Merrill
Engineers and Land Surveyors

July 21, 2025

# Stormwater Report

**Submitted To: Town of Hingham**

## 1192 Main Street**, Hingham MA**

(508) 746-6060 / 26 Union Street, Plymouth, MA 02360
merrillinc.com / (781) 826-9200 / 427 Columbia Road, Hanover, MA 02339

# *Table of Contents*

# ***SECTION I***

*STORMWATER REPORT*

## Existing and Proposed Conditions

Anton Cela is requesting permission to construct a new dwelling at 1192 Main Street. The proposed work increases the impervious area by approximately 968 sf and the total disturbance area, including regraded lawn, will be 35,000 SF. The entire lot lies within FEMA Zone X and a Bordering Vegetated Wetland along an Inland Bank is located on the site, with associated buffer zones.

The entire lot area is being considered for analysis, which is approximately 50,050 sf. The lot is bound by abutting properties on the north, south and east sides, as well as Main Street to the west side. The property currently contains existing paved surfaces and cesspools. No building currently exists on the site, but a large building has existed on site in the past. The topography generally slopes towards the north and south abutters, with high points located in the middle of the lot.

NRCS Soil Survey online data identifies the soils on site as Hinckley gravelly sandy loam, 3 to 8 percent slopes, bouldery (A soils). Test pits done on site confirm this data.

Two subcatchment areas were considered for the stormwater analysis. The HydroCAD results and subcatchment areas are provided in Section IV of this report.

The proposed project complies with the Stormwater Management as follows:

## Standard 1: No New Stormwater Conveyances of Untreated Stormwater or Erosion Offsite

The proposed changes to the lot will introduce new stormwater treatment and will improve the quality of the existing stormwater drainage. The entire 50,050 SF area was considered for stormwater analysis, which includes all proposed areas of disturbance and the undisturbed areas to understand drainage patterns. All the existing and proposed runoff flows towards the north and south abutters; however, flow rates will be improved with the proposed work. Portions of the proposed dwelling will be captured and sent to two subsurface infiltration systems proposed on site. These proposed stormwater controls will ensure that peak flows and volumes are reduced or matched for the 2-, 10-, and 100-year design storms.

## Standard 2: Peak Rate Attenuation

The overall peak rate and volume of runoff is reduced or matched for all design storm events in the proposed design. This data is summarized below, and the HydroCAD report can be found in section IV.

### 1.0 METHODOLOGY

The adequacy of the proposed drainage structures and their ability to function properly were analyzed to minimize detrimental effects due to stormwater conditions. The impacts of storm water are mitigated through several mechanisms such as infiltration, transportation and evaporation. The remaining runoff was quantified through developed and accepted methods.

## 2.0 OVERVIEW

Merrill inc. has analyzed the existing conditions at the site utilizing the HydroCad Stormwater modeling program. Storm rainfall, run-off curve numbers, and other site characteristics are input into the program. The results of calculations are output into tables and graphs for each area and control structure.

## 3.0 DESIGN STORMS

Stormwater run-off calculations have been computed for the proposed site, for a 2, 10 and 100 year, 24-hour event. The intensity of these rain events is 3.20", 4.65" and 6.80" respectively.

## 4.0 DRAINAGE ANALYSIS

The following is the summary of the HydroCAD analysis:

**Subcatchment 1 – North Abutters**

| Storm | Existing Conditions (cfs, af) | Post-Development Conditions (cfs, af) |
|---|---|---|
| 2-Year-24 Hour (3.2") | 0.00 cfs, 0.001 af | 0.00 cfs, 0.001 af |
| 10-Year-24 Hour (4.65") | 0.04 cfs, 0.014 af | 0.03 cfs, 0.010 af |
| 100-Year-24 Hour (6.80") | 0.50 cfs, 0.056 af | 0.47 cfs, 0.045 af |

**Subcatchment 2 – South Abutters**

| Storm | Existing Conditions (cfs, af) | Post-Development Conditions (cfs, af) |
|---|---|---|
| 2-Year-24 Hour (3.2") | 0.08 cfs, 0.012 af | 0.02 cfs, 0.007 af |
| 10-Year-24 Hour (4.65") | 0.41 cfs, 0.034 af | 0.24 cfs, 0.028 af |
| 100-Year-24 Hour (6.80") | 1.10 cfs, 0.079 af | 0.97 cfs, 0.076 af |

## Standard 3: Recharge and Discharge Volume

The applicant proposes adequate infiltration for the lot as required by the Massachusetts Stormwater Handbook as follows:

Existing Impervious Area = 6,966 $ft^2$
Proposed Impervious Area = 7,934 $ft^2$
Increase in impervious area = 968 $ft^2$

A soils require 0.60" x impervious area of runoff to be recharged:
(0.60"/12"per ft)(968$ft^2$) = 49 $ft^3$

Both infiltration systems have a capacity of 152 $ft^3$ which totals 303 $ft^3$. This exceeds the required 49 $ft^3$ recharge volume.

## Standard 4: Water Quality

Impervious pavement areas on site are being reduced by 3,798 SF.

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

The use of the property (residential) does not constitute a higher potential pollutant load use. Thus Standard 5 does not pertain to this project.

## Standard 6: Critical Areas

The project site is located within and Outstanding Resource Water and Zone II.

## Standard 7: Redevelopment

This project is considered redevelopment of an existing, residential lot.

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

The Operation and Maintenance Plan included with this submittal will ensure proper maintenance of the proposed pollution, erosion and sedimentation measures proposed during construction.

## Standard 9: Long Term Operation and Maintenance Plan

The Long-Term Operation and Maintenance Plan is included within the Operation and Maintenance Plan enclosed in this submittal to ensure the proposed drainage improvements are maintained as intended.

## Standard 10: Prohibition of Illicit Discharges

Routine visual inspections are scheduled as part of the Operations and Maintenance Plan to prevent illicit discharges into the stormwater system. Furthermore, an Illicit Compliance Statement is included in this submittal.

## Improvement Over Existing Conditions

The addition of structural stormwater controls will help improve water quality. The proposed reduction of peak rate of runoff and volume will improve stormwater conditions offsite.

# ***SECTION II***

*STORMWATER OPERATION*
*AND MAINTENANCE PLAN*

# *Construction Period Sequencing and Stormwater Operation and Maintenance Plans*

*Last Revised 7/15/25*

***Proposed Single Family Home***
***1192 Main Street, Hingham, MA 02043***
***Stormwater Management System's Owner: Anton Cela***
***System Owner's Address: 131 West Broadway, Unit 2, South Boston, MA 02127***
***Party responsible for Operations and Maintenance: Owner of 1192 Main Street***

As part of any infrastructure improvement, the system must be maintained to work properly. The following Construction Sequencing Guideline and Operation and Maintenance plans are provided to upkeep the existing non-structural and structural best performance practices as outlined in the Massachusetts Department of Environmental Protection's Stormwater Management Policy.

**Emergency Contact Information:**

Anton Cela
131 West Broadway, Unit 2
South Boston, MA 02127
Telephone: 617-291-2998
**Emergency Telephone: 617-291-2998**
Email: antoncela@msn.com

**Construction Sequencing:**

The following section provides construction details and highlights the construction sequence and timing of earth moving activities.

### *1. Installation of Erosion Controls*

Erosion and sedimentation controls (i.e., silt sock, construction entrance) will be installed as shown on the Site Plan and inspected at the limits of the work area prior to the commencement of earth moving activities.

### *2. Utility Identification & Clearing*

All utilities (including stubs) must be identified and marked in the field prior to disturbance. Identify the location of the cesspools that will be removed to accommodate the proposed work. No large boulders or building materials will be buried on the site. All cleared vegetation, apart from any vegetation that may be deemed appropriate to be replanted, will be removed from the project site or mulched and stockpiled for future use on the site.

### *3. Construction Entrance Installation*

3/4" – 3.0" crushed stone shall be placed at the existing gravel driveway entrance as designated on the Site Plan.

### *3. Rough Grading*

During this phase of construction, rough grades will be established for the project site. If suitable topsoil is found, it will be removed and stockpiled in an upland area. The stockpiled topsoil will be stored until ready for re-use on site.

### *4. Excavation and Utility Relocation*

The area will be carefully excavated to avoid damage to any utility lines and/or pipes located in the area of work. Relocate lines at this time.

### *5. Installation of the Dwelling*

During this phase of construction, the proposed house will be constructed.

### *6. Installation of Infiltration Systems, Septic System and Buried Drainage Pipes*

The infiltration systems and septic system shall be installed once the dwelling is constructed. If the contractor prefers to install the infiltration and/or drainage pipe system before the dwelling construction is completed, then the area above the buried infiltration and the drainage pipes should be roped off to avoid heavy equipment load on top of the infiltration and pipe system and to avoid disturbance of the infiltration materials.

### *7. Utility Installation*

In this phase of construction, any utilities associated with the dwelling will be installed.

### *8. Driveway and Hardscape Installation*

Once the drainage pipes leading to the infiltration system and the utilities associated with the pool area are installed, the driveway and patio will be installed. The location of the drainage pipes, infiltration system, and utility lines should be marked to avoid heavy equipment/loading over these pipes and lines that can cause damage.

