

***Stormwater Report***

***for***

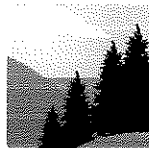
***“63 Providence Street”***

***Mendon, MA***

***Date: September 25, 2020***

Prepared By:  
*Guerriere & Halnon, Inc.*  
*333 West Street*  
*Milford, MA*

Prepared for:  
*Da'Baker Realty, LLC.*  
*148 Ironestone Street*  
*Uxbridge MA 01759*



**Guerriere &  
Halnon, Inc.**  
ENGINEERING & LAND SURVEYING



# Checklist for Stormwater Report

## A. Introduction

**Important:** When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.<sup>1</sup> This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8<sup>2</sup>
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the [Massachusetts Stormwater Handbook](#). The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#).

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

<sup>1</sup> The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

<sup>2</sup> For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



# Checklist for Stormwater Report

## B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

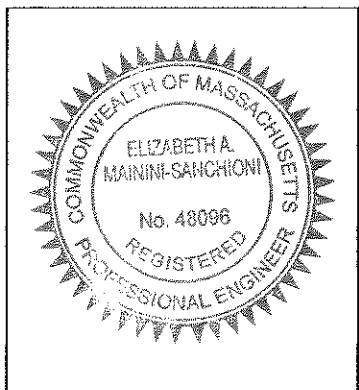
*Note:* Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

### Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



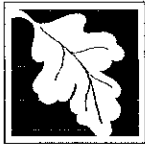
Signature and Date

*[Handwritten Signature]* 9-28-20

### Checklist

**Project Type:** Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



# Checklist for Stormwater Report

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## Checklist (continued)

**LID Measures:** Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
  - Credit 1
  - Credit 2
  - Credit 3
- Use of "country drainage" versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): \_\_\_\_\_

### Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



# Checklist for Stormwater Report

## Checklist (continued)

### Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

### Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
  - Static
  - Simple Dynamic
  - Dynamic Field<sup>1</sup>
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
  - Site is comprised solely of C and D soils and/or bedrock at the land surface
  - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
  - Solid Waste Landfill pursuant to 310 CMR 19.000
  - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

<sup>1</sup> 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

### Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
  - Provisions for storing materials and waste products inside or under cover;
  - Vehicle washing controls;
  - Requirements for routine inspections and maintenance of stormwater BMPs;
  - Spill prevention and response plans;
  - Provisions for maintenance of lawns, gardens, and other landscaped areas;
  - Requirements for storage and use of fertilizers, herbicides, and pesticides;
  - Pet waste management provisions;
  - Provisions for operation and management of septic systems;
  - Provisions for solid waste management;
  - Snow disposal and plowing plans relative to Wetland Resource Areas;
  - Winter Road Salt and/or Sand Use and Storage restrictions;
  - Street sweeping schedules;
  - Provisions for prevention of illicit discharges to the stormwater management system;
  - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
  - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
  - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
  - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
    - is within the Zone II or Interim Wellhead Protection Area
    - is near or to other critical areas
    - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
    - involves runoff from land uses with higher potential pollutant loads.
  - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
  - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



# Checklist for Stormwater Report

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## Checklist (continued)

### Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
  - The ½" or 1" Water Quality Volume or
  - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

### Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted *prior to* the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does *not* cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has *not* been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

### Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



# Checklist for Stormwater Report

## Checklist (continued)

### Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
  - Limited Project
  - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
  - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
  - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
  - Bike Path and/or Foot Path
  - Redevelopment Project
  - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

### Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
  - Construction Period Operation and Maintenance Plan;
  - Names of Persons or Entity Responsible for Plan Compliance;
  - Construction Period Pollution Prevention Measures;
  - Erosion and Sedimentation Control Plan Drawings;
  - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
  - Vegetation Planning;
  - Site Development Plan;
  - Construction Sequencing Plan;
  - Sequencing of Erosion and Sedimentation Controls;
  - Operation and Maintenance of Erosion and Sedimentation Controls;
  - Inspection Schedule;
  - Maintenance Schedule;
  - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.





# Checklist for Stormwater Report

## Checklist (continued)

### Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has *not* been included in the Stormwater Report but will be submitted *before* land disturbance begins.
- The project is *not* covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

### Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
  - Name of the stormwater management system owners;
  - Party responsible for operation and maintenance;
  - Schedule for implementation of routine and non-routine maintenance tasks;
  - Plan showing the location of all stormwater BMPs maintenance access areas;
  - Description and delineation of public safety features;
  - Estimated operation and maintenance budget; and
  - Operation and Maintenance Log Form.
- The responsible party is *not* the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
  - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
  - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

### Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted *prior to* the discharge of any stormwater to post-construction BMPs.

**Standard 1: No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.**

Runoff from all but .07 ac. of impervious areas will be collected into a catch basin to drain manhole system with piping to two StormTech subsurface detention/infiltration structure. The outlet pipe from Basin-1 will discharge to the existing drain in Providence Street. The discharge from Basin-2 will flow to the wetlands.

**Standard 2: Stormwater management systems shall be designed so that the post-development peak discharge rates do not exceed pre-development peak discharge rates.**

To meet Standard 2, the post-development peak discharge rate must be equal to or less than pre-development rates to prevent storm damage and downstream and offsite flooding from the 2-year thru and 100-year 24-hour storm events.

Peak discharge rates were calculated and evaluated at the same locations – at the wetland system, and at Providence Street.

In summary of the attached drainage analysis (HydroCAD), the peak discharge rates leaving the point of evaluation in cubic feet per second (cfs) are as follows;

Storm Event	Pre to Wetlands	Post to wetlands	Pre Providence St	Post Providence St.
2-yr. Storm	0.15 cfs	0.15 cfs	0.24 cfs	0.18 cfs
10-yr. Storm	1.03 cfs	0.83 cfs	1.20 cfs	0.91 cfs
100-yr. Storm	2.72 cfs	2.30 cfs	2.73 cfs	2.42 cfs

***through the use of environmentally sensitive site design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post- development site shall approximate the annual recharge from pre-development conditions based on soil type. This standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.***

Hydrologic Group	Volume to Recharge x Total Impervious Area
A	0.60 inches of runoff
<b>B</b>	<b>0.35 inches of runoff</b>
C	0.25 inches of runoff
D	0.10 inches of runoff

The required volume of recharge for post-development conditions is calculated as follows;

Proposed Increase to Impervious Area: 0.74 acres (32,234 sf)

Required Recharge Volume

$$0.35'' \times 1' / 12'' \times 32,234 \text{ sf} = \underline{\underline{940 \text{ cf}}} \quad (\text{B soils})$$

StormTech

Total recharge volume provided in stone beneath chambers = 3,814 cf

### Soils

Soils underlying the site are defined as map unit 420B Canton.

Calculations show that during a 100-year storm event, the StormTech Basin-1 will completely dewater within approximately 25.0 hours and StormTech Basin-2 within 17.0 hours which is in compliance with the maximum dewatering time of 72 hours.

***Standard 4: Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This standard is met when:***

- a) ***Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;***
- b) ***Structural stormwater best management practices are sized to capture the required water quality volume as determined in accordance with the Massachusetts Stormwater Handbook; and***
- c) ***Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook.***

The Water Quality Volume requiring 80% TSS removal, is calculated as follows:

Proposed Impervious Area  
Total Site Impervious Area = 32,234 sf  
Impervious area to be treated = 32,234 sf

Total volume to be treated:  
.5" x 1'12" x 32,234 sf = **1,343 cf Water Quality Volume Required**

### **Provided Water Quality Volume:**

Water Quality Volume provide in isolator row, water quality manhole and stone beneath the underground basins.

See TSS Removal Calculations..

***Standard 4: requires the development and implementation of suitable practices for source control and pollution prevention. These measures must be identified in a long-term pollution prevention plan.***

The long-term pollution prevention plan is incorporated into the Operation and Maintenance Plan required by Standard 9.

***Standard 5: For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.***

The proposed project does not qualify as a use with higher potential pollutant loads.

***Standard 6: Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook.***

The subject property does not discharge stormwater within the Zone II of a public water supply.

***Standard 7: A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable:***

This Site is not a redevelopment project.

***Standard 8: A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.***

***During land disturbance and construction activities, project proponents must implement controls that prevent erosion, control sediment movement, and stabilize exposed soils to prevent pollutants from moving offsite or entering wetlands or waters. Land disturbance activities include demolition, construction, clearing, excavation, grading, filling, and reconstruction.***

**Construction Period Pollution Prevention Plan and Erosion and Sedimentation Control.**  
**EPA NPDES – Storm Water Pollution Prevention Plan (SWPPP)**

**A. Names of Persons or Entities Responsible for Plan Compliance**

Scott Lanzetta  
Da'Baker Realty, LLC  
148 Ironstone Street  
Uxbridge, MA 01579  
Tel : 774-248-0709

**B. Construction Period Pollution Prevention Measures**

1. Inventory materials to be present on-site during construction.
2. Train employees and subcontractors in prevention and clean up procedures.
3. All materials stored on site will be stored in their appropriate containers and if possible, under a roof or covered.
4. Follow manufacturer's recommendation for disposal of used containers.
5. Store only enough products on site to do the job.

6. On site equipment, fueling and maintenance measures:
  - a. Inspect on-site vehicles and equipment daily for leaks.
  - b. Conduct all vehicle and equipment maintenance and refueling in front of building, away from storm drains and Wetlands.
  - c. Perform major repairs and maintenance off site.
  - d. Use drip pans, drip cloths or absorbent pads when replacing spent fuels.
  - e. Collect spent fuels and remove from site, per Local and State regulations.
  - f. Maintain a clean construction entrance; install a crushed stone apron where truck traffic is frequent to reduce soil compaction constant sweeping is required and limit tracking of sediment into streets, sweeping street when silt is observed on street.
7. A temporary concrete washout station and equipment wash station shall be located on the site. Concrete washout station and equipment wash station shall not be within the 100' wetland buffer. Areas shall be surrounded with a silt fence to contain materials and provide ease of cleanup.
8. Stock pile materials, and maintain Erosion Control around the materials where it can easily be accessed. Maintain easy access to clean up materials to include brooms, mops, rags gloves, goggles, sand, sawdust, plastic and metal trash containers.
9. Clean up spills.
  - a. Never hose down "dirty" pavement or impermeable surfaces where fluids have spilled. Use dry cleanup methods (sawdust, cat litter and/or rags and absorbent pads).
  - b. Sweep up dry materials immediately. Never wash them away or bury them.
  - c. Clean up spills on dirt areas by digging up and properly disposing of contaminated soil in a certified container and notify a certified hauler for removal.
  - d. Report significant spills to the Fire Department.
10. It is the responsibility of the site superintendent or employees designated by the Applicant to inspect erosion control and repair as needed, also to inspect all on site vehicles for leaks and check all containers on site that may contain hazardous materials daily.

C. Site Development Plans

1. See Site Plan set "LANZETTA EXCAVATING", Mendon, Massachusetts dated September 25, 2020, prepared by Guerriere & Halnon, Inc.

D. Construction Erosion and Sedimentation Control Plan;

1. See Site Plan set "LANZETTA EXCAVATING" Mendon, Massachusetts, dated September 25, 2020, prepared by Guerriere & Halnon, Inc.

E. Plans

1. Construction Sequencing Plan

- a. A NPDES NOI shall be filed with the EPA.
- b. Record Order of Conditions - The site superintendent shall be aware of all the Conditions contained within the Order including inspection schedules.
- c. Install DEP File # Sign.
- d. Prior to any work on the site including tree/brush clearing, the approved limit of clearing as well as the location of the proposed erosion control devices (such as silt fence/straw bales, etc.) must be staked on the ground under the direction of a Massachusetts registered Professional Land Surveyor.
- e. Install erosion control barrier at locations depicted on the plans.
- f. Erosion control to be inspected by either the design engineer (or agent) or an erosion control monitor appointed by the Town of Mendo, MA.

- g. Erosion control devices shall be stored on the site to be used in case of an emergency (large storm).
- h. Perform tree/brush removal.
- i. Strip off top and subsoil. Stockpile material to be reused away from any drainage inlet or protected wetland areas, remove excess material from the site. Install and maintain erosion control barrier around stockpile.
- j. Rough grade site, maintaining temporary low areas/sediment traps for sediment accumulation and away from the wetlands and prevent sedimentation from migrating from the site.
- k. Construct detention basin, outlets/outfalls and install pipes, manholes and catch basins. Stabilize side slopes with loam, seed and mulch.
- l. Install underground utilities; protect all open drainage structures with erosion/siltation control devices, and rope off any areas susceptible to heavy vehicle damage.
- m. Prepare compacted parking lot base.
- n. Loam and seed (mulch as required) disturbed areas of site other than immediately adjacent to the parking lot.
- o. Install binder course of bituminous asphalt.
- p. Install curbing and final pavement wearing course.
- q. Finish grade - loam and seed and landscaping.
- r. Maintain all erosion control devices until site is stabilized, final inspections are performed, and a Certificate of Compliance is issued by the Conservation Commission.
- s. The Contractor shall be responsible to schedule any required inspections of his/her work.

2. Construction Waste Management Plan

- a. Dumpster for trash and bulk waste collection shall be provided separately for construction.
- b. Recycle materials whenever possible (paper, plaster cardboard, metal cans). Separate containers for material are recommended.
- c. Segregate and provide containers for disposal options for waste.
- d. Do not bury waste and debris on site.
- e. Certified haulers will be hired to remove the dumpster container waste as needed. Recycling products will also be removed off site weekly.

F. Operation and Maintenance of Erosion and Sedimentation Controls

The operation and maintenance of sedimentation control shall be the responsibility of the contractor. The inspection and maintenance of the storm water component shall be performed as noted below. The contractor shall, at all times have erosion control in place. The contractor, based on future weather reports shall prepare and inspect all erosion control devices; cleaning, repairing and upgrading is a priority so that the devices perform as per design. Inspect the site during rain events. **Don't stay away from the site.** At a minimum, there should be inspection to assure the devices are not clogged or plugged, or that devices have not been destroyed or damaged during the rain event. After a storm event inspection is required to clean and repair any damage components. Immediate repair is required.

G. Inspection and Maintenance Schedules

- 1. Inspection must be conducted at least once every 7 days and within 24 hours prior to and after the end of a storm event 0.5 inches or greater.
- 2. Inspection frequency can be reduced to once a month if:
  - a. The site is temporarily stabilized.
  - b. Runoff is unlikely due to winter conditions, when site is covered with snow or ice.

3. Inspections must be conducted by qualified personnel, "qualified personnel" means a person knowledgeable in the principles and practice of erosion and sediment controls and who possess the skills to assess the conditions and take measures to maintain and ensure proper operation, also to conclude if the erosion control methods selected are effective.
4. For each inspection, the inspection report must include:
  - a. The inspection date.
  - b. Names, titles of personnel making the inspection.
  - c. Weather information for the period since the last inspection.
  - d. Weather information at the time of the inspection.
  - e. Locations of discharges of sediment from the site, if any.
  - f. Locations of BMP's that need to be maintained.
  - g. Locations where additional BMP's may be required.
  - h. Corrective action required or any changes to the SWPPP that may be necessary.
5. Qualified personnel shall inspect the following in-place work;

Inspection Schedule:

Erosion Control	Weekly
Catch Basins	Weekly
Temporary Sedimentation Traps/Basins	Weekly

Please Note: Special inspections shall also be made after a significant rainfall event.

Maintenance Schedule

Erosion Control Devices Failure	Immediately
Temporary Sedimentation Traps/Basins	As needed

Please Note: Special maintenance shall also be made after a significant rainfall event.

H. Inspection and Maintenance Log Form.

1. See Construction Phase Inspection and Maintenance Form attached

***Standard 9: A Long –Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that storm water management systems function as designed.***

The following shall serve as the (O&M) Plan required by Standard 9, as well as the Long-Term Pollution Prevention Plan required by Standard 4.

A. Names of Persons or Entities Responsible for Plan Compliance;

Scott Lanzetta  
 Da'Baker Realty, LLC  
 148 Ironstone Street  
 Uxbridge, MA 01579  
 Tel: 774-248-0709

B. Good housekeeping practices

1. Maintain site, landscaping and vegetation.
2. Sweep and pick up litter on pavements and grounds.
3. Deliveries shall be monitored by owners or representative to ensure that if any spillage occurs, it shall be contained and cleaned up immediately.
4. Maintain pavement and curbing in good repair.

**LANZETTA EXCAVATING  
MENDON, MA  
CONSTRUCTION PHASE INSPECTION AND MAINTENANCE LOG**

Date \_\_\_\_\_

Prev. Insp. Date: \_\_\_\_\_

Inspector: \_\_\_\_\_

Title: \_\_\_\_\_

Weather: \_\_\_\_\_

Weather Since Last Inspection \_\_\_\_\_

**Erosion Control - Inspect Weekly**

Comments:
Corrective measures taken and date

**On Site Pavement Sweeping - Inspect Weekly**

Comments:
Corrective measures taken and date

**Catch Basins - Inspect Weekly**

Comments:
Corrective measures taken and date

**Stormceptor - Inspect Weekly**

Comments:
Corrective measures taken and date

**Temporary Sediment Traps/Basins - Inspect Weekly**

Comments:
Corrective measures taken and date



**LANZETTA EXCAVATING  
MENDON, MA  
CONSTRUCTION PHASE INSPECTION AND MAINTENANCE LOG**

**Notify Conservation Commission RE Issues Effecting Resource Areas**

Comments:
Corrective measures taken and date

**Silt on Public Streets - Inspect Weekly**

Comments:
Corrective measures taken and date

**Stock Pile Materials - Ring with Haybales - Inspect Weekly**

Comments:
Corrective measures taken and date

**Any Fuel or Chemical Spill - Inspect Daily**

Comments:
Corrective measures taken and date

C. Requirements for routine inspections and maintenance of stormwater BMPs

1. **Plans:** The storm water Operation and Maintenance Plan shall consist of all Plans, documents and all local state and federal approvals as required for the subject property.
2. **Record Keeping:**
  - a. Maintain a log of all operation and maintenance activities for at least three years following construction, including inspections, repairs, replacement and disposal (for disposal, the log shall indicate the type of material and the disposal location);
3. **Descriptions and Designs:** The Best Management Practices (BMP) incorporated into the design include the following:
  - a. Deep sump catch basins with hoods installed to promote TSS Removal of solids and control floatable pollutants. This BMP has a design rate of 25% TSS Removal.
  - b. Hydrodynamic Separator - installed to promote TSS Removal of solids. This BMP has a design rate of 50% TSS Removal.
  - c. Infiltration Basin –has a design rate of 80% TSS Removal. Refer to TSS Removal Worksheet included in the Attachments.
  - d. Spill Containment Kit to contain and clean-up spills that could occur on site.
4. **BMP Maintenance:** After construction it is the responsibility of the owner to perform maintenance. The cleaning of the components of the stormwater management system shall generally be as follows:
  - a. **Pavement:** The owner shall keep the pavement swept with a mechanical sweeper or hand swept semi-annually at a minimum.
  - b. **Catch Basins:** Shall be cleaned by excavating, pumping or vacuuming. The sediment shall be disposed of off-site by the Owner. Inspect quarterly, remove silt when ¼ full.
  - c. **Hydrodynamic Separator** shall be cleaned by pumping. The sediment shall be disposed of off-site by the Owner. Inspect quarterly, remove silt when ¼ full.
  - d. **StormTech Chambers:** Inspect for proper function after every major storm event during the first 3 months of operation, inspect/remove debris twice per year afterward.
5. **Access Provisions:** All of the components of the storm water system will be accessible by the Owner

D. Spill prevention and response plans

1. Train employees and subcontractors in prevention and clean up procedures.
2. All materials stored on site will be stored in their appropriate containers under a roof or in the approved underground storage tanks.
3. Follow manufacturer's recommendation for disposal of used containers.
4. On site equipment, fueling and maintenance measures:
  - a. Inspect on-site vehicles and equipment daily for leaks.
  - b. Conduct all vehicle and equipment maintenance off Site and refueling in one location, away from storm drains and wetlands.
5. Clean up spills.
  - a. Never hose down "dirty" pavement or impermeable surfaces where fluids have spilled. Use dry clean-up methods (sawdust, cat litter and/or rags and absorbent pads).
  - b. Sweep up dry materials immediately. Never wash them away or bury them.
  - c. Clean up spills on dirt areas by digging up and properly disposing of contaminated soil.
  - d. Report significant spills to the Fire Department, Conservation Commission and Board of Health.

- E. Provisions for maintenance of lawns, gardens, and other landscaped areas  
Dispose of clippings outside of the 100-foot buffer zone to the adjacent wetland and away from storm drainage and use 0% phosphate fertilizer.
- F. Requirements for storage and use of herbicides, and pesticides  
The application of herbicides or pesticides will be done by professional certified contractor.
- G. Provisions for solid waste management
  - 1. Waste Management Plan
    - a. Recycle materials whenever possible (paper, plaster cardboard, metal cans). Separate containers for material are recommended.
    - b. Do not bury waste and debris on site.
    - c. Certified haulers will be hired to remove the dumpster container waste as needed. Recycling products will also be removed off site weekly.
- H. Snow disposal and plowing plans  
Snow storage is adequate around the site for large storm events, see site plan
- I. Winter Road Salt and/or Sand Use and Storage restrictions  
No sand, salt, or chemicals for de-icing will be stored outside.
- J. Pavement sweeping schedules  
Sweeping, the act of cleaning pavement can be done by mechanical sweepers, vacuum sweeper or hand sweeper. The quantity of sand is a direct correlation with the treatment of ice and snow and the types of chemicals and spreaders that are being used on site to manage snow. If a liquid de-icer such as calcium chloride is used as a pretreatment to new events the amount of sand is minimized. Sweeping for this site should be done semi-annually at a minimum. Collecting the particulate before it enters the catch basins is cheaper and more environmentally friendly than in a catch basin mixing with oils and greases in the surface water runoff in catch basins.
- K. Provisions for prevention of illicit discharges to the stormwater management system  
The discharge into the stormwater system is not being violated, see attachment for illicit discharges compliance.

Training the staff or personnel involved with implementing Long-Term Pollution Prevention Plan

The owner shall develop policies and procedures for containing the illicit spilling of oils, soda, beer, paper and litter. These wastes provide a degrading of the water quality. The placement of signs and trash barrels with lids around the site would contribute to a clean water quality site condition.

