JONES & BEACH ENGINEERS INC.
85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885
603.772.4746 - JonesandBeach.com

# DRAINAGE ANALYSIS

# SEDIMENT AND EROSION CONTROL PLAN

**Prepared for:**

**"Benchmark"**
**Assisted Living Expansion**
**Tax Map 10, Lot 3**
**295 LaFayette Road, US Route 1**
**Rye, NH 03870**


**July 16, 2021**
**JBE Project No. 18062.2**

# 1. EXECUTIVE SUMMARY

Rye Benchmark, LLC propose to construct a 78-bed, addition to the existing Assisted Living Complex on a 10.18-acre parcel of land located on the northwest side of Lafayette Road (Route 1) in Rye, NH. A drainage analysis of the entire site and its offsite contributing watershed areas was conducted for the purpose of estimating the peak rate of stormwater runoff and to subsequently design adequate drainage structures. Two models were compiled, one for the area in its existing (pre-construction) condition, and a second for its proposed (post-construction) condition. A summary of the existing and proposed conditions peak rates of runoff is as follows:

| COMPONENT | PEAK DISCHARGE COMPARISON | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 2 Year | | 10 Year | | 25 Year | | 50 Year | |
| | Pre | Post | Pre | Post | Pre | Post | Pre | Post |
| Analysis Point #1 | 0.22 | 0.17 | 5.06 | 1.50 | 14.89 | 3.26 | 25.00 | 4.85 |
| Analysis Point #2 | 0.00 | 0.00 | 0.01 | 0.01 | 0.06 | 0.10 | 0.26 | 0.24 |

The drainage design intent for this site is to maintain the post-development peak flow to the pre-development peak flow conditions to the extent practicable and to effectively treat stormwater from the development of this site. This has been accomplished through the use of, and roof drip edges to maintain the peak discharge and effectively treat stormwater exiting the site.

There are slight increases at Analysis Point #2 for the 25-year storm events. This is due to the fact that there will be more grass area as opposed to the wooded area that exists currently. There is no flow being discharged from the impervious areas. These are very small flows and also very small increases and therefore will have minimal, if any, effect on the offsite runoff.

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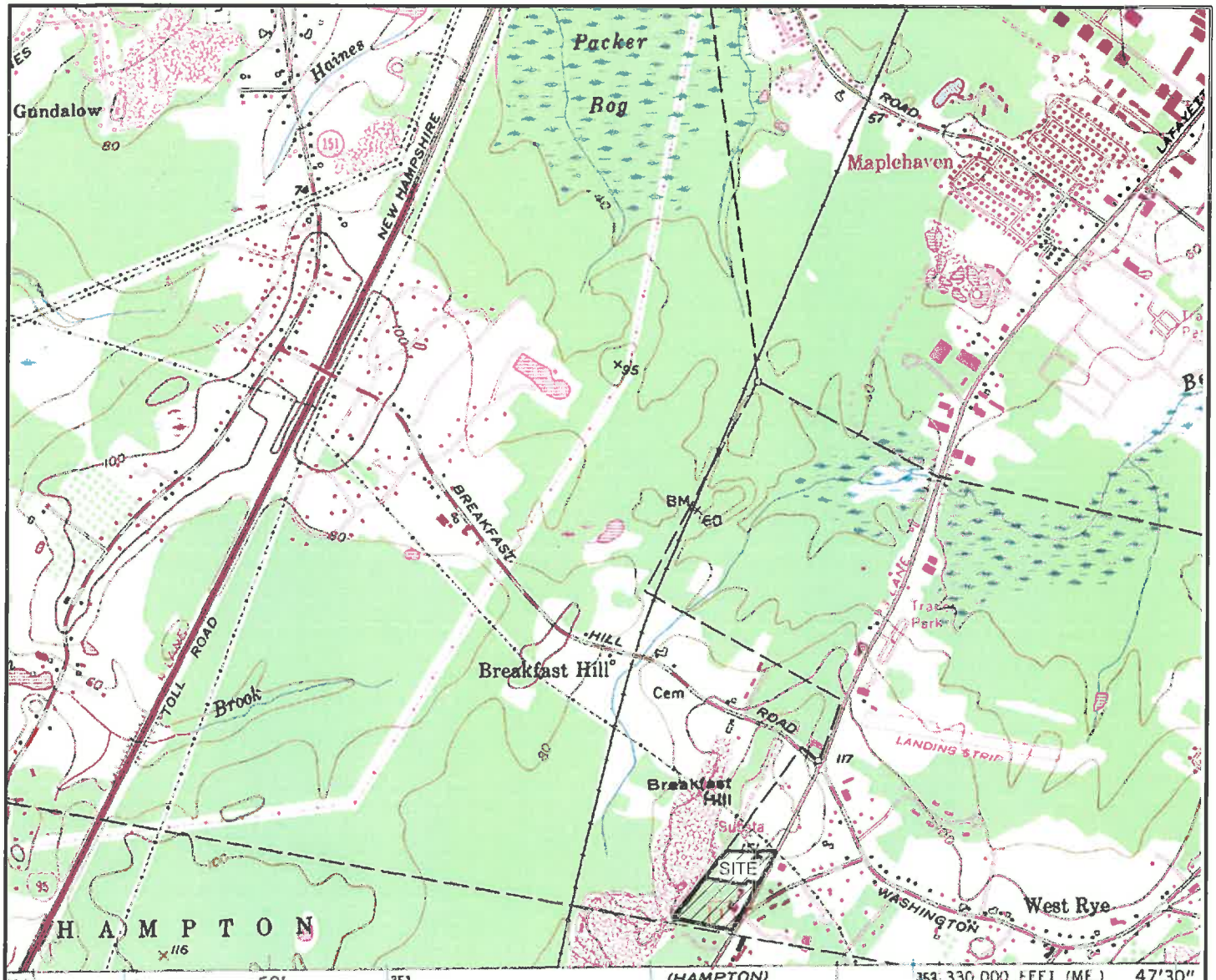


**SITE COORDINATES: 43° 00' 07" N, 70° 48' 42" W**

GRAPHIC SCALE

2000 0 1000 2000 4000 8000

( IN FEET )

1 inch = 2000ft.


Designed and Produced in NH
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| | |
|---|---|
| Drawing Name: | USGS |
| Project: | BENCHMARK ASSISTED LIVING |
| Owner of Record: | BSL RYE INVESTORS, LLC 201 JONES ROAD 3RD FL., WEST WALTHAM, MA |

DRAWING No.
C1
SHEET 1 OF 1
JBE PROJECT No. 18062.2

# Soil Map—Rockingham County, New Hampshire


Map Scale: 1:2,170 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

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 1:24,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
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: Rockingham County, New Hampshire
Survey Area Data: Version 22, May 29, 2020

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

Date(s) aerial images were photographed: Dec 31, 2009—Jun 14, 2017

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 |
|---|---|---|---|
| 140C | Chatfield-Hollis-Canton complex, 8 to 15 percent slopes, rocky | 0.3 | 2.2% |
| 298 | Pits, sand and gravel | 0.1 | 0.6% |
| 510A | Hoosic gravelly fine sandy loam, 0 to 3 percent slopes | 13.0 | 97.2% |
| **Totals for Area of Interest** | | **13.3** | **100.0%** |

# 4. DRAINAGE ANALYSIS

## 4.1 METHODOLOGY

This drainage report includes an existing conditions analysis of the area involved in the proposed development, as well as a proposed condition, or post-construction analysis, of the same location. These analyses were accomplished using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. The curve numbers were developed using the SCS TR-55 Runoff Curve numbers for Urban Areas. A Type III SCS 24-hour rainfall distribution was utilized in analyzing the data for the 2 Year – 24 Hour (3.74"), 10 Year – 24 Hour (5.68"), 25 Year – 24 Hour (7.22"), and 50 Year – 24 Hour (8.65") storm events.

## 4.2 EXISTING CONDITIONS ANALYSIS

The study area consists of the subject property and upstream contributing area. The study area contains 9.733 acres including offsite contributing areas. The existing site is currently developed with the Benchmark assisted living facility. The existing site contains a high point located in the central portion of the subject parcel. The site drains from this high point to the southeast and southwest portions of the property resulting in the Analysis Points as defined below.

Classified through the use of a Site Specific Soil Survey (SSSS), the land of the site is composed of two (2) soil types, Merrimac and Urban Land-Hoosic Complex. The in-situ soils are categorized into Hydrologic Soil Groups (HSG) A (see appendix for soil types and HSG designations). The infiltration rate, or saturated hydraulic conductivity (Ksat) value was determined using the 'Ksat Values for New Hampshire Soils', SSSNNE Special Publication No. 5, September, 2009. The Merrimac Ksat (6.0 - 20 inches/hour in the 'C' horizon) was chosen for the overall infiltration rate, this being the soil underlaying the proposed bioretention areas and roof drip edges. The 'C' horizon rate was chosen as the bottom of the ponds will exfiltrate below the 'B' horizon, which is at 18" to 24" below ground. A factor of safety of 2 was applied and a Ksat value of 3.0 inches/hour was used in the analysis.

Two (2) Analysis Points (AP's) were defined for this project.

Analysis Point #1 is defined as the southern corner of the property. Stormwater to this Analysis Point is collected from the front 75% of the site, adjacent to Lafayette Road. The flow to this point discharges to the adjacent lot to the south.

Analysis Point #2 is defined as the western corner of the property. Stormwater to this Analysis Point is collected from the rear 25% of the site. The flow to this point discharges to the abutting property to the west to an existing wetland.

## 4.3 PROPOSED CONDITIONS ANALYSIS

The proposed site includes the construction of a 78-bedroom addition to the existing Evolve Senior Living Complex with associated parking, utilities, and drainage. The pavement and building on the Eastern Portion of the site will remain. A building addition along with added staff parking will be constructed on the Western portion of the site. The addition will also be provided with a dedicated septic system to use by the addition only. Multiple walking trails and landscaped courtyard areas will also be constructed as part of this project.

Existing stormwater treatment will still be accomplished through the existing rain garden near the front entrance. In addition, a new bioretention areas will be constructed on the southwestern side of the property. Also, portions of the roof runoff will be directed to drip edges for infiltration.

## 4.4 CONCLUSION

This proposed site development will have minimal effect on abutting infrastructures or properties by way of stormwater runoff or siltation. Peak runoff rate from the proposed site has been maintained to the existing conditions peak rate to the extent practicable. Treatment is obtained through the use of bioretention areas as described above. The required infiltration is obtained within the bioretention areas and roof drip edges.

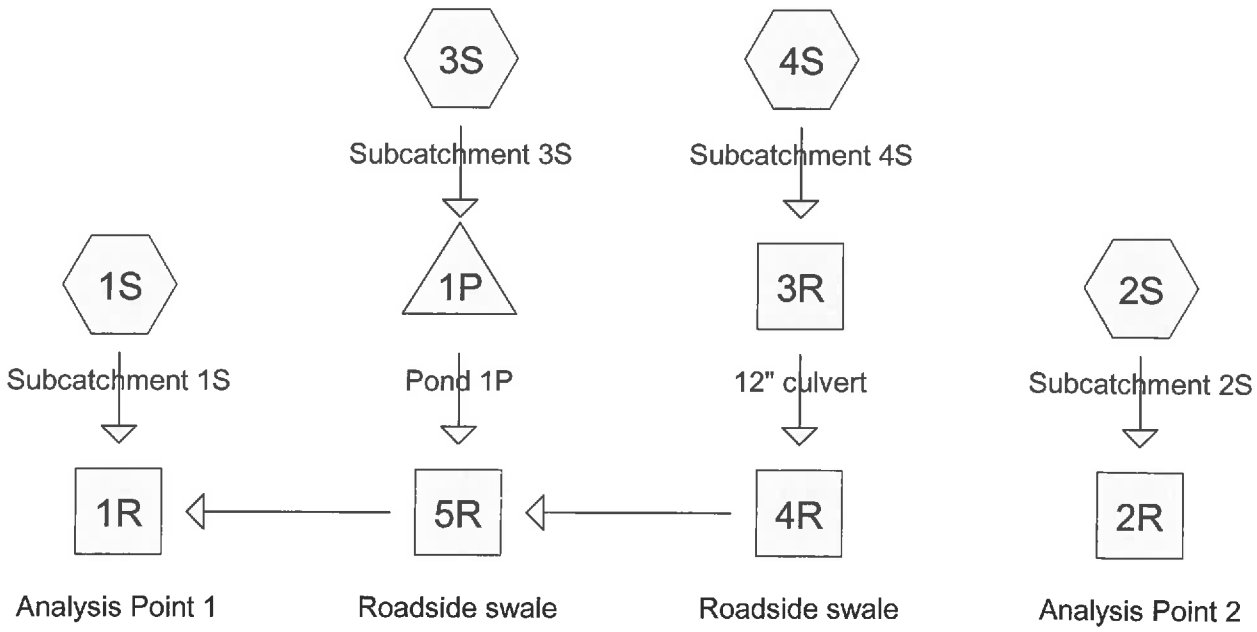
The area of disturbance is greater than 100,000 square feet and will require an NHDES Alteration of Terrain Permit.

Respectfully Submitted,
**JONES & BEACH ENGINEERS, INC.**

Michael J. Kerivan, P.E.
Project Engineer

# 4.5 EXISTING CONDITIONS ANALYSIS
# APPENDIX I

2 Year - 24 Hour Summary
10 Year - 24 Hour Complete
25 Year - 24 Hour Summary
50 Year - 24 Hour Summary




Subcat Reach Pond Link

**Routing Diagram for 18062_2 EX CONDITION**
Prepared by Microsoft, Printed 7/16/2021

## Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 3.395 | 39 | >75% Grass cover, Good, HSG A (1S, 2S, 3S, 4S) |
| 0.135 | 96 | Gravel surface, HSG A (1S) |
| 1.899 | 98 | Paved parking, HSG A (1S, 3S, 4S) |
| 0.315 | 98 | Paved roads w/curbs & sewers, HSG A (1S) |
| 0.589 | 98 | Roofs, HSG A (3S) |
| 3.401 | 30 | Woods, Good, HSG A (1S, 2S, 4S) |
| **9.733** | **54** | **TOTAL AREA** |

## Soil Listing (all nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 9.733 | HSG A | 1S, 2S, 3S, 4S |
| 0.000 | HSG B | |
| 0.000 | HSG C | |
| 0.000 | HSG D | |
| 0.000 | Other | |
| **9.733** | | **TOTAL AREA** |

Time span=0.00-25.00 hrs, dt=0.05 hrs, 501 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 1S: Subcatchment 1S** Runoff Area=196,158 sf 18.41% Impervious Runoff Depth=0.17"
Flow Length=330' Slope=0.0300 '/' Tc=15.1 min CN=47 Runoff=0.16 cfs 0.065 af

**Subcatchment 2S: Subcatchment 2S** Runoff Area=44,069 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=200' Tc=11.0 min CN=31 Runoff=0.00 cfs 0.000 af

**Subcatchment 3S: Subcatchment 3S** Runoff Area=116,783 sf 62.93% Impervious Runoff Depth=1.54"
Tc=6.0 min CN=76 Runoff=4.68 cfs 0.344 af

**Subcatchment 4S: Subcatchment 4S** Runoff Area=66,958 sf 18.63% Impervious Runoff Depth=0.20"
Flow Length=385' Tc=7.5 min CN=48 Runoff=0.09 cfs 0.026 af

**Reach 1R: Analysis Point 1** Inflow=0.22 cfs 0.090 af
Outflow=0.22 cfs 0.090 af

**Reach 2R: Analysis Point 2** Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

**Reach 3R: 12" culvert** Avg. Flow Depth=0.10' Max Vel=2.12 fps Inflow=0.09 cfs 0.026 af
12.0" Round Pipe n=0.011 L=113.0' S=0.0096 '/' Capacity=4.14 cfs Outflow=0.09 cfs 0.026 af

**Reach 4R: Roadside swale** Avg. Flow Depth=0.06' Max Vel=0.94 fps Inflow=0.09 cfs 0.026 af
n=0.022 L=52.0' S=0.0200 '/' Capacity=150.36 cfs Outflow=0.09 cfs 0.026 af

**Reach 5R: Roadside swale** Avg. Flow Depth=0.07' Max Vel=0.55 fps Inflow=0.09 cfs 0.026 af
n=0.022 L=495.0' S=0.0061 '/' Capacity=83.18 cfs Outflow=0.06 cfs 0.025 af

**Pond 1P: Pond 1P** Peak Elev=114.66' Storage=6,724 cf Inflow=4.68 cfs 0.344 af
Discarded=0.39 cfs 0.341 af Primary=0.00 cfs 0.000 af Outflow=0.39 cfs 0.341 af

**Total Runoff Area = 9.733 ac Runoff Volume = 0.435 af Average Runoff Depth = 0.54"**
**71.21% Pervious = 6.931 ac 28.79% Impervious = 2.802 ac**

Time span=0.00-25.00 hrs, dt=0.05 hrs, 501 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 1S: Subcatchment 1S** Runoff Area=196,158 sf 18.41% Impervious Runoff Depth=0.80"
Flow Length=330' Slope=0.0300 '/' Tc=15.1 min CN=47 Runoff=2.03 cfs 0.299 af

**Subcatchment 2S: Subcatchment 2S** Runoff Area=44,069 sf 0.00% Impervious Runoff Depth=0.06"
Flow Length=200' Tc=11.0 min CN=31 Runoff=0.01 cfs 0.005 af

**Subcatchment 3S: Subcatchment 3S** Runoff Area=116,783 sf 62.93% Impervious Runoff Depth=3.11"
Tc=6.0 min CN=76 Runoff=9.57 cfs 0.694 af

**Subcatchment 4S: Subcatchment 4S** Runoff Area=66,958 sf 18.63% Impervious Runoff Depth=0.86"
Flow Length=385' Tc=7.5 min CN=48 Runoff=0.97 cfs 0.110 af

**Reach 1R: Analysis Point 1** Inflow=5.06 cfs 0.535 af
Outflow=5.06 cfs 0.535 af

**Reach 2R: Analysis Point 2** Inflow=0.01 cfs 0.005 af
Outflow=0.01 cfs 0.005 af

**Reach 3R: 12" culvert** Avg. Flow Depth=0.33' Max Vel=4.31 fps Inflow=0.97 cfs 0.110 af
12.0" Round Pipe n=0.011 L=113.0' S=0.0096 '/' Capacity=4.14 cfs Outflow=0.98 cfs 0.110 af

**Reach 4R: Roadside swale** Avg. Flow Depth=0.15' Max Vel=1.71 fps Inflow=0.98 cfs 0.110 af
n=0.022 L=52.0' S=0.0200 '/' Capacity=150.36 cfs Outflow=0.98 cfs 0.110 af

**Reach 5R: Roadside swale** Avg. Flow Depth=0.30' Max Vel=1.48 fps Inflow=4.06 cfs 0.236 af
n=0.022 L=495.0' S=0.0061 '/' Capacity=83.18 cfs Outflow=3.24 cfs 0.236 af

**Pond 1P: Pond 1P** Peak Elev=115.75' Storage=11,716 cf Inflow=9.57 cfs 0.694 af
Discarded=0.50 cfs 0.497 af Primary=3.37 cfs 0.125 af Outflow=3.87 cfs 0.622 af

**Total Runoff Area = 9.733 ac Runoff Volume = 1.109 af Average Runoff Depth = 1.37"**
**71.21% Pervious = 6.931 ac 28.79% Impervious = 2.802 ac**

## Summary for Subcatchment 1S: Subcatchment 1S

Runoff = 2.03 cfs @ 12.31 hrs, Volume= 0.299 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 13,722 | 98 | Paved roads w/curbs & sewers, HSG A |
| 22,381 | 98 | Paved parking, HSG A |
| 5,885 | 96 | Gravel surface, HSG A |
| 56,510 | 39 | >75% Grass cover, Good, HSG A |
| 97,660 | 30 | Woods, Good, HSG A |
| 196,158 | 47 | Weighted Average |
| 160,055 | | 81.59% Pervious Area |
| 36,103 | | 18.41% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 9.7 | 50 | 0.0300 | 0.09 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.74" |
| 5.4 | 280 | 0.0300 | 0.87 | | **Shallow Concentrated Flow,** Woodland Kv= 5.0 fps |
| 15.1 | 330 | Total | | | |