### *9. Site Stabilization*

The final phase of the project is the restoration and stabilization of all exposed surfaces. Disturbed areas will be landscaped or seeded as necessary only after all other construction is final. In the event that weather conditions prevent final restoration, temporary erosion and sedimentation measures will be employed until the weather is suitable for final cleanup. Should final ground stabilization be postponed due to winter conditions, the exposed ground shall be covered in an erosion control blanket to prevent erosion. A final inspection will ensure that the project site is cleared of all project debris and that erosion and sedimentation controls are functioning properly. Erosion and sedimentation controls will not be removed until the site is stabilized and the final inspection is completed.

**Stormwater Operation and Maintenance During Construction:**

***Sediment and Erosion Control***

- Silt socks shall be inspected at least once a week and after each rainfall event. Make any required repairs immediately. Repair damaged areas of the sock at this time to prevent future problems.
- Should the fabric of the silt sock tear, decompose or otherwise become ineffective, replace it within 24 hours of discovery.
- Remove silt deposits once they reach 20 to 30 percent of the height of the silt sock to provide adequate storage volume for the next rain event and to reduce pressure on the fence. Care should be taken to avoid undermining the fence during cleanout process.
- Silt socks are to be removed upon stabilization of the contributing drainage area. Accumulated sediment may be spread to form a surface for turf or other vegetation establishment, or disposed of elsewhere. The area should be reshaped to permit natural drainage.
- Any sediment tracked from the construction site onto the street during construction shall be removed immediately.

***Infiltration System***

Per MA DEP Stormwater Guidelines, the following work shall be done to stabilize the site prior to installing the subsurface structures:

- Do not allow runoff from any disturbed areas on the site to flow to the exposed subsurface structures.
- Accomplish any required excavation with equipment placed just outside the area. If the size of the area intended for exfiltration is too large to accommodate this approach, use trucks with low-pressure tires to minimize compaction. Do not allow any other vehicles within the area to be excavated.
- Keep the area above and immediately surrounding the subsurface system roped off to all construction vehicles until the final top surface is installed.
- At no time shall the area for the infiltration system be used as a temporary sediment basin. Stockpiles shall be placed away from the subsurface infiltration system and silt socks shall be placed around the perimeter of the infiltration area to prevent the accumulation of sediment within the native soils.

***Dust Control***

Sprinkle water as necessary to control dust during construction.

***Material Stockpiling***

Stockpiles of material must be placed within the area confined by the silt sock. If left overnight, material stockpiling must be protected from the weather.

***Good Housekeeping***

The following good housekeeping BMP's will be implemented in order to prevent pollution during construction:

- Petroleum products will be stored in tightly sealed containers which are clearly labeled.
- Any asphalt substances on site will be applied according to the manufacturer's specifications.
- If portable sanitary units are used, sanitary waste will be removed as necessary to avoid overfilling.
- All paint and other hazardous waste materials will be tightly sealed and stored when not in use. Excess material will not be discharged into the public stormwater system but will be properly disposed of according to the manufacturer's specifications. If spray guns are used, they will be cleaned on a removable tarp.

# *Long-Term Pollution Prevention Plan*
## *Last Revised 7/15/25*

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***1192 Main Street, Hingham, MA 02043***
***Stormwater Management System's Owner: Anton Cela***
***System Owner's Address: 131 West Broadway, Unit 2, South Boston, MA 02127***
***Party responsible for Operations and Maintenance: Owner of 1192 Main Street***

As part of any infrastructure improvement the system must be maintained in order to work properly. The following is an Operation and Maintenance plan to upkeep the proposed non-structural and structural best performance practices as outlined in the Massachusetts Department of Environmental Protection's Stormwater Management Policy and in accordance with the approved design drawing. The following is an Operation and Maintenance plan to follow after construction activities have been completed.

**Emergency Contact Information:**

Anton Cela
131 West Broadway, Unit 2
South Boston, MA 02127
Telephone: 617-291-2998
**Emergency Telephone: 617-291-2998**
Email: antoncela@msn.com

**Stormwater Operation and Maintenance After Construction:**

**Subsurface Infiltration Systems:**
Inspect inspection port at least quarterly and after every major storm event during the first year. Inspections after every major storm event shall take notice of any water standing after 72 hours after the storm ended. After the first year, inspections must be done at least twice yearly. Remove any debris or sediment within reach that may be clogging the system. Inspect and clean filter fabric of infiltration trench quarterly and after every major storm event.

**Pipes:**
All pipe cleanouts shall be inspected to ensure that they are free of all obstructions.

**Roof Drains:**
All roof drains shall be cleaned and inspected in late winter or early spring after the snow melts. Inspections should include the gutters, downspouts and all accessible piping.

**Driveway Sweeping:**
Driveway shall be swept at least four times a year primarily in spring and fall.

**Snow Management:**
Any snow and ice buildup on the proposed roof drains will be removed in a timely fashion.
Snow plowed from the driveways or parking area will be temporarily stored in available lawn areas.

**Roof Drain Cleaning:**
Any buildup of leaves in the roof drains should be cleaned out in the late fall.

**Estimated Operation and Maintenance Budget:**

Maintenance cost is estimated to be around $800.00 per year.

## *Illicit Discharges:*

At no time will the owner or any other individual utilize the stormwater management system for any purpose other than its intended use. The stormwater management system as shown on the attached site plan at no time shall receive discharges other than stormwater, this includes "wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, raw materials, toxic pollutants, hazardous substances, oil or grease."

Property Owner (Signature)

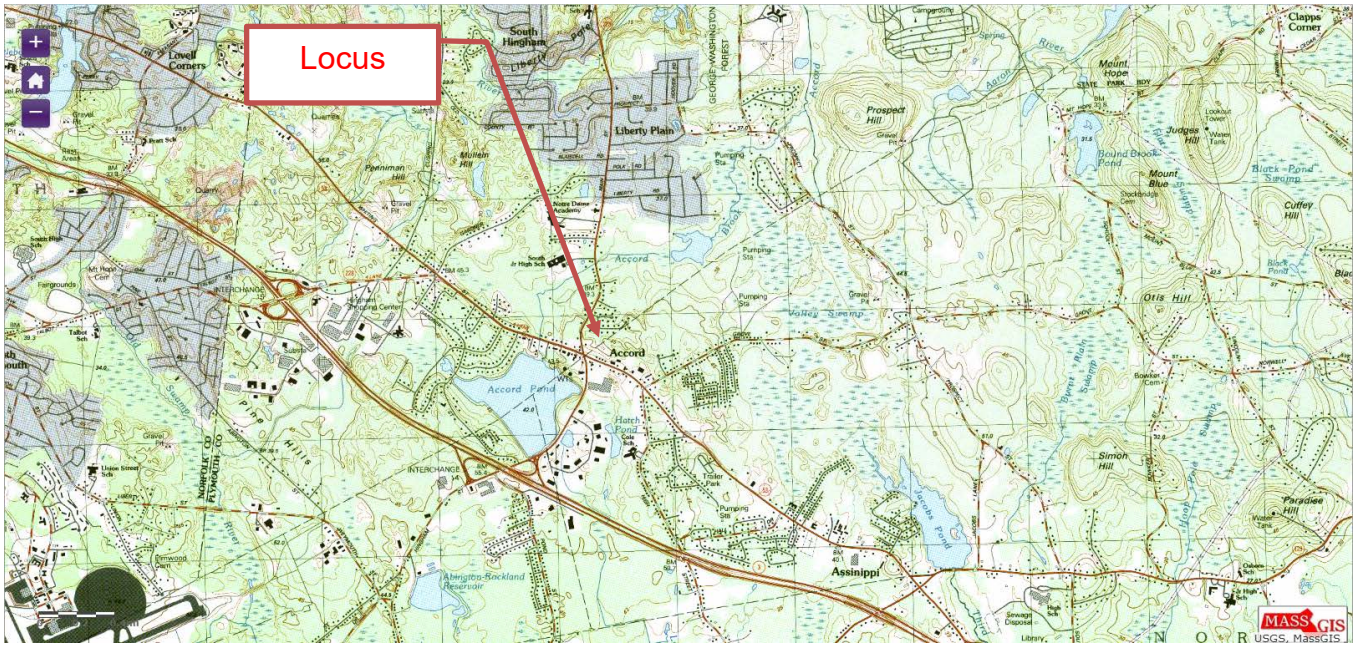
Anton Cela

Property Owner (Print)

# ***SECTION IV***

*FIGURES*

# USGS Locus Map




merrillinc.com / 427 Columbia Road, Hanover, MA 02339 / Tel: (781) 826-9200
26 Union Street, Plymouth, MA 02360/ Tel: (508) 746-6060

