Engineering Watershed Study Report

Highway 236/Dennett Road Hydrologic Watershed Study

Town of Kittery, Maine

Prepared for

Town of Kittery

200 Rogers Road
Kittery, Maine 03904

August 2023

Barton&Loguidice

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200 Rogers Road
Kittery, Maine 03904

Prepared by:

Barton & Loguidice, LLC
Portland, Maine
383 U.S. Route 1, Suite 2A
Scarborough, ME 04074

Streamworks, PLLC
PO Box 6578
31 Gorham Road
Scarborough, ME 04070

FB Environmental Associates
97A Exchange Street, Suite 203
Portland, ME 04101

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List of Acronyms

B&L: Barton & Loguidice
BMPs: Best Management Practices
CFS: Cubic Feet per Second
DEM: Digital Elevation Model
FEMA: Federal Emergency Management Agency
FIRM: Flood Insurance Rate Map
gSURRGO: Gridded Soil Survey Geographic Database
h:min Hours and Minutes
HSG: Hydrologic Soil Group
I-95: Interstate 95
Lbs.: Pounds
MMW: Model My Watershed
NCSD: National Soil Characterization Database
NOAA: National Oceanic and Atmospheric Administration
Qpk: Peak Discharge Rate
Rt. 236: Maine State Route 236
Tc: Time of Concentration
USDA: United States Department of Agriculture
USEPA: United States Environmental Protection Agency
USGS: United States Geological Survey

EXECUTIVE SUMMARY

The Town of Kittery, Maine, progressed with an engineering study in the area bounded by Interstate 95 (I-95) to the south, Dennett Road to the west, Martin Road to the north and Highway 236 (Rt-236) to the east. The purpose of the study was to evaluate existing localized flood concerns, along with developing drainage and stormwater management considerations associated with potential future development in commercially zoned (Business Park and Rt-236 corridor) areas. The purpose of the study is to assess the existing causes of flood damage, the impact potential development would have on flood frequency and magnitude, and the development of alternatives to mitigate flood damage for existing and future conditions. In addition to minimizing the frequency and extent of localized flooding, the Town also aims to provide water quality improvements to natural resources within, and downstream of, the Town. Additionally, identification of potential future funding resources available to implement the recommended mitigation alternatives was developed.

Increased concern with stormwater quantity and quality within the Town has elevated the need for building community resiliency and protecting community assets from stormwater impacts. All concerned have the desire to mitigate the potential impacts of future storm events, minimize localized flooding, and provide water quality improvements to receiving waters. This Stormwater Management Study Report provides an overview of the site investigation and design process conducted by Barton & Loguidice, D.P.C. (B&L) and partners Streamworks and FB Environmental. Provided within is an existing conditions assessment including a summary of previous reports utilized and data collection activities, a stormwater system capacity evaluation (hydrologic and hydraulic modeling), a nutrient/pollutant loading evaluation, an evaluation of mitigation alternatives, an expanded analysis of six (6) potential water quality/flood mitigation projects, an evaluation of conservation/enhancement opportunities, and an evaluation of potential funding sources for implementation of the recommended projects.

Prior to the start of work, B&L reviewed previous studies and reports provided by the Town. Throughout the course of the project, additional information as described in the report was obtained from Town residents through a public outreach effort consisting of public meetings, community survey, and use of an interactive mapper where residents could identify drainage concerns and potential opportunity areas. The initial public meeting was held on December 15, 2022 and project update public meetings were held on March 22 and August 9, 2023. Community input received at each of these meetings were incorporated into the analysis and report. A final project presentation was held on _____, 2023 at a Town Board meeting.

Field data collection was used to develop a hydrologic and hydraulic model utilizing HydroCAD® that represents existing conditions to evaluate the stormwater system capacity and identify existing infrastructure elements within the community at risk for flood damage. Separate model runs were developed to evaluate potential build-out scenarios (50% and 100%) for non-residential zoned areas. Additionally, a pollutant load evaluation was conducted for the study area to evaluate phosphorus, nitrogen and sediment loads from subwatershed within the Study Area.

A retrofit opportunity matrix was developed to evaluate potential stormwater mitigation alternatives. The alternatives were based on information obtained from field data collection activities, hydrologic and hydraulic modeling scenarios, pollutant load model results, and public input. The potential alternatives comprise a wide range of practices for flood mitigation and water quality improvement. The projects were ranked based on criteria associated with stormwater benefits (quantity and quality), constructability, cost and co-benefits. The project advisory team utilized this matrix and recommendations from the B&L project team to select the six projects to progress to more detailed analysis.

The goal for selection of the six projects was to include a diverse collection of projects. The projects selected, therefore, were not necessarily ranked as the six highest overall scores. The projects were selected based on developing a diverse collection of potential projects ranging in scale on cost, location, and retrofit practice. The purpose was to utilize this matrix as a template that can be repeated by the Town to progress additional projects as future funding becomes available.

The projects selected for further evaluation include:

1. Right-Sizing Critical Infrastructure – culvert and drainage system modifications
2. Seep Collars along Martin Road Sewer Line
3. Upstream Detention/Wetland Expansion (above Martin Rd.)
4. Identification of potential conservation areas (requires easements or land acquisition)
5. Expanding stormwater storage at “98 Dennett” Parcel
6. Providing Low Impact Development considerations for future Build-Out scenarios

This document provides an in-depth discussion and comparison of the aforementioned projects. Design considerations and cost estimates (based on 2023 dollars) for each project are also included for implementation as future funding becomes available.

1.0 PROJECT BACKGROUND & HISTORY

1.1 Project Background

Recurrent flooding at residential properties in the Town of Kittery, Maine, in combination with potential development of the area north of Interstate 95 (I-95) between Highway 236 (Rt-236) and Dennett Road, has led to the Town's need for a hydrologic watershed study to assess the existing causes of flood damage, the impact potential development would have on flood frequency and magnitude, and the development of alternatives to mitigate flood damage for existing and future conditions. In addition to minimizing the frequency and extent of localized flooding, the Town aims to provide water quality improvements to natural resources within, and downstream of, the Town. The primary focus area for the study includes the area bounded I-95 to the south, Rt-236 to the east, Martin Road to the north, and Dennett Road to the west. This area includes an existing developed commercial highway (Rt-236) corridor, several residential neighborhoods for which development has occurred since the 1960's, and a large undeveloped tract of forested and wetland area located centrally within the study area. A topographic location map showing the general location of the study area is provided as **Figure 1-1**. An aerial map showing the study area, as well as the larger contributing drainage area which encompass the focus study area, is included as **Figure 1-2**.

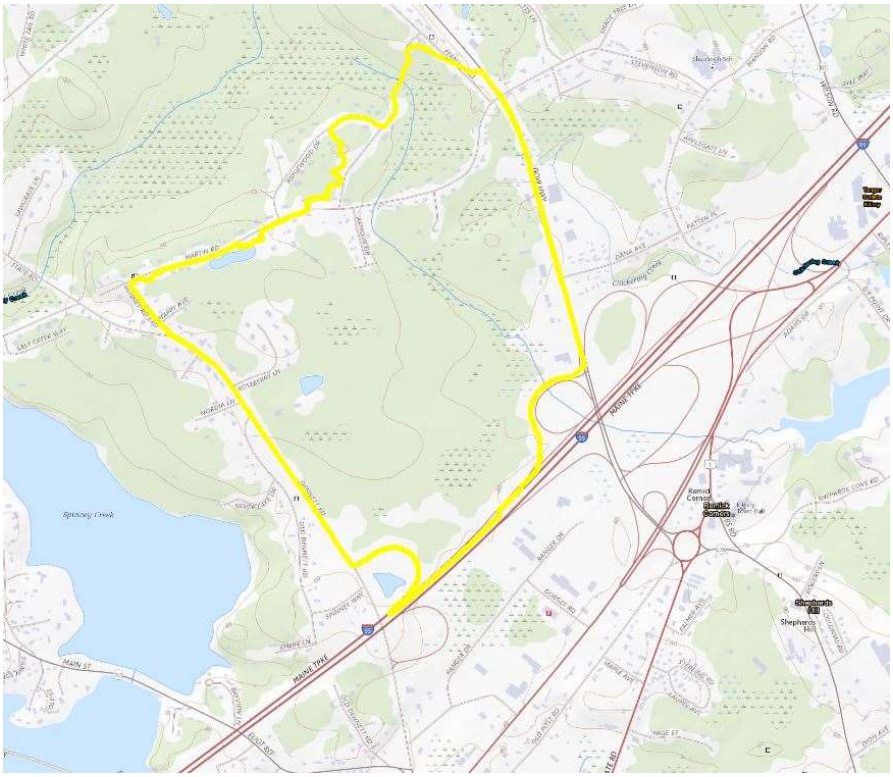


Figure 1-1: General Study Area Location

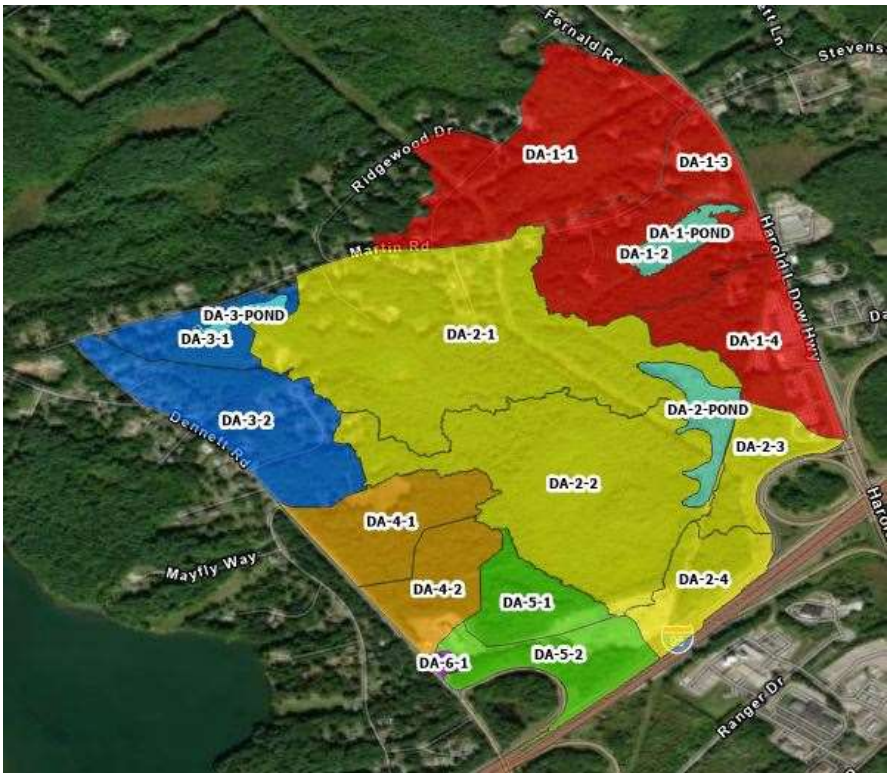


Figure 1-2: Aerial Study Area Map

The primary goals of the study are to provide an existing conditions assessment, evaluate stormwater system capacity, understand the nature and potential causes of flooding in the study area, analyze nutrient/pollutant loading, and provide recommendations for flood mitigation projects or initiatives. Additionally, identification of potential future funding resources available to implement the recommended mitigation alternatives was developed.

1.2 Environmental Setting

The study area comprises six separate drainage areas. Each drainage area ultimately directs stormwater runoff to Spinney Creek to the west, the Piscataqua River to the southwest, or Spruce Creek to the southeast. Drainage areas vary in geologic conditions (*e.g.,* soil type, depth to bedrock, groundwater level, and slope). Soils are classified into hydrologic soil groups (HSG) to indicate the minimum rate of infiltration, or rate at which water enters the soil at soil surface, for bare soil after prolonged wetting. HSG's consist of Groups A, B, C, and D soils. In general, Group A soils have the lowest runoff potential and highest infiltration rates, whereas Group D soils have the highest runoff potential and lowest infiltration rates. Another significant contribution factor to runoff potential is the interaction between surface hydrology and groundwater. For example, even HSG A soils may have excessive runoff potential during instances of a high groundwater table. The interaction between depth of groundwater, surface hydrology, and resulting runoff potential will be further discussed as part of this study. Soil properties and qualities are summarized for each drainage area in **Table 1-1**. Soil mapping is included as **Figure 1-3** and **Figure 1-4** illustrating the variance in HSG and drainage classifications

between drainage areas. A majority of the study area (62%) consists of Group C/D soils, which exhibit higher runoff potential and lower infiltration rates.

Table 1-1: Study Area Soils Data

Soil Unit Symbol	Soil Unit Name	HSG	Drainage Class	Depth to Water Table (ft.)	Acres in Study Area	Percent of Study Area
AgB	Adams-Urban land complex, 0 to 8 percent slopes	A	Somewhat excessively drained	6.6	5.8	1.7%
Bm	Biddeford mucky peat, 0 to 3 percent slopes	D	Very poorly drained	0.0	33.8	9.8%
BsB	Brayton and Westbury very stony fine sandy loams, 0 to 8 percent slopes	D	Poorly drained	0.5	4.4	1.3%
CoB	Colton gravelly sandy loam, 0 to 8 percent slopes	A	Excessively drained	6.6	23	6.6%
CoD	Colton gravelly sandy loam, 15 to 25 percent slopes	A	Excessively drained	6.6	0.8	0.2%
CrB	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	A	Moderately well drained	2.0	38.1	11.0%
LnB	Lyman loam, 3 to 8 percent slopes, rocky	D	Somewhat excessively drained	6.6	41.1	11.9%
LnC	Lyman loam, 8 to 15 percent slopes, rocky	D	Somewhat excessively drained	6.6	46.1	13.3%
LyB	Lyman-Rock outcrop complex, 3 to 8 percent slopes	D	Somewhat excessively drained	6.6	19.8	5.7%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	D	Somewhat excessively drained	6.6	9.8	2.8%
LyE	Lyman-Rock outcrop complex, 15 to 80 percent slopes	D	Somewhat excessively drained	6.6	0.3	0.1%
MrB	Marlow fine sandy loam, 3 to 8 percent slopes	C	Well drained	6.6	0.8	0.2%
MrC2	Marlow fine sandy loam, 8 to 15 percent slopes	C	Well drained	6.6	1.9	0.6%
Na	Naumburg sand	A/D	Poorly drained	0.6	30	8.7%
Pg	Pits, gravel	A	Excessively drained	6.6	22.8	6.6%
Sc	Scantic silt loam, 0 to 3 percent slopes	D	Poorly drained	0.5	6.5	1.9%
SkB	Skerry fine sandy loam, 0 to 8 percent slopes	C/D	Moderately well drained	1.7	8.9	2.6%
Ur	Urban land	D	Moderately well drained	4.0	15.8	4.6%
W	Water bodies	Unknown	Unknown	Unknown	30.6	8.8%

Figure 1-3: Hydrologic Soil Groups

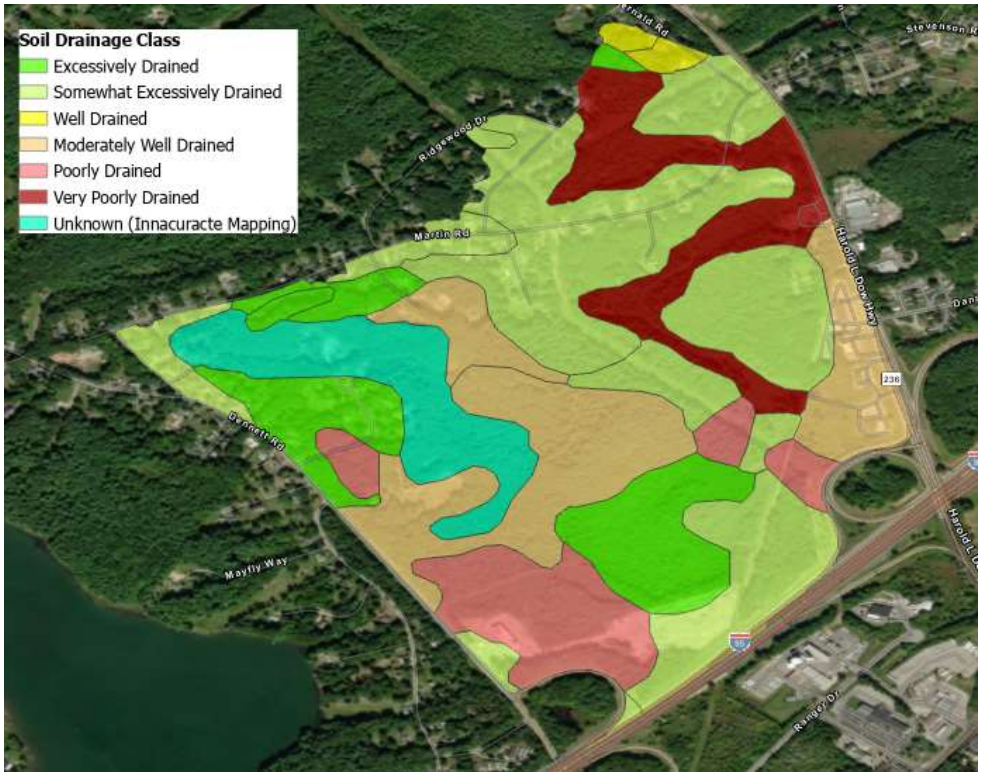


Figure 1-4: Soil Drainage Class Designations

Within the focus area, higher elevations are generally found in the northern and central areas along Martin Road. Additionally, steeper slopes are more prominent in the western half of the focus study area, directing runoff west and southwest toward Spinney Creek and the Piscataqua River, as shown on **Figure 1-1**. Alternatively, the central, south-central, and eastern portions of the focused study area are characterized by more moderate slopes directing stormwater flows to the east and southeast toward Spruce Creek.

The hydrologic and hydraulic evaluation of the study area, as further discussed in Section 2.4 below, is comprised of multiple factors including land use, land cover types, soil classifications, topography and drainage routes. Land cover is critical to drainage characteristics within a watershed, and also exerts considerable influence on the chemical, physical, and biological characteristics of waterbodies. Land cover classifies the vegetation (or lack thereof) covering the ground. Removal of natural vegetation can reduce the ability to lessen runoff rates, prevent erosion and filter potential nutrients and pollutants. Lack of natural vegetative cover typically results in increased amounts of runoff and potential nutrient transport. Within the Watershed Study Area, land cover varies with population density, where more impervious cover types are generally located within closer proximity to the roadways along the focused study area boundaries, while more pervious cover, primarily forest, is generally located centrally within the study area.

The groundwater level varies greatly between soil groups and topography, and has a significant impact upon runoff potential. Groundwater fills the interstitial (void) space of soils, leaving less room for infiltration of runoff. Developed properties located in areas characterized by a high seasonal groundwater table are more susceptible to localized flooding due to a lack of infiltration capacity during precipitation events. Further, properties developed within areas characterized by high seasonal groundwater tables may be subject to instances of inundation in the absence of precipitation and stormwater runoff, and may require mitigation alternatives that differ from conventional stormwater best management practices (BMPs). Approximate groundwater levels, as defined by Soil Survey Database (gSSURGO, 2016), are included within **Figure 1-5**.

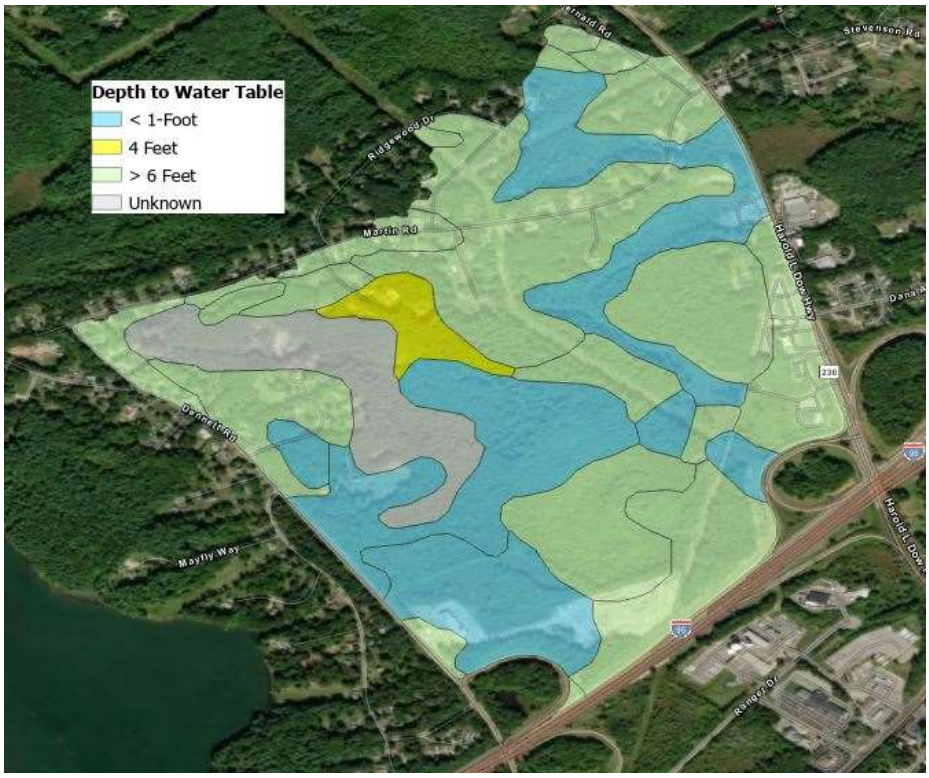


Figure 1-5: Depth to Water Table

A floodplain, by definition, is a nearly flat plain near a surface waterbody that is naturally subject to flooding during normal (2-year) to extreme (100-year) precipitation events. Floodplains generally contribute to localized flooding, however, offer much needed nutrient filtration and downstream flood minimization. Floodplains exist within the study area, originating mostly within Drainage Area 1 to the northeast. The 100-year floodplain boundaries are shown on the 1984 Federal Emergency Management Agency (FEMA) Flood Rate Insurance Maps (FIRMs) included as **Appendix A**.

1.3 Land Ownership

Lands located within the focus study area consist primarily of privately owned lands; therefore, potential mitigation alternatives to alleviate localized flooding will require cooperation and collaboration with current landowners. Private landowner buy-in and partnerships will likely be required to increase the potential for funding assistance from state and/or federal grant programs for implementation of potential stormwater improvement projects.

Identifying select parcels that have the greatest potential to maximize water quality improvements and flood reduction benefits can accommodate potential future build-out while also mitigating existing flooding issues. The following factors were reviewed to identify priority areas for implementation of mitigation alternatives:

- Watershed Area
- Location
- Existing Land Use
- Ownership
- Zoning
- Hydrologic Soil Group

Larger watershed areas were identified as more favorable than smaller areas with similar characteristics for certain mitigation opportunities, such as conservation of natural areas or implementation of large retrofit practices. These larger watershed areas have greater potential to treat a larger volume of water quality and quantity from stormwater runoff when compared to smaller areas: basically the economy of scale. The existing land use compared to the Town's zoning was also reviewed. Current zoning for the Town of Kittery is included as **Appendix B**. Areas that have higher present day flood attenuation (*e.g.,* wooded areas) that are zoned to allow increased impervious area (*e.g.,* commercial) were identified as potential conservation or enhancement opportunities. Conservation of these areas could provide potential for build-out of adjacent areas while minimizing an increase in stormwater runoff volumes and rates. Proximity to receiving waters and position within the watershed were reviewed as well. Areas that are directly adjacent to receiving waters were considered more favorable as potential mitigation or conservation areas.

Areas that are publicly owned (*e.g.,* owned by the Town, County or other government organization) serve the easiest to implement a conservation or enhancement opportunity; however, the focus study area is primarily composed of privately owned parcels. Privately owned parcels meeting the criteria for viable conservation areas may be considered as a part of this study as well based on the potential for land acquisition.

2.0 EXISTING FACILITIES & PRESENT CONDITION

2.1 Field Data Collection and Survey

Issues arriving from localized flooding and associated water quality degradation may be mitigated after better understanding the root causes and influencing factors of flooding. A field survey was completed in November, 2022 by members of the Barton & Loguidice (B&L) and Streamworks teams to collect supplemental information to assess the causes of flooding in the study area. Prior to the field reconnaissance efforts, B&L conducted a desktop-based delineation of subwatersheds using publicly available LIDAR mapping, the Town's online GIS database, and other desktop resources used to identify drainage divides, buried drainage facilities, and common outlet points. A pre-field reconnaissance meeting was conducted with Town officials to further document existing areas of concern. The goals of the preliminary watershed reconnaissance included:

- Catalog location, type, and condition data for critical stormwater infrastructure not included in the Town's GIS database, as well as for confirmation of existing data for infrastructure located in priority areas;
- Collect detailed elevation data at features critical to the accurate hydrologic and hydraulic modeling of areas subject to recurrent inundation with stormwater or groundwater; and
- Confirm and refine subwatershed delineations.

Additionally, members of FB Environmental Associates conducted a preliminary wetland delineation reconnaissance effort in fall 2022 to better understand the extent and functionality of hydrologic resources within the primary focus area. Wetland boundaries were identified based on the United States Army Corps of Engineers' (1987) Wetland Delineation Manual and the 2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region, Version 2.0. Approximate boundaries were geolocated using a Garmin GPSMAP 78 handheld GPS unit with an accuracy of approximately 30 feet. Although performed at the reconnaissance level, preliminary mapping of wetland resources within the focus area plays a critical role in the identification of potential conservation areas and features that may affect hydrologic and hydraulic modeling of the study area (e.g., storage of flood areas). A map of wetlands and watercourses identified by FB Environmental during their 2022 wetland reconnaissance efforts is included as **Appendix C**.

2.2 Public Engagement

In order to better understand existing conditions and to collect supplemental information from various stakeholders, a series of public engagement meetings were conducted. In addition to public engagement meetings, multiple resources were provided to residents of the Town of Kittery to provide additional information for review and consideration, including an interactive mapper and a public survey. The interactive mapper consisted of an open-source website in which stakeholders could select specific areas for identification of existing deficiencies and

potential enhancement opportunities. The results of the interactive mapper, including graphical summaries of responses, are provided in **Appendix D.**

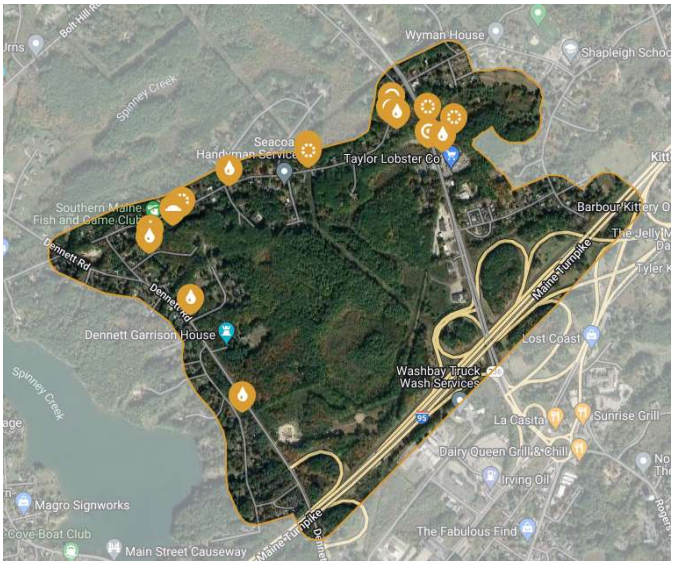
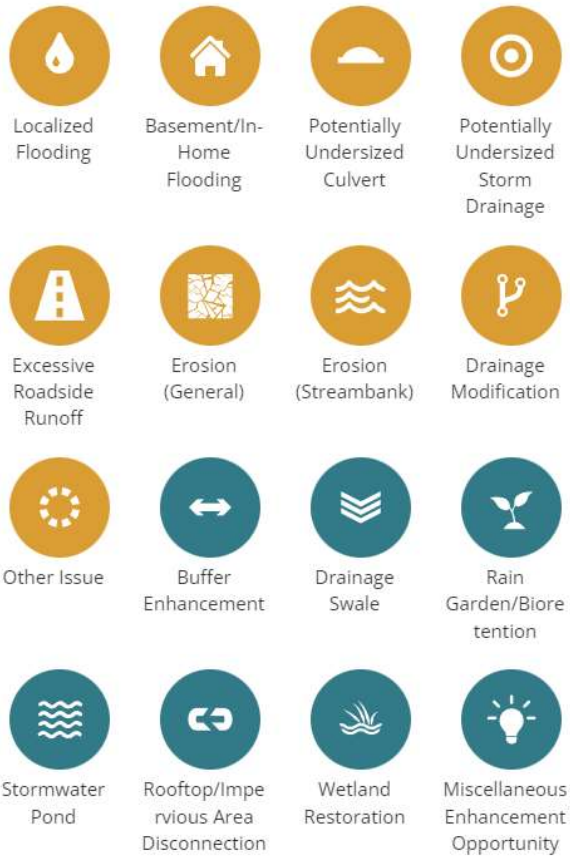


Figure 2-1: Interactive Mapper Interface



Additionally, the public survey afforded a means for public stakeholders to provide additional background information through a series of guided questions. The results of the public survey are included as **Appendix D.**

General themes from input received through the public outreach included:

Interactive Mapper Summary:

- Intersection of Martin Rd./236 – historical flooding, impacts of high groundwater table, beaver dams implications, culvert sizing considerations
- Herb Parsons Pond – changes in water level over time
- Happy Avenue – historical flooding
- Dennett Road – historical flooding

Public Survey Summary:

- 62% of respondents (based on 16 responses) have experienced flooding at their property
- Combination of seasonal and ongoing flooding, with most respondents identifying increased flooding during the Spring season
- Multiple respondents have incurred costs associated with flooding
- 2/3 of respondents suspect flooding is more groundwater than surface water related
- Respondents believe increased development, wetland alteration and modifications to natural drainage paths are primary factors to localized flooding.