## Summary for Subcatchment 2S: Subcatchment 2S

Runoff = 0.01 cfs @ 15.64 hrs, Volume= 0.005 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 5,985 | 39 | >75% Grass cover, Good, HSG A |
| 38,084 | 30 | Woods, Good, HSG A |
| 44,069 | 31 | Weighted Average |
| 44,069 | | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 8.9 | 50 | 0.0370 | 0.09 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.74" |
| 2.1 | 150 | 0.0570 | 1.19 | | **Shallow Concentrated Flow,** Woodland Kv= 5.0 fps |
| 11.0 | 200 | Total | | | |

## Summary for Subcatchment 3S: Subcatchment 3S

Runoff = 9.57 cfs @ 12.09 hrs, Volume= 0.694 af, Depth= 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 25,642 | 98 | Roofs, HSG A |
| 47,849 | 98 | Paved parking, HSG A |
| 43,292 | 39 | >75% Grass cover, Good, HSG A |
| 116,783 | 76 | Weighted Average |
| 43,292 | | 37.07% Pervious Area |
| 73,491 | | 62.93% Impervious Area |

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

## Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 0.97 cfs @ 12.15 hrs, Volume= 0.110 af, Depth= 0.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-25.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 12,474 | 98 | Paved parking, HSG A |
| 42,088 | 39 | >75% Grass cover, Good, HSG A |
| 12,396 | 30 | Woods, Good, HSG A |
| 66,958 | 48 | Weighted Average |
| 54,484 | | 81.37% Pervious Area |
| 12,474 | | 18.63% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 2.6 | 35 | 0.3800 | 0.22 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.74" |
| 0.8 | 80 | 0.0070 | 1.70 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 4.1 | 270 | 0.0240 | 1.08 | | **Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps |
| 7.5 | 385 | Total | | | |

## Summary for Reach 1R: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 8.721 ac, 32.13% Impervious, Inflow Depth > 0.74" for 10-YR. STORM event
Inflow = 5.06 cfs @ 12.44 hrs, Volume= 0.535 af
Outflow = 5.06 cfs @ 12.44 hrs, Volume= 0.535 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.05 hrs / 3

## Summary for Reach 2R: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 1.012 ac, 0.00% Impervious, Inflow Depth = 0.06" for 10-YR. STORM event
Inflow = 0.01 cfs @ 15.64 hrs, Volume= 0.005 af
Outflow = 0.01 cfs @ 15.64 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.05 hrs / 3

## Summary for Reach 3R: 12" culvert

[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.537 ac, 18.63% Impervious, Inflow Depth = 0.86" for 10-YR. STORM event
Inflow = 0.97 cfs @ 12.15 hrs, Volume= 0.110 af
Outflow = 0.98 cfs @ 12.16 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 4.31 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.03 fps, Avg. Travel Time= 0.9 min

Peak Storage= 26 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.14 cfs

12.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 113.0' Slope= 0.0096 '/'
Inlet Invert= 115.86', Outlet Invert= 114.77'

## Summary for Reach 4R: Roadside swale

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[61] Hint: Exceeded Reach 3R outlet invert by 0.15' @ 12.15 hrs

Inflow Area = 1.537 ac, 18.63% Impervious, Inflow Depth = 0.86" for 10-YR. STORM event
Inflow = 0.98 cfs @ 12.16 hrs, Volume= 0.110 af
Outflow = 0.98 cfs @ 12.16 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 1.71 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.89 fps, Avg. Travel Time= 1.0 min

Peak Storage= 30 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 1.00' Flow Area= 25.0 sf, Capacity= 150.36 cfs

0.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 25.0 '/' Top Width= 50.00'
Length= 52.0' Slope= 0.0200 '/'
Inlet Invert= 114.77', Outlet Invert= 113.73'

‡

## Summary for Reach 5R: Roadside swale

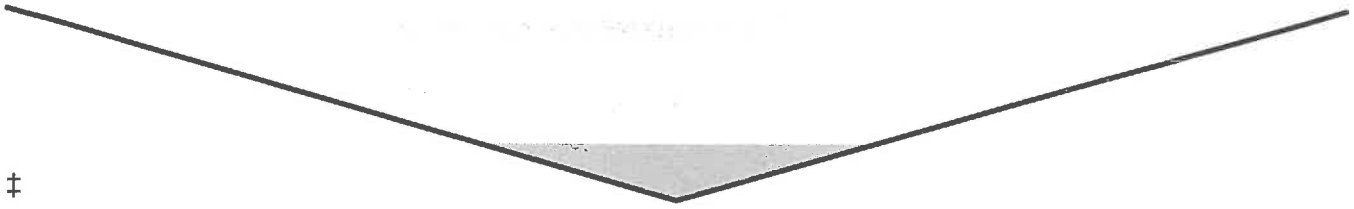
[62] Hint: Exceeded Reach 4R OUTLET depth by 0.17' @ 12.50 hrs

Inflow Area = 4.218 ac, 46.79% Impervious, Inflow Depth = 0.67" for 10-YR. STORM event
Inflow = 4.06 cfs @ 12.37 hrs, Volume= 0.236 af
Outflow = 3.24 cfs @ 12.46 hrs, Volume= 0.236 af, Atten= 20%, Lag= 5.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 1.48 fps, Min. Travel Time= 5.6 min
Avg. Velocity = 0.62 fps, Avg. Travel Time= 13.4 min

Peak Storage= 1,084 cf @ 12.46 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 1.00' Flow Area= 25.0 sf, Capacity= 83.18 cfs

0.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 25.0 '/' Top Width= 50.00'
Length= 495.0' Slope= 0.0061 '/'
Inlet Invert= 113.73', Outlet Invert= 110.70'



‡

## Summary for Pond 1P: Pond 1P

Inflow Area = 2.681 ac, 62.93% Impervious, Inflow Depth = 3.11" for 10-YR. STORM event
Inflow = 9.57 cfs @ 12.09 hrs, Volume= 0.694 af
Outflow = 3.87 cfs @ 12.37 hrs, Volume= 0.622 af, Atten= 60%, Lag= 16.6 min
Discarded = 0.50 cfs @ 12.37 hrs, Volume= 0.497 af
Primary = 3.37 cfs @ 12.37 hrs, Volume= 0.125 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-25.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 115.75' @ 12.37 hrs Surf.Area= 4,909 sf Storage= 11,716 cf

Plug-Flow detention time= 216.3 min calculated for 0.622 af (90% of inflow)
Center-of-Mass det. time= 166.4 min ( 992.8 - 826.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 112.50' | 12,956 cf | **Custom Stage Data (Irregular)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 112.50 | 328 | 91.8 | 0 | 0 | 328 |
| 113.00 | 2,769 | 204.9 | 675 | 675 | 2,999 |
| 114.00 | 3,919 | 234.2 | 3,327 | 4,002 | 4,046 |
| 116.00 | 5,059 | 264.2 | 8,954 | 12,956 | 5,336 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 113.50' | **12.0" Round Culvert**<br>L= 32.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 113.50' / 113.44' S= 0.0019 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf |
| #2 | Device 1 | 115.70' | **48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |
| #3 | Primary | 115.60' | **20.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>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<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |
| #4 | Discarded | 112.50' | **3.000 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 108.00' |

**Discarded OutFlow** Max=0.50 cfs @ 12.37 hrs HW=115.75' (Free Discharge)
└**4=Exfiltration** ( Controls 0.50 cfs)

**Primary OutFlow** Max=3.18 cfs @ 12.37 hrs HW=115.75' TW=114.00' (Dynamic Tailwater)
├**1=Culvert** (Passes 0.52 cfs of 3.95 cfs potential flow)
│ └**2=Orifice/Grate** (Weir Controls 0.52 cfs @ 0.70 fps)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 2.66 cfs @ 0.91 fps)

Time span=0.00-25.00 hrs, dt=0.05 hrs, 501 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 1S: Subcatchment 1S** Runoff Area=196,158 sf 18.41% Impervious Runoff Depth=1.52"
Flow Length=330' Slope=0.0300 '/' Tc=15.1 min CN=47 Runoff=4.91 cfs 0.570 af

**Subcatchment 2S: Subcatchment 2S** Runoff Area=44,069 sf 0.00% Impervious Runoff Depth=0.31"
Flow Length=200' Tc=11.0 min CN=31 Runoff=0.06 cfs 0.026 af

**Subcatchment 3S: Subcatchment 3S** Runoff Area=116,783 sf 62.93% Impervious Runoff Depth=4.45"
Tc=6.0 min CN=76 Runoff=13.67 cfs 0.995 af

**Subcatchment 4S: Subcatchment 4S** Runoff Area=66,958 sf 18.63% Impervious Runoff Depth=1.61"
Flow Length=385' Tc=7.5 min CN=48 Runoff=2.26 cfs 0.206 af

**Reach 1R: Analysis Point 1** Inflow=14.89 cfs 1.131 af
Outflow=14.89 cfs 1.131 af

**Reach 2R: Analysis Point 2** Inflow=0.06 cfs 0.026 af
Outflow=0.06 cfs 0.026 af

**Reach 3R: 12" culvert** Avg. Flow Depth=0.53' Max Vel=5.37 fps Inflow=2.26 cfs 0.206 af
12.0" Round Pipe n=0.011 L=113.0' S=0.0096 '/' Capacity=4.14 cfs Outflow=2.26 cfs 0.206 af

**Reach 4R: Roadside swale** Avg. Flow Depth=0.21' Max Vel=2.11 fps Inflow=2.26 cfs 0.206 af
n=0.022 L=52.0' S=0.0200 '/' Capacity=150.36 cfs Outflow=2.28 cfs 0.206 af

**Reach 5R: Roadside swale** Avg. Flow Depth=0.46' Max Vel=1.96 fps Inflow=14.60 cfs 0.562 af
n=0.022 L=495.0' S=0.0061 '/' Capacity=83.18 cfs Outflow=10.46 cfs 0.562 af

**Pond 1P: Pond 1P** Peak Elev=115.90' Storage=12,477 cf Inflow=13.67 cfs 0.995 af
Discarded=0.52 cfs 0.537 af Primary=12.36 cfs 0.356 af Outflow=12.88 cfs 0.894 af

**Total Runoff Area = 9.733 ac Runoff Volume = 1.796 af Average Runoff Depth = 2.21"**
**71.21% Pervious = 6.931 ac 28.79% Impervious = 2.802 ac**

Time span=0.00-25.00 hrs, dt=0.05 hrs, 501 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 1S: Subcatchment 1S** Runoff Area=196,158 sf 18.41% Impervious Runoff Depth=2.31"
Flow Length=330' Slope=0.0300 '/' Tc=15.1 min CN=47 Runoff=8.18 cfs 0.868 af

**Subcatchment 2S: Subcatchment 2S** Runoff Area=44,069 sf 0.00% Impervious Runoff Depth=0.67"
Flow Length=200' Tc=11.0 min CN=31 Runoff=0.26 cfs 0.056 af

**Subcatchment 3S: Subcatchment 3S** Runoff Area=116,783 sf 62.93% Impervious Runoff Depth=5.75"
Tc=6.0 min CN=76 Runoff=17.54 cfs 1.285 af

**Subcatchment 4S: Subcatchment 4S** Runoff Area=66,958 sf 18.63% Impervious Runoff Depth=2.43"
Flow Length=385' Tc=7.5 min CN=48 Runoff=3.74 cfs 0.311 af

**Reach 1R: Analysis Point 1** Inflow=25.00 cfs 1.769 af
Outflow=25.00 cfs 1.769 af

**Reach 2R: Analysis Point 2** Inflow=0.26 cfs 0.056 af
Outflow=0.26 cfs 0.056 af

**Reach 3R: 12" culvert** Avg. Flow Depth=0.74' Max Vel=5.94 fps Inflow=3.74 cfs 0.311 af
12.0" Round Pipe n=0.011 L=113.0' S=0.0096 '/' Capacity=4.14 cfs Outflow=3.69 cfs 0.311 af

**Reach 4R: Roadside swale** Avg. Flow Depth=0.25' Max Vel=2.38 fps Inflow=3.69 cfs 0.311 af
n=0.022 L=52.0' S=0.0200 '/' Capacity=150.36 cfs Outflow=3.70 cfs 0.311 af

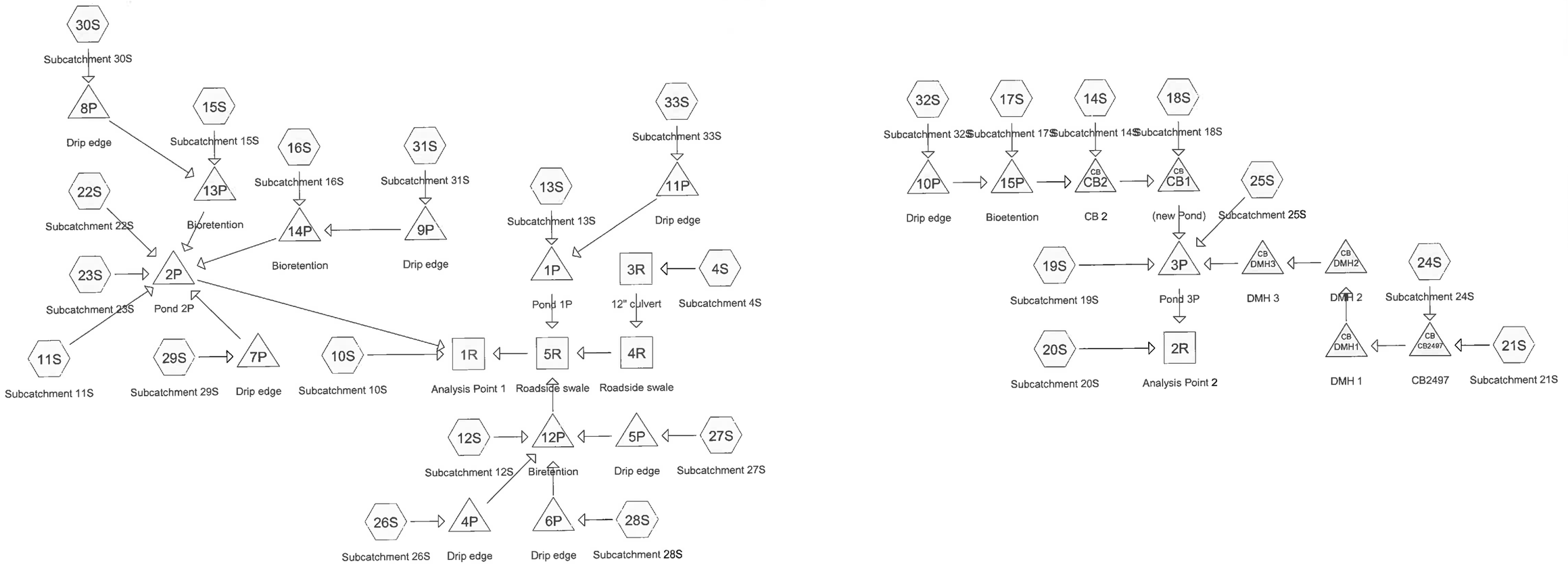
**Reach 5R: Roadside swale** Avg. Flow Depth=0.55' Max Vel=2.23 fps Inflow=19.74 cfs 0.901 af
n=0.022 L=495.0' S=0.0061 '/' Capacity=83.18 cfs Outflow=17.22 cfs 0.901 af

**Pond 1P: Pond 1P** Peak Elev=115.99' Storage=12,888 cf Inflow=17.54 cfs 1.285 af
Discarded=0.53 cfs 0.570 af Primary=16.04 cfs 0.590 af Outflow=16.57 cfs 1.160 af

**Total Runoff Area = 9.733 ac Runoff Volume = 2.521 af Average Runoff Depth = 3.11"**
**71.21% Pervious = 6.931 ac 28.79% Impervious = 2.802 ac**

# 4.6 PROPOSED CONDITIONS ANALYSIS
# APPENDIX II

2 Year - 24 Hour Summary
10 Year - 24 Hour Complete
25 Year - 24 Hour Summary
50 Year - 24 Hour Summary




Subcat Reach Pond Link

# Routing Diagram for 18062_2 PR CONDITION

Prepared by Microsoft, Printed 7/16/2021

## Area Listing (all nodes)

| Area (acres) | CN | Description (subcatchment-numbers) |
|---|---|---|
| 4.992 | 39 | >75% Grass cover, Good, HSG A (4S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 19S, 21S) |
| 0.220 | 30 | Meadow, non-grazed, HSG A (20S) |
| 2.252 | 98 | Paved parking, HSG A (4S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 19S, 20S, 21S) |
| 0.261 | 98 | Paved roads w/curbs & sewers, HSG A (10S) |
| 1.541 | 98 | Roofs, HSG A (13S, 22S, 23S, 24S, 25S, 26S, 27S, 28S, 29S, 30S, 31S, 32S, 33S) |
| 0.468 | 30 | Woods, Good, HSG A (4S, 20S) |
| **9.733** | **63** | **TOTAL AREA** |

## Soil Listing (all nodes)

| Area (acres) | Soil Group | Subcatchment Numbers |
|---|---|---|
| 9.733 | HSG A | 4S, 10S, 11S, 12S, 13S, 14S, 15S, 16S, 17S, 18S, 19S, 20S, 21S, 22S, 23S, 24S, 25S, 26S, 27S, 28S, 29S, 30S, 31S, 32S, 33S |
| 0.000 | HSG B | |
| 0.000 | HSG C | |
| 0.000 | HSG D | |
| 0.000 | Other | |
| **9.733** | | **TOTAL AREA** |

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 4S: Subcatchment 4S** Runoff Area=66,958 sf 18.63% Impervious Runoff Depth>0.20"
Flow Length=385' Tc=7.5 min CN=48 Runoff=0.09 cfs 0.025 af

**Subcatchment 10S: Subcatchment 10S** Runoff Area=53,803 sf 21.12% Impervious Runoff Depth>0.29"
Tc=6.0 min CN=51 Runoff=0.15 cfs 0.030 af

**Subcatchment 11S: Subcatchment 11S** Runoff Area=34,838 sf 42.01% Impervious Runoff Depth>0.83"
Tc=6.0 min CN=64 Runoff=0.65 cfs 0.055 af

**Subcatchment 12S: Subcatchment 12S** Runoff Area=8,154 sf 5.41% Impervious Runoff Depth>0.06"
Tc=6.0 min CN=42 Runoff=0.00 cfs 0.001 af

**Subcatchment 13S: Subcatchment 13S** Runoff Area=100,225 sf 58.15% Impervious Runoff Depth>1.34"
Tc=6.0 min CN=73 Runoff=3.44 cfs 0.257 af

**Subcatchment 14S: Subcatchment 14S** Runoff Area=7,320 sf 50.22% Impervious Runoff Depth>1.10"
Tc=6.0 min CN=69 Runoff=0.20 cfs 0.015 af

**Subcatchment 15S: Subcatchment 15S** Runoff Area=9,956 sf 20.69% Impervious Runoff Depth>0.29"
Tc=6.0 min CN=51 Runoff=0.03 cfs 0.005 af

**Subcatchment 16S: Subcatchment 16S** Runoff Area=9,093 sf 19.41% Impervious Runoff Depth>0.26"
Tc=6.0 min CN=50 Runoff=0.02 cfs 0.004 af

**Subcatchment 17S: Subcatchment 17S** Runoff Area=14,888 sf 3.53% Impervious Runoff Depth>0.05"
Tc=6.0 min CN=41 Runoff=0.00 cfs 0.001 af

**Subcatchment 18S: Subcatchment 18S** Runoff Area=27,924 sf 86.78% Impervious Runoff Depth>2.67"
Tc=6.0 min CN=90 Runoff=1.93 cfs 0.143 af

**Subcatchment 19S: Subcatchment 19S** Runoff Area=24,919 sf 10.07% Impervious Runoff Depth>0.12"
Tc=6.0 min CN=45 Runoff=0.01 cfs 0.006 af

**Subcatchment 20S: Subcatchment 20S** Runoff Area=19,000 sf 7.56% Impervious Runoff Depth>0.00"
Flow Length=147' Tc=10.1 min CN=35 Runoff=0.00 cfs 0.000 af

**Subcatchment 21S: Subcatchment 21S** Runoff Area=5,421 sf 31.40% Impervious Runoff Depth>0.55"
Tc=6.0 min CN=58 Runoff=0.05 cfs 0.006 af

