12-30 03-80	Muck. Muck. Clay loam, silty clay loam, gravelly fine sandy loam.	0.37	+1.0-1.0	> 60
SkC / Stockbridge silt loam, 8 to 15 % slopes	C	8 to 15	0-6 6-23 23-80	Silt loam. Loam, silt loam, gravelly loam. Gravelly loam, silt loam, very gravelly fine sandy loam.	0.24-0.37	> 6.0	> 60
SkD / Stockbridge silt loam, 15 to 25 % slopes	C	15 to 25	0-6 6-23 23-80	Silt loam. Loam, silt loam, gravelly loam. Gravelly loam, silt loam, very gravelly fine sandy loam.	0.24-0.37	> 6.0	> 60
SkE / Stockbridge silt loam, 25 to 45 % slopes	C	25 to 45	0-6 6-23 23-80	Silt loam. Loam, silt loam, gravelly loam. Gravelly loam, silt loam, very gravelly fine sandy loam.	0.24-0.37	> 6.0	> 60
SmD / Stockbridge-Farmington complex, hilly, rocky	C	15 to 30	0-7 7-15 15	Loam**** Silt loam, loam, very fine sandy loam, gravelly fine sandy loam.**** Unweathered bedrock.****	0.24-0.37	> 6.0	10-20, > 60 & rock outcropping
Su / Sun silt loam	D	0 to 3	0-4 4-22 22-80	Silt loam. Gravelly fine sandy loam, sandy loam, gravelly loam, silt loam, loam. Gravelly fine sandy loam, gravelly loam, very gravelly sandy loam.	0.20-0.28	+1.0-0.5	> 60
Ud / Udorthents, smoothed	A/D	0 to 8	0-4 4-70	Loam. Very gravelly sandy loam, channery loam, silty clay loam.	0.32-0.37	> 3.0	> 60
Ue / Udorthents, wet substratum	A/D	0 to 8	0-4 4-72	Loam. Very gravelly loamy sand, channery loam, silty clay loam.	0.32-0.37	1.0-3.0	> 60
Wy / Wayland silt loam	C/D	0 to 3	0-9 9-80	Silt loam. Silt loam, silty clay loam.	0.43	+0.5-1.0	> 60

*Soil Profile listed is for the Farmington soil portion of the Galway-Farmington complex.
**Soil Profile listed is for the Hollis soil portion of the Hollis-Chatfield-Rock outcrop complex.
***Soil Profile listed is for the Nassau soil portion of the Nassau-Cardigan complex.
****Soil Profile listed is for the Farmington soil portion of the Stockbridge-Farmington complex.

The Soil Conservation Service defines the hydrologic soil groups as follows:

- Type A Soils: Soils having a high infiltration rate and low runoff potential when thoroughly wet. These soils consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a moderate rate of water transmission.

- Type B Soils: Soils having a moderate infiltration rate when thoroughly wet and consists mainly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately course textures. These soils have a moderate rate of water transmission.

- Type C Soils: Soils having a low infiltration rate when thoroughly wet and consists chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine-to-fine texture. These soils have a low rate of water transmission.

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

The soils map for the study area is presented in Appendix I, as Figure 2.

5.3 Groundwater

The project site is not located over a primary, principal, or sole source aquifer as per the NYSDEC Division of Water Technical and Operational Guidance, Series (2.1.3), Primary and Principle Aquifer Determinations, Table 1, 1990, and the Atlas of Eleven Selected Aquifers in New York, U.S. Geological Survey in cooperation with the NYS Department of Health, 1982.

Depth to groundwater varies across the site according to Table 17 "Soil and Water Features" of the USDA Soil Conservation Service Soil Survey for Dutchess County as shown in Table 1 “USDA Soil Data”.

5.4 Topography

The overall project site has varying slopes, with slopes ranging from over 100 percent to nearly level. Site elevations range from over 1100 feet above mean sea level (MSL) to approximately 480 feet above MSL. As previously discussed, the northern end of the site generally slopes southeasterly toward US Route 44 and Route 22. Overall, the western portion of the project site is generally at a higher elevation than the rest of the project site and slopes toward the east (refer to the accompanying plans for more information).

5.5 Wetlands

There are 12 wetlands located throughout the project site. Wetland delineations were conducted on May 3, 5, 6, and November 3, 2005 by representatives of The Chazen Companies. The wetland boundaries were surveyed by The Chazen Companies and presented on a map entitled "Map of Wetland Survey Prepared for Higher Ground Country Club Management Co." dated January 13, 2006. The majority of these wetlands are either Federally or State regulated and they encompass approximately 47(+/-) acres of the project site. A Wetland Delineation Report, dated January 2006, prepared by The Chazen Companies, has been submitted to the regulatory authorities in pursuit of jurisdictional determinations.

On May 14, 2007, The Chazen Companies conducted a supplemental wetland delineation within the vicinity of the unoccupied single-family residence north of US Route 44 (refer to the accompanying plans for more information).

5.6 Surface Waters and Flood Plains

According to the National Flood Insurance Program Flood Insurance Rate Map (FIRM), Town of Amenia, New York, Community Panel Number 361332 0006 D a small portion of the project site located adjacent to the Amenia Stream lies within Flood Zone AE, an area of "Special Flood Hazard Area Inundated by 100-Year Flood" where base flood elevations have been determined. All other areas of the project site are designated as being located outside the 100-year flood plain.

The project site is located within the drainage basin of the Ten Mile River, which flows southeast into the Housatonic River in the State of Connecticut. Within the project site, there are two perennial streams (Amenia/Cascade Brook and an unnamed stream); seven intermittent streams; eight ponds; and eleven wetlands. A perennial stream is a stream that contains water at all times except during extreme drought, while an intermittent stream ceases to flow occasionally or seasonally. For the location of on-site water bodies refer to the accompanying plans.

Of the two perennial streams located on the project site, the Amenia/Cascade Brook is identified as a NYSDEC Class "C(Ts)" stream. In addition to supporting fisheries and being suitable for non-contact activities, the "Ts" classification indicates that the quality of the water can also support trout populations and trout spawning. The Amenia/Cascade Brook enters the project site south of US Route 44, traverses along the eastern property boundary and then discharges off-site via a large box culvert located near the existing golf course entrance on NYS Route 22. The other perennial stream is an unnamed Class "C" stream that flows through the NYSDEC Wetland L/LL located in the east-central portion of the project site which eventually discharges into the Amenia/Cascade Brook adjacent to the project site. All of the intermittent streams on the project site are also Class "C" water bodies.

The eight ponds or open water areas total approximately 10.5 acres and are scattered throughout the project site (refer to the accompanying plans). Two of the ponds are located on either side of the entrance driveway off of Route 22 and two are located in the northern portion of the golf course. The two largest ponds (Irrigation and Island Green Ponds) are located within the central portion of the golf course and are used as water features and irrigation storage. The remaining two ponds are associated with Wetland J, just west of the Island Green pond.

Stormwater runoff from the project site flows to the one of three places; as previously mentioned the northern end of the project site eventually drains to the Amenia/Cascade Brook. The existing golf course entrance road and the immediate adjacent areas drain to two existing ponds located on either side of the subject entrance. Finally the remainder of the project site (central portion, western-southwestern portion) drain to the large NYSDEC regulated wetland (Wetland L/LL, refer to the accompanying plans) located near the southeast property corner.

The Amenia Brook is not a 303(d) listed segment, and it should be noted that the project site is located within a Total Maximum Daily Load (TMDL) Watershed (Long Island Sound).

5.7 Rainfall Data

Rainfall data utilized in the modeling and analysis was taken from United States Department of Agriculture (USDA) Technical Release 55 (TP-55), Urban Hydrology for Small Watersheds. Rainfall data specific to the portion of Dutchess County under consideration, for various 24 hour storm events, are presented in Table 2:

Table 2: Rainfall Data

STORM EVENT	24-HOUR RAINFALL
1-year	2.8 inches
2-year	3.5 inches
10-year	5.0 inches
25-year	6.0 inches
50-year	7.0 inches
100-year	8.0 inches

The 2-year through the 100-year values were used to evaluate the pre- and post-development stormwater runoff conditions. The 1-year storm was used to ensure that all stormwater management facilities meet the NYSDEC stream channel protection requirements, where applicable.

6.0 EROSION AND SEDIMENT CONTROLS

This Master SWPPP and accompanying plans identify the temporary and permanent erosion and sediment control measures that have been incorporated into the design of this project. These measures will be implemented during construction, to minimize soil erosion and control sediment transport off-site, and after construction, to control the quality and quantity of stormwater runoff from the developed site.

Erosion control measures, designed to minimize soil loss, and sediment control measures, intended to retain eroded soil and prevent it from reaching water bodies or adjoining properties, have been developed in accordance with the following documents:

- NYSDEC SPDES General Permit for Stormwater Discharges From Construction Activity, Permit No. GP-02-01 (effective January 2003).

- *New York State Standards and Specifications for Erosion and Sediment Control*, NYSDEC (August 2005).

- New York State Stormwater Management Design Manual, NYSDEC (August 2003).

This Master SWPPP and accompanying plans outline the construction scheduling for implementing the erosion and sediment control measures. This Master SWPPP and accompanying plans include limitations on the duration of soil exposure, criteria and specifications for placement and installation of the erosion and sediment control measures, a maintenance schedule, and specifications for the implementation of erosion and sediment control practices and procedures.

6.1 Erosion and Sediment Control Measures

The proposed stormwater management system has been designed to convey stormwater flows off-site via a combination of closed storm sewers, open ditches, stormwater quality and quantity control facilities with overflow spillways, thereby preventing erosion and uncontrolled conveyance to the down gradient facilities.

The use of micropool extended detention ponds and wet and dry swales provide treatment of stormwater runoff and removal of suspended particles.

Temporary and permanent erosion and sediment control measures that will be applied during construction generally include:

1. Minimizing soil erosion and sedimentation by stabilization of disturbed areas and by removing sediment from construction-site discharges.

2. Preservation of existing vegetation as much as possible. Following the completion of construction activities in any portion of the site permanent vegetation shall be established on all exposed soils.

3. Site preparation activities shall be planned to minimize the area and duration of soil disruption.

4. Permanent traffic corridors shall be established and "routes of convenience" shall be avoided.

6.2 Temporary Erosion and Sediment Control Measures

Temporary erosion and sediment control measures will be included as part of the construction documents and generally include the following:

1. Stabilized Construction Entrance

   Prior to construction, stabilized construction entrances will be installed, as shown on the detail plan, to reduce the tracking of sediment onto public roadways.

   Construction traffic must enter and exit the site at the stabilized construction entrance. The intent is to trap dust and mud that would otherwise be carried off-site by construction traffic.

   The entrance shall be maintained in a condition, which will control tracking of sediment onto public rights-of-way or streets. When necessary, the placement of additional aggregate atop the filter fabric will be done to assure the minimum thickness is maintained. All sediments and soils spilled, dropped, or washed onto the public rights-of-way must be removed immediately. Periodic inspection and needed maintenance shall be provided after each substantial rainfall event.

2. Dust Control

   Water trucks will be used as needed during construction to reduce dust generated on the site. Dust control must be provided by the general Contractor to a degree that is acceptable to the Owner, and in compliance with the applicable local and state dust control requirements.

3. Temporary Soil Stockpile

   Materials, such as topsoil, will be temporarily stockpiled (if necessary) on the site during the construction process. Stockpiles shall be located in an area away from storm drainage, water bodies and/or courses, and will be properly protected from erosion by a surrounding silt fence barrier.

4. Silt Fencing

   Prior to the initiation of and during construction activities, a geotextile filter fabric (or silt fence) will be established along the perimeter of areas to be disturbed as a result of the construction which lie up gradient of water courses or adjacent properties. These barriers may extend into non-impact areas to ensure adequate protection of adjacent lands.

   Clearing and grubbing will be performed only as necessary for the installation of the sediment control barrier. To ensure effectiveness of the silt fencing, daily inspections and inspections immediately after significant storm events will be performed by site personnel. Maintenance of the fence will be performed as needed.

5. Temporary Seeding

   Within 14 days after construction activity ceases on any particular area of the site, all disturbed areas where there will not be construction for longer than 21 days shall be temporarily seeded and mulched to minimize erosion and sediment loss.

6. Stone Inlet Protection Barrier

   Concrete blocks surrounded by wire mesh and crushed stone will be placed around both existing catch basins, and proposed catch basins once they have been installed, to keep sediment from entering the catch basins and storm sewer system. During construction, crushed stone shall be replaced as necessary to ensure proper function of the structure.

7. Erosion Control Blanket

   Erosion control blankets will be installed on all slopes exceeding 3:1. Erosion control blankets provide temporary erosion protection, rapid vegetative establishment, and long-term erosion resistance to shear stresses associated with high runoff flow velocities associated with steep slopes.

8. Stone Check Dams

   Stone check dams will be installed within drainage ditches to reduce the velocity of stormwater runoff, to promote settling of sediment, and to reduce sediment transport offsite.

   The stone check dams shall be inspected at least every seven (7) calendar days and within 24 hours of the end of a storm event of ½-inch or greater. Damage will be repaired upon discovery. If significant erosion has occurred between structures, a liner of stone or other suitable material shall be installed in that portion of the channel.

   Sediment accumulated behind the stone check dam will be removed as needed to allow the channel to drain through the stone check dam and prevent large flows from carrying sediment over or around the dam. Stones shall be replaced as needed to maintain the design cross section of the structures.

9. Temporary Sediment Traps

   Temporary sediment traps will be constructed to intercept sediment laden runoff and reduce the amount of sediment leaving the disturbed areas and to protect drainage ways, properties, and rights-of-way.

   Temporary sediment traps will be inspected at least every seven (7) calendar days and within 24 hours of the end of a storm event of ½-inch or greater. All damages caused by soil erosion and construction equipment shall be repaired upon discovery. Accumulated sediment shall be removed from the basin when it reaches 50 percent of the design capacity and shall not exceed 50 percent. Sediment will not be placed downstream from the embankment, adjacent to a stream, or floodplain.

6.3 Permanent Erosion and Sediment Control Measures

Permanent erosion and sediment control measures will be included as part of the construction documents and include the following:

1. Establishment of Permanent Vegetation

   Disturbed areas that will be vegetated must be seeded in accordance with the contract documents. The type of seed, mulch, and maintenance measures as described in the contract documents shall also be followed.

All areas at final grade must be seeded and mulched within 14 days after completion of the major construction activity. All seeded areas should be protected with mulch.

Final site stabilization is achieved when all soil-disturbing activities at the site has been completed and a uniform, perennial vegetative cover with a density of 80 percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

2. Rock Outlet Protection

Rock outlet protection will be installed at the locations as indicated and detailed on the construction documents. The installation of rock outlet protection will reduce the depth, velocity, and energy of water, such that the flow will not erode the receiving water course or water body.

6.4 Other Pollutant Controls

Control of sediments has been described previously. Other aspects of this SWPPP are listed below:

1. Solid Waste Disposal

No solid materials, including building materials, are allowed to be discharged from the site with stormwater. All solid waste, including disposable materials incidental to the major construction activities, will be collected and placed in containers. The containers will be emptied periodically by a contract trash disposal service and hauled away from the site.

Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order to ensure that they do not discharge from the site. As an example, special care must be exercised during equipment fueling and servicing operations. If a spill occurs, it must be contained and disposed so that it will not flow from the site or enter groundwater, even if this requires removal, treatment, and disposal of soil. In this regard, potentially polluting substances should be handled in a manner consistent with the impact they represent.

2. Sanitary Facilities

   Temporary sanitary facilities will be provided by the Contractor throughout the construction phase. They must be utilized by all construction personnel and will be serviced by a commercial Contractor. These facilities must comply with state and local sanitary or septic system regulations.

3. Water Source

   Non-stormwater components of site discharge must be clean water. Water used for construction, which discharges from the site, must originate from a public water supply or private well approved by the Health Department. Water used for construction that does not originate from an approved public supply must not discharge from the site. It can be retained in the ponds until it infiltrates and evaporates.

4. Long-Term Pollutant Controls

   In addition to the permanent stormwater management facilities, identified on the accompanying plans, stormwater pollutant control measures installed during construction that will also provide benefits after construction include temporary sediment traps and rip-rapped outfalls. Temporary sediment traps that do not interfere with normal operations and appear to provide long-term benefits may be left in place after construction is completed, as directed by the Operator.

6.5 Construction Housekeeping Practices

During the construction phase, the general Contractor will implement the following measures:

1. Material resulting from the clearing and grubbing operation will be stockpiled up slope from adequate sedimentation controls.

2. The general Contractor will designate areas for equipment cleaning, maintenance, and repair. The general Contractor and subcontractors will utilize those areas. The areas will be protected by a temporary perimeter berm.

3. The use of detergents for large scale washing is prohibited (i.e., vehicles, buildings, pavement surfaces, etc.)

4. Spill Prevention and Response

A Spill Prevention and Response Plan shall be developed for the site by the Contractor. The plan shall detail the steps needed to be followed in the event of an accidental spill and shall identify contact names and phone numbers of people and agencies that must be notified.

The plan shall include Material Safety Data Sheets (MSDS) for all materials to be stored on-site. All workers on-site will be required to be trained on safe handling and spill prevention procedures for all materials used during construction. Regular tailgate safety meetings shall be held and all workers that are expected on the site during the week shall be required to attend.

5. Material Storage

   Construction materials will be stored in a dedicated staging area. The staging area will be located in an area that minimizes the impacts of the construction materials effecting stormwater quality.

   Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated and disposed at an approved solid waste or chemical disposal facility.

6.6 Inspection and Maintenance Requirements

1. Pre-Construction Inspection and Certifications

   Prior to the commencement of construction, the Operator's Engineer shall conduct an assessment of the site and certify that the appropriate erosion and sediment control measures have been adequately installed and implemented. The Contractor shall contact the Operator's Engineer once the erosion and sediment control measures have been installed.

2. Construction Inspection and Maintenance

   To ensure the stability and effectiveness of all protective measures and practices during construction, all erosion and sediment control measures employed will be inspected by the Operator's Engineer at least every seven (7) calendar days and within 24 hours of the end of a storm event of ½-inch or greater. Section 6.7 Subsection 1 "Inspection and Maintenance Reports" outlines what each inspection shall include.

In addition to the inspections performed by the Operator's Engineer, routine inspections shall be performed by the Contractor and include a visual check of all erosion and sediment control measures. All inspections and maintenance will be performed in accordance with the inspection and maintenance schedule to be provided on the construction documents. Sediment removed from erosion and sediment control measures will be exported from the site, stockpiled for later use, or used immediately for general non-structural fill.

3. Post-Construction Inspection and Maintenance

   Inspections shall be performed by the Operator in accordance with Appendix H, when all disturbed areas are stabilized and all stormwater management systems are in place and operable.

6.7 Reporting

1. Inspection and Maintenance Reports

   Inspection/maintenance reports shall be prepared prior to and during construction in accordance with the schedule outlined herein and in the SPDES General Permit GP-02-01. The reports shall be prepared to identify and document the maintenance of the erosion and sediment control measures.

   Specifically, each inspection shall record the following information:

   1. On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14 day period.

   2. Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization.

   3. Indicate all disturbed site areas that have not undergone active site work during the previous 14 day period.

   4. Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume (e.g., 10 percent, 20 percent, 50 percent, etc.).

5. Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, and any erosion near outlet and overflow structures.

6. All deficiencies identified with the implementation of the SWPPP.

2. Site Log Book

   The Operator shall retain a copy of the SWPPP required by NYSDEC SPDES General Permit GP-02-01 at the construction-site from the date of initiation of construction activities to the date of final stabilization.

   During construction, the Operator or Operator's representative shall maintain a record of all erosion and sediment control inspection reports at the site in a log book. The site log book shall be maintained on-site and made available to the permitting authority.

3. Post Construction Records and Archiving

   Following construction, the Operator shall retain copies of the SWPPP, the complete construction site log book, and records of all data used to complete the NOI to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

   The Operator shall maintain a record of all post construction inspections and maintenance work performed in accordance with the requirements outlined in Appendix H

7.0 STORMWATER MANAGEMENT PLAN

The goals of this Stormwater Management Plan are to analyze the peak rate of runoff under pre- and post-development conditions, to maintain the pre-development rate of runoff in order to minimize impacts to adjacent or downstream properties, and to minimize the impact to the quality of runoff exiting the site.

These objectives will be met by applying Best Management Practices (BMPs) to limit peak runoff rates and treat the water quality. In addition, both temporary and permanent erosion and sediment control measures will be installed prior to and during construction to minimize erosion, and control sediment transport off-site.

7.1 Stormwater Management Systems

Stormwater runoff from the proposed development will be collected and conveyed to the quantity and quality control systems described herein through a network of closed and open conveyances.

The final closed stormwater network, consisting of catch basins, drainage manholes, and high density polyethylene piping (HDPE), will be designed to convey at least the 10-year storm event.

The final open stormwater conveyance system, consisting of roadside ditches and HDPE culverts with flared end sections and inlet/outlet protection, will also be designed to convey at least the 10-year storm event.

The following stormwater quantity and quality control systems have been incorporated into the stormwater management plan for this project:

1. Micropool Extended Detention Pond (P-1)

   The micropool extended detention pond is an effective means of removing pollutants and will provide a high pollutant removal rate for stormwater runoff. According to the NYSDEC publication *Reducing the Impacts of Stormwater Runoff from New Development*, high pollutant removal from extended detention ponds is primarily attributed to the permanent pool of water that provides gravity settling of sediment, chemical flocculation and biological uptake of pollutants.

Sediment forebays will capture sediment and other trash/debris prior to entering the pond. The pond will be landscaped with a variety of plantings including emergents and woody shrubs, with each type of planting corresponding to the water depth. An aquatic bench will maximize the biological uptake of pollutants.

The Micropool extended detention pond(s) (P-1) were designed according to the criteria set forth in Section 6.1 "Stormwater Ponds" of the *NYS Stormwater Management Design Manual*.

2. Dry Swale (O-1)

   Dry swales are designed to temporarily hold the water quality volume of a storm in a pool or series of pools created by permanent check dams at culverts or driveway crossings. The soil bed consists of native soils or highly permeable fill material, underlain by an underdrain system. Pollutants are removed through sedimentation, nutrient uptake, and infiltration.

   Dry swales (O-1) were designed according to the criteria set forth in Section 6.5 "Open Channel Systems" of the *NYS Stormwater Management Design Manual*.

3. Wet Swale (O-2)

   Wet swales temporarily store and treat the entire water quality volume. However, unlike dry swales, wet swales are constructed directly within existing soils and are not underlain by a soil filter bed or underdrain system. Wet swales store the water quality volume within a series of cells within the channel, which may be formed by berms or check dams and may contain wetland vegetation. The pollutant removal mechanisms in wet swales are similar to those of stormwater wetlands, which rely on sedimentation, adsorption, and microbial breakdown. Water quality swales can be used in place of curbs, gutters, and storm drain systems on residential and commercial sites to enhance pollutant removal and provide limited groundwater recharge, flood control, and channel protection benefits.

   Wet swales (O-2) were designed according to the criteria set forth in Section 6.5 "Open Channel Systems" of the *NYS Stormwater Management Design Manual*.

4. Underground Stormwater Storage System

   Where necessary, underground stormwater storage systems are used for the purpose of attenuation to meet water quantity control requirements. A series of collection and conveyance pipes lead stormwater run-off to subsurface vaults and/or a system of large diameter interconnected storage pipes. Stored water is then released directly back into natural waters at rates designed to reduce peak run-off flows during post development storms. Underground stormwater storage provides minimal stormwater quality benefits, but can be an effective segment to a development's overall stormwater management plan, when coupled in-line with other stormwater BMPs.

5. Proprietary Stormwater Management Devices

   Where necessary, proprietary stormwater management devices provide some level of pre- and primary water quality treatment by removing pollutants from stormwater runoff. Hydrodynamic systems such as gravity and vortex separators accelerate the separation of large debris and sediment from stormwater, while media filter systems contain filter beds or cartridges that promote settling of finer particles, as well as adsorption and absorption of pollutants attracted to the filter media.

7.2 Hydrologic and Hydraulic Analysis

This report presents the pre-development and post-development features and conditions associated with surface water runoff within the study area. For both cases, the drainage patterns, drainage structures, soil types, and ground cover types are considered in this study.

1. Methodology

   The methodology used for the hydrologic and hydraulic analysis was obtained from the United States Department of Agriculture (USDA) Soil Conservation Service's (SCS) Technical Release No. 20, as utilized by the application program HydroCAD. HydroCAD, developed by Applied Microcomputer Systems of Chocorua, New Hampshire, is a Computer-Aided-Design (CAD) program for analyzing the hydrologic and hydraulic characteristics of a given watershed and associated stormwater management facilities.

HydroCAD has the capability of computing hydrographs (which represent discharge rates characteristic of specified watershed conditions and precipitation), combining hydrographs and routing flows though pipes, streams and ponds. Documentation for HydroCAD can be found on their website: http://www.hydrocad.net/.

For this analysis, the watershed and drainage system was broken down into a network consisting of three types of components as described below:

1. Subcatchment: A relatively homogeneous area of land, which produces a volume and rate of runoff unique to that area.

2. Reach: Uniform streams, channels or pipes that convey stormwater from one point to another.

3. Pond: Natural or man-made impoundment, which temporarily stores stormwater runoff and empties in a manner determined by its geometry and the hydraulic structure located at its outlets.

Subcatchments, reaches, and ponds are represented by hexagons, squares, and triangles respectively, on the watershed routing diagrams provided with the computations included in Appendix J and Appendix K.

2. Analysis

The analysis of hydrologic and hydraulic conditions and proposed stormwater management facilities, servicing the study area, was performed by dividing the tributary watershed into relatively homogeneous sub-catchments. The separation of the watershed into sub-catchments was dictated by watershed conditions, methods of collection, conveyance, and points of discharge. Watershed characteristics for each subcatchment were then assessed from United States Geological Service (USGS) 7.5-minute topographic maps, aerial photographs, a topographical survey, soil surveys, site investigations, and land use maps.

Proposed stormwater management facilities were designed and evaluated in accordance with the *NYS Stormwater Management Design Manual* and local regulatory requirements. The hydrologic and hydraulic analysis considered the SCS, Type III 24-hour storm events identified in Table 3.

Table 3: Design Events

Facility	24 Hour Storm Event
Storm Culverts	50 year
Stormwater Collection and Conveyance System	10 year
Detention Basins and Swales	1 year
	2 year
	10 year
	25 year
	50 year
	100 year
Flood Conditions	100 year

3. Study Area and Design Points (DP)

The study area consists of an overall watershed that encompasses approximately 776-acres and contains the entire 670-acre project site. The overall watershed was broken down into smaller watersheds, or subcatchments, to allow for analysis of runoff conditions at several locations throughout the study area. Each of these locations was defined as a Design Point (DP) in order to evaluate the effects of the project on the watershed hydrology. Descriptions of each of the selected design points are provided below.

- Design Point 1: This design point is a low area located within the US Route 44 R.O.W. (north side of US Route 44) adjacent to a utility easement. This low area is drained by a 36-inch Corrugated Metal Pipe (CMP) which passes beneath US Route 44 and discharges back onto the project site south of US Route 44.

- Design Point 2: This design point is a low area located within the US Route 44 R.O.W. (north side of US Route 44). This low area receives the waters from a NYSDEC Class "C" stream and is drained by a 24-inch reinforced concrete pipe (RCP). This 24-inch RCP passes beneath US Route 44 and discharges back onto the project site south of US Route 44.

- Design Point 3: This design point is a located at the entrance of a 12-foot by 12-foot box culvert which is located within NYS Route 22 R.O.W. just north of the main entrance to the existing golf course. This box culvert conveys the Amenia/Cascade Brook off of the project site beneath NYS Route 22.

- Design Point 4: This design point is located at the outlet of Wetland "L/LL" located within the NYS Route 22 R.O.W. The outlet associated with this wetland is a 30-inch CMP which passes beneath NYS Route 22 and discharges easterly to the Amenia/Cascade Brook.

- Design Point 5: This design point is a low area located within the NYS Route 22 R.O.W. This area is located off site near the southeast corner of the project property and is drained by a culvert pipe, which passes beneath NYS Route 22 and discharges easterly to Amenia/Cascade Brook.

- Design Point 6: This design point is a low area located within the US Route 44 R.O.W. (north side of US Route 44) approximately 20-feet west of the intersection of US Route 44 and West Lake Amenia Road. This low area is drained by a 36-inch CMP which passed beneath US Route 44 and discharges back onto the project site south of US Route 44.

- Design Point 7: This design point is a low area located within the US Route 44 R.O.W. (north side of US Route 44) approximately 130-feet east of the intersection of US Route 44 and West Lake Amenia Road. This low area is drained by a 24-inch RCP which passes beneath US Route 44 and discharges onto an adjacent property north of West Lake Amenia Road.

- Design Point 8: This design point is a low area located within the US Route 44 R.O.W. (north side of US Route 44) approximately 870-feet east of the intersection of US Route 44 and West Lake Amenia Road. This low area is drained by a culvert pipe which passes beneath US Route 44 and discharges onto an adjacent property north of West Lake Amenia Road.

7.3 Pre-Development Watershed Conditions

The existing project site is covered predominantly by open meadows, grass, wetlands, woods, as well as an existing 18-hole golf course, golf course club house and associated amenities. Analysis of pre-development conditions considered existing drainage patterns, soil types, ground cover, and topography. The Pre-Development Watershed Delineation Map has been provided in Appendix I as Figure 3. The results of the computer modeling used to analyze the overall watershed under pre-development conditions are presented in Appendix J. A summary of the pre-development discharge rates is presented in Table 4.

7.4 Post-Development Watershed Conditions

The analysis of post-development conditions considered existing drainage patterns, soil types, ground cover to remain, planned site development, site grading, and stormwater management facilities proposed as part of site improvements. The Post-Development Watershed Delineation Map has been provided in Appendix I as Figure 4. The results of the computer modeling used to analyze the overall watershed under post-development conditions are presented in Appendix K. A summary of the post-development discharge rates is presented in Table 4.

7.5 Hydrologic and Hydraulic Calculations

Comparison of pre- and post-development watershed conditions demonstrates that the peak rate of runoff from the proposed site will not be increased at all design points therefore will not pose a significant adverse impact to the adjacent or downstream properties or receiving water courses. Table 4 "Summary of Pre- and Post-Development Peak Discharge Rates" summarizes the results of the analyses for such comparison.

Table 4: Summary of Pre- & Post-Development Peak Discharge Rates

Pre- vs. Post-Development Discharge Rate (cfs)										
Design Point (DP)	2 year 24 hr storm event		10 year 24 hr storm event		25 year 24 hr storm event		50 year 24 hr storm event		100 year 24 hr storm event	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	12.96	12.61	29.17	28.01	41.36	39.54	54.23	51.89	67.55	66.60
2	27.89	27.89	69.51	68.34	101.79	99.58	136.27	132.92	172.31	167.75
3	125.08	118.84	203.16	190.59	271.37	257.61	345.55	333.85	422.23	416.80
4	14.63	11.88	26.57	24.86	34.08	33.11	38.50	38.22	42.70	42.67
5	17.23	17.23	37.09	37.09	51.75	51.75	67.08	67.08	82.83	82.83
6	0.77	0.77	3.01	3.01	4.99	4.99	7.23	7.23	9.65	9.65
7	11.44	11.36	27.39	27.21	39.68	39.42	52.75	52.40	66.38	65.94
8	5.79	5.51	13.19	12.51	18.75	17.76	24.61	23.30	30.67	30.52

The results of the computer modeling used to analyze the stormwater management system under pre- and post-development conditions are presented in Appendix J and Appendix K, respectively.

7.6 Proposed Water Quantity and Quality Controls

1. Water Quantity Controls

   Primary stormwater quantity control goals will be achieved through the use of open micropool extended stormwater detention ponds.

The proposed quantity controls have been designed and sized to provide channel protection (C_{p_v}), overbank flood control ($Q_{p_{10}}$) and extreme flood protection ($Q_{f_{100}}$), where:

- Channel Protection Volume (C_{p_v}) requirements are designed to protect stream and channel banks. This is normally accomplished by providing 24- hour extended detention of the 1- year, 24-hour storm event, however, the watercourse that ultimately receives all stormwater run-off from the project site is the Amenia/Cascade Brook. This watercourse is identified as a NYSDEC Class "C(Ts)" stream. Detention of stormwater can cause an increase in water temperature. Thermal impacts are a concern in trout waters, where cold temperatures are critical for species survival. According to the NYSDEC Design Manual, trout waters may be exempted from the 24-hour extended detention requirement, with only 12 hours of extended detention required, therefore a 12 hour extended detention time was provided. Also, the CPv is not required if the resulting diameter of the orifice is too small to prevent clogging. A minimum 3" orifice protected by a trash rack, or 1" orifice if protected by a standpipe. For these reasons, a minimum 3" diameter orifice was used for the discharge of the 1- year, 24-hour storm event.

- Overbank Flood Control Volume ($Q_{p_{10}}$) requirements are designed to prevent flow events that exceed the bankfull capacity of a channel, and therefore must spill over into the floodplain. This requires storage to assure that the post-development 10-year 24-hour peak discharge rates do not exceed pre-development rates.

- Extreme Flood Protection Volume ($Q_{f_{100}}$) requirements are designed to prevent the increased risk of flood damage from large storm events, maintain the boundaries of pre-development 100-year floodplain, as well as to protect the physical integrity of the stormwater management practices. This requires storage to assure that the post-development 100-year 24-hour peak discharge rates do not exceed pre-development rates.

There are numerous locations and methods for providing controls of off-site discharge of stormwater. Although the project site, inclusive of the existing golf course, has no "formal" NYSDEC phase 2 stormwater management facilities, it is likely that some of the existing ponds and the NYSDEC regulated wetlands are currently functioning to provide some type of stormwater quality and quantity control. Based on TCC's experience with similar development projects, it is likely that the NYSDEC will encourage the continued use of the existing NYSDEC regulated wetland for quantity control purposes, provided that there are no modifications to the current configuration and that there is no significant change to the overall wetland hydrology. Table 5 "Hydrologic Summary of NYSDEC Regulated Wetland "L/LL" depicts the pre- and post developmental affect for comparison.

Table 5: Hydrologic Summary of NYSDEC Regulated Wetland "L/LL

Pre- vs. Post-Development Hydrologic Affect on NYSDEC Wetland "L/LL"						
24-hr Design Storm Event	**Peak Flow Rate Out (cfs)**		**Runoff Volume Received (ac-ft)**		**Peak Water Surface Elevation (ft)**	
	Pre	**Post**	**Pre**	**Post**	**Pre**	**Post**
1-year	8.93	7.86	13.16	22.79	482.40	482.27
2-year	14.63	11.88	28.90	40.05	483.08	482.75
10-year	26.57	24.86	69.72	81.67	484.77	484.54
25-year	34.08	33.11	100.44	114.99	485.98	485.80
50-year	38.50	38.22	133.05	149.94	486.82	486.77
100-year	42.70	42.67	167.06	186.07	487.73	487.72

Each proposed stormwater management basin has been designed in general conformance with NYSDEC SPDES General Permit GP-02-01 by providing the applicable quantity controls. These basins and on-site NYSDEC Wetland "L/LL" attenuates stormwater runoff to ensure that the discharge rate at each design point is equal to or less than the rate that existed prior to development of the site. The performance of each stormwater management basin during each of the design storms can be found in Appendix K of this report.

2. Water Quality Controls

Stormwater runoff from impervious surfaces is recognized as a significant contributor of pollution that can adversely affect the quality of the receiving water bodies. Therefore, treatment of stormwater runoff is important since most runoff related water quality contaminants are transported from land, particularly the impervious surfaces, during the initial stages of storm events.

The proposed water quality volume controls have been sized based on the 90% rule methodology as described in Table 4.1 "New York Stormwater Sizing Criteria" of the *NYS Stormwater Management Design Manual* dated August 2003. The water quality volume control is defined as:

$$WQ_v = \frac{[(P)(R_V)(A)]}{12}$$

Where:

P	=	90% Rainfall Event Number
R_v	=	0.05 + 0.009 (I), minimum R_v = 0.2
I	=	Impervious Cover (Percent)
A	=	Site Area in Acres

Utilizing the above design equation, each of the stormwater management basins have been sized accordingly to provide as a minimum, the required water quality volume (WQ_v) for its contributing drainage area. Design computations for the stormwater quality control components for each basin are presented in Appendix L.

7.7 Pollutant Load Analysis

The pollutant load analysis will be used to compare the overall project site pollutant export under pre- and post development conditions. This analysis provides an indication of the magnitude of the pollutant loads that could potentially leave the project site if stormwater management and erosion and sediment control measures are not properly designed, constructed and maintained.

The intent of this pollutant load analysis is to serve as the baseline for a final pollutant load analysis that may be requested during the site plan review and approval process. This pollutant load analysis follows the guidelines set forth in the "*NYSDEC Reducing the Impacts of Stormwater Runoff from New Development",* dated April 1992.

The "Simple Method" was used to estimate pollutant loads for phosphorous, nitrogen, biochemical and chemical oxygen demand (BOD and COD, respectively) and total suspended solids (TSS). This method is considered precise enough to make reasonable and reliable pollutant management decisions at the EIS planning level. Flow weighted mean concentration of the pollutants ("C") have been selected from Table 2.1 – "National Median Concentrations for Chemical Constituents in Stormwater" of the "New York State Stormwater Management Design Manual".

The Simple Method employs the following formula:

Storm Pollutant Export (lbs/yr) = [(P)(Pj)(Rv/12)] (C) (A) (2.72)

Where:

P = Average Annual Rainfall Depth
Pj = Runoff Frequency Factor (0.9 for annual calculations)
Rv = Runoff Coefficient
C = Pollutant Concentration (mg/L)
A = Area of Watershed
12 & 2.72 = Unit Conversions

The runoff coefficient (Rv) expresses the fraction of rainfall which is converted into runoff. The higher the watershed imperviousness, the higher the Rv value becomes. The Rv value for each condition was obtained from Figure 9 in "NYSDEC Reducing the Impacts of Stormwater Runoff from New Development".

The average annual rainfall at the project site is determined to be 43.3 inches per year (Exhibit 4.1 in "NYS Guidelines for Urban Erosion and Sediment Control"). The storm water pollutant concentrations listed in Table 2.1 of the New York State Stormwater Design Manual are summarized in Table 6.

Table 6: Pollutant Concentrations "C"

Constituent	Pollutant Concentration (mg/l)
Total Phosphorous	0.26
Total Nitrogen	2.00
Total Suspended Solids (TSS)	54.5
Biological Oxygen Demand (BOD)	11.5
Chemical Oxygen Demand (COD)	44.7

7.6.1 Existing Conditions – Pollutant Load Analysis:

Under existing conditions, the 670-acre property is partially developed with an 18-hole golf course and club house. The project site currently has no formal NYSDEC phase 2 stormwater management facilities, but it is likely that some of the existing ponds are currently functioning to provide stormwater quality and quantity control. However, they are not considered in this pollutant load analysis.

There are approximately 12 acres (or 2% of the entire site) of impervious cover on the project site (including buildings and associated parking areas, roads, and golf cart paths). Using the Simple Method, the existing annual stormwater pollutant exports from the project site were calculated and are summarized in Table 7.

Table 7: Existing Conditions
Annual Stormwater Pollutant Exports

Constituent	Concentration (lbs/yr)		
	12 Acres Impervious	658 Acres Pervious	Total
Total Phosphorous	26.2	75.6	101.8
Total Nitrogen	201.4	581.2	782.6
Total Suspended Solids (TSS)	54.9	15,838.4	21,326.5
Biological Oxygen Demand (BOD)	1,158.0	3,342.0	4,500.0
Chemical Oxygen Demand (COD)	4,501.0	12,990.4	17,491.6

7.6.2 Proposed Conditions – Pollutant Load Analysis:

Under proposed conditions approximately 39 acres of the project site will be developed into impervious area, as a combination of residential and hotel buildings including associated roadway and parking impervious areas.

Due to the physical characteristics and adjacent environmental constraints of the project site, stormwater mitigation measures will be utilized on approximately 90 percent (approximately 35-acres) of the proposed impervious development and will consist primarily of stormwater management basins and underground stormwater filters. The remaining contributing watershed will remain as undeveloped wooded/grassed and "managed" and "unmanaged" golf course areas.

Using runoff coefficient values equal to 0.95 for the 35-acre developed area that will be conveyed through mitigation measures, 0.95 for the 4-acre developed area that will not be conveyed a mitigation measure and 0.05 for the remaining undeveloped/non-impervious areas, the proposed conditions storm water pollutant loads were calculated prior to receiving treatment from the stormwater treatment system. The post development annual stormwater pollutant exports prior to treatment are summarized in Table 8.

Table 8: Post Development
Annual Stormwater Pollutant Exports (Prior to Treatment)

Constituent	Concentration (lbs/yr)			
	35 Acres Impervious (to be mitigated)	**4 Acres Impervious (unmitigated)**	**631 Acres Pervious**	**Total (prior to treatment)**
Total Phosphorous	76.3	18.4	72.5	167.2
Total Nitrogen	586.7	141.8	557.1	1,285.6
Total Suspended Solids (TSS)	15,986.7	3,862.9	15,198.1	35,047.7
Biological Oxygen Demand (BOD)	3,373.3	815.1	3206.9	7,395.3
Chemical Oxygen Demand (COD)	13,112.1	3,168.3	12,465.2	28,745.6

7.6.3 Pollutant Load Mitigation:

Under post development conditions, proposed storm water management facilities include stormwater management basins and underground stormwater filters.

Figure 15 of the "*NYSDEC Reducing the Impacts of Stormwater Runoff from New Development"*, describes the effectiveness of storm water management facilities to remove specific pollutant loads. The subsequent pollutant removal rates for extended detention ponds are presented in Table 9. Conservatively, stormwater filters were assumed to have the same removal efficiencies as extended detention ponds.

Table 9: Stormwater Facility Pollutant Removal Percentages

Constituent	Percent Removal
	Stormwater Management Facility
Total Phosphorous	60 to 80%
Total Nitrogen	40 to 60%
Total Suspended Solids (TSS)	80 to 100%
Biological Oxygen Demand (BOD)	40 to 60%
Chemical Oxygen Demand (COD)	40 to 60%

Please note that it is anticipated that supplemental proprietary stormwater management devices may be incorporated into the stormwater collection and conveyance system. NYSDEC does not recognize specific pollutant removal efficiencies for these types of structures; however, it is intuitively obvious that some pollutant load removal capabilities will be achieved by these measures.

7.6.4 Final Pollutant Load Exports:

Stormwater management basins and underground stormwater filters have been designed to enhance storm water quality, while attenuating runoff to pre-development rates prior to discharge. "Low", "Middle", and "High" removal values have been utilized to estimate "best management practice" pollutant load export.

The pollutant loading analysis indicates that best management practices and the utilization of multiple storm water quality management facilities are effective in reducing post development storm water pollutant discharges. Post development storm water pollutant concentrations are significantly reduced through the use of stormwater management facilities.

In addition to the "best management practices" identified above, storm water quality will be enhanced through the implementation of erosion control measures and suggested maintenance practices outlined in this SWPPP.

Table 10 summarizes the post development annual stormwater pollutant exports based on the implementation of the "best management practices" identified in this SWPPP.

Table 10: Post Development
Annual Stormwater Pollutant Load Exports (Following Treatment)

CONSTITUENT	CONCENTRATION (lbs/yr)							
	631-Acre Non-Imperv.	4-Acre Impervious (unmitigated)	35-Acre Impervious (mitigated)			Total Pollutant Export		
			Low	Middle	High	Low	Middle	High
Total Phosphorous	72.5	18.4	30.5	22.9	15.3	121.4	113.8	106.2
Total Nitrogen	557.7	141.8	352.0	293.3	234.7	1,051.5	993.8	934.2
Total Suspended Solids (TSS)	15,198.1	3,862.9	3,197.3	1,598.7	0.0	22,258.3	20,659.7	19,061.0
Biological Oxygen Demand (BOD)	3,206.9	815.1	2,024.0	1,686.7	1,349.3	6,046.0	5,708.7	5,371.3
Chemical Oxygen Demand (COD)	12,465.2	3,168.3	7,867.2	6,556.0	5,244.8	23,500.7	22,189.5	20,878.3

7.6.5 Comparison of Pollutant Load Exports:

The proposed stormwater management basins and filters have been designed as stand-alone facilities in accordance with the NYS Design Manual. Consistent with NYSDEC storm water regulations, no other storm water management facilities would be required to ensure that the post development storm water run-off quality is not substantially altered from pre-development conditions.

The pollutant loading analysis indicates that best management practices and the utilization of multiple storm water quality management facilities are effective in reducing post development storm water pollutant discharges. Table 11 summarizes the annual stormwater pollutant exports originating under pre- and post-development conditions.

Table 11: Summary of Pre- & Post-Development Annual Stormwater Pollutant Load Exports

CONSTITUENT	CONCENTRATION (lbs/yr)				
	Existing Site	Developed Pollutant Export w/out Storm Water Treatment	Developed Pollutant Export w/ Storm Water Treatment		
			Low	Middle	High
Total Phosphorous	101.8	167.2	121.4	113.8	106.2
Total Nitrogen	782.6	1,285.6	1051.5	993.8	934.2
Total Suspended Solids (TSS)	21,326.5	35,047.7	22,258.3	20,659.7	19,061.0
Biological Oxygen Demand (BOD)	4,500.0	7395.3	6,046.0	5708.7	5,371.3
Chemical Oxygen Demand (COD)	17,491.6	28,745.6	23,500.7	22,189.5	20,878.3

8.0 CONCLUSION

The Chazen Companies have completed a Master Stormwater Pollution Prevention Plan for the planned Silo Ridge Country Club Resort Community – Traditional Neighborhood Alternative. The intent of this Master SWPPP was to provide sufficient documentation for an overall SEQR determination, and to serve as the baseline for the final SWPPP that will be prepared for the proposed development, as approved.

The analyses included the review of watershed conditions, hydrologic and hydraulic analysis using computer modeling, and an evaluation of the proposed improvements across the project site. The plan allows for the maintenance of existing drainage patterns while continuing the conveyance of stormwater runoff from upland watershed areas.

The plan controls increases in the stormwater rate of runoff resulting from the proposed development without adversely affecting downstream conditions. This is demonstrated by comparing pre- and post-development flows for various storm events. Table 4 "Summary of Pre- and Post-Development Peak Discharge Rates" summarizes the results of the analyses for such comparison.

The comparison of the pre- and post-development watershed rates of runoff demonstrate that off-site peak flow conditions at the design points will pose no significant adverse impacts to the adjacent or downstream properties or receiving water courses.

The proposed stormwater collection system consisting of pipes, open drainage ways and on-site stormwater management facilities will adequately collect, treat, and convey the stormwater.

Post-development annual stormwater pollutant concentrations are significantly reduced through the use of stormwater extended detention ponds. In addition to the "best management practices" (i.e. stormwater extended detention pond) identified above, storm water quality will be enhanced through the implementation of erosion control measures and suggested maintenance practices outlined in the respective SWPPP.

In conclusion, it is our opinion that the proposed development will not adversely impact adjacent or downstream properties if the stormwater management facilities are properly constructed, and maintained in accordance with the requirements outlined herein.

Appendix A:
NYSDEC SPDES
General Permit GP-02-01

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

from

CONSTRUCTION ACTIVITY

Permit No. GP-02-01

Issued Pursuant to Article 17, Titles 7, 8 and Article 70
of the Environmental Conservation Law

Effective Date: January 8, 2003

Expiration: January 8, 2008

William R. Adriance
Chief Permit Administrator

Address: NYS DEC
Div. Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

Authorized Signature

William R. Adriance

Date: January 8, 2003

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NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES
FROM CONSTRUCTION ACTIVITY

Preface

Pursuant to Section 402 of the Clean Water Act ("CWA"), stormwater discharges from certain construction activities to waters of the United States[1] are unlawful unless they are authorized by a NPDES (National Pollutant Discharge Elimination System) permit or by a state permit program. New York's SPDES (State Pollutant Discharge Elimination System) is a NPDES-approved program with permits issued in accordance with the Environmental Conservation Law ("ECL"). Discharges of pollutants to all other "Waters of New York State" such as groundwaters are also unlawful unless they are authorized by a SPDES permit.

A discharger, owner, or operator may[2] obtain coverage under this general permit by submitting a Notice of Intent ("NOI") to the Department. Copies of this General Permit and the NOI for New York are available by calling (518) 402-8109 or at any Department of Environmental Conservation (the Department) regional office (see Appendix A on Page 23). They are also available on the Department's website at:

www.dec.state.ny.us

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[1] "Waters of the United States" means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; and
(b) All interstate waters, including interstate "wetlands"; and
(c) All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
    (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
    (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    (3) Which are used or could be used for industrial purposes by industries in interstate commerce; and
(d) All impoundments of waters otherwise defined as waters of the United States under this definition; and
(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; and
(f) The territorial sea; and
(g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of the CWA are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (such as disposal areas in wetlands) nor resulted from the impoundment of waters of the United States.

[2] "may" refers to circumstances under which the discharger is ineligible for coverage under this general permit because of other provisions of this permit. Dischargers which are excluded from coverage under this general permit as provided for in Part I, Section C, for example, are not authorized to discharge under this permit. This also applies to possible situations in which an NOI has been submitted and/or a regulatory fee paid pursuant to Article 72 of the ECL. The submittal of an NOI and/or regulatory fee has no bearing or relevance whatsoever on the eligibility of the construction activity discharging stormwater runoff under the authority of this permit.

Local Programs of a Regulated MS4

Under the federal Phase II stormwater program, many cities, villages, towns, and other public entities in New York State which are located within "Urbanized Areas" as defined by the U.S. Census and who operate a Municipal Separate Storm Sewer System ("MS4") will be required to obtain SPDES permit coverage for stormwater discharges under their jurisdiction and control (see 40CFR Part 122 §122.26.32). Additionally, MS4s may be designated by the Department as regulated MS4s. Among other requirements, the Phase 2 NPDES stormwater regulations require regulated MS4s to address stormwater runoff from construction activities. Construction activities covered under this general permit, which are subject to stormwater runoff controls of a regulated MS4, will also need to comply with the MS4's controls.

Five (5) Day Coverage

Prior to the submission of an NOI, the owner or operator must have completed a Storm Water Pollution Prevention Plan (SWPPP) that complies with all requirements of this general permit. Submitting an NOI is an affirmation that a SWPPP has been prepared and will be implemented. If an applicant certifies that the SWPPP has been developed in conformance with the Department's technical standards, the applied-for activity may obtain coverage under this general permit in five (5) business days after the Department's receipt of the NOI provided, that the activity is eligible for coverage under this general permit and that the Department has not informed the applicant otherwise.

Sixty (60) Day Coverage

While the Department's technical standards are appropriate statewide, it is recognized that there may be situations where stormwater management goals can best be met by alternative means that are more suitable given local conditions.

For construction projects in these situations, applicants must identify in their NOI each of the deviations from the Department's technical standards that they are seeking. Applicants must also explain why the deviations are needed or desired and what impacts to water quality, if any, can be expected if the deviation were allowed. Applicants must also explain the actions, if any, that local board(s) have taken with respect to the deviation(s). For applicants which cannot certify conformance with the Department's technical standards, the SWPPP must also be certified by a licensed/certified professional that the SWPPP has been developed in a manner which will insure compliance with water quality standards and with the substantive intent of this permit.

In cases of deviations from the Department's technical standards, applicants must allow sixty (60) business days after the receipt by the Department of a completed NOI and certification before gaining coverage under this general permit and before initiating any construction activity. During this 60 day period, the Department may conduct further review of the NOI and SWPPP. If additional information is needed to complete the review, the NOI will be considered

incomplete and the applicant will be so advised. The intent of this provision is to require conformance the Department's technical standards wherever possible and appropriate. At the same time, alternative means to address stormwater control may be allowed under this general permit where they are more suitable for the site in question and where they will not diminish water quality protection.

There are other scenarios under which coverage under this general permit will not occur until 60 business days from the receipt of a completed NOI. For example, if the construction activity or post construction runoff causes the discharge of a pollutant of concern to a water identified on the 303(d) list or a watershed with an approved TMDL for that pollutant of concern, coverage under the general permit will not occur until sixty (60) business days from the receipt by the Department of a completed NOI. For these projects the operator may be required to submit the SWPPP and/or appropriate certification(s) to the Department for review. The flowchart shown in Figure 1 on page vi will help to describe the process under which certain conditions exist that require possible further analysis and water quality/quantity considerations.

Computer Tool Available For Completion of SWPPPs and NOIs Under Development

The Department is currently developing an interactive computer software tool entitled "How to Prepare SWPPPs and Notices of Intent" to assist applicants in both developing SWPPPs and completing NOIs. This will be available in the near future for use on the Department website as well as being packaged independently on compact discs. This tool will contain guidance as well as many useful links to reference materials and documents concerning erosion and sedimentation control, as well as to the design of stormwater management practices . The Department's website will contain the latest information and guidance on the various tools available.

The Department's Technical Standards

The Department's technical standards for erosion and sediment control are contained in the document, *"New York Standards and Specifications for Erosion and Sediment Control"*[3] published by the Empire State Chapter of the Soil and Water Conservation Society. For the design of water quantity and water quality controls (post-construction stormwater control practices**)**, the Department's technical standards are detailed in the *"New York State Stormwater Management Design Manual."* Both of these documents are available on the Department's website. If an applicant certifies that stormwater management practices will conform to the Department's technical standards, then coverage under the permit may occur sooner than otherwise would be the case if non-conformance with the manuals existed. See Figure 1 on page vi for more information.

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[3] Previously, the *"New York Guidelines for Urban Erosion and Sediment Control"*, also commonly referred to as the "Blue Book".

Permit Valid for Any Size Disturbance

This permit may be used for construction activities involving any amount of disturbed acreage, provided that all other eligibility conditions in subsection B of Part I are satisfactorily met (see page 2 of this permit). Thus, this permit may apply to activities identified under 40 CFR Part 122, subsection 122.26(b)(14)(x) which are also referred to as "NPDES Phase 1 construction activities" involving soil disturbances of five (5) acres or more. This permit may also apply to activities identified under 40 CFR Part 122, subsection 122.26(b)(15) which are also referred to as "NPDES Phase 2 small construction activities" involving soil disturbances of between one (1) and five (5) acres. And, this permit may also apply to construction activities involving soil disturbances of less than one (1) acre if the Department determines that a SPDES permit is required pursuant to the ECL. In any and all cases, all of the eligibility provisions of this general permit must be met in order to gain coverage.

Notice of Termination

After construction is completed as defined in the general permit (see Part II beginning on Page 7), cancellation of coverage is accomplished by the submittal of a Notice of Termination ("NOT"). Failure to submit a NOT may result in the continued obligation to pay a yearly Regulatory Fee established pursuant to Article 72 of the ECL and/or may be cause for suspension of permit coverage.

Previous versions of NOIs, NOTs and Notices of Intent, Transfer and Termination ("NOITT"s) cannot be used in conjunction with this general permit. There is a new NOI required for obtaining coverage under this general permit. Failure to include information identified as "mandatory" entries on the new NOI form may prevent and/or delay discharge authorization being sought under this permit.

The new NOT will also include an identification of any permanent structures that are being left on the site after stabilization occurs and after termination of permit coverage under this general permit. The NOT will also include a certification that the structures were constructed as described in the SWPPP and that an Operation and Maintenance ("O&M") manual has been prepared and has been made available to the owner of such permanent structures who is expected to conduct the necessary O&M over the life of the structure(s).

Ineligible Activities

The submittal of a completed NOI and/or the payment of an annual regulatory fee by an applicant does not necessarily mean that an applicant is covered under this permit if the applicant is ineligible for coverage under this permit under the terms cited in Part I of this permit. In other words, submitting a completed NOI and paying an annual regulatory fee does not automatically gain an applicant permit coverage if the applicant is ineligible for coverage under this permit even if the Department fails to immediately inform the applicant of such ineligibility.

Permit Expiration Date

Coverage under this general permit is available January 8, 2003 and will expire five (5) years after issuance on January 8, 2008.

Activities Previously Covered Under GP-93-06

In a separate proposal, the Department is also concurrently seeking to re-issue GP-93-06 with an expiration of August 1, 2003. The purpose of this action is to provide a transition period for permittees which have had SPDES permit coverage under GP-93-06 immediately prior to January 8, 2003, the effective date of GP-02-01. **Prior to August 1, 2003**, these activities will need to:
(1) stabilize their sites in accordance with GP-93-06 and submit an NOT; or, if necessary,
(2) gain coverage under GP-02-01 by submitting a new NOI.

For **new** construction activities, coverage under GP-93-06 will not be available after the effective date of GP-02-01, January 8, 2003. Such discharges may be eligible for coverage under GP-02-01 (see Part I.B. on page 2 of this permit).

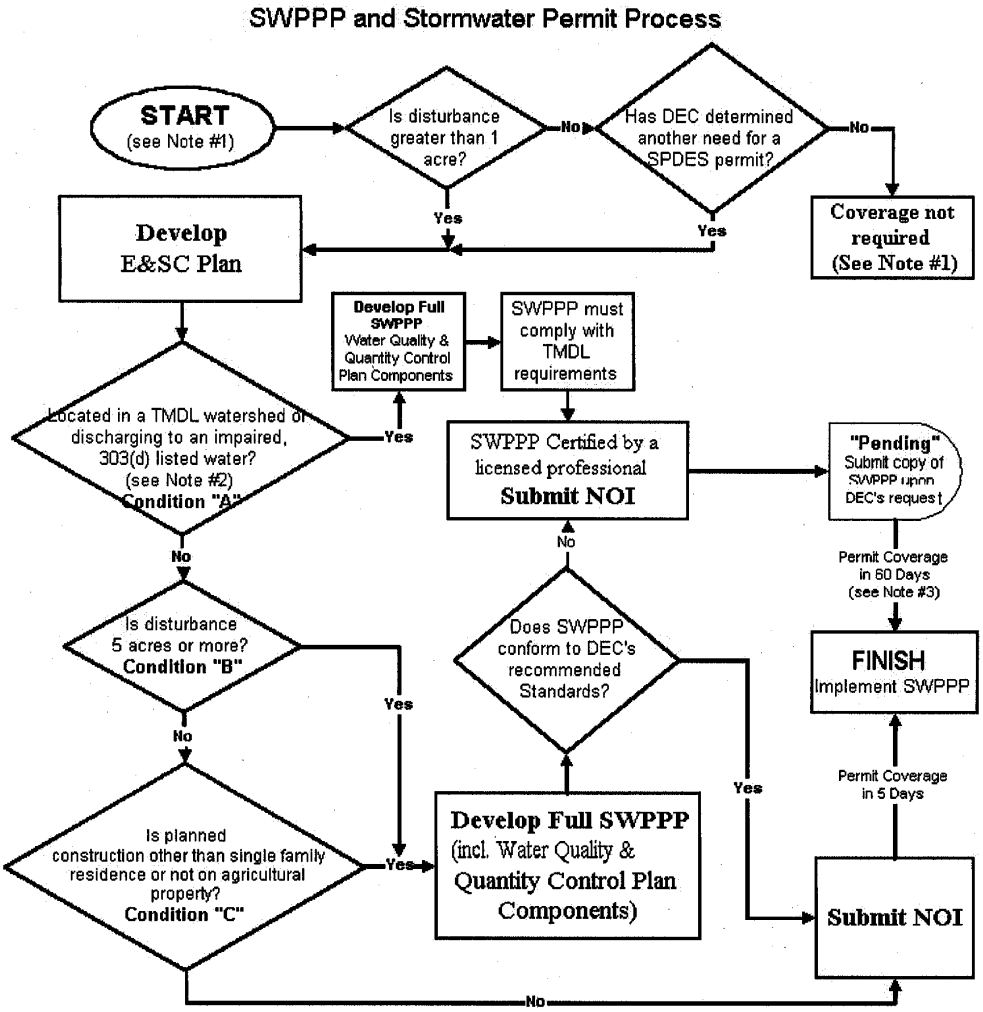
Water Quality Violations Not Permitted

This permit does not authorize any person to cause or contribute to a condition in contravention of any water quality standards that are contained in the Rules and Regulations of the State of New York (see Part I of this permit on page 2) even if the permittee is in compliance with all other provisions of this permit. Any violations of water quality standards may be considered by the Department to be violations of this permit and/or the ECL, including its accompanying regulations.

Other Department Permits

Construction activities may also require other Department permits in addition to the coverage provided by this general permit including, but not limited to, dam safety**,** wetlands and stream protection. Such other Department permits must be obtained separately from coverage under this general permit. Further information concerning these permits should be sought from the Regional Permit Administrator at the appropriate Department regional office (See Appendix A on page 23).

FIGURE 1



NOTES:

1. Under any of the above conditions other environmental permits may be required. DEC may require permit for construction disturbance < 1 acre on a case by case basis.
2. **and** the following exists: construction and/or stormwater discharges from the construction or post-construction site contain the pollutant of concern identified in the TMDL or 303(d) listing.
3. After receipt by DEC of completed application.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES GENERAL PERMIT FOR STORMWATER DISCHARGES

FROM CONSTRUCTION ACTIVITIES

TABLE OF CONTENTS

Part I. COVERAGE UNDER THIS PERMIT

A. **Maintaining Water Quality** - It shall be a violation of this general permit and the Environmental Conservation Law ("ECL") for any discharge authorized by this general permit to either cause or contribute to a violation of water quality standards as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York including, but not limited to:

1. There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions;

2. There shall be no increase in suspended, colloidal and settleable solids that will cause deposition or impair the waters for their best usages; and

3. There shall be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

B. **Eligibility Under This General Permit**

1. This permit may authorize all discharges of stormwater from construction activity[4] to surface waters and groundwaters except for ineligible discharges identified under subparagraph C of this Part (see below). Discharge authorization under this permit requires the submittal of a completed NOI.

2. Except for non-stormwater discharges explicitly listed in the next paragraph, this permit only authorizes stormwater discharges from construction activities.

3. Notwithstanding paragraphs B.1 and B.2 above, the following non-stormwater discharges may be authorized by this permit: discharges from fire

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[4] This includes discharges of stormwater associated with industrial activity identified under 40 CFR Part 122, subsection 122.26(b)(14)(x), small construction activities identified under 40 CFR Part 122, subsection 122.26(b)(15) or any other stormwater from construction activities that are not otherwise ineligible for coverage under this permit (See Part I, subsection B beginning on page 2).

fighting activities; fire hydrant flushings; waters to which cleansers or other components have **not** been added that are used to wash vehicles or control dust in accordance with the SWPPP, routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; and foundation or footing drains where flows are not contaminated with process materials such as solvents. For those entities required to obtain coverage under this general permit, and who discharge as noted in this paragraph, and with the exception of flows from fire fighting activities, these discharges must be identified in the SWPPP(see Part III beginning on Page 7). Under all circumstances, the permittee must still comply with water quality standards (see Part I, subsection A on Page 2).

C. **Activities Which Are Ineligible for Coverage Under This General Permit** - All of the following stormwater discharges from construction activities are **not** authorized by this permit:

1. Discharges after construction activities have been completed and the site has undergone final stabilization[5];

2. Discharges that are mixed with sources of non-stormwater other than those expressly authorized under subsection B.3. of this Part (see page 3) and identified in the SWPPP required by this permit;

3. Discharges that are subject to an existing SPDES individual or general permit or which are required to obtain an individual or alternative general permit pursuant to Part V, subparagraph K (see page 21) of this permit;

4. Discharges that are likely to adversely affect a listed, or proposed to be listed, endangered or threatened species, or its critical habitat;

5. Discharges which are subject to an existing effluent (limitation) guideline addressing stormwater and/or process wastewater unless said guidelines are contained herein; or

6. Discharges which either cause or contribute to a violation of water quality standards adopted pursuant to the ECL and its accompanying regulations (See subsection A of Part I on page 2).

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[5] "Final Stabilization" means that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 80% has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

D. **Authorization Under This General Permit**

1. An operator[6] must submit a completed NOI form in order to be authorized to discharge under this general permit. The NOI form shall be one which is associated with this general permit, signed in accordance with Part V. H.(see Page 19) of this permit and submitted to the address indicated on the NOI form. NOIs and NOITTs used in association with either previous or other general permits are not valid for obtaining coverage under this general permit. The submittal of an NOI is an affirmation to the operators' understanding and belief that the activity is eligible for coverage under this permit and that a SWPPP has been prepared and will be implemented in accordance with Part III of this permit.

2. All contractors and subcontractors of the operator identified under Part III.E.1 (see page 17) must provide the certification cited under Part III.E.2 (see page 17). Such certifications shall become part of the SWPPP for the construction activity covered under this general permit.

3. Unless notified by the Department to the contrary, operators who are eligible for coverage under this permit **and** who submit an NOI in accordance with the requirements of this permit, may be authorized to discharge stormwater from construction activities under the terms and conditions of this permit, and in accordance with the following timetable:

a. For construction activities which:

(1) develop a SWPPP in conformance with the Department's technical standards (See subsection D of Part III on page 10), and do not or will not discharge a pollutant of concern to an impaired water or a TMDL watershed;

or

(2) as of the effective date of this general permit, GP-02-01, have obtained coverage under, and are operating in compliance with, GP-93-06; and do not or will not discharge a pollutant of concern to an impaired water or a TMDL watershed;

authorization to discharge under this permit may occur five (5) business days after the date on which the NOI is received by the Department.

6 For the purposes of this permit, the term "operator" means the person, persons, or legal entity which owns or leases the property on which the construction activity is occurring. Also, see Part V., subsection H. on page 19 of this permit.

b. For activities which do not comply with the preceding subsection (i.e. Part I.D.3.a.), authorization to discharge under this permit will begin no sooner than sixty (60) business days from the receipt of the completed NOI unless notified differently by the Department pursuant to Part V, subsection K of this permit (see page 21). For activities not satisfying Part I.D.3.a.(1) above, or for construction site runoff subject to a TMDL (see Figure 1 on page vi), the SWPPP must be prepared by a licensed/certified professional[7] and include a certification stating that the SWPPP has been developed in a manner which will assure compliance with water quality standards (see Part I.A.) and with the substantive intent of this permit.

c. For construction activities which are subject to a sixty-day period provision identified in the preceding subparagraph b., the SWPPP shall include each of the components identified in Part III.A.1.b. (see page 8).

4. At its sole discretion, the Department may deny or terminate coverage under this permit and require coverage under another SPDES permit at any time based on a review of the NOI, the SWPPP or other relevant information (see Part V, subsection K of this permit on page 21).

5. A copy of the NOI and a brief description of the project shall be posted at the construction site in a prominent place for public viewing.

6. A signed copy of the NOI, the SWPPP, and any reports required by this permit shall also be submitted concurrently to the local governing body and any other authorized agency[8] having jurisdiction or regulatory control over the construction project.

7. New stormwater discharges from construction activities that require any other Uniform Procedures Act permit (Environmental Conservation Law, 6 NYCRR Part 621) cannot be covered under this general permit until the other required permits are obtained. Upon satisfaction of the State Environmental Quality Review Act ("SEQRA") for the proposed action and issuance of necessary permits, the applicant may submit an NOI to obtain coverage under this general

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7 A "licensed/certified professional" means a person currently licensed to practice engineering in New York State or is a Certified Professional in Erosion and Sediment Control (CPESC).

8 For the purposes of this general permit, "any other authorized agency" shall include any local, regional, or state entity or agency except the Department which has authority to review stormwater discharge from the project, including authority under any approved watershed protection plan or regulations.

permit.[9] In order to facilitate the Department's review of a multi-permitted project, an applicant should submit, at a minimum, a copy of the SWPPP which contains the information specified in Appendix B (see page 24). This information will assist the Department in determining whether or not coverage under this general permit or another SPDES permit is the more appropriate option. The Department may also require the submission of additional information in order to determine the SWPPP's conformance with the Department's technical standards.

8. Upon renewal of this general permit or issuance of a new general permit, the permittee is required to notify the Department of its intent to be covered by the new general permit. Coverage will continue under this permit for its term unless action is taken to terminate permit coverage as provided elsewhere in this permit. See also Part V. subsection B. on page 18 of this permit.

9. In the event of a transfer of ownership or responsibility for stormwater runoff, there can be no "automatic" transfer of permit coverage from one permittee to the next without appropriate notification from the dischargers. The former permittee must submit an NOT and notify the new discharger of the possible need for the new discharger to submit a new NOI (see Section E, subparagraph 2 below).

E. Deadlines for Notification

1. Operators who intend to obtain coverage under this general permit for stormwater runoff from construction activities must submit an NOI in accordance with the requirements of this Part at least five (5), or sixty (60) business days, as appropriately determined from Part I, Section D.3 (see page 4) prior to the commencement of construction[10] activities.

2. For stormwater runoff from construction activities where the operator changes, a new NOI must be submitted by the new operator in accordance with the requirements of this permit. The former operator must submit a NOT in accordance with Part II (see page 7) of this permit and notify the new operator of the requirement to submit a new NOI to obtain coverage under this permit. The new operator must also review and sign the SWPPP in accordance with Part III.B.(see page 9) and continue implementation of the SWPPP as required by this

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9 The purposes of this subsection is to assure that the requirements of SEQRA are fulfilled, if necessary, before any discharge authorization under this general permit is granted.

10 "Commencement of Construction" means the initial disturbance of soils associated with clearing, grading, or excavating activities, or other construction activities.

permit.

Part II. TERMINATION OF COVERAGE[11]

Where a site has been finally stabilized, the operator must submit a NOT form prescribed by the Department for use with this general permit. The NOT shall be signed in accordance with Part V. H.(see page 19) of this permit and submitted to the address indicated on the approved NOT form.

The permittee must identify all permanent stormwater management structures that have been constructed and provide the owner(s) of such structures with a manual describing the operation and maintenance practices that will be necessary in order for the structure to function as designed after the site has been stabilized. The permittee must also certify that the permanent structure(s) have been constructed as described in the SWPPP.

Part III. STORMWATER POLLUTION PREVENTION PLANS ("SWPPP"s)

A. General

1. SWPPP Preparation

a. A SWPPP shall be developed by the operator for construction activities at each site to be covered by this permit, prior to the initiation of activities requiring coverage under this permit. SWPPPs shall be prepared in accordance with sound engineering practices. The SWPPP shall identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges. In addition, the SWPPP shall describe and ensure the implementation of practices which will be used to reduce the pollutants in stormwater discharges and to assure compliance with the terms and conditions of this permit. Operators are encouraged to have their SWPPP reviewed for adequacy and completeness by the local soil and water conservation district ("SWCD") and/or other professionals qualified in erosion and sediment control practices[12] and stormwater management. Moreover, if the construction activity is identified under Part I, subsection D.3.b. (See page 5), or for construction site runoff subject to a TMDL (see Figure 1 on page vi), the SWPPP must include a certification by a licensed/certified professional.

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[11] Submittal of an NOT will terminate coverage under this general permit and will also remove the permittee from subsequent billings of the annual regulatory fee levied under Article 72 of the ECL.

[12] For example, CPESC, Inc. administers a certified program of individuals under its CPESC (Certified Professional in Erosion and Sediment Control) program which is sponsored by the International Erosion Control Association (IECA) and the Soil and Water Conservation Society (SWCS) and is endorsed by USDA - Natural Resources Conservation Service. CPESC, Inc. also administers the CPSWQ (Certified Professional in Stormwater Quality) program.

b. All SWPPPs shall include erosion and sediment controls. For construction activities meeting either Condition "A", "B" or "C" described below, the SWPPP shall also include water quantity and water quality controls (post-construction stormwater control practices).(see Part III. D.).

(1) Condition A - Construction site or post construction runoff discharging a pollutant of concern to either an impaired water identified on DEC's 303(d) list or a TMDL watershed for which pollutants in stormwater have been identified as a source of the impairment.

(2) Condition B - Construction site runoff from Phase 1 construction activities (construction activities disturbing five (5) or more acres) identified under 40 CFR Part 122, §122.26(b)(14)(x).

(3) Condition C - Construction site runoff from construction activity disturbing between one (1) and five (5) acres of land during the course of the project, exclusive of the construction of single family residences and construction activities at agricultural properties.

2. **SWPPP Implementation** - Operators are responsible for implementing the provisions of the SWPPP and ensuring that all contractors and subcontractors who perform professional services at the site provide certification of the SWPPP in accordance with Part I.D.2. (see page 4) and Part III.E.2. (see page 17) of this permit. All contractors and subcontractors identified in the SWPPP in accordance with Part III.E.1. (see page 17) of this permit must agree to implement applicable provisions of the SWPPP and satisfy the certification requirement of Part III.E.2. (see page17). However, contractors and subcontractors who are not operators, as defined in this permit (see page 4), are not required to submit a NOI in addition to the NOI submitted by the operator.

3. **Deadlines for SWPPP Preparation and Compliance** - The SWPPP must be developed prior to the submittal of an NOI and provide for compliance with the terms and schedule of the SWPPP beginning with the initiation of construction activities. The operator shall also certify in the SWPPP that all appropriate stormwater control measures will be in place before commencement of construction of any segment of the project that requires such measures.

4. **Local Requirements** - Developing a SWPPP that complies with the requirements listed herein does not relieve an operator from the obligation of complying with stormwater management requirements of the local government having jurisdiction over the project.

5. **Activities Previously Covered Under GP-93-06** - For construction activities which are covered by GP-93-06 as of the effective date of this permit (GP-02-01), the continued implementation of their SWPPP that was developed and implemented in accordance with GP-93-06 is acceptable until such time as:

(a) an NOT is submitted;

(b) the Department notifies them otherwise in accordance with this permit, including Part V, subsection K (see page 21); or

(c) this permit expires.

B. **Signature and SWPPP Review**

1. The SWPPP shall be signed in accordance with Part V. H.(see page 19), and be retained at the site where the construction activity occurs in accordance with Part IV (see retention of records on page 17) of this permit.

2. The permittee shall submit a copy of the SWPPP and any amendments thereto to the local governing body and any other authorized agency having jurisdiction or regulatory control over the construction activity. The operator shall make SWPPPs available upon request to the Department and any local agency having jurisdiction; or in the case of a stormwater discharge associated with industrial activity which discharges through a municipal separate storm sewer system, to the municipal operator of the system.

3. The Department, or its authorized representative, may notify the permittee at any time that the SWPPP does not meet one or more of the minimum requirements of this permit. Such notification shall identify those provisions of the permit which are not being met by the SWPPP and identify which provisions of the SWPPP require modifications in order to meet the minimum requirements of this permit. Within seven (7) days of such notification, (or as otherwise provided by the Department) the permittee shall make the required changes to the SWPPP and shall submit to the Department a written certification that the requested changes have been made. Notwithstanding the foregoing, the Department reserves all rights to enforce the terms of the ECL.

C. **Keeping SWPPPs Current** - The permittee shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or

2. The SWPPP proves to be ineffective in:

a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP required by this permit, or

b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity.

3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP (see Part III.E, page 17 below). Amendments to the SWPPP may be reviewed by the Department in the same manner as provided by Part III.B (see page 9 above).

D. **General Contents of SWPPPs** -

1. Standards for construction activities covered under this permit - The Department's technical standards for erosion and sediment controls are detailed in the "*New York Standards and Specifications for Erosion and Sediment Control*"[13] published by the Empire State Chapter of the Soil and Water Conservation Society. For the design of water quality and water quantity controls (post-construction stormwater control practices), the Department's technical standards are detailed in the "*New York State Stormwater Management Design Manual.*"

If an operator certifies that the SWPPP has been developed in conformance with the Department's technical standards referenced above, they may obtain coverage under this general permit in five (5) business days from the Department's receipt of the NOI, provided the construction activity does not meet Condition A in Part III.A.1.b. For SWPPPs which will not conform with the Department's technical standards, the SWPPP must be prepared by a licensed/certified professional and include a certification stating that the SWPPP has been developed in a manner which will assure compliance with the State's water quality standards and with the substantive intent of this permit. In addition, coverage under this general permit will not begin until sixty (60) business days from the receipt of a completed NOI.

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13 Previously, the "*New York Guidelines for Urban Erosion and Sediment Control*," also commonly referred to as the "Blue Book."

2. Minimum SWPPP Components SWPPPs prepared pursuant to this general permit shall present fully designed and engineered stormwater management practices with all necessary maps, plans and construction drawings. The SWPPP must, at a minimum, include the following:

a. For all construction activities subject to this general permit -

(1). provide background information about the scope of the project, including the location, type and size of project.

(2) provide a site map/construction drawing(s) for the project, including a general location map. At a minimum, the site map should show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s), wetlands and drainage patterns that could be affected by the construction activity; existing and final slopes; locations of off-site material, waste, borrow or equipment storage areas; and location(s) of the stormwater discharge(s);

(3) provide a description of the soil(s) present at the site;

(4) provide a construction phasing plan describing the intended sequence of construction activities, including clearing and grubbing, excavation and grading, utility and infrastructure installation and any other activity at the site that results in soil disturbance. Consistent with the New York Guidelines for Urban Erosion and Sediment Control, there shall not be more than five (5) acres of disturbed soil at any one time without prior written approval from the Department;

(5) provide a description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a pollutant source in the storm water discharges;

(6) provide a description of construction and waste materials expected to be stored on-site with updates as appropriate, and a description of controls to reduce pollutants from these materials including storage practices to minimize exposure of the materials to storm water, and spill prevention and response;

(7) describe the temporary and permanent structural and vegetative measures to be used for soil stabilization, runoff control and sediment control for each stage of the project from initial land

clearing and grubbing to project close-out;

(8) identify and show on a site map/construction drawing(s) the specific location(s), size(s), and length(s) of each erosion and sediment control practice;

(9) provide the dimensions, material specifications and installation details for all erosion and sediment control practices, including the siting and sizing of any temporary sediment basins;

(10) identify temporary practices that will be converted to permanent control measures;

(11) provide an implementation schedule for staging temporary erosion and sediment control practices, including the timing of initial placement and the duration that each practice should remain in place;

(12) provide a maintenance schedule to ensure continuous and effective operation of the erosion and sediment control practices;

(13) provide the names(s) of the receiving water(s);

(14) provide a delineation of SWPPP implementation responsibilities for each part of the site;

(15) provide a description of structural practices to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable; and

(16) provide any existing data that describes the stormwater runoff characteristics at the site.

b. For construction activities meeting Condition A, B or C in Part III.A.1.b.

(1) provide all the information required in Parts III.D.2.a.1 - 16 above;

(2) provide a description of each post-construction stormwater control practice;

(3) identify and show on a site map/construction drawing(s) the specific location(s) and size(s) of each post-construction stormwater control practice;

(4) provide a hydrologic and hydraulic analysis for all structural components of the stormwater control system for the applicable design storms;

(5) provide a comparison of post-development stormwater runoff conditions with pre-development conditions;

(6) provide the dimensions, material specifications and installation details for each post-construction stormwater control practice;

(7) provide a maintenance schedule to ensure continuous and effective operation of each post-construction stormwater control practice.

The following three subsections, Part III.D. 3. through Part III.D. 5., apply only to construction activities covered under this general permit which meet Conditions "A" , "B"[14] or "C" in Part III. A.1.b. Beginning with Part III.E. below (see page 17) the requirements set forth therein apply to all permittees covered under this permit.

3. **<u>Site Assessment and Inspections</u>** -

a. The operator shall have a qualified professional[15] conduct an assessment of the site prior to the commencement of construction and certify in an inspection report that the appropriate erosion and sediment controls described in the SWPPP and required by Part III.D. (see page 10) of this permit have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction. Following the commencement of construction, site inspections shall be conducted by the qualified professional at least every 7 calendar days and within 24 hours of the end of a storm event of 0.5 inches or greater. During each inspection, the qualified professional shall record the following information:

(1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

(2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

(3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

(4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

(5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and

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[14] Condition "B" includes construction activities covered under GP-93-06 and, therefore, are subject to Part III.D.3 through Part III.D. 5.

[15] "Qualified professional" means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a licensed professional engineer, Certified Professional in Erosion and Sediment Control (CPESC), or soil scientist.

containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water;
and

(6) All deficiencies that are identified with the implementation of the SWPPP.

b. The operator shall maintain a record of all inspection reports in a site log book. The site log book shall be maintained on site and be made available to the permitting authority upon request. Prior to the commencement of construction,[16] the operator shall certify in the site log book that the SWPPP, prepared in accordance with Part III.D. (see page 10) of this permit, meets all Federal, State and local erosion and sediment control requirements.

The operator shall post at the site, in a publicly-accessible location, a summary of the site inspection activities on a monthly basis.

c. Prior to filing of the Notice of Termination or the end of permit term, the operator shall have the qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization[17] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed.

d. The operator shall certify that the requirements of Parts III.D.3., III.D.4. and III.D.5 of this permit have been satisfied within 48 hours of actually meeting such requirements.

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16 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.

17 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

4. **Stabilization**[18] - The operator shall initiate stabilization measures as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased. This requirement does not apply in the following instances:

a. Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently ceased is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable;

b. Where construction activity on a portion of the site is temporarily ceased, and earth-disturbing activities will be resumed within twenty-one (21) days, temporary stabilization measures need not be initiated on that portion of the site.

5. **Maintenance** - Sediment shall be removed from sediment traps or sediment ponds whenever their capacity has been reduced by fifty (50) percent from the design capacity.

[18] "Stabilization" means covering or maintaining an existing cover over soil. Cover can be vegetative (e.g. grass, trees, seed and mulch, shrubs, or turf) or non-vegetative (e.g. geotextiles, riprap, or gabions).

E. **Contractors**

1. The SWPPP must clearly identify for each measure identified in the SWPPP, the contractor(s) and subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the SWPPP must sign a copy of the certification statement in Part III.E.2 (see below) of this permit in accordance with Part V.H.(see page 19) of this permit. All certifications must be included in the SWPPP. Additionally, new contractors and subcontractors (see subsection C.3. above) need to similarly certify.

2. **Certification Statement** - All contractors and subcontractors identified in a SWPPP in accordance with Part III.E.1 (see above) of this permit shall sign a copy of the following certification statement before undertaking any construction activity at the site identified in the SWPPP:

> "I certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP for the construction site identified in such SWPPP as a condition of authorization to discharge stormwater. I also understand that the operator must comply with the terms and conditions of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

The certification must include the name and title of the person providing the signature in accordance with Part V.H.(see page 19) of this permit; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

Part IV. MONITORING, REPORTING AND RETENTION OF RECORDS

A. The Department may, at its sole discretion, require monitoring of discharge(s) from the permitted construction activity after notifying the permittee in writing of the basis for such monitoring, the parameters and frequency at which monitoring shall occur and the associated reporting requirements, if any.

B. The operator shall retain copies of SWPPPs and any reports submitted in conjunction with this permit, and records of all data used to complete the NOI to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by the Department, in its sole discretion, at any time upon written notification.

C. The operator shall retain a copy of the SWPPP required by this permit at the construction site from the date of initiation of construction activities to the date of final

stabilization.

D. The operator shall also prepare a written summary of its status with respect to compliance with this general permit at a minimum frequency of every three months during which coverage under this permit exists. The summary should address the status of achieving each component of the SWPPP . This summary shall be handled in the same manner as prescribed for SWPPPs under Part III, subsection B (see Page 9).

E. **Addresses** - Except for the submittal of NOIs and NOTs, all written correspondence under this permit directed to the Department, including the submittal of individual permit applications, shall be sent to the address of the appropriate Department Office as listed in Appendix A (see page 23).

Part V. STANDARD PERMIT CONDITIONS

A. **Duty to Comply** - The operator must comply with all conditions of this permit. All contractors and subcontractors associated with the project must comply with the terms of the SWPPP. Any permit noncompliance constitutes a violation of the Clean Water Act (CWA) and the ECL and is grounds for an enforcement action against either the operator or the contractor/subcontractor; permit revocation or modification; or denial of a permit renewal application. Upon a finding of significant non-compliance with this permit or the applicable SWPPP, the Department may order an immediate stop to all construction activity at the site until the non-compliance is remedied. The stop work order shall be in writing, shall describe the non-compliance in detail, and shall be sent to the operator or the operator's on-site representative.

B. **Continuation of the Expired General Permit** - This permit expires five (5) years after issuance on January 8, 2008. However, coverage may be obtained under the expired general permit which will continue in force and effect until a new general permit is issued. After issuance of a new general permit, those with coverage under GP-02-01 will have six (6) months from the effective date of the new general permit to complete their project or obtain coverage under the new permit. Unless otherwise notified by the Department in writing, operators seeking authorization under a new general permit must submit a new NOI in accordance with the terms of such new general permit. See also Part I, subsection D.8. on page 6.

C. **Penalties for Violations of Permit Conditions** - There are substantial criminal, civil, and administrative penalties associated with violating the provisions of this permit. Fines of up to $25,000 per day for each violation and imprisonment for up to fifteen (15) years may be assessed depending upon the nature and degree of the offense.

D. **Need to halt or reduce activity not a defense** - It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the construction activity in order to maintain compliance with the conditions of this permit.

E. **Duty to Mitigate** - The permittee and its contractors and subcontractors shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

F. **Duty to Provide Information** - The permittee shall furnish any information requested by any agency with regulatory or review authority over this project for the purpose of determining compliance with this permit or compliance with any other regulatory requirements placed on the project in conjunction with this permit. Failure to provide requested information shall be a violation of this permit. Such regulating agencies include but are not limited to the Department, SWCDs,[19] local planning, zoning, health, and building departments that review and approve erosion and sediment control plans, grading plans, and Stormwater Management Plans, as well as MS4s into whose system runoff from the permitted project or activity discharges. The SWPPP and inspection reports required by this general permit are public documents that the operator must make available for inspection, review and copying by any person within five (5) business days of the operator receiving a written request by any such person to review the SWPPP and/or the inspection reports. Copying of documents will be done at the requester's expense.

G. **Other Information** - When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the NOI or in any other report to the Department, he or she shall promptly submit such facts or information.

H. **Signatory Requirements** - All NOIs, NOTs, SWPPPs, reports, certifications or information required by this permit or submitted pursuant to this permit, shall be signed as follows:

1. All NOIs and NOTs shall be signed as follows:

   a. For a corporation: by (1) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person authorized to and who performs similar policy or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

[19] "SWCD" means Soil and Water Conservation District

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. The SWPPP and all reports required by the permit and other information requested by the Department or local agency shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the Department.

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

c. **Certification** - Except for NOIs and NOTs, any person signing documents in accordance with this Part shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

I. **Property Rights** - The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

J. **Severability** - The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

K. **Denial of Coverage Under This Permit**

1. At its sole discretion, the Department may require any person authorized by this permit to apply for and/or obtain either an individual SPDES permit or an alternative SPDES general permit. Where the Department requires a discharger authorized to discharge under this permit to apply for an individual SPDES permit, the Department shall notify the discharger in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application form, a statement setting a deadline for the discharger to file the application, and a statement that on the effective date of issuance or denial of the individual SPDES permit or the alternative general permit as it applies to the individual permittee, coverage under this general permit shall automatically terminate. Applications shall be submitted to the appropriate Department Office indicated in Appendix A of this permit. The Department may grant additional time to submit the application upon request of the applicant. If a discharger fails to submit in a timely manner an individual SPDES permit application as required by the Department under this paragraph, then the applicability of this permit to the individual SPDES permittee is automatically terminated at the end of the day specified by the Department for application submittal.

2. Any discharger authorized by this permit may request to be excluded from the coverage under this permit by applying for an individual permit. In such cases, the permittee shall submit an individual application in accordance with the requirements of 40 CFR 122.26(c)(1)(ii) and 6 NYCRR Part 621, with reasons supporting the request, to the Department at the address for the appropriate Department Office (see addresses in Appendix A on page 23 of this permit). The request may be granted by issuance of an individual permit or an alternative general permit at the discretion of the Department.

3. When an individual SPDES permit is issued to a discharger covered by this permit, or the discharger is authorized to discharge under an alternative SPDES general permit, the applicability of this permit to the individual SPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. When an individual SPDES permit is denied to an operator otherwise subject to this permit, or the operator is denied for coverage under an alternative SPDES general permit, the applicability of this permit to the individual SPDES permittee is automatically terminated on the date of such denial, unless otherwise specified by the Department.

L. **Proper Operation and Maintenance** - The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of SWPPPs. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

M. **Inspection and Entry** - The permittee shall allow the Department or an authorized representative of EPA, the State, or, in the case of a construction site which discharges through an MS4, an authorized representative of the MS4 receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

N. **Permit Actions** - At the Department's sole discretion, this permit may, at any time, be modified, revoked, or renewed. The filing of a request by the permittee for a permit modification, revocation and reissuance, termination, a notification of planned changes or anticipated noncompliance does not stay compliance with any terms of this permit.

APPENDIX A

List of NYS DEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	Bldg 40 - SUNY @ Stony Brook Stony Brook, NY 11790-2356 Tel. (631) 444-0365	Bldg 40 - SUNY @ Stony Brook Stony Brook, NY 11790-2356 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	200 White Plains Road, 5th Floor Tarrytown, NY 10591-5805 Tel. (845) 332-1835
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1150 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	Route 86, PO Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Hudson Street Warrensburg, NY 12885-0220 Tel. (518) 623-1200
6	Herkimer, Jefferson, Lewis, Oneida and St. Lawrence	State Office Building 317 Washington Street Watertown, NY 13601-3787 Tel. (315) 785-2245	State Office Building 207 Genesee Street Utica, NY 13501-2885 Tel. (315) 793-2554
7	Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga and Tompkins	615 Erie Blvd. West Syracuse, NY 13204-2400 Tel. (315) 426-7438	615 Erie Blvd. West Syracuse, NY 13204-2400 Tel. (315) 426-7500
8	Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne and Yates	6274 East Avon-Lima Road Avon, NY 14414-9519 Tel. (585) 226-2466	6274 East Avon-Lima Rd. Avon, NY 14414-9519 Tel. (585) 226-2466
9	Allegany, Cattaraugus, Chautauqua, Erie, Niagara and Wyoming	270 Michigan Avenue Buffalo, NY 14203-2999 Tel. (716) 851-7165	270 Michigan Ave. Buffalo, NY 14203-2999 Tel. (716) 851-7070

APPENDIX B

Information Required of Construction Activities Which Are Identified Under Part I, subsection D.7. (see page 5)

A. The location (including a map) and the nature of the construction activity;

B. The total area of the site and the area of the site that is expected to undergo excavation during the life of the permit;

C. Proposed measures, including best management practices, to control pollutants in storm water discharges during construction, including a brief description of applicable State and local erosion and sediment control requirements;

D. Proposed measures to control pollutants in storm water discharges that will occur after construction operations have been completed, including a brief description of applicable State or local erosion and sediment control requirements;

E. An estimate of the runoff coefficient of the site and the increase in impervious area after the construction addressed in the permit application is completed, the nature of the fill material and existing data describing the soil or the quality of the discharge; and

F. The name of the receiving water(s).

Appendix B:
Notice of Intent (NOI)

8717

NOTICE OF INTENT

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

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-02-01

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. To properly complete this form, please refer to the Instruction Manual which can be accessed at www.dec.state.ny.us/website/dow/toolbox/instr_man.pdf

-IMPORTANT-

THIS FORM FOR MACHINE PRINT ONLY/USE OTHER FORM FOR HANDPRINT
DO NOT USE HANDWRITING ON THIS FORM

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

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

H I G H E R G R O U N D C C M G N T C O

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

C A E N E R S

Owner/Operator Contact Person First Name

R O B E R T

Owner/Operator Mailing Address

P O B O X 8 6

City

A M E N I A

State: N Y

Zip: 12501-5 0 1 -

Phone (Owner/Operator): 8454373-7000 3 7 3 - 7 0 0 0

Fax (Owner/Operator): 8454373-8847 3 7 3 - 8 8 4 7

Email (Owner/Operator)

8717

Location Information

Project Site Information

Project/Site Name

S I L O R I D G E C O U N T R Y C L U B

Street Address (NOT P.O. BOX)

R O U T E 2 2

City/Town/Village (THAT ISSUES BUILDING PERMIT)

A M E N I A

State: N Y

Zip: 12501-5 0 1 -

County: D U T C H E S S

DEC Region (if known): 3

Name of Nearest Cross Street

L A K E A M E N I A R D

Distance to Nearest Cross Street (Feet): 2 8 0 0

Direction to Nearest Cross Street

(●) North ( ) South ( ) East ( ) West

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.state.ny.us/website/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site go to the dropdown menu on the left and choose "Get Coordinates". Click on the center of your site and a small window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)	Y Coordinates (Northing)
6 1 8 5 3 2	4 6 3 2 2 6 4

2. What is the nature of this construction project?

( ) **New Construction**

(●) **Redevelopment with increase in imperviousness**

( ) **Redevelopment with no increase in imperviousness**

8717

Project Site Information

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

Pre-Development Existing Land Use	Post-Development Future Land Use
○ FOREST	○ SINGLE FAMILY HOME
○ PASTURE/OPEN LAND	○ SINGLE FAMILY SUBDIVISION
○ CULTIVATED LAND	○ TOWN HOME RESIDENTIAL
○ SINGLE FAMILY HOME	○ MULTIFAMILY RESIDENTIAL
○ SINGLE FAMILY SUBDIVISION	○ INSTITUTIONAL\SCHOOL
○ TOWN HOME RESIDENTIAL	○ INDUSTRIAL
○ MULTIFAMILY RESIDENTIAL	○ COMMERCIAL
○ INSTITUTIONAL\SCHOOL	○ ROAD\HIGHWAY
○ INDUSTRIAL	● RECREATIONAL\SPORTS FIELD
○ COMMERCIAL	○ BIKE PATH\TRAIL
○ ROAD\HIGHWAY	○ SUBSURFACE UTILITY
● RECREATIONAL\SPORTS FIELD	○ PARKING LOT
○ BIKE PATH\TRAIL	
○ SUBSURFACE UTILITY	
○ PARKING LOT	
OTHER	OTHER
	W I T H H O M E S

4. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law ? ○ Yes ● No

5. Is this a remediation project conducted in accordance with a NYSDEC approved work plan? ○ Yes ● No

6. Is this property owned by a state authority, state agency or local government? ○ Yes ● No

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

Total Project Site Acreage	Acreage to be Disturbed	Impervious Area within Disturbed
66864 6 8 . 4	.	38.9 3 8 . 9

8. Will there be more than 5 acres disturbed at any given time? ● Yes ○ No

9. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
0 %	3 7 %	5 2 %	1 1 %

8717

10. Is this a phased project? (**if yes, The SWPPP must address all planned phases)** * ○ Yes ○ No

11. Enter the planned start and end dates of the disturbance activities

Start Date				End Date		
/	/		-	/	/	

Receiving System(s)

12. Provide the name of the surface waterbody(ies) into which construction site runoff will discharge.

A M E N I A S T R E A M

For Questions 13 and 14 refer to the Instruction Manual for a subset of 303(d) segments and TMDL watersheds subject to Condition A of the permit. These waterbodies and watersheds have been identified for regulation within the stormwater program due to a pollutant of concern. The Instruction Manual can be accessed at www.dec.state.ny.us/website/dow/toolbox/instr_man.pdf

13. Has the surface waterbody(ies) in question 12 been identified as a 303(d) segment? * ○ Yes ● No

14. Is this project located in a TMDL Watershed? * ● Yes ○ No

***NOTE:** **If you answered Yes to either question 13 or 14, Pursuant to Part I.D.3.(b) of the permit, you must have your SWPPP prepared and certified by a licensed/certified professional and the SWPPP is subject to a 60-business day review.**

15. Does the site runoff enter a separate storm sewer system- including roadside drains, swales, ditches, culverts, etc? (**if no, skip question 16)** ● Yes ○ No ○ Unknown

16. What is the name of the municipality/entity that owns the separate storm sewer system?

N E W Y O R K S T A T E D O T

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ Yes ● No ○ Unknown

18. 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 *

19. Does this construction activity require the development of a SWPPP that includes Water Quality and Quantity Control components (Post-Construction Stormwater Management Practices) **If no, Skip question 20**

● Yes ○ No

20. Have the Water Quality and Quantity Control components of the SWPPP been developed in comformance with the current NYS Stormwater Management Design Manual ?

● Yes ○ No *

NOTE: If you answered no to question 18 or 20, Pursuant to Part I.D.3.(b) of the permit, you must have your SWPPP prepared and certified by a licensed/certified professional and the SWPPP is subject to a 60-business day review. Please provide further details in the details/comment section on the last page of this form.

21. 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 Information
(if different from Owner/Operator info)

SWPPP Preparer

THE CHAZEN COMPANIES

Contact Name (Last, Space, First)

LANARO JOESPH

Mailing Address

547 RIVER STREET

City

TROY

State

NY

Zip

12180-

Phone

518-273-0055

Fax

518-273-8391

Email

22. Has a construction sequence schedule for the planned management practices been prepared?

○ Yes ○ No

23. 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

Other

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

Important:Completion of Questions 24-30 is not required if the project:

Disturbs less than 5 acres and is planned for single-family residential homes(including subdivisions) or construction on agricultural property and does not have a discharge to a 303(d) water or is not located within a TMDL watershed.

Additionally, sites where there will be no future impervious area within the disturbed area and that do not have a change(pre to post development)in hydrology do not need to complete questions 24-30.

24. Indicate **all** the permanent Stormwater Management Practice(s) that will be installed on this site

Post Construction Stormwater Management Practices

Ponds

- (●) **Micropool Extended Detention (P-1)**
- (●) **Wet Pond (P-2)**
- ( ) **Wet Extended Detention (P-3)**
- ( ) **Multiple Pond System (P-4)**
- ( ) **Pocket Pond (P-5)**

Filtering

- ( ) **Surface Sand Filter (F-1)**
- ( ) **Underground Sand Filter (F-2)**
- ( ) **Perimeter Sand Filter (F-3)**
- ( ) **Organic Filter (F-4)**
- ( ) **Bioretention (F-5)**
- ( ) **Other**

Wetlands

- ( ) **Shallow Wetland (W-1)**
- ( ) **Extended Detention Wetland (W-2)**
- ( ) **Pond/Wetland System (W-3)**
- ( ) **Pocket Wetland (W-4)**

Infiltration

- ( ) **Infiltration Trench (I-1)**
- ( ) **Infiltration Basin (I-2)**
- ( ) **Dry Well (I-3)**

Open Channels

- ( ) **Dry Swale (O-1)**
- ( ) **Wet Swale (O-2)**

Describe other stormwater management practices not listed above or explain any deviations from the technicial standards. If the SWPPP does not conform to the technicial standards, the SWPPP must be prepared and certified by a licensed/certified professional and is subject to a 60-business day review.

Has a long term Operation and Maintenance plan for the post construction management practices been developed? (●) **Yes** ( ) **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

H I G H E R G R O U N D C C M G N T C O

Stormwater Pollution Prevention Plan (SWPPP)
Water Quality and Quantity Control

25. Provide the total water quality volume required and the total provided for the site.

Total Water Quality Volume (WQv)

WQv Required	WQv Provided
. acre-feet	. acre-feet

26. Provide the following Unified Stormwater Sizing Criteria for the site.

Total Channel Protection Storage Volume (CPv) - Extended detention of post-developed 1 year, 24 hour storm event

CPv Required	CPv Provided
. acre-feet	. acre-feet

The need to provide for channel protection has been waived because
○ **Site discharges directly to fourth order stream or larger**

Total Overbank Flood Control Criteria (Qp) - Peak discharge rate for the 10 year storm

Pre-Development	Post-development
. CFS	. CFS

Total Extreme Flood Control Criteria (Qf) - Peak discharge rate for the 100 year storm

Pre-Development	Post-development
. CFS	. CFS

The need to provide for flood control has been waived because
○ **Site discharges directly to fourth order stream or larger**
○ **Downstream analysis reveals that flood control is not required**

IMPORTANT: For questions 27 and 28 impervious area should be calculated considering the project site and all offsite areas that drain to the post-construction stormwater management practice(s) (Total Drainage Area = Project Site + Offsite areas)

27. Pre-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the existing impervious areas before construction begins. **2 %**

28. Post-Construction Impervious Area - As a percent of the Total Drainage Area enter the percentage of the future impervious areas that will be created/remain on the site after completion of construction. **7 %**

29. Indicate the total number of permanent stormwater management practices to be installed **11**

30. Provide the total number of stormwater discharge points from the site (include discharges to either surface waters or to seperate storm sewer systems) **4**

8717

Other Permits

31. Select any other DEC permits that are required for this project or ○ None

DEC Permits

○ Air Pollution Control	○ Stream Protection/Article 15
○ Coastal Erosion	○ Water Quality Certificate
○ Hazardous Waste	○ Dam Safety
○ Long Island Wells	○ Water Supply
○ Mined Land Reclamation	○ Freshwater Wetlands
○ Other SPDES	○ Tidal Wetlands
○ Solid Waste	○ Wild, Scenic and Recreational Rivers

Other

If this NOI is being submitted for the purpose of continuing coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.

N Y R

Details/Comments

THE PROJECT CONSISTS OF IMPROVING AN EXISTING 18-HOLE GOLF COURSE INTO A RESORT COMMUNITY CONSISTING OF A 18-HOLE GOLF COURSE WITH RESIDENTIAL DWELLINGS, HOTELS AS WELL AS OTHER ASSOCIATED AMENITIES.

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

Owner/Operator Signature

Date

/ /

Appendix C: Operator's and Contractor's Certification Forms

Stormwater Pollution Prevention Plan
Contractor's Certification
Silo Ridge Country Club Golf Resort Community
Town of Amenia
Dutchess County, New York

The Contractor and/or Subcontractor(s) that will implement the pollutant control measures described in the SWPPP must be identified below. Each must sign a statement certifying that they understand the NPDES and NYSDEC general permit authorizing storm water discharges during construction. These statements must be maintained in the SWPPP file on site.

Contractor Implementing the Storm Water Pollution Prevention Plan:

Business Name:_____

Business Address:_____

Telephone No.:_____

Name of Signatory:_____

Title of Signatory:_____

Signature:_____

Date:_____

Contractor's Responsibility(s):

Certification:

(Note: signature requirements in Part VI.G. of the NPDES General Permit and Part III.E.1 of the NYSDEC SPDES Permit GP-02-01)

"I certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP for the construction site identified in such SWPPP as a condition of authorization to discharge storm water. I also understand that the Operator must comply with the terms and conditions of the New York State Pollution Discharge Elimination System ("SPDES") general permit for storm water discharges from construction discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards."

Signatory Requirements - All NOIs, NOTs, SWPPPS, reports, certifications or information required by this permit or submitted pursuant to this permit, shall be signed as follows:

1. For a corporation: by a (1) president, secretary, treasurer, or vice-president of the corporation in charge of a principle business function, or any other person authorized to and who performs similar policy or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having a gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to manage in accordance with corporate procedures;
2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal, or other public agency; by either a principal executive officer ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of EPA).

Stormwater Pollution Prevention Plan
Operator's Certification
Silo Ridge Country Club Golf Resort Community
Town of Amenia
Dutchess County, New York

The Operator that will implement the pollutant control measures described in the SWPPP must be identified below. Each must sign a statement certifying that they understand the NPDES and NYSDEC general permit authorizing storm water discharges during construction. These statements must be maintained in the SWPPP file on site.

Owner:

Business Name:_____

Business Address:_____

Telephone No.:_____

Name of Signatory:_____

Title of Signatory:_____

Signature:_____

Date:_____

Certification:

(Note: signature requirements in Part V.H.2.c of the NYSDEC SPDES Permit GP-02-01)

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

Signatory Requirements - All NOIs, NOTs, SWPPPS, reports, certifications or information required by this permit or submitted pursuant to this permit, shall be signed as follows:

1. For a corporation: by a (1) president, secretary, treasurer, or vice-president of the corporation in charge of a principle business function, or any other person authorized to and who performs similar policy or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having a gross annual sales or expenditures exceeding $25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to manage in accordance with corporate procedures;
2. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or
3. For a municipality, State, Federal, or other public agency; by either a principal executive officer ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g. Regional Administrators of EPA).

Appendix D: Construction Phase Inspections and Maintenance (Pocket)

CONSTRUCTION PHASE INSPECTIONS AND MAINTENANCE

Between the time this SWPPP is implemented and final site stabilization is achieved, all disturbed areas and pollutant controls must be inspected at least once every seven calendar days and within 24 hours following a rainfall of 0.5 inches or greater. The purpose of site inspections is to assess performance of pollutant controls. The inspections will be conducted by the Operator's Engineer. Based on these inspections, the Operator's Engineer will decide whether it is necessary to modify this SWPPP, add or relocate sediment barriers, or whatever else may be needed in order to prevent pollutants from leaving the site via storm water runoff. The general contractor has the duty to cause pollutant control measures to be repaired, modified, maintained, supplemented, or whatever else is necessary in order to achieve effective pollutant control.

Examples of particular items to evaluate during site inspections are listed below. This list is not intended to be comprehensive. During each inspection the inspector must evaluate overall pollutant control system performance as well as particular details of individual system components. Additional factors should be considered as appropriate to the circumstances.

1. Locations where vehicles enter and exit the site must be inspected for evidence of off-site sediment tracking. A stabilized construction entrance will be constructed where vehicles enter and exit. This entrance will be maintained or supplemented as necessary to prevent sediment from leaving the site on vehicles.

2. Sediment barriers must be inspected and, if necessary, they must be enlarged or cleaned in order to provide additional capacity. All material from behind sediment barriers will be stockpiled on the up slope side. Additional sediment barriers must be constructed as needed.

3. Inspections will evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system. If necessary, the materials must be covered or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas.

4. Grassed areas will be inspected to confirm that a healthy stand of grass is maintained. The site has achieved final stabilization once all areas are covered with building foundation or pavement, or have a stand of grass with at least 80 percent density. The density of 80 percent or greater must be maintained to be considered as stabilized. Areas must be watered, fertilized, and reseeded as needed to achieve this goal.

5. All discharge points must be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters.

Based on inspection results, any modification necessary to increase effectiveness of this SWPPP to an acceptable level must be made within seven calendar days of the inspection. The inspection reports must be completed entirely and additional remarks should be included if needed to fully describe a situation. An important aspect of the inspection report is the description of additional measures that need to be taken to enhance plan effectiveness. The inspection report must identify whether the site was in compliance with the SWPPP at the time of inspection and specifically identify all incidents of non-compliance. An erosion and sediment control inspections and maintenance schedule is presented on the project drawings.

Inspection reports must be kept on file by the general contractor as an integral part of this SWPPP for at least three years from the date of completion of the project.

Ultimately, it is the responsibility of the general contractor to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more structural controls than are shown on the accompanying plans. (For example, localized concentrations of runoff could make it necessary to install additional sediment barriers.) Assessing the need for additional controls and implementing them or adjusting existing controls will be a continuing aspect of this SWPPP until the site achieves final stabilization.

Appendix E:
Inspection Report (Sample Form)

Inspection Type (Circle One):	Routine Weekly	Following 1/2" or Greater Rainfall

Site Assessment / Inspection Report
SWPPP Construction Activities
Silo Ridge Country Club Golf Resort Community
Town of Amenia
Dutchess County, New York

Report Number:_____ Weather:_____
Inspectors Name (Please Print):_____ Temperature:_____
Date:_____Time:_____ Page:_____of _____

Observation Instructions:

1 On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate areas that are expected to undergo initial disturbance or significant site work within the next 14 day period.

