Stormwater Management Report

For

Housatonic Street Public Safety
Lenox, MA

February 6, 2024

Prepared by:

Berkshire Design Group

4 Allen Place, Northampton, Massachusetts 01060

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Referenced Documents

Plans:

Housatonic Street Public Safety, Lenox, Massachusetts, Site Plan Review & Special Permit Set

I. Introduction

The Town of Lenox is proposing to construct a Safety Complex for their Police and Fire Departments at the corner of Housatonic Street and US Route 20 in Lenox, MA (Map 45, Parcel 54).

The existing property consists of an undeveloped wooded area, which recently had been used as a rock and soil storage yard. There is a certified vernal pool located at the southeastern corner of the property. Additionally, there is a creek running through the northern portion of the property, which has bordering vegetated wetlands along the creek's edge.

The proposed Safety Complex consists of a single-story building that will be split between the Police and Fire Department. Additionally, there will be a smaller building behind the main building, which will be a museum for historic safety equipment. The Safety Complex will have two access drives off Housatonic Street, one to the Police side of the complex, and the other to the Fire side. These drives will wrap around the building and connect at a large parking lot at the back of the complex.

Berkshire Design Group has prepared a Stormwater Management Plan for the site which meets the Massachusetts Department of Environmental Protection (MASSDEP) Stormwater Standards for attenuation, groundwater recharge, water quality, and erosion and sedimentation control.

Soil Data

NRCS Soil Survey

The NRCS Soil Survey reports that the on-site soils consist largely of Farmington Rock outcrop, Hydrologic Soil Group (HSG) D, which is comprised of a thin layer of loam over bedrock. There are, however, areas of Nellis loam (HSG B) and Pittsfield loam (HSG A) around the vernal pool at the southeast corner of the property, and around the creek at the north end of the property. The NRCS Soil Report for the site is attached in **Appendix A**.

Subsurface Exploration

Soil test pits were performed at five locations on October 18, 2022. The report for these test pits is attached in **Appendix B**. The test pits showed sandy soil along the northeastern corner of the project site, approaching the northern creek, as well as along the property's western border, along US Route 20. A test pit at the northwestern corner of the project site confirmed the shallow bedrock identified in the Farmington Rock outcrop by the NRCS Soil Survey.

The single infiltration basin included in the project's stormwater management system is located at the northeastern corner of the project site, where test pits showed sandy soil. Even though this sandy soil likely has a high infiltration rate, the basin was conservatively designed using an infiltration rate of 1.02 inches per hour.

Site Limits

Site limits were based on the limit of disturbance for the project, located at the southwestern corner of the property. Both existing and proposed site conditions consist of three drainage areas that flow to three corresponding control points. The first control point is the rear slope of the project site, which flows toward the bordering vegetated wetlands along the creek's edge. The second control point is the slope at the southeastern corner of the project site, which flows toward the vernal pool. The third and final control point is Housatonic Street.

II. Existing Conditions

The existing site conditions encompass 3.973 acres of mostly woods and some grass cover over HSG D and HSG B soils. 100% of the site is undeveloped, and therefore has no impervious area. The existing site hydrology was analyzed as three drainage areas flowing to three control points. The Existing Drainage Areas are shown on **Fig-1.**

Drainage Area E-1 is the largest area in the analysis (94,994 square-feet) and covers the rear of the site, which flows toward the creek to the north, Existing Control Point 1 (E-CP1). This area is entirely woods over HSG B soil.

Drainage Area E-2 is the smallest area in the analysis (7,520 square-feet) and covers the portion of the site which flows toward the vernal pool to the southeast, Existing Control Point 2 (E-CP2). Surface conditions of this area include both woods and grass over HSG D soil.

Drainage Area E-3 encompasses the site frontage of the project area (70,537 square-feet) along Housatonic Street. This area flows onto Housatonic Street, Existing Control Point 3 (E-CP3). Surface conditions of this area include both woods and grass cover of HSG D soil.

III. Proposed Conditions

The proposed site conditions encompass the same 3.973 acres as the existing site conditions. However, the proposed site will be 49.28% impervious. The proposed site hydrology mirrors the existing, consisting of three drainage areas flowing to the same three control points. The Proposed Drainage Areas are shown on **Fig-2**.

Drainage Area P-1 covers the majority of the site (136,318 square-feet) and mirrors Area E-1 by flowing toward the creek to the north, Proposed Control Point 1 (P-CP1). This area is 53% impervious, with the pervious area being grass cover on mostly HSG B soils.

Drainage Area P-2 is the smallest in the analysis (6,675 square-feet) and encompasses the area that runs off toward the vernal pool, Proposed Control Point 2 (P-CP2). This area is 69% impervious, with the pervious area being grass cover on HSG D soil.

Drainage Area P-3 covers the site frontage (30,058 square-feet) that flows onto Housatonic Street. This area is 64% impervious, with the pervious cover being grass over HSG D soil.

IV. Calculations and Design

Attenuation

Drainage calculations were performed in HydroCAD Stormwater Modeling System version 10.20 using Soil Conservation Service (SCS) TR-20 methodology. The SCS method is based on rainfall observations, which were used to develop the Intensity-Duration-Frequency relationship, or IDF curve. The mass curve is a dimensionless distribution of rainfall over time, which indicates the fraction of the rainfall event that occurs at a given time within a 24-hour precipitation event. This synthetic distribution develops peak rates for storms of varying duration and intensities. The SCS distribution provides a cumulative rainfall at any point in time and allows volume-dependent routing runoff calculations to occur. These calculations are included in **Appendix C**. Storm hydrographs are taken from the latest Northeast Regional Climate Center (NRCC) and are listed in Table 1.

The curve numbers (CNs) for the existing and proposed sub-catchment areas are based on the soil type and the existing and proposed cover conditions at the site.

Calculations were performed for the 2-, 10-, and 100-year frequency storms under existing and proposed conditions. The results of the calculations are presented in Table 1 below. **Appendix C** presents the HydroCAD output reports.

Table 1. Runoff Summary Table

Point of Analysis	2-Year Storm 2.81"		10-Year Storm 4.09"		100-Year Storm 7.04"	
	Peak Flow (cfs)	Total Volume (ac-ft)	Peak Flow (cfs)	Total Volume (ac-ft)	Peak Flow (cfs)	Total Volume (ac-ft)
E-CP1	0.42	0.039	2.14	0.124	7.87	0.419
P-CP1	0.42	0.116	1.43	0.364	7.53	1.018
E-CP2	0.29	0.015	0.55	0.029	1.17	0.065
P-CP2	0.08	0.021	0.32	0.036	0.93	0.072
E-CP2	2.57	0.137	4.94	0.264	10.79	0.597
P-CP2	1.64	0.091	2.77	0.156	5.39	0.317

Runoff from the site shows a decrease in peak flow for all storms between existing and proposed conditions.

Groundwater Recharge

The project proposes 85,288 square-feet of impervious area in the post-developed site, while there is no impervious area in the existing condition. Standard 3 of the Stormwater Handbook states that the increase in impervious area must be offset with a required recharge volume, which is a function of the impervious area and a depth factor based on the hydrologic soil group of the subsurface soil. According to the NRCS Soil Survey most of the site consists of HSG D soils, however test pits in select areas showed HSG B soils. Therefore, the required recharge volume was conservatively calculated using a target depth factor of 0.35" for HSG B soil.

The required recharge volume is then calculated to be 2,488 cubic-feet. The project proposes 4,300 cubic-feet of recharge volume, provided by the infiltration basin located at the rear of the site. The recharge volume provided exceeds the recharge volume required.

Water Quality

Standard 4 of the Stormwater Handbook states that a required volume of runoff from new impervious area must be treated for TSS removal. This volume is a function of the impervious area and a depth factor based on site conditions. The depth factor for this site is 0.5". Therefore, the required water quality volume is calculated to be 2,552 cubic-feet. The project proposes 4,300

cubic-feet of water quality volume. The provided water quality volume exceeds the required water quality volume.

Additionally, the project proposes a water quality swale for a small area of pavement that will runoff in the direction of the vernal pool. This swale has been designed according to Volume 3 Chapter 1 of the Stormwater Handbook, and will treat the first 0.1” of runoff from the contributing impervious area.

Erosion & Sedimentation Control

The project plan set includes provisions for erosion control during construction. Erosion control barrier is included around the project site limits to prevent migration of sediment offsite during construction. A construction entrance will be used to prevent sediment from accumulating onto Housatonic Street.

DRAINAGE AREAS

Berkshire Design Group

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Town of Lenox
Massachusetts

Project Safety Complex
0 Housatonic St.

