Stormwater Pollution Prevention Plan
for
25 Townsend Street Subdivisioin

City of Beacon, NY

Prepared for:
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HUDSON
LAND DESIGN

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TABLE OF CONTENTS

APPENDICES

APPENDIX A: NOTICE OF INTENT
APPENDIX B: SOILS DATA
APPENDIX C: RAINFALL DATA
APPENDIX D: PRE-DEVELOPMENT HYDROCAD MODEL
APPENDIX E: POST-DEVELOPMENT HYDROCAD MODEL
APPENDIX F: STORMWATER MANAGEMENT DESIGN

APPENDIX G: PRE-CONSTRUCTION SITE ASSESSMENT CHECKLIST
APPENDIX H: INFILTRATION CONSTRUCTION INSPECTION CHECKLIST
APPENDIX I: CONTRACTOR AND SUBCONTRACTOR CERTIFICATIONS
APPENDIX J: QUALIFIED PROFESSIONAL'S CERTIFICATION
APPENDIX K: OWNER/OPERATOR CERTIFICATION
APPENDIX L: POST-DEVELOPMENT MAINTENANCE AND INSPECTION CHECKLIST
APPENDIX M: CONSTRUCTION INSPECTION REPORT
APPENDIX N: NOTICE OF TERMINATION
APPENDIX O: DRAINAGE MAPS

1.0 INTRODUCTION

1.1 Overview

1.1 Overview

This Stormwater Pollution Prevention Plan (SWPPP) has been developed in accordance with the New York State Department of Environmental Conservation (NYSDEC) State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity Permit No. GP-0-15-002, dated May 1, 2015 which authorizes stormwater discharges to surface waters of the State from the following construction activities identified within 40 CFR Parts 122.26(b)(14)(x), 122.26(b)(15)(i) and 122.26(b)(15)(ii), provided all of the eligibility provisions of this permit are met:

1. Construction activities involving soil disturbances of one (1) or more acres; including disturbances of less than one acre that are part of a larger common plan of development or sale that will ultimately disturb one or more acres of land; excluding routine maintenance activity that is performed to maintain the original line and grade, hydraulic capacity or original purpose of a facility.
2. Construction activities involving soil disturbances of less than one (1) acre where the Department has determined that a SPDES permit is required for stormwater discharges based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to surface waters of the State.
3. Construction activities located in the New York City, East of Hudson watershed, that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

This project qualifies for SPDES coverage under provision 1 as stated above as there will be more than an acre of disturbance, but less than 5 acres and will result in less than 25% of impervious at total site build out.

The objectives of this SWPPP are as follows:

- To develop a sediment and erosion control plan post construction storm water treatment practices in accordance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control, which implements best management practices to stabilize disturbed areas, protect off site areas and sensitive areas, and minimize the transport of sediment.

Construction activities are not permitted to begin until such time that authorization is obtained under the General Permit. This project is located within the limits of a Municipal Separate Storm Sewer System (MS4) area. Authorization to commence construction activities may commence five (5) days after the NYSDEC receives the NOI and MS4 SWPPP acceptance form.

A copy of the General Permit, SWPPP, NOI, NOI acknowledgment letter, MS4 SWPPP Acceptance Form, inspection reports and accompanying plans shall be maintained on site from the date of initiation of construction activities until final stabilization of all disturbed areas has been achieved and the Notice of Termination (NOT) has been submitted.

1.2 Land Disturbance

Per the General Permit, no more than five (5) acres of land disturbance may occur at any one time without written approval from the NYSDEC. At a minimum, the owner or operator must comply with the following requirements in order to be authorized to disturb greater than five (5) acres of soil at any one time:

a. The owner or operator shall have a qualified inspector conduct at least two (2) site inspections every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

b. In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased. The soil stabilization measures selected shall be in conformance with the most current version of the technical standard, New York State Standards and Specifications for Erosion and Sediment Control.

c. The owner or operator shall prepare a phasing plan that defines maximum disturbed area per phase and shows required cuts and fills.

d. The owner or operator shall install any additional site specific practices needed to protect water quality.

Disturbance of more than five (5) acres at any one time is not anticipated for this project, as the total proposed disturbance is estimated to be ±4.6 acres.

2.0 PROJECT DESCRIPTION

2.1 Project Location

The project site is comprised of one parcel located in the City of Beacon, Dutchess County, New York, and is located at the end of Townsend Street. The site contains the former Knight of Columbus building as well as some outbuildings, and is a mix of open lawn/field and wooded with areas. The project area is approximately 5.0 acres.

2.2 Project Scope and Description

The project is a 13-lot subdivision of the parcel, which will include removal of the existing building and outbuildings on the site. The proposed project will disturb approximately 4.6 acres.

2.3 Surface Water Bodies

2.3.1 Wetlands

There are no New York Department of Environmental Conservation wetlands or Federal wetlands present on the site according to the National Wetlands Inventory (NWI) mapper.

2.3.2 Streams

There are no streams located on the site.

2.3.3 Floodplains

Based upon a review of the National Flood Insurance Program Flood Insurance Rate Map panel 36027C0464E information for the project area, no portion of the site is identified as area within the 100-year flood.

3.0 NOTICE OF INTENT

Prior to commencement of construction activities, the Owner/Operator shall submit a Notice of Intent (NOI) to the NYSDEC for authorization. The NYSDEC authorization schedule is as follows:

For construction activities that are not subject to the requirements of a regulated, traditional land use control MS4:

- Five (5) business days from the date the NYSDEC receives a complete NOI for construction activities with a SWPPP that has been prepared in conformance with the technical standards, or
- Sixty (60) business days from the date the NYSDEC receives a complete NOI for construction activities with a SWPPP that has not been prepared in conformance with the technical standards.

For construction activities that are subject to the requirements of a regulated, traditional land use control MS4:

- Five (5) business days from the date the NYSDEC receives a complete NOI and signed "MS4 SWPPP Acceptance" form.

The project area is under the control of a regulated MS4, therefore the NOI shall be submitted to the City of Beacon prior to being forwarded to the NYSDEC. The NOI has been included in Appendix A.

4.0 SOILS

The hydrologic soil characteristics of the watershed areas were obtained from Soil Survey Mapping of Dutchess County, New York, and available Geographical Information Systems (GIS) and are as follows:

Symbol	Description	Hydrologic Soil Group
NwC	Nassau-Cardigan complex, undulating, rocky	D
BeB	Bernardston silt loam, 3 to 8% slopes	D

SOIL PROPERTIES

Symbol	Water Table	Restrictive Layer	Erosion Hazard (k)
NwC	>80”	10-20” - Lithic bedrock	0.24 - Moderate
BeB	18-24”	15-30” – densic material	0.28 - Moderate

Supporting information has been provided in Appendix B.

5.0 RAINFALL

5.1 Overview

The rainfall data utilized in the analysis of the watershed was obtained from Northeast Regional Climate Center’s Extreme Precipitation Tables. Supporting information has been provided in Appendix C. The storm events are as follows:

Storm Event	24-Hour Rainfall (in)
1 - year	2.68
10 - year	4.68
100 - year	8.23

6.0 STORMWATER ANALYSIS AND MANAGEMENT

6.1 Methodology

6.1.1 Hydrologic Analysis

The HydroCAD stormwater modeling system computer program by Applied Microcomputer Systems was used to analyze, design and document the complete drainage system. The program uses standard hydrograph generation and routing techniques based on the USDA-NRCS Technical Releases TR-20 and TR-55 to develop stormwater runoff rates and volumes.

The program determines the rate and volume of runoff based on inputs of the watershed area, and characteristics of the land including vegetative coverage, slope, soil type, and impervious area.

6.1.2 Stormwater Design Points

Design Points represent the location where the majority of runoff from an area exits the site. The same design points are identified in post-development conditions so that a comparison can be made between the pre-development and post-development conditions. One design point for the main project area was selected, as follows:

Stormwater Discharge Points	
SDP	**Description**
1	Discharge to existing catch basin within Townsend Street
2	Discharge to adjacent property southwest of site
3	Discharge to adjacent property to the south of site

6.2 Pre-Development Watershed Conditions

All existing watershed areas are modeled in HydroCAD as 'subcatchment' areas. The pre-development area is as follows:

Subcatchment 1 is comprised of approximately 1.7 acres of on and off site area. The onsite area is mostly undeveloped; however, the onsite area does contain impervious rooftops and asphalt parking areas and some grass. The offsite area is undeveloped and consists of wooded and grassed areas. The subcatchment area contains soils in hydrologic soil group D. Runoff from the subcatchment travels overland via sheet flow and shallow concentrated flow to SDP 1.

Subcatchment 2 is comprised of approximately 7.6 acres of on and off site area. The onsite area is mostly undeveloped; however, the onsite area does contain impervious rooftops and asphalt parking areas and some grass. The offsite area is undeveloped and consists of wooded and grassed areas. The subcatchment area contains soils in hydrologic soil group D. Runoff from the subcatchment travels overland via sheet flow and shallow concentrated flow to SDP 2.

Subcatchment 3 is a small 0.08 acre wooded area that sheet flows to the adjacent property to the south.

Detailed stormwater calculations and routing have been included in Appendix D.

The following table summarizes the pre-development watershed conditions:

Pre-Development Watershed Conditions				
Subcatchment	**Area (ac)**	**Average Curve #**	**Hydrologic Soil Group(s)**	**Time of Concentration**
1	1.7	84	D	17.1 minutes
2	7.6	79	D	16.4 minutes
3	0.08	77	D	6.0 minutes

6.3 Post-Development Watershed Conditions

The proposed development will result in a disturbance of approximately 4.6 acres for the construction of the subdivision. Existing trees will be removed and grubbed where necessary and graded back to existing grade. Some areas will remain undisturbed.

The post-developed subcatchment numbers listed below correspond to the pre-developed watershed areas with the same number. Sub-areas have been broken out of the overall areas to model the portion of the watershed that drains toward a treatment practice. These areas are denoted numerically.

Subcatchment 10 is comprised of approximately 1.69 acres of on and off site area. The onsite area is will be developed with single family building lots. The offsite area is undeveloped and consists of wooded and grassed areas. The subcatchment area contains soils in hydrologic soil group D. Runoff from the subcatchment travels overland via sheet flow and shallow concentrated flow to SDP 1.

Subcatchment 20 is comprised of 4.26 acres of offsite area. The offsite area is undeveloped and consists of wooded and grassed areas. The subcatchment area contains soils in hydrologic soil group D. Runoff from the subcatchment travels overland via sheet flow, open channel flow and shallow concentrated flow to SDP 2.

Subcatchment 21 is comprised of 3.35 acres of onsite area. The area will be developed with single family building lots and stormwater management area. The subcatchment area contains soils in hydrologic soil group D. Runoff travels via sheet flow, shallow concentrated flow, and piped flow to a infiltration basin, and ultimately towards SDP 2.

Subcatchment 30 is a slightly smaller 0.07 acre wooded area that sheet flows to the adjacent property to the south. This area will essentially remain the same in the pre and post development condition.

Detailed stormwater calculations and routing have been included in Appendix E.

The following table summarizes the post-development watershed conditions:

Post-Development Watershed Conditions				
Subcatchment	**Area (ac)**	**Average Curve #**	**Hydrologic Soil Group(s)**	**Time of Concentration**
10	1.69	83	D	17.2 minutes
20	4.26	78	D	11.1 minutes
21	3.35	84	D	6.8 minutes
30	0.07	77	D	6.0 minutes

6.4 Hydrologic Review

The stormwater runoff volumes at each discharge point under pre-development and post-development conditions are summarized below.

SDP	1 - Year		10 - Year		100 - Year	
	Pre	Post	Pre	Post	Pre	Post
1	2.46	2.31	6.06	5.83	12.48	12.20
2	8.34	6.77	23.65	22.93	52.61	49.09
3	0.11	0.10	0.32	0.29	0.73	0.66

As shown above, post-development peak flow rates are less than pre-development rates for the storm events modeled for all design points; therefore, the post-developed storm water management controls (infiltration basin) mitigate the increased runoff.

Supporting hydrologic analyses for pre-development and post-development conditions are included in Appendices D and E.

6.5 Stormwater Management System

The final stormwater management system will consist of conveyance systems which will include culverts, and grass-lined swales/dikes where required.

7.0 CONSTRUCTION SEQUENCING SCHEDULE

Construction activities will be scheduled in such a manner as to minimize the impacts that runoff encountering the construction areas will have on receiving waters both on and off-site. The disturbed-construction area should be kept to a minimum at all times to minimize the potential for impacts during construction.

In order to minimize the impacts of stormwater to receiving water bodies and wetlands, a construction sequencing schedule is as follows:

1. Schedule a pre-construction meeting which shall include the owner or owner's representative, project engineer, contractor and subcontractors (if necessary) who are to perform the construction.

2. Establish the limit of disturbance for proposed clearing and grading associated with the proposed work.

3. Install all silt fence as shown on the plan. Within 10 days after installation of all erosion control plan measures, the applicant shall submit to the Building Inspector a letter from the qualified professional who designed the plan for the applicant/landowner stating that all erosion control measures have been constructed and installed in compliance with the approved plan(s).

4. Prior to further construction activities, contractor shall contact the project engineer or designated SWPPP inspector to conduct a pre-construction site assessment to verify that the

appropriate erosion and sediment controls shown on the plan have been adequately installed ensuring overall preparedness of this site for the commencement of construction.

5. Commence work on areas to be improved. Stockpile removed materials and surround stockpile with silt fence. Immediately seed disturbed areas that are to remain idle for more than 14 days.

6. Erosion control measures shall be inspected and repaired as needed during construction activities. Additional erosion control measures based on site conditions shall be provided.

7. When entire site is 80% stabilized, schedule a post-construction meeting with the engineer or SWPPP inspector, as well as a representative from the Town, as the MS4 must sign off on the Notice of Termination.

8. Remove erosion and sediment controls when disturbed areas have become stabilized as directed by the engineer or SWPPP inspector.

8.0 EROSION AND SEDIMENT CONTROL

8.1 Overview

The most sensitive stage of the development cycle is the period when vegetation is cleared and a site is graded. The potential impacts to on-site and off-site receiving waters and adjoining properties are particularly high at this stage. For example, trees and topsoil are removed, soils are exposed to erosion, and natural topography and drainage patterns are altered. Control of erosion and sediment during these periods is an essential function of this SWPPP and accompanying plans.

Effective and practical measures employed to minimize the erosion potential and prevent sediment from leaving the construction site and reaching streams or other water bodies have been recommended in accordance with:

- New York State Standards and Specifications for Erosion and Sediment Control, July 2016 (or latest version)

In order to ensure the effectiveness of the measures recommended herein, routine inspections and documentation, along with procedures for monitoring the findings, maintenance, and corrective actions resulting from each inspection, are outlined within this section of the SWPPP.

8.2 Temporary Erosion and Sediment Control Measures

The following temporary measures have been incorporated into the erosion and sediment control plans for the site construction activities. These measures are also detailed on the site plans.

8.2.1 Silt Fence

A silt fence is a temporary sediment barrier consisting of a filter fabric stretched across and attached to supporting posts, entrenched, and supported with woven wire fence. Silt fences are installed on the contours across a slope and used to trap sediment by intercepting and detaining sediment laden runoff from disturbed areas in order to promote sedimentation on the uphill side of the fence.

Silt fences are suitable for perimeter and interior control, placed below areas where runoff may occur in the form of sheet flow. It should not be placed in channels or areas where flow is

concentrated. In addition to interior and perimeter control a silt fence can be applied in the following applications:

- Below the toe or down slope of exposed and erodible slopes.
- Along streams and channels banks.
- Around temporary spoil area and stockpiles.

8.2.2 Check Dams

Check dams shall be placed in channels to reduce scour and erosion by reducing flow velocity and promoting sediment settlement. Check dams shall be spaced in the channel so that the crest of the downstream dam is at the elevation of the toe of the upstream dam. Check dams, consisting of a well-graded stone two (2) – nine (9) inches in size (NYSDOT – Light Stone) shall maintain a height of two (2) feet with side slopes of 2:1 extending beyond the bank of the channel by a minimum of one and a half (1.5) feet. Check dams shall be anchored in the channel by a cutoff trench of one and a half (1.5) feet in width by a half (0.5) foot in depth.

8.2.3 Temporary Channels

Temporary channels in the form of diversion swales or berms may be used to intercept and direct runoff under the following applications:

- Above disturbed areas in order to direct and prevent clean runoff from flowing over disturbed areas until the area is permanently stabilized.
- Below disturbed areas to convey sediment laden runoff to sediment traps.
- Across disturbed slopes to reduce slope lengths.

Where used to convey sediment laden runoff, temporary channels shall be equipped with check dams.

8.2.4 Straw Bale Barriers

Straw bale barriers are used to intercept and contain sediment from disturbed areas of limited size in order to prevent sediment from exiting the site. Bales should be placed in a single row lengthwise along the contour, with ends abutting one another. Straw bales shall be bound and installed so that the bindings are oriented around the sides. Straw bales shall be entrenched a minimum of four (4) inches, backfilled, and anchored using either two stakes or rebar driven through the straw bales to a depth of one and a half (1.5) to two (2) feet below grade.

Straw bales shall be used where no other measure is feasible. They shall not be used where there is a concentration of flow within a channel or other area.

The useful life of a straw bale barrier is three (3) months.

8.2.5 Temporary Soil Stockpiles

Stockpiling of soil is a method of preserving soil and topsoil for regrading and vegetating disturbed areas. Stockpiles shall be located away from environmentally sensitive areas (i.e. wetlands and associated buffers, streams, water bodies) and shall be protected with a peripheral silt fence.

Slopes of stockpiles shall not exceed 2:1. Temporary stabilization measures shall be completed within fourteen (14) days of stockpile formation.

8.2.6 Dust Control

Dust control measures reduce the surface and air transport of dust, thereby preventing pollutants from mixing into stormwater. Dust control measures for the construction activities associated within this project consist of windbreaks, minimization of soil disturbance (preserving buffer areas of vegetation where practical), mulching, temporary and permanent vegetation cover, barriers (e.g., geotextile on driving surfaces) and water spraying.

Construction activities shall be scheduled to minimize the amount of area disturbed at any one time.

8.2.7 Temporary Soil Stabilization Practices

Stabilization practices reduce the potential for soil detachment by shielding the soil surface from the impact of rainfall and reducing overland flow velocity.

The Contractor shall initiate stabilization measures as soon as possible 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 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.

Temporary stabilization practices may include:

8.2.7.1 Mulching

Mulching is a temporary soil stabilization practice. Mulching prevents erosion by protecting soil from raindrop impact and by reducing the velocity of overland flow. Mulching also retains moisture within the soil surface and promotes germination. Where mulching consists of wood chips or shavings, it shall be applied at a rate of 500-900 lbs per 1000 s.f. Where mulching consists of straw, it shall be applied at a rate of 90-100 lbs. per 1000 s.f. All temporary grass areas shall receive a standard application of mulch consisting of straw, unless the area is hydro-seeded.

8.2.7.2 Temporary Seeding

Temporary seeding provides additional benefits over other stabilization practices by creating a vegetation system that holds soil particles in place with root systems, and maintains the soil's capacity to absorb runoff. Temporary vegetation shall be placed in accordance with project plans. Irrigation shall be used when the soil is dry or when summer plantings are done.

8.2.7.3 Temporary Erosion Control Blanket

A temporary erosion control blanket is a degradable erosion control blanket used to hold seed and soil in place until vegetation is established in disturbed areas. Temporary erosion control blankets insulate and conserve seed moisture thus reducing evaporation and increasing germination rates, and protect seeds from birds. Temporary erosion control blankets may consist of straw blankets, excelsior blankets (curled wood excelsior), coconut fiber blankets, or wood fiber blankets (reprocessed wood fibers which do not possess or contain any growth or germination inhibiting factors).

8.3 Permanent Erosion and Sediment Control Measures

The following permanent measures have been incorporated into the erosion and sediment control plans for the site construction activities.

8.3.1 Outlet Protection

Outlet protection is used to reduce stormwater velocity and dissipate the energy of flow exiting a culvert before discharging into receiving channels. Rip-rap treatment extends between the point where flows exit the culvert and where the velocity and/or energy from runoff are dissipated to a degree where there is minimal erosion downstream of the discharge point.

A geotextile fabric shall be placed beneath the rip-rap to prevent soil movement into and through the rip-rap.

8.3.2 Permanent Soil Stabilization Practices

Stabilization practices reduce the potential for soil detachment by shielding the soil surface from the impact of rainfall and reducing overland flow velocity.

The Contractor shall initiate stabilization measures as soon as possible in portions of the site where construction activities have permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has permanently ceased.

Permanent stabilization practices may include:

8.3.2.1 Sod

Where exposed soils have the potential to generate off-site sediment loading, sod can provide an immediate form of stabilization and extra protection to a disturbed area. Where applied, sod shall be blue grass or a bluegrass/red fescue mixture or a perennial ryegrass and machine cut with a uniform soil thickness of ¾ inch, plus or minus ¼ inch. Sod shall be used at the discretion of the Owner, unless specifically required by the plans.

8.3.2.2 Permanent Vegetation

Permanent vegetation shall be used to provide a protective cover for exposed areas that have received final grading. Permanent stabilization shall be applied where topsoil has been placed or returned and incorporated into the soil surface. When used, this process shall be followed with the application of straw mulch to protect soil from erosion and seed from drying out. Irrigation shall be used when the soil is dry or when summer plantings are done. Permanent vegetation shall be placed in accordance with project plans.

8.3.2.3 Hydroseeding

Hydroseeding is the hydraulic application of seed and fertilizer onto prepared seed beds. When used, this process shall be followed with the application of straw mulch to protect soil from erosion and seed from drying out. Irrigation shall be used when the soil is dry or when summer plantings are done. Hydroseeding shall be used at the discretion of the Contractor, unless specifically required by the plans.

8.3.2.4 Permanent Erosion Control Blankets

Permanent erosion control blankets are comprised of synthetic materials that form a high strength mat that helps prevent soil erosion in channels and on steep slopes. Stems and roots become intertwined within the matrix, thus reinforcing the vegetation and anchoring the mat. Permanent erosion control blankets insulate and conserve seed moisture thus reducing evaporation and increasing germination rates, and protect seeds from birds. When used within channels, permanent erosion control blankets can aid in the establishment of vegetation and increase the maximum permissible velocity of the given channel by reinforcing the soil and vegetation to resist the forces of erosion during runoff events.

8.4 Erosion and Sediment Control Sequencing Schedule

Implementation schedules for the installation of erosion and sediment control measures prior to and during the course of construction will depend greatly on the actual construction schedule and the varying field conditions that may warrant temporary construction stops and/or work commencing in other locations. The plans include an anticipated construction sequence schedule, of which temporary and permanent erosion and sediment control practices will be required and inspected.

8.5 Maintenance Schedules

Maintenance of the erosion and sediment controls incorporated into this project shall be performed on a regular basis to assure continued effectiveness. This includes repairs and replacement to all erosion and sediment control practices, including cleanout of all sediment retaining measures. Those measures found to be ineffective during routine inspections shall be repaired or replaced and cleaned out (where applicable) before the next anticipated storm event or within 24-hours of being notified, whichever comes first. A more detailed description of the maintenance procedures for the site specific erosion and sediment control practices has been provided on the plan set.

8.6 Construction Staging Areas

Construction staging areas are areas designated within construction sites where most equipment and materials are stored. The locations of the construction staging areas for this project have been shown on the plan set.

8.7 Site Assessments, Inspections and Reporting

Regular inspections of the construction site shall be performed by a qualified professional who is familiar with all aspects of the SWPPP and the implemented control practices. Inspections are intended to identify areas where the pollutant control measures at the site are ineffective and have the potential to allow pollutants to enter water bodies or adjoining properties.

8.7.1 Prior to Construction

Prior to the commencement of construction, a qualified professional shall conduct an inspection of the site and certify in an inspection report that the appropriate erosion and sediment control measures have been installed as indicated by the project plan set and SWPPP. This certification shall be forwarded to the Owner's Representative and Contractor for filing in the construction log book, as well as the Town Building Inspector.

A copy of the "Pre-Construction Site Assessment Checklist" has been provided in Appendix D.

8.7.2 During Construction

Following the commencement of construction, a qualified professional shall perform inspections of site construction activities in accordance with the SPDES General Permit. Inspections shall occur every seven (7) calendar days.

For project areas where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and temporary stabilization measures have been applied to all disturbed areas, the qualified inspector shall conduct a site inspection at least once every thirty (30) calendar days. The owner or operator shall notify the MS4 in writing prior to reducing the frequency of inspections.

For project areas where soil disturbance activities have been shut down with partial project completion, the qualified inspector can stop conducting inspections if all areas disturbed as of the project shutdown date have achieved final stabilization and all post-construction stormwater management practices required for the completed portion of the project have been constructed in conformance with the SWPPP and are operational. The owner or operator shall notify the MS4 contact person in writing prior to the shutdown.