2 Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization.

3 Indicate on a site map all areas that have not undergone active site work during the previous 14-day period.

4 Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume. Note if substantial increase in turbidity in downstream water courses/bodies exists.

5 Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of sediment control barriers or diversion systems (i.e. silt fence, diversion swales, earthen berms, etc.) and containment systems (i.e. sediment basins and sediment traps, etc.).

6 Inspect all equipment, material handling and storage areas for evidence of apparent spills, leaks or deleterious materials.

7 On a monthly basis, post a copy of the Inspection Log in a publicly accessible location.

Temporary Erosion and Sediment Control Practices:

Practice	Condition	Accumulation %	Conforming	Actions Required
Stabilized Construction Entrance	Good / Fair / Poor		Yes / No	
Temporary Parking	Good / Fair / Poor		Yes / No	
Silt Fence	Good / Fair / Poor		Yes / No	
Temporary Swales and Berms	Good / Fair / Poor		Yes / No	
Check Dams (Stone)	Good / Fair / Poor		Yes / No	
Slope Protection	Good / Fair / Poor		Yes / No	
Dewatering Operations	Good / Fair / Poor		Yes / No	
Sediment Traps	Good / Fair / Poor		Yes / No	
Inlet Protection	Good / Fair / Poor		Yes / No	
Mulching / Seeding	Good / Fair / Poor		Yes / No	

See attached pages for additional comments

Silo Ridge Country Club Golf Resort Community
Stormwater Pollution Prevention Plan Construction Site Log Book

Report No._____ Page _____ of _____

Practice	Condition	Accumulation %	Conforming	Actions Required
Temporary Stockpiles	Good / Fair / Poor		Yes / No	
Dust Control	Good / Fair / Poor		Yes / No	
Sedimentation on Public Streets	Good / Fair / Poor		Yes / No	
Less than 5 Acres of Disturbance	Good / Fair / Poor		Yes / No	
Other:	Good / Fair / Poor		Yes / No	
Other:	Good / Fair / Poor		Yes / No	

Non-conforming work items still outstanding (List item number):

Inspection Notes:

Inspectors Signature:_____
Inspectors Printed Name:_____

Qualified Professional Signature_____ Date_____

Qualified Professional Printed Name_____

Appendix F: Record of Stabilization and Construction Activity Dates (Sample Form)

Site Stabilization & Construction Activities Dates

Silo Ridge Country Club Golf Resort Community
Town of Amenia
Dutchess County, New York

Note: This form shall be completed by the Contractor and shall remain as part of the Storm water Pollution Prevention Plan that is to remain at the project site for the duration of construction.

A record of dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be maintained until final site stabilization is achieved and the Notice of Termination is filed.

MAJOR GRADING ACTIVITIES:

Description of Activity:_____

Contractor:_____

Location:_____

Start Date:_____ Finish Date:_____

Description of Activity:_____

Contractor:_____

Location:_____

Start Date:_____ Finish Date:_____

Description of Activity:_____

Contractor:_____

Location:_____

Start Date:_____ Finish Date:_____

Description of Activity:_____

Contractor:_____

Location:_____

Start Date:_____ Finish Date:_____

Description of Activity:_____

Contractor:_____

Location:_____

Start Date:_____ Finish Date:_____

Appendix G:
Notice of Termination (NOT)

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

NOTICE OF TERMINATION for Storm Water Discharges Associated with Construction Activity UNDER SPDES GENERAL PERMIT: ☐ #GP-93-06 or ☐ #GP-02-01

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Permittee Information

1. Owner/Operator Name:

2a. Mailing Address:	2b. City/State/Zip:

3a. Contact Person:	3b. Phone:	3c. E-mail:

II. Site /Activity Information

4. Facility/Project Site Name:

5a. Street Address:	5b. City/State/Zip:

6. County:

III. Reason for Termination

7a. ☐ Site has been finally stabilized in accordance with permit and SWPPP. Date site stabilization completed: _____
month/year

7b. ☐ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR _ _ _ _ _ _
(Note: Permit coverage can not be terminated by permittee identified in I.1. above until new owner/operator obtains coverage under GP-02-01)

IV. Final Site Information:

8a. Are there permanent stormwater management practices remaining on the site? ☐ yes ☐ no
If the answer to question 8a. is no, go to question 8e.
If the answer to question 8a. is yes, answer the following questions 8b., 8c., and 8d.:
8b. Is the design and function of each permanent practice described in the final SWPPP? ☐ yes ☐ no
8c. Who will be responsible for long-term operation and maintenance of practice(s)? _____
8d. Has the individual(s) responsible for long-term operation and maintenance been given a copy of the operation and maintenance requirements? ☐ yes ☐ no
8e. Provide the total acreage of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____

V. Certification

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

Printed Name:	Title/Position:
Signature:	Date:

Reset Button

08/16/04

Appendix H: Post-Construction Inspections and Maintenance (Pocket)

POST CONSTRUCTION INSPECTIONS AND MAINTENANCE

1. SITE COVER

a. Inspections

Site cover and associated structures and embankments should be inspected periodically for the first few months following construction and then on a biannual basis. Site inspections should also be performed following all major (i.e., intense storms, thunder storms, cloud burst, etc.) storm events. Items to check for include (but are not limited to):

i. Differential settlement of embankments, cracking or erosion.
ii. Lack of vigor and density of grass turf.
iii. Accumulation of sediments or litter on lawn areas, paved areas, or within catch basin sumps.
iv. Accumulation of pollutants, including oils or grease, in catch basin sumps.
v. Damage or fatigue of storm sewer structures or associated components.

b. Mowing and Sweeping

Vegetated areas and landscaping should be maintained to promote vigorous and dense growth. Lawn areas should be mowed at least three times a year (more frequent mowing may be desired for aesthetic reasons). Resultant yard waste shall be collected and disposed of off-site.

Paved areas should be swept at least twice a year. Additional sweeping may be appropriate in the early spring for removal of deicing materials

c. Debris and Litter Removal

Accumulation of litter and debris should be removed during each mowing or sweep operation.

d. Structural Repair or Replacement

Components of the system which require repair or replacement should be addressed immediately following identification.

e. Catch Basins

The frequency for cleanout of catch basin sumps will depend on the efficiency of mowing, sweeping and debris and litter removal. Sumps should be cleaned when accumulation of sediments are within six inches of the catch basin outlet pipe.

f. Grassed Swales

Swale maintenance will include periodic mowing, occasional spot reseeding and weed control to keep grass cover dense and vigorous. Resultant yard waste shall be collected and disposed of off-site. Application of fertilizers and pesticides should be restricted or limited.

g. Winter Maintenance

To prevent impacts to storm water management facilities, the following winter maintenance limitations, restrictions or requirements are recommended:

i. Remove snow and ice from inlet structures, basin inlet and outlet structures and away from culvert end sections.
ii. Snow removed from paved areas should not be piled at inlets/outlets of the storm water management basin.
iii. Use of deicing materials should be limited to sand and "environmentally friendly" chemical products. Use of salt mixtures should be kept to a minimum.
iv. Sand used for deicing should be clean, course material free of fines, silt, and clay.
v. Materials used for deicing should be removed during the early spring by sweeping and/ or vacuuming.

2. DETENTION BASINS

a. Inspections

Detention Basins should be inspected periodically for the first few months after construction and then on an annual basis. Detention Basins should be inspected after major storm events to ensure inlets and outlets remain clear. Items to check for include (but are not limited to):

i. Differential settlement of embankments.
ii. Cracking, erosion or seepage through embankments.

iii. Evidence of clogging at inlets or outlets.
iv. Erosion of the flow path through the detention basin.
v. Brush, shrub or tree growth on embankments.
vi. Condition of the overflow spillway.
vii. Lack of vigor and density of grass turf on the basin embankments.

b. Mowing

The side slopes, embankments, inlets, and overflow spillways of the detention basins should be mowed at least three times a year and resultant yard wastes collected and disposed of off-site.

c. Debris and Litter Control

Removal of debris and litter should be accomplished during mowing operations. Inlet and outlet structures should be cleared of all debris and litter.

d. Structural repairs and Replacement

Components of the detention basin, which require repair or replacement, should be addressed immediately following identification.

e. Erosion Control

Sources of sedimentation, specifically eroded areas in upland drainage areas, should be stabilized immediately upon identification. Stabilization should be with vegetative practices or other erosion control practices when vegetative measures do not prove effective.

Soil slumpage, erosion of the basin embankment or around inlets/outlets, and cracking should be stabilized and repaired immediately upon identification. Repair, replacement or addition of rip-rap aprons, channels or embankments should be pursued as required.

f. Sediment removal

Sediments, which accumulate in the detention basin, should be removed periodically to prevent clogging of inlet or outlet structures. A typical clean-out cycle should be between 5 to 10 years with more frequent cleanings near inlet and outlet structures.

3. FOREBAYS AND WET POOLS

a. Inspections

Forebays and Wet Pools should be inspected periodically for the first few months after construction and then on an annual basis. Forebays and Wet Pools should be inspected following all major storm events. Items to check for include (but are not limited to):

i. Differential settlement of embankments.
ii. Cracking, erosion or seepage through embankments.
iii. Erosion of the flow path through the facility.
iv. Brush, shrub or tree growth on embankments.
v. Condition of the overflow spillway.
vi. Accumulation of sediment.

b. Mowing

Tree and brush growth must be prevented on basin embankments, side slopes, bottoms and around inlets and the overflow spillway(s). Mowing of the embankments shall be at least three times a year unless more frequent mowing is required to control vegetative growth. Resultant yard waste shall be collected and disposed of off-site.

c. Debris and Litter Removal

Removal of debris and litter shall be accomplished during mowing operations. Inlet structures should be cleared of all debris and litter.

d. Structural Repairs and Replacement

Components of the forebay or wet pool, which require repair or replacement, should be addressed immediately following identification.

e. Erosion Control

Sources of sedimentation, specifically eroded areas in upland drainage areas, should be stabilized immediately upon identification. Stabilization should be with vegetative practices or other erosion control practices when vegetative measures do not prove effective.

Soil slumpage, erosion of the basin embankment or around inlets or overflow outlets, and cracking should be stabilized and repaired immediately upon identification. Repair, replacement or addition of

rip-rap aprons, channels or embankments should be pursued as required.

f. Sediment Removal

Cleanout frequency of Forebays and Wet Pools is dependent upon bottom cover, storage capacity, volume of inflow, and sediment load.

Sediment shall be removed from the Forebays and Wet Pools every 5 to 6 years or when accumulations reach 12 inches in depth. Monitoring the depth of sediments can be measured by installing permanent markers in the newly constructed facilities with a mark 12 inches above the permanent water surface. Markers should not be spaced more than 50 feet apart along the flow path through the facility. A log should be kept indicating the date that the facility was inspected and the distance to the bottom.

When sediment removal is required, the original grades depicted on the project drawings should be reestablished by a qualified contractor. If any of the impermeable material used in the construction of the basin bottom is removed it must be replaced with clean material consistent with the original material specifications.

4. Aquatic Benches

a. Inspection

Aquatic Benches should be inspected periodically for the first few months after construction and then on an annual basis. Aquatic Benches should be inspected after all major storm events. Items to check for include (but are not limited to):

i. Checking basin embankments for subsidence, erosion, cracking, tree growth and the presence of burrowing animals.
ii. Health and vigor of wetland vegetation.
iii. Accumulation of sediment.

b. Mowing

Mowing is not desirable nor allowed in the Aquatic Benches. Trees and shrubs should be removed from around inlet and outlet structures. Removal should be biannual.

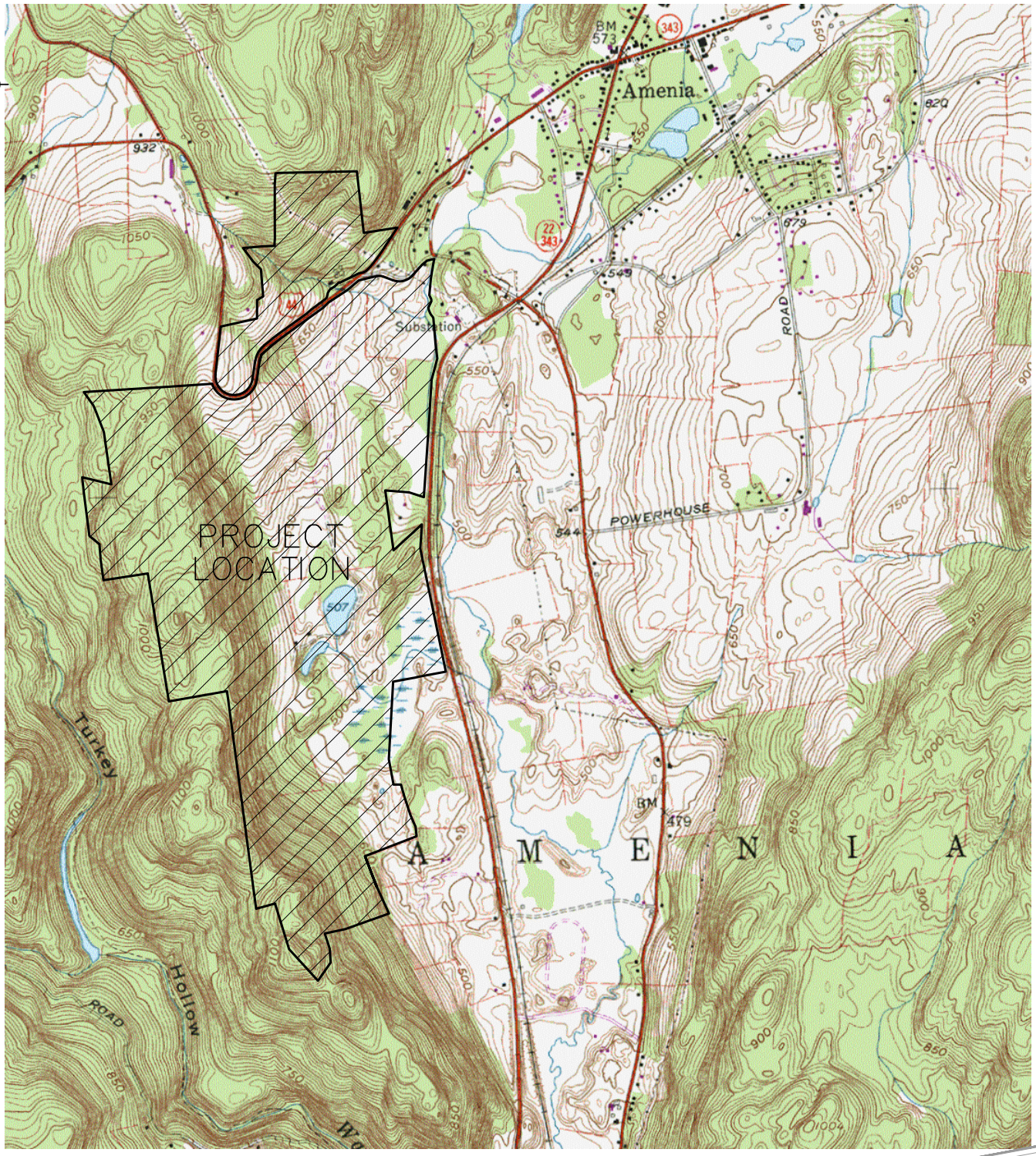
c. Debris, Trash and Litter Control

Debris, trash, and litter should be removed from the Aquatic Benches immediately upon discovery.

d. Erosion Control

Soil slumpage, erosion of the Aquatic Bench embankment or around inlets or outlets, and cracking should be stabilized and repaired immediately upon identification.

Appendix I: Figures



PRELIMINARY
DATE:6/7/07

THE Chazen COMPANIES

SILO RIDGE RESORT COMMUNITY

SITE LOCATION MAP

TOWN OF AMENIA, DUTCHESS COUNTY, STATE OF NEW YORK

Source: xx

Drawn by: SMD

Scale: 1"=2000'

Fig. FIG 1

PROJECT NUMBER: 10454.02

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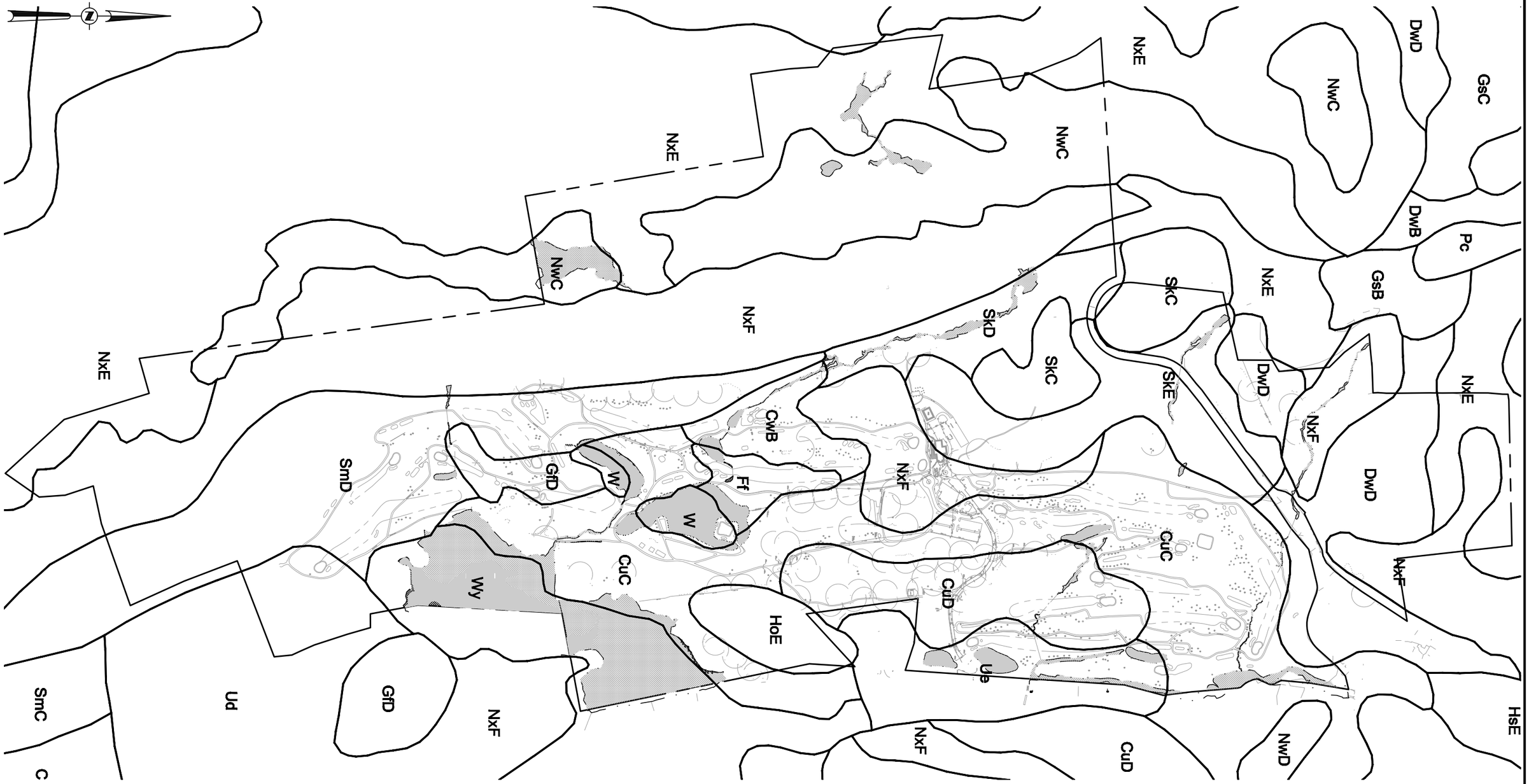

NOTE: SEE SECTION 5.2 OF THIS REPORT FOR USDA SOIL DATA ASSOCIATED WITH SOILS SHOWN ON PROJECT SITE

THE Chazen COMPANIES

Silo Ridge Resort Community
Traditional Neighborhood Alternative
SOILS MAP

Town of Amenia, Dutchess County, New York

NTS

Figure
FIGURE 2

JOB NUMBER: 10454.02

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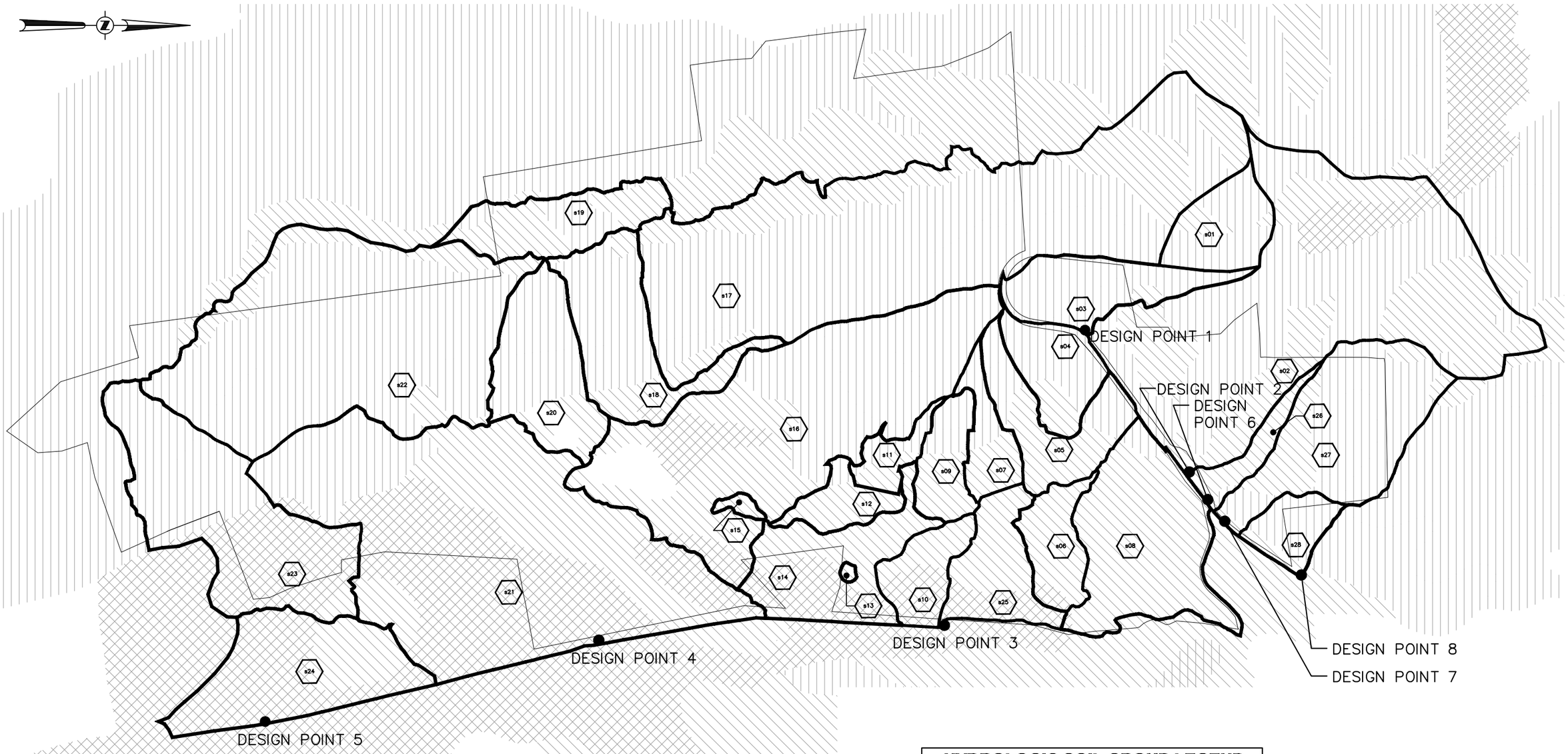


HYDROLOGIC SOIL GROUP LEGEND

- **-GROUP B SOIL**
- **-GROUP C SOIL**
- **-GROUP D SOIL**

NOTE: SEE APPENDIX L OF THIS REPORT FOR CHARACTERISTICS OF EACH SUBCATCHMENT

PRELIMINARY
DATE:6/12/07

THE Chazen COMPANIES

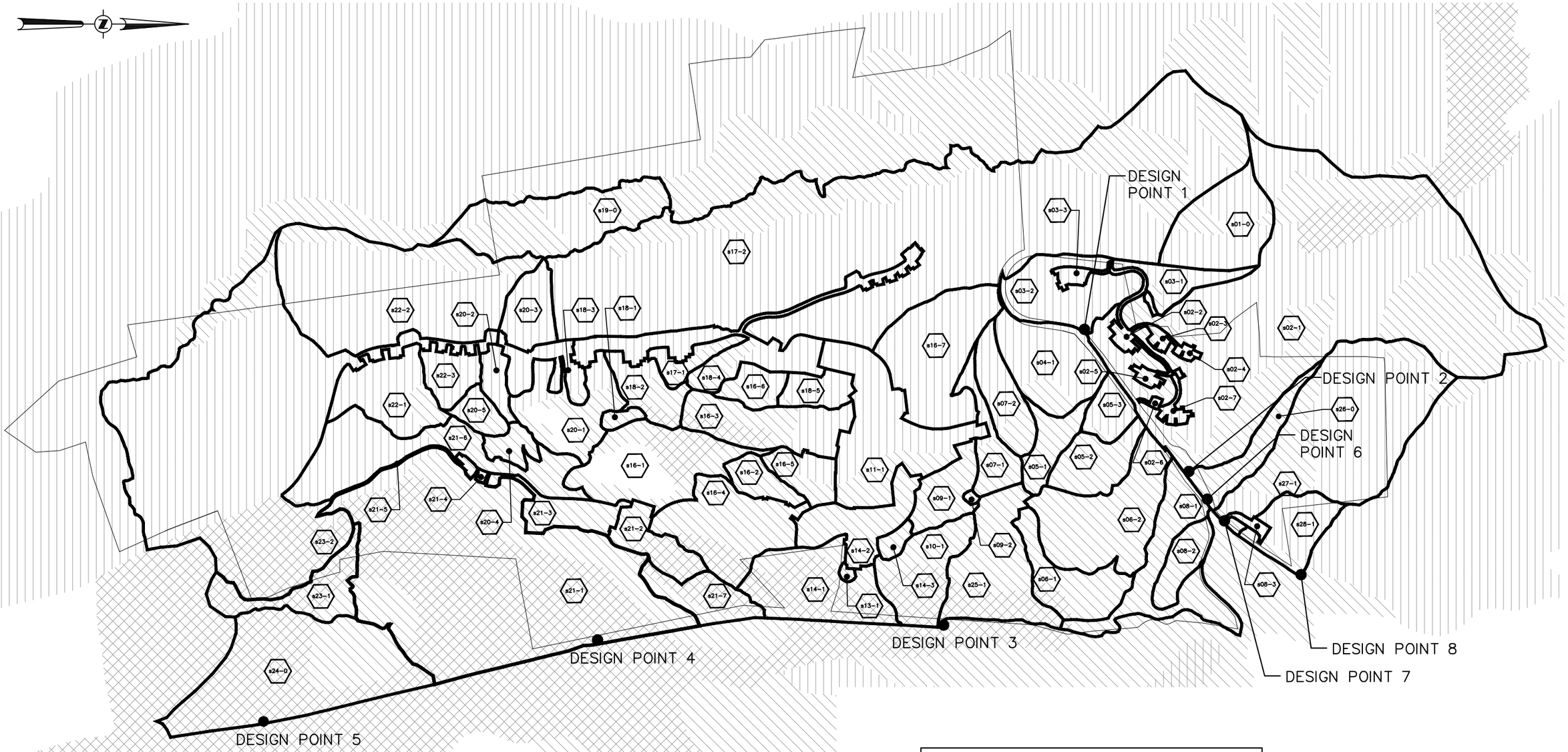
Silo Ridge Resort Comunity
Traditional Resort Alternative
PRE-DEVELOPMENT
WATERSHED DELINEATION MAP
Town of Amenia, Dutchess County, New York

1"=800'

Figure
FIGURE 3

JOB NUMBER: 10454.02

Drawing Name: S:\10400-10499\10454.00\ENGD\WG\330_TNA_FIG-3_10454.00_PRE-WATERSHED.dwg Date Printed: Jun 20, 2007, 11:37am



HYDROLOGIC SOIL GROUP LEGEND

- -GROUP B SOIL
- -GROUP C SOIL
- -GROUP D SOIL

NOTE: SEE APPENDIX L OF THIS REPORT FOR CHARACTERISTICS OF EACH SUBCATCHMENT

PRELIMINARY
DATE:6/12/07

THE Chazen COMPANIES

Silo Ridge Resort Comunity
Traditional Resort Alternative

POST-DEVELOPMENT WATERSHED DELINEATION MAP

Town of Amenia, Dutchess County, New York

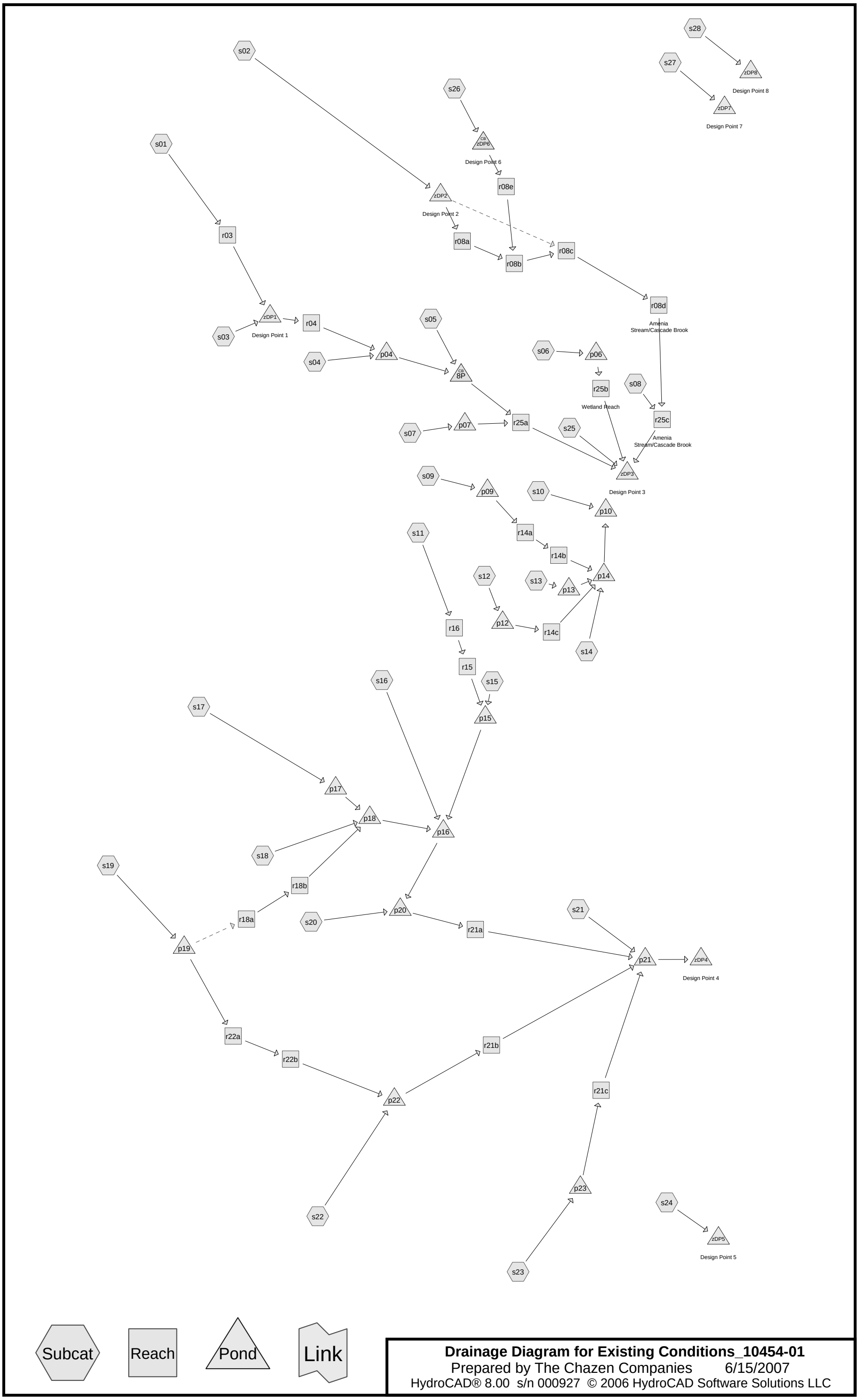
1" = 800'

Figure
FIGURE 4

JOB NUMBER: 10454.02

Drawing Name: S:\1\10400-10499\10454.00\ENG\DWG\330_TNA_FIG-4_10454.00_POST-WATERSHED.dwg.dwg Date Printed: Jun 20, 2007, 11:37am

Appendix J: Pre-Development Watershed Conditions Modeling



Drainage Diagram for Existing Conditions_10454-01

Prepared by The Chazen Companies 6/15/2007

Subcatchment s01:

Runoff = 2.69 cfs @ 12.70 hrs, Volume= 0.504 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
11.485	68	
11.485		Pervious Area

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

Subcatchment s02:

Runoff = 13.25 cfs @ 13.01 hrs, Volume= 3.401 af, Depth= 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
97.712	65	
97.712		Pervious Area

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

Subcatchment s03:

Runoff = 4.75 cfs @ 12.48 hrs, Volume= 0.715 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
15.174	69	
15.174		Pervious Area

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

Subcatchment s04:

Runoff = 3.65 cfs @ 12.13 hrs, Volume= 0.397 af, Depth= 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
11.403	65	
11.403		Pervious Area

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

Subcatchment s05:

Runoff = 1.95 cfs @ 12.44 hrs, Volume= 0.364 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
14.935	61	
14.935		Pervious Area

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

Subcatchment s06:

Runoff = 1.94 cfs @ 12.35 hrs, Volume= 0.302 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
9.435	64	
9.435		Pervious Area

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

Subcatchment s07:

Runoff = 2.12 cfs @ 12.25 hrs, Volume= 0.276 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
7.317	66	
7.317		Pervious Area

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

Subcatchment s08:

Runoff = 2.23 cfs @ 12.57 hrs, Volume= 0.562 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
31.719	58	
31.719		Pervious Area

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

Subcatchment s09:

Runoff = 2.03 cfs @ 12.30 hrs, Volume= 0.294 af, Depth= 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
8.452	65	
8.452		Pervious Area

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

Subcatchment s10:

Runoff = 3.13 cfs @ 12.46 hrs, Volume= 0.453 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
8.960	70	
8.960		Pervious Area

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

Subcatchment s11:

Runoff = 4.69 cfs @ 12.28 hrs, Volume= 0.504 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
4.702	83	
4.702		Pervious Area

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

Subcatchment s12:

Runoff = 0.16 cfs @ 13.07 hrs, Volume= 0.078 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
6.420	55	
6.420		Pervious Area

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

Subcatchment s13:

Runoff = 0.01 cfs @ 12.46 hrs, Volume= 0.004 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.350	55	
0.350		Pervious Area

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

Subcatchment s14:

Runoff = 6.64 cfs @ 12.46 hrs, Volume= 0.988 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
20.964	69	
20.964		Pervious Area

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

Subcatchment s15:

Runoff = 0.01 cfs @ 14.77 hrs, Volume= 0.007 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
1.068	51	
1.068		Pervious Area

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

Subcatchment s16:

Runoff = 29.07 cfs @ 12.37 hrs, Volume= 3.837 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
75.974	70	
75.974		Pervious Area

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

Subcatchment s17:

Runoff = 11.33 cfs @ 14.05 hrs, Volume= 4.374 af, Depth> 0.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
115.992	66	
115.992		Pervious Area

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

Subcatchment s18:

Runoff = 6.26 cfs @ 12.44 hrs, Volume= 0.942 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
23.126	67	
23.126		Pervious Area

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

Subcatchment s19:

Runoff = 1.26 cfs @ 12.79 hrs, Volume= 0.342 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
15.520	60	
15.520		Pervious Area

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

Subcatchment s20:

Runoff = 7.91 cfs @ 12.54 hrs, Volume= 1.189 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
20.623	72	
20.623		Pervious Area

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

Subcatchment s21:

Runoff = 42.32 cfs @ 12.43 hrs, Volume= 5.849 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
108.291	71	
108.291		Pervious Area

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

Subcatchment s22:

Runoff = 24.90 cfs @ 12.52 hrs, Volume= 3.884 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
82.423	69	
82.423		Pervious Area

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

Subcatchment s23:

Runoff = 13.42 cfs @ 12.74 hrs, Volume= 2.398 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
41.587	72	
41.587		Pervious Area

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

Subcatchment s24:

Runoff = 9.50 cfs @ 12.51 hrs, Volume= 1.430 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
28.325	70	
28.325		Pervious Area

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

Subcatchment s25:

Runoff = 3.48 cfs @ 12.37 hrs, Volume= 0.511 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
13.562	66	
13.562		Pervious Area

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

Subcatchment s26:

Runoff = 0.20 cfs @ 12.78 hrs, Volume= 0.073 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
5.306	56	
5.306		Pervious Area

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

Subcatchment s27:

Runoff = 5.58 cfs @ 12.80 hrs, Volume= 1.203 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
31.894	66	
31.894		Pervious Area

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

Subcatchment s28:

Runoff = 2.95 cfs @ 12.15 hrs, Volume= 0.302 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
6.893	68	
6.893		Pervious Area

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

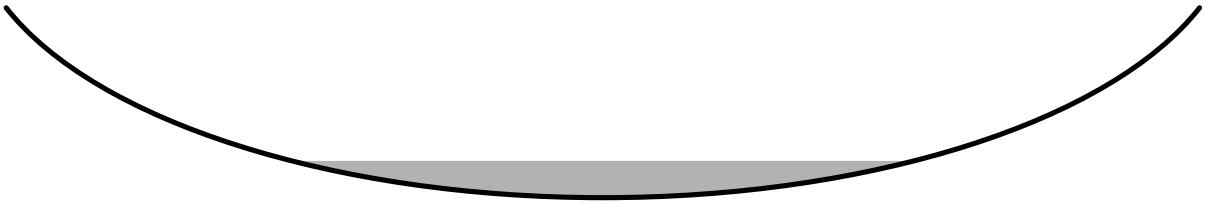
Reach r03:

Inflow Area = 11.485 ac, Inflow Depth = 0.53" for 1-yr event
Inflow = 2.69 cfs @ 12.70 hrs, Volume= 0.504 af
Outflow = 2.66 cfs @ 12.75 hrs, Volume= 0.504 af, Atten= 1%, Lag= 3.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.16 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 1.46 fps, Avg. Travel Time= 9.0 min

Peak Storage= 660 cf @ 12.75 hrs, Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 92.14 cfs

10.00' x 1.50' deep Parabolic Channel, n= 0.060
Length= 785.0' Slope= 0.1490 '/'
Inlet Invert= 845.00', Outlet Invert= 728.00'



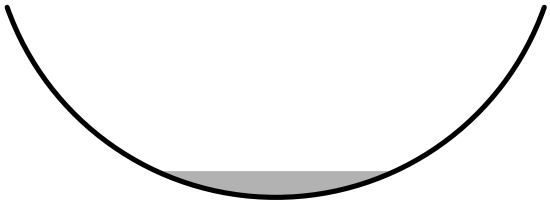
Reach r04:

Inflow Area = 26.659 ac, Inflow Depth = 0.55" for 1-yr event
Inflow = 6.78 cfs @ 12.58 hrs, Volume= 1.219 af
Outflow = 6.75 cfs @ 12.61 hrs, Volume= 1.219 af, Atten= 0%, Lag= 2.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.18 fps, Min. Travel Time= 2.7 min
Avg. Velocity = 1.91 fps, Avg. Travel Time= 5.9 min

Peak Storage= 1,091 cf @ 12.61 hrs, Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 446.15 cfs

12.00' x 4.00' deep Parabolic Channel, n= 0.060
Length= 675.0' Slope= 0.1148 '/'
Inlet Invert= 685.50', Outlet Invert= 608.00'



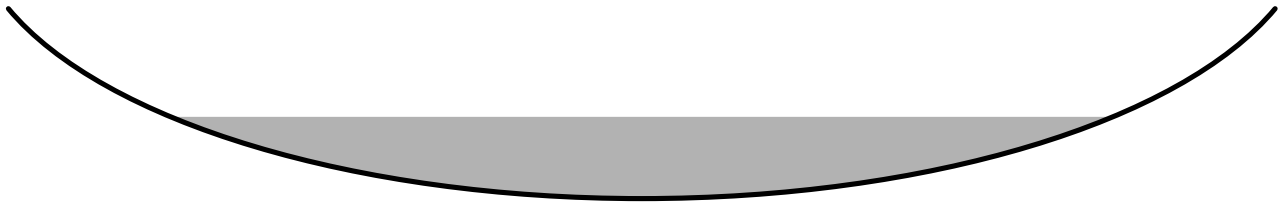
Reach r08a:

Inflow Area = 97.712 ac, Inflow Depth = 0.42" for 1-yr event
Inflow = 13.24 cfs @ 13.02 hrs, Volume= 3.401 af
Outflow = 13.24 cfs @ 13.02 hrs, Volume= 3.401 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.06 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.69 fps, Avg. Travel Time= 1.0 min

Peak Storage= 424 cf @ 13.02 hrs, Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 81.88 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.027
Length= 226.0' Slope= 0.0885 '/'
Inlet Invert= 607.00', Outlet Invert= 587.00'



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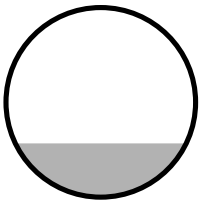
Reach r08b:

Inflow Area = 103.018 ac, Inflow Depth = 0.40" for 1-yr event
Inflow = 13.42 cfs @ 13.02 hrs, Volume= 3.475 af
Outflow = 13.42 cfs @ 13.03 hrs, Volume= 3.475 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 18.43 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 9.97 fps, Avg. Travel Time= 0.5 min

Peak Storage= 215 cf @ 13.03 hrs, Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 77.17 cfs

24.0" Diameter Pipe, n= 0.012
Length= 295.0' Slope= 0.0992 '/'
Inlet Invert= 587.00', Outlet Invert= 557.75'



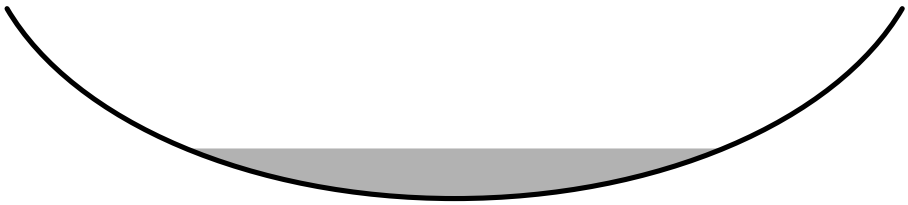
Reach r08c:

Inflow Area = 103.018 ac, Inflow Depth = 0.40" for 1-yr event
Inflow = 13.42 cfs @ 13.03 hrs, Volume= 3.475 af
Outflow = 13.40 cfs @ 13.04 hrs, Volume= 3.475 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.48 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 3.89 fps, Avg. Travel Time= 2.5 min

Peak Storage= 1,058 cf @ 13.04 hrs, Average Depth at Peak Storage= 0.52'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 232.56 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 590.0' Slope= 0.0775 '/'
Inlet Invert= 557.75', Outlet Invert= 512.00'



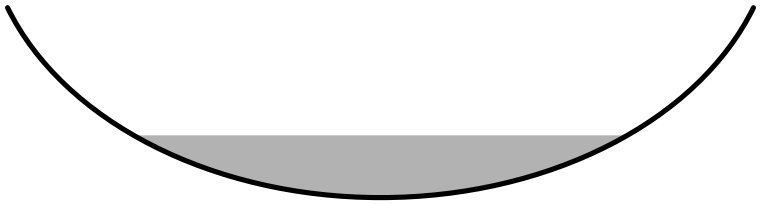
Reach r08d: Amenia Stream/Cascade Brook

Inflow Area = 103.018 ac, Inflow Depth > 11.96" for 1-yr event
Inflow = 53.40 cfs @ 13.04 hrs, Volume= 102.681 af, Incl. 40.00 cfs Base Flow
Outflow = 53.29 cfs @ 13.10 hrs, Volume= 102.400 af, Atten= 0%, Lag= 3.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.86 fps, Min. Travel Time= 4.7 min
Avg. Velocity = 2.65 fps, Avg. Travel Time= 5.1 min

Peak Storage= 15,008 cf @ 13.10 hrs, Average Depth at Peak Storage= 1.96'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 571.01 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 805.0' Slope= 0.0099 '/'
Inlet Invert= 512.00', Outlet Invert= 504.00'



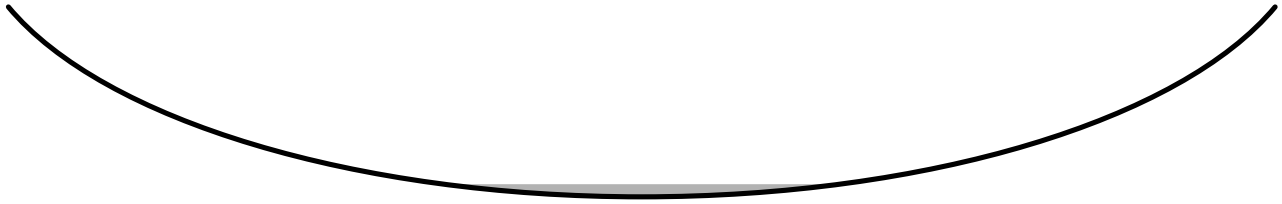
Reach r08e:

Inflow Area = 5.306 ac, Inflow Depth = 0.17" for 1-yr event
Inflow = 0.20 cfs @ 12.78 hrs, Volume= 0.073 af
Outflow = 0.20 cfs @ 12.80 hrs, Volume= 0.073 af, Atten= 0%, Lag= 1.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.77 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 3.3 min

Peak Storage= 26 cf @ 12.80 hrs, Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 71.36 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.030 Earth, grassed & winding
Length= 235.0' Slope= 0.0830 '/'
Inlet Invert= 606.50', Outlet Invert= 587.00'



‡

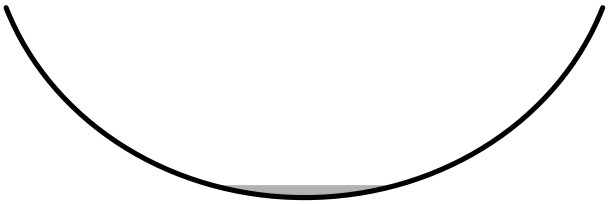
Reach r14a:

Inflow Area = 8.452 ac, Inflow Depth > 0.36" for 1-yr event
Inflow = 0.98 cfs @ 12.73 hrs, Volume= 0.254 af
Outflow = 0.97 cfs @ 12.76 hrs, Volume= 0.254 af, Atten= 0%, Lag= 1.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.95 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 1.56 fps, Avg. Travel Time= 3.8 min

Peak Storage= 119 cf @ 12.76 hrs, Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 325.42 cfs

10.00' x 3.00' deep Parabolic Channel, n= 0.027
Length= 360.0' Slope= 0.0444 '/'
Inlet Invert= 542.00', Outlet Invert= 526.00'



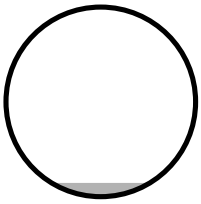
Reach r14b:

Inflow Area = 8.452 ac, Inflow Depth > 0.36" for 1-yr event
Inflow = 0.97 cfs @ 12.76 hrs, Volume= 0.254 af
Outflow = 0.97 cfs @ 12.78 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.26 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 3.30 fps, Avg. Travel Time= 2.2 min

Peak Storage= 69 cf @ 12.78 hrs, Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 94.91 cfs

30.0" Diameter Pipe, n= 0.012
Length= 445.0' Slope= 0.0456 '/'
Inlet Invert= 526.00', Outlet Invert= 505.70'



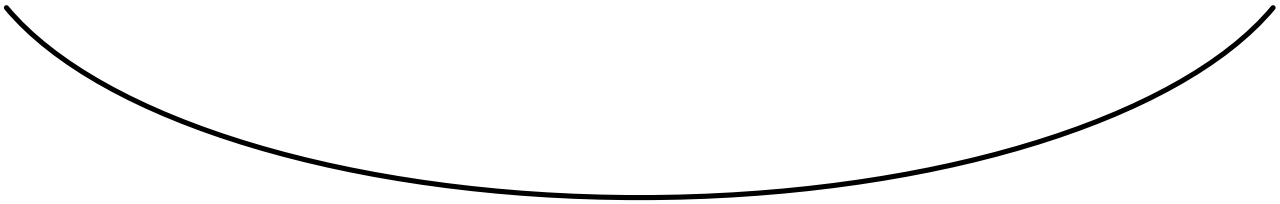
Reach r14c:

Inflow Area = 6.420 ac, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 178.07 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 575.0' Slope= 0.0800 '/'
Inlet Invert= 544.00', Outlet Invert= 498.00'



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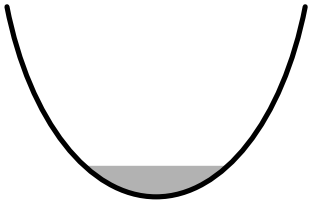
Reach r15:

Inflow Area = 4.702 ac, Inflow Depth = 1.29" for 1-yr event
Inflow = 4.66 cfs @ 12.31 hrs, Volume= 0.504 af
Outflow = 4.65 cfs @ 12.32 hrs, Volume= 0.504 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.13 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.87 fps, Avg. Travel Time= 1.7 min

Peak Storage= 189 cf @ 12.32 hrs, Average Depth at Peak Storage= 0.49'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 188.47 cfs

5.00' x 3.00' deep Parabolic Channel, n= 0.027
Length= 290.0' Slope= 0.0897 '/'
Inlet Invert= 554.00', Outlet Invert= 528.00'



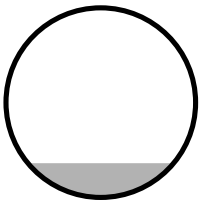
Reach r16:

Inflow Area = 4.702 ac, Inflow Depth = 1.29" for 1-yr event
Inflow = 4.69 cfs @ 12.28 hrs, Volume= 0.504 af
Outflow = 4.66 cfs @ 12.31 hrs, Volume= 0.504 af, Atten= 1%, Lag= 1.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.76 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 3.05 fps, Avg. Travel Time= 4.7 min

Peak Storage= 516 cf @ 12.31 hrs, Average Depth at Peak Storage= 0.45'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 66.05 cfs

30.0" Diameter Pipe, n= 0.012
Length= 860.0' Slope= 0.0221 '/'
Inlet Invert= 573.00', Outlet Invert= 554.00'



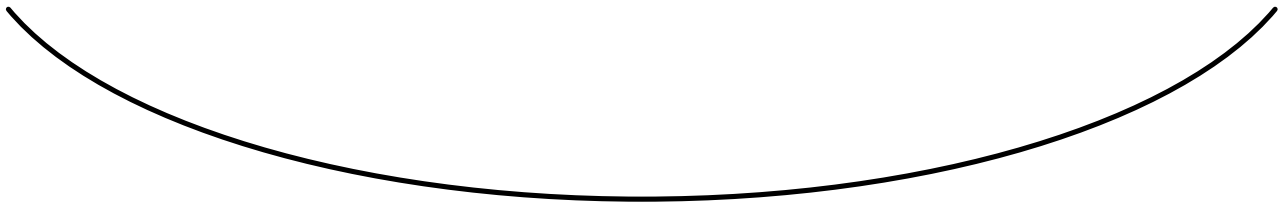
Reach r18a:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 379.63 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 1,220.0' Slope= 0.3636 '/'
Inlet Invert= 973.60', Outlet Invert= 530.00'



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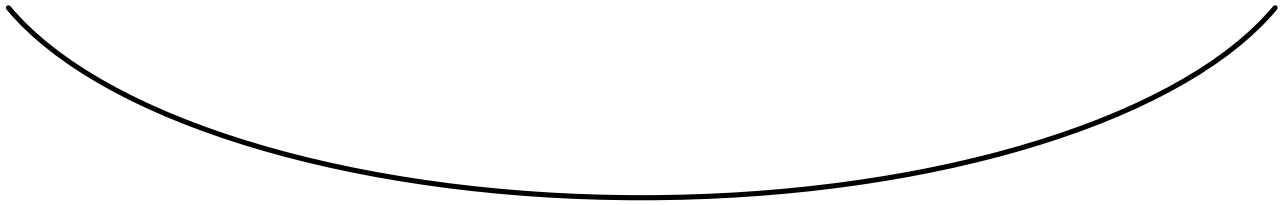
Reach r18b:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 151.94 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 285.0' Slope= 0.0582 '/'
Inlet Invert= 530.60', Outlet Invert= 514.00'



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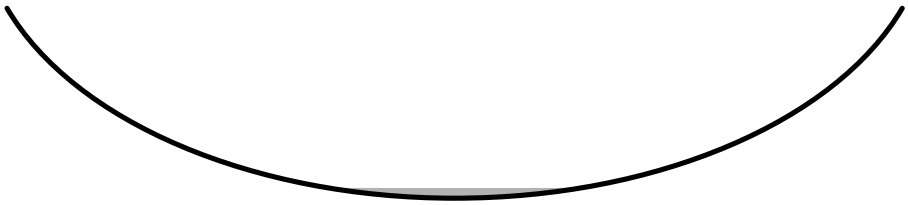
Reach r21a:

Inflow Area = 241.485 ac, Inflow Depth > 0.05" for 1-yr event
Inflow = 1.15 cfs @ 15.31 hrs, Volume= 1.023 af
Outflow = 1.15 cfs @ 15.38 hrs, Volume= 1.019 af, Atten= 0%, Lag= 4.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.83 fps, Min. Travel Time= 5.9 min
Avg. Velocity = 1.51 fps, Avg. Travel Time= 7.2 min

Peak Storage= 409 cf @ 15.38 hrs, Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 658.74 cfs

20.00' x 4.00' deep Parabolic Channel, n= 0.027
Length= 648.0' Slope= 0.0154 '/'
Inlet Invert= 504.00', Outlet Invert= 494.00'



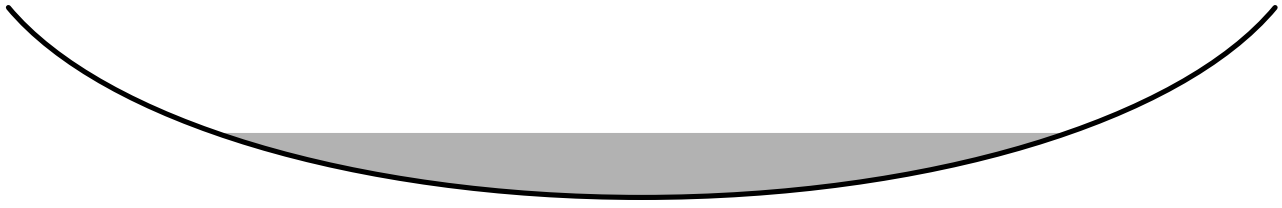
Reach r21b:

Inflow Area = 97.943 ac, Inflow Depth > 0.48" for 1-yr event
Inflow = 23.46 cfs @ 12.63 hrs, Volume= 3.888 af
Outflow = 23.44 cfs @ 12.64 hrs, Volume= 3.888 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.94 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 2.65 fps, Avg. Travel Time= 1.4 min

Peak Storage= 907 cf @ 12.64 hrs, Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 239.90 cfs

15.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 230.0' Slope= 0.0343 '/'
Inlet Invert= 499.00', Outlet Invert= 491.10'



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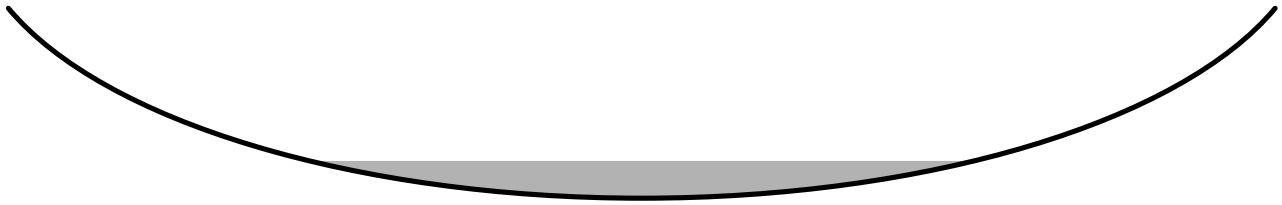
Reach r21c:

Inflow Area = 41.587 ac, Inflow Depth = 0.43" for 1-yr event
Inflow = 6.63 cfs @ 13.37 hrs, Volume= 1.479 af
Outflow = 6.58 cfs @ 13.39 hrs, Volume= 1.479 af, Atten= 1%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.30 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 1.14 fps, Avg. Travel Time= 2.3 min

Peak Storage= 458 cf @ 13.39 hrs, Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 227.81 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 160.0' Slope= 0.1309 '/'
Inlet Invert= 506.70', Outlet Invert= 485.75'



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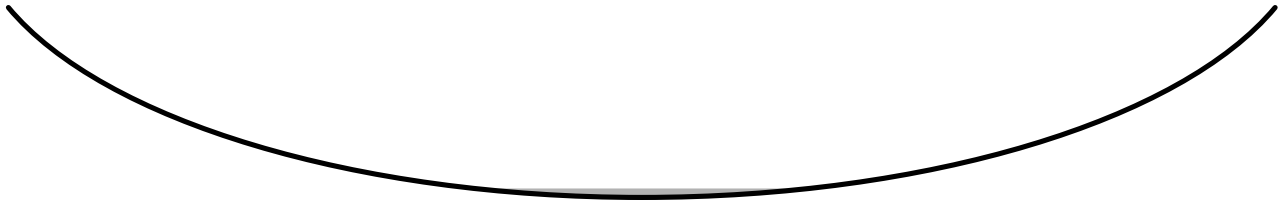
Reach r22a:

Inflow Area = 15.520 ac, Inflow Depth > 0.26" for 1-yr event
Inflow = 0.54 cfs @ 14.40 hrs, Volume= 0.333 af
Outflow = 0.54 cfs @ 14.53 hrs, Volume= 0.332 af, Atten= 0%, Lag= 7.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.60 fps, Min. Travel Time= 10.1 min
Avg. Velocity = 1.15 fps, Avg. Travel Time= 14.0 min

Peak Storage= 325 cf @ 14.53 hrs, Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 409.31 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 970.0' Slope= 0.4227 '/'
Inlet Invert= 970.00', Outlet Invert= 560.00'



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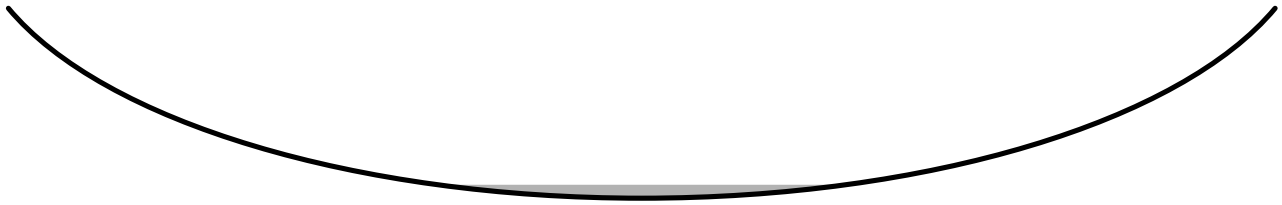
Reach r22b:

Inflow Area = 15.520 ac, Inflow Depth > 0.26" for 1-yr event
Inflow = 0.54 cfs @ 14.53 hrs, Volume= 0.332 af
Outflow = 0.54 cfs @ 14.70 hrs, Volume= 0.332 af, Atten= 0%, Lag= 9.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.89 fps, Min. Travel Time= 11.7 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 16.2 min

Peak Storage= 375 cf @ 14.70 hrs, Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 175.17 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 620.0' Slope= 0.0774 '/'
Inlet Invert= 560.00', Outlet Invert= 512.00'



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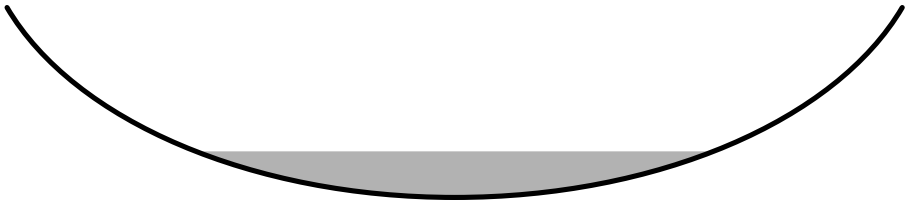
Reach r25a:

Inflow Area = 60.314 ac, Inflow Depth > 0.42" for 1-yr event
Inflow = 9.96 cfs @ 12.51 hrs, Volume= 2.130 af
Outflow = 9.89 cfs @ 12.55 hrs, Volume= 2.129 af, Atten= 1%, Lag= 2.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.26 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 2.97 fps, Avg. Travel Time= 6.1 min

Peak Storage= 1,723 cf @ 12.55 hrs, Average Depth at Peak Storage= 0.48'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 205.50 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 1,090.0' Slope= 0.0606 '/'
Inlet Invert= 570.00', Outlet Invert= 504.00'



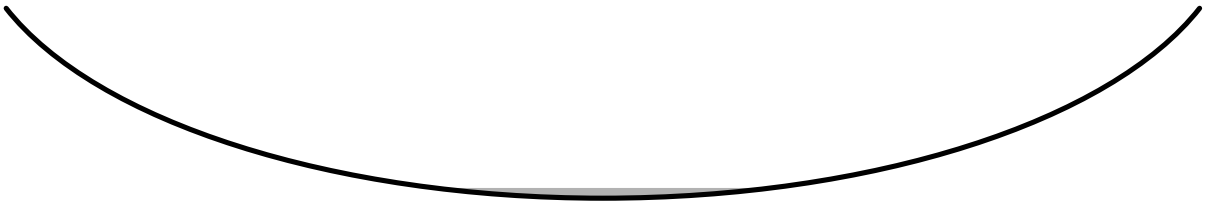
Reach r25b: Wetland Reach

Inflow Area = 9.435 ac, Inflow Depth > 0.31" for 1-yr event
Inflow = 0.27 cfs @ 15.97 hrs, Volume= 0.242 af
Outflow = 0.27 cfs @ 16.22 hrs, Volume= 0.240 af, Atten= 0%, Lag= 15.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.57 fps, Min. Travel Time= 22.0 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 26.5 min

Peak Storage= 357 cf @ 16.22 hrs, Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 156.51 cfs

20.00' x 3.00' deep Parabolic Channel, n= 0.045
Length= 750.0' Slope= 0.0060 '/'
Inlet Invert= 504.00', Outlet Invert= 499.50'



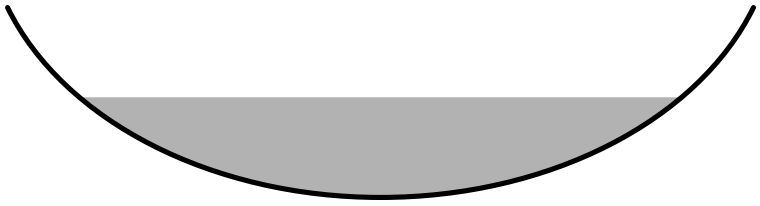
Reach r25c: Amenia Stream/Cascade Brook

Inflow Area = 134.737 ac, Inflow Depth > 18.01" for 1-yr event
Inflow = 94.57 cfs @ 13.09 hrs, Volume= 202.168 af, Incl. 40.00 cfs Base Flow
Outflow = 94.39 cfs @ 13.17 hrs, Volume= 201.410 af, Atten= 0%, Lag= 4.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.48 fps, Min. Travel Time= 6.6 min
Avg. Velocity = 2.37 fps, Avg. Travel Time= 6.9 min

Peak Storage= 37,122 cf @ 13.17 hrs, Average Depth at Peak Storage= 3.15'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 366.88 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 975.0' Slope= 0.0041 '/'
Inlet Invert= 504.00', Outlet Invert= 500.00'



Pond 8P:

Inflow Area = 52.997 ac, Inflow Depth = 0.43" for 1-yr event
Inflow = 9.90 cfs @ 12.51 hrs, Volume= 1.913 af
Outflow = 9.90 cfs @ 12.51 hrs, Volume= 1.913 af, Atten= 0%, Lag= 0.0 min
Primary = 9.90 cfs @ 12.51 hrs, Volume= 1.913 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 575.11' @ 12.51 hrs
Flood Elev= 574.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=9.90 cfs @ 12.51 hrs HW=575.11' TW=570.48' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 9.90 cfs @ 1.57 fps)

Pond p04:

Inflow Area = 38.062 ac, Inflow Depth = 0.51" for 1-yr event
Inflow = 8.03 cfs @ 12.52 hrs, Volume= 1.616 af
Outflow = 8.03 cfs @ 12.53 hrs, Volume= 1.549 af, Atten= 0%, Lag= 0.4 min
Primary = 8.03 cfs @ 12.53 hrs, Volume= 1.549 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 605.74' @ 12.53 hrs Surf.Area= 5,693 sf Storage= 3,416 cf
Flood Elev= 605.50' Surf.Area= 4,803 sf Storage= 2,882 cf

Plug-Flow detention time= 32.7 min calculated for 1.549 af (96% of inflow)
Center-of-Mass det. time= 11.1 min (933.4 - 922.3)

Volume	Invert	Avail.Storage	Storage Description
#1	604.20'	26,897 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
604.20	0	0	0	0
606.00	6,650	3,990	3,990	6,655
608.00	17,060	22,907	26,897	17,092

Device	Routing	Invert	Outlet Devices
#1	Primary	605.50'	**179.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=8.03 cfs @ 12.53 hrs HW=605.74' TW=575.11' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 8.03 cfs @ 1.21 fps)

Pond p06:

Inflow Area = 9.435 ac, Inflow Depth = 0.38" for 1-yr event
Inflow = 1.94 cfs @ 12.35 hrs, Volume= 0.302 af
Outflow = 0.27 cfs @ 15.97 hrs, Volume= 0.242 af, Atten= 86%, Lag= 216.9 min
Primary = 0.27 cfs @ 15.97 hrs, Volume= 0.242 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.09' @ 15.97 hrs Surf.Area= 19,907 sf Storage= 48,298 cf (6,138 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 248.5 min (1,174.5 - 926.0)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

Device	Routing	Invert	Outlet Devices
#1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.27 cfs @ 15.97 hrs HW=507.09' TW=504.16' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.27 cfs @ 1.44 fps)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p07:

Inflow Area = 7.317 ac, Inflow Depth = 0.45" for 1-yr event
Inflow = 2.12 cfs @ 12.25 hrs, Volume= 0.276 af
Outflow = 0.24 cfs @ 15.86 hrs, Volume= 0.216 af, Atten= 89%, Lag= 216.6 min
Primary = 0.24 cfs @ 15.86 hrs, Volume= 0.216 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.04' @ 15.86 hrs Surf.Area= 22,769 sf Storage= 62,119 cf (5,855 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 259.2 min (1,171.3 - 912.1)

Volume	Invert	Avail.Storage	Storage Description
#1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

Device	Routing	Invert	Outlet Devices
#1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=0.24 cfs @ 15.86 hrs HW=573.04' TW=570.24' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.24 cfs @ 1.32 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p09:

Inflow Area = 8.452 ac, Inflow Depth = 0.42" for 1-yr event
Inflow = 2.03 cfs @ 12.30 hrs, Volume= 0.294 af
Outflow = 0.98 cfs @ 12.73 hrs, Volume= 0.254 af, Atten= 52%, Lag= 25.8 min
Primary = 0.98 cfs @ 12.73 hrs, Volume= 0.254 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 548.93' @ 12.73 hrs Surf.Area= 3,132 sf Storage= 2,969 cf
Flood Elev= 551.20' Surf.Area= 8,534 sf Storage= 15,673 cf

Plug-Flow detention time= 128.6 min calculated for 0.254 af (86% of inflow)
Center-of-Mass det. time= 66.4 min (986.1 - 919.6)

Volume	Invert	Avail.Storage	Storage Description
#1	547.50'	21,989 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
547.50	0	0	0	0
548.00	1,080	180	180	1,080
550.00	5,510	6,020	6,200	5,527
552.00	10,550	15,790	21,989	10,606

Device	Routing	Invert	Outlet Devices
#1	Primary	548.50'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 542.00' S= 0.0929 '/' Cc= 0.900 n= 0.012
#2	Primary	551.20'	**168.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.98 cfs @ 12.73 hrs HW=548.93' TW=542.19' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.98 cfs @ 1.76 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p10:

Inflow Area = 45.146 ac, Inflow Depth = 0.12" for 1-yr event
Inflow = 3.13 cfs @ 12.46 hrs, Volume= 0.453 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 498.90' @ 25.62 hrs Surf.Area= 38,086 sf Storage= 120,819 cf (19,711 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p12:

Inflow Area = 6.420 ac, Inflow Depth = 0.14" for 1-yr event
Inflow = 0.16 cfs @ 13.07 hrs, Volume= 0.078 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 545.08' @ 26.42 hrs Surf.Area= 3,366 sf Storage= 3,377 cf
Flood Elev= 547.50' Surf.Area= 13,848 sf Storage= 21,762 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	543.50'	26,986 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
543.50	0	0	0	0
544.00	1,140	190	190	1,140
546.00	5,260	5,899	6,089	5,278
548.00	16,710	20,897	26,986	16,750

Device	Routing	Invert	Outlet Devices
#1	Primary	547.50'	**173.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=543.50' TW=544.00' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p13:

Inflow Area = 0.350 ac, Inflow Depth = 0.14" for 1-yr event
Inflow = 0.01 cfs @ 12.46 hrs, Volume= 0.004 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 512.13' @ 24.49 hrs Surf.Area= 452 sf Storage= 184 cf
Flood Elev= 519.50' Surf.Area= 4,313 sf Storage= 16,523 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	511.40'	18,490 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
511.40	0	0	0	0
512.00	390	78	78	391
514.00	1,360	1,652	1,730	1,381
516.00	2,180	3,508	5,238	2,253
518.00	3,240	5,385	10,623	3,375
520.00	4,670	7,867	18,490	4,872

Device	Routing	Invert	Outlet Devices
#1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=511.40' TW=497.40' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p14:

Inflow Area = 36.186 ac, Inflow Depth > 0.41" for 1-yr event
Inflow = 6.79 cfs @ 12.55 hrs, Volume= 1.242 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 499.04' @ 30.00 hrs Surf.Area= 39,647 sf Storage= 108,853 cf (54,093 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

Device	Routing	Invert	Outlet Devices
#1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.40' TW=498.40' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Pond p15:

Inflow Area = 5.770 ac, Inflow Depth = 1.06" for 1-yr event
Inflow = 4.65 cfs @ 12.32 hrs, Volume= 0.511 af
Outflow = 1.25 cfs @ 12.94 hrs, Volume= 0.256 af, Atten= 73%, Lag= 37.1 min
Primary = 1.25 cfs @ 12.94 hrs, Volume= 0.256 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 536.04' @ 12.94 hrs Surf.Area= 3,183 sf Storage= 11,277 cf
Flood Elev= 536.00' Surf.Area= 3,160 sf Storage= 11,127 cf

Plug-Flow detention time= 251.7 min calculated for 0.256 af (50% of inflow)
Center-of-Mass det. time= 127.4 min (987.3 - 859.8)

Volume	Invert	Avail.Storage	Storage Description
#1	526.80'	18,577 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.80	0	0	0	0
528.00	310	124	124	312
530.00	660	948	1,072	694
532.00	1,180	1,815	2,887	1,256
534.00	1,990	3,135	6,022	2,113
536.00	3,160	5,105	11,127	3,337
538.00	4,320	7,450	18,577	4,575

Device	Routing	Invert	Outlet Devices
#1	Primary	536.00'	**171.0 deg x 50.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=1.25 cfs @ 12.94 hrs HW=536.04' TW=507.37' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 1.25 cfs @ 0.61 fps)

Pond p16:

Inflow Area = 220.862 ac, Inflow Depth > 0.51" for 1-yr event
Inflow = 29.47 cfs @ 12.37 hrs, Volume= 9.341 af
Outflow = 0.16 cfs @ 30.00 hrs, Volume= 0.059 af, Atten= 99%, Lag= 1,057.8 min
Primary = 0.16 cfs @ 30.00 hrs, Volume= 0.059 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 509.19' @ 30.00 hrs Surf.Area= 232,374 sf Storage= 1,282,638 cf (404,318 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 645.0 min (1,647.6 - 1,002.6)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

Device	Routing	Invert	Outlet Devices
#1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' Cc= 0.900 n= 0.024
#2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' Cc= 0.900 n= 0.013
#3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=0.15 cfs @ 30.00 hrs HW=509.19' TW=0.00' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 0.15 cfs @ 1.18 fps)
├─**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
└─**3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p17:

Inflow Area = 115.992 ac, Inflow Depth > 0.45" for 1-yr event
Inflow = 11.33 cfs @ 14.05 hrs, Volume= 4.374 af
Outflow = 11.20 cfs @ 14.16 hrs, Volume= 4.369 af, Atten= 1%, Lag= 6.9 min
Primary = 11.20 cfs @ 14.16 hrs, Volume= 4.369 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 524.93' @ 14.16 hrs Surf.Area= 9,712 sf Storage= 19,821 cf (10,587 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)

Plug-Flow detention time= 61.7 min calculated for 4.157 af (95% of inflow)
Center-of-Mass det. time= 23.2 min (1,038.8 - 1,015.6)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

Device	Routing	Invert	Outlet Devices
#1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=11.20 cfs @ 14.16 hrs HW=524.93' TW=515.12' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 8.83 cfs @ 3.54 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 2.37 cfs @ 1.97 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p18:

Inflow Area = 139.118 ac, Inflow Depth > 0.46" for 1-yr event
Inflow = 12.50 cfs @ 14.12 hrs, Volume= 5.311 af
Outflow = 11.04 cfs @ 14.70 hrs, Volume= 5.248 af, Atten= 12%, Lag= 34.5 min
Primary = 11.04 cfs @ 14.70 hrs, Volume= 5.248 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 515.23' @ 14.70 hrs Surf.Area= 25,366 sf Storage= 58,969 cf (32,085 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)

Plug-Flow detention time= 157.0 min calculated for 4.631 af (87% of inflow)
Center-of-Mass det. time= 60.0 min (1,077.2 - 1,017.2)

Volume	Invert	Avail.Storage	Storage Description
#1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

Device	Routing	Invert	Outlet Devices
#1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=11.04 cfs @ 14.70 hrs HW=515.23' TW=507.82' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 10.19 cfs @ 3.83 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.85 cfs @ 1.60 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p19:

Inflow Area = 15.520 ac, Inflow Depth = 0.26" for 1-yr event
Inflow = 1.26 cfs @ 12.79 hrs, Volume= 0.342 af
Outflow = 0.54 cfs @ 14.40 hrs, Volume= 0.333 af, Atten= 57%, Lag= 96.6 min
Primary = 0.54 cfs @ 14.40 hrs, Volume= 0.333 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.03' @ 14.40 hrs Surf.Area= 86,860 sf Storage= 60,833 cf (3,499 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 113.1 min (1,086.5 - 973.4)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

Device	Routing	Invert	Outlet Devices
#1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
#2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.54 cfs @ 14.40 hrs HW=972.03' TW=970.05' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.54 cfs @ 0.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20:

Inflow Area = 241.485 ac, Inflow Depth > 0.06" for 1-yr event
Inflow = 7.91 cfs @ 12.54 hrs, Volume= 1.248 af
Outflow = 1.15 cfs @ 15.31 hrs, Volume= 1.023 af, Atten= 85%, Lag= 166.1 min
Primary = 1.15 cfs @ 15.31 hrs, Volume= 1.023 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 505.38' @ 15.31 hrs Surf.Area= 89,373 sf Storage= 163,353 cf (24,829 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 226.2 min (1,165.5 - 939.3)

Volume	Invert	Avail.Storage	Storage Description
#1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

Device	Routing	Invert	Outlet Devices
#1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=1.15 cfs @ 15.31 hrs HW=505.38' TW=504.21' (Dynamic Tailwater)
├**1=Broad-Crested Rectangular Weir** (Weir Controls 1.15 cfs @ 1.39 fps)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p21:

Inflow Area = 489.306 ac, Inflow Depth > 0.30" for 1-yr event
Inflow = 59.76 cfs @ 12.58 hrs, Volume= 12.235 af
Outflow = 8.93 cfs @ 17.12 hrs, Volume= 10.459 af, Atten= 85%, Lag= 272.3 min
Primary = 8.93 cfs @ 17.12 hrs, Volume= 10.459 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 482.40' @ 17.12 hrs Surf.Area= 258,908 sf Storage= 241,478 cf

Plug-Flow detention time= 344.5 min calculated for 10.459 af (85% of inflow)
Center-of-Mass det. time= 271.1 min (1,232.2 - 961.1)

Volume	Invert	Avail.Storage	Storage Description
#1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

Device	Routing	Invert	Outlet Devices
#1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' Cc= 0.900 n= 0.024

Primary OutFlow Max=8.93 cfs @ 17.12 hrs HW=482.40' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 8.93 cfs @ 2.90 fps)

Pond p22:

Inflow Area = 97.943 ac, Inflow Depth > 0.52" for 1-yr event
Inflow = 24.90 cfs @ 12.52 hrs, Volume= 4.215 af
Outflow = 23.46 cfs @ 12.63 hrs, Volume= 3.888 af, Atten= 6%, Lag= 6.4 min
Primary = 23.46 cfs @ 12.63 hrs, Volume= 3.888 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 501.01' @ 12.63 hrs Surf.Area= 9,973 sf Storage= 34,314 cf (24,208 cf above start)

Plug-Flow detention time= 121.8 min calculated for 3.656 af (87% of inflow)
Center-of-Mass det. time= 44.4 min (974.0 - 929.6)

Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

Device	Routing	Invert	Outlet Devices
#1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' Cc= 0.900 n= 0.024
#2	Primary	500.50'	**1.0' long x 15.0' 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
#3	Primary	500.50'	**20.0' long x 13.5' 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) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=23.46 cfs @ 12.63 hrs HW=501.01' TW=499.68' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 3.04 cfs @ 2.60 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 0.98 cfs @ 1.92 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 19.44 cfs @ 1.91 fps)

Pond p23:

Inflow Area = 41.587 ac, Inflow Depth = 0.69" for 1-yr event
Inflow = 13.42 cfs @ 12.74 hrs, Volume= 2.398 af
Outflow = 6.63 cfs @ 13.37 hrs, Volume= 1.479 af, Atten= 51%, Lag= 38.3 min
Primary = 6.63 cfs @ 13.37 hrs, Volume= 1.479 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 507.75' @ 13.37 hrs Surf.Area= 18,433 sf Storage= 40,799 cf

Plug-Flow detention time= 221.2 min calculated for 1.479 af (62% of inflow)
Center-of-Mass det. time= 97.3 min (1,013.9 - 916.5)

Volume	Invert	Avail.Storage	Storage Description
#1	503.50'	100,303 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
503.50	0	0	0
506.00	11,170	13,963	13,963
508.00	19,460	30,630	44,593
510.00	36,250	55,710	100,303

Device	Routing	Invert	Outlet Devices
#1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=6.63 cfs @ 13.37 hrs HW=507.75' TW=506.89' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 6.63 cfs @ 0.70 fps)

Pond zDP1: Design Point 1

Inflow Area = 26.659 ac, Inflow Depth = 0.55" for 1-yr event
Inflow = 6.78 cfs @ 12.58 hrs, Volume= 1.219 af
Outflow = 6.78 cfs @ 12.58 hrs, Volume= 1.219 af, Atten= 0%, Lag= 0.0 min
Primary = 6.78 cfs @ 12.58 hrs, Volume= 1.219 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 721.03' @ 12.58 hrs Surf.Area= 44 sf Storage= 28 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf

Plug-Flow detention time= 0.1 min calculated for 1.218 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (922.0 - 921.8)

Volume	Invert	Avail.Storage	Storage Description
#1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

Device	Routing	Invert	Outlet Devices
#1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' Cc= 0.900 n= 0.024
#2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=6.78 cfs @ 12.58 hrs HW=721.03' TW=686.05' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 6.78 cfs @ 3.29 fps)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Inflow Area = 97.712 ac, Inflow Depth = 0.42" for 1-yr event
Inflow = 13.25 cfs @ 13.01 hrs, Volume= 3.401 af
Outflow = 13.24 cfs @ 13.02 hrs, Volume= 3.401 af, Atten= 0%, Lag= 0.2 min
Primary = 13.24 cfs @ 13.02 hrs, Volume= 3.401 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 621.36' @ 13.02 hrs Surf.Area= 180 sf Storage= 147 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf

Plug-Flow detention time= 0.2 min calculated for 3.401 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (961.5 - 961.3)

Volume	Invert	Avail.Storage	Storage Description
#1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

Device	Routing	Invert	Outlet Devices
#1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' Cc= 0.900 n= 0.012
#2	Secondary	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=13.24 cfs @ 13.02 hrs HW=621.36' TW=607.43' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 13.24 cfs @ 4.52 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.60' TW=557.75' (Dynamic Tailwater)
↑—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP3: Design Point 3

Inflow Area = 218.048 ac, Inflow Depth > 11.24" for 1-yr event
Inflow = 101.58 cfs @ 13.02 hrs, Volume= 204.290 af
Primary = 101.58 cfs @ 13.02 hrs, Volume= 204.290 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 489.306 ac, Inflow Depth > 0.26" for 1-yr event
Inflow = 8.93 cfs @ 17.12 hrs, Volume= 10.459 af
Primary = 8.93 cfs @ 17.12 hrs, Volume= 10.459 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 0.61" for 1-yr event
Inflow = 9.50 cfs @ 12.51 hrs, Volume= 1.430 af
Primary = 9.50 cfs @ 12.51 hrs, Volume= 1.430 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP6: Design Point 6

Inflow Area = 5.306 ac, Inflow Depth = 0.17" for 1-yr event
Inflow = 0.20 cfs @ 12.78 hrs, Volume= 0.073 af
Outflow = 0.20 cfs @ 12.78 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.78 hrs, Volume= 0.073 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 609.08' @ 12.78 hrs
Flood Elev= 612.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.90'	**36.0" x 43.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 606.90' S= 0.0465 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=0.20 cfs @ 12.78 hrs HW=609.08' TW=606.57' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.20 cfs @ 1.14 fps)

Pond zDP7: Design Point 7

Inflow Area = 31.894 ac, Inflow Depth = 0.45" for 1-yr event
Inflow = 5.58 cfs @ 12.80 hrs, Volume= 1.203 af
Primary = 5.58 cfs @ 12.80 hrs, Volume= 1.203 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP8: Design Point 8

Inflow Area = 6.893 ac, Inflow Depth = 0.53" for 1-yr event
Inflow = 2.95 cfs @ 12.15 hrs, Volume= 0.302 af
Primary = 2.95 cfs @ 12.15 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Subcatchment s01:

Runoff = 5.15 cfs @ 12.65 hrs, Volume= 0.863 af, Depth= 0.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
11.485	68	
11.485		Pervious Area

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

Subcatchment s02:

Runoff = 27.89 cfs @ 12.94 hrs, Volume= 6.123 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
97.712	65	
97.712		Pervious Area

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

Subcatchment s03:

Runoff = 8.88 cfs @ 12.45 hrs, Volume= 1.206 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
15.174	69	
15.174		Pervious Area

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

Subcatchment s04:

Runoff = 8.24 cfs @ 12.11 hrs, Volume= 0.715 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
11.403	65	
11.403		Pervious Area

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

Subcatchment s05:

Runoff = 5.14 cfs @ 12.32 hrs, Volume= 0.713 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
14.935	61	
14.935		Pervious Area

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

Subcatchment s06:

Runoff = 4.48 cfs @ 12.28 hrs, Volume= 0.554 af, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
9.435	64	
9.435		Pervious Area

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

Subcatchment s07:

Runoff = 4.52 cfs @ 12.22 hrs, Volume= 0.488 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
7.317	66	
7.317		Pervious Area

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

Subcatchment s08:

Runoff = 6.95 cfs @ 12.45 hrs, Volume= 1.197 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
31.719	58	
31.719		Pervious Area

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

Subcatchment s09:

Runoff = 4.49 cfs @ 12.26 hrs, Volume= 0.530 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
8.452	65	
8.452		Pervious Area

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

Subcatchment s10:

Runoff = 5.70 cfs @ 12.43 hrs, Volume= 0.753 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
8.960	70	
8.960		Pervious Area

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

Subcatchment s11:

Runoff = 6.84 cfs @ 12.28 hrs, Volume= 0.728 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
4.702	83	
4.702		Pervious Area

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

Subcatchment s12:

Runoff = 0.69 cfs @ 12.83 hrs, Volume= 0.185 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
6.420	55	
6.420		Pervious Area

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

Subcatchment s13:

Runoff = 0.06 cfs @ 12.32 hrs, Volume= 0.010 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.350	55	
0.350		Pervious Area

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

Subcatchment s14:

Runoff = 12.38 cfs @ 12.45 hrs, Volume= 1.667 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
20.964	69	
20.964		Pervious Area

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

Subcatchment s15:

Runoff = 0.08 cfs @ 12.48 hrs, Volume= 0.020 af, Depth= 0.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
1.068	51	
1.068		Pervious Area

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

Subcatchment s16:

Runoff = 52.98 cfs @ 12.34 hrs, Volume= 6.382 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
75.974	70	
75.974		Pervious Area

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

Subcatchment s17:

Runoff = 22.46 cfs @ 13.91 hrs, Volume= 7.736 af, Depth> 0.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
115.992	66	
115.992		Pervious Area

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

Subcatchment s18:

Runoff = 12.50 cfs @ 12.39 hrs, Volume= 1.638 af, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
23.126	67	
23.126		Pervious Area

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

Subcatchment s19:

Runoff = 3.42 cfs @ 12.70 hrs, Volume= 0.687 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
15.520	60	
15.520		Pervious Area

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

Subcatchment s20:

Runoff = 13.65 cfs @ 12.51 hrs, Volume= 1.926 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
20.623	72	
20.623		Pervious Area

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

Subcatchment s21:

Runoff = 74.86 cfs @ 12.41 hrs, Volume= 9.600 af, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
108.291	71	
108.291		Pervious Area

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

Subcatchment s22:

Runoff = 46.47 cfs @ 12.49 hrs, Volume= 6.552 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
82.423	69	
82.423		Pervious Area

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

Subcatchment s23:

Runoff = 23.30 cfs @ 12.69 hrs, Volume= 3.885 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
41.587	72	
41.587		Pervious Area

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

Subcatchment s24:

Runoff = 17.23 cfs @ 12.48 hrs, Volume= 2.380 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
28.325	70	
28.325		Pervious Area

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

Subcatchment s25:

Runoff = 7.27 cfs @ 12.32 hrs, Volume= 0.904 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
13.562	66	
13.562		Pervious Area

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

Subcatchment s26:

Runoff = 0.77 cfs @ 12.64 hrs, Volume= 0.168 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
5.306	56	
5.306		Pervious Area

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

Subcatchment s27:

Runoff = 11.44 cfs @ 12.75 hrs, Volume= 2.127 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
31.894	66	
31.894		Pervious Area

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

Subcatchment s28:

Runoff = 5.79 cfs @ 12.14 hrs, Volume= 0.518 af, Depth= 0.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
6.893	68	
6.893		Pervious Area

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

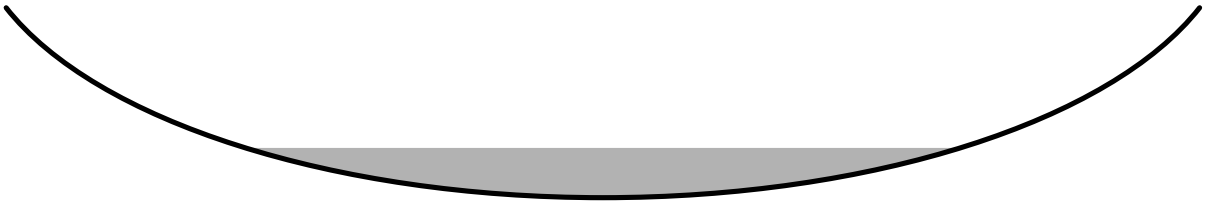
Reach r03:

Inflow Area = 11.485 ac, Inflow Depth = 0.90" for 2-yr event
Inflow = 5.15 cfs @ 12.65 hrs, Volume= 0.863 af
Outflow = 5.12 cfs @ 12.71 hrs, Volume= 0.863 af, Atten= 1%, Lag= 3.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.86 fps, Min. Travel Time= 3.4 min
Avg. Velocity = 1.65 fps, Avg. Travel Time= 7.9 min

Peak Storage= 1,042 cf @ 12.71 hrs, Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 92.14 cfs

10.00' x 1.50' deep Parabolic Channel, n= 0.060
Length= 785.0' Slope= 0.1490 '/'
Inlet Invert= 845.00', Outlet Invert= 728.00'



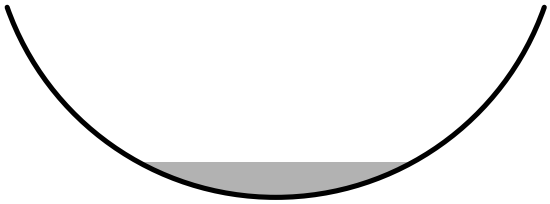
Reach r04:

Inflow Area = 26.659 ac, Inflow Depth = 0.93" for 2-yr event
Inflow = 12.96 cfs @ 12.52 hrs, Volume= 2.069 af
Outflow = 12.91 cfs @ 12.56 hrs, Volume= 2.069 af, Atten= 0%, Lag= 2.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.07 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.14 fps, Avg. Travel Time= 5.2 min

Peak Storage= 1,719 cf @ 12.56 hrs, Average Depth at Peak Storage= 0.74'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 446.15 cfs

12.00' x 4.00' deep Parabolic Channel, n= 0.060
Length= 675.0' Slope= 0.1148 '/'
Inlet Invert= 685.50', Outlet Invert= 608.00'



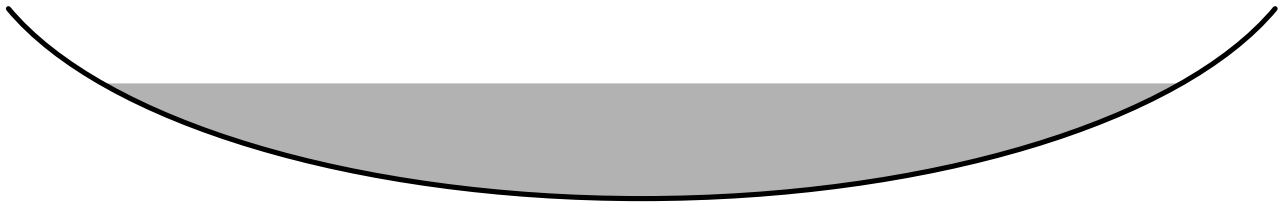
Reach r08a:

Inflow Area = 97.712 ac, Inflow Depth = 0.75" for 2-yr event
Inflow = 27.80 cfs @ 12.98 hrs, Volume= 6.123 af
Outflow = 27.80 cfs @ 12.99 hrs, Volume= 6.123 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.85 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 4.29 fps, Avg. Travel Time= 0.9 min

Peak Storage= 710 cf @ 12.99 hrs, Average Depth at Peak Storage= 0.61'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 81.88 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.027
Length= 226.0' Slope= 0.0885 '/'
Inlet Invert= 607.00', Outlet Invert= 587.00'



‡

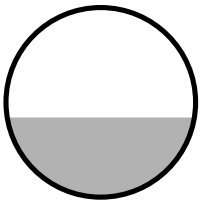
Reach r08b:

Inflow Area = 103.018 ac, Inflow Depth = 0.73" for 2-yr event
Inflow = 28.34 cfs @ 12.98 hrs, Volume= 6.291 af
Outflow = 28.34 cfs @ 12.98 hrs, Volume= 6.291 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 22.68 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 11.52 fps, Avg. Travel Time= 0.4 min

Peak Storage= 369 cf @ 12.98 hrs, Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 77.17 cfs

24.0" Diameter Pipe, n= 0.012
Length= 295.0' Slope= 0.0992 '/'
Inlet Invert= 587.00', Outlet Invert= 557.75'



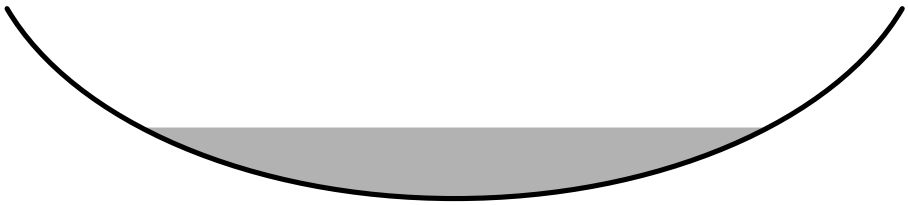
Reach r08c:

Inflow Area = 103.018 ac, Inflow Depth = 0.73" for 2-yr event
Inflow = 28.34 cfs @ 12.98 hrs, Volume= 6.291 af
Outflow = 28.33 cfs @ 13.00 hrs, Volume= 6.291 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.37 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 4.51 fps, Avg. Travel Time= 2.2 min

Peak Storage= 1,785 cf @ 13.00 hrs, Average Depth at Peak Storage= 0.74'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 232.56 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 590.0' Slope= 0.0775 '/'
Inlet Invert= 557.75', Outlet Invert= 512.00'



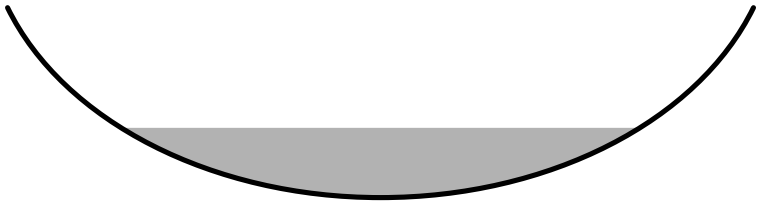
Reach r08d: Amenia Stream/Cascade Brook

Inflow Area = 103.018 ac, Inflow Depth > 12.29" for 2-yr event
Inflow = 68.33 cfs @ 13.00 hrs, Volume= 105.498 af, Incl. 40.00 cfs Base Flow
Outflow = 68.17 cfs @ 13.05 hrs, Volume= 105.216 af, Atten= 0%, Lag= 3.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.08 fps, Min. Travel Time= 4.4 min
Avg. Velocity = 2.67 fps, Avg. Travel Time= 5.0 min

Peak Storage= 17,842 cf @ 13.05 hrs, Average Depth at Peak Storage= 2.20'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 571.01 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 805.0' Slope= 0.0099 '/'
Inlet Invert= 512.00', Outlet Invert= 504.00'



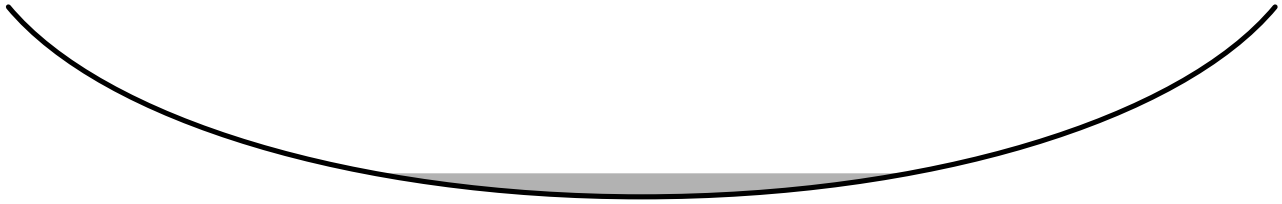
Reach r08e:

Inflow Area = 5.306 ac, Inflow Depth = 0.38" for 2-yr event
Inflow = 0.77 cfs @ 12.64 hrs, Volume= 0.168 af
Outflow = 0.77 cfs @ 12.65 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.68 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 2.7 min

Peak Storage= 67 cf @ 12.65 hrs, Average Depth at Peak Storage= 0.12'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 71.36 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.030 Earth, grassed & winding
Length= 235.0' Slope= 0.0830 '/'
Inlet Invert= 606.50', Outlet Invert= 587.00'



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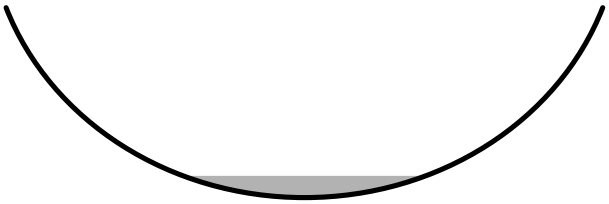
Reach r14a:

Inflow Area = 8.452 ac, Inflow Depth > 0.69" for 2-yr event
Inflow = 3.28 cfs @ 12.50 hrs, Volume= 0.489 af
Outflow = 3.27 cfs @ 12.52 hrs, Volume= 0.489 af, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.26 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 1.80 fps, Avg. Travel Time= 3.3 min

Peak Storage= 276 cf @ 12.52 hrs, Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 325.42 cfs

10.00' x 3.00' deep Parabolic Channel, n= 0.027
Length= 360.0' Slope= 0.0444 '/'
Inlet Invert= 542.00', Outlet Invert= 526.00'



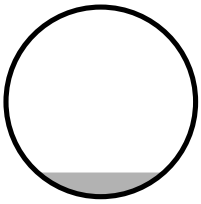
Reach r14b:

Inflow Area = 8.452 ac, Inflow Depth > 0.69" for 2-yr event
Inflow = 3.27 cfs @ 12.52 hrs, Volume= 0.489 af
Outflow = 3.27 cfs @ 12.53 hrs, Volume= 0.489 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.02 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 3.80 fps, Avg. Travel Time= 1.9 min

Peak Storage= 161 cf @ 12.53 hrs, Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 94.91 cfs

30.0" Diameter Pipe, n= 0.012
Length= 445.0' Slope= 0.0456 '/'
Inlet Invert= 526.00', Outlet Invert= 505.70'



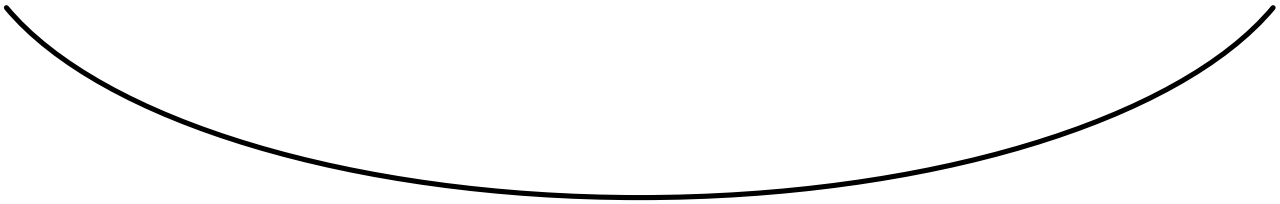
Reach r14c:

Inflow Area = 6.420 ac, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 178.07 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 575.0' Slope= 0.0800 '/'
Inlet Invert= 544.00', Outlet Invert= 498.00'



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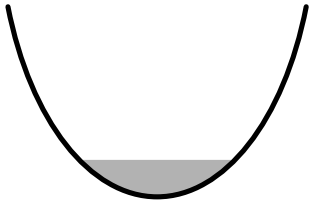
Reach r15:

Inflow Area = 4.702 ac, Inflow Depth = 1.86" for 2-yr event
Inflow = 6.79 cfs @ 12.30 hrs, Volume= 0.728 af
Outflow = 6.79 cfs @ 12.31 hrs, Volume= 0.728 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.93 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 3.11 fps, Avg. Travel Time= 1.6 min

Peak Storage= 248 cf @ 12.31 hrs, Average Depth at Peak Storage= 0.58'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 188.47 cfs

5.00' x 3.00' deep Parabolic Channel, n= 0.027
Length= 290.0' Slope= 0.0897 '/'
Inlet Invert= 554.00', Outlet Invert= 528.00'



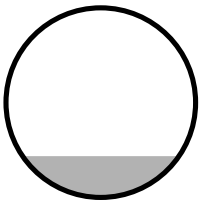
Reach r16:

Inflow Area = 4.702 ac, Inflow Depth = 1.86" for 2-yr event
Inflow = 6.84 cfs @ 12.28 hrs, Volume= 0.728 af
Outflow = 6.79 cfs @ 12.30 hrs, Volume= 0.728 af, Atten= 1%, Lag= 1.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.67 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 3.32 fps, Avg. Travel Time= 4.3 min

Peak Storage= 673 cf @ 12.30 hrs, Average Depth at Peak Storage= 0.54'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 66.05 cfs

30.0" Diameter Pipe, n= 0.012
Length= 860.0' Slope= 0.0221 '/'
Inlet Invert= 573.00', Outlet Invert= 554.00'



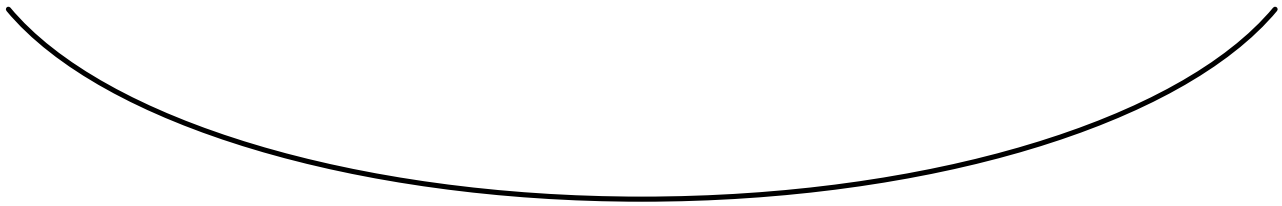
Reach r18a:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 379.63 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 1,220.0' Slope= 0.3636 '/'
Inlet Invert= 973.60', Outlet Invert= 530.00'



‡

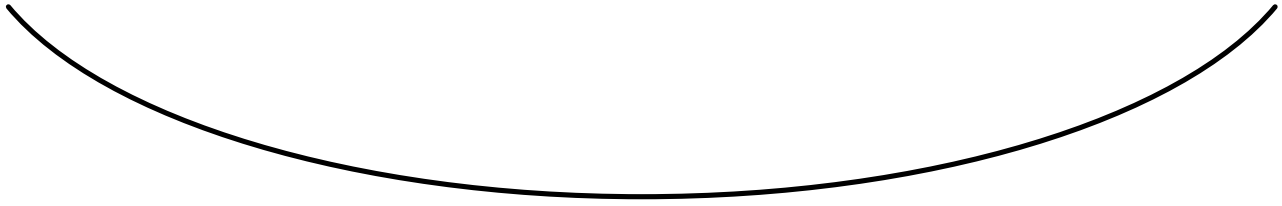
Reach r18b:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 151.94 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 285.0' Slope= 0.0582 '/'
Inlet Invert= 530.60', Outlet Invert= 514.00'



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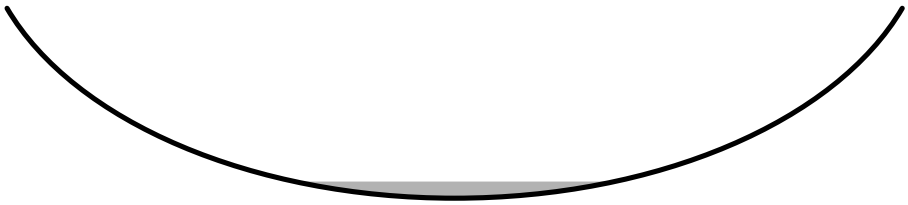
Reach r21a:

Inflow Area = 241.485 ac, Inflow Depth > 0.20" for 2-yr event
Inflow = 3.49 cfs @ 24.88 hrs, Volume= 3.963 af
Outflow = 3.49 cfs @ 24.94 hrs, Volume= 3.944 af, Atten= 0%, Lag= 3.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.56 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 2.24 fps, Avg. Travel Time= 4.8 min

Peak Storage= 881 cf @ 24.94 hrs, Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 658.74 cfs

20.00' x 4.00' deep Parabolic Channel, n= 0.027
Length= 648.0' Slope= 0.0154 '/'
Inlet Invert= 504.00', Outlet Invert= 494.00'



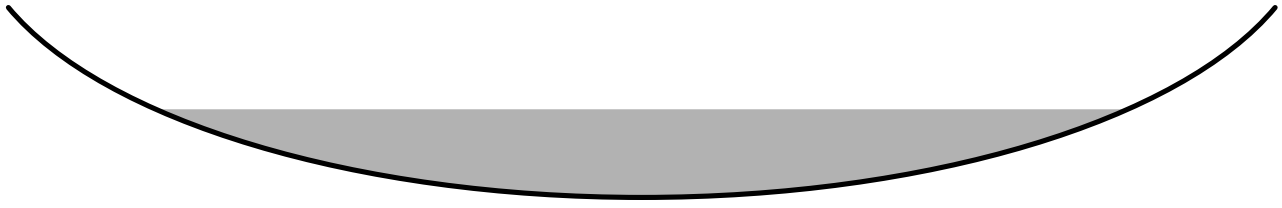
Reach r21b:

Inflow Area = 97.943 ac, Inflow Depth > 0.85" for 2-yr event
Inflow = 45.98 cfs @ 12.53 hrs, Volume= 6.897 af
Outflow = 45.97 cfs @ 12.53 hrs, Volume= 6.897 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.29 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.03 fps, Avg. Travel Time= 1.3 min

Peak Storage= 1,450 cf @ 12.53 hrs, Average Depth at Peak Storage= 0.93'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 239.90 cfs

15.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 230.0' Slope= 0.0343 '/'
Inlet Invert= 499.00', Outlet Invert= 491.10'



‡

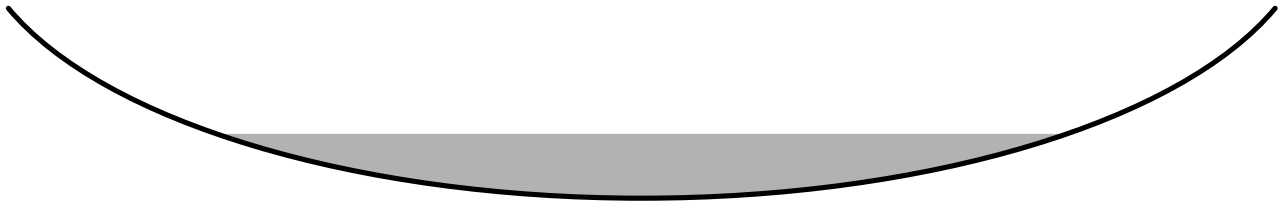
Reach r21c:

Inflow Area = 41.587 ac, Inflow Depth = 0.86" for 2-yr event
Inflow = 21.86 cfs @ 12.83 hrs, Volume= 2.966 af
Outflow = 21.77 cfs @ 12.84 hrs, Volume= 2.966 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.32 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.33 fps, Avg. Travel Time= 2.0 min