L. List of Emergency contacts for implementing Long-Term Pollution Prevention Plan:

Scott Lanzetta  
Da'Baker Realty, LLC  
148 Ironstone Street  
Uxbridge, MA 01759  
Tel: 774-248-0709

***Standard 10: All illicit discharges to the stormwater management system are prohibited.***

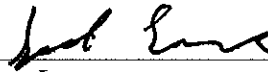
***Standard 10 prohibits illicit discharges to stormwater management systems. The stormwater management system is the system for conveying, treating, and infiltrating stormwater on site, including stormwater best management practices and any pipes intended to transport stormwater to the ground water, a surface water, or municipal separate storm sewer system. Illicit discharges to the stormwater management system are discharges that are not entirely comprised of stormwater. Notwithstanding the foregoing, an illicit discharge does not include discharges from the following activities or facilities: firefighting, water line flushing, landscape irrigation, uncontaminated ground water, potable water sources, foundation drains, air conditioning condensation, footing drains, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated water from swimming pools, water used for street washing and water used to clean residential buildings without detergents.***

---

### Illicit Discharge Compliance Statement

It is the intent of the Owner, A & R Serrano, Inc. to prevent illicit discharges to the stormwater management system, including wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, oil, or grease. There will be no connection to the storm water system to inadvertently direct other types of liquids, chemicals or solids into the storm drainage system. The Owner will also promote a clean Green Environment by mitigating spills onto pavements; oils, soda, chemicals, pet waste, debris and litter.

Respectfully Acknowledged,



---

Scott Lanzetta

G-10277

63 PROVIDENCE STREET

Drainage Commentary

The proposed project is the development of a predominantly wooded area for a contractor's yard. The majority of the proposed travel way will be constructed with reprocessed asphalt. There will be a small paved apron at the entrance on Providence Street and a concrete pad in front of the garage doors.

Runoff from the site currently flows northerly towards Providence Street and westerly to a bordering vegetated wetland.

Runoff will be collected in a catch basin to drain manhole system. Runoff at Providence Street will be collected in a double catch basin and treated by a water quality manhole before discharging to a subsurface detention area. Runoff from this structure will flow via a 12 ' culvert that will connect to the existing catch basin. Runoff from the remainder of the developed area will be collected in two catch basins and enter a subsurface detention/infiltration area, before discharging to the wetlands. Peak flows were analyzed for pre and post development conditions using HydroCAD. We have analyzed the TSS removal at the two discharge locations. For this analysis, the reprocessed asphalt is assumed to be impervious. TSS removal has been achieved by balancing the removal rates at the proposed drainage connections with .07 ac not being treated. (See calculations below)

Contributing area to Providence Street = 0.11 acres. TSS removal rate = 81%

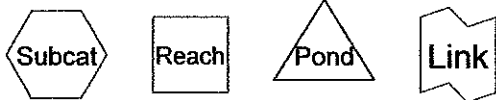
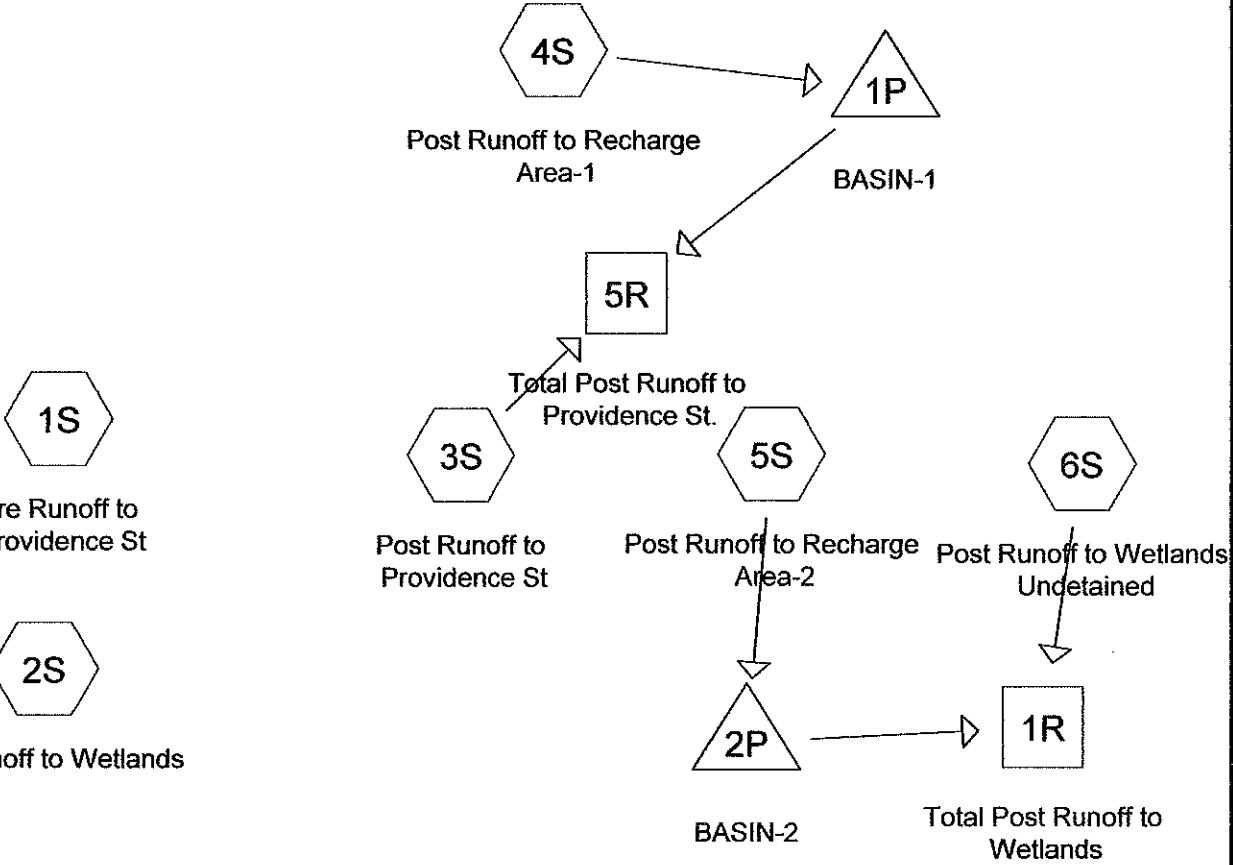
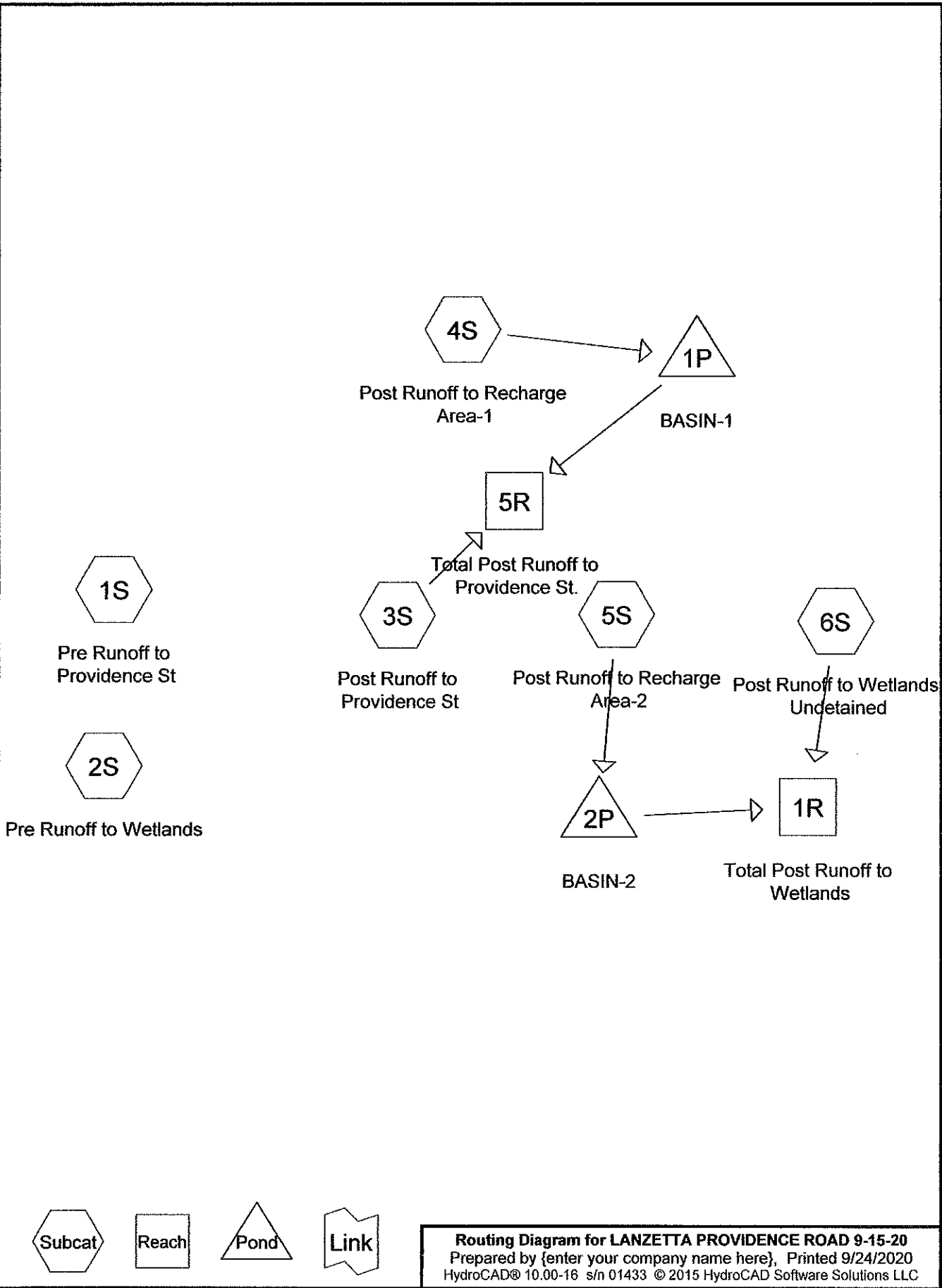
Contributing area to Subsurface Detention = 0.57 acres. TSS removal rate = 89%

Balanced TSS removal rate =  $\underline{(.11) (.81) + (.57) (.89)} = 80\%$

0.75

## **DRAINAGE ANALYSIS**

HydroCAD Calculations – Pre-Post Development Conditions 2, 10, 100-Year Storm Events





## **PRE-DEVELOPMENT**

## **2-YEAR STORM**

**Summary for Subcatchment 1S: Pre Runoff to Providence St**

Runoff = 0.24 cfs @ 12.25 hrs, Volume= 0.033 af, Depth> 0.32"

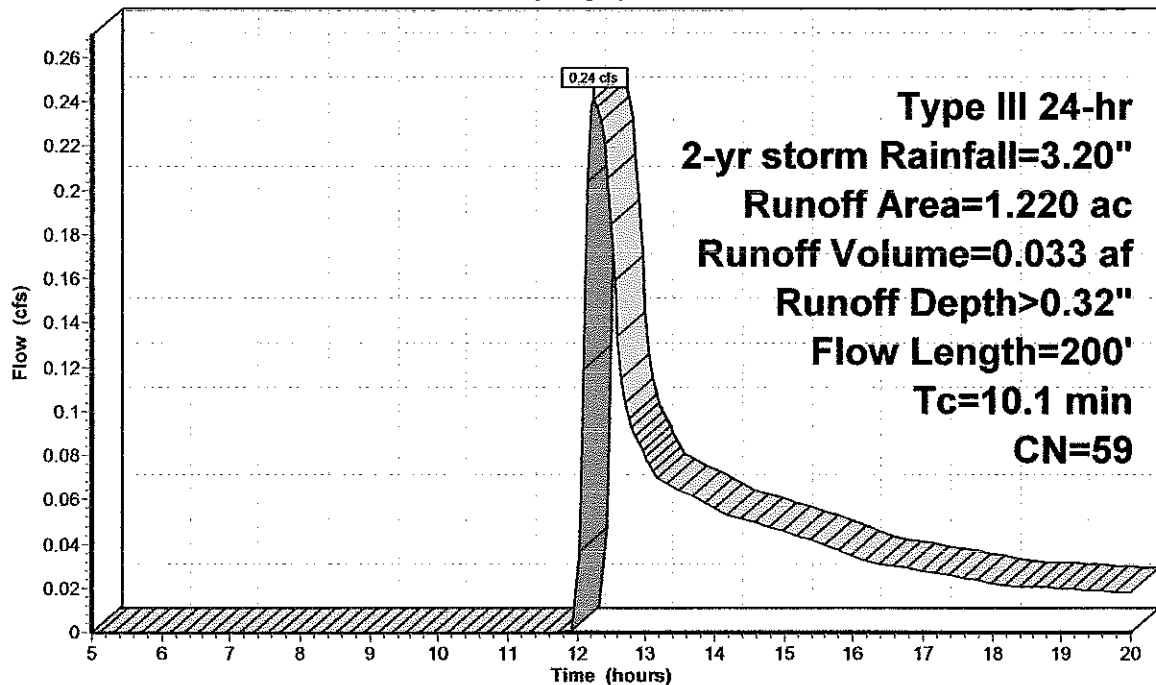
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-yr storm Rainfall=3.20"

Area (ac)	CN	Description
0.130	96	Gravel surface, HSG B
1.090	55	Woods, Good, HSG B
1.220	59	Weighted Average
1.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.20"
1.9	117	0.0400	1.00		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
0.2	33	0.2400	2.45		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
10.1	200	Total			

**Subcatchment 1S: Pre Runoff to Providence St**

Hydrograph



**Type III 24-hr  
 2-yr storm Rainfall=3.20"  
 Runoff Area=1.220 ac  
 Runoff Volume=0.033 af  
 Runoff Depth>0.32"  
 Flow Length=200'  
 Tc=10.1 hr  
 CN=59**

**LANZETTA PROVIDENCE ROAD 9-15-20**

Type III 24-hr 2-yr storm Rainfall=3.20"

Prepared by {enter your company name here}

Printed 9/24/2020

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**Summary for Subcatchment 2S: Pre Runoff to Wetlands**

Runoff = 0.15 cfs @ 12.40 hrs, Volume= 0.026 af, Depth> 0.21"

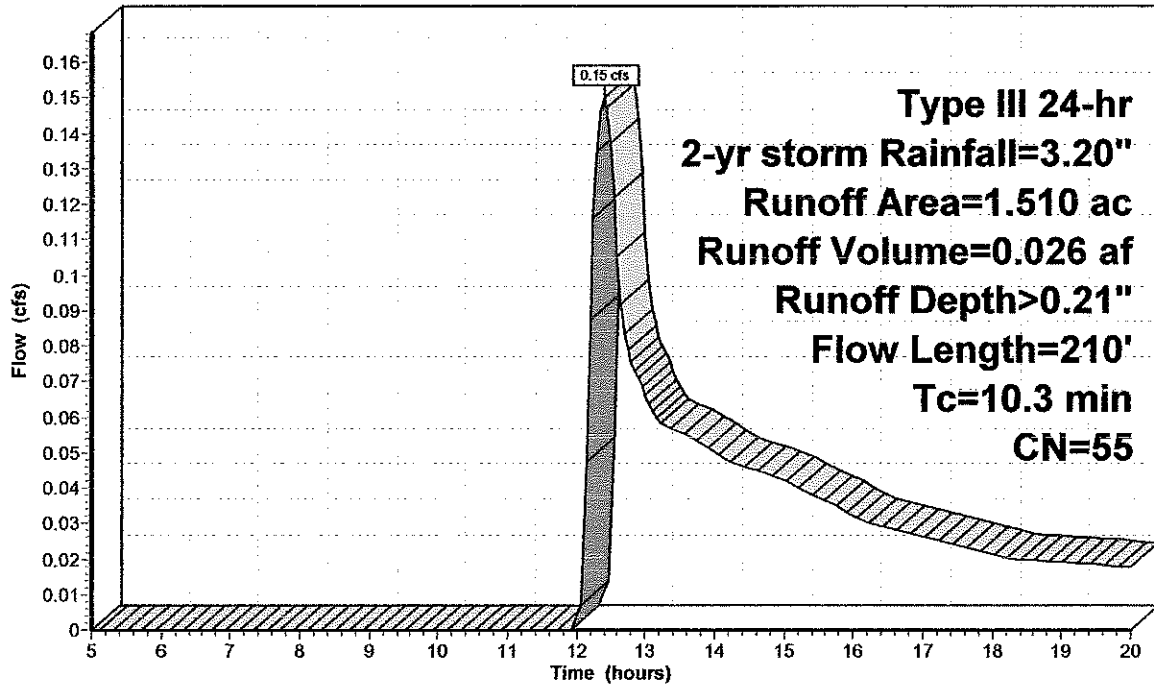
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-yr storm Rainfall=3.20"

Area (ac)	CN	Description
1.510	55	Woods, Good, HSG B
1.510		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.4	160	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
10.3	210	Total			

**Subcatchment 2S: Pre Runoff to Wetlands**

Hydrograph



**10-YR STORM**

**Summary for Subcatchment 1S: Pre Runoff to Providence St**

Runoff = 1.19 cfs @ 12.16 hrs, Volume= 0.102 af, Depth> 1.01"

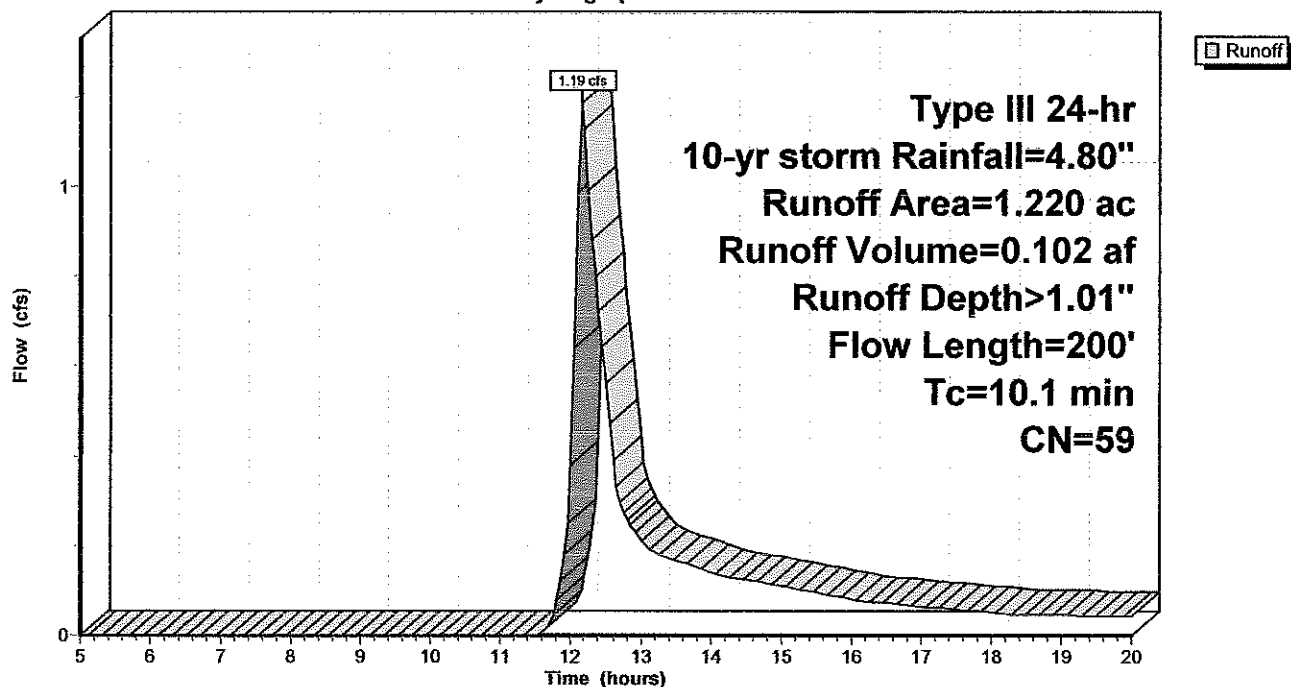
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-yr storm Rainfall=4.80"

Area (ac)	CN	Description
0.130	96	Gravel surface, HSG B
1.090	55	Woods, Good, HSG B
1.220	59	Weighted Average
1.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
1.9	117	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	33	0.2400	2.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
10.1	200	Total			

**Subcatchment 1S: Pre Runoff to Providence St**

Hydrograph



**LANZETTA PROVIDENCE ROAD 9-15-20**

Type III 24-hr 10-yr storm Rainfall=4.80"

Prepared by {enter your company name here}

Printed 9/24/2020

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**Summary for Subcatchment 2S: Pre Runoff to Wetlands**

Runoff = 1.01 cfs @ 12.18 hrs, Volume= 0.098 af, Depth> 0.78"

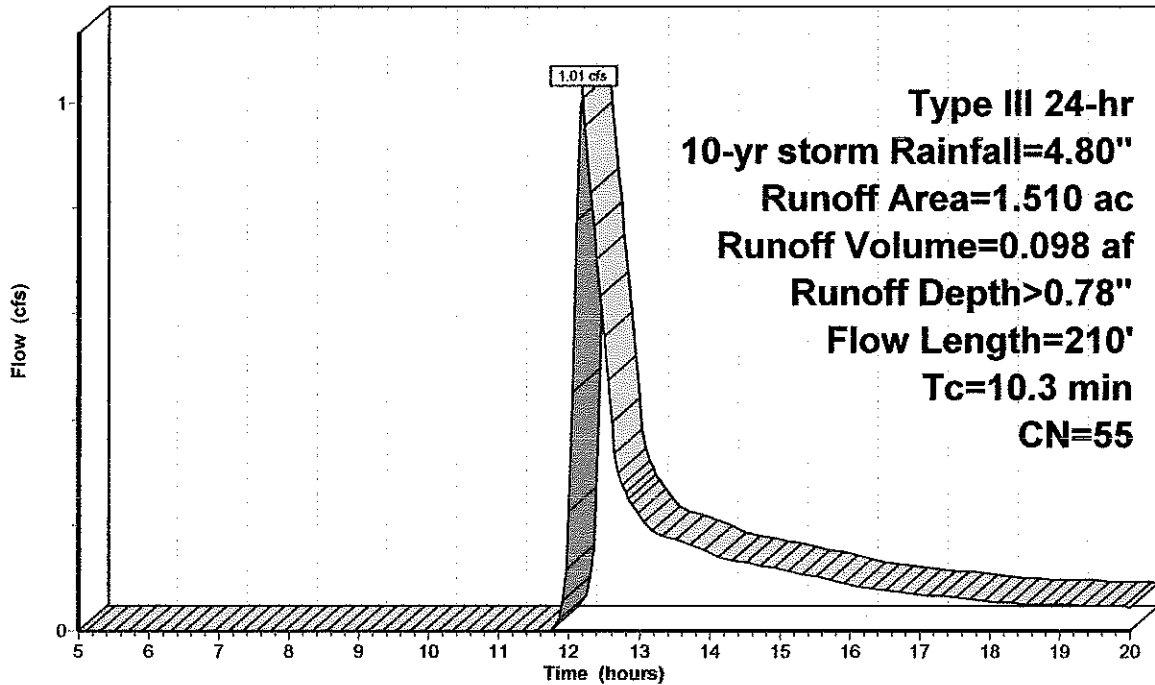
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-yr storm Rainfall=4.80"