The inspections shall include observation of installed and maintained erosion and sediment control measures for consistency with project specifications and documentation of items to be corrected and recommendations for mitigating concerns. The following information, at minimum, shall be recorded during each inspection:

- Date and time of inspection;
- Name and title of person(s) performing inspection;
- A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection;
- A description of the condition of the runoff at all points of discharge from the construction site. This shall include identification of any discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow;
- A description of the condition of all natural surface waterbodies located within, or immediately adjacent to, the property boundaries of the construction site which receive runoff from disturbed areas. This shall include identification of any discharges of sediment to the surface waterbody;
- Identification of all erosion and sediment control practices that need repair or maintenance;
- Identification of all erosion and sediment control practices that were not installed properly or are not functioning as designed and need to be reinstalled or replaced;
- Description and sketch of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection;

- Current phase of construction of all post-construction stormwater management practices and identification of all construction that is not in conformance with the SWPPP and technical standards;

- 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 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 (where applicable);

- Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of the sediment storage volume;

- Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices; and to correct deficiencies identified with the construction of the post-construction stormwater management practice(s);

- Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report being maintained on site within seven (7) calendar days of the date of the inspection. The qualified inspector shall also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The qualified inspector shall attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection;

- A brief description of any erosion and sediment control practice repairs, maintenance or installations made as a result of previous inspection; and

- All deficiencies that are identified with the implementation of the SWPPP.

Summary reports shall be forwarded to the Owner's Representative and Contractor. Reports shall be incorporated into the construction log book. Within one business day of the completion of an inspection, the qualified inspector shall notify the owner or operator and appropriate contractor or subcontractor of any corrective actions that need to be taken. The contractor or subcontractor shall begin implementing the corrective actions within one business day of this notification and shall complete the corrective actions in a reasonable time frame.

A copy of the "Construction" inspection report has been provided in Appendix J.

8.7.3 Quarterly Report

Though not required by GP-0-15-002, at the Owner's discretion, the Owner's representative shall prepare a written summary of its status with respect to compliance with the SPDES 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 each component of the SWPPP. The report shall include the overall performance of the stormwater facilities, average, minimum and maximum depths of sediment within the stormwater facilities, the physical condition of all drainage structures, maintenance reports from the previous year, and any recommendations for any repairs, modifications or adjustments to the stormwater facilities.

8.7.4 End of Term

Termination of coverage under the SPDES General Permit is accomplished by filing a Notice of Termination (NOT) with the NYSDEC, which first must receive sign-off from the MS4. Prior to the filing of the NOT, the Owner shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization using either vegetative or structural stabilization methods, that all temporary erosion and sediment control structures have been removed, and that all permanent erosion control and stormwater facilities have been installed and are operational in conformance with the SWPPP by signing the "Final Stabilization" and "Post-Construction Stormwater Management Practice" certification statements on the NOT. The owner or operator shall then submit the completed NOT form to the NYSDEC, once sign-off is received from the MS4. "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 geotextile) have been employed on all unpaved areas and areas not covered by permanent structures.

A NOT is provided in Appendix K.

8.8 Long Term Maintenance of Stormwater Structures

After construction is completed and an NOT has been filed, it is the responsibility of the owner to inspect and maintain all stormwater structures on-site.

8.8.1 Piping and Outlets

Piping and outlets shall be inspected after every storm event and remove trash and debris that may be blocking the flow capability of the structure. The owner should pay close attention during the fall months where leave debris will be heavy. The piping and outlets shall be inspected for sediment accumulation at least once a year, and utilize vacuum trucks as necessary to remove the accumulated sediment.

8.8.2 Vegetated Swales

Swales shall be inspected after every storm event and remove trash and debris that may be blocking the flow capability of the structure. The owner should pay close attention during the fall months where leave debris will be heavy. The swales shall be inspected for sediment accumulation at least once a year. Sediment shall be removed as necessary.

8.9 Construction Log Book

The construction log book shall be maintained on site from the date of initiation of construction activities to the date of final stabilization and shall be made available to the permitting authority upon request. The construction log book shall contain a record of all inspections; all certifications

from the preparer(s), qualified professional(s), owner(s)/operator(s), contractor(s), and sub-contractor(s) as applicable; and all weekly and quarterly reports.

9.0 GOOD HOUSEKEEPING AND MATERIAL MANAGEMENT PRACTICES

The following good housekeeping and material management practices shall be followed to reduce the risk of spills or exposure of materials to stormwater runoff.

9.1 Waste Materials

All waste material, including but not limited to trash and construction debris, generated during construction shall be collected and stored in a proper receptacle in accordance with Federal, State, County and Local regulations. No waste material shall be buried on-site. All collected waste material shall be hauled to an approved waste disposal facility.

9.2 Chemical

Chemicals used on-site shall be kept in small quantities, stored undercover in closed, water tight containers in a neat and orderly manner, and kept out of direct contact with stormwater. Chemical products shall not be mixed with one another unless recommended by the manufacturer.

All on-site personnel shall have access to material safety data sheets (MSDS) and National Institute for Occupational Safety and Health (NIOSH) Guide to Chemical Hazards (latest edition) for all chemicals stored and used on-site.

Manufacturer's and/or Federal, State, County and Local guidelines for proper use and disposal shall be followed. Any spills or contamination of runoff with chemicals shall be contained, collected, cleaned up immediately and disposed of in accordance with Federal, State, County and Local regulations.

9.3 Fuels and Oil

All on-site vehicles, tools, and construction equipment shall be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. On-site vehicle and equipment refueling shall be conducted at a location away from access to surface waters and runoff. Any on-site storage tanks shall have a means of secondary containment. Oil products shall be kept in their original containers with original manufacturer's label. In the event of a spill, it shall be contained, cleaned up immediately and the material, including any contaminated soil, shall be disposed of in accordance with Federal, State, County and Local regulations.

Fuel and oil spills in excess of reportable quantities shall be reported to the NYSDEC as soon as the discharge is discovered.

9.4 Fertilizers

Fertilizers used on site shall be stored undercover in closed, water tight containers in a neat orderly manner, and shall be kept out of direct contact with stormwater. Manufacturer's and/or Federal, State, County and Local guidelines for proper use and disposal shall be followed. Any spills or contamination of runoff with fertilizers shall be contained, collected, cleaned up immediately, and disposed of in accordance with Federal, State, County and Local regulations.

9.5 Paint

Paints used on-site shall be stored undercover in closed, water tight containers in a neat and orderly manner, and shall be kept out of direct contact with stormwater. Manufacturer's and/or Federal, State, County and Local guidelines for proper use and disposal shall be followed. Any spills or contamination of runoff with paint shall be contained, collected, cleaned up immediately, and disposed of in accordance with Federal, State, County and Local regulations.

9.6 Sanitary Waste Facilities

Should portable sanitary units be located on-site, they shall be placed in upland areas away from direct contact with surface waters. They shall be serviced and cleaned on a weekly basis by a licensed portable toilet and septic disposal service. Any spills occurring during service shall be cleaned up immediately and disposed of in accordance with Federal, State, County, and Local regulations.

9.7 Container Disposal

Products shall be used up entirely before disposal of their respective containers. Empty containers that may contain chemical residue shall be disposed of in accordance with Federal, State, County and Local regulations.

9.8 Concrete and Asphalt Trucks

Concrete and asphalt trucks shall not be allowed to wash out or discharge surplus material on-site.

9.9 Site Supervisor

It shall be the responsibility of the Contractor's Site Supervisor to inspect daily and ensure the proper use, storage and disposal of all on-site materials.

10.0 SWPPP AMENDMENT

The SWPPP shall be updated by a licensed professional engineer whenever any of the following apply:

1) There is a major 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.
2) The SWPPP proves to be ineffective in:
    - Eliminating or significantly minimizing pollutants from sources identified in the SWPPP required by the SPDES Permit; or
    - Achieving the general objective of controlling pollutants in stormwater discharges from permitted construction activity.
3) Identify any new contractor or subcontractor that will implement any measure of the SWPPP.
4) NYSDEC notifies the Permittee that the SWPPP does not meet one or more of the minimum requirements of the SPDES Permit. Within seven (7) days of such notification or as provided for by the NYSDEC, the Permittee shall make amendments to the SWPPP

and submit to the NYSDEC a written certification that the requested changes have been made.

Since this project is subject to the requirements of a regulated, traditional land use control MS4, the owner or operator shall notify the MS4 in writing of any planned amendments or modifications to the post-construction stormwater management practice component of the SWPPP.

11.0 CONTRACTOR CERTIFICATIONS

All contractors and subcontractors that have any responsibility to install, inspect or maintain erosion or sediment control measures shall sign a copy of the certification statement included in Appendix F before undertaking any construction activity at the site identified in the SWPPP. Contractor Certifications are to include the training requirements for a "Trained Contractor" per GP-0-15-002 Part III.A.6. Contractor Certifications must be provided to the MS4 prior to the start of construction.

12.0 OWNER/OPERATOR CERTIFICATION

The Owner/Operator must review and sign the owner/operator certification statement included in Appendix H.

13.0 CONCLUSIONS

This SWPPP demonstrates that the proposed project generally meets the requirements of SPDES GP-0-15-002, as follows:

- An erosion and sediment control plan in accordance with the latest revision to the New York State Standards and Specifications for Erosion and Sediment Control, July 2016, has been developed for the project and is included in the site plan set.

APPENDIX A

NOTICE OF INTENT

0644089821

NOTICE OF INTENT

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

NYR _____ (for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-15-002

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

-IMPORTANT-
RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR MUST SIGN FORM

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)
AK Property Holding LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Bares

Owner/Operator Contact Person First Name
Alla

Owner/Operator Mailing Address
730 Columbus Ave - Apt 3D

City
New York

State
NY

Zip
10025 -

Phone (Owner/Operator)
917 - 353 - 1321

Fax (Owner/Operator)
___ - ___ - ____

Email (Owner/Operator)
allabares@hotmail.com

FED TAX ID
__ - _____ (not required for individuals)

Project Site Information

Project/Site Name
25 Townsend Street Subdivision

Street Address (NOT P.O. BOX)
25 Townsend Street

Side of Street
● **North** ○ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)
Beacon

State: NY
Zip: 12508 -
County: Dutchess
DEC Region: 3

Name of Nearest Cross Street
DeSoto Avenue

Distance to Nearest Cross Street (Feet)
120

Project In Relation to Cross Street
● **North** ○ **South** ○ **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel
6055-03-383149

Tax Map Numbers

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.ny.gov/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 tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new 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): 587294

Y Coordinates (Northing): 4596244

2. What is the nature of this construction project?

○ **New Construction**

● **Redevelopment with increase in impervious area**

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

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

Pre-Development Existing Land Use

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

Club/Mtg Hall

Post-Development Future Land Use

- ○ SINGLE FAMILY HOME
- ● SINGLE FAMILY SUBDIVISION — Number of Lots: 13
- ○ TOWN HOME RESIDENTIAL
- ○ MULTIFAMILY RESIDENTIAL
- ○ INSTITUTIONAL/SCHOOL
- ○ INDUSTRIAL
- ○ COMMERCIAL
- ○ MUNICIPAL
- ○ ROAD/HIGHWAY
- ○ RECREATIONAL/SPORTS FIELD
- ○ BIKE PATH/TRAIL
- ○ LINEAR UTILITY (water, sewer, gas, etc.)
- ○ PARKING LOT
- ○ CLEARING/GRADING ONLY
- ○ DEMOLITION, NO REDEVELOPMENT
- ○ WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
- ○ OTHER

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

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

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
5.0	4.6	0.8	1.1

5. Do you plan to disturb more than 5 acres of soil at any one time? ○ **Yes** ● **No**

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

A	B	C	D
0%	0%	0%	100%

7. Is this a phased project? ○ **Yes** ● **No**

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

Start Date 05/01/2018 - **End Date** 11/30/2019

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

Fishkill Creek

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ● Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ● Other (identify) NA

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-15-002? ○ **Yes** ● **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-15-002? ○ **Yes** ● **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ● **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ○ **No**
If Yes, what is the acreage to be disturbed?

.

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ● **No**

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ◉ **Yes** ○ **No** ○ **Unknown**

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

City of Beacon

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

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

19. Is this property owned by a state authority, state agency, federal government or local government? ○ **Yes** ◉ **No**

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ **Yes** ◉ **No**

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ◉ **Yes** ○ **No**

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ○ **Yes** ◉ **No**
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ○ **Yes** ○ **No**

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ● **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer: Hudson Land Design

Contact Name (Last, Space, First): Bodendorf Jon

Mailing Address: 174 Main St

City: Beacon

State: NY Zip: 12508-

Phone: 845-440-6926 Fax: 845-440-6637

Email: jbodendorf@hudsonlanddesign.com

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-15-002. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name: Jon **MI:** D

Last Name: Bodendorf

Signature

Date / /

25. Has a construction sequence schedule for the planned management practices been prepared? ○ Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ○ Check Dams
- ● Construction Road Stabilization
- ● Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ● Silt Fence
- ● Stabilized Construction Entrance
- ○ Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ● Mulching
- ● Protecting Vegetation
- ○ Recreation Area Improvement
- ● Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ● Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ● Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ● Rock Outlet Protection
- ○ Streambank Protection

Other

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

- ○ **Preservation of Undisturbed Areas**
- ○ **Preservation of Buffers**
- ○ **Reduction of Clearing and Grading**
- ○ **Locating Development in Less Sensitive Areas**
- ○ **Roadway Reduction**
- ○ **Sidewalk Reduction**
- ○ **Driveway Reduction**
- ○ **Cul-de-sac Reduction**
- ○ **Building Footprint Reduction**
- ○ **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

- ○ All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).
- ○ Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

			.				**acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area(acres)
RR Techniques (Area Reduction)			
○ Conservation of Natural Areas (RR-1)	___.___	and/or	___.___
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)	___.___	and/or	___.___
○ Tree Planting/Tree Pit (RR-3)	___.___	and/or	___.___
○ Disconnection of Rooftop Runoff (RR-4)	___.___	and/or	___.___
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			___.___
○ Rain Garden (RR-6)			___.___
○ Stormwater Planter (RR-7)			___.___
○ Rain Barrel/Cistern (RR-8)			___.___
○ Porous Pavement (RR-9)			___.___
○ Green Roof (RR-10)			___.___
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			___.___
○ Infiltration Basin (I-2)			___.___
○ Dry Well (I-3)			___.___
○ Underground Infiltration System (I-4)			___.___
○ Bioretention (F-5)			___.___
○ Dry Swale (O-1)			___.___
Standard SMPs			
○ Micropool Extended Detention (P-1)			___.___
○ Wet Pond (P-2)			___.___
○ Wet Extended Detention (P-3)			___.___
○ Multiple Pond System (P-4)			___.___
○ Pocket Pond (P-5)			___.___
○ Surface Sand Filter (F-1)			___.___
○ Underground Sand Filter (F-2)			___.___
○ Perimeter Sand Filter (F-3)			___.___
○ Organic Filter (F-4)			___.___
○ Shallow Wetland (W-1)			___.___
○ Extended Detention Wetland (W-2)			___.___
○ Pond/Wetland System (W-3)			___.___
○ Pocket Wetland (W-4)			___.___
○ Wet Swale (O-2)			___.___

Table 2 - Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area(acres)
○ **Hydrodynamic**	
○ **Wet Vault**	
○ **Media Filter**	
○ **Other**	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

. **acre-feet**

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ **Yes** ○ **No**

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

. **acre-feet**

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

○ **Yes** ○ **No**

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

			.			
			.			**acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).

			.			
			.			

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ○ **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

			.			
			.			**acre-feet**

CPv Provided

			.			
			.			**acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

			.			
			.			**CFS**

Post-development

			.			
			.			**CFS**

Total Extreme Flood Control Criteria (Qf)

Pre-Development

			.			
			.			**CFS**

Post-development

			.			
			.			**CFS**

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ○ **Yes** ○ **No**

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

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

- ○ Air Pollution Control
- ○ Coastal Erosion
- ○ Hazardous Waste
- ○ Long Island Wells
- ○ Mined Land Reclamation
- ○ Solid Waste
- ○ Navigable Waters Protection / Article 15
- ○ Water Quality Certificate
- ○ Dam Safety
- ○ Water Supply
- ○ Freshwater Wetlands/Article 24
- ○ Tidal Wetlands
- ○ Wild, Scenic and Recreational Rivers
- ○ Stream Bed or Bank Protection / Article 15
- ○ Endangered or Threatened Species(Incidental Take Permit)
- ○ Individual SPDES
- ○ SPDES Multi-Sector GP [N Y R]
- ○ Other [ ]
- ● None

41. Does this project require a US Army Corps of Engineers Wetland Permit? ○ **Yes** ● **No**
If Yes, Indicate Size of Impact. [ ]

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? ● **Yes** ○ **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? ○ **Yes** ● **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. [N Y R]

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

MI

Print Last Name

Owner/Operator Signature

Date

__ __ / __ __ / __ __ __ __

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

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

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	AK Property Holding LLC
2. Contact Person:	Alla Bares
3. Street Address:	730 Columbus Ave - Apt 3D
4. City/State/Zip:	New York, NY 10025
II. Project Site Information	
5. Project/Site Name:	25 Townsend Street Subdivision
6. Street Address:	25 Townsend Street
7. City/State/Zip:	Beacon, NY 12508
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	John Russo, P.E.
9. Title/Position:	City's Engineering Consultant
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4:	City of Beacon
12. MS4 SPDES Permit Identification Number: NYR20A	040
13. Contact Person:	Reuben Simmons, Jr.
14. Street Address:	1 Municipal Plaza
15. City/State/Zip:	Beacon, NY 12508
16. Telephone Number:	845-831-0932

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

APPENDIX B

SOILS DATA


73° 57' 19" W
73° 57' 9" W
587180
587210
587240
587270
587300
587330
587360
587390
41° 30' 51" N
41° 30' 42" N
4596380
4596350
4596320
4596290
4596260
4596230
4596200
4596170
4596140
4596110
BeB
NwC
B St Ave
Map Scale: 1:1,410 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 20 40 80 120
Feet
0 50 100 200 300
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 11, Sep 15, 2014

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

Date(s) aerial images were photographed: Mar 26, 2011—Apr 16, 2012

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

Map Unit Legend

Dutchess County, New York (NY027)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BeB	Bernardston silt loam, 3 to 8 percent slopes	1.1	21.6%
NwC	Nassau-Cardigan complex, rolling, very rocky	4.1	78.4%
Totals for Area of Interest		**5.3**	**100.0%**

Dutchess County, New York

BeB—Bernardston silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9rdm
Elevation: 0 to 1,000 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Bernardston and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bernardston

Setting

Landform: Drumlinoid ridges, hills, till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy, acid, dense till derived mainly from phyllite, shale, slate, and schist

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 27 inches: silt loam
H3 - 27 to 80 inches: silt loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 15 to 30 inches to densic material
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D

Minor Components

Pittstown
Percent of map unit: 10 percent

Punsit
Percent of map unit: 5 percent

Stockbridge
Percent of map unit: 5 percent

Unnamed soils, fine-loamy
Percent of map unit: 3 percent

Canandaigua
Percent of map unit: 1 percent
Landform: Depressions

Sun
Percent of map unit: 1 percent
Landform: Depressions

Data Source Information

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 11, Sep 15, 2014

Dutchess County, New York

NwC—Nassau-Cardigan complex, rolling, very rocky

Map Unit Setting

National map unit symbol: 9rhd
Elevation: 600 to 1,800 feet
Mean annual precipitation: 41 to 47 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 115 to 195 days
Farmland classification: Not prime farmland

Map Unit Composition

Cardigan and similar soils: 40 percent
Nassau and similar soils: 40 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nassau

Setting

Landform: Till plains, benches, ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Channery loamy till derived mainly from local slate or shale

Typical profile

H1 - 0 to 5 inches: channery silt loam
H2 - 5 to 16 inches: very channery silt loam
H3 - 16 to 20 inches: unweathered bedrock

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Natural drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 1.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D

Description of Cardigan

Setting

Landform: Ridges, hills
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till or colluvium derived from phyllite, slate, shale, and schist

Typical profile

H1 - 0 to 8 inches: channery silt loam
H2 - 8 to 20 inches: channery loam
H3 - 20 to 30 inches: channery silt loam
H4 - 30 to 34 inches: unweathered bedrock

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C

Minor Components

Dutchess

Percent of map unit: 9 percent

Unnamed soils, very shallow

Percent of map unit: 5 percent

Rock outcrop

Percent of map unit: 5 percent

Sun

Percent of map unit: 1 percent
Landform: Depressions

Data Source Information

Soil Survey Area: Dutchess County, New York
Survey Area Data: Version 11, Sep 15, 2014

APPENDIX C

RAINFALL DATA, PARCEL ACCESS MAP SHOWING FLOODPLAIN AND WETLANDS

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New York
Location	
Longitude	73.824 degrees West
Latitude	41.650 degrees North
Elevation	0 feet
Date/Time	Mon, 27 Nov 2017 12:49:03 -0500

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.32	0.49	0.61	0.80	0.99	1.24	**1yr**	0.86	1.16	1.42	1.75	2.14	2.62	2.95	**1yr**	2.32	2.83	3.28	3.97	4.57	**1yr**
2yr	0.38	0.59	0.73	0.96	1.21	1.50	**2yr**	1.04	1.40	1.73	2.12	2.59	3.16	3.56	**2yr**	2.79	3.42	3.92	4.64	5.27	**2yr**
5yr	0.45	0.70	0.88	1.18	1.51	1.90	**5yr**	1.31	1.73	2.19	2.68	3.26	3.95	4.52	**5yr**	3.49	4.34	4.99	5.78	6.53	**5yr**
10yr	0.51	0.81	1.02	1.38	1.80	2.28	**10yr**	1.55	2.03	2.62	3.22	3.89	4.68	5.41	**10yr**	4.14	5.20	5.99	6.83	7.68	**10yr**
25yr	0.61	0.97	1.23	1.70	2.26	2.89	**25yr**	1.95	2.51	3.33	4.08	4.92	5.85	6.88	**25yr**	5.18	6.61	7.64	8.52	9.52	**25yr**
50yr	0.70	1.12	1.43	2.01	2.70	3.46	**50yr**	2.33	2.95	4.00	4.89	5.86	6.94	8.25	**50yr**	6.14	7.93	9.18	10.07	11.21	**50yr**
100yr	0.80	1.30	1.67	2.37	3.22	4.15	**100yr**	2.78	3.47	4.80	5.86	6.99	8.23	9.90	**100yr**	7.28	9.52	11.04	11.91	13.21	**100yr**
200yr	0.92	1.50	1.95	2.79	3.85	4.98	**200yr**	3.32	4.09	5.76	7.01	8.34	9.77	11.88	**200yr**	8.64	11.42	13.29	14.10	15.56	**200yr**
500yr	1.13	1.85	2.41	3.49	4.88	6.34	**500yr**	4.21	5.08	7.34	8.90	10.54	12.25	15.14	**500yr**	10.84	14.56	17.00	17.62	19.35	**500yr**