Parcel ID: 45-54-0

DRAINAGE AREAS - EXISTING CONDITIONS

SCALE 1"=40'-0" (if printed full size @ 24" x 36")

0 20' 40' 80' 120'

Revisions

Date: February 6, 2024	Sheet Number FIG-1
Scale: 1"=40'	
Drawn By: LM	
Checked By: CC	

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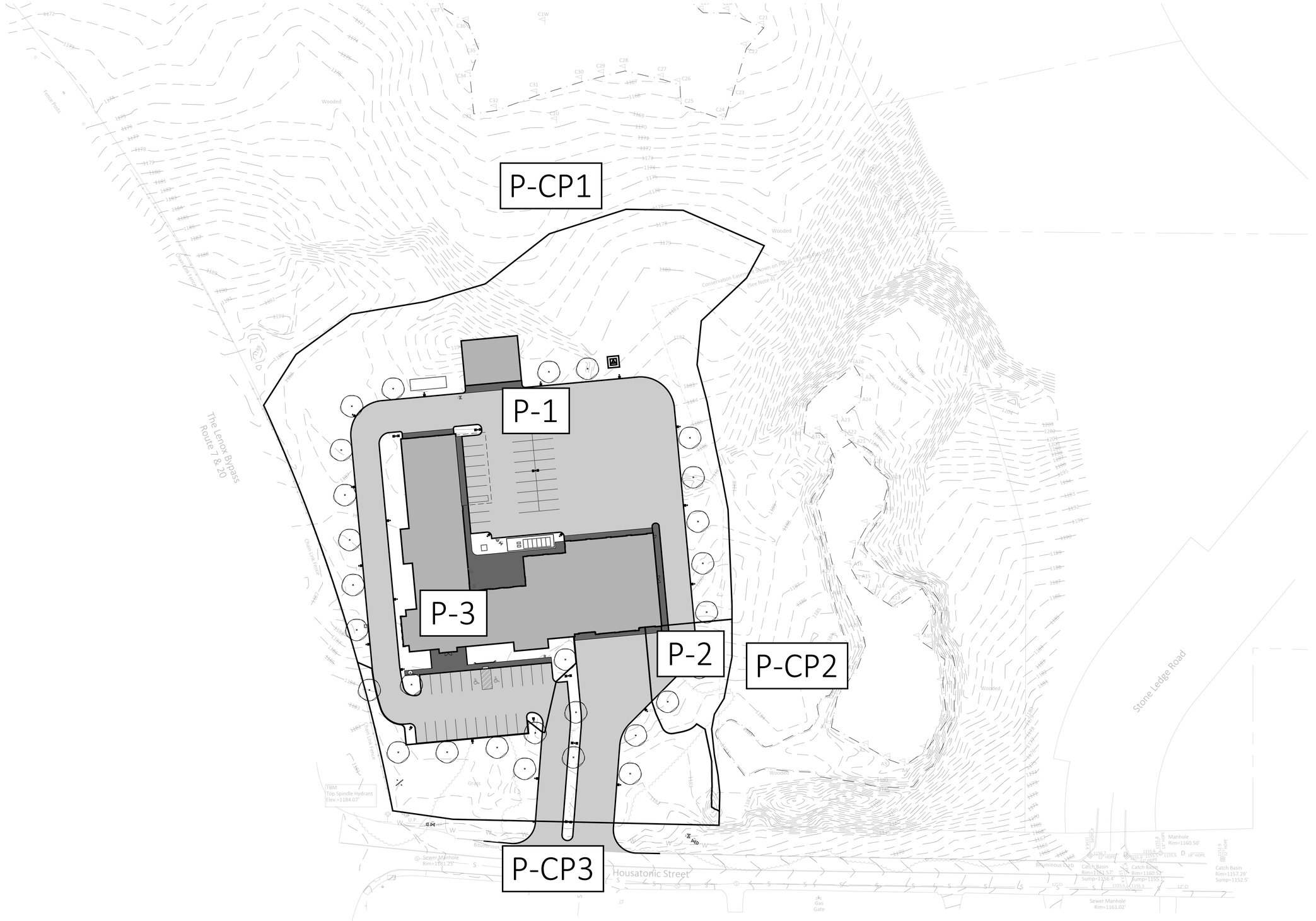

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Town of Lenox
Massachusetts

Project Safety Complex
0 Housatonic St.

Parcel ID: 45-54-0

DRAINAGE AREAS
-
PROPOSED CONDITIONS

SCALE 1"=40'-0" (if printed full size @ 24" x 36")

0 20' 40' 80' 120'

Revisions

Date: February 6, 2024	Sheet Number FIG-2
Scale: 1"=40'	
Drawn By: LM	
Checked By: CC	

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Appendix A– NRCS Soils Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Berkshire County, Massachusetts

December 5, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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: Berkshire County, Massachusetts
Survey Area Data: Version 18, Sep 12, 2023

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

Date(s) aerial images were photographed: Aug 15, 2021—Nov 8, 2021

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
78B	Kendaia silt loam, 3 to 8 percent slopes, extremely stony	0.3	0.9%
107C	Farmington loam, 3 to 15 percent slopes, rocky	8.6	25.1%
108C	Farmington-Rock outcrop complex, 3 to 15 percent slopes	19.2	56.0%
500B	Amenia silt loam, 3 to 8 percent slopes	0.4	1.2%
506C	Nellis loam, 8 to 15 percent slopes, very stony	3.0	8.7%
510C	Pittsfield loam, 8 to 15 percent slopes	0.3	0.8%
651	Udorthents, smoothed	2.5	7.3%
Totals for Area of Interest		**34.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit

descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Berkshire County, Massachusetts

78B—Kendaia silt loam, 3 to 8 percent slopes, extremely stony

Map Unit Setting

National map unit symbol: 98tt
Elevation: 660 to 1,660 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Kendaia and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kendaia

Setting

Landform: Depressions
Landform position (two-dimensional): Footslope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Friable fine-loamy eolian deposits over dense fine-loamy lodgment till derived from phyllite

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 26 inches: silt loam
H3 - 26 to 64 inches: gravelly silt loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C/D
Ecological site: F144BY305ME - Wet Loamy Flat
Hydric soil rating: Yes

Minor Components

Amenia

Percent of map unit: 8 percent

Hydric soil rating: No

Lyons

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

107C—Farmington loam, 3 to 15 percent slopes, rocky

Map Unit Setting

National map unit symbol: 98sy
Elevation: 100 to 900 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Farmington and similar soils: 70 percent
Minor components: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Farmington

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Shallow, friable loamy basal till derived from limestone over limestone

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 17 inches: gravelly loam
H3 - 17 to 21 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: F144BY705ME - Shallow and Mod-deep Semi-rich Till
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 10 percent
Hydric soil rating: Unranked

Pittsfield

Percent of map unit: 8 percent
Hydric soil rating: No

Nellis

Percent of map unit: 7 percent
Hydric soil rating: No

Kendaia

Percent of map unit: 3 percent
Landform: Depressions
Hydric soil rating: Yes

Lyons

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

108C—Farmington-Rock outcrop complex, 3 to 15 percent slopes

Map Unit Setting

National map unit symbol: 98sz
Elevation: 100 to 900 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Farmington and similar soils: 60 percent
Rock outcrop: 25 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Farmington

Setting

Landform: Ridges

Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Shallow, friable loamy basal till derived from limestone over limestone

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 17 inches: loam
H3 - 17 to 21 inches: bedrock

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Available water supply, 0 to 60 inches: Very low (about 2.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: F144BY705ME - Shallow and Mod-deep Semi-rich Till
Hydric soil rating: No

Description of Rock Outcrop

Setting

Parent material: Limestone

Properties and qualities

Slope: 3 to 15 percent
Depth to restrictive feature: 0 inches to lithic bedrock

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Ecological site: F144BY801ME - Rockland (reserved)
Hydric soil rating: Unranked

Minor Components

Pittsfield

Percent of map unit: 7 percent
Hydric soil rating: No

Nellis

Percent of map unit: 6 percent
Hydric soil rating: No

Kendaia

Percent of map unit: 1 percent
Landform: Depressions

Hydric soil rating: Yes

Lyons

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

500B—Amenia silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 98sc
Elevation: 590 to 1,670 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 145 to 240 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Amenia and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Amenia

Setting

Landform: Depressions
Landform position (two-dimensional): Shoulder
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Friable coarse-loamy eolian deposits over dense coarse-loamy lodgment till derived from limestone; friable coarse-loamy eolian deposits over dense coarse-loamy lodgment till derived from limestone

Typical profile

H1 - 0 to 8 inches: silt loam
H2 - 8 to 27 inches: silt loam
H3 - 27 to 64 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 18 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144BY506ME - Semi-rich Till Slope
Hydric soil rating: No

Minor Components

Stockbridge

Percent of map unit: 7 percent
Hydric soil rating: No

Kendaia

Percent of map unit: 5 percent
Landform: Depressions
Hydric soil rating: Yes

Lyons

Percent of map unit: 3 percent
Landform: Depressions
Hydric soil rating: Yes

506C—Nellis loam, 8 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 98v9
Elevation: 150 to 800 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Nellis and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nellis

Setting

Landform: Drumlinoid ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Friable coarse-loamy eolian deposits over firm coarse-loamy lodgment till derived from limestone

Typical profile

H1 - 0 to 7 inches: loam

H2 - 7 to 32 inches: gravelly loam
H3 - 32 to 64 inches: gravelly loam

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: B
Ecological site: F144BY506ME - Semi-rich Till Slope
Hydric soil rating: No

Minor Components

Amenia

Percent of map unit: 10 percent
Hydric soil rating: No

Farmington

Percent of map unit: 3 percent
Hydric soil rating: No

Kendaia

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

510C—Pittsfield loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 98vr
Elevation: 0 to 1,000 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Pittsfield and similar soils: 90 percent

Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pittsfield

Setting

Landform: Drumlinoid ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Friable coarse-loamy eolian deposits over friable, calcareous coarse-loamy basal till derived from limestone; friable coarse-loamy eolian deposits over friable, calcareous coarse-loamy basal till derived from limestone

Typical profile

H1 - 0 to 9 inches: loam
H2 - 9 to 32 inches: fine sandy loam
H3 - 32 to 64 inches: gravelly sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Ecological site: F144BY506ME - Semi-rich Till Slope
Hydric soil rating: No