Area (ac)	CN	Description
1.510	55	Woods, Good, HSG B
1.510		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.4	160	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
10.3	210	Total			

**Subcatchment 2S: Pre Runoff to Wetlands**

Hydrograph



Runoff

**Type III 24-hr  
 10-yr storm Rainfall=4.80"  
 Runoff Area=1.510 ac  
 Runoff Volume=0.098 af  
 Runoff Depth>0.78"  
 Flow Length=210'  
 Tc=10.3 min  
 CN=55**

**100-YEAR  
STORM**



**Summary for Subcatchment 1S: Pre Runoff to Providence St**

Runoff = 2.71 cfs @ 12.15 hrs, Volume= 0.213 af, Depth> 2.10"

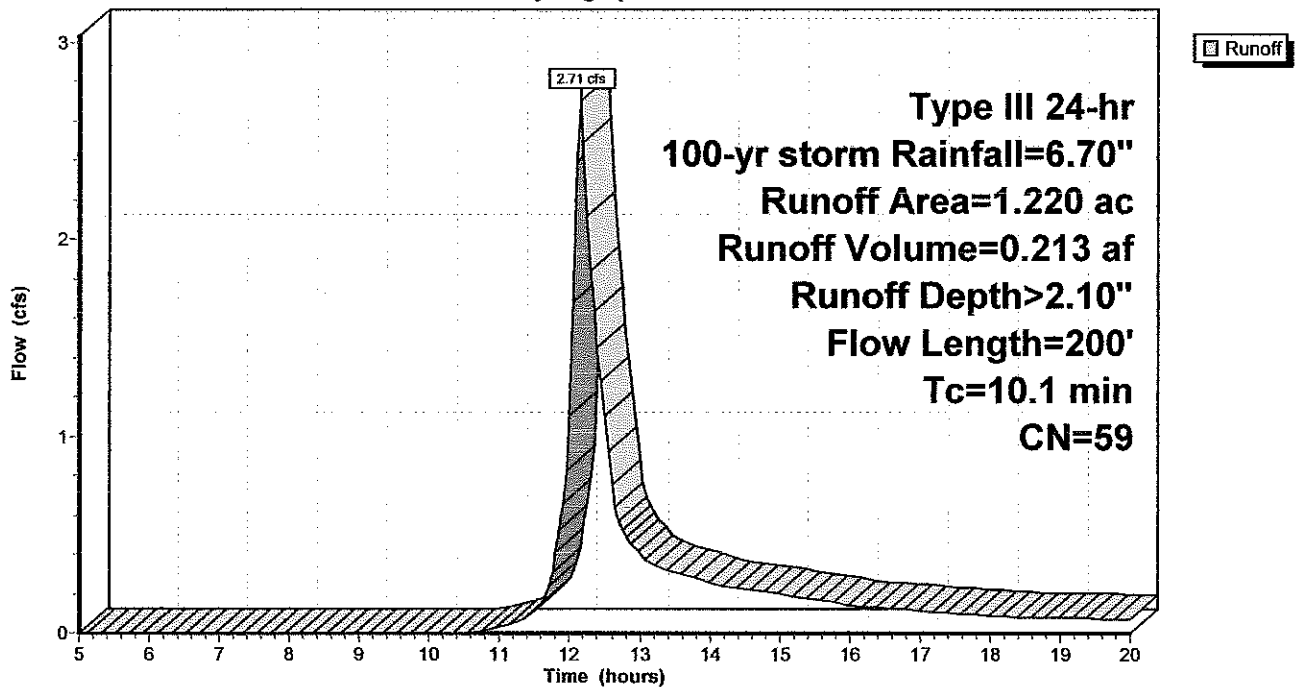
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100-yr storm Rainfall=6.70"

Area (ac)	CN	Description
0.130	96	Gravel surface, HSG B
1.090	55	Woods, Good, HSG B
1.220	59	Weighted Average
1.220		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
1.9	117	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	33	0.2400	2.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
10.1	200	Total			

**Subcatchment 1S: Pre Runoff to Providence St**

Hydrograph



**LANZETTA PROVIDENCE ROAD 9-15-20**

Type III 24-hr 100-yr storm Rainfall=6.70"

Prepared by {enter your company name here}

Printed 9/24/2020

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**Summary for Subcatchment 2S: Pre Runoff to Wetlands**

Runoff = 2.70 cfs @ 12.16 hrs, Volume= 0.221 af, Depth> 1.75"

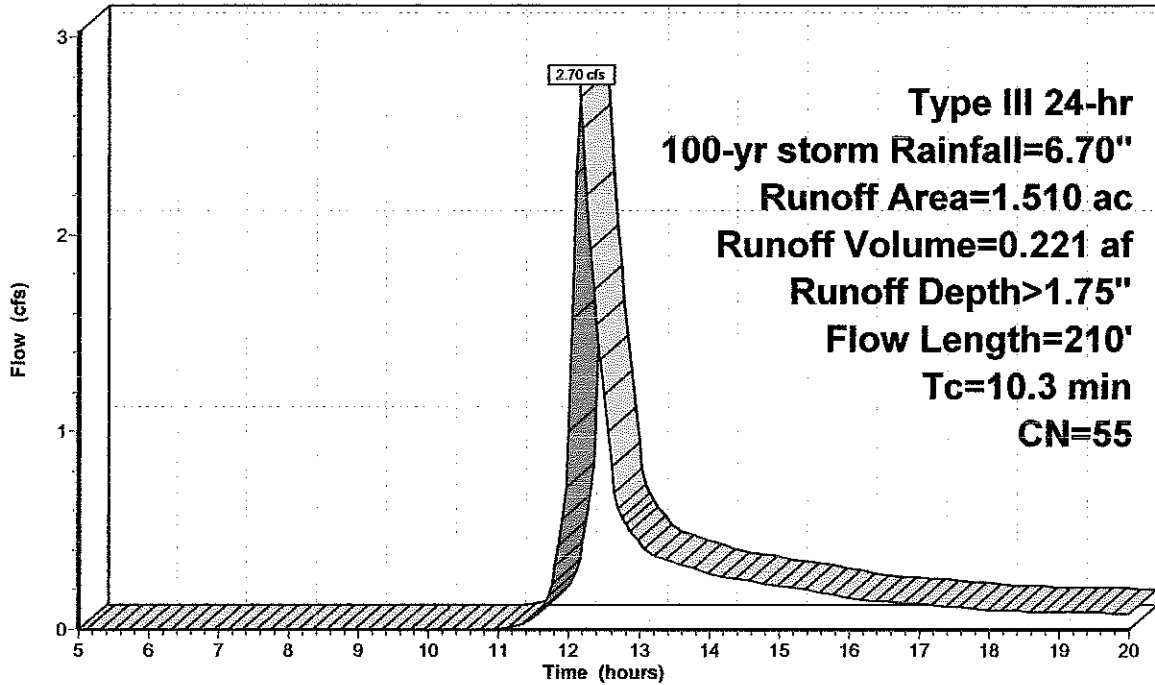
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100-yr storm Rainfall=6.70"

Area (ac)	CN	Description
1.510	55	Woods, Good, HSG B
1.510		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.4	160	0.0500	1.12		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
10.3	210	Total			

**Subcatchment 2S: Pre Runoff to Wetlands**

Hydrograph



**Type III 24-hr  
 100-yr storm Rainfall=6.70"  
 Runoff Area=1.510 ac  
 Runoff Volume=0.221 af  
 Runoff Depth>1.75"  
 Flow Length=210'  
 Tc=10.3 min  
 CN=55**

## **POST-DEVELOPMENT**

## **2-YEAR STORM**

**Summary for Subcatchment 4S: Post Runoff to Recharge Area-1**

Runoff = 0.33 cfs @ 12.10 hrs, Volume= 0.023 af, Depth> 1.23"

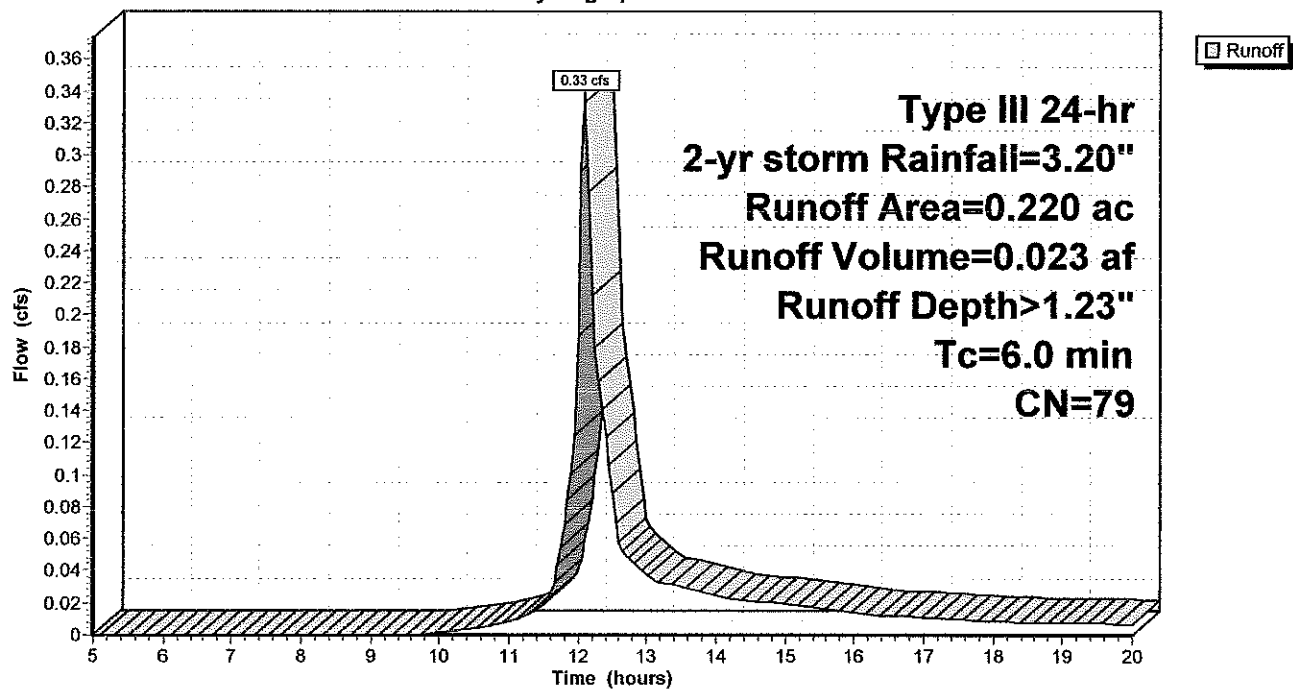
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-yr storm Rainfall=3.20"

Area (ac)	CN	Description
0.110	61	>75% Grass cover, Good, HSG B
* 0.110	96	Reprocessed asphalt
0.220	79	Weighted Average
0.220		100.00% Pervious Area

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

**Subcatchment 4S: Post Runoff to Recharge Area-1**

Hydrograph



**LANZETTA PROVIDENCE ROAD 9-24-20**

Type III 24-hr 2-yr storm Rainfall=3.20"

Prepared by {enter your company name here}

Printed 9/25/2020

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**Summary for Pond 1P: BASIN-1**

Inflow Area = 0.220 ac, 0.00% Impervious, Inflow Depth > 1.23" for 2-yr storm event  
 Inflow = 0.33 cfs @ 12.10 hrs, Volume= 0.023 af  
 Outflow = 0.02 cfs @ 14.75 hrs, Volume= 0.007 af, Atten= 94%, Lag= 159.0 min  
 Primary = 0.02 cfs @ 14.75 hrs, Volume= 0.007 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 264.17' @ 14.75 hrs Surf.Area= 1,446 sf Storage= 706 cf

Plug-Flow detention time= 268.1 min calculated for 0.007 af (31% of inflow)  
 Center-of-Mass det. time= 172.7 min ( 978.9 - 806.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	263.00'	1,120 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 2,799 cf Overall x 40.0% Voids
#2	263.70'	522 cf	<b>ADS StormTech SC-310</b> x 35 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 7 rows
		1,642 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
263.00	933	0	0
264.00	933	933	933
265.00	933	933	1,866
266.00	933	933	2,799

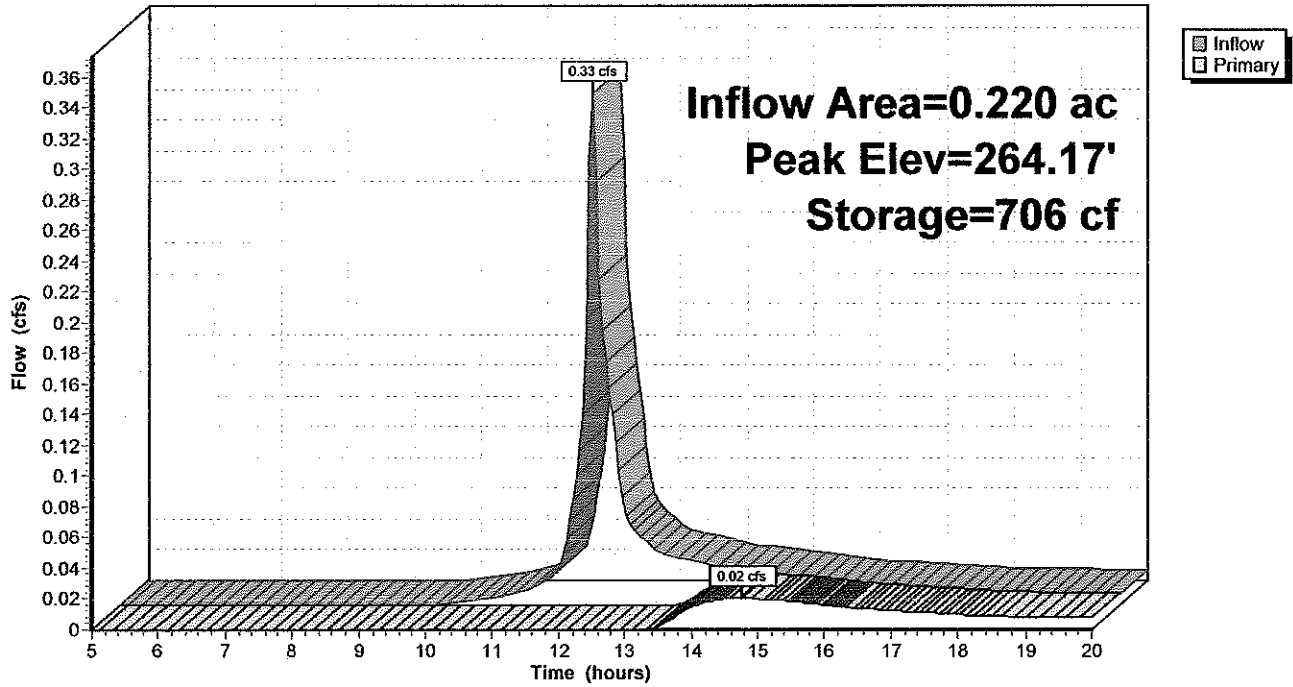
Device	Routing	Invert	Outlet Devices
#1	Primary	264.10'	<b>10.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.02 cfs @ 14.75 hrs HW=264.17' TW=0.00' (Dynamic Tailwater)

↑1=Orifice/Grate (Orifice Controls 0.02 cfs @ 0.91 fps)

Pond 1P: BASIN-1

Hydrograph



**LANZETTA PROVIDENCE ROAD 9-24-20**

Type III 24-hr 2-yr storm Rainfall=3.20"

Prepared by {enter your company name here}

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Page 1

**Summary for Subcatchment 3S: Post Runoff to Providence St**

Runoff = 0.18 cfs @ 12.26 hrs, Volume= 0.023 af, Depth> 0.39"

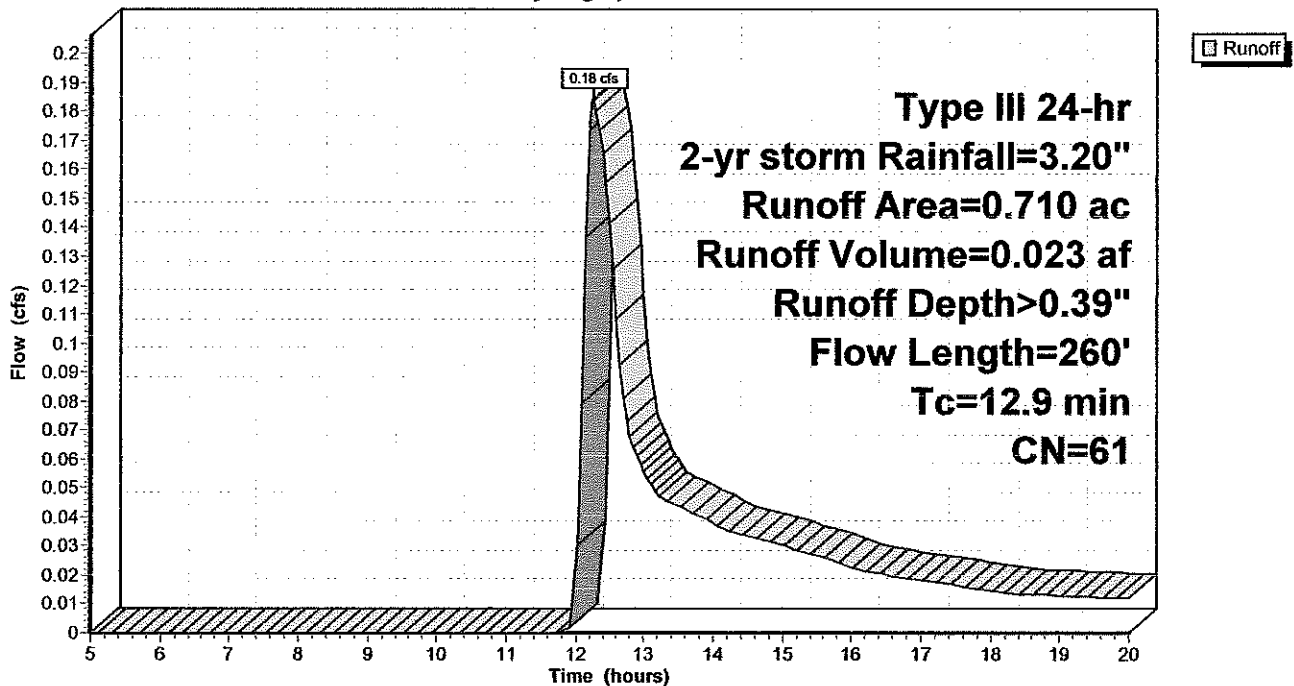
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr storm Rainfall=3.20"

Area (ac)	CN	Description
0.040	98	Paved parking, HSG B
0.320	61	>75% Grass cover, Good, HSG B
0.330	55	Woods, Good, HSG B
* 0.020	96	reprocessed asphalt
0.710	61	Weighted Average
0.670		94.37% Pervious Area
0.040		5.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
4.8	177	0.0150	0.61		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	33	0.2400	2.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
12.9	260	Total			

**Subcatchment 3S: Post Runoff to Providence St**

Hydrograph



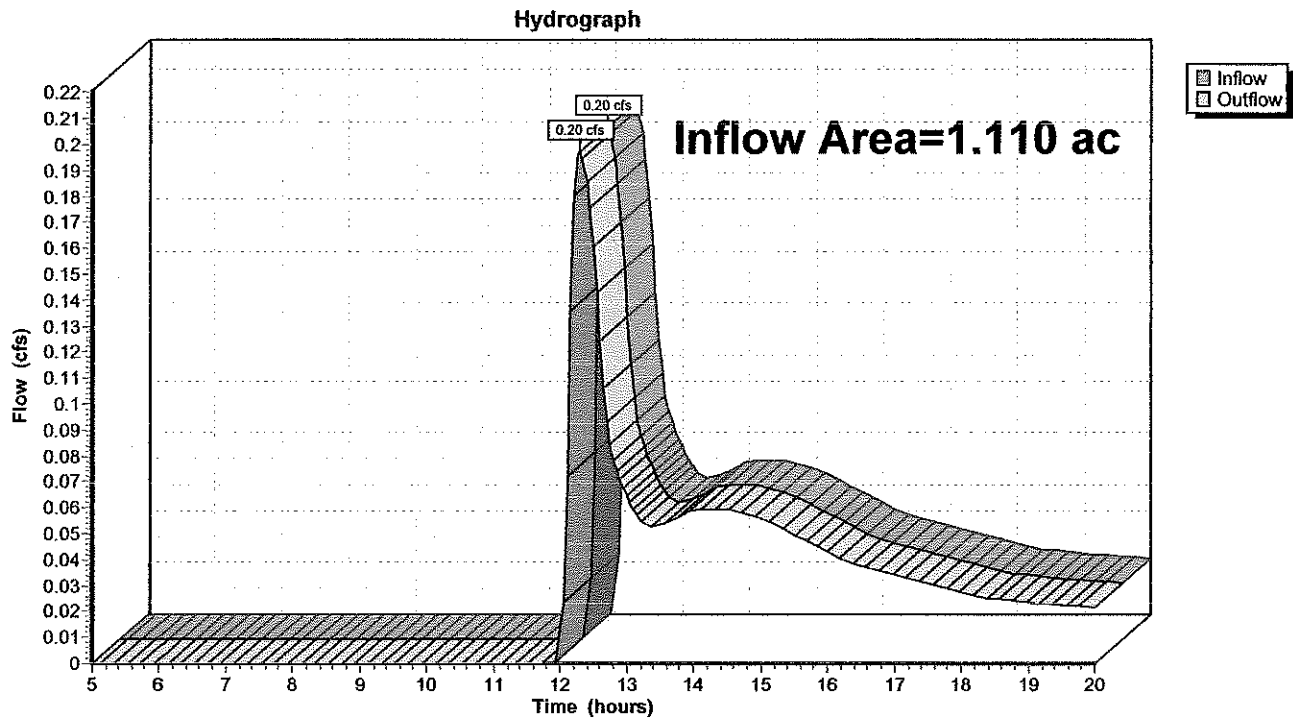


**Summary for Reach 5R: Total Post Runoff to Providence St.**

Inflow Area = 1.110 ac, 3.60% Impervious, Inflow Depth > 0.36" for 2-yr storm event  
Inflow = 0.20 cfs @ 12.28 hrs, Volume= 0.033 af  
Outflow = 0.20 cfs @ 12.28 hrs, Volume= 0.033 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 5R: Total Post Runoff to Providence St.**



**LANZETTA PROVIDENCE ROAD 9-15-20**

Type III 24-hr 2-yr storm Rainfall=3.20"