2.3 Priority Areas

Prior to development of hydrologic and hydraulic models for the focus area, priority areas were identified through correspondence with Town officials, engagement of the public during public meetings, field reconnaissance, and evaluation of existing literature and desktop resources. The following areas were identified as priority areas:

- Residential properties along Martin Road, primarily within close proximity to Rt-236;
- Herb Parson Pond;
- Central study area (potential future development areas);
- Residential properties along Dennett Road;
- Happy Avenue access road;
- Residential properties along Old Dennett Road, located west of Dennett Road; and
- Ongoing Dennett Road development near I-95 on-ramp.

Priority areas listed above are identified on **Figure 2-2** and are further discussed in Section 8.0.

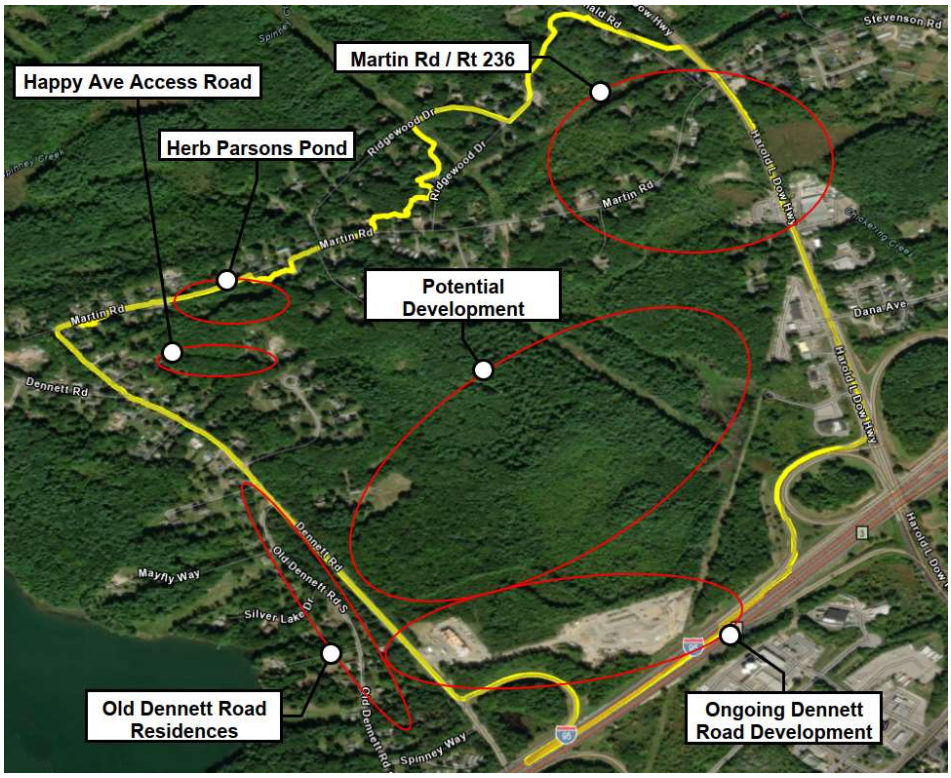


Figure 2-2: Priority Areas

2.4 Hydrologic and Hydraulic Evaluation

A hydrologic and hydraulic model was developed using HydroCAD® software to identify areas of localized flooding and predict anticipated peak flows (runoff rates and volumes) during specific storm events, and to provide an existing conditions model that may be modified to evaluate potential mitigation alternatives.

The focus study area was separated into six distinct drainage areas (Drainage Areas 1, 2, 3, 4, 5, and 6). Each drainage catchment within the study area has variable slopes directing stormwater from the outer extents of each subcatchment toward one of six modeled outfalls to surrounding receiving water bodies. Generally, the steeper the slope, the shorter the time of concentration is, which produces a higher peak flow. Drainage Areas 1 through 5 were comprised of smaller subcatchments, some that included ponds and reaches. Ponds (represented as triangles in Figure 2-3) were utilized within the model to either represent areas which provide notable storage and attenuation of stormwater flows. Reaches were utilized to represent channelized flow (shown as squares in Figure 2-3). Modeling assumed reaches operate under free discharge conditions based on normal open channel flow.

The HydroCAD® model develops runoff hydrographs from rainfall. The runoff reflects watershed precipitation, topography, soil type, land cover, and land use. The following data and corresponding sources were utilized to calibrate the model to the Watershed Study Area:

- Precipitation Data:
    - The 1-, 2-, 10-, 25-, 50-, 100-, and 500-year events were identified using National Oceanic and Atmospheric Administration (NOAA) Atlas 14 rainfall data (see **Appendix E**).
- Topography:
    - Elevation maps were developed to calculate slopes and to approximate inverts and flood elevations using 2019 USGS 1 meter digital elevation model (DEM) data (USGS, 2022). DEM data was geoprocessed and converted to contours at 2-foot intervals. This mapping was also utilized to evaluate the time of concentration (Tc), which is the time required for runoff to travel from the hydraulically most distant point in the watershed to the design point. Tc is an important input into the model to determine runoff timing.
- Soil Type:
    - Soil types were retrieved from the United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) SSURGO dataset (USDA, 2016).
- Land Cover and Land Use:
    - Acreages were retrieved from the 2019 National Land Cover Database (Dewitz, 2021).

When modeled runoff hydrograph water elevations encroach on, or inundate, private property or infrastructure, that location represents a flood risk. Graphic figures representing potential areas where flooding may occur during specific storm events are included in **Figure 2-3, Figure 2-4**, and **Figure 2-5**. Depending on the location in the study area, the model predicted localized flooding anywhere from a 1-year storm to a 100-year storm events.

Prior to analysis of future development scenarios, an existing conditions model was developed to determine current vulnerable locations and stormwater infrastructure components. Each subwatershed was evaluated for peak discharge rate (Qpk), time of the peak discharge (hours:minutes), and total runoff volume. Each of these parameters plays a key role in evaluation of how a subwatershed responds to various precipitation and development scenarios. Results from the existing conditions model for each subwatershed is provided in **Table 2-1**, below with the modeling reports provided as **Appendix F.**

Figure 2-3: Flood Risk Areas – 1-Year Storm

(To be inserted in final draft)

Figure 2-4: Flood Risk Areas – 10-Year Storm

(To be inserted in final draft)

Figure 2-5: Flood Risk Areas – 100-Year Storm

(To be inserted in final draft)

Table 2-1: Existing Condition Hydrologic and Hydraulic Model Results Summary

Sub-watershed	Peak Discharge Rate (CFS)			Runoff Volume (acre-feet)		
	1-year	10-year	100-year	1-year	10-year	100-year
DA-1-1	18.87	59.93	111.40	3.059	10.13	19.79
DA-1-2	14.2	44.8	82.96	2.065	6.792	13.21
DA-1-3	6.46	17.58	31.01	0.705	2.083	3.891
DA-1-4	17.05	43.96	75.92	2.153	6.04	11.09
DA-2-1	18.56	59.88	112.80	4.657	15.62	30.94
DA-2-2	4.95	17.23	33.91	1.188	4.257	10.09
DA-2-3	6.28	18.23	32.94	0.864	2.676	5.094
DA-2-4	9.49	26.74	48.00	1.076	3.24	6.126
DA-3-1	2.4	8.38	16.91	0.399	1.462	3.080
DA-3-2	5.12	20.07	44.42	0.673	2.759	6.451
DA-4-1	1.69	6.31	13.04	0.327	1.258	3.026
DA-4-2	3.99	12.57	23.56	0.698	2.304	4.629
DA-5-1	3.69	12.47	23.60	0.613	2.126	4.278
DA-5-2	14.16	39.66	70.89	1.213	3.64	6.860
DA-6-1	0.58	1.52	2.63	0.077	0.223	0.411

2.5 Modeled Nutrient and Sediment Loads

The modeling analysis for the study was completed using the Model My Watershed (MMW) tool, a web-based watershed modeling application that includes a Watershed Multi-Year Model. Model My Watershed provides a continuous simulation model that evaluates stormwater quality impacts using the Generalized Watershed Loading Function Enhanced (GWLF-E) model. The GWLF-E model was initially developed by Barry M. Evans, Ph.D., and his team at Penn State University for use with the MapShed desktop modeling application. The MMW Multi-Year Model utilizes regional geospatial data layers embedded within the program's web interface and provides estimated annual nutrient loadings based on 30 years of simulated water, nutrient, and sediment fluxes over a user defined Study Area.

The GWLF-E estimates external nutrient and sediment loads as a function of precipitation data, land cover, topography, soil type, soil nutrients, groundwater nitrogen, baseflow, animal farming operations, and wastewater inputs. Sources for each required dataset are as follows:

- Precipitation data: USEPA's National Climate Data (USEPA, 2006)
- Land cover: 2011 National Land Cover Database (Homer et al., 2015)
- Soil type: USDA-NRCS GSSURGO (USDA, 2016)

- Soil nitrogen: USDA National Soil Characterization Database (NSCD) (Hargrove and Luxmoore, 1998)
- Soil phosphorus: USGS (Smith et al. 2014)
- Groundwater nitrogen: USGS (Nolan and Hitt, 2006)
- Base flow: USGS (Wolock, 2003)
- Topography: National Elevation Dataset (USGS, 2009)
- Animal farming operations: USDA (USDA, 2012)
- Streams: Continental US Medium Resolution Stream Network (NHD Plus V2, 2017)

Additionally, MMW serves as a valuable tool for assessing the effectiveness of various alternatives as compared to an established baseline condition. The following Tables present the annual sediment, phosphorus and nitrogen loading results under existing conditions for each of the main drainage areas within the study area.

Table 2-2. Annual Sediment Loading Summary

Drainage Area	Area (ac)	Sediment Loading Rates (lb./ac)	Sediment Loading (lbs.)	Percent of Total Sediment Loading (%)
DA-1	95.2	29.13	2,771.3	42.5%
DA-2	146.97	19.87	2,921.6	44.9%
DA-3	35.98	12.74	459.5	7.1%
DA-4	27.87	3.92	110.4	1.7%
DA-5	23.57	9.11	231.8	3.6%
DA-6	0.74	26.21	19.4	0.2%
Total	330.3	-	6,514	100%

Table 2-3. Annual Phosphorus Loading Summary

Drainage Area	Area (ac)	Phosphorus Loading Rates (lb./ac)	Phosphorus Loading (lbs.)	Percent of Total Phosphorus Loading (%)
DA-1	95.2	0.06	5.7	30.5%
DA-2	146.97	0.05	8	42.7%
DA-3	35.98	0.06	2.2	11.8%
DA-4	27.87	0.05	1.4	7.5%
DA-5	23.57	0.06	1.3	7%
DA-6	0.74	0.09	0.1	0.5%
Total	330.3	-	18.7	100%

Table 2-4. Annual Nitrogen Loading Summary				
Drainage Area	**Area (ac)**	**Nitrogen Loading Rates (lb./ac)**	**Nitrogen Loading (lbs.)**	**Percent of Total Nitrogen Loading (%)**
DA-1	95.2	1.49	141.3	27.7%
DA-2	146.97	1.51	221.3	43.3%
DA-3	35.98	1.74	62.8	12.3%
DA-4	27.87	1.51	42.7	8.4%
DA-5	23.57	1.77	41.6	8.1%
DA-6	0.74	1.43	1.1	0.2%
Total	330.3	-	510.8	100%

This data is utilized to inform priority locations for potential water quality retrofit projects and will be incorporated into the analysis of the priority projects further discussed in Section 6.0. The Model My Watershed Pollutant Loading summary reports are provided as **Appendix G.**

3.0 BUILD-OUT ANALYSIS

In addition to evaluating existing conditions and alternatives to alleviate existing localized flooding and impacts of high groundwater tables, a primary goal of the project is to evaluate hydrologic impacts of potential future development. In order to better understand what portions of the focus area would be most susceptible to negative hydrologic impacts as a result of future development, as well as what mitigation alternatives would be most effective in managing these impacts, a build-out analysis was completed. This build-out analysis consisted of development of HydroCAD models for three build-out alternatives: 1) No Build Alternative; 2) 50% Build-Out scenario; and 3) 100% Build-Out scenario. Existing zoning within the focus area is shown in **Figure 3-1** below.

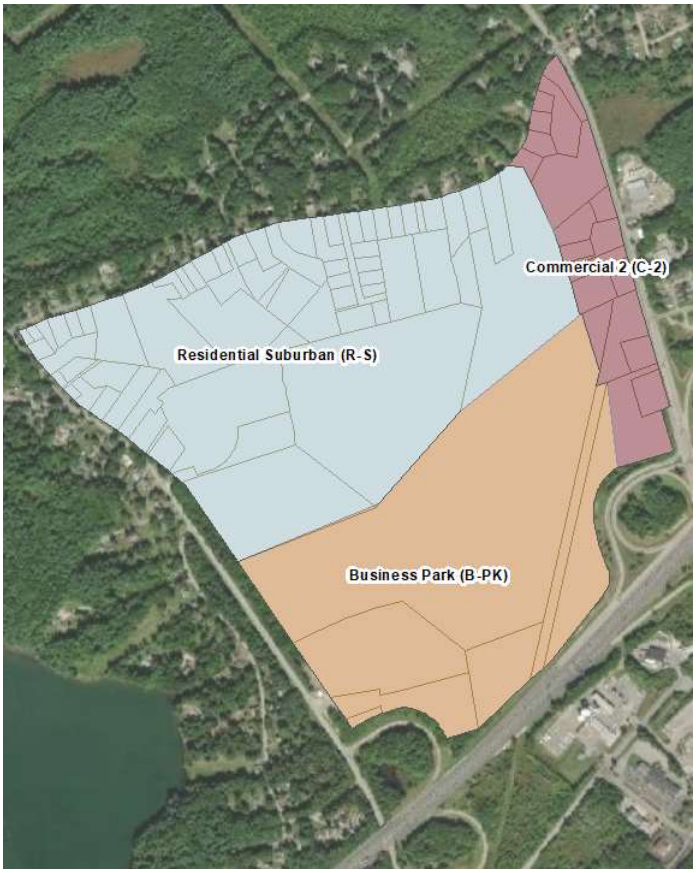


Figure 3-1: Existing Zoning within Focus Area

The no-build alternative consisted of a simplification of the existing conditions HydroCAD model. The existing conditions model described in Section 2.4 utilized detailed land cover data provided through the 2019 NLCD. For land parcels located within areas zoned as Business Park (B-PK) or Commercial 2 (C-2), the no-build alternative was developed through designation of parcels as either build-out, or not built-out, in accordance with existing zoning regulations. For example, for areas located along Rt-236 that are zoned for commercial use, parcels containing commercial properties were identified as built-out, while forested parcels were designated as not built-out. Parcels containing mixed land use (i.e., half commercial and half forested) were bisected, and each sub-parcel was given the appropriate

designation. Following designation of each parcel and sub-parcel with the appropriate aggregate land use, associated runoff curve numbers were assigned to each parcel area. Simplification of parcel land uses for build-out analysis was not completed for areas zoned as Residential Suburban (R-S) as substantial build out is not anticipated in these areas. Therefore, existing NLCD data was retained in HydroCAD models for R-S zoned areas under each build out scenario. A visual representation of the No-Build modeling approach is shown in **Figure 3-2** below.

Figure 3-2: No-Build Model Scenario (To be revised omitting zone R-S parcels in final draft)

Following development of a HydroCAD model representing the no-build alternative, designated land use was modified for development of the build-out scenario models. This process consisted of converting 50% of the total area as not built-out to the built-out designation, and assigning the corresponding runoff curve numbers to the new area totals for each land use. For example, within the area zoned as Business Park in the southern extent of the focus area, 50% of the aggregate wooded area would be converted to commercial.

The final build-out scenario model, representing the 100% build-out scenario, was developed by converting all areas designated as not 'built-out' to the maximum built-out land use allowable by existing zoning. For example, in the eastern extent of the focus area currently zoned as 'Commercial 2 (C-2)', all areas designated as wooded, residential, etc. would be converted to commercial lands in the HydroCAD model and assigned the appropriate runoff curve number.

Results from the modeling efforts for each build-out scenario are summarized in the following Tables 3-1, 2, 3 and 4. The Build-Out scenario HydroCAD modeling summary reports are provided in **Appendices H (50% Build-Out) and I (100% Build-Out).**

Table 3-1: Peak Discharge Rates – 50% Build Out Scenario

	1-Year event			10-Year event			100-Year event		
	Qpk - No Build (CFS)	Q-pk - 50% Build (CFS)	% Increase from No Build	Qpk - No Build (CFS)	Q-pk - 50% Build (CFS)	% Increase from No Build	Qpk - No Build (CFS)	Q-pk - 50% Build (CFS)	% Increase from No Build
DA-1-1	18.87	18.87	0.0%	59.93	59.93	0.0%	111.4	111.4	0.0%
DA-1-2	13.31	14.39	8.1%	39.53	40.72	3.0%	71.87	72.79	1.3%
DA-1-3 POND	0.52	0.57	9.6%	2.23	2.28	2.2%	12.76	11.59	-9.2%
DA-1-3	22.23	25.23	13.5%	52.87	56.41	6.7%	89.6	92.97	3.8%
DA-1-4	18.5	22.05	19.2%	45.11	49.46	9.6%	77.14	81.38	5.5%
DA-2-1	17.96	18.85	5.0%	57.79	59.98	3.8%	108.81	110.03	1.1%
DA-2-2	4.74	7.38	55.7%	15.92	31.62	98.6%	31.1	67.76	117.9%
DA-2 POND	3.18	3.75	17.9%	10.06	24.03	138.9%	97.78	144.5	47.8%
DA-2-3	4.55	6.88	51.2%	13.4	16.4	22.4%	24.46	27.46	12.3%
DA-2-4	7.03	9.99	42.1%	19.48	23.32	19.7%	34.88	38.81	11.3%
DA-3-1	2.4	2.4	0.0%	8.38	8.38	0.0%	16.91	16.91	0.0%
DA-3-2	5.12	5.12	0.0%	20.07	20.07	0.0%	44.42	44.42	0.0%
DA-4-1	1.68	2.73	62.5%	6.02	10.15	68.6%	12.13	21.01	73.2%
DA-4-2	3.29	5.27	60.2%	10.15	14.34	41.3%	18.84	25.82	37.0%
DA-5-1	4.74	7.06	48.9%	13.75	17.67	28.5%	25.02	30.53	22.0%
DA-5-2	23.98	25.53	6.5%	49.83	51.79	3.9%	80.16	82.11	2.4%
DA-6-1	0.13	0.13	0.0%	0.26	0.26	0.0%	0.41	0.41	0.0%

Table 3-2: Runoff Volumes – 50% Build Out Scenario

	1-Year event			10-Year event			100-Year event		
	Volume - No Build (ac-ft.)	Volume - 50% Build (ac-ft.)	% Increase from No Build	Volume - No Build (ac-ft.)	Volume - 50% Build (ac-ft.)	% Increase from No Build	Volume - No Build (CFS)	Volume - 50% Build (ac-ft.)	% Increase from No Build
DA-1-1	3.059	3.059	0.0%	10.129	10.129	0.0%	19.791	19.719	-0.4%
DA-1-2	1.914	2.052	7.2%	6.018	6.2	3.0%	11.516	11.653	1.2%
DA-1-3 POND	0.81	0.896	10.6%	3.658	3.784	3.4%	7.669	7.803	1.7%
DA-1-3	2.442	2.72	11.4%	6.442	6.777	5.2%	11.522	11.751	2.0%
DA-1-4	2.139	2.488	16.3%	5.756	6.233	8.3%	10.406	10.807	3.9%
DA-2-1	4.502	4.694	4.3%	15.075	15.387	2.1%	29.866	30.197	1.1%
DA-2-2	1.127	2.028	79.9%	3.944	8.122	105.9%	9.371	17.75	89.4%
DA-2 POND	4.846	5.717	18.0%	15.098	19.259	27.6%	34.722	43.378	24.9%
DA-2-3	0.639	0.911	42.6%	1.982	2.419	22.0%	3.791	4.276	12.8%
DA-2-4	0.803	1.084	35.0%	2.376	2.822	18.8%	4.47	4.956	10.9%
DA-3-1	0.399	0.399	0.0%	1.462	1.462	0.0%	3.08	3.075	-0.2%
DA-3-2	0.673	0.673	0.0%	2.759	2.758	0.0%	6.451	6.438	-0.2%
DA-4-1	0.319	0.554	73.7%	1.187	2.047	72.5%	2.865	4.482	56.4%
DA-4-2	0.578	0.909	57.3%	1.864	2.665	43.0%	3.729	4.992	33.9%
DA-5-1	0.778	1.118	43.7%	2.388	3.075	28.8%	4.612	5.57	20.8%
DA-5-2	2.203	2.117	-3.9%	4.804	4.851	1.0%	8.266	8.094	-2.1%
DA-6-1	0.017	0.18	958.8%	0.04	0.04	0.0%	0.067	0.066	-1.5%

Table 3-3: Peak Discharge Rates – 100% Build Out Scenario

	1-Year event			10-Year event			100-Year event		
	Qpk - No Build (CFS)	Q-pk - 100% Build (CFS)	% Increase from No Build	Qpk - No Build (CFS)	Q-pk - 100% Build (CFS)	% Increase from No Build	Qpk - No Build (CFS)	Q-pk - 100% Build (CFS)	% Increase from No Build
DA-1-1	18.87	18.87	0.0%	59.93	59.93	0.0%	111.4	111.4	0.0%
DA-1-2	13.31	14.7	10.4%	39.53	40.78	3.2%	71.87	72.89	1.4%
DA-1-3 POND	0.52	0.59	13.5%	2.23	2.29	2.7%	12.76	14.93	17.0%
DA-1-3	22.23	28.51	28.3%	52.87	59.18	11.9%	89.6	95.18	6.2%
DA-1-4	18.5	25.95	40.3%	45.11	53.04	17.6%	77.14	84.39	9.4%
DA-2-1	17.96	19.89	10.7%	57.79	59.94	3.7%	108.81	110.82	1.8%
DA-2-2	4.74	30.88	551.5%	15.92	63.87	301.2%	31.1	102.76	230.4%
DA-2 POND	3.18	6.43	102.2%	10.06	72.62	621.9%	97.78	195.65	100.1%
DA-2-3	4.55	9.58	110.5%	13.4	18.78	40.1%	24.46	29.39	20.2%
DA-2-4	7.03	13.49	91.9%	19.48	26.44	35.7%	34.88	41.38	18.6%
DA-3-1	2.4	2.4	0.0%	8.38	8.38	0.0%	16.91	16.91	0.0%
DA-3-2	5.12	5.12	0.0%	20.07	20.07	0.0%	44.42	44.42	0.0%
DA-4-1	1.68	8.63	413.7%	6.02	17.92	197.7%	12.13	29.28	141.4%
DA-4-2	3.29	10.32	213.7%	10.15	20.29	99.9%	18.84	31.79	68.7%
DA-5-1	4.74	11.31	138.6%	13.75	22.27	62.0%	25.02	34.91	39.5%
DA-5-2	23.98	27.3	13.8%	49.83	53.33	7.0%	80.16	83.36	4.0%
DA-6-1	0.13	0.13	0.0%	0.26	0.26	0.0%	0.41	0.41	0.0%

Table 3-4: Runoff Volumes – 100% Build Out Scenario

	1-Year event			10-Year event			100-Year event		
	Volume - No Build (ac-ft.)	Volume - 100% Build (ac-ft.)	% Increase from No Build	Volume - No Build (ac-ft.)	Volume - 100% Build (ac-ft.)	% Increase from No Build	Volume - No Build (CFS)	Volume - 100% Build (ac-ft.)	% Increase from No Build
DA-1-1	3.059	3.059	0.0%	10.129	10.129	0.0%	19.791	19.719	-0.4%
DA-1-2	1.914	2.114	10.4%	6.018	6.239	3.7%	11.516	11.67	1.3%
DA-1-3 POND	0.81	0.936	15.6%	3.658	3.811	4.2%	7.669	7.82	2.0%
DA-1-3	2.442	3.095	26.7%	6.442	7.199	11.8%	11.522	12.153	5.5%
DA-1-4	2.139	2.942	37.5%	5.756	6.78	17.8%	10.406	11.349	9.1%
DA-2-1	4.502	4.961	10.2%	15.075	15.71	4.2%	29.866	30.519	2.2%
DA-2-2	1.127	7.046	525.2%	3.944	16.304	313.4%	9.371	27.783	196.5%
DA-2 POND	4.846	10.076	107.9%	15.098	27.657	83.2%	34.722	53.714	54.7%
DA-2-3	0.639	1.288	101.6%	1.982	2.857	44.1%	3.791	4.703	24.1%
DA-2-4	0.803	1.481	84.4%	2.376	3.288	38.4%	4.47	5.412	21.1%
DA-3-1	0.399	0.399	0.0%	1.462	1.461	-0.1%	3.08	3.075	-0.2%
DA-3-2	0.673	0.673	0.0%	2.759	2.758	0.0%	6.451	6.438	-0.2%
DA-4-1	0.319	1.538	382.1%	1.187	3.597	203.0%	2.865	6.344	121.4%
DA-4-2	0.578	1.733	199.8%	1.864	3.851	106.6%	3.729	6.342	70.1%
DA-5-1	0.778	1.785	129.4%	2.388	3.974	66.4%	4.612	6.55	42.0%
DA-5-2	2.203	2.269	3.0%	4.804	5.026	4.6%	8.266	8.264	0.0%
DA-6-1	0.017	0.018	5.9%	0.04	0.04	0.0%	0.067	0.066	-1.5%

4.0 EXTREME PRECIPITATION SCENARIOS

Climate change will only exacerbate existing conditions, imparting more extreme weather events resulting in an increase of total stormwater runoff and peak flow. In turn, this will amplify existing instances of localized flooding, provide higher-than normal seasonal groundwater tables, and further impact the effects of future development of currently undeveloped areas. Additionally, an increase in the frequency and magnitude of extreme storm events will drive the transport of increasingly excessive amounts of nutrients and sediment to receiving waterbodies and resulting in degradation of water quality within, and downstream of, the focus area. In order to model extreme precipitation scenarios, the precipitation amounts were increased by 15% for each storm event. Tables 4-1 and 4-2 indicate the changes that may be anticipated with increased rainfall amounts and intensities. A figure identifying the potential flooding impacts associated with extreme precipitation scenarios is provided below {to be developed} and the Extreme Storm Event HydroCAD modeling reports are provided in **Appendix J.**

Table 4-1: Peak Discharge Rates – Extreme Precipitation Scenarios

	1-Year					10-year				
	Qpk - No Build (CFS)	Q-pk - 50% Build (CFS)	% Increase from No Build	Q-pk - 100% Build (CFS)	% Increase from No Build	Qpk - No Build (CFS)	Q-pk - 50% Build (CFS)	% Increase from No Build	Q-pk - 100% Build (CFS)	% Increase from No Build
DA-1-1	18.87	22.69	20.2%	18.87	0.0%	59.93	59.93	0.0%	59.93	0.0%
DA-1-2	13.31	16.74	25.8%	14.7	10.4%	39.53	40.72	3.0%	40.78	3.2%
DA-1-3 POND	0.52	0.79	51.9%	0.59	13.5%	2.23	2.28	2.2%	2.3	3.1%
DA-1-3	22.23	27.54	23.9%	28.51	28.3%	52.87	56.41	6.7%	59.18	11.9%
DA-1-4	18.5	24.11	30.3%	25.95	40.3%	45.11	49.46	9.6%	53.04	17.6%
DA-2-1	17.96	22.65	26.1%	19.89	10.7%	57.79	58.98	2.1%	59.94	3.7%
DA-2-2	4.74	9.3	96.2%	30.88	551.5%	15.92	31.62	98.6%	63.87	301.2%
DA-2 POND	3.18	4.82	51.6%	6.43	102.2%	10.06	24.03	138.9%	73.57	631.3%
DA-2-3	4.55	7.66	68.4%	9.58	110.5%	13.4	16.4	22.4%	18.78	40.1%
DA-2-4	7.03	11.04	57.0%	13.49	91.9%	19.48	23.32	19.7%	26.44	35.7%
DA-3-1	2.4	2.93	22.1%	2.4	0.0%	8.38	8.38	0.0%	8.38	0.0%
DA-3-2	5.12	6.21	21.3%	5.12	0.0%	20.07	20.07	0.0%	20.07	0.0%
DA-4-1	1.68	3.31	97.0%	8.63	413.7%	6.02	10.15	68.6%	17.92	197.7%
DA-4-2	3.29	6.01	82.7%	10.32	213.7%	10.15	14.34	41.3%	20.29	99.9%
DA-5-1	4.74	7.92	67.1%	11.31	138.6%	13.75	17.67	28.5%	22.27	62.0%
DA-5-2	23.98	27.18	13.3%	27.3	13.8%	49.83	51.79	3.9%	53.33	7.0%
DA-6-1	0.13	0.14	7.7%	0.13	0.0%	0.26	0.26	0.0%	0.26	0.0%

Table 4-2: Peak Discharge Rates – Extreme Precipitation Scenarios

	1-Year					10-year				
	Qpk - No Build (CFS)	Volume - 50% Build (ac-ft.)	% Increase from No Build	Volume - 100% Build (ac-ft.)	% Increase from No Build	Qpk - No Build (CFS)	Volume - 50% Build (ac-ft.)	% Increase from No Build	Volume - 100% Build (ac-ft.)	% Increase from No Build
DA-1-1	18.87	22.69	20.2%	18.87	0.0%	59.93	59.93	0.0%	59.93	0.0%
DA-1-2	13.31	16.74	25.8%	14.7	10.4%	39.53	40.72	3.0%	40.78	3.2%
DA-1-3 POND	0.81	1.237	52.7%	0.941	16.2%	3.658	3.784	3.4%	3.848	5.2%
DA-1-3	22.23	27.54	23.9%	28.51	28.3%	52.87	56.41	6.7%	59.18	11.9%
DA-1-4	18.5	24.11	30.3%	25.95	40.3%	45.11	49.46	9.6%	53.04	17.6%
DA-2-1	17.96	22.65	26.1%	19.89	10.7%	57.79	58.98	2.1%	59.94	3.7%
DA-2-2	4.74	9.3	96.2%	30.88	551.5%	15.92	31.62	98.6%	63.87	301.2%
DA-2 POND	4.846	7.391	52.5%	10.108	108.6%	15.098	19.259	27.6%	28.009	85.5%
DA-2-3	4.55	7.66	68.4%	9.58	110.5%	13.4	16.4	22.4%	18.78	40.1%
DA-2-4	7.03	11.04	57.0%	13.49	91.9%	19.48	23.32	19.7%	26.44	35.7%
DA-3-1	2.4	2.93	22.1%	2.4	0.0%	8.38	8.38	0.0%	8.38	0.0%
DA-3-2	5.12	6.21	21.3%	5.12	0.0%	20.07	20.07	0.0%	20.07	0.0%
DA-4-1	1.68	3.31	97.0%	8.63	413.7%	6.02	10.15	68.6%	17.92	197.7%
DA-4-2	3.29	6.01	82.7%	10.32	213.7%	10.15	14.34	41.3%	20.29	99.9%
DA-5-1	4.74	7.92	67.1%	11.31	138.6%	13.75	17.67	28.5%	22.27	62.0%
DA-5-2	23.98	27.18	13.3%	27.3	13.8%	49.83	51.79	3.9%	53.33	7.0%
DA-6-1	0.13	0.14	7.7%	0.13	0.0%	0.26	0.26	0.0%	0.26	0.0%

5.0 CRITICAL INFRASTRUCURE CULVERT ANALYSIS

B&L assessed the capacity of 14 critical culvert locations using the results on the hydrologic models for the No Build Out, 50% Build Out and 100% Build Out scenarios. The culvert analysis focused on the headwater to depth ratios (HW/D) of culverts. Common hydraulic guidance used by many DOT agencies allows for a HW/D ratio up to 1.5 times the depth (or diameter) of culverts at peak discharge conditions. Higher ratios can commonly cause issues with water piping through the road subbase, potentially causing damage to embankments. B&L assumed culverts at state-owned road crossings need to be designed to safely convey the 50-year return storm peak discharge in accordance with Maine DOT design criteria. For local and county roads, B&L assumed a safe conveyance of a 10-year return storm peak discharge is adequate for many of crossing locations. Note that HW/D ratios outside design recommendations do not necessarily mean that local flooding occurs at the design storm event.