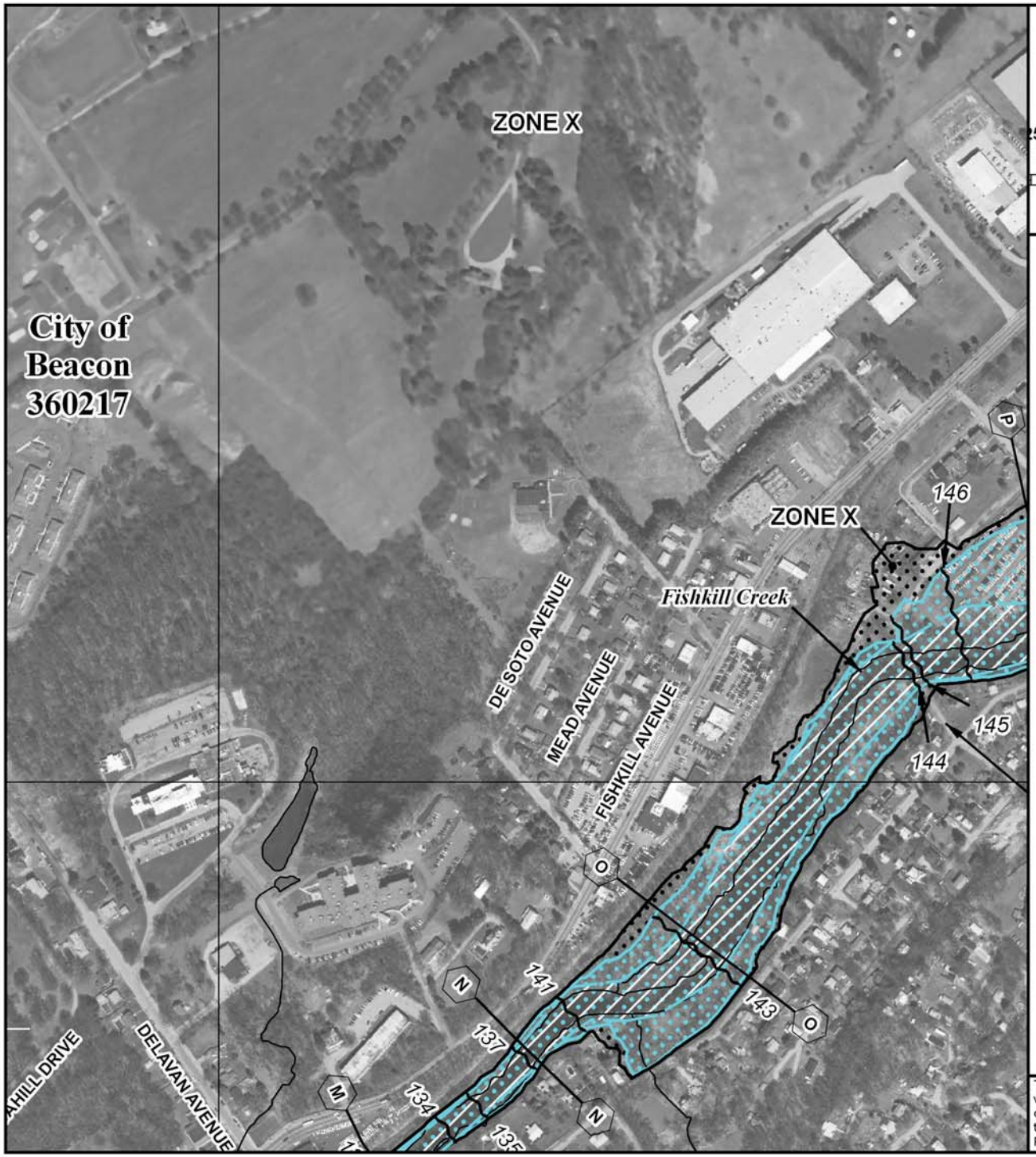
Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.25	0.39	0.48	0.64	0.79	0.95	**1yr**	0.68	0.93	1.24	1.50	1.94	2.29	2.56	**1yr**	2.03	2.46	2.67	3.67	4.18	**1yr**
2yr	0.37	0.57	0.71	0.96	1.18	1.38	**2yr**	1.02	1.35	1.57	2.00	2.53	3.07	3.45	**2yr**	2.71	3.31	3.81	4.51	5.12	**2yr**
5yr	0.41	0.64	0.79	1.09	1.38	1.61	**5yr**	1.19	1.58	1.82	2.35	2.92	3.67	4.18	**5yr**	3.25	4.02	4.62	5.35	6.09	**5yr**
10yr	0.46	0.71	0.88	1.22	1.58	1.80	**10yr**	1.37	1.76	2.04	2.62	3.24	4.20	4.80	**10yr**	3.72	4.62	5.32	6.05	6.93	**10yr**
25yr	0.53	0.80	0.99	1.42	1.87	2.09	**25yr**	1.61	2.04	2.31	2.98	3.70	5.03	5.74	**25yr**	4.45	5.52	6.44	7.11	8.25	**25yr**
50yr	0.58	0.89	1.10	1.59	2.14	2.32	**50yr**	1.84	2.27	2.55	3.32	4.10	5.77	6.62	**50yr**	5.11	6.37	7.46	8.02	9.42	**50yr**
100yr	0.65	0.98	1.22	1.77	2.43	2.60	**100yr**	2.09	2.54	2.82	3.69	4.53	6.63	7.64	**100yr**	5.87	7.34	8.63	9.01	10.78	**100yr**
200yr	0.72	1.09	1.38	2.00	2.79	2.89	**200yr**	2.41	2.83	3.11	4.11	4.98	7.60	8.83	**200yr**	6.73	8.49	10.00	10.17	12.36	**200yr**
500yr	0.85	1.26	1.62	2.36	3.35	3.36	**500yr**	2.89	3.28	3.56	4.74	5.65	9.16	10.73	**500yr**	8.11	10.32	12.17	11.89	14.87	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.36	0.55	0.68	0.91	1.12	1.31	**1yr**	0.96	1.28	1.48	1.90	2.40	2.85	3.20	**1yr**	2.53	3.07	3.53	4.24	4.87	**1yr**
2yr	0.40	0.62	0.76	1.03	1.27	1.50	**2yr**	1.10	1.47	1.73	2.17	2.74	3.26	3.73	**2yr**	2.89	3.59	4.17	4.84	5.46	**2yr**
5yr	0.49	0.76	0.94	1.29	1.64	1.93	**5yr**	1.41	1.88	2.19	2.85	3.55	4.25	4.89	**5yr**	3.76	4.71	5.42	6.23	6.98	**5yr**
10yr	0.59	0.90	1.12	1.56	2.02	2.34	**10yr**	1.74	2.29	2.66	3.49	4.36	5.18	6.06	**10yr**	4.59	5.82	6.75	7.60	8.44	**10yr**
25yr	0.74	1.13	1.41	2.01	2.64	3.05	**25yr**	2.28	2.99	3.48	4.68	5.73	6.76	8.01	**25yr**	5.98	7.70	9.04	9.89	10.82	**25yr**
50yr	0.89	1.35	1.68	2.42	3.26	3.74	**50yr**	2.81	3.66	4.27	5.81	7.05	8.25	9.92	**50yr**	7.30	9.54	11.30	12.09	13.04	**50yr**
100yr	1.07	1.62	2.02	2.92	4.01	4.60	**100yr**	3.46	4.50	5.25	7.22	8.68	10.09	12.28	**100yr**	8.93	11.80	14.12	14.78	15.72	**100yr**
200yr	1.28	1.93	2.45	3.55	4.95	5.61	**200yr**	4.27	5.49	6.45	8.97	10.69	12.34	15.19	**200yr**	10.92	14.61	17.67	18.07	18.96	**200yr**
500yr	1.65	2.46	3.16	4.60	6.54	7.34	**500yr**	5.64	7.17	8.49	12.00	14.13	16.11	20.11	**500yr**	14.26	19.34	23.77	23.62	24.25	**500yr**

Powered by ACIS
Northeast Regional Climate Center



MAP SCALE 1" = 500'

250 0 500 1000

FEET

METER

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0464E

FIRM

FLOOD INSURANCE RATE MAP

for DUTCHESS COUNTY, NEW YORK
(ALL JURISDICTIONS)

CONTAINS:

COMMUNITY	NUMBER
BEACON, CITY OF	360217
FISHKILL, TOWN OF	361337

PANEL 464 OF 602
MAP SUFFIX: E
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
36027C0464E

EFFECTIVE DATE
MAY 2, 2012

Federal Emergency Management Agency

Dutchess County
New York

25 Townsend

Parcel Access with Wetlands and Floodplain

Printed by:
ParcelAccess

0 150 300 ft

ParcelAccess
Internet
2/26/2018

U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands - Conklin St

Jan 13, 2016

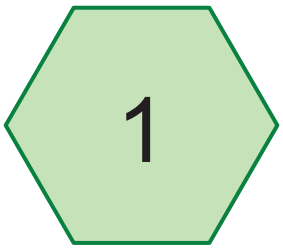
Wetlands

- Freshwater Emergent
- Freshwater Forested/Shrub
- Estuarine and Marine Deepwater
- Estuarine and Marine
- Freshwater Pond
- Lake
- Riverine
- Other

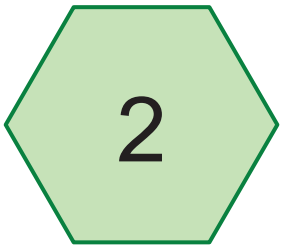
User Remarks:

APPENDIX D

PRE-DEVELOPMENT HYDROCAD MODEL



DA 1



DA 2

DA 3

Subcat Reach Pond Link

Routing Diagram for 2015-025 Pre Conditions
Prepared by {enter your company name here}, Printed 2/26/2018

Summary for Subcatchment 1: DA 1

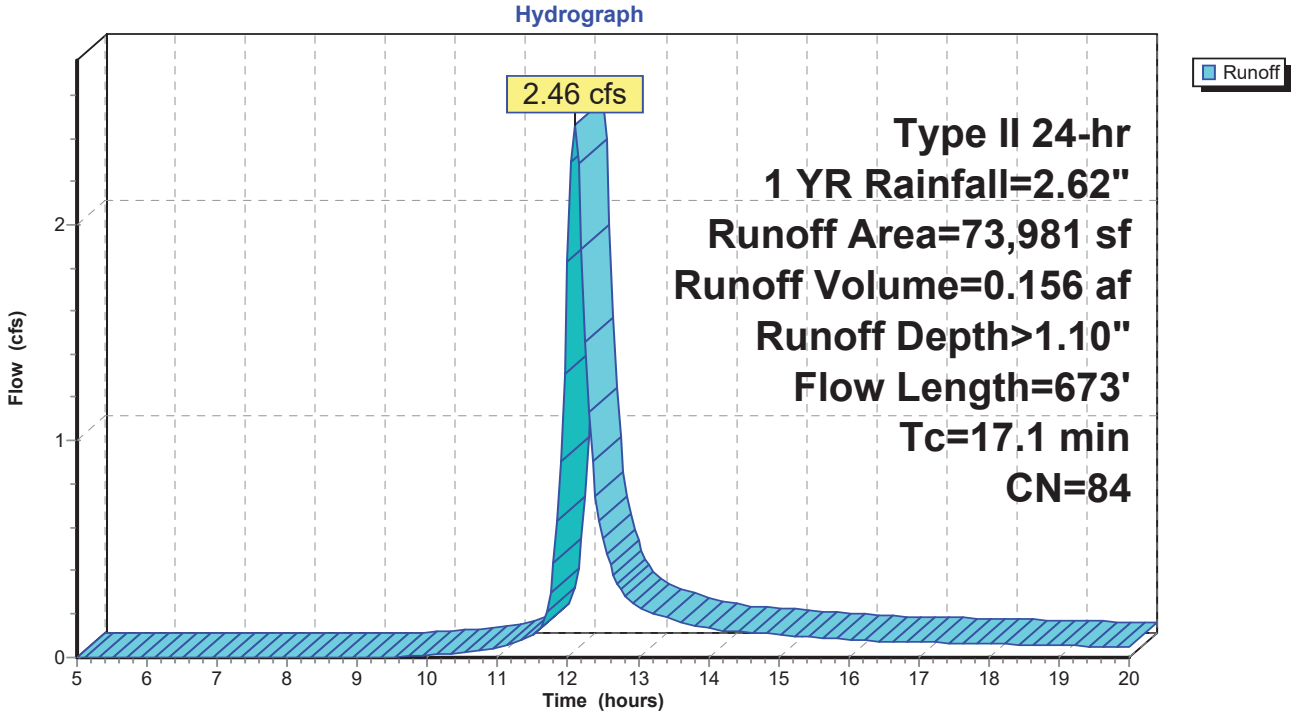
Runoff = 2.46 cfs @ 12.10 hrs, Volume= 0.156 af, Depth> 1.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR Rainfall=2.62"

Area (sf)	CN	Description
38,260	77	Woods, Good, HSG D
20,783	98	Paved parking, HSG D
14,938	80	>75% Grass cover, Good, HSG D
73,981	84	Weighted Average
53,198		71.91% Pervious Area
20,783		28.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		**Sheet Flow, S2** Woods: Light underbrush n= 0.400 P2= 3.16"
5.5	407	0.0610	1.23		**Shallow Concentrated Flow, S2** Woodland Kv= 5.0 fps
0.2	30	0.0830	2.02		**Shallow Concentrated Flow, S3** Short Grass Pasture Kv= 7.0 fps
0.5	136	0.0590	4.93		**Shallow Concentrated Flow, S4** Paved Kv= 20.3 fps
17.1	673	Total			

Subcatchment 1: DA 1



Summary for Subcatchment 2: DA 2

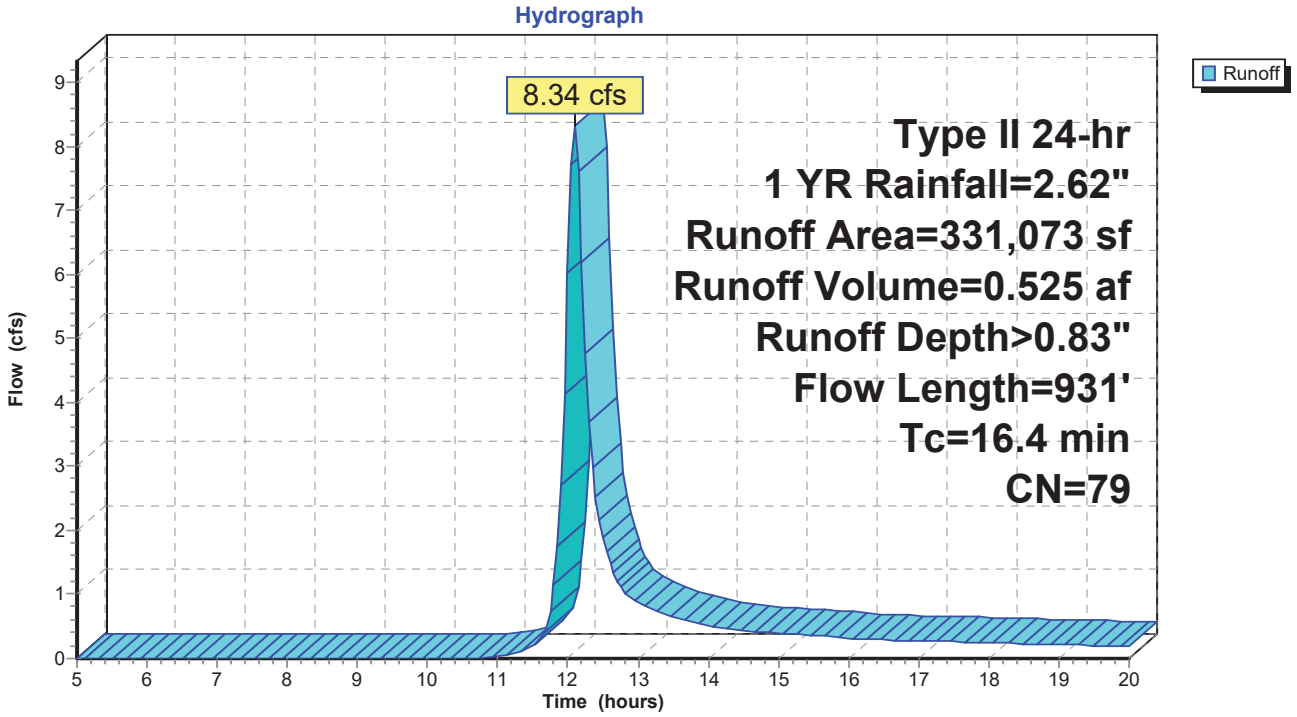
Runoff = 8.34 cfs @ 12.10 hrs, Volume= 0.525 af, Depth> 0.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR Rainfall=2.62"

Area (sf)	CN	Description
131,018	77	Woods, Good, HSG D
7,630	98	Paved parking, HSG D
7,047	96	Gravel surface, HSG D
40,630	78	Meadow, non-grazed, HSG D
144,748	80	>75% Grass cover, Good, HSG D
331,073	79	Weighted Average
323,443		97.70% Pervious Area
7,630		2.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.0630	0.27		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.6	169	0.0620	1.74		**Shallow Concentrated Flow, S2** Short Grass Pasture Kv= 7.0 fps
5.2	347	0.0490	1.11		**Shallow Concentrated Flow, S3** Woodland Kv= 5.0 fps
0.1	26	0.0480	3.53		**Shallow Concentrated Flow, S4** Unpaved Kv= 16.1 fps
2.3	194	0.0390	1.38		**Shallow Concentrated Flow, S5** Short Grass Pasture Kv= 7.0 fps
1.0	95	0.0960	1.55		**Shallow Concentrated Flow, S6** Woodland Kv= 5.0 fps
16.4	931	Total			

Subcatchment 2: DA 2



Summary for Subcatchment 3: DA 3

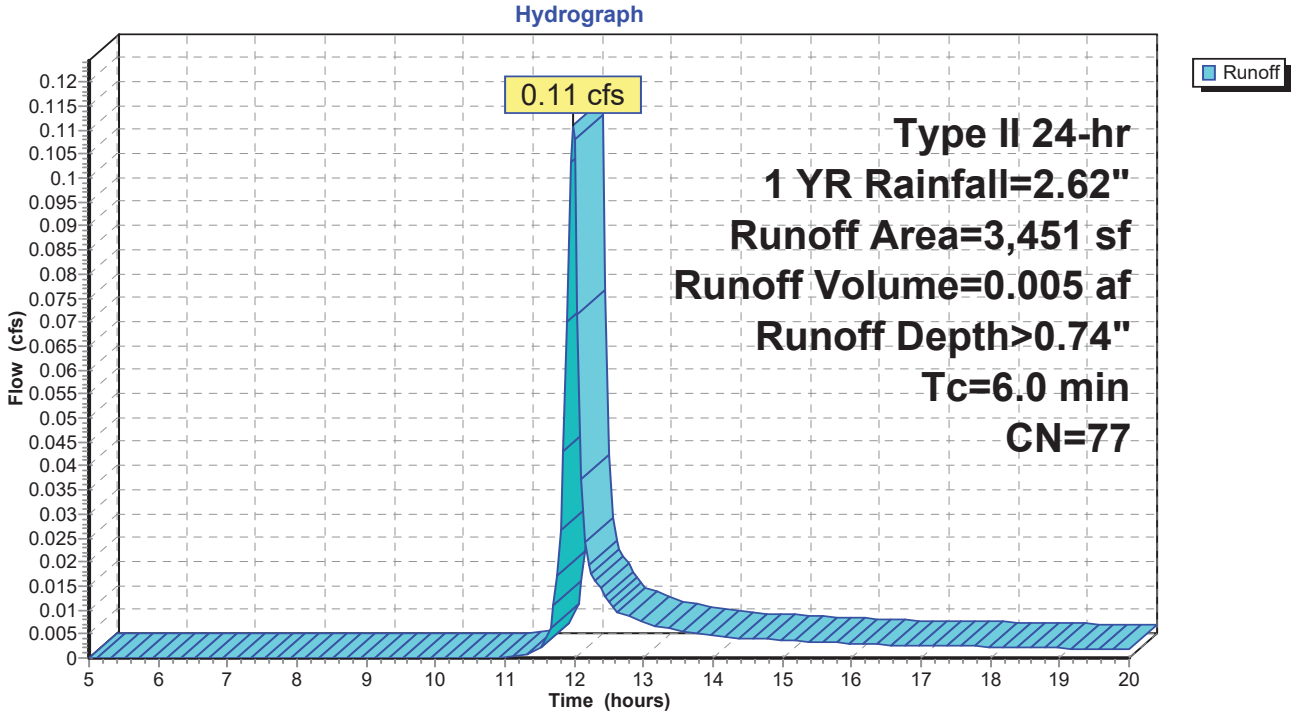
Runoff = 0.11 cfs @ 11.98 hrs, Volume= 0.005 af, Depth> 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR Rainfall=2.62"

Area (sf)	CN	Description
3,451	77	Woods, Good, HSG D
3,451		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, S1**

Subcatchment 3: DA 3



Summary for Subcatchment 1: DA 1

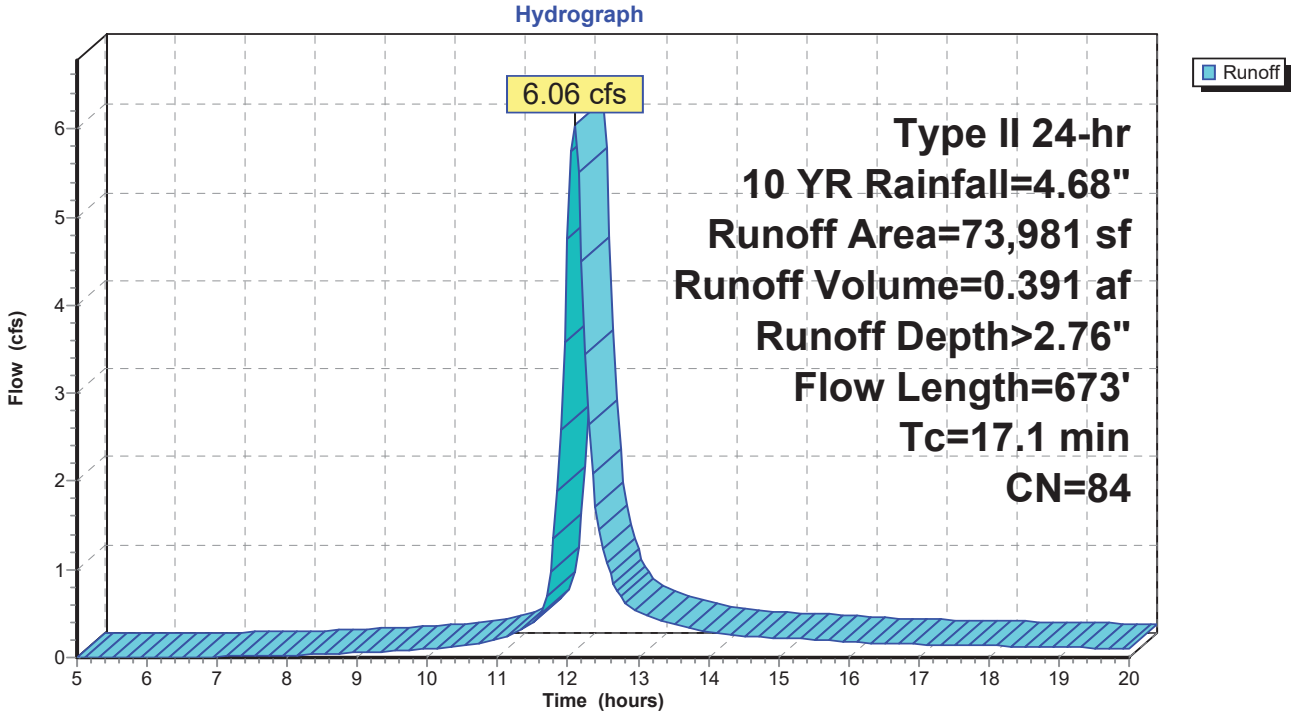
Runoff = 6.06 cfs @ 12.09 hrs, Volume= 0.391 af, Depth> 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR Rainfall=4.68"

Area (sf)	CN	Description
38,260	77	Woods, Good, HSG D
20,783	98	Paved parking, HSG D
14,938	80	>75% Grass cover, Good, HSG D
73,981	84	Weighted Average
53,198		71.91% Pervious Area
20,783		28.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		**Sheet Flow, S2** Woods: Light underbrush n= 0.400 P2= 3.16"
5.5	407	0.0610	1.23		**Shallow Concentrated Flow, S2** Woodland Kv= 5.0 fps
0.2	30	0.0830	2.02		**Shallow Concentrated Flow, S3** Short Grass Pasture Kv= 7.0 fps
0.5	136	0.0590	4.93		**Shallow Concentrated Flow, S4** Paved Kv= 20.3 fps
17.1	673	Total			

Subcatchment 1: DA 1



Summary for Subcatchment 2: DA 2

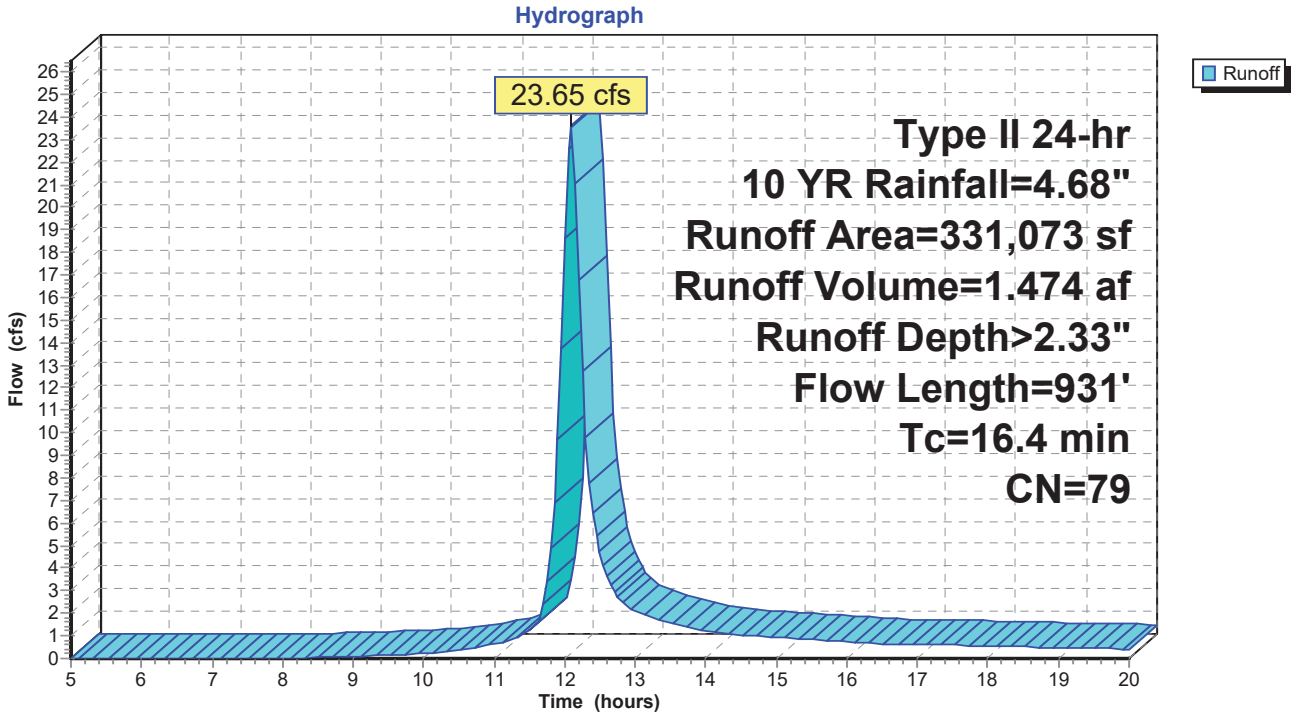
Runoff = 23.65 cfs @ 12.09 hrs, Volume= 1.474 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR Rainfall=4.68"