# National Flood Hazard Layer FIRMette

FEMA

70°53'26"W 42°10'48"N


70°52'48"W 42°10'22"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

*Basemap Imagery Source: USGS National Map 2023*

## Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

**SPECIAL FLOOD HAZARD AREAS**
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

**OTHER AREAS OF FLOOD HAZARD**
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

**OTHER AREAS**
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

**GENERAL STRUCTURES**
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

**OTHER FEATURES**
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

**MAP PANELS**
- Digital Data Available
- No Digital Data Available
- Unmapped

N

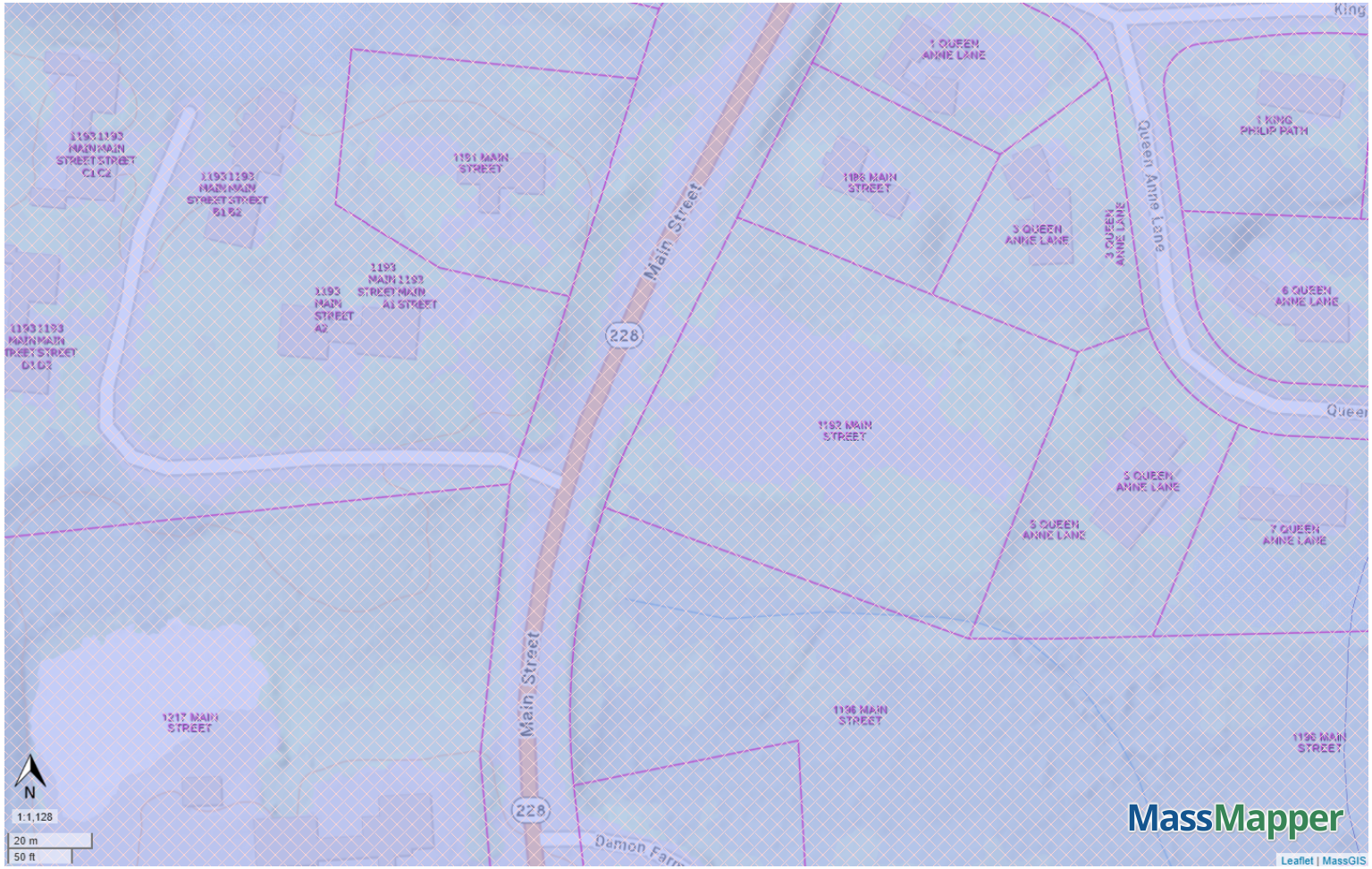
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 1/10/2025 at 7:32 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

# 1192 Main Street




Areas of Critical Environmental Concern ACECs Transparent Green

Areas of Critical Environmental Concern ACECs Boundaries

- ROAD/RAIL BASED
- RIVER BASED
- WETLAND BASED
- FLOODPLAIN BASED
- TIDAL BASED
- CONTOUR BASED
- POLITICAL BOUNDARY
- PROPERTY LINE BASED
- OTHER
- NOT DEFINED

Areas of Critical Environmental Concern ACECs

Potential Vernal Pools

IWPAs

Zone IIs

Outstanding Resource Waters

- ACEC
- Cape Cod National Seashore
- Protected Shoreline
- Public Water Supply Watershed
- Retired Public Water Supply
- Scenic/Protected River
- Wildlife Refuge