Peak Storage= 1,049 cf @ 12.84 hrs, Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 227.81 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 160.0' Slope= 0.1309 '/'
Inlet Invert= 506.70', Outlet Invert= 485.75'



‡

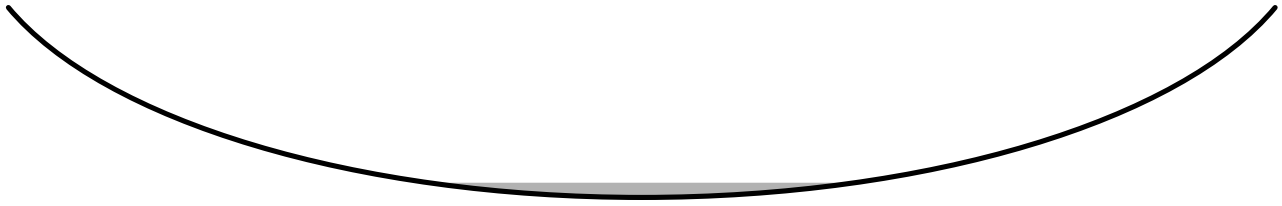
Reach r22a:

Inflow Area = 15.520 ac, Inflow Depth > 0.52" for 2-yr event
Inflow = 1.53 cfs @ 13.49 hrs, Volume= 0.677 af
Outflow = 1.52 cfs @ 13.59 hrs, Volume= 0.676 af, Atten= 0%, Lag= 6.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.20 fps, Min. Travel Time= 7.3 min
Avg. Velocity = 1.38 fps, Avg. Travel Time= 11.7 min

Peak Storage= 671 cf @ 13.59 hrs, Average Depth at Peak Storage= 0.08'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 409.31 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 970.0' Slope= 0.4227 '/'
Inlet Invert= 970.00', Outlet Invert= 560.00'



‡

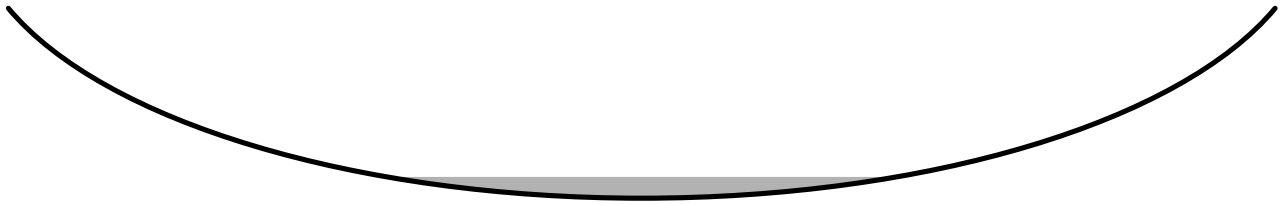
Reach r22b:

Inflow Area = 15.520 ac, Inflow Depth > 0.52" for 2-yr event
Inflow = 1.52 cfs @ 13.59 hrs, Volume= 0.676 af
Outflow = 1.51 cfs @ 13.71 hrs, Volume= 0.675 af, Atten= 1%, Lag= 7.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.22 fps, Min. Travel Time= 8.5 min
Avg. Velocity = 0.77 fps, Avg. Travel Time= 13.5 min

Peak Storage= 769 cf @ 13.71 hrs, Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 175.17 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 620.0' Slope= 0.0774 '/'
Inlet Invert= 560.00', Outlet Invert= 512.00'



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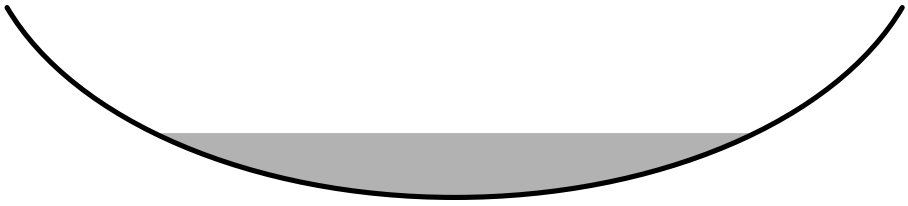
Reach r25a:

Inflow Area = 60.314 ac, Inflow Depth > 0.77" for 2-yr event
Inflow = 20.43 cfs @ 12.46 hrs, Volume= 3.851 af
Outflow = 20.36 cfs @ 12.48 hrs, Volume= 3.849 af, Atten= 0%, Lag= 1.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.78 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 3.44 fps, Avg. Travel Time= 5.3 min

Peak Storage= 2,853 cf @ 12.48 hrs, Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 205.50 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 1,090.0' Slope= 0.0606 '/'
Inlet Invert= 570.00', Outlet Invert= 504.00'



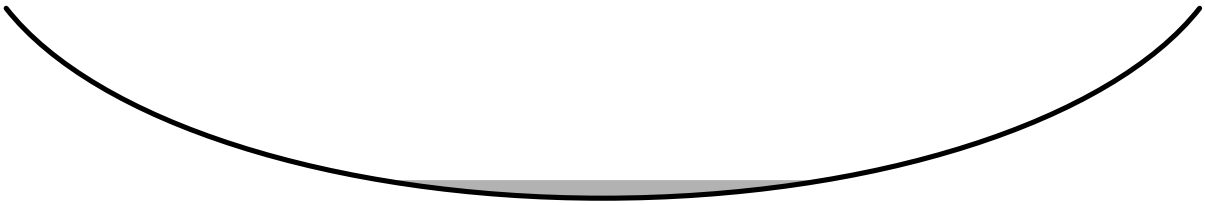
Reach r25b: Wetland Reach

Inflow Area = 9.435 ac, Inflow Depth > 0.62" for 2-yr event
Inflow = 1.00 cfs @ 13.20 hrs, Volume= 0.487 af
Outflow = 0.96 cfs @ 13.49 hrs, Volume= 0.484 af, Atten= 4%, Lag= 17.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.84 fps, Min. Travel Time= 14.9 min
Avg. Velocity = 0.57 fps, Avg. Travel Time= 22.1 min

Peak Storage= 862 cf @ 13.49 hrs, Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 156.51 cfs

20.00' x 3.00' deep Parabolic Channel, n= 0.045
Length= 750.0' Slope= 0.0060 '/'
Inlet Invert= 504.00', Outlet Invert= 499.50'



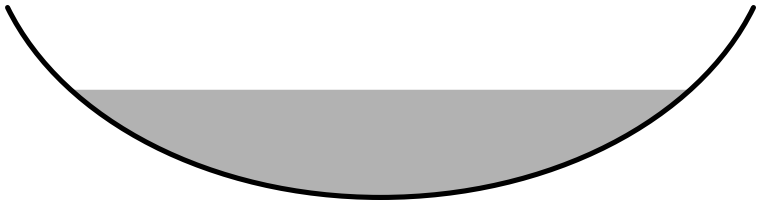
Reach r25c: Amenia Stream/Cascade Brook

Inflow Area = 134.737 ac, Inflow Depth > 18.31" for 2-yr event
Inflow = 111.10 cfs @ 13.02 hrs, Volume= 205.620 af, Incl. 40.00 cfs Base Flow
Outflow = 110.78 cfs @ 13.10 hrs, Volume= 204.862 af, Atten= 0%, Lag= 4.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.60 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 2.38 fps, Avg. Travel Time= 6.8 min

Peak Storage= 41,575 cf @ 13.10 hrs, Average Depth at Peak Storage= 3.40'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 366.88 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 975.0' Slope= 0.0041 '/'
Inlet Invert= 504.00', Outlet Invert= 500.00'



Pond 8P:

Inflow Area = 52.997 ac, Inflow Depth = 0.78" for 2-yr event
Inflow = 20.19 cfs @ 12.45 hrs, Volume= 3.430 af
Outflow = 20.19 cfs @ 12.45 hrs, Volume= 3.430 af, Atten= 0%, Lag= 0.0 min
Primary = 20.19 cfs @ 12.45 hrs, Volume= 3.430 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 575.24' @ 12.45 hrs
Flood Elev= 574.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=20.18 cfs @ 12.45 hrs HW=575.24' TW=570.67' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 20.18 cfs @ 1.81 fps)

Pond p04:

Inflow Area = 38.062 ac, Inflow Depth = 0.88" for 2-yr event
Inflow = 15.67 cfs @ 12.48 hrs, Volume= 2.783 af
Outflow = 15.66 cfs @ 12.49 hrs, Volume= 2.717 af, Atten= 0%, Lag= 0.3 min
Primary = 15.66 cfs @ 12.49 hrs, Volume= 2.717 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 605.81' @ 12.49 hrs Surf.Area= 5,966 sf Storage= 3,579 cf
Flood Elev= 605.50' Surf.Area= 4,803 sf Storage= 2,882 cf

Plug-Flow detention time= 19.6 min calculated for 2.716 af (98% of inflow)
Center-of-Mass det. time= 6.4 min (908.0 - 901.6)

Volume	Invert	Avail.Storage	Storage Description
#1	604.20'	26,897 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
604.20	0	0	0	0
606.00	6,650	3,990	3,990	6,655
608.00	17,060	22,907	26,897	17,092

Device	Routing	Invert	Outlet Devices
#1	Primary	605.50'	**179.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=15.66 cfs @ 12.49 hrs HW=605.81' TW=575.24' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 15.66 cfs @ 1.38 fps)

Pond p06:

Inflow Area = 9.435 ac, Inflow Depth = 0.71" for 2-yr event
Inflow = 4.48 cfs @ 12.28 hrs, Volume= 0.554 af
Outflow = 1.00 cfs @ 13.20 hrs, Volume= 0.487 af, Atten= 78%, Lag= 55.0 min
Primary = 1.00 cfs @ 13.20 hrs, Volume= 0.487 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.20' @ 13.20 hrs Surf.Area= 20,429 sf Storage= 50,752 cf (8,592 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 172.7 min (1,074.1 - 901.4)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

Device	Routing	Invert	Outlet Devices
#1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=1.00 cfs @ 13.20 hrs HW=507.20' TW=504.27' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.51 cfs @ 1.71 fps)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.49 cfs @ 0.79 fps)

Pond p07:

Inflow Area = 7.317 ac, Inflow Depth = 0.80" for 2-yr event
Inflow = 4.52 cfs @ 12.22 hrs, Volume= 0.488 af
Outflow = 0.57 cfs @ 14.25 hrs, Volume= 0.421 af, Atten= 87%, Lag= 121.9 min
Primary = 0.57 cfs @ 14.25 hrs, Volume= 0.421 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.18' @ 14.25 hrs Surf.Area= 23,411 sf Storage= 65,448 cf (9,184 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 212.1 min (1,102.7 - 890.5)

Volume	Invert	Avail.Storage	Storage Description
#1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

Device	Routing	Invert	Outlet Devices
#1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=0.57 cfs @ 14.25 hrs HW=573.18' TW=570.36' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.57 cfs @ 1.65 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p09:

Inflow Area = 8.452 ac, Inflow Depth = 0.75" for 2-yr event
Inflow = 4.49 cfs @ 12.26 hrs, Volume= 0.530 af
Outflow = 3.28 cfs @ 12.50 hrs, Volume= 0.489 af, Atten= 27%, Lag= 14.0 min
Primary = 3.28 cfs @ 12.50 hrs, Volume= 0.489 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 549.30' @ 12.50 hrs Surf.Area= 3,966 sf Storage= 4,101 cf
Flood Elev= 551.20' Surf.Area= 8,534 sf Storage= 15,673 cf

Plug-Flow detention time= 78.6 min calculated for 0.489 af (92% of inflow)
Center-of-Mass det. time= 40.7 min (937.4 - 896.6)

Volume	Invert	Avail.Storage	Storage Description
#1	547.50'	21,989 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
547.50	0	0	0	0
548.00	1,080	180	180	1,080
550.00	5,510	6,020	6,200	5,527
552.00	10,550	15,790	21,989	10,606

Device	Routing	Invert	Outlet Devices
#1	Primary	548.50'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 542.00' S= 0.0929 '/' Cc= 0.900 n= 0.012
#2	Primary	551.20'	**168.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=3.28 cfs @ 12.50 hrs HW=549.30' TW=542.34' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.28 cfs @ 2.41 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p10:

Inflow Area = 45.146 ac, Inflow Depth = 0.20" for 2-yr event
Inflow = 5.70 cfs @ 12.43 hrs, Volume= 0.753 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 499.24' @ 25.62 hrs Surf.Area= 39,397 sf Storage= 133,896 cf (32,788 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p12:

Inflow Area = 6.420 ac, Inflow Depth = 0.35" for 2-yr event
Inflow = 0.69 cfs @ 12.83 hrs, Volume= 0.185 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 546.19' @ 26.42 hrs Surf.Area= 6,338 sf Storage= 8,057 cf
Flood Elev= 547.50' Surf.Area= 13,848 sf Storage= 21,762 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	543.50'	26,986 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
543.50	0	0	0	0
544.00	1,140	190	190	1,140
546.00	5,260	5,899	6,089	5,278
548.00	16,710	20,897	26,986	16,750

Device	Routing	Invert	Outlet Devices
#1	Primary	547.50'	**173.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=543.50' TW=544.00' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p13:

Inflow Area = 0.350 ac, Inflow Depth = 0.35" for 2-yr event
Inflow = 0.06 cfs @ 12.32 hrs, Volume= 0.010 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 512.44' @ 24.49 hrs Surf.Area= 602 sf Storage= 439 cf
Flood Elev= 519.50' Surf.Area= 4,313 sf Storage= 16,523 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	511.40'	18,490 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
511.40	0	0	0	0
512.00	390	78	78	391
514.00	1,360	1,652	1,730	1,381
516.00	2,180	3,508	5,238	2,253
518.00	3,240	5,385	10,623	3,375
520.00	4,670	7,867	18,490	4,872

Device	Routing	Invert	Outlet Devices
#1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=511.40' TW=497.40' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p14:

Inflow Area = 36.186 ac, Inflow Depth > 0.71" for 2-yr event
Inflow = 15.48 cfs @ 12.46 hrs, Volume= 2.156 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 500.05' @ 30.00 hrs Surf.Area= 53,332 sf Storage= 148,673 cf (93,913 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

Device	Routing	Invert	Outlet Devices
#1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.40' TW=498.40' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Pond p15:

Inflow Area = 5.770 ac, Inflow Depth = 1.56" for 2-yr event
Inflow = 6.83 cfs @ 12.31 hrs, Volume= 0.748 af
Outflow = 5.46 cfs @ 12.48 hrs, Volume= 0.493 af, Atten= 20%, Lag= 10.0 min
Primary = 5.46 cfs @ 12.48 hrs, Volume= 0.493 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 536.11' @ 12.48 hrs Surf.Area= 3,222 sf Storage= 11,524 cf
Flood Elev= 536.00' Surf.Area= 3,160 sf Storage= 11,127 cf

Plug-Flow detention time= 176.6 min calculated for 0.492 af (66% of inflow)
Center-of-Mass det. time= 71.2 min (921.0 - 849.7)

Volume	Invert	Avail.Storage	Storage Description
#1	526.80'	18,577 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.80	0	0	0	0
528.00	310	124	124	312
530.00	660	948	1,072	694
532.00	1,180	1,815	2,887	1,256
534.00	1,990	3,135	6,022	2,113
536.00	3,160	5,105	11,127	3,337
538.00	4,320	7,450	18,577	4,575

Device	Routing	Invert	Outlet Devices
#1	Primary	536.00'	**171.0 deg x 50.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=5.46 cfs @ 12.48 hrs HW=536.11' TW=507.41' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 5.46 cfs @ 1.00 fps)

Pond p16:

Inflow Area = 220.862 ac, Inflow Depth > 0.88" for 2-yr event
Inflow = 55.46 cfs @ 12.46 hrs, Volume= 16.170 af
Outflow = 3.47 cfs @ 24.38 hrs, Volume= 3.131 af, Atten= 94%, Lag= 715.5 min
Primary = 3.47 cfs @ 24.38 hrs, Volume= 3.131 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 510.02' @ 24.38 hrs Surf.Area= 250,246 sf Storage= 1,482,517 cf (604,197 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 460.4 min (1,433.7 - 973.4)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

Device	Routing	Invert	Outlet Devices
#1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' Cc= 0.900 n= 0.024
#2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' Cc= 0.900 n= 0.013
#3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=3.47 cfs @ 24.38 hrs HW=510.02' TW=505.68' (Dynamic Tailwater)
├**1=Culvert** (Inlet Controls 3.47 cfs @ 2.71 fps)
├**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
└**3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p17:

Inflow Area = 115.992 ac, Inflow Depth > 0.80" for 2-yr event
Inflow = 22.46 cfs @ 13.91 hrs, Volume= 7.736 af
Outflow = 22.45 cfs @ 13.92 hrs, Volume= 7.730 af, Atten= 0%, Lag= 0.7 min
Primary = 22.45 cfs @ 13.92 hrs, Volume= 7.730 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.26' @ 13.92 hrs Surf.Area= 10,552 sf Storage= 23,004 cf (13,770 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)

Plug-Flow detention time= 40.2 min calculated for 7.518 af (97% of inflow)
Center-of-Mass det. time= 17.7 min (1,011.7 - 994.0)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

Device	Routing	Invert	Outlet Devices
#1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=22.45 cfs @ 13.92 hrs HW=525.26' TW=515.58' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 12.89 cfs @ 4.01 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 6.68 cfs @ 2.42 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 2.88 cfs @ 0.75 fps)

Pond p18:

Inflow Area = 139.118 ac, Inflow Depth > 0.81" for 2-yr event
Inflow = 24.70 cfs @ 13.86 hrs, Volume= 9.368 af
Outflow = 24.46 cfs @ 14.03 hrs, Volume= 9.295 af, Atten= 1%, Lag= 10.6 min
Primary = 24.46 cfs @ 14.03 hrs, Volume= 9.295 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 515.58' @ 14.03 hrs Surf.Area= 26,702 sf Storage= 67,540 cf (40,656 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)

Plug-Flow detention time= 103.1 min calculated for 8.678 af (93% of inflow)
Center-of-Mass det. time= 45.6 min (1,037.2 - 991.6)

Volume	Invert	Avail.Storage	Storage Description
#1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

Device	Routing	Invert	Outlet Devices
#1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=24.46 cfs @ 14.03 hrs HW=515.58' TW=508.32' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 14.49 cfs @ 4.31 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 3.87 cfs @ 2.17 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 6.11 cfs @ 1.46 fps)

Pond p19:

Inflow Area = 15.520 ac, Inflow Depth = 0.53" for 2-yr event
Inflow = 3.42 cfs @ 12.70 hrs, Volume= 0.687 af
Outflow = 1.53 cfs @ 13.49 hrs, Volume= 0.677 af, Atten= 55%, Lag= 47.1 min
Primary = 1.53 cfs @ 13.49 hrs, Volume= 0.677 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.06' @ 13.49 hrs Surf.Area= 87,725 sf Storage= 64,357 cf (7,024 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 90.8 min (1,031.5 - 940.7)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

Device	Routing	Invert	Outlet Devices
#1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
#2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.53 cfs @ 13.49 hrs HW=972.06' TW=970.08' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 1.53 cfs @ 0.70 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20:

Inflow Area = 241.485 ac, Inflow Depth > 0.25" for 2-yr event
Inflow = 13.65 cfs @ 12.51 hrs, Volume= 5.058 af
Outflow = 3.49 cfs @ 24.88 hrs, Volume= 3.963 af, Atten= 74%, Lag= 742.3 min
Primary = 3.49 cfs @ 24.88 hrs, Volume= 3.963 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 505.68' @ 24.88 hrs Surf.Area= 89,376 sf Storage= 190,256 cf (51,732 cf above start)

Plug-Flow detention time= 962.6 min calculated for 0.783 af (15% of inflow)
Center-of-Mass det. time= 108.6 min (1,334.8 - 1,226.1)

Volume	Invert	Avail.Storage	Storage Description
#1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

Device	Routing	Invert	Outlet Devices
#1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=3.49 cfs @ 24.88 hrs HW=505.68' TW=504.35' (Dynamic Tailwater)
├**1=Broad-Crested Rectangular Weir** (Weir Controls 3.49 cfs @ 2.01 fps)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p21:

Inflow Area = 489.306 ac, Inflow Depth > 0.57" for 2-yr event
Inflow = 117.76 cfs @ 12.46 hrs, Volume= 23.407 af
Outflow = 14.63 cfs @ 16.82 hrs, Volume= 17.970 af, Atten= 88%, Lag= 261.2 min
Primary = 14.63 cfs @ 16.82 hrs, Volume= 17.970 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 483.08' @ 16.82 hrs Surf.Area= 354,754 sf Storage= 467,440 cf

Plug-Flow detention time= 391.0 min calculated for 17.970 af (77% of inflow)
Center-of-Mass det. time= 261.7 min (1,247.0 - 985.3)

Volume	Invert	Avail.Storage	Storage Description
#1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

Device	Routing	Invert	Outlet Devices
#1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' Cc= 0.900 n= 0.024

Primary OutFlow Max=14.63 cfs @ 16.82 hrs HW=483.08' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 14.63 cfs @ 3.46 fps)

Pond p22:

Inflow Area = 97.943 ac, Inflow Depth > 0.89" for 2-yr event
Inflow = 46.47 cfs @ 12.49 hrs, Volume= 7.227 af
Outflow = 45.98 cfs @ 12.53 hrs, Volume= 6.897 af, Atten= 1%, Lag= 2.5 min
Primary = 45.98 cfs @ 12.53 hrs, Volume= 6.897 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 501.32' @ 12.53 hrs Surf.Area= 10,465 sf Storage= 37,436 cf (27,330 cf above start)

Plug-Flow detention time= 73.8 min calculated for 6.665 af (92% of inflow)
Center-of-Mass det. time= 26.4 min (936.9 - 910.5)

Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

Device	Routing	Invert	Outlet Devices
#1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' Cc= 0.900 n= 0.024
#2	Primary	500.50'	**1.0' long x 15.0' 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
#3	Primary	500.50'	**20.0' long x 13.5' 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) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=45.98 cfs @ 12.53 hrs HW=501.32' TW=499.93' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 4.39 cfs @ 2.95 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 1.97 cfs @ 2.39 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 39.62 cfs @ 2.41 fps)

Pond p23:

Inflow Area = 41.587 ac, Inflow Depth = 1.12" for 2-yr event
Inflow = 23.30 cfs @ 12.69 hrs, Volume= 3.885 af
Outflow = 21.86 cfs @ 12.83 hrs, Volume= 2.966 af, Atten= 6%, Lag= 8.4 min
Primary = 21.86 cfs @ 12.83 hrs, Volume= 2.966 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 507.81' @ 12.83 hrs Surf.Area= 18,691 sf Storage= 41,753 cf

Plug-Flow detention time= 141.1 min calculated for 2.966 af (76% of inflow)
Center-of-Mass det. time= 49.9 min (950.8 - 900.9)

Volume	Invert	Avail.Storage	Storage Description
#1	503.50'	100,303 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
503.50	0	0	0
506.00	11,170	13,963	13,963
508.00	19,460	30,630	44,593
510.00	36,250	55,710	100,303

Device	Routing	Invert	Outlet Devices
#1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=21.85 cfs @ 12.83 hrs HW=507.81' TW=507.04' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 21.85 cfs @ 1.03 fps)

Pond zDP1: Design Point 1

Inflow Area = 26.659 ac, Inflow Depth = 0.93" for 2-yr event
Inflow = 12.96 cfs @ 12.52 hrs, Volume= 2.069 af
Outflow = 12.96 cfs @ 12.52 hrs, Volume= 2.069 af, Atten= 0%, Lag= 0.0 min
Primary = 12.96 cfs @ 12.52 hrs, Volume= 2.069 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 721.42' @ 12.52 hrs Surf.Area= 62 sf Storage= 40 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf

Plug-Flow detention time= 0.1 min calculated for 2.069 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (903.0 - 902.8)

Volume	Invert	Avail.Storage	Storage Description
#1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

Device	Routing	Invert	Outlet Devices
#1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' Cc= 0.900 n= 0.024
#2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=12.95 cfs @ 12.52 hrs HW=721.42' TW=686.24' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 12.95 cfs @ 3.91 fps)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Inflow Area = 97.712 ac, Inflow Depth = 0.75" for 2-yr event
Inflow = 27.89 cfs @ 12.94 hrs, Volume= 6.123 af
Outflow = 27.80 cfs @ 12.98 hrs, Volume= 6.123 af, Atten= 0%, Lag= 2.5 min
Primary = 27.80 cfs @ 12.98 hrs, Volume= 6.123 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 623.98' @ 12.98 hrs Surf.Area= 754 sf Storage= 1,181 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf

Plug-Flow detention time= 0.3 min calculated for 6.123 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (938.6 - 938.3)

Volume	Invert	Avail.Storage	Storage Description
#1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

Device	Routing	Invert	Outlet Devices
#1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' Cc= 0.900 n= 0.012
#2	Secondary	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=27.80 cfs @ 12.98 hrs HW=623.98' TW=607.61' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 27.80 cfs @ 8.85 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.60' TW=557.75' (Dynamic Tailwater)
↑—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP3: Design Point 3

Inflow Area = 218.048 ac, Inflow Depth > 11.56" for 2-yr event
Inflow = 125.08 cfs @ 12.93 hrs, Volume= 210.100 af
Primary = 125.08 cfs @ 12.93 hrs, Volume= 210.100 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 489.306 ac, Inflow Depth > 0.44" for 2-yr event
Inflow = 14.63 cfs @ 16.82 hrs, Volume= 17.970 af
Primary = 14.63 cfs @ 16.82 hrs, Volume= 17.970 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 1.01" for 2-yr event
Inflow = 17.23 cfs @ 12.48 hrs, Volume= 2.380 af
Primary = 17.23 cfs @ 12.48 hrs, Volume= 2.380 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP6: Design Point 6

Inflow Area = 5.306 ac, Inflow Depth = 0.38" for 2-yr event
Inflow = 0.77 cfs @ 12.64 hrs, Volume= 0.168 af
Outflow = 0.77 cfs @ 12.64 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.0 min
Primary = 0.77 cfs @ 12.64 hrs, Volume= 0.168 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 609.26' @ 12.64 hrs
Flood Elev= 612.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.90'	**36.0" x 43.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 606.90' S= 0.0465 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=0.77 cfs @ 12.64 hrs HW=609.26' TW=606.62' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.77 cfs @ 1.61 fps)

Pond zDP7: Design Point 7

Inflow Area = 31.894 ac, Inflow Depth = 0.80" for 2-yr event
Inflow = 11.44 cfs @ 12.75 hrs, Volume= 2.127 af
Primary = 11.44 cfs @ 12.75 hrs, Volume= 2.127 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP8: Design Point 8

Inflow Area = 6.893 ac, Inflow Depth = 0.90" for 2-yr event
Inflow = 5.79 cfs @ 12.14 hrs, Volume= 0.518 af
Primary = 5.79 cfs @ 12.14 hrs, Volume= 0.518 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Subcatchment s01:

Runoff = 11.66 cfs @ 12.61 hrs, Volume= 1.799 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
11.485	68	
11.485		Pervious Area

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

Subcatchment s02:

Runoff = 69.51 cfs @ 12.87 hrs, Volume= 13.464 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
97.712	65	
97.712		Pervious Area

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

Subcatchment s03:

Runoff = 19.53 cfs @ 12.42 hrs, Volume= 2.475 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
15.174	69	
15.174		Pervious Area

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

Subcatchment s04:

Runoff = 20.66 cfs @ 12.10 hrs, Volume= 1.571 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
11.403	65	
11.403		Pervious Area

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

Subcatchment s05:

Runoff = 15.43 cfs @ 12.26 hrs, Volume= 1.704 af, Depth= 1.37"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
14.935	61	
14.935		Pervious Area

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

Subcatchment s06:

Runoff = 11.69 cfs @ 12.25 hrs, Volume= 1.243 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
9.435	64	
9.435		Pervious Area

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

Subcatchment s07:

Runoff = 10.98 cfs @ 12.20 hrs, Volume= 1.053 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
7.317	66	
7.317		Pervious Area

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

Subcatchment s08:

Runoff = 24.28 cfs @ 12.35 hrs, Volume= 3.089 af, Depth= 1.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
31.719	58	
31.719		Pervious Area

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

Subcatchment s09:

Runoff = 11.29 cfs @ 12.24 hrs, Volume= 1.165 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
8.452	65	
8.452		Pervious Area

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

Subcatchment s10:

Runoff = 12.23 cfs @ 12.40 hrs, Volume= 1.520 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
8.960	70	
8.960		Pervious Area

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

Subcatchment s11:

Runoff = 11.66 cfs @ 12.28 hrs, Volume= 1.244 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
4.702	83	
4.702		Pervious Area

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

Subcatchment s12:

Runoff = 2.87 cfs @ 12.69 hrs, Volume= 0.524 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
6.420	55	
6.420		Pervious Area

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

Subcatchment s13:

Runoff = 0.29 cfs @ 12.14 hrs, Volume= 0.029 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.350	55	
0.350		Pervious Area

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

Subcatchment s14:

Runoff = 27.30 cfs @ 12.40 hrs, Volume= 3.419 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
20.964	69	
20.964		Pervious Area

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

Subcatchment s15:

Runoff = 0.49 cfs @ 12.24 hrs, Volume= 0.066 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
1.068	51	
1.068		Pervious Area

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

Subcatchment s16:

Runoff = 114.33 cfs @ 12.32 hrs, Volume= 12.892 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
75.974	70	
75.974		Pervious Area

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

Subcatchment s17:

Runoff = 53.95 cfs @ 13.77 hrs, Volume= 16.699 af, Depth> 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
115.992	66	
115.992		Pervious Area

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

Subcatchment s18:

Runoff = 29.11 cfs @ 12.36 hrs, Volume= 3.475 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
23.126	67	
23.126		Pervious Area

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

Subcatchment s19:

Runoff = 10.40 cfs @ 12.62 hrs, Volume= 1.683 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
15.520	60	
15.520		Pervious Area

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

Subcatchment s20:

Runoff = 28.04 cfs @ 12.47 hrs, Volume= 3.777 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
20.623	72	
20.623		Pervious Area

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

Subcatchment s21:

Runoff = 157.40 cfs @ 12.38 hrs, Volume= 19.100 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
108.291	71	
108.291		Pervious Area

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

Subcatchment s22:

Runoff = 102.08 cfs @ 12.46 hrs, Volume= 13.444 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
82.423	69	
82.423		Pervious Area

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

Subcatchment s23:

Runoff = 47.82 cfs @ 12.69 hrs, Volume= 7.617 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
41.587	72	
41.587		Pervious Area

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

Subcatchment s24:

Runoff = 37.09 cfs @ 12.45 hrs, Volume= 4.807 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
28.325	70	
28.325		Pervious Area

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

Subcatchment s25:

Runoff = 17.56 cfs @ 12.30 hrs, Volume= 1.953 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
13.562	66	
13.562		Pervious Area

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

Subcatchment s26:

Runoff = 3.01 cfs @ 12.51 hrs, Volume= 0.461 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
5.306	56	
5.306		Pervious Area

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

Subcatchment s27:

Runoff = 27.39 cfs @ 12.70 hrs, Volume= 4.592 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
31.894	66	
31.894		Pervious Area

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

Subcatchment s28:

Runoff = 13.19 cfs @ 12.14 hrs, Volume= 1.080 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
6.893	68	
6.893		Pervious Area

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

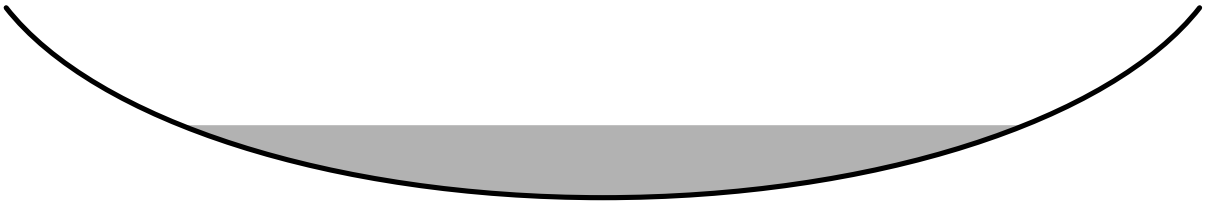
Reach r03:

Inflow Area = 11.485 ac, Inflow Depth = 1.88" for 10-yr event
Inflow = 11.66 cfs @ 12.61 hrs, Volume= 1.799 af
Outflow = 11.61 cfs @ 12.65 hrs, Volume= 1.799 af, Atten= 0%, Lag= 2.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.95 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 1.95 fps, Avg. Travel Time= 6.7 min

Peak Storage= 1,842 cf @ 12.65 hrs, Average Depth at Peak Storage= 0.57'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 92.14 cfs

10.00' x 1.50' deep Parabolic Channel, n= 0.060
Length= 785.0' Slope= 0.1490 '/'
Inlet Invert= 845.00', Outlet Invert= 728.00'



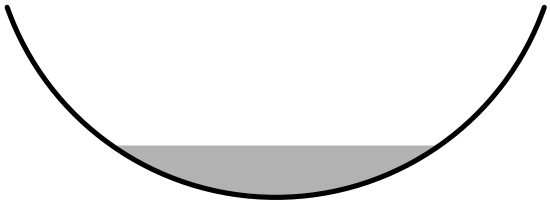
Reach r04:

Inflow Area = 26.659 ac, Inflow Depth = 1.92" for 10-yr event
Inflow = 29.17 cfs @ 12.50 hrs, Volume= 4.274 af
Outflow = 29.12 cfs @ 12.52 hrs, Volume= 4.274 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.44 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 2.52 fps, Avg. Travel Time= 4.5 min

Peak Storage= 3,051 cf @ 12.52 hrs, Average Depth at Peak Storage= 1.08'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 446.15 cfs

12.00' x 4.00' deep Parabolic Channel, n= 0.060
Length= 675.0' Slope= 0.1148 '/'
Inlet Invert= 685.50', Outlet Invert= 608.00'



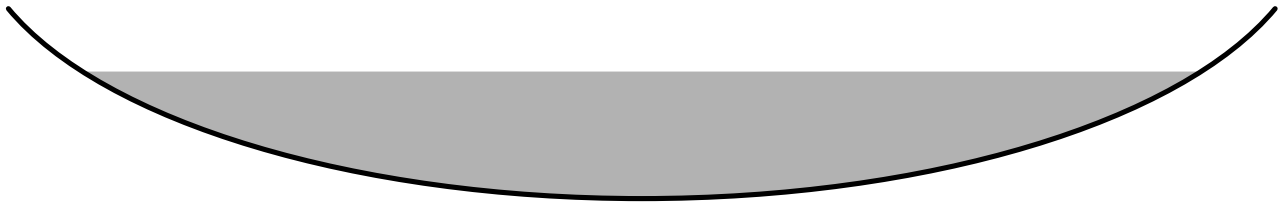
Reach r08a:

Inflow Area = 97.712 ac, Inflow Depth = 1.39" for 10-yr event
Inflow = 34.34 cfs @ 12.88 hrs, Volume= 11.317 af
Outflow = 34.33 cfs @ 12.89 hrs, Volume= 11.317 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.44 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.05 fps, Avg. Travel Time= 0.7 min

Peak Storage= 822 cf @ 12.89 hrs, Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 81.88 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.027
Length= 226.0' Slope= 0.0885 '/'
Inlet Invert= 607.00', Outlet Invert= 587.00'



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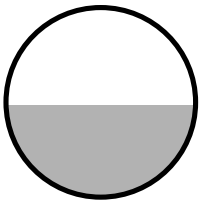
Reach r08b:

Inflow Area = 103.018 ac, Inflow Depth = 1.37" for 10-yr event
Inflow = 36.58 cfs @ 12.70 hrs, Volume= 11.777 af
Outflow = 36.58 cfs @ 12.70 hrs, Volume= 11.777 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 24.24 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 13.47 fps, Avg. Travel Time= 0.4 min

Peak Storage= 445 cf @ 12.70 hrs, Average Depth at Peak Storage= 0.97'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 77.17 cfs

24.0" Diameter Pipe, n= 0.012
Length= 295.0' Slope= 0.0992 '/'
Inlet Invert= 587.00', Outlet Invert= 557.75'



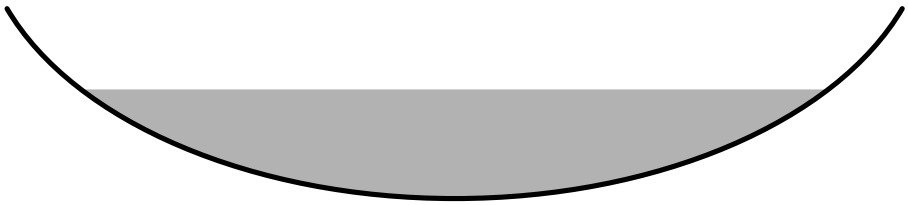
Reach r08c:

Inflow Area = 103.018 ac, Inflow Depth = 1.62" for 10-yr event
Inflow = 71.40 cfs @ 12.88 hrs, Volume= 13.925 af
Outflow = 71.34 cfs @ 12.89 hrs, Volume= 13.925 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 12.34 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 5.41 fps, Avg. Travel Time= 1.8 min

Peak Storage= 3,412 cf @ 12.89 hrs, Average Depth at Peak Storage= 1.15'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 232.56 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 590.0' Slope= 0.0775 '/'
Inlet Invert= 557.75', Outlet Invert= 512.00'



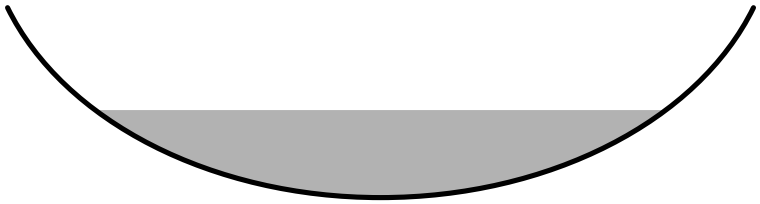
Reach r08d: Amenia Stream/Cascade Brook

Inflow Area = 103.018 ac, Inflow Depth > 13.18" for 10-yr event
Inflow = 111.34 cfs @ 12.89 hrs, Volume= 113.131 af, Incl. 40.00 cfs Base Flow
Outflow = 110.86 cfs @ 12.93 hrs, Volume= 112.850 af, Atten= 0%, Lag= 2.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.55 fps, Min. Travel Time= 3.8 min
Avg. Velocity = 2.71 fps, Avg. Travel Time= 4.9 min

Peak Storage= 25,126 cf @ 12.93 hrs, Average Depth at Peak Storage= 2.76'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 571.01 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 805.0' Slope= 0.0099 '/'
Inlet Invert= 512.00', Outlet Invert= 504.00'



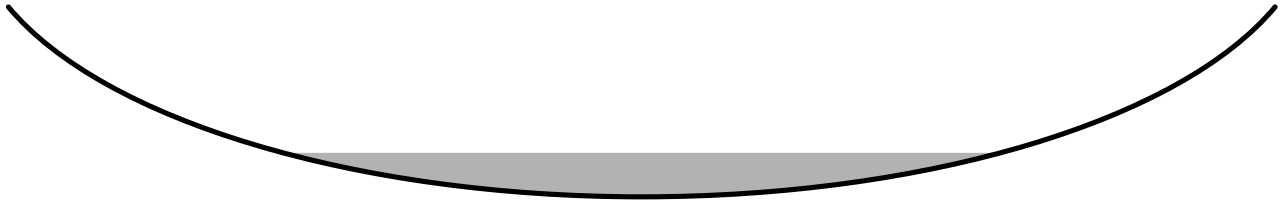
Reach r08e:

Inflow Area = 5.306 ac, Inflow Depth = 1.04" for 10-yr event
Inflow = 3.01 cfs @ 12.51 hrs, Volume= 0.461 af
Outflow = 3.00 cfs @ 12.52 hrs, Volume= 0.461 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.07 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.90 fps, Avg. Travel Time= 2.1 min

Peak Storage= 173 cf @ 12.52 hrs, Average Depth at Peak Storage= 0.23'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 71.36 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.030 Earth, grassed & winding
Length= 235.0' Slope= 0.0830 '/'
Inlet Invert= 606.50', Outlet Invert= 587.00'



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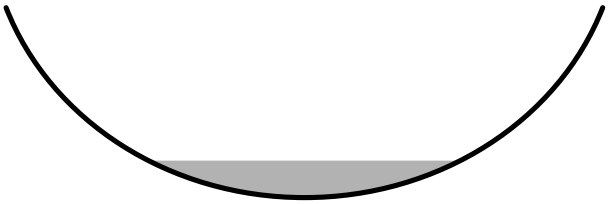
Reach r14a:

Inflow Area = 8.452 ac, Inflow Depth > 1.60" for 10-yr event
Inflow = 10.15 cfs @ 12.33 hrs, Volume= 1.124 af
Outflow = 10.14 cfs @ 12.35 hrs, Volume= 1.124 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.98 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 2.16 fps, Avg. Travel Time= 2.8 min

Peak Storage= 611 cf @ 12.35 hrs, Average Depth at Peak Storage= 0.58'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 325.42 cfs

10.00' x 3.00' deep Parabolic Channel, n= 0.027
Length= 360.0' Slope= 0.0444 '/'
Inlet Invert= 542.00', Outlet Invert= 526.00'



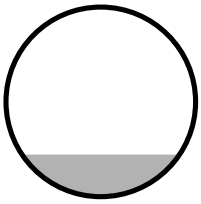
Reach r14b:

Inflow Area = 8.452 ac, Inflow Depth > 1.60" for 10-yr event
Inflow = 10.14 cfs @ 12.35 hrs, Volume= 1.124 af
Outflow = 10.14 cfs @ 12.35 hrs, Volume= 1.124 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 12.60 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 4.58 fps, Avg. Travel Time= 1.6 min

Peak Storage= 358 cf @ 12.35 hrs, Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 94.91 cfs

30.0" Diameter Pipe, n= 0.012
Length= 445.0' Slope= 0.0456 '/'
Inlet Invert= 526.00', Outlet Invert= 505.70'



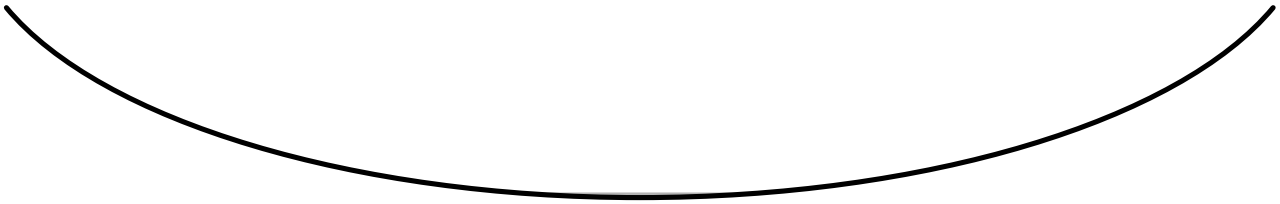
Reach r14c:

Inflow Area = 6.420 ac, Inflow Depth > 0.03" for 10-yr event
Inflow = 0.07 cfs @ 24.61 hrs, Volume= 0.016 af
Outflow = 0.06 cfs @ 24.87 hrs, Volume= 0.016 af, Atten= 6%, Lag= 15.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.47 fps, Min. Travel Time= 20.2 min
Avg. Velocity = 0.35 fps, Avg. Travel Time= 27.1 min

Peak Storage= 77 cf @ 24.87 hrs, Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 178.07 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 575.0' Slope= 0.0800 '/'
Inlet Invert= 544.00', Outlet Invert= 498.00'



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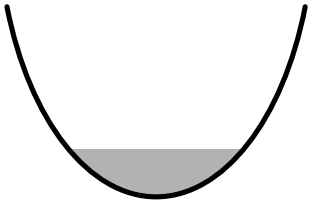
Reach r15:

Inflow Area = 4.702 ac, Inflow Depth = 3.17" for 10-yr event
Inflow = 11.60 cfs @ 12.29 hrs, Volume= 1.244 af
Outflow = 11.60 cfs @ 12.30 hrs, Volume= 1.244 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.20 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.50 fps, Avg. Travel Time= 1.4 min

Peak Storage= 365 cf @ 12.30 hrs, Average Depth at Peak Storage= 0.75'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 188.47 cfs

5.00' x 3.00' deep Parabolic Channel, n= 0.027
Length= 290.0' Slope= 0.0897 '/'
Inlet Invert= 554.00', Outlet Invert= 528.00'



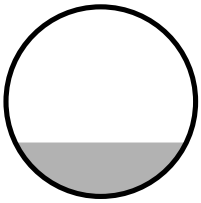
Reach r16:

Inflow Area = 4.702 ac, Inflow Depth = 3.17" for 10-yr event
Inflow = 11.66 cfs @ 12.28 hrs, Volume= 1.244 af
Outflow = 11.60 cfs @ 12.29 hrs, Volume= 1.244 af, Atten= 1%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.13 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 3.73 fps, Avg. Travel Time= 3.8 min

Peak Storage= 985 cf @ 12.29 hrs, Average Depth at Peak Storage= 0.71'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 66.05 cfs

30.0" Diameter Pipe, n= 0.012
Length= 860.0' Slope= 0.0221 '/'
Inlet Invert= 573.00', Outlet Invert= 554.00'



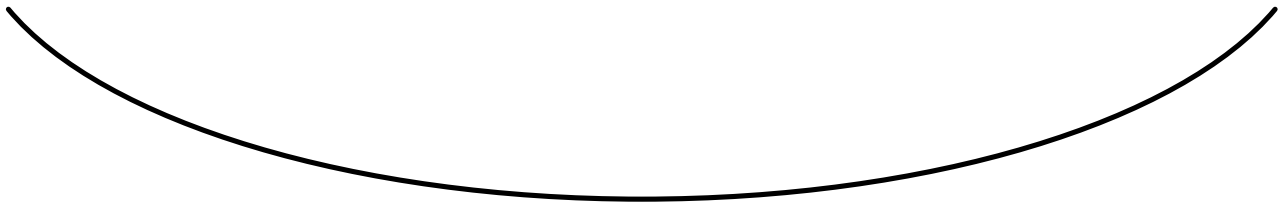
Reach r18a:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 379.63 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 1,220.0' Slope= 0.3636 '/'
Inlet Invert= 973.60', Outlet Invert= 530.00'



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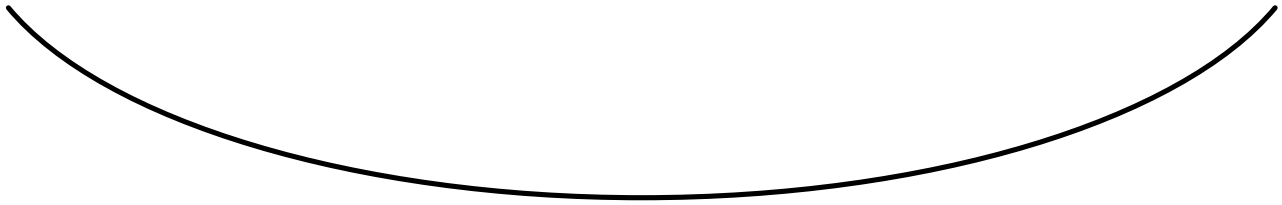
Reach r18b:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 151.94 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 285.0' Slope= 0.0582 '/'
Inlet Invert= 530.60', Outlet Invert= 514.00'



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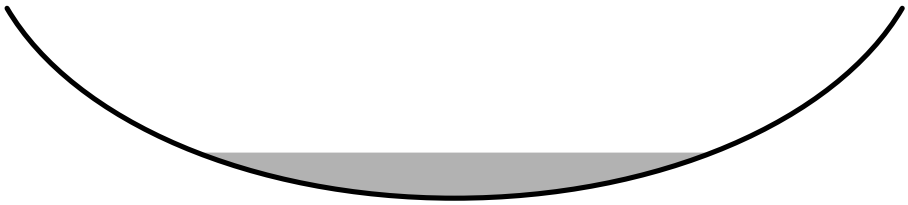
Reach r21a:

Inflow Area = 241.485 ac, Inflow Depth > 0.97" for 10-yr event
Inflow = 30.85 cfs @ 16.46 hrs, Volume= 19.579 af
Outflow = 30.85 cfs @ 16.49 hrs, Volume= 19.549 af, Atten= 0%, Lag= 1.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.97 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 3.35 fps, Avg. Travel Time= 3.2 min

Peak Storage= 4,020 cf @ 16.49 hrs, Average Depth at Peak Storage= 0.95'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 658.74 cfs

20.00' x 4.00' deep Parabolic Channel, n= 0.027
Length= 648.0' Slope= 0.0154 '/'
Inlet Invert= 504.00', Outlet Invert= 494.00'



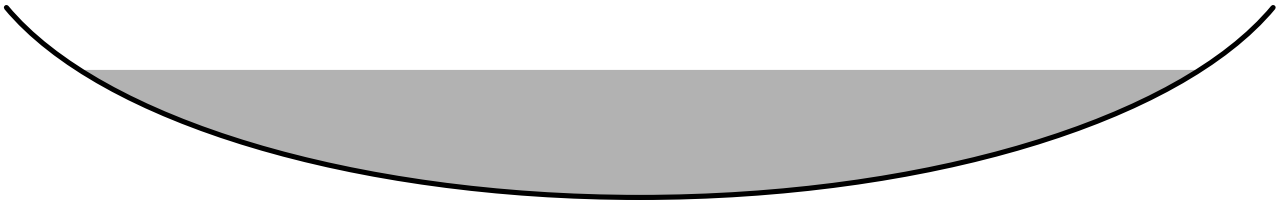
Reach r21b:

Inflow Area = 97.943 ac, Inflow Depth > 1.81" for 10-yr event
Inflow = 101.92 cfs @ 12.49 hrs, Volume= 14.777 af
Outflow = 101.90 cfs @ 12.50 hrs, Volume= 14.777 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.28 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 3.64 fps, Avg. Travel Time= 1.1 min

Peak Storage= 2,526 cf @ 12.50 hrs, Average Depth at Peak Storage= 1.34'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 239.90 cfs

15.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 230.0' Slope= 0.0343 '/'
Inlet Invert= 499.00', Outlet Invert= 491.10'



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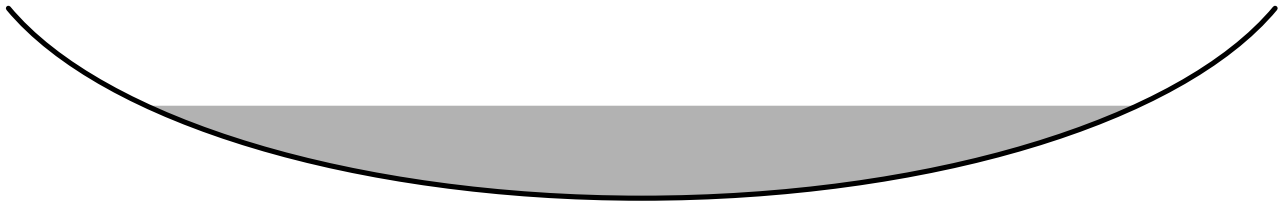
Reach r21c:

Inflow Area = 41.587 ac, Inflow Depth = 1.93" for 10-yr event
Inflow = 47.78 cfs @ 12.69 hrs, Volume= 6.699 af
Outflow = 47.76 cfs @ 12.70 hrs, Volume= 6.699 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.23 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.62 fps, Avg. Travel Time= 1.6 min

Peak Storage= 1,808 cf @ 12.70 hrs, Average Depth at Peak Storage= 0.49'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 227.81 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 160.0' Slope= 0.1309 '/'
Inlet Invert= 506.70', Outlet Invert= 485.75'



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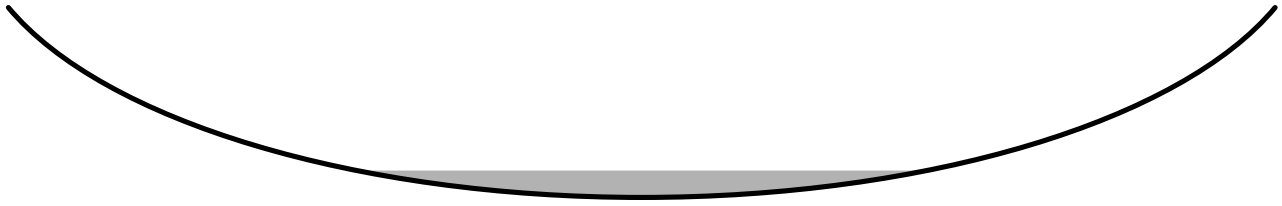
Reach r22a:

Inflow Area = 15.520 ac, Inflow Depth > 1.29" for 10-yr event
Inflow = 5.85 cfs @ 13.10 hrs, Volume= 1.670 af
Outflow = 5.81 cfs @ 13.17 hrs, Volume= 1.669 af, Atten= 1%, Lag= 3.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.32 fps, Min. Travel Time= 4.9 min
Avg. Velocity = 1.71 fps, Avg. Travel Time= 9.5 min

Peak Storage= 1,700 cf @ 13.17 hrs, Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 409.31 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 970.0' Slope= 0.4227 '/'
Inlet Invert= 970.00', Outlet Invert= 560.00'



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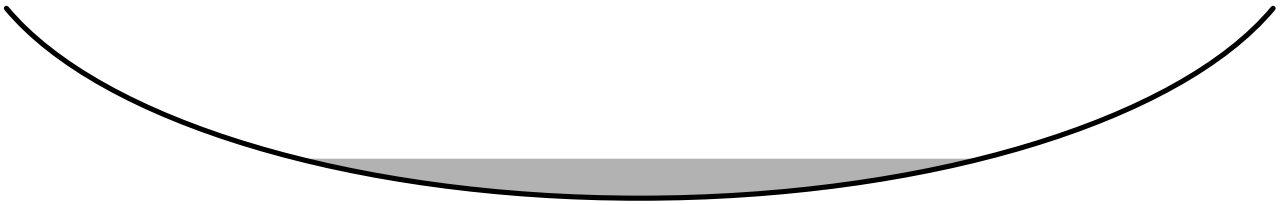
Reach r22b:

Inflow Area = 15.520 ac, Inflow Depth > 1.29" for 10-yr event
Inflow = 5.81 cfs @ 13.17 hrs, Volume= 1.669 af
Outflow = 5.77 cfs @ 13.24 hrs, Volume= 1.668 af, Atten= 1%, Lag= 4.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.84 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 0.95 fps, Avg. Travel Time= 10.8 min

Peak Storage= 1,945 cf @ 13.24 hrs, Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 175.17 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 620.0' Slope= 0.0774 '/'
Inlet Invert= 560.00', Outlet Invert= 512.00'



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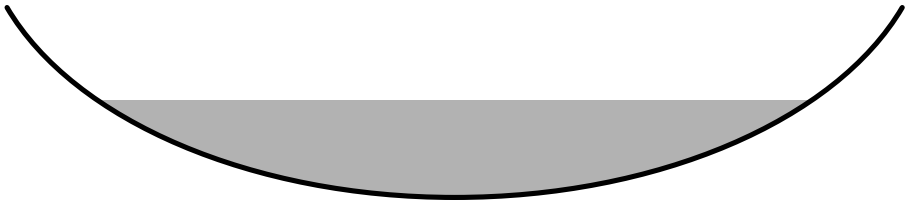
Reach r25a:

Inflow Area = 60.314 ac, Inflow Depth > 1.68" for 10-yr event
Inflow = 49.69 cfs @ 12.40 hrs, Volume= 8.459 af
Outflow = 49.61 cfs @ 12.42 hrs, Volume= 8.457 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.15 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 4.14 fps, Avg. Travel Time= 4.4 min

Peak Storage= 5,327 cf @ 12.42 hrs, Average Depth at Peak Storage= 1.02'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 205.50 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 1,090.0' Slope= 0.0606 '/'
Inlet Invert= 570.00', Outlet Invert= 504.00'



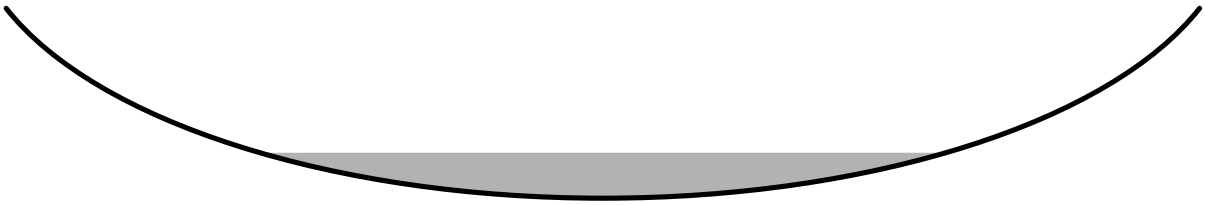
Reach r25b: Wetland Reach

Inflow Area = 9.435 ac, Inflow Depth > 1.48" for 10-yr event
Inflow = 8.20 cfs @ 12.48 hrs, Volume= 1.167 af
Outflow = 7.23 cfs @ 12.61 hrs, Volume= 1.163 af, Atten= 12%, Lag= 7.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.55 fps, Min. Travel Time= 8.1 min
Avg. Velocity = 0.67 fps, Avg. Travel Time= 18.7 min

Peak Storage= 3,501 cf @ 12.61 hrs, Average Depth at Peak Storage= 0.72'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 156.51 cfs

20.00' x 3.00' deep Parabolic Channel, n= 0.045
Length= 750.0' Slope= 0.0060 '/'
Inlet Invert= 504.00', Outlet Invert= 499.50'



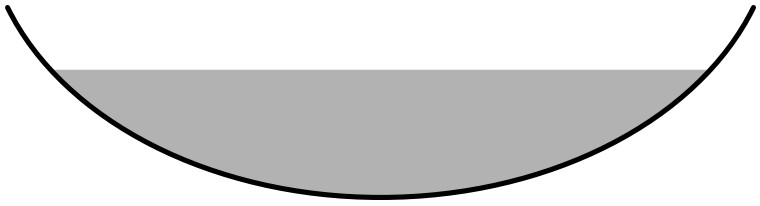
Reach r25c: Amenia Stream/Cascade Brook

Inflow Area = 134.737 ac, Inflow Depth > 19.16" for 10-yr event
Inflow = 159.50 cfs @ 12.90 hrs, Volume= 215.146 af, Incl. 40.00 cfs Base Flow
Outflow = 158.85 cfs @ 12.96 hrs, Volume= 214.387 af, Atten= 0%, Lag= 3.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.89 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 2.41 fps, Avg. Travel Time= 6.7 min

Peak Storage= 53,675 cf @ 12.96 hrs, Average Depth at Peak Storage= 4.03'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 366.88 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 975.0' Slope= 0.0041 '/'
Inlet Invert= 504.00', Outlet Invert= 500.00'



Pond 8P:

Inflow Area = 52.997 ac, Inflow Depth = 1.69" for 10-yr event
Inflow = 48.34 cfs @ 12.39 hrs, Volume= 7.483 af
Outflow = 48.34 cfs @ 12.39 hrs, Volume= 7.483 af, Atten= 0%, Lag= 0.0 min
Primary = 48.34 cfs @ 12.39 hrs, Volume= 7.483 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 575.47' @ 12.39 hrs
Flood Elev= 574.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=48.34 cfs @ 12.39 hrs HW=575.47' TW=571.02' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 48.34 cfs @ 2.15 fps)

Pond p04:

Inflow Area = 38.062 ac, Inflow Depth = 1.84" for 10-yr event
Inflow = 35.71 cfs @ 12.45 hrs, Volume= 5.845 af
Outflow = 35.71 cfs @ 12.45 hrs, Volume= 5.779 af, Atten= 0%, Lag= 0.2 min
Primary = 35.71 cfs @ 12.45 hrs, Volume= 5.779 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 605.94' @ 12.45 hrs Surf.Area= 6,419 sf Storage= 3,852 cf
Flood Elev= 605.50' Surf.Area= 4,803 sf Storage= 2,882 cf

Plug-Flow detention time= 10.2 min calculated for 5.777 af (99% of inflow)
Center-of-Mass det. time= 3.6 min (880.5 - 876.9)

Volume	Invert	Avail.Storage	Storage Description
#1	604.20'	26,897 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
604.20	0	0	0	0
606.00	6,650	3,990	3,990	6,655
608.00	17,060	22,907	26,897	17,092

Device	Routing	Invert	Outlet Devices
#1	Primary	605.50'	**179.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=35.71 cfs @ 12.45 hrs HW=605.94' TW=575.46' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 35.71 cfs @ 1.63 fps)

Pond p06:

Inflow Area = 9.435 ac, Inflow Depth = 1.58" for 10-yr event
Inflow = 11.69 cfs @ 12.25 hrs, Volume= 1.243 af
Outflow = 8.20 cfs @ 12.48 hrs, Volume= 1.167 af, Atten= 30%, Lag= 13.6 min
Primary = 8.20 cfs @ 12.48 hrs, Volume= 1.167 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.40' @ 12.48 hrs Surf.Area= 21,332 sf Storage= 54,995 cf (12,835 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)

Plug-Flow detention time= 709.7 min calculated for 0.199 af (16% of inflow)
Center-of-Mass det. time= 88.8 min (962.9 - 874.1)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

Device	Routing	Invert	Outlet Devices
#1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=8.20 cfs @ 12.48 hrs HW=507.40' TW=504.65' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 1.04 cfs @ 2.09 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 7.17 cfs @ 1.36 fps)

Pond p07:

Inflow Area = 7.317 ac, Inflow Depth = 1.73" for 10-yr event
Inflow = 10.98 cfs @ 12.20 hrs, Volume= 1.053 af
Outflow = 2.23 cfs @ 12.88 hrs, Volume= 0.976 af, Atten= 80%, Lag= 40.4 min
Primary = 2.23 cfs @ 12.88 hrs, Volume= 0.976 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.56' @ 12.88 hrs Surf.Area= 25,200 sf Storage= 74,718 cf (18,454 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 156.2 min (1,021.7 - 865.5)

Volume	Invert	Avail.Storage	Storage Description
#1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

Device	Routing	Invert	Outlet Devices
#1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=2.23 cfs @ 12.88 hrs HW=573.56' TW=570.81' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.09 cfs @ 2.34 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.14 cfs @ 0.58 fps)

Pond p09:

Inflow Area = 8.452 ac, Inflow Depth = 1.65" for 10-yr event
Inflow = 11.29 cfs @ 12.24 hrs, Volume= 1.165 af
Outflow = 10.15 cfs @ 12.33 hrs, Volume= 1.124 af, Atten= 10%, Lag= 5.5 min
Primary = 10.15 cfs @ 12.33 hrs, Volume= 1.124 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 550.00' @ 12.33 hrs Surf.Area= 5,516 sf Storage= 6,219 cf
Flood Elev= 551.20' Surf.Area= 8,534 sf Storage= 15,673 cf

Plug-Flow detention time= 42.7 min calculated for 1.124 af (97% of inflow)
Center-of-Mass det. time= 23.7 min (894.2 - 870.5)

Volume	Invert	Avail.Storage	Storage Description
#1	547.50'	21,989 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
547.50	0	0	0	0
548.00	1,080	180	180	1,080
550.00	5,510	6,020	6,200	5,527
552.00	10,550	15,790	21,989	10,606

Device	Routing	Invert	Outlet Devices
#1	Primary	548.50'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 542.00' S= 0.0929 '/' Cc= 0.900 n= 0.012
#2	Primary	551.20'	**168.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=10.15 cfs @ 12.33 hrs HW=550.00' TW=542.58' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 10.15 cfs @ 3.29 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p10:

Inflow Area = 45.146 ac, Inflow Depth = 0.40" for 10-yr event
Inflow = 12.23 cfs @ 12.40 hrs, Volume= 1.520 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 500.07' @ 25.62 hrs Surf.Area= 42,849 sf Storage= 167,339 cf (66,231 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p12:

Inflow Area = 6.420 ac, Inflow Depth = 0.98" for 10-yr event
Inflow = 2.87 cfs @ 12.69 hrs, Volume= 0.524 af
Outflow = 0.07 cfs @ 24.61 hrs, Volume= 0.016 af, Atten= 98%, Lag= 715.0 min
Primary = 0.07 cfs @ 24.61 hrs, Volume= 0.016 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 547.58' @ 24.61 hrs Surf.Area= 14,293 sf Storage= 22,575 cf
Flood Elev= 547.50' Surf.Area= 13,848 sf Storage= 21,762 cf

Plug-Flow detention time= 811.1 min calculated for 0.016 af (3% of inflow)
Center-of-Mass det. time= 620.2 min (1,546.2 - 926.0)

Volume	Invert	Avail.Storage	Storage Description
#1	543.50'	26,986 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
543.50	0	0	0	0
544.00	1,140	190	190	1,140
546.00	5,260	5,899	6,089	5,278
548.00	16,710	20,897	26,986	16,750

Device	Routing	Invert	Outlet Devices
#1	Primary	547.50'	**173.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.07 cfs @ 24.61 hrs HW=547.58' TW=544.02' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.07 cfs @ 0.69 fps)

Pond p13:

Inflow Area = 0.350 ac, Inflow Depth = 0.98" for 10-yr event
Inflow = 0.29 cfs @ 12.14 hrs, Volume= 0.029 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 513.41' @ 24.49 hrs Surf.Area= 1,075 sf Storage= 1,245 cf
Flood Elev= 519.50' Surf.Area= 4,313 sf Storage= 16,523 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	511.40'	18,490 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
511.40	0	0	0	0
512.00	390	78	78	391
514.00	1,360	1,652	1,730	1,381
516.00	2,180	3,508	5,238	2,253
518.00	3,240	5,385	10,623	3,375
520.00	4,670	7,867	18,490	4,872

Device	Routing	Invert	Outlet Devices
#1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=511.40' TW=497.40' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p14:

Inflow Area = 36.186 ac, Inflow Depth > 1.51" for 10-yr event
Inflow = 37.21 cfs @ 12.39 hrs, Volume= 4.560 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 501.72' @ 30.00 hrs Surf.Area= 70,461 sf Storage= 253,375 cf (198,615 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

Device	Routing	Invert	Outlet Devices
#1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.40' TW=498.40' (Dynamic Tailwater)
↑**1=Culvert** (Controls 0.00 cfs)

Pond p15:

Inflow Area = 5.770 ac, Inflow Depth = 2.72" for 10-yr event
Inflow = 12.07 cfs @ 12.30 hrs, Volume= 1.310 af
Outflow = 12.05 cfs @ 12.31 hrs, Volume= 1.055 af, Atten= 0%, Lag= 0.6 min
Primary = 12.05 cfs @ 12.31 hrs, Volume= 1.055 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 536.18' @ 12.31 hrs Surf.Area= 3,264 sf Storage= 11,793 cf
Flood Elev= 536.00' Surf.Area= 3,160 sf Storage= 11,127 cf

Plug-Flow detention time= 116.9 min calculated for 1.055 af (81% of inflow)
Center-of-Mass det. time= 39.8 min (874.6 - 834.7)

Volume	Invert	Avail.Storage	Storage Description
#1	526.80'	18,577 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.80	0	0	0	0
528.00	310	124	124	312
530.00	660	948	1,072	694
532.00	1,180	1,815	2,887	1,256
534.00	1,990	3,135	6,022	2,113
536.00	3,160	5,105	11,127	3,337
538.00	4,320	7,450	18,577	4,575

Device	Routing	Invert	Outlet Devices
#1	Primary	536.00'	**171.0 deg x 50.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=12.05 cfs @ 12.31 hrs HW=536.18' TW=507.72' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 12.05 cfs @ 1.29 fps)

Pond p16:

Inflow Area = 220.862 ac, Inflow Depth > 1.85" for 10-yr event
Inflow = 133.50 cfs @ 12.34 hrs, Volume= 34.025 af
Outflow = 28.83 cfs @ 16.37 hrs, Volume= 17.500 af, Atten= 78%, Lag= 242.2 min
Primary = 28.83 cfs @ 16.37 hrs, Volume= 17.500 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.01' @ 16.37 hrs Surf.Area= 294,292 sf Storage= 1,773,415 cf (895,095 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 271.7 min (1,210.2 - 938.5)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

Device	Routing	Invert	Outlet Devices
#1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' Cc= 0.900 n= 0.024
#2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' Cc= 0.900 n= 0.013
#3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=28.83 cfs @ 16.37 hrs HW=511.01' TW=506.17' (Dynamic Tailwater)
├**1=Culvert** (Inlet Controls 7.55 cfs @ 4.27 fps)
├**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
└**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 21.28 cfs @ 1.76 fps)

Pond p17:

Inflow Area = 115.992 ac, Inflow Depth > 1.73" for 10-yr event
Inflow = 53.95 cfs @ 13.77 hrs, Volume= 16.699 af
Outflow = 53.91 cfs @ 13.78 hrs, Volume= 16.692 af, Atten= 0%, Lag= 0.7 min
Primary = 53.91 cfs @ 13.78 hrs, Volume= 16.692 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.45' @ 13.78 hrs Surf.Area= 11,047 sf Storage= 24,875 cf (15,641 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)

Plug-Flow detention time= 22.2 min calculated for 16.475 af (99% of inflow)
Center-of-Mass det. time= 11.2 min (980.1 - 968.9)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

Device	Routing	Invert	Outlet Devices
#1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=53.90 cfs @ 13.78 hrs HW=525.45' TW=515.92' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 15.51 cfs @ 4.27 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 10.52 cfs @ 2.65 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 27.87 cfs @ 1.48 fps)

Pond p18:

Inflow Area = 139.118 ac, Inflow Depth > 1.74" for 10-yr event
Inflow = 58.38 cfs @ 13.78 hrs, Volume= 20.167 af
Outflow = 58.21 cfs @ 13.82 hrs, Volume= 20.078 af, Atten= 0%, Lag= 2.1 min
Primary = 58.21 cfs @ 13.82 hrs, Volume= 20.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 515.92' @ 13.82 hrs Surf.Area= 27,974 sf Storage= 75,705 cf (48,821 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)

Plug-Flow detention time= 57.2 min calculated for 19.461 af (96% of inflow)
Center-of-Mass det. time= 28.8 min (990.4 - 961.6)

Volume	Invert	Avail.Storage	Storage Description
#1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

Device	Routing	Invert	Outlet Devices
#1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=58.21 cfs @ 13.82 hrs HW=515.92' TW=509.92' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 19.02 cfs @ 4.71 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 9.51 cfs @ 2.60 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 29.68 cfs @ 2.10 fps)

Pond p19:

Inflow Area = 15.520 ac, Inflow Depth = 1.30" for 10-yr event
Inflow = 10.40 cfs @ 12.62 hrs, Volume= 1.683 af
Outflow = 5.85 cfs @ 13.10 hrs, Volume= 1.670 af, Atten= 44%, Lag= 29.1 min
Primary = 5.85 cfs @ 13.10 hrs, Volume= 1.670 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.15' @ 13.10 hrs Surf.Area= 90,219 sf Storage= 74,507 cf (17,174 cf above start)

Plug-Flow detention time= 586.4 min calculated for 0.354 af (21% of inflow)
Center-of-Mass det. time= 67.2 min (974.5 - 907.3)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

Device	Routing	Invert	Outlet Devices
#1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
#2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.85 cfs @ 13.10 hrs HW=972.15' TW=970.14' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 5.85 cfs @ 1.09 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20:

Inflow Area = 241.485 ac, Inflow Depth > 1.06" for 10-yr event
Inflow = 30.98 cfs @ 16.31 hrs, Volume= 21.277 af
Outflow = 30.85 cfs @ 16.46 hrs, Volume= 19.579 af, Atten= 0%, Lag= 9.0 min
Primary = 30.85 cfs @ 16.46 hrs, Volume= 19.579 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.17' @ 16.46 hrs Surf.Area= 90,218 sf Storage= 234,929 cf (96,406 cf above start)

Plug-Flow detention time= 225.4 min calculated for 16.399 af (77% of inflow)
Center-of-Mass det. time= 48.7 min (1,198.3 - 1,149.5)

Volume	Invert	Avail.Storage	Storage Description
#1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

Device	Routing	Invert	Outlet Devices
#1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=30.85 cfs @ 16.46 hrs HW=506.17' TW=504.95' (Dynamic Tailwater)
├**1=Broad-Crested Rectangular Weir** (Weir Controls 9.25 cfs @ 2.88 fps)
├**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 21.60 cfs @ 1.25 fps)

Pond p21:

Inflow Area = 489.306 ac, Inflow Depth > 1.47" for 10-yr event
Inflow = 291.87 cfs @ 12.47 hrs, Volume= 60.124 af
Outflow = 26.57 cfs @ 21.01 hrs, Volume= 36.205 af, Atten= 91%, Lag= 512.5 min
Primary = 26.57 cfs @ 21.01 hrs, Volume= 36.205 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 484.77' @ 21.01 hrs Surf.Area= 789,292 sf Storage= 1,428,438 cf

Plug-Flow detention time= 467.6 min calculated for 36.205 af (60% of inflow)
Center-of-Mass det. time= 292.4 min (1,279.6 - 987.2)

Volume	Invert	Avail.Storage	Storage Description
#1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

Device	Routing	Invert	Outlet Devices
#1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' Cc= 0.900 n= 0.024

Primary OutFlow Max=26.57 cfs @ 21.01 hrs HW=484.77' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 26.57 cfs @ 5.41 fps)

Pond p22:

Inflow Area = 97.943 ac, Inflow Depth > 1.85" for 10-yr event
Inflow = 102.28 cfs @ 12.46 hrs, Volume= 15.112 af
Outflow = 101.92 cfs @ 12.49 hrs, Volume= 14.777 af, Atten= 0%, Lag= 1.7 min
Primary = 101.92 cfs @ 12.49 hrs, Volume= 14.777 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 501.93' @ 12.49 hrs Surf.Area= 11,426 sf Storage= 43,528 cf (33,422 cf above start)

Plug-Flow detention time= 38.9 min calculated for 14.545 af (96% of inflow)
Center-of-Mass det. time= 14.5 min (900.9 - 886.4)

Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

Device	Routing	Invert	Outlet Devices
#1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' Cc= 0.900 n= 0.024
#2	Primary	500.50'	**1.0' long x 15.0' 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
#3	Primary	500.50'	**20.0' long x 13.5' 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) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=101.91 cfs @ 12.49 hrs HW=501.93' TW=500.34' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 6.54 cfs @ 3.70 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 4.53 cfs @ 3.16 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 90.83 cfs @ 3.17 fps)

Pond p23:

Inflow Area = 41.587 ac, Inflow Depth = 2.20" for 10-yr event
Inflow = 47.82 cfs @ 12.69 hrs, Volume= 7.617 af
Outflow = 47.78 cfs @ 12.69 hrs, Volume= 6.699 af, Atten= 0%, Lag= 0.2 min
Primary = 47.78 cfs @ 12.69 hrs, Volume= 6.699 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 507.89' @ 12.69 hrs Surf.Area= 19,006 sf Storage= 42,917 cf

Plug-Flow detention time= 80.3 min calculated for 6.696 af (88% of inflow)
Center-of-Mass det. time= 24.0 min (904.6 - 880.6)

Volume	Invert	Avail.Storage	Storage Description
#1	503.50'	100,303 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
503.50	0	0	0
506.00	11,170	13,963	13,963
508.00	19,460	30,630	44,593
510.00	36,250	55,710	100,303

Device	Routing	Invert	Outlet Devices
#1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=47.78 cfs @ 12.69 hrs HW=507.89' TW=507.19' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 47.78 cfs @ 1.33 fps)

Pond zDP1: Design Point 1

Inflow Area = 26.659 ac, Inflow Depth = 1.92" for 10-yr event
Inflow = 29.17 cfs @ 12.50 hrs, Volume= 4.274 af
Outflow = 29.17 cfs @ 12.50 hrs, Volume= 4.274 af, Atten= 0%, Lag= 0.2 min
Primary = 29.17 cfs @ 12.50 hrs, Volume= 4.274 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 722.18' @ 12.50 hrs Surf.Area= 112 sf Storage= 93 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf

Plug-Flow detention time= 0.1 min calculated for 4.273 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (879.8 - 879.7)

Volume	Invert	Avail.Storage	Storage Description
#1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

Device	Routing	Invert	Outlet Devices
#1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' Cc= 0.900 n= 0.024
#2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=29.17 cfs @ 12.50 hrs HW=722.18' TW=686.58' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 29.17 cfs @ 4.91 fps)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Inflow Area = 97.712 ac, Inflow Depth = 1.65" for 10-yr event
Inflow = 69.51 cfs @ 12.87 hrs, Volume= 13.464 af
Outflow = 69.49 cfs @ 12.88 hrs, Volume= 13.464 af, Atten= 0%, Lag= 0.4 min
Primary = 34.34 cfs @ 12.88 hrs, Volume= 11.317 af
Secondary = 35.15 cfs @ 12.88 hrs, Volume= 2.147 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 625.75' @ 12.88 hrs Surf.Area= 1,338 sf Storage= 3,072 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf

Plug-Flow detention time= 0.5 min calculated for 13.460 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (912.7 - 912.2)

Volume	Invert	Avail.Storage	Storage Description
#1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

Device	Routing	Invert	Outlet Devices
#1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' Cc= 0.900 n= 0.012
#2	Secondary	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=34.34 cfs @ 12.88 hrs HW=625.75' TW=607.67' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 34.34 cfs @ 10.93 fps)

Secondary OutFlow Max=35.15 cfs @ 12.88 hrs HW=625.75' TW=558.90' (Dynamic Tailwater)
↑—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 35.15 cfs @ 2.75 fps)

Pond zDP3: Design Point 3

Inflow Area = 218.048 ac, Inflow Depth > 12.44" for 10-yr event
Inflow = 203.16 cfs @ 12.68 hrs, Volume= 225.960 af
Primary = 203.16 cfs @ 12.68 hrs, Volume= 225.960 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 489.306 ac, Inflow Depth > 0.89" for 10-yr event
Inflow = 26.57 cfs @ 21.01 hrs, Volume= 36.205 af
Primary = 26.57 cfs @ 21.01 hrs, Volume= 36.205 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 2.04" for 10-yr event
Inflow = 37.09 cfs @ 12.45 hrs, Volume= 4.807 af
Primary = 37.09 cfs @ 12.45 hrs, Volume= 4.807 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP6: Design Point 6

Inflow Area = 5.306 ac, Inflow Depth = 1.04" for 10-yr event
Inflow = 3.01 cfs @ 12.51 hrs, Volume= 0.461 af
Outflow = 3.01 cfs @ 12.51 hrs, Volume= 0.461 af, Atten= 0%, Lag= 0.0 min
Primary = 3.01 cfs @ 12.51 hrs, Volume= 0.461 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 609.62' @ 12.51 hrs
Flood Elev= 612.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.90'	**36.0" x 43.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 606.90' S= 0.0465 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=3.01 cfs @ 12.51 hrs HW=609.62' TW=606.73' (Dynamic Tailwater)
1=Culvert (Inlet Controls 3.01 cfs @ 2.29 fps)

Pond zDP7: Design Point 7

Inflow Area = 31.894 ac, Inflow Depth = 1.73" for 10-yr event
Inflow = 27.39 cfs @ 12.70 hrs, Volume= 4.592 af
Primary = 27.39 cfs @ 12.70 hrs, Volume= 4.592 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP8: Design Point 8

Inflow Area = 6.893 ac, Inflow Depth = 1.88" for 10-yr event
Inflow = 13.19 cfs @ 12.14 hrs, Volume= 1.080 af
Primary = 13.19 cfs @ 12.14 hrs, Volume= 1.080 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Subcatchment s01:

Runoff = 16.59 cfs @ 12.60 hrs, Volume= 2.508 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
11.485	68	
11.485		Pervious Area

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

Subcatchment s02:

Runoff = 101.79 cfs @ 12.87 hrs, Volume= 19.146 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
97.712	65	
97.712		Pervious Area

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

Subcatchment s03:

Runoff = 27.49 cfs @ 12.41 hrs, Volume= 3.430 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
15.174	69	
15.174		Pervious Area

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

Subcatchment s04:

Runoff = 30.19 cfs @ 12.10 hrs, Volume= 2.234 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
11.403	65	
11.403		Pervious Area

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

Subcatchment s05:

Runoff = 23.76 cfs @ 12.25 hrs, Volume= 2.496 af, Depth= 2.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
14.935	61	
14.935		Pervious Area

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

Subcatchment s06:

Runoff = 17.32 cfs @ 12.25 hrs, Volume= 1.780 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
9.435	64	
9.435		Pervious Area

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

Subcatchment s07:

Runoff = 15.92 cfs @ 12.20 hrs, Volume= 1.488 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
7.317	66	
7.317		Pervious Area

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

Subcatchment s08:

Runoff = 39.12 cfs @ 12.33 hrs, Volume= 4.644 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
31.719	58	
31.719		Pervious Area

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

Subcatchment s09:

Runoff = 16.57 cfs @ 12.23 hrs, Volume= 1.656 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
8.452	65	
8.452		Pervious Area

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

Subcatchment s10:

Runoff = 17.07 cfs @ 12.40 hrs, Volume= 2.095 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
8.960	70	
8.960		Pervious Area

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

Subcatchment s11:

Runoff = 14.95 cfs @ 12.28 hrs, Volume= 1.603 af, Depth= 4.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
4.702	83	
4.702		Pervious Area

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

Subcatchment s12:

Runoff = 4.88 cfs @ 12.65 hrs, Volume= 0.812 af, Depth= 1.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
6.420	55	
6.420		Pervious Area

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

Subcatchment s13:

Runoff = 0.50 cfs @ 12.14 hrs, Volume= 0.044 af, Depth= 1.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.350	55	
0.350		Pervious Area

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

Subcatchment s14:

Runoff = 38.47 cfs @ 12.40 hrs, Volume= 4.739 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
20.964	69	
20.964		Pervious Area

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

Subcatchment s15:

Runoff = 0.97 cfs @ 12.21 hrs, Volume= 0.108 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
1.068	51	
1.068		Pervious Area

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

Subcatchment s16:

Runoff = 159.80 cfs @ 12.32 hrs, Volume= 17.760 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
75.974	70	
75.974		Pervious Area

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

Subcatchment s17:

Runoff = 78.27 cfs @ 13.77 hrs, Volume= 23.587 af, Depth> 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
115.992	66	
115.992		Pervious Area

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

Subcatchment s18:

Runoff = 41.77 cfs @ 12.34 hrs, Volume= 4.876 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
23.126	67	
23.126		Pervious Area

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

Subcatchment s19:

Runoff = 16.16 cfs @ 12.61 hrs, Volume= 2.485 af, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
15.520	60	
15.520		Pervious Area

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

Subcatchment s20:

Runoff = 38.59 cfs @ 12.47 hrs, Volume= 5.144 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
20.623	72	
20.623		Pervious Area

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

Subcatchment s21:

Runoff = 218.39 cfs @ 12.37 hrs, Volume= 26.159 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
108.291	71	
108.291		Pervious Area

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

Subcatchment s22:

Runoff = 143.75 cfs @ 12.45 hrs, Volume= 18.631 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
82.423	69	
82.423		Pervious Area

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

Subcatchment s23:

Runoff = 65.64 cfs @ 12.68 hrs, Volume= 10.373 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
41.587	72	
41.587		Pervious Area

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

Subcatchment s24:

Runoff = 51.75 cfs @ 12.45 hrs, Volume= 6.621 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
28.325	70	
28.325		Pervious Area

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

Subcatchment s25:

Runoff = 25.46 cfs @ 12.28 hrs, Volume= 2.758 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
13.562	66	
13.562		Pervious Area

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

Subcatchment s26:

Runoff = 4.99 cfs @ 12.50 hrs, Volume= 0.706 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
5.306	56	
5.306		Pervious Area

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

Subcatchment s27:

Runoff = 39.68 cfs @ 12.69 hrs, Volume= 6.486 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
31.894	66	
31.894		Pervious Area

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

Subcatchment s28:

Runoff = 18.75 cfs @ 12.13 hrs, Volume= 1.505 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
6.893	68	
6.893		Pervious Area

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

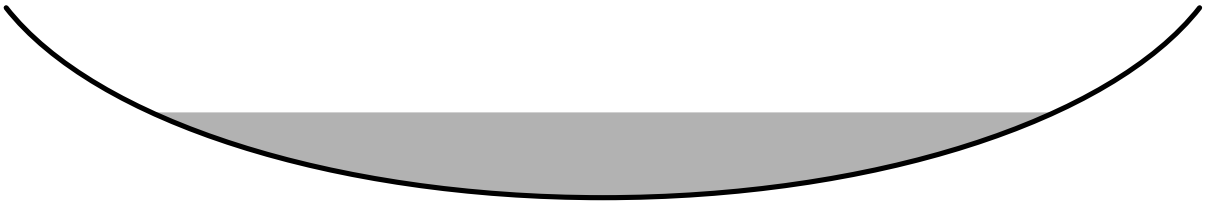
Reach r03:

Inflow Area = 11.485 ac, Inflow Depth = 2.62" for 25-yr event
Inflow = 16.59 cfs @ 12.60 hrs, Volume= 2.508 af
Outflow = 16.50 cfs @ 12.64 hrs, Volume= 2.508 af, Atten= 1%, Lag= 1.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.50 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 2.11 fps, Avg. Travel Time= 6.2 min

Peak Storage= 2,354 cf @ 12.64 hrs, Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 92.14 cfs

10.00' x 1.50' deep Parabolic Channel, n= 0.060
Length= 785.0' Slope= 0.1490 '/'
Inlet Invert= 845.00', Outlet Invert= 728.00'



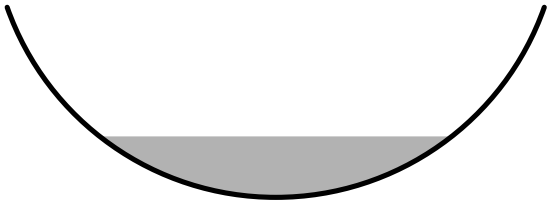
Reach r04:

Inflow Area = 26.659 ac, Inflow Depth = 2.67" for 25-yr event
Inflow = 41.36 cfs @ 12.48 hrs, Volume= 5.938 af
Outflow = 41.29 cfs @ 12.51 hrs, Volume= 5.938 af, Atten= 0%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.13 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 2.71 fps, Avg. Travel Time= 4.1 min

Peak Storage= 3,906 cf @ 12.51 hrs, Average Depth at Peak Storage= 1.28'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 446.15 cfs

12.00' x 4.00' deep Parabolic Channel, n= 0.060
Length= 675.0' Slope= 0.1148 '/'
Inlet Invert= 685.50', Outlet Invert= 608.00'



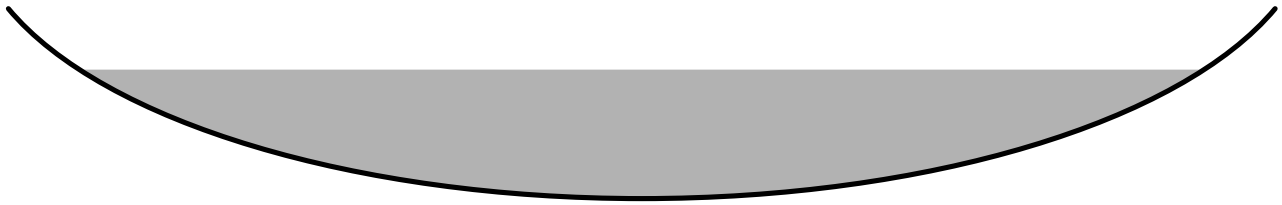
Reach r08a:

Inflow Area = 97.712 ac, Inflow Depth = 1.75" for 25-yr event
Inflow = 35.52 cfs @ 12.88 hrs, Volume= 14.213 af
Outflow = 35.52 cfs @ 12.88 hrs, Volume= 14.213 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.53 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.40 fps, Avg. Travel Time= 0.7 min

Peak Storage= 842 cf @ 12.88 hrs, Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 81.88 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.027
Length= 226.0' Slope= 0.0885 '/'
Inlet Invert= 607.00', Outlet Invert= 587.00'



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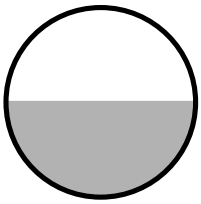
Reach r08b:

Inflow Area = 103.018 ac, Inflow Depth = 1.74" for 25-yr event
Inflow = 39.54 cfs @ 12.60 hrs, Volume= 14.919 af
Outflow = 39.53 cfs @ 12.61 hrs, Volume= 14.919 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 24.71 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 14.38 fps, Avg. Travel Time= 0.3 min

Peak Storage= 472 cf @ 12.61 hrs, Average Depth at Peak Storage= 1.01'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 77.17 cfs

24.0" Diameter Pipe, n= 0.012
Length= 295.0' Slope= 0.0992 '/'
Inlet Invert= 587.00', Outlet Invert= 557.75'



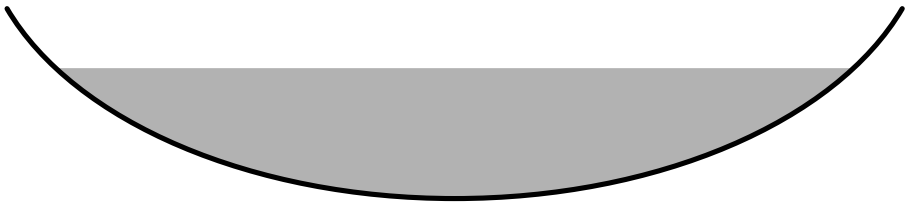
Reach r08c:

Inflow Area = 103.018 ac, Inflow Depth = 2.31" for 25-yr event
Inflow = 104.69 cfs @ 12.87 hrs, Volume= 19.852 af
Outflow = 104.65 cfs @ 12.88 hrs, Volume= 19.852 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 13.81 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 5.88 fps, Avg. Travel Time= 1.7 min

Peak Storage= 4,470 cf @ 12.88 hrs, Average Depth at Peak Storage= 1.37'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 232.56 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 590.0' Slope= 0.0775 '/'
Inlet Invert= 557.75', Outlet Invert= 512.00'



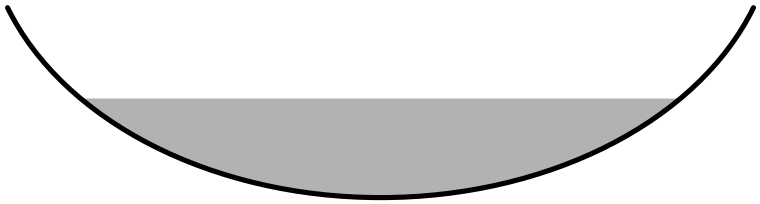
Reach r08d: Amenia Stream/Cascade Brook

Inflow Area = 103.018 ac, Inflow Depth > 13.87" for 25-yr event
Inflow = 144.65 cfs @ 12.88 hrs, Volume= 119.058 af, Incl. 40.00 cfs Base Flow
Outflow = 144.11 cfs @ 12.91 hrs, Volume= 118.777 af, Atten= 0%, Lag= 1.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.84 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 2.74 fps, Avg. Travel Time= 4.9 min

Peak Storage= 30,236 cf @ 12.91 hrs, Average Depth at Peak Storage= 3.12'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 571.01 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 805.0' Slope= 0.0099 '/'
Inlet Invert= 512.00', Outlet Invert= 504.00'



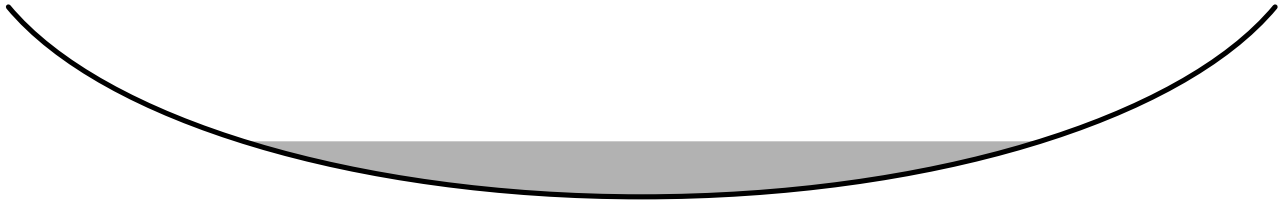
Reach r08e:

Inflow Area = 5.306 ac, Inflow Depth = 1.60" for 25-yr event
Inflow = 4.99 cfs @ 12.50 hrs, Volume= 0.706 af
Outflow = 4.99 cfs @ 12.50 hrs, Volume= 0.706 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.76 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.10 fps, Avg. Travel Time= 1.9 min

Peak Storage= 246 cf @ 12.50 hrs, Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 71.36 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.030 Earth, grassed & winding
Length= 235.0' Slope= 0.0830 '/'
Inlet Invert= 606.50', Outlet Invert= 587.00'



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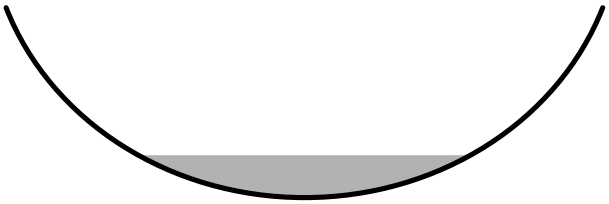
Reach r14a:

Inflow Area = 8.452 ac, Inflow Depth > 2.29" for 25-yr event
Inflow = 13.59 cfs @ 12.36 hrs, Volume= 1.616 af
Outflow = 13.58 cfs @ 12.38 hrs, Volume= 1.616 af, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.52 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 2.35 fps, Avg. Travel Time= 2.5 min

Peak Storage= 750 cf @ 12.38 hrs, Average Depth at Peak Storage= 0.66'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 325.42 cfs

10.00' x 3.00' deep Parabolic Channel, n= 0.027
Length= 360.0' Slope= 0.0444 '/'
Inlet Invert= 542.00', Outlet Invert= 526.00'



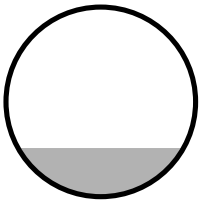
Reach r14b:

Inflow Area = 8.452 ac, Inflow Depth > 2.29" for 25-yr event
Inflow = 13.58 cfs @ 12.38 hrs, Volume= 1.616 af
Outflow = 13.58 cfs @ 12.38 hrs, Volume= 1.616 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 13.72 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 4.98 fps, Avg. Travel Time= 1.5 min

Peak Storage= 440 cf @ 12.38 hrs, Average Depth at Peak Storage= 0.64'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 94.91 cfs

30.0" Diameter Pipe, n= 0.012
Length= 445.0' Slope= 0.0456 '/'
Inlet Invert= 526.00', Outlet Invert= 505.70'



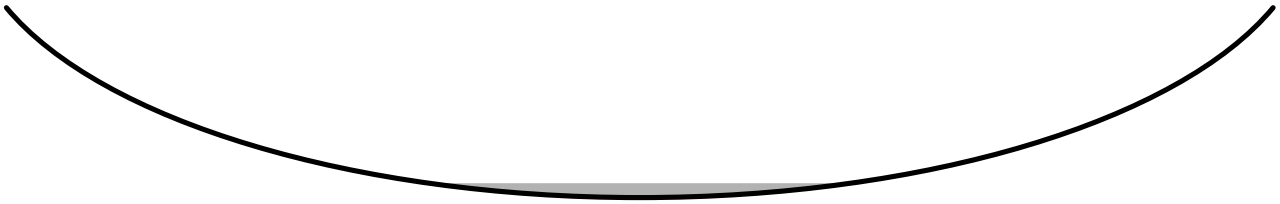
Reach r14c:

Inflow Area = 6.420 ac, Inflow Depth > 0.57" for 25-yr event
Inflow = 0.64 cfs @ 16.13 hrs, Volume= 0.303 af
Outflow = 0.64 cfs @ 16.27 hrs, Volume= 0.303 af, Atten= 1%, Lag= 8.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.95 fps, Min. Travel Time= 10.1 min
Avg. Velocity = 0.64 fps, Avg. Travel Time= 14.9 min

Peak Storage= 386 cf @ 16.27 hrs, Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 178.07 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 575.0' Slope= 0.0800 '/'
Inlet Invert= 544.00', Outlet Invert= 498.00'



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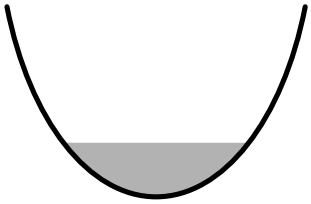
Reach r15:

Inflow Area = 4.702 ac, Inflow Depth = 4.09" for 25-yr event
Inflow = 14.88 cfs @ 12.29 hrs, Volume= 1.603 af
Outflow = 14.87 cfs @ 12.30 hrs, Volume= 1.603 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.85 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.69 fps, Avg. Travel Time= 1.3 min

Peak Storage= 438 cf @ 12.30 hrs, Average Depth at Peak Storage= 0.85'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 188.47 cfs

5.00' x 3.00' deep Parabolic Channel, n= 0.027
Length= 290.0' Slope= 0.0897 '/'
Inlet Invert= 554.00', Outlet Invert= 528.00'



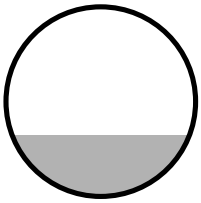
Reach r16:

Inflow Area = 4.702 ac, Inflow Depth = 4.09" for 25-yr event
Inflow = 14.95 cfs @ 12.28 hrs, Volume= 1.603 af
Outflow = 14.88 cfs @ 12.29 hrs, Volume= 1.603 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.86 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 3.95 fps, Avg. Travel Time= 3.6 min

Peak Storage= 1,178 cf @ 12.29 hrs, Average Depth at Peak Storage= 0.81'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 66.05 cfs

30.0" Diameter Pipe, n= 0.012
Length= 860.0' Slope= 0.0221 '/'
Inlet Invert= 573.00', Outlet Invert= 554.00'



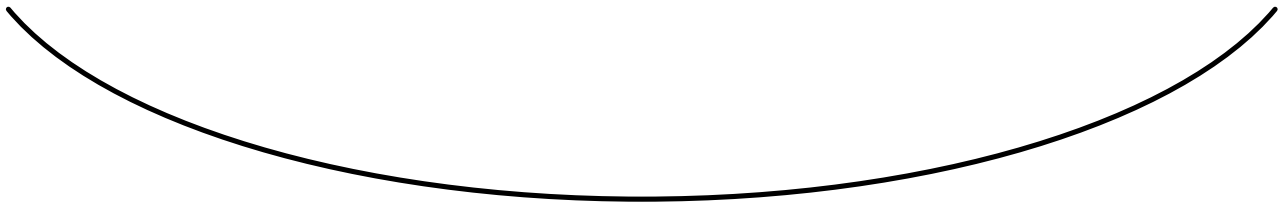
Reach r18a:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 379.63 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 1,220.0' Slope= 0.3636 '/'
Inlet Invert= 973.60', Outlet Invert= 530.00'



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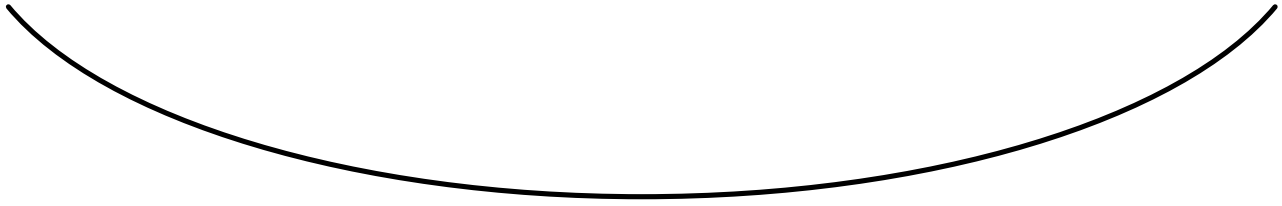
Reach r18b:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 151.94 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 285.0' Slope= 0.0582 '/'
Inlet Invert= 530.60', Outlet Invert= 514.00'



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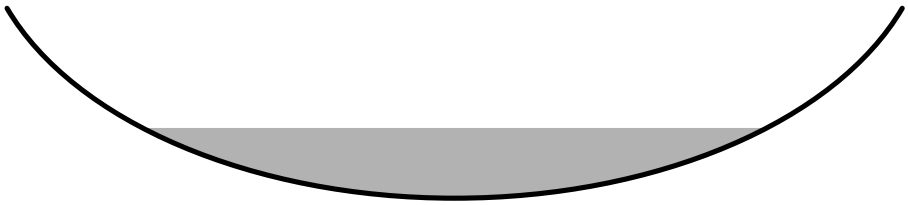
Reach r21a:

Inflow Area = 241.485 ac, Inflow Depth > 1.70" for 25-yr event
Inflow = 78.71 cfs @ 14.81 hrs, Volume= 34.206 af
Outflow = 78.70 cfs @ 14.83 hrs, Volume= 34.175 af, Atten= 0%, Lag= 1.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.59 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 3.76 fps, Avg. Travel Time= 2.9 min

Peak Storage= 7,734 cf @ 14.83 hrs, Average Depth at Peak Storage= 1.47'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 658.74 cfs

20.00' x 4.00' deep Parabolic Channel, n= 0.027
Length= 648.0' Slope= 0.0154 '/'
Inlet Invert= 504.00', Outlet Invert= 494.00'



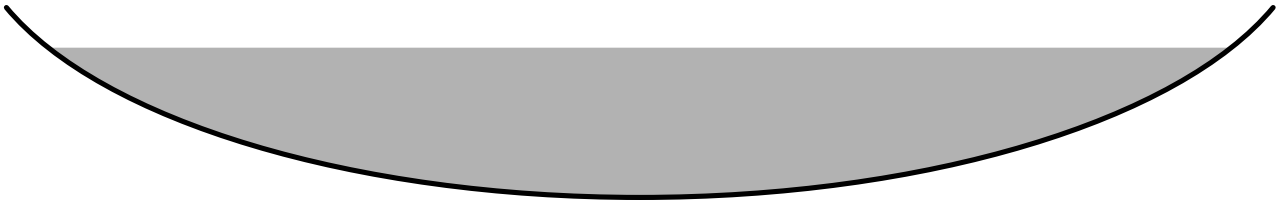
Reach r21b:

Inflow Area = 97.943 ac, Inflow Depth > 2.54" for 25-yr event
Inflow = 143.99 cfs @ 12.49 hrs, Volume= 20.763 af
Outflow = 143.97 cfs @ 12.50 hrs, Volume= 20.763 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.29 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 3.95 fps, Avg. Travel Time= 1.0 min

Peak Storage= 3,217 cf @ 12.50 hrs, Average Depth at Peak Storage= 1.58'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 239.90 cfs

15.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 230.0' Slope= 0.0343 '/'
Inlet Invert= 499.00', Outlet Invert= 491.10'



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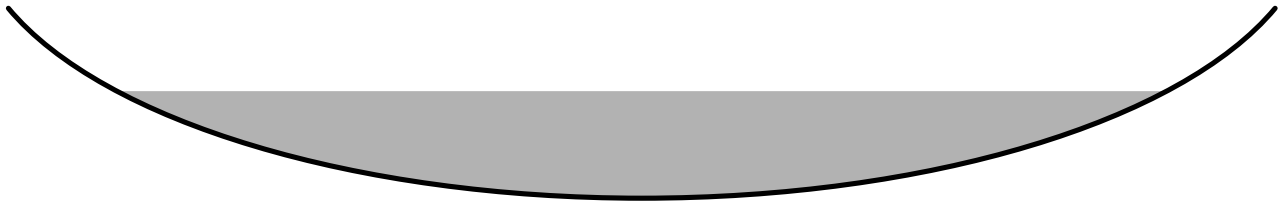
Reach r21c:

Inflow Area = 41.587 ac, Inflow Depth = 2.73" for 25-yr event
Inflow = 65.63 cfs @ 12.68 hrs, Volume= 9.455 af
Outflow = 65.63 cfs @ 12.69 hrs, Volume= 9.455 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.66 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.77 fps, Avg. Travel Time= 1.5 min

Peak Storage= 2,253 cf @ 12.69 hrs, Average Depth at Peak Storage= 0.56'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 227.81 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 160.0' Slope= 0.1309 '/'
Inlet Invert= 506.70', Outlet Invert= 485.75'



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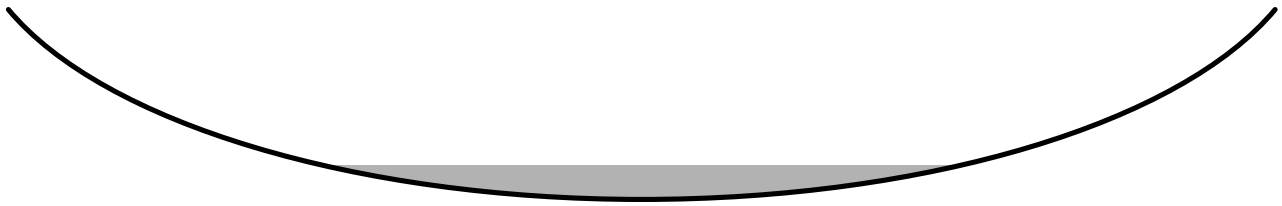
Reach r22a:

Inflow Area = 15.520 ac, Inflow Depth > 1.91" for 25-yr event
Inflow = 10.10 cfs @ 13.00 hrs, Volume= 2.472 af
Outflow = 10.05 cfs @ 13.06 hrs, Volume= 2.471 af, Atten= 0%, Lag= 3.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.93 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 1.85 fps, Avg. Travel Time= 8.7 min

Peak Storage= 2,482 cf @ 13.06 hrs, Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 409.31 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 970.0' Slope= 0.4227 '/'
Inlet Invert= 970.00', Outlet Invert= 560.00'



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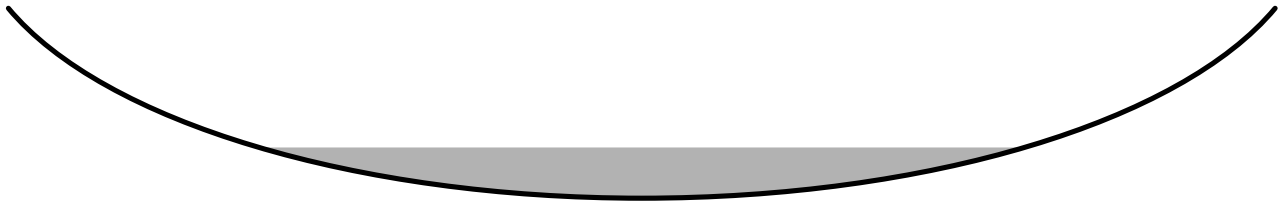
Reach r22b:

Inflow Area = 15.520 ac, Inflow Depth > 1.91" for 25-yr event
Inflow = 10.05 cfs @ 13.06 hrs, Volume= 2.471 af
Outflow = 9.98 cfs @ 13.12 hrs, Volume= 2.469 af, Atten= 1%, Lag= 3.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.18 fps, Min. Travel Time= 4.7 min
Avg. Velocity = 1.03 fps, Avg. Travel Time= 10.0 min

Peak Storage= 2,842 cf @ 13.12 hrs, Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 175.17 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 620.0' Slope= 0.0774 '/'
Inlet Invert= 560.00', Outlet Invert= 512.00'