Area (sf)	CN	Description
131,018	77	Woods, Good, HSG D
7,630	98	Paved parking, HSG D
7,047	96	Gravel surface, HSG D
40,630	78	Meadow, non-grazed, HSG D
144,748	80	>75% Grass cover, Good, HSG D
331,073	79	Weighted Average
323,443		97.70% Pervious Area
7,630		2.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.0630	0.27		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.6	169	0.0620	1.74		**Shallow Concentrated Flow, S2** Short Grass Pasture Kv= 7.0 fps
5.2	347	0.0490	1.11		**Shallow Concentrated Flow, S3** Woodland Kv= 5.0 fps
0.1	26	0.0480	3.53		**Shallow Concentrated Flow, S4** Unpaved Kv= 16.1 fps
2.3	194	0.0390	1.38		**Shallow Concentrated Flow, S5** Short Grass Pasture Kv= 7.0 fps
1.0	95	0.0960	1.55		**Shallow Concentrated Flow, S6** Woodland Kv= 5.0 fps
16.4	931	Total			

Subcatchment 2: DA 2



Summary for Subcatchment 3: DA 3

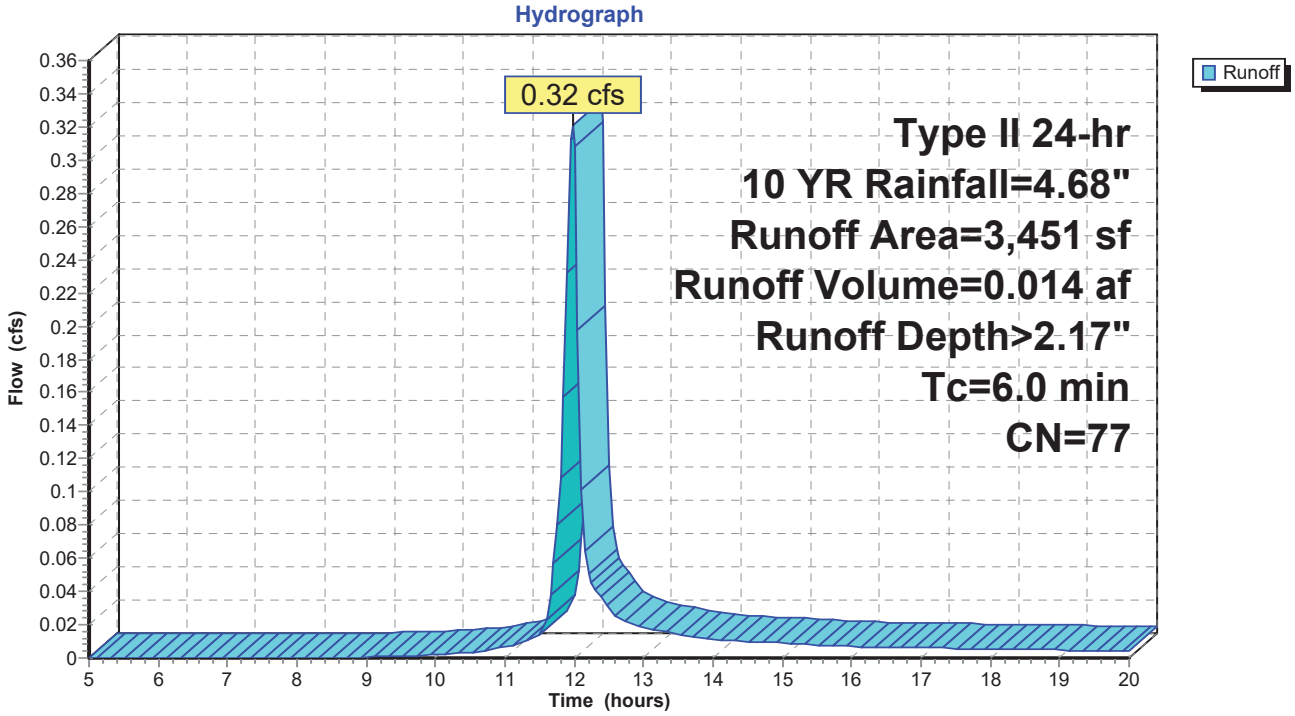
Runoff = 0.32 cfs @ 11.97 hrs, Volume= 0.014 af, Depth> 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR Rainfall=4.68"

Area (sf)	CN	Description
3,451	77	Woods, Good, HSG D
3,451		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, S1**

Subcatchment 3: DA 3



Summary for Subcatchment 1: DA 1

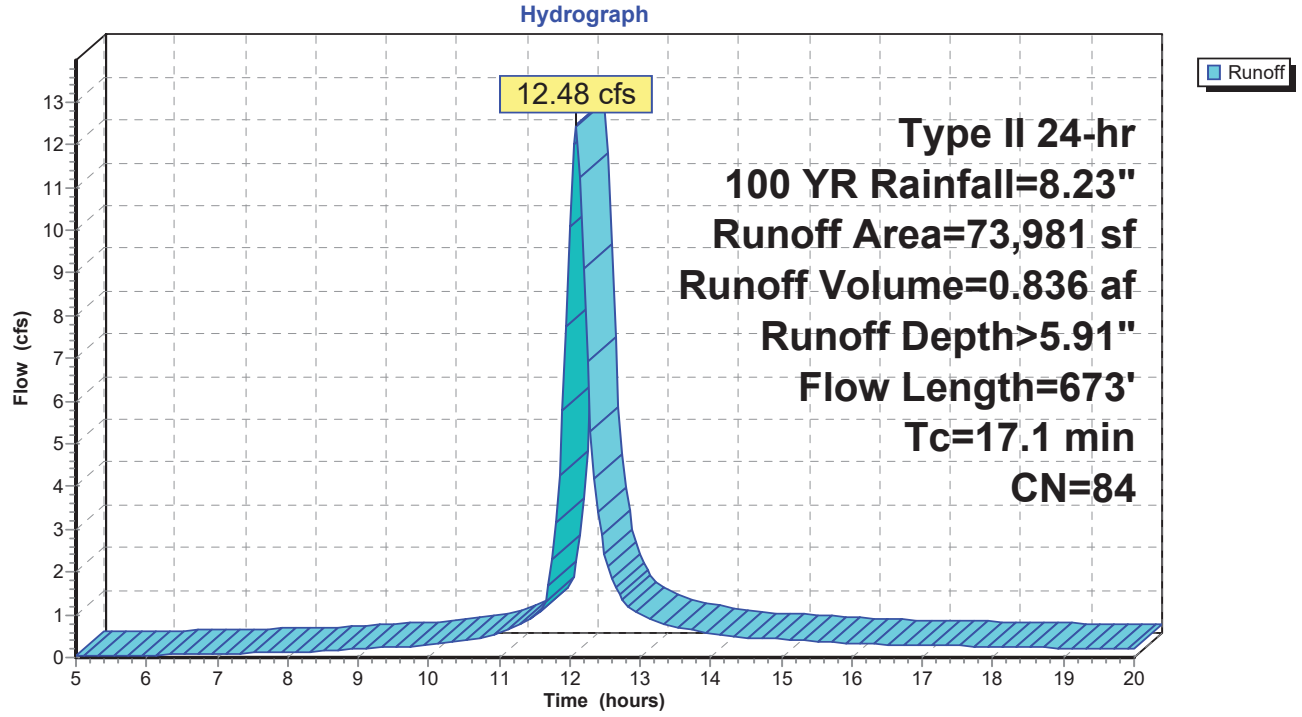
Runoff = 12.48 cfs @ 12.09 hrs, Volume= 0.836 af, Depth> 5.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR Rainfall=8.23"

Area (sf)	CN	Description
38,260	77	Woods, Good, HSG D
20,783	98	Paved parking, HSG D
14,938	80	>75% Grass cover, Good, HSG D
73,981	84	Weighted Average
53,198		71.91% Pervious Area
20,783		28.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		**Sheet Flow, S2** Woods: Light underbrush n= 0.400 P2= 3.16"
5.5	407	0.0610	1.23		**Shallow Concentrated Flow, S2** Woodland Kv= 5.0 fps
0.2	30	0.0830	2.02		**Shallow Concentrated Flow, S3** Short Grass Pasture Kv= 7.0 fps
0.5	136	0.0590	4.93		**Shallow Concentrated Flow, S4** Paved Kv= 20.3 fps
17.1	673	Total			

Subcatchment 1: DA 1



Summary for Subcatchment 2: DA 2

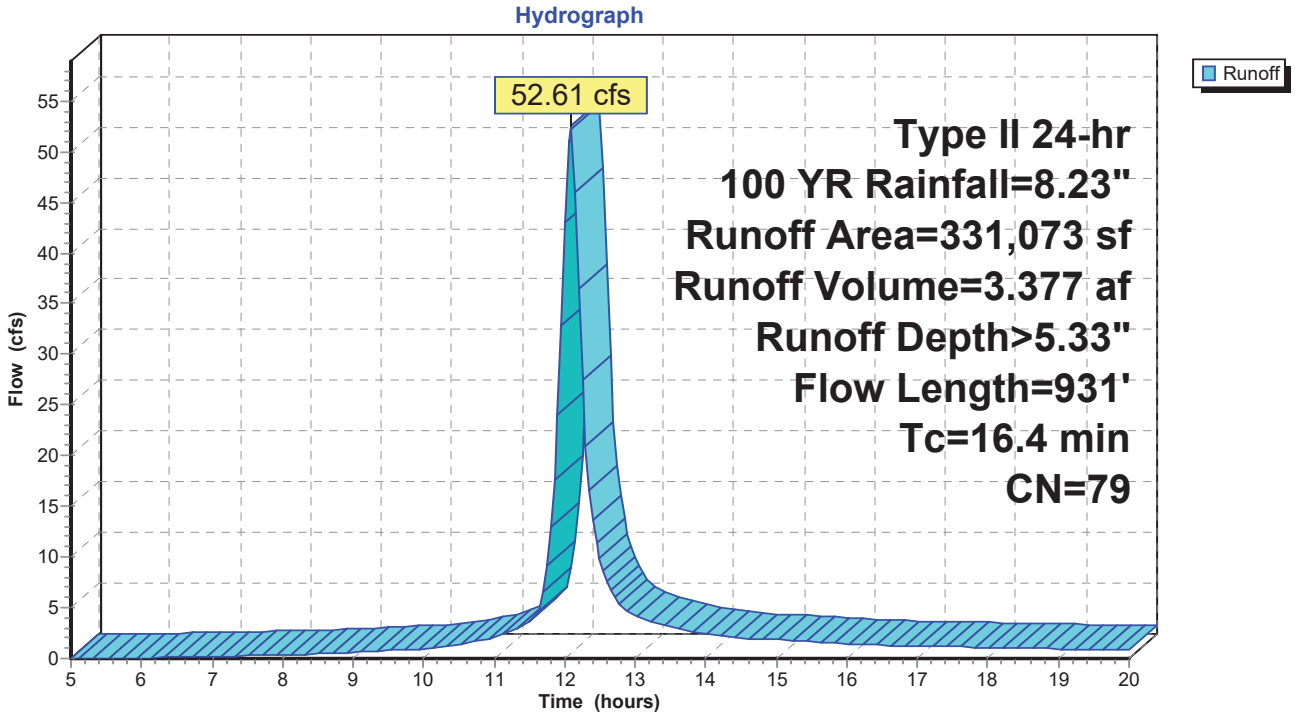
Runoff = 52.61 cfs @ 12.08 hrs, Volume= 3.377 af, Depth> 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR Rainfall=8.23"

Area (sf)	CN	Description
131,018	77	Woods, Good, HSG D
7,630	98	Paved parking, HSG D
7,047	96	Gravel surface, HSG D
40,630	78	Meadow, non-grazed, HSG D
144,748	80	>75% Grass cover, Good, HSG D
331,073	79	Weighted Average
323,443		97.70% Pervious Area
7,630		2.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.0630	0.27		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.6	169	0.0620	1.74		**Shallow Concentrated Flow, S2** Short Grass Pasture Kv= 7.0 fps
5.2	347	0.0490	1.11		**Shallow Concentrated Flow, S3** Woodland Kv= 5.0 fps
0.1	26	0.0480	3.53		**Shallow Concentrated Flow, S4** Unpaved Kv= 16.1 fps
2.3	194	0.0390	1.38		**Shallow Concentrated Flow, S5** Short Grass Pasture Kv= 7.0 fps
1.0	95	0.0960	1.55		**Shallow Concentrated Flow, S6** Woodland Kv= 5.0 fps
16.4	931	Total			

Subcatchment 2: DA 2



Summary for Subcatchment 3: DA 3

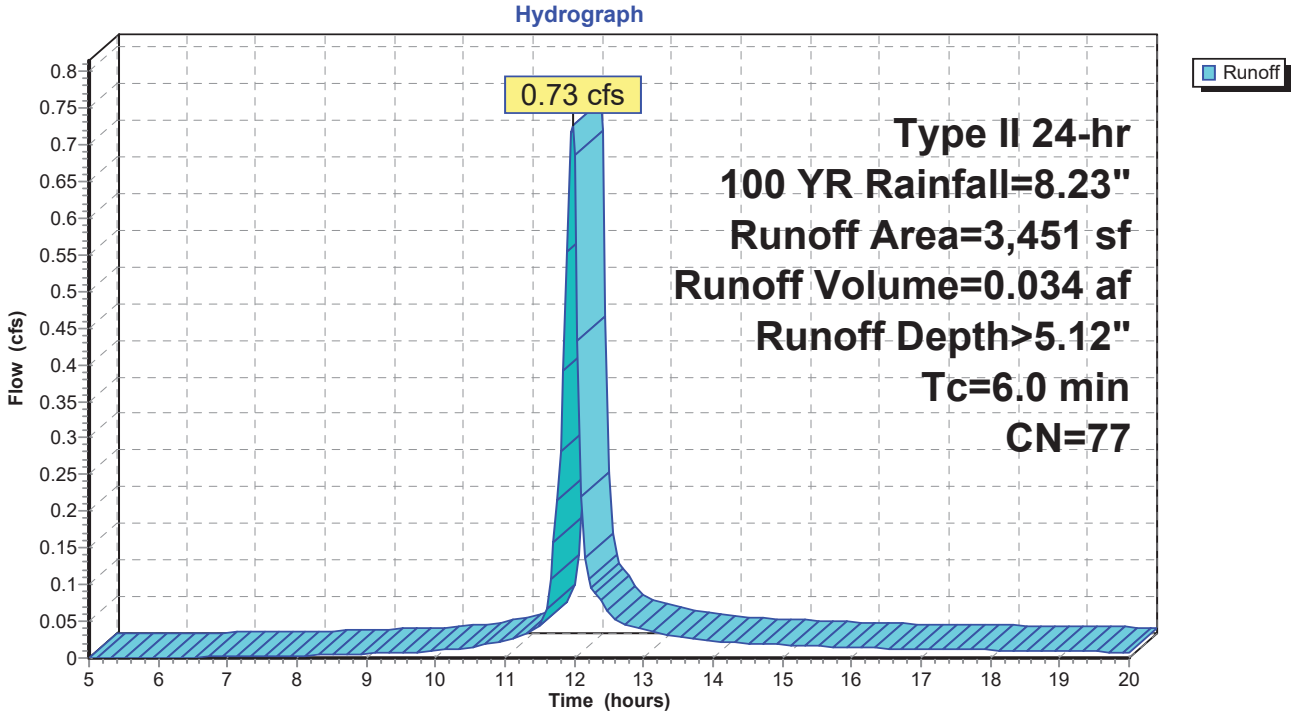
Runoff = 0.73 cfs @ 11.97 hrs, Volume= 0.034 af, Depth> 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR Rainfall=8.23"

Area (sf)	CN	Description
3,451	77	Woods, Good, HSG D
3,451		100.00% Pervious Area

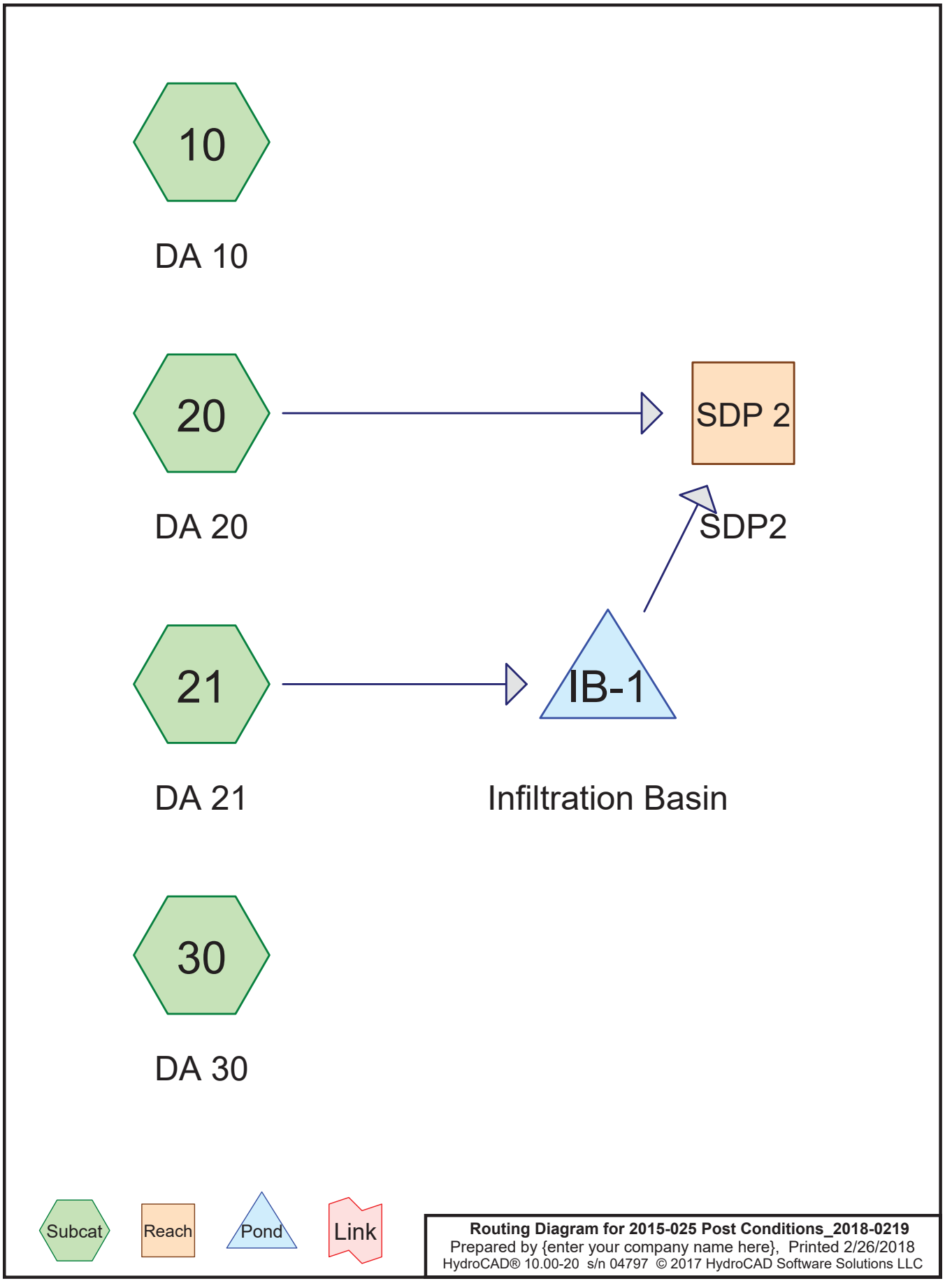
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, S1**

Subcatchment 3: DA 3



APPENDIX G

PRE-CONSTRUCTION INSPECTION FORM



Routing Diagram for 2015-025 Post Conditions_2018-0219
Prepared by {enter your company name here}, Printed 2/26/2018

Summary for Subcatchment 10: DA 10

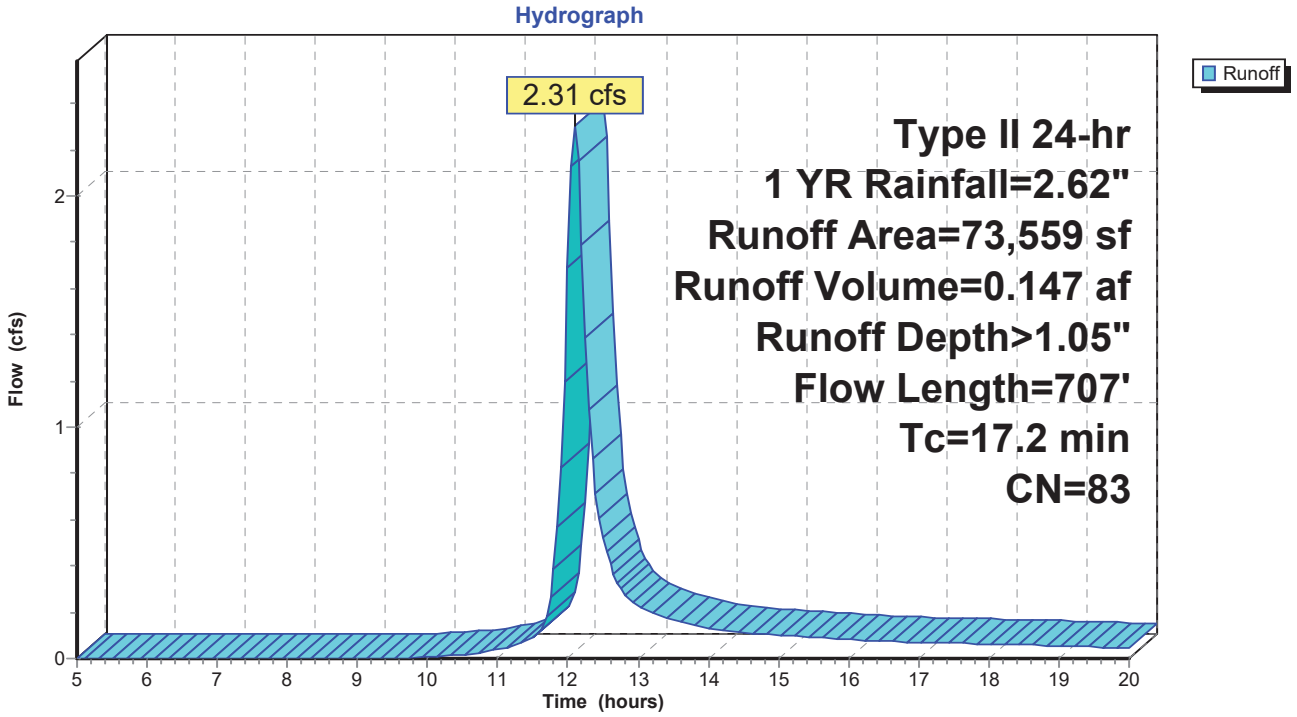
Runoff = 2.31 cfs @ 12.10 hrs, Volume= 0.147 af, Depth> 1.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR Rainfall=2.62"

Area (sf)	CN	Description
23,952	77	Woods, Good, HSG D
15,309	98	Paved parking, HSG D
34,298	80	>75% Grass cover, Good, HSG D
73,559	83	Weighted Average
58,250		79.19% Pervious Area
15,309		20.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		**Sheet Flow, S2** Woods: Light underbrush n= 0.400 P2= 3.16"
3.4	249	0.0600	1.22		**Shallow Concentrated Flow, S2** Woodland Kv= 5.0 fps
0.1	49	0.0100	7.80	67.89	**Channel Flow, S3** Area= 8.7 sf Perim= 4.4' r= 1.98' n= 0.030 Earth, grassed & winding
1.4	154	0.0650	1.78		**Shallow Concentrated Flow, S4** Short Grass Pasture Kv= 7.0 fps
0.1	28	0.0890	6.06		**Shallow Concentrated Flow, S5** Paved Kv= 20.3 fps
1.3	127	0.0550	1.64		**Shallow Concentrated Flow, S6** Short Grass Pasture Kv= 7.0 fps
17.2	707	Total			