Based on the model analysis, B&L found that 8 of 14 culverts assessed are presently undersized as summarized in **Table 5-1 and on Figure 5-1**. Potential land development activities may exacerbate hydraulic conditions, but do not cause any additional culverts to exceed HW/D design recommendations in either the 50% or 100% scenarios. Preliminary culvert sizing recommendations are presented in **Table #** to meet HW/D ratio criteria for the 100% Build Out model scenario. We recommend conducting site-specific hydraulic analyzes to size replacement culverts so that other design criteria may be considered as necessary.

Table 5-1: Critical Infrastructure Culvert Analysis

Model Node ID	Design Storm	Existing Culvert Size (in dia.)	HW/D Ratio Per Scenario @ Design Storm Peak Discharge		
			No Build Out	50% Build Out	100% Build Out
1-P	10-Year	12	1.26	1.30	1.32
2-P	10-Year	18	1.63	1.69	1.81
CB-1-1*	10-Year	14	>2.0	>2.0	>2.0
CB-1-3	10-Year	36	2.53	2.63	2.71
CB-1-4	10-Year	24	8.74	10.61	12.28
CB-2-3	50-Year	36	1.80	3.81	8.77
CB-2-4	50-year	24	2.63	3.18	3.63
CB-3-1**	10-Year	14	1.13	1.13	1.13
CB-3-2	10-Year	24	1.84	1.84	1.84
CB-4-1	10-Year	24	0.54	0.73	1.20
CB-4-2	10-Year	24	0.73	0.94	1.40
CB-5-1	10-Year	36	0.48	0.55	0.64
CB-5-2	50-Year	32	3.71	4.06	4.38
CB-6-1	10-Year	18	0.15	0.15	0.15

*Additional evaluation required to account for potential upstream storage.
** Multiple culverts modeled at this node location. Largest diameter evaluated for hydraulic capacity.
Locations in **BOLD** exceed a 1.5 HW/D ratio and additional hydraulic analysis may be warranted.

Table 5-2 below provides initial sizing considerations to reduce the HW/D ratio to less than 1.5.

Table 5-2: Critical Infrastructure Culvert Analysis – Initial Sizing Considerations			
Model Node ID	**Existing Culvert Size (in dia.)**	**Recommended Culvert Size (in dia.)**	**Preliminary HW/D Ratio**
2-P	18	24	1.34
CB-1-1	14	TBD	TBD
CB-1-3	36	48	1.31
CB-1-4	24	42	1.10
CB-2-3	36	60	1.13
CB-2-4	24	36	1.18
CB-3-2	24	30	0.93
CB-5-2	32	42	1.50

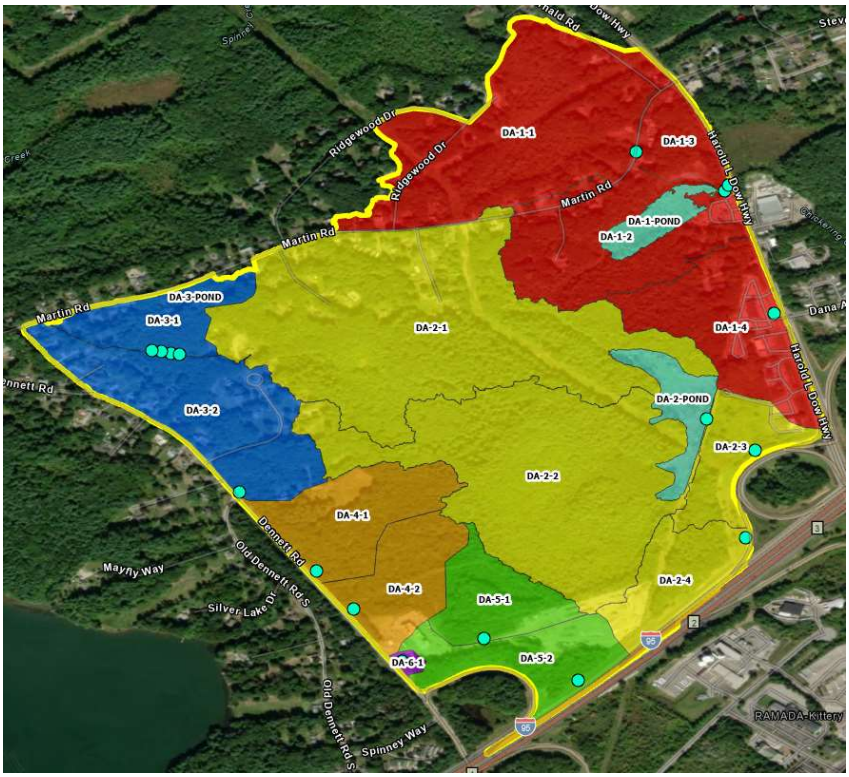


Figure 5-1: Culvert Sizing Analysis Locations

6.0 ALTERNATIVES ANALYSIS

A primary goal of the project was to determine what projects have the greatest buy-in from both the Town and the general public, particularly due to public ownership of the majority of lands within the study area. A conceptual overview of the alternative selection process is described in detail below.

6.1 Alternative Matrix and Overview

A retrofit opportunity matrix was developed to evaluate potential stormwater mitigation alternatives based on information obtained from prior studies and field data collection activities. Potential alternatives include:

- Modifications to Existing Drainage System – this practice focuses on right-sizing, repairing, or otherwise improving under-performing stormwater infrastructure, such as culverts or closed drainage systems (including inlets to such systems). These drainage system deficiencies are primarily identified through known failures or review of hydrologic and hydraulic modeling results. Examples include culvert replacements, drainage system modifications, inlet/outlet modifications, and daylighting of closed drainage systems (conversion to open channels).
- Installation of Stormwater Retrofits – this practice focuses on providing localized storage to a drainage area to allow either detention and sedimentation or retention and infiltration, reducing downstream peak flows, runoff volume, total nutrients, and sediment loads. Examples include upstream stormwater/wetland retention facilities and stream restorations that provide connectivity to flood storage areas.
- Flood Damage Protection and Planning – this practice focuses on localized improvements to structures located within areas with high frequencies of localized flooding or groundwater-related inundation. This practice may be completed at the individual homeowner level, or on a larger scale for protection of infrastructure. Examples range from installation of homeowner sump pumps, reduction of impervious areas, installing/maintaining homeowner drainage (gutters and downspouts), improving residential lot grading, backflow prevention, elevating utilities, installation of flood vents, and use of flood resistant materials.
- Groundwater Interception Trenches – This practice focuses on interception and redirection of groundwater flows to avoid inundation of infrastructure located in areas characterized by high seasonal groundwater tables.
- Evaluation of Land Use Planning and Zoning – This practice includes evaluation of existing policies and zoning areas to protect areas vulnerable to stormwater or groundwater related damages under existing conditions, as well as to avoid future development in areas viewed as vulnerable to the hydrologic effects of build-out where tangible mitigation practices are less feasible. Examples include incorporation of “Low Impact Development” considerations.

- Water Quality Treatment Practices and Green Infrastructure Opportunities – this practice focuses on capture and treatment of stormwater at, or near, its source, including stormwater management while providing recreational and wildlife benefits. Generally, peak flows are reduced while providing nutrient treatment. Alternatives will also evaluate opportunities to replace existing or proposed impervious areas with permeable options that capture and infiltrate stormwater runoff. These techniques require careful evaluation of subsurface conditions (soils, depth to groundwater and bedrock) to ensure infiltration is feasible and will not contribute to localized groundwater impacts (i.e. increased basement flooding). Examples include:
    - Permeable pavements
    - Bioswales/vegetative swales
    - Rain gardens
    - Silva Cells®
    - Stormwater Tree Trenches
    - Infiltration basins
    - Rainwater harvesting
    - Rain barrels
    - Native plantings
    - Rooftop disconnects
- Conservation Opportunities – this practice focuses on identification of areas best suited for conservation to assist with the off-set of future Build-Out conditions. Provisions of conservation areas can provide for a path for future development that minimize hydrologic impacts.
- Wetland creation/expansion – this practice focuses on utilizing existing or suitable areas to create suitable vegetated areas typically influenced by groundwater that provide extended detention storage to treat significant water quality and reduce peak flows.
- Riparian buffer restoration – this practice focuses on restoring the naturally vegetated areas that serve as the transition zone between terrestrial (land) and aquatic (water) habitats. If sufficiently structured, protected, and maintained, riparian buffers serve to mitigate the volume and intensity of stormwater runoff entering the adjacent waterbody, and can act to mitigate the discharge of pollutants to the waterway often associated with stormwater runoff.

The projects were ranked based on criteria associated with stormwater benefits (quantity and quality), constructability, cost and co-benefits. The rankings were based on the following criteria with total available points for each criterion in parentheses. **Appendix K** includes the detailed ranking matrix).

- Stormwater Benefits (total 50 out of 100 points)
    - Water Quantity Flood Reduction (40 points)
    - TSS reduction (5 points)
    - Nutrient: phosphorus and sediment reduction (5 points)

- Constructability (total 20 out of 100 points)
    - Land Acquisition/Public Ownership Potential (10 points)
    - Known constraints (5 points)
    - Permitting (5 points)
- Cost (total 20 out of 100 points)
    - Construction Cost – not included in ranking as we are seeking a range of projects
    - Maintenance Cost (5 points)
    - Fundability (15 points)
- Co-Benefits (total 10 out of 100 points)
    - Energy and air quality impacts (2 points)
    - Habitat and biodiversity (2 points)
    - Community and aesthetic benefits (2 points)
    - Human health benefits (2 points)
    - Educational Opportunities/Visibility (2 points)

6.2 Selection of Prioritized Alternatives

Based on the matrix rankings, the project advisory team selected six projects to progress to a more detailed analysis. The goal for selection of the six projects is to include a diverse collection of projects. The projects selected for more detailed analysis were not necessarily ranked based on the six highest overall scores. For example, the project advisory team determined that certain high-ranking projects have greater barriers to implementation.

The ranking matrix can be used as a template that can be repeated by the Town to progress additional projects as future funding becomes available.

The projects selected for further evaluation included options to address current conditions and potential Build-Out scenarios as follows:

<u>Projects to Address Existing Flood & Water Quality Concerns:</u>

1. Right-Sizing Critical Infrastructure – culvert and drainage system modifications
    - Culvert outlet from existing pond/wetland complex in “98 Dennett Road Parcel”
    - East side of Martin Road
    - North end of Rt. 236
    - South end of Rt. 236

- I-95 drainage infrastructure (multiple locations)
- Intersection of Dennett and Old Dennett

2. Seep Collars along Martin Road Sewer Line
3. Upstream Detention/Wetland Expansion (above Martin Rd.)

Projects to Address Potential Build-Out Drainage Concerns:

4. Identification of potential conservation areas (requires easements or land acquisition)

5. Expanding stormwater storage at "98 Dennett" Parcel

6. Providing Low Impact Development considerations for future Build-Out scenarios

- Synergy with updates to the Town's Stormwater Management Plan

The project locations selected to progress to more detailed analysis are provided on **Figure 6.1 {to be developed}**.

6.3 Evaluation of Alternatives {TO BE DEVELOPED FOLLOWING SELECTION OF PREFERRED ALTERNATIVES}

The six projects that progressed to supplemental analysis were incorporated into the hydrologic/hydraulic and pollutant load models to identify a quantifiable benefit of each alternative. Each alternative was modeled individually and combined to evaluate the cumulative benefit of multiple mitigation approaches. For the six prioritized alternatives, supplemental information will be provided including:

- Hydrologic/Hydraulic and Pollutant Load modeling analysis
- Cost estimates
- Non-Monetary Factors
  - Energy and Air Quality Impacts,
  - Habitat and Biodiversity,
  - Community and Aesthetic Benefits,
  - Human Health Benefits,
  - Educational Opportunities and Visibility,
  - Land Ownership, and
  - Regulatory Considerations and Permits Required.

Tables to be developed following Public Meeting 3 and final selection of alternatives.

Table 6-1: Water Quantity and Quality Benefits

Selected Alternatives	Peak Flow Reduction (cfs)	Stormwater Volume Reduction (acre-feet)	Sediment Reduction (lbs.)	Phosphorus Reduction (lbs.)	Other
PROJECT 1					
PROJECT 2					
PROJECT 3					
PROJECT 4					
PROJECT 5					
PROJECT 6					

Table 6-2: Implementation Cost Estimate

Selected Alternatives	Final Design	Permitting	Land Acquisition	Construction	Total (w/20% Contingency)
PROJECT 1					
PROJECT 2					
PROJECT 3					
PROJECT 4					
PROJECT 5					
PROJECT 6					

**Based on 2023 dollars*

Table 6-3: Maintenance Considerations		
Selected Alternatives	**Maintenance Needs**	**Avg. Annual Cost**
PROJECT 1		
PROJECT 2		
PROJECT 3		
PROJECT 4		
PROJECT 5		
PROJECT 6		

**Based on 2023 dollars*

Table 6-4: Non-Monetary Factors					
Selected Alternatives	**Energy and Air Quality Impacts**	**Habitat & Biodiversity**	**Community & Aesthetic Benefits**	**Human Health Benefits**	**Educational Opportunities/ Visibility**
PROJECT 1					
PROJECT 2					
PROJECT 3					
PROJECT 4					
PROJECT 5					
PROJECT 6					

Table 6-5: Permitting Considerations				
Selected Alternatives	**Permit Name**	**Permit Name**	**Permit Name**	**Permit Name**
PROJECT 1				
PROJECT 2				
PROJECT 3				
PROJECT 4				
PROJECT 5				
PROJECT 6				

6.4 Summary & Comparison of Alternatives

This section will be completed following Public Participation Meeting #3

6.5 Recommended Alternatives

This section will be completed following Public Participation Meeting #3

7.0 FUNDING OPPORTUNITIES {TO BE DEVELOPED FOLLOWING SELECTION OF PREFERRED ALTERNATIVES}

The table below will be populated to summarize programs offered through state and federal resources that may provide funding opportunities and assistance to support implementation of the projects.

Table 7-1: Potential Funding and Assistance Opportunities

Selected Alternatives	Funding Source 1	Funding Source 2	Funding Source 3	Funding Source 4
PROJECT 1				
PROJECT 2				
PROJECT 3				
PROJECT 4				
PROJECT 5				
PROJECT 6				

8.0 PRIORITY AREA FINDINGS

Throughout the course of the study, priority areas were identified through field reconnaissance, evaluation of modeling results, and receipt of public input. The following is a summary of findings associated with these priority areas.

8.1 Residential properties along Martin Road, primarily within close proximity to Rt-236

To be developed following Public Meeting 3.

8.2 Herb Parson Pond

Streamworks conducted an assessment of groundwater conditions proximal to the Herb Parson Pond and determined that the pond surface elevation coincides with the groundwater elevation. There is minimal drainage area contributing to the pond, the pond setting is near a local topographic high point. The pond appears to be the result of historical gravel mining, and is denoted as a gravel pit on the USDA soil survey with a high infiltration rate. The findings of the Streamworks assessment is provided as **Appendix L.**

This section to be expanded if further evaluation of the Martin Rd. sewer seep collars provides additional correlation to the Pond water level.

8.3 Central study area (potential future development areas)

To be developed following Public Meeting 3.

8.4 Residential properties along Dennett Road

To be developed following Public Meeting 3.

8.5 Happy Avenue Access Road

The Happy Avenue access road extension has a series of small diameter culverts that drain surface water from east to west. Further evaluation of these culverts could be conducted to determine if they are adequately sized to convey flow under Happy Avenue. There is potential that these culverts could store water upgradient of Happy Avenue that could ultimately infiltrate and contribute to a localized perched groundwater table. This project was included on the retrofit matrix (see **Appendix K**), but was not pursued as one of the six projects for additional evaluation.

8.6 Residential properties along Old Dennett Road, located west of Dennett Road

To be developed following Public Meeting 3.

8.7 Current Dennett Road development near I-95 on-ramp.

To be developed following Public Meeting 3.

9.0 HOMEOWNER FLOOD PROTECTION MEASURES

While the potential stormwater retrofit and improvement projects outlined above may assist with the reduction localized flooding concerns, additional homeowner flood protection measures should also be considered. The following homeowner flood protection recommendations were developed by FEMA (https://www.fema.gov/sites/default/files/documents/fema_protect-your-home-from-flooding-brochure_2020.pdf).

Exterior Homeowner Flood Protection Measures

- Maintain proper water runoff and drainage. Routinely clean and maintain gutters, downspouts, and splash pads. Ensure drainage ditches and storm drains are clear of debris and functioning properly.

- Improve lot grading. If necessary, consider building up any sunken areas around the foundation, digging small depressions to properly channel water, and grade properties to slopes away from structures.

- Reduce impervious surfaces. Retaining and creating natural green space around properties can help reduce stormwater runoff. Consider options such as rain gardens, vegetated swales, or pervious pavements, which allow more water to be absorbed by the ground.

- Install a rain barrel. Rain barrels are typically connected to gutter downspouts and collect the runoff from roofs. The stored water can be used for non-potable uses such as watering the lawn and gardens.

- Elevate utilities and service equipment. Raise and anchor air conditioning condensers, heat pumps, water meters and other service equipment onto pedestals or platforms that are at least 1 foot above the potential flood elevation.

- Anchor outdoor fuel tanks. Attach outdoor fuel tanks to a large concrete slab that weighs enough to resist the force of floodwaters, or install ground anchors that are connected across the top of the tank with metal straps. If located in an identified high-risk zone, fuel tanks should also be elevated to or above the regulatory flood elevation. If not feasible then all filling and ventilation tubes should be elevated so that floodwaters cannot enter the tank.

Interior Homeowner Flood Protection Measures

- Protect valuable possessions. Move important documents and valuables above the potential flood elevation and/or inside watertight containers.

- Seal foundations and basement walls. Close any foundation cracks with mortar and masonry caulk or hydraulic cement, which expands and fills gaps completely. Seal basement walls with

waterproofing compounds to avoid seepage. Make sure any floor drains are clear of obstructions.

- Install flood vents. Flood vents are small permanent openings that allow floodwater to flow freely through an enclosure such as a crawlspace or garage. Properly positioned and installed flood vents protect homes during floods by preventing water pressure buildup that can destroy walls and foundations. Flood openings may be required for lower enclosures of homes being built in high-risk flood zones, but they can also be installed in existing homes. Once installed, make sure your flood vents are kept free of debris and will allow the free-flow of floodwater.

- Install a sump pump. Sump pumps, which pump groundwater away from a structure, can prevent or minimize basement seepage and flooding. They draw in the groundwater from around a structure and direct it away from the structure through drainage pipes. Water powered or battery-backup systems are recommended in case of electrical power failure.

- Prevent sewer backups. Install drain plugs for all basement floor drains to prevent sewer backups. Another recommended option, regardless of the potential flood elevation, is to install sewer backflow valves for all pipes entering the building. These devices, which allow water to flow only one direction, prevent floodwater and wastewater from backing up into toilets, sinks, and other drains. A qualified, licensed plumber should install all measures.

- Use flood-resistant building materials. Examples include tile, vinyl, rubber, lime plaster, cement board, concrete, or pressure-treated and decay-resistant wood.

- Raise electrical system components. Increase the height of electric service panels (fuse and circuit breaker boxes) and all outlets, switches, and wiring to at least 1 foot above the potential flood elevation. A licensed electrician should make these modifications.

- Protect utilities and service equipment. Move the main parts of heating, ventilation, and air conditioning (HVAC) systems to a higher floor. Consider raising other major appliances. If relocation or elevation is not possible, service equipment can be protected using low floodwalls and shields.

- Anchor indoor fuel tanks. Anchor fuel tanks by attaching them to a large concrete slab that weighs enough to resist the force of floodwaters.

- Install a flood alert system. A variety of flood sensors and other early warning devices can alert the risk of imminent flooding so preventative or protective actions can be taken.

10.0 SUMMARY, RECOMMENDATIONS & NEXT STEPS {TO BE DEVELOPED FOLLOWING SELECTION OF PREFERRED ALTERNATIVES}

11.0 REFERENCES

Dewitz, J. (2021). National Land Cover Database (NLCD) 2019 Products [Data set]. U.S. Geological Survey. https://doi.org/10.5066/P9KZCM54

National Hydrography Dataset Plus V2 (NHD), 2017. Continental US Medium Resolution Stream Network. Horizon Systems Corporation, 2017.

U.S. Department of Agriculture (USDA), 2017. Web Soil Survey. Available from: https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx

U.S. Geological Survey, 20220622, USGS 1 Meter 19 x35y478 NH_Coastal_2019_B19: U.S. Geological Survey. Available from: USGS 1 Meter 19 x35y478 NH_Coastal_2019_B19 - ScienceBase-Catalog

Protect Your Home from Flooding. FEMA. https://www.fema.gov/sites/default/files/documents/fema_protect-your-home-from-flooding-brochure_2020.pdf).

FIGURES

APPENDICES

Appendix A

1984 Federal Emergency Management Agency (FEMA) Flood Rate Insurance Maps (FIRMs)

KEY TO MAP

500-Year Flood Boundary	ZONE B
100-Year Flood Boundary	ZONE A1
Zone Designations*	ZONE A5
100-Year Flood Boundary	ZONE B
500-Year Flood Boundary	ZONE B
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance and flood plain management purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas. The coastal flooding elevations shown may differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

For adjoining map panels, see separately printed Index To Map Panels.

Coastal base flood elevations shown on this map include the effects of wave action.

Coastal base flood elevations apply only landward of the shoreline shown on this map.

INITIAL IDENTIFICATION:
NOVEMBER 1, 1974
FLOOD HAZARD BOUNDARY MAP REVISIONS:
SEPTEMBER 24, 1976
OCTOBER 1, 1983

FLOOD INSURANCE RATE MAP EFFECTIVE:
JULY 5, 1984
FLOOD INSURANCE RATE MAP REVISIONS:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.

APPROXIMATE SCALE
400 0 400 1 FEET

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION IN FT. (NGVD)[1]	DESCRIPTION OF LOCATION
RM 5	41.10	MSHC & JWS Co. disk in U.S. Route 1 southbound bridge over Interstate Route 95

[1]National Geodetic Vertical Datum of 1929

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
KITTERY, MAINE
YORK COUNTY

PANEL 4 OF 10
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230171 0004 C
EFFECTIVE DATE:
JULY 5, 1984

Federal Emergency Management Agency

KEY TO MAP

500-Year Flood Boundary	ZONE B
100-Year Flood Boundary	ZONE A1
Zone Designations*	ZONE A5
100-Year Flood Boundary	ZONE B
500-Year Flood Boundary	
Base Flood Elevation Line With Elevation In Feet**	513
Base Flood Elevation in Feet Where Uniform Within Zone**	(EL 987)
Elevation Reference Mark	RM7×
Zone D Boundary	
River Mile	•M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance and flood plain management purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas. The coastal flooding elevations shown may differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

For adjoining map panels, see separately printed Index To Map Panels.

Coastal base flood elevations shown on this map include the effects of wave action.

Coastal base flood elevations apply only landward of the shoreline shown on this map.

INITIAL IDENTIFICATION:
NOVEMBER 1, 1974
FLOOD HAZARD BOUNDARY MAP REVISIONS:
SEPTEMBER 24, 1976
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JULY 5, 1984
FLOOD INSURANCE RATE MAP REVISIONS:

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620.

APPROXIMATE SCALE
400 0 400 FEET

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION IN FT. (NGVD) [1]	DESCRIPTION OF LOCATION
RM 10	46.11	Railroad spike in pole No. 17 on southwest side of Dennett Road.
RM 11	48.64	MSHC & JWS Co. disk on northeast side of Gray Lodge Road east of interstate 95 bridge over the Piscataqua River

[1] National Geodetic Vertical Datum of 1929

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
KITTERY, MAINE
YORK COUNTY

PANEL 7 OF 10
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230171 0007 C
EFFECTIVE DATE:
JULY 5, 1984

Federal Emergency Management Agency

Appendix B

Current Town of Kittery Zoning

Town of Kittery

York County, Maine

Land Use Zoning Map

(A Growth Managment / Comprehensive Plan Implementation Strategy)

TOWN OF KITTERY, MAINE — INCORPORATED 1647

Town of Eliot

Town of York

Spinney's Creek

Pistcataqua River

Spruce Creek

Rams Island

Brave Boat Harbor

Cutts Island

Seapoint

Gulf of Maine

Atlantic Ocean

Seavey Island

Portsmouth Harbor

Pepperrell Cove

Barters Creek

Back Channel

Gerrish Island

Fishing Island

Gooseberry Island

Wood Island

Horn Island

White Island

Whaleback Lighthouse

White Island Reef

Base Zones

- Residential - Village (R-V)
- Residential - Urban (R-U)
- Residential - Kittery Point Village (R-KPV)
- Residential - Suburban (R-S)
- Residential - Rural (R-RL)
- Residential - Rural Conservation (R-RLC)
- Commercial 1 (C-1)
- Commercial 2 (C-2)
- Commercial 3 (C-3)
- Industrial (IND)
- Business - Local 1 (B-L1)
- Business - Local (B-L)
- Business - Park (B-PK)
- Mixed Use - Kittery Foreside (MU-KF)
- Mixed Use (MU)
- Mixed Use - Badgers Island (MU-BI)
- Conservation (CON)
- Transportation - Maine Turnpike (T-MT)

Overlay Zones

- Resource Protection (OZ-RP)
- Shoreland - Water Body / Weltand Protection Area (OZ-SL-250')
- Shoreland - Stream Protection Area (OZ-SL-75')
- Commercial Fisheries / Maritime Uses (OZ-CFMU) are located within the upland area 75 feet of the normal high-water line or to the property boundary line as identified on the Zoning Map .

1 inch = 1,000 Feet

0 1000 2000 3000 4000 5000 Feet

N

W E

S

Offshore Island Inset

Duck Island

Eastern Rocks

Mingo Rocks

Gulf of Maine

Atlantic Ocean

Appledore Island

R-RLC

Smuttynose Island

Malaga Island

Cedar Island

1 inch = 1,000 feet

0 500 1000 1500 2000 2500 3000 3500 4000 4500 5000 Feet

Inset A

Spinney's Creek

Elliot Rd

R-S

1 inch = 250 feet

0 250 500 750 Feet

Inset B

Tara Ln

Adams Ln

R-S

1 inch = 100 feet

0 100 200 300 Feet

Inset C

Whipple Rd

Pistcataqua River

R-U

1 inch = 167 feet

0 167 334 501 Feet

Inset D

B-L1

MU-KF

R-U

1 inch = 750 feet

0 750 1,500 2,250 3,000 Feet

Inset E

R-U

1 inch = 333 feet

0 333 666 999 Feet

Inset F

R-KPV

Peppperrell Rd

1 inch = 625 feet

0 625 1,250 1,875 Feet

Inset G

R-KPV

B-L

Peppperrell Rd

1 inch = 250 feet

0 250 500 750 Feet

Inset H

R-KPV

Pepperrell Rd

Shore Island Ln

1 inch = 500 feet

0 500 1,000 1,500 Feet

Inset I

R-KPV

Chauncey Creek Rd

Chauncey Creek

R-RLC

1 inch = 250 feet

0 250 500 750 1000 Feet

Inset J

B-L1

MU-KF

R-U

MU-BI

Back Channel

Pistcataqua River

Squash Island

IND

1 inch = 375 feet

0 750 1500 2250 3000 Feet

I hereby certify this Zoning Map, referred to in the Town Land Use and Development Code, is the Official Zoning Map for the Town of Kittery, Maine. It includes all prior revisions and is current as of this date.

The precise location of property, boundary lines, and natural resources as shown on this Official Zoning Map is not warranted. Where there exists any doubt in the accuracy of any such property, boundary lines, or natural resources, the property owner is responsible to demonstrate the exact lot line or natural resource locations with respect to the zone boundaries. Such accuracy may be established through a licensed survey or appropriate state certified professional consistent with the Town Code.

Adopted by the Kittery Town Council and Effective this May 24, 2010.