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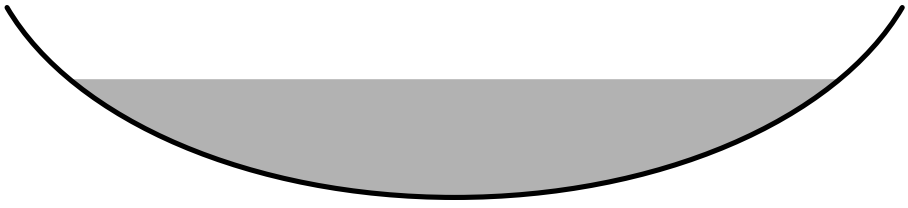
Reach r25a:

Inflow Area = 60.314 ac, Inflow Depth > 2.39" for 25-yr event
Inflow = 75.15 cfs @ 12.43 hrs, Volume= 12.008 af
Outflow = 75.05 cfs @ 12.44 hrs, Volume= 12.007 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 11.48 fps, Min. Travel Time= 1.6 min
Avg. Velocity = 4.49 fps, Avg. Travel Time= 4.0 min

Peak Storage= 7,128 cf @ 12.44 hrs, Average Depth at Peak Storage= 1.24'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 205.50 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 1,090.0' Slope= 0.0606 '/'
Inlet Invert= 570.00', Outlet Invert= 504.00'



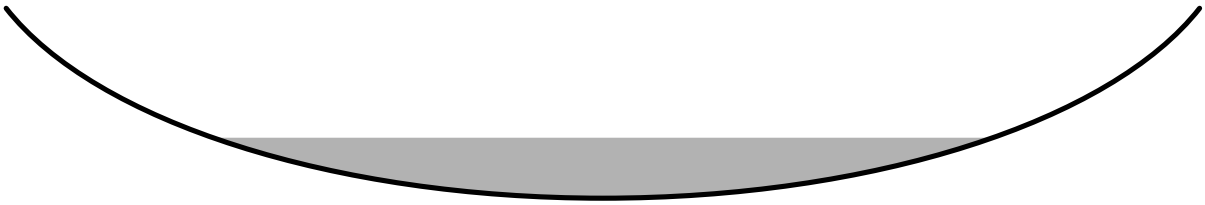
Reach r25b: Wetland Reach

Inflow Area = 9.435 ac, Inflow Depth > 2.16" for 25-yr event
Inflow = 14.91 cfs @ 12.36 hrs, Volume= 1.701 af
Outflow = 13.30 cfs @ 12.48 hrs, Volume= 1.697 af, Atten= 11%, Lag= 6.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.86 fps, Min. Travel Time= 6.7 min
Avg. Velocity = 0.71 fps, Avg. Travel Time= 17.6 min

Peak Storage= 5,350 cf @ 12.48 hrs, Average Depth at Peak Storage= 0.95'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 156.51 cfs

20.00' x 3.00' deep Parabolic Channel, n= 0.045
Length= 750.0' Slope= 0.0060 '/'
Inlet Invert= 504.00', Outlet Invert= 499.50'



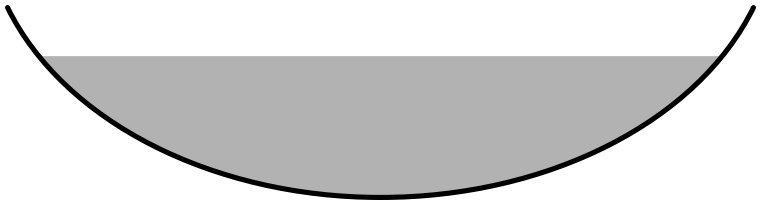
Reach r25c: Amenia Stream/Cascade Brook

Inflow Area = 134.737 ac, Inflow Depth > 19.83" for 25-yr event
Inflow = 197.28 cfs @ 12.85 hrs, Volume= 222.627 af, Incl. 40.00 cfs Base Flow
Outflow = 196.62 cfs @ 12.92 hrs, Volume= 221.869 af, Atten= 0%, Lag= 3.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.07 fps, Min. Travel Time= 5.3 min
Avg. Velocity = 2.43 fps, Avg. Travel Time= 6.7 min

Peak Storage= 62,460 cf @ 12.92 hrs, Average Depth at Peak Storage= 4.46'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 366.88 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 975.0' Slope= 0.0041 '/'
Inlet Invert= 504.00', Outlet Invert= 500.00'



Pond 8P:

Inflow Area = 52.997 ac, Inflow Depth = 2.40" for 25-yr event
Inflow = 70.21 cfs @ 12.36 hrs, Volume= 10.602 af
Outflow = 70.21 cfs @ 12.36 hrs, Volume= 10.602 af, Atten= 0%, Lag= 0.0 min
Primary = 70.21 cfs @ 12.36 hrs, Volume= 10.602 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 575.59' @ 12.36 hrs
Flood Elev= 574.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=70.21 cfs @ 12.36 hrs HW=575.59' TW=571.23' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 70.21 cfs @ 2.32 fps)

Pond p04:

Inflow Area = 38.062 ac, Inflow Depth = 2.58" for 25-yr event
Inflow = 50.81 cfs @ 12.43 hrs, Volume= 8.173 af
Outflow = 50.77 cfs @ 12.45 hrs, Volume= 8.106 af, Atten= 0%, Lag= 0.8 min
Primary = 50.77 cfs @ 12.45 hrs, Volume= 8.106 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 606.00' @ 12.45 hrs Surf.Area= 6,670 sf Storage= 4,033 cf
Flood Elev= 605.50' Surf.Area= 4,803 sf Storage= 2,882 cf

Plug-Flow detention time= 7.8 min calculated for 8.106 af (99% of inflow)
Center-of-Mass det. time= 2.9 min (869.5 - 866.6)

Volume	Invert	Avail.Storage	Storage Description
#1	604.20'	26,897 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
604.20	0	0	0	0
606.00	6,650	3,990	3,990	6,655
608.00	17,060	22,907	26,897	17,092

Device	Routing	Invert	Outlet Devices
#1	Primary	605.50'	**179.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=50.77 cfs @ 12.45 hrs HW=606.00' TW=575.58' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 50.77 cfs @ 1.75 fps)

Pond p06:

Inflow Area = 9.435 ac, Inflow Depth = 2.26" for 25-yr event
Inflow = 17.32 cfs @ 12.25 hrs, Volume= 1.780 af
Outflow = 14.91 cfs @ 12.36 hrs, Volume= 1.701 af, Atten= 14%, Lag= 6.9 min
Primary = 14.91 cfs @ 12.36 hrs, Volume= 1.701 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.49' @ 12.36 hrs Surf.Area= 21,734 sf Storage= 56,882 cf (14,722 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)

Plug-Flow detention time= 408.2 min calculated for 0.733 af (41% of inflow)
Center-of-Mass det. time= 66.7 min (929.8 - 863.1)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

Device	Routing	Invert	Outlet Devices
#1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=14.90 cfs @ 12.36 hrs HW=507.49' TW=504.86' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.30 cfs @ 2.24 fps)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 13.60 cfs @ 1.54 fps)

Pond p07:

Inflow Area = 7.317 ac, Inflow Depth = 2.44" for 25-yr event
Inflow = 15.92 cfs @ 12.20 hrs, Volume= 1.488 af
Outflow = 7.40 cfs @ 12.53 hrs, Volume= 1.406 af, Atten= 54%, Lag= 20.2 min
Primary = 7.40 cfs @ 12.53 hrs, Volume= 1.406 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.72' @ 12.53 hrs Surf.Area= 25,990 sf Storage= 78,814 cf (22,550 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)

Plug-Flow detention time= 863.0 min calculated for 0.114 af (8% of inflow)
Center-of-Mass det. time= 126.1 min (981.2 - 855.1)

Volume	Invert	Avail.Storage	Storage Description
#1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

Device	Routing	Invert	Outlet Devices
#1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=7.40 cfs @ 12.53 hrs HW=573.72' TW=571.22' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.95 cfs @ 2.58 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 4.45 cfs @ 1.16 fps)

Pond p09:

Inflow Area = 8.452 ac, Inflow Depth = 2.35" for 25-yr event
Inflow = 16.57 cfs @ 12.23 hrs, Volume= 1.656 af
Outflow = 13.59 cfs @ 12.36 hrs, Volume= 1.616 af, Atten= 18%, Lag= 7.9 min
Primary = 13.59 cfs @ 12.36 hrs, Volume= 1.616 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 550.30' @ 12.36 hrs Surf.Area= 6,255 sf Storage= 8,534 cf
Flood Elev= 551.20' Surf.Area= 8,534 sf Storage= 15,673 cf

Plug-Flow detention time= 33.7 min calculated for 1.615 af (98% of inflow)
Center-of-Mass det. time= 20.0 min (879.8 - 859.8)

Volume	Invert	Avail.Storage	Storage Description
#1	547.50'	21,989 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
547.50	0	0	0	0
548.00	1,080	180	180	1,080
550.00	5,510	6,020	6,200	5,527
552.00	10,550	15,790	21,989	10,606

Device	Routing	Invert	Outlet Devices
#1	Primary	548.50'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 542.00' S= 0.0929 '/' Cc= 0.900 n= 0.012
#2	Primary	551.20'	**168.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=13.59 cfs @ 12.36 hrs HW=550.30' TW=542.66' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 13.59 cfs @ 3.60 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p10:

Inflow Area = 45.146 ac, Inflow Depth > 0.86" for 25-yr event
Inflow = 17.07 cfs @ 12.40 hrs, Volume= 3.252 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 501.63' @ 30.00 hrs Surf.Area= 52,550 sf Storage= 242,750 cf (141,642 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p12:

Inflow Area = 6.420 ac, Inflow Depth = 1.52" for 25-yr event
Inflow = 4.88 cfs @ 12.65 hrs, Volume= 0.812 af
Outflow = 0.64 cfs @ 16.13 hrs, Volume= 0.303 af, Atten= 87%, Lag= 208.9 min
Primary = 0.64 cfs @ 16.13 hrs, Volume= 0.303 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 547.69' @ 16.13 hrs Surf.Area= 14,940 sf Storage= 23,756 cf
Flood Elev= 547.50' Surf.Area= 13,848 sf Storage= 21,762 cf

Plug-Flow detention time= 411.4 min calculated for 0.303 af (37% of inflow)
Center-of-Mass det. time= 260.5 min (1,171.0 - 910.5)

Volume	Invert	Avail.Storage	Storage Description
#1	543.50'	26,986 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
543.50	0	0	0	0
544.00	1,140	190	190	1,140
546.00	5,260	5,899	6,089	5,278
548.00	16,710	20,897	26,986	16,750

Device	Routing	Invert	Outlet Devices
#1	Primary	547.50'	**173.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.64 cfs @ 16.13 hrs HW=547.69' TW=544.07' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.64 cfs @ 1.07 fps)

Pond p13:

Inflow Area = 0.350 ac, Inflow Depth = 1.52" for 25-yr event
Inflow = 0.50 cfs @ 12.14 hrs, Volume= 0.044 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 514.11' @ 24.49 hrs Surf.Area= 1,406 sf Storage= 1,928 cf
Flood Elev= 519.50' Surf.Area= 4,313 sf Storage= 16,523 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	511.40'	18,490 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
511.40	0	0	0	0
512.00	390	78	78	391
514.00	1,360	1,652	1,730	1,381
516.00	2,180	3,508	5,238	2,253
518.00	3,240	5,385	10,623	3,375
520.00	4,670	7,867	18,490	4,872

Device	Routing	Invert	Outlet Devices
#1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=511.40' TW=497.40' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p14:

Inflow Area = 36.186 ac, Inflow Depth > 2.21" for 25-yr event
Inflow = 52.03 cfs @ 12.40 hrs, Volume= 6.657 af
Outflow = 1.55 cfs @ 23.42 hrs, Volume= 1.157 af, Atten= 97%, Lag= 661.4 min
Primary = 1.55 cfs @ 23.42 hrs, Volume= 1.157 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 502.51' @ 23.42 hrs Surf.Area= 76,105 sf Storage= 311,417 cf (256,657 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 519.1 min (1,399.9 - 880.8)

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

Device	Routing	Invert	Outlet Devices
#1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=1.55 cfs @ 23.42 hrs HW=502.51' TW=501.10' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 1.55 cfs @ 2.44 fps)

Pond p15:

Inflow Area = 5.770 ac, Inflow Depth = 3.56" for 25-yr event
Inflow = 15.75 cfs @ 12.29 hrs, Volume= 1.711 af
Outflow = 15.73 cfs @ 12.30 hrs, Volume= 1.456 af, Atten= 0%, Lag= 0.6 min
Primary = 15.73 cfs @ 12.30 hrs, Volume= 1.456 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 536.21' @ 12.30 hrs Surf.Area= 3,283 sf Storage= 11,919 cf
Flood Elev= 536.00' Surf.Area= 3,160 sf Storage= 11,127 cf

Plug-Flow detention time= 98.0 min calculated for 1.455 af (85% of inflow)
Center-of-Mass det. time= 33.2 min (860.9 - 827.6)

Volume	Invert	Avail.Storage	Storage Description
#1	526.80'	18,577 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.80	0	0	0	0
528.00	310	124	124	312
530.00	660	948	1,072	694
532.00	1,180	1,815	2,887	1,256
534.00	1,990	3,135	6,022	2,113
536.00	3,160	5,105	11,127	3,337
538.00	4,320	7,450	18,577	4,575

Device	Routing	Invert	Outlet Devices
#1	Primary	536.00'	**171.0 deg x 50.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=15.73 cfs @ 12.30 hrs HW=536.21' TW=508.14' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 15.73 cfs @ 1.40 fps)

Pond p16:

Inflow Area = 220.862 ac, Inflow Depth > 2.58" for 25-yr event
Inflow = 202.76 cfs @ 12.37 hrs, Volume= 47.574 af
Outflow = 74.60 cfs @ 14.72 hrs, Volume= 30.791 af, Atten= 63%, Lag= 140.9 min
Primary = 74.60 cfs @ 14.72 hrs, Volume= 30.791 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.31' @ 14.72 hrs Surf.Area= 307,363 sf Storage= 1,859,747 cf (981,428 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)

Plug-Flow detention time= 659.1 min calculated for 10.624 af (22% of inflow)
Center-of-Mass det. time= 182.6 min (1,107.3 - 924.7)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

Device	Routing	Invert	Outlet Devices
#1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' Cc= 0.900 n= 0.024
#2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' Cc= 0.900 n= 0.013
#3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=74.60 cfs @ 14.72 hrs HW=511.31' TW=506.35' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 8.39 cfs @ 4.75 fps)
├─**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 66.22 cfs @ 2.21 fps)

Pond p17:

Inflow Area = 115.992 ac, Inflow Depth > 2.44" for 25-yr event
Inflow = 78.27 cfs @ 13.77 hrs, Volume= 23.587 af
Outflow = 78.23 cfs @ 13.78 hrs, Volume= 23.579 af, Atten= 0%, Lag= 0.5 min
Primary = 78.23 cfs @ 13.78 hrs, Volume= 23.579 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.55' @ 13.78 hrs Surf.Area= 11,299 sf Storage= 25,830 cf (16,596 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)

Plug-Flow detention time= 17.1 min calculated for 23.359 af (99% of inflow)
Center-of-Mass det. time= 9.0 min (967.6 - 958.5)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	30,224 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

Device	Routing	Invert	Outlet Devices
#1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=78.22 cfs @ 13.78 hrs HW=525.55' TW=516.08' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 16.91 cfs @ 4.39 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 12.90 cfs @ 2.76 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 48.42 cfs @ 1.73 fps)

Pond p18:

Inflow Area = 139.118 ac, Inflow Depth > 2.45" for 25-yr event
Inflow = 84.22 cfs @ 13.77 hrs, Volume= 28.455 af
Outflow = 84.00 cfs @ 13.80 hrs, Volume= 28.358 af, Atten= 0%, Lag= 1.6 min
Primary = 84.00 cfs @ 13.80 hrs, Volume= 28.358 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.08' @ 13.80 hrs Surf.Area= 28,888 sf Storage= 80,651 cf (53,767 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)

Plug-Flow detention time= 43.8 min calculated for 27.731 af (97% of inflow)
Center-of-Mass det. time= 23.2 min (972.7 - 949.5)

Volume	Invert	Avail.Storage	Storage Description
#1	510.00'	148,288 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

Device	Routing	Invert	Outlet Devices
#1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=84.00 cfs @ 13.80 hrs HW=516.08' TW=510.87' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 21.41 cfs @ 4.90 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 13.49 cfs @ 2.79 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 49.10 cfs @ 2.34 fps)

Pond p19:

Inflow Area = 15.520 ac, Inflow Depth = 1.92" for 25-yr event
Inflow = 16.16 cfs @ 12.61 hrs, Volume= 2.485 af
Outflow = 10.10 cfs @ 13.00 hrs, Volume= 2.472 af, Atten= 38%, Lag= 23.6 min
Primary = 10.10 cfs @ 13.00 hrs, Volume= 2.472 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.22' @ 13.00 hrs Surf.Area= 92,057 sf Storage= 81,991 cf (24,657 cf above start)

Plug-Flow detention time= 363.8 min calculated for 1.156 af (46% of inflow)
Center-of-Mass det. time= 58.9 min (953.6 - 894.7)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

Device	Routing	Invert	Outlet Devices
#1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
#2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=10.10 cfs @ 13.00 hrs HW=972.22' TW=970.18' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 10.10 cfs @ 1.32 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20:

Inflow Area = 241.485 ac, Inflow Depth > 1.79" for 25-yr event
Inflow = 79.12 cfs @ 14.71 hrs, Volume= 35.935 af
Outflow = 78.71 cfs @ 14.81 hrs, Volume= 34.206 af, Atten= 1%, Lag= 5.7 min
Primary = 78.71 cfs @ 14.81 hrs, Volume= 34.206 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.35' @ 14.81 hrs Surf.Area= 91,107 sf Storage= 251,862 cf (113,339 cf above start)

Plug-Flow detention time= 134.2 min calculated for 31.026 af (86% of inflow)
Center-of-Mass det. time= 28.2 min (1,100.0 - 1,071.8)

Volume	Invert	Avail.Storage	Storage Description
#1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

Device	Routing	Invert	Outlet Devices
#1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=78.71 cfs @ 14.81 hrs HW=506.35' TW=505.47' (Dynamic Tailwater)
├**1=Broad-Crested Rectangular Weir** (Weir Controls 11.23 cfs @ 3.00 fps)
├**2=Broad-Crested Rectangular Weir** (Weir Controls 0.98 cfs @ 1.01 fps)
└**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 66.50 cfs @ 1.78 fps)

Pond p21:

Inflow Area = 489.306 ac, Inflow Depth > 2.22" for 25-yr event
Inflow = 408.67 cfs @ 12.44 hrs, Volume= 90.552 af
Outflow = 34.08 cfs @ 20.82 hrs, Volume= 46.636 af, Atten= 92%, Lag= 502.4 min
Primary = 34.08 cfs @ 20.82 hrs, Volume= 46.636 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 485.98' @ 20.82 hrs Surf.Area= 1,265,902 sf Storage= 2,452,624 cf

Plug-Flow detention time= 497.2 min calculated for 46.621 af (51% of inflow)
Center-of-Mass det. time= 321.4 min (1,280.9 - 959.5)

Volume	Invert	Avail.Storage	Storage Description
#1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

Device	Routing	Invert	Outlet Devices
#1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' Cc= 0.900 n= 0.024

Primary OutFlow Max=34.08 cfs @ 20.82 hrs HW=485.98' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 34.08 cfs @ 6.94 fps)

Pond p22:

Inflow Area = 97.943 ac, Inflow Depth > 2.59" for 25-yr event
Inflow = 144.87 cfs @ 12.45 hrs, Volume= 21.100 af
Outflow = 143.99 cfs @ 12.49 hrs, Volume= 20.763 af, Atten= 1%, Lag= 2.3 min
Primary = 143.99 cfs @ 12.49 hrs, Volume= 20.763 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 502.33' @ 12.49 hrs Surf.Area= 12,018 sf Storage= 48,431 cf (38,325 cf above start)

Plug-Flow detention time= 29.9 min calculated for 20.531 af (97% of inflow)
Center-of-Mass det. time= 11.7 min (887.7 - 876.0)

Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

Device	Routing	Invert	Outlet Devices
#1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' Cc= 0.900 n= 0.024
#2	Primary	500.50'	**1.0' long x 15.0' 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
#3	Primary	500.50'	**20.0' long x 13.5' 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) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=143.97 cfs @ 12.49 hrs HW=502.33' TW=500.58' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 8.21 cfs @ 4.65 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 6.46 cfs @ 3.54 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 129.30 cfs @ 3.54 fps)

Pond p23:

Inflow Area = 41.587 ac, Inflow Depth = 2.99" for 25-yr event
Inflow = 65.64 cfs @ 12.68 hrs, Volume= 10.373 af
Outflow = 65.63 cfs @ 12.68 hrs, Volume= 9.455 af, Atten= 0%, Lag= 0.0 min
Primary = 65.63 cfs @ 12.68 hrs, Volume= 9.455 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 507.93' @ 12.68 hrs Surf.Area= 19,186 sf Storage= 43,580 cf

Plug-Flow detention time= 63.1 min calculated for 9.455 af (91% of inflow)
Center-of-Mass det. time= 18.8 min (890.4 - 871.6)

Volume	Invert	Avail.Storage	Storage Description
#1	503.50'	100,303 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
503.50	0	0	0
506.00	11,170	13,963	13,963
508.00	19,460	30,630	44,593
510.00	36,250	55,710	100,303

Device	Routing	Invert	Outlet Devices
#1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=65.63 cfs @ 12.68 hrs HW=507.93' TW=507.26' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 65.63 cfs @ 1.47 fps)

Pond zDP1: Design Point 1

Inflow Area = 26.659 ac, Inflow Depth = 2.67" for 25-yr event
Inflow = 41.36 cfs @ 12.48 hrs, Volume= 5.938 af
Outflow = 41.36 cfs @ 12.48 hrs, Volume= 5.938 af, Atten= 0%, Lag= 0.1 min
Primary = 41.36 cfs @ 12.48 hrs, Volume= 5.938 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 722.67' @ 12.48 hrs Surf.Area= 174 sf Storage= 192 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf

Plug-Flow detention time= 0.1 min calculated for 5.938 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (870.0 - 869.9)

Volume	Invert	Avail.Storage	Storage Description
#1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

Device	Routing	Invert	Outlet Devices
#1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' Cc= 0.900 n= 0.024
#2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=41.35 cfs @ 12.48 hrs HW=722.67' TW=686.78' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 41.35 cfs @ 5.46 fps)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Inflow Area = 97.712 ac, Inflow Depth = 2.35" for 25-yr event
Inflow = 101.79 cfs @ 12.87 hrs, Volume= 19.146 af
Outflow = 101.74 cfs @ 12.88 hrs, Volume= 19.146 af, Atten= 0%, Lag= 0.3 min
Primary = 35.52 cfs @ 12.88 hrs, Volume= 14.213 af
Secondary = 66.22 cfs @ 12.88 hrs, Volume= 4.933 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 626.11' @ 12.88 hrs Surf.Area= 1,486 sf Storage= 3,561 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf

Plug-Flow detention time= 0.5 min calculated for 19.140 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (902.0 - 901.5)

Volume	Invert	Avail.Storage	Storage Description
#1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

Device	Routing	Invert	Outlet Devices
#1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' Cc= 0.900 n= 0.012
#2	Secondary	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=35.52 cfs @ 12.88 hrs HW=626.11' TW=607.68' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 35.52 cfs @ 11.31 fps)

Secondary OutFlow Max=66.20 cfs @ 12.88 hrs HW=626.11' TW=559.12' (Dynamic Tailwater)
↑—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 66.20 cfs @ 3.12 fps)

Pond zDP3: Design Point 3

Inflow Area = 218.048 ac, Inflow Depth > 13.12" for 25-yr event
Inflow = 271.37 cfs @ 12.55 hrs, Volume= 238.330 af
Primary = 271.37 cfs @ 12.55 hrs, Volume= 238.330 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 489.306 ac, Inflow Depth > 1.14" for 25-yr event
Inflow = 34.08 cfs @ 20.82 hrs, Volume= 46.636 af
Primary = 34.08 cfs @ 20.82 hrs, Volume= 46.636 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 2.81" for 25-yr event
Inflow = 51.75 cfs @ 12.45 hrs, Volume= 6.621 af
Primary = 51.75 cfs @ 12.45 hrs, Volume= 6.621 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP6: Design Point 6

Inflow Area = 5.306 ac, Inflow Depth = 1.60" for 25-yr event
Inflow = 4.99 cfs @ 12.50 hrs, Volume= 0.706 af
Outflow = 4.99 cfs @ 12.50 hrs, Volume= 0.706 af, Atten= 0%, Lag= 0.0 min
Primary = 4.99 cfs @ 12.50 hrs, Volume= 0.706 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 609.85' @ 12.50 hrs
Flood Elev= 612.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.90'	**36.0" x 43.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 606.90' S= 0.0465 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=4.99 cfs @ 12.50 hrs HW=609.85' TW=606.79' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.99 cfs @ 2.61 fps)

Pond zDP7: Design Point 7

Inflow Area = 31.894 ac, Inflow Depth = 2.44" for 25-yr event
Inflow = 39.68 cfs @ 12.69 hrs, Volume= 6.486 af
Primary = 39.68 cfs @ 12.69 hrs, Volume= 6.486 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP8: Design Point 8

Inflow Area = 6.893 ac, Inflow Depth = 2.62" for 25-yr event
Inflow = 18.75 cfs @ 12.13 hrs, Volume= 1.505 af
Primary = 18.75 cfs @ 12.13 hrs, Volume= 1.505 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Subcatchment s01:

Runoff = 21.78 cfs @ 12.60 hrs, Volume= 3.264 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
11.485	68	
11.485		Pervious Area

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

Subcatchment s02:

Runoff = 136.27 cfs @ 12.87 hrs, Volume= 25.263 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
97.712	65	
97.712		Pervious Area

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

Subcatchment s03:

Runoff = 35.87 cfs @ 12.41 hrs, Volume= 4.443 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
15.174	69	
15.174		Pervious Area

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

Subcatchment s04:

Runoff = 40.38 cfs @ 12.10 hrs, Volume= 2.948 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
11.403	65	
11.403		Pervious Area

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

Subcatchment s05:

Runoff = 32.84 cfs @ 12.25 hrs, Volume= 3.363 af, Depth= 2.70"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
14.935	61	
14.935		Pervious Area

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

Subcatchment s06:

Runoff = 23.37 cfs @ 12.25 hrs, Volume= 2.360 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
9.435	64	
9.435		Pervious Area

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

Subcatchment s07:

Runoff = 21.20 cfs @ 12.19 hrs, Volume= 1.954 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
7.317	66	
7.317		Pervious Area

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

Subcatchment s08:

Runoff = 55.54 cfs @ 12.33 hrs, Volume= 6.368 af, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
31.719	58	
31.719		Pervious Area

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

Subcatchment s09:

Runoff = 22.20 cfs @ 12.23 hrs, Volume= 2.185 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
8.452	65	
8.452		Pervious Area

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

Subcatchment s10:

Runoff = 22.15 cfs @ 12.39 hrs, Volume= 2.702 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
8.960	70	
8.960		Pervious Area

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

Subcatchment s11:

Runoff = 18.25 cfs @ 12.28 hrs, Volume= 1.970 af, Depth= 5.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
4.702	83	
4.702		Pervious Area

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

Subcatchment s12:

Runoff = 7.15 cfs @ 12.64 hrs, Volume= 1.136 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
6.420	55	
6.420		Pervious Area

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

Subcatchment s13:

Runoff = 0.74 cfs @ 12.13 hrs, Volume= 0.062 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.350	55	
0.350		Pervious Area

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

Subcatchment s14:

Runoff = 50.21 cfs @ 12.40 hrs, Volume= 6.139 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
20.964	69	
20.964		Pervious Area

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

Subcatchment s15:

Runoff = 1.53 cfs @ 12.20 hrs, Volume= 0.156 af, Depth= 1.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
1.068	51	
1.068		Pervious Area

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

Subcatchment s16:

Runoff = 207.42 cfs @ 12.31 hrs, Volume= 22.909 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
75.974	70	
75.974		Pervious Area

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

Subcatchment s17:

Runoff = 104.21 cfs @ 13.77 hrs, Volume= 30.974 af, Depth> 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
115.992	66	
115.992		Pervious Area

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

Subcatchment s18:

Runoff = 55.22 cfs @ 12.34 hrs, Volume= 6.373 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
23.126	67	
23.126		Pervious Area

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

Subcatchment s19:

Runoff = 22.44 cfs @ 12.61 hrs, Volume= 3.367 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
15.520	60	
15.520		Pervious Area

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

Subcatchment s20:

Runoff = 49.54 cfs @ 12.47 hrs, Volume= 6.581 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
20.623	72	
20.623		Pervious Area

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

Subcatchment s21:

Runoff = 281.92 cfs @ 12.37 hrs, Volume= 33.601 af, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
108.291	71	
108.291		Pervious Area

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

Subcatchment s22:

Runoff = 187.54 cfs @ 12.45 hrs, Volume= 24.136 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
82.423	69	
82.423		Pervious Area

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

Subcatchment s23:

Runoff = 84.32 cfs @ 12.64 hrs, Volume= 13.270 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
41.587	72	
41.587		Pervious Area

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

Subcatchment s24:

Runoff = 67.08 cfs @ 12.45 hrs, Volume= 8.541 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
28.325	70	
28.325		Pervious Area

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

Subcatchment s25:

Runoff = 33.89 cfs @ 12.28 hrs, Volume= 3.622 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
13.562	66	
13.562		Pervious Area

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

Subcatchment s26:

Runoff = 7.23 cfs @ 12.47 hrs, Volume= 0.981 af, Depth= 2.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
5.306	56	
5.306		Pervious Area

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

Subcatchment s27:

Runoff = 52.75 cfs @ 12.69 hrs, Volume= 8.517 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
31.894	66	
31.894		Pervious Area

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

Subcatchment s28:

Runoff = 24.61 cfs @ 12.13 hrs, Volume= 1.959 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
6.893	68	
6.893		Pervious Area

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

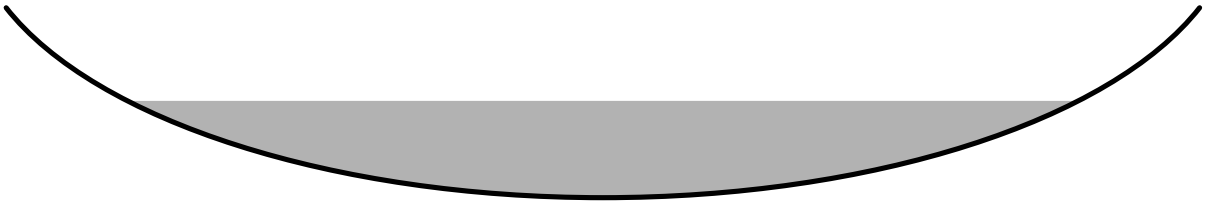
Reach r03:

Inflow Area = 11.485 ac, Inflow Depth = 3.41" for 50-yr event
Inflow = 21.78 cfs @ 12.60 hrs, Volume= 3.264 af
Outflow = 21.68 cfs @ 12.62 hrs, Volume= 3.264 af, Atten= 0%, Lag= 1.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.97 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.24 fps, Avg. Travel Time= 5.8 min

Peak Storage= 2,848 cf @ 12.62 hrs, Average Depth at Peak Storage= 0.76'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 92.14 cfs

10.00' x 1.50' deep Parabolic Channel, n= 0.060
Length= 785.0' Slope= 0.1490 '/'
Inlet Invert= 845.00', Outlet Invert= 728.00'



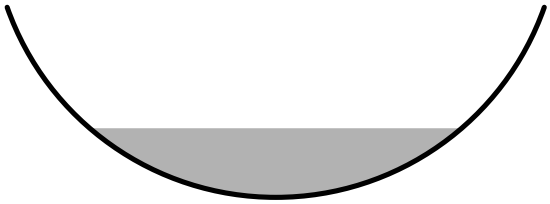
Reach r04:

Inflow Area = 26.659 ac, Inflow Depth = 3.47" for 50-yr event
Inflow = 54.22 cfs @ 12.48 hrs, Volume= 7.707 af
Outflow = 54.14 cfs @ 12.49 hrs, Volume= 7.707 af, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.72 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 2.89 fps, Avg. Travel Time= 3.9 min

Peak Storage= 4,734 cf @ 12.49 hrs, Average Depth at Peak Storage= 1.45'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 446.15 cfs

12.00' x 4.00' deep Parabolic Channel, n= 0.060
Length= 675.0' Slope= 0.1148 '/'
Inlet Invert= 685.50', Outlet Invert= 608.00'



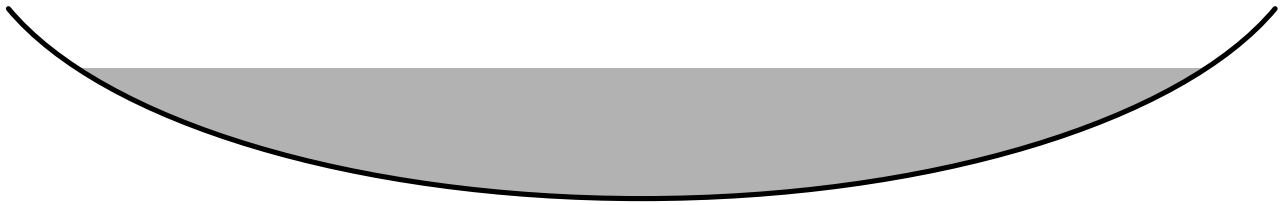
Reach r08a:

Inflow Area = 97.712 ac, Inflow Depth = 2.08" for 50-yr event
Inflow = 36.43 cfs @ 12.87 hrs, Volume= 16.917 af
Outflow = 36.43 cfs @ 12.88 hrs, Volume= 16.917 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.61 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.69 fps, Avg. Travel Time= 0.7 min

Peak Storage= 857 cf @ 12.88 hrs, Average Depth at Peak Storage= 0.69'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 81.88 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.027
Length= 226.0' Slope= 0.0885 '/'
Inlet Invert= 607.00', Outlet Invert= 587.00'



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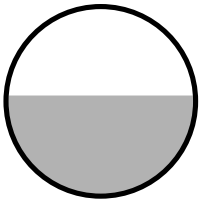
Reach r08b:

Inflow Area = 103.018 ac, Inflow Depth = 2.08" for 50-yr event
Inflow = 42.54 cfs @ 12.56 hrs, Volume= 17.897 af
Outflow = 42.54 cfs @ 12.56 hrs, Volume= 17.897 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 25.16 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 15.12 fps, Avg. Travel Time= 0.3 min

Peak Storage= 499 cf @ 12.56 hrs, Average Depth at Peak Storage= 1.06'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 77.17 cfs

24.0" Diameter Pipe, n= 0.012
Length= 295.0' Slope= 0.0992 '/'
Inlet Invert= 587.00', Outlet Invert= 557.75'



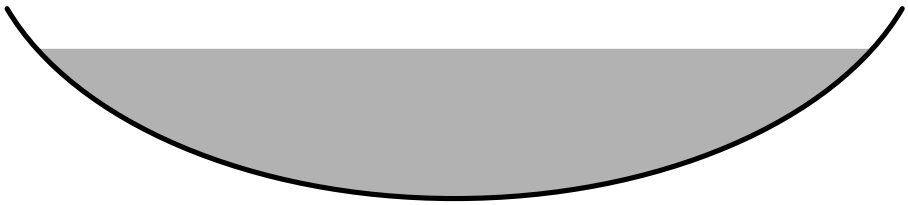
Reach r08c:

Inflow Area = 103.018 ac, Inflow Depth = 3.06" for 50-yr event
Inflow = 140.34 cfs @ 12.87 hrs, Volume= 26.244 af
Outflow = 140.30 cfs @ 12.88 hrs, Volume= 26.244 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 15.05 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 6.28 fps, Avg. Travel Time= 1.6 min

Peak Storage= 5,498 cf @ 12.88 hrs, Average Depth at Peak Storage= 1.58'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 232.56 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 590.0' Slope= 0.0775 '/'
Inlet Invert= 557.75', Outlet Invert= 512.00'



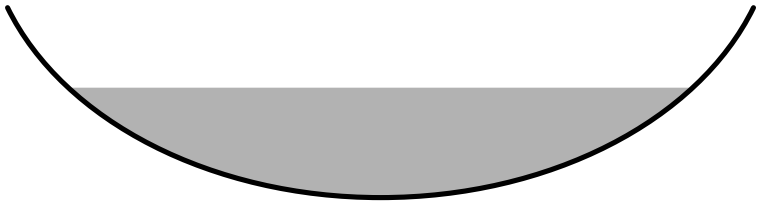
Reach r08d: Amenia Stream/Cascade Brook

Inflow Area = 103.018 ac, Inflow Depth > 14.61" for 50-yr event
Inflow = 180.30 cfs @ 12.88 hrs, Volume= 125.451 af, Incl. 40.00 cfs Base Flow
Outflow = 179.78 cfs @ 12.90 hrs, Volume= 125.169 af, Atten= 0%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.09 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 2.77 fps, Avg. Travel Time= 4.8 min

Peak Storage= 35,356 cf @ 12.90 hrs, Average Depth at Peak Storage= 3.47'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 571.01 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 805.0' Slope= 0.0099 '/'
Inlet Invert= 512.00', Outlet Invert= 504.00'



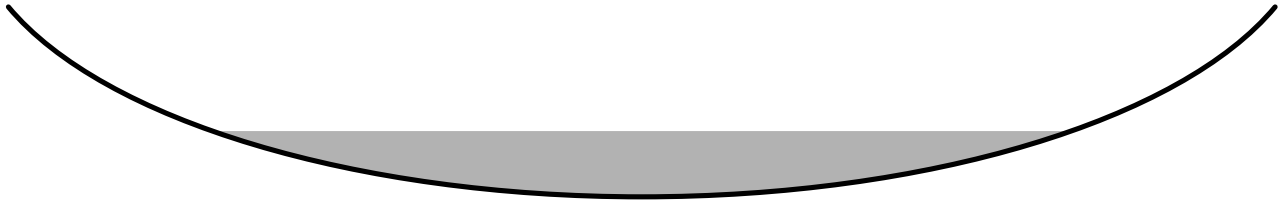
Reach r08e:

Inflow Area = 5.306 ac, Inflow Depth = 2.22" for 50-yr event
Inflow = 7.23 cfs @ 12.47 hrs, Volume= 0.981 af
Outflow = 7.22 cfs @ 12.48 hrs, Volume= 0.981 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.33 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.27 fps, Avg. Travel Time= 1.7 min

Peak Storage= 318 cf @ 12.48 hrs, Average Depth at Peak Storage= 0.35'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 71.36 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.030 Earth, grassed & winding
Length= 235.0' Slope= 0.0830 '/'
Inlet Invert= 606.50', Outlet Invert= 587.00'



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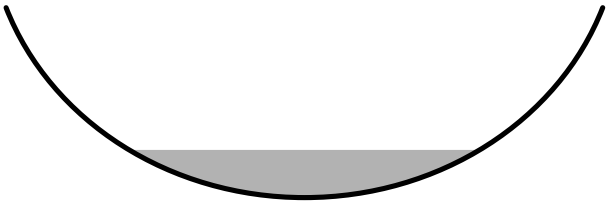
Reach r14a:

Inflow Area = 8.452 ac, Inflow Depth > 3.05" for 50-yr event
Inflow = 17.61 cfs @ 12.37 hrs, Volume= 2.145 af
Outflow = 17.60 cfs @ 12.38 hrs, Volume= 2.145 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.04 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 2.52 fps, Avg. Travel Time= 2.4 min

Peak Storage= 900 cf @ 12.38 hrs, Average Depth at Peak Storage= 0.75'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 325.42 cfs

10.00' x 3.00' deep Parabolic Channel, n= 0.027
Length= 360.0' Slope= 0.0444 '/'
Inlet Invert= 542.00', Outlet Invert= 526.00'



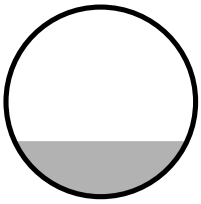
Reach r14b:

Inflow Area = 8.452 ac, Inflow Depth > 3.05" for 50-yr event
Inflow = 17.60 cfs @ 12.38 hrs, Volume= 2.145 af
Outflow = 17.60 cfs @ 12.39 hrs, Volume= 2.145 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 14.78 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 5.33 fps, Avg. Travel Time= 1.4 min

Peak Storage= 530 cf @ 12.39 hrs, Average Depth at Peak Storage= 0.73'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 94.91 cfs

30.0" Diameter Pipe, n= 0.012
Length= 445.0' Slope= 0.0456 '/'
Inlet Invert= 526.00', Outlet Invert= 505.70'



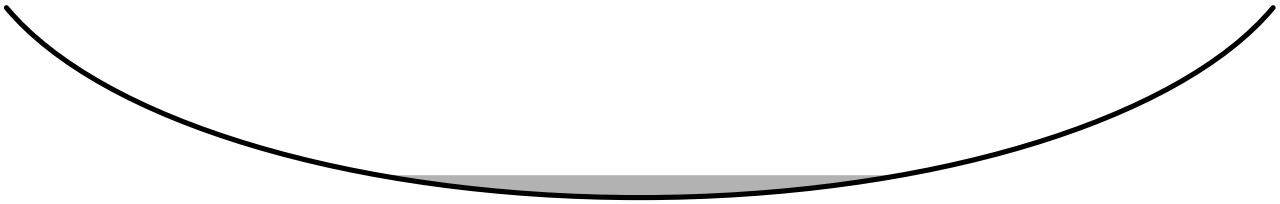
Reach r14c:

Inflow Area = 6.420 ac, Inflow Depth > 1.17" for 50-yr event
Inflow = 1.75 cfs @ 13.91 hrs, Volume= 0.627 af
Outflow = 1.72 cfs @ 14.03 hrs, Volume= 0.627 af, Atten= 2%, Lag= 7.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.28 fps, Min. Travel Time= 7.5 min
Avg. Velocity = 0.76 fps, Avg. Travel Time= 12.7 min

Peak Storage= 771 cf @ 14.03 hrs, Average Depth at Peak Storage= 0.12'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 178.07 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 575.0' Slope= 0.0800 '/'
Inlet Invert= 544.00', Outlet Invert= 498.00'



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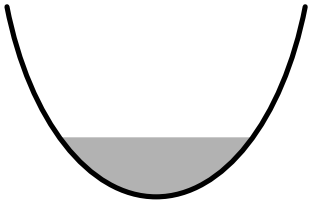
Reach r15:

Inflow Area = 4.702 ac, Inflow Depth = 5.03" for 50-yr event
Inflow = 18.18 cfs @ 12.29 hrs, Volume= 1.970 af
Outflow = 18.17 cfs @ 12.29 hrs, Volume= 1.970 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.39 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.87 fps, Avg. Travel Time= 1.2 min

Peak Storage= 507 cf @ 12.29 hrs, Average Depth at Peak Storage= 0.94'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 188.47 cfs

5.00' x 3.00' deep Parabolic Channel, n= 0.027
Length= 290.0' Slope= 0.0897 '/'
Inlet Invert= 554.00', Outlet Invert= 528.00'



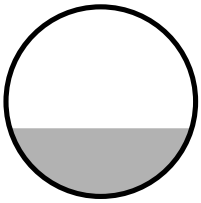
Reach r16:

Inflow Area = 4.702 ac, Inflow Depth = 5.03" for 50-yr event
Inflow = 18.25 cfs @ 12.28 hrs, Volume= 1.970 af
Outflow = 18.18 cfs @ 12.29 hrs, Volume= 1.970 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 11.49 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 4.15 fps, Avg. Travel Time= 3.5 min

Peak Storage= 1,361 cf @ 12.29 hrs, Average Depth at Peak Storage= 0.90'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 66.05 cfs

30.0" Diameter Pipe, n= 0.012
Length= 860.0' Slope= 0.0221 '/'
Inlet Invert= 573.00', Outlet Invert= 554.00'



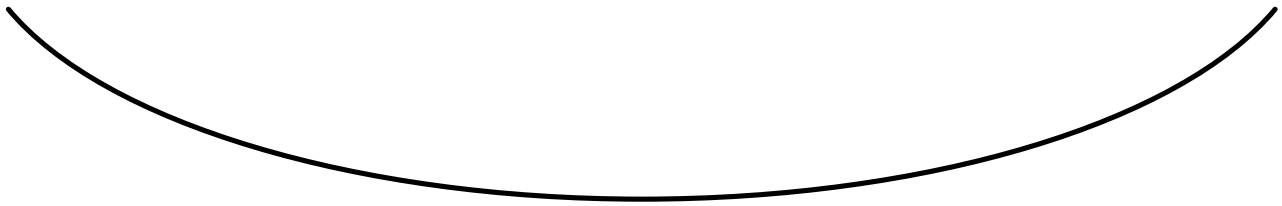
Reach r18a:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 379.63 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 1,220.0' Slope= 0.3636 '/'
Inlet Invert= 973.60', Outlet Invert= 530.00'



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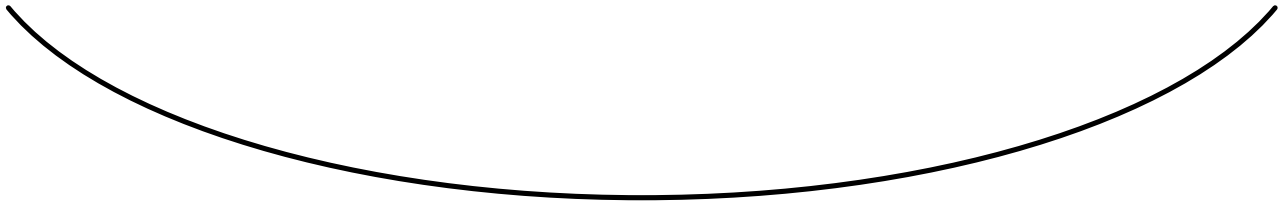
Reach r18b:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 151.94 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 285.0' Slope= 0.0582 '/'
Inlet Invert= 530.60', Outlet Invert= 514.00'



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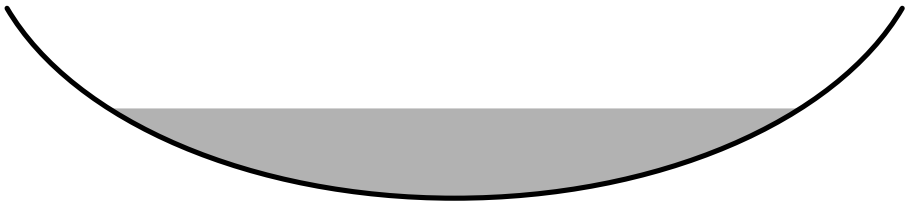
Reach r21a:

Inflow Area = 241.485 ac, Inflow Depth > 2.48" for 50-yr event
Inflow = 132.82 cfs @ 14.21 hrs, Volume= 49.881 af
Outflow = 132.80 cfs @ 14.23 hrs, Volume= 49.850 af, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.71 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 4.03 fps, Avg. Travel Time= 2.7 min

Peak Storage= 11,161 cf @ 14.23 hrs, Average Depth at Peak Storage= 1.88'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 658.74 cfs

20.00' x 4.00' deep Parabolic Channel, n= 0.027
Length= 648.0' Slope= 0.0154 '/'
Inlet Invert= 504.00', Outlet Invert= 494.00'



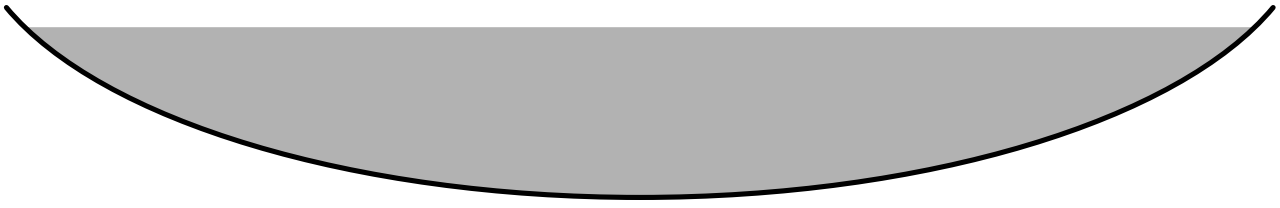
Reach r21b:

Inflow Area = 97.943 ac, Inflow Depth > 3.33" for 50-yr event
Inflow = 189.37 cfs @ 12.49 hrs, Volume= 27.147 af
Outflow = 189.35 cfs @ 12.49 hrs, Volume= 27.146 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 11.18 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 4.22 fps, Avg. Travel Time= 0.9 min

Peak Storage= 3,897 cf @ 12.49 hrs, Average Depth at Peak Storage= 1.79'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 239.90 cfs

15.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 230.0' Slope= 0.0343 '/'
Inlet Invert= 499.00', Outlet Invert= 491.10'



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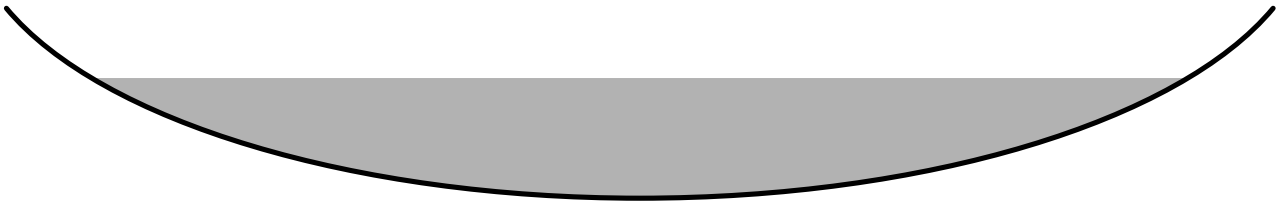
Reach r21c:

Inflow Area = 41.587 ac, Inflow Depth = 3.56" for 50-yr event
Inflow = 84.28 cfs @ 12.65 hrs, Volume= 12.352 af
Outflow = 84.26 cfs @ 12.66 hrs, Volume= 12.352 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.03 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.90 fps, Avg. Travel Time= 1.4 min

Peak Storage= 2,678 cf @ 12.66 hrs, Average Depth at Peak Storage= 0.63'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 227.81 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 160.0' Slope= 0.1309 '/'
Inlet Invert= 506.70', Outlet Invert= 485.75'



‡

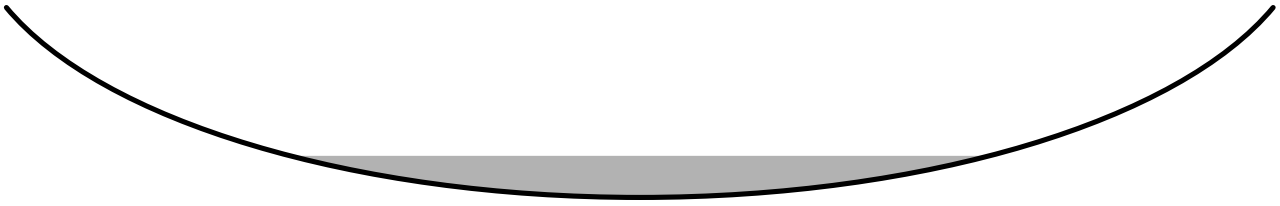
Reach r22a:

Inflow Area = 15.520 ac, Inflow Depth > 2.59" for 50-yr event
Inflow = 15.21 cfs @ 12.94 hrs, Volume= 3.353 af
Outflow = 15.14 cfs @ 12.98 hrs, Volume= 3.352 af, Atten= 0%, Lag= 2.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.45 fps, Min. Travel Time= 3.6 min
Avg. Velocity = 1.98 fps, Avg. Travel Time= 8.2 min

Peak Storage= 3,297 cf @ 12.98 hrs, Average Depth at Peak Storage= 0.22'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 409.31 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 970.0' Slope= 0.4227 '/'
Inlet Invert= 970.00', Outlet Invert= 560.00'



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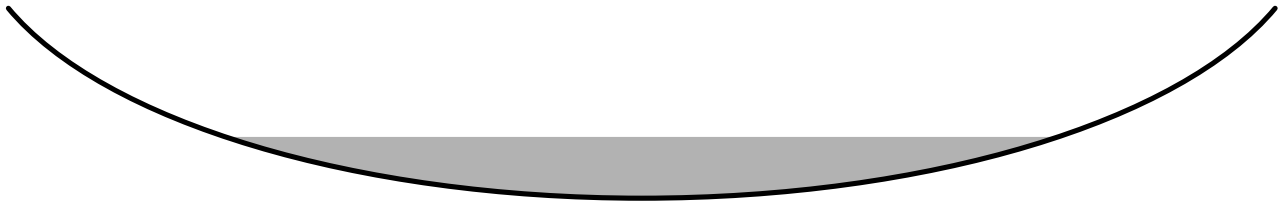
Reach r22b:

Inflow Area = 15.520 ac, Inflow Depth > 2.59" for 50-yr event
Inflow = 15.14 cfs @ 12.98 hrs, Volume= 3.352 af
Outflow = 15.05 cfs @ 13.04 hrs, Volume= 3.350 af, Atten= 1%, Lag= 3.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.47 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 1.10 fps, Avg. Travel Time= 9.4 min

Peak Storage= 3,778 cf @ 13.04 hrs, Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 175.17 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 620.0' Slope= 0.0774 '/'
Inlet Invert= 560.00', Outlet Invert= 512.00'



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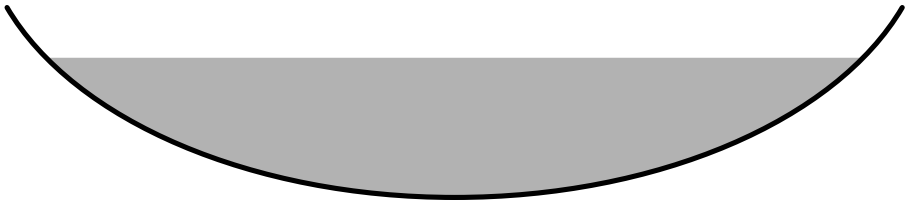
Reach r25a:

Inflow Area = 60.314 ac, Inflow Depth > 3.15" for 50-yr event
Inflow = 107.12 cfs @ 12.36 hrs, Volume= 15.820 af
Outflow = 106.93 cfs @ 12.38 hrs, Volume= 15.818 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 12.74 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 4.79 fps, Avg. Travel Time= 3.8 min

Peak Storage= 9,149 cf @ 12.38 hrs, Average Depth at Peak Storage= 1.47'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 205.50 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 1,090.0' Slope= 0.0606 '/'
Inlet Invert= 570.00', Outlet Invert= 504.00'



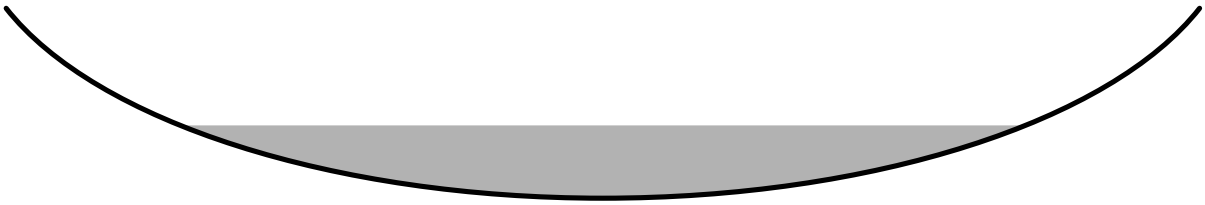
Reach r25b: Wetland Reach

Inflow Area = 9.435 ac, Inflow Depth > 2.90" for 50-yr event
Inflow = 21.79 cfs @ 12.32 hrs, Volume= 2.280 af
Outflow = 19.90 cfs @ 12.40 hrs, Volume= 2.276 af, Atten= 9%, Lag= 5.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.11 fps, Min. Travel Time= 5.9 min
Avg. Velocity = 0.75 fps, Avg. Travel Time= 16.8 min

Peak Storage= 7,085 cf @ 12.40 hrs, Average Depth at Peak Storage= 1.15'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 156.51 cfs

20.00' x 3.00' deep Parabolic Channel, n= 0.045
Length= 750.0' Slope= 0.0060 '/'
Inlet Invert= 504.00', Outlet Invert= 499.50'



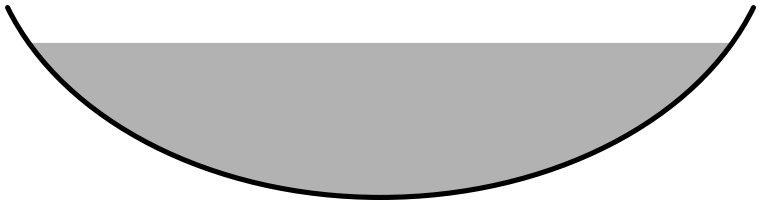
Reach r25c: Amenia Stream/Cascade Brook

Inflow Area = 134.737 ac, Inflow Depth > 20.55" for 50-yr event
Inflow = 238.31 cfs @ 12.82 hrs, Volume= 230.744 af, Incl. 40.00 cfs Base Flow
Outflow = 237.45 cfs @ 12.89 hrs, Volume= 229.985 af, Atten= 0%, Lag= 4.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.24 fps, Min. Travel Time= 5.0 min
Avg. Velocity = 2.45 fps, Avg. Travel Time= 6.6 min

Peak Storage= 71,444 cf @ 12.89 hrs, Average Depth at Peak Storage= 4.88'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 366.88 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 975.0' Slope= 0.0041 '/'
Inlet Invert= 504.00', Outlet Invert= 500.00'



Pond 8P:

Inflow Area = 52.997 ac, Inflow Depth = 3.16" for 50-yr event
Inflow = 93.20 cfs @ 12.35 hrs, Volume= 13.952 af
Outflow = 93.20 cfs @ 12.35 hrs, Volume= 13.952 af, Atten= 0%, Lag= 0.0 min
Primary = 93.20 cfs @ 12.35 hrs, Volume= 13.952 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 575.70' @ 12.35 hrs
Flood Elev= 574.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=93.20 cfs @ 12.35 hrs HW=575.70' TW=571.46' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 93.20 cfs @ 2.46 fps)

Pond p04:

Inflow Area = 38.062 ac, Inflow Depth = 3.36" for 50-yr event
Inflow = 66.76 cfs @ 12.43 hrs, Volume= 10.655 af
Outflow = 66.72 cfs @ 12.44 hrs, Volume= 10.589 af, Atten= 0%, Lag= 0.6 min
Primary = 66.72 cfs @ 12.44 hrs, Volume= 10.589 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 606.06' @ 12.44 hrs Surf.Area= 6,972 sf Storage= 4,699 cf
Flood Elev= 605.50' Surf.Area= 4,803 sf Storage= 2,882 cf

Plug-Flow detention time= 6.3 min calculated for 10.585 af (99% of inflow)
Center-of-Mass det. time= 2.5 min (861.1 - 858.5)

Volume	Invert	Avail.Storage	Storage Description
#1	604.20'	26,897 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
604.20	0	0	0	0
606.00	6,650	3,990	3,990	6,655
608.00	17,060	22,907	26,897	17,092

Device	Routing	Invert	Outlet Devices
#1	Primary	605.50'	**179.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=66.71 cfs @ 12.44 hrs HW=606.06' TW=575.69' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 66.71 cfs @ 1.84 fps)

Pond p06:

Inflow Area = 9.435 ac, Inflow Depth = 3.00" for 50-yr event
Inflow = 23.37 cfs @ 12.25 hrs, Volume= 2.360 af
Outflow = 21.79 cfs @ 12.32 hrs, Volume= 2.280 af, Atten= 7%, Lag= 4.2 min
Primary = 21.79 cfs @ 12.32 hrs, Volume= 2.280 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.56' @ 12.32 hrs Surf.Area= 22,042 sf Storage= 58,328 cf (16,168 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)

Plug-Flow detention time= 292.3 min calculated for 1.312 af (56% of inflow)
Center-of-Mass det. time= 53.9 min (908.6 - 854.7)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

Device	Routing	Invert	Outlet Devices
#1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=21.79 cfs @ 12.32 hrs HW=507.56' TW=505.08' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 1.50 cfs @ 2.34 fps)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 20.28 cfs @ 1.67 fps)

Pond p07:

Inflow Area = 7.317 ac, Inflow Depth = 3.20" for 50-yr event
Inflow = 21.20 cfs @ 12.19 hrs, Volume= 1.954 af
Outflow = 14.12 cfs @ 12.38 hrs, Volume= 1.868 af, Atten= 33%, Lag= 11.5 min
Primary = 14.12 cfs @ 12.38 hrs, Volume= 1.868 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.82' @ 12.38 hrs Surf.Area= 26,430 sf Storage= 81,098 cf (24,834 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)

Plug-Flow detention time= 548.5 min calculated for 0.576 af (30% of inflow)
Center-of-Mass det. time= 105.7 min (952.8 - 847.1)

Volume	Invert	Avail.Storage	Storage Description
#1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

Device	Routing	Invert	Outlet Devices
#1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=14.11 cfs @ 12.38 hrs HW=573.82' TW=571.47' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.46 cfs @ 2.71 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 10.65 cfs @ 1.39 fps)

Pond p09:

Inflow Area = 8.452 ac, Inflow Depth = 3.10" for 50-yr event
Inflow = 22.20 cfs @ 12.23 hrs, Volume= 2.185 af
Outflow = 17.61 cfs @ 12.37 hrs, Volume= 2.145 af, Atten= 21%, Lag= 8.4 min
Primary = 17.61 cfs @ 12.37 hrs, Volume= 2.145 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 550.64' @ 12.37 hrs Surf.Area= 7,127 sf Storage= 11,266 cf
Flood Elev= 551.20' Surf.Area= 8,534 sf Storage= 15,673 cf

Plug-Flow detention time= 28.7 min calculated for 2.144 af (98% of inflow)
Center-of-Mass det. time= 18.1 min (869.7 - 851.6)

Volume	Invert	Avail.Storage	Storage Description
#1	547.50'	21,989 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
547.50	0	0	0	0
548.00	1,080	180	180	1,080
550.00	5,510	6,020	6,200	5,527
552.00	10,550	15,790	21,989	10,606

Device	Routing	Invert	Outlet Devices
#1	Primary	548.50'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 542.00' S= 0.0929 '/' Cc= 0.900 n= 0.012
#2	Primary	551.20'	**168.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=17.61 cfs @ 12.37 hrs HW=550.64' TW=542.75' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 17.61 cfs @ 3.93 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p10:

Inflow Area = 45.146 ac, Inflow Depth > 1.34" for 50-yr event
Inflow = 22.15 cfs @ 12.39 hrs, Volume= 5.031 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 502.89' @ 30.00 hrs Surf.Area= 65,543 sf Storage= 320,275 cf (219,167 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p12:

Inflow Area = 6.420 ac, Inflow Depth = 2.12" for 50-yr event
Inflow = 7.15 cfs @ 12.64 hrs, Volume= 1.136 af
Outflow = 1.75 cfs @ 13.91 hrs, Volume= 0.627 af, Atten= 76%, Lag= 75.8 min
Primary = 1.75 cfs @ 13.91 hrs, Volume= 0.627 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 547.79' @ 13.91 hrs Surf.Area= 15,481 sf Storage= 24,744 cf
Flood Elev= 547.50' Surf.Area= 13,848 sf Storage= 21,762 cf

Plug-Flow detention time= 281.9 min calculated for 0.627 af (55% of inflow)
Center-of-Mass det. time= 153.3 min (1,052.8 - 899.5)

Volume	Invert	Avail.Storage	Storage Description
#1	543.50'	26,986 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
543.50	0	0	0	0
544.00	1,140	190	190	1,140
546.00	5,260	5,899	6,089	5,278
548.00	16,710	20,897	26,986	16,750

Device	Routing	Invert	Outlet Devices
#1	Primary	547.50'	**173.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=1.75 cfs @ 13.91 hrs HW=547.79' TW=544.12' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 1.75 cfs @ 1.31 fps)

Pond p13:

Inflow Area = 0.350 ac, Inflow Depth = 2.12" for 50-yr event
Inflow = 0.74 cfs @ 12.13 hrs, Volume= 0.062 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 514.55' @ 24.49 hrs Surf.Area= 1,586 sf Storage= 2,698 cf
Flood Elev= 519.50' Surf.Area= 4,313 sf Storage= 16,523 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	511.40'	18,490 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
511.40	0	0	0	0
512.00	390	78	78	391
514.00	1,360	1,652	1,730	1,381
516.00	2,180	3,508	5,238	2,253
518.00	3,240	5,385	10,623	3,375
520.00	4,670	7,867	18,490	4,872

Device	Routing	Invert	Outlet Devices
#1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=511.40' TW=497.40' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p14:

Inflow Area = 36.186 ac, Inflow Depth > 2.95" for 50-yr event
Inflow = 67.80 cfs @ 12.40 hrs, Volume= 8.911 af
Outflow = 4.16 cfs @ 17.35 hrs, Volume= 2.330 af, Atten= 94%, Lag= 297.3 min
Primary = 4.16 cfs @ 17.35 hrs, Volume= 2.330 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 502.89' @ 30.00 hrs Surf.Area= 78,148 sf Storage= 341,423 cf (286,663 cf above start)

Plug-Flow detention time= 545.3 min calculated for 1.073 af (12% of inflow)
Center-of-Mass det. time= 241.0 min (1,113.7 - 872.7)

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

Device	Routing	Invert	Outlet Devices
#1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=4.16 cfs @ 17.35 hrs HW=502.87' TW=501.52' (Dynamic Tailwater)
1=Culvert (Inlet Controls 4.16 cfs @ 3.17 fps)

Pond p15:

Inflow Area = 5.770 ac, Inflow Depth = 4.42" for 50-yr event
Inflow = 19.51 cfs @ 12.29 hrs, Volume= 2.126 af
Outflow = 19.49 cfs @ 12.30 hrs, Volume= 1.871 af, Atten= 0%, Lag= 0.5 min
Primary = 19.49 cfs @ 12.30 hrs, Volume= 1.871 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 536.24' @ 12.30 hrs Surf.Area= 3,302 sf Storage= 12,037 cf
Flood Elev= 536.00' Surf.Area= 3,160 sf Storage= 11,127 cf

Plug-Flow detention time= 85.4 min calculated for 1.870 af (88% of inflow)
Center-of-Mass det. time= 29.6 min (851.5 - 821.9)

Volume	Invert	Avail.Storage	Storage Description
#1	526.80'	18,577 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.80	0	0	0	0
528.00	310	124	124	312
530.00	660	948	1,072	694
532.00	1,180	1,815	2,887	1,256
534.00	1,990	3,135	6,022	2,113
536.00	3,160	5,105	11,127	3,337
538.00	4,320	7,450	18,577	4,575

Device	Routing	Invert	Outlet Devices
#1	Primary	536.00'	**171.0 deg x 50.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=19.48 cfs @ 12.30 hrs HW=536.24' TW=508.69' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 19.48 cfs @ 1.50 fps)

Pond p16:

Inflow Area = 220.862 ac, Inflow Depth > 3.37" for 50-yr event
Inflow = 284.37 cfs @ 12.34 hrs, Volume= 62.014 af
Outflow = 126.51 cfs @ 14.16 hrs, Volume= 45.052 af, Atten= 56%, Lag= 109.0 min
Primary = 126.51 cfs @ 14.16 hrs, Volume= 45.052 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.52' @ 14.16 hrs Surf.Area= 316,610 sf Storage= 1,920,816 cf (1,042,496 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)

Plug-Flow detention time= 450.1 min calculated for 24.889 af (40% of inflow)
Center-of-Mass det. time= 137.5 min (1,052.1 - 914.6)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

Device	Routing	Invert	Outlet Devices
#1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' Cc= 0.900 n= 0.024
#2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' Cc= 0.900 n= 0.013
#3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=126.51 cfs @ 14.16 hrs HW=511.52' TW=506.50' (Dynamic Tailwater)
├**1=Culvert** (Inlet Controls 8.93 cfs @ 5.05 fps)
├**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
└**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 117.58 cfs @ 2.48 fps)

Pond p17:

Inflow Area = 115.992 ac, Inflow Depth > 3.20" for 50-yr event
Inflow = 104.21 cfs @ 13.77 hrs, Volume= 30.974 af
Outflow = 104.17 cfs @ 13.77 hrs, Volume= 30.965 af, Atten= 0%, Lag= 0.3 min
Primary = 104.17 cfs @ 13.77 hrs, Volume= 30.965 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.64' @ 13.77 hrs Surf.Area= 11,521 sf Storage= 26,669 cf (17,435 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)

Plug-Flow detention time= 14.1 min calculated for 30.753 af (99% of inflow)
Center-of-Mass det. time= 7.6 min (958.1 - 950.5)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	30,224 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

Device	Routing	Invert	Outlet Devices
#1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=104.16 cfs @ 13.77 hrs HW=525.64' TW=516.23' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 18.17 cfs @ 4.50 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 15.23 cfs @ 2.85 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 70.77 cfs @ 1.91 fps)

Pond p18:

Inflow Area = 139.118 ac, Inflow Depth > 3.22" for 50-yr event
Inflow = 111.72 cfs @ 13.77 hrs, Volume= 37.338 af
Outflow = 111.59 cfs @ 13.79 hrs, Volume= 37.234 af, Atten= 0%, Lag= 1.1 min
Primary = 111.59 cfs @ 13.79 hrs, Volume= 37.234 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.23' @ 13.79 hrs Surf.Area= 29,921 sf Storage= 85,688 cf (58,804 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)

Plug-Flow detention time= 35.8 min calculated for 36.617 af (98% of inflow)
Center-of-Mass det. time= 19.5 min (960.0 - 940.5)

Volume	Invert	Avail.Storage	Storage Description
#1	510.00'	148,288 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

Device	Routing	Invert	Outlet Devices
#1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=111.59 cfs @ 13.79 hrs HW=516.23' TW=511.46' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 23.55 cfs @ 5.06 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 17.60 cfs @ 2.94 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 70.45 cfs @ 2.53 fps)

Pond p19:

Inflow Area = 15.520 ac, Inflow Depth = 2.60" for 50-yr event
Inflow = 22.44 cfs @ 12.61 hrs, Volume= 3.367 af
Outflow = 15.21 cfs @ 12.94 hrs, Volume= 3.353 af, Atten= 32%, Lag= 19.9 min
Primary = 15.21 cfs @ 12.94 hrs, Volume= 3.353 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.29' @ 12.94 hrs Surf.Area= 93,885 sf Storage= 89,433 cf (32,099 cf above start)

Plug-Flow detention time= 273.4 min calculated for 2.037 af (60% of inflow)
Center-of-Mass det. time= 53.2 min (938.6 - 885.4)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

Device	Routing	Invert	Outlet Devices
#1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
#2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=15.21 cfs @ 12.94 hrs HW=972.29' TW=970.22' (Dynamic Tailwater)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 15.21 cfs @ 1.52 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20:

Inflow Area = 241.485 ac, Inflow Depth > 2.57" for 50-yr event
Inflow = 133.29 cfs @ 14.14 hrs, Volume= 51.633 af
Outflow = 132.82 cfs @ 14.21 hrs, Volume= 49.881 af, Atten= 0%, Lag= 4.5 min
Primary = 132.82 cfs @ 14.21 hrs, Volume= 49.881 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.50' @ 14.22 hrs Surf.Area= 91,859 sf Storage= 266,199 cf (127,676 cf above start)

Plug-Flow detention time= 95.4 min calculated for 46.701 af (90% of inflow)
Center-of-Mass det. time= 19.9 min (1,046.6 - 1,026.6)

Volume	Invert	Avail.Storage	Storage Description
#1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

Device	Routing	Invert	Outlet Devices
#1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=132.82 cfs @ 14.21 hrs HW=506.50' TW=505.88' (Dynamic Tailwater)
├**1=Broad-Crested Rectangular Weir** (Weir Controls 11.80 cfs @ 2.81 fps)
├**2=Broad-Crested Rectangular Weir** (Weir Controls 2.82 cfs @ 1.44 fps)
└**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 118.20 cfs @ 2.12 fps)

Pond p21:

Inflow Area = 489.306 ac, Inflow Depth > 3.02" for 50-yr event
Inflow = 532.17 cfs @ 12.44 hrs, Volume= 122.949 af
Outflow = 38.50 cfs @ 21.38 hrs, Volume= 54.040 af, Atten= 93%, Lag= 536.6 min
Primary = 38.50 cfs @ 21.38 hrs, Volume= 54.040 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 486.82' @ 21.38 hrs Surf.Area= 1,367,734 sf Storage= 3,616,102 cf

Plug-Flow detention time= 514.8 min calculated for 54.022 af (44% of inflow)
Center-of-Mass det. time= 338.8 min (1,277.9 - 939.1)

Volume	Invert	Avail.Storage	Storage Description
#1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

Device	Routing	Invert	Outlet Devices
#1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' Cc= 0.900 n= 0.024

Primary OutFlow Max=38.50 cfs @ 21.38 hrs HW=486.82' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 38.50 cfs @ 7.84 fps)

Pond p22:

Inflow Area = 97.943 ac, Inflow Depth > 3.37" for 50-yr event
Inflow = 190.50 cfs @ 12.45 hrs, Volume= 27.486 af
Outflow = 189.37 cfs @ 12.49 hrs, Volume= 27.147 af, Atten= 1%, Lag= 2.2 min
Primary = 189.37 cfs @ 12.49 hrs, Volume= 27.147 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 502.73' @ 12.49 hrs Surf.Area= 12,619 sf Storage= 53,647 cf (43,541 cf above start)

Plug-Flow detention time= 24.4 min calculated for 26.906 af (98% of inflow)
Center-of-Mass det. time= 10.0 min (877.9 - 867.9)

Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

Device	Routing	Invert	Outlet Devices
#1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' Cc= 0.900 n= 0.024
#2	Primary	500.50'	**1.0' long x 15.0' 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
#3	Primary	500.50'	**20.0' long x 13.5' 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) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=189.33 cfs @ 12.49 hrs HW=502.73' TW=500.79' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 9.34 cfs @ 5.29 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 8.57 cfs @ 3.85 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 171.41 cfs @ 3.85 fps)

Pond p23:

Inflow Area = 41.587 ac, Inflow Depth = 3.83" for 50-yr event
Inflow = 84.32 cfs @ 12.64 hrs, Volume= 13.270 af
Outflow = 84.28 cfs @ 12.65 hrs, Volume= 12.352 af, Atten= 0%, Lag= 0.7 min
Primary = 84.28 cfs @ 12.65 hrs, Volume= 12.352 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 507.97' @ 12.65 hrs Surf.Area= 19,354 sf Storage= 44,202 cf

Plug-Flow detention time= 52.5 min calculated for 12.352 af (93% of inflow)
Center-of-Mass det. time= 16.2 min (880.6 - 864.4)

Volume	Invert	Avail.Storage	Storage Description
#1	503.50'	100,303 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
503.50	0	0	0
506.00	11,170	13,963	13,963
508.00	19,460	30,630	44,593
510.00	36,250	55,710	100,303

Device	Routing	Invert	Outlet Devices
#1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=84.27 cfs @ 12.65 hrs HW=507.97' TW=507.33' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 84.27 cfs @ 1.58 fps)

Pond zDP1: Design Point 1

Inflow Area = 26.659 ac, Inflow Depth = 3.47" for 50-yr event
Inflow = 54.23 cfs @ 12.48 hrs, Volume= 7.707 af
Outflow = 54.22 cfs @ 12.48 hrs, Volume= 7.707 af, Atten= 0%, Lag= 0.1 min
Primary = 54.22 cfs @ 12.48 hrs, Volume= 7.707 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 723.21' @ 12.48 hrs Surf.Area= 241 sf Storage= 301 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf

Plug-Flow detention time= 0.1 min calculated for 7.705 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (862.3 - 862.2)

Volume	Invert	Avail.Storage	Storage Description
#1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

Device	Routing	Invert	Outlet Devices
#1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' Cc= 0.900 n= 0.024
#2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=54.22 cfs @ 12.48 hrs HW=723.21' TW=686.95' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 54.22 cfs @ 6.00 fps)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Inflow Area = 97.712 ac, Inflow Depth = 3.10" for 50-yr event
Inflow = 136.27 cfs @ 12.87 hrs, Volume= 25.263 af
Outflow = 136.21 cfs @ 12.87 hrs, Volume= 25.263 af, Atten= 0%, Lag= 0.2 min
Primary = 36.43 cfs @ 12.87 hrs, Volume= 16.917 af
Secondary = 99.78 cfs @ 12.87 hrs, Volume= 8.347 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 626.40' @ 12.87 hrs Surf.Area= 1,652 sf Storage= 4,127 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf

Plug-Flow detention time= 0.6 min calculated for 25.263 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (893.8 - 893.3)

Volume	Invert	Avail.Storage	Storage Description
#1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

Device	Routing	Invert	Outlet Devices
#1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' Cc= 0.900 n= 0.012
#2	Secondary	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=36.43 cfs @ 12.87 hrs HW=626.40' TW=607.69' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 36.43 cfs @ 11.60 fps)

Secondary OutFlow Max=99.76 cfs @ 12.87 hrs HW=626.40' TW=559.32' (Dynamic Tailwater)
↑—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 99.76 cfs @ 3.39 fps)

Pond zDP3: Design Point 3

Inflow Area = 218.048 ac, Inflow Depth > 13.85" for 50-yr event
Inflow = 345.55 cfs @ 12.49 hrs, Volume= 251.701 af
Primary = 345.55 cfs @ 12.49 hrs, Volume= 251.701 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 489.306 ac, Inflow Depth > 1.33" for 50-yr event
Inflow = 38.50 cfs @ 21.38 hrs, Volume= 54.040 af
Primary = 38.50 cfs @ 21.38 hrs, Volume= 54.040 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 3.62" for 50-yr event
Inflow = 67.08 cfs @ 12.45 hrs, Volume= 8.541 af
Primary = 67.08 cfs @ 12.45 hrs, Volume= 8.541 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP6: Design Point 6

Inflow Area = 5.306 ac, Inflow Depth = 2.22" for 50-yr event
Inflow = 7.23 cfs @ 12.47 hrs, Volume= 0.981 af
Outflow = 7.23 cfs @ 12.47 hrs, Volume= 0.981 af, Atten= 0%, Lag= 0.0 min
Primary = 7.23 cfs @ 12.47 hrs, Volume= 0.981 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 610.05' @ 12.47 hrs
Flood Elev= 612.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.90'	**36.0" x 43.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 606.90' S= 0.0465 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=7.23 cfs @ 12.47 hrs HW=610.05' TW=606.85' (Dynamic Tailwater)
1=Culvert (Inlet Controls 7.23 cfs @ 2.89 fps)

Pond zDP7: Design Point 7

Inflow Area = 31.894 ac, Inflow Depth = 3.20" for 50-yr event
Inflow = 52.75 cfs @ 12.69 hrs, Volume= 8.517 af
Primary = 52.75 cfs @ 12.69 hrs, Volume= 8.517 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP8: Design Point 8

Inflow Area = 6.893 ac, Inflow Depth = 3.41" for 50-yr event
Inflow = 24.61 cfs @ 12.13 hrs, Volume= 1.959 af
Primary = 24.61 cfs @ 12.13 hrs, Volume= 1.959 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Subcatchment s01:

Runoff = 27.15 cfs @ 12.60 hrs, Volume= 4.054 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
11.485	68	
11.485		Pervious Area

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

Subcatchment s02:

Runoff = 172.31 cfs @ 12.87 hrs, Volume= 31.709 af, Depth= 3.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
97.712	65	
97.712		Pervious Area

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

Subcatchment s03:

Runoff = 44.57 cfs @ 12.39 hrs, Volume= 5.500 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
15.174	69	
15.174		Pervious Area

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

Subcatchment s04:

Runoff = 51.01 cfs @ 12.10 hrs, Volume= 3.700 af, Depth= 3.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
11.403	65	
11.403		Pervious Area

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

Subcatchment s05:

Runoff = 42.47 cfs @ 12.25 hrs, Volume= 4.287 af, Depth= 3.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
14.935	61	
14.935		Pervious Area

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

Subcatchment s06:

Runoff = 29.72 cfs @ 12.24 hrs, Volume= 2.973 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
9.435	64	
9.435		Pervious Area

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

Subcatchment s07:

Runoff = 26.69 cfs @ 12.19 hrs, Volume= 2.444 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
7.317	66	
7.317		Pervious Area

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

Subcatchment s08:

Runoff = 73.10 cfs @ 12.32 hrs, Volume= 8.226 af, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
31.719	58	
31.719		Pervious Area

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

Subcatchment s09:

Runoff = 28.08 cfs @ 12.23 hrs, Volume= 2.743 af, Depth= 3.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
8.452	65	
8.452		Pervious Area

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

Subcatchment s10:

Runoff = 27.40 cfs @ 12.38 hrs, Volume= 3.333 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
8.960	70	
8.960		Pervious Area

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

Subcatchment s11:

Runoff = 21.55 cfs @ 12.28 hrs, Volume= 2.342 af, Depth= 5.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
4.702	83	
4.702		Pervious Area

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

Subcatchment s12:

Runoff = 9.62 cfs @ 12.64 hrs, Volume= 1.489 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
6.420	55	
6.420		Pervious Area

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

Subcatchment s13:

Runoff = 1.00 cfs @ 12.13 hrs, Volume= 0.081 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.350	55	
0.350		Pervious Area

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

Subcatchment s14:

Runoff = 62.33 cfs @ 12.39 hrs, Volume= 7.599 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
20.964	69	
20.964		Pervious Area

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

Subcatchment s15:

Runoff = 2.16 cfs @ 12.20 hrs, Volume= 0.210 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
1.068	51	
1.068		Pervious Area

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

Subcatchment s16:

Runoff = 256.43 cfs @ 12.31 hrs, Volume= 28.264 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
75.974	70	
75.974		Pervious Area

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

Subcatchment s17:

Runoff = 131.30 cfs @ 13.77 hrs, Volume= 38.737 af, Depth> 4.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
115.992	66	
115.992		Pervious Area

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

Subcatchment s18:

Runoff = 69.20 cfs @ 12.34 hrs, Volume= 7.942 af, Depth= 4.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
23.126	67	
23.126		Pervious Area

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

Subcatchment s19:

Runoff = 29.12 cfs @ 12.58 hrs, Volume= 4.311 af, Depth= 3.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
15.520	60	
15.520		Pervious Area

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

Subcatchment s20:

Runoff = 60.76 cfs @ 12.47 hrs, Volume= 8.068 af, Depth= 4.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
20.623	72	
20.623		Pervious Area

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

Subcatchment s21:

Runoff = 347.13 cfs @ 12.37 hrs, Volume= 41.324 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
108.291	71	
108.291		Pervious Area

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

Subcatchment s22:

Runoff = 232.97 cfs @ 12.42 hrs, Volume= 29.876 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
82.423	69	
82.423		Pervious Area

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

Subcatchment s23:

Runoff = 103.46 cfs @ 12.64 hrs, Volume= 16.269 af, Depth= 4.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
41.587	72	
41.587		Pervious Area

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

Subcatchment s24:

Runoff = 82.83 cfs @ 12.44 hrs, Volume= 10.538 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
28.325	70	
28.325		Pervious Area

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

Subcatchment s25:

Runoff = 42.68 cfs @ 12.28 hrs, Volume= 4.529 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
13.562	66	
13.562		Pervious Area

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

Subcatchment s26:

Runoff = 9.65 cfs @ 12.46 hrs, Volume= 1.279 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
5.306	56	
5.306		Pervious Area

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

Subcatchment s27:

Runoff = 66.38 cfs @ 12.65 hrs, Volume= 10.651 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
31.894	66	
31.894		Pervious Area

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

Subcatchment s28:

Runoff = 30.67 cfs @ 12.13 hrs, Volume= 2.433 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
6.893	68	
6.893		Pervious Area

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

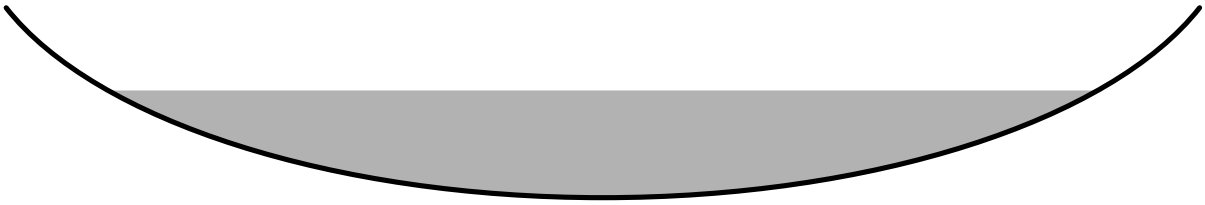
Reach r03:

Inflow Area = 11.485 ac, Inflow Depth = 4.24" for 100-yr event
Inflow = 27.15 cfs @ 12.60 hrs, Volume= 4.054 af
Outflow = 27.05 cfs @ 12.62 hrs, Volume= 4.054 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.39 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 2.36 fps, Avg. Travel Time= 5.5 min

Peak Storage= 3,324 cf @ 12.62 hrs, Average Depth at Peak Storage= 0.85'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 92.14 cfs

10.00' x 1.50' deep Parabolic Channel, n= 0.060
Length= 785.0' Slope= 0.1490 '/'
Inlet Invert= 845.00', Outlet Invert= 728.00'



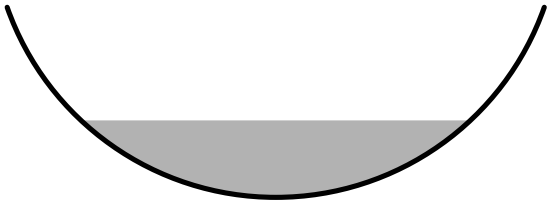
Reach r04:

Inflow Area = 26.659 ac, Inflow Depth = 4.30" for 100-yr event
Inflow = 67.55 cfs @ 12.47 hrs, Volume= 9.554 af
Outflow = 67.46 cfs @ 12.49 hrs, Volume= 9.554 af, Atten= 0%, Lag= 1.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.22 fps, Min. Travel Time= 1.4 min
Avg. Velocity = 3.03 fps, Avg. Travel Time= 3.7 min

Peak Storage= 5,536 cf @ 12.49 hrs, Average Depth at Peak Storage= 1.61'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 446.15 cfs

12.00' x 4.00' deep Parabolic Channel, n= 0.060
Length= 675.0' Slope= 0.1148 '/'
Inlet Invert= 685.50', Outlet Invert= 608.00'



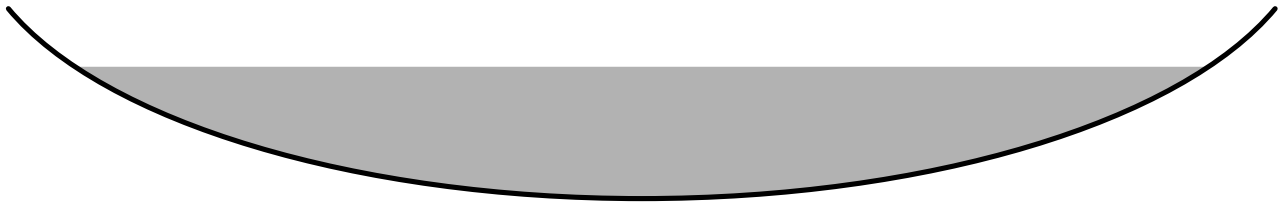
Reach r08a:

Inflow Area = 97.712 ac, Inflow Depth = 2.39" for 100-yr event
Inflow = 37.19 cfs @ 12.87 hrs, Volume= 19.470 af
Outflow = 37.19 cfs @ 12.87 hrs, Volume= 19.470 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.67 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.95 fps, Avg. Travel Time= 0.6 min

Peak Storage= 869 cf @ 12.87 hrs, Average Depth at Peak Storage= 0.69'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 81.88 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.027
Length= 226.0' Slope= 0.0885 '/'
Inlet Invert= 607.00', Outlet Invert= 587.00'



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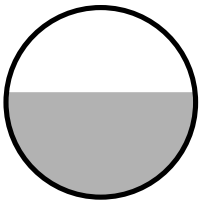
Reach r08b:

Inflow Area = 103.018 ac, Inflow Depth = 2.42" for 100-yr event
Inflow = 45.63 cfs @ 12.53 hrs, Volume= 20.749 af
Outflow = 45.63 cfs @ 12.53 hrs, Volume= 20.749 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 25.59 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 15.76 fps, Avg. Travel Time= 0.3 min

Peak Storage= 526 cf @ 12.53 hrs, Average Depth at Peak Storage= 1.11'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 77.17 cfs

24.0" Diameter Pipe, n= 0.012
Length= 295.0' Slope= 0.0992 '/'
Inlet Invert= 587.00', Outlet Invert= 557.75'



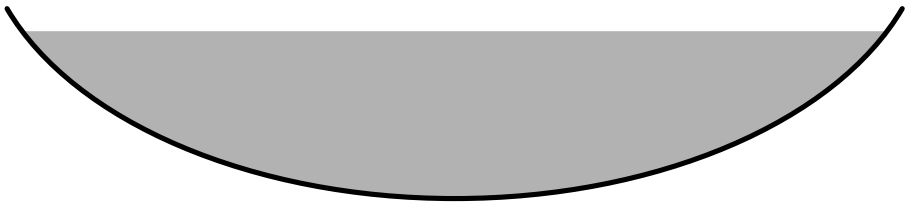
Reach r08c:

Inflow Area = 103.018 ac, Inflow Depth = 3.84" for 100-yr event
Inflow = 177.62 cfs @ 12.87 hrs, Volume= 32.989 af
Outflow = 177.58 cfs @ 12.87 hrs, Volume= 32.989 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 16.13 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 6.64 fps, Avg. Travel Time= 1.5 min

Peak Storage= 6,496 cf @ 12.87 hrs, Average Depth at Peak Storage= 1.76'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 232.56 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 590.0' Slope= 0.0775 '/'
Inlet Invert= 557.75', Outlet Invert= 512.00'



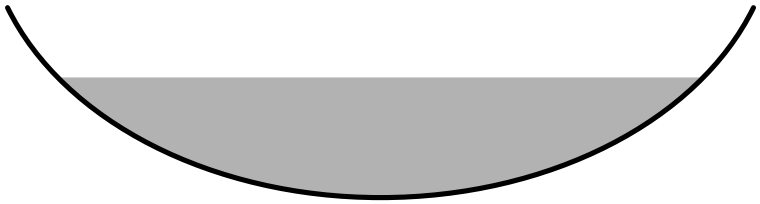
Reach r08d: Amenia Stream/Cascade Brook

Inflow Area = 103.018 ac, Inflow Depth > 15.40" for 100-yr event
Inflow = 217.58 cfs @ 12.87 hrs, Volume= 132.195 af, Incl. 40.00 cfs Base Flow
Outflow = 217.16 cfs @ 12.89 hrs, Volume= 131.913 af, Atten= 0%, Lag= 1.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.32 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 2.80 fps, Avg. Travel Time= 4.8 min

Peak Storage= 40,419 cf @ 12.89 hrs, Average Depth at Peak Storage= 3.79'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 571.01 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 805.0' Slope= 0.0099 '/'
Inlet Invert= 512.00', Outlet Invert= 504.00'



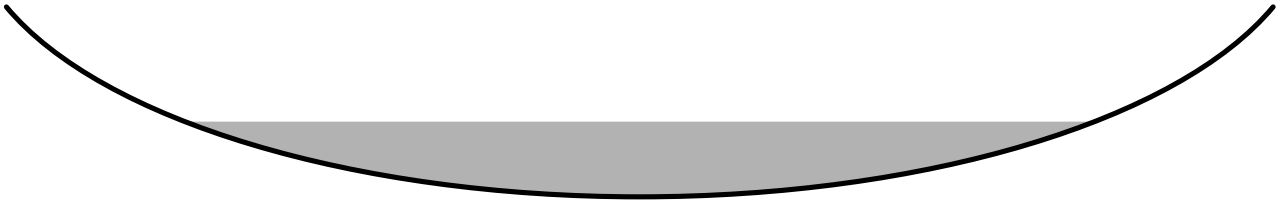
Reach r08e:

Inflow Area = 5.306 ac, Inflow Depth = 2.89" for 100-yr event
Inflow = 9.65 cfs @ 12.46 hrs, Volume= 1.279 af
Outflow = 9.65 cfs @ 12.47 hrs, Volume= 1.279 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.82 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 2.41 fps, Avg. Travel Time= 1.6 min

Peak Storage= 389 cf @ 12.47 hrs, Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 71.36 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.030 Earth, grassed & winding
Length= 235.0' Slope= 0.0830 '/'
Inlet Invert= 606.50', Outlet Invert= 587.00'



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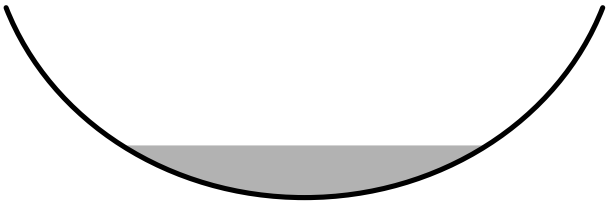
Reach r14a:

Inflow Area = 8.452 ac, Inflow Depth > 3.84" for 100-yr event
Inflow = 21.27 cfs @ 12.39 hrs, Volume= 2.703 af
Outflow = 21.26 cfs @ 12.40 hrs, Volume= 2.702 af, Atten= 0%, Lag= 0.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.45 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 2.67 fps, Avg. Travel Time= 2.2 min

Peak Storage= 1,027 cf @ 12.40 hrs, Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 325.42 cfs

10.00' x 3.00' deep Parabolic Channel, n= 0.027
Length= 360.0' Slope= 0.0444 '/'
Inlet Invert= 542.00', Outlet Invert= 526.00'



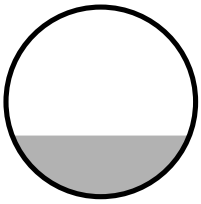
Reach r14b:

Inflow Area = 8.452 ac, Inflow Depth > 3.84" for 100-yr event
Inflow = 21.26 cfs @ 12.40 hrs, Volume= 2.702 af
Outflow = 21.26 cfs @ 12.40 hrs, Volume= 2.702 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 15.59 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 5.65 fps, Avg. Travel Time= 1.3 min

Peak Storage= 607 cf @ 12.40 hrs, Average Depth at Peak Storage= 0.80'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 94.91 cfs

30.0" Diameter Pipe, n= 0.012
Length= 445.0' Slope= 0.0456 '/'
Inlet Invert= 526.00', Outlet Invert= 505.70'



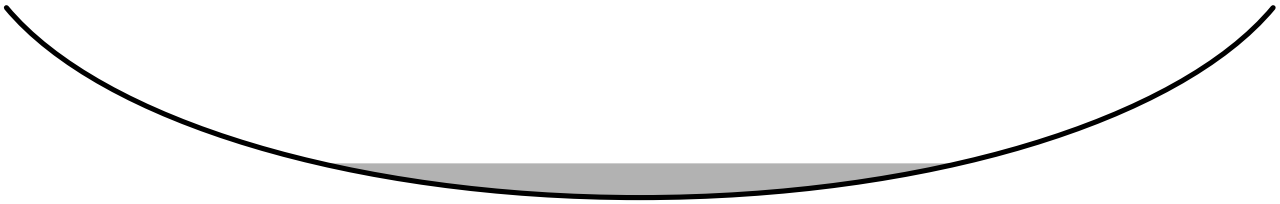
Reach r14c:

Inflow Area = 6.420 ac, Inflow Depth > 1.83" for 100-yr event
Inflow = 4.54 cfs @ 13.20 hrs, Volume= 0.980 af
Outflow = 4.33 cfs @ 13.30 hrs, Volume= 0.980 af, Atten= 5%, Lag= 5.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.70 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 0.83 fps, Avg. Travel Time= 11.5 min

Peak Storage= 1,461 cf @ 13.30 hrs, Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 178.07 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 575.0' Slope= 0.0800 '/'
Inlet Invert= 544.00', Outlet Invert= 498.00'



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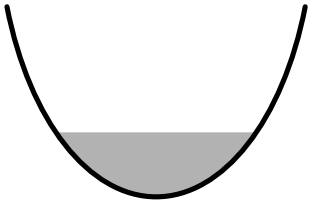
Reach r15:

Inflow Area = 4.702 ac, Inflow Depth = 5.98" for 100-yr event
Inflow = 21.47 cfs @ 12.29 hrs, Volume= 2.342 af
Outflow = 21.46 cfs @ 12.29 hrs, Volume= 2.342 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 10.87 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 4.03 fps, Avg. Travel Time= 1.2 min

Peak Storage= 573 cf @ 12.29 hrs, Average Depth at Peak Storage= 1.02'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 188.47 cfs

5.00' x 3.00' deep Parabolic Channel, n= 0.027
Length= 290.0' Slope= 0.0897 '/'
Inlet Invert= 554.00', Outlet Invert= 528.00'



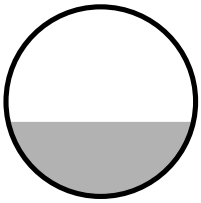
Reach r16:

Inflow Area = 4.702 ac, Inflow Depth = 5.98" for 100-yr event
Inflow = 21.55 cfs @ 12.28 hrs, Volume= 2.342 af
Outflow = 21.47 cfs @ 12.29 hrs, Volume= 2.342 af, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 12.02 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 4.33 fps, Avg. Travel Time= 3.3 min

Peak Storage= 1,536 cf @ 12.29 hrs, Average Depth at Peak Storage= 0.98'
Bank-Full Depth= 2.50', Capacity at Bank-Full= 66.05 cfs

30.0" Diameter Pipe, n= 0.012
Length= 860.0' Slope= 0.0221 '/'
Inlet Invert= 573.00', Outlet Invert= 554.00'



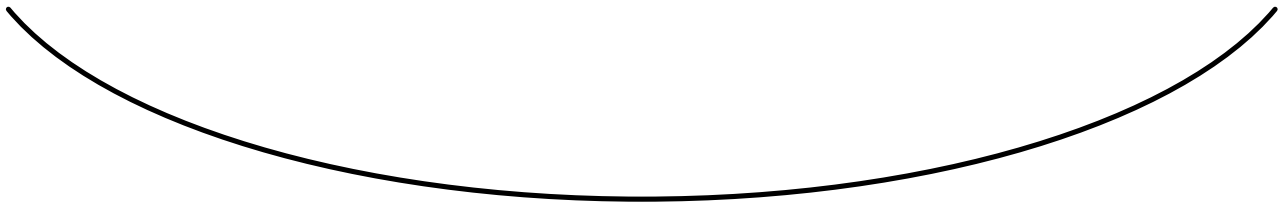
Reach r18a:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 379.63 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 1,220.0' Slope= 0.3636 '/'
Inlet Invert= 973.60', Outlet Invert= 530.00'



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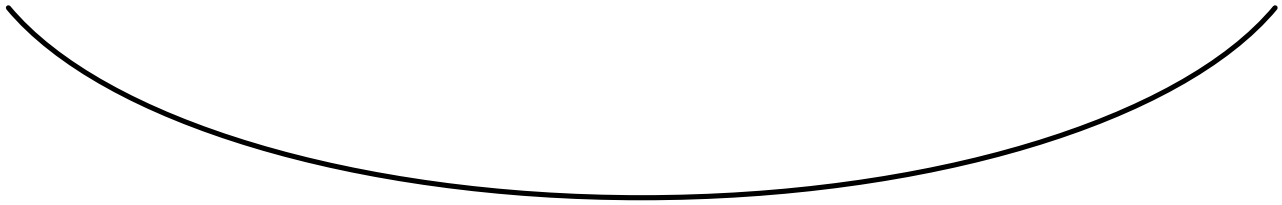
Reach r18b:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 151.94 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 285.0' Slope= 0.0582 '/'
Inlet Invert= 530.60', Outlet Invert= 514.00'



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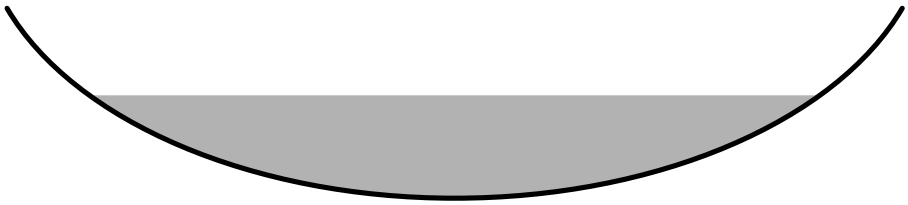
Reach r21a:

Inflow Area = 241.485 ac, Inflow Depth > 3.30" for 100-yr event
Inflow = 178.43 cfs @ 13.94 hrs, Volume= 66.324 af
Outflow = 178.41 cfs @ 13.96 hrs, Volume= 66.293 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.42 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 4.24 fps, Avg. Travel Time= 2.5 min

Peak Storage= 13,733 cf @ 13.96 hrs, Average Depth at Peak Storage= 2.16'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 658.74 cfs

20.00' x 4.00' deep Parabolic Channel, n= 0.027
Length= 648.0' Slope= 0.0154 '/'
Inlet Invert= 504.00', Outlet Invert= 494.00'



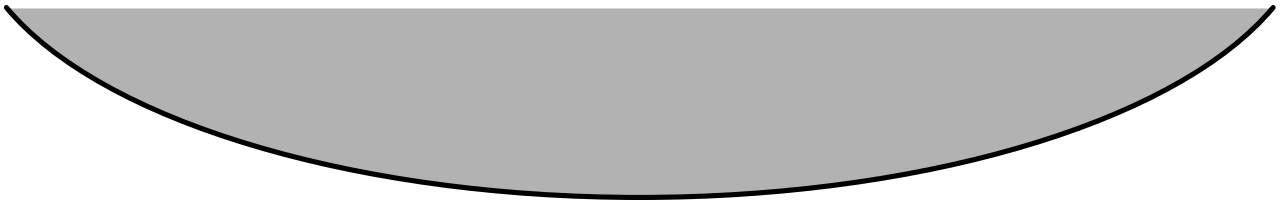
Reach r21b:

Inflow Area = 97.943 ac, Inflow Depth > 4.14" for 100-yr event
Inflow = 236.96 cfs @ 12.48 hrs, Volume= 33.828 af
Outflow = 236.95 cfs @ 12.49 hrs, Volume= 33.828 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 11.95 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 4.46 fps, Avg. Travel Time= 0.9 min

Peak Storage= 4,560 cf @ 12.49 hrs, Average Depth at Peak Storage= 1.99'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 239.90 cfs

15.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 230.0' Slope= 0.0343 '/'
Inlet Invert= 499.00', Outlet Invert= 491.10'



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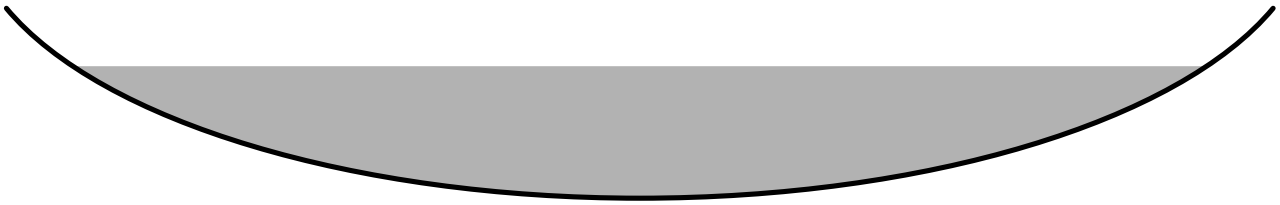
Reach r21c:

Inflow Area = 41.587 ac, Inflow Depth = 4.43" for 100-yr event
Inflow = 103.34 cfs @ 12.66 hrs, Volume= 15.351 af
Outflow = 103.33 cfs @ 12.66 hrs, Volume= 15.351 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.36 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 2.02 fps, Avg. Travel Time= 1.3 min

Peak Storage= 3,085 cf @ 12.66 hrs, Average Depth at Peak Storage= 0.69'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 227.81 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 160.0' Slope= 0.1309 '/'
Inlet Invert= 506.70', Outlet Invert= 485.75'



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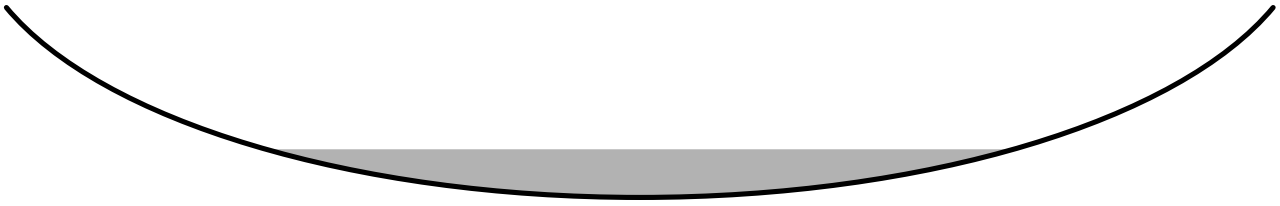
Reach r22a:

Inflow Area = 15.520 ac, Inflow Depth > 3.32" for 100-yr event
Inflow = 20.93 cfs @ 12.89 hrs, Volume= 4.296 af
Outflow = 20.85 cfs @ 12.93 hrs, Volume= 4.295 af, Atten= 0%, Lag= 2.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.92 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 2.09 fps, Avg. Travel Time= 7.8 min

Peak Storage= 4,114 cf @ 12.93 hrs, Average Depth at Peak Storage= 0.25'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 409.31 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 970.0' Slope= 0.4227 '/'
Inlet Invert= 970.00', Outlet Invert= 560.00'



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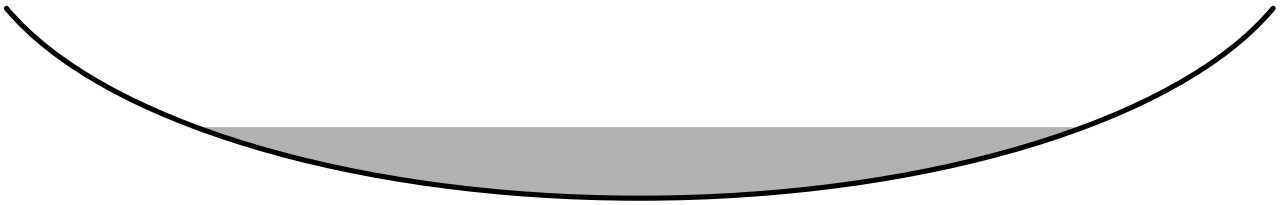
Reach r22b:

Inflow Area = 15.520 ac, Inflow Depth > 3.32" for 100-yr event
Inflow = 20.85 cfs @ 12.93 hrs, Volume= 4.295 af
Outflow = 20.73 cfs @ 12.98 hrs, Volume= 4.293 af, Atten= 1%, Lag= 2.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.73 fps, Min. Travel Time= 3.8 min
Avg. Velocity = 1.16 fps, Avg. Travel Time= 8.9 min