Subcatchment 10: DA 10



Summary for Subcatchment 20: DA 20

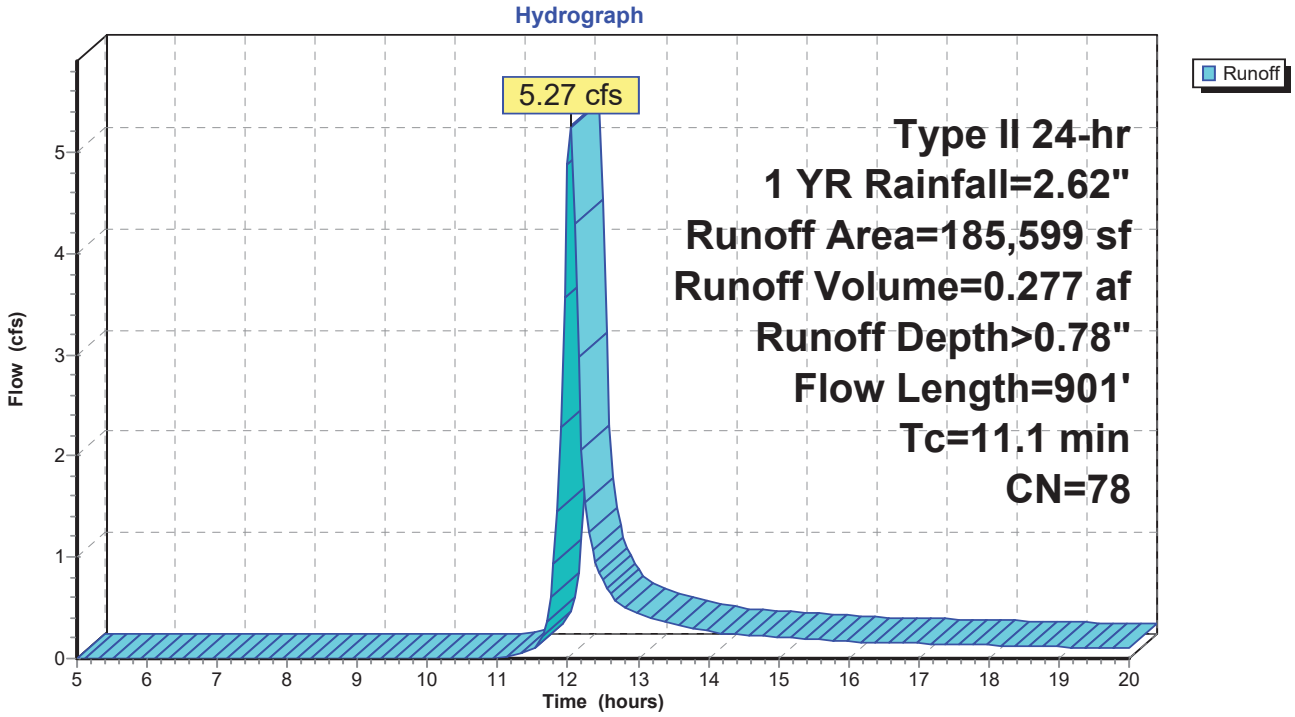
Runoff = 5.27 cfs @ 12.04 hrs, Volume= 0.277 af, Depth> 0.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR Rainfall=2.62"

Area (sf)	CN	Description
87,785	77	Woods, Good, HSG D
57,184	80	>75% Grass cover, Good, HSG D
40,630	78	Meadow, non-grazed, HSG D
185,599	78	Weighted Average
185,599		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.0630	0.27		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.6	169	0.0620	1.74		**Shallow Concentrated Flow, S2** Short Grass Pasture Kv= 7.0 fps
3.0	249	0.0780	1.40		**Shallow Concentrated Flow, S3** Woodland Kv= 5.0 fps
0.2	367	0.0680	27.75	241.41	**Channel Flow, S4** Area= 8.7 sf Perim= 4.4' r= 1.98' n= 0.022 Earth, clean & straight
0.1	16	0.1880	3.04		**Shallow Concentrated Flow, S5** Short Grass Pasture Kv= 7.0 fps
11.1	901	Total			

Subcatchment 20: DA 20



Summary for Subcatchment 21: DA 21

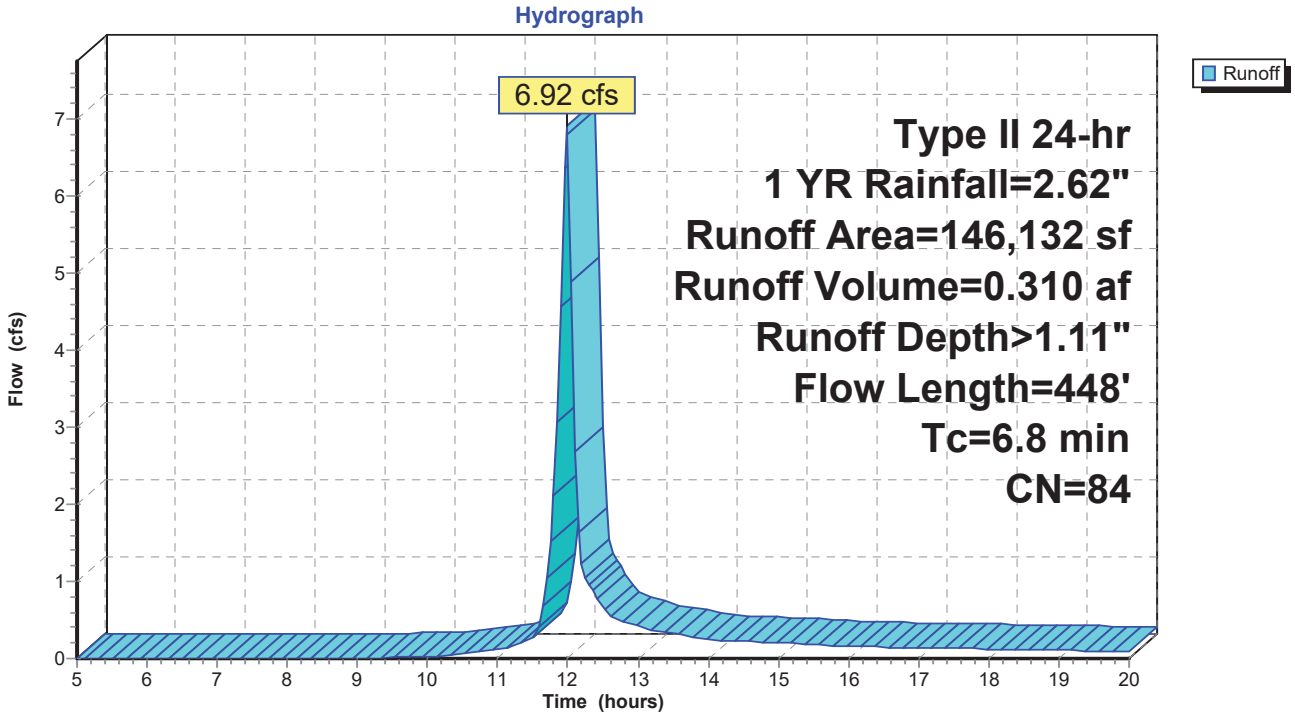
Runoff = 6.92 cfs @ 11.98 hrs, Volume= 0.310 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR Rainfall=2.62"

Area (sf)	CN	Description
31,684	98	Paved parking, HSG D
1,713	96	Gravel surface, HSG D
112,735	80	>75% Grass cover, Good, HSG D
146,132	84	Weighted Average
114,448		78.32% Pervious Area
31,684		21.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	80	0.0630	0.26		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
0.1	23	0.0430	4.21		**Shallow Concentrated Flow, S2** Paved Kv= 20.3 fps
1.1	93	0.0430	1.45		**Shallow Concentrated Flow, S3** Short Grass Pasture Kv= 7.0 fps
0.0	17	0.0120	6.51	11.51	**Pipe Channel, S4** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.1	127	0.0610	14.68	25.94	**Pipe Channel, S5** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.2	58	0.0100	5.94	10.50	**Pipe Channel, S6** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.1	50	0.0120	6.51	11.51	**Pipe Channel, S7** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
6.8	448	Total			

Subcatchment 21: DA 21



Summary for Subcatchment 30: DA 30

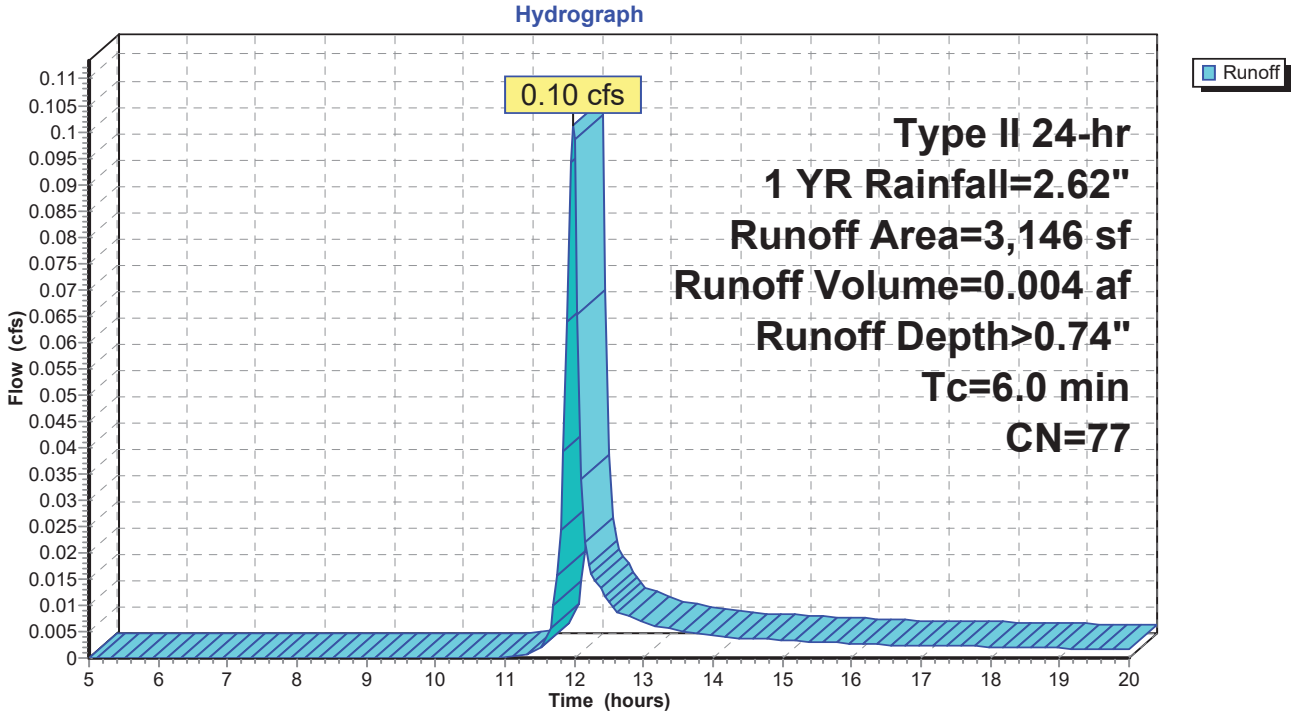
Runoff = 0.10 cfs @ 11.98 hrs, Volume= 0.004 af, Depth> 0.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1 YR Rainfall=2.62"

Area (sf)	CN	Description
3,146	77	Woods, Good, HSG D
3,146		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, S1**

Subcatchment 30: DA 30

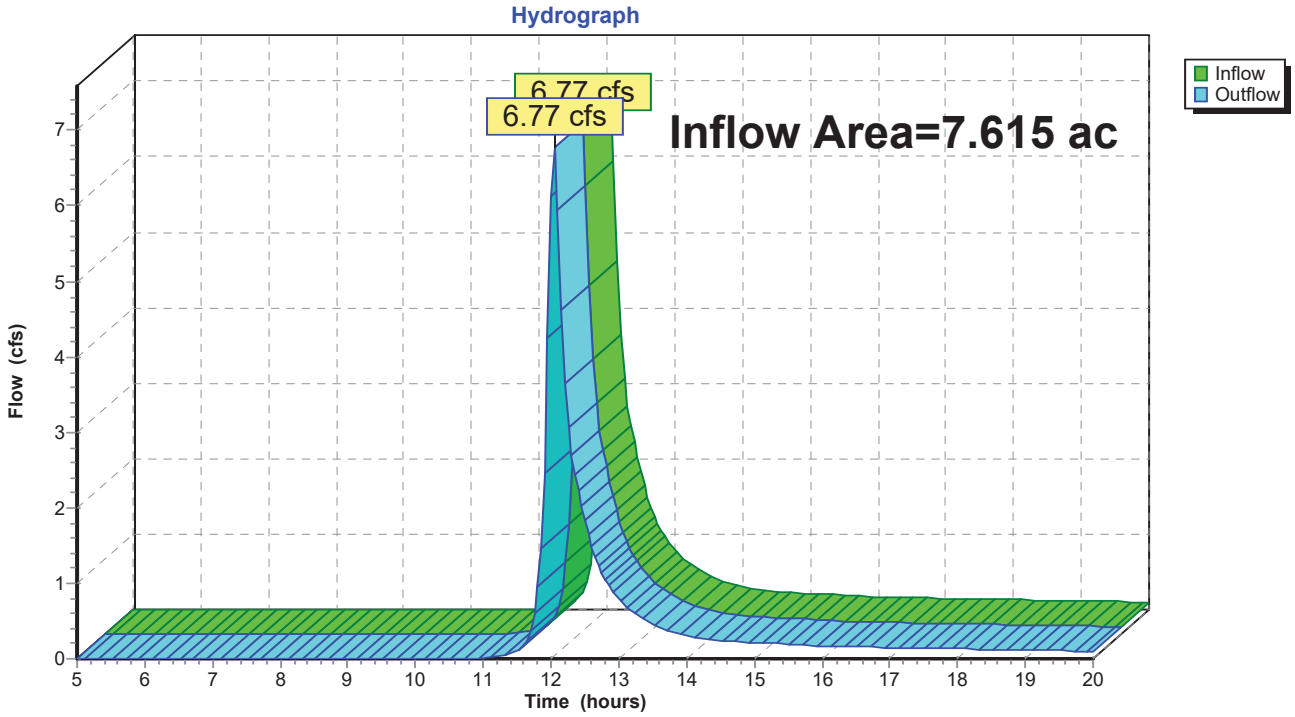


Summary for Reach SDP 2: SDP2

Inflow Area = 7.615 ac, 9.55% Impervious, Inflow Depth > 0.60" for 1 YR event
Inflow = 6.77 cfs @ 12.05 hrs, Volume= 0.381 af
Outflow = 6.77 cfs @ 12.05 hrs, Volume= 0.381 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SDP 2: SDP2



Summary for Pond IB-1: Infiltration Basin

Inflow Area = 3.355 ac, 21.68% Impervious, Inflow Depth > 1.11" for 1 YR event
Inflow = 6.92 cfs @ 11.98 hrs, Volume= 0.310 af
Outflow = 2.28 cfs @ 12.12 hrs, Volume= 0.301 af, Atten= 67%, Lag= 8.3 min
Discarded = 0.63 cfs @ 12.12 hrs, Volume= 0.197 af
Primary = 1.65 cfs @ 12.12 hrs, Volume= 0.104 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 199.09' @ 12.12 hrs Surf.Area= 7,019 sf Storage= 4,873 cf
Flood Elev= 202.00' Surf.Area= 10,419 sf Storage= 30,142 cf

Plug-Flow detention time= 53.0 min calculated for 0.301 af (97% of inflow)
Center-of-Mass det. time= 41.8 min (834.6 - 792.7)

Volume	Invert	Avail.Storage	Storage Description
#1	198.00'	30,142 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

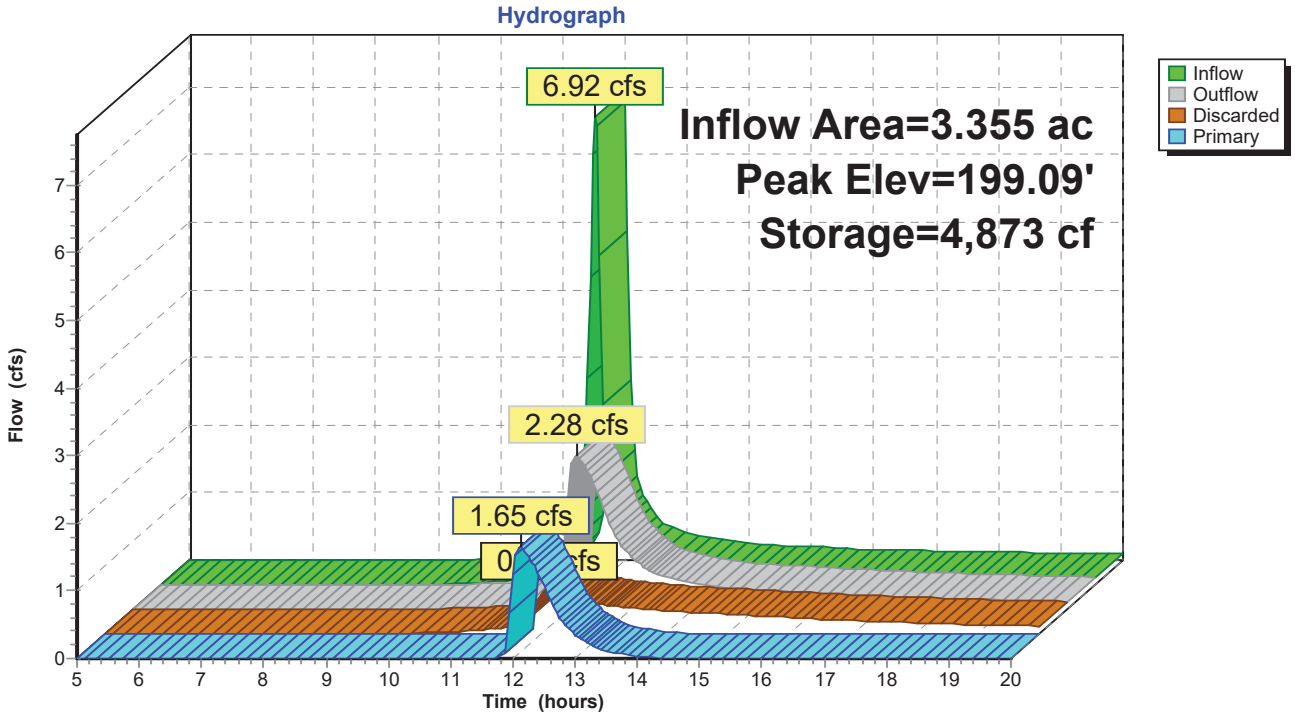
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.00	1,600	0	0
199.00	6,923	4,262	4,262
200.00	8,022	7,473	11,734
201.00	9,187	8,605	20,339
202.00	10,419	9,803	30,142

Device	Routing	Invert	Outlet Devices
#1	Primary	197.00'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 197.00' / 196.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	198.50'	**6.0" Vert. Orifice/Grate X 3.00** C= 0.600
#3	Device 1	199.10'	**36.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	200.00'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	201.00'	**10.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#6	Discarded	198.00'	**5.000 in/hr Exfiltration over Surface area above 198.00'** Excluded Surface area = 1,600 sf

Discarded OutFlow Max=0.63 cfs @ 12.12 hrs HW=199.08' (Free Discharge)
└**6=Exfiltration** (Exfiltration Controls 0.63 cfs)

Primary OutFlow Max=1.64 cfs @ 12.12 hrs HW=199.08' TW=0.00' (Dynamic Tailwater)
├**1=Culvert** (Passes 1.64 cfs of 9.77 cfs potential flow)
│ ├**2=Orifice/Grate** (Orifice Controls 1.64 cfs @ 2.78 fps)
│ ├**3=Orifice/Grate** (Controls 0.00 cfs)
│ └**4=Orifice/Grate** (Controls 0.00 cfs)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond IB-1: Infiltration Basin



Summary for Subcatchment 10: DA 10

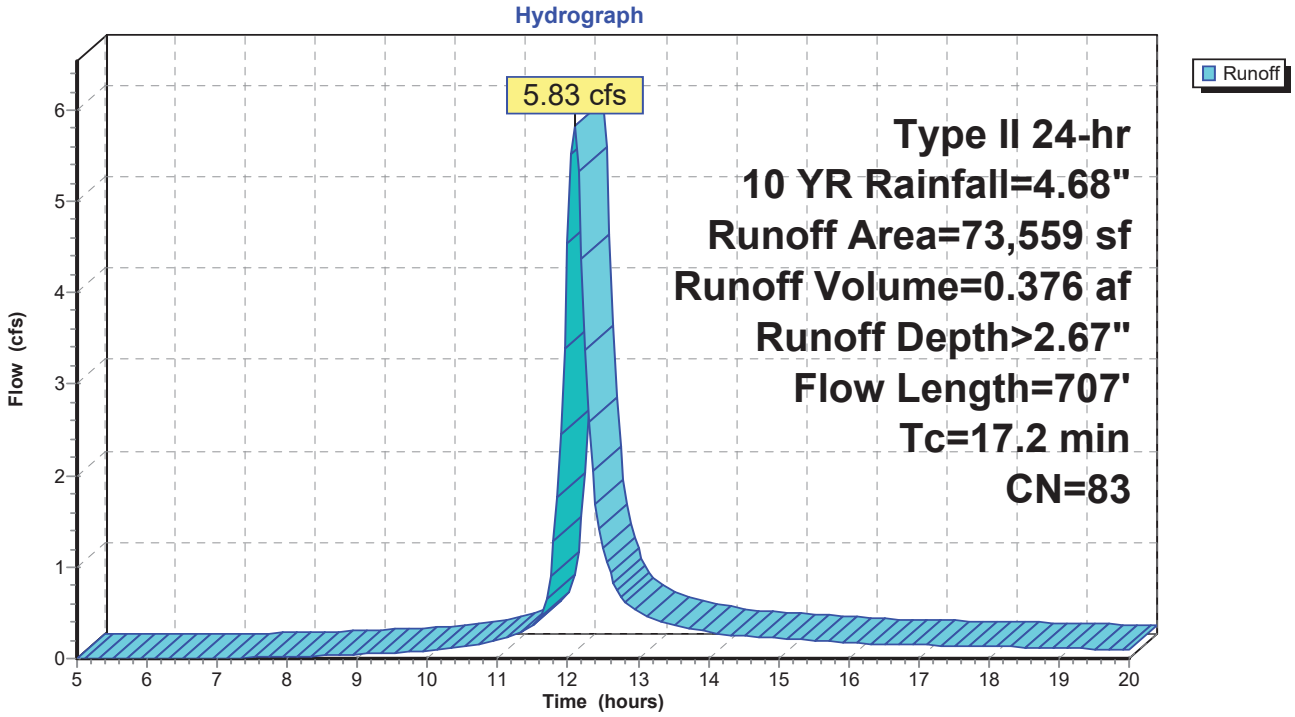
Runoff = 5.83 cfs @ 12.09 hrs, Volume= 0.376 af, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR Rainfall=4.68"

Area (sf)	CN	Description
23,952	77	Woods, Good, HSG D
15,309	98	Paved parking, HSG D
34,298	80	>75% Grass cover, Good, HSG D
73,559	83	Weighted Average
58,250		79.19% Pervious Area
15,309		20.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		**Sheet Flow, S2** Woods: Light underbrush n= 0.400 P2= 3.16"
3.4	249	0.0600	1.22		**Shallow Concentrated Flow, S2** Woodland Kv= 5.0 fps
0.1	49	0.0100	7.80	67.89	**Channel Flow, S3** Area= 8.7 sf Perim= 4.4' r= 1.98' n= 0.030 Earth, grassed & winding
1.4	154	0.0650	1.78		**Shallow Concentrated Flow, S4** Short Grass Pasture Kv= 7.0 fps
0.1	28	0.0890	6.06		**Shallow Concentrated Flow, S5** Paved Kv= 20.3 fps
1.3	127	0.0550	1.64		**Shallow Concentrated Flow, S6** Short Grass Pasture Kv= 7.0 fps
17.2	707	Total			

Subcatchment 10: DA 10



Summary for Subcatchment 20: DA 20

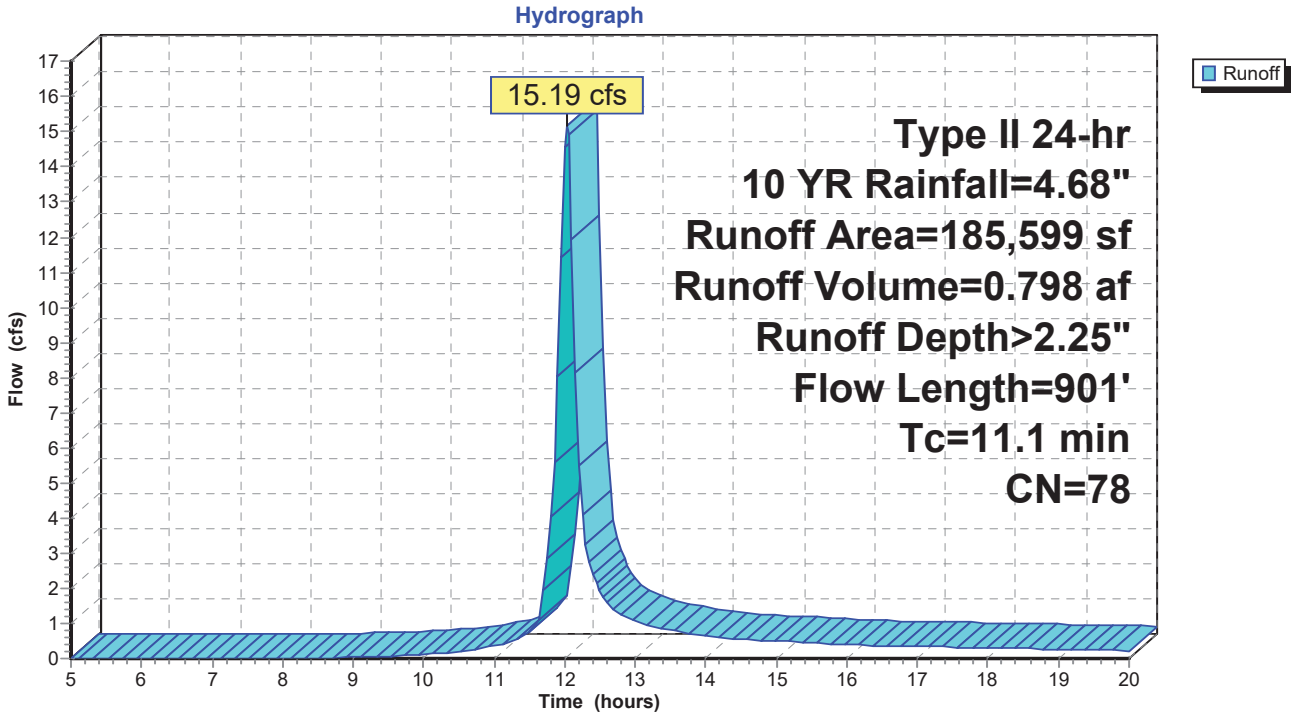
Runoff = 15.19 cfs @ 12.03 hrs, Volume= 0.798 af, Depth> 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR Rainfall=4.68"