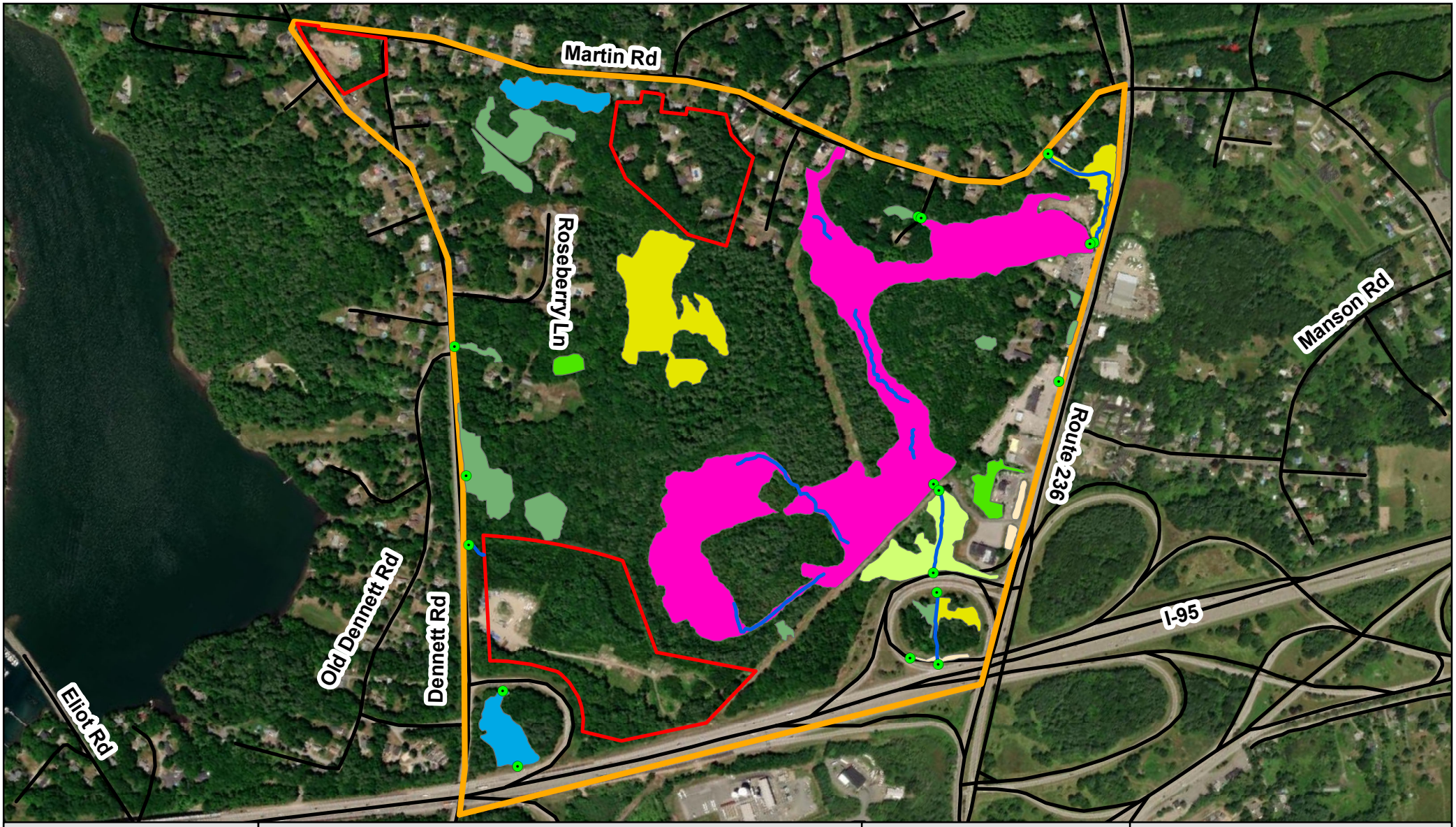
Maryann Place 5/24/10

Maryann Place, Town Clerk

Map prepared by the
Kittery Planning & Development Department
Michael Asciola

Appendix C

FB Environmental Wetland Reconnaissance



LOCUS MAP

- Survey Area
- Not Surveyed
- Road
- Infrastructure Feature
- Stream Centerline (Approximate)

Wetland Boundary (Approximate)

Wetland Type

- Ditch
- Emergent Marsh
- Scrub-Shrub / Emergent Marsh
- Forested
- Forested / Emergent Marsh
- Forested / Scrub-Shrub & Emergent Marsh
- Open Water

FB environmental

0 0.1 0.2 Miles

Barton & Loguidice Hydrologic Study Kittery, Maine Wetland Reconnaissance Map

DRAFT

Data Sources: Maine Geolibrary, ESRI
Coordinate System: NAD 1983 UTM Zone 19
Map created by S.Large on Nov. 7, 2022

Notes: 1. This map represents a preliminary wetland assessment of the survey area; depicted wetland boundaries are approximate. 2. This map does not represent an official wetland delineation, nor does it depict all wetlands that might be present within the survey area boundary 3. Areas not surveyed were inaccessible.

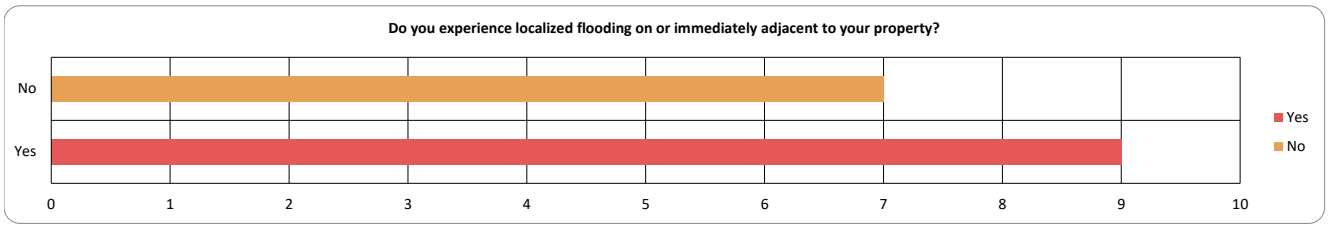
Appendix D

Public Survey and Interactive Mapper Summary

Project Survey: Kittery Watershed Study

Do you experience localized flooding on or immediately adjacent to your property?

Choice	Responses	
Yes	9	56.25%
No	7	43.75%
Answered	**16**	
Skipped	**0**	



Project Survey: Kittery Watershed Study

Is there a specific point in time (year) that you first started noticing flooding on your property?

Response
Huge rain storm on frozen ground
Ever since the boat storage was filled in
It floods all the time but starts with heavy spring rains
right after the sewer project
s[pring
Always-I have wetlands
No
Spring
I have a lot of wetlands and 2 vernal pools. every spring there is standing water. in past 2 drought years

Answered	**9**
Skipped	**7**

Project Survey: Kittery Watershed Study

If you experience flooding at your property, how frequent is this flooding? Monthly, seasonally, annually, or once every several years?

Response	
Seasonally	
Ongoing	
Constant unless there is a drought. I have been experiencing it since we received the recent rains and it continues.	
monthly (without snow)	
heavy rains and Spring until early summer	
Not applicable	
Seasonally	
Annually. Wet areas persist Feb through May	
Answered	**8**
Skipped	**8**

Project Survey: Kittery Watershed Study

If seasonal flooding occurs, what months is it most prevalent?

Response
March. April
Most prevalent in spring, summer and fall.
spring
spring
April through June
N/A
March through November
Usually Feb through May, early June. This year it started earlier

Answered	**8**
Skipped	**8**

Project Survey: Kittery Watershed Study

Please insert any dates you can recall (date, or year and month) of significant flood events that affected your property. Also include magnitude of flood impacts (e.g. 6 inches of water in basement on June 30, 2020).

Response
I have installed more sump pumps
Flooding occurs in the back of our property.
Since I have a fancy french drain system my sump pump which is below ground 12" goes off constantly - however if we loose power I will see an average of 3-4 inches in my basement. I have not lost power recently but had flooding in Spring of 2017 and 2018.
rainstorms - normally 1-2 inches of water in basement
I get water in my basement with heavy rains
Many many times over the year. It's been this way for years here.
My basement takes in some water with any heavy rains

Answered	**7**
Skipped	**9**

Project Survey: Kittery Watershed Study

If you have experienced flooding, have you incurred any out-of-pocket costs to fix damage? If so, how much?

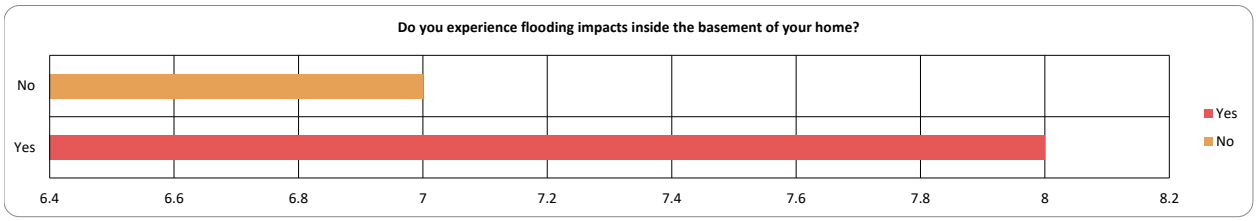
Response
No ability to fix drainage systems.
The french drain cost $18,000. when installed, since then I have installed a back up battery which was $800. and a maintenance. Additionally, I have replaced 3 of the lolly columns that were rusted by the years of repeated flooding before I bought the house. Which was $1200. and need to replace more. I also have to run a dehumidifier which has an increased cost of approx $50. a month on my electric bill. The previous owners lost everything in the basement- which was completely finished and I am sure it was upwards 10's of thousands of dollars.
2 Sump pumps installed mold removal over 2000 dollars
yes on going
Missed work, still paying, Serv Pro, pump, dehumidifer, mops, shop vac, est $2000
No, I have raised areas for storage in my cellar
Yes. Foundation and drainage expenses
I have wash out in my gravel drive. I have ground and surface water that impacts my cellar. It rusted out my oil tank. 2 Humidifiers in place to prevent rot in flooring joists and decrease rust

Answered	**8**
Skipped	**8**

Project Survey: Kittery Watershed Study

Do you experience flooding impacts inside the basement of your home?

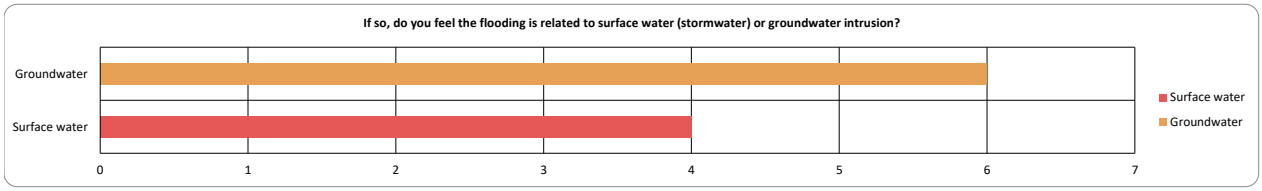
Choice	Responses	
Yes	8	53.33%
No	7	46.67%
Answered	**15**	
Skipped	**1**	



Project Survey: Kittery Watershed Study

If so, do you feel the flooding is related to surface water (stormwater) or groundwater intrusion?

Choice	Responses	
Surface water	4	40.00%
Groundwater	6	60.00%
Answered	**10**	
Skipped	**6**	



Project Survey: Kittery Watershed Study

Where is your home located within the study area?

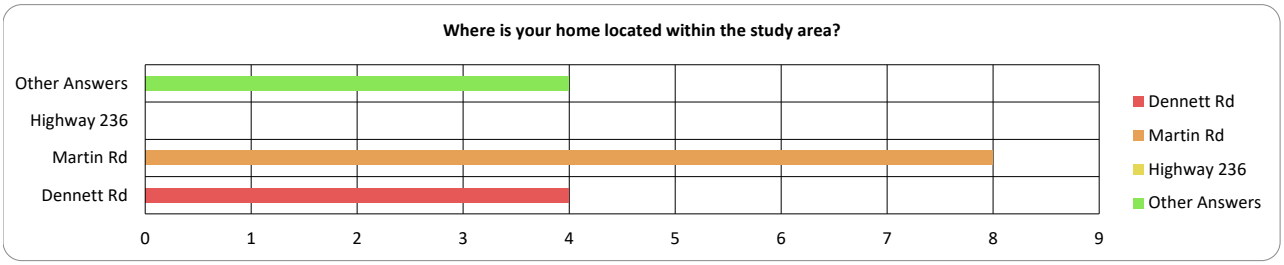
Choice	Responses
Dennett Rd	4 25.00%
Martin Rd	8 50.00%
Highway 236	0 0.00%
Other Answers	4 25.00%

19 Adams Dr19 Adams Dr, Kittery Me

Happy Ave off Dennett Rd

Happy Avenue

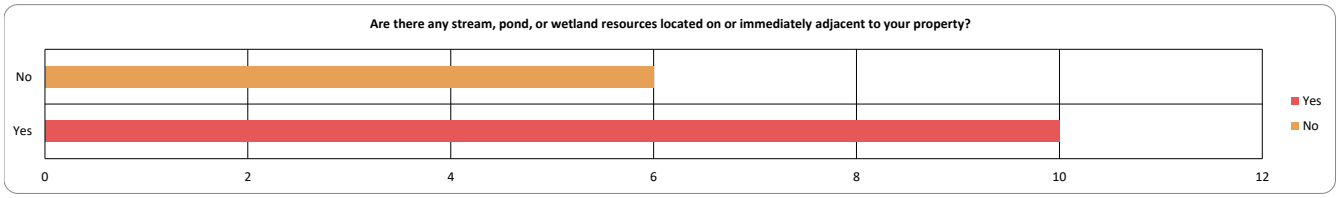
31 Walker Ave



Project Survey: Kittery Watershed Study

Are there any stream, pond, or wetland resources located on or immediately adjacent to your property?

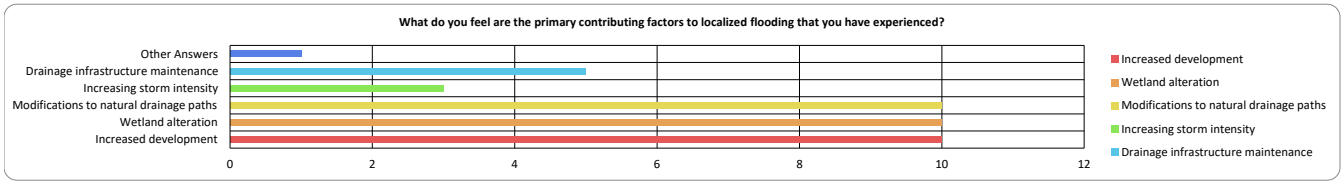
Choice	Responses	
Yes	10	62.50%
No	6	37.50%
Answered	**16**	
Skipped	**0**	



Project Survey: Kittery Watershed Study

What do you feel are the primary contributing factors to localized flooding that you have experienced?

Choice	Responses	
Increased development	10	76.92%
Wetland alteration	10	76.92%
Modifications to natural drainage paths	10	76.92%
Increasing storm intensity	3	23.08%
Drainage infrastructure maintenance	5	38.46%
Other Answers	1	7.69%
sewer project blasting		
Answered	**13**	
Skipped	**3**	



Project Survey: Kittery Watershed Study

Identify any changes within the study area that you feel may have impacted flooding frequency.

Response
Not in the study area.
following the sewer installation on Martin Road I have observed changes at the Herb Parsons Pond by the fisheries/wildlife place on Martin Road
Filling of wetlands.
There has been a lot of development in the area behind my property that was once a wetland. There is fill and new houses that have redirected the flow of the water.
Poor, if any, oversight to local development in the area. un-approved or un-appropriate filled in wetland areas with no recourse.
Since mr Cullen built on land off right of way
No storm drains
My 92 Dennett Road parcel with the Dennett graveyard. There is a drain pipe and open culvert that bounds the south side of the cemetery alongside the stone wall. There is significant runoff from Dennett Road into this drain. The water table in the grave yard is high. The last grave dug in February 2018 filled with a foot of water and the sod over the grave sunk in 2020 and needed to be refilled. There is a “stream” about 50 feet away from the north side of the of the graveyard that runs east-west towards old Dennett Road that floods regularly in the spring and with heavy rain. The runoff from Dennett Road and Roseberry Lane has caused flooding to property on Old Dennett Road, especially 103 Old Dennett.
No change. No flooding.
Improper development
Drainage pipe to the south of Dennett graveyard impacted by runoff from Dennett Road and 76 Dennett development. Roseberry Lane development has changed water supply to old well on north side of property
Answered 11
Skipped 5

Project Survey: Kittery Watershed Study

Identify any other water quality concerns within the study area.

Response
At the Herb Parsons Pond on Martin road I have observed drastic fluctuations and excessive green algae growth. I walk by with my dog EVERY DAY. I believe the water levels began big changes after the sewer project, the blasting etc. I am also concerned with the 236 disruptions in the wetlands near Martin/Stevenson.
Stagnant water .
Herb Parson's pond has died since all the fill back in 2016 was brought in for Happy Ave Ext. Nobody from the town was watching. No up to date permits were filed. Shame on you, you need to fix this ASAP.
Blasting for sewer line lost wildlife habitat and appears to have made flooding worse.
All runoff from newly developed land goes downhill to the east on the 236 side, creating marshy areas and the Piscataqua River on the west side
Home and property damage creates polluted runoff into our creeks, residents properties, and has stopped the natural flow to a local pond.
I am concerned about the level of the pond on Martin Rd.It is no longer thriving as it once was. It is VERY low as well.
water that collects in area off 236 between Martin Road down to new pump station?

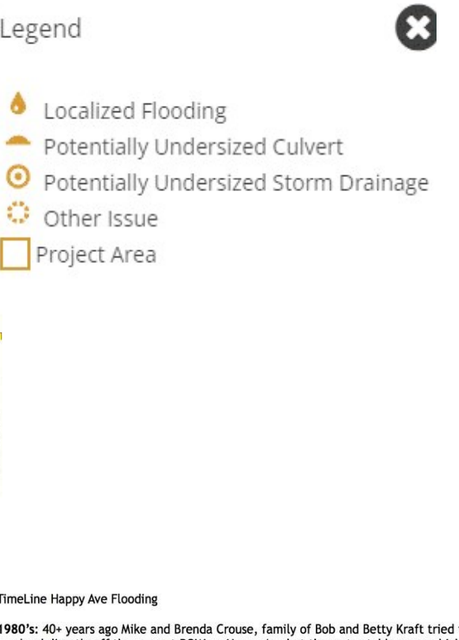
Answered	**8**
Skipped	**8**

Project Survey: Kittery Watershed Study

Your name (optional):

Response
Donald Gray
Ellen Mitchell
King
Jodie Curtis
Andrew Bedard
Sarah Dennett
Rod Welles
Dennett Sarah
Answered **8**
Skipped **8**

Type	Comment	Location
Local Flooding	KLT wetland is partial in the floodplain. But has flooded from beaver activity. There is a former beaver dam remnants on Chickering Creek near the outlet of the wetland	32 Route 236 Unit 1
Potentially Undersized storm drainage	12" CPP culvert under the existing is likely undersized. See drainage calculations for proposed project at 41 Rt 236	37 Route 236
Other	Per 1956 Rt 236 highway plans...a 1'x2' stone culvert drained Chickering Creek under the abandoned railroad bed here. The stone culvert was abandoned when the current 36" RCP drain was installed as part of roadway construction.	41 Route 236
Potentially Undersized Storm Drainage	15" CMP may be undersized. See drainage calculation from the downstream 41 Rt 236 project. Outlet is "hanging" about one foot above the water level creating a manmade barrier for aquatic species to pass.	124 Martin Rd
Local Flooding	Neighbors on Martin water displacement during the first fill/development of this wetland2009 for an extension of a boat yard. When more fill was added in 2015, residents began to lose trees in the remaining buffer area between them and the yard with one resident losing everything including furnace. The flooding worsened so a professional, permanent sump pump was installed. Trees continue to die and the remaining buffer barely exists on some of the properties. 1941 map of creek running to wetland	122 Martin Rd
Other	Drainage from this wetland is to the northeast, refer to Town GIS / LiDAR. Drainage across the Martin Road from this wetland is incorrectly shown on many maps since 1956.	91 Martin Rd
Other	Culvert pipe 12 in black goes down side of road and empties into swamp. Not sure if pipe end is crushed, might be hard to find with all the leaves. They put timbers in for an excavator to go through power line section.	92 Martin Rd
Local Flooding	Development on wetland at the end of Summer Ave. a couple of years ago. After 2 homes were built, the runoff now runs down Summer Lane, sheets across Martin into properties. I have very clear video, but am unable to attach. It is important to note that there are many inaccuracies with the GIS map. One of the most obvious is the lack of wetlands marked out.	64 Martin Rd
Other	Pond used to be a gravel pit, story goes the pond was dry at one point and steamshovel excavator hit a spring when digging and it flooded the pond over a weekend.	Club pond on Martin Rd
Potentially Undersized Culvert	Herb Parsons Pond was created accidentally in the 40s when excavating was taking place for the Navy Yard. It remained a healthy and popular pond for 80 years until development began on the southerly side beginning with Roseberry, then Condo Way, then when a sewer line was installed in 2015 on Martin. The most notable change occurred around 2019. By 2020 it was clear that water was being redirected away from the pond through culverts that were installed for sewer and water hookup for development.	Club pond on Martin Rd
Local Flooding	Homes and properties flooded from development/displaced water from filling of wetlands and placement of culverts. Timeline attached.	Happy Ave
Local Flooding	Basement flooding occurred 22 years ago when Happy Ave was extended. It increased approximately 5 years when more fill was brought in to develop what is now called Condominium Way. This has redirected the water from an old pond into residents yards and basements.	Happy Ave
Local Flooding	All through this area continuing South on Dennett experienced flooding with at least one home with the development of Roseberry Ave. Needed to place large culverts, but the yard continues to flood along with other areas.	118 Dennett Rd
Local Flooding	in 2018 a new grave was dug. The water table was so high, there was appox. 6" to 12" of water causing the coffin to float. In 2020, the gravesite sunk by approx the same amount and needed to be repaired.	next to 80 Old Dennet Rd



TimeLine Happy Ave Flooding

1980's: 40+ years ago Mike and Brenda Crouse, family of Bob and Betty Kraft tried to buy land directly off the current ROW on Happy Ave but the water table was so high it would not perk.

1980's– The Stihman's owned 6 Happy Ave and had renovated the house- adding a finished recreational room with flooring, paneling and tiki bar it as a Rec room for many years.

1990's – in the mid to late 1990's water table changes started to occur when development occurred and in land around Happy Ave- with the development of homes and the clearing of trees. They worked hard to try and mitigate the situation by addressing the water coming into the foundation from the ground and outside by digging trenches and putting in pipes to redirect the water.

2000's Flooding became a regular occurrence during this time period and caused loss and damage to the basement of the house, forcing the owner to remove the finished walls and flooring property that had been in the space for over 50 years without incident.

2015 – A new owner purchased the property and after a significant water situation Jeffery put in an $18,000. a French drain system with a buried sump pump was added around 2015/2016. This system pumps water out into the yard and fills my land with the expelled water.

2017 I purchased the home assuming that the elaborate water mitigations system would remove any water and I could restore the space in the basement to useful space. Unfortunately as we suffered power losses and sump pump burn outs, I quickly realized that I would be living with this issue all year long. I have replaced the pump twice because it has burned out and had to install a battery system for close to $900.00 because when we lose power the pump would fail and I ended up with a flooded basement again. The first year I owned the house the basement flooded 4 times and I lost many of my belongings. There are many health hazards associated with having standing (or running in some cases) water rise up through the ground. I have worked hard to deal with this situation to reduce any more harm. Listening to the pump go off all night long has been disruptive to my sleep and affects my health beyond the physical water.

Present: The property behind my house that runs along the ROW has seen a change in wetlands according to the maps at the town website I have reviewed. There is definitely flooding from run off due to the culvert pipes that Bill Cullen created when he rebuilt the right of way to the property he built and sold in 2018 as well as his house. There seems to be 3 or 4 culverts that direct the water to run from the wetland on the opposite side of theROW (Maine F&G property) to my property. The ROW was built up to accommodate a sewer line and to support heavy equipment and put in Culverts/drain pipes that stretch on either side so the road would not flood.

Appendix E

National Oceanic and Atmospheric Administration (NOAA) Atlas 14 Rainfall Data

NOAA Atlas 14, Volume 10, Version 3
Location name: Kittery, Maine, USA*
Latitude: 43.1059°, Longitude: -70.7556°
Elevation: 78 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.307** (0.233-0.405)	**0.370** (0.280-0.488)	**0.473** (0.357-0.626)	**0.558** (0.419-0.743)	**0.675** (0.494-0.937)	**0.763** (0.549-1.08)	**0.856** (0.601-1.26)	**0.960** (0.642-1.44)	**1.11** (0.718-1.72)	**1.23** (0.781-1.94)
10-min	**0.435** (0.330-0.574)	**0.524** (0.397-0.692)	**0.670** (0.506-0.887)	**0.791** (0.594-1.05)	**0.957** (0.700-1.33)	**1.08** (0.778-1.53)	**1.21** (0.851-1.78)	**1.36** (0.909-2.04)	**1.57** (1.02-2.43)	**1.75** (1.11-2.75)
15-min	**0.512** (0.388-0.675)	**0.617** (0.467-0.814)	**0.788** (0.595-1.04)	**0.930** (0.699-1.24)	**1.12** (0.823-1.56)	**1.27** (0.914-1.80)	**1.43** (1.00-2.09)	**1.60** (1.07-2.40)	**1.85** (1.20-2.86)	**2.06** (1.30-3.24)
30-min	**0.688** (0.522-0.908)	**0.830** (0.629-1.10)	**1.06** (0.802-1.41)	**1.25** (0.942-1.67)	**1.52** (1.11-2.11)	**1.72** (1.24-2.44)	**1.93** (1.35-2.83)	**2.17** (1.45-3.24)	**2.52** (1.62-3.89)	**2.80** (1.78-4.42)
60-min	**0.865** (0.656-1.14)	**1.04** (0.790-1.38)	**1.34** (1.01-1.77)	**1.58** (1.19-2.10)	**1.91** (1.40-2.66)	**2.16** (1.56-3.07)	**2.42** (1.71-3.57)	**2.73** (1.82-4.09)	**3.18** (2.05-4.92)	**3.55** (2.25-5.60)
2-hr	**1.16** (0.880-1.51)	**1.40** (1.07-1.84)	**1.80** (1.37-2.38)	**2.14** (1.62-2.83)	**2.60** (1.92-3.60)	**2.94** (2.13-4.17)	**3.31** (2.35-4.88)	**3.75** (2.51-5.60)	**4.42** (2.86-6.82)	**5.00** (3.17-7.85)
3-hr	**1.36** (1.04-1.78)	**1.66** (1.26-2.16)	**2.14** (1.63-2.81)	**2.54** (1.92-3.35)	**3.09** (2.29-4.28)	**3.50** (2.55-4.96)	**3.95** (2.82-5.82)	**4.49** (3.01-6.68)	**5.31** (3.45-8.18)	**6.02** (3.83-9.44)
6-hr	**1.77** (1.36-2.30)	**2.17** (1.66-2.82)	**2.82** (2.16-3.67)	**3.36** (2.56-4.40)	**4.10** (3.04-5.64)	**4.65** (3.40-6.55)	**5.24** (3.76-7.71)	**5.97** (4.02-8.85)	**7.09** (4.61-10.9)	**8.05** (5.14-12.6)
12-hr	**2.23** (1.72-2.88)	**2.75** (2.12-3.56)	**3.60** (2.77-4.67)	**4.31** (3.30-5.62)	**5.29** (3.95-7.24)	**6.01** (4.41-8.43)	**6.79** (4.89-9.93)	**7.74** (5.23-11.4)	**9.20** (6.01-14.1)	**10.5** (6.70-16.3)
24-hr	**2.63** (2.04-3.38)	**3.31** (2.56-4.25)	**4.41** (3.41-5.68)	**5.32** (4.10-6.90)	**6.58** (4.95-9.00)	**7.50** (5.56-10.5)	**8.52** (6.20-12.5)	**9.81** (6.65-14.4)	**11.9** (7.76-18.1)	**13.6** (8.76-21.2)
2-day	**2.93** (2.29-3.74)	**3.77** (2.94-4.82)	**5.15** (4.00-6.59)	**6.28** (4.86-8.10)	**7.85** (5.96-10.8)	**8.99** (6.73-12.7)	**10.3** (7.59-15.2)	**12.0** (8.16-17.6)	**14.9** (9.77-22.6)	**17.5** (11.3-27.1)
3-day	**3.19** (2.50-4.05)	**4.10** (3.21-5.21)	**5.58** (4.36-7.12)	**6.81** (5.29-8.75)	**8.51** (6.48-11.6)	**9.73** (7.32-13.7)	**11.1** (8.27-16.5)	**13.0** (8.88-19.1)	**16.3** (10.7-24.7)	**19.2** (12.4-29.7)
4-day	**3.44** (2.70-4.36)	**4.38** (3.44-5.56)	**5.92** (4.63-7.54)	**7.20** (5.60-9.22)	**8.96** (6.84-12.2)	**10.2** (7.71-14.4)	**11.7** (8.70-17.3)	**13.7** (9.33-20.0)	**17.1** (11.2-25.9)	**20.2** (13.0-31.1)
7-day	**4.16** (3.28-5.25)	**5.16** (4.06-6.51)	**6.78** (5.32-8.59)	**8.13** (6.35-10.4)	**9.98** (7.64-13.5)	**11.3** (8.55-15.8)	**12.8** (9.57-18.9)	**14.9** (10.2-21.8)	**18.5** (12.2-27.8)	**21.6** (14.0-33.3)
10-day	**4.85** (3.84-6.10)	**5.88** (4.65-7.40)	**7.56** (5.95-9.55)	**8.95** (7.01-11.4)	**10.9** (8.33-14.6)	**12.3** (9.26-17.0)	**13.8** (10.3-20.1)	**15.9** (10.9-23.1)	**19.4** (12.8-29.2)	**22.5** (14.6-34.5)
20-day	**6.88** (5.47-8.59)	**8.01** (6.36-10.0)	**9.85** (7.80-12.4)	**11.4** (8.96-14.4)	**13.5** (10.3-17.9)	**15.1** (11.3-20.4)	**16.7** (12.3-23.7)	**18.8** (13.0-27.1)	**21.8** (14.5-32.6)	**24.4** (15.9-37.3)
30-day	**8.55** (6.82-10.6)	**9.76** (7.78-12.2)	**11.7** (9.32-14.7)	**13.4** (10.6-16.8)	**15.6** (12.0-20.5)	**17.3** (13.0-23.3)	**19.1** (13.9-26.7)	**21.0** (14.6-30.2)	**23.8** (15.9-35.5)	**26.0** (16.9-39.7)
45-day	**10.6** (8.50-13.2)	**11.9** (9.53-14.8)	**14.1** (11.2-17.5)	**15.8** (12.5-19.8)	**18.2** (14.0-23.8)	**20.1** (15.1-26.8)	**22.0** (15.9-30.3)	**23.9** (16.6-34.2)	**26.4** (17.6-39.2)	**28.2** (18.4-43.0)
60-day	**12.4** (9.92-15.3)	**13.7** (11.0-17.0)	**16.0** (12.8-19.9)	**17.8** (14.2-22.3)	**20.4** (15.7-26.5)	**22.4** (16.8-29.7)	**24.4** (17.6-33.3)	**26.2** (18.3-37.5)	**28.6** (19.2-42.5)	**30.3** (19.8-46.1)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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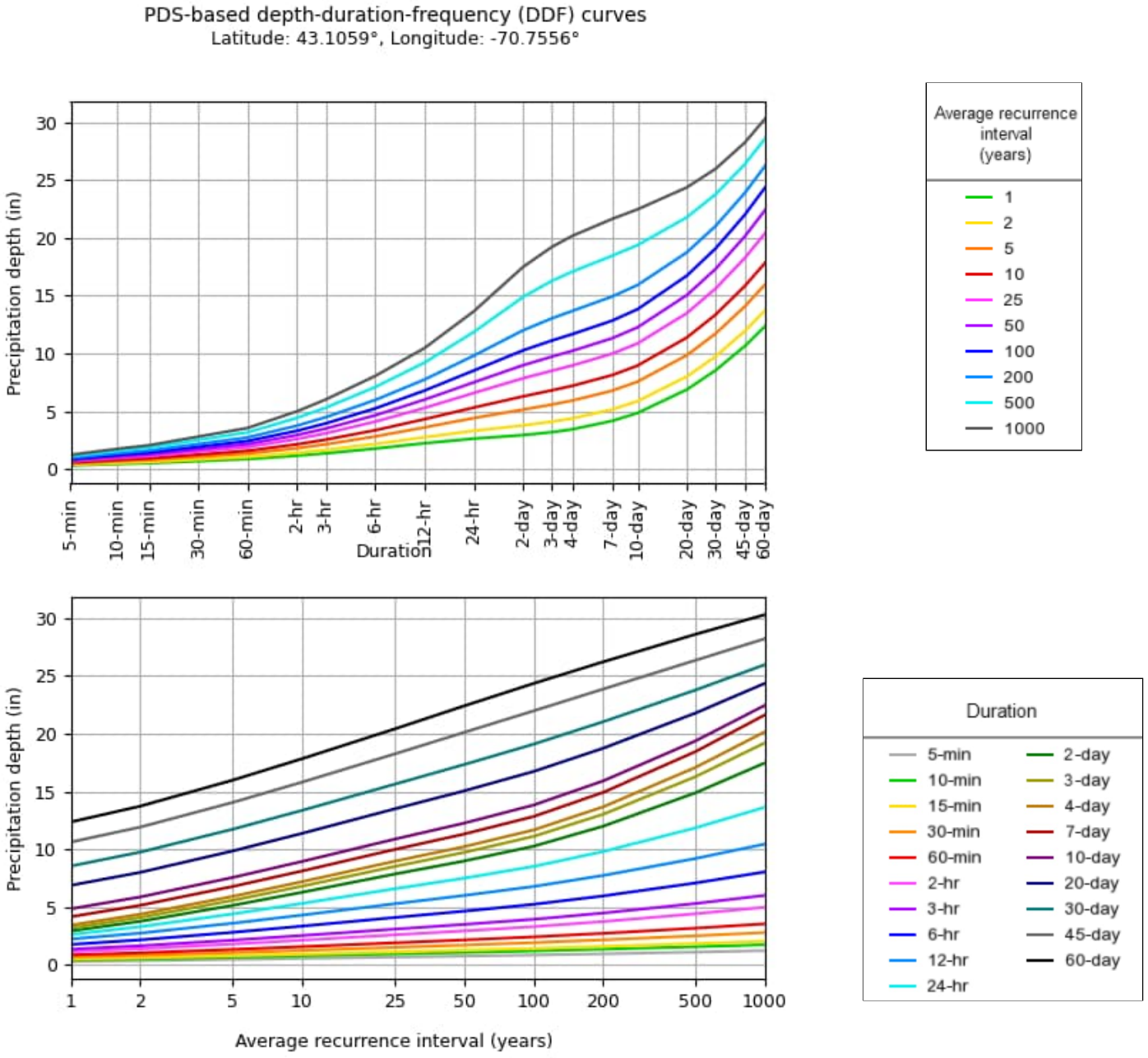
PF graphical