Zone A

NHESP Priority Habitats of Rare Species

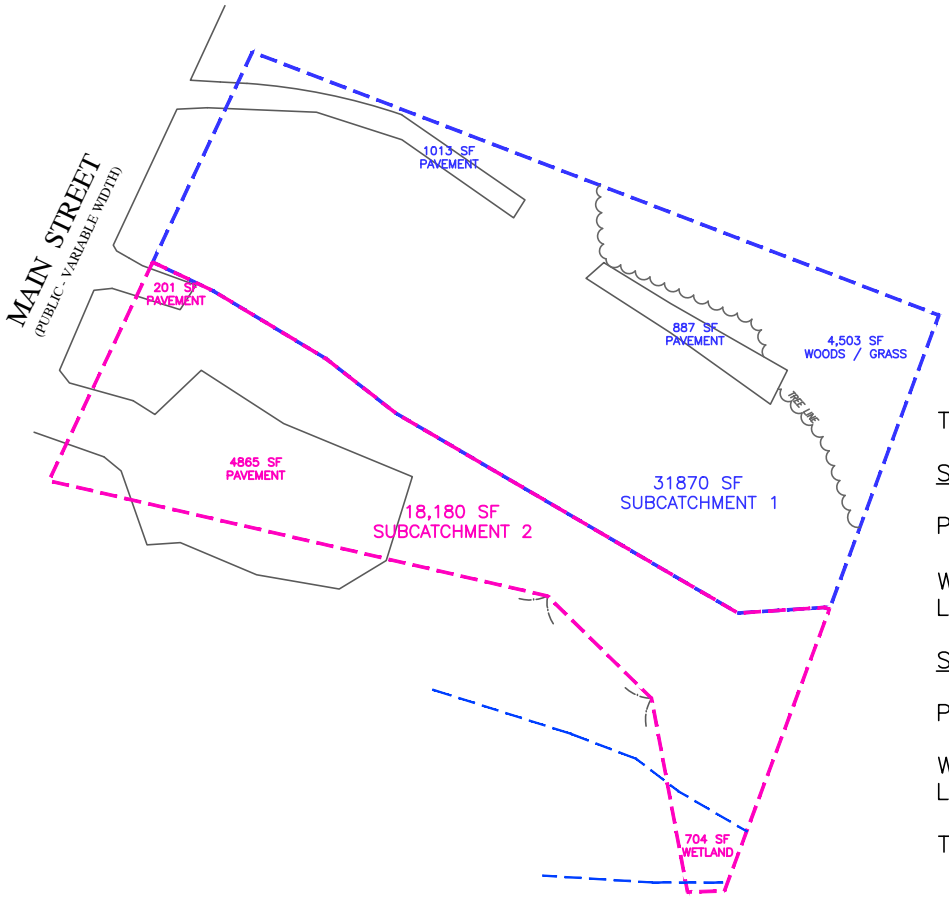
NHESP Natural Communities

NHESP Estimated Habitats of Rare Wildlife

NHESP Certified Vernal Pools

# ***SECTION V***

*DRAINAGE CALCULATIONS &*
*SUPPLEMENTAL DRAINAGE*
*INFORMATION*




TOTAL LOT AREA = 50,050 SF

SUBCATCHMENT AREA 1 = 31,870 SF

PAVEMENT = 887 + 1,013 = 1,900 SF

WOODS / GRASS = 4,503 SF
LAWN = 31,870 – 1,900 – 4,503 = 25,467 SF

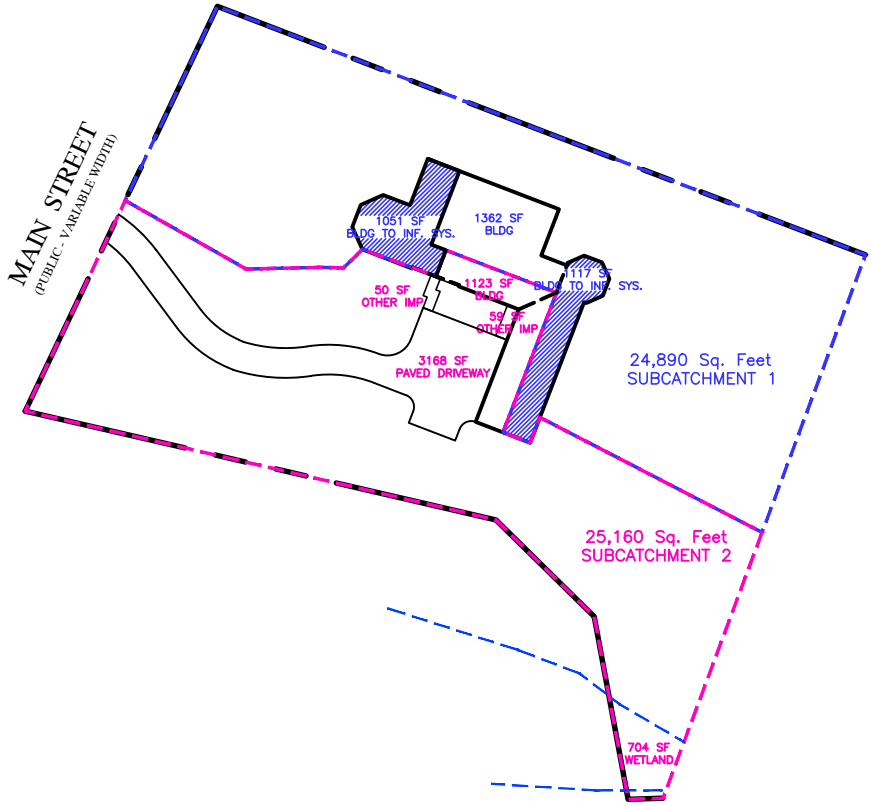
SUBCATCHMENT AREA 2 = 18,180 SF

PAVEMENT = 4,865 + 201 = 5,066 SF

WETLAND = 704 SF
LAWN = 18,280 – 5,066 – 704 = 12,410 SF

TOTAL EXISTING IMPERVIOUS = 1,900 + 5,066 = 6,966 SF

**EXISTING CONDITIONS**




TOTAL LOT AREA = 50,050 SF

SUBCATCHMENT AREA 1 = 25,957 SF

BUILDING = 1,362 SF
BUILDING TO INF. SYSTEM 1 = 1,117 SF
BUILDING TO INF. SYSTEM 2 = 1,055 SF
TOTAL IMPERVIOUS = 1,362 + 1,117 + 1,055 = 3,534 SF
LAWN = 25,957 – 3,534 = 22,423 SF

IMPERVIOUS INCREASE = 3,534 – 1,900 = 1,634 SF

SUBCATCHMENT AREA 2 = 24,093 SF

BUILDING = 1,123 SF
PAVEMENT = 3,168 SF
OTHER IMP = 50 + 59 = 109 SF
TOTAL IMPERVIOUS = 1,123 + 3,168 + 109 = 4,400 SF

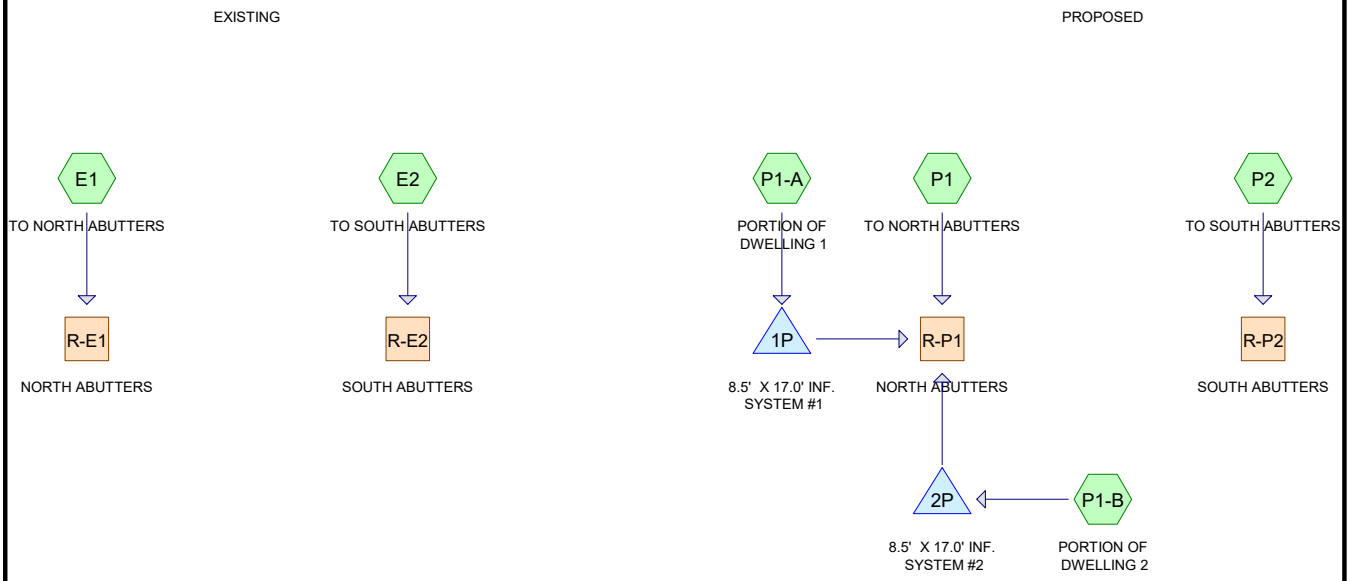
WETLAND = 704 SF
LAWN = 24,093 – 4,400 – 704 = 18,989 SF

IMPERVIOUS DECREASE = 5,066 – 4,400 = 666 SF

TOTAL PROPOSED IMPERVIOUS = 3,534 + 4,400 = 7,934 SF

NET IMPERVIOUS INCREASE = 7,934 – 6,966 = 968 SF

**PROPOSED CONDITIONS**




Subcat Reach Pond Link

**Routing Diagram for 1192 Main Street**
Prepared by Merrill Associates Inc, Printed 7/1/2025

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment E1: TO NORTH ABUTTERS** Runoff Area=31,870 sf 5.96% Impervious Runoff Depth=0.01"
Tc=5.0 min CN=42 Runoff=0.00 cfs 0.001 af

**Subcatchment E2: TO SOUTH ABUTTERS** Runoff Area=18,180 sf 27.87% Impervious Runoff Depth=0.34"
Tc=5.0 min CN=58 Runoff=0.08 cfs 0.012 af

**Subcatchment P1: TO NORTH ABUTTERS** Runoff Area=23,785 sf 5.73% Impervious Runoff Depth=0.01"
Tc=5.0 min CN=42 Runoff=0.00 cfs 0.001 af

**Subcatchment P1-A: PORTION OF** Runoff Area=1,117 sf 100.00% Impervious Runoff Depth=2.97"
Tc=5.0 min CN=98 Runoff=0.08 cfs 0.006 af

**Subcatchment P1-B: PORTION OF** Runoff Area=1,055 sf 100.00% Impervious Runoff Depth=2.97"
Tc=5.0 min CN=98 Runoff=0.08 cfs 0.006 af

**Subcatchment P2: TO SOUTH ABUTTERS** Runoff Area=24,093 sf 18.26% Impervious Runoff Depth=0.15"
Tc=5.0 min CN=51 Runoff=0.02 cfs 0.007 af

**Reach R-E1: NORTH ABUTTERS** Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

**Reach R-E2: SOUTH ABUTTERS** Inflow=0.08 cfs 0.012 af
Outflow=0.08 cfs 0.012 af

**Reach R-P1: NORTH ABUTTERS** Inflow=0.00 cfs 0.001 af
Outflow=0.00 cfs 0.001 af

**Reach R-P2: SOUTH ABUTTERS** Inflow=0.02 cfs 0.007 af
Outflow=0.02 cfs 0.007 af

**Pond 1P: 8.5' X 17.0' INF. SYSTEM #1** Peak Elev=138.10' Storage=92 cf Inflow=0.08 cfs 0.006 af
Discarded=0.01 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.006 af

**Pond 2P: 8.5' X 17.0' INF. SYSTEM #2** Peak Elev=134.03' Storage=85 cf Inflow=0.08 cfs 0.006 af
Discarded=0.01 cfs 0.006 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.006 af

**Total Runoff Area = 2.298 ac Runoff Volume = 0.033 af Average Runoff Depth = 0.17"**
**85.11% Pervious = 1.956 ac 14.89% Impervious = 0.342 ac**

## Summary for Subcatchment E1: TO NORTH ABUTTERS

Runoff = 0.00 cfs @ 21.45 hrs, Volume= 0.001 af, Depth= 0.01"
Routed to Reach R-E1 : NORTH ABUTTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

| Area (sf) | CN | Description |
|---|---|---|
| 1,900 | 98 | Paved parking, HSG A |
| 25,467 | 39 | >75% Grass cover, Good, HSG A |
| 4,503 | 32 | Woods/grass comb., Good, HSG A |
| 31,870 | 42 | Weighted Average |
| 29,970 | | 94.04% Pervious Area |
| 1,900 | | 5.96% Impervious Area |

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

## Summary for Subcatchment E2: TO SOUTH ABUTTERS

Runoff = 0.08 cfs @ 12.13 hrs, Volume= 0.012 af, Depth= 0.34"
Routed to Reach R-E2 : SOUTH ABUTTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

| Area (sf) | CN | Description |
|---|---|---|
| 5,066 | 98 | Paved parking, HSG A |
| 12,410 | 39 | >75% Grass cover, Good, HSG A |
| 704 | 98 | Water Surface, 0% imp, HSG A |
| 18,180 | 58 | Weighted Average |
| 13,114 | | 72.13% Pervious Area |
| 5,066 | | 27.87% Impervious Area |