**Subcatchment 22S: Subcatchment 22S** Runoff Area=3,401 sf 100.00% Impervious Runoff Depth>3.50"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.023 af

**Subcatchment 23S: Subcatchment 23S** Runoff Area=3,988 sf 100.00% Impervious Runoff Depth>3.50"
Tc=6.0 min CN=98 Runoff=0.33 cfs 0.027 af

**Subcatchment 24S: Subcatchment 24S** Runoff Area=5,986 sf 100.00% Impervious Runoff Depth>3.50"
Tc=6.0 min CN=98 Runoff=0.49 cfs 0.040 af

**Subcatchment 25S: Subcatchment 25S** Runoff Area=3,392 sf 100.00% Impervious Runoff Depth>3.50"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.023 af

**Subcatchment 26S: Subcatchment 26S** Runoff Area=1,153 sf 100.00% Impervious Runoff Depth>3.50"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.008 af

**Subcatchment 27S: Subcatchment 27S** Runoff Area=1,547 sf 100.00% Impervious Runoff Depth>3.50"
Tc=6.0 min CN=98 Runoff=0.13 cfs 0.010 af

**Subcatchment 28S: Subcatchment 28S** Runoff Area=2,939 sf 100.00% Impervious Runoff Depth>3.50"
Tc=6.0 min CN=98 Runoff=0.24 cfs 0.020 af

**Subcatchment 29S: Subcatchment 29S** Runoff Area=4,171 sf 100.00% Impervious Runoff Depth>3.50"
Tc=6.0 min CN=98 Runoff=0.34 cfs 0.028 af

**Subcatchment 30S: Subcatchment 30S** Runoff Area=3,207 sf 100.00% Impervious Runoff Depth>3.50"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

**Subcatchment 31S: Subcatchment 31S** Runoff Area=3,152 sf 100.00% Impervious Runoff Depth>3.50"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

**Subcatchment 32S: Subcatchment 32S** Runoff Area=3,489 sf 100.00% Impervious Runoff Depth>3.50"
Tc=6.0 min CN=98 Runoff=0.28 cfs 0.023 af

**Subcatchment 33S: Subcatchment 33S** Runoff Area=5,037 sf 100.00% Impervious Runoff Depth>3.50"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.034 af

**Reach 1R: Analysis Point 1** Inflow=0.17 cfs 0.055 af
Outflow=0.17 cfs 0.055 af

**Reach 2R: Analysis Point 2** Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

**Reach 3R: 12" culvert** Avg. Flow Depth=0.10' Max Vel=2.12 fps Inflow=0.09 cfs 0.025 af
12.0" Round Pipe n=0.011 L=113.0' S=0.0096 '/' Capacity=4.14 cfs Outflow=0.09 cfs 0.025 af

**Reach 4R: Roadside swale** Avg. Flow Depth=0.06' Max Vel=0.94 fps Inflow=0.09 cfs 0.025 af
n=0.022 L=52.0' S=0.0200 '/' Capacity=150.36 cfs Outflow=0.09 cfs 0.025 af

**Reach 5R: Roadside swale** Avg. Flow Depth=0.07' Max Vel=0.55 fps Inflow=0.09 cfs 0.025 af
n=0.022 L=495.0' S=0.0061 '/' Capacity=83.18 cfs Outflow=0.06 cfs 0.025 af

**Pond 1P: Pond 1P** Peak Elev=114.15' Storage=4,596 cf Inflow=3.44 cfs 0.257 af
Discarded=0.34 cfs 0.255 af Primary=0.00 cfs 0.000 af Outflow=0.34 cfs 0.255 af

**Pond 2P: Pond 2P** Peak Elev=110.11' Storage=1,000 cf Inflow=1.25 cfs 0.105 af
Discarded=0.31 cfs 0.104 af Primary=0.00 cfs 0.000 af Outflow=0.31 cfs 0.104 af

**Pond 3P: Pond 3P** Peak Elev=109.64' Storage=2,505 cf Inflow=2.94 cfs 0.233 af
Discarded=0.93 cfs 0.232 af Primary=0.00 cfs 0.000 af Outflow=0.93 cfs 0.232 af

**Pond 4P: Drip edge** Peak Elev=116.51' Storage=70 cf Inflow=0.09 cfs 0.008 af
Discarded=0.03 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.008 af

**Pond 5P: Drip edge** Peak Elev=116.57' Storage=99 cf Inflow=0.13 cfs 0.010 af
Discarded=0.03 cfs 0.010 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.010 af

**Pond 6P: Drip edge** Peak Elev=118.81' Storage=211 cf Inflow=0.24 cfs 0.020 af
Discarded=0.05 cfs 0.020 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.020 af

**Pond 7P: Drip edge** Peak Elev=116.68' Storage=283 cf Inflow=0.34 cfs 0.028 af
Discarded=0.08 cfs 0.028 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.028 af

**Pond 8P: Drip edge** Peak Elev=116.57' Storage=204 cf Inflow=0.26 cfs 0.021 af
Discarded=0.07 cfs 0.021 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.021 af

**Pond 9P: Drip edge** Peak Elev=116.71' Storage=217 cf Inflow=0.26 cfs 0.021 af
Discarded=0.06 cfs 0.021 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.021 af

**Pond 10P: Drip edge** Peak Elev=116.68' Storage=236 cf Inflow=0.28 cfs 0.023 af
Discarded=0.07 cfs 0.023 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.023 af

**Pond 11P: Drip edge** Peak Elev=117.74' Storage=451 cf Inflow=0.41 cfs 0.034 af
Discarded=0.06 cfs 0.034 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.034 af

**Pond 12P: Biretention** Peak Elev=112.50' Storage=1 cf Inflow=0.00 cfs 0.001 af
Discarded=0.00 cfs 0.001 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.001 af

**Pond 13P: Bioretention** Peak Elev=114.57' Storage=13 cf Inflow=0.03 cfs 0.005 af
Discarded=0.02 cfs 0.005 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.005 af

**Pond 14P: Bioretention** Peak Elev=114.54' Storage=9 cf Inflow=0.02 cfs 0.004 af
Discarded=0.02 cfs 0.004 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.004 af

**Pond 15P: Bioetention** Peak Elev=113.50' Storage=1 cf Inflow=0.00 cfs 0.001 af
Discarded=0.00 cfs 0.001 af Primary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.001 af

**Pond CB1: (new Pond)** Peak Elev=113.53' Inflow=2.13 cfs 0.158 af
15.0" Round Culvert n=0.013 L=14.0' S=0.0100 '/' Outflow=2.13 cfs 0.158 af

**Pond CB2: CB 2** Peak Elev=113.55' Inflow=0.20 cfs 0.015 af
15.0" Round Culvert n=0.013 L=50.0' S=0.0050 '/' Outflow=0.20 cfs 0.015 af

**Pond CB2497: CB2497** Peak Elev=117.62' Inflow=0.54 cfs 0.046 af
12.0" Round Culvert n=0.013 L=6.0' S=0.0333 '/' Outflow=0.54 cfs 0.046 af

**Pond DMH1: DMH 1** Peak Elev=117.14' Inflow=0.54 cfs 0.046 af
15.0" Round Culvert n=0.013 L=65.0' S=0.0100 '/' Outflow=0.54 cfs 0.046 af

**Pond DMH2: DMH 2** Peak Elev=116.39' Inflow=0.54 cfs 0.046 af
15.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=0.54 cfs 0.046 af

**Pond DMH3: DMH 3** Peak Elev=115.71' Inflow=0.54 cfs 0.046 af
15.0" Round Culvert n=0.013 L=60.0' S=0.0100 '/' Outflow=0.54 cfs 0.046 af

**Total Runoff Area = 9.733 ac Runoff Volume = 0.828 af Average Runoff Depth = 1.02"**
**58.35% Pervious = 5.679 ac 41.65% Impervious = 4.053 ac**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 4S: Subcatchment 4S** Runoff Area=66,958 sf 18.63% Impervious Runoff Depth>0.86"
Flow Length=385' Tc=7.5 min CN=48 Runoff=0.97 cfs 0.110 af

**Subcatchment 10S: Subcatchment 10S** Runoff Area=53,803 sf 21.12% Impervious Runoff Depth>1.06"
Tc=6.0 min CN=51 Runoff=1.18 cfs 0.109 af

**Subcatchment 11S: Subcatchment 11S** Runoff Area=34,838 sf 42.01% Impervious Runoff Depth>2.04"
Tc=6.0 min CN=64 Runoff=1.81 cfs 0.136 af

**Subcatchment 12S: Subcatchment 12S** Runoff Area=8,154 sf 5.41% Impervious Runoff Depth>0.51"
Tc=6.0 min CN=42 Runoff=0.04 cfs 0.008 af

**Subcatchment 13S: Subcatchment 13S** Runoff Area=100,225 sf 58.15% Impervious Runoff Depth>2.82"
Tc=6.0 min CN=73 Runoff=7.46 cfs 0.541 af

**Subcatchment 14S: Subcatchment 14S** Runoff Area=7,320 sf 50.22% Impervious Runoff Depth>2.46"
Tc=6.0 min CN=69 Runoff=0.47 cfs 0.034 af

**Subcatchment 15S: Subcatchment 15S** Runoff Area=9,956 sf 20.69% Impervious Runoff Depth>1.06"
Tc=6.0 min CN=51 Runoff=0.22 cfs 0.020 af

**Subcatchment 16S: Subcatchment 16S** Runoff Area=9,093 sf 19.41% Impervious Runoff Depth>0.99"
Tc=6.0 min CN=50 Runoff=0.18 cfs 0.017 af

**Subcatchment 17S: Subcatchment 17S** Runoff Area=14,888 sf 3.53% Impervious Runoff Depth>0.46"
Tc=6.0 min CN=41 Runoff=0.07 cfs 0.013 af

**Subcatchment 18S: Subcatchment 18S** Runoff Area=27,924 sf 86.78% Impervious Runoff Depth>4.53"
Tc=6.0 min CN=90 Runoff=3.19 cfs 0.242 af

**Subcatchment 19S: Subcatchment 19S** Runoff Area=24,919 sf 10.07% Impervious Runoff Depth>0.68"
Tc=6.0 min CN=45 Runoff=0.24 cfs 0.032 af

**Subcatchment 20S: Subcatchment 20S** Runoff Area=19,000 sf 7.56% Impervious Runoff Depth>0.19"
Flow Length=147' Tc=10.1 min CN=35 Runoff=0.01 cfs 0.007 af

**Subcatchment 21S: Subcatchment 21S** Runoff Area=5,421 sf 31.40% Impervious Runoff Depth>1.56"
Tc=6.0 min CN=58 Runoff=0.20 cfs 0.016 af

**Subcatchment 22S: Subcatchment 22S** Runoff Area=3,401 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.035 af

**Subcatchment 23S: Subcatchment 23S** Runoff Area=3,988 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=0.50 cfs 0.041 af

**Subcatchment 24S: Subcatchment 24S** Runoff Area=5,986 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.062 af

**Subcatchment 25S: Subcatchment 25S** Runoff Area=3,392 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.035 af

**Subcatchment 26S: Subcatchment 26S** Runoff Area=1,153 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.012 af

**Subcatchment 27S: Subcatchment 27S** Runoff Area=1,547 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=0.19 cfs 0.016 af

**Subcatchment 28S: Subcatchment 28S** Runoff Area=2,939 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=0.37 cfs 0.031 af

**Subcatchment 29S: Subcatchment 29S** Runoff Area=4,171 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=0.52 cfs 0.043 af

**Subcatchment 30S: Subcatchment 30S** Runoff Area=3,207 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=0.40 cfs 0.033 af

**Subcatchment 31S: Subcatchment 31S** Runoff Area=3,152 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=0.39 cfs 0.033 af

**Subcatchment 32S: Subcatchment 32S** Runoff Area=3,489 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=0.44 cfs 0.036 af

**Subcatchment 33S: Subcatchment 33S** Runoff Area=5,037 sf 100.00% Impervious Runoff Depth>5.44"
Tc=6.0 min CN=98 Runoff=0.63 cfs 0.052 af

**Reach 1R: Analysis Point 1** Inflow=1.50 cfs 0.236 af
Outflow=1.50 cfs 0.236 af

**Reach 2R: Analysis Point 2** Inflow=0.01 cfs 0.007 af
Outflow=0.01 cfs 0.007 af

**Reach 3R: 12" culvert** Avg. Flow Depth=0.33' Max Vel=4.31 fps Inflow=0.97 cfs 0.110 af
12.0" Round Pipe n=0.011 L=113.0' S=0.0096 '/' Capacity=4.14 cfs Outflow=0.98 cfs 0.110 af

**Reach 4R: Roadside swale** Avg. Flow Depth=0.15' Max Vel=1.71 fps Inflow=0.98 cfs 0.110 af
n=0.022 L=52.0' S=0.0200 '/' Capacity=150.36 cfs Outflow=0.98 cfs 0.110 af

**Reach 5R: Roadside swale** Avg. Flow Depth=0.17' Max Vel=1.02 fps Inflow=0.98 cfs 0.128 af
n=0.022 L=495.0' S=0.0061 '/' Capacity=83.18 cfs Outflow=0.74 cfs 0.128 af

**Pond 1P: Pond 1P** Peak Elev=115.63' Storage=11,147 cf Inflow=7.46 cfs 0.541 af
Discarded=0.49 cfs 0.445 af Primary=0.30 cfs 0.019 af Outflow=0.79 cfs 0.463 af

**Pond 2P: Pond 2P** Peak Elev=112.23' Storage=2,903 cf Inflow=2.73 cfs 0.213 af
Discarded=0.44 cfs 0.212 af Primary=0.00 cfs 0.000 af Outflow=0.44 cfs 0.212 af

**Pond 3P: Pond 3P** Peak Elev=110.45' Storage=5,239 cf Inflow=5.23 cfs 0.423 af
Discarded=1.17 cfs 0.422 af Primary=0.00 cfs 0.000 af Outflow=1.17 cfs 0.422 af

**Pond 4P: Drip edge** Peak Elev=117.00' Storage=136 cf Inflow=0.14 cfs 0.012 af
Discarded=0.03 cfs 0.012 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.012 af

**Pond 5P: Drip edge** Peak Elev=117.10' Storage=187 cf Inflow=0.19 cfs 0.016 af
Discarded=0.04 cfs 0.016 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.016 af

**Pond 6P: Drip edge** Peak Elev=119.48' Storage=387 cf Inflow=0.37 cfs 0.031 af
Discarded=0.06 cfs 0.031 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.031 af

**Pond 7P: Drip edge** Peak Elev=117.28' Storage=527 cf Inflow=0.52 cfs 0.043 af
Discarded=0.09 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.043 af

**Pond 8P: Drip edge** Peak Elev=117.10' Storage=388 cf Inflow=0.40 cfs 0.033 af
Discarded=0.08 cfs 0.033 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.033 af

**Pond 9P: Drip edge** Peak Elev=117.33' Storage=403 cf Inflow=0.39 cfs 0.033 af
Discarded=0.07 cfs 0.033 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.033 af

**Pond 10P: Drip edge** Peak Elev=117.27' Storage=441 cf Inflow=0.44 cfs 0.036 af
Discarded=0.08 cfs 0.036 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.036 af

**Pond 11P: Drip edge** Peak Elev=119.02' Storage=783 cf Inflow=0.63 cfs 0.052 af
Discarded=0.08 cfs 0.052 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.052 af

**Pond 12P: Biretention** Peak Elev=112.89' Storage=39 cf Inflow=0.04 cfs 0.008 af
Discarded=0.02 cfs 0.008 af Primary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.008 af

**Pond 13P: Bioretention** Peak Elev=117.06' Storage=229 cf Inflow=0.22 cfs 0.020 af
Discarded=0.04 cfs 0.020 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.020 af

**Pond 14P: Bioretention** Peak Elev=115.62' Storage=179 cf Inflow=0.18 cfs 0.017 af
Discarded=0.04 cfs 0.017 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.017 af

**Pond 15P: Bioetention** Peak Elev=114.02' Storage=67 cf Inflow=0.07 cfs 0.013 af
Discarded=0.03 cfs 0.013 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.013 af

**Pond CB1: (new Pond)** Peak Elev=113.91' Inflow=3.66 cfs 0.277 af
15.0" Round Culvert n=0.013 L=14.0' S=0.0100 '/' Outflow=3.66 cfs 0.277 af

**Pond CB2: CB 2** Peak Elev=113.93' Inflow=0.47 cfs 0.034 af
15.0" Round Culvert n=0.013 L=50.0' S=0.0050 '/' Outflow=0.47 cfs 0.034 af

**Pond CB2497: CB2497** Peak Elev=117.77' Inflow=0.95 cfs 0.078 af
12.0" Round Culvert n=0.013 L=6.0' S=0.0333 '/' Outflow=0.95 cfs 0.078 af

**Pond DMH1: DMH 1** Peak Elev=117.27' Inflow=0.95 cfs 0.078 af
15.0" Round Culvert n=0.013 L=65.0' S=0.0100 '/' Outflow=0.95 cfs 0.078 af

**Pond DMH2: DMH 2** Peak Elev=116.52' Inflow=0.95 cfs 0.078 af
15.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=0.95 cfs 0.078 af

**Pond DMH3: DMH 3** Peak Elev=115.84' Inflow=0.95 cfs 0.078 af
15.0" Round Culvert n=0.013 L=60.0' S=0.0100 '/' Outflow=0.95 cfs 0.078 af

**Total Runoff Area = 9.733 ac Runoff Volume = 1.717 af Average Runoff Depth = 2.12"**
**58.35% Pervious = 5.679 ac 41.65% Impervious = 4.053 ac**

## Summary for Subcatchment 4S: Subcatchment 4S

Runoff = 0.97 cfs @ 12.15 hrs, Volume= 0.110 af, Depth> 0.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 12,474 | 98 | Paved parking, HSG A |
| 42,088 | 39 | >75% Grass cover, Good, HSG A |
| 12,396 | 30 | Woods, Good, HSG A |
| 66,958 | 48 | Weighted Average |
| 54,484 | | 81.37% Pervious Area |
| 12,474 | | 18.63% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 2.6 | 35 | 0.3800 | 0.22 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.74" |
| 0.8 | 80 | 0.0070 | 1.70 | | **Shallow Concentrated Flow,** Paved Kv= 20.3 fps |
| 4.1 | 270 | 0.0240 | 1.08 | | **Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps |
| 7.5 | 385 | Total | | | |

## Summary for Subcatchment 10S: Subcatchment 10S

Runoff = 1.18 cfs @ 12.11 hrs, Volume= 0.109 af, Depth> 1.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 11,363 | 98 | Paved roads w/curbs & sewers, HSG A |
| 42,440 | 39 | >75% Grass cover, Good, HSG A |
| 53,803 | 51 | Weighted Average |
| 42,440 | | 78.88% Pervious Area |
| 11,363 | | 21.12% Impervious Area |

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

## Summary for Subcatchment 11S: Subcatchment 11S

Runoff = 1.81 cfs @ 12.10 hrs, Volume= 0.136 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 12,859 | 98 | Paved parking, HSG A |
| 1,778 | 98 | Paved parking, HSG A |
| 20,201 | 39 | >75% Grass cover, Good, HSG A |
| 34,838 | 64 | Weighted Average |
| 20,201 | | 57.99% Pervious Area |
| 14,637 | | 42.01% Impervious Area |

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

## Summary for Subcatchment 12S: Subcatchment 12S

Runoff = 0.04 cfs @ 12.30 hrs, Volume= 0.008 af, Depth> 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 441 | 98 | Paved parking, HSG A |
| 7,713 | 39 | >75% Grass cover, Good, HSG A |
| 8,154 | 42 | Weighted Average |
| 7,713 | | 94.59% Pervious Area |
| 441 | | 5.41% Impervious Area |

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

## Summary for Subcatchment 13S: Subcatchment 13S

Runoff = 7.46 cfs @ 12.09 hrs, Volume= 0.541 af, Depth> 2.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 30,456 | 98 | Paved parking, HSG A |
| 2,175 | 98 | Paved parking, HSG A |
| 25,647 | 98 | Roofs, HSG A |
| 41,947 | 39 | >75% Grass cover, Good, HSG A |
| 100,225 | 73 | Weighted Average |
| 41,947 | | 41.85% Pervious Area |
| 58,278 | | 58.15% Impervious Area |