Minor Components

Amenia

Percent of map unit: 6 percent
Hydric soil rating: No

Kendaia

Percent of map unit: 2 percent
Landform: Depressions
Hydric soil rating: Yes

Farmington

Percent of map unit: 2 percent
Hydric soil rating: No

651—Udorthents, smoothed

Map Unit Setting

National map unit symbol: 98wc
Elevation: 640 to 1,620 feet
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Udorthents, smoothed and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udorthents, Smoothed

Setting

Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Excavated and filled land over loose glaciofluvial deposits derived from igneous and metamorphic rock and/or friable basal till derived from igneous and metamorphic rock

Properties and qualities

Depth to restrictive feature: More than 80 inches
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

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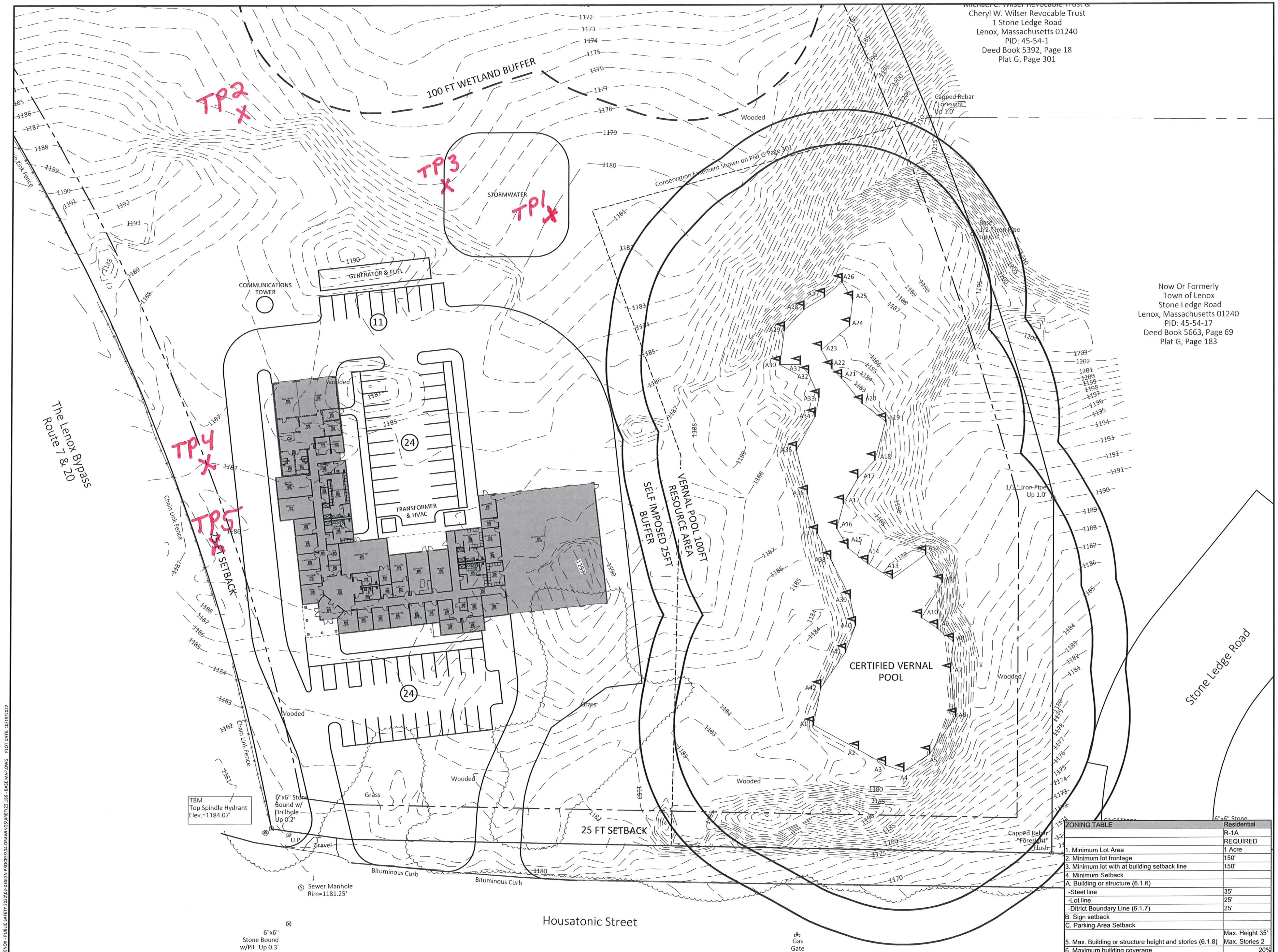
Appendix B – Test Pit Soil Logs



Michael C. Wilser Revocable Trust &
Cheryl W. Wilser Revocable Trust
1 Stone Ledge Road
Lenox, Massachusetts 01240
PID: 45-54-1
Deed Book 5392, Page 18
Plat G, Page 301
100 FT WETLAND BUFFER
TP2
TP3
TP1
TP4
TP5
STORMWATER
GENERATOR & FUEL
COMMUNICATIONS TOWER
TRANSFORMER & HVAC
Conservation Easement Shown on Plat G Page 301
Now Or Formerly
Town of Lenox
Stone Ledge Road
Lenox, Massachusetts 01240
PID: 45-54-17
Deed Book 5663, Page 69
Plat G, Page 183
The Lenox Bypass
Route 7 & 20
25 FT SETBACK
SELF IMPOSED 25FT BUFFER
VERNAL POOL 100FT RESOURCE AREA
CERTIFIED VERNAL POOL
Stone Ledge Road
Housatonic Street
Chain Link Fence
Wooded
Grass
Gravel
Bituminous Curb
Sewer Manhole
Rim=1181.25'
TBM
Top Spindle Hydrant
Elev.=1184.07'
6"x6" Stone Bound w/PIL Up 0.3'
Gas Gate

ZONING TABLE	Residential
	R-1A
	REQUIRED
1. Minimum Lot Area	1 Acre
2. Minimum lot frontage	150'
3. Minimum lot with at building setback line	150'
4. Minimum Setback	
A. Building or structure (6.1.6)	
-Steet line	35'
-Lot line	25'
-Ditrict Boundary Line (6.1.7)	25'
B. Sign setback	
C. Parking Area Setback	
5. Max. Building or structure height and stories (6.1.8)	Max. Height 35' Max. Stories 2
6. Maximum building coverage	20%

Berkshire Design Group

Landscape Architecture
Civil Engineering
Planning
Land Surveying

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Web: http://www.berkshiredesign.com

Town of Lenox
Massachusetts

Public Safety Complex
Housatonic St.

Concept A
1 Story Building

SCALE 1"=30'-0" (if printed full size @ 24" x 36")

0 15' 30' 60' 90'

Revisions

Date: September 21,2022

Scale: 1"=30'

Drawn By: MT

Checked By: CNM

Sheet Number

A

Berkshire Design Group

Soil Evaluation

Location Address or Lot No. Corner of US RTE 7 and Housatonic Street Lenox, MA

Performed By Daniel Lovett

Deep Hole Number TP-1 Date 10/18/2022 Time 9:00 Weather Cloudy

Location Description (See Plan) North West corner of the site

Land Use Woods Slope (%) 5 Surface Elevation at Hole 1180

Vegetation Woods Surface Stones Few Soil Parent Material Glacial

Landform Outwash Plain Position on Landscape (SU, SH, BS, FS, TS) SH

Distances from:

Open Water Body >200' Feet Drainage way >200' Feet

Wetlands 150' Feet Property Line 80' Feet

Drinking Water Well >200' Feet Other

Unsuitable Materials Present: ☐ Yes X No

If Yes: ☐ Disturbed Soil/Fill ☐ Weathered/Fractured Rock ☐Bedrock

Soil Log

Depth (in)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling			Coarse Fragments % by Volume		Soil Structure	Soil Consistence	Other
				Depth	Color	%	Gravel	Cobbles & Stones			
0-6"	A	Loam	10yr 3/2	-	-	-	-	-	Granular	Friable	
6"-13"	B	Sand	10yr 5/8	-	-	-	5	5	Single Grain	Loose	
13"-48"	B2	Sand	10yr 7/6	-	-	-	10	10	Single Grain	Loose	
48"-10.5'	C	Sand	10yr 8/2	-	-	-	10	20	Single Grain	Loose	

Additional Notes:

No ground water

Depth to Groundwater

Weeping from Pit Face None Standing Water None Mottling None

ESHGW Depth >10.5' ESHGW Elev. < 1170

Note: This soil evaluation has been performed for the purpose of stormwater management design, and shall not be used for purposes related to Title 5 and/or soil suitability assessments for on-site sewage disposal.

Berkshire Design Group

Soil Evaluation

Location Address or Lot No. Corner of US RTE 7 and Housatonic Street Lenox, MA

Performed By Daniel Lovett

Deep Hole Number TP-2 Date 10/18/2022 Time 10:30 Weather Cloudy

Location Description (See Plan) North Side (west of TP1)

Land Use Woods Slope (%) 2 Surface Elevation at Hole 1178

Vegetation Woods Surface Stones Few Soil Parent Material Glacial

Landform Outwash Plain Position on Landscape (SU, SH, BS, FS, TS) TS

Distances from:

Open Water Body	>200 Feet	Drainage way	>200 Feet
Wetlands	100 Feet	Property Line	200 Feet
Drinking Water Well	>200 Feet	Other	

Unsuitable Materials Present: X Yes ☐ No

If Yes: ☐ Disturbed Soil/Fill X Weathered/Fractured Rock ☐Bedrock

Soil Log

Depth (in)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling			Coarse Fragments % by Volume		Soil Structure	Soil Consistence	Other
				Depth	Color	%	Gravel	Cobbles & Stones			
0-8”	A	Loam	10yr 3/2	-	-	-	-	-	Granular	Friable	
8”-36”	B	Sand	10yr 5/8	-	-	-	5	5	Single Grain	Loose	
36”-5’	C	Weathered Rock	10yr 8/2	-	-	-	10	10	Granular	Friable	

Additional Notes:

No ground water

Depth to Groundwater

Weeping from Pit Face None Standing Water None Mottling None

ESHGW Depth >5’ ESHGW Elev. <1173

Note: This soil evaluation has been performed for the purpose of stormwater management design, and shall not be used for purposes related to Title 5 and/or soil suitability assessments for on-site sewage disposal.