Prepared by {enter your company name here}

Printed 9/24/2020

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**Summary for Subcatchment 5S: Post Runoff to Recharge Area-2**

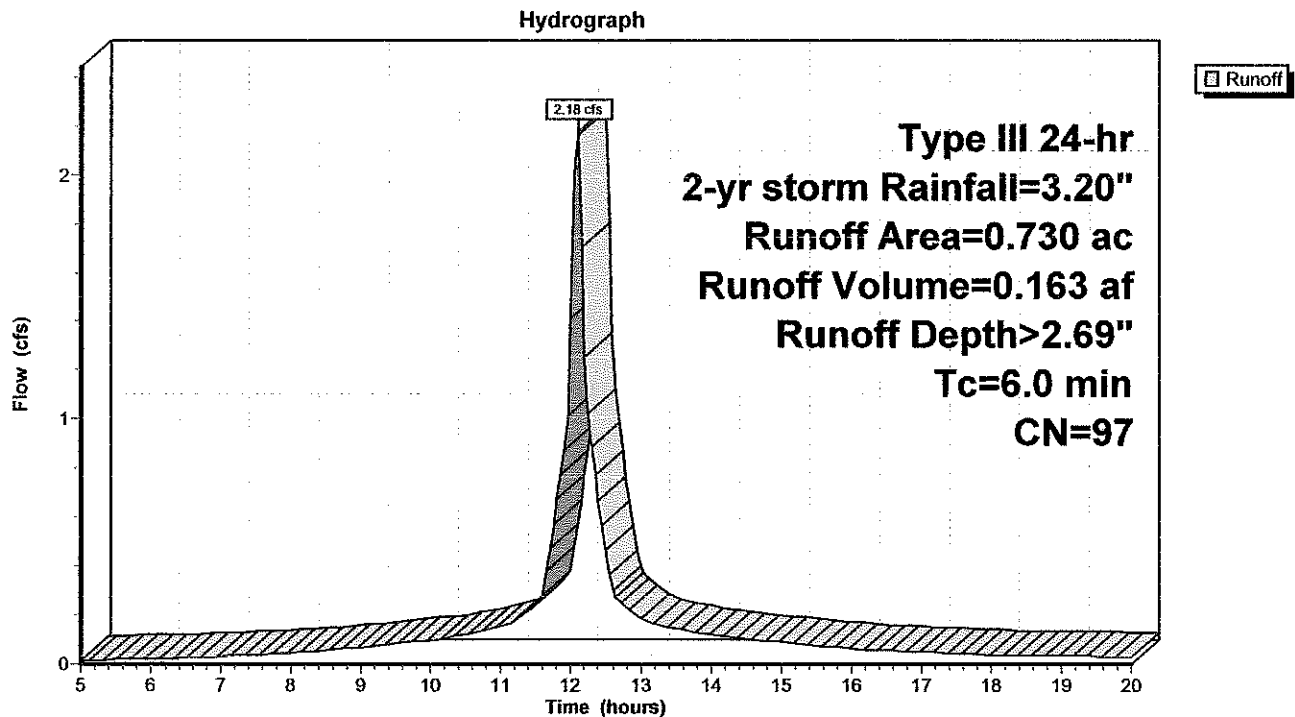
Runoff = 2.18 cfs @ 12.09 hrs, Volume= 0.163 af, Depth> 2.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 2-yr storm Rainfall=3.20"

Area (ac)	CN	Description
0.160	98	Roofs, HSG B
0.080	98	Paved parking, HSG B
* 0.490	96	Reprocessed Asphalt
0.730	97	Weighted Average
0.490		67.12% Pervious Area
0.240		32.88% Impervious Area

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

**Subcatchment 5S: Post Runoff to Recharge Area-2**



**Summary for Pond 2P: BASIN-2**

Inflow Area = 0.730 ac, 32.88% Impervious, Inflow Depth > 2.69" for 2-yr storm event  
 Inflow = 2.18 cfs @ 12.09 hrs, Volume= 0.163 af  
 Outflow = 0.18 cfs @ 11.65 hrs, Volume= 0.164 af, Atten= 92%, Lag= 0.0 min  
 Discarded = 0.18 cfs @ 11.65 hrs, Volume= 0.164 af  
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 271.11' @ 13.03 hrs Surf.Area= 3,290 sf Storage= 2,779 cf

Plug-Flow detention time= 117.5 min calculated for 0.163 af (100% of inflow)  
 Center-of-Mass det. time= 117.7 min ( 861.3 - 743.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	5,810 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 16,450 cf Overall - 1,926 cf Embedded = 14,524 cf x 40.0% Voids
#2	271.70'	1,926 cf	<b>ADS StormTech SC-310</b> x 130 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 10 rows
		7,735 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
269.00	3,290	0	0
270.00	3,290	3,290	3,290
271.00	3,290	3,290	6,580
272.00	3,290	3,290	9,870
273.00	3,290	3,290	13,160
274.00	3,290	3,290	16,450

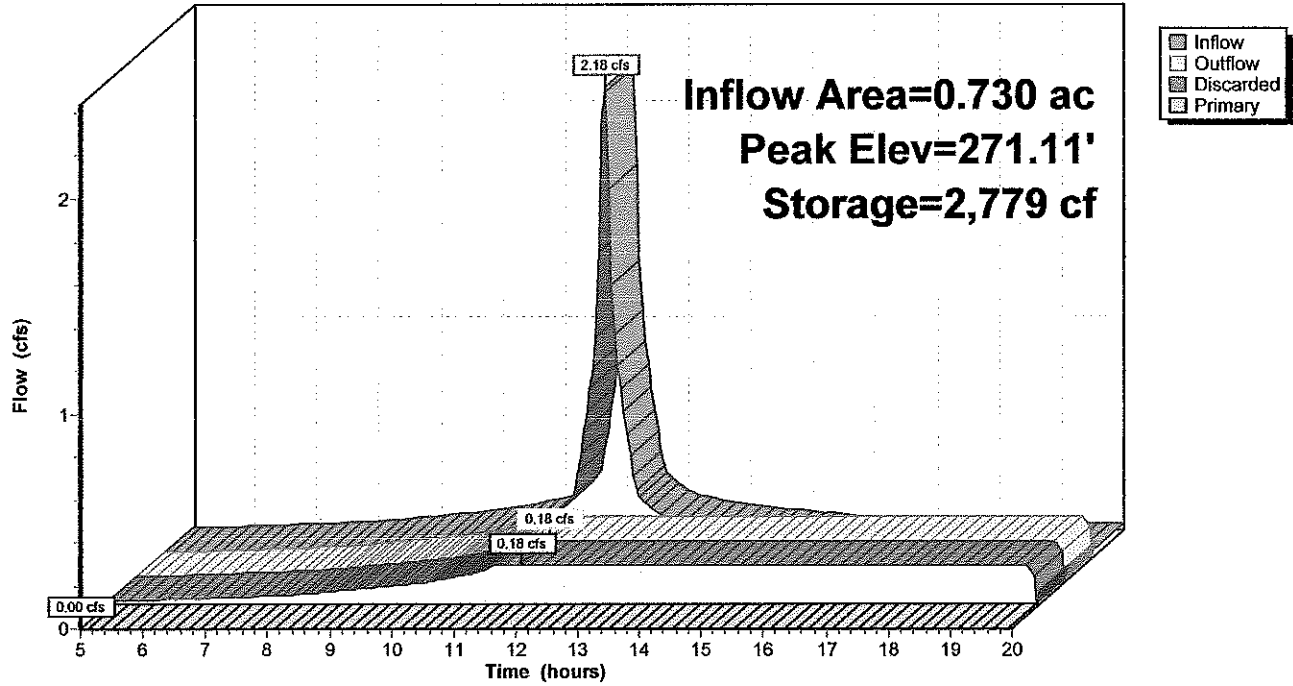
Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	<b>2.410 in/hr Exfiltration over Surface area</b>
#2	Primary	271.80'	<b>4.0" Vert. Orifice/Grate C= 0.600</b>

**Discarded OutFlow** Max=0.18 cfs @ 11.65 hrs HW=269.07' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 0.18 cfs)

**Primary OutFlow** Max=0.00 cfs @ 5.00 hrs HW=269.00' TW=0.00' (Dynamic Tailwater)  
 ↑2=Orifice/Grate ( Controls 0.00 cfs)

Pond 2P: BASIN-2

Hydrograph



**Summary for Subcatchment 6S: Post Runoff to Wetlands Undetained**

Runoff = 0.15 cfs @ 12.38 hrs, Volume= 0.023 af, Depth> 0.26"

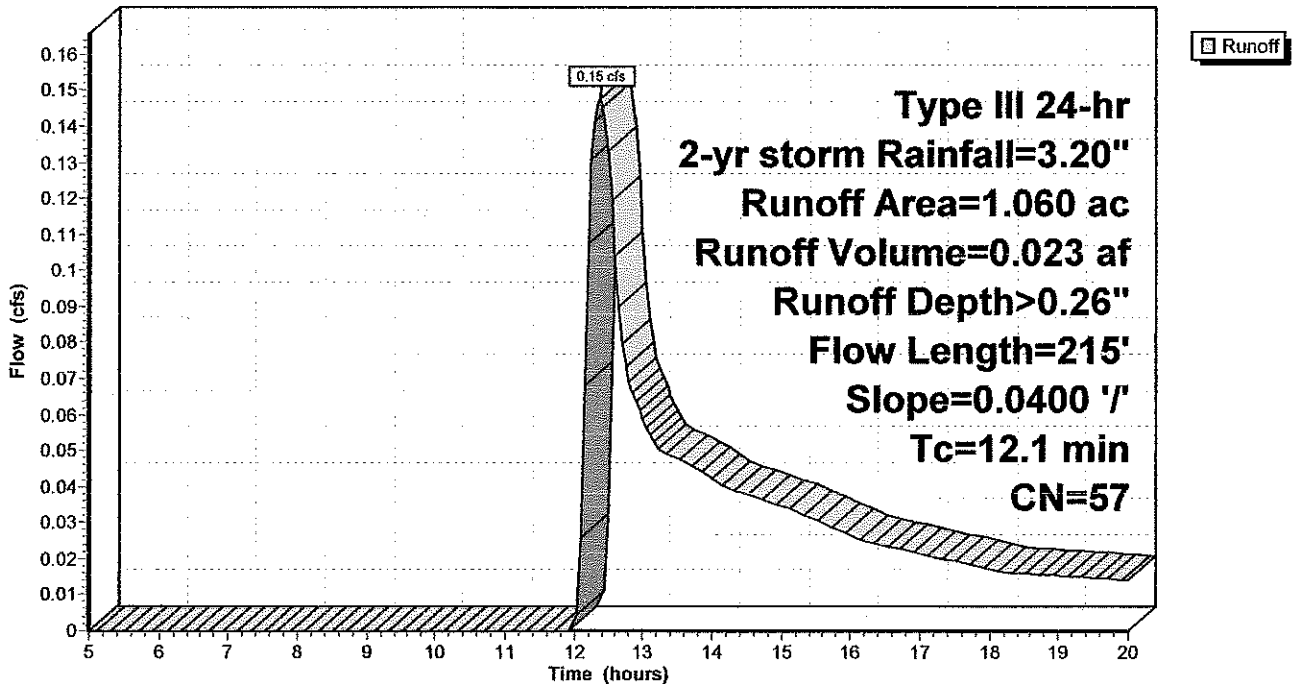
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr storm Rainfall=3.20"

Area (ac)	CN	Description
0.720	55	Woods, Good, HSG B
0.340	61	>75% Grass cover, Good, HSG B
1.060	57	Weighted Average
1.060		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.7	165	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
12.1	215	Total			

**Subcatchment 6S: Post Runoff to Wetlands Undetained**

Hydrograph

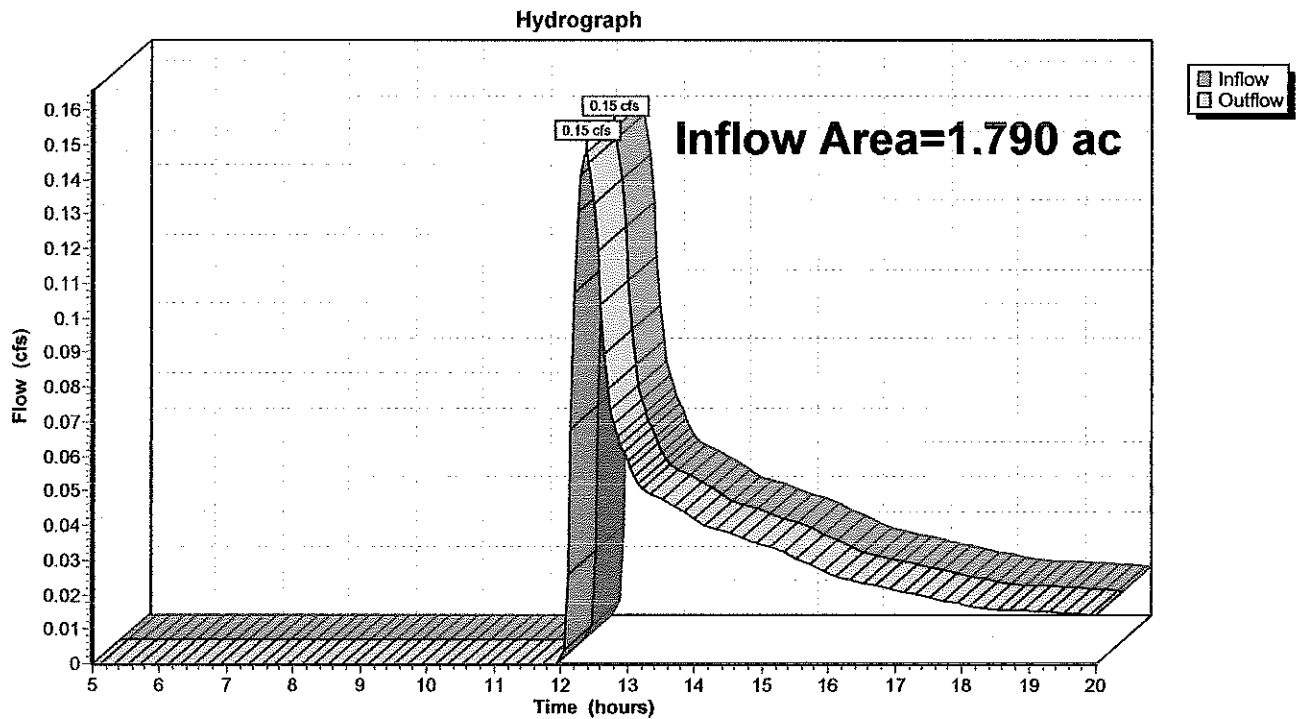


### Summary for Reach 1R: Total Post Runoff to Wetlands

Inflow Area = 1.790 ac, 13.41% Impervious, Inflow Depth > 0.16" for 2-yr storm event  
Inflow = 0.15 cfs @ 12.38 hrs, Volume= 0.023 af  
Outflow = 0.15 cfs @ 12.38 hrs, Volume= 0.023 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 1R: Total Post Runoff to Wetlands



**10-YR STORM**

**Summary for Subcatchment 4S: Post Runoff to Recharge Area-1**

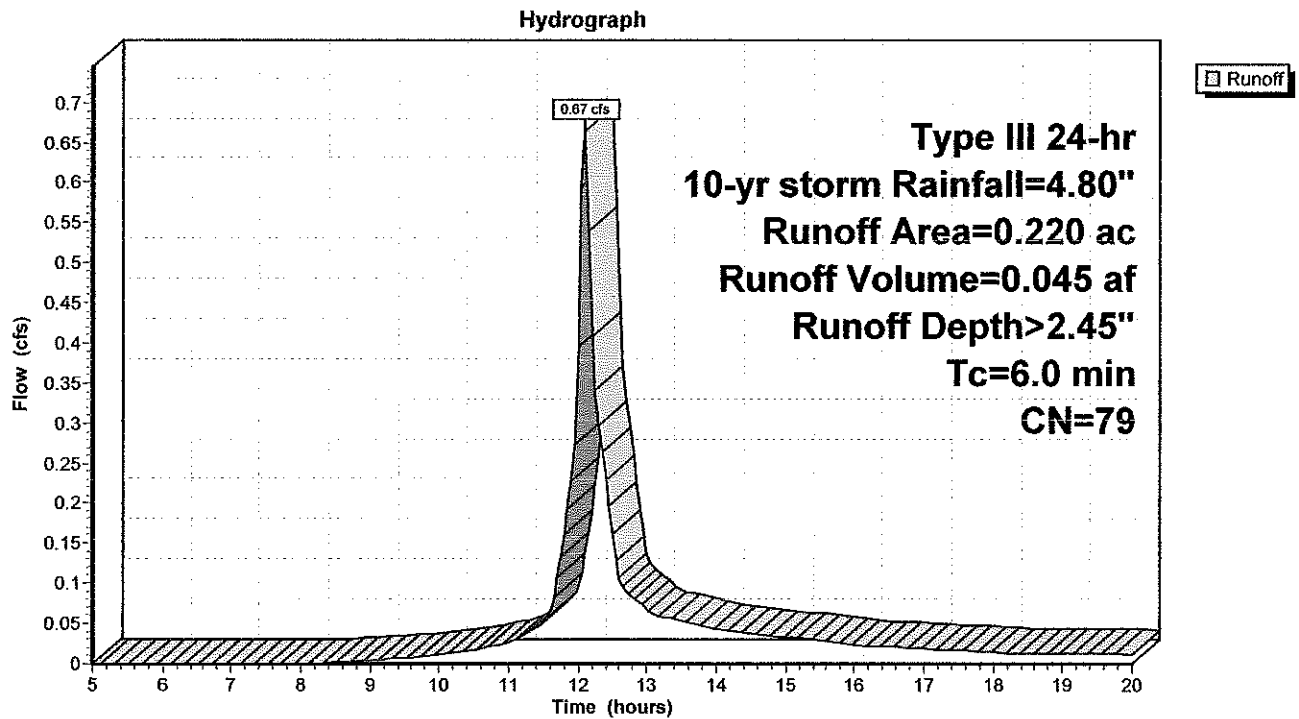
Runoff = 0.67 cfs @ 12.09 hrs, Volume= 0.045 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-yr storm Rainfall=4.80"

Area (ac)	CN	Description
0.110	61	>75% Grass cover, Good, HSG B
* 0.110	96	Reprocessed asphalt
0.220	79	Weighted Average
0.220		100.00% Pervious Area

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

**Subcatchment 4S: Post Runoff to Recharge Area-1**





**LANZETTA PROVIDENCE ROAD 9-24-20**

Type III 24-hr 10-yr storm Rainfall=4.80"

Prepared by {enter your company name here}

Printed 9/25/2020

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**Summary for Pond 1P: BASIN-1**

Inflow Area = 0.220 ac, 0.00% Impervious, Inflow Depth > 2.45" for 10-yr storm event  
 Inflow = 0.67 cfs @ 12.09 hrs, Volume= 0.045 af  
 Outflow = 0.26 cfs @ 12.36 hrs, Volume= 0.029 af, Atten= 61%, Lag= 16.3 min  
 Primary = 0.26 cfs @ 12.36 hrs, Volume= 0.029 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 264.36' @ 12.36 hrs Surf.Area= 1,384 sf Storage= 870 cf

Plug-Flow detention time= 135.5 min calculated for 0.029 af (64% of inflow)  
 Center-of-Mass det. time= 64.1 min ( 854.8 - 790.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	263.00'	1,120 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 2,799 cf Overall x 40.0% Voids
#2	263.70'	522 cf	<b>ADS_StormTech SC-310</b> x 35 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 7 rows
		1,642 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
263.00	933	0	0
264.00	933	933	933
265.00	933	933	1,866
266.00	933	933	2,799

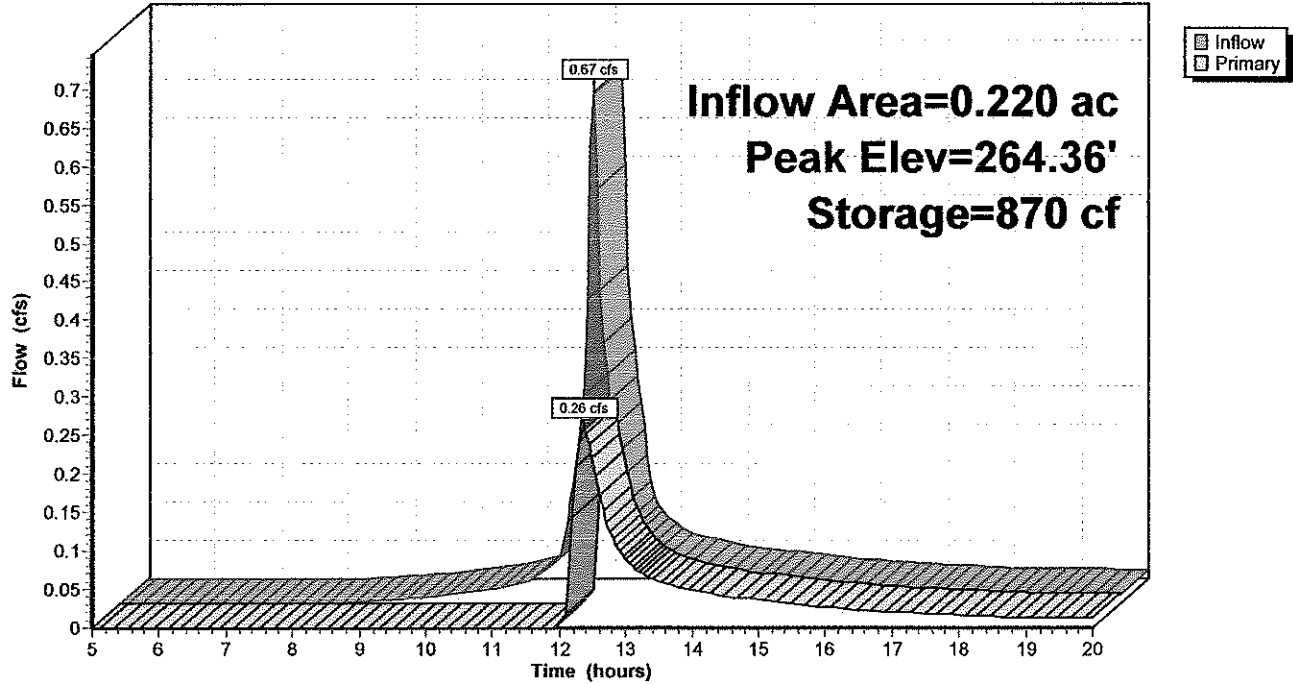
Device	Routing	Invert	Outlet Devices
#1	Primary	264.10'	<b>10.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.26 cfs @ 12.36 hrs HW=264.36' TW=0.00' (Dynamic Tailwater)