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

## Summary for Subcatchment 14S: Subcatchment 14S

Runoff = 0.47 cfs @ 12.10 hrs, Volume= 0.034 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 2,922 | 98 | Paved parking, HSG A |
| 754 | 98 | Paved parking, HSG A |
| 3,644 | 39 | >75% Grass cover, Good, HSG A |
| 7,320 | 69 | Weighted Average |
| 3,644 | | 49.78% Pervious Area |
| 3,676 | | 50.22% Impervious Area |

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

## Summary for Subcatchment 15S: Subcatchment 15S

Runoff = 0.22 cfs @ 12.11 hrs, Volume= 0.020 af, Depth> 1.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 2,060 | 98 | Paved parking, HSG A |
| 7,896 | 39 | >75% Grass cover, Good, HSG A |
| 9,956 | 51 | Weighted Average |
| 7,896 | | 79.31% Pervious Area |
| 2,060 | | 20.69% Impervious Area |

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

## Summary for Subcatchment 16S: Subcatchment 16S

Runoff = 0.18 cfs @ 12.12 hrs, Volume= 0.017 af, Depth> 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 1,765 | 98 | Paved parking, HSG A |
| 7,328 | 39 | >75% Grass cover, Good, HSG A |
| 9,093 | 50 | Weighted Average |
| 7,328 | | 80.59% Pervious Area |
| 1,765 | | 19.41% Impervious Area |

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

## Summary for Subcatchment 17S: Subcatchment 17S

Runoff = 0.07 cfs @ 12.33 hrs, Volume= 0.013 af, Depth> 0.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 525 | 98 | Paved parking, HSG A |
| 14,363 | 39 | >75% Grass cover, Good, HSG A |
| 14,888 | 41 | Weighted Average |
| 14,363 | | 96.47% Pervious Area |
| 525 | | 3.53% Impervious Area |

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

## Summary for Subcatchment 18S: Subcatchment 18S

Runoff = 3.19 cfs @ 12.09 hrs, Volume= 0.242 af, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 23,457 | 98 | Paved parking, HSG A |
| 776 | 98 | Paved parking, HSG A |
| 3,691 | 39 | >75% Grass cover, Good, HSG A |
| 27,924 | 90 | Weighted Average |
| 3,691 | | 13.22% Pervious Area |
| 24,233 | | 86.78% Impervious Area |

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

## Summary for Subcatchment 19S: Subcatchment 19S

Runoff = 0.24 cfs @ 12.15 hrs, Volume= 0.032 af, Depth> 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 2,509 | 98 | Paved parking, HSG A |
| 22,410 | 39 | >75% Grass cover, Good, HSG A |
| 24,919 | 45 | Weighted Average |
| 22,410 | | 89.93% Pervious Area |
| 2,509 | | 10.07% Impervious Area |

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

## Summary for Subcatchment 20S: Subcatchment 20S

Runoff = 0.01 cfs @ 13.75 hrs, Volume= 0.007 af, Depth> 0.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 1,437 | 98 | Paved parking, HSG A |
| 9,583 | 30 | Meadow, non-grazed, HSG A |
| 7,980 | 30 | Woods, Good, HSG A |
| 19,000 | 35 | Weighted Average |
| 17,563 | | 92.44% Pervious Area |
| 1,437 | | 7.56% Impervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description |
|---|---|---|---|---|---|
| 8.2 | 50 | 0.0450 | 0.10 | | **Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.74" |
| 1.9 | 97 | 0.0300 | 0.87 | | **Shallow Concentrated Flow,** Woodland Kv= 5.0 fps |
| 10.1 | 147 | Total | | | |

## Summary for Subcatchment 21S: Subcatchment 21S

Runoff = 0.20 cfs @ 12.10 hrs, Volume= 0.016 af, Depth> 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 1,702 | 98 | Paved parking, HSG A |
| 3,719 | 39 | >75% Grass cover, Good, HSG A |
| 5,421 | 58 | Weighted Average |
| 3,719 | | 68.60% Pervious Area |
| 1,702 | | 31.40% Impervious Area |

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

## Summary for Subcatchment 22S: Subcatchment 22S

Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 3,401 | 98 | Roofs, HSG A |
| 3,401 | | 100.00% Impervious Area |

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

## Summary for Subcatchment 23S: Subcatchment 23S

Runoff = 0.50 cfs @ 12.09 hrs, Volume= 0.041 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 3,988 | 98 | Roofs, HSG A |
| 3,988 | | 100.00% Impervious Area |

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

## Summary for Subcatchment 24S: Subcatchment 24S

Runoff = 0.75 cfs @ 12.09 hrs, Volume= 0.062 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 5,986 | 98 | Roofs, HSG A |
| 5,986 | | 100.00% Impervious Area |

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

## Summary for Subcatchment 25S: Subcatchment 25S

Runoff = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 3,392 | 98 | Roofs, HSG A |
| 3,392 | | 100.00% Impervious Area |

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

## Summary for Subcatchment 26S: Subcatchment 26S

Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.012 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 1,153 | 98 | Roofs, HSG A |
| 1,153 | | 100.00% Impervious Area |

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

## Summary for Subcatchment 27S: Subcatchment 27S

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 0.016 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 1,547 | 98 | Roofs, HSG A |
| 1,547 | | 100.00% Impervious Area |

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

## Summary for Subcatchment 28S: Subcatchment 28S

Runoff = 0.37 cfs @ 12.09 hrs, Volume= 0.031 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 2,939 | 98 | Roofs, HSG A |
| 2,939 | | 100.00% Impervious Area |

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

## Summary for Subcatchment 29S: Subcatchment 29S

Runoff = 0.52 cfs @ 12.09 hrs, Volume= 0.043 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 4,171 | 98 | Roofs, HSG A |
| 4,171 | | 100.00% Impervious Area |

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

## Summary for Subcatchment 30S: Subcatchment 30S

Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 3,207 | 98 | Roofs, HSG A |
| 3,207 | | 100.00% Impervious Area |

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

## Summary for Subcatchment 31S: Subcatchment 31S

Runoff = 0.39 cfs @ 12.09 hrs, Volume= 0.033 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 3,152 | 98 | Roofs, HSG A |
| 3,152 | | 100.00% Impervious Area |

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

## Summary for Subcatchment 32S: Subcatchment 32S

Runoff = 0.44 cfs @ 12.09 hrs, Volume= 0.036 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 3,489 | 98 | Roofs, HSG A |
| 3,489 | | 100.00% Impervious Area |

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

## Summary for Subcatchment 33S: Subcatchment 33S

Runoff = 0.63 cfs @ 12.09 hrs, Volume= 0.052 af, Depth> 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR. STORM Rainfall=5.68"

| Area (sf) | CN | Description |
|---|---|---|
| 5,037 | 98 | Roofs, HSG A |
| 5,037 | | 100.00% Impervious Area |

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

## Summary for Reach 1R: Analysis Point 1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 7.154 ac, 41.59% Impervious, Inflow Depth > 0.40" for 10-YR. STORM event
Inflow = 1.50 cfs @ 12.21 hrs, Volume= 0.236 af
Outflow = 1.50 cfs @ 12.21 hrs, Volume= 0.236 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

## Summary for Reach 2R: Analysis Point 2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.579 ac, 41.79% Impervious, Inflow Depth > 0.03" for 10-YR. STORM event
Inflow = 0.01 cfs @ 13.75 hrs, Volume= 0.007 af
Outflow = 0.01 cfs @ 13.75 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

## Summary for Reach 3R: 12" culvert

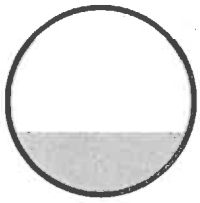
[52] Hint: Inlet/Outlet conditions not evaluated
[90] Warning: Qout>Qin may require smaller dt or Finer Routing

Inflow Area = 1.537 ac, 18.63% Impervious, Inflow Depth > 0.86" for 10-YR. STORM event
Inflow = 0.97 cfs @ 12.15 hrs, Volume= 0.110 af
Outflow = 0.98 cfs @ 12.16 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 4.31 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.08 fps, Avg. Travel Time= 0.9 min

Peak Storage= 26 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.33'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 4.14 cfs

12.0" Round Pipe
n= 0.011 Concrete pipe, straight & clean
Length= 113.0' Slope= 0.0096 '/'
Inlet Invert= 115.86', Outlet Invert= 114.77'



## Summary for Reach 4R: Roadside swale

[90] Warning: Qout>Qin may require smaller dt or Finer Routing
[61] Hint: Exceeded Reach 3R outlet invert by 0.15' @ 12.15 hrs

Inflow Area = 1.537 ac, 18.63% Impervious, Inflow Depth > 0.86" for 10-YR. STORM event
Inflow = 0.98 cfs @ 12.16 hrs, Volume= 0.110 af
Outflow = 0.98 cfs @ 12.16 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 1.71 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.92 fps, Avg. Travel Time= 0.9 min

Peak Storage= 30 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 1.00' Flow Area= 25.0 sf, Capacity= 150.36 cfs

0.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 25.0 '/' Top Width= 50.00'
Length= 52.0' Slope= 0.0200 '/'
Inlet Invert= 114.77', Outlet Invert= 113.73'

‡

## Summary for Reach 5R: Roadside swale

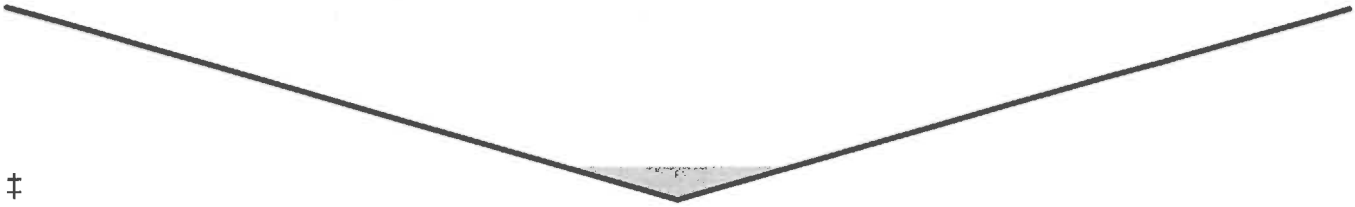
[62] Hint: Exceeded Reach 4R OUTLET depth by 0.06' @ 13.15 hrs

Inflow Area = 4.270 ac, 44.01% Impervious, Inflow Depth > 0.36" for 10-YR. STORM event
Inflow = 0.98 cfs @ 12.16 hrs, Volume= 0.128 af
Outflow = 0.74 cfs @ 12.32 hrs, Volume= 0.128 af, Atten= 25%, Lag= 9.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Max. Velocity= 1.02 fps, Min. Travel Time= 8.1 min
Avg. Velocity = 0.60 fps, Avg. Travel Time= 13.7 min

Peak Storage= 359 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.17'
Bank-Full Depth= 1.00' Flow Area= 25.0 sf, Capacity= 83.18 cfs

0.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 25.0 '/' Top Width= 50.00'
Length= 495.0' Slope= 0.0061 '/'
Inlet Invert= 113.73', Outlet Invert= 110.70'



‡

## Summary for Pond 1P: Pond 1P

Inflow Area = 2.416 ac, 60.15% Impervious, Inflow Depth > 2.69" for 10-YR. STORM event
Inflow = 7.46 cfs @ 12.09 hrs, Volume= 0.541 af
Outflow = 0.79 cfs @ 13.00 hrs, Volume= 0.463 af, Atten= 89%, Lag= 54.4 min
Discarded = 0.49 cfs @ 13.00 hrs, Volume= 0.445 af
Primary = 0.30 cfs @ 13.00 hrs, Volume= 0.019 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 115.63' @ 13.00 hrs Surf.Area= 4,840 sf Storage= 11,147 cf

Plug-Flow detention time= 252.3 min calculated for 0.463 af (85% of inflow)
Center-of-Mass det. time= 189.5 min ( 1,022.6 - 833.2 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 112.50' | 12,956 cf | **Custom Stage Data (Irregular)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|
| 112.50 | 328 | 91.8 | 0 | 0 | 328 |
| 113.00 | 2,769 | 204.9 | 675 | 675 | 2,999 |
| 114.00 | 3,919 | 234.2 | 3,327 | 4,002 | 4,046 |
| 116.00 | 5,059 | 264.2 | 8,954 | 12,956 | 5,336 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 113.50' | **12.0" Round Culvert**<br>L= 32.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 113.50' / 113.44' S= 0.0019 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf |
| #2 | Device 1 | 115.70' | **48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600<br>Limited to weir flow at low heads |
| #3 | Primary | 115.60' | **20.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>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<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |
| #4 | Discarded | 112.50' | **3.000 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 108.00' |

**Discarded OutFlow** Max=0.49 cfs @ 13.00 hrs HW=115.63' (Free Discharge)
└**4=Exfiltration** ( Controls 0.49 cfs)

**Primary OutFlow** Max=0.30 cfs @ 13.00 hrs HW=115.63' TW=113.87' (Dynamic Tailwater)
├**1=Culvert** (Passes 0.00 cfs of 3.82 cfs potential flow)
│└**2=Orifice/Grate** ( Controls 0.00 cfs)
└**3=Broad-Crested Rectangular Weir** (Weir Controls 0.30 cfs @ 0.44 fps)

## Summary for Pond 2P: Pond 2P

Inflow Area = 1.648 ac, 50.67% Impervious, Inflow Depth > 1.55" for 10-YR. STORM event
Inflow = 2.73 cfs @ 12.09 hrs, Volume= 0.213 af
Outflow = 0.44 cfs @ 12.63 hrs, Volume= 0.212 af, Atten= 84%, Lag= 32.0 min
Discarded = 0.44 cfs @ 12.63 hrs, Volume= 0.212 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 112.23' @ 12.63 hrs Surf.Area= 4,263 sf Storage= 2,903 cf

Plug-Flow detention time= 56.4 min calculated for 0.212 af (100% of inflow)
Center-of-Mass det. time= 55.0 min ( 870.5 - 815.5 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 109.49' | 12,687 cf | **Custom Stage Data (Irregular)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|---|
| 109.49 | 4,037 | 310.7 | 0.0 | 0 | 0 | 4,037 |
| 109.50 | 4,037 | 310.7 | 40.0 | 16 | 16 | 4,040 |
| 110.49 | 4,037 | 310.7 | 40.0 | 1,599 | 1,615 | 4,348 |
| 110.50 | 4,037 | 310.7 | 5.0 | 2 | 1,617 | 4,351 |
| 111.99 | 4,037 | 310.7 | 5.0 | 301 | 1,918 | 4,814 |
| 112.00 | 4,037 | 310.7 | 100.0 | 40 | 1,958 | 4,817 |
| 112.99 | 5,066 | 348.9 | 100.0 | 4,496 | 6,454 | 6,848 |
| 113.00 | 5,590 | 389.9 | 100.0 | 53 | 6,508 | 9,259 |
| 114.00 | 6,788 | 408.7 | 100.0 | 6,179 | 12,687 | 10,519 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 113.50' | **10.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>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<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |
| #2 | Discarded | 109.49' | **3.000 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 104.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.44 cfs @ 12.63 hrs HW=112.23' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.44 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=109.49' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 3P: Pond 3P

Inflow Area = 2.143 ac, 48.76% Impervious, Inflow Depth > 2.37" for 10-YR. STORM event
Inflow = 5.23 cfs @ 12.09 hrs, Volume= 0.423 af
Outflow = 1.17 cfs @ 12.52 hrs, Volume= 0.422 af, Atten= 78%, Lag= 25.5 min
Discarded = 1.17 cfs @ 12.52 hrs, Volume= 0.422 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 110.45' @ 12.52 hrs Surf.Area= 5,934 sf Storage= 5,239 cf

Plug-Flow detention time= 38.2 min calculated for 0.421 af (100% of inflow)
Center-of-Mass det. time= 36.9 min ( 832.0 - 795.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 107.49' | 33,300 cf | **Custom Stage Data (Irregular)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|---|
| 107.49 | 5,478 | 338.4 | 0.0 | 0 | 0 | 5,478 |
| 107.50 | 5,478 | 338.4 | 40.0 | 22 | 22 | 5,481 |
| 108.49 | 5,478 | 338.4 | 40.0 | 2,169 | 2,191 | 5,816 |
| 108.50 | 5,478 | 338.4 | 5.0 | 3 | 2,194 | 5,820 |
| 109.99 | 5,478 | 338.4 | 5.0 | 408 | 2,602 | 6,324 |
| 110.00 | 5,478 | 338.4 | 100.0 | 55 | 2,657 | 6,327 |
| 112.00 | 7,631 | 377.2 | 100.0 | 13,050 | 15,706 | 8,650 |
| 114.00 | 10,016 | 443.1 | 100.0 | 17,593 | 33,300 | 13,029 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 113.50' | **10.0' long x 4.0' breadth Broad-Crested Rectangular Weir**<br>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<br>Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32 |
| #2 | Discarded | 107.49' | **3.000 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 106.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=1.17 cfs @ 12.52 hrs HW=110.45' (Free Discharge)
↑—**2=Exfiltration** ( Controls 1.17 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=107.49' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 4P: Drip edge

Inflow Area = 0.026 ac,100.00% Impervious, Inflow Depth > 5.44" for 10-YR. STORM event
Inflow = 0.14 cfs @ 12.09 hrs, Volume= 0.012 af
Outflow = 0.03 cfs @ 12.51 hrs, Volume= 0.012 af, Atten= 80%, Lag= 25.3 min
Discarded = 0.03 cfs @ 12.51 hrs, Volume= 0.012 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 117.00' @ 12.51 hrs Surf.Area= 337 sf Storage= 136 cf

Plug-Flow detention time= 30.6 min calculated for 0.012 af (100% of inflow)
Center-of-Mass det. time= 29.6 min ( 775.1 - 745.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 115.99' | 880 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 115.99 | 337 | 0.0 | 0 | 0 |
| 116.00 | 337 | 40.0 | 1 | 1 |
| 119.99 | 337 | 40.0 | 538 | 539 |
| 120.00 | 337 | 100.0 | 3 | 543 |
| 121.00 | 337 | 100.0 | 337 | 880 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 120.00' | **80.0' long x 0.5' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00<br>Coef. (English) 2.80 2.92 3.08 3.30 3.32 |
| #2 | Discarded | 115.99' | **3.000 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 112.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.03 cfs @ 12.51 hrs HW=117.00' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.03 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=115.99' TW=112.49' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 5P: Drip edge

Inflow Area = 0.036 ac,100.00% Impervious, Inflow Depth > 5.44" for 10-YR. STORM event
Inflow = 0.19 cfs @ 12.09 hrs, Volume= 0.016 af
Outflow = 0.04 cfs @ 12.52 hrs, Volume= 0.016 af, Atten= 81%, Lag= 25.9 min
Discarded = 0.04 cfs @ 12.52 hrs, Volume= 0.016 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 117.10' @ 12.52 hrs Surf.Area= 423 sf Storage= 187 cf

Plug-Flow detention time= 33.2 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 32.2 min ( 777.7 - 745.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 115.99' | 1,104 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 115.99 | 423 | 0.0 | 0 | 0 |
| 116.00 | 423 | 40.0 | 2 | 2 |
| 119.99 | 423 | 40.0 | 675 | 677 |
| 120.00 | 423 | 100.0 | 4 | 681 |
| 121.00 | 423 | 100.0 | 423 | 1,104 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 120.00' | **110.0' long x 0.5' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00<br>Coef. (English) 2.80 2.92 3.08 3.30 3.32 |
| #2 | Discarded | 115.99' | **3.000 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 112.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.04 cfs @ 12.52 hrs HW=117.10' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.04 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=115.99' TW=112.49' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 6P: Drip edge

| | | | | |
|---|---|---|---|---|
| Inflow Area = | 0.067 ac,100.00% Impervious, | Inflow Depth > | 5.44" | for 10-YR. STORM event |
| Inflow = | 0.37 cfs @ | 12.09 hrs, Volume= | 0.031 af | |
| Outflow = | 0.06 cfs @ | 12.55 hrs, Volume= | 0.031 af, Atten= 83%, Lag= 28.0 min | |
| Discarded = | 0.06 cfs @ | 12.55 hrs, Volume= | 0.031 af | |
| Primary = | 0.00 cfs @ | 0.00 hrs, Volume= | 0.000 af | |