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Berkshire Design Group

Soil Evaluation

Location Address or Lot No. Corner of US RTE 7 and Housatonic Street Lenox, MA

Performed By Daniel Lovett

Deep Hole Number TP-3 Date 10/18/2022 Time 11:00 Weather Cloudy

Location Description (See Plan) Between TP1 and TP2 North side

Land Use Woods Slope (%) 2 Surface Elevation at Hole 1180

Vegetation Woods Surface Stones Few Soil Parent Material Glacial

Landform Outwash Plain Position on Landscape (SU, SH, BS, FS, TS) TS

Distances from:

Open Water Body	>200 Feet	Drainage way	>200 Feet
Wetlands	150 Feet	Property Line	120 Feet
Drinking Water Well	>200 Feet	Other	

Unsuitable Materials Present: ☐ Yes X No

If Yes: ☐ Disturbed Soil/Fill ☐ Weathered/Fractured Rock ☐Bedrock

Soil Log

Depth (in)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling			Coarse Fragments % by Volume		Soil Structure	Soil Consistence	Other
				Depth	Color	%	Gravel	Cobbles & Stones			
0-6”	A	Loam	10yr 3/2	-	-	-	-	-	Granular	Friable	
6”-24”	B	Sand	10yr 5/8	-	-	-	5	5	Single Grain	Loose	
24”-12.5’	C	Sand	10yr 8/2	-	-	-	10	10	Single Grain	Loose	

Additional Notes:

No ground water

Depth to Groundwater

Weeping from Pit Face None Standing Water None Mottling None

ESHGW Depth >12.5’ ESHGW Elev. < 1168

Note: This soil evaluation has been performed for the purpose of stormwater management design, and shall not be used for purposes related to Title 5 and/or soil suitability assessments for on-site sewage disposal.

Berkshire Design Group

Soil Evaluation

Location Address or Lot No. Corner of US RTE 7 and Housatonic Street Lenox, MA

Performed By Daniel Lovett

Deep Hole Number TP-4 Date 10/18/2022 Time 12:00 Weather Cloudy

Location Description (See Plan) West side

Land Use Woods Slope (%) 2 Surface Elevation at Hole 1187

Vegetation Woods Surface Stones Some Soil Parent Material Glacial

Landform Outwash Plain Position on Landscape (SU, SH, BS, FS, TS) SH

Distances from:

Open Water Body	>200 Feet	Drainage way	>200 Feet
Wetlands	>200 Feet	Property Line	100 Feet
Drinking Water Well	>200 Feet	Other	

Unsuitable Materials Present: ☐ Yes X No

If Yes: ☐ Disturbed Soil/Fill ☐ Weathered/Fractured Rock ☐Bedrock

Soil Log

Depth (in)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling			Coarse Fragments % by Volume		Soil Structure	Soil Consistence	Other
				Depth	Color	%	Gravel	Cobbles & Stones			
0-6”	A	Loam	10yr 3/2	-	-	-	-	-	Granular	Friable	
6”-48”	B	Sand	10yr 5/8	-	-	-	5	5	Single Grain	Loose	
48”-11’	C	Sand	10yr 8/2	-	-	-	10	10	Single Grain	Loose	

Additional Notes:

No ground water

Depth to Groundwater

Weeping from Pit Face None Standing Water None Mottling

ESHGW Depth >11’ ESHGW Elev. <1176

Note: This soil evaluation has been performed for the purpose of stormwater management design, and shall not be used for purposes related to Title 5 and/or soil suitability assessments for on-site sewage disposal.

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Berkshire Design Group

Soil Evaluation

Location Address or Lot No. Corner of US RTE 7 and Housatonic Street Lenox, MA

Performed By Daniel Lovett

Deep Hole Number TP-5 Date 10/18/2022 Time 2:00 Weather Cloudy

Location Description (See Plan) South west corner

Land Use Woods Slope (%) 2 Surface Elevation at Hole 1184

Vegetation Woods Surface Stones Few Soil Parent Material Glacial

Landform Outwash Plain Position on Landscape (SU, SH, BS, FS, TS) SH

Distances from:

Open Water Body	>200 Feet	Drainage way	>200 Feet
Wetlands	>200 Feet	Property Line	20 Feet
Drinking Water Well	>200 Feet	Other	

Unsuitable Materials Present: ☐ Yes X No

If Yes: ☐ Disturbed Soil/Fill ☐ Weathered/Fractured Rock ☐Bedrock

Soil Log

Depth (in)	Soil Horizon	Soil Texture (USDA)	Soil Color (Munsell)	Soil Mottling			Coarse Fragments % by Volume		Soil Structure	Soil Consistence	Other
				Depth	Color	%	Gravel	Cobbles & Stones			
0-6”	A	Loam	10yr 3/2	-	-	-	-	-	Granular	Friable	
6”-18”	B	Sand	10yr 5/8	-	-	-	5	5	Single Grain	Loose	
18”-8’	C	Sand	10yr 8/2	-	-	-	10	10	Single Grain	Loose	

Additional Notes:

Small pieces of weathered rock and some boulders

Depth to Groundwater

Weeping from Pit Face None Standing Water None Mottling None

ESHGW Depth >8’ ESHGW Elev. <1176

Note: This soil evaluation has been performed for the purpose of stormwater management design, and shall not be used for purposes related to Title 5 and/or soil suitability assessments for on-site sewage disposal.

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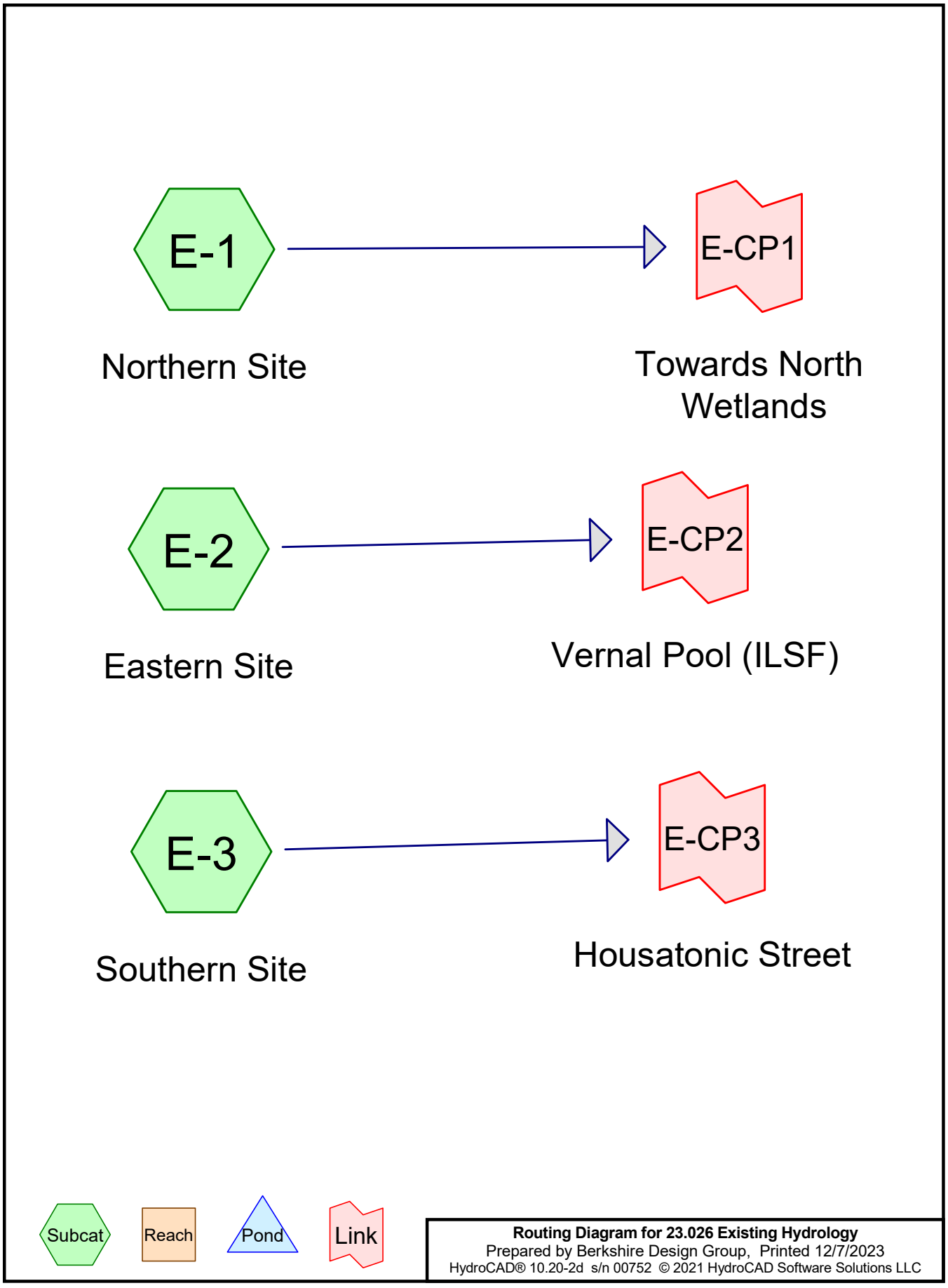
Appendix C – Stormwater Hydrology Calculations