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

## Summary for Subcatchment P1: TO NORTH ABUTTERS

Runoff = 0.00 cfs @ 21.45 hrs, Volume= 0.001 af, Depth= 0.01"
Routed to Reach R-P1 : NORTH ABUTTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

| Area (sf) | CN | Description |
|---|---|---|
| 1,362 | 98 | Roofs, HSG A |
| 22,423 | 39 | >75% Grass cover, Good, HSG A |
| 23,785 | 42 | Weighted Average |
| 22,423 | | 94.27% Pervious Area |
| 1,362 | | 5.73% Impervious Area |

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

## Summary for Subcatchment P1-A: PORTION OF DWELLING 1

Runoff = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 2.97"
Routed to Pond 1P : 8.5' X 17.0' INF. SYSTEM #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

| Area (sf) | CN | Description |
|---|---|---|
| 1,117 | 98 | Roofs, HSG A |
| 1,117 | | 100.00% Impervious Area |

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

## Summary for Subcatchment P1-B: PORTION OF DWELLING 2

Runoff = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 2.97"
Routed to Pond 2P : 8.5' X 17.0' INF. SYSTEM #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

| Area (sf) | CN | Description |
|---|---|---|
| 1,055 | 98 | Roofs, HSG A |
| 1,055 | | 100.00% Impervious Area |

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

## Summary for Subcatchment P2: TO SOUTH ABUTTERS

Runoff = 0.02 cfs @ 12.42 hrs, Volume= 0.007 af, Depth= 0.15"
Routed to Reach R-P2 : SOUTH ABUTTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 Year Event Rainfall=3.20"

| | Area (sf) | CN | Description |
|---|---|---|---|
| | 1,123 | 98 | Roofs, HSG A |
| | 3,168 | 98 | Paved parking, HSG A |
| * | 109 | 98 | OTHER IMP |
| | 18,989 | 39 | >75% Grass cover, Good, HSG A |
| | 704 | 98 | Water Surface, 0% imp, HSG A |
| | 24,093 | 51 | Weighted Average |
| | 19,693 | | 81.74% Pervious Area |
| | 4,400 | | 18.26% Impervious Area |

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

## Summary for Reach R-E1: NORTH ABUTTERS

Inflow Area = 0.732 ac, 5.96% Impervious, Inflow Depth = 0.01" for 2 Year Event event
Inflow = 0.00 cfs @ 21.45 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 21.45 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Reach R-E2: SOUTH ABUTTERS

Inflow Area = 0.417 ac, 27.87% Impervious, Inflow Depth = 0.34" for 2 Year Event event
Inflow = 0.08 cfs @ 12.13 hrs, Volume= 0.012 af
Outflow = 0.08 cfs @ 12.13 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Reach R-P1: NORTH ABUTTERS

Inflow Area = 0.596 ac, 13.61% Impervious, Inflow Depth = 0.01" for 2 Year Event event
Inflow = 0.00 cfs @ 21.45 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 21.45 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Reach R-P2: SOUTH ABUTTERS

Inflow Area = 0.553 ac, 18.26% Impervious, Inflow Depth = 0.15" for 2 Year Event event
Inflow = 0.02 cfs @ 12.42 hrs, Volume= 0.007 af
Outflow = 0.02 cfs @ 12.42 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Pond 1P: 8.5' X 17.0' INF. SYSTEM #1

Inflow Area = 0.026 ac,100.00% Impervious, Inflow Depth = 2.97" for 2 Year Event event
Inflow = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af
Outflow = 0.01 cfs @ 11.45 hrs, Volume= 0.006 af, Atten= 90%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.45 hrs, Volume= 0.006 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R-P1 : NORTH ABUTTERS

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 138.10' @ 12.80 hrs Surf.Area= 145 sf Storage= 92 cf

Plug-Flow detention time= 76.9 min calculated for 0.006 af (100% of inflow)
Center-of-Mass det. time= 76.9 min ( 832.4 - 755.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 137.00' | 92 cf | **Custom Stage Data (Irregular)** Listed below (Recalc)<br>290 cf Overall - 60 cf Embedded = 230 cf x 40.0% Voids |
| #2 | 137.50' | 56 cf | **Cultec C-100** x 4 Inside #1<br>Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf<br>Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap |
| #3 | 139.00' | 0 cf | **0.50'D x 1.00'H Vertical Cone/Cylinder** x 2 |
| #4 | 137.50' | 4 cf | **4.0" Round Pipe Storage** x 2 Inside #1<br>L= 24.5' |
| | | 152 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 137.00 | 145 | 51.0 | 0 | 0 | 145 |
| 139.00 | 145 | 51.0 | 290 | 290 | 247 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 137.00' | **2.410 in/hr Exfiltration over Surface area** |
| #2 | Primary | 139.95' | **6.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |

**Discarded OutFlow** Max=0.01 cfs @ 11.45 hrs HW=137.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=137.00' (Free Discharge)
↑—**2=Orifice/Grate** ( Controls 0.00 cfs)

## Summary for Pond 2P: 8.5' X 17.0' INF. SYSTEM #2

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 2.97" for 2 Year Event event
Inflow = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af
Outflow = 0.01 cfs @ 11.52 hrs, Volume= 0.006 af, Atten= 90%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.52 hrs, Volume= 0.006 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R-P1 : NORTH ABUTTERS

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 8
Peak Elev= 134.03' @ 12.74 hrs Surf.Area= 145 sf Storage= 85 cf

Plug-Flow detention time= 69.6 min calculated for 0.006 af (100% of inflow)
Center-of-Mass det. time= 69.5 min ( 825.0 - 755.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 133.00' | 92 cf | **Custom Stage Data (Irregular)** Listed below (Recalc)<br>290 cf Overall - 60 cf Embedded = 230 cf x 40.0% Voids |
| #2 | 133.50' | 56 cf | **Cultec C-100** x 4 Inside #1<br>Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf<br>Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap |
| #3 | 135.00' | 0 cf | **0.50'D x 1.00'H Vertical Cone/Cylinder** x 2 |
| #4 | 133.50' | 4 cf | **4.0" Round Pipe Storage** x 2 Inside #1<br>L= 24.5' |
| | | 152 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 133.00 | 145 | 51.0 | 0 | 0 | 145 |
| 135.00 | 145 | 51.0 | 290 | 290 | 247 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 133.00' | **2.410 in/hr Exfiltration over Surface area** |
| #2 | Primary | 135.95' | **6.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |

**Discarded OutFlow** Max=0.01 cfs @ 11.52 hrs HW=133.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=133.00' (Free Discharge)
↑—**2=Orifice/Grate** ( Controls 0.00 cfs)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment E1: TO NORTH ABUTTERS** Runoff Area=31,870 sf 5.96% Impervious Runoff Depth=0.23"
Tc=5.0 min CN=42 Runoff=0.04 cfs 0.014 af

**Subcatchment E2: TO SOUTH ABUTTERS** Runoff Area=18,180 sf 27.87% Impervious Runoff Depth=0.98"
Tc=5.0 min CN=58 Runoff=0.41 cfs 0.034 af

**Subcatchment P1: TO NORTH ABUTTERS** Runoff Area=23,785 sf 5.73% Impervious Runoff Depth=0.23"
Tc=5.0 min CN=42 Runoff=0.03 cfs 0.010 af

**Subcatchment P1-A: PORTION OF** Runoff Area=1,117 sf 100.00% Impervious Runoff Depth=4.41"
Tc=5.0 min CN=98 Runoff=0.12 cfs 0.009 af

**Subcatchment P1-B: PORTION OF** Runoff Area=1,055 sf 100.00% Impervious Runoff Depth=4.41"
Tc=5.0 min CN=98 Runoff=0.11 cfs 0.009 af

**Subcatchment P2: TO SOUTH ABUTTERS** Runoff Area=24,093 sf 18.26% Impervious Runoff Depth=0.60"
Tc=5.0 min CN=51 Runoff=0.24 cfs 0.028 af

**Reach R-E1: NORTH ABUTTERS** Inflow=0.04 cfs 0.014 af
Outflow=0.04 cfs 0.014 af

**Reach R-E2: SOUTH ABUTTERS** Inflow=0.41 cfs 0.034 af
Outflow=0.41 cfs 0.034 af

**Reach R-P1: NORTH ABUTTERS** Inflow=0.03 cfs 0.010 af
Outflow=0.03 cfs 0.010 af

**Reach R-P2: SOUTH ABUTTERS** Inflow=0.24 cfs 0.028 af
Outflow=0.24 cfs 0.028 af

**Pond 1P: 8.5' X 17.0' INF. SYSTEM #1** Peak Elev=139.95' Storage=152 cf Inflow=0.12 cfs 0.009 af
Discarded=0.01 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.009 af