NOAA Atlas 14, Volume 10, Version 3

Created (GMT): Mon Aug 7 11:25:18 2023

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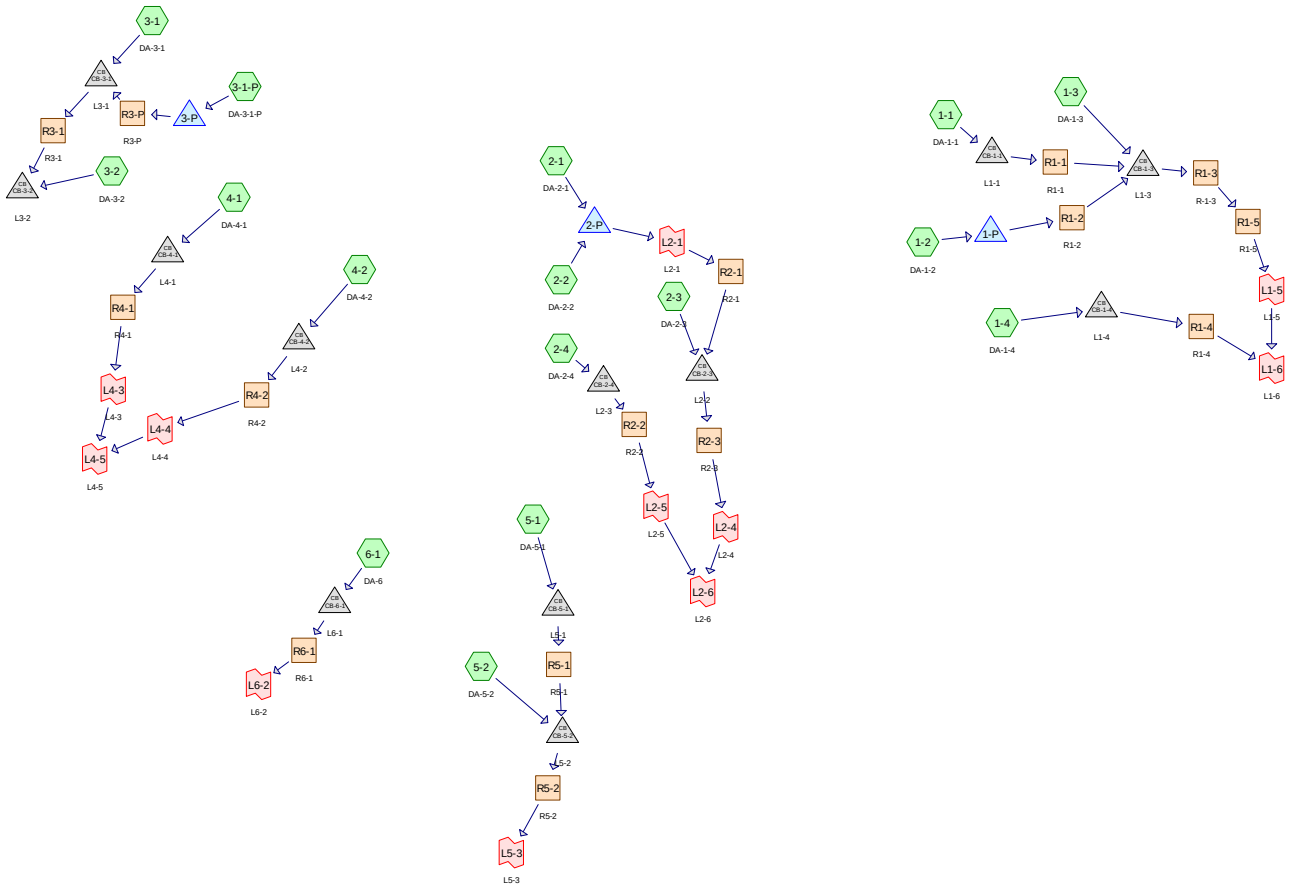
Maps & aerials

Small scale terrain

Appendix F

Existing Conditions (No Build) HydroCAD Summary Report



Subcat Reach Pond Link

Routing Diagram for Kittery_NoBuild (ID 2853676)
Prepared by Barton & Loguidice, DPC, Printed 8/7/2023

Project Notes

Copied 10 events from ME-DennettRoad 24-hr S1 storm

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	ME-DennettRoad 24-hr S1	1-yr	Default	24.00	1	2.63	2
2	2-yr	ME-DennettRoad 24-hr S1	2-yr	Default	24.00	1	3.31	2
3	5-yr	ME-DennettRoad 24-hr S1	5-yr	Default	24.00	1	4.41	2
4	10-yr	ME-DennettRoad 24-hr S1	10-yr	Default	24.00	1	5.32	2
5	25-yr	ME-DennettRoad 24-hr S1	25-yr	Default	24.00	1	6.58	2
6	50-yr	ME-DennettRoad 24-hr S1	50-yr	Default	24.00	1	7.50	2
7	100-yr	ME-DennettRoad 24-hr S1	100-yr	Default	24.00	1	8.52	2
8	Extreme: 1-yr	ME-DennettRoad 24-hr S1	1-yr	Default	24.00	1	2.63	2
9	Extreme: 10-yr	ME-DennettRoad 24-hr S1	10-yr	Default	24.00	1	5.32	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.423	89	*BARREN, D (89,92,95) (1-2)
0.723	89	*COMMERCIAL, A (89) (2-2)
9.929	95	*COMMERCIAL, D (95) (1-2, 1-3)
6.495	85	*RESIDENTIAL, D (85, 90, 95) (1-2, 1-3)
33.767	30	*WOODS, A (30, 60, 95) (2-1, 2-2, 4-1)
20.728	77	*WOODS, D (77, 86, 95) (1-3, 2-1, 2-2, 4-1)
1.065	77	*WOODS, D (77, 86,95) (1-2)
8.453	54	1/2 acre lots, 25% imp, HSG A (2-1, 2-2, 3-1, 3-2, 4-1)
0.193	80	1/2 acre lots, 25% imp, HSG C (1-1)
12.899	85	1/2 acre lots, 25% imp, HSG D (1-1, 1-2, 2-1, 3-1, 3-2)
1.776	77	1/8 acre lots, 65% imp, HSG A (1-1, 3-1, 3-2, 4-1)
0.089	90	1/8 acre lots, 65% imp, HSG C (1-1)
3.453	92	1/8 acre lots, 65% imp, HSG D (1-1, 1-2, 2-1, 3-1, 3-2)
7.040	39	>75% Grass cover, Good, HSG A (2-1, 2-2, 3-1, 3-2, 4-1)
0.916	74	>75% Grass cover, Good, HSG C (1-1)
16.248	80	>75% Grass cover, Good, HSG D (1-1, 1-2, 2-1, 2-2, 3-1, 3-2)
0.006	65	Brush, Good, HSG C (1-1)
0.291	89	COMMERCIAL, A (89) (2-4, 5-1)
23.114	95	COMMERCIAL, D (95) (1-4, 2-3, 2-4, 4-2, 5-1, 5-2, 6-1)
3.708	85	RESIDENTIAL, D (85, 90, 95) (1-4)
4.367	30	WOODS, A (30, 60, 95) (2-4, 4-2, 5-1)
3.785	77	WOODS, D (77, 81, 85) (1-4)
32.923	77	WOODS, D (77, 86, 95) (1-4, 2-3, 2-4, 4-2, 5-1, 5-2, 6-1)
1.790	98	Water Surface, HSG A (3-1-P)
28.687	30	Woods, Good, HSG A (1-1, 2-1, 2-2, 3-1, 3-2, 4-1)
2.174	70	Woods, Good, HSG C (1-1)
98.866	77	Woods, Good, HSG D (1-1, 1-2, 1-3, 2-1, 2-2, 3-1, 3-2, 4-1)
323.908	**69**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
47.746	HSG A	1-1, 2-1, 2-2, 3-1, 3-1-P, 3-2, 4-1
0.000	HSG B	
3.378	HSG C	1-1
131.466	HSG D	1-1, 1-2, 1-3, 2-1, 2-2, 3-1, 3-2, 4-1
141.318	Other	1-2, 1-3, 1-4, 2-1, 2-2, 2-3, 2-4, 4-1, 4-2, 5-1, 5-2, 6-1
323.908		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.423	0.423	*BARREN, D (89,92,95)	1-2
0.000	0.000	0.000	0.000	0.723	0.723	*COMMERCIAL, A (89)	2-2
0.000	0.000	0.000	0.000	9.929	9.929	*COMMERCIAL, D (95)	1-2, 1-3
0.000	0.000	0.000	0.000	6.495	6.495	*RESIDENTIAL, D (85, 90, 95)	1-2, 1-3
0.000	0.000	0.000	0.000	33.767	33.767	*WOODS, A (30, 60, 95)	2-1, 2-2, 4-1
0.000	0.000	0.000	0.000	20.728	20.728	*WOODS, D (77, 86, 95)	1-3, 2-1, 2-2, 4-1
0.000	0.000	0.000	0.000	1.065	1.065	*WOODS, D (77, 86,95)	1-2
8.453	0.000	0.193	12.899	0.000	21.545	1/2 acre lots, 25% imp	1-1, 1-2, 2-1, 2-2, 3-1, 3-2, 4-1
1.776	0.000	0.089	3.453	0.000	5.318	1/8 acre lots, 65% imp	1-1, 1-2, 2-1, 3-1, 3-2, 4-1
7.040	0.000	0.916	16.248	0.000	24.204	>75% Grass cover, Good	1-1, 1-2, 2-1, 2-2, 3-1, 3-2, 4-1
0.000	0.000	0.006	0.000	0.000	0.006	Brush, Good	1-1
0.000	0.000	0.000	0.000	0.291	0.291	COMMERCIAL, A (89)	2-4, 5-1
0.000	0.000	0.000	0.000	23.114	23.114	COMMERCIAL, D (95)	1-4, 2-3, 2-4, 4-2, 5-1, 5-2, 6-1
0.000	0.000	0.000	0.000	3.708	3.708	RESIDENTIAL, D (85, 90, 95)	1-4
0.000	0.000	0.000	0.000	4.367	4.367	WOODS, A (30, 60, 95)	2-4, 4-2, 5-1
0.000	0.000	0.000	0.000	3.785	3.785	WOODS, D (77, 81, 85)	1-4
0.000	0.000	0.000	0.000	32.923	32.923	WOODS, D (77, 86, 95)	1-4, 2-3, 2-4, 4-2, 5-1, 5-2, 6-1
1.790	0.000	0.000	0.000	0.000	1.790	Water Surface	3-1-P
28.687	0.000	2.174	98.866	0.000	129.727	Woods, Good	1-1, 1-2, 1-3, 2-1, 2-2, 3-1, 3-2, 4-1
47.746	**0.000**	**3.378**	**131.466**	**141.318**	**323.908**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	1-4	0.00	0.00	225.0	0.0180	0.025	0.0	12.0	0.0
2	3-1	0.00	0.00	10.0	0.0500	0.013	0.0	6.0	0.0
3	3-2	0.00	0.00	68.0	0.0290	0.025	0.0	12.0	0.0
4	1-P	37.91	37.91	23.0	0.0000	0.012	0.0	12.0	0.0
5	2-P	35.58	32.78	50.0	0.0560	0.025	0.0	18.0	0.0
6	CB-1-1	47.05	46.31	50.0	0.0148	0.025	0.0	14.0	0.0
7	CB-1-3	36.98	36.80	95.0	0.0019	0.012	0.0	36.0	0.0
8	CB-1-4	36.00	33.00	84.0	0.0357	0.025	0.0	24.0	0.0
9	CB-2-3	30.00	28.50	150.0	0.0100	0.012	0.0	36.0	0.0
10	CB-2-4	30.00	30.00	75.0	0.0000	0.012	0.0	24.0	0.0
11	CB-3-1	86.11	86.46	20.0	-0.0175	0.012	0.0	6.0	0.0
12	CB-3-1	86.67	86.32	20.0	0.0175	0.012	0.0	12.0	0.0
13	CB-3-1	86.64	86.51	20.0	0.0065	0.012	0.0	6.0	0.0
14	CB-3-1	86.97	86.75	20.0	0.0110	0.012	0.0	14.0	0.0
15	CB-3-2	54.00	52.00	100.0	0.0200	0.012	0.0	24.0	0.0
16	CB-4-1	54.00	52.00	100.0	0.0200	0.012	0.0	24.0	0.0
17	CB-4-2	54.00	52.00	100.0	0.0200	0.012	0.0	24.0	0.0
18	CB-5-1	56.00	55.00	70.0	0.0143	0.012	0.0	36.0	0.0
19	CB-5-2	40.00	34.00	217.0	0.0276	0.012	0.0	32.0	0.0
20	CB-6-1	49.25	46.31	95.0	0.0309	0.012	0.0	18.0	0.0

Time span=1.00-36.00 hrs, dt=0.02 hrs, 1751 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=0.90"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=18.87 cfs 3.059 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=1.02"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=13.31 cfs 1.914 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=1.45"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=22.23 cfs 2.442 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=1.39"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=18.50 cfs 2.139 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=0.80"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=17.96 cfs 4.502 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=0.26"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=4.74 cfs 1.127 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=1.03"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=4.55 cfs 0.639 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=1.12"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=7.03 cfs 0.803 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=0.57"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=2.40 cfs 0.399 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth=2.40"
Tc=0.0 min CN=98 Runoff=5.87 cfs 0.358 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=0.31"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=5.12 cfs 0.673 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=0.24"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=1.68 cfs 0.319 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=0.69"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=3.29 cfs 0.578 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=0.90"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=4.74 cfs 0.778 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=1.84"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=23.98 cfs 2.023 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=1.97"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.13 cfs 0.017 af

Reach R1-1: R1-1 Avg. Flow Depth=0.95' Max Vel=3.32 fps Inflow=18.87 cfs 3.059 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=18.51 cfs 3.059 af

Reach R1-2: R1-2 Avg. Flow Depth=0.09' Max Vel=1.75 fps Inflow=0.52 cfs 0.810 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=0.52 cfs 0.810 af

Reach R1-3: R-1-3 Avg. Flow Depth=1.51' Max Vel=1.73 fps Inflow=31.63 cfs 6.311 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=31.45 cfs 6.307 af

Reach R1-4: R1-4 Avg. Flow Depth=0.79' Max Vel=4.33 fps Inflow=18.50 cfs 2.139 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=18.41 cfs 2.139 af

Reach R1-5: R1-5 Inflow=31.45 cfs 6.307 af
Outflow=31.45 cfs 6.307 af

Reach R2-1: R2-1 Avg. Flow Depth=0.42' Max Vel=1.78 fps Inflow=3.18 cfs 4.846 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=3.18 cfs 4.836 af

Reach R2-2: R2-2 Avg. Flow Depth=0.61' Max Vel=3.60 fps Inflow=7.03 cfs 0.803 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=7.02 cfs 0.803 af

Reach R2-3: R2-3 Avg. Flow Depth=0.59' Max Vel=2.83 fps Inflow=5.34 cfs 5.475 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=5.29 cfs 5.469 af

Reach R3-1: R3-1 Avg. Flow Depth=0.31' Max Vel=2.71 fps Inflow=2.40 cfs 0.399 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=2.18 cfs 0.399 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.19' Max Vel=3.67 fps Inflow=1.68 cfs 0.319 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=1.68 cfs 0.319 af

Reach R4-2: R4-2 Avg. Flow Depth=0.27' Max Vel=4.75 fps Inflow=3.29 cfs 0.578 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=3.29 cfs 0.578 af

Reach R5-1: R5-1 Avg. Flow Depth=0.39' Max Vel=2.89 fps Inflow=4.74 cfs 0.778 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=4.67 cfs 0.778 af

Reach R5-2: R5-2 Avg. Flow Depth=1.13' Max Vel=3.14 fps Inflow=25.25 cfs 2.801 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=22.75 cfs 2.801 af

Reach R6-1: R6-1 Avg. Flow Depth=0.06' Max Vel=1.01 fps Inflow=0.13 cfs 0.017 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.12 cfs 0.017 af

Pond 1-P: Peak Elev=38.44' Storage=1.490 af Inflow=13.31 cfs 1.914 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=0.52 cfs 0.810 af

Pond 2-P: Peak Elev=36.55' Storage=2.849 af Inflow=22.61 cfs 5.629 af
Outflow=3.18 cfs 4.846 af

Pond 3-P: Peak Elev=86.25' Storage=0.358 af Inflow=5.87 cfs 0.358 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=79.53' Inflow=18.87 cfs 3.059 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=18.87 cfs 3.059 af

Pond CB-1-3: L1-3 Peak Elev=39.83' Inflow=31.63 cfs 6.311 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=31.63 cfs 6.311 af

Pond CB-1-4: L1-4 Peak Elev=39.40' Inflow=18.50 cfs 2.139 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=18.50 cfs 2.139 af

Pond CB-2-3: L2-2 Peak Elev=30.86' Inflow=5.34 cfs 5.475 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=5.34 cfs 5.475 af

Pond CB-2-4: L2-3 Peak Elev=31.64' Inflow=7.03 cfs 0.803 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=7.03 cfs 0.803 af

Pond CB-3-1: L3-1 Peak Elev=87.28' Inflow=2.40 cfs 0.399 af
Outflow=2.40 cfs 0.399 af

Pond CB-3-2: L3-2 Peak Elev=55.08' Inflow=6.14 cfs 1.073 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=6.14 cfs 1.073 af

Pond CB-4-1: L4-1 Peak Elev=54.53' Inflow=1.68 cfs 0.319 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=1.68 cfs 0.319 af

Pond CB-4-2: L4-2 Peak Elev=54.76' Inflow=3.29 cfs 0.578 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=3.29 cfs 0.578 af

Pond CB-5-1: L5-1 Peak Elev=56.81' Inflow=4.74 cfs 0.778 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=4.74 cfs 0.778 af

Pond CB-5-2: L5-2 Peak Elev=42.22' Inflow=25.25 cfs 2.801 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=25.25 cfs 2.801 af

Pond CB-6-1: L6-1 Peak Elev=49.40' Inflow=0.13 cfs 0.017 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.13 cfs 0.017 af

Link L1-5: L1-5 Inflow=31.45 cfs 6.307 af
Primary=31.45 cfs 6.307 af

Link L1-6: L1-6 Inflow=49.32 cfs 8.446 af
Primary=49.32 cfs 8.446 af

Link L2-1: L2-1 Inflow=3.18 cfs 4.846 af
Primary=3.18 cfs 4.846 af

Link L2-4: L2-4 Inflow=5.29 cfs 5.469 af
Primary=5.29 cfs 5.469 af

Link L2-5: L2-5 Inflow=7.02 cfs 0.803 af
Primary=7.02 cfs 0.803 af

Link L2-6: L2-6 Inflow=11.55 cfs 6.272 af
Primary=11.55 cfs 6.272 af

Link L4-3: L4-3 Inflow=1.68 cfs 0.319 af
Primary=1.68 cfs 0.319 af

Link L4-4: L4-4 Inflow=3.29 cfs 0.578 af
Primary=3.29 cfs 0.578 af

Link L4-5: L4-5 Inflow=4.94 cfs 0.897 af
Primary=4.94 cfs 0.897 af

Link L5-3: L5-3 Inflow=22.75 cfs 2.801 af
Primary=22.75 cfs 2.801 af

Link L6-2: L6-2 Inflow=0.12 cfs 0.017 af
Primary=0.12 cfs 0.017 af

Total Runoff Area = 323.908 ac Runoff Volume = 21.771 af Average Runoff Depth = 0.81"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=1.00-36.00 hrs, dt=0.02 hrs, 1751 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=1.37"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=28.60 cfs 4.677 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=1.53"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=19.60 cfs 2.864 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=2.02"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=29.78 cfs 3.403 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=1.95"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=25.03 cfs 3.003 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=1.22"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=27.33 cfs 6.908 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=0.40"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=7.36 cfs 1.752 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=1.53"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=6.66 cfs 0.949 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=1.63"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=10.02 cfs 1.170 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=0.89"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=3.74 cfs 0.629 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>3.08"
Tc=0.0 min CN=98 Runoff=7.12 cfs 0.459 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=0.51"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=7.99 cfs 1.099 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=0.39"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=2.65 cfs 0.507 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=1.04"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=4.91 cfs 0.872 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=1.33"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=6.89 cfs 1.150 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=2.47"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=30.49 cfs 2.709 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=2.61"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.16 cfs 0.023 af

Reach R1-1: R1-1 Avg. Flow Depth=1.17' Max Vel=3.72 fps Inflow=28.60 cfs 4.677 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=28.18 cfs 4.677 af

Reach R1-2: R1-2 Avg. Flow Depth=0.12' Max Vel=2.12 fps Inflow=0.90 cfs 1.416 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=0.90 cfs 1.416 af

Reach R1-3: R-1-3 Avg. Flow Depth=1.80' Max Vel=1.91 fps Inflow=45.68 cfs 9.496 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=45.49 cfs 9.490 af

Reach R1-4: R1-4 Avg. Flow Depth=0.92' Max Vel=4.70 fps Inflow=25.03 cfs 3.003 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=24.92 cfs 3.003 af

Reach R1-5: R1-5 Inflow=45.49 cfs 9.490 af
Outflow=45.49 cfs 9.490 af

Reach R2-1: R2-1 Avg. Flow Depth=0.53' Max Vel=2.02 fps Inflow=4.87 cfs 7.303 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=4.87 cfs 7.291 af

Reach R2-2: R2-2 Avg. Flow Depth=0.73' Max Vel=3.97 fps Inflow=10.02 cfs 1.170 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=10.01 cfs 1.170 af

Reach R2-3: R2-3 Avg. Flow Depth=0.71' Max Vel=3.13 fps Inflow=7.63 cfs 8.240 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=7.58 cfs 8.232 af

Reach R3-1: R3-1 Avg. Flow Depth=0.40' Max Vel=3.12 fps Inflow=3.74 cfs 0.629 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=3.48 cfs 0.629 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.25' Max Vel=4.26 fps Inflow=2.65 cfs 0.507 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=2.65 cfs 0.507 af

Reach R4-2: R4-2 Avg. Flow Depth=0.34' Max Vel=5.38 fps Inflow=4.91 cfs 0.872 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=4.91 cfs 0.872 af

Reach R5-1: R5-1 Avg. Flow Depth=0.48' Max Vel=3.23 fps Inflow=6.89 cfs 1.150 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=6.81 cfs 1.150 af

Reach R5-2: R5-2 Avg. Flow Depth=1.29' Max Vel=3.36 fps Inflow=32.56 cfs 3.859 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=29.67 cfs 3.859 af

Reach R6-1: R6-1 Avg. Flow Depth=0.07' Max Vel=1.10 fps Inflow=0.16 cfs 0.023 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.15 cfs 0.023 af

Pond 1-P: Peak Elev=38.61' Storage=2.087 af Inflow=19.60 cfs 2.864 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=0.90 cfs 1.416 af

Pond 2-P: Peak Elev=36.86' Storage=4.469 af Inflow=34.51 cfs 8.660 af
Outflow=4.87 cfs 7.303 af

Pond 3-P: Peak Elev=86.32' Storage=0.459 af Inflow=7.12 cfs 0.459 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=121.15' Inflow=28.60 cfs 4.677 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=28.60 cfs 4.677 af

Pond CB-1-3: L1-3 Peak Elev=40.80' Inflow=45.68 cfs 9.496 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=45.68 cfs 9.496 af

Pond CB-1-4: L1-4 Peak Elev=41.39' Inflow=25.03 cfs 3.003 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=25.03 cfs 3.003 af

Pond CB-2-3: L2-2 Peak Elev=31.05' Inflow=7.63 cfs 8.240 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=7.63 cfs 8.240 af

Pond CB-2-4: L2-3 Peak Elev=32.02' Inflow=10.02 cfs 1.170 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=10.02 cfs 1.170 af

Pond CB-3-1: L3-1 Peak Elev=87.48' Inflow=3.74 cfs 0.629 af
Outflow=3.74 cfs 0.629 af

Pond CB-3-2: L3-2 Peak Elev=55.44' Inflow=9.84 cfs 1.728 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=9.84 cfs 1.728 af

Pond CB-4-1: L4-1 Peak Elev=54.68' Inflow=2.65 cfs 0.507 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=2.65 cfs 0.507 af

Pond CB-4-2: L4-2 Peak Elev=54.95' Inflow=4.91 cfs 0.872 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=4.91 cfs 0.872 af

Pond CB-5-1: L5-1 Peak Elev=56.99' Inflow=6.89 cfs 1.150 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=6.89 cfs 1.150 af

Pond CB-5-2: L5-2 Peak Elev=42.80' Inflow=32.56 cfs 3.859 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=32.56 cfs 3.859 af

Pond CB-6-1: L6-1 Peak Elev=49.42' Inflow=0.16 cfs 0.023 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.16 cfs 0.023 af