Routing Diagram for 23.026 Existing Hydrology
Prepared by Berkshire Design Group, Printed 12/7/2023

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NRCC 24-hr	B	Default	24.00	1	2.81	2
2	10-Year	NRCC 24-hr	B	Default	24.00	1	4.09	2
3	100-Year	NRCC 24-hr	B	Default	24.00	1	7.04	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.424	84	50-75% Grass cover, Fair, HSG D (E-2, E-3)
2.181	60	Woods, Fair, HSG B (E-1)
1.368	79	Woods, Fair, HSG D (E-2, E-3)
3.973	**69**	**TOTAL AREA**

Summary for Subcatchment E-1: Northern Site

Runoff = 0.44 cfs @ 12.16 hrs, Volume= 0.041 af, Depth> 0.23"
Routed to Link E-CP1 : Towards North Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr B 2-Year Rainfall=2.81"

Area (sf)	CN	Description
94,994	60	Woods, Fair, HSG B
94,994		100.00% Pervious Area

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

Summary for Subcatchment E-2: Eastern Site

Runoff = 0.29 cfs @ 12.12 hrs, Volume= 0.015 af, Depth> 1.07"
Routed to Link E-CP2 : Vernal Pool (ILSF)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr B 2-Year Rainfall=2.81"

Area (sf)	CN	Description
3,529	84	50-75% Grass cover, Fair, HSG D
3,991	79	Woods, Fair, HSG D
7,520	81	Weighted Average
7,520		100.00% Pervious Area

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

Summary for Subcatchment E-3: Southern Site

Runoff = 2.57 cfs @ 12.12 hrs, Volume= 0.137 af, Depth> 1.01"
Routed to Link E-CP3 : Housatonic Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr B 2-Year Rainfall=2.81"

Area (sf)	CN	Description
14,947	84	50-75% Grass cover, Fair, HSG D
55,590	79	Woods, Fair, HSG D
70,537	80	Weighted Average
70,537		100.00% Pervious Area

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

Summary for Link E-CP1: Towards North Wetlands

Inflow Area = 2.181 ac, 0.00% Impervious, Inflow Depth > 0.23" for 2-Year event
Inflow = 0.44 cfs @ 12.16 hrs, Volume= 0.041 af
Primary = 0.44 cfs @ 12.16 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link E-CP2: Vernal Pool (ILSF)

Inflow Area = 0.173 ac, 0.00% Impervious, Inflow Depth > 1.07" for 2-Year event
Inflow = 0.29 cfs @ 12.12 hrs, Volume= 0.015 af
Primary = 0.29 cfs @ 12.12 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link E-CP3: Housatonic Street

Inflow Area = 1.619 ac, 0.00% Impervious, Inflow Depth > 1.01" for 2-Year event
Inflow = 2.57 cfs @ 12.12 hrs, Volume= 0.137 af
Primary = 2.57 cfs @ 12.12 hrs, Volume= 0.137 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment E-1: Northern Site

Runoff = 2.23 cfs @ 12.13 hrs, Volume= 0.129 af, Depth> 0.71"
Routed to Link E-CP1 : Towards North Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr B 10-Year Rainfall=4.09"

Area (sf)	CN	Description
94,994	60	Woods, Fair, HSG B
94,994		100.00% Pervious Area

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

Summary for Subcatchment E-2: Eastern Site

Runoff = 0.55 cfs @ 12.12 hrs, Volume= 0.029 af, Depth> 2.04"
Routed to Link E-CP2 : Vernal Pool (ILSF)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr B 10-Year Rainfall=4.09"

Area (sf)	CN	Description
3,529	84	50-75% Grass cover, Fair, HSG D
3,991	79	Woods, Fair, HSG D
7,520	81	Weighted Average
7,520		100.00% Pervious Area

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

Summary for Subcatchment E-3: Southern Site

Runoff = 4.94 cfs @ 12.12 hrs, Volume= 0.264 af, Depth> 1.96"
Routed to Link E-CP3 : Housatonic Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr B 10-Year Rainfall=4.09"

Area (sf)	CN	Description
14,947	84	50-75% Grass cover, Fair, HSG D
55,590	79	Woods, Fair, HSG D
70,537	80	Weighted Average
70,537		100.00% Pervious Area

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

Summary for Link E-CP1: Towards North Wetlands

Inflow Area = 2.181 ac, 0.00% Impervious, Inflow Depth > 0.71" for 10-Year event
Inflow = 2.23 cfs @ 12.13 hrs, Volume= 0.129 af
Primary = 2.23 cfs @ 12.13 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link E-CP2: Vernal Pool (ILSF)

Inflow Area = 0.173 ac, 0.00% Impervious, Inflow Depth > 2.04" for 10-Year event
Inflow = 0.55 cfs @ 12.12 hrs, Volume= 0.029 af
Primary = 0.55 cfs @ 12.12 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link E-CP3: Housatonic Street

Inflow Area = 1.619 ac, 0.00% Impervious, Inflow Depth > 1.96" for 10-Year event
Inflow = 4.94 cfs @ 12.12 hrs, Volume= 0.264 af
Primary = 4.94 cfs @ 12.12 hrs, Volume= 0.264 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment E-1: Northern Site

Runoff = 8.19 cfs @ 12.12 hrs, Volume= 0.436 af, Depth> 2.40"
Routed to Link E-CP1 : Towards North Wetlands

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr B 100-Year Rainfall=7.04"

Area (sf)	CN	Description
94,994	60	Woods, Fair, HSG B
94,994		100.00% Pervious Area

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

Summary for Subcatchment E-2: Eastern Site

Runoff = 1.17 cfs @ 12.11 hrs, Volume= 0.065 af, Depth> 4.54"
Routed to Link E-CP2 : Vernal Pool (ILSF)

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr B 100-Year Rainfall=7.04"

Area (sf)	CN	Description
3,529	84	50-75% Grass cover, Fair, HSG D
3,991	79	Woods, Fair, HSG D
7,520	81	Weighted Average
7,520		100.00% Pervious Area

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

Summary for Subcatchment E-3: Southern Site

Runoff = 10.79 cfs @ 12.11 hrs, Volume= 0.597 af, Depth> 4.43"
Routed to Link E-CP3 : Housatonic Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr B 100-Year Rainfall=7.04"

Area (sf)	CN	Description
14,947	84	50-75% Grass cover, Fair, HSG D
55,590	79	Woods, Fair, HSG D
70,537	80	Weighted Average
70,537		100.00% Pervious Area

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

Summary for Link E-CP1: Towards North Wetlands

Inflow Area = 2.181 ac, 0.00% Impervious, Inflow Depth > 2.40" for 100-Year event
Inflow = 8.19 cfs @ 12.12 hrs, Volume= 0.436 af
Primary = 8.19 cfs @ 12.12 hrs, Volume= 0.436 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link E-CP2: Vernal Pool (ILSF)

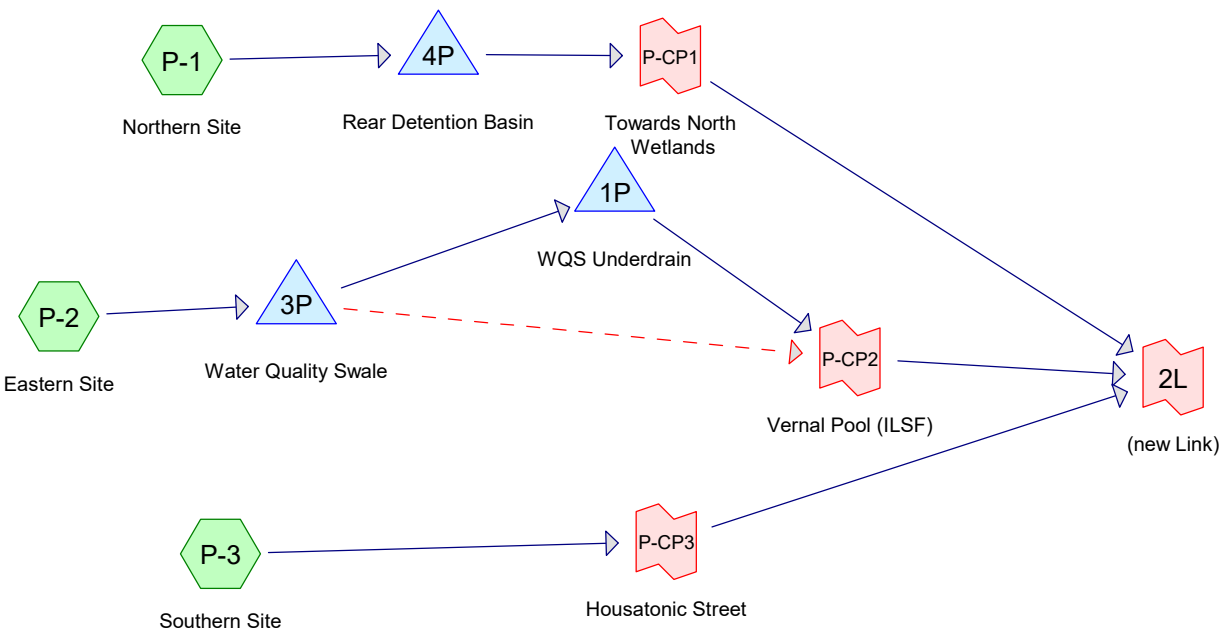
Inflow Area = 0.173 ac, 0.00% Impervious, Inflow Depth > 4.54" for 100-Year event
Inflow = 1.17 cfs @ 12.11 hrs, Volume= 0.065 af
Primary = 1.17 cfs @ 12.11 hrs, Volume= 0.065 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link E-CP3: Housatonic Street