Peak Storage= 4,715 cf @ 12.98 hrs, Average Depth at Peak Storage= 0.37'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 175.17 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 620.0' Slope= 0.0774 '/'
Inlet Invert= 560.00', Outlet Invert= 512.00'



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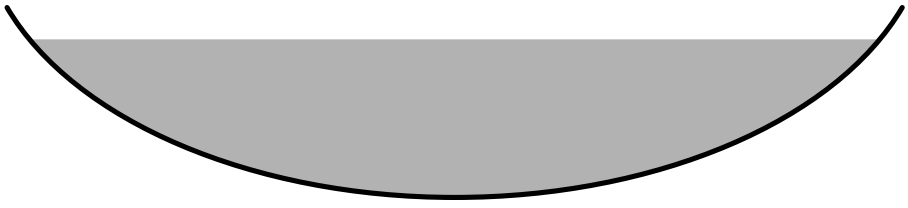
Reach r25a:

Inflow Area = 60.314 ac, Inflow Depth > 3.95" for 100-yr event
Inflow = 139.36 cfs @ 12.32 hrs, Volume= 19.829 af
Outflow = 139.12 cfs @ 12.33 hrs, Volume= 19.828 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 13.76 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 5.06 fps, Avg. Travel Time= 3.6 min

Peak Storage= 11,021 cf @ 12.33 hrs, Average Depth at Peak Storage= 1.66'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 205.50 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 1,090.0' Slope= 0.0606 '/'
Inlet Invert= 570.00', Outlet Invert= 504.00'



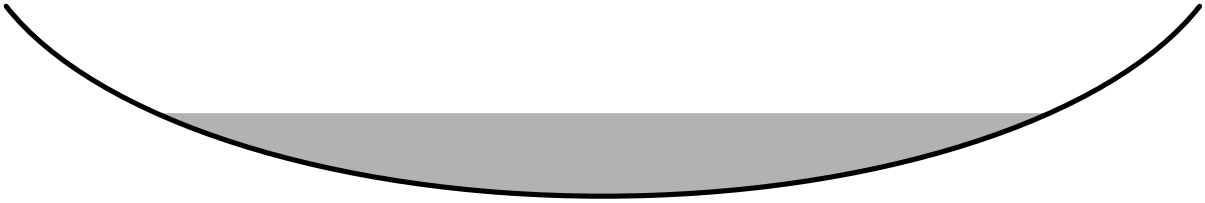
Reach r25b: Wetland Reach

Inflow Area = 9.435 ac, Inflow Depth > 3.68" for 100-yr event
Inflow = 28.43 cfs @ 12.30 hrs, Volume= 2.892 af
Outflow = 26.48 cfs @ 12.37 hrs, Volume= 2.888 af, Atten= 7%, Lag= 4.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.30 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 0.78 fps, Avg. Travel Time= 16.0 min

Peak Storage= 8,645 cf @ 12.37 hrs, Average Depth at Peak Storage= 1.31'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 156.51 cfs

20.00' x 3.00' deep Parabolic Channel, n= 0.045
Length= 750.0' Slope= 0.0060 '/'
Inlet Invert= 504.00', Outlet Invert= 499.50'



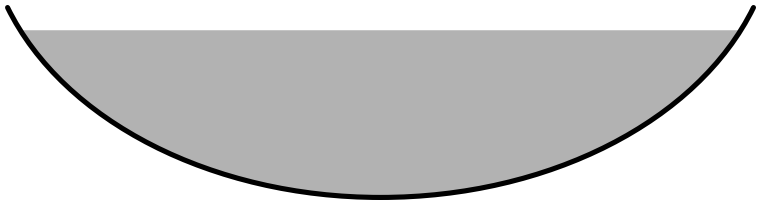
Reach r25c: Amenia Stream/Cascade Brook

Inflow Area = 134.737 ac, Inflow Depth > 21.32" for 100-yr event
Inflow = 281.59 cfs @ 12.80 hrs, Volume= 239.346 af, Incl. 40.00 cfs Base Flow
Outflow = 280.57 cfs @ 12.86 hrs, Volume= 238.588 af, Atten= 0%, Lag= 3.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.40 fps, Min. Travel Time= 4.8 min
Avg. Velocity = 2.47 fps, Avg. Travel Time= 6.6 min

Peak Storage= 80,480 cf @ 12.86 hrs, Average Depth at Peak Storage= 5.28'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 366.88 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 975.0' Slope= 0.0041 '/'
Inlet Invert= 504.00', Outlet Invert= 500.00'



Pond 8P:

Inflow Area = 52.997 ac, Inflow Depth = 3.96" for 100-yr event
Inflow = 117.80 cfs @ 12.33 hrs, Volume= 17.475 af
Outflow = 117.80 cfs @ 12.33 hrs, Volume= 17.475 af, Atten= 0%, Lag= 0.0 min
Primary = 117.80 cfs @ 12.33 hrs, Volume= 17.475 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 575.79' @ 12.33 hrs
Flood Elev= 574.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	574.70'	**177.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=117.80 cfs @ 12.33 hrs HW=575.79' TW=571.66' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 117.80 cfs @ 2.57 fps)

Pond p04:

Inflow Area = 38.062 ac, Inflow Depth = 4.18" for 100-yr event
Inflow = 83.24 cfs @ 12.42 hrs, Volume= 13.254 af
Outflow = 83.21 cfs @ 12.43 hrs, Volume= 13.188 af, Atten= 0%, Lag= 0.6 min
Primary = 83.21 cfs @ 12.43 hrs, Volume= 13.188 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 606.11' @ 12.43 hrs Surf.Area= 7,242 sf Storage= 5,294 cf
Flood Elev= 605.50' Surf.Area= 4,803 sf Storage= 2,882 cf

Plug-Flow detention time= 5.4 min calculated for 13.188 af (99% of inflow)
Center-of-Mass det. time= 2.3 min (854.3 - 852.0)

Volume	Invert	Avail.Storage	Storage Description
#1	604.20'	26,897 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
604.20	0	0	0	0
606.00	6,650	3,990	3,990	6,655
608.00	17,060	22,907	26,897	17,092

Device	Routing	Invert	Outlet Devices
#1	Primary	605.50'	**179.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=83.21 cfs @ 12.43 hrs HW=606.11' TW=575.78' (Dynamic Tailwater)
↑—**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 83.21 cfs @ 1.93 fps)

Pond p06:

Inflow Area = 9.435 ac, Inflow Depth = 3.78" for 100-yr event
Inflow = 29.72 cfs @ 12.24 hrs, Volume= 2.973 af
Outflow = 28.43 cfs @ 12.30 hrs, Volume= 2.892 af, Atten= 4%, Lag= 3.1 min
Primary = 28.43 cfs @ 12.30 hrs, Volume= 2.892 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 18,600 sf Storage= 42,160 cf
Peak Elev= 507.61' @ 12.30 hrs Surf.Area= 22,286 sf Storage= 59,475 cf (17,315 cf above start)
Flood Elev= 507.10' Surf.Area= 19,958 sf Storage= 48,537 cf (6,377 cf above start)

Plug-Flow detention time= 231.5 min calculated for 1.924 af (65% of inflow)
Center-of-Mass det. time= 45.8 min (893.8 - 847.9)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	67,669 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	18,600	42,160	42,160	18,672
508.00	24,030	25,509	67,669	24,138

Device	Routing	Invert	Outlet Devices
#1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=28.42 cfs @ 12.30 hrs HW=507.61' TW=505.25' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 1.66 cfs @ 2.43 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 26.76 cfs @ 1.76 fps)

Pond p07:

Inflow Area = 7.317 ac, Inflow Depth = 4.01" for 100-yr event
Inflow = 26.69 cfs @ 12.19 hrs, Volume= 2.444 af
Outflow = 21.75 cfs @ 12.30 hrs, Volume= 2.355 af, Atten= 19%, Lag= 6.5 min
Primary = 21.75 cfs @ 12.30 hrs, Volume= 2.355 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.89' @ 12.30 hrs Surf.Area= 26,774 sf Storage= 82,880 cf (26,616 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)

Plug-Flow detention time= 416.5 min calculated for 1.063 af (43% of inflow)
Center-of-Mass det. time= 91.8 min (932.3 - 840.5)

Volume	Invert	Avail.Storage	Storage Description
#1	565.00'	85,557 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424

Device	Routing	Invert	Outlet Devices
#1	Primary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=21.74 cfs @ 12.30 hrs HW=573.89' TW=571.66' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.86 cfs @ 2.81 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 17.88 cfs @ 1.54 fps)

Pond p09:

Inflow Area = 8.452 ac, Inflow Depth = 3.89" for 100-yr event
Inflow = 28.08 cfs @ 12.23 hrs, Volume= 2.743 af
Outflow = 21.27 cfs @ 12.39 hrs, Volume= 2.703 af, Atten= 24%, Lag= 9.4 min
Primary = 21.27 cfs @ 12.39 hrs, Volume= 2.703 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 551.05' @ 12.39 hrs Surf.Area= 8,154 sf Storage= 14,482 cf
Flood Elev= 551.20' Surf.Area= 8,534 sf Storage= 15,673 cf

Plug-Flow detention time= 25.5 min calculated for 2.702 af (98% of inflow)
Center-of-Mass det. time= 16.9 min (861.9 - 845.0)

Volume	Invert	Avail.Storage	Storage Description
#1	547.50'	21,989 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
547.50	0	0	0	0
548.00	1,080	180	180	1,080
550.00	5,510	6,020	6,200	5,527
552.00	10,550	15,790	21,989	10,606

Device	Routing	Invert	Outlet Devices
#1	Primary	548.50'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 542.00' S= 0.0929 '/' Cc= 0.900 n= 0.012
#2	Primary	551.20'	**168.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=21.27 cfs @ 12.39 hrs HW=551.05' TW=542.82' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 21.27 cfs @ 4.33 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p10:

Inflow Area = 45.146 ac, Inflow Depth > 1.70" for 100-yr event
Inflow = 27.40 cfs @ 12.38 hrs, Volume= 6.406 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 36,110 sf Storage= 101,108 cf
Peak Elev= 503.80' @ 30.00 hrs Surf.Area= 76,290 sf Storage= 380,162 cf (279,054 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	581,029 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	36,110	101,108	101,108	36,221
500.00	42,400	62,741	163,849	42,610
502.00	54,880	97,012	260,861	55,187
504.00	78,730	132,895	393,755	79,107
506.00	109,382	187,274	581,029	109,836

Pond p12:

Inflow Area = 6.420 ac, Inflow Depth = 2.78" for 100-yr event
Inflow = 9.62 cfs @ 12.64 hrs, Volume= 1.489 af
Outflow = 4.54 cfs @ 13.20 hrs, Volume= 0.980 af, Atten= 53%, Lag= 34.1 min
Primary = 4.54 cfs @ 13.20 hrs, Volume= 0.980 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 547.92' @ 13.20 hrs Surf.Area= 16,239 sf Storage= 26,126 cf
Flood Elev= 547.50' Surf.Area= 13,848 sf Storage= 21,762 cf

Plug-Flow detention time= 216.2 min calculated for 0.980 af (66% of inflow)
Center-of-Mass det. time= 105.6 min (996.6 - 891.1)

Volume	Invert	Avail.Storage	Storage Description
#1	543.50'	26,986 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
543.50	0	0	0	0
544.00	1,140	190	190	1,140
546.00	5,260	5,899	6,089	5,278
548.00	16,710	20,897	26,986	16,750

Device	Routing	Invert	Outlet Devices
#1	Primary	547.50'	**173.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=4.54 cfs @ 13.20 hrs HW=547.92' TW=544.17' (Dynamic Tailwater)
↳**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 4.54 cfs @ 1.59 fps)

Pond p13:

Inflow Area = 0.350 ac, Inflow Depth = 2.78" for 100-yr event
Inflow = 1.00 cfs @ 12.13 hrs, Volume= 0.081 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 515.03' @ 24.49 hrs Surf.Area= 1,782 sf Storage= 3,537 cf
Flood Elev= 519.50' Surf.Area= 4,313 sf Storage= 16,523 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	511.40'	18,490 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
511.40	0	0	0	0
512.00	390	78	78	391
514.00	1,360	1,652	1,730	1,381
516.00	2,180	3,508	5,238	2,253
518.00	3,240	5,385	10,623	3,375
520.00	4,670	7,867	18,490	4,872

Device	Routing	Invert	Outlet Devices
#1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=511.40' TW=497.40' (Dynamic Tailwater)
↳**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p14:

Inflow Area = 36.186 ac, Inflow Depth > 3.74" for 100-yr event
Inflow = 83.58 cfs @ 12.40 hrs, Volume= 11.281 af
Outflow = 8.04 cfs @ 15.63 hrs, Volume= 3.073 af, Atten= 90%, Lag= 194.0 min
Primary = 8.04 cfs @ 15.63 hrs, Volume= 3.073 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 22,200 sf Storage= 54,760 cf
Peak Elev= 503.80' @ 30.00 hrs Surf.Area= 82,974 sf Storage= 412,311 cf (357,551 cf above start)

Plug-Flow detention time= 375.4 min calculated for 1.815 af (16% of inflow)
Center-of-Mass det. time= 127.9 min (992.9 - 865.1)

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	805,062 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	22,200	54,760	54,760	22,286
498.00	25,330	14,249	69,009	25,433
500.00	52,810	76,476	145,485	52,948
502.00	73,360	125,608	271,093	73,574
504.00	84,070	157,308	428,402	84,467
506.00	92,130	176,139	604,540	92,797
508.00	108,618	200,522	805,062	109,437

Device	Routing	Invert	Outlet Devices
#1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=8.04 cfs @ 15.63 hrs HW=503.27' TW=502.17' (Dynamic Tailwater)
1=Culvert (Inlet Controls 8.04 cfs @ 3.83 fps)

Pond p15:

Inflow Area = 5.770 ac, Inflow Depth = 5.31" for 100-yr event
Inflow = 23.31 cfs @ 12.29 hrs, Volume= 2.552 af
Outflow = 23.29 cfs @ 12.29 hrs, Volume= 2.296 af, Atten= 0%, Lag= 0.5 min
Primary = 23.29 cfs @ 12.29 hrs, Volume= 2.296 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 536.27' @ 12.29 hrs Surf.Area= 3,319 sf Storage= 12,148 cf
Flood Elev= 536.00' Surf.Area= 3,160 sf Storage= 11,127 cf

Plug-Flow detention time= 76.1 min calculated for 2.296 af (90% of inflow)
Center-of-Mass det. time= 27.1 min (844.3 - 817.2)

Volume	Invert	Avail.Storage	Storage Description
#1	526.80'	18,577 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
526.80	0	0	0	0
528.00	310	124	124	312
530.00	660	948	1,072	694
532.00	1,180	1,815	2,887	1,256
534.00	1,990	3,135	6,022	2,113
536.00	3,160	5,105	11,127	3,337
538.00	4,320	7,450	18,577	4,575

Device	Routing	Invert	Outlet Devices
#1	Primary	536.00'	**171.0 deg x 50.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=23.28 cfs @ 12.29 hrs HW=536.27' TW=509.31' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 23.28 cfs @ 1.59 fps)

Pond p16:

Inflow Area = 220.862 ac, Inflow Depth > 4.19" for 100-yr event
Inflow = 357.91 cfs @ 12.32 hrs, Volume= 77.121 af
Outflow = 169.76 cfs @ 13.90 hrs, Volume= 60.026 af, Atten= 53%, Lag= 94.8 min
Primary = 169.76 cfs @ 13.90 hrs, Volume= 60.026 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.65' @ 13.90 hrs Surf.Area= 322,582 sf Storage= 1,960,255 cf (1,081,936 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)

Plug-Flow detention time= 349.2 min calculated for 39.850 af (52% of inflow)
Center-of-Mass det. time= 110.7 min (1,017.3 - 906.6)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

Device	Routing	Invert	Outlet Devices
#1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' Cc= 0.900 n= 0.024
#2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' Cc= 0.900 n= 0.013
#3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=169.76 cfs @ 13.90 hrs HW=511.65' TW=506.61' (Dynamic Tailwater)
├**1=Culvert** (Inlet Controls 9.26 cfs @ 5.24 fps)
├**2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
└**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 160.49 cfs @ 2.64 fps)

Pond p17:

Inflow Area = 115.992 ac, Inflow Depth > 4.01" for 100-yr event
Inflow = 131.30 cfs @ 13.77 hrs, Volume= 38.737 af
Outflow = 131.26 cfs @ 13.77 hrs, Volume= 38.727 af, Atten= 0%, Lag= 0.2 min
Primary = 131.26 cfs @ 13.77 hrs, Volume= 38.727 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.71' @ 13.77 hrs Surf.Area= 11,720 sf Storage= 27,423 cf (18,189 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)

Plug-Flow detention time= 12.1 min calculated for 38.515 af (99% of inflow)
Center-of-Mass det. time= 6.6 min (950.6 - 944.0)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	30,224 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

Device	Routing	Invert	Outlet Devices
#1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=131.26 cfs @ 13.77 hrs HW=525.71' TW=516.35' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 19.33 cfs @ 4.59 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 17.52 cfs @ 2.94 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 94.40 cfs @ 2.06 fps)

Pond p18:

Inflow Area = 139.118 ac, Inflow Depth > 4.03" for 100-yr event
Inflow = 140.38 cfs @ 13.76 hrs, Volume= 46.670 af
Outflow = 140.34 cfs @ 13.77 hrs, Volume= 46.560 af, Atten= 0%, Lag= 1.0 min
Primary = 140.34 cfs @ 13.77 hrs, Volume= 46.560 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.35' @ 13.77 hrs Surf.Area= 30,832 sf Storage= 90,130 cf (63,246 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)

Plug-Flow detention time= 30.5 min calculated for 45.943 af (98% of inflow)
Center-of-Mass det. time= 17.0 min (950.2 - 933.2)

Volume	Invert	Avail.Storage	Storage Description
#1	510.00'	148,288 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

Device	Routing	Invert	Outlet Devices
#1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=140.33 cfs @ 13.77 hrs HW=516.35' TW=511.65' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 25.48 cfs @ 5.20 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 21.77 cfs @ 3.07 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 93.08 cfs @ 2.68 fps)

Pond p19:

Inflow Area = 15.520 ac, Inflow Depth = 3.33" for 100-yr event
Inflow = 29.12 cfs @ 12.58 hrs, Volume= 4.311 af
Outflow = 20.93 cfs @ 12.89 hrs, Volume= 4.296 af, Atten= 28%, Lag= 19.1 min
Primary = 20.93 cfs @ 12.89 hrs, Volume= 4.296 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.35' @ 12.89 hrs Surf.Area= 95,668 sf Storage= 96,690 cf (39,356 cf above start)

Plug-Flow detention time= 222.7 min calculated for 2.979 af (69% of inflow)
Center-of-Mass det. time= 49.0 min (927.0 - 878.0)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

Device	Routing	Invert	Outlet Devices
#1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
#2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=20.93 cfs @ 12.89 hrs HW=972.35' TW=970.25' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 20.93 cfs @ 1.71 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20:

Inflow Area = 241.485 ac, Inflow Depth > 3.38" for 100-yr event
Inflow = 178.89 cfs @ 13.88 hrs, Volume= 68.094 af
Outflow = 178.43 cfs @ 13.94 hrs, Volume= 66.324 af, Atten= 0%, Lag= 4.0 min
Primary = 178.43 cfs @ 13.94 hrs, Volume= 66.324 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.61' @ 13.95 hrs Surf.Area= 92,418 sf Storage= 276,855 cf (138,331 cf above start)

Plug-Flow detention time= 73.9 min calculated for 63.144 af (93% of inflow)
Center-of-Mass det. time= 15.7 min (1,012.8 - 997.1)

Volume	Invert	Avail.Storage	Storage Description
#1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

Device	Routing	Invert	Outlet Devices
#1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=178.42 cfs @ 13.94 hrs HW=506.61' TW=506.16' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 11.94 cfs @ 2.63 fps)
├─**2=Broad-Crested Rectangular Weir** (Weir Controls 4.57 cfs @ 1.70 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 161.91 cfs @ 2.30 fps)

Pond p21:

Inflow Area = 489.306 ac, Inflow Depth > 3.85" for 100-yr event
Inflow = 666.01 cfs @ 12.48 hrs, Volume= 156.795 af
Outflow = 42.70 cfs @ 21.88 hrs, Volume= 60.450 af, Atten= 94%, Lag= 563.8 min
Primary = 42.70 cfs @ 21.88 hrs, Volume= 60.450 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 487.73' @ 21.88 hrs Surf.Area= 1,468,681 sf Storage= 4,866,697 cf

Plug-Flow detention time= 524.7 min calculated for 60.450 af (39% of inflow)
Center-of-Mass det. time= 350.3 min (1,274.4 - 924.1)

Volume	Invert	Avail.Storage	Storage Description
#1	480.40'	5,244,885 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423

Device	Routing	Invert	Outlet Devices
#1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' Cc= 0.900 n= 0.024

Primary OutFlow Max=42.70 cfs @ 21.88 hrs HW=487.73' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 42.70 cfs @ 8.70 fps)

Pond p22:

Inflow Area = 97.943 ac, Inflow Depth > 4.19" for 100-yr event
Inflow = 238.24 cfs @ 12.45 hrs, Volume= 34.169 af
Outflow = 236.96 cfs @ 12.48 hrs, Volume= 33.828 af, Atten= 1%, Lag= 2.0 min
Primary = 236.96 cfs @ 12.48 hrs, Volume= 33.828 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 503.12' @ 12.48 hrs Surf.Area= 13,214 sf Storage= 58,818 cf (48,712 cf above start)

Plug-Flow detention time= 20.9 min calculated for 33.596 af (98% of inflow)
Center-of-Mass det. time= 8.8 min (870.1 - 861.3)

Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

Device	Routing	Invert	Outlet Devices
#1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' Cc= 0.900 n= 0.024
#2	Primary	500.50'	**1.0' long x 15.0' 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
#3	Primary	500.50'	**20.0' long x 13.5' 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) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=236.92 cfs @ 12.48 hrs HW=503.12' TW=500.99' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 9.81 cfs @ 5.55 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 10.81 cfs @ 4.12 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 216.30 cfs @ 4.12 fps)

Pond p23:

Inflow Area = 41.587 ac, Inflow Depth = 4.69" for 100-yr event
Inflow = 103.46 cfs @ 12.64 hrs, Volume= 16.269 af
Outflow = 103.34 cfs @ 12.66 hrs, Volume= 15.351 af, Atten= 0%, Lag= 0.9 min
Primary = 103.34 cfs @ 12.66 hrs, Volume= 15.351 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 508.01' @ 12.66 hrs Surf.Area= 19,565 sf Storage= 44,942 cf

Plug-Flow detention time= 45.1 min calculated for 15.346 af (94% of inflow)
Center-of-Mass det. time= 14.6 min (873.2 - 858.6)

Volume	Invert	Avail.Storage	Storage Description
#1	503.50'	100,303 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
503.50	0	0	0
506.00	11,170	13,963	13,963
508.00	19,460	30,630	44,593
510.00	36,250	55,710	100,303

Device	Routing	Invert	Outlet Devices
#1	Primary	507.70'	**178.0 deg x 178.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=103.33 cfs @ 12.66 hrs HW=508.01' TW=507.39' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 103.33 cfs @ 1.69 fps)

Pond zDP1: Design Point 1

Inflow Area = 26.659 ac, Inflow Depth = 4.30" for 100-yr event
Inflow = 67.55 cfs @ 12.47 hrs, Volume= 9.554 af
Outflow = 67.55 cfs @ 12.47 hrs, Volume= 9.554 af, Atten= 0%, Lag= 0.1 min
Primary = 67.55 cfs @ 12.47 hrs, Volume= 9.554 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 723.98' @ 12.47 hrs Surf.Area= 337 sf Storage= 455 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf

Plug-Flow detention time= 0.1 min calculated for 9.554 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (856.0 - 855.9)

Volume	Invert	Avail.Storage	Storage Description
#1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

Device	Routing	Invert	Outlet Devices
#1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' Cc= 0.900 n= 0.024
#2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=67.54 cfs @ 12.47 hrs HW=723.98' TW=687.11' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 67.54 cfs @ 7.02 fps)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Inflow Area = 97.712 ac, Inflow Depth = 3.89" for 100-yr event
Inflow = 172.31 cfs @ 12.87 hrs, Volume= 31.709 af
Outflow = 172.26 cfs @ 12.87 hrs, Volume= 31.709 af, Atten= 0%, Lag= 0.1 min
Primary = 37.19 cfs @ 12.87 hrs, Volume= 19.470 af
Secondary = 135.06 cfs @ 12.87 hrs, Volume= 12.240 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 626.65' @ 12.87 hrs Surf.Area= 1,794 sf Storage= 4,610 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf

Plug-Flow detention time= 0.5 min calculated for 31.699 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (887.2 - 886.6)

Volume	Invert	Avail.Storage	Storage Description
#1	619.60'	7,280 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

Device	Routing	Invert	Outlet Devices
#1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' Cc= 0.900 n= 0.012
#2	Secondary	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=37.19 cfs @ 12.87 hrs HW=626.65' TW=607.69' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 37.19 cfs @ 11.84 fps)

Secondary OutFlow Max=135.06 cfs @ 12.87 hrs HW=626.65' TW=559.51' (Dynamic Tailwater)
↑—**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 135.06 cfs @ 3.60 fps)

Pond zDP3: Design Point 3

Inflow Area = 218.048 ac, Inflow Depth > 14.63" for 100-yr event
Inflow = 422.23 cfs @ 12.44 hrs, Volume= 265.832 af
Primary = 422.23 cfs @ 12.44 hrs, Volume= 265.832 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 489.306 ac, Inflow Depth > 1.48" for 100-yr event
Inflow = 42.70 cfs @ 21.88 hrs, Volume= 60.450 af
Primary = 42.70 cfs @ 21.88 hrs, Volume= 60.450 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 4.46" for 100-yr event
Inflow = 82.83 cfs @ 12.44 hrs, Volume= 10.538 af
Primary = 82.83 cfs @ 12.44 hrs, Volume= 10.538 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP6: Design Point 6

Inflow Area = 5.306 ac, Inflow Depth = 2.89" for 100-yr event
Inflow = 9.65 cfs @ 12.46 hrs, Volume= 1.279 af
Outflow = 9.65 cfs @ 12.46 hrs, Volume= 1.279 af, Atten= 0%, Lag= 0.0 min
Primary = 9.65 cfs @ 12.46 hrs, Volume= 1.279 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 610.25' @ 12.46 hrs
Flood Elev= 612.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.90'	**36.0" x 43.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 606.90' S= 0.0465 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=9.65 cfs @ 12.46 hrs HW=610.25' TW=606.90' (Dynamic Tailwater)
1=Culvert (Inlet Controls 9.65 cfs @ 3.12 fps)

Pond zDP7: Design Point 7

Inflow Area = 31.894 ac, Inflow Depth = 4.01" for 100-yr event
Inflow = 66.38 cfs @ 12.65 hrs, Volume= 10.651 af
Primary = 66.38 cfs @ 12.65 hrs, Volume= 10.651 af, Atten= 0%, Lag= 0.0 min

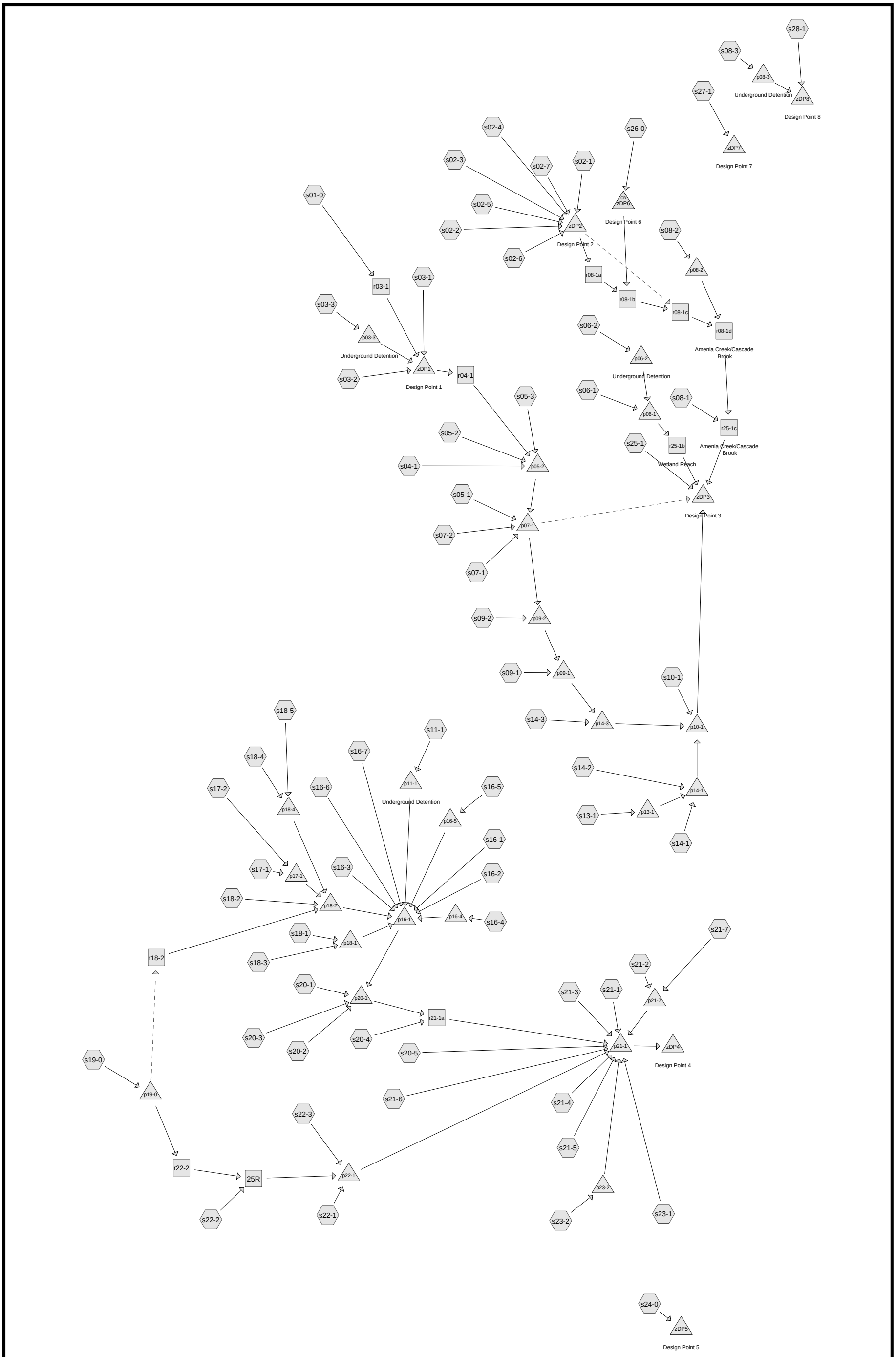
Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Pond zDP8: Design Point 8

Inflow Area = 6.893 ac, Inflow Depth = 4.24" for 100-yr event
Inflow = 30.67 cfs @ 12.13 hrs, Volume= 2.433 af
Primary = 30.67 cfs @ 12.13 hrs, Volume= 2.433 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Appendix K: Post-Development Watershed Conditions Modeling



Drainage Diagram for Proposed Conditions_10454-01

Prepared by The Chazen Companies 6/15/2007

Subcatchment s01-0:

Runoff = 2.69 cfs @ 12.70 hrs, Volume= 0.504 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
11.485	68	
11.485		Pervious Area

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

Subcatchment s02-1:

Runoff = 12.64 cfs @ 13.01 hrs, Volume= 3.246 af, Depth= 0.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
93.258	65	
93.258		Pervious Area

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

Subcatchment s02-2:

Runoff = 4.53 cfs @ 12.03 hrs, Volume= 0.289 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
1.605	94	
1.605		Pervious Area

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

Subcatchment s02-3:

Runoff = 1.41 cfs @ 12.02 hrs, Volume= 0.084 af, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.587	89	
0.587		Pervious Area

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

Subcatchment s02-4:

Runoff = 1.39 cfs @ 12.02 hrs, Volume= 0.086 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.479	94	
0.479		Pervious Area

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

Subcatchment s02-5:

Runoff = 2.67 cfs @ 12.03 hrs, Volume= 0.170 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.947	94	
0.947		Pervious Area

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

Subcatchment s02-6:

Runoff = 0.61 cfs @ 12.02 hrs, Volume= 0.038 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.209	94	
0.209		Pervious Area

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

Subcatchment s02-7:

Runoff = 2.50 cfs @ 12.03 hrs, Volume= 0.159 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.884	94	
0.884		Pervious Area

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

Subcatchment s03-1:

Runoff = 1.32 cfs @ 12.42 hrs, Volume= 0.188 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
3.988	69	
3.988		Pervious Area

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

Subcatchment s03-2:

Runoff = 5.33 cfs @ 12.23 hrs, Volume= 0.575 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
9.981	72	
9.981		Pervious Area

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

Subcatchment s03-3:

Runoff = 2.93 cfs @ 12.01 hrs, Volume= 0.186 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.947	96	
0.947		Pervious Area

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

Subcatchment s04-1:

Runoff = 4.44 cfs @ 12.25 hrs, Volume= 0.521 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
11.064	69	
11.064		Pervious Area

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

Subcatchment s05-1:

Runoff = 0.77 cfs @ 12.17 hrs, Volume= 0.116 af, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
4.340	62	
4.340		Pervious Area

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

Subcatchment s05-2:

Runoff = 1.99 cfs @ 12.17 hrs, Volume= 0.231 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
6.138	66	
6.138		Pervious Area

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

Subcatchment s05-3:

Runoff = 1.73 cfs @ 12.16 hrs, Volume= 0.170 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
3.364	70	
3.364		Pervious Area

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

Subcatchment s06-1:

Runoff = 2.17 cfs @ 12.27 hrs, Volume= 0.289 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
7.665	66	
7.665		Pervious Area

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

Subcatchment s06-2:

Runoff = 2.44 cfs @ 12.39 hrs, Volume= 0.420 af, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
15.682	62	
15.682		Pervious Area

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

Subcatchment s07-1:

Runoff = 1.48 cfs @ 12.26 hrs, Volume= 0.188 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
4.614	67	
4.614		Pervious Area

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

Subcatchment s07-2:

Runoff = 1.14 cfs @ 12.28 hrs, Volume= 0.176 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
5.997	63	
5.997		Pervious Area

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

Subcatchment s08-1:

Runoff = 1.06 cfs @ 12.59 hrs, Volume= 0.240 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
10.900	60	
10.900		Pervious Area

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

Subcatchment s08-2:

Runoff = 0.44 cfs @ 12.42 hrs, Volume= 0.084 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
3.832	60	
3.832		Pervious Area

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

Subcatchment s08-3:

Runoff = 1.79 cfs @ 12.04 hrs, Volume= 0.127 af, Depth= 2.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.595	98	
0.595		Impervious Area

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

Subcatchment s09-1:

Runoff = 2.50 cfs @ 12.15 hrs, Volume= 0.245 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
5.208	69	
5.208		Pervious Area

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

Subcatchment s09-2:

Runoff = 0.68 cfs @ 12.01 hrs, Volume= 0.043 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.219	96	
0.219		Pervious Area

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

Subcatchment s10-1:

Runoff = 4.23 cfs @ 12.21 hrs, Volume= 0.456 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
9.021	70	
9.021		Pervious Area

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

Subcatchment s11-1:

Runoff = 39.28 cfs @ 12.09 hrs, Volume= 2.838 af, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
17.262	92	
17.262		Pervious Area

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

Subcatchment s13-1:

Runoff = 0.01 cfs @ 12.35 hrs, Volume= 0.004 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.300	55	
0.300		Pervious Area

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

Subcatchment s14-1:

Runoff = 13.21 cfs @ 12.15 hrs, Volume= 1.111 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
12.768	79	
12.768		Pervious Area

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

Subcatchment s14-2:

Runoff = 13.00 cfs @ 12.06 hrs, Volume= 0.862 af, Depth= 1.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
7.643	84	
7.643		Pervious Area

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

Subcatchment s14-3:

Runoff = 1.86 cfs @ 12.03 hrs, Volume= 0.115 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
1.131	82	
1.131		Pervious Area

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

Subcatchment s16-1:

Runoff = 18.54 cfs @ 12.13 hrs, Volume= 1.478 af, Depth= 1.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
14.494	82	
14.494		Pervious Area

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

Subcatchment s16-2:

Runoff = 1.90 cfs @ 12.16 hrs, Volume= 0.177 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
3.074	72	
3.074		Pervious Area

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

Subcatchment s16-3:

Runoff = 5.62 cfs @ 12.21 hrs, Volume= 0.590 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
10.239	72	
10.239		Pervious Area

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

Subcatchment s16-4:

Runoff = 14.10 cfs @ 12.29 hrs, Volume= 1.493 af, Depth= 1.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
13.242	84	
13.242		Pervious Area

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

Subcatchment s16-5:

Runoff = 5.08 cfs @ 12.07 hrs, Volume= 0.346 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
3.971	79	
3.971		Pervious Area

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

Subcatchment s16-6:

Runoff = 1.61 cfs @ 12.12 hrs, Volume= 0.146 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
3.105	69	
3.105		Pervious Area

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

Subcatchment s16-7:

Runoff = 5.19 cfs @ 12.24 hrs, Volume= 0.643 af, Depth= 0.49"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
15.797	67	
15.797		Pervious Area

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

Subcatchment s17-1:

Runoff = 1.24 cfs @ 12.11 hrs, Volume= 0.113 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
2.572	68	
2.572		Pervious Area

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

Subcatchment s17-2:

Runoff = 17.59 cfs @ 13.69 hrs, Volume= 5.852 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
124.201	69	
124.201		Pervious Area

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

Subcatchment s18-1:

Runoff = 1.45 cfs @ 12.02 hrs, Volume= 0.088 af, Depth= 1.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.908	81	
0.908		Pervious Area

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

Subcatchment s18-2:

Runoff = 3.70 cfs @ 12.11 hrs, Volume= 0.303 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
4.931	73	
4.931		Pervious Area

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

Subcatchment s18-3:

Runoff = 5.90 cfs @ 12.05 hrs, Volume= 0.387 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
4.448	79	
4.448		Pervious Area

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

Subcatchment s18-4:

Runoff = 29.70 cfs @ 12.05 hrs, Volume= 1.905 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
12.689	90	
12.689		Pervious Area

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

Subcatchment s18-5:

Runoff = 2.60 cfs @ 12.10 hrs, Volume= 0.206 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
3.349	73	
3.349		Pervious Area

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

Subcatchment s19-0:

Runoff = 1.26 cfs @ 12.79 hrs, Volume= 0.342 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
15.520	60	
15.520		Pervious Area

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

Subcatchment s20-1:

Runoff = 5.68 cfs @ 12.15 hrs, Volume= 0.524 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
9.702	71	
9.702		Pervious Area

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

Subcatchment s20-2:

Runoff = 1.58 cfs @ 12.15 hrs, Volume= 0.144 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
2.342	73	
2.342		Pervious Area

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

Subcatchment s20-3:

Runoff = 1.72 cfs @ 12.50 hrs, Volume= 0.256 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
5.071	70	
5.071		Pervious Area

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

Subcatchment s20-4:

Runoff = 0.28 cfs @ 12.31 hrs, Volume= 0.050 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
2.261	60	
2.261		Pervious Area

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

Subcatchment s20-5:

Runoff = 0.68 cfs @ 12.12 hrs, Volume= 0.078 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
2.451	64	
2.451		Pervious Area

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

Subcatchment s21-1:

Runoff = 41.97 cfs @ 12.20 hrs, Volume= 4.201 af, Depth= 0.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
68.392	73	
68.392		Pervious Area

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

Subcatchment s21-2:

Runoff = 7.67 cfs @ 12.08 hrs, Volume= 0.529 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
4.934	83	
4.934		Pervious Area

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

Subcatchment s21-3:

Runoff = 9.51 cfs @ 12.09 hrs, Volume= 0.677 af, Depth= 1.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
4.724	89	
4.724		Pervious Area

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

Subcatchment s21-4:

Runoff = 1.51 cfs @ 12.03 hrs, Volume= 0.096 af, Depth= 2.16"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.534	94	
0.534		Pervious Area

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

Subcatchment s21-5:

Runoff = 0.94 cfs @ 12.03 hrs, Volume= 0.064 af, Depth= 2.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
0.300	98	
0.300		Impervious Area

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

Subcatchment s21-6:

Runoff = 9.43 cfs @ 12.17 hrs, Volume= 0.908 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
15.746	72	
15.746		Pervious Area

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

Subcatchment s21-7:

Runoff = 1.90 cfs @ 12.56 hrs, Volume= 0.297 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
5.491	71	
5.491		Pervious Area

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

Subcatchment s22-1:

Runoff = 6.21 cfs @ 12.13 hrs, Volume= 0.539 af, Depth= 0.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
9.346	72	
9.346		Pervious Area

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

Subcatchment s22-2:

Runoff = 12.02 cfs @ 12.43 hrs, Volume= 1.688 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
33.425	70	
33.425		Pervious Area

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

Subcatchment s22-3:

Runoff = 3.18 cfs @ 12.11 hrs, Volume= 0.256 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
3.920	74	
3.920		Pervious Area

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

Subcatchment s23-1:

Runoff = 3.20 cfs @ 12.31 hrs, Volume= 0.387 af, Depth= 0.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
7.168	71	
7.168		Pervious Area

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

Subcatchment s23-2:

Runoff = 29.11 cfs @ 12.66 hrs, Volume= 4.829 af, Depth= 0.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
73.912	74	
73.912		Pervious Area

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

Subcatchment s24-0:

Runoff = 9.50 cfs @ 12.51 hrs, Volume= 1.430 af, Depth= 0.61"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
28.325	70	
28.325		Pervious Area

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

Subcatchment s25-1:

Runoff = 5.68 cfs @ 12.21 hrs, Volume= 0.632 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
13.414	69	
13.414		Pervious Area

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

Subcatchment s26-0:

Runoff = 0.20 cfs @ 12.78 hrs, Volume= 0.073 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
5.306	56	
5.306		Pervious Area

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

Subcatchment s27-1:

Runoff = 5.55 cfs @ 12.80 hrs, Volume= 1.195 af, Depth= 0.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
31.683	66	
31.683		Pervious Area

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

Subcatchment s28-1:

Runoff = 2.78 cfs @ 12.15 hrs, Volume= 0.286 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 1-yr Rainfall=2.80"

Area (ac)	CN	Description
6.510	68	
6.510		Pervious Area

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

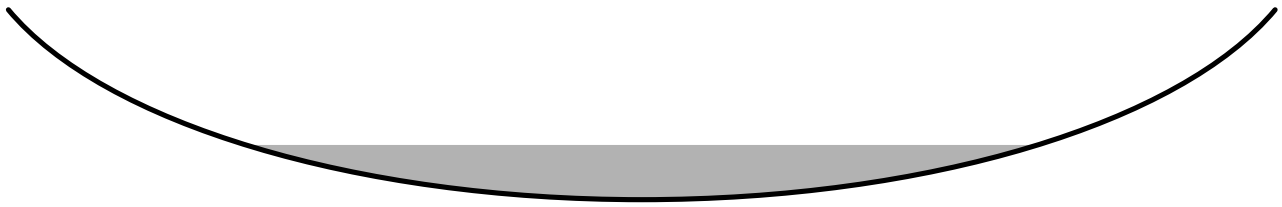
Reach 25R:

Inflow Area = 48.945 ac, Inflow Depth = 0.50" for 1-yr event
Inflow = 12.02 cfs @ 12.43 hrs, Volume= 2.030 af
Outflow = 11.74 cfs @ 12.49 hrs, Volume= 2.030 af, Atten= 2%, Lag= 3.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.29 fps, Min. Travel Time= 4.5 min
Avg. Velocity = 0.36 fps, Avg. Travel Time= 28.5 min

Peak Storage= 3,180 cf @ 12.49 hrs, Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 175.17 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 620.0' Slope= 0.0774 '/'
Inlet Invert= 560.00', Outlet Invert= 512.00'



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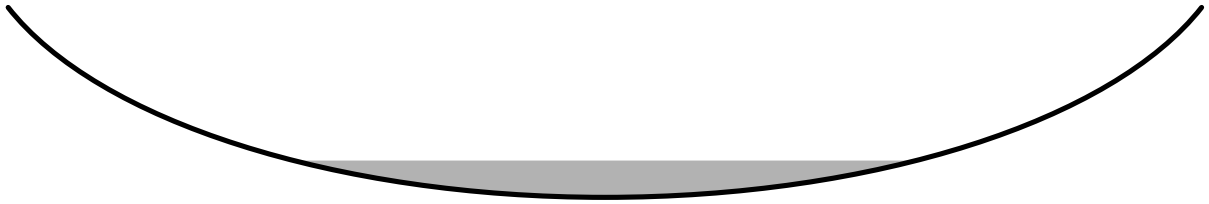
Reach r03-1:

Inflow Area = 11.485 ac, Inflow Depth = 0.53" for 1-yr event
Inflow = 2.69 cfs @ 12.70 hrs, Volume= 0.504 af
Outflow = 2.66 cfs @ 12.75 hrs, Volume= 0.504 af, Atten= 1%, Lag= 3.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.16 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 1.46 fps, Avg. Travel Time= 9.0 min

Peak Storage= 660 cf @ 12.75 hrs, Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 92.14 cfs

10.00' x 1.50' deep Parabolic Channel, n= 0.060
Length= 785.0' Slope= 0.1490 '/'
Inlet Invert= 845.00', Outlet Invert= 728.00'



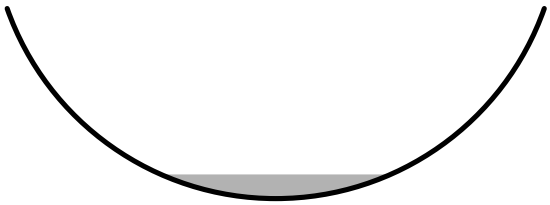
Reach r04-1:

Inflow Area = 26.401 ac, Inflow Depth = 0.66" for 1-yr event
Inflow = 6.71 cfs @ 12.31 hrs, Volume= 1.453 af
Outflow = 6.71 cfs @ 12.42 hrs, Volume= 1.453 af, Atten= 0%, Lag= 6.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.71 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 1.17 fps, Avg. Travel Time= 4.7 min

Peak Storage= 471 cf @ 12.42 hrs, Average Depth at Peak Storage= 0.50'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 530.15 cfs

12.00' x 4.00' deep Parabolic Channel, n= 0.060
Length= 330.0' Slope= 0.1621 '/'
Inlet Invert= 685.50', Outlet Invert= 632.00'



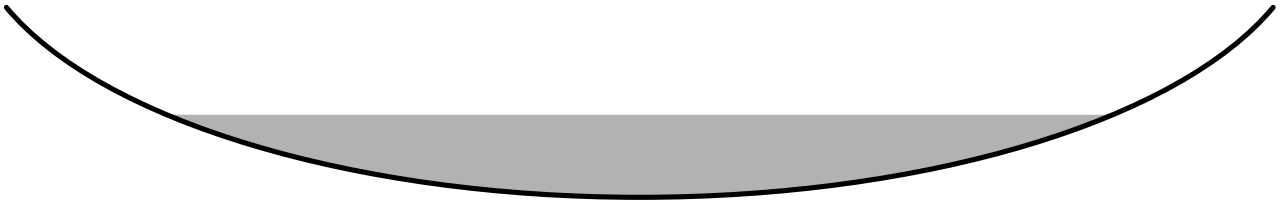
Reach r08-1a:

Inflow Area = 97.969 ac, Inflow Depth = 0.50" for 1-yr event
Inflow = 13.56 cfs @ 13.01 hrs, Volume= 4.072 af
Outflow = 13.56 cfs @ 13.02 hrs, Volume= 4.072 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.11 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 3.21 fps, Avg. Travel Time= 1.2 min

Peak Storage= 431 cf @ 13.02 hrs, Average Depth at Peak Storage= 0.43'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 81.88 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.027
Length= 226.0' Slope= 0.0885 '/'
Inlet Invert= 607.00', Outlet Invert= 587.00'



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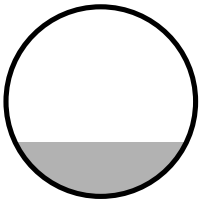
Reach r08-1b:

Inflow Area = 103.275 ac, Inflow Depth = 0.48" for 1-yr event
Inflow = 13.73 cfs @ 13.02 hrs, Volume= 4.145 af
Outflow = 13.73 cfs @ 13.02 hrs, Volume= 4.145 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 18.56 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 8.65 fps, Avg. Travel Time= 0.6 min

Peak Storage= 218 cf @ 13.02 hrs, Average Depth at Peak Storage= 0.57'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 77.17 cfs

24.0" Diameter Pipe, n= 0.012
Length= 295.0' Slope= 0.0992 '/'
Inlet Invert= 587.00', Outlet Invert= 557.75'



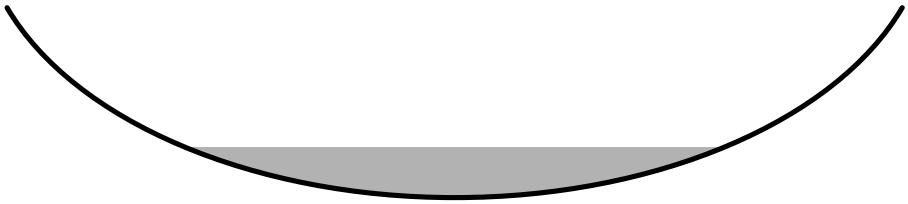
Reach r08-1c:

Inflow Area = 103.275 ac, Inflow Depth = 0.48" for 1-yr event
Inflow = 13.73 cfs @ 13.02 hrs, Volume= 4.145 af
Outflow = 13.72 cfs @ 13.03 hrs, Volume= 4.145 af, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.53 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 3.40 fps, Avg. Travel Time= 2.9 min

Peak Storage= 1,075 cf @ 13.03 hrs, Average Depth at Peak Storage= 0.53'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 232.56 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 590.0' Slope= 0.0775 '/'
Inlet Invert= 557.75', Outlet Invert= 512.00'



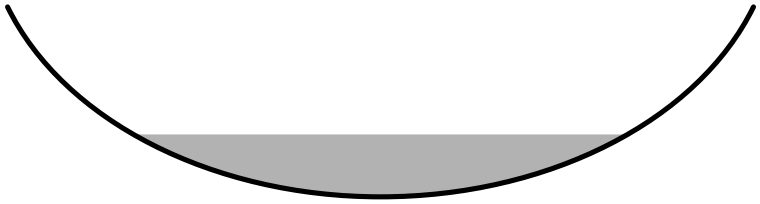
Reach r08-1d: Amenia Creek/Cascade Brook

Inflow Area = 107.107 ac, Inflow Depth > 74.55" for 1-yr event
Inflow = 53.78 cfs @ 13.03 hrs, Volume= 665.419 af, Incl. 40.00 cfs Base Flow
Outflow = 53.68 cfs @ 13.09 hrs, Volume= 665.138 af, Atten= 0%, Lag= 3.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.86 fps, Min. Travel Time= 4.7 min
Avg. Velocity = 2.63 fps, Avg. Travel Time= 5.1 min

Peak Storage= 15,085 cf @ 13.09 hrs, Average Depth at Peak Storage= 1.96'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 571.01 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 805.0' Slope= 0.0099 '/'
Inlet Invert= 512.00', Outlet Invert= 504.00'



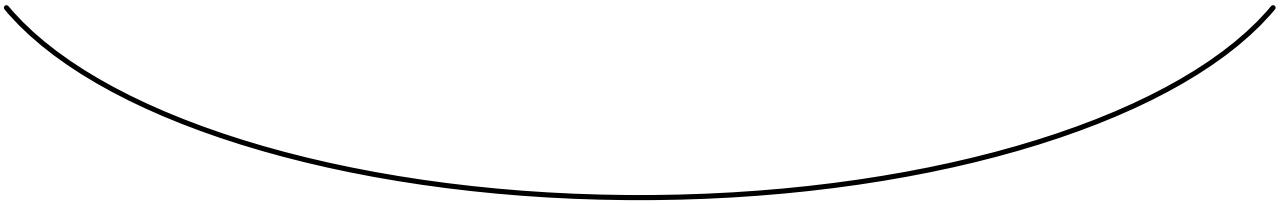
Reach r18-2:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 434.91 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 720.0' Slope= 0.4772 '/'
Inlet Invert= 973.60', Outlet Invert= 630.00'



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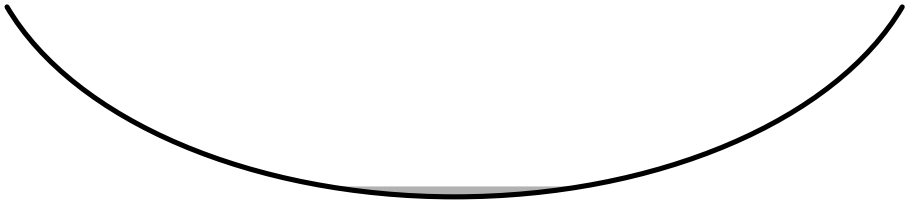
Reach r21-1a:

Inflow Area = 253.658 ac, Inflow Depth > 0.40" for 1-yr event
Inflow = 1.21 cfs @ 44.29 hrs, Volume= 8.501 af
Outflow = 1.21 cfs @ 44.35 hrs, Volume= 8.500 af, Atten= 0%, Lag= 4.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.86 fps, Min. Travel Time= 5.8 min
Avg. Velocity = 1.38 fps, Avg. Travel Time= 7.9 min

Peak Storage= 423 cf @ 44.35 hrs, Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 658.74 cfs

20.00' x 4.00' deep Parabolic Channel, n= 0.027
Length= 648.0' Slope= 0.0154 '/'
Inlet Invert= 504.00', Outlet Invert= 494.00'



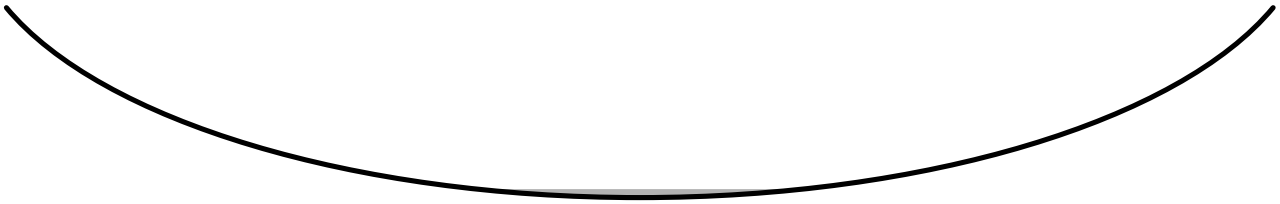
Reach r22-2:

Inflow Area = 15.520 ac, Inflow Depth = 0.26" for 1-yr event
Inflow = 0.54 cfs @ 14.40 hrs, Volume= 0.342 af
Outflow = 0.54 cfs @ 14.47 hrs, Volume= 0.342 af, Atten= 0%, Lag= 4.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.76 fps, Min. Travel Time= 6.0 min
Avg. Velocity = 0.78 fps, Avg. Travel Time= 13.4 min

Peak Storage= 192 cf @ 14.47 hrs, Average Depth at Peak Storage= 0.04'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 469.25 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 630.0' Slope= 0.5556 '/'
Inlet Invert= 970.00', Outlet Invert= 620.00'



‡

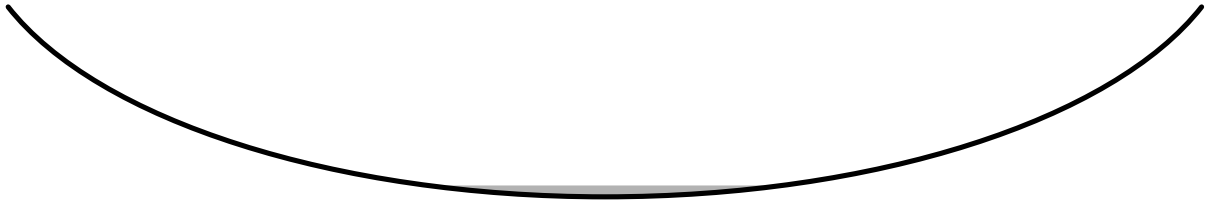
Reach r25-1b: Wetland Reach

Inflow Area = 23.347 ac, Inflow Depth > 0.35" for 1-yr event
Inflow = 0.34 cfs @ 24.12 hrs, Volume= 0.688 af
Outflow = 0.34 cfs @ 24.23 hrs, Volume= 0.688 af, Atten= 0%, Lag= 6.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.61 fps, Min. Travel Time= 20.5 min
Avg. Velocity = 0.27 fps, Avg. Travel Time= 47.0 min

Peak Storage= 419 cf @ 24.23 hrs, Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 156.51 cfs

20.00' x 3.00' deep Parabolic Channel, n= 0.045
Length= 750.0' Slope= 0.0060 '/'
Inlet Invert= 504.00', Outlet Invert= 499.50'



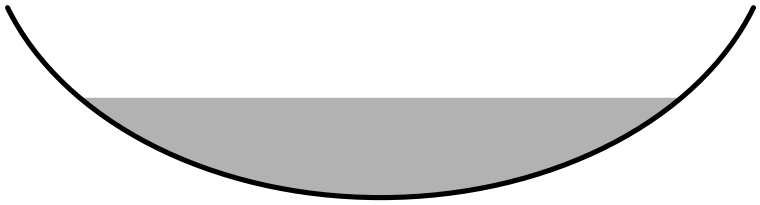
Reach r25-1c: Amenia Creek/Cascade Brook

Inflow Area = 118.007 ac, Inflow Depth >134.90" for 1-yr event
Inflow = 94.29 cfs @ 13.08 hrs, Volume= 1,326.568 af, Incl. 40.00 cfs Base Flow
Outflow = 94.12 cfs @ 13.16 hrs, Volume= 1,325.810 af, Atten= 0%, Lag= 5.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.48 fps, Min. Travel Time= 6.6 min
Avg. Velocity = 2.36 fps, Avg. Travel Time= 6.9 min

Peak Storage= 37,048 cf @ 13.16 hrs, Average Depth at Peak Storage= 3.15'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 366.88 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 975.0' Slope= 0.0041 '/'
Inlet Invert= 504.00', Outlet Invert= 500.00'



Pond p03-3: Underground Detention

Inflow Area = 0.947 ac, Inflow Depth = 2.36" for 1-yr event
Inflow = 2.93 cfs @ 12.01 hrs, Volume= 0.186 af
Outflow = 0.04 cfs @ 17.95 hrs, Volume= 0.186 af, Atten= 99%, Lag= 356.1 min
Primary = 0.04 cfs @ 17.95 hrs, Volume= 0.186 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 802.69' @ 17.95 hrs Surf.Area= 2,984 sf Storage= 6,154 cf

Plug-Flow detention time= 1,598.2 min calculated for 0.186 af (100% of inflow)
Center-of-Mass det. time= 1,598.5 min (2,371.8 - 773.3)

Volume	Invert	Avail.Storage	Storage Description
#1	800.00'	14,137 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 5

Device	Routing	Invert	Outlet Devices
#1	Primary	800.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	805.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.04 cfs @ 17.95 hrs HW=802.69' TW=720.39' (Dynamic Tailwater)
1=Orifice/Grate (Orifice Controls 0.04 cfs @ 7.84 fps)
2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond p05-2:

Inflow Area = 46.967 ac, Inflow Depth = 0.61" for 1-yr event
Inflow = 14.20 cfs @ 12.25 hrs, Volume= 2.376 af
Outflow = 7.94 cfs @ 12.74 hrs, Volume= 2.376 af, Atten= 44%, Lag= 29.3 min
Primary = 7.94 cfs @ 12.74 hrs, Volume= 2.376 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 584.00' Surf.Area= 39,691 sf Storage= 193,237 cf
Peak Elev= 584.44' @ 12.74 hrs Surf.Area= 41,345 sf Storage= 211,155 cf (17,918 cf above start)
Flood Elev= 585.00' Surf.Area= 43,480 sf Storage= 234,808 cf (41,571 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 67.9 min (1,089.6 - 1,021.7)

Volume	Invert	Avail.Storage	Storage Description
#1	577.00'	286,360 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)
577.00	16,551	0	0	16,551
579.00	22,509	38,908	38,908	22,590
581.00	29,072	51,441	90,349	29,251
583.00	36,074	65,020	155,369	36,369
585.00	43,480	79,439	234,808	43,908
586.00	60,070	51,552	286,360	60,518

Device	Routing	Invert	Outlet Devices
#1	Primary	584.00'	**10.0' long x 25.0' 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	Primary	585.00'	**60.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=7.94 cfs @ 12.74 hrs HW=584.44' TW=573.41' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 7.94 cfs @ 1.80 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p06-1:

Inflow Area = 23.347 ac, Inflow Depth = 0.36" for 1-yr event
Inflow = 2.28 cfs @ 12.28 hrs, Volume= 0.709 af
Outflow = 0.34 cfs @ 24.12 hrs, Volume= 0.688 af, Atten= 85%, Lag= 710.3 min
Primary = 0.34 cfs @ 24.12 hrs, Volume= 0.688 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 41,229 sf Storage= 93,452 cf
Peak Elev= 507.12' @ 24.12 hrs Surf.Area= 44,023 sf Storage= 108,337 cf (14,884 cf above start)
Flood Elev= 507.10' Surf.Area= 43,840 sf Storage= 107,358 cf (13,906 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 1,063.4 min (2,208.5 - 1,145.1)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	149,075 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	41,229	93,452	93,452	41,302
508.00	51,671	55,622	149,075	51,784

Device	Routing	Invert	Outlet Devices
#1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.34 cfs @ 24.12 hrs HW=507.12' TW=504.17' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.33 cfs @ 1.52 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.01 cfs @ 0.36 fps)

Pond p06-2: Underground Detention

Inflow Area = 15.682 ac, Inflow Depth = 0.32" for 1-yr event
Inflow = 2.44 cfs @ 12.39 hrs, Volume= 0.420 af
Outflow = 0.30 cfs @ 17.24 hrs, Volume= 0.420 af, Atten= 88%, Lag= 291.1 min
Primary = 0.30 cfs @ 17.24 hrs, Volume= 0.420 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 521.74' @ 17.24 hrs Surf.Area= 6,347 sf Storage= 8,416 cf
Flood Elev= 528.00' Surf.Area= 0 sf Storage= 20,106 cf

Plug-Flow detention time= 367.1 min calculated for 0.420 af (100% of inflow)
Center-of-Mass det. time= 367.8 min (1,304.6 - 936.8)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	20,106 cf	**48.0"D x 100.00'L Horizontal Cylinder** x 16

Device	Routing	Invert	Outlet Devices
#1	Primary	520.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	522.00'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.30 cfs @ 17.24 hrs HW=521.74' TW=507.06' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.30 cfs @ 6.13 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p07-1:

Inflow Area = 61.918 ac, Inflow Depth = 0.55" for 1-yr event
Inflow = 9.55 cfs @ 12.58 hrs, Volume= 2.856 af
Outflow = 7.42 cfs @ 13.21 hrs, Volume= 2.849 af, Atten= 22%, Lag= 37.7 min
Primary = 5.31 cfs @ 13.21 hrs, Volume= 1.681 af
Secondary = 2.11 cfs @ 13.21 hrs, Volume= 1.168 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.54' @ 13.21 hrs Surf.Area= 25,145 sf Storage= 74,435 cf (18,171 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)

Plug-Flow detention time= 721.2 min calculated for 1.558 af (55% of inflow)
Center-of-Mass det. time= 150.2 min (1,211.3 - 1,061.1)

Volume	Invert	Avail.Storage	Storage Description
#1	565.00'	147,831 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424
576.00	35,150	62,274	147,831	35,383

Device	Routing	Invert	Outlet Devices
#1	Secondary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Secondary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46
#3	Primary	573.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=5.31 cfs @ 13.21 hrs HW=573.54' TW=572.02' (Dynamic Tailwater)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 5.31 cfs @ 1.95 fps)

Secondary OutFlow Max=2.11 cfs @ 13.21 hrs HW=573.54' TW=0.00' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 2.03 cfs @ 2.32 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.08 cfs @ 0.52 fps)

Pond p08-2:

Inflow Area = 3.832 ac, Inflow Depth = 0.26" for 1-yr event
Inflow = 0.44 cfs @ 12.42 hrs, Volume= 0.084 af
Outflow = 0.09 cfs @ 15.73 hrs, Volume= 0.084 af, Atten= 79%, Lag= 198.9 min
Primary = 0.09 cfs @ 15.73 hrs, Volume= 0.084 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 527.50' Surf.Area= 3,950 sf Storage= 5,322 cf
Peak Elev= 527.77' @ 15.73 hrs Surf.Area= 5,625 sf Storage= 6,614 cf (1,292 cf above start)
Flood Elev= 531.00' Surf.Area= 10,855 sf Storage= 35,135 cf (29,813 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 306.7 min (1,255.6 - 948.9)

Volume	Invert	Avail.Storage	Storage Description
#1	523.00'	46,638 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)
523.00	156	0	0	156
524.00	435	284	284	441
525.00	816	616	899	832
526.00	1,291	1,044	1,944	1,321
526.50	1,563	712	2,656	1,601
527.50	3,950	2,666	5,322	3,995
528.00	7,267	2,762	8,085	7,314
529.00	8,407	7,830	15,915	8,497
530.00	9,602	8,998	24,913	9,738
531.00	10,855	10,222	35,135	11,041
532.00	12,164	11,503	46,638	12,404

Device	Routing	Invert	Outlet Devices
#1	Primary	527.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	530.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.09 cfs @ 15.73 hrs HW=527.77' TW=513.80' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.09 cfs @ 1.84 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p08-3: Underground Detention

Inflow Area = 0.595 ac, Inflow Depth = 2.57" for 1-yr event
Inflow = 1.79 cfs @ 12.04 hrs, Volume= 0.127 af
Outflow = 0.04 cfs @ 16.07 hrs, Volume= 0.127 af, Atten= 98%, Lag= 241.7 min
Primary = 0.04 cfs @ 16.07 hrs, Volume= 0.127 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 602.75' @ 16.07 hrs Surf.Area= 1,794 sf Storage= 3,798 cf

Plug-Flow detention time= 973.6 min calculated for 0.127 af (100% of inflow)
Center-of-Mass det. time= 974.0 min (1,730.6 - 756.5)

Volume	Invert	Avail.Storage	Storage Description
#1	600.00'	8,482 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 3

Device	Routing	Invert	Outlet Devices
#1	Primary	600.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	605.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.04 cfs @ 16.07 hrs HW=602.75' TW=0.00' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.04 cfs @ 7.93 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p09-1:

Inflow Area = 67.345 ac, Inflow Depth = 0.34" for 1-yr event
Inflow = 5.75 cfs @ 13.23 hrs, Volume= 1.904 af
Outflow = 3.69 cfs @ 14.51 hrs, Volume= 1.637 af, Atten= 36%, Lag= 76.6 min
Primary = 3.69 cfs @ 14.51 hrs, Volume= 1.637 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 557.94' @ 14.51 hrs Surf.Area= 25,396 sf Storage= 22,487 cf
Flood Elev= 558.00' Surf.Area= 25,588 sf Storage= 24,042 cf

Plug-Flow detention time= 172.3 min calculated for 1.637 af (86% of inflow)
Center-of-Mass det. time= 105.7 min (1,088.1 - 982.4)

Volume	Invert	Avail.Storage	Storage Description
#1	557.00'	96,165 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)
557.00	22,529	0	0	22,529
558.00	25,588	24,042	24,042	25,637
560.00	47,670	72,122	96,165	47,760

Device	Routing	Invert	Outlet Devices
#1	Primary	557.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	558.00'	**80.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.69 cfs @ 14.51 hrs HW=557.94' TW=537.36' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 3.69 cfs @ 1.68 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p09-2:

Inflow Area = 62.137 ac, Inflow Depth = 0.33" for 1-yr event
Inflow = 5.35 cfs @ 13.21 hrs, Volume= 1.724 af
Outflow = 5.35 cfs @ 13.24 hrs, Volume= 1.659 af, Atten= 0%, Lag= 1.9 min
Primary = 5.35 cfs @ 13.24 hrs, Volume= 1.659 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 572.02' @ 13.24 hrs Surf.Area= 5,105 sf Storage= 5,573 cf
Flood Elev= 572.00' Surf.Area= 5,086 sf Storage= 5,483 cf

Plug-Flow detention time= 44.9 min calculated for 1.659 af (96% of inflow)
Center-of-Mass det. time= 23.9 min (995.5 - 971.6)

Volume	Invert	Avail.Storage	Storage Description
#1	571.00'	17,934 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)
571.00	5,889	0	0	5,889
572.00	5,086	5,483	5,483	6,734
574.00	7,440	12,452	17,934	9,153

Device	Routing	Invert	Outlet Devices
#1	Primary	571.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	572.00'	**80.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=5.35 cfs @ 13.24 hrs HW=572.02' TW=557.49' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 4.88 cfs @ 1.88 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 0.47 cfs @ 0.33 fps)

Pond p10-1:

Inflow Area = 98.208 ac, Inflow Depth = 0.27" for 1-yr event
Inflow = 4.50 cfs @ 12.21 hrs, Volume= 2.208 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 49,539 sf Storage= 138,709 cf
Peak Elev= 500.23' @ 200.00 hrs Surf.Area= 54,724 sf Storage= 234,884 cf (96,175 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	874,719 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	49,539	138,709	138,709	49,650
500.00	53,826	82,668	221,377	54,126
502.00	61,486	115,227	336,605	61,973
504.00	77,594	138,768	475,373	78,189
506.00	95,372	172,661	648,033	96,088
508.00	132,320	226,686	874,719	133,113

Device	Routing	Invert	Outlet Devices
#1	Primary	506.00'	**Custom Weir/Orifice, C= 3.00** Head (feet) 0.00 2.00 Width (feet) 20.00 150.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=498.40' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Controls 0.00 cfs)

Pond p11-1: Underground Detention

Inflow Area = 17.262 ac, Inflow Depth = 1.97" for 1-yr event
Inflow = 39.28 cfs @ 12.09 hrs, Volume= 2.838 af
Outflow = 0.39 cfs @ 24.02 hrs, Volume= 2.837 af, Atten= 99%, Lag= 716.0 min
Primary = 0.39 cfs @ 24.02 hrs, Volume= 2.837 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 526.84' @ 24.02 hrs Surf.Area= 47,933 sf Storage= 105,515 cf

Plug-Flow detention time= 2,991.1 min calculated for 2.837 af (100% of inflow)
Center-of-Mass det. time= 2,991.2 min (3,793.9 - 802.7)

Volume	Invert	Avail.Storage	Storage Description
#1	524.00'	226,195 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 80

Device	Routing	Invert	Outlet Devices
#1	Primary	524.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	528.50'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.39 cfs @ 24.02 hrs HW=526.84' TW=509.38' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.39 cfs @ 7.94 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p13-1:

Inflow Area = 0.300 ac, Inflow Depth = 0.14" for 1-yr event
Inflow = 0.01 cfs @ 12.35 hrs, Volume= 0.004 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 518.09' @ 24.12 hrs Surf.Area= 1,365 sf Storage= 158 cf
Flood Elev= 527.00' Surf.Area= 10,067 sf Storage= 40,862 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	518.00'	50,891 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
518.00	1,331	0	0	1,331
520.00	2,048	3,353	3,353	2,104
522.00	2,912	4,935	8,288	3,037
522.50	3,150	1,515	9,803	3,294
524.00	5,894	6,676	16,480	6,061
526.00	8,542	14,354	30,834	8,776
528.00	11,592	20,057	50,891	11,908

Device	Routing	Invert	Outlet Devices
#1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=518.00' TW=497.40' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p14-1:

Inflow Area = 20.711 ac, Inflow Depth = 1.14" for 1-yr event
Inflow = 23.38 cfs @ 12.10 hrs, Volume= 1.973 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 44,199 sf Storage= 109,024 cf
Peak Elev= 499.13' @ 24.57 hrs Surf.Area= 52,988 sf Storage= 194,979 cf (85,955 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	899,480 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	44,199	109,024	109,024	44,285
498.00	45,919	27,034	136,058	46,063
500.00	58,406	104,075	240,133	58,654
502.00	72,976	131,112	371,245	73,337
504.00	83,672	156,526	527,771	84,215
506.00	91,692	175,303	703,074	92,505
508.00	104,861	196,406	899,480	105,860

Device	Routing	Invert	Outlet Devices
#1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.40' TW=498.40' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Pond p14-3:

Inflow Area = 68.476 ac, Inflow Depth = 0.31" for 1-yr event
Inflow = 3.79 cfs @ 14.50 hrs, Volume= 1.752 af
Outflow = 3.36 cfs @ 15.24 hrs, Volume= 1.752 af, Atten= 11%, Lag= 44.1 min
Primary = 3.36 cfs @ 15.24 hrs, Volume= 1.752 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 537.42' @ 15.24 hrs Surf.Area= 22,444 sf Storage= 9,024 cf
Flood Elev= 538.00' Surf.Area= 24,510 sf Storage= 22,749 cf

Plug-Flow detention time= 65.0 min calculated for 1.752 af (100% of inflow)
Center-of-Mass det. time= 64.9 min (1,136.6 - 1,071.7)

Volume	Invert	Avail.Storage	Storage Description
#1	537.00'	76,857 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)
537.00	21,033	0	0	21,033
538.00	24,510	22,749	22,749	24,551
540.00	29,680	54,108	76,857	29,851

Device	Routing	Invert	Outlet Devices
#1	Primary	537.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	538.00'	**100.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.36 cfs @ 15.24 hrs HW=537.42' TW=498.94' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 3.36 cfs @ 1.62 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p16-1:

Inflow Area = 234.282 ac, Inflow Depth = 0.85" for 1-yr event
Inflow = 31.85 cfs @ 12.15 hrs, Volume= 16.558 af
Outflow = 1.23 cfs @ 38.96 hrs, Volume= 7.614 af, Atten= 96%, Lag= 1,608.6 min
Primary = 1.23 cfs @ 38.96 hrs, Volume= 7.614 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 509.56' @ 38.96 hrs Surf.Area= 240,189 sf Storage= 1,371,893 cf (493,574 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 2,602.7 min (4,434.9 - 1,832.2)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

Device	Routing	Invert	Outlet Devices
#1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' Cc= 0.900 n= 0.024
#2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' Cc= 0.900 n= 0.013
#3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=1.23 cfs @ 38.96 hrs HW=509.56' TW=505.38' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 1.23 cfs @ 2.02 fps)
- **2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
- **3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p16-4:

Inflow Area = 13.242 ac, Inflow Depth = 1.35" for 1-yr event
Inflow = 14.10 cfs @ 12.29 hrs, Volume= 1.493 af
Outflow = 0.46 cfs @ 18.56 hrs, Volume= 1.492 af, Atten= 97%, Lag= 376.5 min
Primary = 0.46 cfs @ 18.56 hrs, Volume= 1.492 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 512.00' Surf.Area= 8,089 sf Storage= 14,361 cf
Peak Elev= 515.93' @ 18.56 hrs Surf.Area= 16,371 sf Storage= 61,485 cf (47,124 cf above start)
Flood Elev= 519.00' Surf.Area= 23,907 sf Storage= 123,088 cf (108,727 cf above start)

Plug-Flow detention time= 1,634.7 min calculated for 1.162 af (78% of inflow)
Center-of-Mass det. time= 1,238.3 min (2,087.1 - 848.8)

Volume	Invert	Avail.Storage	Storage Description
#1	504.50'	148,324 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)
504.50	34	0	0	34
506.00	293	213	213	300
508.00	1,136	1,337	1,551	1,162
510.00	2,508	3,555	5,105	2,566
510.50	2,890	1,348	6,454	2,959
512.00	8,089	7,907	14,361	8,172
514.00	11,952	19,916	34,276	12,099
516.00	16,547	28,375	62,651	16,771
518.00	21,367	37,811	100,463	21,688
520.00	26,589	47,861	148,324	27,024

Device	Routing	Invert	Outlet Devices
#1	Primary	512.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	516.00'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.46 cfs @ 18.56 hrs HW=515.93' TW=508.85' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.46 cfs @ 9.39 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p16-5:

Inflow Area = 3.971 ac, Inflow Depth = 1.04" for 1-yr event
Inflow = 5.08 cfs @ 12.07 hrs, Volume= 0.346 af
Outflow = 0.23 cfs @ 15.61 hrs, Volume= 0.345 af, Atten= 95%, Lag= 212.7 min
Primary = 0.23 cfs @ 15.61 hrs, Volume= 0.345 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 534.00' Surf.Area= 7,168 sf Storage= 14,550 cf
Peak Elev= 535.08' @ 15.61 hrs Surf.Area= 8,848 sf Storage= 23,217 cf (8,667 cf above start)
Flood Elev= 541.00' Surf.Area= 20,427 sf Storage= 108,016 cf (93,466 cf above start)

Plug-Flow detention time= 3,334.0 min calculated for 0.011 af (3% of inflow)
Center-of-Mass det. time= 557.2 min (1,408.7 - 851.5)

Volume	Invert	Avail.Storage	Storage Description
#1	528.00'	129,594 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)
528.00	447	0	0	447
530.00	1,292	1,666	1,666	1,316
532.00	2,598	3,815	5,481	2,658
532.50	3,239	1,456	6,937	3,306
534.00	7,168	7,613	14,550	7,253
536.00	10,404	17,472	32,022	10,556
538.00	14,112	24,422	56,444	14,345
540.00	18,230	32,254	88,698	18,561
542.00	22,750	40,897	129,594	23,193

Device	Routing	Invert	Outlet Devices
#1	Primary	534.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.23 cfs @ 15.61 hrs HW=535.08' TW=508.25' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.23 cfs @ 4.72 fps)

Pond p17-1:

Inflow Area = 126.773 ac, Inflow Depth = 0.56" for 1-yr event
Inflow = 17.75 cfs @ 13.69 hrs, Volume= 5.965 af
Outflow = 17.65 cfs @ 13.83 hrs, Volume= 5.965 af, Atten= 1%, Lag= 8.4 min
Primary = 17.65 cfs @ 13.83 hrs, Volume= 5.965 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.20' @ 13.83 hrs Surf.Area= 10,385 sf Storage= 22,369 cf (13,135 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)

Plug-Flow detention time= 49.0 min calculated for 5.753 af (96% of inflow)
Center-of-Mass det. time= 20.9 min (1,008.4 - 987.5)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	30,224 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

Device	Routing	Invert	Outlet Devices
#1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=17.65 cfs @ 13.83 hrs HW=525.20' TW=515.35' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 12.04 cfs @ 3.92 fps)
├─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 5.60 cfs @ 2.34 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p18-1:

Inflow Area = 5.356 ac, Inflow Depth = 1.06" for 1-yr event
Inflow = 7.19 cfs @ 12.05 hrs, Volume= 0.475 af
Outflow = 0.22 cfs @ 17.04 hrs, Volume= 0.474 af, Atten= 97%, Lag= 299.5 min
Primary = 0.22 cfs @ 17.04 hrs, Volume= 0.474 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Starting Elev= 515.50' Surf.Area= 8,701 sf Storage= 8,455 cf
Peak Elev= 516.47' @ 17.04 hrs Surf.Area= 16,458 sf Storage= 21,921 cf (13,466 cf above start)
Flood Elev= 519.00' Surf.Area= 22,111 sf Storage= 70,643 cf (62,188 cf above start)

Plug-Flow detention time= 1,418.8 min calculated for 0.280 af (59% of inflow)
Center-of-Mass det. time= 852.7 min (1,701.6 - 848.9)

Volume	Invert	Avail.Storage	Storage Description
#1	512.00'	93,928 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)
512.00	422	0	0	422
514.00	1,472	1,788	1,788	1,493
514.50	2,962	1,087	2,875	2,985
515.50	8,701	5,580	8,455	8,730
516.00	15,477	5,964	14,419	15,509
518.00	19,862	35,248	49,667	19,993
520.00	24,480	44,262	93,928	24,730

Device	Routing	Invert	Outlet Devices
#1	Primary	515.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	517.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.22 cfs @ 17.04 hrs HW=516.47' TW=508.59' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.22 cfs @ 4.43 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p18-2:

Inflow Area = 147.742 ac, Inflow Depth = 0.68" for 1-yr event
Inflow = 18.46 cfs @ 13.83 hrs, Volume= 8.376 af
Outflow = 17.16 cfs @ 14.17 hrs, Volume= 8.375 af, Atten= 7%, Lag= 20.6 min
Primary = 17.16 cfs @ 14.17 hrs, Volume= 8.375 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 515.45' @ 14.17 hrs Surf.Area= 26,212 sf Storage= 64,399 cf (37,515 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)

Plug-Flow detention time= 372.6 min calculated for 7.758 af (93% of inflow)
Center-of-Mass det. time= 83.3 min (1,495.5 - 1,412.2)

Volume	Invert	Avail.Storage	Storage Description
#1	510.00'	148,288 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

Device	Routing	Invert	Outlet Devices
#1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=17.16 cfs @ 14.17 hrs HW=515.45' TW=507.74' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 12.85 cfs @ 4.14 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 2.45 cfs @ 1.98 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 1.86 cfs @ 1.07 fps)

Pond p18-4:

Inflow Area = 16.038 ac, Inflow Depth = 1.58" for 1-yr event
Inflow = 31.75 cfs @ 12.05 hrs, Volume= 2.110 af
Outflow = 0.47 cfs @ 20.50 hrs, Volume= 2.108 af, Atten= 99%, Lag= 506.9 min
Primary = 0.47 cfs @ 20.50 hrs, Volume= 2.108 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 521.50' Surf.Area= 9,318 sf Storage= 16,432 cf
Peak Elev= 525.51' @ 20.50 hrs Surf.Area= 22,484 sf Storage= 88,255 cf (71,823 cf above start)
Flood Elev= 529.00' Surf.Area= 30,616 sf Storage= 180,767 cf (164,335 cf above start)

Plug-Flow detention time= 2,249.3 min calculated for 1.731 af (82% of inflow)
Center-of-Mass det. time= 1,816.2 min (2,632.0 - 815.7)

Volume	Invert	Avail.Storage	Storage Description
#1	516.00'	212,613 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)
516.00	292	0	0	292
518.00	1,596	1,714	1,714	1,612
520.00	3,769	5,212	6,926	3,814
521.50	9,318	9,507	16,432	9,379
522.00	15,200	6,070	22,502	15,264
524.00	19,211	34,333	56,835	19,381
526.00	23,606	42,742	99,576	23,897
528.00	28,236	51,773	151,349	28,665
530.00	33,092	61,264	212,613	33,677

Device	Routing	Invert	Outlet Devices
#1	Primary	521.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	525.50'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.47 cfs @ 20.50 hrs HW=525.51' TW=514.59' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.47 cfs @ 9.49 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.31 fps)

Pond p19-0:

Inflow Area = 15.520 ac, Inflow Depth = 0.26" for 1-yr event
Inflow = 1.26 cfs @ 12.79 hrs, Volume= 0.342 af
Outflow = 0.54 cfs @ 14.40 hrs, Volume= 0.342 af, Atten= 57%, Lag= 96.6 min
Primary = 0.54 cfs @ 14.40 hrs, Volume= 0.342 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.03' @ 14.40 hrs Surf.Area= 86,860 sf Storage= 60,833 cf (3,499 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 146.4 min (1,119.8 - 973.4)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

Device	Routing	Invert	Outlet Devices
#1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
#2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.54 cfs @ 14.40 hrs HW=972.03' TW=970.04' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 0.54 cfs @ 0.49 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20-1:

Inflow Area = 251.397 ac, Inflow Depth > 0.41" for 1-yr event
Inflow = 7.75 cfs @ 12.15 hrs, Volume= 8.538 af
Outflow = 1.21 cfs @ 44.29 hrs, Volume= 8.451 af, Atten= 84%, Lag= 1,928.2 min
Primary = 1.21 cfs @ 44.29 hrs, Volume= 8.451 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 505.39' @ 44.29 hrs Surf.Area= 89,373 sf Storage= 164,201 cf (25,678 cf above start)

Plug-Flow detention time= 3,315.0 min calculated for 5.271 af (62% of inflow)
Center-of-Mass det. time= 352.4 min (4,403.8 - 4,051.4)

Volume	Invert	Avail.Storage	Storage Description
#1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

Device	Routing	Invert	Outlet Devices
#1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=1.21 cfs @ 44.29 hrs HW=505.39' TW=504.21' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 1.21 cfs @ 1.41 fps)
- **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p21-1:

Inflow Area = 499.521 ac, Inflow Depth > 0.55" for 1-yr event
Inflow = 61.51 cfs @ 12.18 hrs, Volume= 22.791 af
Outflow = 7.86 cfs @ 16.26 hrs, Volume= 22.189 af, Atten= 87%, Lag= 244.6 min
Primary = 7.86 cfs @ 16.26 hrs, Volume= 22.189 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 482.27' @ 16.26 hrs Surf.Area= 240,395 sf Storage= 197,831 cf

Plug-Flow detention time= 610.7 min calculated for 22.188 af (97% of inflow)
Center-of-Mass det. time= 397.4 min (3,499.1 - 3,101.7)

Volume	Invert	Avail.Storage	Storage Description
#1	480.40'	8,387,099 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423
490.00	1,644,120	3,142,214	8,387,099	1,644,607

Device	Routing	Invert	Outlet Devices
#1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' Cc= 0.900 n= 0.024

Primary OutFlow Max=7.86 cfs @ 16.26 hrs HW=482.27' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 7.86 cfs @ 2.77 fps)

Pond p21-7:

Inflow Area = 10.425 ac, Inflow Depth = 0.95" for 1-yr event
Inflow = 7.92 cfs @ 12.08 hrs, Volume= 0.826 af
Outflow = 0.35 cfs @ 17.73 hrs, Volume= 0.824 af, Atten= 96%, Lag= 339.0 min
Primary = 0.35 cfs @ 17.73 hrs, Volume= 0.824 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 490.28' @ 17.73 hrs Surf.Area= 12,188 sf Storage= 23,630 cf
Flood Elev= 494.00' Surf.Area= 18,859 sf Storage= 81,129 cf

Plug-Flow detention time= 896.3 min calculated for 0.824 af (100% of inflow)
Center-of-Mass det. time= 895.3 min (1,759.2 - 863.9)

Volume	Invert	Avail.Storage	Storage Description
#1	488.00'	81,129 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
488.00	8,590	0	0
490.00	11,713	20,303	20,303
492.00	15,127	26,840	47,143
494.00	18,859	33,986	81,129

Device	Routing	Invert	Outlet Devices
#1	Primary	488.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	492.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.35 cfs @ 17.73 hrs HW=490.28' TW=482.26' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.35 cfs @ 7.07 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p22-1:

Inflow Area = 62.211 ac, Inflow Depth = 0.54" for 1-yr event
Inflow = 15.66 cfs @ 12.43 hrs, Volume= 2.825 af
Outflow = 13.45 cfs @ 12.59 hrs, Volume= 2.539 af, Atten= 14%, Lag= 9.5 min
Primary = 13.45 cfs @ 12.59 hrs, Volume= 2.539 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 500.84' @ 12.59 hrs Surf.Area= 9,711 sf Storage= 32,652 cf (22,546 cf above start)

Plug-Flow detention time= 212.2 min calculated for 2.307 af (82% of inflow)
Center-of-Mass det. time= 96.8 min (1,026.6 - 929.8)

Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

Device	Routing	Invert	Outlet Devices
#1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' Cc= 0.900 n= 0.024
#2	Primary	500.50'	**1.0' long x 15.0' 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
#3	Primary	500.50'	**20.0' long x 13.5' 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) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=13.45 cfs @ 12.59 hrs HW=500.84' TW=482.02' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 2.34 cfs @ 2.37 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 0.54 cfs @ 1.57 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 10.57 cfs @ 1.55 fps)

Pond p23-2:

Inflow Area = 73.912 ac, Inflow Depth = 0.78" for 1-yr event
Inflow = 29.11 cfs @ 12.66 hrs, Volume= 4.829 af
Outflow = 0.45 cfs @ 24.69 hrs, Volume= 4.516 af, Atten= 98%, Lag= 721.9 min
Primary = 0.45 cfs @ 24.69 hrs, Volume= 4.516 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Starting Elev= 508.00' Surf.Area= 43,560 sf Storage= 116,710 cf
Peak Elev= 511.72' @ 24.69 hrs Surf.Area= 60,037 sf Storage= 308,738 cf (192,028 cf above start)
Flood Elev= 519.00' Surf.Area= 96,565 sf Storage= 875,673 cf (758,963 cf above start)

Plug-Flow detention time= 7,581.7 min calculated for 1.837 af (38% of inflow)
Center-of-Mass det. time= 4,347.6 min (5,253.9 - 906.2)

Volume	Invert	Avail.Storage	Storage Description
#1	504.00'	974,958 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)
504.00	21,853	0	0	21,853
506.00	27,237	48,991	48,991	27,350
506.50	28,631	13,966	62,957	28,775
508.00	43,560	53,753	116,710	43,738
510.00	52,250	95,678	212,388	52,565
512.00	61,370	113,498	325,886	61,840
514.00	70,920	132,175	458,061	71,562
516.00	80,880	151,691	609,752	81,712
518.00	91,250	172,026	781,778	92,288
520.00	102,030	193,180	974,958	103,291

Device	Routing	Invert	Outlet Devices
#1	Primary	508.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	517.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.45 cfs @ 24.69 hrs HW=511.72' TW=482.06' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.45 cfs @ 9.13 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond zDP1: Design Point 1

Inflow Area = 26.401 ac, Inflow Depth = 0.66" for 1-yr event
Inflow = 6.71 cfs @ 12.41 hrs, Volume= 1.453 af
Outflow = 6.71 cfs @ 12.31 hrs, Volume= 1.453 af, Atten= 0%, Lag= 0.0 min
Primary = 6.71 cfs @ 12.31 hrs, Volume= 1.453 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 721.03' @ 12.31 hrs Surf.Area= 44 sf Storage= 28 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf

Plug-Flow detention time= 0.2 min calculated for 1.453 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (1,096.8 - 1,096.6)

Volume	Invert	Avail.Storage	Storage Description
#1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

Device	Routing	Invert	Outlet Devices
#1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' Cc= 0.900 n= 0.024
#2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=6.71 cfs @ 12.31 hrs HW=721.03' TW=686.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 6.71 cfs @ 3.28 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Inflow Area = 97.969 ac, Inflow Depth = 0.50" for 1-yr event
Inflow = 13.56 cfs @ 13.01 hrs, Volume= 4.072 af
Outflow = 13.56 cfs @ 13.01 hrs, Volume= 4.072 af, Atten= 0%, Lag= 0.2 min
Primary = 13.56 cfs @ 13.01 hrs, Volume= 4.072 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 621.40' @ 13.01 hrs Surf.Area= 184 sf Storage= 151 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf

Plug-Flow detention time= 0.2 min calculated for 4.072 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (926.8 - 926.6)

Volume	Invert	Avail.Storage	Storage Description
#1	619.60'	7,280 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

Device	Routing	Invert	Outlet Devices
#1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' Cc= 0.900 n= 0.012
#2	Secondary	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=13.56 cfs @ 13.01 hrs HW=621.40' TW=607.43' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 13.56 cfs @ 4.56 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.60' TW=557.75' (Dynamic Tailwater)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP3: Design Point 3

Inflow Area = 252.976 ac, Inflow Depth > 63.01" for 1-yr event
Inflow = 97.35 cfs @ 13.16 hrs, Volume= 1,328.298 af
Primary = 97.35 cfs @ 13.16 hrs, Volume= 1,328.298 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 499.521 ac, Inflow Depth > 0.53" for 1-yr event
Inflow = 7.86 cfs @ 16.26 hrs, Volume= 22.189 af
Primary = 7.86 cfs @ 16.26 hrs, Volume= 22.189 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 0.61" for 1-yr event
Inflow = 9.50 cfs @ 12.51 hrs, Volume= 1.430 af
Primary = 9.50 cfs @ 12.51 hrs, Volume= 1.430 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP6: Design Point 6

Inflow Area = 5.306 ac, Inflow Depth = 0.17" for 1-yr event
Inflow = 0.20 cfs @ 12.78 hrs, Volume= 0.073 af
Outflow = 0.20 cfs @ 12.78 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.78 hrs, Volume= 0.073 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 609.08' @ 12.78 hrs
Flood Elev= 612.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.90'	**36.0" x 43.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 606.90' S= 0.0465 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=0.20 cfs @ 12.78 hrs HW=609.08' TW=587.53' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.20 cfs @ 1.14 fps)

Pond zDP7: Design Point 7

Inflow Area = 31.683 ac, Inflow Depth = 0.45" for 1-yr event
Inflow = 5.55 cfs @ 12.80 hrs, Volume= 1.195 af
Primary = 5.55 cfs @ 12.80 hrs, Volume= 1.195 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP8: Design Point 8

Inflow Area = 7.105 ac, Inflow Depth = 0.70" for 1-yr event
Inflow = 2.82 cfs @ 12.15 hrs, Volume= 0.413 af
Primary = 2.82 cfs @ 12.15 hrs, Volume= 0.413 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Subcatchment s01-0:

Runoff = 5.15 cfs @ 12.65 hrs, Volume= 0.863 af, Depth= 0.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
11.485	68	
11.485		Pervious Area

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

Subcatchment s02-1:

Runoff = 26.62 cfs @ 12.94 hrs, Volume= 5.844 af, Depth= 0.75"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
93.258	65	
93.258		Pervious Area

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

Subcatchment s02-2:

Runoff = 5.87 cfs @ 12.03 hrs, Volume= 0.379 af, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
1.605	94	
1.605		Pervious Area

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

Subcatchment s02-3:

Runoff = 1.92 cfs @ 12.02 hrs, Volume= 0.115 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.587	89	
0.587		Pervious Area

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

Subcatchment s02-4:

Runoff = 1.81 cfs @ 12.01 hrs, Volume= 0.113 af, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.479	94	
0.479		Pervious Area

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

Subcatchment s02-5:

Runoff = 3.46 cfs @ 12.03 hrs, Volume= 0.224 af, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.947	94	
0.947		Pervious Area

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

Subcatchment s02-6:

Runoff = 0.79 cfs @ 12.01 hrs, Volume= 0.049 af, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.209	94	
0.209		Pervious Area

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

Subcatchment s02-7:

Runoff = 3.23 cfs @ 12.03 hrs, Volume= 0.209 af, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.884	94	
0.884		Pervious Area

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

Subcatchment s03-1:

Runoff = 2.47 cfs @ 12.39 hrs, Volume= 0.317 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
3.988	69	
3.988		Pervious Area

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

Subcatchment s03-2:

Runoff = 9.31 cfs @ 12.22 hrs, Volume= 0.932 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
9.981	72	
9.981		Pervious Area

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

Subcatchment s03-3:

Runoff = 3.73 cfs @ 12.01 hrs, Volume= 0.240 af, Depth= 3.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.947	96	
0.947		Pervious Area

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

Subcatchment s04-1:

Runoff = 8.42 cfs @ 12.22 hrs, Volume= 0.880 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
11.064	69	
11.064		Pervious Area

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

Subcatchment s05-1:

Runoff = 2.18 cfs @ 12.14 hrs, Volume= 0.223 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
4.340	62	
4.340		Pervious Area

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

Subcatchment s05-2:

Runoff = 4.27 cfs @ 12.16 hrs, Volume= 0.409 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
6.138	66	
6.138		Pervious Area

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

Subcatchment s05-3:

Runoff = 3.18 cfs @ 12.15 hrs, Volume= 0.283 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
3.364	70	
3.364		Pervious Area

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

Subcatchment s06-1:

Runoff = 4.60 cfs @ 12.24 hrs, Volume= 0.511 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
7.665	66	
7.665		Pervious Area

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

Subcatchment s06-2:

Runoff = 6.22 cfs @ 12.28 hrs, Volume= 0.804 af, Depth= 0.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
15.682	62	
15.682		Pervious Area

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

Subcatchment s07-1:

Runoff = 3.01 cfs @ 12.23 hrs, Volume= 0.327 af, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
4.614	67	
4.614		Pervious Area

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

Subcatchment s07-2:

Runoff = 2.85 cfs @ 12.21 hrs, Volume= 0.330 af, Depth= 0.66"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
5.997	63	
5.997		Pervious Area

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

Subcatchment s08-1:

Runoff = 2.91 cfs @ 12.48 hrs, Volume= 0.483 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
10.900	60	
10.900		Pervious Area

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

Subcatchment s08-2:

Runoff = 1.24 cfs @ 12.26 hrs, Volume= 0.170 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
3.832	60	
3.832		Pervious Area

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

Subcatchment s08-3:

Runoff = 2.26 cfs @ 12.04 hrs, Volume= 0.162 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.595	98	
0.595		Impervious Area

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

Subcatchment s09-1:

Runoff = 4.75 cfs @ 12.14 hrs, Volume= 0.414 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
5.208	69	
5.208		Pervious Area

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

Subcatchment s09-2:

Runoff = 0.86 cfs @ 12.01 hrs, Volume= 0.056 af, Depth= 3.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.219	96	
0.219		Pervious Area

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

Subcatchment s10-1:

Runoff = 7.77 cfs @ 12.20 hrs, Volume= 0.758 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
9.021	70	
9.021		Pervious Area

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

Subcatchment s11-1:

Runoff = 51.84 cfs @ 12.09 hrs, Volume= 3.793 af, Depth= 2.64"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
17.262	92	
17.262		Pervious Area

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

Subcatchment s13-1:

Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.009 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.300	55	
0.300		Pervious Area

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

Subcatchment s14-1:

Runoff = 20.26 cfs @ 12.14 hrs, Volume= 1.666 af, Depth= 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
12.768	79	
12.768		Pervious Area

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

Subcatchment s14-2:

Runoff = 18.67 cfs @ 12.06 hrs, Volume= 1.233 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
7.643	84	
7.643		Pervious Area

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

Subcatchment s14-3:

Runoff = 2.73 cfs @ 12.03 hrs, Volume= 0.168 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
1.131	82	
1.131		Pervious Area

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

Subcatchment s16-1:

Runoff = 27.30 cfs @ 12.13 hrs, Volume= 2.153 af, Depth= 1.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
14.494	82	
14.494		Pervious Area

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

Subcatchment s16-2:

Runoff = 3.32 cfs @ 12.15 hrs, Volume= 0.287 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
3.074	72	
3.074		Pervious Area

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

Subcatchment s16-3:

Runoff = 9.80 cfs @ 12.21 hrs, Volume= 0.956 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
10.239	72	
10.239		Pervious Area

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

Subcatchment s16-4:

Runoff = 20.26 cfs @ 12.28 hrs, Volume= 2.137 af, Depth= 1.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
13.242	84	
13.242		Pervious Area

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

Subcatchment s16-5:

Runoff = 7.78 cfs @ 12.06 hrs, Volume= 0.518 af, Depth= 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
3.971	79	
3.971		Pervious Area

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

Subcatchment s16-6:

Runoff = 3.04 cfs @ 12.11 hrs, Volume= 0.247 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
3.105	69	
3.105		Pervious Area

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

Subcatchment s16-7:

Runoff = 10.58 cfs @ 12.21 hrs, Volume= 1.119 af, Depth= 0.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
15.797	67	
15.797		Pervious Area

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

Subcatchment s17-1:

Runoff = 2.43 cfs @ 12.10 hrs, Volume= 0.193 af, Depth= 0.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
2.572	68	
2.572		Pervious Area

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

Subcatchment s17-2:

Runoff = 32.56 cfs @ 13.57 hrs, Volume= 9.873 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
124.201	69	
124.201		Pervious Area

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

Subcatchment s18-1:

Runoff = 2.17 cfs @ 12.02 hrs, Volume= 0.129 af, Depth= 1.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.908	81	
0.908		Pervious Area

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

Subcatchment s18-2:

Runoff = 6.28 cfs @ 12.11 hrs, Volume= 0.485 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
4.931	73	
4.931		Pervious Area

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

Subcatchment s18-3:

Runoff = 9.03 cfs @ 12.05 hrs, Volume= 0.580 af, Depth= 1.57"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
4.448	79	
4.448		Pervious Area

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

Subcatchment s18-4:

Runoff = 39.99 cfs @ 12.04 hrs, Volume= 2.589 af, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
12.689	90	
12.689		Pervious Area

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

Subcatchment s18-5:

Runoff = 4.42 cfs @ 12.10 hrs, Volume= 0.329 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
3.349	73	
3.349		Pervious Area

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

Subcatchment s19-0:

Runoff = 3.42 cfs @ 12.70 hrs, Volume= 0.687 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
15.520	60	
15.520		Pervious Area

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

Subcatchment s20-1:

Runoff = 10.15 cfs @ 12.14 hrs, Volume= 0.860 af, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
9.702	71	
9.702		Pervious Area

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

Subcatchment s20-2:

Runoff = 2.69 cfs @ 12.15 hrs, Volume= 0.230 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
2.342	73	
2.342		Pervious Area

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

Subcatchment s20-3:

Runoff = 3.12 cfs @ 12.47 hrs, Volume= 0.426 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
5.071	70	
5.071		Pervious Area

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

Subcatchment s20-4:

Runoff = 0.88 cfs @ 12.15 hrs, Volume= 0.100 af, Depth= 0.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
2.261	60	
2.261		Pervious Area

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

Subcatchment s20-5:

Runoff = 1.64 cfs @ 12.11 hrs, Volume= 0.144 af, Depth= 0.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
2.451	64	
2.451		Pervious Area

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

Subcatchment s21-1:

Runoff = 71.53 cfs @ 12.19 hrs, Volume= 6.723 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
68.392	73	
68.392		Pervious Area

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

Subcatchment s21-2:

Runoff = 11.15 cfs @ 12.08 hrs, Volume= 0.764 af, Depth= 1.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
4.934	83	
4.934		Pervious Area

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

Subcatchment s21-3:

Runoff = 12.92 cfs @ 12.09 hrs, Volume= 0.928 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
4.724	89	
4.724		Pervious Area

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

Subcatchment s21-4:

Runoff = 1.95 cfs @ 12.03 hrs, Volume= 0.126 af, Depth= 2.84"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.534	94	
0.534		Pervious Area

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

Subcatchment s21-5:

Runoff = 1.18 cfs @ 12.03 hrs, Volume= 0.082 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
0.300	98	
0.300		Impervious Area

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

Subcatchment s21-6:

Runoff = 16.46 cfs @ 12.16 hrs, Volume= 1.471 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
15.746	72	
15.746		Pervious Area

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

Subcatchment s21-7:

Runoff = 3.36 cfs @ 12.53 hrs, Volume= 0.487 af, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
5.491	71	
5.491		Pervious Area

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

Subcatchment s22-1:

Runoff = 10.80 cfs @ 12.12 hrs, Volume= 0.873 af, Depth= 1.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
9.346	72	
9.346		Pervious Area

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

Subcatchment s22-2:

Runoff = 21.89 cfs @ 12.40 hrs, Volume= 2.808 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
33.425	70	
33.425		Pervious Area

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

Subcatchment s22-3:

Runoff = 5.30 cfs @ 12.11 hrs, Volume= 0.405 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
3.920	74	
3.920		Pervious Area

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

Subcatchment s23-1:

Runoff = 5.70 cfs @ 12.29 hrs, Volume= 0.635 af, Depth= 1.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
7.168	71	
7.168		Pervious Area

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

Subcatchment s23-2:

Runoff = 48.33 cfs @ 12.66 hrs, Volume= 7.637 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
73.912	74	
73.912		Pervious Area

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

Subcatchment s24-0:

Runoff = 17.23 cfs @ 12.48 hrs, Volume= 2.380 af, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
28.325	70	
28.325		Pervious Area

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

Subcatchment s25-1:

Runoff = 10.77 cfs @ 12.20 hrs, Volume= 1.066 af, Depth= 0.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
13.414	69	
13.414		Pervious Area

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

Subcatchment s26-0:

Runoff = 0.77 cfs @ 12.64 hrs, Volume= 0.168 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
5.306	56	
5.306		Pervious Area

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

Subcatchment s27-1:

Runoff = 11.36 cfs @ 12.75 hrs, Volume= 2.113 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
31.683	66	
31.683		Pervious Area

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

Subcatchment s28-1:

Runoff = 5.47 cfs @ 12.14 hrs, Volume= 0.489 af, Depth= 0.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.50"

Area (ac)	CN	Description
6.510	68	
6.510		Pervious Area

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

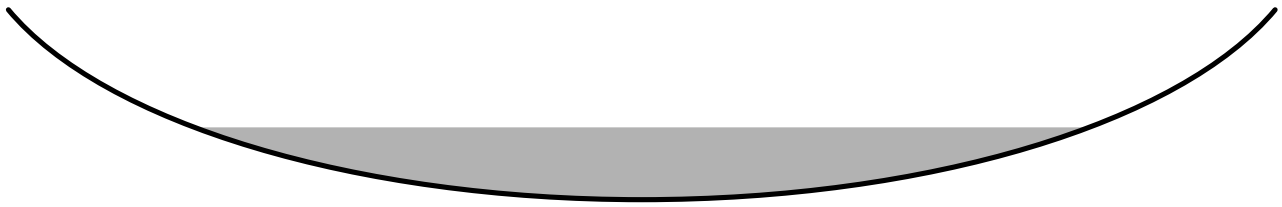
Reach 25R:

Inflow Area = 48.945 ac, Inflow Depth = 0.86" for 2-yr event
Inflow = 21.90 cfs @ 12.40 hrs, Volume= 3.495 af
Outflow = 21.53 cfs @ 12.45 hrs, Volume= 3.495 af, Atten= 2%, Lag= 3.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.76 fps, Min. Travel Time= 3.7 min
Avg. Velocity = 0.39 fps, Avg. Travel Time= 26.6 min

Peak Storage= 4,839 cf @ 12.45 hrs, Average Depth at Peak Storage= 0.38'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 175.17 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 620.0' Slope= 0.0774 '/'
Inlet Invert= 560.00', Outlet Invert= 512.00'



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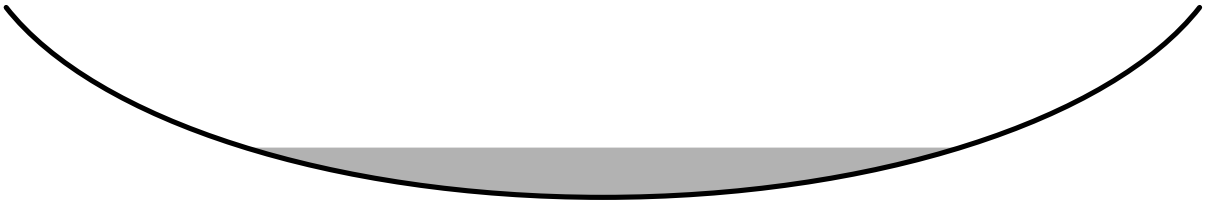
Reach r03-1:

Inflow Area = 11.485 ac, Inflow Depth = 0.90" for 2-yr event
Inflow = 5.15 cfs @ 12.65 hrs, Volume= 0.863 af
Outflow = 5.12 cfs @ 12.71 hrs, Volume= 0.863 af, Atten= 1%, Lag= 3.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.86 fps, Min. Travel Time= 3.4 min
Avg. Velocity = 1.65 fps, Avg. Travel Time= 7.9 min