Link L1-5: L1-5 Inflow=45.49 cfs 9.490 af
Primary=45.49 cfs 9.490 af

Link L1-6: L1-6 Inflow=69.47 cfs 12.494 af
Primary=69.47 cfs 12.494 af

Link L2-1: L2-1 Inflow=4.87 cfs 7.303 af
Primary=4.87 cfs 7.303 af

Link L2-4: L2-4 Inflow=7.58 cfs 8.232 af
Primary=7.58 cfs 8.232 af

Link L2-5: L2-5 Inflow=10.01 cfs 1.170 af
Primary=10.01 cfs 1.170 af

Link L2-6: L2-6 Inflow=16.53 cfs 9.402 af
Primary=16.53 cfs 9.402 af

Link L4-3: L4-3 Inflow=2.65 cfs 0.507 af
Primary=2.65 cfs 0.507 af

Link L4-4: L4-4 Inflow=4.91 cfs 0.872 af
Primary=4.91 cfs 0.872 af

Link L4-5: L4-5 Inflow=7.54 cfs 1.379 af
Primary=7.54 cfs 1.379 af

Link L5-3: L5-3 Inflow=29.67 cfs 3.859 af
Primary=29.67 cfs 3.859 af

Link L6-2: L6-2 Inflow=0.15 cfs 0.023 af
Primary=0.15 cfs 0.023 af

Total Runoff Area = 323.908 ac Runoff Volume = 32.175 af Average Runoff Depth = 1.19"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=1.00-36.00 hrs, dt=0.02 hrs, 1751 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=2.22"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=45.59 cfs 7.569 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=2.42"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=30.45 cfs 4.544 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=2.99"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=42.44 cfs 5.039 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=2.91"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=36.03 cfs 4.483 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=1.99"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=43.79 cfs 11.228 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=0.66"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=11.99 cfs 2.882 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=2.41"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=10.32 cfs 1.499 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=2.53"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=15.17 cfs 1.813 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=1.51"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=6.21 cfs 1.061 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>4.17"
Tc=0.0 min CN=98 Runoff=9.15 cfs 0.622 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=0.91"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=14.21 cfs 1.940 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=0.65"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=4.45 cfs 0.855 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=1.67"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=7.75 cfs 1.396 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=2.09"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=10.62 cfs 1.808 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=3.51"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=41.14 cfs 3.847 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=3.67"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.21 cfs 0.032 af

Reach R1-1: R1-1 Avg. Flow Depth=1.46' Max Vel=4.21 fps Inflow=45.59 cfs 7.569 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=45.09 cfs 7.569 af

Reach R1-2: R1-2 Avg. Flow Depth=0.18' Max Vel=2.61 fps Inflow=1.63 cfs 2.603 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=1.63 cfs 2.603 af

Reach R1-3: R-1-3 Avg. Flow Depth=2.22' Max Vel=2.13 fps Inflow=70.22 cfs 15.212 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=70.01 cfs 15.204 af

Reach R1-4: R1-4 Avg. Flow Depth=1.10' Max Vel=5.18 fps Inflow=36.03 cfs 4.483 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=35.90 cfs 4.483 af

Reach R1-5: R1-5 Inflow=70.01 cfs 15.204 af
Outflow=70.01 cfs 15.204 af

Reach R2-1: R2-1 Avg. Flow Depth=0.64' Max Vel=2.26 fps Inflow=7.18 cfs 11.555 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=7.18 cfs 11.538 af

Reach R2-2: R2-2 Avg. Flow Depth=0.90' Max Vel=4.44 fps Inflow=15.17 cfs 1.813 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=15.14 cfs 1.813 af

Reach R2-3: R2-3 Avg. Flow Depth=0.89' Max Vel=3.53 fps Inflow=11.88 cfs 13.036 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=11.82 cfs 13.025 af

Reach R3-1: R3-1 Avg. Flow Depth=0.53' Max Vel=3.64 fps Inflow=6.21 cfs 1.061 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=5.87 cfs 1.061 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.33' Max Vel=5.00 fps Inflow=4.45 cfs 0.855 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=4.45 cfs 0.855 af

Reach R4-2: R4-2 Avg. Flow Depth=0.44' Max Vel=6.17 fps Inflow=7.75 cfs 1.396 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=7.75 cfs 1.396 af

Reach R5-1: R5-1 Avg. Flow Depth=0.60' Max Vel=3.66 fps Inflow=10.62 cfs 1.808 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=10.53 cfs 1.808 af

Reach R5-2: R5-2 Avg. Flow Depth=1.50' Max Vel=3.66 fps Inflow=44.67 cfs 5.655 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=41.23 cfs 5.655 af

Reach R6-1: R6-1 Avg. Flow Depth=0.08' Max Vel=1.22 fps Inflow=0.21 cfs 0.032 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.21 cfs 0.032 af

Pond 1-P: Peak Elev=38.91' Storage=3.081 af Inflow=30.45 cfs 4.544 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=1.63 cfs 2.603 af

Pond 2-P: Peak Elev=37.47' Storage=7.674 af Inflow=55.64 cfs 14.110 af
Outflow=7.18 cfs 11.555 af

Pond 3-P: Peak Elev=86.43' Storage=0.622 af Inflow=9.15 cfs 0.622 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=234.94' Inflow=45.59 cfs 7.569 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=45.59 cfs 7.569 af

Pond CB-1-3: L1-3 Peak Elev=42.54' Inflow=70.22 cfs 15.212 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=70.22 cfs 15.212 af

Pond CB-1-4: L1-4 Peak Elev=46.79' Inflow=36.03 cfs 4.483 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=36.03 cfs 4.483 af

Pond CB-2-3: L2-2 Peak Elev=31.33' Inflow=11.88 cfs 13.036 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=11.88 cfs 13.036 af

Pond CB-2-4: L2-3 Peak Elev=32.83' Inflow=15.17 cfs 1.813 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=15.17 cfs 1.813 af

Pond CB-3-1: L3-1 Peak Elev=87.86' Inflow=6.21 cfs 1.061 af
Outflow=6.21 cfs 1.061 af

Pond CB-3-2: L3-2 Peak Elev=56.35' Inflow=17.59 cfs 3.001 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=17.59 cfs 3.001 af

Pond CB-4-1: L4-1 Peak Elev=54.90' Inflow=4.45 cfs 0.855 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=4.45 cfs 0.855 af

Pond CB-4-2: L4-2 Peak Elev=55.24' Inflow=7.75 cfs 1.396 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=7.75 cfs 1.396 af

Pond CB-5-1: L5-1 Peak Elev=57.25' Inflow=10.62 cfs 1.808 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=10.62 cfs 1.808 af

Pond CB-5-2: L5-2 Peak Elev=44.09' Inflow=44.67 cfs 5.655 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=44.67 cfs 5.655 af

Pond CB-6-1: L6-1 Peak Elev=49.45' Inflow=0.21 cfs 0.032 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.21 cfs 0.032 af

Link L1-5: L1-5 Inflow=70.01 cfs 15.204 af
Primary=70.01 cfs 15.204 af

Link L1-6: L1-6 Inflow=104.12 cfs 19.688 af
Primary=104.12 cfs 19.688 af

Link L2-1: L2-1 Inflow=7.18 cfs 11.555 af
Primary=7.18 cfs 11.555 af

Link L2-4: L2-4 Inflow=11.82 cfs 13.025 af
Primary=11.82 cfs 13.025 af

Link L2-5: L2-5
Inflow=15.14 cfs 1.813 af
Primary=15.14 cfs 1.813 af

Link L2-6: L2-6
Inflow=25.39 cfs 14.838 af
Primary=25.39 cfs 14.838 af

Link L4-3: L4-3
Inflow=4.45 cfs 0.855 af
Primary=4.45 cfs 0.855 af

Link L4-4: L4-4
Inflow=7.75 cfs 1.396 af
Primary=7.75 cfs 1.396 af

Link L4-5: L4-5
Inflow=12.18 cfs 2.252 af
Primary=12.18 cfs 2.252 af

Link L5-3: L5-3
Inflow=41.23 cfs 5.655 af
Primary=41.23 cfs 5.655 af

Link L6-2: L6-2
Inflow=0.21 cfs 0.032 af
Primary=0.21 cfs 0.032 af

Total Runoff Area = 323.908 ac Runoff Volume = 50.620 af Average Runoff Depth = 1.88"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=1.00-36.00 hrs, dt=0.02 hrs, 1751 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=2.97"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=59.93 cfs 10.129 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=3.21"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=39.53 cfs 6.018 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=3.82"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=52.87 cfs 6.442 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=3.74"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=45.11 cfs 5.756 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=2.67"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=57.79 cfs 15.075 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=0.90"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=15.92 cfs 3.944 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=3.19"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=13.40 cfs 1.982 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=3.31"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=19.48 cfs 2.376 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=2.07"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=8.38 cfs 1.462 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>5.07"
Tc=0.0 min CN=98 Runoff=10.82 cfs 0.757 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=1.29"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=20.07 cfs 2.759 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=0.91"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=6.02 cfs 1.187 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=2.23"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=10.15 cfs 1.864 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=2.76"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=13.75 cfs 2.388 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=4.38"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=49.83 cfs 4.804 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=4.56"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.26 cfs 0.040 af

Reach R1-1: R1-1 Avg. Flow Depth=1.65' Max Vel=4.52 fps Inflow=59.93 cfs 10.129 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=59.37 cfs 10.129 af

Reach R1-2: R1-2 Avg. Flow Depth=0.21' Max Vel=2.90 fps Inflow=2.23 cfs 3.658 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=2.23 cfs 3.658 af

Reach R1-3: R-1-3 Avg. Flow Depth=2.57' Max Vel=2.25 fps Inflow=90.97 cfs 20.230 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=90.72 cfs 20.221 af

Reach R1-4: R1-4 Avg. Flow Depth=1.23' Max Vel=5.50 fps Inflow=45.11 cfs 5.756 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=44.96 cfs 5.756 af

Reach R1-5: R1-5 Inflow=90.72 cfs 20.221 af
Outflow=90.72 cfs 20.221 af

Reach R2-1: R2-1 Avg. Flow Depth=0.77' Max Vel=2.48 fps Inflow=10.06 cfs 15.098 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=10.06 cfs 15.075 af

Reach R2-2: R2-2 Avg. Flow Depth=1.02' Max Vel=4.75 fps Inflow=19.48 cfs 2.376 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=19.45 cfs 2.376 af

Reach R2-3: R2-3 Avg. Flow Depth=1.02' Max Vel=3.80 fps Inflow=15.72 cfs 17.057 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=15.65 cfs 17.042 af

Reach R3-1: R3-1 Avg. Flow Depth=0.62' Max Vel=3.96 fps Inflow=8.38 cfs 1.462 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=7.98 cfs 1.462 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.39' Max Vel=5.48 fps Inflow=6.02 cfs 1.187 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=6.02 cfs 1.187 af

Reach R4-2: R4-2 Avg. Flow Depth=0.51' Max Vel=6.67 fps Inflow=10.15 cfs 1.864 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=10.15 cfs 1.864 af

Reach R5-1: R5-1 Avg. Flow Depth=0.69' Max Vel=3.94 fps Inflow=13.75 cfs 2.388 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=13.66 cfs 2.388 af

Reach R5-2: R5-2 Avg. Flow Depth=1.65' Max Vel=3.87 fps Inflow=54.63 cfs 7.192 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=50.77 cfs 7.192 af

Reach R6-1: R6-1 Avg. Flow Depth=0.09' Max Vel=1.31 fps Inflow=0.26 cfs 0.040 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.25 cfs 0.040 af

Pond 1-P: Peak Elev=39.17' Storage=3.987 af Inflow=39.53 cfs 6.018 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=2.23 cfs 3.658 af

Pond 2-P: Peak Elev=38.02' Storage=10.594 af Inflow=73.53 cfs 19.019 af
Outflow=10.06 cfs 15.098 af

Pond 3-P: Peak Elev=86.52' Storage=0.757 af Inflow=10.82 cfs 0.757 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=371.42' Inflow=59.93 cfs 10.129 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=59.93 cfs 10.129 af

Pond CB-1-3: L1-3 Peak Elev=44.40' Inflow=90.97 cfs 20.230 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=90.97 cfs 20.230 af

Pond CB-1-4: L1-4 Peak Elev=53.48' Inflow=45.11 cfs 5.756 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=45.11 cfs 5.756 af

Pond CB-2-3: L2-2 Peak Elev=31.56' Inflow=15.72 cfs 17.057 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=15.72 cfs 17.057 af

Pond CB-2-4: L2-3 Peak Elev=33.37' Inflow=19.48 cfs 2.376 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=19.48 cfs 2.376 af

Pond CB-3-1: L3-1 Peak Elev=88.29' Inflow=8.38 cfs 1.462 af
Outflow=8.38 cfs 1.462 af

Pond CB-3-2: L3-2 Peak Elev=57.68' Inflow=24.79 cfs 4.221 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=24.79 cfs 4.221 af

Pond CB-4-1: L4-1 Peak Elev=55.07' Inflow=6.02 cfs 1.187 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=6.02 cfs 1.187 af

Pond CB-4-2: L4-2 Peak Elev=55.46' Inflow=10.15 cfs 1.864 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=10.15 cfs 1.864 af

Pond CB-5-1: L5-1 Peak Elev=57.44' Inflow=13.75 cfs 2.388 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=13.75 cfs 2.388 af

Pond CB-5-2: L5-2 Peak Elev=45.46' Inflow=54.63 cfs 7.192 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=54.63 cfs 7.192 af

Pond CB-6-1: L6-1 Peak Elev=49.47' Inflow=0.26 cfs 0.040 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.26 cfs 0.040 af

Link L1-5: L1-5 Inflow=90.72 cfs 20.221 af
Primary=90.72 cfs 20.221 af

Link L1-6: L1-6 Inflow=133.07 cfs 25.977 af
Primary=133.07 cfs 25.977 af

Link L2-1: L2-1 Inflow=10.06 cfs 15.098 af
Primary=10.06 cfs 15.098 af

Link L2-4: L2-4 Inflow=15.65 cfs 17.042 af
Primary=15.65 cfs 17.042 af

Link L2-5: L2-5 Inflow=19.45 cfs 2.376 af
Primary=19.45 cfs 2.376 af

Link L2-6: L2-6 Inflow=33.10 cfs 19.418 af
Primary=33.10 cfs 19.418 af

Link L4-3: L4-3 Inflow=6.02 cfs 1.187 af
Primary=6.02 cfs 1.187 af

Link L4-4: L4-4 Inflow=10.15 cfs 1.864 af
Primary=10.15 cfs 1.864 af

Link L4-5: L4-5 Inflow=16.15 cfs 3.052 af
Primary=16.15 cfs 3.052 af

Link L5-3: L5-3 Inflow=50.77 cfs 7.192 af
Primary=50.77 cfs 7.192 af

Link L6-2: L6-2 Inflow=0.25 cfs 0.040 af
Primary=0.25 cfs 0.040 af

Total Runoff Area = 323.908 ac Runoff Volume = 66.985 af Average Runoff Depth = 2.48"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=1.00-36.00 hrs, dt=0.02 hrs, 1751 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=4.06"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=79.98 cfs 13.839 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=4.34"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=52.17 cfs 8.139 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=5.00"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=67.26 cfs 8.430 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=4.91"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=57.66 cfs 7.563 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=3.66"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=77.50 cfs 20.712 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=1.32"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=21.47 cfs 5.796 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=4.31"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=17.71 cfs 2.679 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=4.44"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=25.50 cfs 3.184 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=2.93"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=11.56 cfs 2.067 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>6.32"
Tc=0.0 min CN=98 Runoff=13.11 cfs 0.943 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=1.90"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=28.92 cfs 4.082 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=1.35"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=8.29 cfs 1.763 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=3.07"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=13.51 cfs 2.564 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=3.75"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=18.13 cfs 3.236 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=5.60"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=61.74 cfs 6.144 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=5.80"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.31 cfs 0.051 af

Reach R1-1: R1-1 Avg. Flow Depth=1.88' Max Vel=4.86 fps Inflow=79.98 cfs 13.839 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=79.33 cfs 13.839 af

Reach R1-2: R1-2 Avg. Flow Depth=0.26' Max Vel=3.25 fps Inflow=3.19 cfs 5.171 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=3.19 cfs 5.171 af

Reach R1-3: R-1-3 Avg. Flow Depth=3.05' Max Vel=2.35 fps Inflow=120.11 cfs 27.440 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=119.78 cfs 27.429 af

Reach R1-4: R1-4 Avg. Flow Depth=1.38' Max Vel=5.86 fps Inflow=57.66 cfs 7.563 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=57.48 cfs 7.563 af

Reach R1-5: R1-5 Inflow=119.78 cfs 27.429 af
Outflow=119.78 cfs 27.429 af

Reach R2-1: R2-1 Avg. Flow Depth=1.44' Max Vel=3.50 fps Inflow=36.82 cfs 22.164 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=36.79 cfs 22.139 af

Reach R2-2: R2-2 Avg. Flow Depth=1.16' Max Vel=5.09 fps Inflow=25.50 cfs 3.184 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=25.45 cfs 3.184 af

Reach R2-3: R2-3 Avg. Flow Depth=1.57' Max Vel=4.82 fps Inflow=39.05 cfs 24.818 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=39.04 cfs 24.802 af

Reach R3-1: R3-1 Avg. Flow Depth=0.74' Max Vel=4.34 fps Inflow=11.56 cfs 2.067 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=11.09 cfs 2.067 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.47' Max Vel=6.02 fps Inflow=8.29 cfs 1.763 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=8.29 cfs 1.763 af

Reach R4-2: R4-2 Avg. Flow Depth=0.59' Max Vel=7.23 fps Inflow=13.51 cfs 2.564 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=13.51 cfs 2.564 af

Reach R5-1: R5-1 Avg. Flow Depth=0.79' Max Vel=4.26 fps Inflow=18.13 cfs 3.236 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=18.03 cfs 3.236 af

Reach R5-2: R5-2 Avg. Flow Depth=1.83' Max Vel=4.10 fps Inflow=68.34 cfs 9.380 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=64.06 cfs 9.380 af

Reach R6-1: R6-1 Avg. Flow Depth=0.10' Max Vel=1.41 fps Inflow=0.31 cfs 0.051 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.31 cfs 0.051 af

Pond 1-P: Peak Elev=39.56' Storage=5.294 af Inflow=52.17 cfs 8.139 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=3.19 cfs 5.171 af

Pond 2-P: Peak Elev=38.17' Storage=11.654 af Inflow=98.72 cfs 26.508 af
Outflow=36.82 cfs 22.164 af

Pond 3-P: Peak Elev=86.65' Storage=0.943 af Inflow=13.11 cfs 0.943 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=624.27' Inflow=79.98 cfs 13.839 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=79.98 cfs 13.839 af

Pond CB-1-3: L1-3 Peak Elev=47.84' Inflow=120.11 cfs 27.440 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=120.11 cfs 27.440 af

Pond CB-1-4: L1-4 Peak Elev=65.19' Inflow=57.66 cfs 7.563 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=57.66 cfs 7.563 af

Pond CB-2-3: L2-2 Peak Elev=32.80' Inflow=39.05 cfs 24.818 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=39.05 cfs 24.818 af

Pond CB-2-4: L2-3 Peak Elev=34.35' Inflow=25.50 cfs 3.184 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=25.50 cfs 3.184 af

Pond CB-3-1: L3-1 Peak Elev=89.17' Inflow=11.56 cfs 2.067 af
Outflow=11.56 cfs 2.067 af

Pond CB-3-2: L3-2 Peak Elev=60.56' Inflow=35.65 cfs 6.149 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=35.65 cfs 6.149 af

Pond CB-4-1: L4-1 Peak Elev=55.29' Inflow=8.29 cfs 1.763 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=8.29 cfs 1.763 af

Pond CB-4-2: L4-2 Peak Elev=55.79' Inflow=13.51 cfs 2.564 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=13.51 cfs 2.564 af

Pond CB-5-1: L5-1 Peak Elev=57.69' Inflow=18.13 cfs 3.236 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=18.13 cfs 3.236 af

Pond CB-5-2: L5-2 Peak Elev=47.79' Inflow=68.34 cfs 9.380 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=68.34 cfs 9.380 af

Pond CB-6-1: L6-1 Peak Elev=49.49' Inflow=0.31 cfs 0.051 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.31 cfs 0.051 af

Link L1-5: L1-5 Inflow=119.78 cfs 27.429 af
Primary=119.78 cfs 27.429 af

Link L1-6: L1-6 Inflow=173.53 cfs 34.991 af
Primary=173.53 cfs 34.991 af

Link L2-1: L2-1 Inflow=36.82 cfs 22.164 af
Primary=36.82 cfs 22.164 af

Link L2-4: L2-4 Inflow=39.04 cfs 24.802 af
Primary=39.04 cfs 24.802 af

Link L2-5: L2-5 Inflow=25.45 cfs 3.184 af
Primary=25.45 cfs 3.184 af

Link L2-6: L2-6 Inflow=44.20 cfs 27.986 af
Primary=44.20 cfs 27.986 af

Link L4-3: L4-3 Inflow=8.29 cfs 1.763 af
Primary=8.29 cfs 1.763 af

Link L4-4: L4-4 Inflow=13.51 cfs 2.564 af
Primary=13.51 cfs 2.564 af

Link L4-5: L4-5 Inflow=21.77 cfs 4.327 af
Primary=21.77 cfs 4.327 af

Link L5-3: L5-3 Inflow=64.06 cfs 9.380 af
Primary=64.06 cfs 9.380 af

Link L6-2: L6-2 Inflow=0.31 cfs 0.051 af
Primary=0.31 cfs 0.051 af

Total Runoff Area = 323.908 ac Runoff Volume = 91.191 af Average Runoff Depth = 3.38"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=1.00-36.00 hrs, dt=0.02 hrs, 1751 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=4.88"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=95.05 cfs 16.633 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=5.19"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=61.64 cfs 9.727 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth>5.88"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=78.04 cfs 9.903 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=5.78"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=67.05 cfs 8.904 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=4.42"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=92.39 cfs 24.994 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=1.69"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=25.70 cfs 7.393 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=5.16"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=20.95 cfs 3.202 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=5.28"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=30.01 cfs 3.789 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=3.60"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=14.07 cfs 2.537 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>7.24"
Tc=0.0 min CN=98 Runoff=14.83 cfs 1.079 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=2.41"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=36.12 cfs 5.162 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=1.73"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=10.03 cfs 2.256 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=3.72"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=16.04 cfs 3.105 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=4.49"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=21.43 cfs 3.880 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth>6.50"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=70.66 cfs 7.129 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=6.70"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.36 cfs 0.059 af

Reach R1-1: R1-1 Avg. Flow Depth=2.04' Max Vel=5.08 fps Inflow=95.05 cfs 16.633 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=94.33 cfs 16.633 af

Reach R1-2: R1-2 Avg. Flow Depth=0.28' Max Vel=3.38 fps Inflow=3.61 cfs 6.193 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=3.61 cfs 6.192 af

Reach R1-3: R-1-3 Avg. Flow Depth=3.41' Max Vel=2.40 fps Inflow=142.10 cfs 32.729 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=141.71 cfs 32.716 af

Reach R1-4: R1-4 Avg. Flow Depth=1.48' Max Vel=6.10 fps Inflow=67.05 cfs 8.904 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=66.86 cfs 8.904 af

Reach R1-5: R1-5 Inflow=141.71 cfs 32.716 af
Outflow=141.71 cfs 32.716 af

Reach R2-1: R2-1 Avg. Flow Depth=1.85' Max Vel=4.04 fps Inflow=64.00 cfs 27.943 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=63.94 cfs 27.918 af

Reach R2-2: R2-2 Avg. Flow Depth=1.25' Max Vel=5.31 fps Inflow=30.01 cfs 3.789 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=29.96 cfs 3.789 af

Reach R2-3: R2-3 Avg. Flow Depth=2.01' Max Vel=5.54 fps Inflow=67.13 cfs 31.120 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=67.10 cfs 31.104 af

Reach R3-1: R3-1 Avg. Flow Depth=0.81' Max Vel=4.58 fps Inflow=14.07 cfs 2.537 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=13.55 cfs 2.537 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.52' Max Vel=6.36 fps Inflow=10.03 cfs 2.256 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=10.03 cfs 2.256 af

Reach R4-2: R4-2 Avg. Flow Depth=0.64' Max Vel=7.58 fps Inflow=16.04 cfs 3.105 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=16.04 cfs 3.105 af

Reach R5-1: R5-1 Avg. Flow Depth=0.86' Max Vel=4.46 fps Inflow=21.43 cfs 3.880 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=21.31 cfs 3.880 af

Reach R5-2: R5-2 Avg. Flow Depth=1.96' Max Vel=4.26 fps Inflow=78.63 cfs 11.009 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=74.00 cfs 11.009 af

Reach R6-1: R6-1 Avg. Flow Depth=0.11' Max Vel=1.48 fps Inflow=0.36 cfs 0.059 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.35 cfs 0.059 af

Pond 1-P: Peak Elev=39.87' Storage=6.370 af Inflow=61.64 cfs 9.727 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=3.61 cfs 6.193 af

Pond 2-P: Peak Elev=38.26' Storage=12.351 af Inflow=117.82 cfs 32.388 af
Outflow=64.00 cfs 27.943 af

Pond 3-P: Peak Elev=86.74' Storage=1.079 af Inflow=14.83 cfs 1.079 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=861.96' Inflow=95.05 cfs 16.633 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=95.05 cfs 16.633 af

Pond CB-1-3: L1-3 Peak Elev=51.41' Inflow=142.10 cfs 32.729 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=142.10 cfs 32.729 af

Pond CB-1-4: L1-4 Peak Elev=75.83' Inflow=67.05 cfs 8.904 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=67.05 cfs 8.904 af

Pond CB-2-3: L2-2 Peak Elev=35.39' Inflow=67.13 cfs 31.120 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=67.13 cfs 31.120 af

Pond CB-2-4: L2-3 Peak Elev=35.25' Inflow=30.01 cfs 3.789 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=30.01 cfs 3.789 af

Pond CB-3-1: L3-1 Peak Elev=90.06' Inflow=14.07 cfs 2.537 af
Outflow=14.07 cfs 2.537 af

Pond CB-3-2: L3-2 Peak Elev=63.63' Inflow=44.45 cfs 7.698 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=44.45 cfs 7.698 af

Pond CB-4-1: L4-1 Peak Elev=55.45' Inflow=10.03 cfs 2.256 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=10.03 cfs 2.256 af

Pond CB-4-2: L4-2 Peak Elev=56.12' Inflow=16.04 cfs 3.105 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=16.04 cfs 3.105 af

Pond CB-5-1: L5-1 Peak Elev=57.86' Inflow=21.43 cfs 3.880 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=21.43 cfs 3.880 af

Pond CB-5-2: L5-2 Peak Elev=49.88' Inflow=78.63 cfs 11.009 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=78.63 cfs 11.009 af

Pond CB-6-1: L6-1 Peak Elev=49.51' Inflow=0.36 cfs 0.059 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.36 cfs 0.059 af

Link L1-5: L1-5 Inflow=141.71 cfs 32.716 af
Primary=141.71 cfs 32.716 af

Link L1-6: L1-6 Inflow=204.00 cfs 41.620 af
Primary=204.00 cfs 41.620 af

Link L2-1: L2-1 Inflow=64.00 cfs 27.943 af
Primary=64.00 cfs 27.943 af

Link L2-4: L2-4 Inflow=67.10 cfs 31.104 af
Primary=67.10 cfs 31.104 af

Link L2-5: L2-5 Inflow=29.96 cfs 3.789 af
Primary=29.96 cfs 3.789 af

Link L2-6: L2-6 Inflow=70.58 cfs 34.893 af
Primary=70.58 cfs 34.893 af

Link L4-3: L4-3 Inflow=10.03 cfs 2.256 af
Primary=10.03 cfs 2.256 af

Link L4-4: L4-4 Inflow=16.04 cfs 3.105 af
Primary=16.04 cfs 3.105 af

Link L4-5: L4-5 Inflow=26.03 cfs 5.361 af
Primary=26.03 cfs 5.361 af

Link L5-3: L5-3 Inflow=74.00 cfs 11.009 af
Primary=74.00 cfs 11.009 af

Link L6-2: L6-2 Inflow=0.35 cfs 0.059 af
Primary=0.35 cfs 0.059 af

Total Runoff Area = 323.908 ac Runoff Volume = 109.753 af Average Runoff Depth = 4.07"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=1.00-36.00 hrs, dt=0.02 hrs, 1751 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=5.80"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=111.40 cfs 19.791 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=6.14"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=71.87 cfs 11.516 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth>6.86"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=89.60 cfs 11.552 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth>6.76"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=77.14 cfs 10.406 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=5.28"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=108.81 cfs 29.866 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=2.14"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=31.10 cfs 9.371 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth>6.10"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=24.46 cfs 3.791 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth>6.23"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=34.88 cfs 4.470 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=4.37"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=16.91 cfs 3.080 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>8.25"
Tc=0.0 min CN=98 Runoff=16.65 cfs 1.230 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=3.01"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=44.42 cfs 6.451 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=2.19"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=12.13 cfs 2.865 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=4.47"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=18.84 cfs 3.729 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=5.34"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=25.02 cfs 4.612 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth>7.50"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=80.16 cfs 8.226 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth>7.71"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.41 cfs 0.067 af

Reach R1-1: R1-1 Avg. Flow Depth=2.20' Max Vel=5.27 fps Inflow=111.40 cfs 19.791 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=110.57 cfs 19.791 af

Reach R1-2: R1-2 Avg. Flow Depth=0.55' Max Vel=4.91 fps Inflow=12.76 cfs 7.669 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=12.48 cfs 7.668 af

Reach R1-3: R-1-3 Avg. Flow Depth=3.81' Max Vel=2.44 fps Inflow=165.97 cfs 39.012 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=165.48 cfs 38.998 af

Reach R1-4: R1-4 Avg. Flow Depth=1.57' Max Vel=6.32 fps Inflow=77.14 cfs 10.406 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=76.92 cfs 10.406 af

Reach R1-5: R1-5 Inflow=165.48 cfs 38.998 af
Outflow=165.48 cfs 38.998 af

Reach R2-1: R2-1 Avg. Flow Depth=2.26' Max Vel=4.48 fps Inflow=97.78 cfs 34.722 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=97.67 cfs 34.697 af