↑1=Orifice/Grate (Orifice Controls 0.26 cfs @ 1.74 fps)

Pond 1P: BASIN-1

Hydrograph



**Summary for Subcatchment 3S: Post Runoff to Providence St**

Runoff = 0.73 cfs @ 12.20 hrs, Volume= 0.067 af, Depth> 1.13"

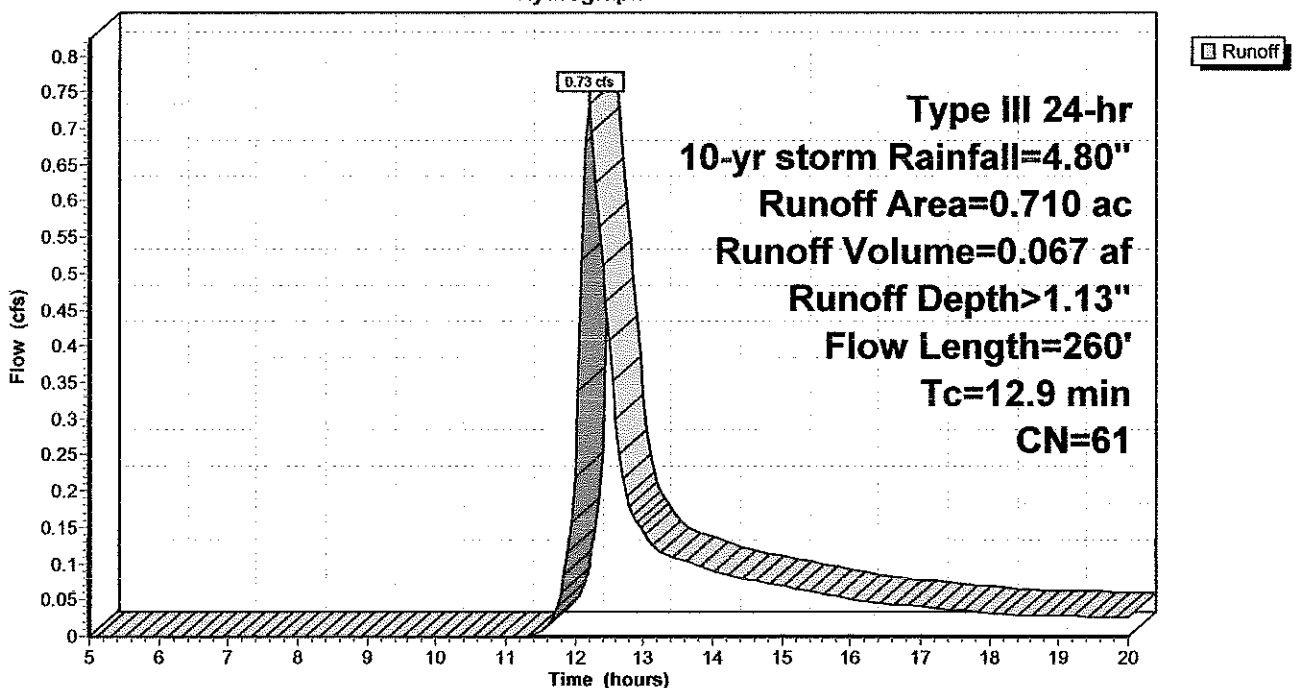
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr storm Rainfall=4.80"

Area (ac)	CN	Description
0.040	98	Paved parking, HSG B
0.320	61	>75% Grass cover, Good, HSG B
0.330	55	Woods, Good, HSG B
* 0.020	96	reprocessed asphalt
0.710	61	Weighted Average
0.670		94.37% Pervious Area
0.040		5.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
4.8	177	0.0150	0.61		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	33	0.2400	2.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
12.9	260	Total			

**Subcatchment 3S: Post Runoff to Providence St**

Hydrograph

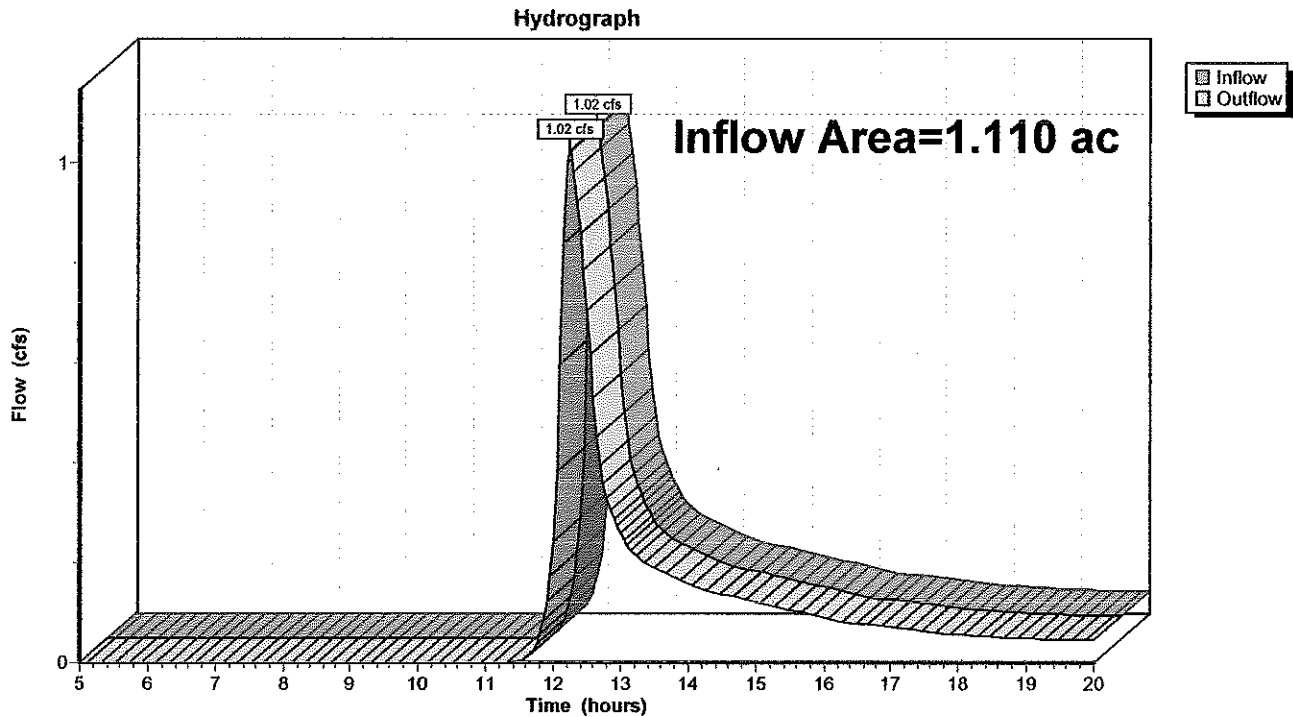


**Summary for Reach 5R: Total Post Runoff to Providence St.**

Inflow Area = 1.110 ac, 3.60% Impervious, Inflow Depth > 1.17" for 10-yr storm event  
Inflow = 1.02 cfs @ 12.24 hrs, Volume= 0.108 af  
Outflow = 1.02 cfs @ 12.24 hrs, Volume= 0.108 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 5R: Total Post Runoff to Providence St.**



**LANZETTA PROVIDENCE ROAD 9-15-20**

Type III 24-hr 10-yr storm Rainfall=4.80"

Prepared by {enter your company name here}

Printed 9/24/2020

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**Summary for Subcatchment 5S: Post Runoff to Recharge Area-2**

Runoff = 3.32 cfs @ 12.09 hrs, Volume= 0.253 af, Depth> 4.16"

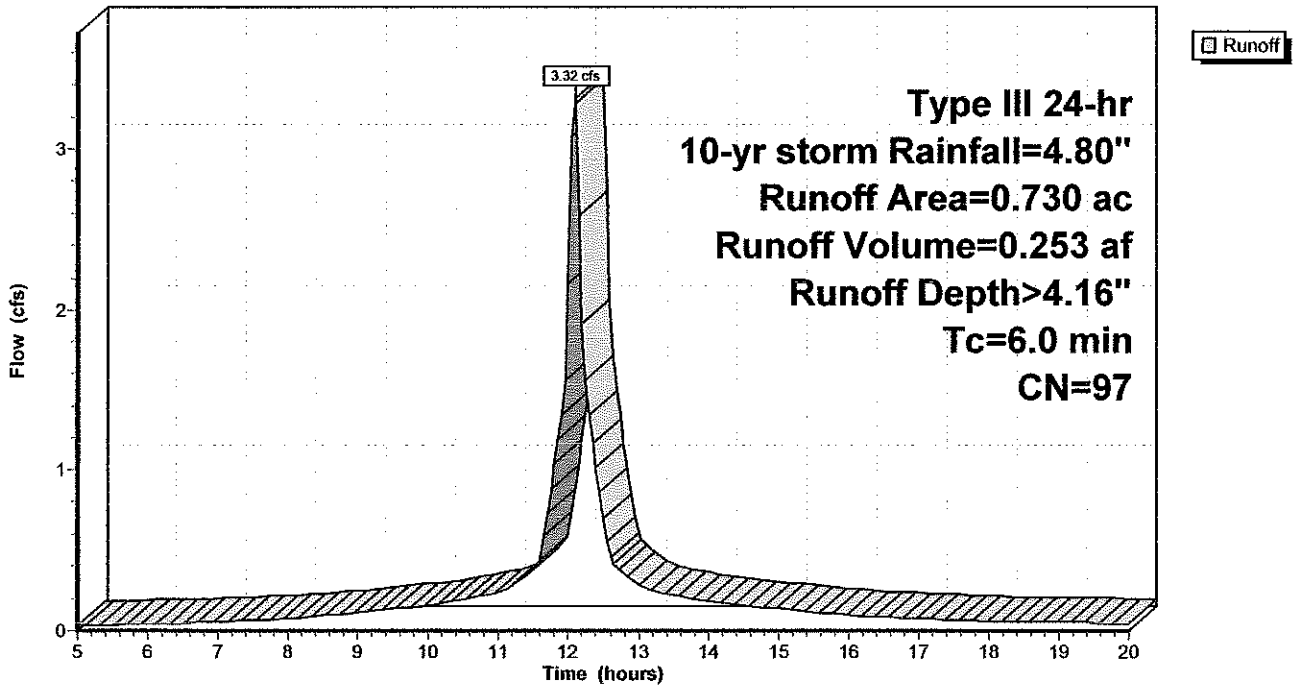
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-yr storm Rainfall=4.80"

Area (ac)	CN	Description
0.160	98	Roofs, HSG B
0.080	98	Paved parking, HSG B
* 0.490	96	Reprocessed Asphalt
0.730	97	Weighted Average
0.490		67.12% Pervious Area
0.240		32.88% Impervious Area

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

**Subcatchment 5S: Post Runoff to Recharge Area-2**

Hydrograph



**Summary for Pond 2P: BASIN-2**

Inflow Area = 0.730 ac, 32.88% Impervious, Inflow Depth > 4.16" for 10-yr storm event  
 Inflow = 3.32 cfs @ 12.09 hrs, Volume= 0.253 af  
 Outflow = 0.35 cfs @ 12.80 hrs, Volume= 0.206 af, Atten= 89%, Lag= 42.7 min  
 Discarded = 0.18 cfs @ 11.05 hrs, Volume= 0.183 af  
 Primary = 0.17 cfs @ 12.80 hrs, Volume= 0.023 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 272.12' @ 12.80 hrs Surf.Area= 3,290 sf Storage= 4,652 cf

Plug-Flow detention time= 141.0 min calculated for 0.206 af (81% of inflow)  
 Center-of-Mass det. time= 89.0 min ( 827.6 - 738.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	5,810 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 16,450 cf Overall - 1,926 cf Embedded = 14,524 cf x 40.0% Voids
#2	271.70'	1,926 cf	<b>ADS StormTech SC-310</b> x 130 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 10 rows
		7,735 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
269.00	3,290	0	0
270.00	3,290	3,290	3,290
271.00	3,290	3,290	6,580
272.00	3,290	3,290	9,870
273.00	3,290	3,290	13,160
274.00	3,290	3,290	16,450

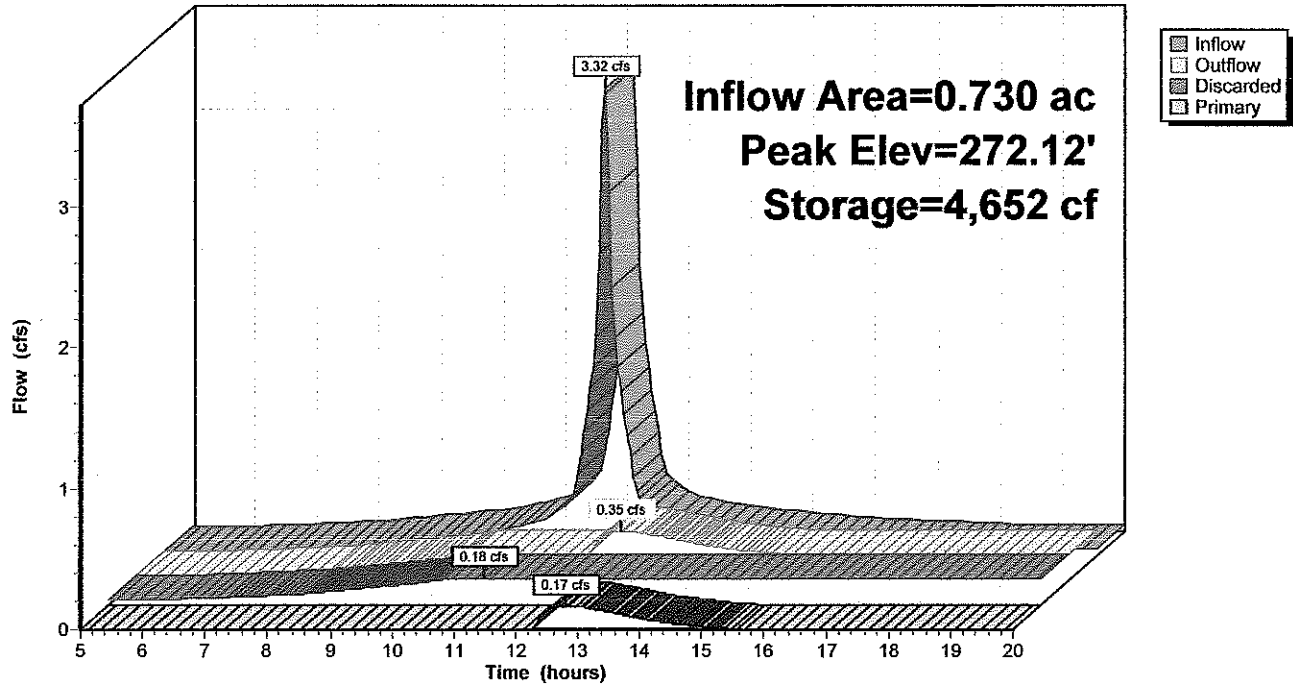
Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	<b>2.410 in/hr Exfiltration over Surface area</b>
#2	Primary	271.80'	<b>4.0" Vert. Orifice/Grate C= 0.600</b>

**Discarded OutFlow** Max=0.18 cfs @ 11.05 hrs HW=269.06' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 0.18 cfs)

**Primary OutFlow** Max=0.17 cfs @ 12.80 hrs HW=272.12' TW=0.00' (Dynamic Tailwater)  
 ↑2=Orifice/Grate (Orifice Controls 0.17 cfs @ 1.94 fps)

Pond 2P: BASIN-2

Hydrograph



**Summary for Subcatchment 6S: Post Runoff to Wetlands Undetained**

Runoff = 0.82 cfs @ 12.20 hrs, Volume= 0.079 af, Depth> 0.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 10-yr storm Rainfall=4.80"

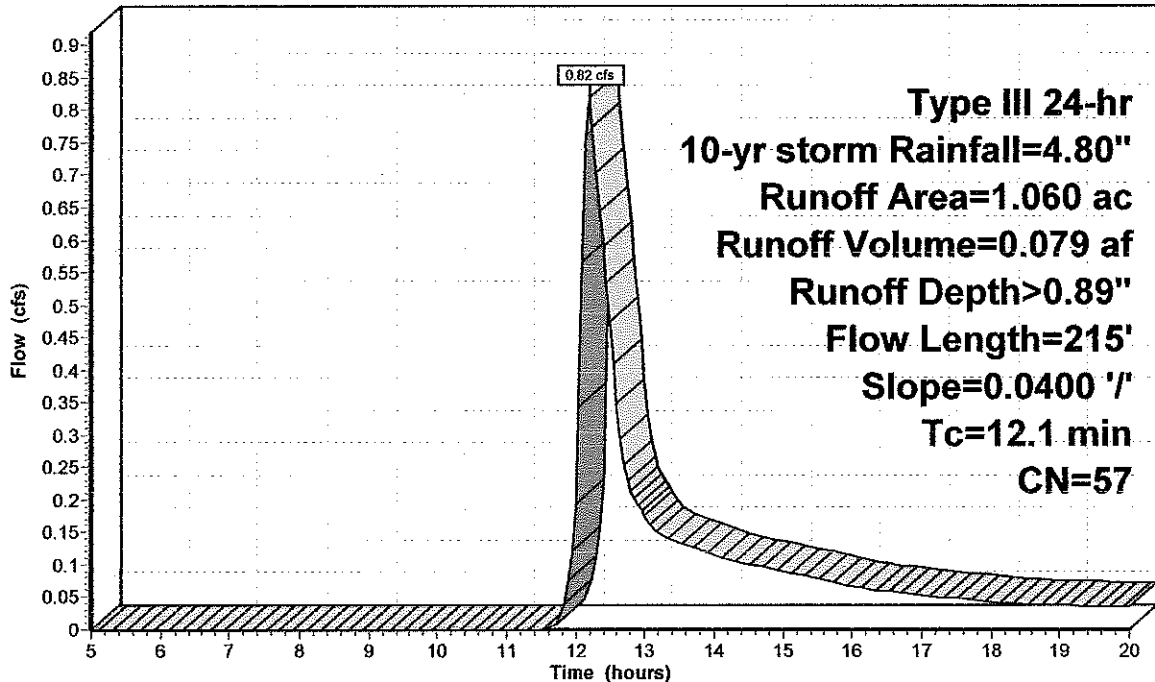
Area (ac)	CN	Description
0.720	55	Woods, Good, HSG B
0.340	61	>75% Grass cover, Good, HSG B
1.060	57	Weighted Average
1.060		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
2.7	165	0.0400	1.00		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
12.1	215	Total			

**Subcatchment 6S: Post Runoff to Wetlands Undetained**

Hydrograph



Runoff

**Type III 24-hr  
 10-yr storm Rainfall=4.80"  
 Runoff Area=1.060 ac  
 Runoff Volume=0.079 af  
 Runoff Depth>0.89"  
 Flow Length=215'  
 Slope=0.0400 '/  
 Tc=12.1 min  
 CN=57**

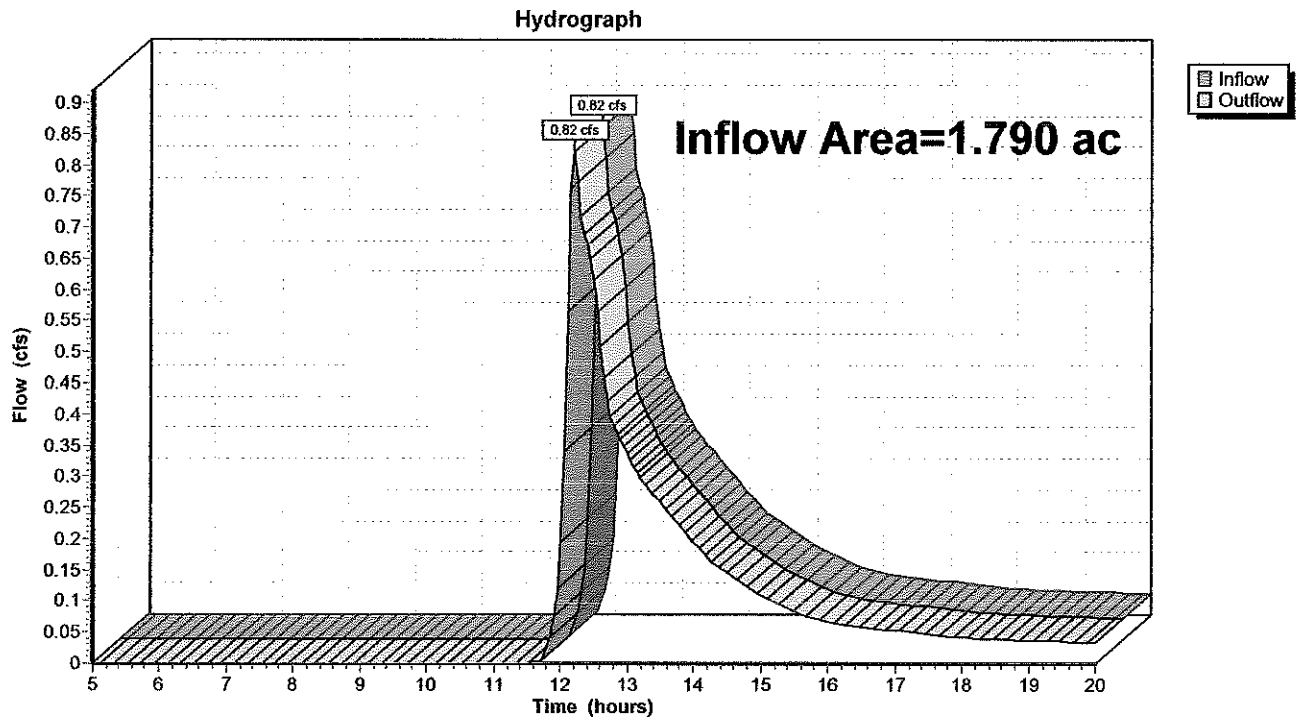


**Summary for Reach 1R: Total Post Runoff to Wetlands**

Inflow Area = 1.790 ac, 13.41% Impervious, Inflow Depth > 0.68" for 10-yr storm event  
Inflow = 0.82 cfs @ 12.20 hrs, Volume= 0.101 af  
Outflow = 0.82 cfs @ 12.20 hrs, Volume= 0.101 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 1R: Total Post Runoff to Wetlands**



**100-YEAR  
STORM**

**LANZETTA PROVIDENCE ROAD 9-15-20**

Type III 24-hr 100-yr storm Rainfall=6.70"

Prepared by {enter your company name here}

Printed 9/24/2020

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**Summary for Subcatchment 4S: Post Runoff to Recharge Area-1**

Runoff = 1.08 cfs @ 12.09 hrs, Volume= 0.074 af, Depth> 4.04"