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 119.48' @ 12.55 hrs Surf.Area= 647 sf Storage= 387 cf

Plug-Flow detention time= 43.2 min calculated for 0.030 af (100% of inflow)
Center-of-Mass det. time= 42.2 min ( 787.7 - 745.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 117.99' | 1,689 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 117.99 | 647 | 0.0 | 0 | 0 |
| 118.00 | 647 | 40.0 | 3 | 3 |
| 121.99 | 647 | 40.0 | 1,033 | 1,035 |
| 122.00 | 647 | 100.0 | 6 | 1,042 |
| 123.00 | 647 | 100.0 | 647 | 1,689 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 122.00' | **155.0' long x 0.5' breadth Broad-Crested Rectangular Weir** |
| | | | Head (feet) 0.20 0.40 0.60 0.80 1.00 |
| | | | Coef. (English) 2.80 2.92 3.08 3.30 3.32 |
| #2 | Discarded | 117.99' | **3.000 in/hr Exfiltration over Surface area** |
| | | | Conductivity to Groundwater Elevation = 114.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.06 cfs @ 12.55 hrs HW=119.48' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.06 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=117.99' TW=112.49' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 7P: Drip edge

Inflow Area = 0.096 ac,100.00% Impervious, Inflow Depth > 5.44" for 10-YR. STORM event
Inflow = 0.52 cfs @ 12.09 hrs, Volume= 0.043 af
Outflow = 0.09 cfs @ 12.54 hrs, Volume= 0.043 af, Atten= 82%, Lag= 27.0 min
Discarded = 0.09 cfs @ 12.54 hrs, Volume= 0.043 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 117.28' @ 12.54 hrs Surf.Area= 1,025 sf Storage= 527 cf

Plug-Flow detention time= 37.9 min calculated for 0.043 af (100% of inflow)
Center-of-Mass det. time= 36.8 min ( 782.4 - 745.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 115.99' | 2,675 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 115.99 | 1,025 | 0.0 | 0 | 0 |
| 116.00 | 1,025 | 40.0 | 4 | 4 |
| 119.99 | 1,025 | 40.0 | 1,636 | 1,640 |
| 120.00 | 1,025 | 100.0 | 10 | 1,650 |
| 121.00 | 1,025 | 100.0 | 1,025 | 2,675 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 120.00' | **245.0' long x 0.5' breadth Broad-Crested Rectangular Weir** |
| | | | Head (feet) 0.20 0.40 0.60 0.80 1.00 |
| | | | Coef. (English) 2.80 2.92 3.08 3.30 3.32 |
| #2 | Discarded | 115.99' | **3.000 in/hr Exfiltration over Surface area** |
| | | | Conductivity to Groundwater Elevation = 112.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.09 cfs @ 12.54 hrs HW=117.28' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.09 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=115.99' TW=109.49' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 8P: Drip edge

Inflow Area = 0.074 ac,100.00% Impervious, Inflow Depth > 5.44" for 10-YR. STORM event
Inflow = 0.40 cfs @ 12.09 hrs, Volume= 0.033 af
Outflow = 0.08 cfs @ 12.52 hrs, Volume= 0.033 af, Atten= 81%, Lag= 25.9 min
Discarded = 0.08 cfs @ 12.52 hrs, Volume= 0.033 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 117.10' @ 12.52 hrs Surf.Area= 878 sf Storage= 388 cf

Plug-Flow detention time= 33.2 min calculated for 0.033 af (100% of inflow)
Center-of-Mass det. time= 32.1 min ( 777.7 - 745.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 115.99' | 2,292 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 115.99 | 878 | 0.0 | 0 | 0 |
| 116.00 | 878 | 40.0 | 4 | 4 |
| 119.99 | 878 | 40.0 | 1,401 | 1,405 |
| 120.00 | 878 | 100.0 | 9 | 1,414 |
| 121.00 | 878 | 100.0 | 878 | 2,292 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 120.00' | **220.0' long x 0.5' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00<br>Coef. (English) 2.80 2.92 3.08 3.30 3.32 |
| #2 | Discarded | 115.99' | **3.000 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 112.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.08 cfs @ 12.52 hrs HW=117.09' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.08 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=115.99' TW=114.49' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 9P: Drip edge

Inflow Area = 0.072 ac,100.00% Impervious, Inflow Depth > 5.44" for 10-YR. STORM event
Inflow = 0.39 cfs @ 12.09 hrs, Volume= 0.033 af
Outflow = 0.07 cfs @ 12.54 hrs, Volume= 0.033 af, Atten= 82%, Lag= 27.3 min
Discarded = 0.07 cfs @ 12.54 hrs, Volume= 0.033 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 117.33' @ 12.54 hrs Surf.Area= 750 sf Storage= 403 cf

Plug-Flow detention time= 39.3 min calculated for 0.033 af (100% of inflow)
Center-of-Mass det. time= 38.3 min ( 783.9 - 745.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 115.99' | 1,958 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 115.99 | 750 | 0.0 | 0 | 0 |
| 116.00 | 750 | 40.0 | 3 | 3 |
| 119.99 | 750 | 40.0 | 1,197 | 1,200 |
| 120.00 | 750 | 100.0 | 8 | 1,208 |
| 121.00 | 750 | 100.0 | 750 | 1,958 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 120.00' | **185.0' long x 0.5' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00<br>Coef. (English) 2.80 2.92 3.08 3.30 3.32 |
| #2 | Discarded | 115.99' | **3.000 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 112.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.07 cfs @ 12.54 hrs HW=117.33' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.07 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=115.99' TW=114.49' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 10P: Drip edge

| | | | | |
|---|---|---|---|---|
| Inflow Area = | 0.080 ac,100.00% Impervious, | Inflow Depth > | 5.44" | for 10-YR. STORM event |
| Inflow = | 0.44 cfs @ | 12.09 hrs, Volume= | 0.036 af | |
| Outflow = | 0.08 cfs @ | 12.54 hrs, Volume= | 0.036 af, Atten= 82%, Lag= 26.9 min | |
| Discarded = | 0.08 cfs @ | 12.54 hrs, Volume= | 0.036 af | |
| Primary = | 0.00 cfs @ | 0.00 hrs, Volume= | 0.000 af | |

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 117.27' @ 12.54 hrs Surf.Area= 860 sf Storage= 441 cf

Plug-Flow detention time= 37.7 min calculated for 0.036 af (100% of inflow)
Center-of-Mass det. time= 36.7 min ( 782.2 - 745.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 115.99' | 2,245 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 115.99 | 860 | 0.0 | 0 | 0 |
| 116.00 | 860 | 40.0 | 3 | 3 |
| 119.99 | 860 | 40.0 | 1,373 | 1,376 |
| 120.00 | 860 | 100.0 | 9 | 1,385 |
| 121.00 | 860 | 100.0 | 860 | 2,245 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 120.00' | **215.0' long x 0.5' breadth Broad-Crested Rectangular Weir** |
| | | | Head (feet) 0.20 0.40 0.60 0.80 1.00 |
| | | | Coef. (English) 2.80 2.92 3.08 3.30 3.32 |
| #2 | Discarded | 115.99' | **3.000 in/hr Exfiltration over Surface area** |
| | | | Conductivity to Groundwater Elevation = 112.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.08 cfs @ 12.54 hrs HW=117.27' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.08 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=115.99' TW=113.49' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 11P: Drip edge

Inflow Area = 0.116 ac,100.00% Impervious, Inflow Depth > 5.44" for 10-YR. STORM event
Inflow = 0.63 cfs @ 12.09 hrs, Volume= 0.052 af
Outflow = 0.08 cfs @ 12.65 hrs, Volume= 0.052 af, Atten= 87%, Lag= 33.6 min
Discarded = 0.08 cfs @ 12.65 hrs, Volume= 0.052 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 119.02' @ 12.65 hrs Surf.Area= 645 sf Storage= 783 cf

Plug-Flow detention time= 78.9 min calculated for 0.052 af (100% of inflow)
Center-of-Mass det. time= 77.9 min ( 823.5 - 745.6 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 115.99' | 1,683 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 115.99 | 645 | 0.0 | 0 | 0 |
| 116.00 | 645 | 40.0 | 3 | 3 |
| 119.99 | 645 | 40.0 | 1,029 | 1,032 |
| 120.00 | 645 | 100.0 | 6 | 1,038 |
| 121.00 | 645 | 100.0 | 645 | 1,683 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 120.00' | **178.0' long x 0.5' breadth Broad-Crested Rectangular Weir** |
| | | | Head (feet) 0.20 0.40 0.60 0.80 1.00 |
| | | | Coef. (English) 2.80 2.92 3.08 3.30 3.32 |
| #2 | Discarded | 115.99' | **3.000 in/hr Exfiltration over Surface area** |
| | | | Conductivity to Groundwater Elevation = 112.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.08 cfs @ 12.65 hrs HW=119.02' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.08 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=115.99' TW=112.50' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 12P: Biretention

Inflow Area = 0.317 ac, 44.08% Impervious, Inflow Depth > 0.30" for 10-YR. STORM event
Inflow = 0.04 cfs @ 12.30 hrs, Volume= 0.008 af
Outflow = 0.02 cfs @ 12.83 hrs, Volume= 0.008 af, Atten= 58%, Lag= 31.5 min
Discarded = 0.02 cfs @ 12.83 hrs, Volume= 0.008 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 112.89' @ 12.83 hrs Surf.Area= 246 sf Storage= 39 cf

Plug-Flow detention time= 17.2 min calculated for 0.008 af (99% of inflow)
Center-of-Mass det. time= 14.8 min ( 959.1 - 944.3 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 112.49' | 856 cf | **Custom Stage Data (Irregular)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Perim. (feet) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) | Wet.Area (sq-ft) |
|---|---|---|---|---|---|---|
| 112.49 | 246 | 99.0 | 0.0 | 0 | 0 | 246 |
| 112.50 | 246 | 99.0 | 40.0 | 1 | 1 | 247 |
| 113.49 | 246 | 99.0 | 40.0 | 97 | 98 | 345 |
| 113.50 | 246 | 99.0 | 5.0 | 0 | 99 | 346 |
| 114.99 | 246 | 99.0 | 5.0 | 18 | 117 | 494 |
| 115.00 | 246 | 99.0 | 100.0 | 2 | 119 | 494 |
| 116.00 | 628 | 135.1 | 100.0 | 422 | 542 | 1,177 |
| 116.50 | 628 | 135.1 | 100.0 | 314 | 856 | 1,245 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 116.00' | **60.0' long x 0.5' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00<br>Coef. (English) 2.80 2.92 3.08 3.30 3.32 |
| #2 | Discarded | 112.49' | **3.000 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 105.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.02 cfs @ 12.83 hrs HW=112.89' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.02 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=112.49' TW=113.73' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 13P: Bioretention

Inflow Area = 0.302 ac, 40.01% Impervious, Inflow Depth > 0.80" for 10-YR. STORM event
Inflow = 0.22 cfs @ 12.11 hrs, Volume= 0.020 af
Outflow = 0.04 cfs @ 12.91 hrs, Volume= 0.020 af, Atten= 81%, Lag= 47.6 min
Discarded = 0.04 cfs @ 12.91 hrs, Volume= 0.020 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 117.06' @ 12.91 hrs Surf.Area= 439 sf Storage= 229 cf

Plug-Flow detention time= 55.8 min calculated for 0.020 af (100% of inflow)
Center-of-Mass det. time= 53.9 min ( 948.9 - 895.1 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 114.49' | 1,157 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 114.49 | 421 | 0.0 | 0 | 0 |
| 114.50 | 421 | 40.0 | 2 | 2 |
| 115.49 | 421 | 40.0 | 167 | 168 |
| 115.50 | 421 | 5.0 | 0 | 169 |
| 116.99 | 421 | 5.0 | 31 | 200 |
| 117.00 | 421 | 100.0 | 4 | 204 |
| 118.00 | 742 | 100.0 | 582 | 786 |
| 118.50 | 742 | 100.0 | 371 | 1,157 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 118.00' | **45.0' long x 0.5' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00<br>Coef. (English) 2.80 2.92 3.08 3.30 3.32 |
| #2 | Discarded | 114.49' | **3.000 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 107.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.04 cfs @ 12.91 hrs HW=117.06' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.04 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=114.49' TW=109.49' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 14P: Bioretention

| | | | | |
|---|---|---|---|---|
| Inflow Area = | 0.281 ac, 40.16% Impervious, Inflow Depth > 0.73" | for 10-YR. STORM event | | |
| Inflow = | 0.18 cfs @ | 12.12 hrs, Volume= | 0.017 af | |
| Outflow = | 0.04 cfs @ | 12.87 hrs, Volume= | 0.017 af, Atten= 80%, Lag= 45.6 min | |
| Discarded = | 0.04 cfs @ | 12.87 hrs, Volume= | 0.017 af | |
| Primary = | 0.00 cfs @ | 0.00 hrs, Volume= | 0.000 af | |

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 115.62' @ 12.87 hrs Surf.Area= 441 sf Storage= 179 cf

Plug-Flow detention time= 43.5 min calculated for 0.017 af (100% of inflow)
Center-of-Mass det. time= 41.5 min ( 940.6 - 899.2 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 114.49' | 1,211 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 114.49 | 441 | 0.0 | 0 | 0 |
| 114.50 | 441 | 40.0 | 2 | 2 |
| 115.49 | 441 | 40.0 | 175 | 176 |
| 115.50 | 441 | 5.0 | 0 | 177 |
| 116.99 | 441 | 5.0 | 33 | 209 |
| 117.00 | 441 | 100.0 | 4 | 214 |
| 118.00 | 777 | 100.0 | 609 | 823 |
| 118.50 | 777 | 100.0 | 389 | 1,211 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 118.00' | **45.0' long x 0.5' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00<br>Coef. (English) 2.80 2.92 3.08 3.30 3.32 |
| #2 | Discarded | 114.49' | **3.000 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 108.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.04 cfs @ 12.87 hrs HW=115.62' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.04 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=114.49' TW=109.49' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond 15P: Bioetention

Inflow Area = 0.422 ac, 21.84% Impervious, Inflow Depth > 0.37" for 10-YR. STORM event
Inflow = 0.07 cfs @ 12.33 hrs, Volume= 0.013 af
Outflow = 0.03 cfs @ 13.05 hrs, Volume= 0.013 af, Atten= 62%, Lag= 43.3 min
Discarded = 0.03 cfs @ 13.05 hrs, Volume= 0.013 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 114.02' @ 13.05 hrs Surf.Area= 313 sf Storage= 67 cf

Plug-Flow detention time= 23.0 min calculated for 0.013 af (99% of inflow)
Center-of-Mass det. time= 20.5 min ( 972.9 - 952.4 )

| Volume | Invert | Avail.Storage | Storage Description |
|---|---|---|---|
| #1 | 113.49' | 855 cf | **Custom Stage Data (Prismatic)** Listed below (Recalc) |

| Elevation (feet) | Surf.Area (sq-ft) | Voids (%) | Inc.Store (cubic-feet) | Cum.Store (cubic-feet) |
|---|---|---|---|---|
| 113.49 | 313 | 0.0 | 0 | 0 |
| 113.50 | 313 | 40.0 | 1 | 1 |
| 114.49 | 313 | 40.0 | 124 | 125 |
| 114.50 | 313 | 5.0 | 0 | 125 |
| 115.99 | 313 | 5.0 | 23 | 149 |
| 116.00 | 313 | 100.0 | 3 | 152 |
| 117.00 | 547 | 100.0 | 430 | 582 |
| 117.50 | 547 | 100.0 | 274 | 855 |

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 117.00' | **30.0' long x 0.5' breadth Broad-Crested Rectangular Weir**<br>Head (feet) 0.20 0.40 0.60 0.80 1.00<br>Coef. (English) 2.80 2.92 3.08 3.30 3.32 |
| #2 | Discarded | 113.49' | **3.000 in/hr Exfiltration over Surface area**<br>Conductivity to Groundwater Elevation = 110.00' Phase-In= 0.10' |

**Discarded OutFlow** Max=0.03 cfs @ 13.05 hrs HW=114.02' (Free Discharge)
↑—**2=Exfiltration** ( Controls 0.03 cfs)

**Primary OutFlow** Max=0.00 cfs @ 0.00 hrs HW=113.49' TW=113.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** ( Controls 0.00 cfs)

## Summary for Pond CB1: (new Pond)

Inflow Area = 1.231 ac, 59.53% Impervious, Inflow Depth > 2.70" for 10-YR. STORM event
Inflow = 3.66 cfs @ 12.09 hrs, Volume= 0.277 af
Outflow = 3.66 cfs @ 12.09 hrs, Volume= 0.277 af, Atten= 0%, Lag= 0.0 min
Primary = 3.66 cfs @ 12.09 hrs, Volume= 0.277 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 113.91' @ 12.09 hrs
Flood Elev= 116.34'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 112.65' | **15.0" Round Culvert**<br>L= 14.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 112.65' / 112.51' S= 0.0100 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf |

**Primary OutFlow** Max=3.57 cfs @ 12.09 hrs HW=113.88' TW=109.87' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 3.57 cfs @ 3.66 fps)

## Summary for Pond CB2: CB 2

Inflow Area = 0.590 ac, 29.93% Impervious, Inflow Depth > 0.70" for 10-YR. STORM event
Inflow = 0.47 cfs @ 12.10 hrs, Volume= 0.034 af
Outflow = 0.47 cfs @ 12.10 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.10 hrs, Volume= 0.034 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 113.93' @ 12.09 hrs
Flood Elev= 116.35'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 113.00' | **15.0" Round Culvert**<br>L= 50.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 113.00' / 112.75' S= 0.0050 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf |

**Primary OutFlow** Max=0.47 cfs @ 12.10 hrs HW=113.92' TW=113.89' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.47 cfs @ 0.68 fps)

## Summary for Pond CB2497: CB2497

Inflow Area = 0.262 ac, 67.40% Impervious, Inflow Depth > 3.59" for 10-YR. STORM event
Inflow = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af
Outflow = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min
Primary = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 117.77' @ 12.09 hrs
Flood Elev= 120.93'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 117.20' | **12.0" Round Culvert**<br>L= 6.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 117.20' / 117.00' S= 0.0333 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf |

**Primary OutFlow** Max=0.93 cfs @ 12.09 hrs HW=117.77' TW=117.27' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.93 cfs @ 2.02 fps)

## Summary for Pond DMH1: DMH 1

Inflow Area = 0.262 ac, 67.40% Impervious, Inflow Depth > 3.59" for 10-YR. STORM event
Inflow = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af
Outflow = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min
Primary = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 117.27' @ 12.09 hrs
Flood Elev= 121.50'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 116.75' | **15.0" Round Culvert**<br>L= 65.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 116.75' / 116.10' S= 0.0100 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf |

**Primary OutFlow** Max=0.93 cfs @ 12.09 hrs HW=117.27' TW=116.52' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.93 cfs @ 1.93 fps)

## Summary for Pond DMH2: DMH 2

Inflow Area = 0.262 ac, 67.40% Impervious, Inflow Depth > 3.59" for 10-YR. STORM event
Inflow = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af
Outflow = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min
Primary = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 116.52' @ 12.09 hrs
Flood Elev= 122.20'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 116.00' | **15.0" Round Culvert**<br>L= 58.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 116.00' / 115.42' S= 0.0100 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf |

**Primary OutFlow** Max=0.93 cfs @ 12.09 hrs HW=116.52' TW=115.84' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.93 cfs @ 1.93 fps)

## Summary for Pond DMH3: DMH 3

Inflow Area = 0.262 ac, 67.40% Impervious, Inflow Depth > 3.59" for 10-YR. STORM event
Inflow = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af
Outflow = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min
Primary = 0.95 cfs @ 12.09 hrs, Volume= 0.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 115.84' @ 12.09 hrs
Flood Elev= 121.00'

| Device | Routing | Invert | Outlet Devices |
|---|---|---|---|
| #1 | Primary | 115.32' | **15.0" Round Culvert**<br>L= 60.0' CPP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 115.32' / 114.72' S= 0.0100 '/' Cc= 0.900<br>n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf |

**Primary OutFlow** Max=0.93 cfs @ 12.09 hrs HW=115.84' TW=109.90' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.93 cfs @ 1.93 fps)

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 4S: Subcatchment 4S** Runoff Area=66,958 sf 18.63% Impervious Runoff Depth>1.60"
Flow Length=385' Tc=7.5 min CN=48 Runoff=2.26 cfs 0.206 af

**Subcatchment 10S: Subcatchment 10S** Runoff Area=53,803 sf 21.12% Impervious Runoff Depth>1.88"
Tc=6.0 min CN=51 Runoff=2.41 cfs 0.194 af

**Subcatchment 11S: Subcatchment 11S** Runoff Area=34,838 sf 42.01% Impervious Runoff Depth>3.17"
Tc=6.0 min CN=64 Runoff=2.89 cfs 0.211 af

**Subcatchment 12S: Subcatchment 12S** Runoff Area=8,154 sf 5.41% Impervious Runoff Depth>1.09"
Tc=6.0 min CN=42 Runoff=0.16 cfs 0.017 af

**Subcatchment 13S: Subcatchment 13S** Runoff Area=100,225 sf 58.15% Impervious Runoff Depth>4.12"
Tc=6.0 min CN=73 Runoff=10.91 cfs 0.790 af

**Subcatchment 14S: Subcatchment 14S** Runoff Area=7,320 sf 50.22% Impervious Runoff Depth>3.69"
Tc=6.0 min CN=69 Runoff=0.71 cfs 0.052 af

**Subcatchment 15S: Subcatchment 15S** Runoff Area=9,956 sf 20.69% Impervious Runoff Depth>1.88"
Tc=6.0 min CN=51 Runoff=0.45 cfs 0.036 af

**Subcatchment 16S: Subcatchment 16S** Runoff Area=9,093 sf 19.41% Impervious Runoff Depth>1.79"
Tc=6.0 min CN=50 Runoff=0.38 cfs 0.031 af

**Subcatchment 17S: Subcatchment 17S** Runoff Area=14,888 sf 3.53% Impervious Runoff Depth>1.00"
Tc=6.0 min CN=41 Runoff=0.24 cfs 0.029 af

**Subcatchment 18S: Subcatchment 18S** Runoff Area=27,924 sf 86.78% Impervious Runoff Depth>6.03"
Tc=6.0 min CN=90 Runoff=4.17 cfs 0.322 af

**Subcatchment 19S: Subcatchment 19S** Runoff Area=24,919 sf 10.07% Impervious Runoff Depth>1.34"
Tc=6.0 min CN=45 Runoff=0.69 cfs 0.064 af

**Subcatchment 20S: Subcatchment 20S** Runoff Area=19,000 sf 7.56% Impervious Runoff Depth>0.55"
Flow Length=147' Tc=10.1 min CN=35 Runoff=0.10 cfs 0.020 af

**Subcatchment 21S: Subcatchment 21S** Runoff Area=5,421 sf 31.40% Impervious Runoff Depth>2.56"
Tc=6.0 min CN=58 Runoff=0.35 cfs 0.027 af

**Subcatchment 22S: Subcatchment 22S** Runoff Area=3,401 sf 100.00% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=98 Runoff=0.54 cfs 0.045 af

**Subcatchment 23S: Subcatchment 23S** Runoff Area=3,988 sf 100.00% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=98 Runoff=0.63 cfs 0.053 af

**Subcatchment 24S: Subcatchment 24S** Runoff Area=5,986 sf 100.00% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=98 Runoff=0.95 cfs 0.080 af

**Subcatchment 25S: Subcatchment 25S** Runoff Area=3,392 sf 100.00% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=98 Runoff=0.54 cfs 0.045 af

**Subcatchment 26S: Subcatchment 26S** Runoff Area=1,153 sf 100.00% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=98 Runoff=0.18 cfs 0.015 af

**Subcatchment 27S: Subcatchment 27S** Runoff Area=1,547 sf 100.00% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.021 af

**Subcatchment 28S: Subcatchment 28S** Runoff Area=2,939 sf 100.00% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=98 Runoff=0.47 cfs 0.039 af

**Subcatchment 29S: Subcatchment 29S** Runoff Area=4,171 sf 100.00% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=98 Runoff=0.66 cfs 0.056 af

**Subcatchment 30S: Subcatchment 30S** Runoff Area=3,207 sf 100.00% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=98 Runoff=0.51 cfs 0.043 af

**Subcatchment 31S: Subcatchment 31S** Runoff Area=3,152 sf 100.00% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=98 Runoff=0.50 cfs 0.042 af

**Subcatchment 32S: Subcatchment 32S** Runoff Area=3,489 sf 100.00% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=98 Runoff=0.55 cfs 0.047 af

**Subcatchment 33S: Subcatchment 33S** Runoff Area=5,037 sf 100.00% Impervious Runoff Depth>6.98"
Tc=6.0 min CN=98 Runoff=0.80 cfs 0.067 af

**Reach 1R: Analysis Point 1** Inflow=6.91 cfs 0.597 af
Outflow=6.91 cfs 0.597 af

**Reach 2R: Analysis Point 2** Inflow=0.10 cfs 0.020 af
Outflow=0.10 cfs 0.020 af

**Reach 3R: 12" culvert** Avg. Flow Depth=0.53' Max Vel=5.37 fps Inflow=2.26 cfs 0.206 af
12.0" Round Pipe n=0.011 L=113.0' S=0.0096 '/' Capacity=4.14 cfs Outflow=2.26 cfs 0.205 af

**Reach 4R: Roadside swale** Avg. Flow Depth=0.21' Max Vel=2.11 fps Inflow=2.26 cfs 0.205 af
n=0.022 L=52.0' S=0.0200 '/' Capacity=150.36 cfs Outflow=2.28 cfs 0.205 af

**Reach 5R: Roadside swale** Avg. Flow Depth=0.37' Max Vel=1.70 fps Inflow=7.12 cfs 0.404 af
n=0.022 L=495.0' S=0.0061 '/' Capacity=83.18 cfs Outflow=5.69 cfs 0.403 af

**Pond 1P: Pond 1P** Peak Elev=115.79' Storage=11,927 cf Inflow=10.91 cfs 0.791 af
Discarded=0.51 cfs 0.484 af Primary=5.53 cfs 0.199 af Outflow=6.04 cfs 0.682 af

**Pond 2P: Pond 2P** Peak Elev=112.66' Storage=4,859 cf Inflow=4.06 cfs 0.310 af
Discarded=0.49 cfs 0.309 af Primary=0.00 cfs 0.000 af Outflow=0.49 cfs 0.309 af

**Pond 3P: Pond 3P** Peak Elev=110.93' Storage=8,158 cf Inflow=7.39 cfs 0.590 af
Discarded=1.33 cfs 0.589 af Primary=0.00 cfs 0.000 af Outflow=1.33 cfs 0.589 af

**Pond 4P: Drip edge** Peak Elev=117.40' Storage=190 cf Inflow=0.18 cfs 0.015 af
Discarded=0.03 cfs 0.015 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.015 af

**Pond 5P: Drip edge** Peak Elev=117.54' Storage=262 cf Inflow=0.25 cfs 0.021 af
Discarded=0.04 cfs 0.021 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.021 af

**Pond 6P: Drip edge** Peak Elev=120.05' Storage=533 cf Inflow=0.47 cfs 0.039 af
Discarded=0.07 cfs 0.039 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.039 af

**Pond 7P: Drip edge** Peak Elev=117.77' Storage=731 cf Inflow=0.66 cfs 0.056 af
Discarded=0.10 cfs 0.056 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.056 af

**Pond 8P: Drip edge** Peak Elev=117.53' Storage=542 cf Inflow=0.51 cfs 0.043 af
Discarded=0.08 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.043 af

**Pond 9P: Drip edge** Peak Elev=117.85' Storage=558 cf Inflow=0.50 cfs 0.042 af
Discarded=0.08 cfs 0.042 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.042 af

**Pond 10P: Drip edge** Peak Elev=117.77' Storage=611 cf Inflow=0.55 cfs 0.047 af
Discarded=0.09 cfs 0.046 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.046 af

**Pond 11P: Drip edge** Peak Elev=120.00' Storage=1,041 cf Inflow=0.80 cfs 0.067 af
Discarded=0.09 cfs 0.066 af Primary=0.10 cfs 0.001 af Outflow=0.19 cfs 0.067 af

**Pond 12P: Biretention** Peak Elev=115.25' Storage=191 cf Inflow=0.16 cfs 0.017 af
Discarded=0.03 cfs 0.017 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.017 af

**Pond 13P: Bioretention** Peak Elev=117.64' Storage=540 cf Inflow=0.45 cfs 0.036 af
Discarded=0.06 cfs 0.036 af Primary=0.00 cfs 0.000 af Outflow=0.06 cfs 0.036 af

**Pond 14P: Bioretention** Peak Elev=117.43' Storage=436 cf Inflow=0.38 cfs 0.031 af
Discarded=0.05 cfs 0.031 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.031 af

**Pond 15P: Bioetention** Peak Elev=116.44' Storage=313 cf Inflow=0.24 cfs 0.029 af
Discarded=0.05 cfs 0.028 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.028 af

**Pond CB1: (new Pond)** Peak Elev=114.37' Inflow=4.89 cfs 0.374 af
15.0" Round Culvert n=0.013 L=14.0' S=0.0100 '/' Outflow=4.89 cfs 0.374 af

**Pond CB2: CB 2** Peak Elev=114.39' Inflow=0.71 cfs 0.052 af
15.0" Round Culvert n=0.013 L=50.0' S=0.0050 '/' Outflow=0.71 cfs 0.052 af

**Pond CB2497: CB2497** Peak Elev=117.89' Inflow=1.30 cfs 0.106 af
12.0" Round Culvert n=0.013 L=6.0' S=0.0333 '/' Outflow=1.30 cfs 0.106 af

**Pond DMH1: DMH 1** Peak Elev=117.37' Inflow=1.30 cfs 0.106 af
15.0" Round Culvert n=0.013 L=65.0' S=0.0100 '/' Outflow=1.30 cfs 0.106 af

**Pond DMH2: DMH 2** Peak Elev=116.62' Inflow=1.30 cfs 0.106 af
15.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=1.30 cfs 0.106 af

**Pond DMH3: DMH 3** Peak Elev=115.94' Inflow=1.30 cfs 0.106 af
15.0" Round Culvert n=0.013 L=60.0' S=0.0100 '/' Outflow=1.30 cfs 0.106 af

**Total Runoff Area = 9.733 ac Runoff Volume = 2.551 af Average Runoff Depth = 3.15"**
**58.35% Pervious = 5.679 ac 41.65% Impervious = 4.053 ac**

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 4S: Subcatchment 4S** Runoff Area=66,958 sf 18.63% Impervious Runoff Depth>2.42"
Flow Length=385' Tc=7.5 min CN=48 Runoff=3.74 cfs 0.310 af

**Subcatchment 10S: Subcatchment 10S** Runoff Area=53,803 sf 21.12% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=51 Runoff=3.73 cfs 0.285 af

**Subcatchment 11S: Subcatchment 11S** Runoff Area=34,838 sf 42.01% Impervious Runoff Depth>4.30"
Tc=6.0 min CN=64 Runoff=3.95 cfs 0.287 af

**Subcatchment 12S: Subcatchment 12S** Runoff Area=8,154 sf 5.41% Impervious Runoff Depth>1.76"
Tc=6.0 min CN=42 Runoff=0.31 cfs 0.027 af

**Subcatchment 13S: Subcatchment 13S** Runoff Area=100,225 sf 58.15% Impervious Runoff Depth>5.39"
Tc=6.0 min CN=73 Runoff=14.19 cfs 1.033 af

**Subcatchment 14S: Subcatchment 14S** Runoff Area=7,320 sf 50.22% Impervious Runoff Depth>4.90"
Tc=6.0 min CN=69 Runoff=0.95 cfs 0.069 af

**Subcatchment 15S: Subcatchment 15S** Runoff Area=9,956 sf 20.69% Impervious Runoff Depth>2.77"
Tc=6.0 min CN=51 Runoff=0.69 cfs 0.053 af

**Subcatchment 16S: Subcatchment 16S** Runoff Area=9,093 sf 19.41% Impervious Runoff Depth>2.65"
Tc=6.0 min CN=50 Runoff=0.60 cfs 0.046 af

**Subcatchment 17S: Subcatchment 17S** Runoff Area=14,888 sf 3.53% Impervious Runoff Depth>1.65"
Tc=6.0 min CN=41 Runoff=0.52 cfs 0.047 af

**Subcatchment 18S: Subcatchment 18S** Runoff Area=27,924 sf 86.78% Impervious Runoff Depth>7.44"
Tc=6.0 min CN=90 Runoff=5.08 cfs 0.398 af

**Subcatchment 19S: Subcatchment 19S** Runoff Area=24,919 sf 10.07% Impervious Runoff Depth>2.09"
Tc=6.0 min CN=45 Runoff=1.21 cfs 0.099 af

**Subcatchment 20S: Subcatchment 20S** Runoff Area=19,000 sf 7.56% Impervious Runoff Depth>1.03"
Flow Length=147' Tc=10.1 min CN=35 Runoff=0.24 cfs 0.038 af

**Subcatchment 21S: Subcatchment 21S** Runoff Area=5,421 sf 31.40% Impervious Runoff Depth>3.59"
Tc=6.0 min CN=58 Runoff=0.51 cfs 0.037 af

**Subcatchment 22S: Subcatchment 22S** Runoff Area=3,401 sf 100.00% Impervious Runoff Depth>8.40"
Tc=6.0 min CN=98 Runoff=0.65 cfs 0.055 af

**Subcatchment 23S: Subcatchment 23S** Runoff Area=3,988 sf 100.00% Impervious Runoff Depth>8.40"
Tc=6.0 min CN=98 Runoff=0.76 cfs 0.064 af

**Subcatchment 24S: Subcatchment 24S** Runoff Area=5,986 sf 100.00% Impervious Runoff Depth>8.40"
Tc=6.0 min CN=98 Runoff=1.14 cfs 0.096 af

**Subcatchment 25S: Subcatchment 25S** Runoff Area=3,392 sf 100.00% Impervious Runoff Depth>8.40"
Tc=6.0 min CN=98 Runoff=0.65 cfs 0.055 af

**Subcatchment 26S: Subcatchment 26S** Runoff Area=1,153 sf 100.00% Impervious Runoff Depth>8.40"
Tc=6.0 min CN=98 Runoff=0.22 cfs 0.019 af

**Subcatchment 27S: Subcatchment 27S** Runoff Area=1,547 sf 100.00% Impervious Runoff Depth>8.40"
Tc=6.0 min CN=98 Runoff=0.29 cfs 0.025 af

**Subcatchment 28S: Subcatchment 28S** Runoff Area=2,939 sf 100.00% Impervious Runoff Depth>8.40"
Tc=6.0 min CN=98 Runoff=0.56 cfs 0.047 af

**Subcatchment 29S: Subcatchment 29S** Runoff Area=4,171 sf 100.00% Impervious Runoff Depth>8.40"
Tc=6.0 min CN=98 Runoff=0.79 cfs 0.067 af

**Subcatchment 30S: Subcatchment 30S** Runoff Area=3,207 sf 100.00% Impervious Runoff Depth>8.40"
Tc=6.0 min CN=98 Runoff=0.61 cfs 0.052 af

**Subcatchment 31S: Subcatchment 31S** Runoff Area=3,152 sf 100.00% Impervious Runoff Depth>8.40"
Tc=6.0 min CN=98 Runoff=0.60 cfs 0.051 af

**Subcatchment 32S: Subcatchment 32S** Runoff Area=3,489 sf 100.00% Impervious Runoff Depth>8.40"
Tc=6.0 min CN=98 Runoff=0.66 cfs 0.056 af

**Subcatchment 33S: Subcatchment 33S** Runoff Area=5,037 sf 100.00% Impervious Runoff Depth>8.40"
Tc=6.0 min CN=98 Runoff=0.96 cfs 0.081 af

**Reach 1R: Analysis Point 1** Inflow=15.06 cfs 0.988 af
Outflow=15.06 cfs 0.988 af

**Reach 2R: Analysis Point 2** Inflow=0.24 cfs 0.038 af
Outflow=0.24 cfs 0.038 af

**Reach 3R: 12" culvert** Avg. Flow Depth=0.74' Max Vel=5.94 fps Inflow=3.74 cfs 0.310 af
12.0" Round Pipe n=0.011 L=113.0' S=0.0096 '/' Capacity=4.14 cfs Outflow=3.69 cfs 0.310 af

**Reach 4R: Roadside swale** Avg. Flow Depth=0.25' Max Vel=2.38 fps Inflow=3.69 cfs 0.310 af
n=0.022 L=52.0' S=0.0200 '/' Capacity=150.36 cfs Outflow=3.70 cfs 0.310 af

**Reach 5R: Roadside swale** Avg. Flow Depth=0.49' Max Vel=2.07 fps Inflow=16.28 cfs 0.704 af
n=0.022 L=495.0' S=0.0061 '/' Capacity=83.18 cfs Outflow=12.71 cfs 0.703 af

**Pond 1P: Pond 1P** Peak Elev=115.91' Storage=12,519 cf Inflow=14.19 cfs 1.040 af
Discarded=0.52 cfs 0.513 af Primary=12.67 cfs 0.394 af Outflow=13.19 cfs 0.907 af

**Pond 2P: Pond 2P** Peak Elev=113.08' Storage=6,976 cf Inflow=5.36 cfs 0.409 af
Discarded=0.58 cfs 0.408 af Primary=0.00 cfs 0.000 af Outflow=0.58 cfs 0.408 af

**Pond 3P: Pond 3P** Peak Elev=111.38' Storage=11,220 cf Inflow=9.51 cfs 0.756 af
Discarded=1.49 cfs 0.755 af Primary=0.00 cfs 0.000 af Outflow=1.49 cfs 0.755 af

**Pond 4P: Drip edge** Peak Elev=117.79' Storage=243 cf Inflow=0.22 cfs 0.019 af
Discarded=0.03 cfs 0.019 af Primary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.019 af

**Pond 5P: Drip edge** Peak Elev=117.96' Storage=333 cf Inflow=0.29 cfs 0.025 af
Discarded=0.04 cfs 0.025 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.025 af

**Pond 6P: Drip edge** Peak Elev=120.60' Storage=675 cf Inflow=0.56 cfs 0.047 af
Discarded=0.07 cfs 0.047 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.047 af

**Pond 7P: Drip edge** Peak Elev=118.25' Storage=928 cf Inflow=0.79 cfs 0.067 af
Discarded=0.11 cfs 0.067 af Primary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.067 af

**Pond 8P: Drip edge** Peak Elev=117.95' Storage=690 cf Inflow=0.61 cfs 0.052 af
Discarded=0.09 cfs 0.051 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.051 af

**Pond 9P: Drip edge** Peak Elev=118.35' Storage=708 cf Inflow=0.60 cfs 0.051 af
Discarded=0.08 cfs 0.051 af Primary=0.00 cfs 0.000 af Outflow=0.08 cfs 0.051 af

**Pond 10P: Drip edge** Peak Elev=118.24' Storage=775 cf Inflow=0.66 cfs 0.056 af
Discarded=0.09 cfs 0.056 af Primary=0.00 cfs 0.000 af Outflow=0.09 cfs 0.056 af

**Pond 11P: Drip edge** Peak Elev=120.01' Storage=1,046 cf Inflow=0.96 cfs 0.081 af
Discarded=0.09 cfs 0.073 af Primary=0.66 cfs 0.008 af Outflow=0.75 cfs 0.081 af

**Pond 12P: Biretention** Peak Elev=115.72' Storage=385 cf Inflow=0.31 cfs 0.027 af
Discarded=0.04 cfs 0.027 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.027 af

**Pond 13P: Bioretention** Peak Elev=118.01' Storage=796 cf Inflow=0.69 cfs 0.053 af
Discarded=0.07 cfs 0.049 af Primary=0.20 cfs 0.003 af Outflow=0.27 cfs 0.053 af

**Pond 14P: Bioretention** Peak Elev=117.91' Storage=751 cf Inflow=0.60 cfs 0.046 af
Discarded=0.07 cfs 0.046 af Primary=0.00 cfs 0.000 af Outflow=0.07 cfs 0.046 af