Reach R2-2: R2-2 Avg. Flow Depth=1.34' Max Vel=5.52 fps Inflow=34.88 cfs 4.470 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=34.82 cfs 4.470 af

Reach R2-3: R2-3 Avg. Flow Depth=2.49' Max Vel=6.05 fps Inflow=101.98 cfs 38.488 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=101.93 cfs 38.471 af

Reach R3-1: R3-1 Avg. Flow Depth=0.89' Max Vel=4.82 fps Inflow=16.91 cfs 3.080 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=16.34 cfs 3.080 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.57' Max Vel=6.71 fps Inflow=12.13 cfs 2.865 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=12.13 cfs 2.865 af

Reach R4-2: R4-2 Avg. Flow Depth=0.70' Max Vel=7.93 fps Inflow=18.84 cfs 3.729 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=18.84 cfs 3.729 af

Reach R5-1: R5-1 Avg. Flow Depth=0.93' Max Vel=4.65 fps Inflow=25.02 cfs 4.612 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=24.89 cfs 4.612 af

Reach R5-2: R5-2 Avg. Flow Depth=2.08' Max Vel=4.40 fps Inflow=89.65 cfs 12.838 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=84.64 cfs 12.838 af

Reach R6-1: R6-1 Avg. Flow Depth=0.12' Max Vel=1.55 fps Inflow=0.41 cfs 0.067 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.40 cfs 0.067 af

Pond 1-P: Peak Elev=56.67' Storage=6.806 af Inflow=71.87 cfs 11.516 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=12.76 cfs 7.669 af

Pond 2-P: Peak Elev=38.36' Storage=13.065 af Inflow=139.67 cfs 39.238 af
Outflow=97.78 cfs 34.722 af

Pond 3-P: Peak Elev=86.85' Storage=1.230 af Inflow=16.65 cfs 1.230 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=1,165.95' Inflow=111.40 cfs 19.791 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=111.40 cfs 19.791 af

Pond CB-1-3: L1-3 Peak Elev=55.89' Inflow=165.97 cfs 39.012 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=165.97 cfs 39.012 af

Pond CB-1-4: L1-4 Peak Elev=89.03' Inflow=77.14 cfs 10.406 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=77.14 cfs 10.406 af

Pond CB-2-3: L2-2 Peak Elev=40.48' Inflow=101.98 cfs 38.488 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=101.98 cfs 38.488 af

Pond CB-2-4: L2-3 Peak Elev=36.65' Inflow=34.88 cfs 4.470 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=34.88 cfs 4.470 af

Pond CB-3-1: L3-1 Peak Elev=91.28' Inflow=16.91 cfs 3.080 af
Outflow=16.91 cfs 3.080 af

Pond CB-3-2: L3-2 Peak Elev=68.03' Inflow=54.60 cfs 9.531 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=54.60 cfs 9.531 af

Pond CB-4-1: L4-1 Peak Elev=55.65' Inflow=12.13 cfs 2.865 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=12.13 cfs 2.865 af

Pond CB-4-2: L4-2 Peak Elev=56.55' Inflow=18.84 cfs 3.729 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=18.84 cfs 3.729 af

Pond CB-5-1: L5-1 Peak Elev=58.05' Inflow=25.02 cfs 4.612 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=25.02 cfs 4.612 af

Pond CB-5-2: L5-2 Peak Elev=52.44' Inflow=89.65 cfs 12.838 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=89.65 cfs 12.838 af

Pond CB-6-1: L6-1 Peak Elev=49.53' Inflow=0.41 cfs 0.067 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.41 cfs 0.067 af

Link L1-5: L1-5 Inflow=165.48 cfs 38.998 af
Primary=165.48 cfs 38.998 af

Link L1-6: L1-6 Inflow=237.01 cfs 49.404 af
Primary=237.01 cfs 49.404 af

Link L2-1: L2-1 Inflow=97.78 cfs 34.722 af
Primary=97.78 cfs 34.722 af

Link L2-4: L2-4 Inflow=101.93 cfs 38.471 af
Primary=101.93 cfs 38.471 af

Link L2-5: L2-5 Inflow=34.82 cfs 4.470 af
Primary=34.82 cfs 4.470 af

Link L2-6: L2-6 Inflow=106.49 cfs 42.941 af
Primary=106.49 cfs 42.941 af

Link L4-3: L4-3 Inflow=12.13 cfs 2.865 af
Primary=12.13 cfs 2.865 af

Link L4-4: L4-4 Inflow=18.84 cfs 3.729 af
Primary=18.84 cfs 3.729 af

Link L4-5: L4-5 Inflow=30.89 cfs 6.594 af
Primary=30.89 cfs 6.594 af

Link L5-3: L5-3 Inflow=84.64 cfs 12.838 af
Primary=84.64 cfs 12.838 af

Link L6-2: L6-2 Inflow=0.40 cfs 0.067 af
Primary=0.40 cfs 0.067 af

Total Runoff Area = 323.908 ac Runoff Volume = 131.025 af Average Runoff Depth = 4.85"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=1.00-36.00 hrs, dt=0.02 hrs, 1751 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=0.90"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=18.87 cfs 3.059 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=1.02"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=13.31 cfs 1.914 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=1.45"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=22.23 cfs 2.442 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=1.39"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=18.50 cfs 2.139 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=0.80"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=17.96 cfs 4.502 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=0.26"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=4.74 cfs 1.127 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=1.03"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=4.55 cfs 0.639 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=1.12"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=7.03 cfs 0.803 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=0.57"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=2.40 cfs 0.399 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth=2.40"
Tc=0.0 min CN=98 Runoff=5.87 cfs 0.358 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=0.31"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=5.12 cfs 0.673 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=0.24"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=1.68 cfs 0.319 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=0.69"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=3.29 cfs 0.578 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=0.90"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=4.74 cfs 0.778 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=1.84"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=23.98 cfs 2.023 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=1.97"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.13 cfs 0.017 af

Reach R1-1: R1-1 Avg. Flow Depth=0.95' Max Vel=3.32 fps Inflow=18.87 cfs 3.059 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=18.51 cfs 3.059 af

Reach R1-2: R1-2 Avg. Flow Depth=0.09' Max Vel=1.75 fps Inflow=0.52 cfs 0.810 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=0.52 cfs 0.810 af

Reach R1-3: R-1-3 Avg. Flow Depth=1.51' Max Vel=1.73 fps Inflow=31.63 cfs 6.311 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=31.45 cfs 6.307 af

Reach R1-4: R1-4 Avg. Flow Depth=0.79' Max Vel=4.33 fps Inflow=18.50 cfs 2.139 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=18.41 cfs 2.139 af

Reach R1-5: R1-5 Inflow=31.45 cfs 6.307 af
Outflow=31.45 cfs 6.307 af

Reach R2-1: R2-1 Avg. Flow Depth=0.42' Max Vel=1.78 fps Inflow=3.18 cfs 4.846 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=3.18 cfs 4.836 af

Reach R2-2: R2-2 Avg. Flow Depth=0.61' Max Vel=3.60 fps Inflow=7.03 cfs 0.803 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=7.02 cfs 0.803 af

Reach R2-3: R2-3 Avg. Flow Depth=0.59' Max Vel=2.83 fps Inflow=5.34 cfs 5.475 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=5.29 cfs 5.469 af

Reach R3-1: R3-1 Avg. Flow Depth=0.31' Max Vel=2.71 fps Inflow=2.40 cfs 0.399 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=2.18 cfs 0.399 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.19' Max Vel=3.67 fps Inflow=1.68 cfs 0.319 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=1.68 cfs 0.319 af

Reach R4-2: R4-2 Avg. Flow Depth=0.27' Max Vel=4.75 fps Inflow=3.29 cfs 0.578 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=3.29 cfs 0.578 af

Reach R5-1: R5-1 Avg. Flow Depth=0.39' Max Vel=2.89 fps Inflow=4.74 cfs 0.778 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=4.67 cfs 0.778 af

Reach R5-2: R5-2 Avg. Flow Depth=1.13' Max Vel=3.14 fps Inflow=25.25 cfs 2.801 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=22.75 cfs 2.801 af

Reach R6-1: R6-1 Avg. Flow Depth=0.06' Max Vel=1.01 fps Inflow=0.13 cfs 0.017 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.12 cfs 0.017 af

Pond 1-P: Peak Elev=38.44' Storage=1.490 af Inflow=13.31 cfs 1.914 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=0.52 cfs 0.810 af

Pond 2-P: Peak Elev=36.55' Storage=2.849 af Inflow=22.61 cfs 5.629 af
Outflow=3.18 cfs 4.846 af

Pond 3-P: Peak Elev=86.25' Storage=0.358 af Inflow=5.87 cfs 0.358 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=79.53' Inflow=18.87 cfs 3.059 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=18.87 cfs 3.059 af

Pond CB-1-3: L1-3 Peak Elev=39.83' Inflow=31.63 cfs 6.311 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=31.63 cfs 6.311 af

Pond CB-1-4: L1-4 Peak Elev=39.40' Inflow=18.50 cfs 2.139 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=18.50 cfs 2.139 af

Pond CB-2-3: L2-2 Peak Elev=30.86' Inflow=5.34 cfs 5.475 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=5.34 cfs 5.475 af

Pond CB-2-4: L2-3 Peak Elev=31.64' Inflow=7.03 cfs 0.803 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=7.03 cfs 0.803 af

Pond CB-3-1: L3-1 Peak Elev=87.28' Inflow=2.40 cfs 0.399 af
Outflow=2.40 cfs 0.399 af

Pond CB-3-2: L3-2 Peak Elev=55.08' Inflow=6.14 cfs 1.073 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=6.14 cfs 1.073 af

Pond CB-4-1: L4-1 Peak Elev=54.53' Inflow=1.68 cfs 0.319 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=1.68 cfs 0.319 af

Pond CB-4-2: L4-2 Peak Elev=54.76' Inflow=3.29 cfs 0.578 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=3.29 cfs 0.578 af

Pond CB-5-1: L5-1 Peak Elev=56.81' Inflow=4.74 cfs 0.778 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=4.74 cfs 0.778 af

Pond CB-5-2: L5-2 Peak Elev=42.22' Inflow=25.25 cfs 2.801 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=25.25 cfs 2.801 af

Pond CB-6-1: L6-1 Peak Elev=49.40' Inflow=0.13 cfs 0.017 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.13 cfs 0.017 af

Link L1-5: L1-5 Inflow=31.45 cfs 6.307 af
Primary=31.45 cfs 6.307 af

Link L1-6: L1-6 Inflow=49.32 cfs 8.446 af
Primary=49.32 cfs 8.446 af

Link L2-1: L2-1 Inflow=3.18 cfs 4.846 af
Primary=3.18 cfs 4.846 af

Link L2-4: L2-4 Inflow=5.29 cfs 5.469 af
Primary=5.29 cfs 5.469 af

Link L2-5: L2-5 Inflow=7.02 cfs 0.803 af
Primary=7.02 cfs 0.803 af

Link L2-6: L2-6 Inflow=11.55 cfs 6.272 af
Primary=11.55 cfs 6.272 af

Link L4-3: L4-3 Inflow=1.68 cfs 0.319 af
Primary=1.68 cfs 0.319 af

Link L4-4: L4-4 Inflow=3.29 cfs 0.578 af
Primary=3.29 cfs 0.578 af

Link L4-5: L4-5 Inflow=4.94 cfs 0.897 af
Primary=4.94 cfs 0.897 af

Link L5-3: L5-3 Inflow=22.75 cfs 2.801 af
Primary=22.75 cfs 2.801 af

Link L6-2: L6-2 Inflow=0.12 cfs 0.017 af
Primary=0.12 cfs 0.017 af

Total Runoff Area = 323.908 ac Runoff Volume = 21.771 af Average Runoff Depth = 0.81"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=1.00-36.00 hrs, dt=0.02 hrs, 1751 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=2.97"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=59.93 cfs 10.129 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=3.21"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=39.53 cfs 6.018 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=3.82"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=52.87 cfs 6.442 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=3.74"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=45.11 cfs 5.756 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=2.67"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=57.79 cfs 15.075 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=0.90"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=15.92 cfs 3.944 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=3.19"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=13.40 cfs 1.982 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=3.31"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=19.48 cfs 2.376 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=2.07"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=8.38 cfs 1.462 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>5.07"
Tc=0.0 min CN=98 Runoff=10.82 cfs 0.757 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=1.29"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=20.07 cfs 2.759 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=0.91"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=6.02 cfs 1.187 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=2.23"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=10.15 cfs 1.864 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=2.76"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=13.75 cfs 2.388 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=4.38"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=49.83 cfs 4.804 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=4.56"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.26 cfs 0.040 af

Reach R1-1: R1-1 Avg. Flow Depth=1.65' Max Vel=4.52 fps Inflow=59.93 cfs 10.129 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=59.37 cfs 10.129 af

Reach R1-2: R1-2 Avg. Flow Depth=0.21' Max Vel=2.90 fps Inflow=2.23 cfs 3.658 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=2.23 cfs 3.658 af

Reach R1-3: R-1-3 Avg. Flow Depth=2.57' Max Vel=2.25 fps Inflow=90.97 cfs 20.230 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=90.72 cfs 20.221 af

Reach R1-4: R1-4 Avg. Flow Depth=1.23' Max Vel=5.50 fps Inflow=45.11 cfs 5.756 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=44.96 cfs 5.756 af

Reach R1-5: R1-5 Inflow=90.72 cfs 20.221 af
Outflow=90.72 cfs 20.221 af

Reach R2-1: R2-1 Avg. Flow Depth=0.77' Max Vel=2.48 fps Inflow=10.06 cfs 15.098 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=10.06 cfs 15.075 af

Reach R2-2: R2-2 Avg. Flow Depth=1.02' Max Vel=4.75 fps Inflow=19.48 cfs 2.376 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=19.45 cfs 2.376 af

Reach R2-3: R2-3 Avg. Flow Depth=1.02' Max Vel=3.80 fps Inflow=15.72 cfs 17.057 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=15.65 cfs 17.042 af

Reach R3-1: R3-1 Avg. Flow Depth=0.62' Max Vel=3.96 fps Inflow=8.38 cfs 1.462 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=7.98 cfs 1.462 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.39' Max Vel=5.48 fps Inflow=6.02 cfs 1.187 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=6.02 cfs 1.187 af

Reach R4-2: R4-2 Avg. Flow Depth=0.51' Max Vel=6.67 fps Inflow=10.15 cfs 1.864 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=10.15 cfs 1.864 af

Reach R5-1: R5-1 Avg. Flow Depth=0.69' Max Vel=3.94 fps Inflow=13.75 cfs 2.388 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=13.66 cfs 2.388 af

Reach R5-2: R5-2 Avg. Flow Depth=1.65' Max Vel=3.87 fps Inflow=54.63 cfs 7.192 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=50.77 cfs 7.192 af

Reach R6-1: R6-1 Avg. Flow Depth=0.09' Max Vel=1.31 fps Inflow=0.26 cfs 0.040 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.25 cfs 0.040 af

Pond 1-P: Peak Elev=39.17' Storage=3.987 af Inflow=39.53 cfs 6.018 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=2.23 cfs 3.658 af

Pond 2-P: Peak Elev=38.02' Storage=10.594 af Inflow=73.53 cfs 19.019 af
Outflow=10.06 cfs 15.098 af

Pond 3-P: Peak Elev=86.52' Storage=0.757 af Inflow=10.82 cfs 0.757 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=371.42' Inflow=59.93 cfs 10.129 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=59.93 cfs 10.129 af

Pond CB-1-3: L1-3 Peak Elev=44.40' Inflow=90.97 cfs 20.230 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=90.97 cfs 20.230 af

Pond CB-1-4: L1-4 Peak Elev=53.48' Inflow=45.11 cfs 5.756 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=45.11 cfs 5.756 af

Pond CB-2-3: L2-2 Peak Elev=31.56' Inflow=15.72 cfs 17.057 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=15.72 cfs 17.057 af

Pond CB-2-4: L2-3 Peak Elev=33.37' Inflow=19.48 cfs 2.376 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=19.48 cfs 2.376 af

Pond CB-3-1: L3-1 Peak Elev=88.29' Inflow=8.38 cfs 1.462 af
Outflow=8.38 cfs 1.462 af

Pond CB-3-2: L3-2 Peak Elev=57.68' Inflow=24.79 cfs 4.221 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=24.79 cfs 4.221 af

Pond CB-4-1: L4-1 Peak Elev=55.07' Inflow=6.02 cfs 1.187 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=6.02 cfs 1.187 af

Pond CB-4-2: L4-2 Peak Elev=55.46' Inflow=10.15 cfs 1.864 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=10.15 cfs 1.864 af

Pond CB-5-1: L5-1 Peak Elev=57.44' Inflow=13.75 cfs 2.388 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=13.75 cfs 2.388 af

Pond CB-5-2: L5-2 Peak Elev=45.46' Inflow=54.63 cfs 7.192 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=54.63 cfs 7.192 af

Pond CB-6-1: L6-1 Peak Elev=49.47' Inflow=0.26 cfs 0.040 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.26 cfs 0.040 af

Link L1-5: L1-5 Inflow=90.72 cfs 20.221 af
Primary=90.72 cfs 20.221 af

Link L1-6: L1-6 Inflow=133.07 cfs 25.977 af
Primary=133.07 cfs 25.977 af

Link L2-1: L2-1 Inflow=10.06 cfs 15.098 af
Primary=10.06 cfs 15.098 af

Link L2-4: L2-4 Inflow=15.65 cfs 17.042 af
Primary=15.65 cfs 17.042 af

Link L2-5: L2-5 Inflow=19.45 cfs 2.376 af
Primary=19.45 cfs 2.376 af

Link L2-6: L2-6 Inflow=33.10 cfs 19.418 af
Primary=33.10 cfs 19.418 af

Link L4-3: L4-3 Inflow=6.02 cfs 1.187 af
Primary=6.02 cfs 1.187 af

Link L4-4: L4-4 Inflow=10.15 cfs 1.864 af
Primary=10.15 cfs 1.864 af

Link L4-5: L4-5 Inflow=16.15 cfs 3.052 af
Primary=16.15 cfs 3.052 af

Link L5-3: L5-3 Inflow=50.77 cfs 7.192 af
Primary=50.77 cfs 7.192 af

Link L6-2: L6-2 Inflow=0.25 cfs 0.040 af
Primary=0.25 cfs 0.040 af

Total Runoff Area = 323.908 ac Runoff Volume = 66.985 af Average Runoff Depth = 2.48"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Appendix G

Model My Watershed Existing Conditions Nutrient Load Summary Reports

Drainage Area 1 (DA-1)

Sources	Sediment	Total Nitrogen	Total Phosphorus
Total Loads (lb)	2,771.60	141.3	5.7
Loading Rates (lb/ac)	29.13	1.49	0.06

Sources	Sediment (lb)	Total Nitrogen (lb)	Total Phosphorus (lb)
Hay/Pasture	0	0	0
Cropland	0	0	0
Wooded Areas	28.2	9.1	0.5
Wetlands	0	13.2	0.7
Open Land	9.7	0.7	0
Barren Areas	1	0.8	0
Low-Density Mixed	153.40	3.9	0.4
Medium-Density Mixed	712.80	14.9	1.5
High-Density Mixed	250.40	5.2	0.5
Low-Density Open Space	180.9	4.6	0.5
Farm Animals	0	0	0
Stream Bank Erosion	1,435.20	2.2	0
Subsurface Flow	0	57.6	1.5
Point Sources	0	0	0
Septic Systems	0	29.1	0

Drainage Area 2 (DA-2)

Sources	Sediment	Total Nitrogen	Total Phosphorus
Total Loads (lb)	2,921.60	221.3	8
Loading Rates (lb/ac)	19.87	1.51	0.05

Sources	Sediment (lb)	Total Nitrogen (lb)	Total Phosphorus (lb)
Hay/Pasture	0	0	0
Cropland	0	0	0
Wooded Areas	56.6	16.2	0.9
Wetlands	13.2	9.7	0.5
Open Land	9.5	0.4	0
Barren Areas	0	0.2	0
Low-Density Mixed	162.5	4.2	0.5
Medium-Density Mixed	511.60	10.7	1.1
High-Density Mixed	182.70	3.8	0.4
Low-Density Open Space	166.6	4.3	0.5
Farm Animals	0	0	0
Stream Bank Erosion	1,818.80	2.2	0
Subsurface Flow	0	158.7	4.2
Point Sources	0	0	0
Septic Systems	0	10.9	0

Drainage Area 3 (DA-3)

Sources	Sediment	Total Nitrogen	Total Phosphorus
Total Loads (lb)	459.5	62.8	2.2
Loading Rates (lb/ac)	12.74	1.74	0.06

Sources	Sediment (lb)	Total Nitrogen (lb)	Total Phosphorus (lb)
Hay/Pasture	0	0	0
Cropland	0	0	0
Wooded Areas	0	0.6	0
Wetlands	0.1	1.1	0.1
Open Land	0	0	0
Barren Areas	0	0	0
Low-Density Mixed	110.5	2.9	0.3
Medium-Density Mixed	214	3.6	0.4
High-Density Mixed	0	0	0
Low-Density Open Space	110.5	2.9	0.3
Farm Animals	0	0	0
Stream Bank Erosion	24.3	0	0
Subsurface Flow	0	44.4	1.2
Point Sources	0	0	0
Septic Systems	0	7.3	0

Drainage Area 4 (DA-4)

Sources	Sediment	Total Nitrogen	Total Phosphorus
Total Loads (lb)	110.4	42.7	1.4
Loading Rates (lb/ac)	3.92	1.51	0.05

Sources	Sediment (lb)	Total Nitrogen (lb)	Total Phosphorus (lb)
Hay/Pasture	0	0	0
Cropland	0	0	0
Wooded Areas	0.9	1.5	0.1
Wetlands	0	0.4	0
Open Land	0	0	0
Barren Areas	0	0.7	0
Low-Density Mixed	57	1.7	0.2
Medium-Density Mixed	21.4	0.4	0
High-Density Mixed	13.1	0.5	0.1
Low-Density Open Space	11.4	0.3	0
Farm Animals	0	0	0
Stream Bank Erosion	6.6	0	0
Subsurface Flow	0	37.2	1
Point Sources	0	0	0
Septic Systems	0	0	0

Drainage Area 5 (DA-5)

Sources	Sediment	Total Nitrogen	Total Phosphorus
Total Loads (lb)	213.8	41.6	1.3
Loading Rates (lb/ac)	9.11	1.77	0.06

Sources	Sediment (lb)	Total Nitrogen (lb)	Total Phosphorus (lb)
Hay/Pasture	0	0	0
Cropland	0	0	0
Wooded Areas	8.9	2.7	0.2
Wetlands	0	0.3	0
Open Land	28.9	1.1	0.1
Barren Areas	0	0.7	0
Low-Density Mixed	15	0.5	0
Medium-Density Mixed	80.1	2	0.2
High-Density Mixed	68.6	1.7	0.2
Low-Density Open Space	3.4	0.1	0
Farm Animals	0	0	0
Stream Bank Erosion	8.8	0	0
Subsurface Flow	0	25.4	0.7
Point Sources	0	0	0
Septic Systems	0	7.3	0

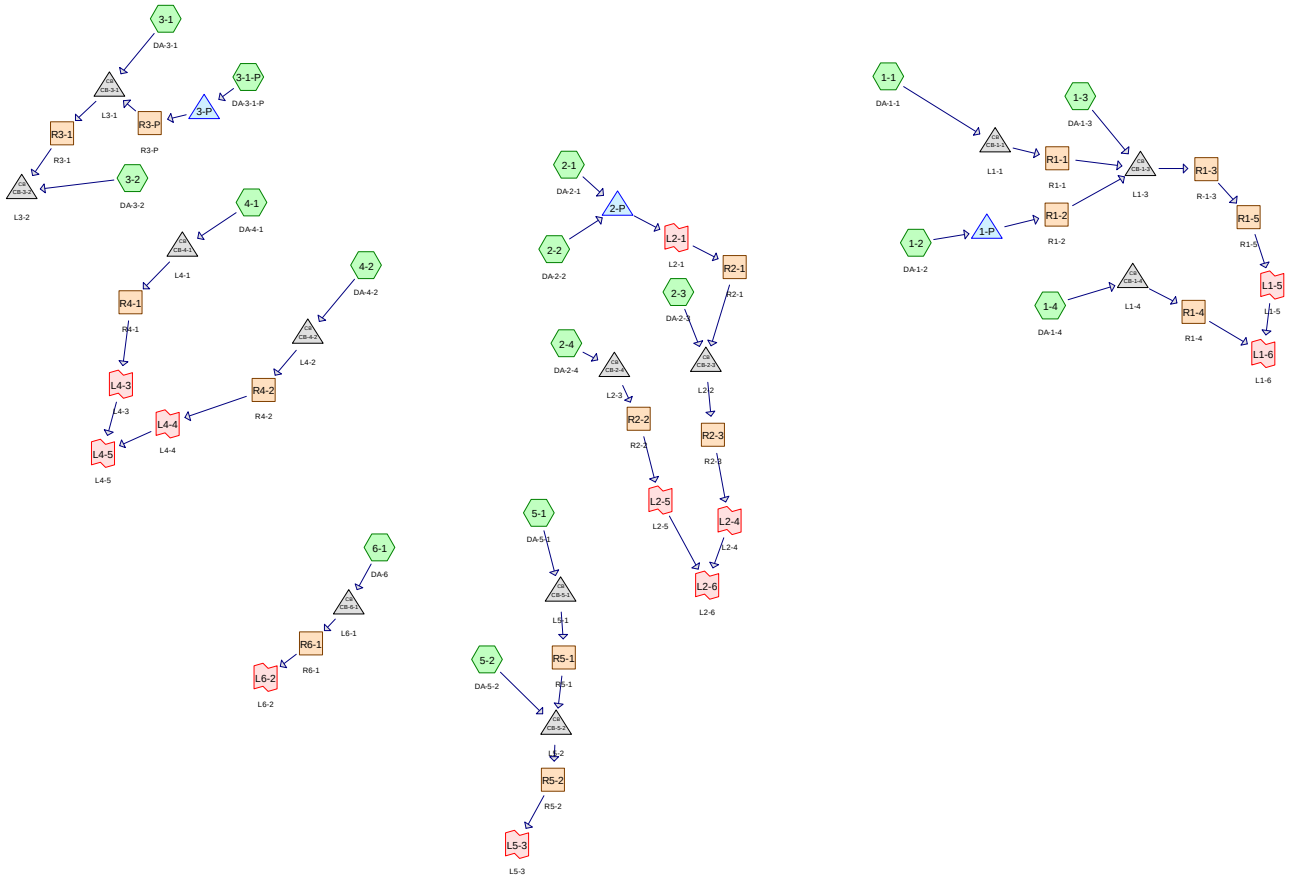
Drainage Area 6 (DA-6)

Sources	Sediment	Total Nitrogen	Total Phosphorus
Total Loads (lb)	19.4	1.1	0.1
Loading Rates (lb/ac)	26.21	1.43	0.09

Sources	Sediment (lb)	Total Nitrogen (lb)	Total Phosphorus (lb)
Hay/Pasture	0	0	0
Cropland	0	0	0
Wooded Areas	0	0	0
Wetlands	0	0	0
Open Land	0	0	0
Barren Areas	0	0	0
Low-Density Mixed	15	0.5	0
Medium-Density Mixed	0	0	0
High-Density Mixed	0	0	0
Low-Density Open Space	0	0	0
Farm Animals	0	0	0
Stream Bank Erosion	4.4	0	0
Subsurface Flow	0	0.6	0
Point Sources	0	0	0
Septic Systems	0	0	0

Appendix H

50% Build-Out HydroCAD Summary Report



Subcat Reach Pond Link

Routing Diagram for Kittery_50%Build (ID 2853680)
Prepared by Barton & Loguidice, DPC, Printed 8/7/2023