Area (sf)	CN	Description
87,785	77	Woods, Good, HSG D
57,184	80	>75% Grass cover, Good, HSG D
40,630	78	Meadow, non-grazed, HSG D
185,599	78	Weighted Average
185,599		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.0630	0.27		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.6	169	0.0620	1.74		**Shallow Concentrated Flow, S2** Short Grass Pasture Kv= 7.0 fps
3.0	249	0.0780	1.40		**Shallow Concentrated Flow, S3** Woodland Kv= 5.0 fps
0.2	367	0.0680	27.75	241.41	**Channel Flow, S4** Area= 8.7 sf Perim= 4.4' r= 1.98' n= 0.022 Earth, clean & straight
0.1	16	0.1880	3.04		**Shallow Concentrated Flow, S5** Short Grass Pasture Kv= 7.0 fps
11.1	901	Total			

Subcatchment 20: DA 20



Summary for Subcatchment 21: DA 21

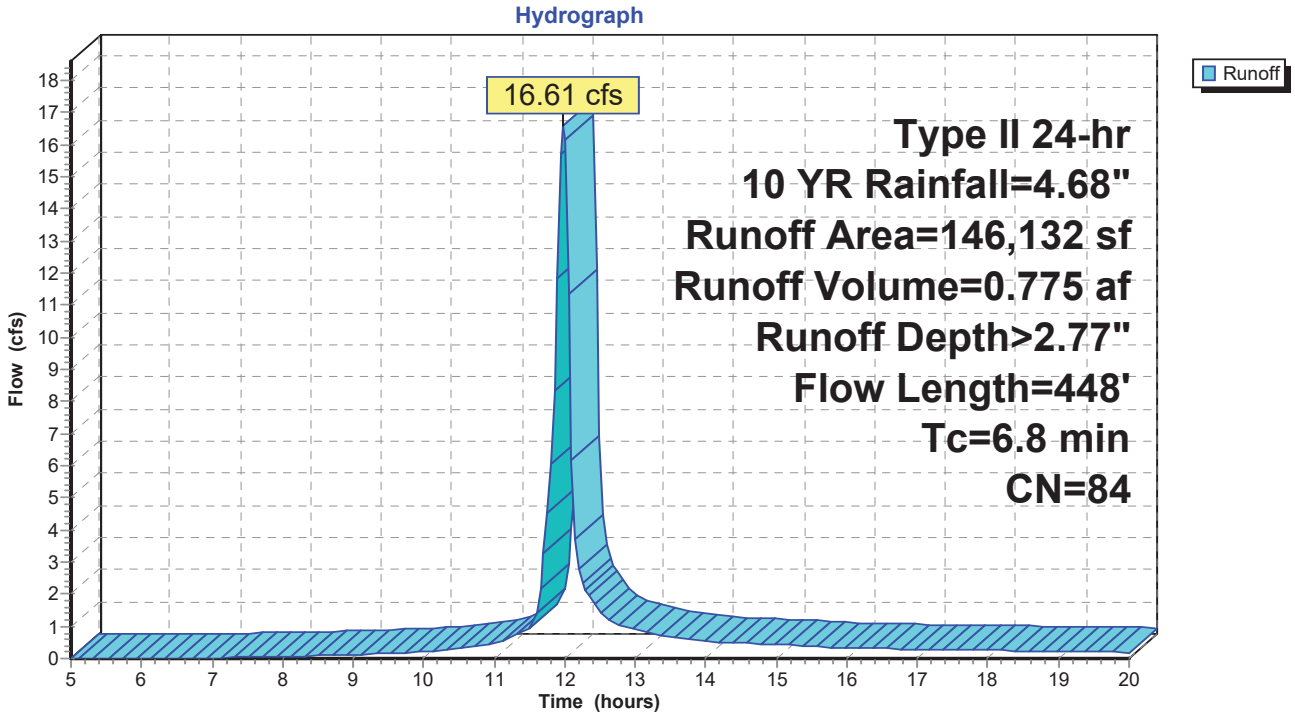
Runoff = 16.61 cfs @ 11.98 hrs, Volume= 0.775 af, Depth> 2.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR Rainfall=4.68"

Area (sf)	CN	Description
31,684	98	Paved parking, HSG D
1,713	96	Gravel surface, HSG D
112,735	80	>75% Grass cover, Good, HSG D
146,132	84	Weighted Average
114,448		78.32% Pervious Area
31,684		21.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	80	0.0630	0.26		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
0.1	23	0.0430	4.21		**Shallow Concentrated Flow, S2** Paved Kv= 20.3 fps
1.1	93	0.0430	1.45		**Shallow Concentrated Flow, S3** Short Grass Pasture Kv= 7.0 fps
0.0	17	0.0120	6.51	11.51	**Pipe Channel, S4** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.1	127	0.0610	14.68	25.94	**Pipe Channel, S5** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.2	58	0.0100	5.94	10.50	**Pipe Channel, S6** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.1	50	0.0120	6.51	11.51	**Pipe Channel, S7** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
6.8	448	Total			

Subcatchment 21: DA 21



Summary for Subcatchment 30: DA 30

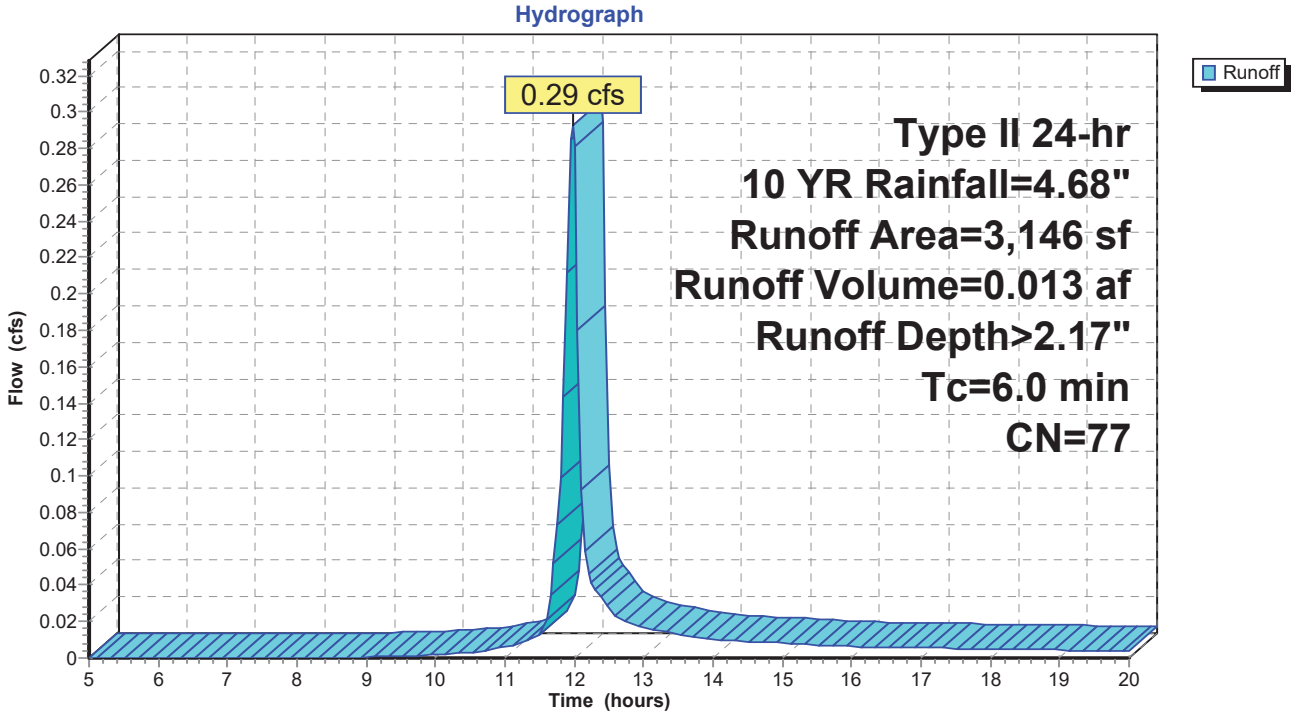
Runoff = 0.29 cfs @ 11.97 hrs, Volume= 0.013 af, Depth> 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10 YR Rainfall=4.68"

Area (sf)	CN	Description
3,146	77	Woods, Good, HSG D
3,146		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, S1**

Subcatchment 30: DA 30

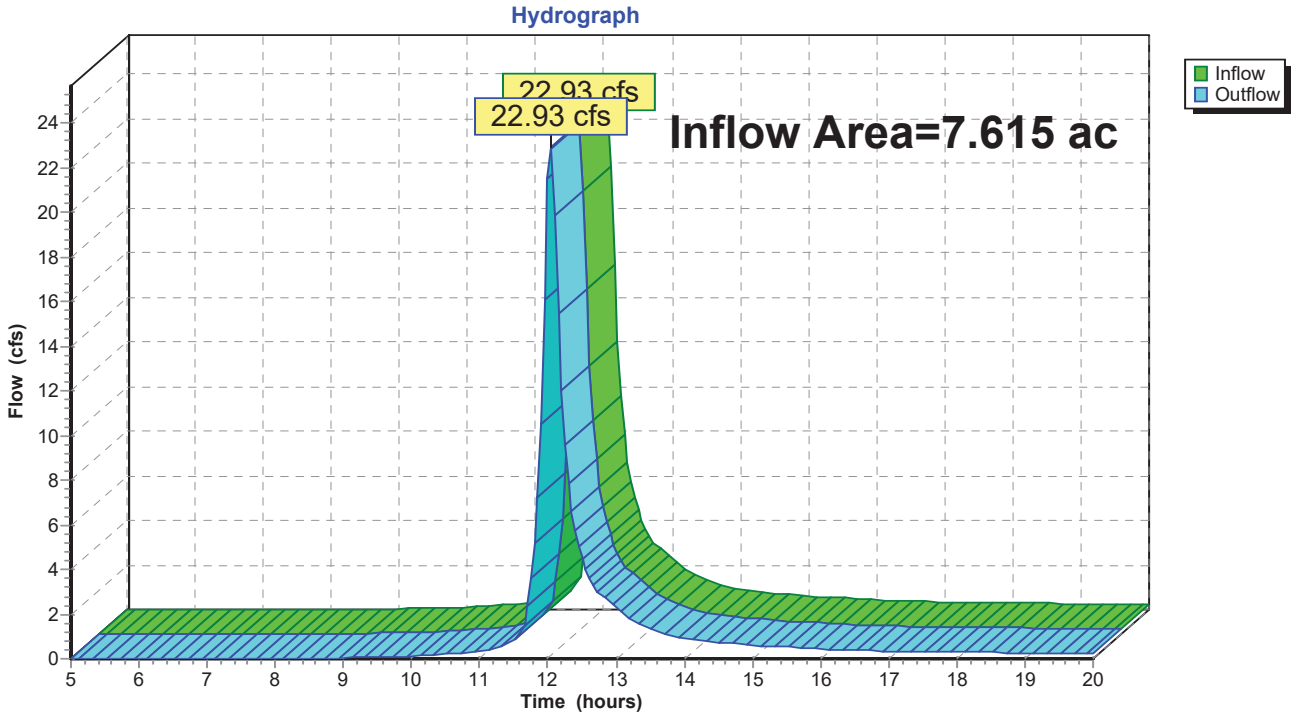


Summary for Reach SDP 2: SDP2

Inflow Area = 7.615 ac, 9.55% Impervious, Inflow Depth > 1.94" for 10 YR event
Inflow = 22.93 cfs @ 12.04 hrs, Volume= 1.232 af
Outflow = 22.93 cfs @ 12.04 hrs, Volume= 1.232 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SDP 2: SDP2



Summary for Pond IB-1: Infiltration Basin

Inflow Area = 3.355 ac, 21.68% Impervious, Inflow Depth > 2.77" for 10 YR event
Inflow = 16.61 cfs @ 11.98 hrs, Volume= 0.775 af
Outflow = 8.72 cfs @ 12.08 hrs, Volume= 0.751 af, Atten= 48%, Lag= 5.8 min
Discarded = 0.72 cfs @ 12.08 hrs, Volume= 0.318 af
Primary = 8.00 cfs @ 12.08 hrs, Volume= 0.433 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 199.85' @ 12.08 hrs Surf.Area= 7,852 sf Storage= 10,505 cf
Flood Elev= 202.00' Surf.Area= 10,419 sf Storage= 30,142 cf

Plug-Flow detention time= 40.7 min calculated for 0.751 af (97% of inflow)
Center-of-Mass det. time= 28.4 min (801.1 - 772.8)

Volume	Invert	Avail.Storage	Storage Description
#1	198.00'	30,142 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

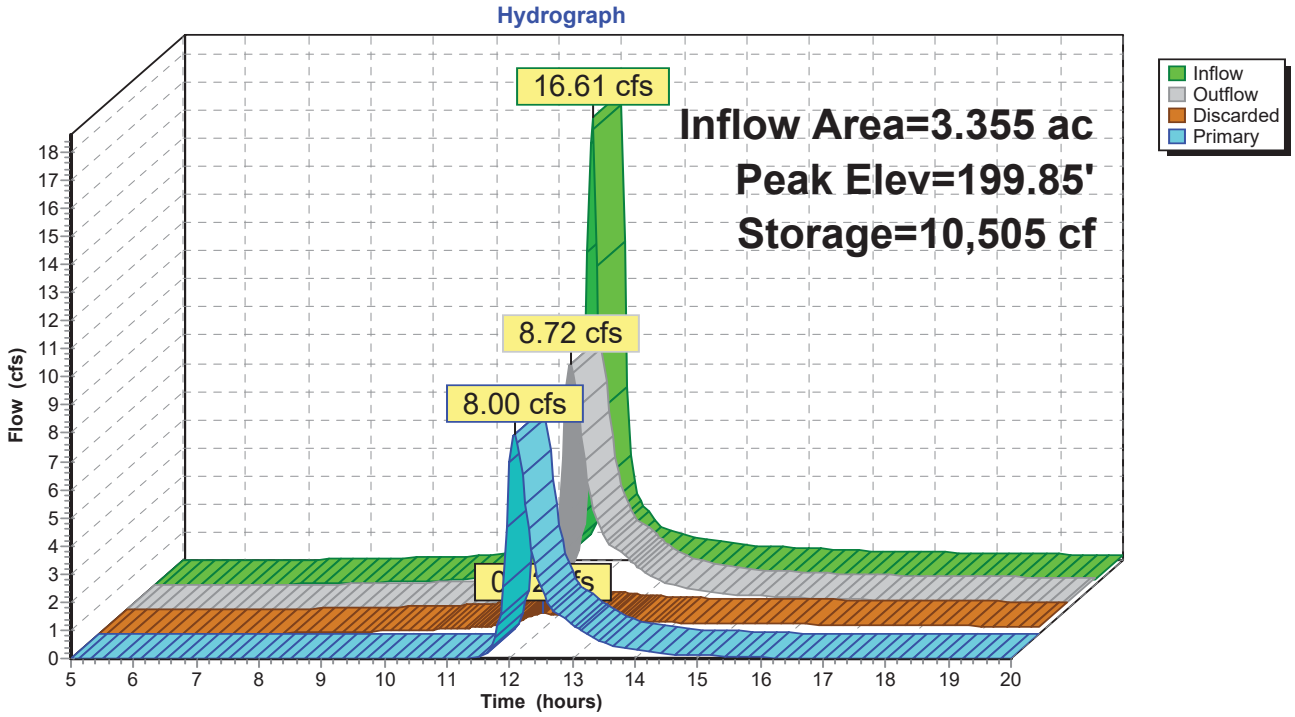
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.00	1,600	0	0
199.00	6,923	4,262	4,262
200.00	8,022	7,473	11,734
201.00	9,187	8,605	20,339
202.00	10,419	9,803	30,142

Device	Routing	Invert	Outlet Devices
#1	Primary	197.00'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 197.00' / 196.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	198.50'	**6.0" Vert. Orifice/Grate X 3.00** C= 0.600
#3	Device 1	199.10'	**36.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	200.00'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	201.00'	**10.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#6	Discarded	198.00'	**5.000 in/hr Exfiltration over Surface area above 198.00'** Excluded Surface area = 1,600 sf

Discarded OutFlow Max=0.72 cfs @ 12.08 hrs HW=199.83' (Free Discharge)
└**6=Exfiltration** (Exfiltration Controls 0.72 cfs)

Primary OutFlow Max=7.93 cfs @ 12.08 hrs HW=199.83' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 7.93 cfs of 12.29 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 2.95 cfs @ 5.02 fps)
  └**3=Orifice/Grate** (Orifice Controls 4.97 cfs @ 3.31 fps)
  └**4=Orifice/Grate** (Controls 0.00 cfs)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond IB-1: Infiltration Basin



Summary for Subcatchment 10: DA 10

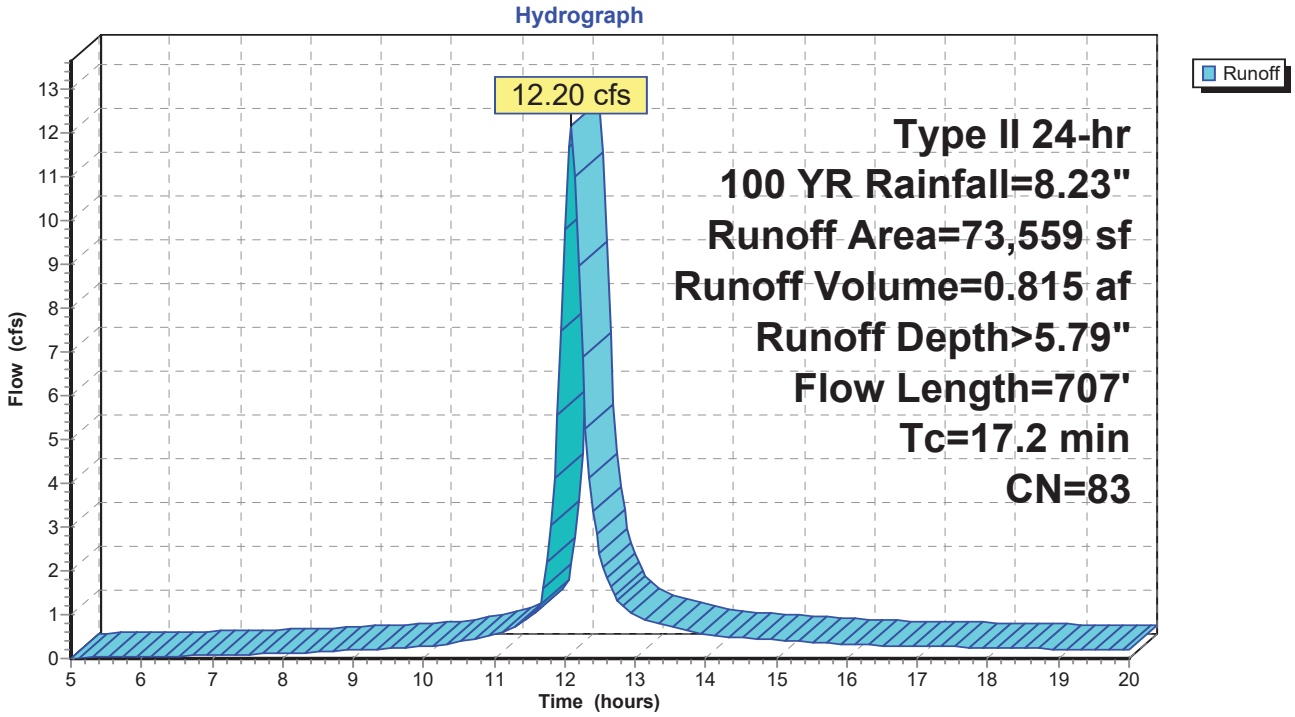
Runoff = 12.20 cfs @ 12.09 hrs, Volume= 0.815 af, Depth> 5.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR Rainfall=8.23"

Area (sf)	CN	Description
23,952	77	Woods, Good, HSG D
15,309	98	Paved parking, HSG D
34,298	80	>75% Grass cover, Good, HSG D
73,559	83	Weighted Average
58,250		79.19% Pervious Area
15,309		20.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.9	100	0.1100	0.15		**Sheet Flow, S2** Woods: Light underbrush n= 0.400 P2= 3.16"
3.4	249	0.0600	1.22		**Shallow Concentrated Flow, S2** Woodland Kv= 5.0 fps
0.1	49	0.0100	7.80	67.89	**Channel Flow, S3** Area= 8.7 sf Perim= 4.4' r= 1.98' n= 0.030 Earth, grassed & winding
1.4	154	0.0650	1.78		**Shallow Concentrated Flow, S4** Short Grass Pasture Kv= 7.0 fps
0.1	28	0.0890	6.06		**Shallow Concentrated Flow, S5** Paved Kv= 20.3 fps
1.3	127	0.0550	1.64		**Shallow Concentrated Flow, S6** Short Grass Pasture Kv= 7.0 fps
17.2	707	Total			

Subcatchment 10: DA 10



Summary for Subcatchment 20: DA 20

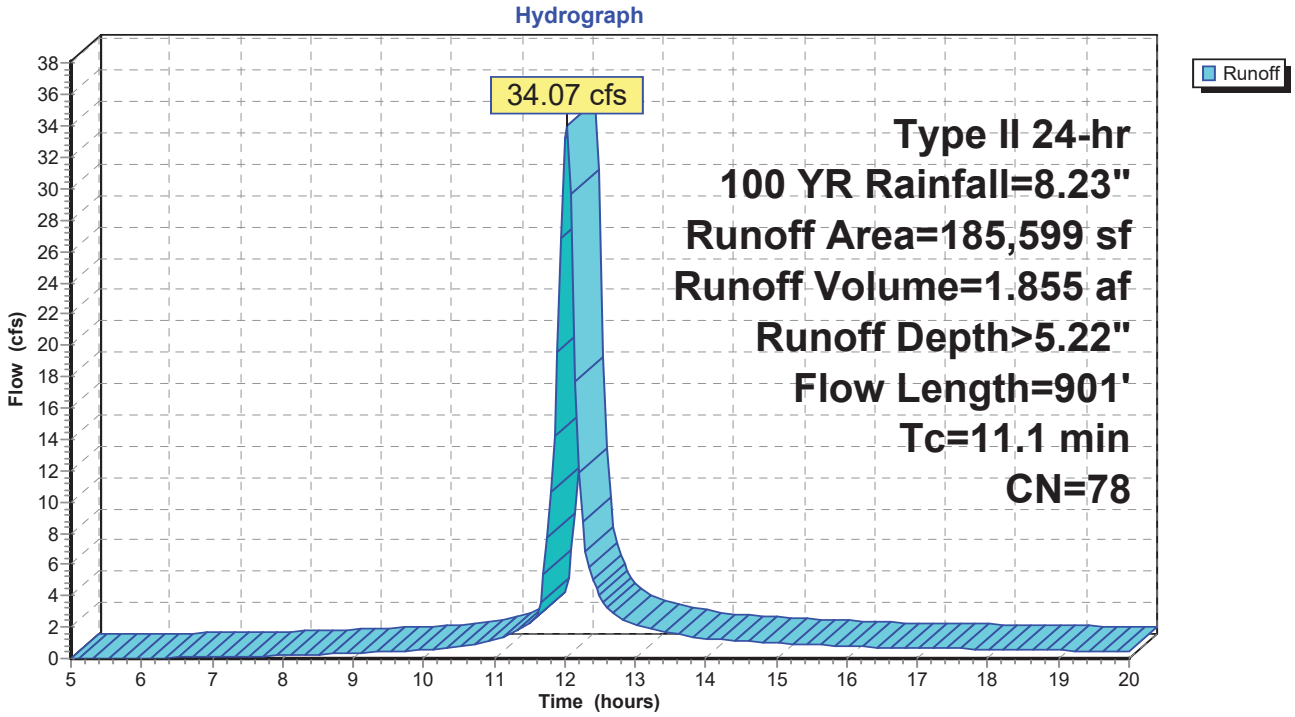
Runoff = 34.07 cfs @ 12.03 hrs, Volume= 1.855 af, Depth> 5.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR Rainfall=8.23"