**Pond 15P: Bioetention** Peak Elev=117.01' Storage=588 cf Inflow=0.52 cfs 0.047 af
Discarded=0.06 cfs 0.044 af Primary=0.09 cfs 0.003 af Outflow=0.16 cfs 0.047 af

**Pond CB1: (new Pond)** Peak Elev=114.94' Inflow=6.03 cfs 0.469 af
15.0" Round Culvert n=0.013 L=14.0' S=0.0100 '/' Outflow=6.03 cfs 0.469 af

**Pond CB2: CB 2** Peak Elev=114.98' Inflow=0.95 cfs 0.071 af
15.0" Round Culvert n=0.013 L=50.0' S=0.0050 '/' Outflow=0.95 cfs 0.071 af

**Pond CB2497: CB2497** Peak Elev=118.01' Inflow=1.64 cfs 0.133 af
12.0" Round Culvert n=0.013 L=6.0' S=0.0333 '/' Outflow=1.64 cfs 0.133 af

**Pond DMH1: DMH 1** Peak Elev=117.46' Inflow=1.64 cfs 0.133 af
15.0" Round Culvert n=0.013 L=65.0' S=0.0100 '/' Outflow=1.64 cfs 0.133 af

**Pond DMH2: DMH 2** Peak Elev=116.71' Inflow=1.64 cfs 0.133 af
15.0" Round Culvert n=0.013 L=58.0' S=0.0100 '/' Outflow=1.64 cfs 0.133 af

**Pond DMH3: DMH 3** Peak Elev=116.03' Inflow=1.64 cfs 0.133 af
15.0" Round Culvert n=0.013 L=60.0' S=0.0100 '/' Outflow=1.64 cfs 0.133 af

**Total Runoff Area = 9.733 ac Runoff Volume = 3.395 af Average Runoff Depth = 4.19"**
**58.35% Pervious = 5.679 ac 41.65% Impervious = 4.053 ac**

**Select Product**

- Extreme Precipitation Tables - HTML
- Extreme Precipitation Tables - Text/CSV
- Partial Duration Series - by Point
- Partial Duration Series - by Station
- Distribution Curves - Graphical
- Distribution Curves - Text/TBL
- Intensity Frequency Duration Graphs
- Precipitation Frequency Duration Graphs
- GIS Data Files
- Regional/State Maps

**Select Location** Double-click the map to place a marker, or enter address or latitude/longitude.

Locate by Address | Locate by Lat/Lon °N °W | Locate by State/County


**Select Options**

| Smoothing | Delivery |
|---|---|
| Yes | Popup |

**Submit**


This project is a joint collaboration between:

Northeast Regional Climate Center (NRCC) | Natural Resources Conservation Service (NRCS)

Contact: precip@cornell.edu

# Extreme Precipitation Tables

## Northeast Regional Climate Center

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

| | |
|---|---|
| **Smoothing** | Yes |
| **State** | New Hampshire |
| **Location** | |
| **Longitude** | 70.811 degrees West |
| **Latitude** | 43.002 degrees North |
| **Elevation** | 0 feet |
| **Date/Time** | Fri, 04 Jun 2021 14:21:06 -0400 |

+15%
2 YR. 3.74
10 YR. 5.68
25 YR 7.22
50 YR. 8.65

## Extreme Precipitation Estimates

| | 5min | 10min | 15min | 30min | 60min | 120min | | 1hr | 2hr | 3hr | 6hr | 12hr | 24hr | 48hr | | 1day | 2day | 4day | 7day | 10day | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1yr** | 0.26 | 0.40 | 0.50 | 0.66 | 0.82 | 1.04 | **1yr** | 0.71 | 0.98 | 1.22 | 1.57 | 2.05 | 2.70 | 2.97 | **1yr** | 2.39 | 2.85 | 3.27 | 3.99 | 4.62 | **1yr** |
| **2yr** | 0.32 | 0.50 | 0.62 | 0.82 | 1.03 | 1.31 | **2yr** | 0.89 | 1.19 | 1.52 | 1.95 | 2.51 | 3.25 | 3.62 | **2yr** | 2.88 | 3.48 | 3.99 | 4.74 | 5.40 | **2yr** |
| **5yr** | 0.38 | 0.58 | 0.73 | 0.98 | 1.26 | 1.62 | **5yr** | 1.08 | 1.48 | 1.90 | 2.45 | 3.18 | 4.13 | 4.65 | **5yr** | 3.65 | 4.47 | 5.12 | 6.03 | 6.80 | **5yr** |
| **10yr** | 0.42 | 0.65 | 0.83 | 1.12 | 1.46 | 1.91 | **10yr** | 1.26 | 1.74 | 2.25 | 2.93 | 3.80 | 4.94 | 5.62 | **10yr** | 4.38 | 5.40 | 6.19 | 7.23 | 8.10 | **10yr** |
| **25yr** | 0.48 | 0.77 | 0.98 | 1.35 | 1.79 | 2.36 | **25yr** | 1.55 | 2.16 | 2.81 | 3.68 | 4.81 | 6.28 | 7.22 | **25yr** | 5.56 | 6.94 | 7.96 | 9.20 | 10.22 | **25yr** |
| **50yr** | 0.54 | 0.87 | 1.11 | 1.56 | 2.10 | 2.79 | **50yr** | 1.81 | 2.55 | 3.33 | 4.39 | 5.75 | 7.52 | 8.73 | **50yr** | 6.66 | 8.40 | 9.63 | 11.04 | 12.19 | **50yr** |
| **100yr** | 0.61 | 0.98 | 1.27 | 1.80 | 2.45 | 3.30 | **100yr** | 2.12 | 3.01 | 3.96 | 5.24 | 6.89 | 9.02 | 10.57 | **100yr** | 7.98 | 10.16 | 11.65 | 13.25 | 14.54 | **100yr** |
| **200yr** | 0.69 | 1.12 | 1.45 | 2.08 | 2.87 | 3.90 | **200yr** | 2.48 | 3.56 | 4.70 | 6.24 | 8.23 | 10.82 | 12.79 | **200yr** | 9.57 | 12.29 | 14.10 | 15.92 | 17.36 | **200yr** |
| **500yr** | 0.82 | 1.34 | 1.75 | 2.53 | 3.54 | 4.86 | **500yr** | 3.06 | 4.44 | 5.87 | 7.86 | 10.43 | 13.76 | 16.46 | **500yr** | 12.18 | 15.83 | 18.15 | 20.29 | 21.95 | **500yr** |

## Lower Confidence Limits

| | 5min | 10min | 15min | 30min | 60min | 120min | | 1hr | 2hr | 3hr | 6hr | 12hr | 24hr | 48hr | | 1day | 2day | 4day | 7day | 10day | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1yr** | 0.23 | 0.36 | 0.44 | 0.59 | 0.72 | 0.89 | **1yr** | 0.62 | 0.87 | 0.92 | 1.33 | 1.66 | 2.27 | 2.63 | **1yr** | 2.01 | 2.53 | 2.90 | 3.16 | 3.95 | **1yr** |
| **2yr** | 0.32 | 0.49 | 0.60 | 0.81 | 1.00 | 1.19 | **2yr** | 0.87 | 1.17 | 1.37 | 1.82 | 2.33 | 3.10 | 3.52 | **2yr** | 2.75 | 3.39 | 3.89 | 4.62 | 5.14 | **2yr** |
| **5yr** | 0.35 | 0.55 | 0.68 | 0.93 | 1.18 | 1.41 | **5yr** | 1.02 | 1.38 | 1.62 | 2.12 | 2.73 | 3.87 | 4.31 | **5yr** | 3.42 | 4.14 | 4.81 | 5.67 | 6.39 | **5yr** |
| **10yr** | 0.39 | 0.60 | 0.75 | 1.04 | 1.35 | 1.62 | **10yr** | 1.16 | 1.58 | 1.81 | 2.39 | 3.06 | 4.47 | 5.03 | **10yr** | 3.96 | 4.84 | 5.63 | 6.61 | 7.39 | **10yr** |
| **25yr** | 0.45 | 0.68 | 0.85 | 1.21 | 1.59 | 1.92 | **25yr** | 1.38 | 1.88 | 2.11 | 2.75 | 3.54 | 4.81 | 6.15 | **25yr** | 4.25 | 5.91 | 6.96 | 8.11 | 8.97 | **25yr** |
| **50yr** | 0.49 | 0.75 | 0.94 | 1.35 | 1.81 | 2.20 | **50yr** | 1.57 | 2.15 | 2.36 | 3.07 | 3.94 | 5.45 | 7.14 | **50yr** | 4.82 | 6.87 | 8.18 | 9.47 | 10.39 | **50yr** |
| **100yr** | 0.55 | 0.84 | 1.05 | 1.52 | 2.08 | 2.51 | **100yr** | 1.79 | 2.45 | 2.65 | 3.40 | 4.36 | 6.14 | 8.30 | **100yr** | 5.43 | 7.99 | 9.62 | 11.07 | 12.03 | **100yr** |
| **200yr** | 0.62 | 0.93 | 1.17 | 1.70 | 2.37 | 2.86 | **200yr** | 2.05 | 2.80 | 2.96 | 3.76 | 4.82 | 6.90 | 9.66 | **200yr** | 6.11 | 9.29 | 11.32 | 12.96 | 13.95 | **200yr** |
| **500yr** | 0.72 | 1.07 | 1.38 | 2.00 | 2.85 | 3.43 | **500yr** | 2.46 | 3.36 | 3.45 | 4.29 | 5.50 | 8.07 | 11.79 | **500yr** | 7.14 | 11.34 | 14.07 | 15.98 | 16.93 | **500yr** |

## Upper Confidence Limits

| | 5min | 10min | 15min | 30min | 60min | 120min | | 1hr | 2hr | 3hr | 6hr | 12hr | 24hr | 48hr | | 1day | 2day | 4day | 7day | 10day | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1yr** | 0.29 | 0.44 | 0.54 | 0.73 | 0.89 | 1.09 | **1yr** | 0.77 | 1.06 | 1.27 | 1.74 | 2.20 | 3.04 | 3.17 | **1yr** | 2.69 | 3.05 | 3.64 | 4.42 | 5.13 | **1yr** |
| **2yr** | 0.34 | 0.52 | 0.64 | 0.87 | 1.07 | 1.27 | **2yr** | 0.92 | 1.25 | 1.48 | 1.96 | 2.51 | 3.47 | 3.73 | **2yr** | 3.07 | 3.58 | 4.11 | 4.88 | 5.71 | **2yr** |
| **5yr** | 0.40 | 0.62 | 0.77 | 1.05 | 1.34 | 1.63 | **5yr** | 1.16 | 1.59 | 1.89 | 2.53 | 3.24 | 4.39 | 4.97 | **5yr** | 3.89 | 4.78 | 5.44 | 6.40 | 7.19 | **5yr** |
| **10yr** | 0.47 | 0.72 | 0.90 | 1.25 | 1.62 | 1.99 | **10yr** | 1.40 | 1.94 | 2.28 | 3.10 | 3.93 | 5.40 | 6.19 | **10yr** | 4.78 | 5.95 | 6.79 | 7.86 | 8.78 | **10yr** |
| **25yr** | 0.58 | 0.88 | 1.10 | 1.57 | 2.06 | 2.59 | **25yr** | 1.78 | 2.53 | 2.95 | 4.05 | 5.11 | 7.89 | 8.28 | **25yr** | 6.99 | 7.96 | 9.03 | 10.34 | 11.42 | **25yr** |
| **50yr** | 0.68 | 1.03 | 1.28 | 1.84 | 2.48 | 3.15 | **50yr** | 2.14 | 3.08 | 3.59 | 4.97 | 6.26 | 9.88 | 10.33 | **50yr** | 8.75 | 9.94 | 11.22 | 12.71 | 13.95 | **50yr** |
| **100yr** | 0.80 | 1.20 | 1.51 | 2.18 | 2.99 | 3.84 | **100yr** | 2.58 | 3.75 | 4.36 | 6.12 | 7.67 | 12.36 | 12.89 | **100yr** | 10.94 | 12.40 | 13.93 | 15.65 | 17.04 | **100yr** |
| **200yr** | 0.93 | 1.40 | 1.78 | 2.57 | 3.59 | 4.69 | **200yr** | 3.09 | 4.58 | 5.32 | 7.54 | 9.41 | 15.50 | 16.10 | **200yr** | 13.72 | 15.49 | 17.31 | 19.24 | 20.83 | **200yr** |
| **500yr** | 1.15 | 1.72 | 2.21 | 3.21 | 4.57 | 6.09 | **500yr** | 3.94 | 5.95 | 6.91 | 9.96 | 12.35 | 20.93 | 21.60 | **500yr** | 18.52 | 20.77 | 23.06 | 25.30 | 27.18 | **500yr** |

Powered by ACIS
Northeast Regional Climate Center

# SITE-SPECIFIC SOIL SURVEY REPORT
Hector's Site
Lafayette Road
Rye, NH
GES # 2020014

1. MAPPING STANDARDS

*Site-Specific Soil Mapping Standards for New Hampshire and Vermont.* SSSNNE Special Publication No. 3, Version 5.0, December 2017. This map product is within the technical standards of the National Cooperative Soil Survey. It is a special product, intended for the submission to NH DES Alteration of Terrain. It was produced by a professional soil scientist and is not a product of the USDA Natural Resource Conservation Service.

Hydrologic Soil Group was determined using SSSNNE Special Publication No. 5, Ksat Values for New Hampshire Soils, September 2009.

High Intensity Soil Survey (HISS) Symbols were determined using SSSNNE Special Publication No. 1, High Intensity Soil Maps for New Hampshire, December 2017.

2. DATE SOIL MAP PRODUCED
13 July 2020

3. GEOGRAPHIC LOCATION AND SIZE OF SITE

Approximately 9.56 acres. Tax map 10, Lot 1. The site is located in the Town of Rye, NH.

8 Continental Dr Bldg 2 Unit H, Exeter, NH 03833-7526
*Ph* (603) 778 0644 / *Fax* (603) 778 0654
*info@gesinc.biz*
*www.gesinc.biz*

4. PURPOSE OF THE SOIL MAP

The preparation of this map was requested by Jones & Beach Engineers. The purpose was to meet the requirements of NH Alteration of Terrain and NH DES Subsurface.

5. SOIL IDENTIFICATION LEGEND

| SSSM SYM. | SSS MAP NAME | HISS SYM. | HYDROLOGIC SOIL GRP. |
|---|---|---|---|
| 10 | Merrimac fine sandy loam | 111 | A |
| 599 | Urban land – Hoosic Complex | 261 | A |

SLOPE PHASE:

| | | | | | |
|---|---|---|---|---|---|
| 0-8% | B | 8-15% | C | 15-25% | D |
| 25%+ | E | | | | |

6. SOIL MAP UNIT DESCRIPTIONS

24 MERRIMAC FINE SANDY LOAM.

This soil has developed on outwash plains. By contrast to the excessively drained Windsor or Hinckley, this soil has a fine sandy loam solum (Ap and Bw) which overlays a coarse gravelly sand textured substratum (2C). The fine sandy loam cap gives Agawam a somewhat excessively drainage classification.

The typical Ap horizon ranges from 7.5YR to 2.5Y, with value of 3 or 4 and chroma of 2 to 4, with textures of fine sandy loam to loam,

The Bw horizon ranges from 7.5YR to 10YR, with value of 4 to 7 and chroma of 3 to 8. Textures are fine sandy loam to loam.

The 2C horizon ranges from 10YR to 5Y, with value of 3 to 7 and chroma of 1-4. Textures are coarse to fine sand. Gravel fragments range are 40%.

In review the test pits that were logged by Chris Albert of Jones & Beach, the range of soil characteristics noted in the test pits match the above range in characteristics noted above for the Merrimac soil series.

The "2" C notation on the substratum denotes a lithologic discontinuity in the soil profile, which is to say that two geologic events created this soil profile.

The following soil map unit represent areas that have been disturbed, graded, excavated or filled. Hydrologic soil groups have been estimated based upon the soil textures, mineral restrictive layers (if present), and estimated seasonal high water table (if they could be determined by redoximorphic features or other indicators).

599 URBAN LAND – HOOSIC COMPLEX

This map unit represents an area of pavement and gravel parking that has been compacted to be virtually impervious. However, if the pavement was removed and the packed gravel was broken up, it would have rapid infiltration in the substratum. The water table is very deep and the textures are similar to the Hoosic or Merrimac, where there is no pavement.

7. RESPONSIBLE SOIL SCIENTIST

James P. Gove, C.S.S. #004

8. OTHER DISTINGUISHING FEATURES OF SITE

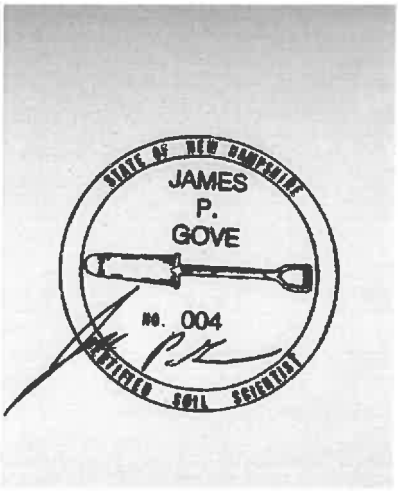
The site is relatively flat to slightly sloping. Directly to the west is a cut face of an old gravel pit. In places, the pit was excavated down to the water table.

9. MAXIMUM SIZE OF LIMITING INCLUSIONS

25% non-limiting and similar inclusions.
15% limiting and dis-similar inclusions

10. SPECIAL FEATURE SYMBOLS

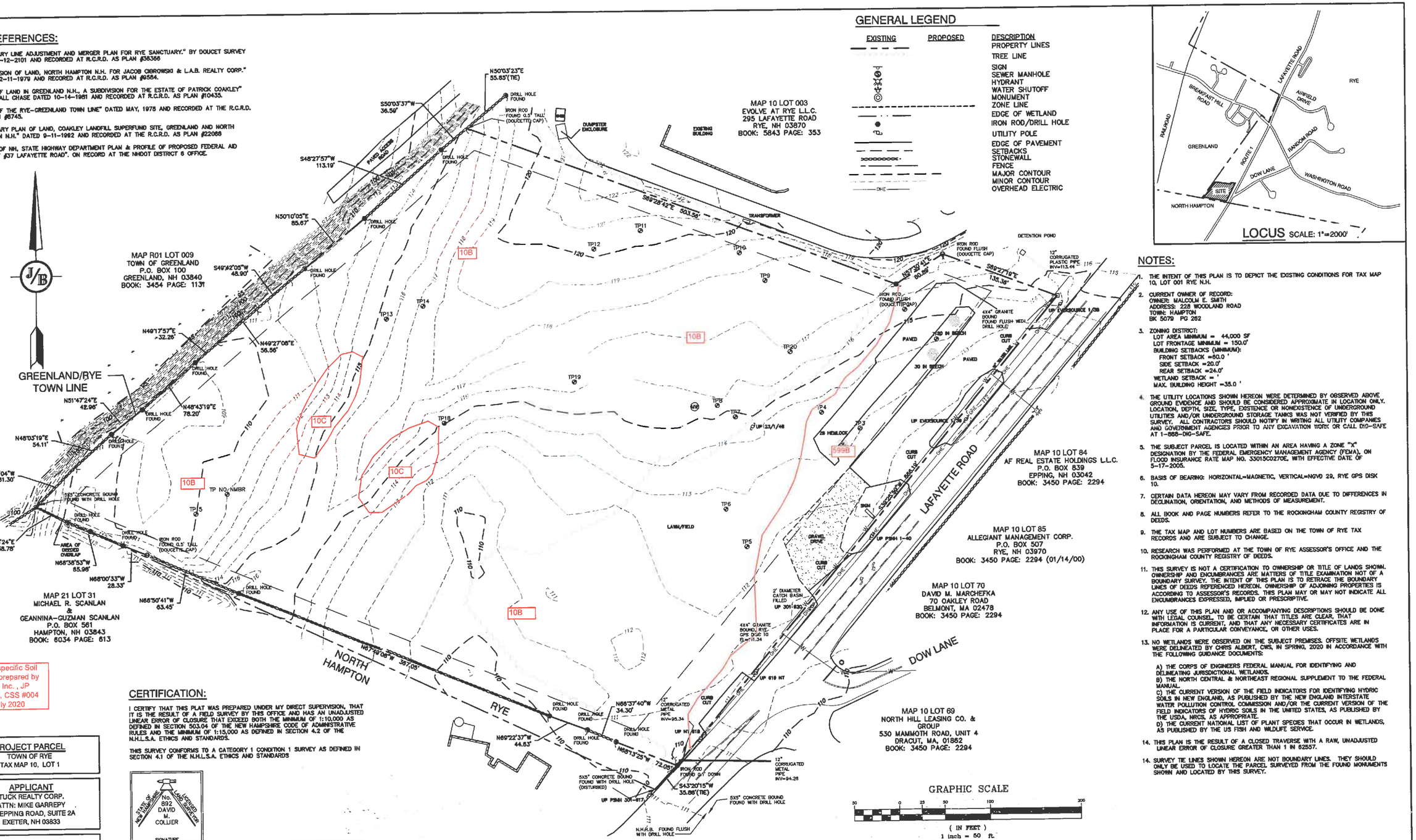
None used


STATE OF NEW HAMPSHIRE
JAMES
P.
GOVE
NO. 004
CERTIFIED SOIL SCIENTIST

10-16-2020

## PLAN REFERENCES:

1. "BOUNDARY LINE ADJUSTMENT AND MERGER PLAN FOR RYE SANCTUARY." BY DOUCET SURVEY DATED 1-12-2101 AND RECORDED AT R.C.R.D. AS PLAN #36366
2. "SUBDIVISION OF LAND, NORTH HAMPTON N.H. FOR JACOB CIBROWSKI & L.A.B. REALTY CORP." DATED 12-11-1979 AND RECORED AT R.C.R.D. AS PLAN #9584.
3. "PLAN OF LAND IN GREENLAND N.H., A SUBDIVISION FOR THE ESTATE OF PATRICK COAKLEY" BY KIMBALL CHASE DATED 10-14-1981 AND RECORDED AT R.C.R.D. AS PLAN #10435.
4. "PLAN OF THE RYE-GREENLAND TOWN LINE" DATED MAY, 1978 AND RECORDED AT THE R.C.R.D. AS PLAN #6745.
5. "BOUNDARY PLAN OF LAND, COAKLEY LANDFILL SUPERFUND SITE, GREENLAND AND NORTH HAMPTON N.H." DATED 9-11-1982 AND RECORDED AT THE R.C.R.D. AS PLAN #22066
6. "STATE OF NH, STATE HIGHWAY DEPARTMENT PLAN & PROFILE OF PROPOSED FEDERAL AID PROJECT #37 LAFAYETTE ROAD". ON RECORD AT THE NHDOT DISTRICT 6 OFFICE.