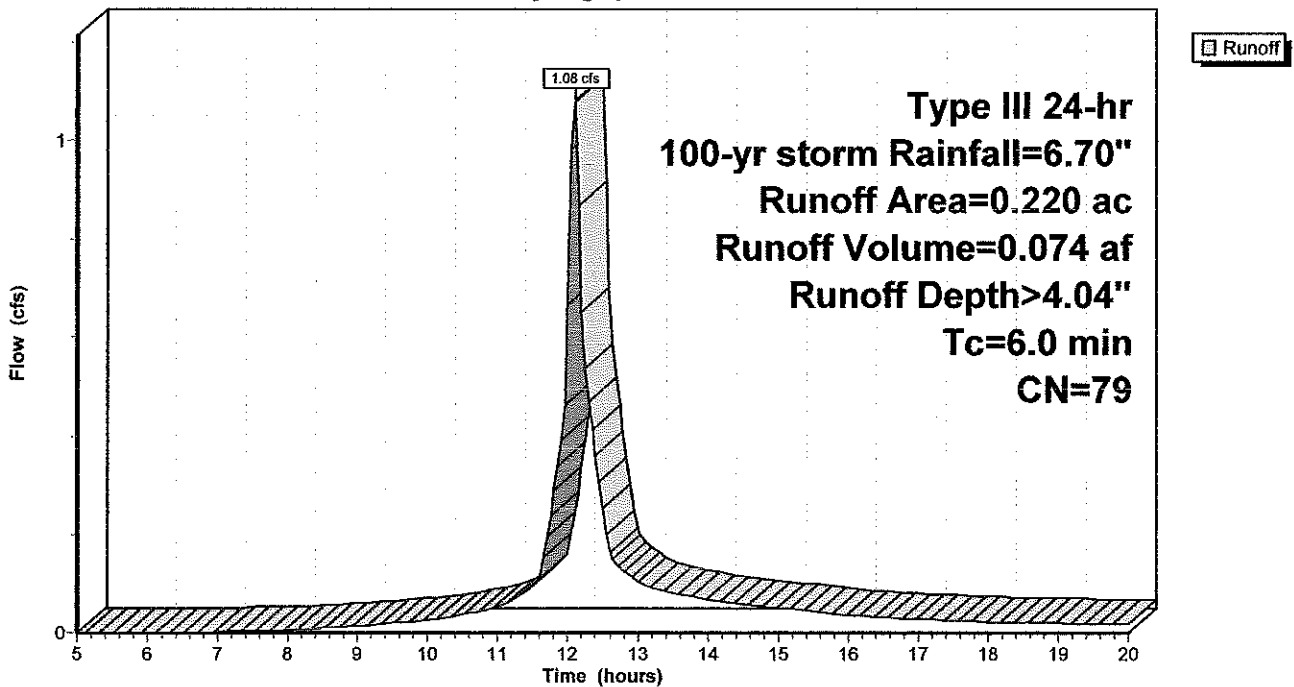
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100-yr storm Rainfall=6.70"

Area (ac)	CN	Description
0.110	61	>75% Grass cover, Good, HSG B
* 0.110	96	Reprocessed asphalt
0.220	79	Weighted Average
0.220		100.00% Pervious Area

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

**Subcatchment 4S: Post Runoff to Recharge Area-1**

Hydrograph



**LANZETTA PROVIDENCE ROAD 9-24-20**

Type III 24-hr 100-yr storm Rainfall=6.70"

Prepared by {enter your company name here}

Printed 9/25/2020

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**Summary for Pond 1P: BASIN-1**

Inflow Area = 0.220 ac, 0.00% Impervious, Inflow Depth > 4.04" for 100-yr storm event  
 Inflow = 1.08 cfs @ 12.09 hrs, Volume= 0.074 af  
 Outflow = 0.84 cfs @ 12.16 hrs, Volume= 0.058 af, Atten= 23%, Lag= 4.4 min  
 Primary = 0.84 cfs @ 12.16 hrs, Volume= 0.058 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 264.61' @ 12.16 hrs Surf.Area= 1,265 sf Storage= 1,057 cf

Plug-Flow detention time= 98.8 min calculated for 0.058 af (78% of inflow)  
 Center-of-Mass det. time= 43.4 min ( 822.4 - 779.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	263.00'	1,120 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 2,799 cf Overall x 40.0% Voids
#2	263.70'	522 cf	<b>ADS_StormTech SC-310</b> x 35 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 7 rows
		1,642 cf	Total Available Storage

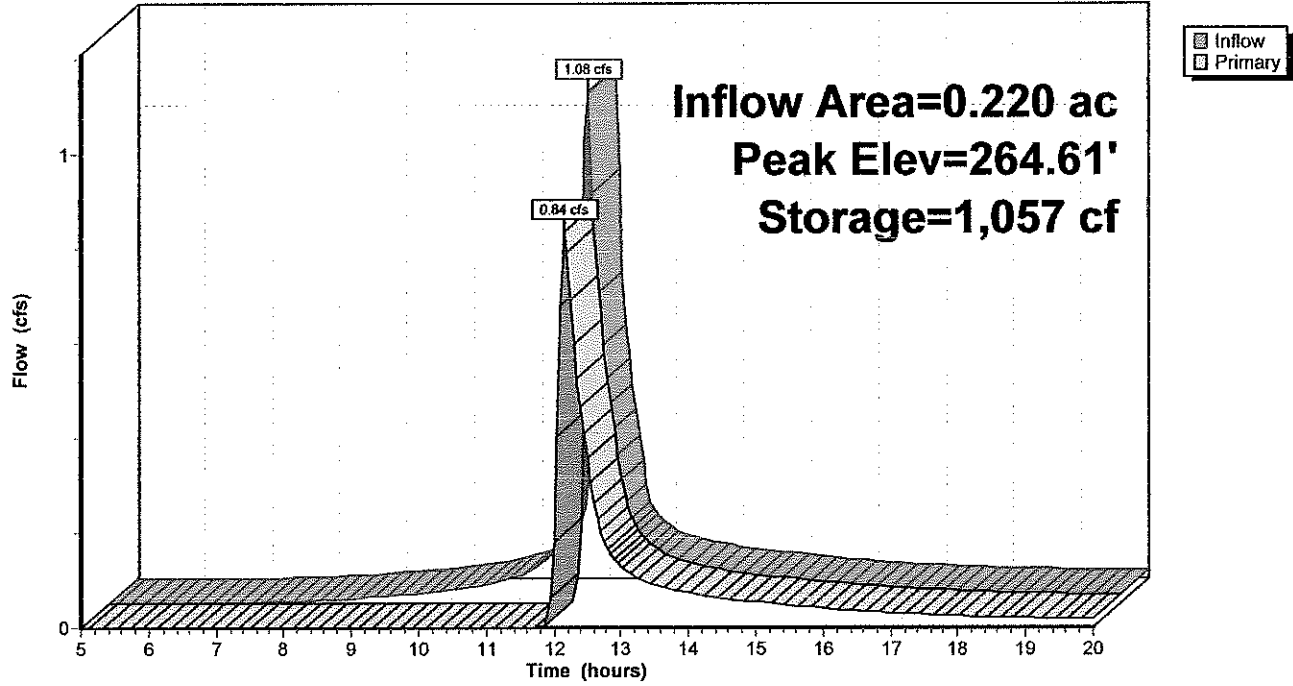
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
263.00	933	0	0
264.00	933	933	933
265.00	933	933	1,866
266.00	933	933	2,799

Device	Routing	Invert	Outlet Devices
#1	Primary	264.10'	<b>10.0" Vert. Orifice/Grate</b> C= 0.600

**Primary OutFlow** Max=0.82 cfs @ 12.16 hrs HW=264.60' TW=0.00' (Dynamic Tailwater)  
 ↑1=Orifice/Grate (Orifice Controls 0.82 cfs @ 2.40 fps)

**Pond 1P: BASIN-1**

**Hydrograph**



**Summary for Subcatchment 3S: Post Runoff to Providence St**

Runoff = 1.59 cfs @ 12.19 hrs, Volume= 0.135 af, Depth> 2.28"

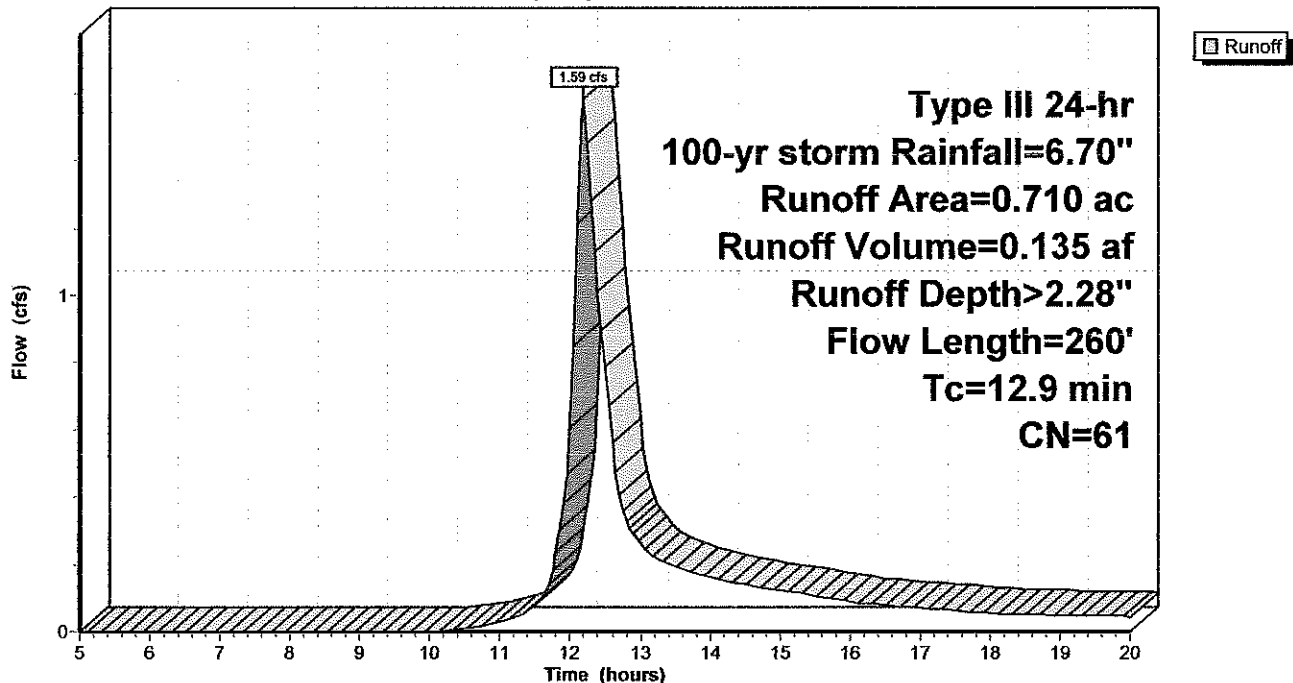
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-yr storm Rainfall=6.70"

Area (ac)	CN	Description
0.040	98	Paved parking, HSG B
0.320	61	>75% Grass cover, Good, HSG B
0.330	55	Woods, Good, HSG B
* 0.020	96	reprocessed asphalt
0.710	61	Weighted Average
0.670		94.37% Pervious Area
0.040		5.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	50	0.0600	0.10		Sheet Flow, Woods: Light underbrush n= 0.400 P2= 3.20"
4.8	177	0.0150	0.61		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
0.2	33	0.2400	2.45		Shallow Concentrated Flow, Woodland Kv= 5.0 fps
12.9	260	Total			

**Subcatchment 3S: Post Runoff to Providence St**

Hydrograph

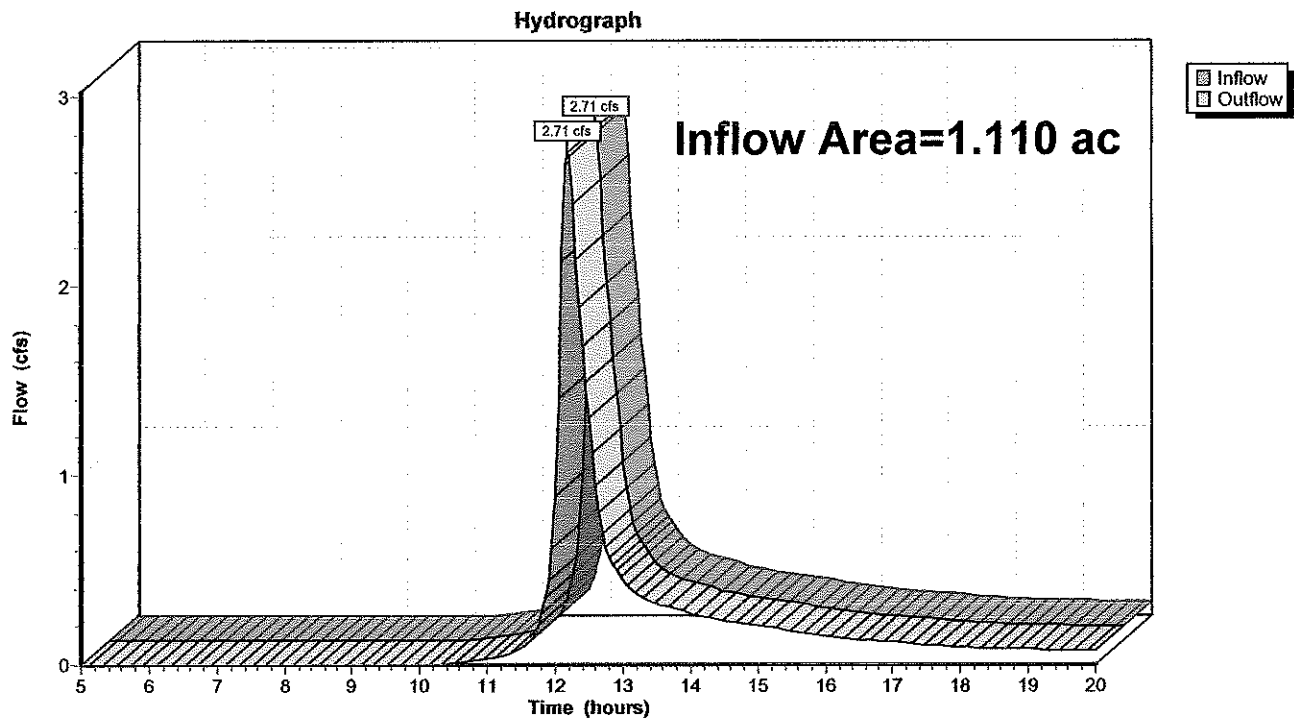


**Summary for Reach 5R: Total Post Runoff to Providence St.**

Inflow Area = 1.110 ac, 3.60% Impervious, Inflow Depth > 2.38" for 100-yr storm event  
Inflow = 2.71 cfs @ 12.18 hrs, Volume= 0.220 af  
Outflow = 2.71 cfs @ 12.18 hrs, Volume= 0.220 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 5R: Total Post Runoff to Providence St.**



**Summary for Subcatchment 5S: Post Runoff to Recharge Area-2**

Runoff = 4.67 cfs @ 12.09 hrs, Volume= 0.359 af, Depth> 5.90"

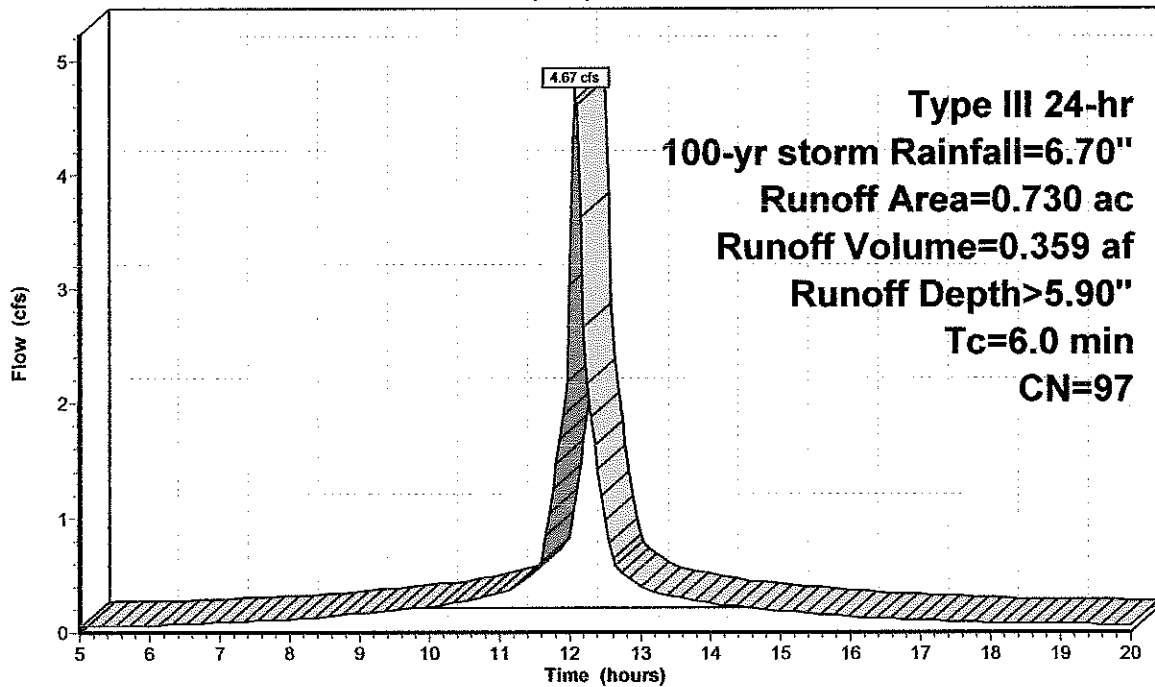
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100-yr storm Rainfall=6.70"

Area (ac)	CN	Description
0.160	98	Roofs, HSG B
0.080	98	Paved parking, HSG B
* 0.490	96	Reprocessed Asphalt
0.730	97	Weighted Average
0.490		67.12% Pervious Area
0.240		32.88% Impervious Area

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

**Subcatchment 5S: Post Runoff to Recharge Area-2**

Hydrograph





**Summary for Pond 2P: BASIN-2**

Inflow Area = 0.730 ac, 32.88% Impervious, Inflow Depth > 5.90" for 100-yr storm event  
 Inflow = 4.67 cfs @ 12.09 hrs, Volume= 0.359 af  
 Outflow = 0.66 cfs @ 12.60 hrs, Volume= 0.295 af, Atten= 86%, Lag= 30.9 min  
 Discarded = 0.18 cfs @ 10.10 hrs, Volume= 0.198 af  
 Primary = 0.47 cfs @ 12.60 hrs, Volume= 0.097 af

Routing by Dyn-Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 273.23' @ 12.60 hrs Surf.Area= 3,290 sf Storage= 6,727 cf

Plug-Flow detention time= 124.9 min calculated for 0.295 af (82% of inflow)  
 Center-of-Mass det. time= 73.9 min ( 809.8 - 735.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	269.00'	5,810 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc) 16,450 cf Overall - 1,926 cf Embedded = 14,524 cf x 40.0% Voids
#2	271.70'	1,926 cf	<b>ADS_StormTech SC-310</b> x 130 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap Row Length Adjustment= +0.44' x 2.07 sf x 10 rows
		7,735 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
269.00	3,290	0	0
270.00	3,290	3,290	3,290
271.00	3,290	3,290	6,580
272.00	3,290	3,290	9,870
273.00	3,290	3,290	13,160
274.00	3,290	3,290	16,450

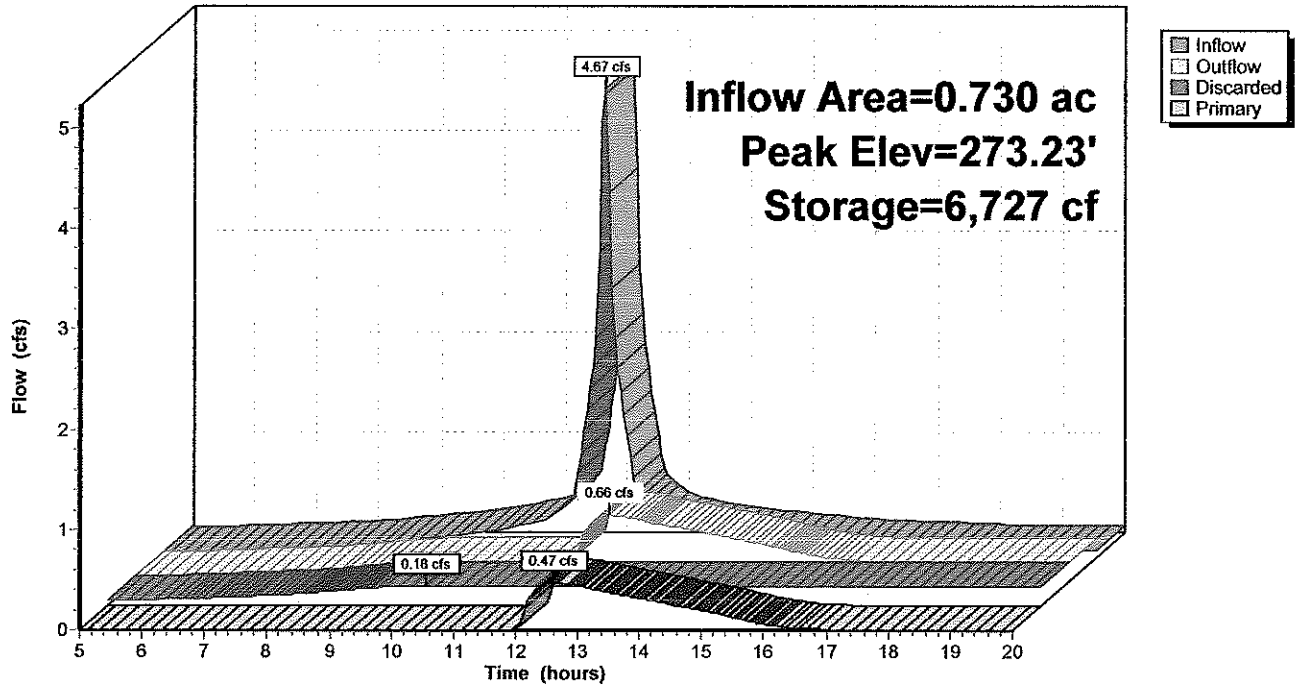
Device	Routing	Invert	Outlet Devices
#1	Discarded	269.00'	<b>2.410 in/hr Exfiltration over Surface area</b>
#2	Primary	271.80'	<b>4.0" Vert. Orifice/Grate C= 0.600</b>

**Discarded OutFlow** Max=0.18 cfs @ 10.10 hrs HW=269.06' (Free Discharge)  
 ↑1=Exfiltration (Exfiltration Controls 0.18 cfs)