Area (sf)	CN	Description
87,785	77	Woods, Good, HSG D
57,184	80	>75% Grass cover, Good, HSG D
40,630	78	Meadow, non-grazed, HSG D
185,599	78	Weighted Average
185,599		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.2	100	0.0630	0.27		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
1.6	169	0.0620	1.74		**Shallow Concentrated Flow, S2** Short Grass Pasture Kv= 7.0 fps
3.0	249	0.0780	1.40		**Shallow Concentrated Flow, S3** Woodland Kv= 5.0 fps
0.2	367	0.0680	27.75	241.41	**Channel Flow, S4** Area= 8.7 sf Perim= 4.4' r= 1.98' n= 0.022 Earth, clean & straight
0.1	16	0.1880	3.04		**Shallow Concentrated Flow, S5** Short Grass Pasture Kv= 7.0 fps
11.1	901	Total			

Subcatchment 20: DA 20



Summary for Subcatchment 21: DA 21

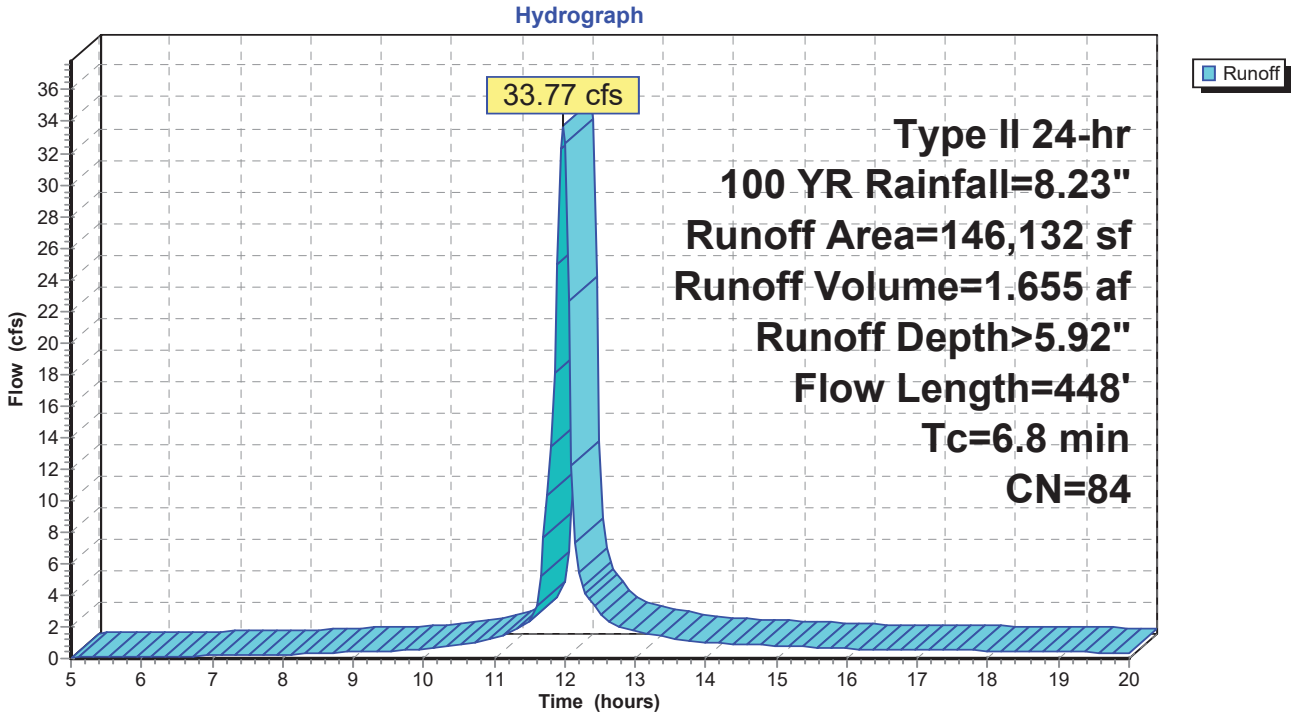
Runoff = 33.77 cfs @ 11.98 hrs, Volume= 1.655 af, Depth> 5.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR Rainfall=8.23"

Area (sf)	CN	Description
31,684	98	Paved parking, HSG D
1,713	96	Gravel surface, HSG D
112,735	80	>75% Grass cover, Good, HSG D
146,132	84	Weighted Average
114,448		78.32% Pervious Area
31,684		21.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	80	0.0630	0.26		**Sheet Flow, S1** Grass: Short n= 0.150 P2= 3.16"
0.1	23	0.0430	4.21		**Shallow Concentrated Flow, S2** Paved Kv= 20.3 fps
1.1	93	0.0430	1.45		**Shallow Concentrated Flow, S3** Short Grass Pasture Kv= 7.0 fps
0.0	17	0.0120	6.51	11.51	**Pipe Channel, S4** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013 Corrugated PE, smooth interior
0.1	127	0.0610	14.68	25.94	**Pipe Channel, S5** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.2	58	0.0100	5.94	10.50	**Pipe Channel, S6** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
0.1	50	0.0120	6.51	11.51	**Pipe Channel, S7** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.013
6.8	448	Total			

Subcatchment 21: DA 21



Summary for Subcatchment 30: DA 30

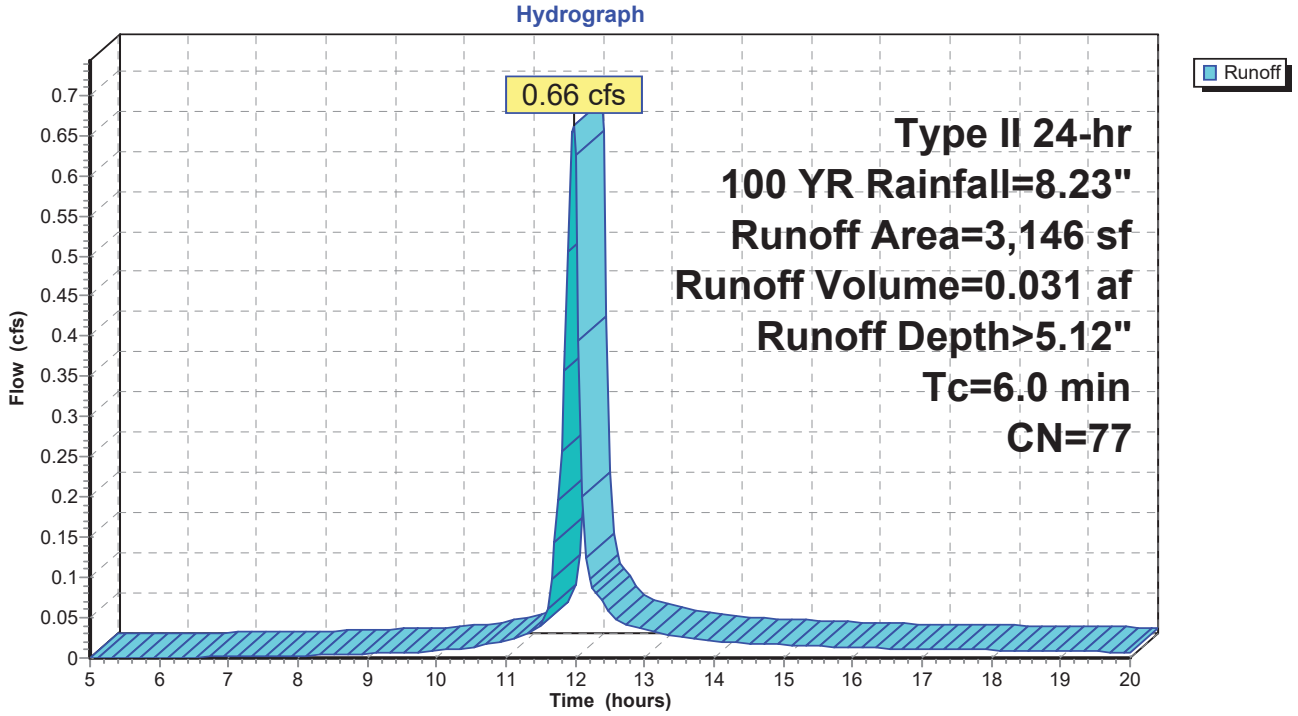
Runoff = 0.66 cfs @ 11.97 hrs, Volume= 0.031 af, Depth> 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR Rainfall=8.23"

Area (sf)	CN	Description
3,146	77	Woods, Good, HSG D
3,146		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, S1**

Subcatchment 30: DA 30

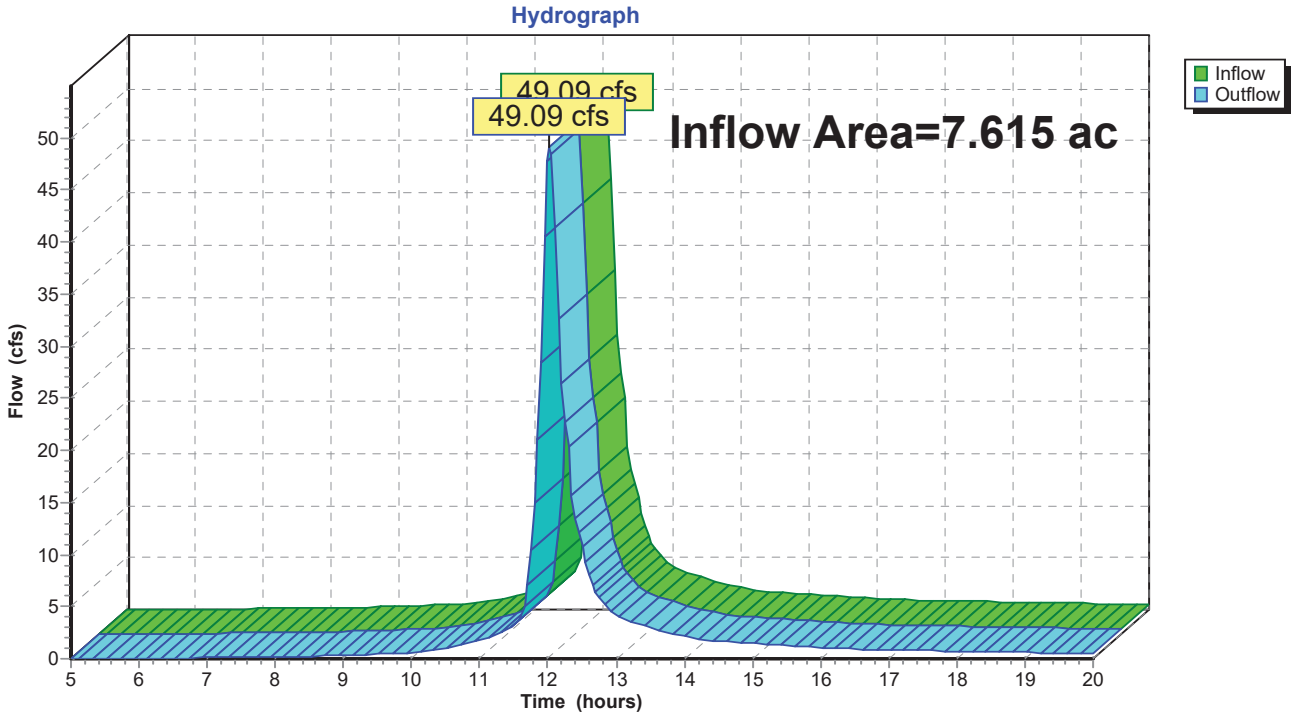


Summary for Reach SDP 2: SDP2

Inflow Area = 7.615 ac, 9.55% Impervious, Inflow Depth > 4.74" for 100 YR event
Inflow = 49.09 cfs @ 12.03 hrs, Volume= 3.011 af
Outflow = 49.09 cfs @ 12.03 hrs, Volume= 3.011 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SDP 2: SDP2



Summary for Pond IB-1: Infiltration Basin

Inflow Area = 3.355 ac, 21.68% Impervious, Inflow Depth > 5.92" for 100 YR event
Inflow = 33.77 cfs @ 11.98 hrs, Volume= 1.655 af
Outflow = 16.17 cfs @ 12.08 hrs, Volume= 1.615 af, Atten= 52%, Lag= 6.4 min
Discarded = 0.88 cfs @ 12.08 hrs, Volume= 0.458 af
Primary = 15.29 cfs @ 12.08 hrs, Volume= 1.156 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 200.98' @ 12.08 hrs Surf.Area= 9,165 sf Storage= 20,162 cf
Flood Elev= 202.00' Surf.Area= 10,419 sf Storage= 30,142 cf

Plug-Flow detention time= 32.7 min calculated for 1.615 af (98% of inflow)
Center-of-Mass det. time= 22.5 min (778.0 - 755.5)

Volume	Invert	Avail.Storage	Storage Description
#1	198.00'	30,142 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

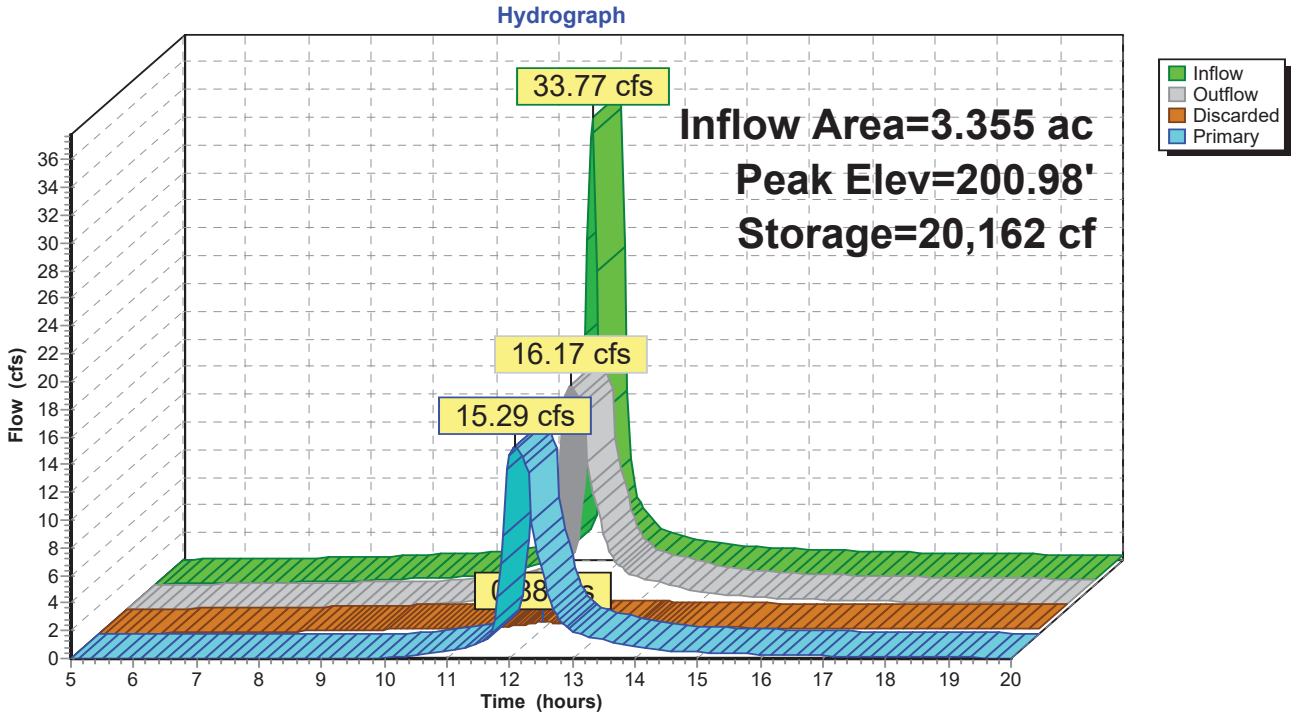
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
198.00	1,600	0	0
199.00	6,923	4,262	4,262
200.00	8,022	7,473	11,734
201.00	9,187	8,605	20,339
202.00	10,419	9,803	30,142

Device	Routing	Invert	Outlet Devices
#1	Primary	197.00'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 197.00' / 196.50' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#2	Device 1	198.50'	**6.0" Vert. Orifice/Grate X 3.00** C= 0.600
#3	Device 1	199.10'	**36.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	200.00'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	201.00'	**10.0' long x 8.0' 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) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74
#6	Discarded	198.00'	**5.000 in/hr Exfiltration over Surface area above 198.00'** Excluded Surface area = 1,600 sf

Discarded OutFlow Max=0.87 cfs @ 12.08 hrs HW=200.96' (Free Discharge)
└**6=Exfiltration** (Exfiltration Controls 0.87 cfs)

Primary OutFlow Max=15.25 cfs @ 12.08 hrs HW=200.96' TW=0.00' (Dynamic Tailwater)
├**1=Culvert** (Inlet Controls 15.25 cfs @ 8.63 fps)
│ ├**2=Orifice/Grate** (Passes < 4.22 cfs potential flow)
│ ├**3=Orifice/Grate** (Passes < 9.17 cfs potential flow)
│ └**4=Orifice/Grate** (Passes < 49.54 cfs potential flow)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond IB-1: Infiltration Basin

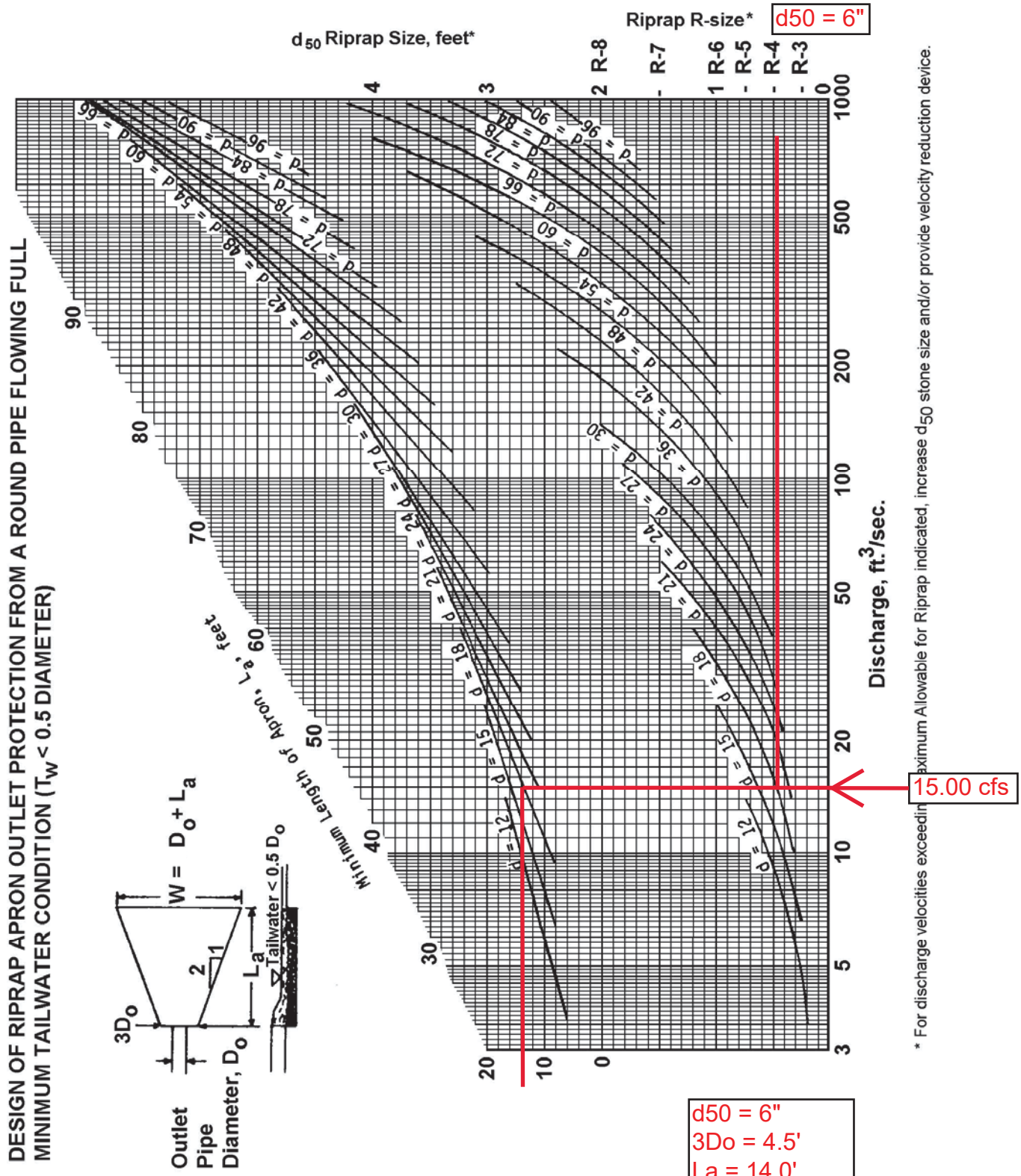


APPENDIX F

STORMWATER MANAGEMENT DESIGN

FES 12
Q25yr = 15.00 cfs
Pipe = 18" HDPE

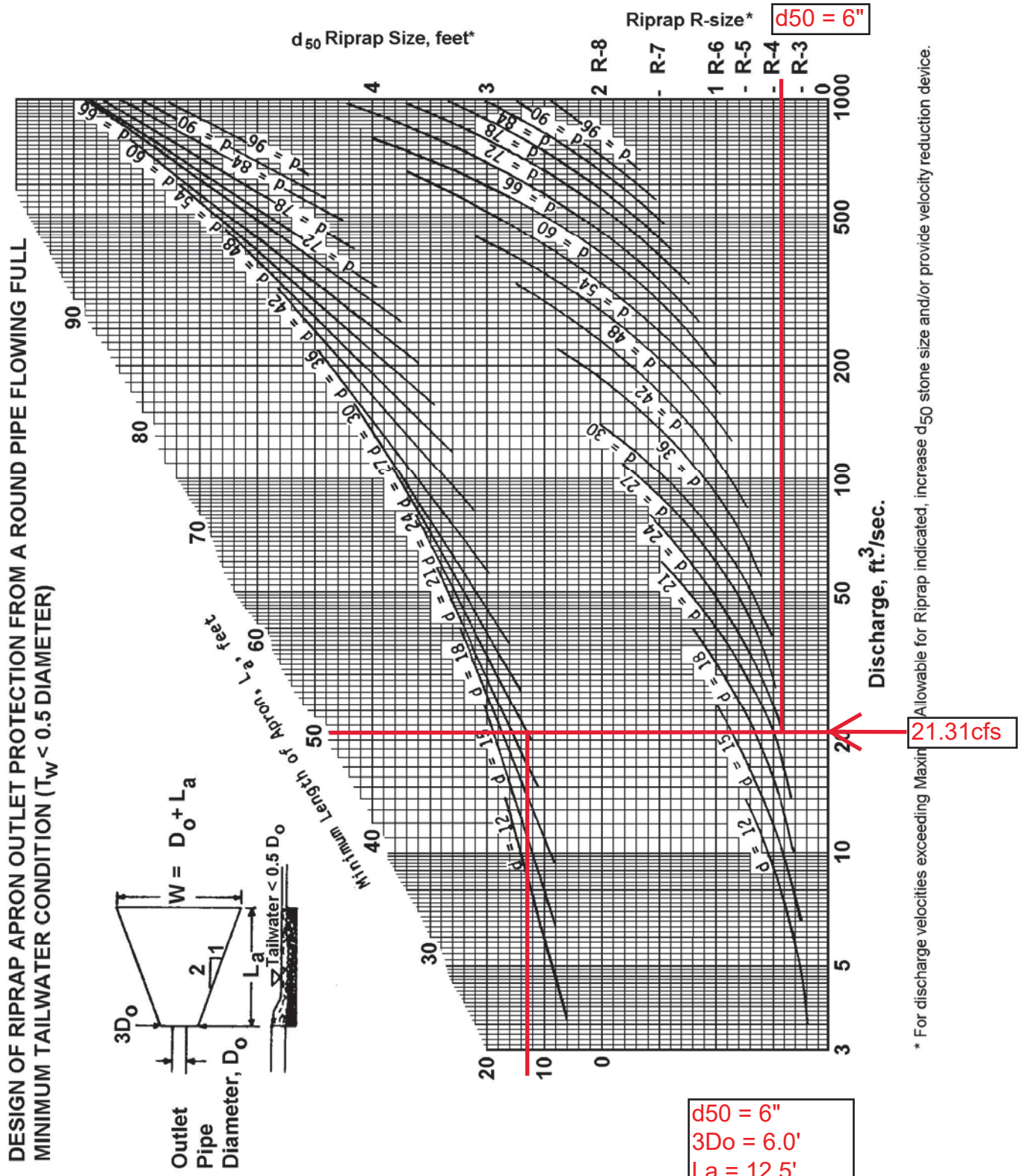
Figure 3.16
Outlet Protection Design—Minimum Tailwater Condition Chart (Design of Outlet Protection from a Round Pipe Flowing Full, Minimum Tailwater Condition: $T_w < 0.5D_o$) (USDA - NRCS)



d50 = 6"
3Do = 4.5'
La = 14.0'
W = 18.5'
T = 14"