**Pond 2P: 8.5' X 17.0' INF. SYSTEM #2** Peak Elev=134.90' Storage=146 cf Inflow=0.11 cfs 0.009 af
Discarded=0.01 cfs 0.009 af Primary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.009 af

**Total Runoff Area = 2.298 ac Runoff Volume = 0.104 af Average Runoff Depth = 0.55"**
**85.11% Pervious = 1.956 ac 14.89% Impervious = 0.342 ac**

## Summary for Subcatchment E1: TO NORTH ABUTTERS

Runoff = 0.04 cfs @ 12.41 hrs, Volume= 0.014 af, Depth= 0.23"
Routed to Reach R-E1 : NORTH ABUTTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.65"

| Area (sf) | CN | Description |
|---|---|---|
| 1,900 | 98 | Paved parking, HSG A |
| 25,467 | 39 | >75% Grass cover, Good, HSG A |
| 4,503 | 32 | Woods/grass comb., Good, HSG A |
| 31,870 | 42 | Weighted Average |
| 29,970 | | 94.04% Pervious Area |
| 1,900 | | 5.96% Impervious Area |

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

## Summary for Subcatchment E2: TO SOUTH ABUTTERS

Runoff = 0.41 cfs @ 12.09 hrs, Volume= 0.034 af, Depth= 0.98"
Routed to Reach R-E2 : SOUTH ABUTTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.65"

| Area (sf) | CN | Description |
|---|---|---|
| 5,066 | 98 | Paved parking, HSG A |
| 12,410 | 39 | >75% Grass cover, Good, HSG A |
| 704 | 98 | Water Surface, 0% imp, HSG A |
| 18,180 | 58 | Weighted Average |
| 13,114 | | 72.13% Pervious Area |
| 5,066 | | 27.87% Impervious Area |

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

## Summary for Subcatchment P1: TO NORTH ABUTTERS

Runoff = 0.03 cfs @ 12.41 hrs, Volume= 0.010 af, Depth= 0.23"
Routed to Reach R-P1 : NORTH ABUTTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.65"

| Area (sf) | CN | Description |
|---|---|---|
| 1,362 | 98 | Roofs, HSG A |
| 22,423 | 39 | >75% Grass cover, Good, HSG A |
| 23,785 | 42 | Weighted Average |
| 22,423 | | 94.27% Pervious Area |
| 1,362 | | 5.73% Impervious Area |

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

## Summary for Subcatchment P1-A: PORTION OF DWELLING 1

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 4.41"
Routed to Pond 1P : 8.5' X 17.0' INF. SYSTEM #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.65"

| Area (sf) | CN | Description |
|---|---|---|
| 1,117 | 98 | Roofs, HSG A |
| 1,117 | | 100.00% Impervious Area |

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

## Summary for Subcatchment P1-B: PORTION OF DWELLING 2

Runoff = 0.11 cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 4.41"
Routed to Pond 2P : 8.5' X 17.0' INF. SYSTEM #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.65"

| Area (sf) | CN | Description |
|---|---|---|
| 1,055 | 98 | Roofs, HSG A |
| 1,055 | | 100.00% Impervious Area |

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

## Summary for Subcatchment P2: TO SOUTH ABUTTERS

Runoff = 0.24 cfs @ 12.11 hrs, Volume= 0.028 af, Depth= 0.60"
Routed to Reach R-P2 : SOUTH ABUTTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 Year Event Rainfall=4.65"

| | Area (sf) | CN | Description |
|---|---|---|---|
| | 1,123 | 98 | Roofs, HSG A |
| | 3,168 | 98 | Paved parking, HSG A |
| * | 109 | 98 | OTHER IMP |
| | 18,989 | 39 | >75% Grass cover, Good, HSG A |
| | 704 | 98 | Water Surface, 0% imp, HSG A |
| | 24,093 | 51 | Weighted Average |
| | 19,693 | | 81.74% Pervious Area |
| | 4,400 | | 18.26% Impervious Area |

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

## Summary for Reach R-E1: NORTH ABUTTERS

Inflow Area = 0.732 ac, 5.96% Impervious, Inflow Depth = 0.23" for 10 Year Event event
Inflow = 0.04 cfs @ 12.41 hrs, Volume= 0.014 af
Outflow = 0.04 cfs @ 12.41 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Reach R-E2: SOUTH ABUTTERS

Inflow Area = 0.417 ac, 27.87% Impervious, Inflow Depth = 0.98" for 10 Year Event event
Inflow = 0.41 cfs @ 12.09 hrs, Volume= 0.034 af
Outflow = 0.41 cfs @ 12.09 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Reach R-P1: NORTH ABUTTERS

Inflow Area = 0.596 ac, 13.61% Impervious, Inflow Depth = 0.21" for 10 Year Event event
Inflow = 0.03 cfs @ 12.41 hrs, Volume= 0.010 af
Outflow = 0.03 cfs @ 12.41 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Reach R-P2: SOUTH ABUTTERS

Inflow Area = 0.553 ac, 18.26% Impervious, Inflow Depth = 0.60" for 10 Year Event event
Inflow = 0.24 cfs @ 12.11 hrs, Volume= 0.028 af
Outflow = 0.24 cfs @ 12.11 hrs, Volume= 0.028 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Pond 1P: 8.5' X 17.0' INF. SYSTEM #1

Inflow Area = 0.026 ac,100.00% Impervious, Inflow Depth = 4.41" for 10 Year Event event
Inflow = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af
Outflow = 0.01 cfs @ 12.67 hrs, Volume= 0.009 af, Atten= 90%, Lag= 36.2 min
Discarded = 0.01 cfs @ 12.59 hrs, Volume= 0.009 af
Primary = 0.00 cfs @ 12.67 hrs, Volume= 0.000 af
Routed to Reach R-P1 : NORTH ABUTTERS

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 139.95' @ 12.67 hrs Surf.Area= 145 sf Storage= 152 cf

Plug-Flow detention time= 140.6 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 139.2 min ( 887.5 - 748.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 137.00' | 92 cf | **Custom Stage Data (Irregular)** Listed below (Recalc)<br>290 cf Overall - 60 cf Embedded = 230 cf x 40.0% Voids |
| #2 | 137.50' | 56 cf | **Cultec C-100** x 4 Inside #1<br>Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf<br>Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap |
| #3 | 139.00' | 0 cf | **0.50'D x 1.00'H Vertical Cone/Cylinder** x 2 |
| #4 | 137.50' | 4 cf | **4.0" Round Pipe Storage** x 2 Inside #1<br>L= 24.5' |
| | | 152 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 137.00 | 145 | 51.0 | 0 | 0 | 145 |
| 139.00 | 145 | 51.0 | 290 | 290 | 247 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 137.00' | **2.410 in/hr Exfiltration over Surface area** |
| #2 | Primary | 139.95' | **6.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |

**Discarded OutFlow** Max=0.01 cfs @ 12.59 hrs HW=139.25' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=0.00 cfs @ 12.67 hrs HW=139.95' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.00 cfs @ 0.17 fps)

## Summary for Pond 2P: 8.5' X 17.0' INF. SYSTEM #2

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 4.41" for 10 Year Event event
Inflow = 0.11 cfs @ 12.07 hrs, Volume= 0.009 af
Outflow = 0.01 cfs @ 11.11 hrs, Volume= 0.009 af, Atten= 93%, Lag= 0.0 min
Discarded = 0.01 cfs @ 11.11 hrs, Volume= 0.009 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R-P1 : NORTH ABUTTERS

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 8
Peak Elev= 134.90' @ 13.15 hrs Surf.Area= 145 sf Storage= 146 cf

Plug-Flow detention time= 133.1 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 133.1 min ( 881.4 - 748.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 133.00' | 92 cf | **Custom Stage Data (Irregular)** Listed below (Recalc)<br>290 cf Overall - 60 cf Embedded = 230 cf x 40.0% Voids |
| #2 | 133.50' | 56 cf | **Cultec C-100** x 4 Inside #1<br>Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf<br>Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap |
| #3 | 135.00' | 0 cf | **0.50'D x 1.00'H Vertical Cone/Cylinder** x 2 |
| #4 | 133.50' | 4 cf | **4.0" Round Pipe Storage** x 2 Inside #1<br>L= 24.5' |
| | | 152 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 133.00 | 145 | 51.0 | 0 | 0 | 145 |
| 135.00 | 145 | 51.0 | 290 | 290 | 247 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 133.00' | **2.410 in/hr Exfiltration over Surface area** |
| #2 | Primary | 135.95' | **6.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |

**Discarded OutFlow** Max=0.01 cfs @ 11.11 hrs HW=133.03' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=133.00' (Free Discharge)
↑—**2=Orifice/Grate** ( Controls 0.00 cfs)

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

**Subcatchment E1: TO NORTH ABUTTERS** Runoff Area=31,870 sf 5.96% Impervious Runoff Depth=0.91"
Tc=5.0 min CN=42 Runoff=0.50 cfs 0.056 af

**Subcatchment E2: TO SOUTH ABUTTERS** Runoff Area=18,180 sf 27.87% Impervious Runoff Depth=2.27"
Tc=5.0 min CN=58 Runoff=1.10 cfs 0.079 af