Inflow Area = 1.619 ac, 0.00% Impervious, Inflow Depth > 4.43" for 100-Year event
Inflow = 10.79 cfs @ 12.11 hrs, Volume= 0.597 af
Primary = 10.79 cfs @ 12.11 hrs, Volume= 0.597 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Subcat Reach Pond Link

Routing Diagram for 23.026 Proposed Hydrology
Prepared by Berkshire Design Group, Printed 2/6/2024

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NRCC 24-hr	B	Default	24.00	1	2.81	2
2	10-Year	NRCC 24-hr	B	Default	24.00	1	4.09	2
3	100-Year	NRCC 24-hr	B	Default	24.00	1	7.04	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.106	84	50-75% Grass cover, Fair, HSG D (P-2)
1.320	61	>75% Grass cover, Good, HSG B (P-1)
0.589	80	>75% Grass cover, Good, HSG D (P-1, P-3)
1.406	98	Paved parking, HSG D (P-1, P-2, P-3)
0.552	98	Roofs, HSG D (P-1)
3.973	**83**	**TOTAL AREA**

Summary for Subcatchment P-1: Northern Site

Runoff = 5.88 cfs @ 12.13 hrs, Volume= 0.321 af, Depth= 1.23"
Routed to Pond 4P : Rear Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr B 2-Year Rainfall=2.81"

Area (sf)	CN	Description
48,224	98	Paved parking, HSG D
24,046	98	Roofs, HSG D
57,502	61	>75% Grass cover, Good, HSG B
6,546	80	>75% Grass cover, Good, HSG D
136,318	82	Weighted Average
64,048		46.98% Pervious Area
72,270		53.02% Impervious Area

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

Summary for Subcatchment P-2: Eastern Site

Runoff = 0.38 cfs @ 12.12 hrs, Volume= 0.021 af, Depth= 1.65"
Routed to Pond 3P : Water Quality Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr B 2-Year Rainfall=2.81"

Area (sf)	CN	Description
2,077	98	Paved parking, HSG D
4,598	84	50-75% Grass cover, Fair, HSG D
6,675	88	Weighted Average
4,598		68.88% Pervious Area
2,077		31.12% Impervious Area

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

Summary for Subcatchment P-3: Southern Site

Runoff = 1.64 cfs @ 12.12 hrs, Volume= 0.091 af, Depth= 1.57"
Routed to Link P-CP3 : Housatonic Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr B 2-Year Rainfall=2.81"

Area (sf)	CN	Description
10,941	98	Paved parking, HSG D
19,117	80	>75% Grass cover, Good, HSG D
30,058	87	Weighted Average
19,117		63.60% Pervious Area
10,941		36.40% Impervious Area

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

Summary for Pond 1P: WQS Underdrain

Inflow Area = 0.153 ac, 31.12% Impervious, Inflow Depth = 1.65" for 2-Year event
Inflow = 0.12 cfs @ 12.28 hrs, Volume= 0.021 af
Outflow = 0.08 cfs @ 12.49 hrs, Volume= 0.021 af, Atten= 30%, Lag= 12.4 min
Primary = 0.08 cfs @ 12.49 hrs, Volume= 0.021 af
Routed to Link P-CP2 : Vernal Pool (ILSF)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 1,183.43' @ 12.49 hrs Surf.Area= 1,154 sf Storage= 94 cf

Plug-Flow detention time= 38.8 min calculated for 0.021 af (100% of inflow)
Center-of-Mass det. time= 39.0 min (929.0 - 890.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,183.25'	337 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,125 cf Overall - 3 cf Embedded = 1,122 cf x 30.0% Voids
#2	1,183.25'	3 cf	**4.0" Round Pipe Storage** Inside #1 L= 35.0'
#3	1,183.25'	382 cf	**18.00'D x 1.50'H Vertical Cone/Cylinder**
		721 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,183.25	900	0	0
1,184.50	900	1,125	1,125

Device	Routing	Invert	Outlet Devices
#1	Primary	1,183.25'	**8.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,183.25' / 1,183.10' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.08 cfs @ 12.49 hrs HW=1,183.43' (Free Discharge)
1=Culvert (Inlet Controls 0.08 cfs @ 1.13 fps)

Summary for Pond 3P: Water Quality Swale

Inflow Area = 0.153 ac, 31.12% Impervious, Inflow Depth = 1.65" for 2-Year event
Inflow = 0.38 cfs @ 12.12 hrs, Volume= 0.021 af
Outflow = 0.12 cfs @ 12.28 hrs, Volume= 0.021 af, Atten= 69%, Lag= 9.6 min
Primary = 0.12 cfs @ 12.28 hrs, Volume= 0.021 af
Routed to Pond 1P : WQS Underdrain
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link P-CP2 : Vernal Pool (ILSF)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 1,184.78' @ 12.28 hrs Surf.Area= 1,181 sf Storage= 294 cf

Plug-Flow detention time= 70.9 min calculated for 0.021 af (100% of inflow)
Center-of-Mass det. time= 70.9 min (890.1 - 819.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,184.50'	1,349 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,184.50	900	0	0
1,185.00	1,397	574	574
1,185.50	1,702	775	1,349

Device	Routing	Invert	Outlet Devices
#1	Primary	1,184.50'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	1,184.75'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	1,184.83'	**6.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.12 cfs @ 12.28 hrs HW=1,184.78' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)
└**2=Orifice/Grate** (Weir Controls 0.09 cfs @ 0.59 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=1,184.50' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 4P: Rear Detention Basin

Inflow Area = 3.129 ac, 53.02% Impervious, Inflow Depth = 1.23" for 2-Year event
Inflow = 5.88 cfs @ 12.13 hrs, Volume= 0.321 af
Outflow = 0.53 cfs @ 13.05 hrs, Volume= 0.321 af, Atten= 91%, Lag= 55.2 min
Discarded = 0.11 cfs @ 13.05 hrs, Volume= 0.205 af
Primary = 0.42 cfs @ 13.05 hrs, Volume= 0.116 af
Routed to Link P-CP1 : Towards North Wetlands

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 1,174.67' @ 13.05 hrs Surf.Area= 4,801 sf Storage= 6,712 cf

Plug-Flow detention time= 362.7 min calculated for 0.321 af (100% of inflow)
Center-of-Mass det. time= 362.6 min (1,203.1 - 840.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,173.00'	24,377 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,173.00	3,249	0	0
1,174.00	4,154	3,702	3,702
1,175.00	5,116	4,635	8,337
1,176.00	6,134	5,625	13,962
1,177.00	7,209	6,672	20,633
1,177.50	7,768	3,744	24,377

Device	Routing	Invert	Outlet Devices
#1	Primary	1,174.10'	**8.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,174.10' / 1,173.75' S= 0.0184 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	1,174.10'	**6.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,174.65'	**14.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	1,176.60'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#5	Primary	1,177.10'	**16.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#6	Discarded	1,173.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.11 cfs @ 13.05 hrs HW=1,174.67' (Free Discharge)
└**6=Exfiltration** (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.41 cfs @ 13.05 hrs HW=1,174.67' (Free Discharge)
└**1=Culvert** (Passes 0.41 cfs of 0.65 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.40 cfs @ 3.21 fps)
  └**3=Orifice/Grate** (Orifice Controls 0.01 cfs @ 0.48 fps)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link 2L: (new Link)

Inflow Area = 3.973 ac, 49.28% Impervious, Inflow Depth = 0.69" for 2-Year event
Inflow = 1.66 cfs @ 12.12 hrs, Volume= 0.228 af
Primary = 1.66 cfs @ 12.12 hrs, Volume= 0.228 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link P-CP1: Towards North Wetlands

Inflow Area = 3.129 ac, 53.02% Impervious, Inflow Depth = 0.44" for 2-Year event
Inflow = 0.42 cfs @ 13.05 hrs, Volume= 0.116 af
Primary = 0.42 cfs @ 13.05 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : (new Link)

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link P-CP2: Vernal Pool (ILSF)

Inflow Area = 0.153 ac, 31.12% Impervious, Inflow Depth = 1.65" for 2-Year event
Inflow = 0.08 cfs @ 12.49 hrs, Volume= 0.021 af
Primary = 0.08 cfs @ 12.49 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : (new Link)

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link P-CP3: Housatonic Street

Inflow Area = 0.690 ac, 36.40% Impervious, Inflow Depth = 1.57" for 2-Year event
Inflow = 1.64 cfs @ 12.12 hrs, Volume= 0.091 af
Primary = 1.64 cfs @ 12.12 hrs, Volume= 0.091 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : (new Link)

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Subcatchment P-1: Northern Site

Runoff = 10.78 cfs @ 12.12 hrs, Volume= 0.595 af, Depth= 2.28"
Routed to Pond 4P : Rear Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr B 10-Year Rainfall=4.09"

Area (sf)	CN	Description
48,224	98	Paved parking, HSG D
24,046	98	Roofs, HSG D
57,502	61	>75% Grass cover, Good, HSG B
6,546	80	>75% Grass cover, Good, HSG D
136,318	82	Weighted Average
64,048		46.98% Pervious Area
72,270		53.02% Impervious Area