Peak Storage= 1,042 cf @ 12.71 hrs, Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 92.14 cfs

10.00' x 1.50' deep Parabolic Channel, n= 0.060
Length= 785.0' Slope= 0.1490 '/'
Inlet Invert= 845.00', Outlet Invert= 728.00'



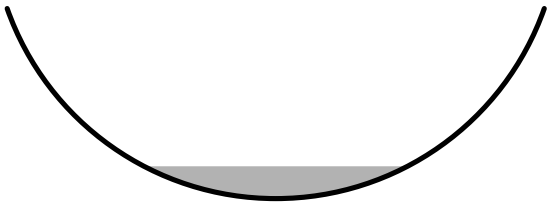
Reach r04-1:

Inflow Area = 26.401 ac, Inflow Depth = 1.07" for 2-yr event
Inflow = 12.61 cfs @ 12.28 hrs, Volume= 2.352 af
Outflow = 12.60 cfs @ 12.30 hrs, Volume= 2.352 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.68 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.21 fps, Avg. Travel Time= 4.6 min

Peak Storage= 732 cf @ 12.30 hrs, Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 530.15 cfs

12.00' x 4.00' deep Parabolic Channel, n= 0.060
Length= 330.0' Slope= 0.1621 '/'
Inlet Invert= 685.50', Outlet Invert= 632.00'



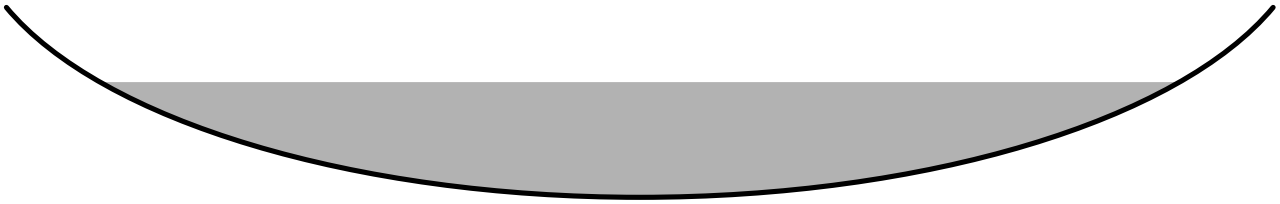
Reach r08-1a:

Inflow Area = 97.969 ac, Inflow Depth = 0.85" for 2-yr event
Inflow = 27.80 cfs @ 12.97 hrs, Volume= 6.934 af
Outflow = 27.80 cfs @ 12.97 hrs, Volume= 6.934 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.85 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 3.62 fps, Avg. Travel Time= 1.0 min

Peak Storage= 710 cf @ 12.97 hrs, Average Depth at Peak Storage= 0.61'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 81.88 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.027
Length= 226.0' Slope= 0.0885 '/'
Inlet Invert= 607.00', Outlet Invert= 587.00'



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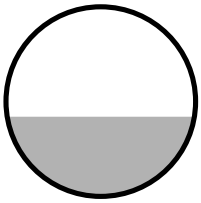
Reach r08-1b:

Inflow Area = 103.275 ac, Inflow Depth = 0.83" for 2-yr event
Inflow = 28.34 cfs @ 12.97 hrs, Volume= 7.102 af
Outflow = 28.34 cfs @ 12.97 hrs, Volume= 7.102 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 22.68 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 9.71 fps, Avg. Travel Time= 0.5 min

Peak Storage= 369 cf @ 12.97 hrs, Average Depth at Peak Storage= 0.84'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 77.17 cfs

24.0" Diameter Pipe, n= 0.012
Length= 295.0' Slope= 0.0992 '/'
Inlet Invert= 587.00', Outlet Invert= 557.75'



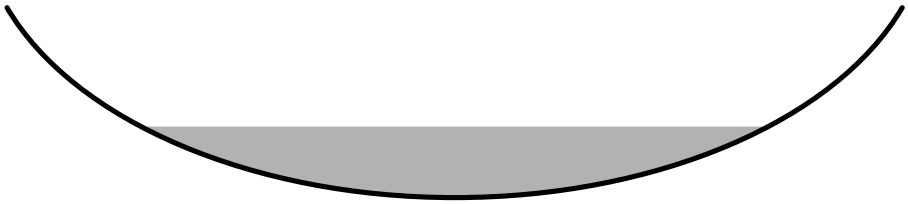
Reach r08-1c:

Inflow Area = 103.275 ac, Inflow Depth = 0.83" for 2-yr event
Inflow = 28.34 cfs @ 12.97 hrs, Volume= 7.102 af
Outflow = 28.33 cfs @ 12.98 hrs, Volume= 7.102 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.37 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 3.83 fps, Avg. Travel Time= 2.6 min

Peak Storage= 1,785 cf @ 12.98 hrs, Average Depth at Peak Storage= 0.74'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 232.56 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 590.0' Slope= 0.0775 '/'
Inlet Invert= 557.75', Outlet Invert= 512.00'



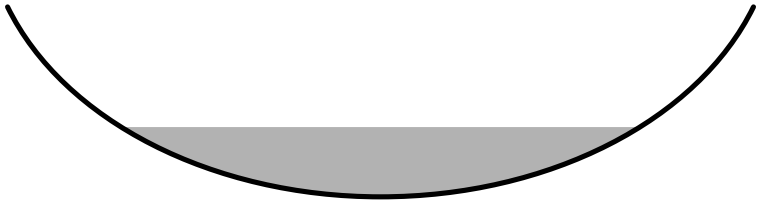
Reach r08-1d: Amenia Creek/Cascade Brook

Inflow Area = 107.107 ac, Inflow Depth > 74.89" for 2-yr event
Inflow = 68.46 cfs @ 12.98 hrs, Volume= 668.461 af, Incl. 40.00 cfs Base Flow
Outflow = 68.30 cfs @ 13.04 hrs, Volume= 668.180 af, Atten= 0%, Lag= 3.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.08 fps, Min. Travel Time= 4.4 min
Avg. Velocity = 2.63 fps, Avg. Travel Time= 5.1 min

Peak Storage= 17,866 cf @ 13.04 hrs, Average Depth at Peak Storage= 2.20'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 571.01 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 805.0' Slope= 0.0099 '/'
Inlet Invert= 512.00', Outlet Invert= 504.00'



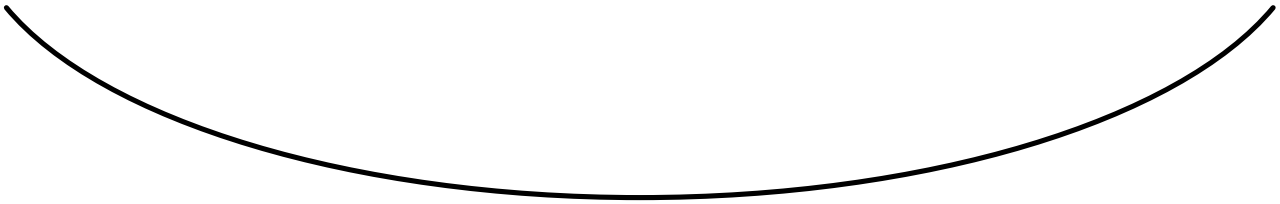
Reach r18-2:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 434.91 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 720.0' Slope= 0.4772 '/'
Inlet Invert= 973.60', Outlet Invert= 630.00'



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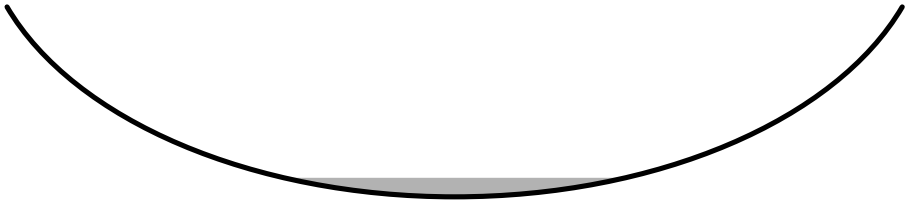
Reach r21-1a:

Inflow Area = 253.658 ac, Inflow Depth > 0.84" for 2-yr event
Inflow = 4.63 cfs @ 26.73 hrs, Volume= 17.814 af
Outflow = 4.63 cfs @ 26.78 hrs, Volume= 17.812 af, Atten= 0%, Lag= 2.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.79 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 1.63 fps, Avg. Travel Time= 6.6 min

Peak Storage= 1,074 cf @ 26.78 hrs, Average Depth at Peak Storage= 0.40'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 658.74 cfs

20.00' x 4.00' deep Parabolic Channel, n= 0.027
Length= 648.0' Slope= 0.0154 '/'
Inlet Invert= 504.00', Outlet Invert= 494.00'



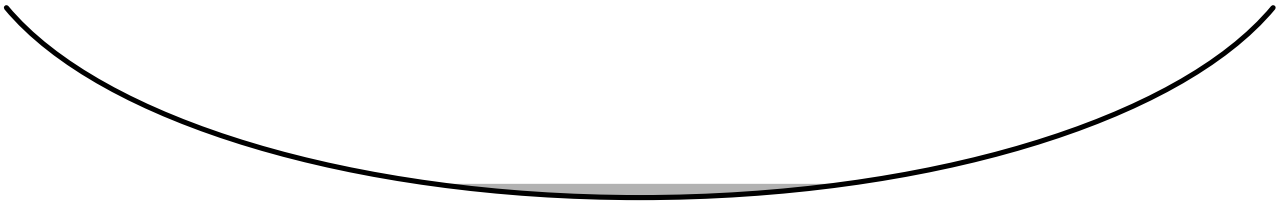
Reach r22-2:

Inflow Area = 15.520 ac, Inflow Depth = 0.53" for 2-yr event
Inflow = 1.53 cfs @ 13.49 hrs, Volume= 0.687 af
Outflow = 1.53 cfs @ 13.54 hrs, Volume= 0.687 af, Atten= 0%, Lag= 3.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.42 fps, Min. Travel Time= 4.3 min
Avg. Velocity = 0.84 fps, Avg. Travel Time= 12.5 min

Peak Storage= 398 cf @ 13.54 hrs, Average Depth at Peak Storage= 0.07'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 469.25 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 630.0' Slope= 0.5556 '/'
Inlet Invert= 970.00', Outlet Invert= 620.00'



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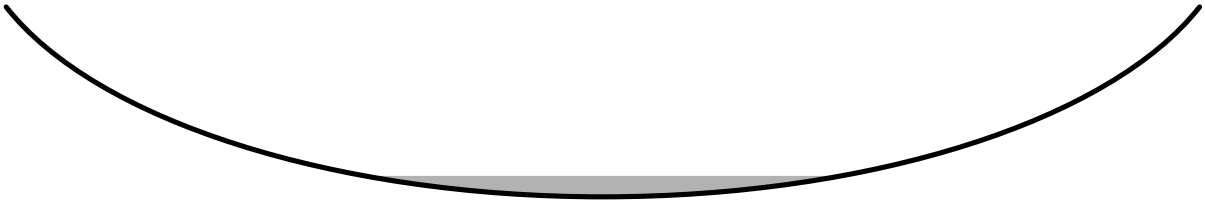
Reach r25-1b: Wetland Reach

Inflow Area = 23.347 ac, Inflow Depth > 0.66" for 2-yr event
Inflow = 1.34 cfs @ 15.25 hrs, Volume= 1.294 af
Outflow = 1.34 cfs @ 15.42 hrs, Volume= 1.293 af, Atten= 1%, Lag= 10.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.92 fps, Min. Travel Time= 13.5 min
Avg. Velocity = 0.29 fps, Avg. Travel Time= 43.4 min

Peak Storage= 1,084 cf @ 15.42 hrs, Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 156.51 cfs

20.00' x 3.00' deep Parabolic Channel, n= 0.045
Length= 750.0' Slope= 0.0060 '/'
Inlet Invert= 504.00', Outlet Invert= 499.50'



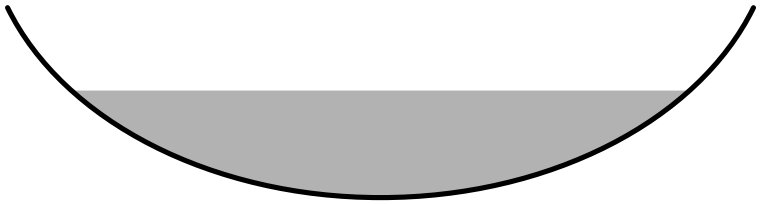
Reach r25-1c: Amenia Creek/Cascade Brook

Inflow Area = 118.007 ac, Inflow Depth > 135.23" for 2-yr event
Inflow = 109.61 cfs @ 13.03 hrs, Volume= 1,329.853 af, Incl. 40.00 cfs Base Flow
Outflow = 109.29 cfs @ 13.10 hrs, Volume= 1,329.094 af, Atten= 0%, Lag= 4.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.59 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 2.36 fps, Avg. Travel Time= 6.9 min

Peak Storage= 41,178 cf @ 13.10 hrs, Average Depth at Peak Storage= 3.38'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 366.88 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 975.0' Slope= 0.0041 '/'
Inlet Invert= 504.00', Outlet Invert= 500.00'



Pond p03-3: Underground Detention

Inflow Area = 0.947 ac, Inflow Depth = 3.05" for 2-yr event
Inflow = 3.73 cfs @ 12.01 hrs, Volume= 0.240 af
Outflow = 0.05 cfs @ 19.00 hrs, Volume= 0.240 af, Atten= 99%, Lag= 419.2 min
Primary = 0.05 cfs @ 19.00 hrs, Volume= 0.240 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 803.37' @ 19.00 hrs Surf.Area= 2,977 sf Storage= 8,169 cf

Plug-Flow detention time= 1,888.2 min calculated for 0.240 af (100% of inflow)
Center-of-Mass det. time= 1,888.5 min (2,655.4 - 766.9)

Volume	Invert	Avail.Storage	Storage Description
#1	800.00'	14,137 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 5

Device	Routing	Invert	Outlet Devices
#1	Primary	800.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	805.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.05 cfs @ 19.00 hrs HW=803.37' TW=720.42' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.05 cfs @ 8.78 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p05-2:

Inflow Area = 46.967 ac, Inflow Depth = 1.00" for 2-yr event
Inflow = 26.94 cfs @ 12.23 hrs, Volume= 3.924 af
Outflow = 16.50 cfs @ 12.63 hrs, Volume= 3.924 af, Atten= 39%, Lag= 24.1 min
Primary = 16.50 cfs @ 12.63 hrs, Volume= 3.924 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 584.00' Surf.Area= 39,691 sf Storage= 193,237 cf
Peak Elev= 584.73' @ 12.63 hrs Surf.Area= 42,429 sf Storage= 223,086 cf (29,849 cf above start)
Flood Elev= 585.00' Surf.Area= 43,480 sf Storage= 234,808 cf (41,571 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 56.0 min (1,053.0 - 996.9)

Volume	Invert	Avail.Storage	Storage Description
#1	577.00'	286,360 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)
577.00	16,551	0	0	16,551
579.00	22,509	38,908	38,908	22,590
581.00	29,072	51,441	90,349	29,251
583.00	36,074	65,020	155,369	36,369
585.00	43,480	79,439	234,808	43,908
586.00	60,070	51,552	286,360	60,518

Device	Routing	Invert	Outlet Devices
#1	Primary	584.00'	**10.0' long x 25.0' 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	Primary	585.00'	**60.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=16.50 cfs @ 12.63 hrs HW=584.73' TW=573.75' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 16.50 cfs @ 2.27 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p06-1:

Inflow Area = 23.347 ac, Inflow Depth = 0.68" for 2-yr event
Inflow = 4.79 cfs @ 12.24 hrs, Volume= 1.316 af
Outflow = 1.34 cfs @ 15.25 hrs, Volume= 1.294 af, Atten= 72%, Lag= 180.2 min
Primary = 1.34 cfs @ 15.25 hrs, Volume= 1.294 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 41,229 sf Storage= 93,452 cf
Peak Elev= 507.23' @ 15.25 hrs Surf.Area= 44,931 sf Storage= 113,172 cf (19,719 cf above start)
Flood Elev= 507.10' Surf.Area= 43,840 sf Storage= 107,358 cf (13,906 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 678.3 min (1,760.4 - 1,082.1)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	149,075 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	41,229	93,452	93,452	41,302
508.00	51,671	55,622	149,075	51,784

Device	Routing	Invert	Outlet Devices
#1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900
			Outlet Invert= 506.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=1.34 cfs @ 15.25 hrs HW=507.23' TW=504.33' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.56 cfs @ 1.75 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.79 cfs @ 0.87 fps)

Pond p06-2: Underground Detention

Inflow Area = 15.682 ac, Inflow Depth = 0.62" for 2-yr event
Inflow = 6.22 cfs @ 12.28 hrs, Volume= 0.804 af
Outflow = 1.80 cfs @ 12.98 hrs, Volume= 0.804 af, Atten= 71%, Lag= 41.8 min
Primary = 1.80 cfs @ 12.98 hrs, Volume= 0.804 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 522.18' @ 12.98 hrs Surf.Area= 6,375 sf Storage= 11,190 cf
Flood Elev= 528.00' Surf.Area= 0 sf Storage= 20,106 cf

Plug-Flow detention time= 294.1 min calculated for 0.804 af (100% of inflow)
Center-of-Mass det. time= 294.5 min (1,203.2 - 908.7)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	20,106 cf	**48.0"D x 100.00'L Horizontal Cylinder** x 16

Device	Routing	Invert	Outlet Devices
#1	Primary	520.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	522.00'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.80 cfs @ 12.98 hrs HW=522.18' TW=507.05' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.34 cfs @ 6.90 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 1.46 cfs @ 1.38 fps)

Pond p07-1:

Inflow Area = 61.918 ac, Inflow Depth = 0.93" for 2-yr event
Inflow = 20.47 cfs @ 12.51 hrs, Volume= 4.803 af
Outflow = 18.80 cfs @ 12.71 hrs, Volume= 4.796 af, Atten= 8%, Lag= 12.2 min
Primary = 8.95 cfs @ 12.71 hrs, Volume= 2.787 af
Secondary = 9.85 cfs @ 12.71 hrs, Volume= 2.008 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 573.76' @ 12.71 hrs Surf.Area= 26,176 sf Storage= 79,779 cf (23,515 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)

Plug-Flow detention time= 434.0 min calculated for 3.504 af (73% of inflow)
Center-of-Mass det. time= 104.4 min (1,128.7 - 1,024.3)

Volume	Invert	Avail.Storage	Storage Description
#1	565.00'	147,831 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424
576.00	35,150	62,274	147,831	35,383

Device	Routing	Invert	Outlet Devices
#1	Secondary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Secondary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46
#3	Primary	573.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=8.95 cfs @ 12.71 hrs HW=573.76' TW=572.07' (Dynamic Tailwater)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 8.95 cfs @ 2.34 fps)

Secondary OutFlow Max=9.85 cfs @ 12.71 hrs HW=573.76' TW=0.00' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 3.16 cfs @ 2.64 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 6.68 cfs @ 1.26 fps)

Pond p08-2:

Inflow Area = 3.832 ac, Inflow Depth = 0.53" for 2-yr event
Inflow = 1.24 cfs @ 12.26 hrs, Volume= 0.170 af
Outflow = 0.15 cfs @ 15.78 hrs, Volume= 0.169 af, Atten= 88%, Lag= 211.5 min
Primary = 0.15 cfs @ 15.78 hrs, Volume= 0.169 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 527.50' Surf.Area= 3,950 sf Storage= 5,322 cf
Peak Elev= 528.05' @ 15.78 hrs Surf.Area= 7,324 sf Storage= 8,466 cf (3,143 cf above start)
Flood Elev= 531.00' Surf.Area= 10,855 sf Storage= 35,135 cf (29,813 cf above start)

Plug-Flow detention time= 1,002.1 min calculated for 0.047 af (28% of inflow)
Center-of-Mass det. time= 325.6 min (1,241.9 - 916.3)

Volume	Invert	Avail.Storage	Storage Description
#1	523.00'	46,638 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)
523.00	156	0	0	156
524.00	435	284	284	441
525.00	816	616	899	832
526.00	1,291	1,044	1,944	1,321
526.50	1,563	712	2,656	1,601
527.50	3,950	2,666	5,322	3,995
528.00	7,267	2,762	8,085	7,314
529.00	8,407	7,830	15,915	8,497
530.00	9,602	8,998	24,913	9,738
531.00	10,855	10,222	35,135	11,041
532.00	12,164	11,503	46,638	12,404

Device	Routing	Invert	Outlet Devices
#1	Primary	527.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	530.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.15 cfs @ 15.78 hrs HW=528.05' TW=513.84' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.15 cfs @ 3.15 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p08-3: Underground Detention

Inflow Area = 0.595 ac, Inflow Depth = 3.27" for 2-yr event
Inflow = 2.26 cfs @ 12.04 hrs, Volume= 0.162 af
Outflow = 0.05 cfs @ 16.64 hrs, Volume= 0.162 af, Atten= 98%, Lag= 275.6 min
Primary = 0.05 cfs @ 16.64 hrs, Volume= 0.162 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 603.41' @ 16.64 hrs Surf.Area= 1,783 sf Storage= 4,982 cf

Plug-Flow detention time= 1,145.7 min calculated for 0.162 af (100% of inflow)
Center-of-Mass det. time= 1,146.0 min (1,897.8 - 751.8)

Volume	Invert	Avail.Storage	Storage Description
#1	600.00'	8,482 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 3

Device	Routing	Invert	Outlet Devices
#1	Primary	600.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	605.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.05 cfs @ 16.64 hrs HW=603.41' TW=0.00' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.05 cfs @ 8.84 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p09-1:

Inflow Area = 67.345 ac, Inflow Depth = 0.57" for 2-yr event
Inflow = 10.01 cfs @ 12.68 hrs, Volume= 3.192 af
Outflow = 8.11 cfs @ 13.38 hrs, Volume= 2.925 af, Atten= 19%, Lag= 42.1 min
Primary = 8.11 cfs @ 13.38 hrs, Volume= 2.925 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 558.06' @ 13.38 hrs Surf.Area= 26,110 sf Storage= 25,480 cf
Flood Elev= 558.00' Surf.Area= 25,588 sf Storage= 24,042 cf

Plug-Flow detention time= 119.2 min calculated for 2.925 af (92% of inflow)
Center-of-Mass det. time= 74.9 min (1,037.3 - 962.4)

Volume	Invert	Avail.Storage	Storage Description
#1	557.00'	96,165 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)
557.00	22,529	0	0	22,529
558.00	25,588	24,042	24,042	25,637
560.00	47,670	72,122	96,165	47,760

Device	Routing	Invert	Outlet Devices
#1	Primary	557.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	558.00'	**80.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=8.11 cfs @ 13.38 hrs HW=558.06' TW=537.46' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 5.50 cfs @ 1.98 fps)
2=Broad-Crested Rectangular Weir (Weir Controls 2.61 cfs @ 0.59 fps)

Pond p09-2:

Inflow Area = 62.137 ac, Inflow Depth = 0.55" for 2-yr event
Inflow = 9.03 cfs @ 12.71 hrs, Volume= 2.843 af
Outflow = 9.02 cfs @ 12.73 hrs, Volume= 2.778 af, Atten= 0%, Lag= 1.0 min
Primary = 9.02 cfs @ 12.73 hrs, Volume= 2.778 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 572.07' @ 12.73 hrs Surf.Area= 5,156 sf Storage= 5,819 cf
Flood Elev= 572.00' Surf.Area= 5,086 sf Storage= 5,483 cf

Plug-Flow detention time= 30.7 min calculated for 2.778 af (98% of inflow)
Center-of-Mass det. time= 17.1 min (975.4 - 958.3)

Volume	Invert	Avail.Storage	Storage Description
#1	571.00'	17,934 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)
571.00	5,889	0	0	5,889
572.00	5,086	5,483	5,483	6,734
574.00	7,440	12,452	17,934	9,153

Device	Routing	Invert	Outlet Devices
#1	Primary	571.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	572.00'	**80.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=9.02 cfs @ 12.73 hrs HW=572.07' TW=557.62' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 5.67 cfs @ 2.00 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 3.35 cfs @ 0.64 fps)

Pond p10-1:

Inflow Area = 98.208 ac, Inflow Depth = 0.47" for 2-yr event
Inflow = 8.26 cfs @ 12.20 hrs, Volume= 3.850 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 49,539 sf Storage= 138,709 cf
Peak Elev= 501.48' @ 200.00 hrs Surf.Area= 59,480 sf Storage= 306,432 cf (167,723 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	874,719 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	49,539	138,709	138,709	49,650
500.00	53,826	82,668	221,377	54,126
502.00	61,486	115,227	336,605	61,973
504.00	77,594	138,768	475,373	78,189
506.00	95,372	172,661	648,033	96,088
508.00	132,320	226,686	874,719	133,113

Device	Routing	Invert	Outlet Devices
#1	Primary	506.00'	**Custom Weir/Orifice, C= 3.00** Head (feet) 0.00 2.00 Width (feet) 20.00 150.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=498.40' TW=0.00' (Dynamic Tailwater)
└**1=Custom Weir/Orifice** (Controls 0.00 cfs)

Pond p11-1: Underground Detention

Inflow Area = 17.262 ac, Inflow Depth = 2.64" for 2-yr event
Inflow = 51.84 cfs @ 12.09 hrs, Volume= 3.793 af
Outflow = 0.44 cfs @ 24.05 hrs, Volume= 3.790 af, Atten= 99%, Lag= 717.7 min
Primary = 0.44 cfs @ 24.05 hrs, Volume= 3.790 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 527.65' @ 24.05 hrs Surf.Area= 46,848 sf Storage= 144,204 cf

Plug-Flow detention time= 3,561.0 min calculated for 3.790 af (100% of inflow)
Center-of-Mass det. time= 3,560.4 min (4,355.0 - 794.6)

Volume	Invert	Avail.Storage	Storage Description
#1	524.00'	226,195 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 80

Device	Routing	Invert	Outlet Devices
#1	Primary	524.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	528.50'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.44 cfs @ 24.05 hrs HW=527.65' TW=510.24' (Dynamic Tailwater)
└**1=Orifice/Grate** (Orifice Controls 0.44 cfs @ 9.04 fps)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p13-1:

Inflow Area = 0.300 ac, Inflow Depth = 0.35" for 2-yr event
Inflow = 0.06 cfs @ 12.09 hrs, Volume= 0.009 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 518.22' @ 24.12 hrs Surf.Area= 1,412 sf Storage= 377 cf
Flood Elev= 527.00' Surf.Area= 10,067 sf Storage= 40,862 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	518.00'	50,891 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
518.00	1,331	0	0	1,331
520.00	2,048	3,353	3,353	2,104
522.00	2,912	4,935	8,288	3,037
522.50	3,150	1,515	9,803	3,294
524.00	5,894	6,676	16,480	6,061
526.00	8,542	14,354	30,834	8,776
528.00	11,592	20,057	50,891	11,908

Device	Routing	Invert	Outlet Devices
#1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=518.00' TW=497.40' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p14-1:

Inflow Area = 20.711 ac, Inflow Depth = 1.68" for 2-yr event
Inflow = 34.86 cfs @ 12.10 hrs, Volume= 2.900 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 44,199 sf Storage= 109,024 cf
Peak Elev= 499.91' @ 24.57 hrs Surf.Area= 57,830 sf Storage= 235,330 cf (126,306 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	899,480 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	44,199	109,024	109,024	44,285
498.00	45,919	27,034	136,058	46,063
500.00	58,406	104,075	240,133	58,654
502.00	72,976	131,112	371,245	73,337
504.00	83,672	156,526	527,771	84,215
506.00	91,692	175,303	703,074	92,505
508.00	104,861	196,406	899,480	105,860

Device	Routing	Invert	Outlet Devices
#1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.40' TW=498.40' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Pond p14-3:

Inflow Area = 68.476 ac, Inflow Depth = 0.54" for 2-yr event
Inflow = 8.31 cfs @ 13.38 hrs, Volume= 3.093 af
Outflow = 6.76 cfs @ 14.06 hrs, Volume= 3.093 af, Atten= 19%, Lag= 40.7 min
Primary = 6.76 cfs @ 14.06 hrs, Volume= 3.093 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 537.63' @ 14.06 hrs Surf.Area= 23,196 sf Storage= 13,952 cf
Flood Elev= 538.00' Surf.Area= 24,510 sf Storage= 22,749 cf

Plug-Flow detention time= 51.8 min calculated for 3.093 af (100% of inflow)
Center-of-Mass det. time= 51.6 min (1,077.6 - 1,025.9)

Volume	Invert	Avail.Storage	Storage Description
#1	537.00'	76,857 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)
537.00	21,033	0	0	21,033
538.00	24,510	22,749	22,749	24,551
540.00	29,680	54,108	76,857	29,851

Device	Routing	Invert	Outlet Devices
#1	Primary	537.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	538.00'	**100.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=6.76 cfs @ 14.06 hrs HW=537.63' TW=499.17' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 6.76 cfs @ 2.14 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p16-1:

Inflow Area = 234.282 ac, Inflow Depth = 1.30" for 2-yr event
Inflow = 52.81 cfs @ 12.15 hrs, Volume= 25.379 af
Outflow = 4.71 cfs @ 24.90 hrs, Volume= 16.317 af, Atten= 91%, Lag= 764.9 min
Primary = 4.71 cfs @ 24.90 hrs, Volume= 16.317 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 510.25' @ 24.90 hrs Surf.Area= 260,342 sf Storage= 1,549,194 cf (670,874 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 1,687.0 min (3,425.5 - 1,738.5)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

Device	Routing	Invert	Outlet Devices
#1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' Cc= 0.900 n= 0.024
#2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' Cc= 0.900 n= 0.013
#3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=4.71 cfs @ 24.90 hrs HW=510.25' TW=505.79' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 4.71 cfs @ 3.00 fps)
- **2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
- **3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p16-4:

Inflow Area = 13.242 ac, Inflow Depth = 1.94" for 2-yr event
Inflow = 20.26 cfs @ 12.28 hrs, Volume= 2.137 af
Outflow = 2.33 cfs @ 13.76 hrs, Volume= 2.135 af, Atten= 88%, Lag= 88.6 min
Primary = 2.33 cfs @ 13.76 hrs, Volume= 2.135 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 512.00' Surf.Area= 8,089 sf Storage= 14,361 cf
Peak Elev= 516.33' @ 13.76 hrs Surf.Area= 17,307 sf Storage= 68,292 cf (53,931 cf above start)
Flood Elev= 519.00' Surf.Area= 23,907 sf Storage= 123,088 cf (108,727 cf above start)

Plug-Flow detention time= 1,219.7 min calculated for 1.806 af (85% of inflow)
Center-of-Mass det. time= 970.8 min (1,809.3 - 838.5)

Volume	Invert	Avail.Storage	Storage Description
#1	504.50'	148,324 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)
504.50	34	0	0	34
506.00	293	213	213	300
508.00	1,136	1,337	1,551	1,162
510.00	2,508	3,555	5,105	2,566
510.50	2,890	1,348	6,454	2,959
512.00	8,089	7,907	14,361	8,172
514.00	11,952	19,916	34,276	12,099
516.00	16,547	28,375	62,651	16,771
518.00	21,367	37,811	100,463	21,688
520.00	26,589	47,861	148,324	27,024

Device	Routing	Invert	Outlet Devices
#1	Primary	512.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	516.00'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.33 cfs @ 13.76 hrs HW=516.33' TW=508.19' (Dynamic Tailwater)
└**1=Orifice/Grate** (Orifice Controls 0.48 cfs @ 9.88 fps)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 1.85 cfs @ 1.89 fps)

Pond p16-5:

Inflow Area = 3.971 ac, Inflow Depth = 1.57" for 2-yr event
Inflow = 7.78 cfs @ 12.06 hrs, Volume= 0.518 af
Outflow = 0.29 cfs @ 15.87 hrs, Volume= 0.517 af, Atten= 96%, Lag= 228.5 min
Primary = 0.29 cfs @ 15.87 hrs, Volume= 0.517 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 534.00' Surf.Area= 7,168 sf Storage= 14,550 cf
Peak Elev= 535.65' @ 15.87 hrs Surf.Area= 9,801 sf Storage= 28,524 cf (13,974 cf above start)
Flood Elev= 541.00' Surf.Area= 20,427 sf Storage= 108,016 cf (93,466 cf above start)

Plug-Flow detention time= 1,425.4 min calculated for 0.183 af (35% of inflow)
Center-of-Mass det. time= 657.3 min (1,496.8 - 839.5)

Volume	Invert	Avail.Storage	Storage Description
#1	528.00'	129,594 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)
528.00	447	0	0	447
530.00	1,292	1,666	1,666	1,316
532.00	2,598	3,815	5,481	2,658
532.50	3,239	1,456	6,937	3,306
534.00	7,168	7,613	14,550	7,253
536.00	10,404	17,472	32,022	10,556
538.00	14,112	24,422	56,444	14,345
540.00	18,230	32,254	88,698	18,561
542.00	22,750	40,897	129,594	23,193

Device	Routing	Invert	Outlet Devices
#1	Primary	534.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.29 cfs @ 15.87 hrs HW=535.65' TW=509.43' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.29 cfs @ 5.95 fps)

Pond p17-1:

Inflow Area = 126.773 ac, Inflow Depth = 0.95" for 2-yr event
Inflow = 32.83 cfs @ 13.57 hrs, Volume= 10.067 af
Outflow = 32.80 cfs @ 13.61 hrs, Volume= 10.067 af, Atten= 0%, Lag= 2.4 min
Primary = 32.80 cfs @ 13.61 hrs, Volume= 10.067 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.34' @ 13.61 hrs Surf.Area= 10,757 sf Storage= 23,779 cf (14,545 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)

Plug-Flow detention time= 32.9 min calculated for 9.855 af (98% of inflow)
Center-of-Mass det. time= 15.7 min (985.0 - 969.3)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	30,224 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

Device	Routing	Invert	Outlet Devices
#1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=32.80 cfs @ 13.61 hrs HW=525.34' TW=515.71' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 13.96 cfs @ 4.12 fps)
├─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 8.14 cfs @ 2.52 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 10.70 cfs @ 1.12 fps)

Pond p18-1:

Inflow Area = 5.356 ac, Inflow Depth = 1.59" for 2-yr event
Inflow = 10.95 cfs @ 12.04 hrs, Volume= 0.710 af
Outflow = 0.27 cfs @ 17.46 hrs, Volume= 0.708 af, Atten= 98%, Lag= 325.3 min
Primary = 0.27 cfs @ 17.46 hrs, Volume= 0.708 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Starting Elev= 515.50' Surf.Area= 8,701 sf Storage= 8,455 cf
Peak Elev= 516.94' @ 17.46 hrs Surf.Area= 17,460 sf Storage= 29,818 cf (21,363 cf above start)
Flood Elev= 519.00' Surf.Area= 22,111 sf Storage= 70,643 cf (62,188 cf above start)

Plug-Flow detention time= 1,453.1 min calculated for 0.514 af (72% of inflow)
Center-of-Mass det. time= 1,025.9 min (1,862.9 - 837.1)

Volume	Invert	Avail.Storage	Storage Description
#1	512.00'	93,928 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)
512.00	422	0	0	422
514.00	1,472	1,788	1,788	1,493
514.50	2,962	1,087	2,875	2,985
515.50	8,701	5,580	8,455	8,730
516.00	15,477	5,964	14,419	15,509
518.00	19,862	35,248	49,667	19,993
520.00	24,480	44,262	93,928	24,730

Device	Routing	Invert	Outlet Devices
#1	Primary	515.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	517.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.27 cfs @ 17.46 hrs HW=516.94' TW=509.81' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.27 cfs @ 5.51 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p18-2:

Inflow Area = 147.742 ac, Inflow Depth = 1.09" for 2-yr event
Inflow = 35.79 cfs @ 13.62 hrs, Volume= 13.467 af
Outflow = 35.62 cfs @ 13.74 hrs, Volume= 13.466 af, Atten= 0%, Lag= 7.0 min
Primary = 35.62 cfs @ 13.74 hrs, Volume= 13.466 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 515.72' @ 13.74 hrs Surf.Area= 27,226 sf Storage= 70,907 cf (44,023 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)

Plug-Flow detention time= 237.8 min calculated for 12.848 af (95% of inflow)
Center-of-Mass det. time= 60.6 min (1,305.0 - 1,244.4)

Volume	Invert	Avail.Storage	Storage Description
#1	510.00'	148,288 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

Device	Routing	Invert	Outlet Devices
#1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=35.62 cfs @ 13.74 hrs HW=515.72' TW=508.18' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 16.30 cfs @ 4.48 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 5.83 cfs @ 2.36 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 13.49 cfs @ 1.76 fps)

Pond p18-4:

Inflow Area = 16.038 ac, Inflow Depth = 2.18" for 2-yr event
Inflow = 43.58 cfs @ 12.05 hrs, Volume= 2.918 af
Outflow = 2.46 cfs @ 13.95 hrs, Volume= 2.915 af, Atten= 94%, Lag= 114.1 min
Primary = 2.46 cfs @ 13.95 hrs, Volume= 2.915 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 521.50' Surf.Area= 9,318 sf Storage= 16,432 cf
Peak Elev= 525.90' @ 13.95 hrs Surf.Area= 23,365 sf Storage= 97,123 cf (80,691 cf above start)
Flood Elev= 529.00' Surf.Area= 30,616 sf Storage= 180,767 cf (164,335 cf above start)

Plug-Flow detention time= 1,665.2 min calculated for 2.538 af (87% of inflow)
Center-of-Mass det. time= 1,396.3 min (2,203.7 - 807.4)

Volume	Invert	Avail.Storage	Storage Description
#1	516.00'	212,613 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)
516.00	292	0	0	292
518.00	1,596	1,714	1,714	1,612
520.00	3,769	5,212	6,926	3,814
521.50	9,318	9,507	16,432	9,379
522.00	15,200	6,070	22,502	15,264
524.00	19,211	34,333	56,835	19,381
526.00	23,606	42,742	99,576	23,897
528.00	28,236	51,773	151,349	28,665
530.00	33,092	61,264	212,613	33,677

Device	Routing	Invert	Outlet Devices
#1	Primary	521.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	525.50'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.46 cfs @ 13.95 hrs HW=525.90' TW=515.71' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.49 cfs @ 9.95 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 1.97 cfs @ 2.06 fps)

Pond p19-0:

Inflow Area = 15.520 ac, Inflow Depth = 0.53" for 2-yr event
Inflow = 3.42 cfs @ 12.70 hrs, Volume= 0.687 af
Outflow = 1.53 cfs @ 13.49 hrs, Volume= 0.687 af, Atten= 55%, Lag= 47.1 min
Primary = 1.53 cfs @ 13.49 hrs, Volume= 0.687 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.06' @ 13.49 hrs Surf.Area= 87,725 sf Storage= 64,357 cf (7,024 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 110.4 min (1,051.1 - 940.7)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

Device	Routing	Invert	Outlet Devices
#1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
#2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.53 cfs @ 13.49 hrs HW=972.06' TW=970.07' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 1.53 cfs @ 0.70 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20-1:

Inflow Area = 251.397 ac, Inflow Depth > 0.85" for 2-yr event
Inflow = 14.00 cfs @ 12.15 hrs, Volume= 17.833 af
Outflow = 4.63 cfs @ 26.73 hrs, Volume= 17.714 af, Atten= 67%, Lag= 875.2 min
Primary = 4.63 cfs @ 26.73 hrs, Volume= 17.714 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 505.80' @ 26.73 hrs Surf.Area= 89,378 sf Storage= 200,699 cf (62,175 cf above start)

Plug-Flow detention time= 1,694.7 min calculated for 14.533 af (81% of inflow)
Center-of-Mass det. time= 261.4 min (3,470.0 - 3,208.6)

Volume	Invert	Avail.Storage	Storage Description
#1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

Device	Routing	Invert	Outlet Devices
#1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=4.63 cfs @ 26.73 hrs HW=505.80' TW=504.40' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 4.63 cfs @ 2.22 fps)
- **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
- **3=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p21-1:

Inflow Area = 499.521 ac, Inflow Depth > 0.96" for 2-yr event
Inflow = 108.65 cfs @ 12.25 hrs, Volume= 40.049 af
Outflow = 11.88 cfs @ 16.29 hrs, Volume= 39.286 af, Atten= 89%, Lag= 242.5 min
Primary = 11.88 cfs @ 16.29 hrs, Volume= 39.286 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 482.75' @ 16.29 hrs Surf.Area= 308,093 sf Storage= 357,434 cf

Plug-Flow detention time= 532.9 min calculated for 39.284 af (98% of inflow)
Center-of-Mass det. time= 368.5 min (3,200.7 - 2,832.1)

Volume	Invert	Avail.Storage	Storage Description
#1	480.40'	8,387,099 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423
490.00	1,644,120	3,142,214	8,387,099	1,644,607

Device	Routing	Invert	Outlet Devices
#1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' Cc= 0.900 n= 0.024

Primary OutFlow Max=11.88 cfs @ 16.29 hrs HW=482.75' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 11.88 cfs @ 3.22 fps)

Pond p21-7:

Inflow Area = 10.425 ac, Inflow Depth = 1.44" for 2-yr event
Inflow = 11.86 cfs @ 12.08 hrs, Volume= 1.251 af
Outflow = 0.43 cfs @ 18.31 hrs, Volume= 1.249 af, Atten= 96%, Lag= 373.8 min
Primary = 0.43 cfs @ 18.31 hrs, Volume= 1.249 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 491.39' @ 18.31 hrs Surf.Area= 14,080 sf Storage= 38,188 cf
Flood Elev= 494.00' Surf.Area= 18,859 sf Storage= 81,129 cf

Plug-Flow detention time= 1,117.2 min calculated for 1.249 af (100% of inflow)
Center-of-Mass det. time= 1,116.9 min (1,970.1 - 853.2)

Volume	Invert	Avail.Storage	Storage Description
#1	488.00'	81,129 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
488.00	8,590	0	0
490.00	11,713	20,303	20,303
492.00	15,127	26,840	47,143
494.00	18,859	33,986	81,129

Device	Routing	Invert	Outlet Devices
#1	Primary	488.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	492.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.43 cfs @ 18.31 hrs HW=491.39' TW=482.72' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.43 cfs @ 8.70 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p22-1:

Inflow Area = 62.211 ac, Inflow Depth = 0.92" for 2-yr event
Inflow = 28.30 cfs @ 12.40 hrs, Volume= 4.773 af
Outflow = 27.89 cfs @ 12.45 hrs, Volume= 4.487 af, Atten= 1%, Lag= 2.7 min
Primary = 27.89 cfs @ 12.45 hrs, Volume= 4.487 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 501.07' @ 12.45 hrs Surf.Area= 10,075 sf Storage= 34,961 cf (24,855 cf above start)

Plug-Flow detention time= 127.8 min calculated for 4.255 af (89% of inflow)
Center-of-Mass det. time= 58.2 min (968.3 - 910.1)

Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

Device	Routing	Invert	Outlet Devices
#1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' Cc= 0.900 n= 0.024
#2	Primary	500.50'	**1.0' long x 15.0' 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
#3	Primary	500.50'	**20.0' long x 13.5' 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) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=27.89 cfs @ 12.45 hrs HW=501.07' TW=482.22' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 3.32 cfs @ 2.68 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 1.17 cfs @ 2.04 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 23.39 cfs @ 2.04 fps)

Pond p23-2:

Inflow Area = 73.912 ac, Inflow Depth = 1.24" for 2-yr event
Inflow = 48.33 cfs @ 12.66 hrs, Volume= 7.637 af
Outflow = 0.55 cfs @ 24.74 hrs, Volume= 6.391 af, Atten= 99%, Lag= 724.8 min
Primary = 0.55 cfs @ 24.74 hrs, Volume= 6.391 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Starting Elev= 508.00' Surf.Area= 43,560 sf Storage= 116,710 cf
Peak Elev= 513.55' @ 24.74 hrs Surf.Area= 68,690 sf Storage= 426,347 cf (309,637 cf above start)
Flood Elev= 519.00' Surf.Area= 96,565 sf Storage= 875,673 cf (758,963 cf above start)

Plug-Flow detention time= 7,122.6 min calculated for 3.712 af (49% of inflow)
Center-of-Mass det. time= 4,786.6 min (5,678.4 - 891.8)

Volume	Invert	Avail.Storage	Storage Description
#1	504.00'	974,958 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)
504.00	21,853	0	0	21,853
506.00	27,237	48,991	48,991	27,350
506.50	28,631	13,966	62,957	28,775
508.00	43,560	53,753	116,710	43,738
510.00	52,250	95,678	212,388	52,565
512.00	61,370	113,498	325,886	61,840
514.00	70,920	132,175	458,061	71,562
516.00	80,880	151,691	609,752	81,712
518.00	91,250	172,026	781,778	92,288
520.00	102,030	193,180	974,958	103,291

Device	Routing	Invert	Outlet Devices
#1	Primary	508.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	517.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.55 cfs @ 24.74 hrs HW=513.55' TW=482.56' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.55 cfs @ 11.21 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond zDP1: Design Point 1

Inflow Area = 26.401 ac, Inflow Depth = 1.07" for 2-yr event
Inflow = 12.61 cfs @ 12.28 hrs, Volume= 2.352 af
Outflow = 12.61 cfs @ 12.28 hrs, Volume= 2.352 af, Atten= 0%, Lag= 0.0 min
Primary = 12.61 cfs @ 12.28 hrs, Volume= 2.352 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 721.40' @ 12.28 hrs Surf.Area= 62 sf Storage= 39 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf

Plug-Flow detention time= 0.2 min calculated for 2.352 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (1,072.5 - 1,072.3)

Volume	Invert	Avail.Storage	Storage Description
#1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

Device	Routing	Invert	Outlet Devices
#1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' Cc= 0.900 n= 0.024
#2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=12.61 cfs @ 12.28 hrs HW=721.40' TW=686.17' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 12.61 cfs @ 3.88 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Inflow Area = 97.969 ac, Inflow Depth = 0.85" for 2-yr event
Inflow = 27.89 cfs @ 12.94 hrs, Volume= 6.934 af
Outflow = 27.80 cfs @ 12.97 hrs, Volume= 6.934 af, Atten= 0%, Lag= 1.7 min
Primary = 27.80 cfs @ 12.97 hrs, Volume= 6.934 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 623.98' @ 12.97 hrs Surf.Area= 755 sf Storage= 1,181 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf

Plug-Flow detention time= 0.3 min calculated for 6.934 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (914.1 - 913.9)

Volume	Invert	Avail.Storage	Storage Description
#1	619.60'	7,280 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

Device	Routing	Invert	Outlet Devices
#1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' Cc= 0.900 n= 0.012
#2	Secondary	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=27.80 cfs @ 12.97 hrs HW=623.98' TW=607.61' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 27.80 cfs @ 8.85 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=619.60' TW=557.75' (Dynamic Tailwater)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP3: Design Point 3

Inflow Area = 252.976 ac, Inflow Depth > 63.25" for 2-yr event
Inflow = 118.84 cfs @ 13.01 hrs, Volume= 1,333.462 af
Primary = 118.84 cfs @ 13.01 hrs, Volume= 1,333.462 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 499.521 ac, Inflow Depth > 0.94" for 2-yr event
Inflow = 11.88 cfs @ 16.29 hrs, Volume= 39.286 af
Primary = 11.88 cfs @ 16.29 hrs, Volume= 39.286 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 1.01" for 2-yr event
Inflow = 17.23 cfs @ 12.48 hrs, Volume= 2.380 af
Primary = 17.23 cfs @ 12.48 hrs, Volume= 2.380 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP6: Design Point 6

Inflow Area = 5.306 ac, Inflow Depth = 0.38" for 2-yr event
Inflow = 0.77 cfs @ 12.64 hrs, Volume= 0.168 af
Outflow = 0.77 cfs @ 12.64 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.0 min
Primary = 0.77 cfs @ 12.64 hrs, Volume= 0.168 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 609.26' @ 12.64 hrs
Flood Elev= 612.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.90'	**36.0" x 43.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 606.90' S= 0.0465 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=0.77 cfs @ 12.64 hrs HW=609.26' TW=587.71' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.77 cfs @ 1.61 fps)

Pond zDP7: Design Point 7

Inflow Area = 31.683 ac, Inflow Depth = 0.80" for 2-yr event
Inflow = 11.36 cfs @ 12.75 hrs, Volume= 2.113 af
Primary = 11.36 cfs @ 12.75 hrs, Volume= 2.113 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP8: Design Point 8

Inflow Area = 7.105 ac, Inflow Depth = 1.10" for 2-yr event
Inflow = 5.51 cfs @ 12.14 hrs, Volume= 0.651 af
Primary = 5.51 cfs @ 12.14 hrs, Volume= 0.651 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Subcatchment s01-0:

Runoff = 11.66 cfs @ 12.61 hrs, Volume= 1.799 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
11.485	68	
11.485		Pervious Area

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

Subcatchment s02-1:

Runoff = 66.34 cfs @ 12.87 hrs, Volume= 12.850 af, Depth= 1.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
93.258	65	
93.258		Pervious Area

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

Subcatchment s02-2:

Runoff = 8.70 cfs @ 12.03 hrs, Volume= 0.576 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
1.605	94	
1.605		Pervious Area

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

Subcatchment s02-3:

Runoff = 3.00 cfs @ 12.02 hrs, Volume= 0.185 af, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.587	89	
0.587		Pervious Area

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

Subcatchment s02-4:

Runoff = 2.68 cfs @ 12.01 hrs, Volume= 0.172 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.479	94	
0.479		Pervious Area

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

Subcatchment s02-5:

Runoff = 5.13 cfs @ 12.03 hrs, Volume= 0.340 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.947	94	
0.947		Pervious Area

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

Subcatchment s02-6:

Runoff = 1.17 cfs @ 12.01 hrs, Volume= 0.075 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.209	94	
0.209		Pervious Area

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

Subcatchment s02-7:

Runoff = 4.79 cfs @ 12.03 hrs, Volume= 0.317 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.884	94	
0.884		Pervious Area

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

Subcatchment s03-1:

Runoff = 5.47 cfs @ 12.36 hrs, Volume= 0.650 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.988	69	
3.988		Pervious Area

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

Subcatchment s03-2:

Runoff = 19.19 cfs @ 12.21 hrs, Volume= 1.828 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
9.981	72	
9.981		Pervious Area

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

Subcatchment s03-3:

Runoff = 5.43 cfs @ 12.01 hrs, Volume= 0.358 af, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.947	96	
0.947		Pervious Area

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

Subcatchment s04-1:

Runoff = 18.69 cfs @ 12.22 hrs, Volume= 1.805 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
11.064	69	
11.064		Pervious Area

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

Subcatchment s05-1:

Runoff = 6.28 cfs @ 12.13 hrs, Volume= 0.520 af, Depth= 1.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
4.340	62	
4.340		Pervious Area

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

Subcatchment s05-2:

Runoff = 10.37 cfs @ 12.15 hrs, Volume= 0.884 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
6.138	66	
6.138		Pervious Area

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

Subcatchment s05-3:

Runoff = 6.87 cfs @ 12.15 hrs, Volume= 0.571 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.364	70	
3.364		Pervious Area

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

Subcatchment s06-1:

Runoff = 11.19 cfs @ 12.22 hrs, Volume= 1.104 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
7.665	66	
7.665		Pervious Area

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

Subcatchment s06-2:

Runoff = 17.82 cfs @ 12.25 hrs, Volume= 1.880 af, Depth= 1.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
15.682	62	
15.682		Pervious Area

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

Subcatchment s07-1:

Runoff = 7.09 cfs @ 12.22 hrs, Volume= 0.693 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
4.614	67	
4.614		Pervious Area

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

Subcatchment s07-2:

Runoff = 7.83 cfs @ 12.19 hrs, Volume= 0.754 af, Depth= 1.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
5.997	63	
5.997		Pervious Area

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

Subcatchment s08-1:

Runoff = 8.96 cfs @ 12.40 hrs, Volume= 1.182 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
10.900	60	
10.900		Pervious Area

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

Subcatchment s08-2:

Runoff = 4.03 cfs @ 12.21 hrs, Volume= 0.415 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.832	60	
3.832		Pervious Area

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

Subcatchment s08-3:

Runoff = 3.24 cfs @ 12.04 hrs, Volume= 0.236 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.595	98	
0.595		Impervious Area

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

Subcatchment s09-1:

Runoff = 10.52 cfs @ 12.13 hrs, Volume= 0.849 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
5.208	69	
5.208		Pervious Area

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

Subcatchment s09-2:

Runoff = 1.26 cfs @ 12.01 hrs, Volume= 0.083 af, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.219	96	
0.219		Pervious Area

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

Subcatchment s10-1:

Runoff = 16.82 cfs @ 12.18 hrs, Volume= 1.531 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
9.021	70	
9.021		Pervious Area

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

Subcatchment s11-1:

Runoff = 78.55 cfs @ 12.08 hrs, Volume= 5.882 af, Depth= 4.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
17.262	92	
17.262		Pervious Area

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

Subcatchment s13-1:

Runoff = 0.32 cfs @ 12.04 hrs, Volume= 0.024 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.300	55	
0.300		Pervious Area

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

Subcatchment s14-1:

Runoff = 36.65 cfs @ 12.14 hrs, Volume= 2.981 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
12.768	79	
12.768		Pervious Area

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

Subcatchment s14-2:

Runoff = 31.27 cfs @ 12.06 hrs, Volume= 2.083 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
7.643	84	
7.643		Pervious Area

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

Subcatchment s14-3:

Runoff = 4.71 cfs @ 12.03 hrs, Volume= 0.290 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
1.131	82	
1.131		Pervious Area

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

Subcatchment s16-1:

Runoff = 47.13 cfs @ 12.13 hrs, Volume= 3.719 af, Depth= 3.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
14.494	82	
14.494		Pervious Area

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

Subcatchment s16-2:

Runoff = 6.84 cfs @ 12.14 hrs, Volume= 0.563 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.074	72	
3.074		Pervious Area

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

Subcatchment s16-3:

Runoff = 20.20 cfs @ 12.20 hrs, Volume= 1.875 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
10.239	72	
10.239		Pervious Area

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

Subcatchment s16-4:

Runoff = 34.08 cfs @ 12.27 hrs, Volume= 3.609 af, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
13.242	84	
13.242		Pervious Area

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

Subcatchment s16-5:

Runoff = 14.03 cfs @ 12.06 hrs, Volume= 0.927 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.971	79	
3.971		Pervious Area

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

Subcatchment s16-6:

Runoff = 6.72 cfs @ 12.11 hrs, Volume= 0.506 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.105	69	
3.105		Pervious Area

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

Subcatchment s16-7:

Runoff = 24.90 cfs @ 12.21 hrs, Volume= 2.374 af, Depth= 1.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
15.797	67	
15.797		Pervious Area

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

Subcatchment s17-1:

Runoff = 5.51 cfs @ 12.09 hrs, Volume= 0.403 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
2.572	68	
2.572		Pervious Area

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

Subcatchment s17-2:

Runoff = 72.39 cfs @ 13.56 hrs, Volume= 20.259 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
124.201	69	
124.201		Pervious Area

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

Subcatchment s18-1:

Runoff = 3.79 cfs @ 12.02 hrs, Volume= 0.226 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.908	81	
0.908		Pervious Area

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

Subcatchment s18-2:

Runoff = 12.64 cfs @ 12.10 hrs, Volume= 0.937 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
4.931	73	
4.931		Pervious Area

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

Subcatchment s18-3:

Runoff = 16.29 cfs @ 12.05 hrs, Volume= 1.038 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
4.448	79	
4.448		Pervious Area

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

Subcatchment s18-4:

Runoff = 62.00 cfs @ 12.04 hrs, Volume= 4.099 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
12.689	90	
12.689		Pervious Area

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

Subcatchment s18-5:

Runoff = 8.89 cfs @ 12.09 hrs, Volume= 0.636 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.349	73	
3.349		Pervious Area

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

Subcatchment s19-0:

Runoff = 10.40 cfs @ 12.62 hrs, Volume= 1.683 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
15.520	60	
15.520		Pervious Area

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

Subcatchment s20-1:

Runoff = 21.40 cfs @ 12.13 hrs, Volume= 1.711 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
9.702	71	
9.702		Pervious Area

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

Subcatchment s20-2:

Runoff = 5.42 cfs @ 12.14 hrs, Volume= 0.445 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
2.342	73	
2.342		Pervious Area

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

Subcatchment s20-3:

Runoff = 6.71 cfs @ 12.43 hrs, Volume= 0.861 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
5.071	70	
5.071		Pervious Area

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

Subcatchment s20-4:

Runoff = 2.87 cfs @ 12.13 hrs, Volume= 0.245 af, Depth= 1.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
2.261	60	
2.261		Pervious Area

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

Subcatchment s20-5:

Runoff = 4.28 cfs @ 12.10 hrs, Volume= 0.323 af, Depth= 1.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
2.451	64	
2.451		Pervious Area

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

Subcatchment s21-1:

Runoff = 144.62 cfs @ 12.18 hrs, Volume= 12.997 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
68.392	73	
68.392		Pervious Area

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

Subcatchment s21-2:

Runoff = 18.95 cfs @ 12.07 hrs, Volume= 1.305 af, Depth= 3.17"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
4.934	83	
4.934		Pervious Area

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

Subcatchment s21-3:

Runoff = 20.29 cfs @ 12.09 hrs, Volume= 1.485 af, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
4.724	89	
4.724		Pervious Area

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

Subcatchment s21-4:

Runoff = 2.89 cfs @ 12.03 hrs, Volume= 0.192 af, Depth= 4.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.534	94	
0.534		Pervious Area

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

Subcatchment s21-5:

Runoff = 1.69 cfs @ 12.03 hrs, Volume= 0.119 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
0.300	98	
0.300		Impervious Area

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

Subcatchment s21-6:

Runoff = 33.93 cfs @ 12.16 hrs, Volume= 2.884 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
15.746	72	
15.746		Pervious Area

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

Subcatchment s21-7:

Runoff = 7.05 cfs @ 12.49 hrs, Volume= 0.968 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
5.491	71	
5.491		Pervious Area

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

Subcatchment s22-1:

Runoff = 22.22 cfs @ 12.12 hrs, Volume= 1.712 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
9.346	72	
9.346		Pervious Area

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

Subcatchment s22-2:

Runoff = 47.06 cfs @ 12.39 hrs, Volume= 5.672 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
33.425	70	
33.425		Pervious Area

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

Subcatchment s22-3:

Runoff = 10.44 cfs @ 12.10 hrs, Volume= 0.772 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
3.920	74	
3.920		Pervious Area

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

Subcatchment s23-1:

Runoff = 12.04 cfs @ 12.27 hrs, Volume= 1.264 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
7.168	71	
7.168		Pervious Area

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

Subcatchment s23-2:

Runoff = 95.20 cfs @ 12.62 hrs, Volume= 14.562 af, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
73.912	74	
73.912		Pervious Area

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

Subcatchment s24-0:

Runoff = 37.09 cfs @ 12.45 hrs, Volume= 4.807 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
28.325	70	
28.325		Pervious Area

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

Subcatchment s25-1:

Runoff = 23.91 cfs @ 12.18 hrs, Volume= 2.188 af, Depth= 1.96"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
13.414	69	
13.414		Pervious Area

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

Subcatchment s26-0:

Runoff = 3.01 cfs @ 12.51 hrs, Volume= 0.461 af, Depth= 1.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
5.306	56	
5.306		Pervious Area

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

Subcatchment s27-1:

Runoff = 27.21 cfs @ 12.70 hrs, Volume= 4.561 af, Depth= 1.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
31.683	66	
31.683		Pervious Area

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

Subcatchment s28-1:

Runoff = 12.46 cfs @ 12.14 hrs, Volume= 1.020 af, Depth= 1.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=5.00"

Area (ac)	CN	Description
6.510	68	
6.510		Pervious Area

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

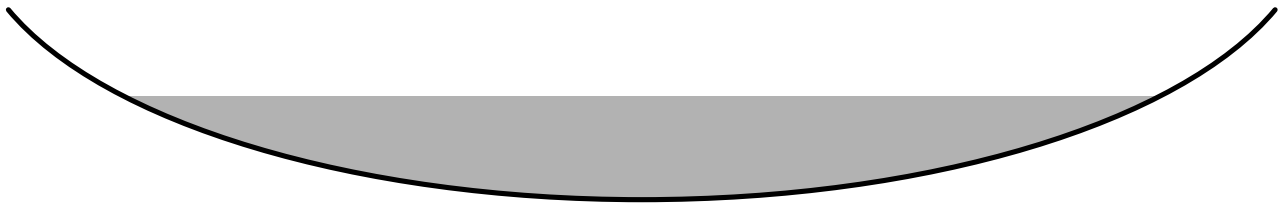
Reach 25R:

Inflow Area = 48.945 ac, Inflow Depth = 1.80" for 10-yr event
Inflow = 47.59 cfs @ 12.39 hrs, Volume= 7.355 af
Outflow = 47.08 cfs @ 12.42 hrs, Volume= 7.355 af, Atten= 1%, Lag= 1.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.51 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 0.43 fps, Avg. Travel Time= 23.8 min

Peak Storage= 8,319 cf @ 12.42 hrs, Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 175.17 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 620.0' Slope= 0.0774 '/'
Inlet Invert= 560.00', Outlet Invert= 512.00'



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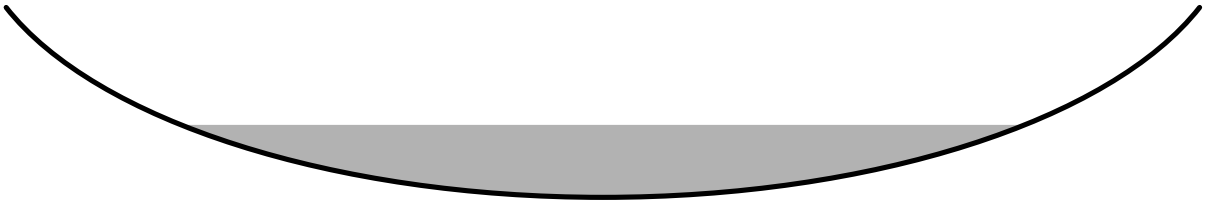
Reach r03-1:

Inflow Area = 11.485 ac, Inflow Depth = 1.88" for 10-yr event
Inflow = 11.66 cfs @ 12.61 hrs, Volume= 1.799 af
Outflow = 11.61 cfs @ 12.65 hrs, Volume= 1.799 af, Atten= 0%, Lag= 2.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.95 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 1.95 fps, Avg. Travel Time= 6.7 min

Peak Storage= 1,842 cf @ 12.65 hrs, Average Depth at Peak Storage= 0.57'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 92.14 cfs

10.00' x 1.50' deep Parabolic Channel, n= 0.060
Length= 785.0' Slope= 0.1490 '/'
Inlet Invert= 845.00', Outlet Invert= 728.00'



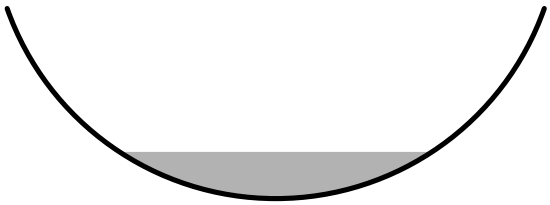
Reach r04-1:

Inflow Area = 26.401 ac, Inflow Depth = 2.11" for 10-yr event
Inflow = 28.02 cfs @ 12.26 hrs, Volume= 4.635 af
Outflow = 28.00 cfs @ 12.28 hrs, Volume= 4.635 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.19 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.27 fps, Avg. Travel Time= 4.3 min

Peak Storage= 1,284 cf @ 12.28 hrs, Average Depth at Peak Storage= 0.98'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 530.15 cfs

12.00' x 4.00' deep Parabolic Channel, n= 0.060
Length= 330.0' Slope= 0.1621 '/'
Inlet Invert= 685.50', Outlet Invert= 632.00'



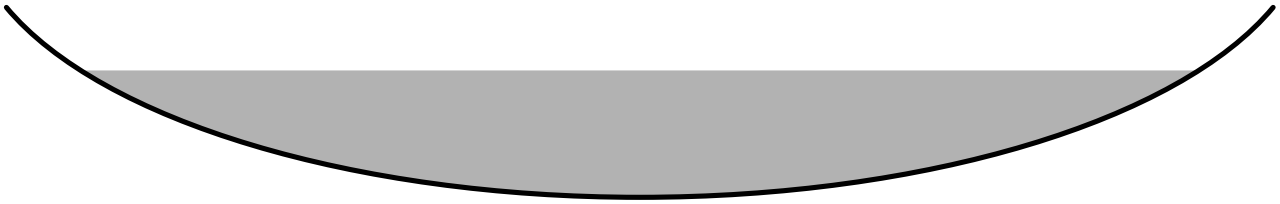
Reach r08-1a:

Inflow Area = 97.969 ac, Inflow Depth = 1.52" for 10-yr event
Inflow = 34.28 cfs @ 12.88 hrs, Volume= 12.402 af
Outflow = 34.28 cfs @ 12.88 hrs, Volume= 12.402 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.43 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 4.23 fps, Avg. Travel Time= 0.9 min

Peak Storage= 821 cf @ 12.88 hrs, Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 81.88 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.027
Length= 226.0' Slope= 0.0885 '/'
Inlet Invert= 607.00', Outlet Invert= 587.00'



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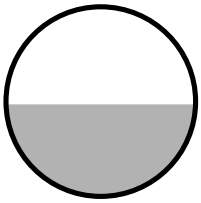
Reach r08-1b:

Inflow Area = 103.275 ac, Inflow Depth = 1.49" for 10-yr event
Inflow = 36.52 cfs @ 12.69 hrs, Volume= 12.862 af
Outflow = 36.52 cfs @ 12.69 hrs, Volume= 12.862 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 24.23 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 11.27 fps, Avg. Travel Time= 0.4 min

Peak Storage= 445 cf @ 12.69 hrs, Average Depth at Peak Storage= 0.97'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 77.17 cfs

24.0" Diameter Pipe, n= 0.012
Length= 295.0' Slope= 0.0992 '/'
Inlet Invert= 587.00', Outlet Invert= 557.75'



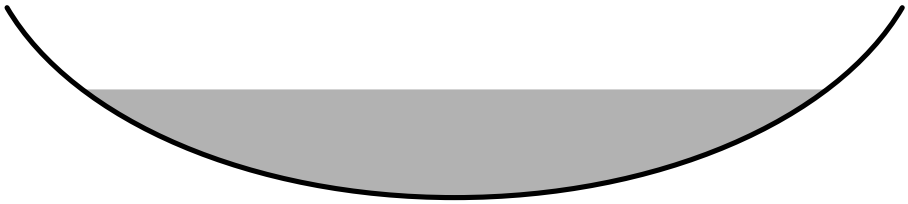
Reach r08-1c:

Inflow Area = 103.275 ac, Inflow Depth = 1.74" for 10-yr event
Inflow = 70.19 cfs @ 12.88 hrs, Volume= 14.976 af
Outflow = 70.14 cfs @ 12.89 hrs, Volume= 14.976 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 12.27 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 4.54 fps, Avg. Travel Time= 2.2 min

Peak Storage= 3,372 cf @ 12.89 hrs, Average Depth at Peak Storage= 1.14'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 232.56 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 590.0' Slope= 0.0775 '/'
Inlet Invert= 557.75', Outlet Invert= 512.00'



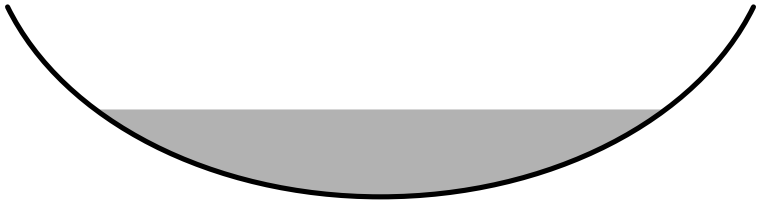
Reach r08-1d: Amenia Creek/Cascade Brook

Inflow Area = 107.107 ac, Inflow Depth > 75.80" for 10-yr event
Inflow = 110.38 cfs @ 12.89 hrs, Volume= 676.581 af, Incl. 40.00 cfs Base Flow
Outflow = 109.92 cfs @ 12.93 hrs, Volume= 676.300 af, Atten= 0%, Lag= 2.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.54 fps, Min. Travel Time= 3.8 min
Avg. Velocity = 2.64 fps, Avg. Travel Time= 5.1 min

Peak Storage= 24,975 cf @ 12.93 hrs, Average Depth at Peak Storage= 2.75'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 571.01 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 805.0' Slope= 0.0099 '/'
Inlet Invert= 512.00', Outlet Invert= 504.00'



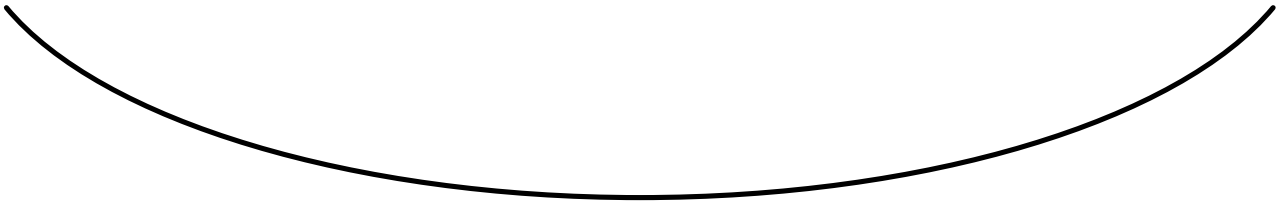
Reach r18-2:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 434.91 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 720.0' Slope= 0.4772 '/'
Inlet Invert= 973.60', Outlet Invert= 630.00'



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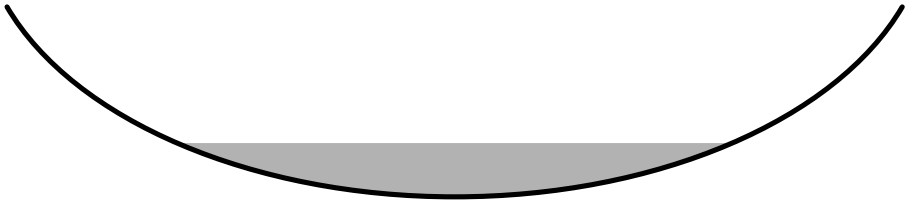
Reach r21-1a:

Inflow Area = 253.658 ac, Inflow Depth > 1.93" for 10-yr event
Inflow = 43.98 cfs @ 15.81 hrs, Volume= 40.883 af
Outflow = 43.97 cfs @ 15.84 hrs, Volume= 40.881 af, Atten= 0%, Lag= 1.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.53 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 1.86 fps, Avg. Travel Time= 5.8 min

Peak Storage= 5,149 cf @ 15.84 hrs, Average Depth at Peak Storage= 1.12'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 658.74 cfs

20.00' x 4.00' deep Parabolic Channel, n= 0.027
Length= 648.0' Slope= 0.0154 '/'
Inlet Invert= 504.00', Outlet Invert= 494.00'



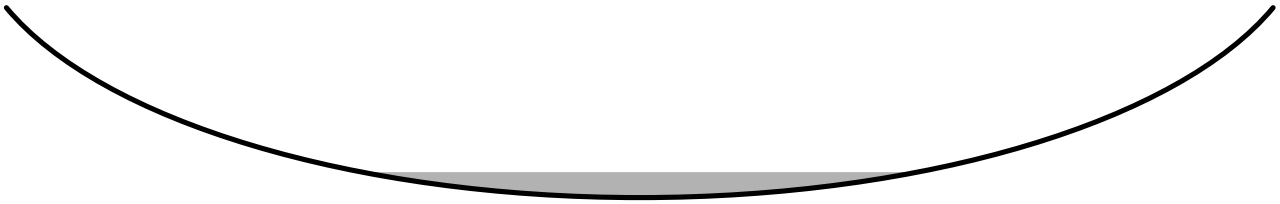
Reach r22-2:

Inflow Area = 15.520 ac, Inflow Depth = 1.30" for 10-yr event
Inflow = 5.85 cfs @ 13.10 hrs, Volume= 1.683 af
Outflow = 5.84 cfs @ 13.14 hrs, Volume= 1.683 af, Atten= 0%, Lag= 2.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.65 fps, Min. Travel Time= 2.9 min
Avg. Velocity = 0.92 fps, Avg. Travel Time= 11.4 min

Peak Storage= 1,006 cf @ 13.14 hrs, Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 469.25 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 630.0' Slope= 0.5556 '/'
Inlet Invert= 970.00', Outlet Invert= 620.00'



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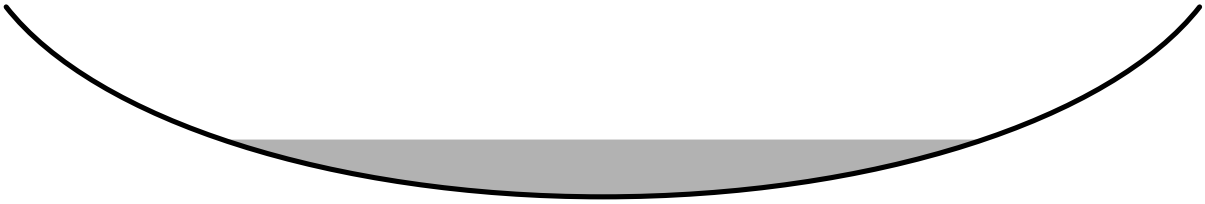
Reach r25-1b: Wetland Reach

Inflow Area = 23.347 ac, Inflow Depth > 1.52" for 10-yr event
Inflow = 12.86 cfs @ 12.66 hrs, Volume= 2.961 af
Outflow = 11.92 cfs @ 12.77 hrs, Volume= 2.961 af, Atten= 7%, Lag= 6.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.80 fps, Min. Travel Time= 6.9 min
Avg. Velocity = 0.31 fps, Avg. Travel Time= 40.5 min

Peak Storage= 4,959 cf @ 12.77 hrs, Average Depth at Peak Storage= 0.90'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 156.51 cfs

20.00' x 3.00' deep Parabolic Channel, n= 0.045
Length= 750.0' Slope= 0.0060 '/'
Inlet Invert= 504.00', Outlet Invert= 499.50'



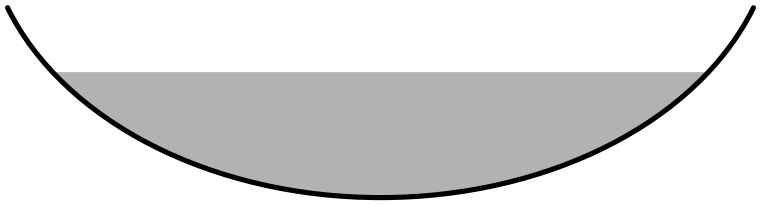
Reach r25-1c: Amenia Creek/Cascade Brook

Inflow Area = 118.007 ac, Inflow Depth >136.13" for 10-yr event
Inflow = 153.70 cfs @ 12.91 hrs, Volume= 1,338.671 af, Incl. 40.00 cfs Base Flow
Outflow = 152.95 cfs @ 12.98 hrs, Volume= 1,337.913 af, Atten= 0%, Lag= 4.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.85 fps, Min. Travel Time= 5.7 min
Avg. Velocity = 2.37 fps, Avg. Travel Time= 6.9 min

Peak Storage= 52,252 cf @ 12.98 hrs, Average Depth at Peak Storage= 3.96'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 366.88 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 975.0' Slope= 0.0041 '/'
Inlet Invert= 504.00', Outlet Invert= 500.00'



Pond p03-3: Underground Detention

Inflow Area = 0.947 ac, Inflow Depth = 4.53" for 10-yr event
Inflow = 5.43 cfs @ 12.01 hrs, Volume= 0.358 af
Outflow = 0.06 cfs @ 20.18 hrs, Volume= 0.358 af, Atten= 99%, Lag= 489.7 min
Primary = 0.06 cfs @ 20.18 hrs, Volume= 0.358 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 805.01' @ 20.18 hrs Surf.Area= 2,229 sf Storage= 12,606 cf

Plug-Flow detention time= 2,410.0 min calculated for 0.358 af (100% of inflow)
Center-of-Mass det. time= 2,410.3 min (3,168.0 - 757.8)

Volume	Invert	Avail.Storage	Storage Description
#1	800.00'	14,137 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 5

Device	Routing	Invert	Outlet Devices
#1	Primary	800.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	805.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.06 cfs @ 20.18 hrs HW=805.01' TW=720.50' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 10.73 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.29 fps)

Pond p05-2:

Inflow Area = 46.967 ac, Inflow Depth = 2.02" for 10-yr event
Inflow = 60.33 cfs @ 12.21 hrs, Volume= 7.894 af
Outflow = 48.29 cfs @ 12.42 hrs, Volume= 7.894 af, Atten= 20%, Lag= 12.3 min
Primary = 48.29 cfs @ 12.42 hrs, Volume= 7.894 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 584.00' Surf.Area= 39,691 sf Storage= 193,237 cf
Peak Elev= 585.20' @ 12.42 hrs Surf.Area= 46,608 sf Storage= 243,884 cf (50,647 cf above start)
Flood Elev= 585.00' Surf.Area= 43,480 sf Storage= 234,808 cf (41,571 cf above start)

Plug-Flow detention time= 589.5 min calculated for 3.458 af (44% of inflow)
Center-of-Mass det. time= 42.8 min (1,013.3 - 970.5)

Volume	Invert	Avail.Storage	Storage Description
#1	577.00'	286,360 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)
577.00	16,551	0	0	16,551
579.00	22,509	38,908	38,908	22,590
581.00	29,072	51,441	90,349	29,251
583.00	36,074	65,020	155,369	36,369
585.00	43,480	79,439	234,808	43,908
586.00	60,070	51,552	286,360	60,518

Device	Routing	Invert	Outlet Devices
#1	Primary	584.00'	**10.0' long x 25.0' 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	Primary	585.00'	**60.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=48.28 cfs @ 12.42 hrs HW=585.20' TW=574.05' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 34.77 cfs @ 2.89 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 13.51 cfs @ 1.12 fps)

Pond p06-1:

Inflow Area = 23.347 ac, Inflow Depth = 1.53" for 10-yr event
Inflow = 23.09 cfs @ 12.35 hrs, Volume= 2.983 af
Outflow = 12.86 cfs @ 12.66 hrs, Volume= 2.961 af, Atten= 44%, Lag= 18.7 min
Primary = 12.86 cfs @ 12.66 hrs, Volume= 2.961 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 41,229 sf Storage= 93,452 cf
Peak Elev= 507.47' @ 12.66 hrs Surf.Area= 47,048 sf Storage= 124,448 cf (30,996 cf above start)
Flood Elev= 507.10' Surf.Area= 43,840 sf Storage= 107,358 cf (13,906 cf above start)

Plug-Flow detention time= 1,556.8 min calculated for 0.816 af (27% of inflow)
Center-of-Mass det. time= 324.4 min (1,286.4 - 962.0)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	149,075 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	41,229	93,452	93,452	41,302
508.00	51,671	55,622	149,075	51,784

Device	Routing	Invert	Outlet Devices
#1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900
			Outlet Invert= 506.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=12.86 cfs @ 12.66 hrs HW=507.47' TW=504.85' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.23 cfs @ 2.20 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 11.63 cfs @ 1.49 fps)

Pond p06-2: Underground Detention

Inflow Area = 15.682 ac, Inflow Depth = 1.44" for 10-yr event
Inflow = 17.82 cfs @ 12.25 hrs, Volume= 1.880 af
Outflow = 14.44 cfs @ 12.39 hrs, Volume= 1.880 af, Atten= 19%, Lag= 8.5 min
Primary = 14.44 cfs @ 12.39 hrs, Volume= 1.880 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 522.82' @ 12.39 hrs Surf.Area= 5,844 sf Storage= 15,122 cf
Flood Elev= 528.00' Surf.Area= 0 sf Storage= 20,106 cf

Plug-Flow detention time= 139.3 min calculated for 1.880 af (100% of inflow)
Center-of-Mass det. time= 139.5 min (1,018.1 - 878.6)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	20,106 cf	**48.0"D x 100.00'L Horizontal Cylinder** x 16

Device	Routing	Invert	Outlet Devices
#1	Primary	520.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	522.00'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=14.43 cfs @ 12.39 hrs HW=522.82' TW=507.27' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.39 cfs @ 7.90 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 14.05 cfs @ 2.95 fps)

Pond p07-1:

Inflow Area = 61.918 ac, Inflow Depth = 1.91" for 10-yr event
Inflow = 61.74 cfs @ 12.38 hrs, Volume= 9.862 af
Outflow = 60.77 cfs @ 12.43 hrs, Volume= 9.853 af, Atten= 2%, Lag= 2.9 min
Primary = 14.34 cfs @ 12.43 hrs, Volume= 4.688 af
Secondary = 46.42 cfs @ 12.43 hrs, Volume= 5.165 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 574.05' @ 12.43 hrs Surf.Area= 27,477 sf Storage= 87,041 cf (30,777 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)

Plug-Flow detention time= 253.0 min calculated for 8.561 af (87% of inflow)
Center-of-Mass det. time= 63.4 min (1,048.0 - 984.5)

Volume	Invert	Avail.Storage	Storage Description
#1	565.00'	147,831 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424
576.00	35,150	62,274	147,831	35,383

Device	Routing	Invert	Outlet Devices
#1	Secondary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Secondary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46
#3	Primary	573.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=14.34 cfs @ 12.43 hrs HW=574.05' TW=572.12' (Dynamic Tailwater)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 14.34 cfs @ 2.74 fps)

Secondary OutFlow Max=46.42 cfs @ 12.43 hrs HW=574.05' TW=0.00' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 4.72 cfs @ 3.00 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 41.70 cfs @ 1.82 fps)

Pond p08-2:

Inflow Area = 3.832 ac, Inflow Depth = 1.30" for 10-yr event
Inflow = 4.03 cfs @ 12.21 hrs, Volume= 0.415 af
Outflow = 0.27 cfs @ 16.23 hrs, Volume= 0.415 af, Atten= 93%, Lag= 241.1 min
Primary = 0.27 cfs @ 16.23 hrs, Volume= 0.415 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 527.50' Surf.Area= 3,950 sf Storage= 5,322 cf
Peak Elev= 528.93' @ 16.23 hrs Surf.Area= 8,320 sf Storage= 15,295 cf (9,973 cf above start)
Flood Elev= 531.00' Surf.Area= 10,855 sf Storage= 35,135 cf (29,813 cf above start)

Plug-Flow detention time= 807.5 min calculated for 0.293 af (71% of inflow)
Center-of-Mass det. time= 502.5 min (1,385.4 - 882.8)

Volume	Invert	Avail.Storage	Storage Description
#1	523.00'	46,638 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)
523.00	156	0	0	156
524.00	435	284	284	441
525.00	816	616	899	832
526.00	1,291	1,044	1,944	1,321
526.50	1,563	712	2,656	1,601
527.50	3,950	2,666	5,322	3,995
528.00	7,267	2,762	8,085	7,314
529.00	8,407	7,830	15,915	8,497
530.00	9,602	8,998	24,913	9,738
531.00	10,855	10,222	35,135	11,041
532.00	12,164	11,503	46,638	12,404

Device	Routing	Invert	Outlet Devices
#1	Primary	527.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	530.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.27 cfs @ 16.23 hrs HW=528.93' TW=513.92' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.27 cfs @ 5.49 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p08-3: Underground Detention

Inflow Area = 0.595 ac, Inflow Depth = 4.76" for 10-yr event
Inflow = 3.24 cfs @ 12.04 hrs, Volume= 0.236 af
Outflow = 0.07 cfs @ 16.90 hrs, Volume= 0.236 af, Atten= 98%, Lag= 291.3 min
Primary = 0.07 cfs @ 16.90 hrs, Volume= 0.236 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 605.02' @ 16.90 hrs Surf.Area= 1,333 sf Storage= 7,574 cf

Plug-Flow detention time= 1,452.7 min calculated for 0.236 af (100% of inflow)
Center-of-Mass det. time= 1,452.9 min (2,198.1 - 745.2)

Volume	Invert	Avail.Storage	Storage Description
#1	600.00'	8,482 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 3

Device	Routing	Invert	Outlet Devices
#1	Primary	600.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	605.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.07 cfs @ 16.90 hrs HW=605.02' TW=0.00' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 10.74 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.01 cfs @ 0.41 fps)

Pond p09-1:

Inflow Area = 67.345 ac, Inflow Depth = 0.99" for 10-yr event
Inflow = 19.85 cfs @ 12.32 hrs, Volume= 5.555 af
Outflow = 16.52 cfs @ 12.58 hrs, Volume= 5.288 af, Atten= 17%, Lag= 15.9 min
Primary = 16.52 cfs @ 12.58 hrs, Volume= 5.288 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 558.13' @ 12.58 hrs Surf.Area= 26,850 sf Storage= 27,543 cf
Flood Elev= 558.00' Surf.Area= 25,588 sf Storage= 24,042 cf

Plug-Flow detention time= 79.9 min calculated for 5.288 af (95% of inflow)
Center-of-Mass det. time= 52.5 min (1,010.4 - 957.9)

Volume	Invert	Avail.Storage	Storage Description
#1	557.00'	96,165 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)
557.00	22,529	0	0	22,529
558.00	25,588	24,042	24,042	25,637
560.00	47,670	72,122	96,165	47,760

Device	Routing	Invert	Outlet Devices
#1	Primary	557.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	558.00'	**80.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=16.52 cfs @ 12.58 hrs HW=558.13' TW=537.57' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 6.80 cfs @ 2.15 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 9.72 cfs @ 0.91 fps)

Pond p09-2:

Inflow Area = 62.137 ac, Inflow Depth = 0.92" for 10-yr event
Inflow = 14.56 cfs @ 12.42 hrs, Volume= 4.770 af
Outflow = 14.56 cfs @ 12.43 hrs, Volume= 4.705 af, Atten= 0%, Lag= 0.8 min
Primary = 14.56 cfs @ 12.43 hrs, Volume= 4.705 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 572.12' @ 12.43 hrs Surf.Area= 5,212 sf Storage= 6,087 cf
Flood Elev= 572.00' Surf.Area= 5,086 sf Storage= 5,483 cf

Plug-Flow detention time= 21.1 min calculated for 4.705 af (99% of inflow)
Center-of-Mass det. time= 12.8 min (976.8 - 964.1)

Volume	Invert	Avail.Storage	Storage Description
#1	571.00'	17,934 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)
571.00	5,889	0	0	5,889
572.00	5,086	5,483	5,483	6,734
574.00	7,440	12,452	17,934	9,153

Device	Routing	Invert	Outlet Devices
#1	Primary	571.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	572.00'	**80.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=14.56 cfs @ 12.43 hrs HW=572.12' TW=558.05' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 6.54 cfs @ 2.12 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 8.01 cfs @ 0.85 fps)

Pond p10-1:

Inflow Area = 98.208 ac, Inflow Depth = 0.87" for 10-yr event
Inflow = 17.91 cfs @ 12.18 hrs, Volume= 7.108 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 49,539 sf Storage= 138,709 cf
Peak Elev= 503.61' @ 200.00 hrs Surf.Area= 74,458 sf Storage= 448,354 cf (309,645 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	874,719 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	49,539	138,709	138,709	49,650
500.00	53,826	82,668	221,377	54,126
502.00	61,486	115,227	336,605	61,973
504.00	77,594	138,768	475,373	78,189
506.00	95,372	172,661	648,033	96,088
508.00	132,320	226,686	874,719	133,113

Device	Routing	Invert	Outlet Devices
#1	Primary	506.00'	**Custom Weir/Orifice, C= 3.00** Head (feet) 0.00 2.00 Width (feet) 20.00 150.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=498.40' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Controls 0.00 cfs)

Pond p11-1: Underground Detention

Inflow Area = 17.262 ac, Inflow Depth = 4.09" for 10-yr event
Inflow = 78.55 cfs @ 12.08 hrs, Volume= 5.882 af
Outflow = 3.47 cfs @ 14.78 hrs, Volume= 5.867 af, Atten= 96%, Lag= 161.7 min
Primary = 3.47 cfs @ 14.78 hrs, Volume= 5.867 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 528.70' @ 14.78 hrs Surf.Area= 39,526 sf Storage= 190,175 cf

Plug-Flow detention time= 3,325.2 min calculated for 5.867 af (100% of inflow)
Center-of-Mass det. time= 3,323.8 min (4,106.5 - 782.7)

Volume	Invert	Avail.Storage	Storage Description
#1	524.00'	226,195 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 80

Device	Routing	Invert	Outlet Devices
#1	Primary	524.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	528.50'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.47 cfs @ 14.78 hrs HW=528.70' TW=510.95' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.51 cfs @ 10.30 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 2.96 cfs @ 1.47 fps)

Pond p13-1:

Inflow Area = 0.300 ac, Inflow Depth = 0.98" for 10-yr event
Inflow = 0.32 cfs @ 12.04 hrs, Volume= 0.024 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 518.64' @ 24.12 hrs Surf.Area= 1,559 sf Storage= 1,067 cf
Flood Elev= 527.00' Surf.Area= 10,067 sf Storage= 40,862 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	518.00'	50,891 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
518.00	1,331	0	0	1,331
520.00	2,048	3,353	3,353	2,104
522.00	2,912	4,935	8,288	3,037
522.50	3,150	1,515	9,803	3,294
524.00	5,894	6,676	16,480	6,061
526.00	8,542	14,354	30,834	8,776
528.00	11,592	20,057	50,891	11,908

Device	Routing	Invert	Outlet Devices
#1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=518.00' TW=497.40' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p14-1:

Inflow Area = 20.711 ac, Inflow Depth = 2.93" for 10-yr event
Inflow = 61.09 cfs @ 12.09 hrs, Volume= 5.064 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 44,199 sf Storage= 109,024 cf
Peak Elev= 501.36' @ 24.57 hrs Surf.Area= 68,349 sf Storage= 329,609 cf (220,585 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	899,480 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	44,199	109,024	109,024	44,285
498.00	45,919	27,034	136,058	46,063
500.00	58,406	104,075	240,133	58,654
502.00	72,976	131,112	371,245	73,337
504.00	83,672	156,526	527,771	84,215
506.00	91,692	175,303	703,074	92,505
508.00	104,861	196,406	899,480	105,860

Device	Routing	Invert	Outlet Devices
#1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.40' TW=498.40' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Pond p14-3:

Inflow Area = 68.476 ac, Inflow Depth = 0.98" for 10-yr event
Inflow = 17.06 cfs @ 12.58 hrs, Volume= 5.578 af
Outflow = 12.08 cfs @ 13.20 hrs, Volume= 5.578 af, Atten= 29%, Lag= 36.9 min
Primary = 12.08 cfs @ 13.20 hrs, Volume= 5.578 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 537.93' @ 13.20 hrs Surf.Area= 24,270 sf Storage= 21,122 cf
Flood Elev= 538.00' Surf.Area= 24,510 sf Storage= 22,749 cf

Plug-Flow detention time= 41.8 min calculated for 5.578 af (100% of inflow)
Center-of-Mass det. time= 41.7 min (1,041.8 - 1,000.1)

Volume	Invert	Avail.Storage	Storage Description
#1	537.00'	76,857 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)
537.00	21,033	0	0	21,033
538.00	24,510	22,749	22,749	24,551
540.00	29,680	54,108	76,857	29,851

Device	Routing	Invert	Outlet Devices
#1	Primary	537.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	538.00'	**100.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=12.08 cfs @ 13.20 hrs HW=537.93' TW=499.67' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 12.08 cfs @ 2.59 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p16-1:

Inflow Area = 234.282 ac, Inflow Depth > 2.41" for 10-yr event
Inflow = 106.10 cfs @ 12.15 hrs, Volume= 47.032 af
Outflow = 42.02 cfs @ 15.72 hrs, Volume= 37.782 af, Atten= 60%, Lag= 213.9 min
Primary = 42.02 cfs @ 15.72 hrs, Volume= 37.782 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.12' @ 15.72 hrs Surf.Area= 299,031 sf Storage= 1,804,715 cf (926,395 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)

Plug-Flow detention time= 3,001.1 min calculated for 17.619 af (37% of inflow)
Center-of-Mass det. time= 872.0 min (2,361.2 - 1,489.1)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

Device	Routing	Invert	Outlet Devices
#1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' Cc= 0.900 n= 0.024
#2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' Cc= 0.900 n= 0.013
#3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=42.02 cfs @ 15.72 hrs HW=511.12' TW=506.22' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 7.86 cfs @ 4.45 fps)
- **2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 34.15 cfs @ 1.94 fps)

Pond p16-4:

Inflow Area = 13.242 ac, Inflow Depth = 3.27" for 10-yr event
Inflow = 34.08 cfs @ 12.27 hrs, Volume= 3.609 af
Outflow = 13.44 cfs @ 12.69 hrs, Volume= 3.607 af, Atten= 61%, Lag= 25.0 min
Primary = 13.44 cfs @ 12.69 hrs, Volume= 3.607 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 512.00' Surf.Area= 8,089 sf Storage= 14,361 cf
Peak Elev= 517.27' @ 12.69 hrs Surf.Area= 19,545 sf Storage= 85,607 cf (71,246 cf above start)
Flood Elev= 519.00' Surf.Area= 23,907 sf Storage= 123,088 cf (108,727 cf above start)

Plug-Flow detention time= 726.3 min calculated for 3.278 af (91% of inflow)
Center-of-Mass det. time= 610.8 min (1,434.3 - 823.5)

Volume	Invert	Avail.Storage	Storage Description
#1	504.50'	148,324 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)
504.50	34	0	0	34
506.00	293	213	213	300
508.00	1,136	1,337	1,551	1,162
510.00	2,508	3,555	5,105	2,566
510.50	2,890	1,348	6,454	2,959
512.00	8,089	7,907	14,361	8,172
514.00	11,952	19,916	34,276	12,099
516.00	16,547	28,375	62,651	16,771
518.00	21,367	37,811	100,463	21,688
520.00	26,589	47,861	148,324	27,024

Device	Routing	Invert	Outlet Devices
#1	Primary	512.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	516.00'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=13.44 cfs @ 12.69 hrs HW=517.27' TW=508.46' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.54 cfs @ 10.93 fps)
- **2=Sharp-Crested Rectangular Weir** (Weir Controls 12.90 cfs @ 3.69 fps)

Pond p16-5:

Inflow Area = 3.971 ac, Inflow Depth = 2.80" for 10-yr event
Inflow = 14.03 cfs @ 12.06 hrs, Volume= 0.927 af
Outflow = 0.39 cfs @ 16.59 hrs, Volume= 0.926 af, Atten= 97%, Lag= 271.7 min
Primary = 0.39 cfs @ 16.59 hrs, Volume= 0.926 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 534.00' Surf.Area= 7,168 sf Storage= 14,550 cf
Peak Elev= 536.88' @ 16.59 hrs Surf.Area= 11,968 sf Storage= 41,867 cf (27,317 cf above start)
Flood Elev= 541.00' Surf.Area= 20,427 sf Storage= 108,016 cf (93,466 cf above start)

Plug-Flow detention time= 1,374.6 min calculated for 0.592 af (64% of inflow)
Center-of-Mass det. time= 880.2 min (1,702.8 - 822.6)

Volume	Invert	Avail.Storage	Storage Description
#1	528.00'	129,594 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)
528.00	447	0	0	447
530.00	1,292	1,666	1,666	1,316
532.00	2,598	3,815	5,481	2,658
532.50	3,239	1,456	6,937	3,306
534.00	7,168	7,613	14,550	7,253
536.00	10,404	17,472	32,022	10,556
538.00	14,112	24,422	56,444	14,345
540.00	18,230	32,254	88,698	18,561
542.00	22,750	40,897	129,594	23,193

Device	Routing	Invert	Outlet Devices
#1	Primary	534.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.39 cfs @ 16.59 hrs HW=536.88' TW=511.08' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.39 cfs @ 7.99 fps)

Pond p17-1:

Inflow Area = 126.773 ac, Inflow Depth = 1.96" for 10-yr event
Inflow = 72.89 cfs @ 13.56 hrs, Volume= 20.662 af
Outflow = 72.85 cfs @ 13.57 hrs, Volume= 20.662 af, Atten= 0%, Lag= 0.6 min
Primary = 72.85 cfs @ 13.57 hrs, Volume= 20.662 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.53' @ 13.57 hrs Surf.Area= 11,248 sf Storage= 25,636 cf (16,402 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)

Plug-Flow detention time= 18.9 min calculated for 20.449 af (99% of inflow)
Center-of-Mass det. time= 10.1 min (957.0 - 946.9)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	30,224 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

Device	Routing	Invert	Outlet Devices
#1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=72.84 cfs @ 13.57 hrs HW=525.53' TW=516.06' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 16.62 cfs @ 4.37 fps)
├─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 12.39 cfs @ 2.74 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 43.83 cfs @ 1.68 fps)

Pond p18-1:

Inflow Area = 5.356 ac, Inflow Depth = 2.83" for 10-yr event
Inflow = 19.65 cfs @ 12.04 hrs, Volume= 1.264 af
Outflow = 1.31 cfs @ 13.60 hrs, Volume= 1.263 af, Atten= 93%, Lag= 93.6 min
Primary = 1.31 cfs @ 13.60 hrs, Volume= 1.263 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Starting Elev= 515.50' Surf.Area= 8,701 sf Storage= 8,455 cf
Peak Elev= 517.48' @ 13.60 hrs Surf.Area= 18,671 sf Storage= 39,662 cf (31,207 cf above start)
Flood Elev= 519.00' Surf.Area= 22,111 sf Storage= 70,643 cf (62,188 cf above start)

Plug-Flow detention time= 975.4 min calculated for 1.069 af (85% of inflow)
Center-of-Mass det. time= 763.7 min (1,584.0 - 820.4)

Volume	Invert	Avail.Storage	Storage Description
#1	512.00'	93,928 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)
512.00	422	0	0	422
514.00	1,472	1,788	1,788	1,493
514.50	2,962	1,087	2,875	2,985
515.50	8,701	5,580	8,455	8,730
516.00	15,477	5,964	14,419	15,509
518.00	19,862	35,248	49,667	19,993
520.00	24,480	44,262	93,928	24,730

Device	Routing	Invert	Outlet Devices
#1	Primary	515.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	517.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.31 cfs @ 13.60 hrs HW=517.48' TW=509.85' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.32 cfs @ 6.56 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.98 cfs @ 2.27 fps)

Pond p18-2:

Inflow Area = 147.742 ac, Inflow Depth = 2.14" for 10-yr event
Inflow = 80.81 cfs @ 13.57 hrs, Volume= 26.332 af
Outflow = 80.52 cfs @ 13.60 hrs, Volume= 26.331 af, Atten= 0%, Lag= 1.9 min
Primary = 80.52 cfs @ 13.60 hrs, Volume= 26.331 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.06' @ 13.60 hrs Surf.Area= 28,742 sf Storage= 79,940 cf (53,056 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)

Plug-Flow detention time= 127.4 min calculated for 25.712 af (98% of inflow)
Center-of-Mass det. time= 37.6 min (1,124.0 - 1,086.4)

Volume	Invert	Avail.Storage	Storage Description
#1	510.00'	148,288 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

Device	Routing	Invert	Outlet Devices
#1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=80.52 cfs @ 13.60 hrs HW=516.06' TW=509.85' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 21.12 cfs @ 4.88 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 12.96 cfs @ 2.76 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 46.44 cfs @ 2.32 fps)

Pond p18-4:

Inflow Area = 16.038 ac, Inflow Depth = 3.54" for 10-yr event
Inflow = 69.45 cfs @ 12.05 hrs, Volume= 4.735 af
Outflow = 13.16 cfs @ 12.48 hrs, Volume= 4.733 af, Atten= 81%, Lag= 25.9 min
Primary = 13.16 cfs @ 12.48 hrs, Volume= 4.733 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 521.50' Surf.Area= 9,318 sf Storage= 16,432 cf
Peak Elev= 526.95' @ 12.48 hrs Surf.Area= 25,753 sf Storage= 123,006 cf (106,574 cf above start)
Flood Elev= 529.00' Surf.Area= 30,616 sf Storage= 180,767 cf (164,335 cf above start)

Plug-Flow detention time= 1,032.1 min calculated for 4.356 af (92% of inflow)
Center-of-Mass det. time= 905.0 min (1,699.9 - 794.9)

Volume	Invert	Avail.Storage	Storage Description
#1	516.00'	212,613 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)
516.00	292	0	0	292
518.00	1,596	1,714	1,714	1,612
520.00	3,769	5,212	6,926	3,814
521.50	9,318	9,507	16,432	9,379
522.00	15,200	6,070	22,502	15,264
524.00	19,211	34,333	56,835	19,381
526.00	23,606	42,742	99,576	23,897
528.00	28,236	51,773	151,349	28,665
530.00	33,092	61,264	212,613	33,677

Device	Routing	Invert	Outlet Devices
#1	Primary	521.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	525.50'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=13.16 cfs @ 12.48 hrs HW=526.95' TW=515.49' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.55 cfs @ 11.11 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 12.61 cfs @ 3.94 fps)

Pond p19-0:

Inflow Area = 15.520 ac, Inflow Depth = 1.30" for 10-yr event
Inflow = 10.40 cfs @ 12.62 hrs, Volume= 1.683 af
Outflow = 5.85 cfs @ 13.10 hrs, Volume= 1.683 af, Atten= 44%, Lag= 29.1 min
Primary = 5.85 cfs @ 13.10 hrs, Volume= 1.683 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.15' @ 13.10 hrs Surf.Area= 90,219 sf Storage= 74,507 cf (17,174 cf above start)

Plug-Flow detention time= 618.2 min calculated for 0.367 af (22% of inflow)
Center-of-Mass det. time= 77.0 min (984.3 - 907.3)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

Device	Routing	Invert	Outlet Devices
#1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
#2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.85 cfs @ 13.10 hrs HW=972.15' TW=970.13' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 5.85 cfs @ 1.09 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20-1:

Inflow Area = 251.397 ac, Inflow Depth > 1.95" for 10-yr event
Inflow = 43.99 cfs @ 15.69 hrs, Volume= 40.799 af
Outflow = 43.80 cfs @ 15.82 hrs, Volume= 40.638 af, Atten= 0%, Lag= 7.3 min
Primary = 43.80 cfs @ 15.82 hrs, Volume= 40.638 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.23' @ 15.82 hrs Surf.Area= 90,496 sf Storage= 240,233 cf (101,709 cf above start)

Plug-Flow detention time= 780.2 min calculated for 37.458 af (92% of inflow)
Center-of-Mass det. time= 142.8 min (2,392.5 - 2,249.7)

Volume	Invert	Avail.Storage	Storage Description
#1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

Device	Routing	Invert	Outlet Devices
#1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=43.80 cfs @ 15.82 hrs HW=506.23' TW=505.12' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 10.09 cfs @ 2.99 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 0.07 cfs @ 0.42 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 33.64 cfs @ 1.44 fps)

Pond p21-1:

Inflow Area = 499.521 ac, Inflow Depth > 1.96" for 10-yr event
Inflow = 260.22 cfs @ 12.18 hrs, Volume= 81.674 af
Outflow = 24.86 cfs @ 21.40 hrs, Volume= 80.725 af, Atten= 90%, Lag= 553.5 min
Primary = 24.86 cfs @ 21.40 hrs, Volume= 80.725 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 484.54' @ 21.40 hrs Surf.Area= 697,234 sf Storage= 1,230,614 cf

Plug-Flow detention time= 652.0 min calculated for 80.725 af (99% of inflow)
Center-of-Mass det. time= 543.3 min (2,787.8 - 2,244.5)

Volume	Invert	Avail.Storage	Storage Description
#1	480.40'	8,387,099 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423
490.00	1,644,120	3,142,214	8,387,099	1,644,607

Device	Routing	Invert	Outlet Devices
#1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' Cc= 0.900 n= 0.024

Primary OutFlow Max=24.86 cfs @ 21.40 hrs HW=484.54' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 24.86 cfs @ 5.06 fps)

Pond p21-7:

Inflow Area = 10.425 ac, Inflow Depth = 2.62" for 10-yr event
Inflow = 20.95 cfs @ 12.08 hrs, Volume= 2.274 af
Outflow = 2.16 cfs @ 14.14 hrs, Volume= 2.272 af, Atten= 90%, Lag= 123.7 min
Primary = 2.16 cfs @ 14.14 hrs, Volume= 2.272 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 492.81' @ 14.14 hrs Surf.Area= 16,636 sf Storage= 59,990 cf
Flood Elev= 494.00' Surf.Area= 18,859 sf Storage= 81,129 cf

Plug-Flow detention time= 1,082.6 min calculated for 2.272 af (100% of inflow)
Center-of-Mass det. time= 1,082.6 min (1,920.5 - 837.8)

Volume	Invert	Avail.Storage	Storage Description
#1	488.00'	81,129 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
488.00	8,590	0	0
490.00	11,713	20,303	20,303
492.00	15,127	26,840	47,143
494.00	18,859	33,986	81,129

Device	Routing	Invert	Outlet Devices
#1	Primary	488.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	492.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.16 cfs @ 14.14 hrs HW=492.81' TW=483.88' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.51 cfs @ 10.42 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 1.65 cfs @ 1.82 fps)

Pond p22-1:

Inflow Area = 62.211 ac, Inflow Depth = 1.90" for 10-yr event
Inflow = 60.54 cfs @ 12.38 hrs, Volume= 9.839 af
Outflow = 60.13 cfs @ 12.41 hrs, Volume= 9.553 af, Atten= 1%, Lag= 1.9 min
Primary = 60.13 cfs @ 12.41 hrs, Volume= 9.553 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 501.49' @ 12.41 hrs Surf.Area= 10,734 sf Storage= 39,142 cf (29,036 cf above start)

Plug-Flow detention time= 66.7 min calculated for 9.321 af (95% of inflow)
Center-of-Mass det. time= 30.8 min (915.7 - 884.9)

Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

Device	Routing	Invert	Outlet Devices
#1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' Cc= 0.900 n= 0.024
#2	Primary	500.50'	**1.0' long x 15.0' 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
#3	Primary	500.50'	**20.0' long x 13.5' 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) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=60.13 cfs @ 12.41 hrs HW=501.49' TW=482.93' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 5.07 cfs @ 3.10 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 2.60 cfs @ 2.62 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 52.46 cfs @ 2.64 fps)

Pond p23-2:

Inflow Area = 73.912 ac, Inflow Depth = 2.36" for 10-yr event
Inflow = 95.20 cfs @ 12.62 hrs, Volume= 14.562 af
Outflow = 2.14 cfs @ 24.41 hrs, Volume= 9.705 af, Atten= 98%, Lag= 707.7 min
Primary = 2.14 cfs @ 24.41 hrs, Volume= 9.705 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Starting Elev= 508.00' Surf.Area= 43,560 sf Storage= 116,710 cf
Peak Elev= 517.20' @ 24.41 hrs Surf.Area= 87,014 sf Storage= 710,253 cf (593,543 cf above start)
Flood Elev= 519.00' Surf.Area= 96,565 sf Storage= 875,673 cf (758,963 cf above start)