**Subcatchment P1: TO NORTH ABUTTERS** Runoff Area=23,785 sf 5.73% Impervious Runoff Depth=0.91"
Tc=5.0 min CN=42 Runoff=0.37 cfs 0.042 af

**Subcatchment P1-A: PORTION OF** Runoff Area=1,117 sf 100.00% Impervious Runoff Depth=6.56"
Tc=5.0 min CN=98 Runoff=0.18 cfs 0.014 af

**Subcatchment P1-B: PORTION OF** Runoff Area=1,055 sf 100.00% Impervious Runoff Depth=6.56"
Tc=5.0 min CN=98 Runoff=0.17 cfs 0.013 af

**Subcatchment P2: TO SOUTH ABUTTERS** Runoff Area=24,093 sf 18.26% Impervious Runoff Depth=1.64"
Tc=5.0 min CN=51 Runoff=0.97 cfs 0.076 af

**Reach R-E1: NORTH ABUTTERS** Inflow=0.50 cfs 0.056 af
Outflow=0.50 cfs 0.056 af

**Reach R-E2: SOUTH ABUTTERS** Inflow=1.10 cfs 0.079 af
Outflow=1.10 cfs 0.079 af

**Reach R-P1: NORTH ABUTTERS** Inflow=0.47 cfs 0.045 af
Outflow=0.47 cfs 0.045 af

**Reach R-P2: SOUTH ABUTTERS** Inflow=0.97 cfs 0.076 af
Outflow=0.97 cfs 0.076 af

**Pond 1P: 8.5' X 17.0' INF. SYSTEM #1** Peak Elev=139.99' Storage=152 cf Inflow=0.18 cfs 0.014 af
Discarded=0.01 cfs 0.011 af Primary=0.08 cfs 0.002 af Outflow=0.09 cfs 0.013 af

**Pond 2P: 8.5' X 17.0' INF. SYSTEM #2** Peak Elev=135.99' Storage=152 cf Inflow=0.17 cfs 0.013 af
Discarded=0.01 cfs 0.011 af Primary=0.09 cfs 0.002 af Outflow=0.09 cfs 0.013 af

**Total Runoff Area = 2.298 ac Runoff Volume = 0.279 af Average Runoff Depth = 1.46"**
**85.11% Pervious = 1.956 ac 14.89% Impervious = 0.342 ac**

## Summary for Subcatchment E1: TO NORTH ABUTTERS

Runoff = 0.50 cfs @ 12.11 hrs, Volume= 0.056 af, Depth= 0.91"
Routed to Reach R-E1 : NORTH ABUTTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=6.80"

| Area (sf) | CN | Description |
|---|---|---|
| 1,900 | 98 | Paved parking, HSG A |
| 25,467 | 39 | >75% Grass cover, Good, HSG A |
| 4,503 | 32 | Woods/grass comb., Good, HSG A |
| 31,870 | 42 | Weighted Average |
| 29,970 | | 94.04% Pervious Area |
| 1,900 | | 5.96% Impervious Area |

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

## Summary for Subcatchment E2: TO SOUTH ABUTTERS

Runoff = 1.10 cfs @ 12.08 hrs, Volume= 0.079 af, Depth= 2.27"
Routed to Reach R-E2 : SOUTH ABUTTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=6.80"

| Area (sf) | CN | Description |
|---|---|---|
| 5,066 | 98 | Paved parking, HSG A |
| 12,410 | 39 | >75% Grass cover, Good, HSG A |
| 704 | 98 | Water Surface, 0% imp, HSG A |
| 18,180 | 58 | Weighted Average |
| 13,114 | | 72.13% Pervious Area |
| 5,066 | | 27.87% Impervious Area |

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

## Summary for Subcatchment P1: TO NORTH ABUTTERS

Runoff = 0.37 cfs @ 12.11 hrs, Volume= 0.042 af, Depth= 0.91"
Routed to Reach R-P1 : NORTH ABUTTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=6.80"

| Area (sf) | CN | Description |
|---|---|---|
| 1,362 | 98 | Roofs, HSG A |
| 22,423 | 39 | >75% Grass cover, Good, HSG A |
| 23,785 | 42 | Weighted Average |
| 22,423 | | 94.27% Pervious Area |
| 1,362 | | 5.73% Impervious Area |

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

## Summary for Subcatchment P1-A: PORTION OF DWELLING 1

Runoff = 0.18 cfs @ 12.07 hrs, Volume= 0.014 af, Depth= 6.56"
Routed to Pond 1P : 8.5' X 17.0' INF. SYSTEM #1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=6.80"

| Area (sf) | CN | Description |
|---|---|---|
| 1,117 | 98 | Roofs, HSG A |
| 1,117 | | 100.00% Impervious Area |

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

## Summary for Subcatchment P1-B: PORTION OF DWELLING 2

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af, Depth= 6.56"
Routed to Pond 2P : 8.5' X 17.0' INF. SYSTEM #2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=6.80"

| Area (sf) | CN | Description |
|---|---|---|
| 1,055 | 98 | Roofs, HSG A |
| 1,055 | | 100.00% Impervious Area |

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

## Summary for Subcatchment P2: TO SOUTH ABUTTERS

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 0.076 af, Depth= 1.64"
Routed to Reach R-P2 : SOUTH ABUTTERS

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 Year Event Rainfall=6.80"

| | Area (sf) | CN | Description |
|---|---|---|---|
| | 1,123 | 98 | Roofs, HSG A |
| | 3,168 | 98 | Paved parking, HSG A |
| * | 109 | 98 | OTHER IMP |
| | 18,989 | 39 | >75% Grass cover, Good, HSG A |
| | 704 | 98 | Water Surface, 0% imp, HSG A |
| | 24,093 | 51 | Weighted Average |
| | 19,693 | | 81.74% Pervious Area |
| | 4,400 | | 18.26% Impervious Area |

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

## Summary for Reach R-E1: NORTH ABUTTERS

Inflow Area = 0.732 ac, 5.96% Impervious, Inflow Depth = 0.91" for 100 Year Event event
Inflow = 0.50 cfs @ 12.11 hrs, Volume= 0.056 af
Outflow = 0.50 cfs @ 12.11 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Reach R-E2: SOUTH ABUTTERS

Inflow Area = 0.417 ac, 27.87% Impervious, Inflow Depth = 2.27" for 100 Year Event event
Inflow = 1.10 cfs @ 12.08 hrs, Volume= 0.079 af
Outflow = 1.10 cfs @ 12.08 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Reach R-P1: NORTH ABUTTERS

Inflow Area = 0.596 ac, 13.61% Impervious, Inflow Depth = 0.91" for 100 Year Event event
Inflow = 0.47 cfs @ 12.13 hrs, Volume= 0.045 af
Outflow = 0.47 cfs @ 12.13 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Reach R-P2: SOUTH ABUTTERS

Inflow Area = 0.553 ac, 18.26% Impervious, Inflow Depth = 1.64" for 100 Year Event event
Inflow = 0.97 cfs @ 12.09 hrs, Volume= 0.076 af
Outflow = 0.97 cfs @ 12.09 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

## Summary for Pond 1P: 8.5' X 17.0' INF. SYSTEM #1

Inflow Area = 0.026 ac,100.00% Impervious, Inflow Depth = 6.56" for 100 Year Event event
Inflow = 0.18 cfs @ 12.07 hrs, Volume= 0.014 af
Outflow = 0.09 cfs @ 12.10 hrs, Volume= 0.013 af, Atten= 49%, Lag= 2.1 min
Discarded = 0.01 cfs @ 12.10 hrs, Volume= 0.011 af
Primary = 0.08 cfs @ 12.10 hrs, Volume= 0.002 af
Routed to Reach R-P1 : NORTH ABUTTERS

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 139.99' @ 12.10 hrs Surf.Area= 145 sf Storage= 152 cf

Plug-Flow detention time= 176.8 min calculated for 0.013 af (91% of inflow)
Center-of-Mass det. time= 130.3 min ( 872.7 - 742.4 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 137.00' | 92 cf | **Custom Stage Data (Irregular)** Listed below (Recalc)<br>290 cf Overall - 60 cf Embedded = 230 cf x 40.0% Voids |
| #2 | 137.50' | 56 cf | **Cultec C-100** x 4 Inside #1<br>Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf<br>Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap |
| #3 | 139.00' | 0 cf | **0.50'D x 1.00'H Vertical Cone/Cylinder** x 2 |
| #4 | 137.50' | 4 cf | **4.0" Round Pipe Storage** x 2 Inside #1<br>L= 24.5' |
| | | 152 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 137.00 | 145 | 51.0 | 0 | 0 | 145 |
| 139.00 | 145 | 51.0 | 290 | 290 | 247 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 137.00' | **2.410 in/hr Exfiltration over Surface area** |
| #2 | Primary | 139.95' | **6.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |

**Discarded OutFlow** Max=0.01 cfs @ 12.10 hrs HW=139.99' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=0.07 cfs @ 12.10 hrs HW=139.99' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.07 cfs @ 0.61 fps)