## NOTES:

1. THE INTENT OF THIS PLAN IS TO DEPICT THE EXISTING CONDITIONS FOR TAX MAP 10, LOT 001 RYE N.H.
2. CURRENT OWNER OF RECORD:
   OWNER: MALCOLM E. SMITH
   ADDRESS: 228 WOODLAND ROAD
   TOWN: HAMPTON
   BK 5079 PG 262
3. ZONING DISTRICT:
   LOT AREA MINIMUM = 44,000 SF
   LOT FRONTAGE MINIMUM = 150.0'
   BUILDING SETBACKS (MINIMUM):
   FRONT SETBACK =60.0 '
   SIDE SETBACK =20.0'
   REAR SETBACK =24.0'
   WETLAND SETBACK = '
   MAX. BUILDING HEIGHT =35.0 '
4. THE UTILITY LOCATIONS SHOWN HEREON WERE DETERMINED BY OBSERVED ABOVE GROUND EVIDENCE AND SHOULD BE CONSIDERED APPROXIMATE IN LOCATION ONLY. LOCATION, DEPTH, SIZE, TYPE, EXISTENCE OR NONEXISTENCE OF UNDERGROUND UTILITIES AND/OR UNDERGROUND STORAGE TANKS WAS NOT VERIFIED BY THIS SURVEY. ALL CONTRACTORS SHOULD NOTIFY IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO ANY EXCAVATION WORK OR CALL DIG-SAFE AT 1-888-DIG-SAFE.
5. THE SUBJECT PARCEL IS LOCATED WITHIN AN AREA HAVING A ZONE "X" DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33015C0270E, WITH EFFECTIVE DATE OF 5-17-2005.
6. BASIS OF BEARING: HORIZONTAL=MAGNETIC, VERTICAL=NGVD 29, RYE GPS DISK 10.
7. CERTAIN DATA HEREON MAY VARY FROM RECORDED DATA DUE TO DIFFERENCES IN DECLINATION, ORIENTATION, AND METHODS OF MEASUREMENT.
8. ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
9. THE TAX MAP AND LOT NUMBERS ARE BASED ON THE TOWN OF RYE TAX RECORDS AND ARE SUBJECT TO CHANGE.
10. RESEARCH WAS PERFORMED AT THE TOWN OF RYE ASSESSOR'S OFFICE AND THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
11. THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED OR PRESCRIPTIVE.
12. ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL, TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.
13. NO WETLANDS WERE OBSERVED ON THE SUBJECT PREMISES. OFFSITE WETLANDS WERE DELINEATED BY CHRIS ALBERT, CWS, IN SPRING, 2020 IN ACCORDANCE WITH THE FOLLOWING GUIDANCE DOCUMENTS:
    A) THE CORPS OF ENGINEERS FEDERAL MANUAL FOR IDENTIFYING AND DELINEATING JURISDICTIONAL WETLANDS.
    B) THE NORTH CENTRAL & NORTHEAST REGIONAL SUPPLEMENT TO THE FEDERAL MANUAL.
    C) THE CURRENT VERSION OF THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, AS PUBLISHED BY THE NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION AND/OR THE CURRENT VERSION OF THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, AS PUBLISHED BY THE USDA, NRCS, AS APPROPRIATE.
    D) THE CURRENT NATIONAL LIST OF PLANT SPECIES THAT OCCUR IN WETLANDS, AS PUBLISHED BY THE US FISH AND WILDLIFE SERVICE.
14. THIS PLAN IS THE RESULT OF A CLOSED TRAVERSE WITH A RAW, UNADJUSTED LINEAR ERROR OF CLOSURE GREATER THAN 1 IN 62557.
14. SURVEY TIE LINES SHOWN HEREON ARE NOT BOUNDARY LINES. THEY SHOULD ONLY BE USED TO LOCATE THE PARCEL SURVEYED FROM THE FOUND MONUMENTS SHOWN AND LOCATED BY THIS SURVEY.

## CERTIFICATION:

I CERTIFY THAT THIS PLAT WAS PREPARED UNDER MY DIRECT SUPERVISION, THAT IT IS THE RESULT OF A FIELD SURVEY BY THIS OFFICE AND HAS AN UNADJUSTED LINEAR ERROR OF CLOSURE THAT EXCEED BOTH THE MINIMUM OF 1:10,000 AS DEFINED IN SECTION 503.04 OF THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES AND THE MINIMUM OF 1:15,000 AS DEFINED IN SECTION 4.2 OF THE N.H.L.S.A. ETHICS AND STANDARDS.

THIS SURVEY CONFORMS TO A CATEGORY 1 CONDITION 1 SURVEY AS DEFINED IN SECTION 4.1 OF THE N.H.L.S.A. ETHICS AND STANDARDS

NEW HAMPSHIRE No. 892 DAVID M. COLLIER LICENSED LAND SURVEYOR

SIGNATURE

DAVID M. COLLIER, LLS 892 DATE:
ON BEHALF OF JONES & BEACH ENGINEERS, INC.

**PROJECT PARCEL**
TOWN OF RYE
TAX MAP 10, LOT 1

**APPLICANT**
TUCK REALTY CORP.
ATTN: MIKE GARREPY
149 EPPING ROAD, SUITE 2A
EXETER, NH 03833

**TOTAL LOT AREA**
416,460 SQ. FT.
9.56 ACRES

| | |
|---|---|
| Design: JAC | Draft: PSL |
| Checked: JAC | Scale: 1"=50' |
| Drawing Name: 18062-PLAN.dwg | Date: 12/17/19 |
| | Project No.: 18062.1 |

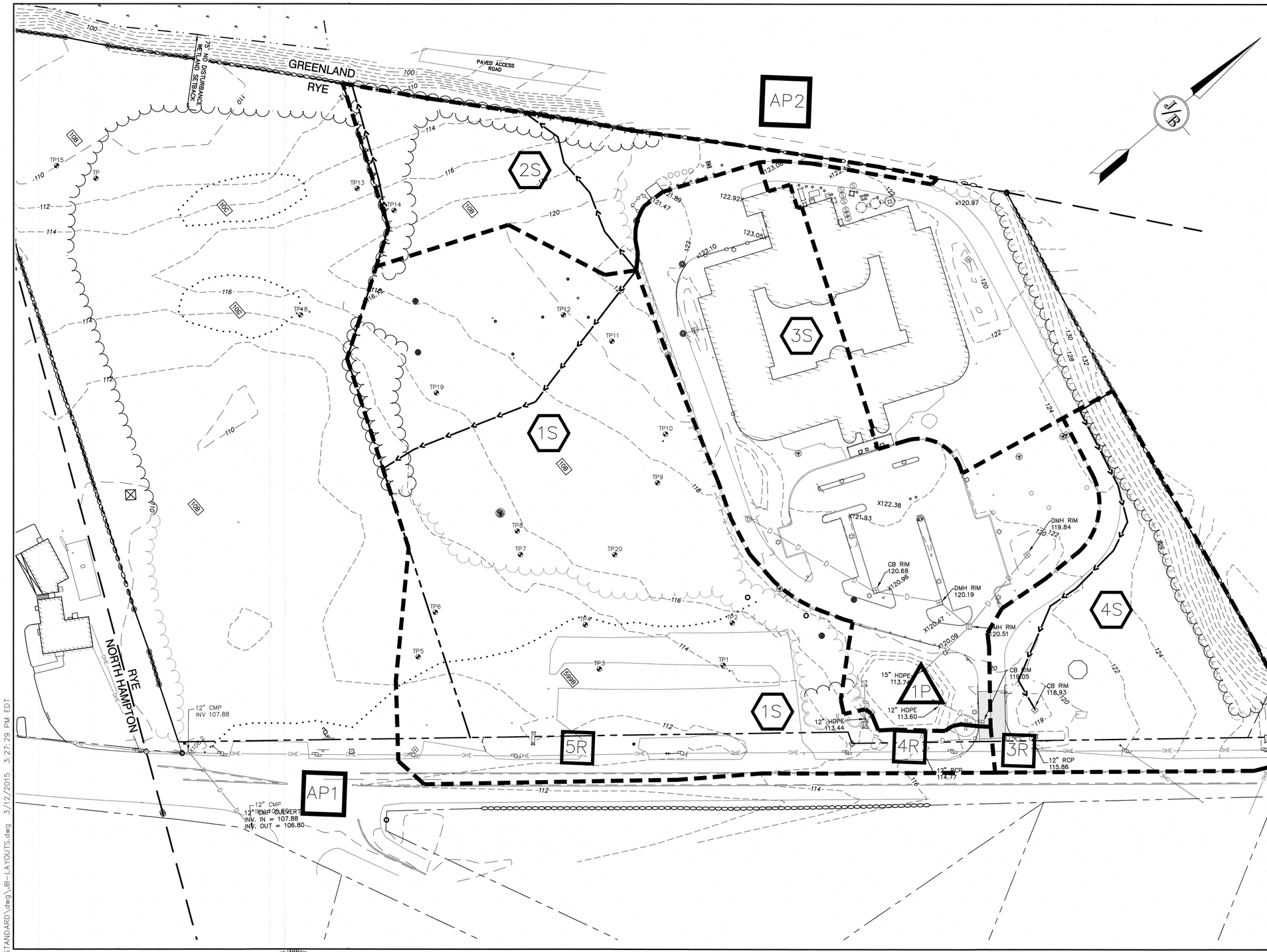


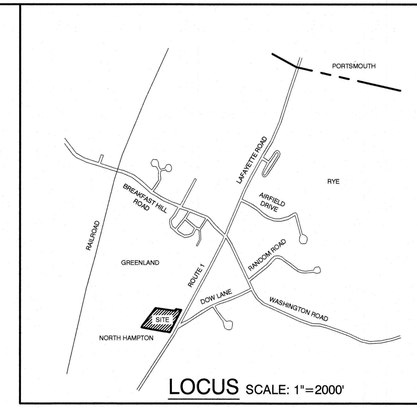
| REV. | DATE | REVISION | BY |
|---|---|---|---|
| 2 | 06/03/20 | MINOR REVISIONS | DJM |
| 1 | 02/21/20 | REVISED PLANS ISSUED FOR REVIEW | AMJ |
| 0 | 12/17/19 | ISSUED FOR REVIEW | PSL |

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

| | |
|---|---|
| Plan Name: | EXISTING CONDITIONS PLAN |
| Project: | HECTOR'S SITE<br>LAFAYETTE ROAD, RYE, NH |
| Owner of Record: | MALCOLM E. SMITH III<br>PO BOX 1020, HAMPTON, NH 03842, BK 5079 PG 0262 |

DRAWING No.
C1
SHEET 2 OF 14
JBE PROJECT NO. 18062.1




LOCUS SCALE: 1"=2000'

## LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH (X)
- POND (X)
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

GRAPHIC SCALE

50 0 25 50 100 200

( IN FEET )
1 inch = 50 ft.

**PROJECT PARCEL**
TOWN OF RYE
TAX MAP 10, LOT 1 & 3

**TOTAL LOT AREA**
663,273 SQ. FT.
15.23 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

| | | |
|---|---|---|
| Design: JAC | Draft: DJM | Date: 7/16/21 |
| Checked: JAC | Scale: 1"=50' | Project No.: 18062.2 |
| Drawing Name: 18062-WATERSHED-BENCHMARK.dwg | | |



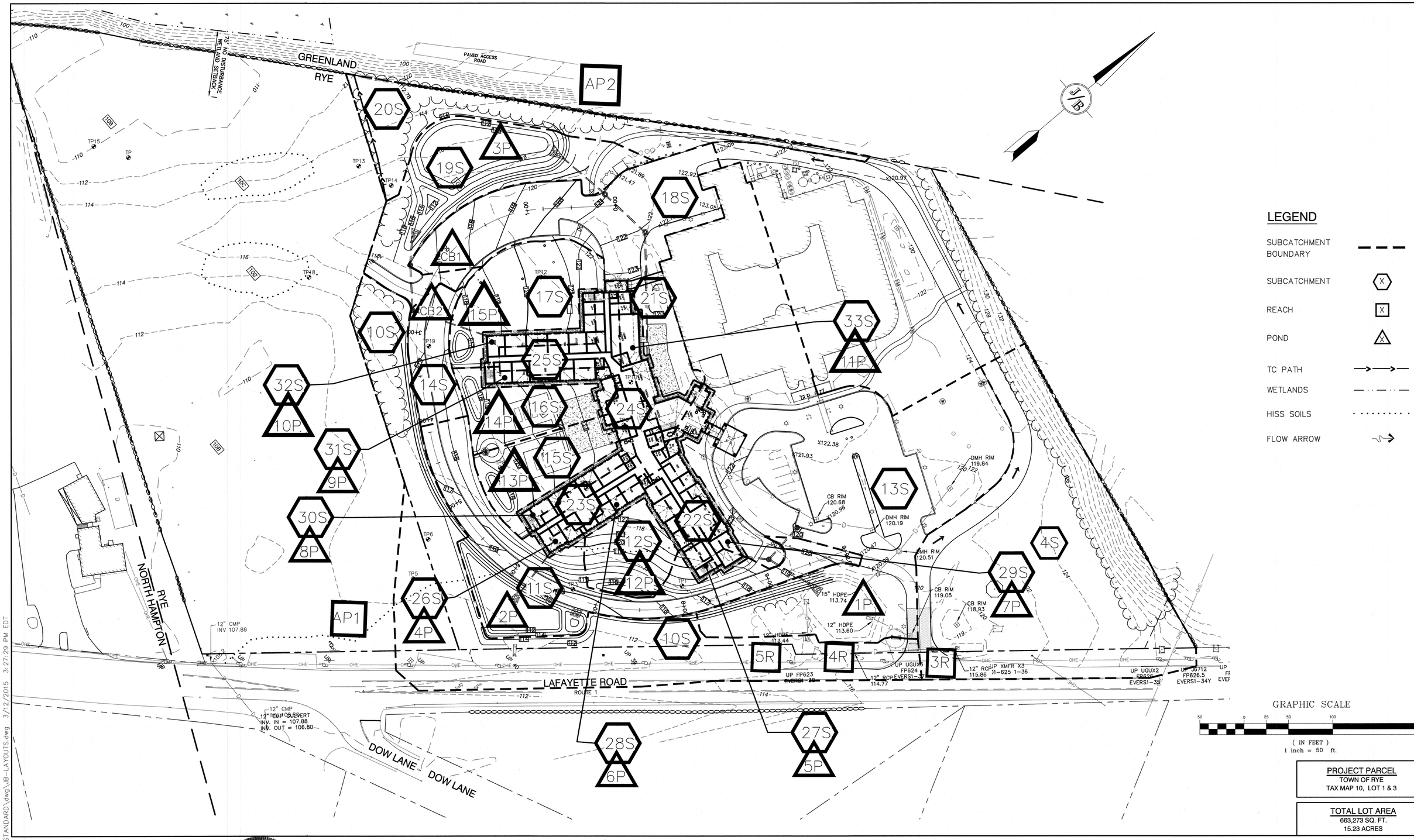
STATE OF NEW HAMPSHIRE — MICHAEL J. KERIVAN No. 9846 — LICENSED PROFESSIONAL ENGINEER

| REV. | DATE | REVISION | BY |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| 0 | 7/16/21 | ISSUED FOR REVIEW | MJK |

Designed and Produced in NH
Jones & Beach Engineers, Inc.
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
Civil Engineering Services
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

| | |
|---|---|
| Plan Name: | EXISTING WATERSHED PLAN |
| Project: | ASSISTED LIVING SITE PLAN<br>295 LAFAYETTE ROAD, RYE, NH |
| Owner of Record: | BSL RYE INVESTORS, LLC<br>201 JONES ROAD 3RD FL., WEST WALTHAM, MA BK 6194 PG 1343 |

DRAWING No.
**W1**
SHEET 1 OF 2
JBE PROJECT NO. 18062.2




## LEGEND

- SUBCATCHMENT BOUNDARY
- SUBCATCHMENT (X)
- REACH [X]
- POND (X)
- TC PATH
- WETLANDS
- HISS SOILS
- FLOW ARROW

**PROJECT PARCEL**
TOWN OF RYE
TAX MAP 10, LOT 1 & 3

**TOTAL LOT AREA**
663,273 SQ. FT.
15.23 ACRES

F:\CADD\MASTER STANDARD\dwg\JB-LAYOUTS.dwg 3/12/2015 3:27:29 PM EDT

| | | |
|---|---|---|
| Design: JAC | Draft: DJM | Date: 7/16/21 |
| Checked: JAC | Scale: 1"=50' | Project No.: 18062.2 |
| Drawing Name: 18062-WATERSHED-BENCHMARK.dwg | | |



STATE OF NEW HAMPSHIRE – MICHAEL J. KERIVAN No. 9846 – LICENSED PROFESSIONAL ENGINEER

| REV. | DATE | REVISION | BY |
|---|---|---|---|
| 0 | 7/16/21 | ISSUED FOR REVIEW | MJK |

Designed and Produced in NH
J/B Jones & Beach Engineers, Inc.
Civil Engineering Services
85 Portsmouth Ave.
PO Box 219
Stratham, NH 03885
603-772-4746
FAX: 603-772-0227
E-MAIL: JBE@JONESANDBEACH.COM

| | |
|---|---|
| Plan Name: | PROPOSED WATERSHED PLAN |
| Project: | ASSISTED LIVING SITE PLAN<br>295 LAFAYETTE ROAD, RYE, NH |
| Owner of Record: | BSL RYE INVESTORS, LLC<br>201 JONES ROAD 3RD FL., WEST WALTHAM, MA BK 6194 PG 1343 |

DRAWING No.
**W2**
SHEET 2 OF 2
JBE PROJECT NO. 18062.2