Plug-Flow detention time= 6,564.4 min calculated for 7.025 af (48% of inflow)
Center-of-Mass det. time= 4,941.2 min (5,813.9 - 872.7)

Volume	Invert	Avail.Storage	Storage Description
#1	504.00'	974,958 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)
504.00	21,853	0	0	21,853
506.00	27,237	48,991	48,991	27,350
506.50	28,631	13,966	62,957	28,775
508.00	43,560	53,753	116,710	43,738
510.00	52,250	95,678	212,388	52,565
512.00	61,370	113,498	325,886	61,840
514.00	70,920	132,175	458,061	71,562
516.00	80,880	151,691	609,752	81,712
518.00	91,250	172,026	781,778	92,288
520.00	102,030	193,180	974,958	103,291

Device	Routing	Invert	Outlet Devices
#1	Primary	508.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	517.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.14 cfs @ 24.41 hrs HW=517.20' TW=484.50' (Dynamic Tailwater)
└**1=Orifice/Grate** (Orifice Controls 0.71 cfs @ 14.50 fps)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 1.42 cfs @ 1.45 fps)

Pond zDP1: Design Point 1

Inflow Area = 26.401 ac, Inflow Depth = 2.11" for 10-yr event
Inflow = 28.01 cfs @ 12.26 hrs, Volume= 4.635 af
Outflow = 28.02 cfs @ 12.26 hrs, Volume= 4.635 af, Atten= 0%, Lag= 0.1 min
Primary = 28.02 cfs @ 12.26 hrs, Volume= 4.635 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 722.13' @ 12.26 hrs Surf.Area= 106 sf Storage= 83 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf

Plug-Flow detention time= 0.1 min calculated for 4.635 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (1,047.9 - 1,047.7)

Volume	Invert	Avail.Storage	Storage Description
#1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

Device	Routing	Invert	Outlet Devices
#1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' Cc= 0.900 n= 0.024
#2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=28.02 cfs @ 12.26 hrs HW=722.13' TW=686.48' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 28.02 cfs @ 4.85 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Inflow Area = 97.969 ac, Inflow Depth = 1.78" for 10-yr event
Inflow = 68.34 cfs @ 12.87 hrs, Volume= 14.515 af
Outflow = 68.33 cfs @ 12.88 hrs, Volume= 14.515 af, Atten= 0%, Lag= 0.3 min
Primary = 34.28 cfs @ 12.88 hrs, Volume= 12.402 af
Secondary = 34.04 cfs @ 12.88 hrs, Volume= 2.114 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 625.74' @ 12.88 hrs Surf.Area= 1,333 sf Storage= 3,055 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf

Plug-Flow detention time= 0.5 min calculated for 14.515 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (896.6 - 896.1)

Volume	Invert	Avail.Storage	Storage Description
#1	619.60'	7,280 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

Device	Routing	Invert	Outlet Devices
#1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' Cc= 0.900 n= 0.012
#2	Secondary	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=34.28 cfs @ 12.88 hrs HW=625.74' TW=607.67' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 34.28 cfs @ 10.91 fps)

Secondary OutFlow Max=34.04 cfs @ 12.88 hrs HW=625.74' TW=558.89' (Dynamic Tailwater)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 34.04 cfs @ 2.74 fps)

Pond zDP3: Design Point 3

Inflow Area = 252.976 ac, Inflow Depth > 63.95" for 10-yr event
Inflow = 190.59 cfs @ 12.79 hrs, Volume= 1,348.227 af
Primary = 190.59 cfs @ 12.79 hrs, Volume= 1,348.227 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 499.521 ac, Inflow Depth > 1.94" for 10-yr event
Inflow = 24.86 cfs @ 21.40 hrs, Volume= 80.725 af
Primary = 24.86 cfs @ 21.40 hrs, Volume= 80.725 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 2.04" for 10-yr event
Inflow = 37.09 cfs @ 12.45 hrs, Volume= 4.807 af
Primary = 37.09 cfs @ 12.45 hrs, Volume= 4.807 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP6: Design Point 6

Inflow Area = 5.306 ac, Inflow Depth = 1.04" for 10-yr event
Inflow = 3.01 cfs @ 12.51 hrs, Volume= 0.461 af
Outflow = 3.01 cfs @ 12.51 hrs, Volume= 0.461 af, Atten= 0%, Lag= 0.0 min
Primary = 3.01 cfs @ 12.51 hrs, Volume= 0.461 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 609.62' @ 12.51 hrs
Flood Elev= 612.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.90'	**36.0" x 43.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 606.90' S= 0.0465 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=3.01 cfs @ 12.51 hrs HW=609.62' TW=587.96' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 3.01 cfs @ 2.29 fps)

Pond zDP7: Design Point 7

Inflow Area = 31.683 ac, Inflow Depth = 1.73" for 10-yr event
Inflow = 27.21 cfs @ 12.70 hrs, Volume= 4.561 af
Primary = 27.21 cfs @ 12.70 hrs, Volume= 4.561 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP8: Design Point 8

Inflow Area = 7.105 ac, Inflow Depth = 2.12" for 10-yr event
Inflow = 12.51 cfs @ 12.14 hrs, Volume= 1.256 af
Primary = 12.51 cfs @ 12.14 hrs, Volume= 1.256 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Subcatchment s01-0:

Runoff = 16.59 cfs @ 12.60 hrs, Volume= 2.508 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
11.485	68	
11.485		Pervious Area

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

Subcatchment s02-1:

Runoff = 97.15 cfs @ 12.87 hrs, Volume= 18.273 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
93.258	65	
93.258		Pervious Area

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

Subcatchment s02-2:

Runoff = 10.57 cfs @ 12.03 hrs, Volume= 0.708 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
1.605	94	
1.605		Pervious Area

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

Subcatchment s02-3:

Runoff = 3.73 cfs @ 12.02 hrs, Volume= 0.232 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.587	89	
0.587		Pervious Area

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

Subcatchment s02-4:

Runoff = 3.26 cfs @ 12.01 hrs, Volume= 0.211 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.479	94	
0.479		Pervious Area

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

Subcatchment s02-5:

Runoff = 6.24 cfs @ 12.03 hrs, Volume= 0.418 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.947	94	
0.947		Pervious Area

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

Subcatchment s02-6:

Runoff = 1.42 cfs @ 12.01 hrs, Volume= 0.092 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.209	94	
0.209		Pervious Area

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

Subcatchment s02-7:

Runoff = 5.82 cfs @ 12.03 hrs, Volume= 0.390 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.884	94	
0.884		Pervious Area

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

Subcatchment s03-1:

Runoff = 7.70 cfs @ 12.36 hrs, Volume= 0.901 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
3.988	69	
3.988		Pervious Area

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

Subcatchment s03-2:

Runoff = 26.40 cfs @ 12.21 hrs, Volume= 2.490 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
9.981	72	
9.981		Pervious Area

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

Subcatchment s03-3:

Runoff = 6.56 cfs @ 12.01 hrs, Volume= 0.436 af, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.947	96	
0.947		Pervious Area

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

Subcatchment s04-1:

Runoff = 26.33 cfs @ 12.21 hrs, Volume= 2.501 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
11.064	69	
11.064		Pervious Area

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

Subcatchment s05-1:

Runoff = 9.51 cfs @ 12.12 hrs, Volume= 0.756 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
4.340	62	
4.340		Pervious Area

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

Subcatchment s05-2:

Runoff = 15.02 cfs @ 12.15 hrs, Volume= 1.248 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
6.138	66	
6.138		Pervious Area

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

Subcatchment s05-3:

Runoff = 9.60 cfs @ 12.14 hrs, Volume= 0.786 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
3.364	70	
3.364		Pervious Area

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

Subcatchment s06-1:

Runoff = 16.22 cfs @ 12.22 hrs, Volume= 1.559 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
7.665	66	
7.665		Pervious Area

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

Subcatchment s06-2:

Runoff = 27.02 cfs @ 12.23 hrs, Volume= 2.732 af, Depth= 2.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
15.682	62	
15.682		Pervious Area

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

Subcatchment s07-1:

Runoff = 10.17 cfs @ 12.22 hrs, Volume= 0.973 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
4.614	67	
4.614		Pervious Area

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

Subcatchment s07-2:

Runoff = 11.73 cfs @ 12.19 hrs, Volume= 1.088 af, Depth= 2.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
5.997	63	
5.997		Pervious Area

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

Subcatchment s08-1:

Runoff = 13.94 cfs @ 12.39 hrs, Volume= 1.745 af, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
10.900	60	
10.900		Pervious Area

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

Subcatchment s08-2:

Runoff = 6.29 cfs @ 12.21 hrs, Volume= 0.614 af, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
3.832	60	
3.832		Pervious Area

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

Subcatchment s08-3:

Runoff = 3.90 cfs @ 12.04 hrs, Volume= 0.286 af, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.595	98	
0.595		Impervious Area

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

Subcatchment s09-1:

Runoff = 14.81 cfs @ 12.13 hrs, Volume= 1.177 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
5.208	69	
5.208		Pervious Area

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

Subcatchment s09-2:

Runoff = 1.52 cfs @ 12.01 hrs, Volume= 0.101 af, Depth= 5.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.219	96	
0.219		Pervious Area

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

Subcatchment s10-1:

Runoff = 23.51 cfs @ 12.18 hrs, Volume= 2.109 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
9.021	70	
9.021		Pervious Area

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

Subcatchment s11-1:

Runoff = 96.19 cfs @ 12.08 hrs, Volume= 7.292 af, Depth= 5.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
17.262	92	
17.262		Pervious Area

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

Subcatchment s13-1:

Runoff = 0.55 cfs @ 12.04 hrs, Volume= 0.038 af, Depth= 1.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.300	55	
0.300		Pervious Area

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

Subcatchment s14-1:

Runoff = 48.04 cfs @ 12.14 hrs, Volume= 3.915 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
12.768	79	
12.768		Pervious Area

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

Subcatchment s14-2:

Runoff = 39.80 cfs @ 12.06 hrs, Volume= 2.673 af, Depth= 4.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
7.643	84	
7.643		Pervious Area

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

Subcatchment s14-3:

Runoff = 6.06 cfs @ 12.03 hrs, Volume= 0.376 af, Depth= 3.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
1.131	82	
1.131		Pervious Area

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

Subcatchment s16-1:

Runoff = 60.69 cfs @ 12.13 hrs, Volume= 4.816 af, Depth= 3.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
14.494	82	
14.494		Pervious Area

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

Subcatchment s16-2:

Runoff = 9.40 cfs @ 12.14 hrs, Volume= 0.767 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
3.074	72	
3.074		Pervious Area

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

Subcatchment s16-3:

Runoff = 27.78 cfs @ 12.19 hrs, Volume= 2.554 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
10.239	72	
10.239		Pervious Area

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

Subcatchment s16-4:

Runoff = 43.44 cfs @ 12.27 hrs, Volume= 4.631 af, Depth= 4.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
13.242	84	
13.242		Pervious Area

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

Subcatchment s16-5:

Runoff = 18.37 cfs @ 12.06 hrs, Volume= 1.218 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
3.971	79	
3.971		Pervious Area

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

Subcatchment s16-6:

Runoff = 9.46 cfs @ 12.10 hrs, Volume= 0.702 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
3.105	69	
3.105		Pervious Area

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

Subcatchment s16-7:

Runoff = 35.71 cfs @ 12.20 hrs, Volume= 3.331 af, Depth= 2.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
15.797	67	
15.797		Pervious Area

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

Subcatchment s17-1:

Runoff = 7.82 cfs @ 12.09 hrs, Volume= 0.562 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
2.572	68	
2.572		Pervious Area

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

Subcatchment s17-2:

Runoff = 102.23 cfs @ 13.56 hrs, Volume= 28.075 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
124.201	69	
124.201		Pervious Area

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

Subcatchment s18-1:

Runoff = 4.90 cfs @ 12.02 hrs, Volume= 0.294 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.908	81	
0.908		Pervious Area

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

Subcatchment s18-2:

Runoff = 17.23 cfs @ 12.10 hrs, Volume= 1.269 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
4.931	73	
4.931		Pervious Area

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

Subcatchment s18-3:

Runoff = 21.34 cfs @ 12.05 hrs, Volume= 1.364 af, Depth= 3.68"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
4.448	79	
4.448		Pervious Area

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

Subcatchment s18-4:

Runoff = 76.56 cfs @ 12.04 hrs, Volume= 5.124 af, Depth= 4.85"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
12.689	90	
12.689		Pervious Area

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

Subcatchment s18-5:

Runoff = 12.12 cfs @ 12.09 hrs, Volume= 0.862 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
3.349	73	
3.349		Pervious Area

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

Subcatchment s19-0:

Runoff = 16.16 cfs @ 12.61 hrs, Volume= 2.485 af, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
15.520	60	
15.520		Pervious Area

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

Subcatchment s20-1:

Runoff = 29.64 cfs @ 12.13 hrs, Volume= 2.344 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
9.702	71	
9.702		Pervious Area

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

Subcatchment s20-2:

Runoff = 7.40 cfs @ 12.14 hrs, Volume= 0.603 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
2.342	73	
2.342		Pervious Area

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

Subcatchment s20-3:

Runoff = 9.37 cfs @ 12.43 hrs, Volume= 1.185 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
5.071	70	
5.071		Pervious Area

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

Subcatchment s20-4:

Runoff = 4.48 cfs @ 12.12 hrs, Volume= 0.362 af, Depth= 1.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
2.261	60	
2.261		Pervious Area

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

Subcatchment s20-5:

Runoff = 6.33 cfs @ 12.09 hrs, Volume= 0.462 af, Depth= 2.26"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
2.451	64	
2.451		Pervious Area

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

Subcatchment s21-1:

Runoff = 197.48 cfs @ 12.18 hrs, Volume= 17.603 af, Depth= 3.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
68.392	73	
68.392		Pervious Area

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

Subcatchment s21-2:

Runoff = 24.25 cfs @ 12.07 hrs, Volume= 1.682 af, Depth= 4.09"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
4.934	83	
4.934		Pervious Area

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

Subcatchment s21-3:

Runoff = 25.18 cfs @ 12.08 hrs, Volume= 1.864 af, Depth= 4.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
4.724	89	
4.724		Pervious Area

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

Subcatchment s21-4:

Runoff = 3.52 cfs @ 12.03 hrs, Volume= 0.236 af, Depth= 5.30"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.534	94	
0.534		Pervious Area

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

Subcatchment s21-5:

Runoff = 2.03 cfs @ 12.03 hrs, Volume= 0.144 af, Depth= 5.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
0.300	98	
0.300		Impervious Area

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

Subcatchment s21-6:

Runoff = 46.65 cfs @ 12.16 hrs, Volume= 3.928 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
15.746	72	
15.746		Pervious Area

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

Subcatchment s21-7:

Runoff = 9.78 cfs @ 12.49 hrs, Volume= 1.326 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
5.491	71	
5.491		Pervious Area

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

Subcatchment s22-1:

Runoff = 30.53 cfs @ 12.12 hrs, Volume= 2.331 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
9.346	72	
9.346		Pervious Area

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

Subcatchment s22-2:

Runoff = 65.67 cfs @ 12.37 hrs, Volume= 7.814 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
33.425	70	
33.425		Pervious Area

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

Subcatchment s22-3:

Runoff = 14.13 cfs @ 12.10 hrs, Volume= 1.040 af, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
3.920	74	
3.920		Pervious Area

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

Subcatchment s23-1:

Runoff = 16.69 cfs @ 12.27 hrs, Volume= 1.732 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
7.168	71	
7.168		Pervious Area

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

Subcatchment s23-2:

Runoff = 129.08 cfs @ 12.61 hrs, Volume= 19.617 af, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
73.912	74	
73.912		Pervious Area

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

Subcatchment s24-0:

Runoff = 51.75 cfs @ 12.45 hrs, Volume= 6.621 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
28.325	70	
28.325		Pervious Area

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

Subcatchment s25-1:

Runoff = 33.71 cfs @ 12.18 hrs, Volume= 3.032 af, Depth= 2.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
13.414	69	
13.414		Pervious Area

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

Subcatchment s26-0:

Runoff = 4.99 cfs @ 12.50 hrs, Volume= 0.706 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
5.306	56	
5.306		Pervious Area

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

Subcatchment s27-1:

Runoff = 39.42 cfs @ 12.69 hrs, Volume= 6.443 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
31.683	66	
31.683		Pervious Area

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

Subcatchment s28-1:

Runoff = 17.71 cfs @ 12.13 hrs, Volume= 1.422 af, Depth= 2.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.00"

Area (ac)	CN	Description
6.510	68	
6.510		Pervious Area

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

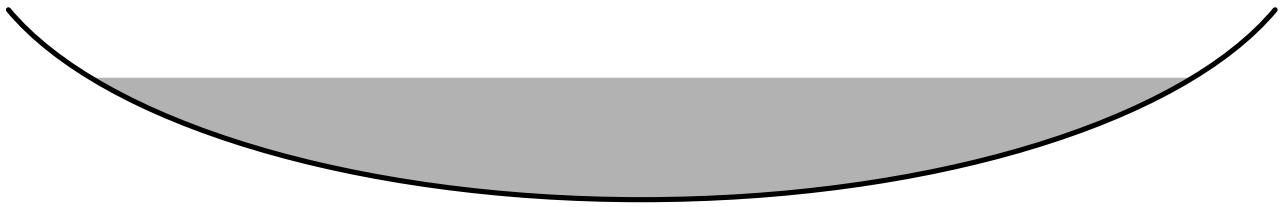
Reach 25R:

Inflow Area = 48.945 ac, Inflow Depth = 2.53" for 25-yr event
Inflow = 67.36 cfs @ 12.39 hrs, Volume= 10.299 af
Outflow = 66.81 cfs @ 12.41 hrs, Volume= 10.299 af, Atten= 1%, Lag= 1.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.91 fps, Min. Travel Time= 2.6 min
Avg. Velocity = 0.46 fps, Avg. Travel Time= 22.4 min

Peak Storage= 10,602 cf @ 12.41 hrs, Average Depth at Peak Storage= 0.64'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 175.17 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 620.0' Slope= 0.0774 '/'
Inlet Invert= 560.00', Outlet Invert= 512.00'



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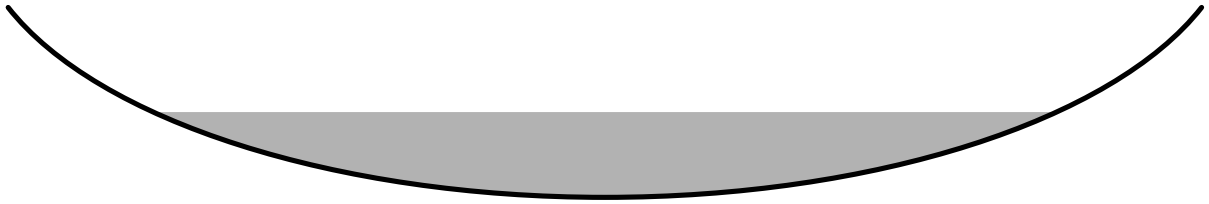
Reach r03-1:

Inflow Area = 11.485 ac, Inflow Depth = 2.62" for 25-yr event
Inflow = 16.59 cfs @ 12.60 hrs, Volume= 2.508 af
Outflow = 16.50 cfs @ 12.64 hrs, Volume= 2.508 af, Atten= 1%, Lag= 1.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.50 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 2.11 fps, Avg. Travel Time= 6.2 min

Peak Storage= 2,354 cf @ 12.64 hrs, Average Depth at Peak Storage= 0.67'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 92.14 cfs

10.00' x 1.50' deep Parabolic Channel, n= 0.060
Length= 785.0' Slope= 0.1490 '/'
Inlet Invert= 845.00', Outlet Invert= 728.00'



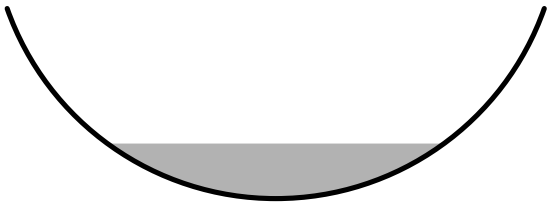
Reach r04-1:

Inflow Area = 26.401 ac, Inflow Depth = 2.88" for 25-yr event
Inflow = 39.53 cfs @ 12.26 hrs, Volume= 6.336 af
Outflow = 39.50 cfs @ 12.27 hrs, Volume= 6.336 af, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.96 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.31 fps, Avg. Travel Time= 4.2 min

Peak Storage= 1,638 cf @ 12.27 hrs, Average Depth at Peak Storage= 1.15'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 530.15 cfs

12.00' x 4.00' deep Parabolic Channel, n= 0.060
Length= 330.0' Slope= 0.1621 '/'
Inlet Invert= 685.50', Outlet Invert= 632.00'



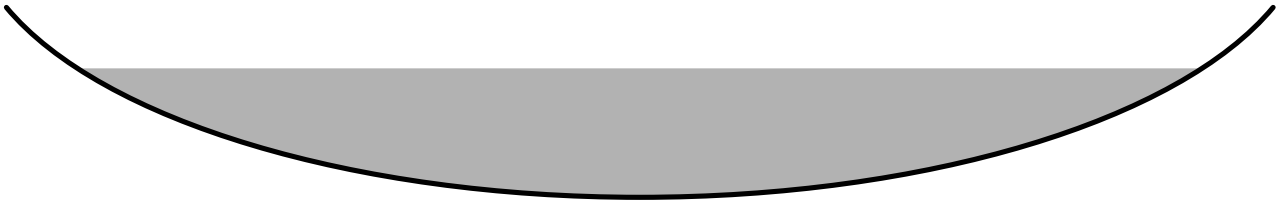
Reach r08-1a:

Inflow Area = 97.969 ac, Inflow Depth = 1.88" for 25-yr event
Inflow = 35.45 cfs @ 12.88 hrs, Volume= 15.361 af
Outflow = 35.45 cfs @ 12.88 hrs, Volume= 15.361 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.53 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 4.54 fps, Avg. Travel Time= 0.8 min

Peak Storage= 841 cf @ 12.88 hrs, Average Depth at Peak Storage= 0.68'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 81.88 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.027
Length= 226.0' Slope= 0.0885 '/'
Inlet Invert= 607.00', Outlet Invert= 587.00'



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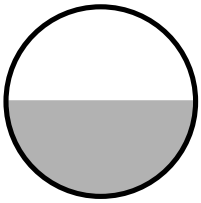
Reach r08-1b:

Inflow Area = 103.275 ac, Inflow Depth = 1.87" for 25-yr event
Inflow = 39.46 cfs @ 12.60 hrs, Volume= 16.067 af
Outflow = 39.46 cfs @ 12.60 hrs, Volume= 16.067 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 24.70 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 12.06 fps, Avg. Travel Time= 0.4 min

Peak Storage= 471 cf @ 12.60 hrs, Average Depth at Peak Storage= 1.01'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 77.17 cfs

24.0" Diameter Pipe, n= 0.012
Length= 295.0' Slope= 0.0992 '/'
Inlet Invert= 587.00', Outlet Invert= 557.75'



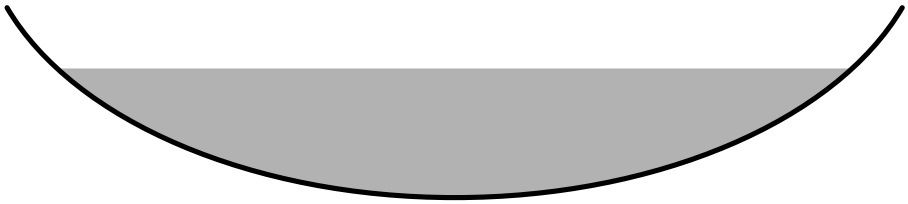
Reach r08-1c:

Inflow Area = 103.275 ac, Inflow Depth = 2.44" for 25-yr event
Inflow = 102.43 cfs @ 12.87 hrs, Volume= 21.031 af
Outflow = 102.39 cfs @ 12.88 hrs, Volume= 21.031 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 13.72 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 4.93 fps, Avg. Travel Time= 2.0 min

Peak Storage= 4,402 cf @ 12.88 hrs, Average Depth at Peak Storage= 1.36'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 232.56 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 590.0' Slope= 0.0775 '/'
Inlet Invert= 557.75', Outlet Invert= 512.00'



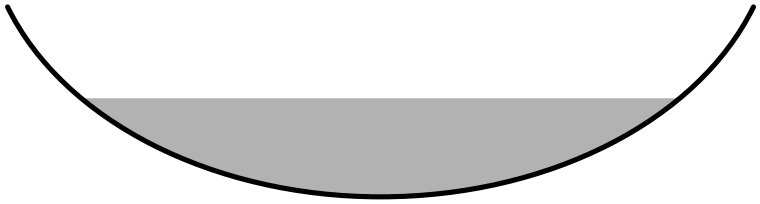
Reach r08-1d: Amenia Creek/Cascade Brook

Inflow Area = 107.107 ac, Inflow Depth > 76.50" for 25-yr event
Inflow = 142.69 cfs @ 12.88 hrs, Volume= 682.834 af, Incl. 40.00 cfs Base Flow
Outflow = 142.20 cfs @ 12.91 hrs, Volume= 682.553 af, Atten= 0%, Lag= 1.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.82 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 2.64 fps, Avg. Travel Time= 5.1 min

Peak Storage= 29,953 cf @ 12.91 hrs, Average Depth at Peak Storage= 3.10'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 571.01 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 805.0' Slope= 0.0099 '/'
Inlet Invert= 512.00', Outlet Invert= 504.00'



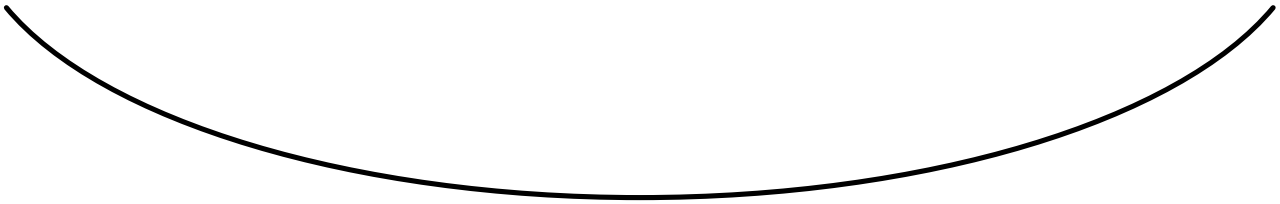
Reach r18-2:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 434.91 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 720.0' Slope= 0.4772 '/'
Inlet Invert= 973.60', Outlet Invert= 630.00'



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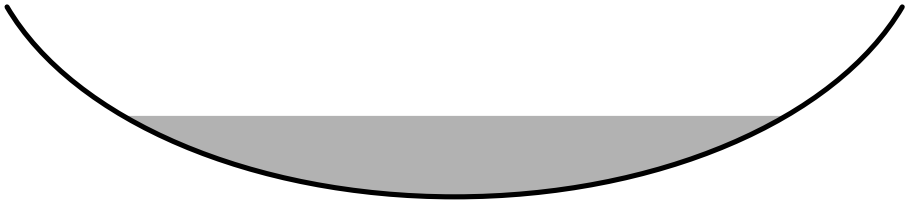
Reach r21-1a:

Inflow Area = 253.658 ac, Inflow Depth > 2.74" for 25-yr event
Inflow = 106.53 cfs @ 14.44 hrs, Volume= 57.918 af
Outflow = 106.50 cfs @ 14.46 hrs, Volume= 57.915 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.22 fps, Min. Travel Time= 1.5 min
Avg. Velocity = 1.91 fps, Avg. Travel Time= 5.6 min

Peak Storage= 9,560 cf @ 14.46 hrs, Average Depth at Peak Storage= 1.70'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 658.74 cfs

20.00' x 4.00' deep Parabolic Channel, n= 0.027
Length= 648.0' Slope= 0.0154 '/'
Inlet Invert= 504.00', Outlet Invert= 494.00'



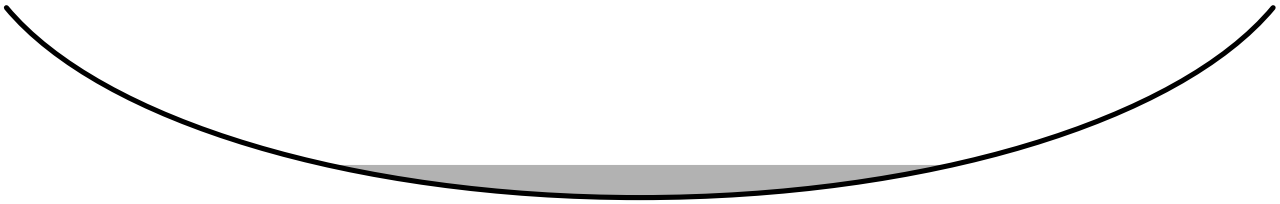
Reach r22-2:

Inflow Area = 15.520 ac, Inflow Depth = 1.92" for 25-yr event
Inflow = 10.10 cfs @ 13.00 hrs, Volume= 2.485 af
Outflow = 10.08 cfs @ 13.03 hrs, Volume= 2.485 af, Atten= 0%, Lag= 1.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.32 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 0.96 fps, Avg. Travel Time= 10.9 min

Peak Storage= 1,470 cf @ 13.03 hrs, Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 469.25 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 630.0' Slope= 0.5556 '/'
Inlet Invert= 970.00', Outlet Invert= 620.00'



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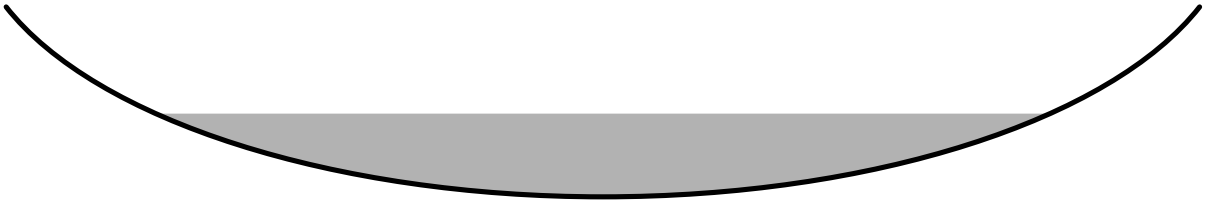
Reach r25-1b: Wetland Reach

Inflow Area = 23.347 ac, Inflow Depth = 2.19" for 25-yr event
Inflow = 28.42 cfs @ 12.49 hrs, Volume= 4.269 af
Outflow = 26.65 cfs @ 12.57 hrs, Volume= 4.268 af, Atten= 6%, Lag= 5.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.30 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 0.32 fps, Avg. Travel Time= 39.5 min

Peak Storage= 8,685 cf @ 12.57 hrs, Average Depth at Peak Storage= 1.31'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 156.51 cfs

20.00' x 3.00' deep Parabolic Channel, n= 0.045
Length= 750.0' Slope= 0.0060 '/'
Inlet Invert= 504.00', Outlet Invert= 499.50'



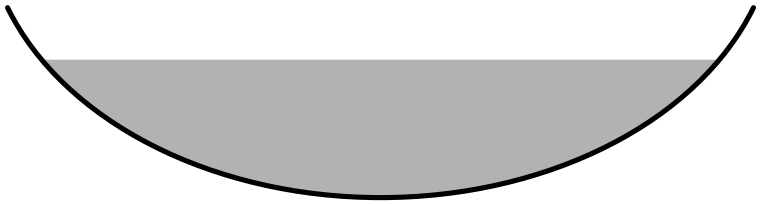
Reach r25-1c: Amenia Creek/Cascade Brook

Inflow Area = 118.007 ac, Inflow Depth >136.82" for 25-yr event
Inflow = 187.87 cfs @ 12.89 hrs, Volume= 1,345.488 af, Incl. 40.00 cfs Base Flow
Outflow = 186.97 cfs @ 12.95 hrs, Volume= 1,344.730 af, Atten= 0%, Lag= 3.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.02 fps, Min. Travel Time= 5.4 min
Avg. Velocity = 2.37 fps, Avg. Travel Time= 6.9 min

Peak Storage= 60,265 cf @ 12.95 hrs, Average Depth at Peak Storage= 4.35'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 366.88 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 975.0' Slope= 0.0041 '/'
Inlet Invert= 504.00', Outlet Invert= 500.00'



Pond p03-3: Underground Detention

Inflow Area = 0.947 ac, Inflow Depth = 5.53" for 25-yr event
Inflow = 6.56 cfs @ 12.01 hrs, Volume= 0.436 af
Outflow = 0.35 cfs @ 13.52 hrs, Volume= 0.436 af, Atten= 95%, Lag= 90.5 min
Primary = 0.35 cfs @ 13.52 hrs, Volume= 0.436 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 805.20' @ 13.52 hrs Surf.Area= 2,037 sf Storage= 13,022 cf

Plug-Flow detention time= 2,026.2 min calculated for 0.436 af (100% of inflow)
Center-of-Mass det. time= 2,026.4 min (2,780.0 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1	800.00'	14,137 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 5

Device	Routing	Invert	Outlet Devices
#1	Primary	800.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	805.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.35 cfs @ 13.52 hrs HW=805.20' TW=721.23' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 10.94 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.29 cfs @ 1.47 fps)

Pond p05-2:

Inflow Area = 46.967 ac, Inflow Depth = 2.78" for 25-yr event
Inflow = 85.39 cfs @ 12.21 hrs, Volume= 10.871 af
Outflow = 75.17 cfs @ 12.33 hrs, Volume= 10.871 af, Atten= 12%, Lag= 7.3 min
Primary = 75.17 cfs @ 12.33 hrs, Volume= 10.871 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 584.00' Surf.Area= 39,691 sf Storage= 193,237 cf
Peak Elev= 585.36' @ 12.33 hrs Surf.Area= 49,170 sf Storage= 251,549 cf (58,312 cf above start)
Flood Elev= 585.00' Surf.Area= 43,480 sf Storage= 234,808 cf (41,571 cf above start)

Plug-Flow detention time= 382.6 min calculated for 6.435 af (59% of inflow)
Center-of-Mass det. time= 36.4 min (970.0 - 933.6)

Volume	Invert	Avail.Storage	Storage Description
#1	577.00'	286,360 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)
577.00	16,551	0	0	16,551
579.00	22,509	38,908	38,908	22,590
581.00	29,072	51,441	90,349	29,251
583.00	36,074	65,020	155,369	36,369
585.00	43,480	79,439	234,808	43,908
586.00	60,070	51,552	286,360	60,518

Device	Routing	Invert	Outlet Devices
#1	Primary	584.00'	**10.0' long x 25.0' 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	Primary	585.00'	**60.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=75.15 cfs @ 12.33 hrs HW=585.36' TW=574.19' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 41.94 cfs @ 3.08 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 33.21 cfs @ 1.53 fps)

Pond p06-1:

Inflow Area = 23.347 ac, Inflow Depth = 2.21" for 25-yr event
Inflow = 39.78 cfs @ 12.28 hrs, Volume= 4.291 af
Outflow = 28.42 cfs @ 12.49 hrs, Volume= 4.269 af, Atten= 29%, Lag= 12.6 min
Primary = 28.42 cfs @ 12.49 hrs, Volume= 4.269 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 41,229 sf Storage= 93,452 cf
Peak Elev= 507.61' @ 12.49 hrs Surf.Area= 48,316 sf Storage= 131,205 cf (37,752 cf above start)
Flood Elev= 507.10' Surf.Area= 43,840 sf Storage= 107,358 cf (13,906 cf above start)

Plug-Flow detention time= 790.5 min calculated for 2.123 af (49% of inflow)
Center-of-Mass det. time= 232.5 min (1,158.8 - 926.4)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	149,075 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	41,229	93,452	93,452	41,302
508.00	51,671	55,622	149,075	51,784

Device	Routing	Invert	Outlet Devices
#1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900
			Outlet Invert= 506.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=28.41 cfs @ 12.49 hrs HW=507.61' TW=505.25' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.66 cfs @ 2.43 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 26.75 cfs @ 1.76 fps)

Pond p06-2: Underground Detention

Inflow Area = 15.682 ac, Inflow Depth = 2.09" for 25-yr event
Inflow = 27.02 cfs @ 12.23 hrs, Volume= 2.732 af
Outflow = 25.09 cfs @ 12.30 hrs, Volume= 2.732 af, Atten= 7%, Lag= 4.2 min
Primary = 25.09 cfs @ 12.30 hrs, Volume= 2.732 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 523.20' @ 12.30 hrs Surf.Area= 5,126 sf Storage= 17,230 cf
Flood Elev= 528.00' Surf.Area= 0 sf Storage= 20,106 cf

Plug-Flow detention time= 99.4 min calculated for 2.732 af (100% of inflow)
Center-of-Mass det. time= 99.5 min (966.4 - 866.9)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	20,106 cf	**48.0"D x 100.00'L Horizontal Cylinder** x 16

Device	Routing	Invert	Outlet Devices
#1	Primary	520.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	522.00'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=25.08 cfs @ 12.30 hrs HW=523.20' TW=507.46' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.41 cfs @ 8.44 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 24.67 cfs @ 3.58 fps)

Pond p07-1:

Inflow Area = 61.918 ac, Inflow Depth = 2.65" for 25-yr event
Inflow = 98.42 cfs @ 12.30 hrs, Volume= 13.688 af
Outflow = 97.18 cfs @ 12.33 hrs, Volume= 13.679 af, Atten= 1%, Lag= 2.3 min
Primary = 17.28 cfs @ 12.33 hrs, Volume= 5.836 af
Secondary = 79.89 cfs @ 12.33 hrs, Volume= 7.843 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 574.19' @ 12.33 hrs Surf.Area= 28,039 sf Storage= 91,492 cf (35,228 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)

Plug-Flow detention time= 182.3 min calculated for 12.386 af (90% of inflow)
Center-of-Mass det. time= 48.7 min (995.8 - 947.0)

Volume	Invert	Avail.Storage	Storage Description
#1	565.00'	147,831 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424
576.00	35,150	62,274	147,831	35,383

Device	Routing	Invert	Outlet Devices
#1	Secondary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Secondary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46
#3	Primary	573.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=17.28 cfs @ 12.33 hrs HW=574.19' TW=572.14' (Dynamic Tailwater)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 17.28 cfs @ 2.90 fps)

Secondary OutFlow Max=79.87 cfs @ 12.33 hrs HW=574.19' TW=0.00' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 5.42 cfs @ 3.17 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 74.45 cfs @ 2.04 fps)

Pond p08-2:

Inflow Area = 3.832 ac, Inflow Depth = 1.92" for 25-yr event
Inflow = 6.29 cfs @ 12.21 hrs, Volume= 0.614 af
Outflow = 0.33 cfs @ 16.72 hrs, Volume= 0.613 af, Atten= 95%, Lag= 270.5 min
Primary = 0.33 cfs @ 16.72 hrs, Volume= 0.613 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 527.50' Surf.Area= 3,950 sf Storage= 5,322 cf
Peak Elev= 529.63' @ 16.72 hrs Surf.Area= 9,145 sf Storage= 21,401 cf (16,078 cf above start)
Flood Elev= 531.00' Surf.Area= 10,855 sf Storage= 35,135 cf (29,813 cf above start)

Plug-Flow detention time= 864.7 min calculated for 0.491 af (80% of inflow)
Center-of-Mass det. time= 627.3 min (1,497.6 - 870.2)

Volume	Invert	Avail.Storage	Storage Description
#1	523.00'	46,638 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)
523.00	156	0	0	156
524.00	435	284	284	441
525.00	816	616	899	832
526.00	1,291	1,044	1,944	1,321
526.50	1,563	712	2,656	1,601
527.50	3,950	2,666	5,322	3,995
528.00	7,267	2,762	8,085	7,314
529.00	8,407	7,830	15,915	8,497
530.00	9,602	8,998	24,913	9,738
531.00	10,855	10,222	35,135	11,041
532.00	12,164	11,503	46,638	12,404

Device	Routing	Invert	Outlet Devices
#1	Primary	527.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	530.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.33 cfs @ 16.72 hrs HW=529.63' TW=513.95' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.33 cfs @ 6.81 fps)
└─**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond p08-3: Underground Detention

Inflow Area = 0.595 ac, Inflow Depth = 5.76" for 25-yr event
Inflow = 3.90 cfs @ 12.04 hrs, Volume= 0.286 af
Outflow = 0.32 cfs @ 12.87 hrs, Volume= 0.286 af, Atten= 92%, Lag= 49.4 min
Primary = 0.32 cfs @ 12.87 hrs, Volume= 0.286 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 605.19' @ 12.87 hrs Surf.Area= 1,230 sf Storage= 7,799 cf

Plug-Flow detention time= 1,253.5 min calculated for 0.286 af (100% of inflow)
Center-of-Mass det. time= 1,253.7 min (1,996.1 - 742.4)

Volume	Invert	Avail.Storage	Storage Description
#1	600.00'	8,482 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 3

Device	Routing	Invert	Outlet Devices
#1	Primary	600.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	605.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.32 cfs @ 12.87 hrs HW=605.19' TW=0.00' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 10.93 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 1.43 fps)

Pond p09-1:

Inflow Area = 67.345 ac, Inflow Depth = 1.26" for 25-yr event
Inflow = 27.88 cfs @ 12.16 hrs, Volume= 7.049 af
Outflow = 24.65 cfs @ 12.38 hrs, Volume= 6.782 af, Atten= 12%, Lag= 13.1 min
Primary = 24.65 cfs @ 12.38 hrs, Volume= 6.782 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 558.19' @ 12.38 hrs Surf.Area= 27,422 sf Storage= 29,156 cf
Flood Elev= 558.00' Surf.Area= 25,588 sf Storage= 24,042 cf

Plug-Flow detention time= 67.2 min calculated for 6.782 af (96% of inflow)
Center-of-Mass det. time= 45.1 min (1,001.1 - 956.0)

Volume	Invert	Avail.Storage	Storage Description
#1	557.00'	96,165 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)
557.00	22,529	0	0	22,529
558.00	25,588	24,042	24,042	25,637
560.00	47,670	72,122	96,165	47,760

Device	Routing	Invert	Outlet Devices
#1	Primary	557.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	558.00'	**80.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=24.65 cfs @ 12.38 hrs HW=558.19' TW=537.77' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 7.76 cfs @ 2.24 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 16.89 cfs @ 1.09 fps)

Pond p09-2:

Inflow Area = 62.137 ac, Inflow Depth = 1.15" for 25-yr event
Inflow = 17.66 cfs @ 12.33 hrs, Volume= 5.937 af
Outflow = 17.64 cfs @ 12.34 hrs, Volume= 5.872 af, Atten= 0%, Lag= 0.7 min
Primary = 17.64 cfs @ 12.34 hrs, Volume= 5.872 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 572.14' @ 12.34 hrs Surf.Area= 5,239 sf Storage= 6,218 cf
Flood Elev= 572.00' Surf.Area= 5,086 sf Storage= 5,483 cf

Plug-Flow detention time= 18.3 min calculated for 5.871 af (99% of inflow)
Center-of-Mass det. time= 11.4 min (978.6 - 967.2)

Volume	Invert	Avail.Storage	Storage Description
#1	571.00'	17,934 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)
571.00	5,889	0	0	5,889
572.00	5,086	5,483	5,483	6,734
574.00	7,440	12,452	17,934	9,153

Device	Routing	Invert	Outlet Devices
#1	Primary	571.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	572.00'	**80.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=17.64 cfs @ 12.34 hrs HW=572.14' TW=558.19' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 6.94 cfs @ 2.16 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 10.70 cfs @ 0.94 fps)

Pond p10-1:

Inflow Area = 98.208 ac, Inflow Depth = 1.13" for 25-yr event
Inflow = 28.11 cfs @ 12.58 hrs, Volume= 9.266 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 49,539 sf Storage= 138,709 cf
Peak Elev= 504.78' @ 200.00 hrs Surf.Area= 84,490 sf Storage= 542,350 cf (403,641 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	874,719 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	49,539	138,709	138,709	49,650
500.00	53,826	82,668	221,377	54,126
502.00	61,486	115,227	336,605	61,973
504.00	77,594	138,768	475,373	78,189
506.00	95,372	172,661	648,033	96,088
508.00	132,320	226,686	874,719	133,113

Device	Routing	Invert	Outlet Devices
#1	Primary	506.00'	**Custom Weir/Orifice, C= 3.00** Head (feet) 0.00 2.00 Width (feet) 20.00 150.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=498.40' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Controls 0.00 cfs)

Pond p11-1: Underground Detention

Inflow Area = 17.262 ac, Inflow Depth = 5.07" for 25-yr event
Inflow = 96.19 cfs @ 12.08 hrs, Volume= 7.292 af
Outflow = 10.06 cfs @ 12.81 hrs, Volume= 7.277 af, Atten= 90%, Lag= 43.4 min
Primary = 10.06 cfs @ 12.81 hrs, Volume= 7.277 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 528.94' @ 12.81 hrs Surf.Area= 36,579 sf Storage= 199,336 cf

Plug-Flow detention time= 2,706.3 min calculated for 7.277 af (100% of inflow)
Center-of-Mass det. time= 2,704.9 min (3,482.0 - 777.2)

Volume	Invert	Avail.Storage	Storage Description
#1	524.00'	226,195 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 80

Device	Routing	Invert	Outlet Devices
#1	Primary	524.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	528.50'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=10.06 cfs @ 12.81 hrs HW=528.94' TW=509.58' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.52 cfs @ 10.57 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 9.54 cfs @ 2.18 fps)

Pond p13-1:

Inflow Area = 0.300 ac, Inflow Depth = 1.52" for 25-yr event
Inflow = 0.55 cfs @ 12.04 hrs, Volume= 0.038 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 518.99' @ 24.12 hrs Surf.Area= 1,684 sf Storage= 1,653 cf
Flood Elev= 527.00' Surf.Area= 10,067 sf Storage= 40,862 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	518.00'	50,891 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
518.00	1,331	0	0	1,331
520.00	2,048	3,353	3,353	2,104
522.00	2,912	4,935	8,288	3,037
522.50	3,150	1,515	9,803	3,294
524.00	5,894	6,676	16,480	6,061
526.00	8,542	14,354	30,834	8,776
528.00	11,592	20,057	50,891	11,908

Device	Routing	Invert	Outlet Devices
#1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=518.00' TW=497.40' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p14-1:

Inflow Area = 20.711 ac, Inflow Depth = 3.82" for 25-yr event
Inflow = 79.14 cfs @ 12.09 hrs, Volume= 6.588 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 44,199 sf Storage= 109,024 cf
Peak Elev= 502.32' @ 24.57 hrs Surf.Area= 74,667 sf Storage= 395,996 cf (286,972 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	899,480 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	44,199	109,024	109,024	44,285
498.00	45,919	27,034	136,058	46,063
500.00	58,406	104,075	240,133	58,654
502.00	72,976	131,112	371,245	73,337
504.00	83,672	156,526	527,771	84,215
506.00	91,692	175,303	703,074	92,505
508.00	104,861	196,406	899,480	105,860

Device	Routing	Invert	Outlet Devices
#1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.40' TW=498.40' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Pond p14-3:

Inflow Area = 68.476 ac, Inflow Depth = 1.25" for 25-yr event
Inflow = 26.16 cfs @ 12.37 hrs, Volume= 7.158 af
Outflow = 20.35 cfs @ 12.62 hrs, Volume= 7.158 af, Atten= 22%, Lag= 15.4 min
Primary = 20.35 cfs @ 12.62 hrs, Volume= 7.158 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 538.08' @ 12.62 hrs Surf.Area= 24,702 sf Storage= 24,662 cf
Flood Elev= 538.00' Surf.Area= 24,510 sf Storage= 22,749 cf

Plug-Flow detention time= 37.8 min calculated for 7.157 af (100% of inflow)
Center-of-Mass det. time= 37.8 min (1,028.6 - 990.8)

Volume	Invert	Avail.Storage	Storage Description
#1	537.00'	76,857 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)
537.00	21,033	0	0	21,033
538.00	24,510	22,749	22,749	24,551
540.00	29,680	54,108	76,857	29,851

Device	Routing	Invert	Outlet Devices
#1	Primary	537.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	538.00'	**100.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=20.34 cfs @ 12.62 hrs HW=538.08' TW=499.66' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 14.95 cfs @ 2.77 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 5.39 cfs @ 0.69 fps)

Pond p16-1:

Inflow Area = 234.282 ac, Inflow Depth > 3.22" for 25-yr event
Inflow = 155.06 cfs @ 12.21 hrs, Volume= 62.837 af
Outflow = 103.08 cfs @ 14.36 hrs, Volume= 53.585 af, Atten= 34%, Lag= 129.3 min
Primary = 103.08 cfs @ 14.36 hrs, Volume= 53.585 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.43' @ 14.36 hrs Surf.Area= 312,816 sf Storage= 1,895,759 cf (1,017,439 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)

Plug-Flow detention time= 1,807.7 min calculated for 33.420 af (53% of inflow)
Center-of-Mass det. time= 619.7 min (1,964.0 - 1,344.3)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

Device	Routing	Invert	Outlet Devices
#1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' Cc= 0.900 n= 0.024
#2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' Cc= 0.900 n= 0.013
#3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=103.08 cfs @ 14.36 hrs HW=511.43' TW=506.43' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 8.71 cfs @ 4.93 fps)
- **2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 94.37 cfs @ 2.37 fps)

Pond p16-4:

Inflow Area = 13.242 ac, Inflow Depth = 4.20" for 25-yr event
Inflow = 43.44 cfs @ 12.27 hrs, Volume= 4.631 af
Outflow = 22.10 cfs @ 12.60 hrs, Volume= 4.629 af, Atten= 49%, Lag= 19.8 min
Primary = 22.10 cfs @ 12.60 hrs, Volume= 4.629 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 512.00' Surf.Area= 8,089 sf Storage= 14,361 cf
Peak Elev= 517.84' @ 12.60 hrs Surf.Area= 20,967 sf Storage= 97,142 cf (82,782 cf above start)
Flood Elev= 519.00' Surf.Area= 23,907 sf Storage= 123,088 cf (108,727 cf above start)

Plug-Flow detention time= 573.0 min calculated for 4.300 af (93% of inflow)
Center-of-Mass det. time= 490.7 min (1,307.1 - 816.5)

Volume	Invert	Avail.Storage	Storage Description
#1	504.50'	148,324 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)
504.50	34	0	0	34
506.00	293	213	213	300
508.00	1,136	1,337	1,551	1,162
510.00	2,508	3,555	5,105	2,566
510.50	2,890	1,348	6,454	2,959
512.00	8,089	7,907	14,361	8,172
514.00	11,952	19,916	34,276	12,099
516.00	16,547	28,375	62,651	16,771
518.00	21,367	37,811	100,463	21,688
520.00	26,589	47,861	148,324	27,024

Device	Routing	Invert	Outlet Devices
#1	Primary	512.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	516.00'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=22.10 cfs @ 12.60 hrs HW=517.84' TW=509.19' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.57 cfs @ 11.51 fps)
- **2=Sharp-Crested Rectangular Weir** (Weir Controls 21.53 cfs @ 4.44 fps)

Pond p16-5:

Inflow Area = 3.971 ac, Inflow Depth = 3.68" for 25-yr event
Inflow = 18.37 cfs @ 12.06 hrs, Volume= 1.218 af
Outflow = 0.44 cfs @ 17.04 hrs, Volume= 1.217 af, Atten= 98%, Lag= 299.0 min
Primary = 0.44 cfs @ 17.04 hrs, Volume= 1.217 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 534.00' Surf.Area= 7,168 sf Storage= 14,550 cf
Peak Elev= 537.66' @ 17.04 hrs Surf.Area= 13,446 sf Storage= 51,791 cf (37,241 cf above start)
Flood Elev= 541.00' Surf.Area= 20,427 sf Storage= 108,016 cf (93,466 cf above start)

Plug-Flow detention time= 1,450.1 min calculated for 0.883 af (72% of inflow)
Center-of-Mass det. time= 1,025.5 min (1,840.3 - 814.8)

Volume	Invert	Avail.Storage	Storage Description
#1	528.00'	129,594 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)
528.00	447	0	0	447
530.00	1,292	1,666	1,666	1,316
532.00	2,598	3,815	5,481	2,658
532.50	3,239	1,456	6,937	3,306
534.00	7,168	7,613	14,550	7,253
536.00	10,404	17,472	32,022	10,556
538.00	14,112	24,422	56,444	14,345
540.00	18,230	32,254	88,698	18,561
542.00	22,750	40,897	129,594	23,193

Device	Routing	Invert	Outlet Devices
#1	Primary	534.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.44 cfs @ 17.04 hrs HW=537.66' TW=511.12' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.44 cfs @ 9.06 fps)

Pond p17-1:

Inflow Area = 126.773 ac, Inflow Depth = 2.71" for 25-yr event
Inflow = 102.89 cfs @ 13.56 hrs, Volume= 28.637 af
Outflow = 102.85 cfs @ 13.57 hrs, Volume= 28.637 af, Atten= 0%, Lag= 0.4 min
Primary = 102.85 cfs @ 13.57 hrs, Volume= 28.637 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.63' @ 13.57 hrs Surf.Area= 11,510 sf Storage= 26,629 cf (17,395 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)

Plug-Flow detention time= 14.9 min calculated for 28.423 af (99% of inflow)
Center-of-Mass det. time= 8.3 min (945.5 - 937.2)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	30,224 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

Device	Routing	Invert	Outlet Devices
#1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=102.84 cfs @ 13.57 hrs HW=525.63' TW=516.23' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 18.11 cfs @ 4.49 fps)
├─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 15.11 cfs @ 2.85 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 69.62 cfs @ 1.90 fps)

Pond p18-1:

Inflow Area = 5.356 ac, Inflow Depth = 3.71" for 25-yr event
Inflow = 25.68 cfs @ 12.04 hrs, Volume= 1.658 af
Outflow = 2.49 cfs @ 12.84 hrs, Volume= 1.656 af, Atten= 90%, Lag= 47.8 min
Primary = 2.49 cfs @ 12.84 hrs, Volume= 1.656 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Starting Elev= 515.50' Surf.Area= 8,701 sf Storage= 8,455 cf
Peak Elev= 517.85' @ 12.84 hrs Surf.Area= 19,523 sf Storage= 46,791 cf (38,336 cf above start)
Flood Elev= 519.00' Surf.Area= 22,111 sf Storage= 70,643 cf (62,188 cf above start)

Plug-Flow detention time= 770.5 min calculated for 1.462 af (88% of inflow)
Center-of-Mass det. time= 624.1 min (1,436.8 - 812.6)

Volume	Invert	Avail.Storage	Storage Description
#1	512.00'	93,928 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)
512.00	422	0	0	422
514.00	1,472	1,788	1,788	1,493
514.50	2,962	1,087	2,875	2,985
515.50	8,701	5,580	8,455	8,730
516.00	15,477	5,964	14,419	15,509
518.00	19,862	35,248	49,667	19,993
520.00	24,480	44,262	93,928	24,730

Device	Routing	Invert	Outlet Devices
#1	Primary	515.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	517.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.49 cfs @ 12.84 hrs HW=517.85' TW=509.64' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.35 cfs @ 7.19 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 2.14 cfs @ 3.02 fps)

Pond p18-2:

Inflow Area = 147.742 ac, Inflow Depth = 2.92" for 25-yr event
Inflow = 113.51 cfs @ 13.56 hrs, Volume= 35.890 af
Outflow = 113.36 cfs @ 13.58 hrs, Volume= 35.889 af, Atten= 0%, Lag= 1.1 min
Primary = 113.36 cfs @ 13.58 hrs, Volume= 35.889 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.23' @ 13.58 hrs Surf.Area= 29,981 sf Storage= 85,982 cf (59,098 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)

Plug-Flow detention time= 96.0 min calculated for 35.270 af (98% of inflow)
Center-of-Mass det. time= 30.1 min (1,068.1 - 1,038.0)

Volume	Invert	Avail.Storage	Storage Description
#1	510.00'	148,288 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

Device	Routing	Invert	Outlet Devices
#1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=113.36 cfs @ 13.58 hrs HW=516.23' TW=510.92' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 23.67 cfs @ 5.07 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 17.86 cfs @ 2.95 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 71.83 cfs @ 2.54 fps)

Pond p18-4:

Inflow Area = 16.038 ac, Inflow Depth = 4.48" for 25-yr event
Inflow = 86.84 cfs @ 12.05 hrs, Volume= 5.986 af
Outflow = 22.24 cfs @ 12.40 hrs, Volume= 5.984 af, Atten= 74%, Lag= 21.2 min
Primary = 22.24 cfs @ 12.40 hrs, Volume= 5.984 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 521.50' Surf.Area= 9,318 sf Storage= 16,432 cf
Peak Elev= 527.68' @ 12.40 hrs Surf.Area= 27,456 sf Storage= 142,301 cf (125,869 cf above start)
Flood Elev= 529.00' Surf.Area= 30,616 sf Storage= 180,767 cf (164,335 cf above start)

Plug-Flow detention time= 825.6 min calculated for 5.606 af (94% of inflow)
Center-of-Mass det. time= 735.7 min (1,524.7 - 789.0)

Volume	Invert	Avail.Storage	Storage Description
#1	516.00'	212,613 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)
516.00	292	0	0	292
518.00	1,596	1,714	1,714	1,612
520.00	3,769	5,212	6,926	3,814
521.50	9,318	9,507	16,432	9,379
522.00	15,200	6,070	22,502	15,264
524.00	19,211	34,333	56,835	19,381
526.00	23,606	42,742	99,576	23,897
528.00	28,236	51,773	151,349	28,665
530.00	33,092	61,264	212,613	33,677

Device	Routing	Invert	Outlet Devices
#1	Primary	521.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	525.50'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=22.24 cfs @ 12.40 hrs HW=527.68' TW=515.84' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.58 cfs @ 11.84 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 21.66 cfs @ 4.82 fps)

Pond p19-0:

Inflow Area = 15.520 ac, Inflow Depth = 1.92" for 25-yr event
Inflow = 16.16 cfs @ 12.61 hrs, Volume= 2.485 af
Outflow = 10.10 cfs @ 13.00 hrs, Volume= 2.485 af, Atten= 38%, Lag= 23.6 min
Primary = 10.10 cfs @ 13.00 hrs, Volume= 2.485 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.22' @ 13.00 hrs Surf.Area= 92,057 sf Storage= 81,991 cf (24,657 cf above start)

Plug-Flow detention time= 376.6 min calculated for 1.169 af (47% of inflow)
Center-of-Mass det. time= 66.1 min (960.8 - 894.7)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

Device	Routing	Invert	Outlet Devices
#1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
#2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=10.10 cfs @ 13.00 hrs HW=972.22' TW=970.17' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 10.10 cfs @ 1.32 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20-1:

Inflow Area = 251.397 ac, Inflow Depth > 2.76" for 25-yr event
Inflow = 106.81 cfs @ 14.36 hrs, Volume= 57.717 af
Outflow = 106.17 cfs @ 14.44 hrs, Volume= 57.556 af, Atten= 1%, Lag= 5.2 min
Primary = 106.17 cfs @ 14.44 hrs, Volume= 57.556 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.43' @ 14.44 hrs Surf.Area= 91,509 sf Storage= 259,529 cf (121,006 cf above start)

Plug-Flow detention time= 547.2 min calculated for 54.376 af (94% of inflow)
Center-of-Mass det. time= 104.4 min (1,988.3 - 1,883.9)

Volume	Invert	Avail.Storage	Storage Description
#1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

Device	Routing	Invert	Outlet Devices
#1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=106.17 cfs @ 14.44 hrs HW=506.43' TW=505.70' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 11.62 cfs @ 2.91 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 1.88 cfs @ 1.26 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 92.67 cfs @ 1.97 fps)

Pond p21-1:

Inflow Area = 499.521 ac, Inflow Depth > 2.76" for 25-yr event
Inflow = 359.26 cfs @ 12.18 hrs, Volume= 114.991 af
Outflow = 33.11 cfs @ 21.99 hrs, Volume= 114.040 af, Atten= 91%, Lag= 588.7 min
Primary = 33.11 cfs @ 21.99 hrs, Volume= 114.040 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 485.80' @ 21.99 hrs Surf.Area= 1,197,382 sf Storage= 2,305,380 cf

Plug-Flow detention time= 849.5 min calculated for 114.034 af (99% of inflow)
Center-of-Mass det. time= 769.4 min (2,646.7 - 1,877.3)

Volume	Invert	Avail.Storage	Storage Description
#1	480.40'	8,387,099 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423
490.00	1,644,120	3,142,214	8,387,099	1,644,607

Device	Routing	Invert	Outlet Devices
#1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' Cc= 0.900 n= 0.024

Primary OutFlow Max=33.11 cfs @ 21.99 hrs HW=485.80' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 33.11 cfs @ 6.75 fps)

Pond p21-7:

Inflow Area = 10.425 ac, Inflow Depth = 3.46" for 25-yr event
Inflow = 27.26 cfs @ 12.08 hrs, Volume= 3.009 af
Outflow = 6.19 cfs @ 13.04 hrs, Volume= 3.007 af, Atten= 77%, Lag= 58.1 min
Primary = 6.19 cfs @ 13.04 hrs, Volume= 3.007 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 493.22' @ 13.04 hrs Surf.Area= 17,395 sf Storage= 66,905 cf
Flood Elev= 494.00' Surf.Area= 18,859 sf Storage= 81,129 cf

Plug-Flow detention time= 844.7 min calculated for 3.007 af (100% of inflow)
Center-of-Mass det. time= 844.8 min (1,675.4 - 830.7)

Volume	Invert	Avail.Storage	Storage Description
#1	488.00'	81,129 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
488.00	8,590	0	0
490.00	11,713	20,303	20,303
492.00	15,127	26,840	47,143
494.00	18,859	33,986	81,129

Device	Routing	Invert	Outlet Devices
#1	Primary	488.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	492.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=6.18 cfs @ 13.04 hrs HW=493.22' TW=484.15' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.53 cfs @ 10.86 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 5.65 cfs @ 2.77 fps)

Pond p22-1:

Inflow Area = 62.211 ac, Inflow Depth = 2.64" for 25-yr event
Inflow = 84.95 cfs @ 12.37 hrs, Volume= 13.670 af
Outflow = 84.49 cfs @ 12.40 hrs, Volume= 13.384 af, Atten= 1%, Lag= 1.9 min
Primary = 84.49 cfs @ 12.40 hrs, Volume= 13.384 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 501.76' @ 12.40 hrs Surf.Area= 11,152 sf Storage= 41,794 cf (31,688 cf above start)

Plug-Flow detention time= 50.6 min calculated for 13.152 af (96% of inflow)
Center-of-Mass det. time= 23.9 min (898.0 - 874.1)

Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

Device	Routing	Invert	Outlet Devices
#1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' Cc= 0.900 n= 0.024
#2	Primary	500.50'	**1.0' long x 15.0' 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
#3	Primary	500.50'	**20.0' long x 13.5' 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) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=84.48 cfs @ 12.40 hrs HW=501.76' TW=483.48' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 5.65 cfs @ 3.20 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 3.73 cfs @ 2.96 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 75.10 cfs @ 2.98 fps)

Pond p23-2:

Inflow Area = 73.912 ac, Inflow Depth = 3.18" for 25-yr event
Inflow = 129.08 cfs @ 12.61 hrs, Volume= 19.617 af
Outflow = 10.08 cfs @ 16.56 hrs, Volume= 14.716 af, Atten= 92%, Lag= 237.2 min
Primary = 10.08 cfs @ 16.56 hrs, Volume= 14.716 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Starting Elev= 508.00' Surf.Area= 43,560 sf Storage= 116,710 cf
Peak Elev= 517.70' @ 16.56 hrs Surf.Area= 89,666 sf Storage= 754,830 cf (638,120 cf above start)
Flood Elev= 519.00' Surf.Area= 96,565 sf Storage= 875,673 cf (758,963 cf above start)

Plug-Flow detention time= 4,198.3 min calculated for 12.037 af (61% of inflow)
Center-of-Mass det. time= 3,366.8 min (4,230.9 - 864.0)

Volume	Invert	Avail.Storage	Storage Description
#1	504.00'	974,958 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)
504.00	21,853	0	0	21,853
506.00	27,237	48,991	48,991	27,350
506.50	28,631	13,966	62,957	28,775
508.00	43,560	53,753	116,710	43,738
510.00	52,250	95,678	212,388	52,565
512.00	61,370	113,498	325,886	61,840
514.00	70,920	132,175	458,061	71,562
516.00	80,880	151,691	609,752	81,712
518.00	91,250	172,026	781,778	92,288
520.00	102,030	193,180	974,958	103,291

Device	Routing	Invert	Outlet Devices
#1	Primary	508.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	517.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=10.08 cfs @ 16.56 hrs HW=517.70' TW=485.39' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.73 cfs @ 14.90 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 9.35 cfs @ 2.74 fps)

Pond zDP1: Design Point 1

Inflow Area = 26.401 ac, Inflow Depth = 2.88" for 25-yr event
Inflow = 39.54 cfs @ 12.25 hrs, Volume= 6.336 af
Outflow = 39.53 cfs @ 12.26 hrs, Volume= 6.336 af, Atten= 0%, Lag= 0.3 min
Primary = 39.53 cfs @ 12.26 hrs, Volume= 6.336 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 722.60' @ 12.26 hrs Surf.Area= 165 sf Storage= 178 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf

Plug-Flow detention time= 0.1 min calculated for 6.336 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (993.2 - 993.1)

Volume	Invert	Avail.Storage	Storage Description
#1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

Device	Routing	Invert	Outlet Devices
#1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' Cc= 0.900 n= 0.024
#2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=39.53 cfs @ 12.26 hrs HW=722.60' TW=686.65' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 39.53 cfs @ 5.38 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Inflow Area = 97.969 ac, Inflow Depth = 2.49" for 25-yr event
Inflow = 99.58 cfs @ 12.87 hrs, Volume= 20.325 af
Outflow = 99.54 cfs @ 12.88 hrs, Volume= 20.325 af, Atten= 0%, Lag= 0.3 min
Primary = 35.45 cfs @ 12.88 hrs, Volume= 15.361 af
Secondary = 64.09 cfs @ 12.88 hrs, Volume= 4.964 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 626.09' @ 12.88 hrs Surf.Area= 1,473 sf Storage= 3,519 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf

Plug-Flow detention time= 0.5 min calculated for 20.324 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (888.4 - 887.9)

Volume	Invert	Avail.Storage	Storage Description
#1	619.60'	7,280 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

Device	Routing	Invert	Outlet Devices
#1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' Cc= 0.900 n= 0.012
#2	Secondary	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=35.45 cfs @ 12.88 hrs HW=626.09' TW=607.68' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 35.45 cfs @ 11.28 fps)

Secondary OutFlow Max=64.06 cfs @ 12.88 hrs HW=626.09' TW=559.11' (Dynamic Tailwater)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 64.06 cfs @ 3.10 fps)

Pond zDP3: Design Point 3

Inflow Area = 252.976 ac, Inflow Depth > 64.51" for 25-yr event
Inflow = 257.61 cfs @ 12.53 hrs, Volume= 1,359.873 af
Primary = 257.61 cfs @ 12.53 hrs, Volume= 1,359.873 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 499.521 ac, Inflow Depth > 2.74" for 25-yr event
Inflow = 33.11 cfs @ 21.99 hrs, Volume= 114.040 af
Primary = 33.11 cfs @ 21.99 hrs, Volume= 114.040 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 2.81" for 25-yr event
Inflow = 51.75 cfs @ 12.45 hrs, Volume= 6.621 af
Primary = 51.75 cfs @ 12.45 hrs, Volume= 6.621 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP6: Design Point 6

Inflow Area = 5.306 ac, Inflow Depth = 1.60" for 25-yr event
Inflow = 4.99 cfs @ 12.50 hrs, Volume= 0.706 af
Outflow = 4.99 cfs @ 12.50 hrs, Volume= 0.706 af, Atten= 0%, Lag= 0.0 min
Primary = 4.99 cfs @ 12.50 hrs, Volume= 0.706 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 609.85' @ 12.50 hrs
Flood Elev= 612.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.90'	**36.0" x 43.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 606.90' S= 0.0465 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=4.99 cfs @ 12.50 hrs HW=609.85' TW=588.01' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 4.99 cfs @ 2.61 fps)

Pond zDP7: Design Point 7

Inflow Area = 31.683 ac, Inflow Depth = 2.44" for 25-yr event
Inflow = 39.42 cfs @ 12.69 hrs, Volume= 6.443 af
Primary = 39.42 cfs @ 12.69 hrs, Volume= 6.443 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP8: Design Point 8

Inflow Area = 7.105 ac, Inflow Depth = 2.88" for 25-yr event
Inflow = 17.76 cfs @ 12.13 hrs, Volume= 1.708 af
Primary = 17.76 cfs @ 12.13 hrs, Volume= 1.708 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Subcatchment s01-0:

Runoff = 21.78 cfs @ 12.60 hrs, Volume= 3.264 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
11.485	68	
11.485		Pervious Area

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

Subcatchment s02-1:

Runoff = 130.06 cfs @ 12.87 hrs, Volume= 24.112 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
93.258	65	
93.258		Pervious Area

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

Subcatchment s02-2:

Runoff = 12.43 cfs @ 12.03 hrs, Volume= 0.841 af, Depth= 6.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
1.605	94	
1.605		Pervious Area

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

Subcatchment s02-3:

Runoff = 4.45 cfs @ 12.01 hrs, Volume= 0.279 af, Depth= 5.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.587	89	
0.587		Pervious Area

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

Subcatchment s02-4:

Runoff = 3.83 cfs @ 12.01 hrs, Volume= 0.251 af, Depth= 6.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.479	94	
0.479		Pervious Area

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

Subcatchment s02-5:

Runoff = 7.33 cfs @ 12.03 hrs, Volume= 0.496 af, Depth= 6.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.947	94	
0.947		Pervious Area

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

Subcatchment s02-6:

Runoff = 1.67 cfs @ 12.01 hrs, Volume= 0.110 af, Depth= 6.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.209	94	
0.209		Pervious Area

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

Subcatchment s02-7:

Runoff = 6.85 cfs @ 12.03 hrs, Volume= 0.463 af, Depth= 6.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.884	94	
0.884		Pervious Area

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

Subcatchment s03-1:

Runoff = 10.05 cfs @ 12.36 hrs, Volume= 1.168 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
3.988	69	
3.988		Pervious Area

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

Subcatchment s03-2:

Runoff = 33.89 cfs @ 12.21 hrs, Volume= 3.185 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
9.981	72	
9.981		Pervious Area

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

Subcatchment s03-3:

Runoff = 7.68 cfs @ 12.01 hrs, Volume= 0.515 af, Depth= 6.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.947	96	
0.947		Pervious Area

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

Subcatchment s04-1:

Runoff = 34.37 cfs @ 12.21 hrs, Volume= 3.240 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
11.064	69	
11.064		Pervious Area

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

Subcatchment s05-1:

Runoff = 13.02 cfs @ 12.12 hrs, Volume= 1.013 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
4.340	62	
4.340		Pervious Area

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

Subcatchment s05-2:

Runoff = 19.97 cfs @ 12.14 hrs, Volume= 1.639 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
6.138	66	
6.138		Pervious Area

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

Subcatchment s05-3:

Runoff = 12.45 cfs @ 12.14 hrs, Volume= 1.014 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
3.364	70	
3.364		Pervious Area

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

Subcatchment s06-1:

Runoff = 21.57 cfs @ 12.21 hrs, Volume= 2.047 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
7.665	66	
7.665		Pervious Area

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

Subcatchment s06-2:

Runoff = 37.03 cfs @ 12.23 hrs, Volume= 3.660 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
15.682	62	
15.682		Pervious Area

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

Subcatchment s07-1:

Runoff = 13.43 cfs @ 12.21 hrs, Volume= 1.272 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
4.614	67	
4.614		Pervious Area

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

Subcatchment s07-2:

Runoff = 15.96 cfs @ 12.18 hrs, Volume= 1.450 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
5.997	63	
5.997		Pervious Area

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

Subcatchment s08-1:

Runoff = 19.39 cfs @ 12.39 hrs, Volume= 2.365 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
10.900	60	
10.900		Pervious Area

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

Subcatchment s08-2:

Runoff = 8.77 cfs @ 12.21 hrs, Volume= 0.831 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
3.832	60	
3.832		Pervious Area

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

Subcatchment s08-3:

Runoff = 4.55 cfs @ 12.04 hrs, Volume= 0.335 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.595	98	
0.595		Impervious Area

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

Subcatchment s09-1:

Runoff = 19.32 cfs @ 12.13 hrs, Volume= 1.525 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
5.208	69	
5.208		Pervious Area

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

Subcatchment s09-2:

Runoff = 1.78 cfs @ 12.01 hrs, Volume= 0.119 af, Depth= 6.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.219	96	
0.219		Pervious Area

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

Subcatchment s10-1:

Runoff = 30.52 cfs @ 12.18 hrs, Volume= 2.720 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
9.021	70	
9.021		Pervious Area

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

Subcatchment s11-1:

Runoff = 113.72 cfs @ 12.08 hrs, Volume= 8.710 af, Depth= 6.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
17.262	92	
17.262		Pervious Area

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

Subcatchment s13-1:

Runoff = 0.81 cfs @ 12.04 hrs, Volume= 0.053 af, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.300	55	
0.300		Pervious Area

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

Subcatchment s14-1:

Runoff = 59.60 cfs @ 12.14 hrs, Volume= 4.878 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
12.768	79	
12.768		Pervious Area

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

Subcatchment s14-2:

Runoff = 48.33 cfs @ 12.06 hrs, Volume= 3.274 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
7.643	84	
7.643		Pervious Area

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

Subcatchment s14-3:

Runoff = 7.42 cfs @ 12.03 hrs, Volume= 0.463 af, Depth= 4.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
1.131	82	
1.131		Pervious Area

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

Subcatchment s16-1:

Runoff = 74.32 cfs @ 12.13 hrs, Volume= 5.938 af, Depth= 4.92"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
14.494	82	
14.494		Pervious Area

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

Subcatchment s16-2:

Runoff = 12.06 cfs @ 12.14 hrs, Volume= 0.981 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
3.074	72	
3.074		Pervious Area

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

Subcatchment s16-3:

Runoff = 35.67 cfs @ 12.19 hrs, Volume= 3.267 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
10.239	72	
10.239		Pervious Area

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

Subcatchment s16-4:

Runoff = 52.82 cfs @ 12.27 hrs, Volume= 5.672 af, Depth= 5.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
13.242	84	
13.242		Pervious Area

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

Subcatchment s16-5:

Runoff = 22.77 cfs @ 12.06 hrs, Volume= 1.517 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
3.971	79	
3.971		Pervious Area

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

Subcatchment s16-6:

Runoff = 12.33 cfs @ 12.10 hrs, Volume= 0.909 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
3.105	69	
3.105		Pervious Area

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

Subcatchment s16-7:

Runoff = 47.18 cfs @ 12.20 hrs, Volume= 4.353 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
15.797	67	
15.797		Pervious Area

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

Subcatchment s17-1:

Runoff = 10.26 cfs @ 12.09 hrs, Volume= 0.731 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
2.572	68	
2.572		Pervious Area

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

Subcatchment s17-2:

Runoff = 133.64 cfs @ 13.56 hrs, Volume= 36.370 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
124.201	69	
124.201		Pervious Area

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

Subcatchment s18-1:

Runoff = 6.02 cfs @ 12.02 hrs, Volume= 0.364 af, Depth= 4.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.908	81	
0.908		Pervious Area

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

Subcatchment s18-2:

Runoff = 21.97 cfs @ 12.10 hrs, Volume= 1.617 af, Depth= 3.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
4.931	73	
4.931		Pervious Area

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

Subcatchment s18-3:

Runoff = 26.47 cfs @ 12.04 hrs, Volume= 1.699 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
4.448	79	
4.448		Pervious Area

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

Subcatchment s18-4:

Runoff = 91.04 cfs @ 12.04 hrs, Volume= 6.158 af, Depth= 5.82"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
12.689	90	
12.689		Pervious Area

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

Subcatchment s18-5:

Runoff = 15.46 cfs @ 12.09 hrs, Volume= 1.098 af, Depth= 3.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
3.349	73	
3.349		Pervious Area

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

Subcatchment s19-0:

Runoff = 22.44 cfs @ 12.61 hrs, Volume= 3.367 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
15.520	60	
15.520		Pervious Area

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

Subcatchment s20-1:

Runoff = 38.22 cfs @ 12.13 hrs, Volume= 3.010 af, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
9.702	71	
9.702		Pervious Area

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

Subcatchment s20-2:

Runoff = 9.44 cfs @ 12.14 hrs, Volume= 0.768 af, Depth= 3.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
2.342	73	
2.342		Pervious Area

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

Subcatchment s20-3:

Runoff = 12.15 cfs @ 12.43 hrs, Volume= 1.529 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
5.071	70	
5.071		Pervious Area

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

Subcatchment s20-4:

Runoff = 6.24 cfs @ 12.12 hrs, Volume= 0.491 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
2.261	60	
2.261		Pervious Area

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

Subcatchment s20-5:

Runoff = 8.52 cfs @ 12.09 hrs, Volume= 0.613 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
2.451	64	
2.451		Pervious Area

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

Subcatchment s21-1:

Runoff = 252.19 cfs @ 12.18 hrs, Volume= 22.428 af, Depth= 3.94"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
68.392	73	
68.392		Pervious Area

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

Subcatchment s21-2:

Runoff = 29.56 cfs @ 12.07 hrs, Volume= 2.067 af, Depth= 5.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
4.934	83	
4.934		Pervious Area

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

Subcatchment s21-3:

Runoff = 30.04 cfs @ 12.08 hrs, Volume= 2.247 af, Depth= 5.71"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
4.724	89	
4.724		Pervious Area

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

Subcatchment s21-4:

Runoff = 4.14 cfs @ 12.03 hrs, Volume= 0.280 af, Depth= 6.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.534	94	
0.534		Pervious Area

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

Subcatchment s21-5:

Runoff = 2.38 cfs @ 12.03 hrs, Volume= 0.169 af, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
0.300	98	
0.300		Impervious Area

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

Subcatchment s21-6:

Runoff = 59.83 cfs @ 12.15 hrs, Volume= 5.024 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
15.746	72	
15.746		Pervious Area

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

Subcatchment s21-7:

Runoff = 12.62 cfs @ 12.49 hrs, Volume= 1.704 af, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
5.491	71	
5.491		Pervious Area

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

Subcatchment s22-1:

Runoff = 39.15 cfs @ 12.12 hrs, Volume= 2.982 af, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
9.346	72	
9.346		Pervious Area

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

Subcatchment s22-2:

Runoff = 85.22 cfs @ 12.36 hrs, Volume= 10.079 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
33.425	70	
33.425		Pervious Area

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

Subcatchment s22-3:

Runoff = 17.94 cfs @ 12.10 hrs, Volume= 1.320 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
3.920	74	
3.920		Pervious Area

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

Subcatchment s23-1:

Runoff = 21.55 cfs @ 12.26 hrs, Volume= 2.224 af, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
7.168	71	
7.168		Pervious Area

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

Subcatchment s23-2:

Runoff = 164.04 cfs @ 12.61 hrs, Volume= 24.896 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
73.912	74	
73.912		Pervious Area

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

Subcatchment s24-0:

Runoff = 67.08 cfs @ 12.45 hrs, Volume= 8.541 af, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
28.325	70	
28.325		Pervious Area

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

Subcatchment s25-1:

Runoff = 44.01 cfs @ 12.18 hrs, Volume= 3.928 af, Depth= 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
13.414	69	
13.414		Pervious Area

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

Subcatchment s26-0:

Runoff = 7.23 cfs @ 12.47 hrs, Volume= 0.981 af, Depth= 2.22"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
5.306	56	
5.306		Pervious Area

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

Subcatchment s27-1:

Runoff = 52.40 cfs @ 12.69 hrs, Volume= 8.461 af, Depth= 3.20"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
31.683	66	
31.683		Pervious Area

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

Subcatchment s28-1:

Runoff = 23.24 cfs @ 12.13 hrs, Volume= 1.850 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-yr Rainfall=7.00"

Area (ac)	CN	Description
6.510	68	
6.510		Pervious Area

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

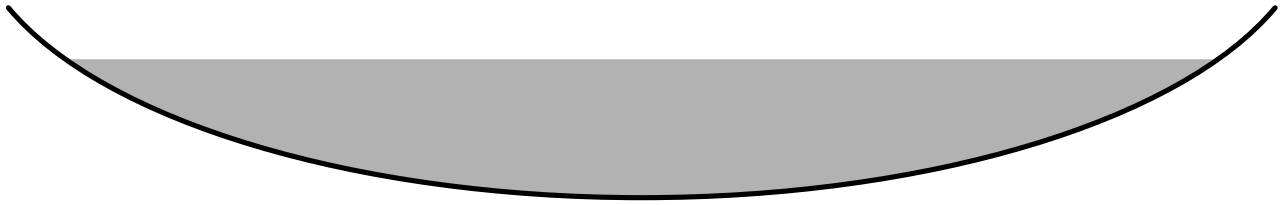
Reach 25R:

Inflow Area = 48.945 ac, Inflow Depth = 3.30" for 50-yr event
Inflow = 88.70 cfs @ 12.39 hrs, Volume= 13.446 af
Outflow = 88.13 cfs @ 12.41 hrs, Volume= 13.446 af, Atten= 1%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.25 fps, Min. Travel Time= 2.4 min
Avg. Velocity = 0.48 fps, Avg. Travel Time= 21.4 min

Peak Storage= 12,842 cf @ 12.41 hrs, Average Depth at Peak Storage= 0.73'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 175.17 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 620.0' Slope= 0.0774 '/'
Inlet Invert= 560.00', Outlet Invert= 512.00'



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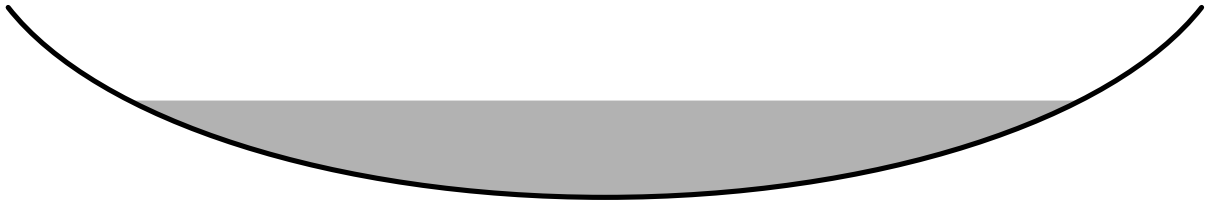
Reach r03-1:

Inflow Area = 11.485 ac, Inflow Depth = 3.41" for 50-yr event
Inflow = 21.78 cfs @ 12.60 hrs, Volume= 3.264 af
Outflow = 21.68 cfs @ 12.62 hrs, Volume= 3.264 af, Atten= 0%, Lag= 1.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.97 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 2.24 fps, Avg. Travel Time= 5.8 min

Peak Storage= 2,848 cf @ 12.62 hrs, Average Depth at Peak Storage= 0.76'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 92.14 cfs

10.00' x 1.50' deep Parabolic Channel, n= 0.060
Length= 785.0' Slope= 0.1490 '/'
Inlet Invert= 845.00', Outlet Invert= 728.00'



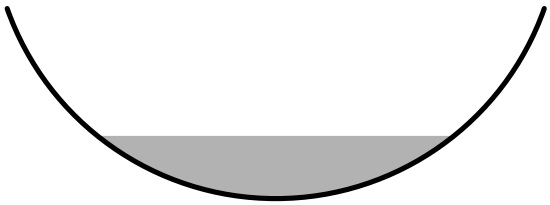
Reach r04-1:

Inflow Area = 26.401 ac, Inflow Depth = 3.70" for 50-yr event
Inflow = 51.90 cfs @ 12.26 hrs, Volume= 8.131 af
Outflow = 51.89 cfs @ 12.28 hrs, Volume= 8.131 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.62 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.35 fps, Avg. Travel Time= 4.1 min

Peak Storage= 1,987 cf @ 12.28 hrs, Average Depth at Peak Storage= 1.31'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 530.15 cfs

12.00' x 4.00' deep Parabolic Channel, n= 0.060
Length= 330.0' Slope= 0.1621 '/'
Inlet Invert= 685.50', Outlet Invert= 632.00'



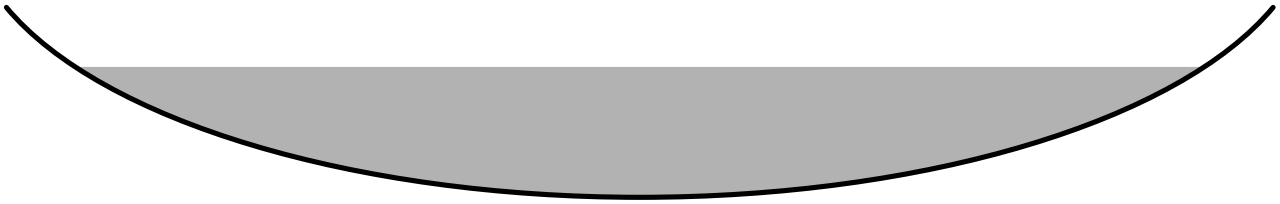
Reach r08-1a:

Inflow Area = 97.969 ac, Inflow Depth = 2.21" for 50-yr event
Inflow = 36.35 cfs @ 12.87 hrs, Volume= 18.026 af
Outflow = 36.35 cfs @ 12.88 hrs, Volume= 18.026 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.60 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 4.81 fps, Avg. Travel Time= 0.8 min

Peak Storage= 856 cf @ 12.88 hrs, Average Depth at Peak Storage= 0.69'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 81.88 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.027
Length= 226.0' Slope= 0.0885 '/'
Inlet Invert= 607.00', Outlet Invert= 587.00'



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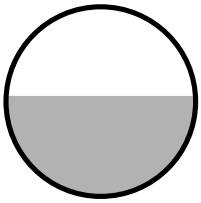
Reach r08-1b:

Inflow Area = 103.275 ac, Inflow Depth = 2.21" for 50-yr event
Inflow = 42.47 cfs @ 12.54 hrs, Volume= 19.006 af
Outflow = 42.46 cfs @ 12.55 hrs, Volume= 19.006 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 25.15 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 12.74 fps, Avg. Travel Time= 0.4 min

Peak Storage= 498 cf @ 12.55 hrs, Average Depth at Peak Storage= 1.06'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 77.17 cfs

24.0" Diameter Pipe, n= 0.012
Length= 295.0' Slope= 0.0992 '/'
Inlet Invert= 587.00', Outlet Invert= 557.75'



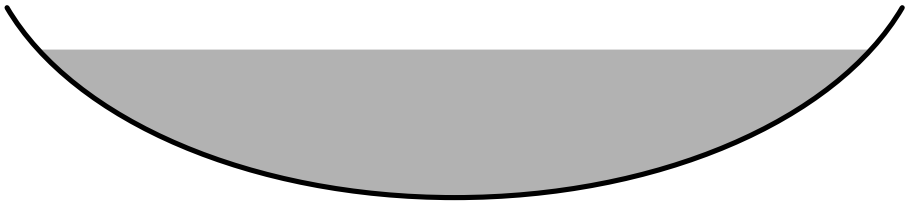
Reach r08-1c:

Inflow Area = 103.275 ac, Inflow Depth = 3.20" for 50-yr event
Inflow = 136.92 cfs @ 12.87 hrs, Volume= 27.533 af
Outflow = 136.87 cfs @ 12.87 hrs, Volume= 27.533 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 14.95 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 5.29 fps, Avg. Travel Time= 1.9 min

Peak Storage= 5,403 cf @ 12.87 hrs, Average Depth at Peak Storage= 1.56'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 232.56 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 590.0' Slope= 0.0775 '/'
Inlet Invert= 557.75', Outlet Invert= 512.00'



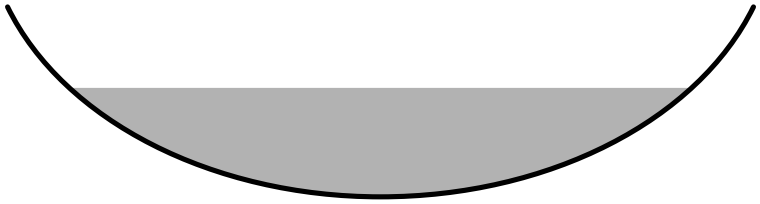
Reach r08-1d: Amenia Creek/Cascade Brook

Inflow Area = 107.107 ac, Inflow Depth > 77.26" for 50-yr event
Inflow = 177.22 cfs @ 12.87 hrs, Volume= 689.554 af, Incl. 40.00 cfs Base Flow
Outflow = 176.79 cfs @ 12.89 hrs, Volume= 689.272 af, Atten= 0%, Lag= 1.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.07 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 2.65 fps, Avg. Travel Time= 5.1 min

Peak Storage= 34,939 cf @ 12.89 hrs, Average Depth at Peak Storage= 3.44'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 571.01 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 805.0' Slope= 0.0099 '/'
Inlet Invert= 512.00', Outlet Invert= 504.00'



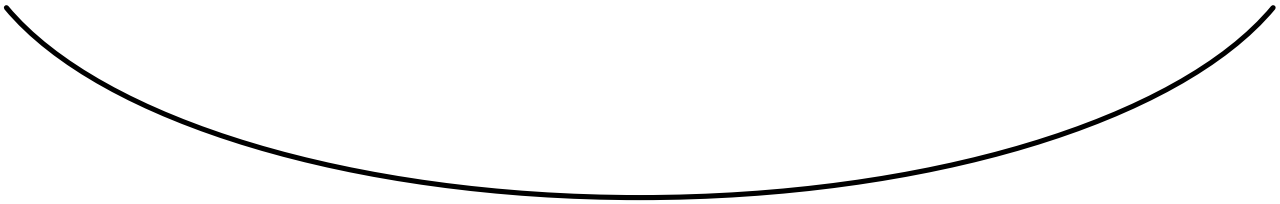
Reach r18-2:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 434.91 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 720.0' Slope= 0.4772 '/'
Inlet Invert= 973.60', Outlet Invert= 630.00'



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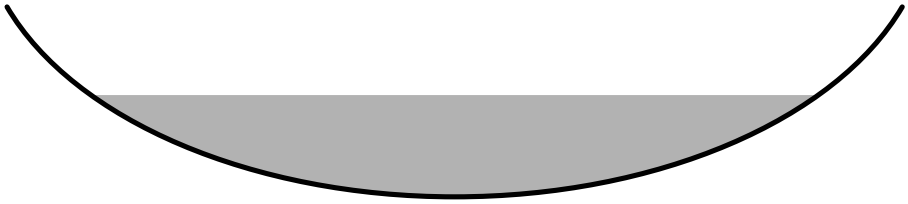
Reach r21-1a:

Inflow Area = 253.658 ac, Inflow Depth > 3.58" for 50-yr event
Inflow = 174.59 cfs @ 13.95 hrs, Volume= 75.743 af
Outflow = 174.55 cfs @ 13.96 hrs, Volume= 75.741 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.36 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.96 fps, Avg. Travel Time= 5.5 min

Peak Storage= 13,523 cf @ 13.96 hrs, Average Depth at Peak Storage= 2.14'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 658.74 cfs

20.00' x 4.00' deep Parabolic Channel, n= 0.027
Length= 648.0' Slope= 0.0154 '/'
Inlet Invert= 504.00', Outlet Invert= 494.00'



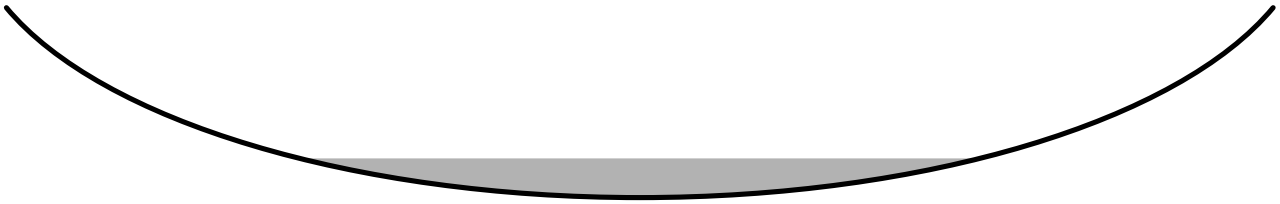
Reach r22-2:

Inflow Area = 15.520 ac, Inflow Depth = 2.60" for 50-yr event
Inflow = 15.21 cfs @ 12.94 hrs, Volume= 3.367 af
Outflow = 15.19 cfs @ 12.96 hrs, Volume= 3.367 af, Atten= 0%, Lag= 1.6 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.90 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 1.00 fps, Avg. Travel Time= 10.5 min

Peak Storage= 1,952 cf @ 12.96 hrs, Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 469.25 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 630.0' Slope= 0.5556 '/'
Inlet Invert= 970.00', Outlet Invert= 620.00'



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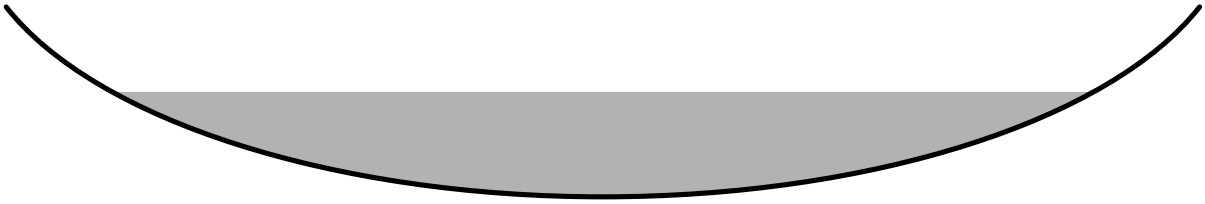
Reach r25-1b: Wetland Reach

Inflow Area = 23.347 ac, Inflow Depth = 2.92" for 50-yr event
Inflow = 46.55 cfs @ 12.38 hrs, Volume= 5.685 af
Outflow = 43.82 cfs @ 12.46 hrs, Volume= 5.685 af, Atten= 6%, Lag= 4.7 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.67 fps, Min. Travel Time= 4.7 min
Avg. Velocity = 0.32 fps, Avg. Travel Time= 38.7 min

Peak Storage= 12,290 cf @ 12.46 hrs, Average Depth at Peak Storage= 1.65'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 156.51 cfs

20.00' x 3.00' deep Parabolic Channel, n= 0.045
Length= 750.0' Slope= 0.0060 '/'
Inlet Invert= 504.00', Outlet Invert= 499.50'



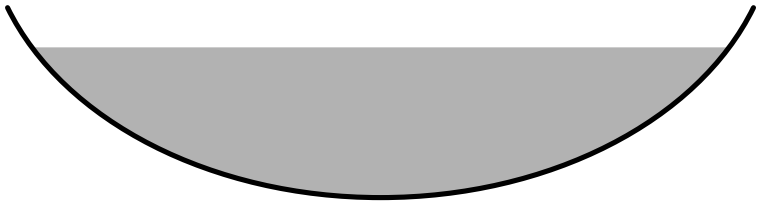
Reach r25-1c: Amenia Creek/Cascade Brook

Inflow Area = 118.007 ac, Inflow Depth >137.57" for 50-yr event
Inflow = 224.57 cfs @ 12.87 hrs, Volume= 1,352.827 af, Incl. 40.00 cfs Base Flow
Outflow = 223.56 cfs @ 12.92 hrs, Volume= 1,352.069 af, Atten= 0%, Lag= 3.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.18 fps, Min. Travel Time= 5.1 min
Avg. Velocity = 2.37 fps, Avg. Travel Time= 6.8 min

Peak Storage= 68,442 cf @ 12.92 hrs, Average Depth at Peak Storage= 4.74'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 366.88 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 975.0' Slope= 0.0041 '/'
Inlet Invert= 504.00', Outlet Invert= 500.00'



Pond p03-3: Underground Detention

Inflow Area = 0.947 ac, Inflow Depth = 6.52" for 50-yr event
Inflow = 7.68 cfs @ 12.01 hrs, Volume= 0.515 af
Outflow = 1.15 cfs @ 12.45 hrs, Volume= 0.515 af, Atten= 85%, Lag= 26.3 min
Primary = 1.15 cfs @ 12.45 hrs, Volume= 0.515 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 805.52' @ 12.45 hrs Surf.Area= 1,631 sf Storage= 13,604 cf

Plug-Flow detention time= 1,735.6 min calculated for 0.515 af (100% of inflow)
Center-of-Mass det. time= 1,735.9 min (2,486.3 - 750.3)

Volume	Invert	Avail.Storage	Storage Description
#1	800.00'	14,137 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 5

Device	Routing	Invert	Outlet Devices
#1	Primary	800.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	805.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.15 cfs @ 12.45 hrs HW=805.52' TW=722.98' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 11.27 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 1.09 cfs @ 2.35 fps)

Pond p05-2:

Inflow Area = 46.967 ac, Inflow Depth = 3.58" for 50-yr event
Inflow = 111.78 cfs @ 12.20 hrs, Volume= 14.025 af
Outflow = 103.08 cfs @ 12.29 hrs, Volume= 14.025 af, Atten= 8%, Lag= 5.4 min
Primary = 103.08 cfs @ 12.29 hrs, Volume= 14.025 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 584.00' Surf.Area= 39,691 sf Storage= 193,237 cf
Peak Elev= 585.50' @ 12.29 hrs Surf.Area= 51,359 sf Storage= 258,259 cf (65,022 cf above start)
Flood Elev= 585.00' Surf.Area= 43,480 sf Storage= 234,808 cf (41,571 cf above start)

Plug-Flow detention time= 288.1 min calculated for 9.588 af (68% of inflow)
Center-of-Mass det. time= 32.1 min (941.0 - 908.9)

Volume	Invert	Avail.Storage	Storage Description
#1	577.00'	286,360 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)
577.00	16,551	0	0	16,551
579.00	22,509	38,908	38,908	22,590
581.00	29,072	51,441	90,349	29,251
583.00	36,074	65,020	155,369	36,369
585.00	43,480	79,439	234,808	43,908
586.00	60,070	51,552	286,360	60,518

Device	Routing	Invert	Outlet Devices
#1	Primary	584.00'	**10.0' long x 25.0' 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	Primary	585.00'	**60.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=103.06 cfs @ 12.29 hrs HW=585.50' TW=574.31' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 48.17 cfs @ 3.22 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 54.89 cfs @ 1.85 fps)

Pond p06-1:

Inflow Area = 23.347 ac, Inflow Depth = 2.93" for 50-yr event
Inflow = 56.33 cfs @ 12.25 hrs, Volume= 5.707 af
Outflow = 46.55 cfs @ 12.38 hrs, Volume= 5.685 af, Atten= 17%, Lag= 7.7 min
Primary = 46.55 cfs @ 12.38 hrs, Volume= 5.685 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 41,229 sf Storage= 93,452 cf
Peak Elev= 507.73' @ 12.38 hrs Surf.Area= 49,330 sf Storage= 136,607 cf (43,154 cf above start)
Flood Elev= 507.10' Surf.Area= 43,840 sf Storage= 107,358 cf (13,906 cf above start)

Plug-Flow detention time= 528.5 min calculated for 3.540 af (62% of inflow)
Center-of-Mass det. time= 179.5 min (1,083.3 - 903.9)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	149,075 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	41,229	93,452	93,452	41,302
508.00	51,671	55,622	149,075	51,784

Device	Routing	Invert	Outlet Devices
#1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900
			Outlet Invert= 506.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=46.55 cfs @ 12.38 hrs HW=507.73' TW=505.58' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 1.98 cfs @ 2.59 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 44.57 cfs @ 1.95 fps)

Pond p06-2: Underground Detention

Inflow Area = 15.682 ac, Inflow Depth = 2.80" for 50-yr event
Inflow = 37.03 cfs @ 12.23 hrs, Volume= 3.660 af
Outflow = 35.83 cfs @ 12.27 hrs, Volume= 3.661 af, Atten= 3%, Lag= 2.7 min
Primary = 35.83 cfs @ 12.27 hrs, Volume= 3.661 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 523.53' @ 12.27 hrs Surf.Area= 4,104 sf Storage= 18,800 cf
Flood Elev= 528.00' Surf.Area= 0 sf Storage= 20,106 cf

Plug-Flow detention time= 76.9 min calculated for 3.660 af (100% of inflow)
Center-of-Mass det. time= 77.0 min (935.1 - 858.1)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	20,106 cf	**48.0"D x 100.00'L Horizontal Cylinder** x 16

Device	Routing	Invert	Outlet Devices
#1	Primary	520.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	522.00'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=35.81 cfs @ 12.27 hrs HW=523.53' TW=507.66' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.44 cfs @ 8.89 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 35.38 cfs @ 4.05 fps)

Pond p07-1:

Inflow Area = 61.918 ac, Inflow Depth = 3.44" for 50-yr event
Inflow = 136.67 cfs @ 12.26 hrs, Volume= 17.759 af
Outflow = 135.46 cfs @ 12.29 hrs, Volume= 17.750 af, Atten= 1%, Lag= 1.7 min
Primary = 19.82 cfs @ 12.29 hrs, Volume= 6.922 af
Secondary = 115.63 cfs @ 12.29 hrs, Volume= 10.828 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 574.31' @ 12.29 hrs Surf.Area= 28,495 sf Storage= 95,104 cf (38,840 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)

Plug-Flow detention time= 142.3 min calculated for 16.458 af (93% of inflow)
Center-of-Mass det. time= 39.7 min (961.5 - 921.8)

Volume	Invert	Avail.Storage	Storage Description
#1	565.00'	147,831 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424
576.00	35,150	62,274	147,831	35,383

Device	Routing	Invert	Outlet Devices
#1	Secondary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Secondary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46
#3	Primary	573.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=19.82 cfs @ 12.29 hrs HW=574.31' TW=572.16' (Dynamic Tailwater)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 19.82 cfs @ 3.03 fps)

Secondary OutFlow Max=115.63 cfs @ 12.29 hrs HW=574.31' TW=0.00' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 5.84 cfs @ 3.31 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 109.79 cfs @ 2.21 fps)

Pond p08-2:

Inflow Area = 3.832 ac, Inflow Depth = 2.60" for 50-yr event
Inflow = 8.77 cfs @ 12.21 hrs, Volume= 0.831 af
Outflow = 0.64 cfs @ 15.36 hrs, Volume= 0.831 af, Atten= 93%, Lag= 189.1 min
Primary = 0.64 cfs @ 15.36 hrs, Volume= 0.831 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 527.50' Surf.Area= 3,950 sf Storage= 5,322 cf
Peak Elev= 530.19' @ 15.36 hrs Surf.Area= 9,832 sf Storage= 26,743 cf (21,420 cf above start)
Flood Elev= 531.00' Surf.Area= 10,855 sf Storage= 35,135 cf (29,813 cf above start)

Plug-Flow detention time= 840.8 min calculated for 0.709 af (85% of inflow)
Center-of-Mass det. time= 657.3 min (1,518.3 - 860.9)

Volume	Invert	Avail.Storage	Storage Description
#1	523.00'	46,638 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)
523.00	156	0	0	156
524.00	435	284	284	441
525.00	816	616	899	832
526.00	1,291	1,044	1,944	1,321
526.50	1,563	712	2,656	1,601
527.50	3,950	2,666	5,322	3,995
528.00	7,267	2,762	8,085	7,314
529.00	8,407	7,830	15,915	8,497
530.00	9,602	8,998	24,913	9,738
531.00	10,855	10,222	35,135	11,041
532.00	12,164	11,503	46,638	12,404

Device	Routing	Invert	Outlet Devices
#1	Primary	527.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	530.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.64 cfs @ 15.36 hrs HW=530.19' TW=514.15' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.38 cfs @ 7.71 fps)
- **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.26 cfs @ 1.42 fps)

Pond p08-3: Underground Detention

Inflow Area = 0.595 ac, Inflow Depth = 6.76" for 50-yr event
Inflow = 4.55 cfs @ 12.04 hrs, Volume= 0.335 af
Outflow = 1.12 cfs @ 12.38 hrs, Volume= 0.335 af, Atten= 75%, Lag= 20.1 min
Primary = 1.12 cfs @ 12.38 hrs, Volume= 0.335 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 605.51' @ 12.38 hrs Surf.Area= 988 sf Storage= 8,152 cf

Plug-Flow detention time= 1,099.0 min calculated for 0.335 af (100% of inflow)
Center-of-Mass det. time= 1,099.2 min (1,839.4 - 740.2)

Volume	Invert	Avail.Storage	Storage Description
#1	600.00'	8,482 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 3

Device	Routing	Invert	Outlet Devices
#1	Primary	600.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	605.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.12 cfs @ 12.38 hrs HW=605.51' TW=0.00' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 11.26 fps)
- **2=Sharp-Crested Rectangular Weir** (Weir Controls 1.06 cfs @ 2.33 fps)

Pond p09-1:

Inflow Area = 67.345 ac, Inflow Depth = 1.51" for 50-yr event
Inflow = 35.54 cfs @ 12.16 hrs, Volume= 8.501 af
Outflow = 33.55 cfs @ 12.23 hrs, Volume= 8.234 af, Atten= 6%, Lag= 4.6 min
Primary = 33.55 cfs @ 12.23 hrs, Volume= 8.234 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 558.25' @ 12.23 hrs Surf.Area= 27,961 sf Storage= 30,695 cf
Flood Elev= 558.00' Surf.Area= 25,588 sf Storage= 24,042 cf

Plug-Flow detention time= 58.9 min calculated for 8.234 af (97% of inflow)
Center-of-Mass det. time= 40.2 min (992.4 - 952.3)

Volume	Invert	Avail.Storage	Storage Description
#1	557.00'	96,165 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)
557.00	22,529	0	0	22,529
558.00	25,588	24,042	24,042	25,637
560.00	47,670	72,122	96,165	47,760

Device	Routing	Invert	Outlet Devices
#1	Primary	557.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	558.00'	**80.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=33.54 cfs @ 12.23 hrs HW=558.25' TW=537.95' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 8.69 cfs @ 2.32 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 24.84 cfs @ 1.25 fps)

Pond p09-2:

Inflow Area = 62.137 ac, Inflow Depth = 1.36" for 50-yr event
Inflow = 20.32 cfs @ 12.28 hrs, Volume= 7.041 af
Outflow = 20.30 cfs @ 12.30 hrs, Volume= 6.976 af, Atten= 0%, Lag= 0.7 min
Primary = 20.30 cfs @ 12.30 hrs, Volume= 6.976 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 572.16' @ 12.30 hrs Surf.Area= 5,261 sf Storage= 6,323 cf
Flood Elev= 572.00' Surf.Area= 5,086 sf Storage= 5,483 cf

Plug-Flow detention time= 16.5 min calculated for 6.976 af (99% of inflow)
Center-of-Mass det. time= 10.6 min (977.7 - 967.1)

Volume	Invert	Avail.Storage	Storage Description
#1	571.00'	17,934 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)
571.00	5,889	0	0	5,889
572.00	5,086	5,483	5,483	6,734
574.00	7,440	12,452	17,934	9,153