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

Summary for Subcatchment P-2: Eastern Site

Runoff = 0.63 cfs @ 12.12 hrs, Volume= 0.036 af, Depth= 2.81"
Routed to Pond 3P : Water Quality Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr B 10-Year Rainfall=4.09"

Area (sf)	CN	Description
2,077	98	Paved parking, HSG D
4,598	84	50-75% Grass cover, Fair, HSG D
6,675	88	Weighted Average
4,598		68.88% Pervious Area
2,077		31.12% Impervious Area

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

Summary for Subcatchment P-3: Southern Site

Runoff = 2.77 cfs @ 12.12 hrs, Volume= 0.156 af, Depth= 2.72"
Routed to Link P-CP3 : Housatonic Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr B 10-Year Rainfall=4.09"

Area (sf)	CN	Description
10,941	98	Paved parking, HSG D
19,117	80	>75% Grass cover, Good, HSG D
30,058	87	Weighted Average
19,117		63.60% Pervious Area
10,941		36.40% Impervious Area

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

Summary for Pond 1P: WQS Underdrain

Inflow Area = 0.153 ac, 31.12% Impervious, Inflow Depth = 2.80" for 10-Year event
Inflow = 0.50 cfs @ 12.16 hrs, Volume= 0.036 af
Outflow = 0.32 cfs @ 12.26 hrs, Volume= 0.036 af, Atten= 36%, Lag= 6.0 min
Primary = 0.32 cfs @ 12.26 hrs, Volume= 0.036 af
Routed to Link P-CP2 : Vernal Pool (ILSF)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 1,183.61' @ 12.26 hrs Surf.Area= 1,154 sf Storage= 193 cf

Plug-Flow detention time= 30.3 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 30.3 min (892.9 - 862.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,183.25'	337 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,125 cf Overall - 3 cf Embedded = 1,122 cf x 30.0% Voids
#2	1,183.25'	3 cf	**4.0" Round Pipe Storage** Inside #1 L= 35.0'
#3	1,183.25'	382 cf	**18.00'D x 1.50'H Vertical Cone/Cylinder**
		721 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,183.25	900	0	0
1,184.50	900	1,125	1,125

Device	Routing	Invert	Outlet Devices
#1	Primary	1,183.25'	**8.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,183.25' / 1,183.10' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.32 cfs @ 12.26 hrs HW=1,183.61' (Free Discharge)
1=Culvert (Inlet Controls 0.32 cfs @ 1.62 fps)

Summary for Pond 3P: Water Quality Swale

Inflow Area = 0.153 ac, 31.12% Impervious, Inflow Depth = 2.81" for 10-Year event
Inflow = 0.63 cfs @ 12.12 hrs, Volume= 0.036 af
Outflow = 0.53 cfs @ 12.16 hrs, Volume= 0.036 af, Atten= 16%, Lag= 2.0 min
Primary = 0.50 cfs @ 12.16 hrs, Volume= 0.036 af
Routed to Pond 1P : WQS Underdrain
Secondary = 0.03 cfs @ 12.16 hrs, Volume= 0.000 af
Routed to Link P-CP2 : Vernal Pool (ILSF)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 1,184.85' @ 12.16 hrs Surf.Area= 1,245 sf Storage= 372 cf

Plug-Flow detention time= 57.5 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 57.5 min (862.0 - 804.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,184.50'	1,349 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,184.50	900	0	0
1,185.00	1,397	574	574
1,185.50	1,702	775	1,349

Device	Routing	Invert	Outlet Devices
#1	Primary	1,184.50'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	1,184.75'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	1,184.83'	**6.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.49 cfs @ 12.16 hrs HW=1,184.85' (Free Discharge)
└─**1=Exfiltration** (Exfiltration Controls 0.03 cfs)
└─**2=Orifice/Grate** (Weir Controls 0.46 cfs @ 1.02 fps)

Secondary OutFlow Max=0.03 cfs @ 12.16 hrs HW=1,184.85' (Free Discharge)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 0.03 cfs @ 0.31 fps)

Summary for Pond 4P: Rear Detention Basin

Inflow Area = 3.129 ac, 53.02% Impervious, Inflow Depth = 2.28" for 10-Year event
Inflow = 10.78 cfs @ 12.12 hrs, Volume= 0.595 af
Outflow = 1.57 cfs @ 12.58 hrs, Volume= 0.595 af, Atten= 85%, Lag= 27.5 min
Discarded = 0.14 cfs @ 12.58 hrs, Volume= 0.231 af
Primary = 1.43 cfs @ 12.58 hrs, Volume= 0.364 af
Routed to Link P-CP1 : Towards North Wetlands

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 1,175.60' @ 12.58 hrs Surf.Area= 5,725 sf Storage= 11,580 cf

Plug-Flow detention time= 245.2 min calculated for 0.595 af (100% of inflow)
Center-of-Mass det. time= 245.2 min (1,068.6 - 823.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,173.00'	24,377 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,173.00	3,249	0	0
1,174.00	4,154	3,702	3,702
1,175.00	5,116	4,635	8,337
1,176.00	6,134	5,625	13,962
1,177.00	7,209	6,672	20,633
1,177.50	7,768	3,744	24,377

Device	Routing	Invert	Outlet Devices
#1	Primary	1,174.10'	**8.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,174.10' / 1,173.75' S= 0.0184 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	1,174.10'	**6.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,174.65'	**14.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	1,176.60'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#5	Primary	1,177.10'	**16.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#6	Discarded	1,173.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.14 cfs @ 12.58 hrs HW=1,175.60' (Free Discharge)
└**6=Exfiltration** (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=1.43 cfs @ 12.58 hrs HW=1,175.60' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.43 cfs @ 4.10 fps)
  └**2=Orifice/Grate** (Passes < 0.71 cfs potential flow)
  └**3=Orifice/Grate** (Passes < 1.65 cfs potential flow)
  └**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link 2L: (new Link)

Inflow Area = 3.973 ac, 49.28% Impervious, Inflow Depth = 1.68" for 10-Year event
Inflow = 3.85 cfs @ 12.13 hrs, Volume= 0.556 af
Primary = 3.85 cfs @ 12.13 hrs, Volume= 0.556 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link P-CP1: Towards North Wetlands

Inflow Area = 3.129 ac, 53.02% Impervious, Inflow Depth = 1.39" for 10-Year event
Inflow = 1.43 cfs @ 12.58 hrs, Volume= 0.364 af
Primary = 1.43 cfs @ 12.58 hrs, Volume= 0.364 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : (new Link)

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link P-CP2: Vernal Pool (ILSF)

Inflow Area = 0.153 ac, 31.12% Impervious, Inflow Depth = 2.81" for 10-Year event
Inflow = 0.32 cfs @ 12.26 hrs, Volume= 0.036 af
Primary = 0.32 cfs @ 12.26 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : (new Link)

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link P-CP3: Housatonic Street

Inflow Area = 0.690 ac, 36.40% Impervious, Inflow Depth = 2.72" for 10-Year event
Inflow = 2.77 cfs @ 12.12 hrs, Volume= 0.156 af
Primary = 2.77 cfs @ 12.12 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : (new Link)

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Subcatchment P-1: Northern Site

Runoff = 22.63 cfs @ 12.12 hrs, Volume= 1.292 af, Depth= 4.95"
Routed to Pond 4P : Rear Detention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr B 100-Year Rainfall=7.04"

Area (sf)	CN	Description
48,224	98	Paved parking, HSG D
24,046	98	Roofs, HSG D
57,502	61	>75% Grass cover, Good, HSG B
6,546	80	>75% Grass cover, Good, HSG D
136,318	82	Weighted Average
64,048		46.98% Pervious Area
72,270		53.02% Impervious Area

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

Summary for Subcatchment P-2: Eastern Site

Runoff = 1.21 cfs @ 12.12 hrs, Volume= 0.072 af, Depth= 5.63"
Routed to Pond 3P : Water Quality Swale

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr B 100-Year Rainfall=7.04"

Area (sf)	CN	Description
2,077	98	Paved parking, HSG D
4,598	84	50-75% Grass cover, Fair, HSG D
6,675	88	Weighted Average
4,598		68.88% Pervious Area
2,077		31.12% Impervious Area

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

Summary for Subcatchment P-3: Southern Site

Runoff = 5.39 cfs @ 12.12 hrs, Volume= 0.317 af, Depth= 5.52"
Routed to Link P-CP3 : Housatonic Street

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
NRCC 24-hr B 100-Year Rainfall=7.04"

Area (sf)	CN	Description
10,941	98	Paved parking, HSG D
19,117	80	>75% Grass cover, Good, HSG D
30,058	87	Weighted Average
19,117		63.60% Pervious Area
10,941		36.40% Impervious Area

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

Summary for Pond 1P: WQS Underdrain

Inflow Area = 0.153 ac, 31.12% Impervious, Inflow Depth = 5.40" for 100-Year event
Inflow = 0.90 cfs @ 12.14 hrs, Volume= 0.069 af
Outflow = 0.72 cfs @ 12.19 hrs, Volume= 0.069 af, Atten= 20%, Lag= 3.2 min
Primary = 0.72 cfs @ 12.19 hrs, Volume= 0.069 af
Routed to Link P-CP2 : Vernal Pool (ILSF)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 1,183.88' @ 12.19 hrs Surf.Area= 1,154 sf Storage= 330 cf

Plug-Flow detention time= 22.4 min calculated for 0.069 af (100% of inflow)
Center-of-Mass det. time= 22.6 min (860.6 - 838.0)