**Primary OutFlow** Max=0.47 cfs @ 12.60 hrs HW=273.23' TW=0.00' (Dynamic Tailwater)  
 ↑2=Orifice/Grate (Orifice Controls 0.47 cfs @ 5.42 fps)

### Pond 2P: BASIN-2

#### Hydrograph



**Summary for Subcatchment 6S: Post Runoff to Wetlands Undetained**

Runoff = 2.03 cfs @ 12.10 hrs, Volume= 0.141 af, Depth> 1.93"

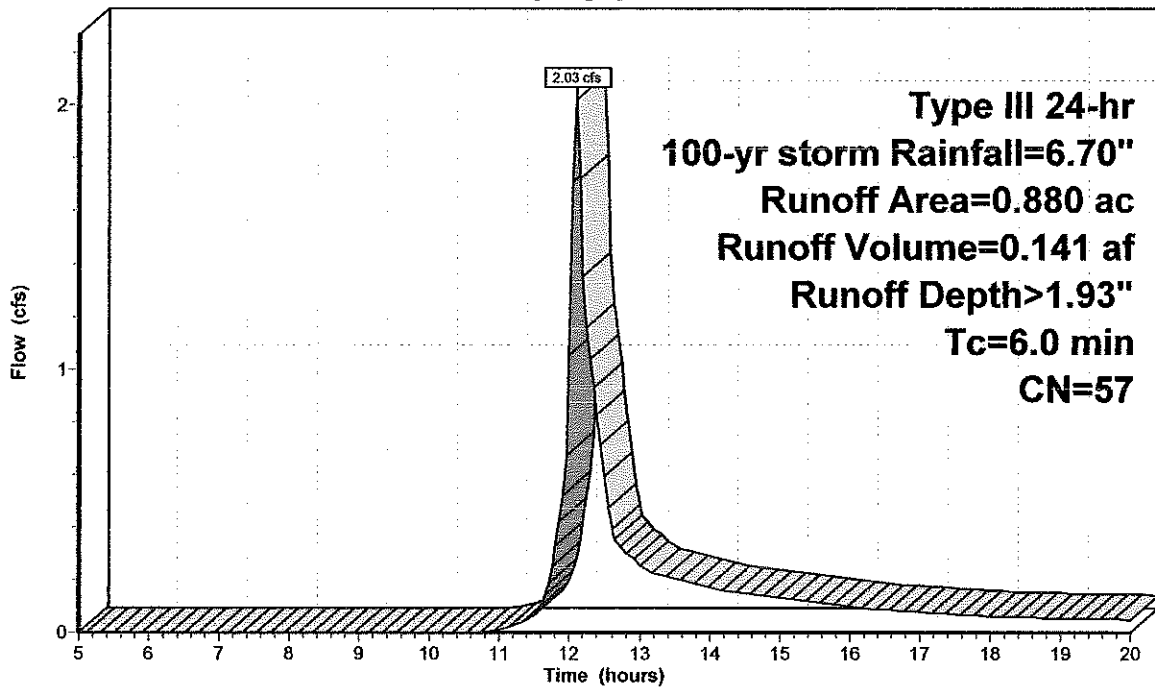
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100-yr storm Rainfall=6.70"

Area (ac)	CN	Description
0.540	55	Woods, Good, HSG B
0.340	61	>75% Grass cover, Good, HSG B
0.880	57	Weighted Average
0.880		100.00% Pervious Area

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

**Subcatchment 6S: Post Runoff to Wetlands Undetained**

Hydrograph



**Summary for Subcatchment 6S: Post Runoff to Wetlands Undetained**

Runoff = 1.99 cfs @ 12.18 hrs, Volume= 0.170 af, Depth> 1.92"

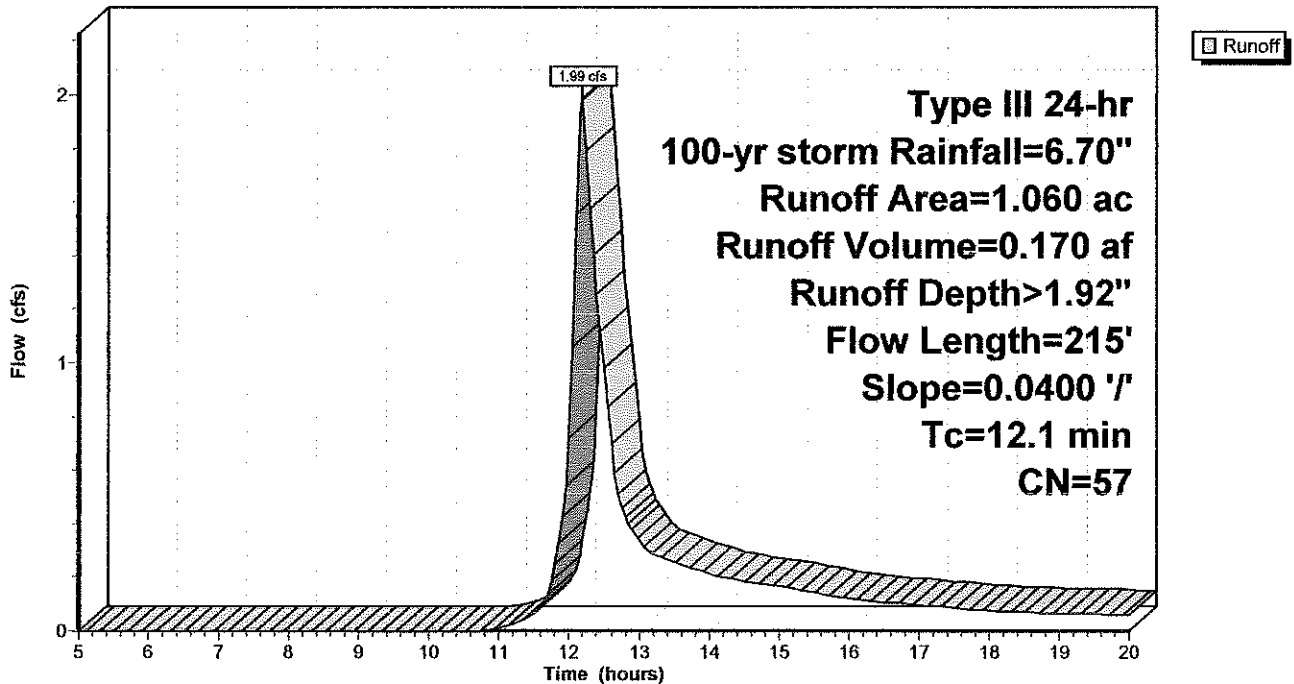
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Type III 24-hr 100-yr storm Rainfall=6.70"

Area (ac)	CN	Description
0.720	55	Woods, Good, HSG B
0.340	61	>75% Grass cover, Good, HSG B
1.060	57	Weighted Average
1.060		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	50	0.0400	0.09		<b>Sheet Flow,</b> Woods: Light underbrush n= 0.400 P2= 3.20"
2.7	165	0.0400	1.00		<b>Shallow Concentrated Flow,</b> Woodland Kv= 5.0 fps
12.1	215	Total			

**Subcatchment 6S: Post Runoff to Wetlands Undetained**

Hydrograph

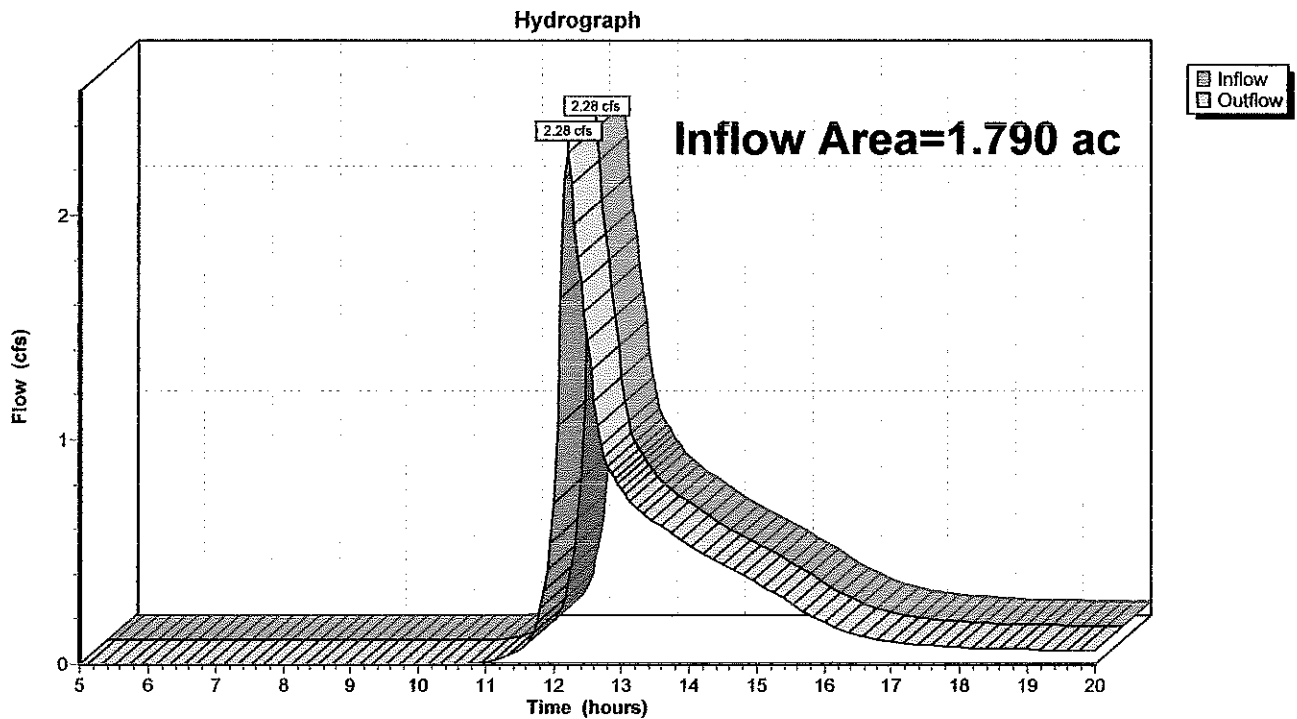


**Summary for Reach 1R: Total Post Runoff to Wetlands**

Inflow Area = 1.790 ac, 13.41% Impervious, Inflow Depth > 1.79" for 100-yr storm event  
Inflow = 2.28 cfs @ 12.20 hrs, Volume= 0.266 af  
Outflow = 2.28 cfs @ 12.20 hrs, Volume= 0.266 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 1R: Total Post Runoff to Wetlands**



## **DRAINAGE ANALYSIS**

Storm Drain Calculations – Rational Method and Catchment Area Calculation

## 63 PROVIDENCE STREET

### Weighted "c" Values

**DA-1**      **A=0.65 ac.**      **Imp.=0.11 ac.**      **Grass=0.42 ac**      **Woods=0.12 ac**

$$C = \frac{.9(.11) + .45(.42) + .35(.12)}{0.65} = .51$$

**DA-2**      **A=0.12 ac.**      **Imp.=0.12 ac.**      **C = .9**

**DA-3**      **A=0.45 ac.**      **Imp. =0.45 ac.**      **C = .9**



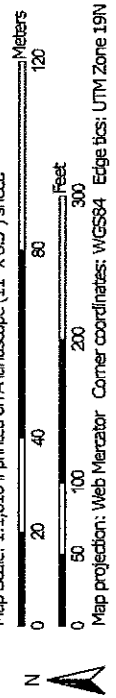


**USDA WEB SOIL SURVEY**

Soil Map—Worcester County, Massachusetts, Southern Part



Map Scale: 1:1,610 if printed on A landscape (11" x 8.5") sheet.  
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84



## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
3A	Scarboro and Walpole soils, 0 to 3 percent slopes	0.0	0.2%
73A	Whitman fine sandy loam, 0 to 3 percent slopes, extremely stony	0.9	16.0%
420B	Canton fine sandy loam, 3 to 8 percent slopes	4.7	83.8%
<b>Totals for Area of Interest</b>		<b>5.6</b>	<b>100.0%</b>

## MAP LEGEND

- 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
- Water Features**
  - Streams and Canals
- Transportation**
  - Rails
  - Interstate Highways
  - US Routes
  - Major Roads
  - Local Roads
- Background**
  - Aerial Photography
- Spot Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

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

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

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

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

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

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

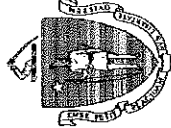
Soil Survey Area: Worcester County, Massachusetts, Southern Part  
 Survey Area Data: Version 13, Jun 11, 2020

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

Date(s) aerial images were photographed: Jul 5, 2019—Aug 15, 2019

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

**SOIL LOGS**



## Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

### A. Facility Information

Owner Name Scott Lanzetta Map 12 Lot 63

Street Address 63 Providence Street Map/Lot #

City Mendon State MA Zip Code 01756

### B. Site Information

1. (Check one)  New Construction  Upgrade  Repair
2. Soil Survey Available?  Yes  No If yes: \_\_\_\_\_ Source \_\_\_\_\_ Soil Map Unit \_\_\_\_\_

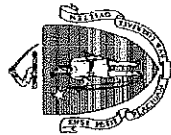
Soil Name \_\_\_\_\_ Soil Limitations \_\_\_\_\_

Soil Parent material \_\_\_\_\_ Landform \_\_\_\_\_

3. Surficial Geological Report Available?  Yes  No If yes: \_\_\_\_\_ Year Published/Source \_\_\_\_\_ Map Unit \_\_\_\_\_

#### Description of Geologic Map Unit:

4. Flood Rate Insurance Map  Within a regulatory floodway?  Yes  No
5. Within a velocity zone?  Yes  No
6. Within a Mapped Wetland Area?  Yes  No If yes, MassGIS Wetland Data Layer: \_\_\_\_\_ Wetland Type \_\_\_\_\_
7. Current Water Resource Conditions (USGS): \_\_\_\_\_ Range:  Above Normal  Normal  Below Normal
8. Other references reviewed: \_\_\_\_\_



# Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

## C. On-Site Review (minimum of two holes required at every proposed primary and reserve disposal area)

Deep Observation Hole Number: 1 Hole # 7-28-20 Date 8:30 am Time Sunny Weather 0-3 Longitude: 0-3  
 Land Use Woodland Light brush N/A Surface Stones (e.g., cobbles, stones, boulders, etc.) Surface Stones (e.g., cobbles, stones, boulders, etc.) Slope (%) 0-3

Description of Location: \_\_\_\_\_

2. Soil Parent Material: \_\_\_\_\_ Landform \_\_\_\_\_ Position on Landscape (SU, SH, BS, FS, TS) \_\_\_\_\_

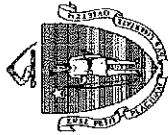
3. Distances from: Open Water Body >100 feet Drainage Way >100 feet Wetlands >50 feet  
 Property Line >30 feet Drinking Water Well >50 feet Other \_\_\_\_\_ feet

4. Unsuitable Materials Present:  Yes  No  Disturbed Soil  Fill Material  Weathered/Fractured Rock  Bedrock

5. Groundwater Observed:  Yes  No If yes: \_\_\_\_\_ Depth Weeping from Pit \_\_\_\_\_ Depth Standing Water in Hole 108

### Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features		Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel			
0-8	A	SL	10 YR 3/2							
8-34	B	SL	10 YR 5/4							
34-108+	C	Sand	10 YR 6/1	60	5 YR 5/8	>5				



# Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

Additional Notes:

## C. On-Site Review (minimum of two holes required at every proposed primary and reserve disposal area)

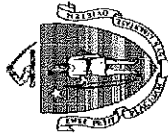
Deep Observation Hole Number: 2 Hole # 7-28-20 Date 9:30 am Time Sunny Weather Latitude Longitude: 0-3  
 1. Land Use: Woodland (e.g., woodland, agricultural field, vacant lot, etc.) N/A Surface Stones (e.g., cobbles, stones, boulders, etc.) Slope (%)

Description of Location: \_\_\_\_\_  
 2. Soil Parent Material: \_\_\_\_\_ Landform \_\_\_\_\_ Position on Landscape (SU, SH, BS, FS, TS)  
 3. Distances from: Open Water Body >100 feet Drainage Way >100 feet Wetlands >50 feet  
 Property Line >50 feet Drinking Water Well >75 feet Other \_\_\_\_\_ feet  
 4. Unsuitable Materials Present:  Yes  No If Yes:  Disturbed Soil  Fill Material  Weathered/Fractured Rock  Bedrock  
 5. Groundwater Observed:  Yes  No If yes: \_\_\_\_\_ Depth Weeping from Pit \_\_\_\_\_ Depth Standing Water in Hole \_\_\_\_\_

### Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features		Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel			
0-12	A	SL	10 YR 3/4							
12-42	B	SL	10 YR 5/6							
42-90+	C	Sand	10 YR 6/1	48	5 YR 4/6	>10	>5			





# Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

Additional Notes:

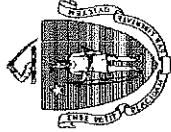
## C. On-Site Review (minimum of two holes required at every proposed primary and reserve disposal area)

Deep Observation Hole Number: 3 Hole # 7-28-20 Date 10:30 am Time Sunny Weather 0-3 Longitude:  
 1. Land Use: Woodland (e.g., woodland, agricultural field, vacant lot, etc.) N/A Surface Stones (e.g., cobbles, stones, boulders, etc.) Slope (%)  
 Light brush Vegetation

Description of Location: \_\_\_\_\_  
 2. Soil Parent Material: \_\_\_\_\_ Landform \_\_\_\_\_ Position on Landscape (SU, SH, BS, FS, TS)  
 3. Distances from: Open Water Body >100 feet Drainage Way >100 feet Wetlands >100 feet  
 Property Line >150 feet Drinking Water Well >100 feet Other \_\_\_\_\_ feet  
 4. Unsuitable Materials Present:  Yes  No If Yes:  Disturbed Soil  Fill Material  Weathered/Fractured Rock  Bedrock  
 5. Groundwater Observed:  Yes  No If yes: \_\_\_\_\_ Depth Weeping from Pit \_\_\_\_\_ Depth Standing Water in Hole \_\_\_\_\_

### Soil Log

Depth (in)	Soil Horizon /Layer	Soil Texture (USDA)	Soil Matrix: Color-Moist (Munsell)	Redoximorphic Features		Coarse Fragments % by Volume		Soil Structure	Soil Consistence (Moist)	Other
				Depth	Color	Percent	Gravel			
0-11	A	SL	10 YR 3/4							
12-36	B	SL	10 YR 5/6							
36-108+	C	Sand	10 YR 6/1	5 YR 4/6	>10	>5	>5			



## Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

Additional Notes:  
Layer of stones & gravel found around B & C horizon transition.

### D. Determination of High Groundwater Elevation

1. Method Used:
- Depth observed standing water in observation hole
  - Depth weeping from side of observation hole
  - Depth to soil redoximorphic features (mottles)
  - Depth to adjusted seasonal high groundwater ( $S_h$ ) (USGS methodology)
- Obs. Hole #1      Obs. Hole #2
- 108 inches      78 inches
- \_\_\_\_\_ inches      \_\_\_\_\_ inches
- 60 inches      48 inches
- \_\_\_\_\_ inches      \_\_\_\_\_ inches
- Index Well Number \_\_\_\_\_ Reading Date \_\_\_\_\_
- $S_h = S_c - [S_r \times (OW_c - OW_{max}) / OW_f]$
- Obs. Hole/Well# \_\_\_\_\_  $S_c$  \_\_\_\_\_  $S_r$  \_\_\_\_\_  $OW_c$  \_\_\_\_\_  $OW_{max}$  \_\_\_\_\_  $OW_f$  \_\_\_\_\_  $S_h$  \_\_\_\_\_

2. Estimated Depth to High Groundwater: 48 inches

### E. Depth of Pervious Material

1. Depth of Naturally Occurring Pervious Material
- a. Does at least four feet of naturally occurring pervious material exist in all areas observed throughout the area proposed for the soil absorption system?  Yes  No
- b. If yes, at what depth was it observed (exclude A and O Horizons)?
- Upper boundary: 12 inches      Lower boundary: 96+ inches
- Upper boundary: \_\_\_\_\_ inches      Lower boundary: \_\_\_\_\_ inches
- c. If no, at what depth was impervious material observed?
- Upper boundary: \_\_\_\_\_ inches      Lower boundary: \_\_\_\_\_ inches



# Form 11 - Soil Suitability Assessment for On-Site Sewage Disposal

## F. Certification

I certify that I am currently approved by the Department of Environmental Protection pursuant to 310 CMR 15.017 to conduct soil evaluations and that the above analysis has been performed by me consistent with the required training, expertise and experience described in 310 CMR 15.017. I further certify that the results of my soil evaluation, as indicated in the attached Soil Evaluation Form, are accurate and in accordance with 310 CMR 15.100 through 15.107.

Signature of Soil Evaluator

Date

Typed or Printed Name of Soil Evaluator / License #

Expiration Date of License

Name of Approving Authority Witness

Approving Authority

**Note:** In accordance with 310 CMR 15.018(2) this form must be submitted to the approving authority within 60 days of the date of field testing, and to the designer and the property owner with Percolation Test Form 12.

**Field Diagrams:** Use this area for field diagrams:



Commonwealth of Massachusetts  
 City/Town of Mendon  
**Percolation Test**  
 Form 12

Percolation test results must be submitted with the Soil Suitability Assessment for On-site Sewage Disposal. DEP has provided this form for use by local Boards of Health. Other forms may be used, but the information must be substantially the same as that provided here. Before using this form, check with the local Board of Health to determine the form they use.

**Important:** When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



**A. Site Information**

Scott Lanzetta  
 Owner Name  
 63 Providence Street  
 Street Address or Lot #  
 Mendon MA 01756  
 City/Town State Zip Code  
 Guerriere & Halnon 508-473-6630  
 Contact Person (if different from Owner) Telephone Number

**B. Test Results**

	7-28-20 Date	9:00 am Time	7-28-20 Date	10:00 am Time
Observation Hole #	1		2	
Depth of Perc	40 inches		46 inches	
Start Pre-Soak	9:08		10:15	
End Pre-Soak	9:23		10:30	
Time at 12"	9:23			
Time at 9"	9:30			
Time at 6"	9:37			
Time (9"-6")	7 minutes		Did Not Soak	
Rate (Min./Inch)	2.33 min/inch		<2 min/inch	
	Test Passed: <input checked="" type="checkbox"/>	Test Failed: <input type="checkbox"/>	Test Passed: <input checked="" type="checkbox"/>	Test Failed: <input type="checkbox"/>

John Federico  
 Test Performed By:  
 Tom Ryder (Mendon)  
 Board of Health Witness

**Comments:**

Perc 2 did not soak. Over 10 gallons drained before the end of the pre-soak. Rate is less than 2 minutes per inch.