Device	Routing	Invert	Outlet Devices
#1	Primary	571.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	572.00'	**80.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=20.30 cfs @ 12.30 hrs HW=572.16' TW=558.24' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 7.26 cfs @ 2.19 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 13.04 cfs @ 1.00 fps)

Pond p10-1:

Inflow Area = 98.208 ac, Inflow Depth = 1.40" for 50-yr event
Inflow = 51.87 cfs @ 12.34 hrs, Volume= 11.417 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 49,539 sf Storage= 138,709 cf
Peak Elev= 505.86' @ 200.00 hrs Surf.Area= 94,136 sf Storage= 636,033 cf (497,324 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	874,719 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	49,539	138,709	138,709	49,650
500.00	53,826	82,668	221,377	54,126
502.00	61,486	115,227	336,605	61,973
504.00	77,594	138,768	475,373	78,189
506.00	95,372	172,661	648,033	96,088
508.00	132,320	226,686	874,719	133,113

Device	Routing	Invert	Outlet Devices
#1	Primary	506.00'	**Custom Weir/Orifice, C= 3.00** Head (feet) 0.00 2.00 Width (feet) 20.00 150.00

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=498.40' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Controls 0.00 cfs)

Pond p11-1: Underground Detention

Inflow Area = 17.262 ac, Inflow Depth = 6.05" for 50-yr event
Inflow = 113.72 cfs @ 12.08 hrs, Volume= 8.710 af
Outflow = 28.53 cfs @ 12.45 hrs, Volume= 8.694 af, Atten= 75%, Lag= 22.3 min
Primary = 28.53 cfs @ 12.45 hrs, Volume= 8.694 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 529.41' @ 12.45 hrs Surf.Area= 28,528 sf Storage= 214,785 cf

Plug-Flow detention time= 2,280.4 min calculated for 8.694 af (100% of inflow)
Center-of-Mass det. time= 2,279.6 min (3,052.3 - 772.7)

Volume	Invert	Avail.Storage	Storage Description
#1	524.00'	226,195 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 80

Device	Routing	Invert	Outlet Devices
#1	Primary	524.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	528.50'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=28.53 cfs @ 12.45 hrs HW=529.41' TW=509.61' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.54 cfs @ 11.07 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 27.98 cfs @ 3.12 fps)

Pond p13-1:

Inflow Area = 0.300 ac, Inflow Depth = 2.12" for 50-yr event
Inflow = 0.81 cfs @ 12.04 hrs, Volume= 0.053 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 519.38' @ 24.12 hrs Surf.Area= 1,826 sf Storage= 2,313 cf
Flood Elev= 527.00' Surf.Area= 10,067 sf Storage= 40,862 cf

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

Volume	Invert	Avail.Storage	Storage Description
#1	518.00'	50,891 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
518.00	1,331	0	0	1,331
520.00	2,048	3,353	3,353	2,104
522.00	2,912	4,935	8,288	3,037
522.50	3,150	1,515	9,803	3,294
524.00	5,894	6,676	16,480	6,061
526.00	8,542	14,354	30,834	8,776
528.00	11,592	20,057	50,891	11,908

Device	Routing	Invert	Outlet Devices
#1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=518.00' TW=497.40' (Dynamic Tailwater)
1=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond p14-1:

Inflow Area = 20.711 ac, Inflow Depth = 4.72" for 50-yr event
Inflow = 97.36 cfs @ 12.09 hrs, Volume= 8.151 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 44,199 sf Storage= 109,024 cf
Peak Elev= 503.19' @ 24.57 hrs Surf.Area= 79,321 sf Storage= 464,102 cf (355,078 cf above start)

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

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	899,480 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	44,199	109,024	109,024	44,285
498.00	45,919	27,034	136,058	46,063
500.00	58,406	104,075	240,133	58,654
502.00	72,976	131,112	371,245	73,337
504.00	83,672	156,526	527,771	84,215
506.00	91,692	175,303	703,074	92,505
508.00	104,861	196,406	899,480	105,860

Device	Routing	Invert	Outlet Devices
#1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=497.40' TW=498.40' (Dynamic Tailwater)
1=Culvert (Controls 0.00 cfs)

Pond p14-3:

Inflow Area = 68.476 ac, Inflow Depth = 1.52" for 50-yr event
Inflow = 36.22 cfs @ 12.23 hrs, Volume= 8.697 af
Outflow = 31.96 cfs @ 12.38 hrs, Volume= 8.697 af, Atten= 12%, Lag= 9.3 min
Primary = 31.96 cfs @ 12.38 hrs, Volume= 8.697 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 538.16' @ 12.38 hrs Surf.Area= 24,896 sf Storage= 26,611 cf
Flood Elev= 538.00' Surf.Area= 24,510 sf Storage= 22,749 cf

Plug-Flow detention time= 34.4 min calculated for 8.696 af (100% of inflow)
Center-of-Mass det. time= 34.5 min (1,016.6 - 982.1)

Volume	Invert	Avail.Storage	Storage Description
#1	537.00'	76,857 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)
537.00	21,033	0	0	21,033
538.00	24,510	22,749	22,749	24,551
540.00	29,680	54,108	76,857	29,851

Device	Routing	Invert	Outlet Devices
#1	Primary	537.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	538.00'	**100.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=31.95 cfs @ 12.38 hrs HW=538.16' TW=499.76' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 16.56 cfs @ 2.87 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 15.39 cfs @ 0.98 fps)

Pond p16-1:

Inflow Area = 234.282 ac, Inflow Depth = 4.06" for 50-yr event
Inflow = 248.36 cfs @ 12.19 hrs, Volume= 79.361 af
Outflow = 169.49 cfs @ 13.88 hrs, Volume= 70.107 af, Atten= 32%, Lag= 101.8 min
Primary = 169.49 cfs @ 13.88 hrs, Volume= 70.107 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.65' @ 13.88 hrs Surf.Area= 322,547 sf Storage= 1,960,030 cf (1,081,710 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)

Plug-Flow detention time= 1,288.5 min calculated for 49.941 af (63% of inflow)
Center-of-Mass det. time= 479.0 min (1,731.9 - 1,253.0)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

Device	Routing	Invert	Outlet Devices
#1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' Cc= 0.900 n= 0.024
#2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' Cc= 0.900 n= 0.013
#3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=169.48 cfs @ 13.88 hrs HW=511.65' TW=506.60' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 9.26 cfs @ 5.24 fps)
- **2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 160.22 cfs @ 2.64 fps)

Pond p16-4:

Inflow Area = 13.242 ac, Inflow Depth = 5.14" for 50-yr event
Inflow = 52.82 cfs @ 12.27 hrs, Volume= 5.672 af
Outflow = 30.46 cfs @ 12.55 hrs, Volume= 5.670 af, Atten= 42%, Lag= 16.9 min
Primary = 30.46 cfs @ 12.55 hrs, Volume= 5.670 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 512.00' Surf.Area= 8,089 sf Storage= 14,361 cf
Peak Elev= 518.35' @ 12.55 hrs Surf.Area= 22,250 sf Storage= 108,187 cf (93,826 cf above start)
Flood Elev= 519.00' Surf.Area= 23,907 sf Storage= 123,088 cf (108,727 cf above start)

Plug-Flow detention time= 475.6 min calculated for 5.341 af (94% of inflow)
Center-of-Mass det. time= 412.0 min (1,222.8 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1	504.50'	148,324 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)
504.50	34	0	0	34
506.00	293	213	213	300
508.00	1,136	1,337	1,551	1,162
510.00	2,508	3,555	5,105	2,566
510.50	2,890	1,348	6,454	2,959
512.00	8,089	7,907	14,361	8,172
514.00	11,952	19,916	34,276	12,099
516.00	16,547	28,375	62,651	16,771
518.00	21,367	37,811	100,463	21,688
520.00	26,589	47,861	148,324	27,024

Device	Routing	Invert	Outlet Devices
#1	Primary	512.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	516.00'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=30.46 cfs @ 12.55 hrs HW=518.35' TW=509.90' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.59 cfs @ 12.02 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 29.87 cfs @ 5.02 fps)

Pond p16-5:

Inflow Area = 3.971 ac, Inflow Depth = 4.58" for 50-yr event
Inflow = 22.77 cfs @ 12.06 hrs, Volume= 1.517 af
Outflow = 0.49 cfs @ 17.40 hrs, Volume= 1.516 af, Atten= 98%, Lag= 320.4 min
Primary = 0.49 cfs @ 17.40 hrs, Volume= 1.516 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 534.00' Surf.Area= 7,168 sf Storage= 14,550 cf
Peak Elev= 538.40' @ 17.40 hrs Surf.Area= 14,898 sf Storage= 62,281 cf (47,732 cf above start)
Flood Elev= 541.00' Surf.Area= 20,427 sf Storage= 108,016 cf (93,466 cf above start)

Plug-Flow detention time= 1,545.9 min calculated for 1.182 af (78% of inflow)
Center-of-Mass det. time= 1,167.1 min (1,975.6 - 808.5)

Volume	Invert	Avail.Storage	Storage Description
#1	528.00'	129,594 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)
528.00	447	0	0	447
530.00	1,292	1,666	1,666	1,316
532.00	2,598	3,815	5,481	2,658
532.50	3,239	1,456	6,937	3,306
534.00	7,168	7,613	14,550	7,253
536.00	10,404	17,472	32,022	10,556
538.00	14,112	24,422	56,444	14,345
540.00	18,230	32,254	88,698	18,561
542.00	22,750	40,897	129,594	23,193

Device	Routing	Invert	Outlet Devices
#1	Primary	534.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.49 cfs @ 17.40 hrs HW=538.40' TW=511.14' (Dynamic Tailwater)
└**1=Orifice/Grate** (Orifice Controls 0.49 cfs @ 9.96 fps)

Pond p17-1:

Inflow Area = 126.773 ac, Inflow Depth = 3.51" for 50-yr event
Inflow = 134.47 cfs @ 13.56 hrs, Volume= 37.101 af
Outflow = 134.43 cfs @ 13.57 hrs, Volume= 37.101 af, Atten= 0%, Lag= 0.4 min
Primary = 134.43 cfs @ 13.57 hrs, Volume= 37.101 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.72' @ 13.57 hrs Surf.Area= 11,742 sf Storage= 27,506 cf (18,272 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)

Plug-Flow detention time= 12.4 min calculated for 36.887 af (99% of inflow)
Center-of-Mass det. time= 7.0 min (936.7 - 929.7)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	30,224 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

Device	Routing	Invert	Outlet Devices
#1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=134.41 cfs @ 13.57 hrs HW=525.72' TW=516.38' (Dynamic Tailwater)
├**1=Broad-Crested Rectangular Weir** (Weir Controls 19.46 cfs @ 4.60 fps)
├**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 17.79 cfs @ 2.94 fps)
└**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 97.17 cfs @ 2.07 fps)

Pond p18-1:

Inflow Area = 5.356 ac, Inflow Depth = 4.62" for 50-yr event
Inflow = 31.79 cfs @ 12.04 hrs, Volume= 2.063 af
Outflow = 3.85 cfs @ 12.57 hrs, Volume= 2.061 af, Atten= 88%, Lag= 31.8 min
Primary = 3.85 cfs @ 12.57 hrs, Volume= 2.061 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Starting Elev= 515.50' Surf.Area= 8,701 sf Storage= 8,455 cf
Peak Elev= 518.26' @ 12.57 hrs Surf.Area= 20,441 sf Storage= 54,957 cf (46,502 cf above start)
Flood Elev= 519.00' Surf.Area= 22,111 sf Storage= 70,643 cf (62,188 cf above start)

Plug-Flow detention time= 642.7 min calculated for 1.867 af (91% of inflow)
Center-of-Mass det. time= 532.6 min (1,339.0 - 806.4)

Volume	Invert	Avail.Storage	Storage Description
#1	512.00'	93,928 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)
512.00	422	0	0	422
514.00	1,472	1,788	1,788	1,493
514.50	2,962	1,087	2,875	2,985
515.50	8,701	5,580	8,455	8,730
516.00	15,477	5,964	14,419	15,509
518.00	19,862	35,248	49,667	19,993
520.00	24,480	44,262	93,928	24,730

Device	Routing	Invert	Outlet Devices
#1	Primary	515.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	517.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=3.85 cfs @ 12.57 hrs HW=518.26' TW=509.95' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.38 cfs @ 7.82 fps)
- **2=Sharp-Crested Rectangular Weir** (Weir Controls 3.47 cfs @ 3.67 fps)

Pond p18-2:

Inflow Area = 147.742 ac, Inflow Depth = 3.73" for 50-yr event
Inflow = 147.87 cfs @ 13.46 hrs, Volume= 45.971 af
Outflow = 147.76 cfs @ 13.56 hrs, Volume= 45.970 af, Atten= 0%, Lag= 5.8 min
Primary = 147.76 cfs @ 13.56 hrs, Volume= 45.970 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.38' @ 13.56 hrs Surf.Area= 31,047 sf Storage= 91,180 cf (64,296 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)

Plug-Flow detention time= 76.8 min calculated for 45.351 af (99% of inflow)
Center-of-Mass det. time= 25.2 min (1,032.2 - 1,007.0)

Volume	Invert	Avail.Storage	Storage Description
#1	510.00'	148,288 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

Device	Routing	Invert	Outlet Devices
#1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=147.75 cfs @ 13.56 hrs HW=516.38' TW=511.58' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 25.95 cfs @ 5.23 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 22.84 cfs @ 3.10 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 98.96 cfs @ 2.72 fps)

Pond p18-4:

Inflow Area = 16.038 ac, Inflow Depth = 5.43" for 50-yr event
Inflow = 104.24 cfs @ 12.05 hrs, Volume= 7.256 af
Outflow = 31.02 cfs @ 12.35 hrs, Volume= 7.253 af, Atten= 70%, Lag= 18.2 min
Primary = 31.02 cfs @ 12.35 hrs, Volume= 7.253 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 521.50' Surf.Area= 9,318 sf Storage= 16,432 cf
Peak Elev= 528.35' @ 12.35 hrs Surf.Area= 29,066 sf Storage= 161,475 cf (145,042 cf above start)
Flood Elev= 529.00' Surf.Area= 30,616 sf Storage= 180,767 cf (164,335 cf above start)

Plug-Flow detention time= 692.0 min calculated for 6.876 af (95% of inflow)
Center-of-Mass det. time= 622.6 min (1,406.8 - 784.2)

Volume	Invert	Avail.Storage	Storage Description
#1	516.00'	212,613 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)
516.00	292	0	0	292
518.00	1,596	1,714	1,714	1,612
520.00	3,769	5,212	6,926	3,814
521.50	9,318	9,507	16,432	9,379
522.00	15,200	6,070	22,502	15,264
524.00	19,211	34,333	56,835	19,381
526.00	23,606	42,742	99,576	23,897
528.00	28,236	51,773	151,349	28,665
530.00	33,092	61,264	212,613	33,677

Device	Routing	Invert	Outlet Devices
#1	Primary	521.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	525.50'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=31.02 cfs @ 12.35 hrs HW=528.35' TW=515.99' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.61 cfs @ 12.49 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 30.41 cfs @ 5.52 fps)

Pond p19-0:

Inflow Area = 15.520 ac, Inflow Depth = 2.60" for 50-yr event
Inflow = 22.44 cfs @ 12.61 hrs, Volume= 3.367 af
Outflow = 15.21 cfs @ 12.94 hrs, Volume= 3.367 af, Atten= 32%, Lag= 19.9 min
Primary = 15.21 cfs @ 12.94 hrs, Volume= 3.367 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.29' @ 12.94 hrs Surf.Area= 93,885 sf Storage= 89,433 cf (32,099 cf above start)

Plug-Flow detention time= 281.4 min calculated for 2.051 af (61% of inflow)
Center-of-Mass det. time= 58.8 min (944.2 - 885.4)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

Device	Routing	Invert	Outlet Devices
#1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
#2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=15.21 cfs @ 12.94 hrs HW=972.29' TW=970.21' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 15.21 cfs @ 1.52 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20-1:

Inflow Area = 251.397 ac, Inflow Depth > 3.60" for 50-yr event
Inflow = 174.96 cfs @ 13.88 hrs, Volume= 75.414 af
Outflow = 174.06 cfs @ 13.95 hrs, Volume= 75.253 af, Atten= 1%, Lag= 4.4 min
Primary = 174.06 cfs @ 13.95 hrs, Volume= 75.253 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.60' @ 13.95 hrs Surf.Area= 92,363 sf Storage= 275,799 cf (137,275 cf above start)

Plug-Flow detention time= 417.9 min calculated for 72.073 af (96% of inflow)
Center-of-Mass det. time= 82.1 min (1,751.0 - 1,669.0)

Volume	Invert	Avail.Storage	Storage Description
#1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

Device	Routing	Invert	Outlet Devices
#1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=174.04 cfs @ 13.95 hrs HW=506.60' TW=506.14' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 11.90 cfs @ 2.64 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 4.38 cfs @ 1.67 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 157.75 cfs @ 2.29 fps)

Pond p21-1:

Inflow Area = 499.521 ac, Inflow Depth > 3.60" for 50-yr event
Inflow = 462.78 cfs @ 12.17 hrs, Volume= 149.942 af
Outflow = 38.22 cfs @ 22.30 hrs, Volume= 148.991 af, Atten= 92%, Lag= 607.5 min
Primary = 38.22 cfs @ 22.30 hrs, Volume= 148.991 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 486.77' @ 22.30 hrs Surf.Area= 1,361,309 sf Storage= 3,536,496 cf

Plug-Flow detention time= 1,067.8 min calculated for 148.991 af (99% of inflow)
Center-of-Mass det. time= 1,005.0 min (2,660.2 - 1,655.2)

Volume	Invert	Avail.Storage	Storage Description
#1	480.40'	8,387,099 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423
490.00	1,644,120	3,142,214	8,387,099	1,644,607

Device	Routing	Invert	Outlet Devices
#1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' Cc= 0.900 n= 0.024

Primary OutFlow Max=38.22 cfs @ 22.30 hrs HW=486.77' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 38.22 cfs @ 7.79 fps)

Pond p21-7:

Inflow Area = 10.425 ac, Inflow Depth = 4.34" for 50-yr event
Inflow = 33.66 cfs @ 12.08 hrs, Volume= 3.771 af
Outflow = 11.38 cfs @ 12.82 hrs, Volume= 3.769 af, Atten= 66%, Lag= 44.4 min
Primary = 11.38 cfs @ 12.82 hrs, Volume= 3.769 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 493.63' @ 12.82 hrs Surf.Area= 18,160 sf Storage= 74,191 cf
Flood Elev= 494.00' Surf.Area= 18,859 sf Storage= 81,129 cf

Plug-Flow detention time= 690.1 min calculated for 3.769 af (100% of inflow)
Center-of-Mass det. time= 689.8 min (1,514.6 - 824.8)

Volume	Invert	Avail.Storage	Storage Description
#1	488.00'	81,129 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
488.00	8,590	0	0
490.00	11,713	20,303	20,303
492.00	15,127	26,840	47,143
494.00	18,859	33,986	81,129

Device	Routing	Invert	Outlet Devices
#1	Primary	488.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	492.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=11.38 cfs @ 12.82 hrs HW=493.63' TW=484.43' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.55 cfs @ 11.29 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 10.83 cfs @ 3.47 fps)

Pond p22-1:

Inflow Area = 62.211 ac, Inflow Depth = 3.42" for 50-yr event
Inflow = 111.06 cfs @ 12.36 hrs, Volume= 17.749 af
Outflow = 110.39 cfs @ 12.40 hrs, Volume= 17.462 af, Atten= 1%, Lag= 2.0 min
Primary = 110.39 cfs @ 12.40 hrs, Volume= 17.462 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 502.02' @ 12.40 hrs Surf.Area= 11,555 sf Storage= 44,405 cf (34,299 cf above start)

Plug-Flow detention time= 40.6 min calculated for 17.230 af (97% of inflow)
Center-of-Mass det. time= 19.8 min (885.5 - 865.7)

Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

Device	Routing	Invert	Outlet Devices
#1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' Cc= 0.900 n= 0.024
#2	Primary	500.50'	**1.0' long x 15.0' 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
#3	Primary	500.50'	**20.0' long x 13.5' 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) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=110.37 cfs @ 12.40 hrs HW=502.02' TW=484.04' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 6.93 cfs @ 3.92 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 4.92 cfs @ 3.24 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 98.53 cfs @ 3.25 fps)

Pond p23-2:

Inflow Area = 73.912 ac, Inflow Depth = 4.04" for 50-yr event
Inflow = 164.04 cfs @ 12.61 hrs, Volume= 24.896 af
Outflow = 22.56 cfs @ 14.61 hrs, Volume= 19.984 af, Atten= 86%, Lag= 120.0 min
Primary = 22.56 cfs @ 14.61 hrs, Volume= 19.984 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Starting Elev= 508.00' Surf.Area= 43,560 sf Storage= 116,710 cf
Peak Elev= 518.25' @ 14.61 hrs Surf.Area= 92,586 sf Storage= 805,131 cf (688,421 cf above start)
Flood Elev= 519.00' Surf.Area= 96,565 sf Storage= 875,673 cf (758,963 cf above start)

Plug-Flow detention time= 3,000.8 min calculated for 17.304 af (70% of inflow)
Center-of-Mass det. time= 2,514.0 min (3,371.2 - 857.2)

Volume	Invert	Avail.Storage	Storage Description
#1	504.00'	974,958 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)
504.00	21,853	0	0	21,853
506.00	27,237	48,991	48,991	27,350
506.50	28,631	13,966	62,957	28,775
508.00	43,560	53,753	116,710	43,738
510.00	52,250	95,678	212,388	52,565
512.00	61,370	113,498	325,886	61,840
514.00	70,920	132,175	458,061	71,562
516.00	80,880	151,691	609,752	81,712
518.00	91,250	172,026	781,778	92,288
520.00	102,030	193,180	974,958	103,291

Device	Routing	Invert	Outlet Devices
#1	Primary	508.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	517.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=22.56 cfs @ 14.61 hrs HW=518.25' TW=485.76' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.75 cfs @ 15.32 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 21.81 cfs @ 3.66 fps)

Pond zDP1: Design Point 1

Inflow Area = 26.401 ac, Inflow Depth = 3.70" for 50-yr event
Inflow = 51.89 cfs @ 12.27 hrs, Volume= 8.131 af
Outflow = 51.90 cfs @ 12.26 hrs, Volume= 8.131 af, Atten= 0%, Lag= 0.0 min
Primary = 51.90 cfs @ 12.26 hrs, Volume= 8.131 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 723.11' @ 12.26 hrs Surf.Area= 228 sf Storage= 280 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf

Plug-Flow detention time= 0.1 min calculated for 8.131 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (957.1 - 957.0)

Volume	Invert	Avail.Storage	Storage Description
#1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

Device	Routing	Invert	Outlet Devices
#1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' Cc= 0.900 n= 0.024
#2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=51.90 cfs @ 12.26 hrs HW=723.11' TW=686.81' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 51.90 cfs @ 5.90 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Inflow Area = 97.969 ac, Inflow Depth = 3.25" for 50-yr event
Inflow = 132.92 cfs @ 12.87 hrs, Volume= 26.552 af
Outflow = 132.87 cfs @ 12.87 hrs, Volume= 26.552 af, Atten= 0%, Lag= 0.2 min
Primary = 36.35 cfs @ 12.87 hrs, Volume= 18.026 af
Secondary = 96.51 cfs @ 12.87 hrs, Volume= 8.526 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 626.38' @ 12.87 hrs Surf.Area= 1,638 sf Storage= 4,078 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf

Plug-Flow detention time= 0.5 min calculated for 26.551 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (881.8 - 881.3)

Volume	Invert	Avail.Storage	Storage Description
#1	619.60'	7,280 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

Device	Routing	Invert	Outlet Devices
#1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' Cc= 0.900 n= 0.012
#2	Secondary	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=36.35 cfs @ 12.87 hrs HW=626.38' TW=607.69' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 36.35 cfs @ 11.57 fps)

Secondary OutFlow Max=96.50 cfs @ 12.87 hrs HW=626.38' TW=559.31' (Dynamic Tailwater)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 96.50 cfs @ 3.37 fps)

Pond zDP3: Design Point 3

Inflow Area = 252.976 ac, Inflow Depth > 65.11" for 50-yr event
Inflow = 333.85 cfs @ 12.43 hrs, Volume= 1,372.510 af
Primary = 333.85 cfs @ 12.43 hrs, Volume= 1,372.510 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 499.521 ac, Inflow Depth > 3.58" for 50-yr event
Inflow = 38.22 cfs @ 22.30 hrs, Volume= 148.991 af
Primary = 38.22 cfs @ 22.30 hrs, Volume= 148.991 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 3.62" for 50-yr event
Inflow = 67.08 cfs @ 12.45 hrs, Volume= 8.541 af
Primary = 67.08 cfs @ 12.45 hrs, Volume= 8.541 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP6: Design Point 6

Inflow Area = 5.306 ac, Inflow Depth = 2.22" for 50-yr event
Inflow = 7.23 cfs @ 12.47 hrs, Volume= 0.981 af
Outflow = 7.23 cfs @ 12.47 hrs, Volume= 0.981 af, Atten= 0%, Lag= 0.0 min
Primary = 7.23 cfs @ 12.47 hrs, Volume= 0.981 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 610.05' @ 12.47 hrs
Flood Elev= 612.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.90'	**36.0" x 43.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 606.90' S= 0.0465 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=7.23 cfs @ 12.47 hrs HW=610.05' TW=588.06' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 7.23 cfs @ 2.89 fps)

Pond zDP7: Design Point 7

Inflow Area = 31.683 ac, Inflow Depth = 3.20" for 50-yr event
Inflow = 52.40 cfs @ 12.69 hrs, Volume= 8.461 af
Primary = 52.40 cfs @ 12.69 hrs, Volume= 8.461 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP8: Design Point 8

Inflow Area = 7.105 ac, Inflow Depth = 3.69" for 50-yr event
Inflow = 23.30 cfs @ 12.13 hrs, Volume= 2.185 af
Primary = 23.30 cfs @ 12.13 hrs, Volume= 2.185 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Subcatchment s01-0:

Runoff = 27.15 cfs @ 12.60 hrs, Volume= 4.054 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
11.485	68	
11.485		Pervious Area

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

Subcatchment s02-1:

Runoff = 164.46 cfs @ 12.87 hrs, Volume= 30.264 af, Depth= 3.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
93.258	65	
93.258		Pervious Area

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

Subcatchment s02-2:

Runoff = 14.28 cfs @ 12.03 hrs, Volume= 0.974 af, Depth= 7.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
1.605	94	
1.605		Pervious Area

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

Subcatchment s02-3:

Runoff = 5.17 cfs @ 12.01 hrs, Volume= 0.327 af, Depth= 6.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.587	89	
0.587		Pervious Area

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

Subcatchment s02-4:

Runoff = 4.40 cfs @ 12.01 hrs, Volume= 0.291 af, Depth= 7.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.479	94	
0.479		Pervious Area

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

Subcatchment s02-5:

Runoff = 8.43 cfs @ 12.03 hrs, Volume= 0.575 af, Depth= 7.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.947	94	
0.947		Pervious Area

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

Subcatchment s02-6:

Runoff = 1.92 cfs @ 12.01 hrs, Volume= 0.127 af, Depth= 7.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.209	94	
0.209		Pervious Area

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

Subcatchment s02-7:

Runoff = 7.87 cfs @ 12.03 hrs, Volume= 0.536 af, Depth= 7.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.884	94	
0.884		Pervious Area

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

Subcatchment s03-1:

Runoff = 12.47 cfs @ 12.36 hrs, Volume= 1.446 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
3.988	69	
3.988		Pervious Area

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

Subcatchment s03-2:

Runoff = 41.55 cfs @ 12.21 hrs, Volume= 3.905 af, Depth= 4.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
9.981	72	
9.981		Pervious Area

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

Subcatchment s03-3:

Runoff = 8.80 cfs @ 12.01 hrs, Volume= 0.594 af, Depth= 7.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.947	96	
0.947		Pervious Area

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

Subcatchment s04-1:

Runoff = 42.67 cfs @ 12.21 hrs, Volume= 4.010 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
11.064	69	
11.064		Pervious Area

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

Subcatchment s05-1:

Runoff = 16.71 cfs @ 12.12 hrs, Volume= 1.286 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
4.340	62	
4.340		Pervious Area

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

Subcatchment s05-2:

Runoff = 25.13 cfs @ 12.14 hrs, Volume= 2.050 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
6.138	66	
6.138		Pervious Area

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

Subcatchment s05-3:

Runoff = 15.39 cfs @ 12.14 hrs, Volume= 1.251 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
3.364	70	
3.364		Pervious Area

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

Subcatchment s06-1:

Runoff = 27.15 cfs @ 12.21 hrs, Volume= 2.560 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
7.665	66	
7.665		Pervious Area

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

Subcatchment s06-2:

Runoff = 47.62 cfs @ 12.22 hrs, Volume= 4.648 af, Depth= 3.56"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
15.682	62	
15.682		Pervious Area

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

Subcatchment s07-1:

Runoff = 16.83 cfs @ 12.21 hrs, Volume= 1.585 af, Depth= 4.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
4.614	67	
4.614		Pervious Area

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

Subcatchment s07-2:

Runoff = 20.41 cfs @ 12.18 hrs, Volume= 1.833 af, Depth= 3.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
5.997	63	
5.997		Pervious Area

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

Subcatchment s08-1:

Runoff = 25.19 cfs @ 12.39 hrs, Volume= 3.028 af, Depth= 3.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
10.900	60	
10.900		Pervious Area

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

Subcatchment s08-2:

Runoff = 11.40 cfs @ 12.20 hrs, Volume= 1.064 af, Depth= 3.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
3.832	60	
3.832		Pervious Area

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

Subcatchment s08-3:

Runoff = 5.20 cfs @ 12.04 hrs, Volume= 0.385 af, Depth= 7.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.595	98	
0.595		Impervious Area

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

Subcatchment s09-1:

Runoff = 23.98 cfs @ 12.13 hrs, Volume= 1.888 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
5.208	69	
5.208		Pervious Area

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

Subcatchment s09-2:

Runoff = 2.04 cfs @ 12.01 hrs, Volume= 0.137 af, Depth= 7.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.219	96	
0.219		Pervious Area

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

Subcatchment s10-1:

Runoff = 37.73 cfs @ 12.18 hrs, Volume= 3.356 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
9.021	70	
9.021		Pervious Area

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

Subcatchment s11-1:

Runoff = 131.16 cfs @ 12.08 hrs, Volume= 10.132 af, Depth= 7.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
17.262	92	
17.262		Pervious Area

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

Subcatchment s13-1:

Runoff = 1.09 cfs @ 12.03 hrs, Volume= 0.070 af, Depth= 2.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.300	55	
0.300		Pervious Area

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

Subcatchment s14-1:

Runoff = 71.23 cfs @ 12.14 hrs, Volume= 5.860 af, Depth= 5.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
12.768	79	
12.768		Pervious Area

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

Subcatchment s14-2:

Runoff = 56.84 cfs @ 12.06 hrs, Volume= 3.882 af, Depth= 6.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
7.643	84	
7.643		Pervious Area

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

Subcatchment s14-3:

Runoff = 8.77 cfs @ 12.03 hrs, Volume= 0.552 af, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
1.131	82	
1.131		Pervious Area

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

Subcatchment s16-1:

Runoff = 87.92 cfs @ 12.12 hrs, Volume= 7.078 af, Depth= 5.86"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
14.494	82	
14.494		Pervious Area

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

Subcatchment s16-2:

Runoff = 14.78 cfs @ 12.14 hrs, Volume= 1.203 af, Depth= 4.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
3.074	72	
3.074		Pervious Area

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

Subcatchment s16-3:

Runoff = 43.75 cfs @ 12.19 hrs, Volume= 4.006 af, Depth= 4.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
10.239	72	
10.239		Pervious Area

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

Subcatchment s16-4:

Runoff = 62.19 cfs @ 12.27 hrs, Volume= 6.726 af, Depth= 6.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
13.242	84	
13.242		Pervious Area

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

Subcatchment s16-5:

Runoff = 27.20 cfs @ 12.06 hrs, Volume= 1.823 af, Depth= 5.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
3.971	79	
3.971		Pervious Area

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

Subcatchment s16-6:

Runoff = 15.29 cfs @ 12.10 hrs, Volume= 1.125 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
3.105	69	
3.105		Pervious Area

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

Subcatchment s16-7:

Runoff = 59.12 cfs @ 12.19 hrs, Volume= 5.425 af, Depth= 4.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
15.797	67	
15.797		Pervious Area

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

Subcatchment s17-1:

Runoff = 12.78 cfs @ 12.09 hrs, Volume= 0.908 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
2.572	68	
2.572		Pervious Area

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

Subcatchment s17-2:

Runoff = 166.14 cfs @ 13.56 hrs, Volume= 45.019 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
124.201	69	
124.201		Pervious Area

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

Subcatchment s18-1:

Runoff = 7.15 cfs @ 12.02 hrs, Volume= 0.434 af, Depth= 5.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.908	81	
0.908		Pervious Area

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

Subcatchment s18-2:

Runoff = 26.82 cfs @ 12.10 hrs, Volume= 1.976 af, Depth= 4.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
4.931	73	
4.931		Pervious Area

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

Subcatchment s18-3:

Runoff = 31.61 cfs @ 12.04 hrs, Volume= 2.042 af, Depth= 5.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
4.448	79	
4.448		Pervious Area

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

Subcatchment s18-4:

Runoff = 105.44 cfs @ 12.04 hrs, Volume= 7.196 af, Depth= 6.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
12.689	90	
12.689		Pervious Area

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

Subcatchment s18-5:

Runoff = 18.86 cfs @ 12.09 hrs, Volume= 1.342 af, Depth= 4.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
3.349	73	
3.349		Pervious Area

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

Subcatchment s19-0:

Runoff = 29.12 cfs @ 12.58 hrs, Volume= 4.311 af, Depth= 3.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
15.520	60	
15.520		Pervious Area

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

Subcatchment s20-1:

Runoff = 47.03 cfs @ 12.13 hrs, Volume= 3.702 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
9.702	71	
9.702		Pervious Area

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

Subcatchment s20-2:

Runoff = 11.53 cfs @ 12.14 hrs, Volume= 0.939 af, Depth= 4.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
2.342	73	
2.342		Pervious Area

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

Subcatchment s20-3:

Runoff = 15.01 cfs @ 12.43 hrs, Volume= 1.887 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
5.071	70	
5.071		Pervious Area

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

Subcatchment s20-4:

Runoff = 8.11 cfs @ 12.12 hrs, Volume= 0.628 af, Depth= 3.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
2.261	60	
2.261		Pervious Area

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

Subcatchment s20-5:

Runoff = 10.82 cfs @ 12.09 hrs, Volume= 0.772 af, Depth= 3.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
2.451	64	
2.451		Pervious Area

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

Subcatchment s21-1:

Runoff = 308.02 cfs @ 12.18 hrs, Volume= 27.413 af, Depth= 4.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
68.392	73	
68.392		Pervious Area

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

Subcatchment s21-2:

Runoff = 34.87 cfs @ 12.07 hrs, Volume= 2.458 af, Depth= 5.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
4.934	83	
4.934		Pervious Area

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

Subcatchment s21-3:

Runoff = 34.87 cfs @ 12.08 hrs, Volume= 2.632 af, Depth= 6.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
4.724	89	
4.724		Pervious Area

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

Subcatchment s21-4:

Runoff = 4.75 cfs @ 12.03 hrs, Volume= 0.324 af, Depth= 7.28"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.534	94	
0.534		Pervious Area

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

Subcatchment s21-5:

Runoff = 2.72 cfs @ 12.03 hrs, Volume= 0.194 af, Depth= 7.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
0.300	98	
0.300		Impervious Area

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

Subcatchment s21-6:

Runoff = 73.34 cfs @ 12.15 hrs, Volume= 6.160 af, Depth= 4.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
15.746	72	
15.746		Pervious Area

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

Subcatchment s21-7:

Runoff = 15.54 cfs @ 12.48 hrs, Volume= 2.095 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
5.491	71	
5.491		Pervious Area

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

Subcatchment s22-1:

Runoff = 47.97 cfs @ 12.11 hrs, Volume= 3.656 af, Depth= 4.69"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
9.346	72	
9.346		Pervious Area

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

Subcatchment s22-2:

Runoff = 105.37 cfs @ 12.36 hrs, Volume= 12.435 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
33.425	70	
33.425		Pervious Area

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

Subcatchment s22-3:

Runoff = 21.81 cfs @ 12.10 hrs, Volume= 1.609 af, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
3.920	74	
3.920		Pervious Area

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

Subcatchment s23-1:

Runoff = 26.53 cfs @ 12.26 hrs, Volume= 2.735 af, Depth= 4.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
7.168	71	
7.168		Pervious Area

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

Subcatchment s23-2:

Runoff = 199.66 cfs @ 12.61 hrs, Volume= 30.339 af, Depth= 4.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
73.912	74	
73.912		Pervious Area

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

Subcatchment s24-0:

Runoff = 82.83 cfs @ 12.44 hrs, Volume= 10.538 af, Depth= 4.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
28.325	70	
28.325		Pervious Area

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

Subcatchment s25-1:

Runoff = 54.65 cfs @ 12.18 hrs, Volume= 4.862 af, Depth= 4.35"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
13.414	69	
13.414		Pervious Area

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

Subcatchment s26-0:

Runoff = 9.65 cfs @ 12.46 hrs, Volume= 1.279 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
5.306	56	
5.306		Pervious Area

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

Subcatchment s27-1:

Runoff = 65.94 cfs @ 12.65 hrs, Volume= 10.581 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
31.683	66	
31.683		Pervious Area

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

Subcatchment s28-1:

Runoff = 28.97 cfs @ 12.13 hrs, Volume= 2.298 af, Depth= 4.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.00"

Area (ac)	CN	Description
6.510	68	
6.510		Pervious Area

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

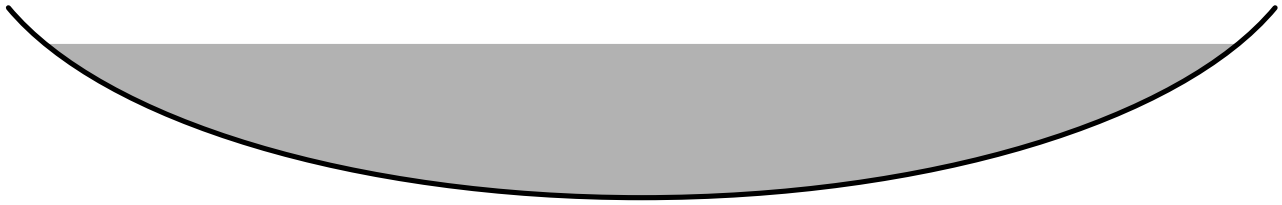
Reach 25R:

Inflow Area = 48.945 ac, Inflow Depth = 4.11" for 100-yr event
Inflow = 111.18 cfs @ 12.39 hrs, Volume= 16.746 af
Outflow = 110.58 cfs @ 12.41 hrs, Volume= 16.746 af, Atten= 1%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.56 fps, Min. Travel Time= 2.3 min
Avg. Velocity = 0.50 fps, Avg. Travel Time= 20.5 min

Peak Storage= 15,028 cf @ 12.41 hrs, Average Depth at Peak Storage= 0.81'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 175.17 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 620.0' Slope= 0.0774 '/'
Inlet Invert= 560.00', Outlet Invert= 512.00'



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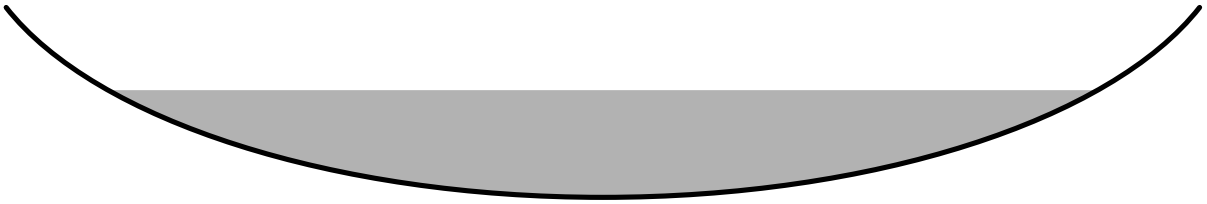
Reach r03-1:

Inflow Area = 11.485 ac, Inflow Depth = 4.24" for 100-yr event
Inflow = 27.15 cfs @ 12.60 hrs, Volume= 4.054 af
Outflow = 27.05 cfs @ 12.62 hrs, Volume= 4.054 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.39 fps, Min. Travel Time= 2.0 min
Avg. Velocity = 2.36 fps, Avg. Travel Time= 5.5 min

Peak Storage= 3,324 cf @ 12.62 hrs, Average Depth at Peak Storage= 0.85'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 92.14 cfs

10.00' x 1.50' deep Parabolic Channel, n= 0.060
Length= 785.0' Slope= 0.1490 '/'
Inlet Invert= 845.00', Outlet Invert= 728.00'



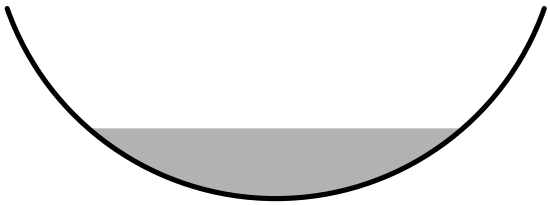
Reach r04-1:

Inflow Area = 26.401 ac, Inflow Depth = 4.54" for 100-yr event
Inflow = 66.58 cfs @ 12.26 hrs, Volume= 9.997 af
Outflow = 66.53 cfs @ 12.27 hrs, Volume= 9.997 af, Atten= 0%, Lag= 0.5 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.26 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.39 fps, Avg. Travel Time= 4.0 min

Peak Storage= 2,371 cf @ 12.27 hrs, Average Depth at Peak Storage= 1.48'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 530.15 cfs

12.00' x 4.00' deep Parabolic Channel, n= 0.060
Length= 330.0' Slope= 0.1621 '/'
Inlet Invert= 685.50', Outlet Invert= 632.00'



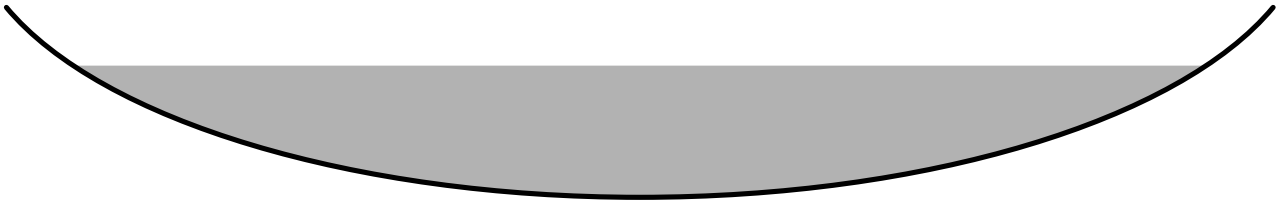
Reach r08-1a:

Inflow Area = 97.969 ac, Inflow Depth = 2.52" for 100-yr event
Inflow = 37.10 cfs @ 12.87 hrs, Volume= 20.550 af
Outflow = 37.10 cfs @ 12.87 hrs, Volume= 20.550 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.66 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 5.04 fps, Avg. Travel Time= 0.7 min

Peak Storage= 868 cf @ 12.87 hrs, Average Depth at Peak Storage= 0.69'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 81.88 cfs

10.00' x 1.00' deep Parabolic Channel, n= 0.027
Length= 226.0' Slope= 0.0885 '/'
Inlet Invert= 607.00', Outlet Invert= 587.00'



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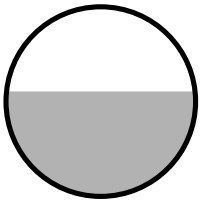
Reach r08-1b:

Inflow Area = 103.275 ac, Inflow Depth = 2.54" for 100-yr event
Inflow = 45.57 cfs @ 12.51 hrs, Volume= 21.829 af
Outflow = 45.57 cfs @ 12.51 hrs, Volume= 21.829 af, Atten= 0%, Lag= 0.2 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 25.58 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 13.35 fps, Avg. Travel Time= 0.4 min

Peak Storage= 526 cf @ 12.51 hrs, Average Depth at Peak Storage= 1.11'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 77.17 cfs

24.0" Diameter Pipe, n= 0.012
Length= 295.0' Slope= 0.0992 '/'
Inlet Invert= 587.00', Outlet Invert= 557.75'



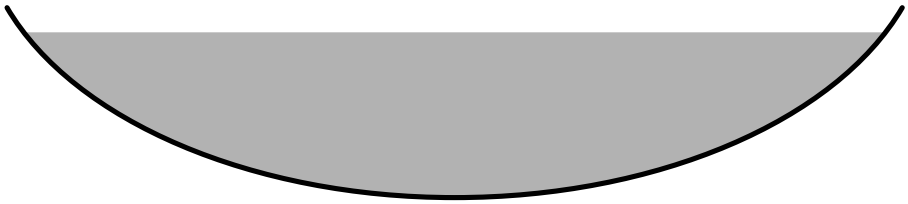
Reach r08-1c:

Inflow Area = 103.275 ac, Inflow Depth = 3.99" for 100-yr event
Inflow = 172.96 cfs @ 12.82 hrs, Volume= 34.373 af
Outflow = 172.94 cfs @ 12.84 hrs, Volume= 34.373 af, Atten= 0%, Lag= 1.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 16.00 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 5.62 fps, Avg. Travel Time= 1.8 min

Peak Storage= 6,376 cf @ 12.84 hrs, Average Depth at Peak Storage= 1.74'
Bank-Full Depth= 2.00', Capacity at Bank-Full= 232.56 cfs

10.00' x 2.00' deep Parabolic Channel, n= 0.027
Length= 590.0' Slope= 0.0775 '/'
Inlet Invert= 557.75', Outlet Invert= 512.00'



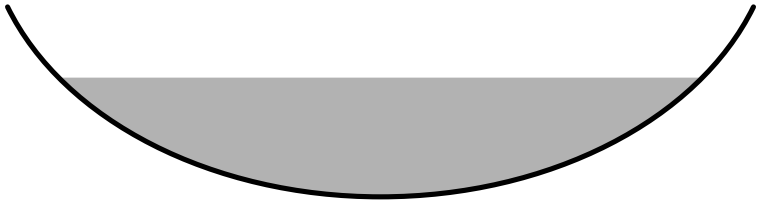
Reach r08-1d: Amenia Creek/Cascade Brook

Inflow Area = 107.107 ac, Inflow Depth > 78.05" for 100-yr event
Inflow = 213.88 cfs @ 12.87 hrs, Volume= 696.627 af, Incl. 40.00 cfs Base Flow
Outflow = 213.52 cfs @ 12.89 hrs, Volume= 696.345 af, Atten= 0%, Lag= 1.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.30 fps, Min. Travel Time= 3.1 min
Avg. Velocity = 2.65 fps, Avg. Travel Time= 5.1 min

Peak Storage= 39,938 cf @ 12.89 hrs, Average Depth at Peak Storage= 3.76'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 571.01 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 805.0' Slope= 0.0099 '/'
Inlet Invert= 512.00', Outlet Invert= 504.00'



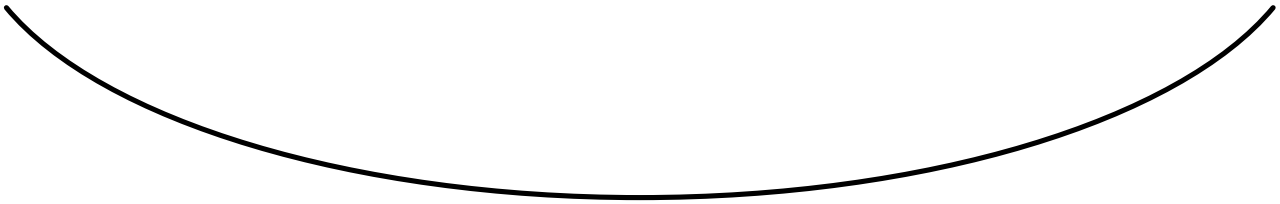
Reach r18-2:

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs, Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 434.91 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 720.0' Slope= 0.4772 '/'
Inlet Invert= 973.60', Outlet Invert= 630.00'



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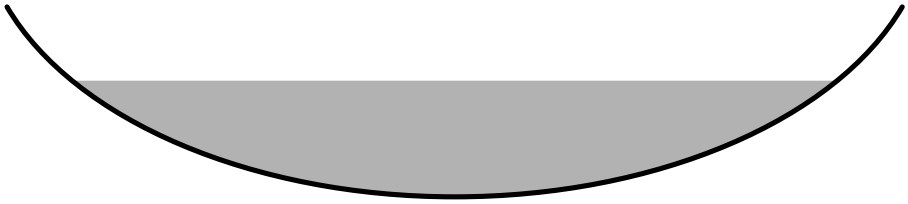
Reach r21-1a:

Inflow Area = 253.658 ac, Inflow Depth > 4.45" for 100-yr event
Inflow = 231.89 cfs @ 13.72 hrs, Volume= 94.150 af
Outflow = 231.86 cfs @ 13.73 hrs, Volume= 94.147 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.10 fps, Min. Travel Time= 1.2 min
Avg. Velocity = 2.00 fps, Avg. Travel Time= 5.4 min

Peak Storage= 16,514 cf @ 13.73 hrs, Average Depth at Peak Storage= 2.44'
Bank-Full Depth= 4.00', Capacity at Bank-Full= 658.74 cfs

20.00' x 4.00' deep Parabolic Channel, n= 0.027
Length= 648.0' Slope= 0.0154 '/'
Inlet Invert= 504.00', Outlet Invert= 494.00'



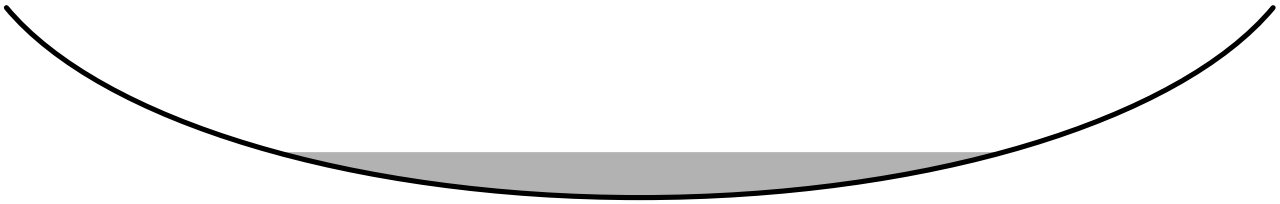
Reach r22-2:

Inflow Area = 15.520 ac, Inflow Depth = 3.33" for 100-yr event
Inflow = 20.93 cfs @ 12.89 hrs, Volume= 4.311 af
Outflow = 20.90 cfs @ 12.92 hrs, Volume= 4.311 af, Atten= 0%, Lag= 1.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.41 fps, Min. Travel Time= 1.9 min
Avg. Velocity = 1.03 fps, Avg. Travel Time= 10.2 min

Peak Storage= 2,435 cf @ 12.92 hrs, Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 469.25 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.060
Length= 630.0' Slope= 0.5556 '/'
Inlet Invert= 970.00', Outlet Invert= 620.00'



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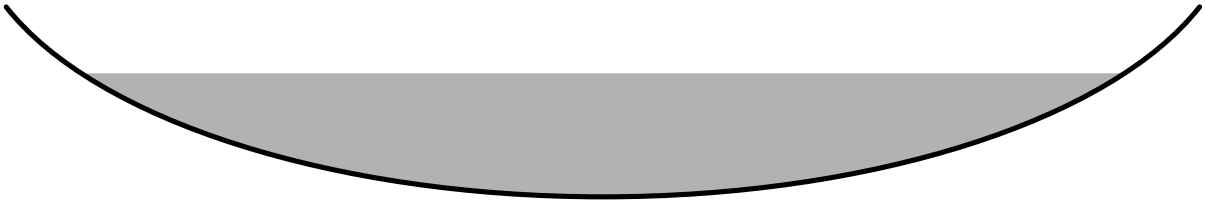
Reach r25-1b: Wetland Reach

Inflow Area = 23.347 ac, Inflow Depth = 3.69" for 100-yr event
Inflow = 65.66 cfs @ 12.32 hrs, Volume= 7.185 af
Outflow = 62.18 cfs @ 12.39 hrs, Volume= 7.185 af, Atten= 5%, Lag= 4.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.97 fps, Min. Travel Time= 4.2 min
Avg. Velocity = 0.33 fps, Avg. Travel Time= 37.9 min

Peak Storage= 15,698 cf @ 12.39 hrs, Average Depth at Peak Storage= 1.95'
Bank-Full Depth= 3.00', Capacity at Bank-Full= 156.51 cfs

20.00' x 3.00' deep Parabolic Channel, n= 0.045
Length= 750.0' Slope= 0.0060 '/'
Inlet Invert= 504.00', Outlet Invert= 499.50'



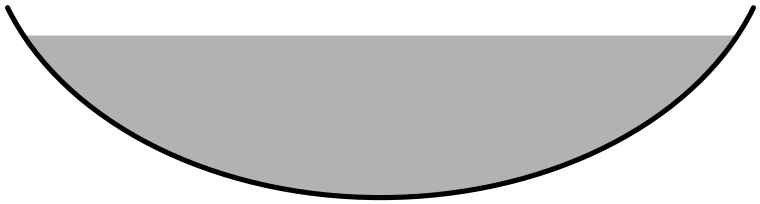
Reach r25-1c: Amenia Creek/Cascade Brook

Inflow Area = 118.007 ac, Inflow Depth >138.35" for 100-yr event
Inflow = 263.64 cfs @ 12.85 hrs, Volume= 1,360.563 af, Incl. 40.00 cfs Base Flow
Outflow = 262.48 cfs @ 12.91 hrs, Volume= 1,359.805 af, Atten= 0%, Lag= 3.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.33 fps, Min. Travel Time= 4.9 min
Avg. Velocity = 2.38 fps, Avg. Travel Time= 6.8 min

Peak Storage= 76,738 cf @ 12.91 hrs, Average Depth at Peak Storage= 5.11'
Bank-Full Depth= 6.00', Capacity at Bank-Full= 366.88 cfs

25.00' x 6.00' deep Parabolic Channel, n= 0.060
Length= 975.0' Slope= 0.0041 '/'
Inlet Invert= 504.00', Outlet Invert= 500.00'



Pond p03-3: Underground Detention

Inflow Area = 0.947 ac, Inflow Depth = 7.52" for 100-yr event
Inflow = 8.80 cfs @ 12.01 hrs, Volume= 0.594 af
Outflow = 2.53 cfs @ 12.27 hrs, Volume= 0.594 af, Atten= 71%, Lag= 15.5 min
Primary = 2.53 cfs @ 12.27 hrs, Volume= 0.594 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 805.95' @ 12.27 hrs Surf.Area= 522 sf Storage= 14,121 cf

Plug-Flow detention time= 1,518.3 min calculated for 0.593 af (100% of inflow)
Center-of-Mass det. time= 1,518.6 min (2,266.3 - 747.7)

Volume	Invert	Avail.Storage	Storage Description
#1	800.00'	14,137 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 5

Device	Routing	Invert	Outlet Devices
#1	Primary	800.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	805.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.53 cfs @ 12.27 hrs HW=805.95' TW=723.91' (Dynamic Tailwater)
└**1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 11.71 fps)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 2.46 cfs @ 3.19 fps)

Pond p05-2:

Inflow Area = 46.967 ac, Inflow Depth = 4.42" for 100-yr event
Inflow = 140.94 cfs @ 12.20 hrs, Volume= 17.309 af
Outflow = 132.43 cfs @ 12.28 hrs, Volume= 17.309 af, Atten= 6%, Lag= 4.4 min
Primary = 132.43 cfs @ 12.28 hrs, Volume= 17.309 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 584.00' Surf.Area= 39,691 sf Storage= 193,237 cf
Peak Elev= 585.62' @ 12.28 hrs Surf.Area= 53,390 sf Storage= 264,613 cf (71,376 cf above start)
Flood Elev= 585.00' Surf.Area= 43,480 sf Storage= 234,808 cf (41,571 cf above start)

Plug-Flow detention time= 234.3 min calculated for 12.872 af (74% of inflow)
Center-of-Mass det. time= 29.0 min (920.4 - 891.4)

Volume	Invert	Avail.Storage	Storage Description
#1	577.00'	286,360 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)
577.00	16,551	0	0	16,551
579.00	22,509	38,908	38,908	22,590
581.00	29,072	51,441	90,349	29,251
583.00	36,074	65,020	155,369	36,369
585.00	43,480	79,439	234,808	43,908
586.00	60,070	51,552	286,360	60,518

Device	Routing	Invert	Outlet Devices
#1	Primary	584.00'	**10.0' long x 25.0' 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	Primary	585.00'	**60.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=132.40 cfs @ 12.28 hrs HW=585.62' TW=574.41' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 54.04 cfs @ 3.34 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 78.36 cfs @ 2.12 fps)

Pond p06-1:

Inflow Area = 23.347 ac, Inflow Depth = 3.70" for 100-yr event
Inflow = 73.43 cfs @ 12.24 hrs, Volume= 7.208 af
Outflow = 65.66 cfs @ 12.32 hrs, Volume= 7.185 af, Atten= 11%, Lag= 4.9 min
Primary = 65.66 cfs @ 12.32 hrs, Volume= 7.185 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 506.80' Surf.Area= 41,229 sf Storage= 93,452 cf
Peak Elev= 507.83' @ 12.32 hrs Surf.Area= 50,165 sf Storage= 141,052 cf (47,599 cf above start)
Flood Elev= 507.10' Surf.Area= 43,840 sf Storage= 107,358 cf (13,906 cf above start)

Plug-Flow detention time= 396.6 min calculated for 5.040 af (70% of inflow)
Center-of-Mass det. time= 145.7 min (1,033.9 - 888.2)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	149,075 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
506.80	41,229	93,452	93,452	41,302
508.00	51,671	55,622	149,075	51,784

Device	Routing	Invert	Outlet Devices
#1	Primary	506.80'	**12.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 506.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Primary	507.10'	**178.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=65.64 cfs @ 12.32 hrs HW=507.83' TW=505.87' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.17 cfs @ 2.76 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 63.47 cfs @ 2.10 fps)

Pond p06-2: Underground Detention

Inflow Area = 15.682 ac, Inflow Depth = 3.56" for 100-yr event
Inflow = 47.62 cfs @ 12.22 hrs, Volume= 4.648 af
Outflow = 47.05 cfs @ 12.25 hrs, Volume= 4.648 af, Atten= 1%, Lag= 1.7 min
Primary = 47.05 cfs @ 12.25 hrs, Volume= 4.648 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 523.86' @ 12.25 hrs Surf.Area= 2,373 sf Storage= 19,879 cf
Flood Elev= 528.00' Surf.Area= 0 sf Storage= 20,106 cf

Plug-Flow detention time= 62.8 min calculated for 4.647 af (100% of inflow)
Center-of-Mass det. time= 62.9 min (913.9 - 851.0)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	20,106 cf	**48.0"D x 100.00'L Horizontal Cylinder** x 16

Device	Routing	Invert	Outlet Devices
#1	Primary	520.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	522.00'	**6.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=47.03 cfs @ 12.25 hrs HW=523.86' TW=507.79' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.46 cfs @ 9.30 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 46.58 cfs @ 4.46 fps)

Pond p07-1:

Inflow Area = 61.918 ac, Inflow Depth = 4.27" for 100-yr event
Inflow = 176.43 cfs @ 12.24 hrs, Volume= 22.013 af
Outflow = 175.33 cfs @ 12.27 hrs, Volume= 22.004 af, Atten= 1%, Lag= 1.4 min
Primary = 22.10 cfs @ 12.27 hrs, Volume= 7.966 af
Secondary = 153.23 cfs @ 12.27 hrs, Volume= 14.038 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 572.80' Surf.Area= 21,640 sf Storage= 56,264 cf
Peak Elev= 574.41' @ 12.27 hrs Surf.Area= 28,888 sf Storage= 98,215 cf (41,951 cf above start)
Flood Elev= 573.50' Surf.Area= 24,936 sf Storage= 73,351 cf (17,087 cf above start)

Plug-Flow detention time= 116.1 min calculated for 20.711 af (94% of inflow)
Center-of-Mass det. time= 33.6 min (937.5 - 903.9)

Volume	Invert	Avail.Storage	Storage Description
#1	565.00'	147,831 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
565.00	0	0	0	0
572.80	21,640	56,264	56,264	21,735
574.00	27,290	29,293	85,557	27,424
576.00	35,150	62,274	147,831	35,383

Device	Routing	Invert	Outlet Devices
#1	Secondary	572.80'	**18.0" x 20.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 572.00' S= 0.0400 '/' Cc= 0.900 n= 0.024
#2	Secondary	573.50'	**177.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46
#3	Primary	573.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=22.10 cfs @ 12.27 hrs HW=574.41' TW=572.18' (Dynamic Tailwater)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 22.10 cfs @ 3.14 fps)

Secondary OutFlow Max=153.20 cfs @ 12.27 hrs HW=574.41' TW=0.00' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 6.22 cfs @ 3.52 fps)
└─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 146.99 cfs @ 2.34 fps)

Pond p08-2:

Inflow Area = 3.832 ac, Inflow Depth = 3.33" for 100-yr event
Inflow = 11.40 cfs @ 12.20 hrs, Volume= 1.064 af
Outflow = 1.26 cfs @ 13.73 hrs, Volume= 1.064 af, Atten= 89%, Lag= 91.9 min
Primary = 1.26 cfs @ 13.73 hrs, Volume= 1.064 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 527.50' Surf.Area= 3,950 sf Storage= 5,322 cf
Peak Elev= 530.44' @ 13.73 hrs Surf.Area= 10,139 sf Storage= 29,214 cf (23,892 cf above start)
Flood Elev= 531.00' Surf.Area= 10,855 sf Storage= 35,135 cf (29,813 cf above start)

Plug-Flow detention time= 692.9 min calculated for 0.942 af (88% of inflow)
Center-of-Mass det. time= 557.1 min (1,410.7 - 853.6)

Volume	Invert	Avail.Storage	Storage Description
#1	523.00'	46,638 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)
523.00	156	0	0	156
524.00	435	284	284	441
525.00	816	616	899	832
526.00	1,291	1,044	1,944	1,321
526.50	1,563	712	2,656	1,601
527.50	3,950	2,666	5,322	3,995
528.00	7,267	2,762	8,085	7,314
529.00	8,407	7,830	15,915	8,497
530.00	9,602	8,998	24,913	9,738
531.00	10,855	10,222	35,135	11,041
532.00	12,164	11,503	46,638	12,404

Device	Routing	Invert	Outlet Devices
#1	Primary	527.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	530.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=1.26 cfs @ 13.73 hrs HW=530.44' TW=514.84' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.40 cfs @ 8.07 fps)
- **2=Sharp-Crested Rectangular Weir** (Weir Controls 0.86 cfs @ 2.16 fps)

Pond p08-3: Underground Detention

Inflow Area = 0.595 ac, Inflow Depth = 7.76" for 100-yr event
Inflow = 5.20 cfs @ 12.04 hrs, Volume= 0.385 af
Outflow = 2.02 cfs @ 12.21 hrs, Volume= 0.385 af, Atten= 61%, Lag= 9.8 min
Primary = 2.02 cfs @ 12.21 hrs, Volume= 0.385 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 605.80' @ 12.21 hrs Surf.Area= 652 sf Storage= 8,393 cf

Plug-Flow detention time= 978.3 min calculated for 0.385 af (100% of inflow)
Center-of-Mass det. time= 978.6 min (1,717.0 - 738.4)

Volume	Invert	Avail.Storage	Storage Description
#1	600.00'	8,482 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 3

Device	Routing	Invert	Outlet Devices
#1	Primary	600.00'	**1.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	605.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=2.02 cfs @ 12.21 hrs HW=605.80' TW=0.00' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.06 cfs @ 11.55 fps)
- **2=Sharp-Crested Rectangular Weir** (Weir Controls 1.95 cfs @ 2.92 fps)

Pond p09-1:

Inflow Area = 67.345 ac, Inflow Depth = 1.77" for 100-yr event
Inflow = 43.15 cfs @ 12.15 hrs, Volume= 9.926 af
Outflow = 41.43 cfs @ 12.20 hrs, Volume= 9.659 af, Atten= 4%, Lag= 2.9 min
Primary = 41.43 cfs @ 12.20 hrs, Volume= 9.659 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 558.29' @ 12.20 hrs Surf.Area= 28,395 sf Storage= 31,941 cf
Flood Elev= 558.00' Surf.Area= 25,588 sf Storage= 24,042 cf

Plug-Flow detention time= 53.1 min calculated for 9.659 af (97% of inflow)
Center-of-Mass det. time= 36.8 min (984.4 - 947.6)

Volume	Invert	Avail.Storage	Storage Description
#1	557.00'	96,165 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)
557.00	22,529	0	0	22,529
558.00	25,588	24,042	24,042	25,637
560.00	47,670	72,122	96,165	47,760

Device	Routing	Invert	Outlet Devices
#1	Primary	557.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	558.00'	**80.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=41.42 cfs @ 12.20 hrs HW=558.29' TW=538.20' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 9.46 cfs @ 2.39 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 31.96 cfs @ 1.36 fps)

Pond p09-2:

Inflow Area = 62.137 ac, Inflow Depth = 1.56" for 100-yr event
Inflow = 22.70 cfs @ 12.26 hrs, Volume= 8.104 af
Outflow = 22.68 cfs @ 12.27 hrs, Volume= 8.038 af, Atten= 0%, Lag= 0.7 min
Primary = 22.68 cfs @ 12.27 hrs, Volume= 8.038 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 572.18' @ 12.27 hrs Surf.Area= 5,279 sf Storage= 6,413 cf
Flood Elev= 572.00' Surf.Area= 5,086 sf Storage= 5,483 cf

Plug-Flow detention time= 15.1 min calculated for 8.038 af (99% of inflow)
Center-of-Mass det. time= 10.0 min (975.3 - 965.3)

Volume	Invert	Avail.Storage	Storage Description
#1	571.00'	17,934 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)
571.00	5,889	0	0	5,889
572.00	5,086	5,483	5,483	6,734
574.00	7,440	12,452	17,934	9,153

Device	Routing	Invert	Outlet Devices
#1	Primary	571.50'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	572.00'	**80.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=22.68 cfs @ 12.27 hrs HW=572.18' TW=558.28' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 7.54 cfs @ 2.22 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 15.14 cfs @ 1.05 fps)

Pond p10-1:

Inflow Area = 98.208 ac, Inflow Depth = 1.66" for 100-yr event
Inflow = 78.19 cfs @ 12.22 hrs, Volume= 13.597 af
Outflow = 4.41 cfs @ 23.46 hrs, Volume= 1.904 af, Atten= 94%, Lag= 674.8 min
Primary = 4.41 cfs @ 23.46 hrs, Volume= 1.904 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 498.40' Surf.Area= 49,539 sf Storage= 138,709 cf
Peak Elev= 506.14' @ 23.46 hrs Surf.Area= 97,878 sf Storage= 663,411 cf (524,702 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= 579.0 min (1,541.4 - 962.4)

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	874,719 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
498.40	49,539	138,709	138,709	49,650
500.00	53,826	82,668	221,377	54,126
502.00	61,486	115,227	336,605	61,973
504.00	77,594	138,768	475,373	78,189
506.00	95,372	172,661	648,033	96,088
508.00	132,320	226,686	874,719	133,113

Device	Routing	Invert	Outlet Devices
#1	Primary	506.00'	**Custom Weir/Orifice, C= 3.00** Head (feet) 0.00 2.00 Width (feet) 20.00 150.00

Primary OutFlow Max=4.41 cfs @ 23.46 hrs HW=506.14' TW=0.00' (Dynamic Tailwater)
└─**1=Custom Weir/Orifice** (Weir Controls 4.41 cfs @ 1.33 fps)

Pond p11-1: Underground Detention

Inflow Area = 17.262 ac, Inflow Depth = 7.04" for 100-yr event
Inflow = 131.16 cfs @ 12.08 hrs, Volume= 10.132 af
Outflow = 53.14 cfs @ 12.29 hrs, Volume= 10.116 af, Atten= 59%, Lag= 12.6 min
Primary = 53.14 cfs @ 12.29 hrs, Volume= 10.116 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 529.90' @ 12.29 hrs Surf.Area= 12,374 sf Storage= 225,355 cf

Plug-Flow detention time= 1,972.1 min calculated for 10.116 af (100% of inflow)
Center-of-Mass det. time= 1,971.1 min (2,740.2 - 769.1)

Volume	Invert	Avail.Storage	Storage Description
#1	524.00'	226,195 cf	**72.0"D x 100.00'L Horizontal Cylinder** x 80

Device	Routing	Invert	Outlet Devices
#1	Primary	524.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	528.50'	**10.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=53.12 cfs @ 12.29 hrs HW=529.90' TW=509.73' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.57 cfs @ 11.57 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 52.55 cfs @ 3.87 fps)

Pond p13-1:

Inflow Area = 0.300 ac, Inflow Depth = 2.78" for 100-yr event
Inflow = 1.09 cfs @ 12.03 hrs, Volume= 0.070 af
Outflow = 0.02 cfs @ 18.68 hrs, Volume= 0.012 af, Atten= 98%, Lag= 398.9 min
Primary = 0.02 cfs @ 18.68 hrs, Volume= 0.012 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 519.54' @ 18.68 hrs Surf.Area= 1,883 sf Storage= 2,584 cf
Flood Elev= 527.00' Surf.Area= 10,067 sf Storage= 40,862 cf

Plug-Flow detention time= 596.5 min calculated for 0.012 af (17% of inflow)
Center-of-Mass det. time= 449.7 min (1,303.6 - 854.0)

Volume	Invert	Avail.Storage	Storage Description
#1	518.00'	50,891 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
518.00	1,331	0	0	1,331
520.00	2,048	3,353	3,353	2,104
522.00	2,912	4,935	8,288	3,037
522.50	3,150	1,515	9,803	3,294
524.00	5,894	6,676	16,480	6,061
526.00	8,542	14,354	30,834	8,776
528.00	11,592	20,057	50,891	11,908

Device	Routing	Invert	Outlet Devices
#1	Primary	519.50'	**176.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=0.02 cfs @ 18.68 hrs HW=519.54' TW=503.61' (Dynamic Tailwater)
└**1=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.02 cfs @ 0.50 fps)

Pond p14-1:

Inflow Area = 20.711 ac, Inflow Depth = 5.65" for 100-yr event
Inflow = 115.65 cfs @ 12.09 hrs, Volume= 9.754 af
Outflow = 0.78 cfs @ 13.23 hrs, Volume= 0.030 af, Atten= 99%, Lag= 68.4 min
Primary = 0.78 cfs @ 13.23 hrs, Volume= 0.030 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 497.40' Surf.Area= 44,199 sf Storage= 109,024 cf
Peak Elev= 504.06' @ 200.00 hrs Surf.Area= 83,894 sf Storage= 532,631 cf (423,607 cf above start)

Plug-Flow detention time= (not calculated: initial storage excedes outflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	490.00'	899,480 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
490.00	0	0	0	0
497.40	44,199	109,024	109,024	44,285
498.00	45,919	27,034	136,058	46,063
500.00	58,406	104,075	240,133	58,654
502.00	72,976	131,112	371,245	73,337
504.00	83,672	156,526	527,771	84,215
506.00	91,692	175,303	703,074	92,505
508.00	104,861	196,406	899,480	105,860

Device	Routing	Invert	Outlet Devices
#1	Primary	500.00'	**24.0" x 80.0' long Culvert** CPP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 502.00' S= -0.0250 '/' Cc= 0.900 n= 0.012

Primary OutFlow Max=0.76 cfs @ 13.23 hrs HW=502.36' TW=502.20' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.76 cfs @ 1.94 fps)

Pond p14-3:

Inflow Area = 68.476 ac, Inflow Depth = 1.79" for 100-yr event
Inflow = 44.81 cfs @ 12.19 hrs, Volume= 10.211 af
Outflow = 43.06 cfs @ 12.25 hrs, Volume= 10.211 af, Atten= 4%, Lag= 3.6 min
Primary = 43.06 cfs @ 12.25 hrs, Volume= 10.211 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 538.22' @ 12.25 hrs Surf.Area= 25,047 sf Storage= 28,124 cf
Flood Elev= 538.00' Surf.Area= 24,510 sf Storage= 22,749 cf

Plug-Flow detention time= 32.0 min calculated for 10.211 af (100% of inflow)
Center-of-Mass det. time= 31.9 min (1,006.0 - 974.1)

Volume	Invert	Avail.Storage	Storage Description
#1	537.00'	76,857 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)
537.00	21,033	0	0	21,033
538.00	24,510	22,749	22,749	24,551
540.00	29,680	54,108	76,857	29,851

Device	Routing	Invert	Outlet Devices
#1	Primary	537.00'	**5.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	538.00'	**100.0' long x 10.0' 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) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=43.05 cfs @ 12.25 hrs HW=538.22' TW=499.90' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 17.85 cfs @ 2.93 fps)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 25.20 cfs @ 1.16 fps)

Pond p16-1:

Inflow Area = 234.282 ac, Inflow Depth = 4.94" for 100-yr event
Inflow = 350.43 cfs @ 12.19 hrs, Volume= 96.412 af
Outflow = 225.34 cfs @ 13.64 hrs, Volume= 87.156 af, Atten= 36%, Lag= 87.3 min
Primary = 225.34 cfs @ 13.64 hrs, Volume= 87.156 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 507.00' Surf.Area= 199,799 sf Storage= 878,320 cf
Peak Elev= 511.80' @ 13.64 hrs Surf.Area= 328,990 sf Storage= 2,002,581 cf (1,124,262 cf above start)
Flood Elev= 510.50' Surf.Area= 271,550 sf Storage= 1,623,217 cf (744,897 cf above start)

Plug-Flow detention time= 1,005.6 min calculated for 66.993 af (69% of inflow)
Center-of-Mass det. time= 390.5 min (1,581.4 - 1,190.9)

Volume	Invert	Avail.Storage	Storage Description
#1	500.00'	2,062,087 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
500.00	0	0	0	0
503.00	140,344	140,344	140,344	140,358
509.20	232,500	1,143,862	1,284,206	232,994
510.00	249,400	192,720	1,476,927	249,951
512.00	338,000	585,160	2,062,087	338,634

Device	Routing	Invert	Outlet Devices
#1	Primary	509.00'	**18.0" x 110.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 505.70' S= 0.0300 '/' Cc= 0.900 n= 0.024
#2	Primary	500.00'	**8.0" x 100.0' long assumed equalization pipe w/ valve X 0.00** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 500.00' S= 0.0000 '/' Cc= 0.900 n= 0.013
#3	Primary	510.50'	**175.0 deg Sharp-Crested Vee/Trap Weir X 2.00** C= 2.46

Primary OutFlow Max=225.33 cfs @ 13.64 hrs HW=511.80' TW=506.77' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 9.61 cfs @ 5.44 fps)
- **2=assumed equalization pipe w/ valve** (Controls 0.00 cfs)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 215.72 cfs @ 2.80 fps)

Pond p16-4:

Inflow Area = 13.242 ac, Inflow Depth = 6.10" for 100-yr event
Inflow = 62.19 cfs @ 12.27 hrs, Volume= 6.726 af
Outflow = 38.20 cfs @ 12.52 hrs, Volume= 6.725 af, Atten= 39%, Lag= 15.4 min
Primary = 38.20 cfs @ 12.52 hrs, Volume= 6.725 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 512.00' Surf.Area= 8,089 sf Storage= 14,361 cf
Peak Elev= 518.81' @ 12.52 hrs Surf.Area= 23,419 sf Storage= 118,647 cf (104,287 cf above start)
Flood Elev= 519.00' Surf.Area= 23,907 sf Storage= 123,088 cf (108,727 cf above start)

Plug-Flow detention time= 409.1 min calculated for 6.395 af (95% of inflow)
Center-of-Mass det. time= 356.9 min (1,163.0 - 806.1)

Volume	Invert	Avail.Storage	Storage Description
#1	504.50'	148,324 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)
504.50	34	0	0	34
506.00	293	213	213	300
508.00	1,136	1,337	1,551	1,162
510.00	2,508	3,555	5,105	2,566
510.50	2,890	1,348	6,454	2,959
512.00	8,089	7,907	14,361	8,172
514.00	11,952	19,916	34,276	12,099
516.00	16,547	28,375	62,651	16,771
518.00	21,367	37,811	100,463	21,688
520.00	26,589	47,861	148,324	27,024

Device	Routing	Invert	Outlet Devices
#1	Primary	512.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	516.00'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=38.20 cfs @ 12.52 hrs HW=518.81' TW=510.58' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.61 cfs @ 12.45 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 37.59 cfs @ 5.48 fps)

Pond p16-5:

Inflow Area = 3.971 ac, Inflow Depth = 5.51" for 100-yr event
Inflow = 27.20 cfs @ 12.06 hrs, Volume= 1.823 af
Outflow = 0.53 cfs @ 17.69 hrs, Volume= 1.822 af, Atten= 98%, Lag= 337.9 min
Primary = 0.53 cfs @ 17.69 hrs, Volume= 1.822 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 534.00' Surf.Area= 7,168 sf Storage= 14,550 cf
Peak Elev= 539.10' @ 17.69 hrs Surf.Area= 16,316 sf Storage= 73,196 cf (58,646 cf above start)
Flood Elev= 541.00' Surf.Area= 20,427 sf Storage= 108,016 cf (93,466 cf above start)

Plug-Flow detention time= 1,650.9 min calculated for 1.488 af (82% of inflow)
Center-of-Mass det. time= 1,304.9 min (2,108.2 - 803.4)

Volume	Invert	Avail.Storage	Storage Description
#1	528.00'	129,594 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)
528.00	447	0	0	447
530.00	1,292	1,666	1,666	1,316
532.00	2,598	3,815	5,481	2,658
532.50	3,239	1,456	6,937	3,306
534.00	7,168	7,613	14,550	7,253
536.00	10,404	17,472	32,022	10,556
538.00	14,112	24,422	56,444	14,345
540.00	18,230	32,254	88,698	18,561
542.00	22,750	40,897	129,594	23,193

Device	Routing	Invert	Outlet Devices
#1	Primary	534.00'	**3.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.53 cfs @ 17.69 hrs HW=539.10' TW=511.17' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.53 cfs @ 10.74 fps)

Pond p17-1:

Inflow Area = 126.773 ac, Inflow Depth = 4.35" for 100-yr event
Inflow = 167.13 cfs @ 13.56 hrs, Volume= 45.927 af
Outflow = 167.09 cfs @ 13.56 hrs, Volume= 45.927 af, Atten= 0%, Lag= 0.2 min
Primary = 167.09 cfs @ 13.56 hrs, Volume= 45.927 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 523.80' Surf.Area= 7,290 sf Storage= 9,234 cf
Peak Elev= 525.80' @ 13.56 hrs Surf.Area= 11,950 sf Storage= 28,295 cf (19,061 cf above start)
Flood Elev= 524.30' Surf.Area= 8,074 sf Storage= 13,623 cf (4,389 cf above start)

Plug-Flow detention time= 10.6 min calculated for 45.713 af (100% of inflow)
Center-of-Mass det. time= 6.2 min (929.7 - 923.5)

Volume	Invert	Avail.Storage	Storage Description
#1	520.00'	30,224 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
520.00	0	0	0	0
523.80	7,290	9,234	9,234	7,313
524.00	7,300	1,459	10,693	7,374
526.00	12,460	19,531	30,224	12,581

Device	Routing	Invert	Outlet Devices
#1	Primary	523.80'	**2.2' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	524.30'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	525.20'	**178.0 deg x 60.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=167.08 cfs @ 13.56 hrs HW=525.80' TW=516.51' (Dynamic Tailwater)
├─**1=Broad-Crested Rectangular Weir** (Weir Controls 20.70 cfs @ 4.70 fps)
├─**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 20.42 cfs @ 3.03 fps)
└─**3=Sharp-Crested Vee/Trap Weir** (Weir Controls 125.96 cfs @ 2.21 fps)

Pond p18-1:

Inflow Area = 5.356 ac, Inflow Depth = 5.55" for 100-yr event
Inflow = 37.92 cfs @ 12.04 hrs, Volume= 2.476 af
Outflow = 5.15 cfs @ 12.53 hrs, Volume= 2.475 af, Atten= 86%, Lag= 29.2 min
Primary = 5.15 cfs @ 12.53 hrs, Volume= 2.475 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Starting Elev= 515.50' Surf.Area= 8,701 sf Storage= 8,455 cf
Peak Elev= 518.68' @ 12.53 hrs Surf.Area= 21,383 sf Storage= 63,733 cf (55,278 cf above start)
Flood Elev= 519.00' Surf.Area= 22,111 sf Storage= 70,643 cf (62,188 cf above start)

Plug-Flow detention time= 557.1 min calculated for 2.280 af (92% of inflow)
Center-of-Mass det. time= 469.4 min (1,270.7 - 801.3)

Volume	Invert	Avail.Storage	Storage Description
#1	512.00'	93,928 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)
512.00	422	0	0	422
514.00	1,472	1,788	1,788	1,493
514.50	2,962	1,087	2,875	2,985
515.50	8,701	5,580	8,455	8,730
516.00	15,477	5,964	14,419	15,509
518.00	19,862	35,248	49,667	19,993
520.00	24,480	44,262	93,928	24,730

Device	Routing	Invert	Outlet Devices
#1	Primary	515.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	517.00'	**1.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=5.15 cfs @ 12.53 hrs HW=518.68' TW=510.59' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.41 cfs @ 8.42 fps)
- **2=Sharp-Crested Rectangular Weir** (Weir Controls 4.73 cfs @ 4.24 fps)

Pond p18-2:

Inflow Area = 147.742 ac, Inflow Depth = 4.58" for 100-yr event
Inflow = 183.69 cfs @ 13.45 hrs, Volume= 56.440 af
Outflow = 183.45 cfs @ 13.49 hrs, Volume= 56.439 af, Atten= 0%, Lag= 2.6 min
Primary = 183.45 cfs @ 13.49 hrs, Volume= 56.439 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 513.90' Surf.Area= 20,680 sf Storage= 26,884 cf
Peak Elev= 516.51' @ 13.49 hrs Surf.Area= 31,997 sf Storage= 95,809 cf (68,925 cf above start)
Flood Elev= 514.81' Surf.Area= 23,768 sf Storage= 48,709 cf (21,825 cf above start)

Plug-Flow detention time= 64.0 min calculated for 55.819 af (99% of inflow)
Center-of-Mass det. time= 21.8 min (1,007.0 - 985.2)

Volume	Invert	Avail.Storage	Storage Description
#1	510.00'	148,288 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
510.00	0	0	0	0
513.90	20,680	26,884	26,884	20,704
514.00	20,690	2,068	28,952	20,756
516.00	28,290	48,782	77,735	28,436
518.00	42,760	70,554	148,288	42,967

Device	Routing	Invert	Outlet Devices
#1	Primary	513.90'	**2.0' long x 0.5' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00
			Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Primary	514.81'	**143.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47
#3	Primary	515.32'	**175.0 deg x 10.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=183.45 cfs @ 13.49 hrs HW=516.51' TW=511.79' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 28.04 cfs @ 5.37 fps)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 27.91 cfs @ 3.22 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 127.50 cfs @ 2.87 fps)

Pond p18-4:

Inflow Area = 16.038 ac, Inflow Depth = 6.39" for 100-yr event
Inflow = 121.64 cfs @ 12.05 hrs, Volume= 8.539 af
Outflow = 38.98 cfs @ 12.32 hrs, Volume= 8.536 af, Atten= 68%, Lag= 16.5 min
Primary = 38.98 cfs @ 12.32 hrs, Volume= 8.536 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 521.50' Surf.Area= 9,318 sf Storage= 16,432 cf
Peak Elev= 528.98' @ 12.32 hrs Surf.Area= 30,575 sf Storage= 180,256 cf (163,824 cf above start)
Flood Elev= 529.00' Surf.Area= 30,616 sf Storage= 180,767 cf (164,335 cf above start)

Plug-Flow detention time= 597.7 min calculated for 8.159 af (96% of inflow)
Center-of-Mass det. time= 542.0 min (1,322.2 - 780.2)

Volume	Invert	Avail.Storage	Storage Description
#1	516.00'	212,613 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)
516.00	292	0	0	292
518.00	1,596	1,714	1,714	1,612
520.00	3,769	5,212	6,926	3,814
521.50	9,318	9,507	16,432	9,379
522.00	15,200	6,070	22,502	15,264
524.00	19,211	34,333	56,835	19,381
526.00	23,606	42,742	99,576	23,897
528.00	28,236	51,773	151,349	28,665
530.00	33,092	61,264	212,613	33,677

Device	Routing	Invert	Outlet Devices
#1	Primary	521.50'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	525.50'	**2.5' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=38.98 cfs @ 12.32 hrs HW=528.98' TW=516.11' (Dynamic Tailwater)
└─**1=Orifice/Grate** (Orifice Controls 0.64 cfs @ 13.06 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 38.34 cfs @ 6.10 fps)

Pond p19-0:

Inflow Area = 15.520 ac, Inflow Depth = 3.33" for 100-yr event
Inflow = 29.12 cfs @ 12.58 hrs, Volume= 4.311 af
Outflow = 20.93 cfs @ 12.89 hrs, Volume= 4.311 af, Atten= 28%, Lag= 19.1 min
Primary = 20.93 cfs @ 12.89 hrs, Volume= 4.311 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 972.00' Surf.Area= 86,000 sf Storage= 57,333 cf
Peak Elev= 972.35' @ 12.89 hrs Surf.Area= 95,668 sf Storage= 96,690 cf (39,356 cf above start)

Plug-Flow detention time= 228.6 min calculated for 2.995 af (69% of inflow)
Center-of-Mass det. time= 53.6 min (931.6 - 878.0)

Volume	Invert	Avail.Storage	Storage Description
#1	970.00'	282,329 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
970.00	0	0	0	0
972.00	86,000	57,333	57,333	86,006
974.00	141,270	224,996	282,329	141,327

Device	Routing	Invert	Outlet Devices
#1	Secondary	973.60'	**178.0 deg x 51.0' long Sharp-Crested Vee/Trap Weir** C= 2.46
#2	Primary	972.00'	**35.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=20.93 cfs @ 12.89 hrs HW=972.35' TW=970.24' (Dynamic Tailwater)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 20.93 cfs @ 1.71 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=972.00' TW=973.60' (Dynamic Tailwater)
└─**1=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond p20-1:

Inflow Area = 251.397 ac, Inflow Depth > 4.47" for 100-yr event
Inflow = 232.59 cfs @ 13.63 hrs, Volume= 93.684 af
Outflow = 231.17 cfs @ 13.72 hrs, Volume= 93.522 af, Atten= 1%, Lag= 5.3 min
Primary = 231.17 cfs @ 13.72 hrs, Volume= 93.522 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 505.10' Surf.Area= 89,370 sf Storage= 138,524 cf
Peak Elev= 506.77' @ 13.73 hrs Surf.Area= 93,189 sf Storage= 291,543 cf (153,020 cf above start)

Plug-Flow detention time= 336.5 min calculated for 90.337 af (96% of inflow)
Center-of-Mass det. time= 67.8 min (1,596.9 - 1,529.1)

Volume	Invert	Avail.Storage	Storage Description
#1	502.00'	615,682 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
502.00	0	0	0
505.10	89,370	138,524	138,524
506.00	89,380	80,437	218,961
508.00	99,280	188,660	407,621
510.00	108,781	208,061	615,682

Device	Routing	Invert	Outlet Devices
#1	Primary	505.10'	**3.0' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#2	Primary	506.20'	**6.5' long x 1.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32
#3	Primary	506.00'	**176.0 deg x 97.0' long Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=231.12 cfs @ 13.72 hrs HW=506.77' TW=506.44' (Dynamic Tailwater)
- **1=Broad-Crested Rectangular Weir** (Weir Controls 12.12 cfs @ 2.42 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 6.49 cfs @ 1.75 fps)
- **3=Sharp-Crested Vee/Trap Weir** (Weir Controls 212.51 cfs @ 2.32 fps)

Pond p21-1:

Inflow Area = 499.521 ac, Inflow Depth > 4.47" for 100-yr event
Inflow = 570.23 cfs @ 12.17 hrs, Volume= 186.072 af
Outflow = 42.67 cfs @ 22.67 hrs, Volume= 185.120 af, Atten= 93%, Lag= 629.6 min
Primary = 42.67 cfs @ 22.67 hrs, Volume= 185.120 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 487.72' @ 22.67 hrs Surf.Area= 1,468,006 sf Storage= 4,858,331 cf

Plug-Flow detention time= 1,288.7 min calculated for 185.120 af (99% of inflow)
Center-of-Mass det. time= 1,237.4 min (2,747.3 - 1,509.9)

Volume	Invert	Avail.Storage	Storage Description
#1	480.40'	8,387,099 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
480.40	0	0	0	0
482.00	202,230	107,856	107,856	202,234
484.00	485,198	667,114	774,970	485,231
486.00	1,275,481	1,698,237	2,473,208	1,275,541
488.00	1,499,208	2,771,678	5,244,885	1,499,423
490.00	1,644,120	3,142,214	8,387,099	1,644,607

Device	Routing	Invert	Outlet Devices
#1	Primary	480.40'	**30.0" x 70.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 480.40' S= 0.0000 '/' Cc= 0.900 n= 0.024

Primary OutFlow Max=42.67 cfs @ 22.67 hrs HW=487.72' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 42.67 cfs @ 8.69 fps)

Pond p21-7:

Inflow Area = 10.425 ac, Inflow Depth = 5.24" for 100-yr event
Inflow = 40.11 cfs @ 12.08 hrs, Volume= 4.553 af
Outflow = 16.66 cfs @ 12.69 hrs, Volume= 4.551 af, Atten= 58%, Lag= 37.2 min
Primary = 16.66 cfs @ 12.69 hrs, Volume= 4.551 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 493.99' @ 12.69 hrs Surf.Area= 18,843 sf Storage= 80,965 cf
Flood Elev= 494.00' Surf.Area= 18,859 sf Storage= 81,129 cf

Plug-Flow detention time= 582.5 min calculated for 4.551 af (100% of inflow)
Center-of-Mass det. time= 582.8 min (1,402.7 - 820.0)

Volume	Invert	Avail.Storage	Storage Description
#1	488.00'	81,129 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
488.00	8,590	0	0
490.00	11,713	20,303	20,303
492.00	15,127	26,840	47,143
494.00	18,859	33,986	81,129

Device	Routing	Invert	Outlet Devices
#1	Primary	488.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	492.50'	**3.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=16.66 cfs @ 12.69 hrs HW=493.99' TW=484.72' (Dynamic Tailwater)
├─**1=Orifice/Grate** (Orifice Controls 0.57 cfs @ 11.66 fps)
└─**2=Sharp-Crested Rectangular Weir** (Weir Controls 16.09 cfs @ 3.99 fps)

Pond p22-1:

Inflow Area = 62.211 ac, Inflow Depth = 4.25" for 100-yr event
Inflow = 138.37 cfs @ 12.36 hrs, Volume= 22.011 af
Outflow = 137.52 cfs @ 12.39 hrs, Volume= 21.725 af, Atten= 1%, Lag= 2.0 min
Primary = 137.52 cfs @ 12.39 hrs, Volume= 21.725 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Starting Elev= 498.10' Surf.Area= 6,520 sf Storage= 10,106 cf
Peak Elev= 502.27' @ 12.39 hrs Surf.Area= 11,928 sf Storage= 47,648 cf (37,542 cf above start)

Plug-Flow detention time= 34.7 min calculated for 21.493 af (98% of inflow)
Center-of-Mass det. time= 17.0 min (875.9 - 858.8)

Volume	Invert	Avail.Storage	Storage Description
#1	495.00'	143,770 cf	**Custom Stage Data (Prismatic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
495.00	0	0	0
498.10	6,520	10,106	10,106
500.00	8,390	14,164	24,270
502.00	11,530	19,920	44,190
504.00	14,530	26,060	70,250
506.00	18,340	32,870	103,120
508.00	22,310	40,650	143,770

Device	Routing	Invert	Outlet Devices
#1	Primary	499.75'	**18.0" x 21.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 499.75' S= 0.0000 '/' Cc= 0.900 n= 0.024
#2	Primary	500.50'	**1.0' long x 15.0' 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
#3	Primary	500.50'	**20.0' long x 13.5' 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) 2.62 2.66 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=137.51 cfs @ 12.39 hrs HW=502.27' TW=484.31' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 7.98 cfs @ 4.51 fps)
- **2=Broad-Crested Rectangular Weir** (Weir Controls 6.17 cfs @ 3.49 fps)
- **3=Broad-Crested Rectangular Weir** (Weir Controls 123.36 cfs @ 3.49 fps)

Pond p23-2:

Inflow Area = 73.912 ac, Inflow Depth = 4.93" for 100-yr event
Inflow = 199.66 cfs @ 12.61 hrs, Volume= 30.339 af
Outflow = 42.42 cfs @ 13.80 hrs, Volume= 25.417 af, Atten= 79%, Lag= 71.4 min
Primary = 42.42 cfs @ 13.80 hrs, Volume= 25.417 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Starting Elev= 508.00' Surf.Area= 43,560 sf Storage= 116,710 cf
Peak Elev= 518.97' @ 13.80 hrs Surf.Area= 96,403 sf Storage= 872,768 cf (756,058 cf above start)
Flood Elev= 519.00' Surf.Area= 96,565 sf Storage= 875,673 cf (758,963 cf above start)

Plug-Flow detention time= 2,325.1 min calculated for 22.736 af (75% of inflow)
Center-of-Mass det. time= 1,997.4 min (2,849.0 - 851.5)

Volume	Invert	Avail.Storage	Storage Description
#1	504.00'	974,958 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)
504.00	21,853	0	0	21,853
506.00	27,237	48,991	48,991	27,350
506.50	28,631	13,966	62,957	28,775
508.00	43,560	53,753	116,710	43,738
510.00	52,250	95,678	212,388	52,565
512.00	61,370	113,498	325,886	61,840
514.00	70,920	132,175	458,061	71,562
516.00	80,880	151,691	609,752	81,712
518.00	91,250	172,026	781,778	92,288
520.00	102,030	193,180	974,958	103,291

Device	Routing	Invert	Outlet Devices
#1	Primary	508.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#2	Primary	517.00'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=42.42 cfs @ 13.80 hrs HW=518.97' TW=486.01' (Dynamic Tailwater)
- **1=Orifice/Grate** (Orifice Controls 0.78 cfs @ 15.86 fps)
- **2=Sharp-Crested Rectangular Weir** (Weir Controls 41.64 cfs @ 4.59 fps)

Pond zDP1: Design Point 1

Inflow Area = 26.401 ac, Inflow Depth = 4.54" for 100-yr event
Inflow = 66.60 cfs @ 12.25 hrs, Volume= 9.997 af
Outflow = 66.58 cfs @ 12.26 hrs, Volume= 9.997 af, Atten= 0%, Lag= 0.3 min
Primary = 66.58 cfs @ 12.26 hrs, Volume= 9.997 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 723.92' @ 12.26 hrs Surf.Area= 329 sf Storage= 443 cf
Flood Elev= 727.00' Surf.Area= 1,105 sf Storage= 2,619 cf

Plug-Flow detention time= 0.1 min calculated for 9.997 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (931.9 - 931.8)

Volume	Invert	Avail.Storage	Storage Description
#1	720.10'	3,706 cf	**Custom Stage Data (Conic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
720.10	0	0	0	0
722.00	90	57	57	96
724.00	340	403	460	364
726.00	760	1,072	1,533	815
728.00	1,450	2,173	3,706	1,543

Device	Routing	Invert	Outlet Devices
#1	Primary	720.10'	**42.0" x 120.0' long Culvert** CMP, square edge headwall, Ke= 0.500 Outlet Invert= 700.00' S= 0.1675 '/' Cc= 0.900 n= 0.024
#2	Primary	727.00'	**155.0 deg Sharp-Crested Vee/Trap Weir** C= 2.47

Primary OutFlow Max=66.57 cfs @ 12.26 hrs HW=723.92' TW=686.98' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 66.57 cfs @ 6.92 fps)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond zDP2: Design Point 2

Inflow Area = 97.969 ac, Inflow Depth = 4.05" for 100-yr event
Inflow = 167.75 cfs @ 12.87 hrs, Volume= 33.094 af
Outflow = 167.70 cfs @ 12.87 hrs, Volume= 33.094 af, Atten= 0%, Lag= 0.1 min
Primary = 37.10 cfs @ 12.87 hrs, Volume= 20.550 af
Secondary = 130.59 cfs @ 12.87 hrs, Volume= 12.544 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 626.62' @ 12.87 hrs Surf.Area= 1,778 sf Storage= 4,553 cf
Flood Elev= 624.50' Surf.Area= 925 sf Storage= 1,728 cf

Plug-Flow detention time= 0.5 min calculated for 33.092 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (876.3 - 875.8)

Volume	Invert	Avail.Storage	Storage Description
#1	619.60'	7,280 cf	**Custom Stage Data (Conic)**Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
619.60	0	0	0	0
620.00	10	1	1	10
622.00	260	214	215	269
624.00	760	976	1,192	793
626.00	1,420	2,146	3,338	1,492
628.00	2,580	3,943	7,280	2,694

Device	Routing	Invert	Outlet Devices
#1	Primary	619.60'	**24.0" x 150.0' long Culvert** RCP, end-section conforming to fill, Ke= 0.500 Outlet Invert= 608.00' S= 0.0773 '/' Cc= 0.900 n= 0.012
#2	Secondary	624.50'	**166.0 deg Sharp-Crested Vee/Trap Weir** C= 2.46

Primary OutFlow Max=37.10 cfs @ 12.87 hrs HW=626.62' TW=607.69' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 37.10 cfs @ 11.81 fps)

Secondary OutFlow Max=130.58 cfs @ 12.87 hrs HW=626.62' TW=559.49' (Dynamic Tailwater)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 130.58 cfs @ 3.58 fps)

Pond zDP3: Design Point 3

Inflow Area = 252.976 ac, Inflow Depth > 65.83" for 100-yr event
Inflow = 416.80 cfs @ 12.35 hrs, Volume= 1,387.795 af
Primary = 416.80 cfs @ 12.35 hrs, Volume= 1,387.795 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP4: Design Point 4

Inflow Area = 499.521 ac, Inflow Depth > 4.45" for 100-yr event
Inflow = 42.67 cfs @ 22.67 hrs, Volume= 185.120 af
Primary = 42.67 cfs @ 22.67 hrs, Volume= 185.120 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP5: Design Point 5

Inflow Area = 28.325 ac, Inflow Depth = 4.46" for 100-yr event
Inflow = 82.83 cfs @ 12.44 hrs, Volume= 10.538 af
Primary = 82.83 cfs @ 12.44 hrs, Volume= 10.538 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP6: Design Point 6

Inflow Area = 5.306 ac, Inflow Depth = 2.89" for 100-yr event
Inflow = 9.65 cfs @ 12.46 hrs, Volume= 1.279 af
Outflow = 9.65 cfs @ 12.46 hrs, Volume= 1.279 af, Atten= 0%, Lag= 0.0 min
Primary = 9.65 cfs @ 12.46 hrs, Volume= 1.279 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs
Peak Elev= 610.25' @ 12.46 hrs
Flood Elev= 612.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.90'	**36.0" x 43.0' long Culvert** CMP, projecting, no headwall, Ke= 0.900 Outlet Invert= 606.90' S= 0.0465 '/' Cc= 0.900 n= 0.025 Corrugated metal

Primary OutFlow Max=9.65 cfs @ 12.46 hrs HW=610.25' TW=588.10' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 9.65 cfs @ 3.12 fps)

Pond zDP7: Design Point 7

Inflow Area = 31.683 ac, Inflow Depth = 4.01" for 100-yr event
Inflow = 65.94 cfs @ 12.65 hrs, Volume= 10.581 af
Primary = 65.94 cfs @ 12.65 hrs, Volume= 10.581 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Pond zDP8: Design Point 8

Inflow Area = 7.105 ac, Inflow Depth = 4.53" for 100-yr event
Inflow = 30.52 cfs @ 12.14 hrs, Volume= 2.682 af
Primary = 30.52 cfs @ 12.14 hrs, Volume= 2.682 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-200.00 hrs, dt= 0.01 hrs

Appendix L:
Design Calculations

10454.01 SILO RIDGE COUNTRY GOLF RESORT COMMUNITY
STORMWATER - PROPOSED CONDITIONS
SWM BASIN DESIGN CALCULATIONS

Stormwater Management Facility/ Stormfilter	NYSDEC Design Variation	Contributing Subcatchments	Drainage Area (acres)	Impervious Area (acres)	Impervious Cover (%)	WQv Required (cu.ft.)	WQv Provided Permanent Pool (cu.ft.)	WQv Provided Extended Detention (cu.ft.)	WQv Provided TOTAL (cu.ft.)	Basin Surface Area Required (sq.ft.)	Basin Surface Area Provided (sq.ft.)
p08-2	P-2	TOTAL	3.832	0.287	7.5	3,060	5,322	14,269	19,591	1,669	3,950
		s08-2	3.832	0.287							
p16-4	P-3	TOTAL	13.242	5.959	45.0	24,058	14,361	33,929	48,290	5,768	8,090
		s16-4	13.242	5.959							
p16-5	P-2	TOTAL	3.971	0.993	25.0	4,361	14,550	78,916	93,466	1,730	7,168
		s16-5	3.971	0.993							
p18-1	P-2	TOTAL	5.357	1.112	20.8	5,066	8,455	14,036	22,491	2,333	8,701
		s18-1	0.908	0.000							
		s18-3	4.448	1.112							
p18-4	P-1	TOTAL	16.038	9.834	61.3	38,544	16,432	55,136	71,568	6,986	9,318
		s18-4	12.689	9.834							
		s18-5	3.349	0.000							
p23-2	P-2	TOTAL	81.080	7.391	9.1	64,750	116,710	459,752	576,462	35,318	43,561
		s23-1	7.168	0.000							
		s23-2	73.912	7.391							

10454.01 SILO RIDGE COUNTRY GOLF RESORT COMMUNITY
STORMWATER - PROPOSED CONDITIONS
SWM FILTERS DESIGN CALCULATIONS

Subcatchement containing Stormfilter	NYSDEC Practice	Contributing Subcatchments	Drainage Area (acres)	Impervious Area (acres)	Impervious Cover (%)	WQv Required (cu.ft.)	Length of 48" Storage Pipe Provided to Store 75% of the WQv (l.f.)	WQv Per Foot of 48" Pipe PIPE (cu.ft.)	WQv Provided TOTAL (cu.ft.)	Percent of Required WQv (%)	Stormfilter Cartridges Required/ Provided (ea)
s02-2	Stormfilter	TOTAL	1.605	1.364	85.0	5,222	320	12.56	4,019	77%	18
		s02-2	1.605	1.364							
s02-3	Stormfilter	TOTAL	0.587	0.440	75.0	1,699	110	12.56	1,382	81%	6
		s02-3	0.587	0.440							
s02-4	Stormfilter	TOTAL	0.479	0.431	90.0	1,646	100	12.56	1,256	76%	6
		s02-4	0.479	0.431							
s02-5	Stormfilter	TOTAL	0.947	0.853	90.0	3,253	200	12.56	2,512	77%	11
		s02-5	0.947	0.853							
s02-6	Stormfilter	TOTAL	0.209	0.188	90.0	719	50	12.56	628	87%	2
		s02-6	0.209	0.188							
s02-7	Stormfilter	TOTAL	0.884	0.751	85.0	2,876	180	12.56	2,261	79%	10
		s02-7	0.884	0.751							
s03-3	StormFilter	TOTAL	0.947	0.852	90.0	3,251	200	12.56	2,512	77%	11
		s03-3	0.947	0.852							
s04-1	StormFilter	TOTAL	11.064	1.106	10.0	8,835	550	12.56	6,908	78%	30
		s04-1	11.064	1.106							
s05-3	StormFilter	TOTAL	3.364	0.336	10.0	2,687	160	12.56	2,010	75%	9
		s05-3	3.364	0.336							
s06-2	StormFilter	TOTAL	15.682	0.392	2.5	12,524	760	12.56	9,546	76%	43
		s06-2	15.682	0.392							
s08-3	StormFilter	TOTAL	0.595	0.595	100.0	2,256	140	12.56	1,758	78%	8
		s08-3	0.595	0.595							
s11-1	StormFilter	TOTAL	17.262	13.809	80.0	53,073	3,200	12.56	40,192	76%	181
		s11-1	17.262	13.809							
s14-2	StormFilter	TOTAL	7.643	4.968	65.0	19,379	1,200	12.56	15,072	78%	66
		s14-2	7.643	4.968							

10454.01 SILO RIDGE COUNTRY GOLF RESORT COMMUNITY
STORMWATER - PROPOSED CONDITIONS
SWM FILTERS DESIGN CALCULATIONS

Subcatchement containing Stormfilter	NYSDEC Practice	Contributing Subcatchments	Drainage Area (acres)	Impervious Area (acres)	Impervious Cover (%)	WQv Required (cu.ft.)	Length of 48" Storage Pipe Provided to Store 75% of the WQv (l.f.)	WQv Per Foot of 48" Pipe PIPE (cu.ft.)	WQv Provided TOTAL (cu.ft.)	Percent of Required WQv (%)	Stormfilter Cartridges Required/ Provided (ea)
s16-2	StormFilter	TOTAL	3.074	0.000	0.0	2,455	150	12.56	1,884	77%	8
		s16-2	3.074	0.000							
s16-3	StormFilter	TOTAL	10.239	0.000	0.0	8,177	500	12.56	6,280	77%	28
		s16-3	10.239	0.000							
s16-6	StormFilter	TOTAL	3.105	0.000	0.0	2,479	160	12.56	2,010	81%	8
		s16-6	3.105	0.000							
s20-2	StormFilter	TOTAL	2.342	0.000	0.0	1,870	120	12.56	1,507	81%	6
		s20-2	2.342	0.000							
s20-4	StormFilter	TOTAL	2.261	0.000	0.0	1,806	110	12.56	1,382	77%	6
		s20-4	2.261	0.000							
s20-5	StormFilter	TOTAL	2.451	0.000	0.0	1,958	120	12.56	1,507	77%	7
		s20-5	2.451	0.000							
s21-2	StormFilter	TOTAL	4.934	1.974	40.0	8,078	500	12.56	6,280	78%	28
		s21-2	4.934	1.974							
s21-3	StormFilter	TOTAL	4.724	3.543	75.0	13,676	850	12.56	10,676	78%	47
		s21-3	4.724	3.543							
s21-4	StormFilter	TOTAL	0.534	0.480	90.0	1,832	120	12.56	1,507	82%	6
		s21-4	0.534	0.480							
s22-3	StormFilter	TOTAL	3.920	0.000	0.0	3,131	200	12.56	2,512	80%	11
		s22-3	3.920	0.000							