Volume	Invert	Avail.Storage	Storage Description
#1	1,183.25'	337 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 1,125 cf Overall - 3 cf Embedded = 1,122 cf x 30.0% Voids
#2	1,183.25'	3 cf	**4.0" Round Pipe Storage** Inside #1 L= 35.0'
#3	1,183.25'	382 cf	**18.00'D x 1.50'H Vertical Cone/Cylinder**
		721 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,183.25	900	0	0
1,184.50	900	1,125	1,125

Device	Routing	Invert	Outlet Devices
#1	Primary	1,183.25'	**8.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,183.25' / 1,183.10' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf

Primary OutFlow Max=0.72 cfs @ 12.19 hrs HW=1,183.88' (Free Discharge)
1=Culvert (Inlet Controls 0.72 cfs @ 2.13 fps)

Summary for Pond 3P: Water Quality Swale

Inflow Area = 0.153 ac, 31.12% Impervious, Inflow Depth = 5.63" for 100-Year event
Inflow = 1.21 cfs @ 12.12 hrs, Volume= 0.072 af
Outflow = 1.15 cfs @ 12.14 hrs, Volume= 0.072 af, Atten= 5%, Lag= 1.1 min
Primary = 0.90 cfs @ 12.14 hrs, Volume= 0.069 af
Routed to Pond 1P : WQS Underdrain
Secondary = 0.25 cfs @ 12.14 hrs, Volume= 0.003 af
Routed to Link P-CP2 : Vernal Pool (ILSF)

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 1,184.90' @ 12.14 hrs Surf.Area= 1,295 sf Storage= 436 cf

Plug-Flow detention time= 47.7 min calculated for 0.072 af (100% of inflow)
Center-of-Mass det. time= 47.7 min (833.4 - 785.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,184.50'	1,349 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,184.50	900	0	0
1,185.00	1,397	574	574
1,185.50	1,702	775	1,349

Device	Routing	Invert	Outlet Devices
#1	Primary	1,184.50'	**1.020 in/hr Exfiltration over Surface area**
#2	Primary	1,184.75'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	1,184.83'	**6.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.90 cfs @ 12.14 hrs HW=1,184.90' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)
└**2=Orifice/Grate** (Weir Controls 0.87 cfs @ 1.26 fps)

Secondary OutFlow Max=0.25 cfs @ 12.14 hrs HW=1,184.90' (Free Discharge)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 0.25 cfs @ 0.62 fps)

Summary for Pond 4P: Rear Detention Basin

Inflow Area = 3.129 ac, 53.02% Impervious, Inflow Depth = 4.95" for 100-Year event
Inflow = 22.63 cfs @ 12.12 hrs, Volume= 1.292 af
Outflow = 7.71 cfs @ 12.26 hrs, Volume= 1.292 af, Atten= 66%, Lag= 8.5 min
Discarded = 0.18 cfs @ 12.26 hrs, Volume= 0.273 af
Primary = 7.53 cfs @ 12.26 hrs, Volume= 1.018 af
Routed to Link P-CP1 : Towards North Wetlands

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 1,177.36' @ 12.26 hrs Surf.Area= 7,616 sf Storage= 23,334 cf

Plug-Flow detention time= 170.6 min calculated for 1.292 af (100% of inflow)
Center-of-Mass det. time= 170.8 min (972.8 - 802.0)

Volume	Invert	Avail.Storage	Storage Description
#1	1,173.00'	24,377 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,173.00	3,249	0	0
1,174.00	4,154	3,702	3,702
1,175.00	5,116	4,635	8,337
1,176.00	6,134	5,625	13,962
1,177.00	7,209	6,672	20,633
1,177.50	7,768	3,744	24,377

Device	Routing	Invert	Outlet Devices
#1	Primary	1,174.10'	**8.0" Round Culvert** L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1,174.10' / 1,173.75' S= 0.0184 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf
#2	Device 1	1,174.10'	**6.0" W x 3.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1,174.65'	**14.0" W x 4.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	1,176.60'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#5	Primary	1,177.10'	**16.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#6	Discarded	1,173.00'	**1.020 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.18 cfs @ 12.26 hrs HW=1,177.36' (Free Discharge)
└**6=Exfiltration** (Exfiltration Controls 0.18 cfs)

Primary OutFlow Max=7.52 cfs @ 12.26 hrs HW=1,177.36' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.27 cfs @ 6.51 fps)
  └**2=Orifice/Grate** (Passes < 1.07 cfs potential flow)
  └**3=Orifice/Grate** (Passes < 2.99 cfs potential flow)
  └**4=Broad-Crested Rectangular Weir** (Passes < 8.71 cfs potential flow)
└**5=Broad-Crested Rectangular Weir** (Weir Controls 5.25 cfs @ 1.24 fps)

Summary for Link 2L: (new Link)

Inflow Area = 3.973 ac, 49.28% Impervious, Inflow Depth = 4.25" for 100-Year event
Inflow = 10.14 cfs @ 12.25 hrs, Volume= 1.408 af
Primary = 10.14 cfs @ 12.25 hrs, Volume= 1.408 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link P-CP1: Towards North Wetlands

Inflow Area = 3.129 ac, 53.02% Impervious, Inflow Depth = 3.90" for 100-Year event
Inflow = 7.53 cfs @ 12.26 hrs, Volume= 1.018 af
Primary = 7.53 cfs @ 12.26 hrs, Volume= 1.018 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : (new Link)

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link P-CP2: Vernal Pool (ILSF)

Inflow Area = 0.153 ac, 31.12% Impervious, Inflow Depth = 5.63" for 100-Year event
Inflow = 0.93 cfs @ 12.16 hrs, Volume= 0.072 af
Primary = 0.93 cfs @ 12.16 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : (new Link)

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Link P-CP3: Housatonic Street

Inflow Area = 0.690 ac, 36.40% Impervious, Inflow Depth = 5.52" for 100-Year event
Inflow = 5.39 cfs @ 12.12 hrs, Volume= 0.317 af
Primary = 5.39 cfs @ 12.12 hrs, Volume= 0.317 af, Atten= 0%, Lag= 0.0 min
Routed to Link 2L : (new Link)

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Appendix D – Operation & Maintenance Plan

Stormwater Management System
Operation & Maintenance Plan

During Construction

The Contractor shall be responsible for inspection and maintenance during construction.

At all times, siltation fabric fencing, stakes and straw bales/wattles, sufficient to construct a sedimentation control barrier a minimum of 50 feet long, shall be stockpiled on the site in order to repair established barriers which may be damaged or breached.

An inspection of all erosion control and stormwater management systems shall be conducted by the Contractor at least once a week and during all rainstorms until the completion of construction. In case of any noted breach or failure, the Contractor shall immediately make appropriate repairs to any erosion control system and notify the engineer of any problems involving stormwater management systems.

A rainstorm shall be defined as any of the following:

- A storm in which rain is predicted to last for twelve consecutive hours or more.
- A storm for which a flash flood watch or warning is issued.
- A single storm predicted to have a cumulative rainfall of greater than one-half inch.
- A storm not meeting the previous three thresholds, but which would mark a third consecutive day of measurable rainfall.

The Contractor shall also inspect the erosion control and stormwater management systems at times of significant increase in surface water runoff due to rapid thawing when the risk of failure of erosion control measures is elevated.

In such instances as remedial action is necessary, the Contractor shall repair any and all significant deficiencies in erosion control systems within two days.

The Lenox Department of Public Works shall be notified of any significant failure of stormwater management systems or erosion and sediment control measures and shall be notified of any release of pollutants to a water body (stream, brook, pond, etc.).

The Contractor shall remove the sediment from behind the fence of the sedimentation control barrier when the accumulated sediment has reached one-half of the original installed height of the barrier.

Post-Construction

Stormwater Management System Owner:

Town of Lenox

Party Responsible for Operation & Maintenance:

Town of Lenox

Inspection & Maintenance Schedule & Log:

1) Stormwater Treatment Chamber

The stormwater treatment chamber is a Stormceptor 450i manufactured by Contech Engineered Solutions, LLC.

The stormwater treatment chamber should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The system shall be inspected at least four times during the first year and at least twice per year thereafter. Sediment shall be removed any time it has built up to more than 6" deep. At a minimum, the unit shall be cleaned once per year. If sediment accumulates fast enough to require removal more than once per year, the inspection frequency shall be increased.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument.

The Stormceptor system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded; however, it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine whether the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump. Sediment shall be removed by a vacuum truck and disposed of in accordance with applicable regulations.

2) Infiltration Basin

The infiltration basins shall be inspected as needed, during and following construction, and once per year thereafter. Annually verify dewatering of the basin. Sediment or debris shall be cleaned out as needed. Note and repair any erosion around the edge of the basins. Vegetation shall be replaced as needed.

3) Water Quality Swale

The water quality swale shall be inspected quarterly in the first year, and twice a year thereafter. During inspections, check the swales for slope integrity, soil moisture, vegetative health, soil stability, soil compaction, soil erosion, ponding and sedimentation. Swale shall be mowed at least once per year. Grass height shall be maintained between three to six inches. Manually remove all sediment and debris at least once per year. Re-seed as necessary to maintain vegetative cover.

4) Hooded Catch Basin with Sump

Oil and water separators should be inspected at least four times per year and cleaned annually or more often if required. Oil and sediments should be removed and disposed of when sediment deposits are greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin, and should be disposed of in accordance with local, state and federal guidelines and regulations. In the case of an oil or bulk pollutant release, the system must be cleaned immediately following the spill and the proper authorities notified. Remove oils if any visible sheen observed.