## Summary for Pond 2P: 8.5' X 17.0' INF. SYSTEM #2

Inflow Area = 0.024 ac,100.00% Impervious, Inflow Depth = 6.56" for 100 Year Event event
Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.013 af
Outflow = 0.09 cfs @ 12.16 hrs, Volume= 0.013 af, Atten= 43%, Lag= 5.5 min
Discarded = 0.01 cfs @ 12.13 hrs, Volume= 0.011 af
Primary = 0.09 cfs @ 12.16 hrs, Volume= 0.002 af
Routed to Reach R-P1 : NORTH ABUTTERS

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs / 8
Peak Elev= 135.99' @ 12.16 hrs Surf.Area= 145 sf Storage= 152 cf

Plug-Flow detention time= 129.2 min calculated for 0.013 af (99% of inflow)
Center-of-Mass det. time= 122.0 min ( 864.5 - 742.4 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 133.00' | 92 cf | **Custom Stage Data (Irregular)** Listed below (Recalc)<br>290 cf Overall - 60 cf Embedded = 230 cf x 40.0% Voids |
| #2 | 133.50' | 56 cf | **Cultec C-100** x 4 Inside #1<br>Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf<br>Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap |
| #3 | 135.00' | 0 cf | **0.50'D x 1.00'H Vertical Cone/Cylinder** x 2 |
| #4 | 133.50' | 4 cf | **4.0" Round Pipe Storage** x 2 Inside #1<br>L= 24.5' |
| | | 152 cf | Total Available Storage |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 133.00 | 145 | 51.0 | 0 | 0 | 145 |
| 135.00 | 145 | 51.0 | 290 | 290 | 247 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Discarded | 133.00' | **2.410 in/hr Exfiltration over Surface area** |
| #2 | Primary | 135.95' | **6.0" Horiz. Orifice/Grate X 2.00** C= 0.600<br>Limited to weir flow at low heads |

**Discarded OutFlow** Max=0.01 cfs @ 12.13 hrs HW=135.98' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.01 cfs)

**Primary OutFlow** Max=0.08 cfs @ 12.16 hrs HW=135.99' (Free Discharge)
↑—**2=Orifice/Grate** (Weir Controls 0.08 cfs @ 0.65 fps)

# SUPPLEMENTAL INFORMATION


70° 53' 8" W
70° 53' 0" W
42° 10' 38" N
42° 10' 34" N
344280
344290
344300
344310
344320
344330
344340
344350
344360
344370
344380
344390
344400
344410
344420
344430
344440
344270
4671170
4671160
4671150
4671140
4671130
4671120
4671110
4671100
4671090
4671080
4671070
4671060
228
Main St
253B
289B
253B
426B
Soil Map may not be valid at this scale.
Map Scale: 1:806 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 10 20 40 60
Feet
0 35 70 140 210
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

## MAP LEGEND

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

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

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

**Water Features**
- Streams and Canals

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

**Background**
- Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

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: Plymouth County, Massachusetts
Survey Area Data: Version 17, Aug 27, 2024

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

Date(s) aerial images were photographed: May 22, 2022—Jun 5, 2022

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

# Map Unit Legend

| Map Unit Symbol | Map Unit Name | Acres in AOI | Percent of AOI |
|---|---|---|---|
| 253B | Hinckley loamy sand, 3 to 8 percent slopes | 0.0 | 3.0% |
| 289B | Hinckley gravelly sandy loam, 3 to 8 percent slopes, bouldery | 1.2 | 94.8% |
| 426B | Newfields fine sandy loam, 3 to 8 percent slopes | 0.0 | 2.2% |
| **Totals for Area of Interest** | | **1.2** | **100.0%** |

# Plymouth County, Massachusetts

## 289B—Hinckley gravelly sandy loam, 3 to 8 percent slopes, bouldery

### Map Unit Setting

*National map unit symbol:* bd1g
*Elevation:* 0 to 400 feet
*Mean annual precipitation:* 41 to 54 inches
*Mean annual air temperature:* 43 to 54 degrees F
*Frost-free period:* 145 to 240 days
*Farmland classification:* Not prime farmland

### Map Unit Composition

*Hinckley, bouldery, and similar soils:* 80 percent
*Minor components:* 20 percent
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Hinckley, Bouldery

#### Setting

*Landform:* Outwash deltas, terraces, kames, eskers
*Landform position (two-dimensional):* Summit, shoulder
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Parent material:* Sandy and gravelly glaciofluvial deposits

#### Typical profile

*Oe - 0 to 2 inches:* moderately decomposed plant material
*A - 2 to 3 inches:* gravelly sandy loam
*Bw - 3 to 19 inches:* very gravelly loamy coarse sand
*C1 - 19 to 33 inches:* very gravelly coarse sand
*C2 - 33 to 60 inches:* very gravelly coarse sand

#### Properties and qualities

*Slope:* 3 to 8 percent
*Surface area covered with cobbles, stones or boulders:* 0.1 percent
*Depth to restrictive feature:* More than 80 inches
*Drainage class:* Excessively drained
*Runoff class:* Low
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to very high (1.42 to 28.34 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:* Very low (about 1.9 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified
*Land capability classification (nonirrigated):* 3s

*Hydrologic Soil Group:* A
*Ecological site:* F144AY022MA - Dry Outwash
*Hydric soil rating:* No

**Minor Components**

**Merrimac**
*Percent of map unit:* 10 percent
*Landform:* Kames, terraces, outwash plains
*Landform position (two-dimensional):* Summit, shoulder
*Landform position (three-dimensional):* Tread
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Gloucester, bouldery**
*Percent of map unit:* 7 percent
*Landform:* Ground moraines, hills
*Landform position (two-dimensional):* Summit, shoulder
*Landform position (three-dimensional):* Interfluve
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Hydric soil rating:* No

**Barnstable, bouldery**
*Percent of map unit:* 3 percent
*Landform:* Moraines
*Landform position (two-dimensional):* Summit, shoulder
*Landform position (three-dimensional):* Interfluve
*Down-slope shape:* Convex
*Across-slope shape:* Convex
*Hydric soil rating:* No

# Data Source Information

Soil Survey Area: Plymouth County, Massachusetts
Survey Area Data: Version 17, Aug 27, 2024

# ***SECTION VI***

*LOCUS DEED*
*EASEMENT STATEMENT*

PL 24-422

2024 00071378
Bk: 59432 Pg: 159 Page: 1 of 2
Recorded: 11/07/2024 04:00 PM
ATTEST: John R. Buckley, Jr. Register
Plymouth County Registry of Deeds

CANCELLED

MASSACHUSETTS EXCISE TAX
Plymouth District ROD #11 1
Date: 11/07/2024 04:00 PM
Ctrl# 176529 21696
Fee: $4,560.00 Cons: $1,000,000.00

Locus: 1192 Main Street, Hingham

## QUITCLAIM DEED

Grantor, Lori B. Leo, Trustee of the 1192 –1194 - 1196 Main Street Realty Trust, under written declaration of trust dated February 24, 2022, as amended by the First Amendment to the 1192 –1194 - 1196 Main Street Realty Trust u/d/t February 24, 2023

for consideration paid of One Million ($1,000,000.00) Dollars and 00/100

grant to Anton Cela, Individually, of ~~1192 Main Street Hingham MA~~ 131 West Broadway Unit 2 South Boston, MA 02127 02043

with **Quitclaim Covenants**

The land known and number as 1192 Main Street, Hingham, Plymouth County, Massachusetts, being shown as Lot A on a plan titled "Plan of Land 1192-1196 Main Street, Hingham, Massachusetts Street, Norwell, Massachusetts" dated September 12, 2024, and prepared by Merrill Engineers and Surveyors, and which said plan is being recorded herewith.

The above-named Grantors hereby releases any and all rights of homestead in the above-referenced property and furthermore declares under the penalties of perjury that no person is entitled to homestead rights in the property being conveyed by this deed.

For Grantors' title see two deeds recorded with the Plymouth Registry of Deeds at Book 57206, Page 152 and Book 57206, Fage 156 of which said Lot A is portion of the land in said deeds. See also trustee certificate recorded immediately prior hereto.

-Signature page follows-

**EXECUTED** under seal as of this 25 day of October 2024.

Trustee

Lori B. Leo, Trustee of the 1192 –1194 - 1196 Main Street Realty Trust, under written declaration of trust dated February 24, 2022, as amended by the First Amendment to the 1192 –1194 - 1196 Main Street Realty Trust u/d/t February 24, 2023

**THE COMMONWEALTH OF MASSACHUSETTS**

Plymouth, ss

On October 25 2024, then personally appeared the above named, Lori B. Leo, Trustee of the 1192 –1194 - 1196 Main Street Realty Trust, under written declaration of trust dated February 24, 2022, as amended by the First Amendment to the 1192 –1194 - 1196 Main Street Realty Trust u/d/t February 24, 2023, proved to me through satisfactory evidence of identification, which was Personally Known to Me, whose name is signed above, and she acknowledged to me that she signed it voluntarily for its stated purpose.

Notary Public
My Commission Expires:

JOHN F. WHITE
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires On
July 24, 2026

## Easement Statement

There are no proposed or known existing **stormwater** easements on the locus site.

# ***SECTION VII***

*PROJECT PLANS*
*SEE ATTATCHED*