**DRAWDOWN CALCULATIONS (100-YR)**

**LANZETTA PROVIDENCE ROAD 9-24-20**

Type III 24-hr 100-yr storm Rainfall=6.70"

Prepared by {enter your company name here}

Printed 9/25/2020

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**Hydrograph for Pond 1P: BASIN-1**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
5.00	0.00	0	263.00	0.00
7.00	0.00	1	263.00	0.00
9.00	0.01	46	263.12	0.00
11.00	<b>0.05</b>	<b>257</b>	<b>263.69</b>	<b>0.00</b>
13.00	<b>0.10</b>	<b>803</b>	<b>264.28</b>	<b>0.13</b>
15.00	0.05	746	264.22	0.05
17.00	0.03	721	264.19	0.03
19.00	0.02	706	264.17	0.02
21.00	0.02	700	264.16	0.02
23.00	0.01	695	264.16	0.01
25.00	0.00	669	264.13	0.00
27.00	0.00	656	264.12	0.00
29.00	0.00	651	264.11	0.00
31.00	0.00	649	264.11	0.00
33.00	0.00	648	264.11	0.00
35.00	0.00	647	264.11	0.00
37.00	0.00	646	264.10	0.00
39.00	0.00	646	264.10	0.00
41.00	0.00	645	264.10	0.00
43.00	0.00	645	264.10	0.00
45.00	0.00	645	264.10	0.00
47.00	0.00	644	264.10	0.00
49.00	0.00	644	264.10	0.00
51.00	0.00	644	264.10	0.00
53.00	0.00	644	264.10	0.00
55.00	0.00	644	264.10	0.00
57.00	0.00	644	264.10	0.00
59.00	0.00	644	264.10	0.00
61.00	0.00	644	264.10	0.00
63.00	0.00	643	264.10	0.00
65.00	0.00	643	264.10	0.00
67.00	0.00	643	264.10	0.00
69.00	0.00	643	264.10	0.00
71.00	0.00	643	264.10	0.00

**LANZETTA PROVIDENCE ROAD 9-24-20**

Type III 24-hr 100-yr storm Rainfall=6.70"

Prepared by {enter your company name here}

Printed 9/25/2020

HydroCAD® 10.00-16 s/n 01433 © 2015 HydroCAD Software Solutions LLC

**Hydrograph for Pond 2P: BASIN-2**

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)
5.00	0.05	0	269.00	0.05	0.05	0.00
7.00	0.09	0	269.00	0.09	0.09	0.00
9.00	0.17	0	269.00	0.17	0.17	0.00
11.00	0.34	404	269.31	0.18	0.18	0.00
13.00	0.40	6,513	273.07	0.63	0.18	0.44
15.00	0.19	4,812	272.19	0.38	0.18	0.20
17.00	0.11	3,931	271.84	0.19	0.18	0.00
19.00	0.07	3,216	271.44	0.18	0.18	0.00
21.00	0.06	2,363	270.80	0.18	0.18	0.00
23.00	0.05	1,426	270.08	0.18	0.18	0.00
25.00	0.00	281	269.21	0.18	0.18	0.00
27.00	0.00	0	269.00	0.00	0.00	0.00
29.00	0.00	0	269.00	0.00	0.00	0.00
31.00	0.00	0	269.00	0.00	0.00	0.00
33.00	0.00	0	269.00	0.00	0.00	0.00
35.00	0.00	0	269.00	0.00	0.00	0.00
37.00	0.00	0	269.00	0.00	0.00	0.00
39.00	0.00	0	269.00	0.00	0.00	0.00
41.00	0.00	0	269.00	0.00	0.00	0.00
43.00	0.00	0	269.00	0.00	0.00	0.00
45.00	0.00	0	269.00	0.00	0.00	0.00
47.00	0.00	0	269.00	0.00	0.00	0.00
49.00	0.00	0	269.00	0.00	0.00	0.00
51.00	0.00	0	269.00	0.00	0.00	0.00
53.00	0.00	0	269.00	0.00	0.00	0.00
55.00	0.00	0	269.00	0.00	0.00	0.00
57.00	0.00	0	269.00	0.00	0.00	0.00
59.00	0.00	0	269.00	0.00	0.00	0.00
61.00	0.00	0	269.00	0.00	0.00	0.00
63.00	0.00	0	269.00	0.00	0.00	0.00
65.00	0.00	0	269.00	0.00	0.00	0.00
67.00	0.00	0	269.00	0.00	0.00	0.00
69.00	0.00	0	269.00	0.00	0.00	0.00
71.00	0.00	0	269.00	0.00	0.00	0.00

**TSS REMOVAL CALCULATIONS**



**INSTRUCTIONS:**

Non-automated: Mar. 4, 2008

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Location: LANZETTA EXCAVATING

A	B	C	D	E
BMP <sup>1</sup>	TSS Removal Rate <sup>1</sup>	Starting TSS Load*	Amount Removed (B*C)	Remaining Load (C-D)
Deep Sump and Hooded Catch Basin	0.25	1.00	0.25	0.75
Barracuda WQMH	0.50	0.75	0.38	0.38
Subsurface Detention	0.50	0.38	0.19	0.19
		0.19	0.00	0.19

Separate Form Needs to be Completed for Each Outlet or BMP Train

**Total TSS Removal =**

81%

Project:	G-10277 BASIN-1
Prepared By:	Robert J. Poxon
Date:	25-Sep-20

\*Equals remaining load from previous BMP (E) which enters the BMP

**INSTRUCTIONS:**

Non-automated: Mar. 4, 2008

1. Sheet is nonautomated. Print sheet and complete using hand calculations. Column A and B: See MassDEP Structural BMP Table
2. The calculations must be completed using the Column Headings specified in Chart and Not the Excel Column Headings
3. To complete Chart Column D, multiple Column B value within Row x Column C value within Row
4. To complete Chart Column E value, subtract Column D value within Row from Column C within Row
5. Total TSS Removal = Sum All Values in Column D

Location: LANZETTA EXCAVATING

A	B	C	D	E
BMP <sup>1</sup>	TSS Removal Rate <sup>1</sup>	Starting TSS Load*	Amount Removed (B*C)	Remaining Load (C-D)
Deep Sump and Hooded Catch Basin	0.25	1.00	0.25	0.75
Stormtech Isolator Row	0.25	0.75	0.19	0.56
Subsurface Infiltration Basin	0.80	0.56	0.45	0.11
		0.00	0.00	0.00

Separate Form Needs to be Completed for Each Outlet of BMP Train

**Total TSS Removal = 89%**

Project: G-10277 BASIN-2  
 Prepared By: Robert J. Poxon  
 Date: 25-Sep-20

\*Equals remaining load from previous BMP (E) which enters the BMP

**TSS Removal Calculation Worksheet**

**WATERSHED PLAN**  
Pre and Post Development Conditions

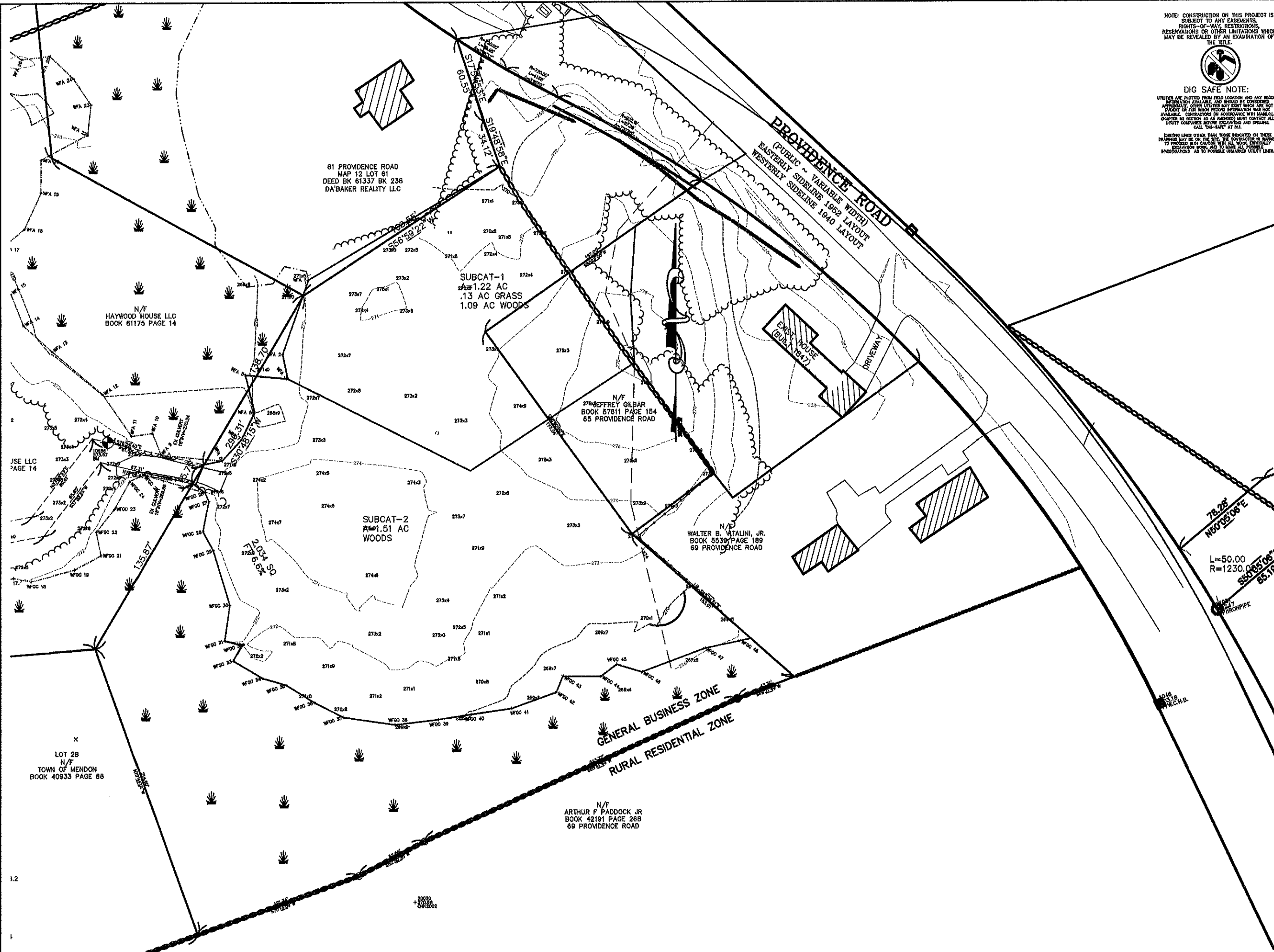
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**DIG SAFE NOTE:**

UTILITIES ARE PLOTTED FROM FIELD LOCATION AND ANY RECORD INFORMATION AVAILABLE AND SHOULD BE CONSIDERED APPROXIMATE. OTHER UTILITIES MAY EXIST WHICH ARE NOT EASY TO SEE. IF YOU ARE NOT SURE OF THE LOCATION OF ANY UTILITIES, CONTACT ALL UTILITY COMPANIES BEFORE EXCAVATING AND PLEASE CALL "DIAL-411" AT 811.

EXISTING LINES OTHER THAN THOSE INDICATED ON THESE DRAWINGS MAY BE ON THE SITE. THE CONTRACTOR IS ADVISED TO PROCEED WITH CAUTION WITH ALL WORK, ESPECIALLY EXCAVATION WORK, AND TO MARK ALL POSSIBLE HYDRANT LOCATIONS AS TO POSSIBLE UNMARKED UTILITY LINES.



OWNER/APPLICANT  
DA'BAKER REALTY LLC  
148 IRONSTONE STREET  
UXBRIDGE, MA 01759

**LANZETTA EXCAVATING**  
**63 PROVIDENCE ROAD**

PRE DRAINAGE AREAS  
PLAN OF LAND  
IN  
**MENDON, MA**  
SCALE: 30 FEET TO AN INCH  
DATE: SEPTEMBER 26, 2020

#	DATE	DESCRIPTION	INI

0 15 30 FEET 60 90  
0 2.5 5 10 METERS 20

**Guerriere & Halton, Inc.**  
Engineering & Land Surveying  
333 WEST STREET, MILFORD, MASS. 01757  
(508) 473-6630 FAX: (508) 473-8243  
www.gandhengineering.com

SHEET

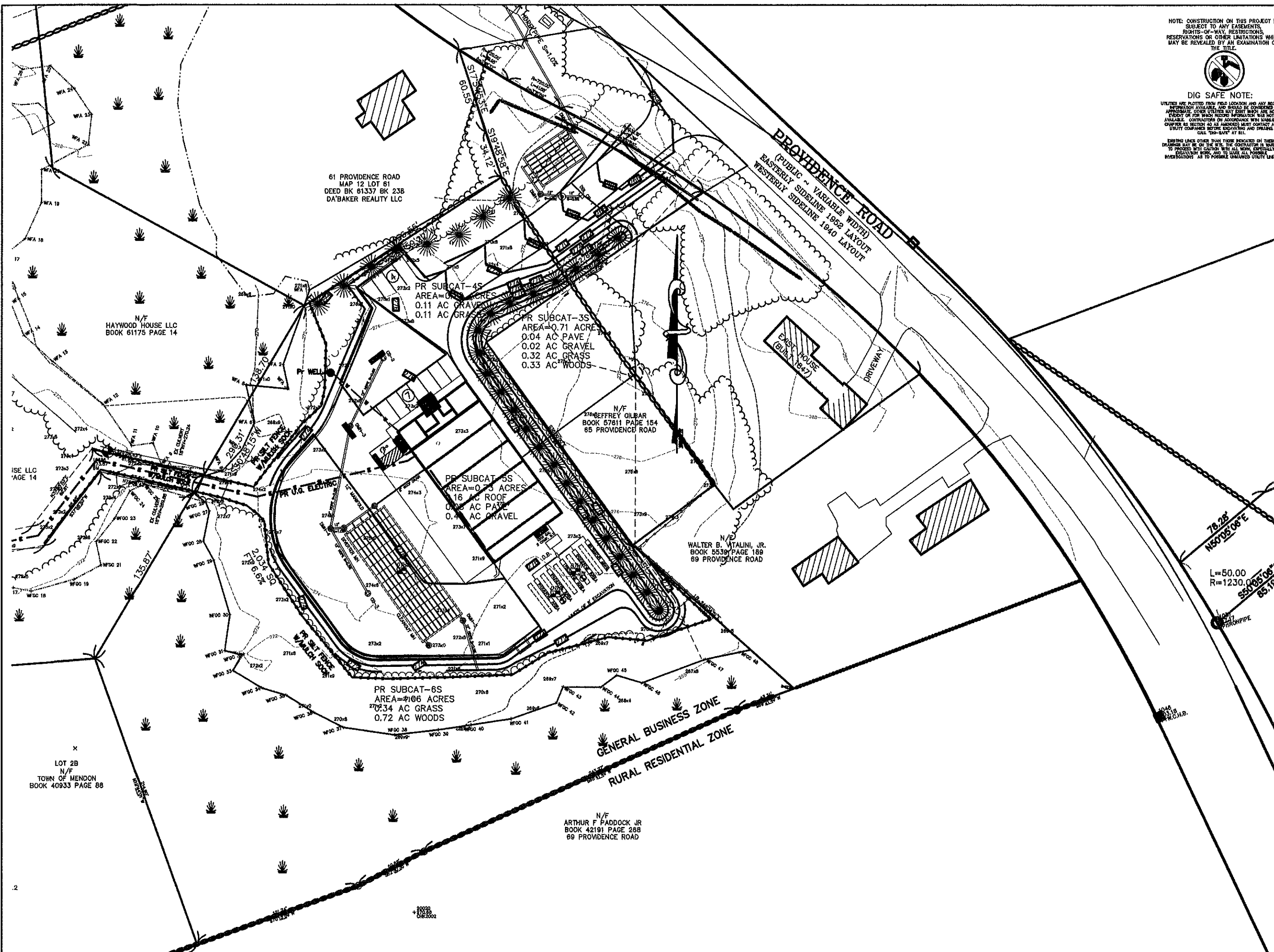
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EXISTING LINES OTHER THAN THOSE INDICATED ON THESE DRAWINGS MAY BE ON THE SITE. THE CONTRACTOR IS ADVISED TO PROCEED WITH CAUTION WITH ALL WORK, ESPECIALLY EXCAVATION WORK, AND TO MAKE ALL POSSIBLE INVESTIGATIONS AS TO POSSIBLE DAMAGED UTILITY LINES.



61 PROVIDENCE ROAD  
MAP 12 LOT 81  
DEED BK 61337 BK 23B  
DA'BAKER REALTY LLC

N/F  
HAYWOOD HOUSE LLC  
BOOK 61175 PAGE 14

PR SUBCAT-4S  
AREA=0.11 ACRES  
0.11 AC GRAVEL  
0.11 AC GRASS

PR SUBCAT-3S  
AREA=0.71 ACRES  
0.04 AC PAVE  
0.02 AC GRAVEL  
0.32 AC GRASS  
0.33 AC WOODS

N/F  
JEFFREY GILBAR  
BOOK 57811 PAGE 154  
65 PROVIDENCE ROAD

PR SUBCAT-5S  
AREA=0.73 ACRES  
16 AC ROOF  
0.05 AC PAVE  
0.4 AC GRAVEL

N/F  
WALTER B. VITALINI, JR.  
BOOK 55309 PAGE 189  
69 PROVIDENCE ROAD

PR SUBCAT-6S  
AREA=1.06 ACRES  
0.34 AC GRASS  
0.72 AC WOODS

N/F  
ARTHUR F. PADDOCK JR  
BOOK 42191 PAGE 288  
69 PROVIDENCE ROAD

L=50.00  
R=1230.00  
S50°05'08"W  
65.18

OWNER/APPLICANT  
DA'BAKER REALTY LLC  
148 IRONSTONE STREET  
UXBRIDGE, MA 01759

**LANZETTA EXCAVATING  
63 PROVIDENCE ROAD**

POST DRAINAGE AREAS  
PLAN OF LAND  
IN  
**MENDON, MA**  
SCALE: 30 FEET TO AN INCH  
DATE: SEPTEMBER 25, 2020

#	DATE	DESCRIPTION	INI



**Guerriere & Halon, Inc.**  
Engineering & Land Surveying  
333 WEST STREET, MILFORD, MASS. 01757  
(508) 473-8630 FAX: (508) 473-8243  
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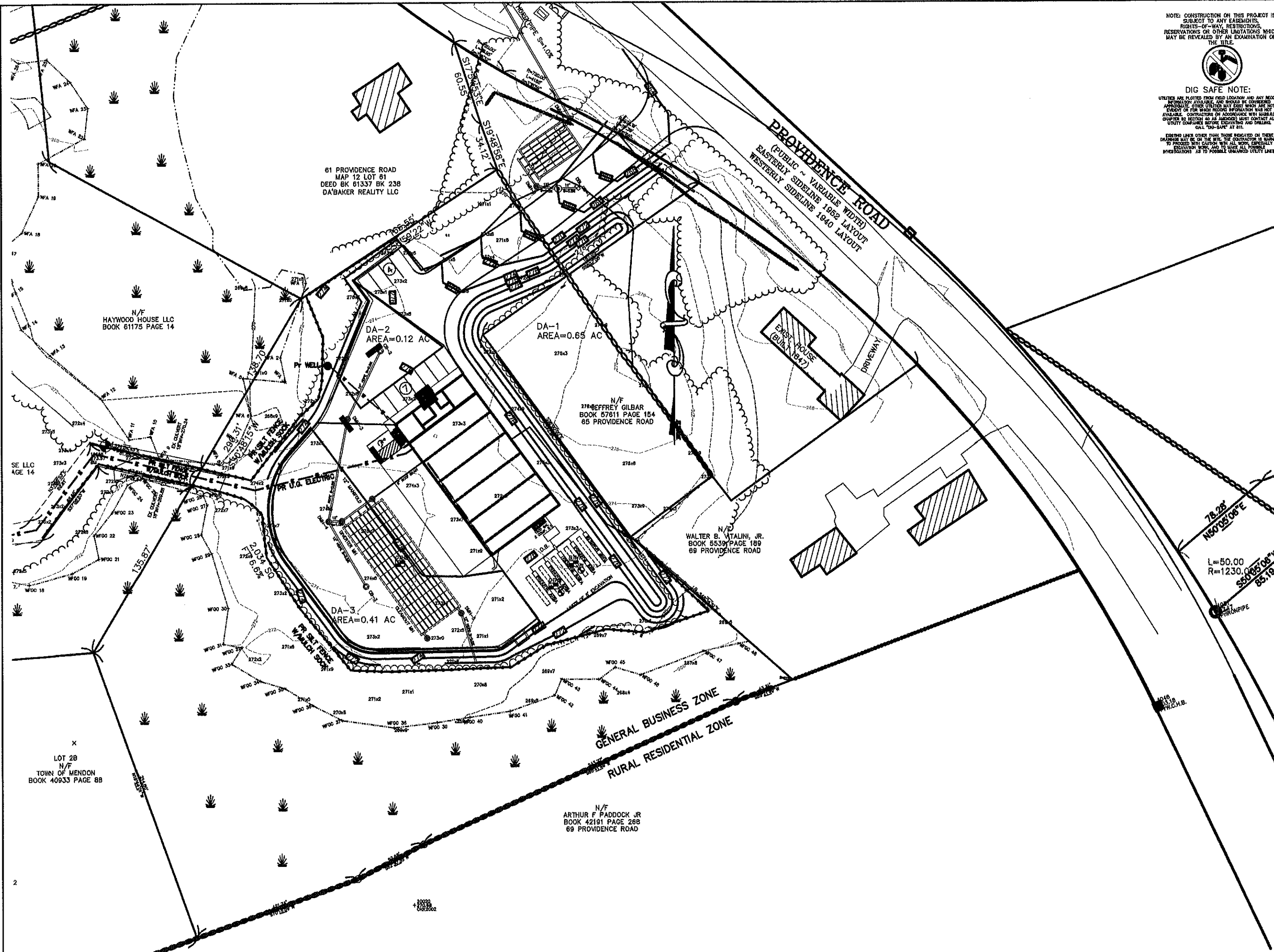
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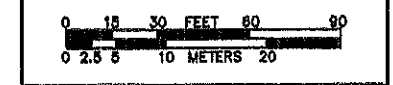


OWNER/APPLICANT  
 DA'BAKER REALTY LLC  
 148 IRONSTONE STREET  
 UXBRIDGE, MA 01759

**LANZETTA EXCAVATING**  
**63 PROVIDENCE ROAD**

RATIONAL DRAINAGE AREAS  
 PLAN OF LAND  
 IN  
**MENDON, MA**  
 SCALE: 20 FEET TO AN INCH  
 DATE: SEPTEMBER 26, 2020

#	DATE	DESCRIPTION	INI



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SHEET