FES 13
Q25yr = 21.31 cfs
Pipe = 24" HDPE

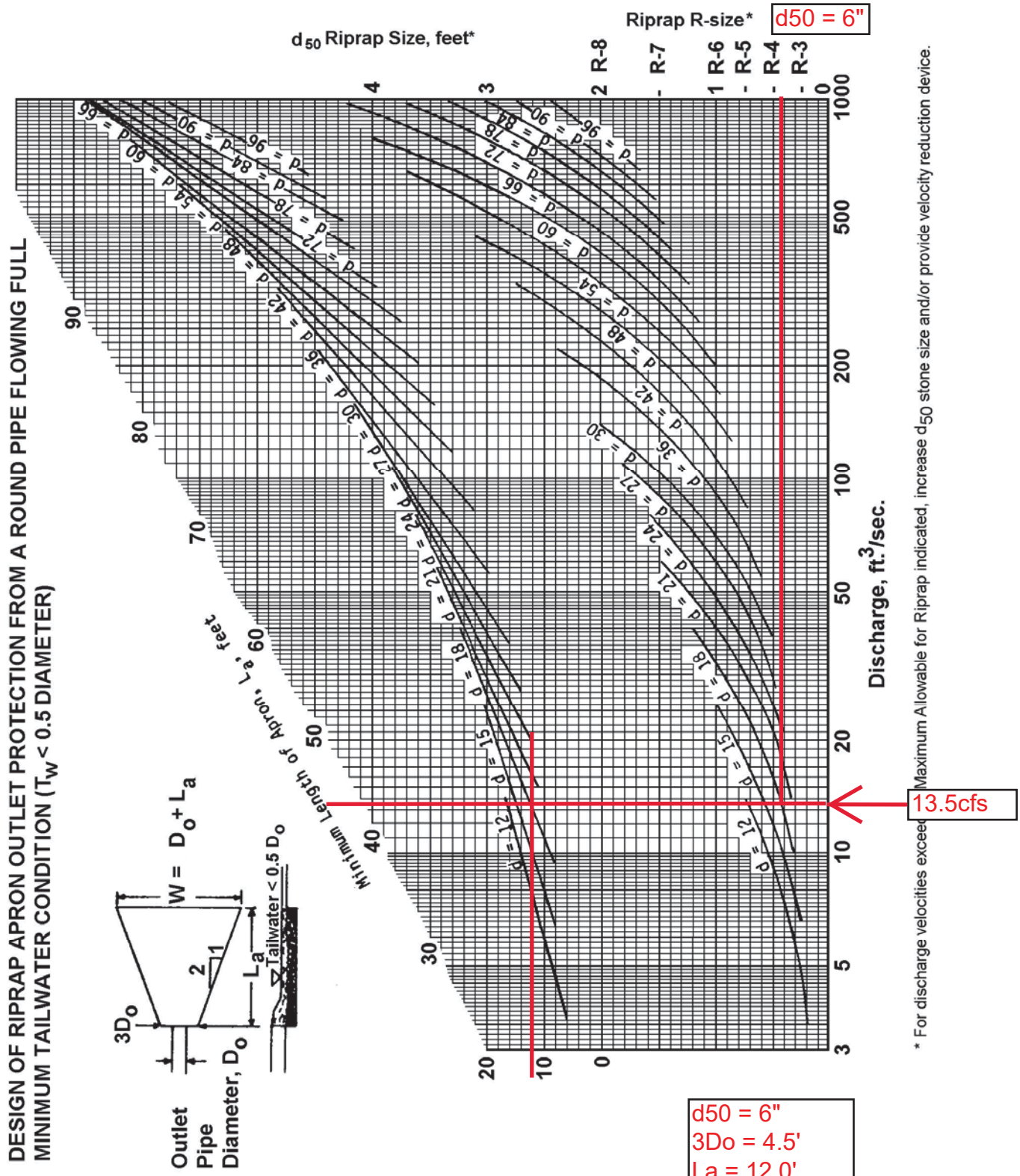
Figure 3.16
Outlet Protection Design—Minimum Tailwater Condition Chart (Design of Outlet Protection from a Round Pipe Flowing Full, Minimum Tailwater Condition: $T_w < 0.5D_o$) (USDA - NRCS)



d50 = 6"
3Do = 6.0'
La = 12.5'
W = 18.5'
T = 14"

FES 14
Q25yr = 13.5 cfs
Pipe = 18" HDPE

Figure 3.16
Outlet Protection Design—Minimum Tailwater Condition Chart (Design of Outlet Protection from a Round Pipe Flowing Full, Minimum Tailwater Condition: $T_w < 0.5D_o$) (USDA - NRCS)



d50 = 6"
3Do = 4.5'
La = 12.0'
W = 16.5'
T = 14"

APPENDIX G

PRE-CONSTRUCTION INSPECTION FORM

I. PRE-CONSTRUCTION MEETING DOCUMENTS

Project Name _____

Permit No. _____ **Date of Authorization** _____

Name of Operator _____

Prime Contractor _____

a. Preamble to Site Assessment and Inspections

The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified professional[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements.

When construction starts, 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 (Construction Duration Inspections). The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request. The Operator shall post at the site, in a publicly accessible location, a summary of the site inspection activities on a monthly basis (Monthly Summary Report).

The operator shall also prepare a written summary of compliance with this general permit at a minimum frequency of every three months (Operator's Compliance Response Form), while coverage exists. The summary should address the status of achieving each component of the SWPPP.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified professional perform a final site inspection. The qualified professional shall certify that the site has undergone final stabilization[3] 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. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 "Qualified Professional means a person knowledgeable in the principles and practice of erosion and sediment controls, such as a Certified Professional in Erosion and Sediment Control (CPESC), soil scientist, licensed engineer or someone working under the direction and supervision of a licensed engineer (person must have experience in the principles and practices of erosion and sediment control).

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

3 "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.

b. Operators 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. Further, I hereby certify that the SWPPP meets all Federal, State, and local erosion and sediment control requirements. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law.

Name (please print): _____

Title _____ **Date:** _____

Address: _____

Phone: _____ **Email:** _____

Signature: _____

c. Qualified Professional's Credentials & Certification

"I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the following Pre-construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction."

Name (please print): _____

Title _____ **Date:** _____

Address: _____

Phone: _____ **Email:** _____

Signature: _____

d. Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Perimeter Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SWPPP on page _____
[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

APPENDIX H

INFILTRATION AREA CONSTRUCTION CHECKLIST

Stormwater Pond/Wetland Operation, Maintenance and Management Inspection Checklist

Project _____
Location: _____
Site Status: _____

Date: _____
Time: _____

Inspector: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
1. Embankment and emergency spillway (Annual, After Major Storms)		
1. Vegetation and ground cover adequate		
2. Embankment erosion		
3. Animal burrows		
4. Unauthorized planting		
5. Cracking, bulging, or sliding of dam		
a. Upstream face		
b. Downstream face		
c. At or beyond toe		
downstream		
upstream		
d. Emergency spillway		
6.Pond, toe & chimney drains clear and functioning		
7.Seeps/leaks on downstream face		
8.Slope protection or riprap failure		
9. Vertical/horizontal alignment of top of dam “As-Built”		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
10. Emergency spillway clear of obstructions and debris		
11. Other (specify)		
2. Riser and principal spillway (Annual)		
Type: Reinforced concrete _____ Corrugated pipe _____ Masonry _____ 1. Low flow orifice obstructed		
2. Low flow trash rack. a. Debris removal necessary		
b. Corrosion control		
3. Weir trash rack maintenance a. Debris removal necessary		
b. corrosion control		
4. Excessive sediment accumulation insider riser		
5. Concrete/masonry condition riser and barrels a. cracks or displacement		
b. Minor spalling (<1")		
c. Major spalling (rebars exposed)		
d. Joint failures		
e. Water tightness		
6. Metal pipe condition		
7. Control valve a. Operational/exercised		
b. Chained and locked		
8. Pond drain valve a. Operational/exercised		
b. Chained and locked		
9. Outfall channels functioning		
10. Other (specify)		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
3. Permanent Pool (Wet Ponds) (monthly)		
1. Undesirable vegetative growth		
2. Floating or floatable debris removal required		
3. Visible pollution		
4. Shoreline problem		
5. Other (specify)		
4. Sediment Forebays		
1.Sedimentation noted		
2. Sediment cleanout when depth < 50% design depth		
5. Dry Pond Areas		
1. Vegetation adequate		
2. Undesirable vegetative growth		
3. Undesirable woody vegetation		
4. Low flow channels clear of obstructions		
5. Standing water or wet spots		
6. Sediment and / or trash accumulation		
7. Other (specify)		
6. Condition of Outfalls (Annual , After Major Storms)		
1. Riprap failures		
2. Slope erosion		
3. Storm drain pipes		
4.Endwalls / Headwalls		
5. Other (specify)		
7. Other (Monthly)		
1. Encroachment on pond, wetland or easement area		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
2. Complaints from residents		
3.Aesthetics a. Grass growing required		
b. Graffiti removal needed		
c. Other (specify)		
4. Conditions of maintenance access routes.		
5. Signs of hydrocarbon build-up		
6. Any public hazards (specify)		
8. Wetland Vegetation (Annual)		
1. Vegetation healthy and growing Wetland maintaining 50% surface area coverage of wetland plants after the second growing season. (If unsatisfactory, reinforcement plantings needed)		
2. Dominant wetland plants: Survival of desired wetland plant species Distribution according to landscaping plan?		
3. Evidence of invasive species		
4. Maintenance of adequate water depths for desired wetland plant species		
5. Harvesting of emergent plantings needed		
6. Have sediment accumulations reduced pool volume significantly or are plants “choked” with sediment		
7. Eutrophication level of the wetland.		
8. Other (specify)		

Comments:

Actions to be Taken:

Infiltration Trench Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Trench surface clear of debris		
Inflow pipes clear of debris		
Overflow spillway clear of debris		
Inlet area clear of debris		
2. Sediment Traps or Forebays (Annual)		
Obviously trapping sediment		
Greater than 50% of storage volume remaining		
3. Dewatering (Monthly)		
Trench dewaters between storms		
4. Sediment Cleanout of Trench (Annual)		
No evidence of sedimentation in trench		
Sediment accumulation doesn't yet require cleanout		
5. Inlets (Annual)		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Good condition		
No evidence of erosion		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repair		
No evidence of erosion		
7. Aggregate Repairs (Annual)		
Surface of aggregate clean		
Top layer of stone does not need replacement		
Trench does not need rehabilitation		

Comments:

Actions to be Taken:

APPENDIX I

CONTRACTOR AND SUBCONTRACTOR CERTIFICATIONS

CERTIFICATION STATEMENT

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version 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. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

Contractor:

Name:_____

Signature:_____

Title:_____

Company Name:_____

Company Address:_____

_____

_____

_____

Company Phone Number:_____

Site Address:_____

_____

_____

_____

Specific SWPPP Responsibilities:

_____

_____

_____

_____

_____

Date of Certification: _____

Name and Title of Trained Contractor for SWPPP Implementation:_____

_____

CERTIFICATION STATEMENT

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version 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. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

Sub-Contractor:

Name:_____

Signature:_____

Title:_____

Company Name:_____

Company Address:_____

_____

_____

_____

Company Phone Number:_____

Site Address:_____

_____

_____

_____

Specific SWPPP Responsibilities:

_____

_____

_____

_____

_____

Date of Certification: _____

Name and Title of Trained Contractor for SWPPP Implementation:_____

_____

APPENDIX J

QUALIFIED PROFESSIONAL CERTIFICATION

QUALIFIED PROFESSIONAL'S CERTIFICATION

" I hereby certify that I meet the criteria set forth in the General Permit to conduct site inspections for this project and that the appropriate erosion and sediment controls described in the SWPPP and as described in the Pre-Construction Site Assessment Checklist have been adequately installed or implemented, ensuring the overall preparedness of this site for the commencement of construction."

Name (Print):_____

Title:_____

Date:_____

Company Name:_____

Company Address:_____

_____

_____

_____

Company Phone Number:_____

Company Email:_____

Signature:_____

APPENDIX K

OWNER/OPERATOR CERTIFICATION

CERTIFICATION STATEMENT

" 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 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 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 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. Further, I am acknowledging that this SWPPP has been developed and will be implemented as the first element of construction and agree to comply with all the terms and conditions of the general permit for which the NOI is being submitted."

Name (Print):_____

Title:_____

Date:_____

Company Name:_____

Company Address:_____

_____

_____

_____

Company Phone Number:_____

Company Email:_____

Signature:_____

APPENDIX L

POST-DEVELOPMENT MAINTENANCE AND INSPECTION CHECKLIST

Open Channel Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Contributing areas clean of debris		
2. Check Dams or Energy Dissipators (Annual, After Major Storms)		
No evidence of flow going around structures		
No evidence of erosion at downstream toe		
Soil permeability		
Groundwater / bedrock		
3. Vegetation (Monthly)		
Mowing done when needed		
Minimum mowing depth not exceeded		
No evidence of erosion		
Fertilized per specification		
4. Dewatering (Monthly)		
Dewaters between storms		

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Sediment deposition (Annual)		
Clean of sediment		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repairs		
No evidence of erosion		

Comments:

Actions to be Taken:

APPENDIX M

CONSTRUCTION INSPECTION REPORT

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:
Inspection Forms will be filled out during the entire construction phase of the project.
Required Elements:

(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 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 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) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

_____ _____

Inspector (print name) **Date of Inspection**

_____ _____

Qualified Professional (print name) **Qualified Professional Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes No NA
[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions
Yes No NA
[ ] [ ] [ ] Is construction site litter and debris appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing
Yes No NA
[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

Runoff Control Practices

1. Excavation Dewatering
Yes No NA
[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

2. Level Spreader
Yes No NA
[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales
Yes No NA
[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

Runoff Control Practices (continued)

4. Stone Check Dam
Yes No NA
[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection
Yes No NA
[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles
Yes No NA
[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation
Yes No NA
[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Stabilized Construction Entrance
Yes No NA
[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence
Yes No NA
[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.
Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation ___% of design capacity.

4. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.

Sediment accumulation is ___% of design capacity.

5. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design.
Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS

b. Modifications to the SWPPP (To be completed as described below)

The Operator 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 and as required by this permit; or
   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

III. Monthly Summary of Site Inspection Activities

Name of Permitted Facility:	Today's Date:	Reporting Month:
Location:	Permit Identification #:	
Name and Telephone Number of Site Inspector:		

Date of Inspection	Regular / Rainfall based Inspection	Name of Inspector	Items of Concern

Owner/Operator 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."

_____ _____

Signature of Permittee or Duly Authorized Representative Name of Permittee or Duly Authorized Representative Date

Duly authorized representatives must have written authorization, submitted to DEC, to sign any permit documents.

APPENDIX N

NOTICE OF TERMINATION

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

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

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

5. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. ☐ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP.
***Date final stabilization completed** (month/year): _____

9b. ☐ 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 owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. ☐ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? ☐ yes ☐ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? ☐ yes ☐ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? ☐ yes ☐ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

☐ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

☐ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

☐ For post-construction stormwater management practices that are privately owned, the deed of record has been modified to include a deed covenant that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

☐ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? ☐ yes ☐ no
(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:
(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

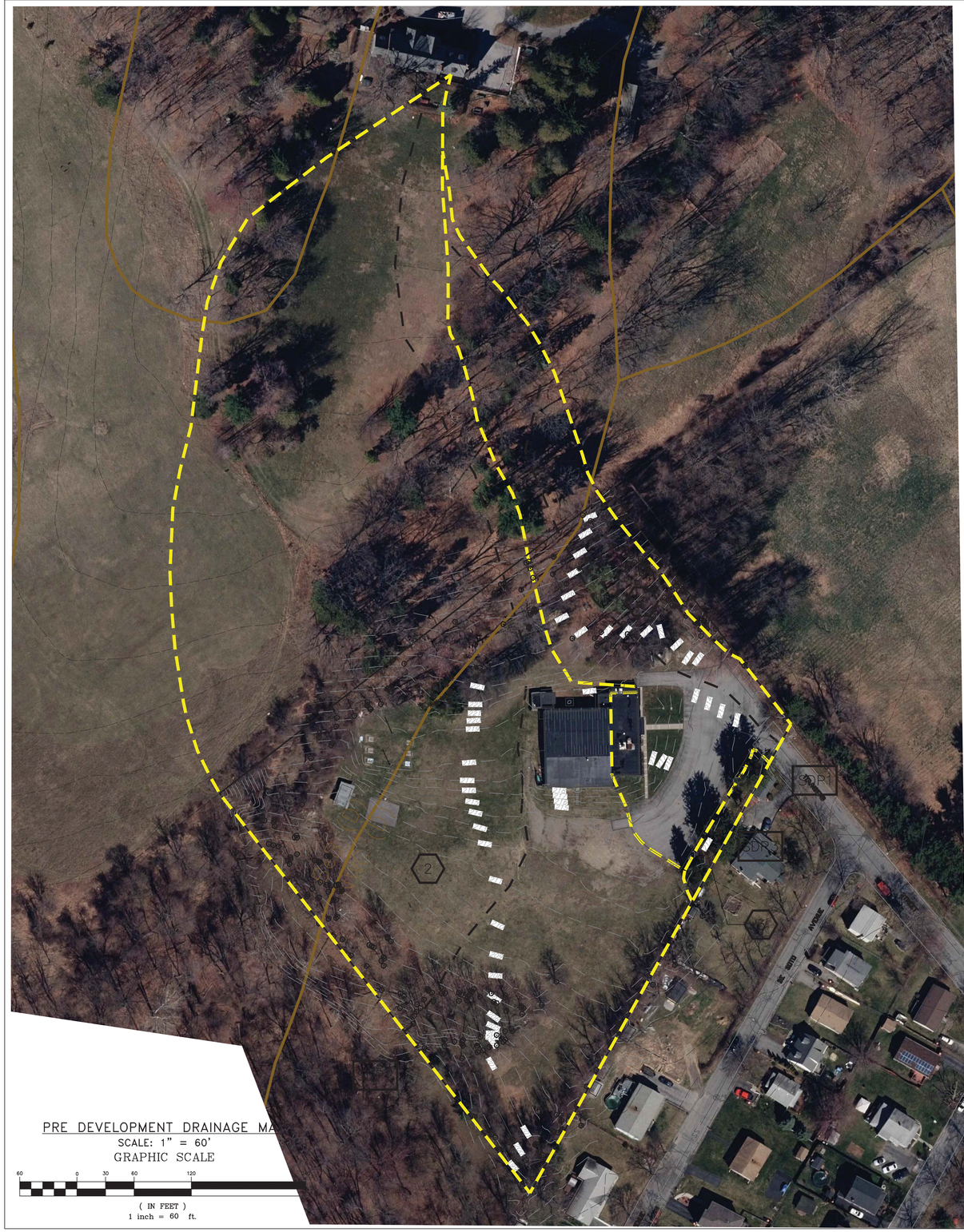
I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2010)

APPENDIX O

DRAINAGE MAPS



PRE DEVELOPMENT DRAINAGE MA

SCALE: 1" = 60'

GRAPHIC SCALE

60 0 30 60 120

(IN FEET)

1 inch = 60 ft.

LEGEND:

SOIL BOUNDARY

DRAINAGE BOUNDARY

TIME OF CONCENTRATION

SUBCATCHMENT ID 1

DESIGN POINT SDP1

DRAINAGE AREA 1
TOTAL AREA = 73,981 SQFT

WOODS D, GOOD = 38,260 SQFT
IMPERVIOUS = 20,783 SQFT
GRASS D, GOOD = 14,938 SQFT

TIME OF CONCENTRATION (Tc)

1.100' SHEET FLOW @ 11.0% – WOODS D

2. 407' SHALLOW CONCENTRATED FLOW @ 6.1% – WOODS D

3. 30' SHALLOW CONCENTRATED FLOW @ 8.3% – MEADOW D

4. 136' SHALLOW CONCENTRATED FLOW @ 5.9% – IMPERVIOUS

DRAINAGE AREA 2
TOTAL AREA = 331,073 SQFT

WOODS D, GOOD = 131,018 SQFT
IMPERVIOUS = 7,630 SQFT
GRAVEL D = 7,047 SQFT
MEADOW D, GOOD = 40,630 SQFT
GRASS D, GOOD = 144,748

TIME OF CONCENTRATION (Tc)

1. 100' SHEET FLOW @ 6.3% – MEADOW D
2. 169' SHALLOW CONCENTRATED FLOW @ 6.2% – MEADOW D
3. 347' SHALLOW CONCENTRATED FLOW @ 4.9% – WOODS D
4. 26' SHALLOW CONCENTRATED FLOW @ 4.8% – GRAVEL D
5. 194' SHALLOW CONCENTRATED FLOW @ 3.9% – MEADOW D
6. 95' SHALLOW CONCENTRATED FLOW @ 9.6% – WOODS D

DRAINAGE AREA 3
TOTAL AREA = 3,451 SQFT

WOODS D, GOOD = 3,451 SQFT

TIME OF CONCENTRATION (Tc)

1. DIRECT ENTRY = 6 MINUTES

PRE DEVELOPMENT DRAINAGE MAP
25 TOWNSEND STREET

CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6055-03-383149
SCALE: 1" = 60'
DECEMBER 18, 2015

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DRAWN BY: JDB	CHECKED BY: MAB	JOB NO.: 2015:025	
REVISIONS:			
NO.	DATE	DESCRIPTION	BY

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SEAL

JON D. BODENDORF, P.E.
NYS LICENSE NO. 076245
DANIEL G. KOEHLER, P.E.
NYS LICENSE NO. 082716

POST DEVELOPMENT DRAINAGE MAP
SCALE: 1" = 60'
GRAPHIC SCALE
60 0 30 60 120 240
(IN FEET)
1 inch = 60 ft.

LEGEND:

- SOIL BOUNDARY
- DRAINAGE BOUNDARY
- TIME OF CONCENTRATION
- SUBCATCHMENT ID
- DESIGN POINT

DRAINAGE AREA 10
TOTAL AREA = 73,560 SQFT

IMPERVIOUS = 15,309 SQFT
GRASS D, GOOD = 34,298 SQFT
WOODS D, GOOD = 23,952 SQFT

TIME OF CONCENTRATION (Tc)

1. 100' SHEET FLOW @ 11.0% – WOODS D
2. 249' SHALLOW CONCENTRATED FLOW @ 6.0% – WOODS D
3. 49' OPEN CHANNEL FLOW @ 1.0% – GRASS D
4. 154' SHALLOW CONCENTRATED FLOW @ 6.5% – GRASS D
5. 28' SHALLOW CONCENTRATED FLOW @ 8.9% – PAVED
6. 127' SHALLOW CONCENTRATED FLOW @ 5.5% – GRASS D

DRAINAGE AREA 20
TOTAL AREA = 185,599 SQFT

WOODS D, GOOD = 87,785 SQFT
MEADOW D, GOOD = 40,630 SQFT
GRASS D, GOOD = 57,184 SQFT

TIME OF CONCENTRATION (Tc)

1. 100' SHEET FLOW @ 6.3% – MEADOW D
2. 169' SHALLOW CONCENTRATED FLOW @ 6.2% – MEADOW D
3. 249' SHALLOW CONCENTRATED FLOW @ 7.8% – WOODS D
4. 367' OPEN CHANNEL FLOW @ 6.8% – GRASS D
5. 16' SHALLOW CONCENTRATED FLOW @ 18.8% – GRASS D

DRAINAGE AREA 21
TOTAL AREA = 146,132 SQFT

IMPERVIOUS = 31,684 SQFT
GRAVEL D = 1,713 SQFT
GRASS D = 112,735 SQFT

TIME OF CONCENTRATION (Tc)

1. 80' SHEET FLOW @ 6.3% – GRASS D
2. 23' SHALLOW CONCENTRATED FLOW @ 4.3% – PAVED
3. 93' SHALLOW CONCENTRATED FLOW @ 4.3% – GRASS D
4. 17' PIPE FLOW @ 1.19% – 18" CORRUGATED HDPE
5. 127' PIPE FLOW @ 6.1% – 18" CORRUGATED HDPE
6. 58' PIPE FLOW @ 1.0% – 18" CORRUGATED HDPE
7. 50' PIPE FLOW @ 12.0% – 18" CORRUGATED HDPE

DRAINAGE AREA 3
TOTAL AREA = 3,146 SQFT

WOODS D, GOOD = 3,146 SQFT

TIME OF CONCENTRATION (Tc)

1. DIRECT ENTRY = 6 MINUTES

POST DEVELOPMENT DRAINAGE MAP
25 TOWNSEND STREET

CITY OF BEACON
DUTCHESS COUNTY, NEW YORK
TAX ID: 6055-03-383149
SCALE: 1" = 60'
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SHEET: 2 OF 2