Project Notes

Copied 10 events from ME-DennettRoad 24-hr S1 storm

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	ME-DennettRoad 24-hr S1	1-yr	Default	24.00	1	2.63	2
2	2-yr	ME-DennettRoad 24-hr S1	2-yr	Default	24.00	1	3.31	2
3	5-yr	ME-DennettRoad 24-hr S1	5-yr	Default	24.00	1	4.41	2
4	10-yr	ME-DennettRoad 24-hr S1	10-yr	Default	24.00	1	5.32	2
5	25-yr	ME-DennettRoad 24-hr S1	25-yr	Default	24.00	1	6.58	2
6	50-yr	ME-DennettRoad 24-hr S1	50-yr	Default	24.00	1	7.50	2
7	100-yr	ME-DennettRoad 24-hr S1	100-yr	Default	24.00	1	8.52	2
8	Extreme: 1-yr	ME-DennettRoad 24-hr S1	10-yr	Default	24.00	1	3.02	2
9	Extreme: 10-yr	ME-DennettRoad 24-hr S1	10-yr	Default	24.00	1	5.32	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.423	92	*BARREN, D (89, 92, 95) (1-2)
0.723	89	*COMMERCIAL, A (89) (2-2)
9.929	95	*COMMERCIAL, D (95) (1-2, 1-3)
6.495	90	*RESIDENTIAL, D (85, 90, 95) (1-2, 1-3)
33.767	60	*WOODS, A (30, 60, 95) (2-1, 2-2, 4-1)
21.793	86	*WOODS, D (77, 86, 95) (1-2, 1-3, 2-1, 2-2, 4-1)
8.453	54	1/2 acre lots, 25% imp, HSG A (2-1, 2-2, 3-1, 3-2, 4-1)
0.193	80	1/2 acre lots, 25% imp, HSG C (1-1)
12.899	85	1/2 acre lots, 25% imp, HSG D (1-1, 1-2, 2-1, 3-1, 3-2)
1.776	77	1/8 acre lots, 65% imp, HSG A (1-1, 3-1, 3-2, 4-1)
0.089	90	1/8 acre lots, 65% imp, HSG C (1-1)
3.453	92	1/8 acre lots, 65% imp, HSG D (1-1, 1-2, 2-1, 3-1, 3-2)
7.040	39	>75% Grass cover, Good, HSG A (2-1, 2-2, 3-1, 3-2, 4-1)
0.916	74	>75% Grass cover, Good, HSG C (1-1)
16.248	80	>75% Grass cover, Good, HSG D (1-1, 1-2, 2-1, 2-2, 3-1, 3-2)
0.006	65	Brush, Good, HSG C (1-1)
0.291	89	COMMERCIAL, A (89) (2-4, 5-1)
23.114	95	COMMERCIAL, D (95) (1-4, 2-3, 2-4, 4-2, 5-1, 5-2, 6-1)
3.708	90	RESIDENTIAL, D (85, 90, 95) (1-4)
4.367	60	WOODS, A (30, 60, 95) (2-4, 4-2, 5-1)
3.785	81	WOODS, D (77, 81, 85) (1-4)
32.923	86	WOODS, D (77, 86, 95) (1-4, 2-3, 2-4, 4-2, 5-1, 5-2, 6-1)
1.790	98	Water Surface, HSG A (3-1-P)
28.687	30	Woods, Good, HSG A (1-1, 2-1, 2-2, 3-1, 3-2, 4-1)
2.174	70	Woods, Good, HSG C (1-1)
98.866	77	Woods, Good, HSG D (1-1, 1-2, 1-3, 2-1, 2-2, 3-1, 3-2, 4-1)
323.908	**74**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
47.746	HSG A	1-1, 2-1, 2-2, 3-1, 3-1-P, 3-2, 4-1
0.000	HSG B	
3.378	HSG C	1-1
131.466	HSG D	1-1, 1-2, 1-3, 2-1, 2-2, 3-1, 3-2, 4-1
141.318	Other	1-2, 1-3, 1-4, 2-1, 2-2, 2-3, 2-4, 4-1, 4-2, 5-1, 5-2, 6-1
323.908		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.423	0.423	*BARREN, D (89, 92, 95)	1-2
0.000	0.000	0.000	0.000	0.723	0.723	*COMMERCIAL, A (89)	2-2
0.000	0.000	0.000	0.000	9.929	9.929	*COMMERCIAL, D (95)	1-2, 1-3
0.000	0.000	0.000	0.000	6.495	6.495	*RESIDENTIAL, D (85, 90, 95)	1-2, 1-3
0.000	0.000	0.000	0.000	33.767	33.767	*WOODS, A (30, 60, 95)	2-1, 2-2, 4-1
0.000	0.000	0.000	0.000	21.793	21.793	*WOODS, D (77, 86, 95)	1-2, 1-3, 2-1, 2-2, 4-1
8.453	0.000	0.193	12.899	0.000	21.545	1/2 acre lots, 25% imp	1-1, 1-2, 2-1, 2-2, 3-1, 3-2, 4-1
1.776	0.000	0.089	3.453	0.000	5.318	1/8 acre lots, 65% imp	1-1, 1-2, 2-1, 3-1, 3-2, 4-1
7.040	0.000	0.916	16.248	0.000	24.204	>75% Grass cover, Good	1-1, 1-2, 2-1, 2-2, 3-1, 3-2, 4-1
0.000	0.000	0.006	0.000	0.000	0.006	Brush, Good	1-1
0.000	0.000	0.000	0.000	0.291	0.291	COMMERCIAL, A (89)	2-4, 5-1
0.000	0.000	0.000	0.000	23.114	23.114	COMMERCIAL, D (95)	1-4, 2-3, 2-4, 4-2, 5-1, 5-2, 6-1
0.000	0.000	0.000	0.000	3.708	3.708	RESIDENTIAL, D (85, 90, 95)	1-4
0.000	0.000	0.000	0.000	4.367	4.367	WOODS, A (30, 60, 95)	2-4, 4-2, 5-1
0.000	0.000	0.000	0.000	3.785	3.785	WOODS, D (77, 81, 85)	1-4
0.000	0.000	0.000	0.000	32.923	32.923	WOODS, D (77, 86, 95)	1-4, 2-3, 2-4, 4-2, 5-1, 5-2, 6-1
1.790	0.000	0.000	0.000	0.000	1.790	Water Surface	3-1-P
28.687	0.000	2.174	98.866	0.000	129.727	Woods, Good	1-1, 1-2, 1-3, 2-1, 2-2, 3-1, 3-2, 4-1
47.746	**0.000**	**3.378**	**131.466**	**141.318**	**323.908**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	1-4	0.00	0.00	225.0	0.0180	0.025	0.0	12.0	0.0
2	3-1	0.00	0.00	10.0	0.0500	0.013	0.0	6.0	0.0
3	3-2	0.00	0.00	68.0	0.0290	0.025	0.0	12.0	0.0
4	1-P	37.91	37.91	23.0	0.0000	0.012	0.0	12.0	0.0
5	2-P	35.58	32.78	50.0	0.0560	0.025	0.0	18.0	0.0
6	CB-1-1	47.05	46.31	50.0	0.0148	0.025	0.0	14.0	0.0
7	CB-1-3	36.98	36.80	95.0	0.0019	0.012	0.0	36.0	0.0
8	CB-1-4	36.00	33.00	84.0	0.0357	0.025	0.0	24.0	0.0
9	CB-2-3	30.00	28.50	150.0	0.0100	0.012	0.0	36.0	0.0
10	CB-2-4	30.00	30.00	75.0	0.0000	0.012	0.0	24.0	0.0
11	CB-3-1	86.11	86.46	20.0	-0.0175	0.012	0.0	6.0	0.0
12	CB-3-1	86.67	86.32	20.0	0.0175	0.012	0.0	12.0	0.0
13	CB-3-1	86.64	86.51	20.0	0.0065	0.012	0.0	6.0	0.0
14	CB-3-1	86.97	86.75	20.0	0.0110	0.012	0.0	14.0	0.0
15	CB-3-2	54.00	52.00	100.0	0.0200	0.012	0.0	24.0	0.0
16	CB-4-1	54.00	52.00	100.0	0.0200	0.012	0.0	24.0	0.0
17	CB-4-2	54.00	52.00	100.0	0.0200	0.012	0.0	24.0	0.0
18	CB-5-1	56.00	55.00	70.0	0.0143	0.012	0.0	36.0	0.0
19	CB-5-2	40.00	34.00	217.0	0.0276	0.012	0.0	32.0	0.0
20	CB-6-1	49.25	46.31	95.0	0.0309	0.012	0.0	18.0	0.0

Time span=5.00-36.00 hrs, dt=0.02 hrs, 1551 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth>0.90"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=18.87 cfs 3.059 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth>1.09"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=14.39 cfs 2.052 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth>1.61"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=25.23 cfs 2.720 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth>1.62"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=22.05 cfs 2.488 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=0.83"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=18.85 cfs 4.694 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=0.46"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=7.38 cfs 2.028 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth>1.47"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=6.88 cfs 0.911 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth>1.51"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=9.99 cfs 1.084 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=0.57"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=2.40 cfs 0.399 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>2.31"
Tc=0.0 min CN=98 Runoff=5.87 cfs 0.345 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth>0.31"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=5.12 cfs 0.673 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=0.42"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=2.73 cfs 0.554 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth>1.09"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=5.27 cfs 0.909 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth>1.29"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=7.06 cfs 1.118 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth>1.93"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=25.53 cfs 2.117 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth>2.00"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.13 cfs 0.018 af

Reach R1-1: R1-1 Avg. Flow Depth=0.95' Max Vel=3.32 fps Inflow=18.87 cfs 3.059 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=18.51 cfs 3.059 af

Reach R1-2: R1-2 Avg. Flow Depth=0.10' Max Vel=1.81 fps Inflow=0.57 cfs 0.896 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=0.57 cfs 0.896 af

Reach R1-3: R-1-3 Avg. Flow Depth=1.57' Max Vel=1.77 fps Inflow=34.31 cfs 6.675 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=34.06 cfs 6.671 af

Reach R1-4: R1-4 Avg. Flow Depth=0.86' Max Vel=4.54 fps Inflow=22.05 cfs 2.488 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=21.95 cfs 2.488 af

Reach R1-5: R1-5 Inflow=34.06 cfs 6.671 af
Outflow=34.06 cfs 6.671 af

Reach R2-1: R2-1 Avg. Flow Depth=0.46' Max Vel=1.87 fps Inflow=3.75 cfs 5.717 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=3.75 cfs 5.706 af

Reach R2-2: R2-2 Avg. Flow Depth=0.73' Max Vel=3.97 fps Inflow=9.99 cfs 1.084 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=9.97 cfs 1.084 af

Reach R2-3: R2-3 Avg. Flow Depth=0.71' Max Vel=3.14 fps Inflow=7.71 cfs 6.618 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=7.66 cfs 6.610 af

Reach R3-1: R3-1 Avg. Flow Depth=0.31' Max Vel=2.71 fps Inflow=2.40 cfs 0.399 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=2.18 cfs 0.399 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.25' Max Vel=4.30 fps Inflow=2.73 cfs 0.554 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=2.73 cfs 0.554 af

Reach R4-2: R4-2 Avg. Flow Depth=0.35' Max Vel=5.50 fps Inflow=5.27 cfs 0.909 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=5.27 cfs 0.909 af

Reach R5-1: R5-1 Avg. Flow Depth=0.48' Max Vel=3.26 fps Inflow=7.06 cfs 1.118 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=6.99 cfs 1.118 af

Reach R5-2: R5-2 Avg. Flow Depth=1.19' Max Vel=3.22 fps Inflow=27.76 cfs 3.236 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=25.21 cfs 3.236 af

Reach R6-1: R6-1 Avg. Flow Depth=0.06' Max Vel=1.02 fps Inflow=0.13 cfs 0.018 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.12 cfs 0.018 af

Pond 1-P: Peak Elev=38.46' Storage=1.577 af Inflow=14.39 cfs 2.052 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=0.57 cfs 0.896 af

Pond 2-P: Peak Elev=36.65' Storage=3.391 af Inflow=26.12 cfs 6.722 af
Outflow=3.75 cfs 5.717 af

Pond 3-P: Peak Elev=86.24' Storage=0.345 af Inflow=5.87 cfs 0.345 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=79.53' Inflow=18.87 cfs 3.059 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=18.87 cfs 3.059 af

Pond CB-1-3: L1-3 Peak Elev=39.99' Inflow=34.31 cfs 6.675 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=34.31 cfs 6.675 af

Pond CB-1-4: L1-4 Peak Elev=40.41' Inflow=22.05 cfs 2.488 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=22.05 cfs 2.488 af

Pond CB-2-3: L2-2 Peak Elev=31.05' Inflow=7.71 cfs 6.618 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=7.71 cfs 6.618 af

Pond CB-2-4: L2-3 Peak Elev=32.02' Inflow=9.99 cfs 1.084 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=9.99 cfs 1.084 af

Pond CB-3-1: L3-1 Peak Elev=87.28' Inflow=2.40 cfs 0.399 af
Outflow=2.40 cfs 0.399 af

Pond CB-3-2: L3-2 Peak Elev=55.08' Inflow=6.14 cfs 1.073 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=6.14 cfs 1.073 af

Pond CB-4-1: L4-1 Peak Elev=54.69' Inflow=2.73 cfs 0.554 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=2.73 cfs 0.554 af

Pond CB-4-2: L4-2 Peak Elev=54.99' Inflow=5.27 cfs 0.909 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=5.27 cfs 0.909 af

Pond CB-5-1: L5-1 Peak Elev=57.00' Inflow=7.06 cfs 1.118 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=7.06 cfs 1.118 af

Pond CB-5-2: L5-2 Peak Elev=42.39' Inflow=27.76 cfs 3.236 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=27.76 cfs 3.236 af

Pond CB-6-1: L6-1 Peak Elev=49.41' Inflow=0.13 cfs 0.018 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.13 cfs 0.018 af

Link L1-5: L1-5 Inflow=34.06 cfs 6.671 af
Primary=34.06 cfs 6.671 af

Link L1-6: L1-6 Inflow=55.61 cfs 9.159 af
Primary=55.61 cfs 9.159 af

Link L2-1: L2-1 Inflow=3.75 cfs 5.717 af
Primary=3.75 cfs 5.717 af

Link L2-4: L2-4 Inflow=7.66 cfs 6.610 af
Primary=7.66 cfs 6.610 af

Link L2-5: L2-5 Inflow=9.97 cfs 1.084 af
Primary=9.97 cfs 1.084 af

Link L2-6: L2-6 Inflow=16.60 cfs 7.694 af
Primary=16.60 cfs 7.694 af

Link L4-3: L4-3 Inflow=2.73 cfs 0.554 af
Primary=2.73 cfs 0.554 af

Link L4-4: L4-4 Inflow=5.27 cfs 0.909 af
Primary=5.27 cfs 0.909 af

Link L4-5: L4-5 Inflow=7.97 cfs 1.462 af
Primary=7.97 cfs 1.462 af

Link L5-3: L5-3 Inflow=25.21 cfs 3.236 af
Primary=25.21 cfs 3.236 af

Link L6-2: L6-2 Inflow=0.12 cfs 0.018 af
Primary=0.12 cfs 0.018 af

Total Runoff Area = 323.908 ac Runoff Volume = 25.169 af Average Runoff Depth = 0.93"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=5.00-36.00 hrs, dt=0.02 hrs, 1551 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth>1.37"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=28.60 cfs 4.676 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth>1.61"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=20.75 cfs 3.023 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth>2.21"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=33.03 cfs 3.718 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth>2.21"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=28.92 cfs 3.409 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth>1.26"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=28.32 cfs 7.141 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=0.76"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=12.24 cfs 3.313 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth>2.06"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=9.26 cfs 1.278 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth>2.10"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=13.33 cfs 1.508 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth>0.89"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=3.74 cfs 0.629 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>2.94"
Tc=0.0 min CN=98 Runoff=7.12 cfs 0.438 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth>0.51"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=7.99 cfs 1.099 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=0.67"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=4.27 cfs 0.874 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth>1.58"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=7.38 cfs 1.318 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth>1.84"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=9.63 cfs 1.586 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth>2.56"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=32.21 cfs 2.805 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth>2.64"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.16 cfs 0.023 af

Reach R1-1: R1-1 Avg. Flow Depth=1.17' Max Vel=3.72 fps Inflow=28.60 cfs 4.676 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=28.18 cfs 4.676 af

Reach R1-2: R1-2 Avg. Flow Depth=0.13' Max Vel=2.18 fps Inflow=0.96 cfs 1.527 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=0.96 cfs 1.527 af

Reach R1-3: R-1-3 Avg. Flow Depth=1.85' Max Vel=1.94 fps Inflow=48.47 cfs 9.921 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=48.23 cfs 9.915 af

Reach R1-4: R1-4 Avg. Flow Depth=0.99' Max Vel=4.89 fps Inflow=28.92 cfs 3.409 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=28.81 cfs 3.409 af

Reach R1-5: R1-5 Inflow=48.23 cfs 9.915 af
Outflow=48.23 cfs 9.915 af

Reach R2-1: R2-1 Avg. Flow Depth=0.57' Max Vel=2.11 fps Inflow=5.68 cfs 8.735 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=5.68 cfs 8.721 af

Reach R2-2: R2-2 Avg. Flow Depth=0.84' Max Vel=4.29 fps Inflow=13.33 cfs 1.508 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=13.31 cfs 1.508 af

Reach R2-3: R2-3 Avg. Flow Depth=0.83' Max Vel=3.40 fps Inflow=10.34 cfs 9.999 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=10.28 cfs 9.990 af

Reach R3-1: R3-1 Avg. Flow Depth=0.40' Max Vel=3.12 fps Inflow=3.74 cfs 0.629 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=3.48 cfs 0.629 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.33' Max Vel=4.94 fps Inflow=4.27 cfs 0.874 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=4.27 cfs 0.874 af

Reach R4-2: R4-2 Avg. Flow Depth=0.43' Max Vel=6.08 fps Inflow=7.38 cfs 1.318 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=7.38 cfs 1.318 af

Reach R5-1: R5-1 Avg. Flow Depth=0.57' Max Vel=3.56 fps Inflow=9.63 cfs 1.586 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=9.54 cfs 1.586 af

Reach R5-2: R5-2 Avg. Flow Depth=1.34' Max Vel=3.45 fps Inflow=35.42 cfs 4.390 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=32.49 cfs 4.390 af

Reach R6-1: R6-1 Avg. Flow Depth=0.07' Max Vel=1.11 fps Inflow=0.16 cfs 0.023 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.16 cfs 0.023 af

Pond 1-P: Peak Elev=38.64' Storage=2.178 af Inflow=20.75 cfs 3.023 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=0.96 cfs 1.527 af

Pond 2-P: Peak Elev=37.04' Storage=5.400 af Inflow=40.43 cfs 10.454 af
Outflow=5.68 cfs 8.735 af

Pond 3-P: Peak Elev=86.30' Storage=0.438 af Inflow=7.12 cfs 0.438 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=121.15' Inflow=28.60 cfs 4.676 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=28.60 cfs 4.676 af

Pond CB-1-3: L1-3 Peak Elev=41.11' Inflow=48.47 cfs 9.921 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=48.47 cfs 9.921 af

Pond CB-1-4: L1-4 Peak Elev=42.87' Inflow=28.92 cfs 3.409 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=28.92 cfs 3.409 af

Pond CB-2-3: L2-2 Peak Elev=31.23' Inflow=10.34 cfs 9.999 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=10.34 cfs 9.999 af

Pond CB-2-4: L2-3 Peak Elev=32.52' Inflow=13.33 cfs 1.508 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=13.33 cfs 1.508 af

Pond CB-3-1: L3-1 Peak Elev=87.48' Inflow=3.74 cfs 0.629 af
Outflow=3.74 cfs 0.629 af

Pond CB-3-2: L3-2 Peak Elev=55.44' Inflow=9.84 cfs 1.728 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=9.84 cfs 1.728 af

Pond CB-4-1: L4-1 Peak Elev=54.88' Inflow=4.27 cfs 0.874 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=4.27 cfs 0.874 af

Pond CB-4-2: L4-2 Peak Elev=55.20' Inflow=7.38 cfs 1.318 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=7.38 cfs 1.318 af

Pond CB-5-1: L5-1 Peak Elev=57.19' Inflow=9.63 cfs 1.586 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=9.63 cfs 1.586 af

Pond CB-5-2: L5-2 Peak Elev=43.07' Inflow=35.42 cfs 4.390 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=35.42 cfs 4.390 af

Pond CB-6-1: L6-1 Peak Elev=49.42' Inflow=0.16 cfs 0.023 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.16 cfs 0.023 af

Link L1-5: L1-5 Inflow=48.23 cfs 9.915 af
Primary=48.23 cfs 9.915 af

Link L1-6: L1-6 Inflow=76.29 cfs 13.325 af
Primary=76.29 cfs 13.325 af

Link L2-1: L2-1 Inflow=5.68 cfs 8.735 af
Primary=5.68 cfs 8.735 af

Link L2-4: L2-4 Inflow=10.28 cfs 9.990 af
Primary=10.28 cfs 9.990 af

Link L2-5: L2-5 Inflow=13.31 cfs 1.508 af
Primary=13.31 cfs 1.508 af

Link L2-6: L2-6 Inflow=22.23 cfs 11.498 af
Primary=22.23 cfs 11.498 af

Link L4-3: L4-3 Inflow=4.27 cfs 0.874 af
Primary=4.27 cfs 0.874 af

Link L4-4: L4-4 Inflow=7.38 cfs 1.318 af
Primary=7.38 cfs 1.318 af

Link L4-5: L4-5 Inflow=11.60 cfs 2.192 af
Primary=11.60 cfs 2.192 af

Link L5-3: L5-3 Inflow=32.49 cfs 4.390 af
Primary=32.49 cfs 4.390 af

Link L6-2: L6-2 Inflow=0.16 cfs 0.023 af
Primary=0.16 cfs 0.023 af

Total Runoff Area = 323.908 ac Runoff Volume = 36.838 af Average Runoff Depth = 1.36"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=5.00-36.00 hrs, dt=0.02 hrs, 1551 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth>2.22"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=45.59 cfs 7.566 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth>2.52"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=31.64 cfs 4.721 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth>3.19"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=45.92 cfs 5.380 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth>3.21"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=40.26 cfs 4.944 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth>2.04"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=44.92 cfs 11.511 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth>1.32"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=22.37 cfs 5.793 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth>3.05"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=13.21 cfs 1.897 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth>3.10"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=18.85 cfs 2.222 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth>1.50"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=6.21 cfs 1.061 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>3.94"
Tc=0.0 min CN=98 Runoff=9.15 cfs 0.588 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth>0.90"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=14.21 cfs 1.939 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth>1.13"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=7.37 cfs 1.480 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth>2.44"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=11.16 cfs 2.037 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth>2.76"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=14.04 cfs 2.388 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth>3.58"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=43.04 cfs 3.925 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth>3.67"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.22 cfs 0.032 af

Reach R1-1: R1-1 Avg. Flow Depth=1.46' Max Vel=4.21 fps Inflow=45.59 cfs 7.566 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=45.09 cfs 7.566 af

Reach R1-2: R1-2 Avg. Flow Depth=0.18' Max Vel=2.65 fps Inflow=1.71 cfs 2.736 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=1.71 cfs 2.736 af

Reach R1-3: R-1-3 Avg. Flow Depth=2.27' Max Vel=2.15 fps Inflow=73.07 cfs 15.681 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=72.81 cfs 15.674 af

Reach R1-4: R1-4 Avg. Flow Depth=1.16' Max Vel=5.33 fps Inflow=40.26 cfs 4.944 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=40.12 cfs 4.944 af

Reach R1-5: R1-5 Inflow=72.81 cfs 15.674 af
Outflow=72.81 cfs 15.674 af

Reach R2-1: R2-1 Avg. Flow Depth=0.69' Max Vel=2.35 fps Inflow=8.25 cfs 13.808 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=8.25 cfs 13.786 af

Reach R2-2: R2-2 Avg. Flow Depth=1.00' Max Vel=4.70 fps Inflow=18.85 cfs 2.222 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=18.81 cfs 2.222 af

Reach R2-3: R2-3 Avg. Flow Depth=1.00' Max Vel=3.76 fps Inflow=14.99 cfs 15.683 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=14.92 cfs 15.668 af

Reach R3-1: R3-1 Avg. Flow Depth=0.53' Max Vel=3.64 fps Inflow=6.21 cfs 1.061 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=5.87 cfs 1.061 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.44' Max Vel=5.82 fps Inflow=7.37 cfs 1.480 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=7.37 cfs 1.480 af

Reach R4-2: R4-2 Avg. Flow Depth=0.53' Max Vel=6.85 fps Inflow=11.16 cfs 2.037 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=11.16 cfs 2.037 af

Reach R5-1: R5-1 Avg. Flow Depth=0.69' Max Vel=3.97 fps Inflow=14.04 cfs 2.388 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=13.94 cfs 2.388 af

Reach R5-2: R5-2 Avg. Flow Depth=1.55' Max Vel=3.74 fps Inflow=48.03 cfs 6.312 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=44.56 cfs 6.312 af

Reach R6-1: R6-1 Avg. Flow Depth=0.08' Max Vel=1.23 fps Inflow=0.22 cfs 0.032 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.21 cfs 0.032 af

Pond 1-P: Peak Elev=38.94' Storage=3.188 af Inflow=31.64 cfs 4.721 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=1.71 cfs 2.736 af

Pond 2-P: Peak Elev=37.84' Storage=9.584 af Inflow=67.15 cfs 17.303 af
Outflow=8.25 cfs 13.808 af

Pond 3-P: Peak Elev=86.40' Storage=0.588 af Inflow=9.15 cfs 0.588 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=234.94' Inflow=45.59 cfs 7.566 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=45.59 cfs 7.566 af

Pond CB-1-3: L1-3 Peak Elev=42.77' Inflow=73.07 cfs 15.681 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=73.07 cfs 15.681 af

Pond CB-1-4: L1-4 Peak Elev=49.72' Inflow=40.26 cfs 4.944 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=40.26 cfs 4.944 af

Pond CB-2-3: L2-2 Peak Elev=31.51' Inflow=14.99 cfs 15.683 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=14.99 cfs 15.683 af

Pond CB-2-4: L2-3 Peak Elev=33.28' Inflow=18.85 cfs 2.222 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=18.85 cfs 2.222 af

Pond CB-3-1: L3-1 Peak Elev=87.86' Inflow=6.21 cfs 1.061 af
Outflow=6.21 cfs 1.061 af

Pond CB-3-2: L3-2 Peak Elev=56.35' Inflow=17.59 cfs 3.000 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=17.59 cfs 3.000 af

Pond CB-4-1: L4-1 Peak Elev=55.20' Inflow=7.37 cfs 1.480 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=7.37 cfs 1.480 af

Pond CB-4-2: L4-2 Peak Elev=55.56' Inflow=11.16 cfs 2.037 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=11.16 cfs 2.037 af

Pond CB-5-1: L5-1 Peak Elev=57.46' Inflow=14.04 cfs 2.388 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=14.04 cfs 2.388 af

Pond CB-5-2: L5-2 Peak Elev=44.52' Inflow=48.03 cfs 6.312 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=48.03 cfs 6.312 af

Pond CB-6-1: L6-1 Peak Elev=49.45' Inflow=0.22 cfs 0.032 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.22 cfs 0.032 af

Link L1-5: L1-5 Inflow=72.81 cfs 15.674 af
Primary=72.81 cfs 15.674 af

Link L1-6: L1-6 Inflow=111.40 cfs 20.618 af
Primary=111.40 cfs 20.618 af

Link L2-1: L2-1 Inflow=8.25 cfs 13.808 af
Primary=8.25 cfs 13.808 af

Link L2-4: L2-4 Inflow=14.92 cfs 15.668 af
Primary=14.92 cfs 15.668 af

Link L2-5: L2-5 Inflow=18.81 cfs 2.222 af
Primary=18.81 cfs 2.222 af

Link L2-6: L2-6 Inflow=31.84 cfs 17.890 af
Primary=31.84 cfs 17.890 af

Link L4-3: L4-3 Inflow=7.37 cfs 1.480 af
Primary=7.37 cfs 1.480 af

Link L4-4: L4-4 Inflow=11.16 cfs 2.037 af
Primary=11.16 cfs 2.037 af

Link L4-5: L4-5 Inflow=18.47 cfs 3.517 af
Primary=18.47 cfs 3.517 af

Link L5-3: L5-3 Inflow=44.56 cfs 6.312 af
Primary=44.56 cfs 6.312 af

Link L6-2: L6-2 Inflow=0.21 cfs 0.032 af
Primary=0.21 cfs 0.032 af

Total Runoff Area = 323.908 ac Runoff Volume = 57.483 af Average Runoff Depth = 2.13"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=5.00-36.00 hrs, dt=0.02 hrs, 1551 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth>2.97"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=59.93 cfs 10.120 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth>3.31"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=40.72 cfs 6.200 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth>4.02"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=56.41 cfs 6.777 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth>4.05"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=49.46 cfs 6.233 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth>2.72"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=58.98 cfs 15.387 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth>1.85"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=31.62 cfs 8.122 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth>3.89"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=16.40 cfs 2.419 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth>3.94"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=23.32 cfs 2.822 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth>2.07"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=8.38 cfs 1.461 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>4.77"
Tc=0.0 min CN=98 Runoff=10.82 cfs 0.711 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth>1.29"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=20.07 cfs 2.758 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth>1.57"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=10.15 cfs 2.047 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth>3.19"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=14.34 cfs 2.665 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth>3.56"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=17.67 cfs 3.075 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth>4.42"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=51.79 cfs 4.851 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth>4.52"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.26 cfs 0.040 af

Reach R1-1: R1-1 Avg. Flow Depth=1.65' Max Vel=4.52 fps Inflow=59.93 cfs 10.120 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=59.37 cfs 10.120 af

Reach R1-2: R1-2 Avg. Flow Depth=0.21' Max Vel=2.92 fps Inflow=2.28 cfs 3.784 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=2.28 cfs 3.784 af

Reach R1-3: R-1-3 Avg. Flow Depth=2.61' Max Vel=2.26 fps Inflow=93.81 cfs 20.681 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=93.49 cfs 20.672 af

Reach R1-4: R1-4 Avg. Flow Depth=1.28' Max Vel=5.63 fps Inflow=49.46 cfs 6.233 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=49.30 cfs 6.233 af

Reach R1-5: R1-5 Inflow=93.49 cfs 20.672 af
Outflow=93.49 cfs 20.672 af

Reach R2-1: R2-1 Avg. Flow Depth=1.17' Max Vel=3.13 fps Inflow=24.03 cfs 19.259 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=24.02 cfs 19.234 af

Reach R2-2: R2-2 Avg. Flow Depth=1.11' Max Vel=4.97 fps Inflow=23.32 cfs 2.822 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=23.28 cfs 2.822 af

Reach R2-3: R2-3 Avg. Flow Depth=1.29' Max Vel=4.33 fps Inflow=25.63 cfs 21.653 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=25.63 cfs 21.637 af

Reach R3-1: R3-1 Avg. Flow Depth=0.62' Max Vel=3.96 fps Inflow=8.38 cfs 1.461 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=7.98 cfs 1.461 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.52' Max Vel=6.38 fps Inflow=10.15 cfs 2.047 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=10.15 cfs 2.047 af

Reach R4-2: R4-2 Avg. Flow Depth=0.61' Max Vel=7.35 fps Inflow=14.34 cfs 2.665 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=14.34 cfs 2.665 af

Reach R5-1: R5-1 Avg. Flow Depth=0.78' Max Vel=4.23 fps Inflow=17.67 cfs 3.075 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=17.57 cfs 3.075 af

Reach R5-2: R5-2 Avg. Flow Depth=1.70' Max Vel=3.94 fps Inflow=58.29 cfs 7.926 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=54.42 cfs 7.926 af

Reach R6-1: R6-1 Avg. Flow Depth=0.09' Max Vel=1.32 fps Inflow=0.26 cfs 0.040 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.25 cfs 0.040 af

Pond 1-P: Peak Elev=39.21' Storage=4.113 af Inflow=40.72 cfs 6.200 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=2.28 cfs 3.784 af

Pond 2-P: Peak Elev=38.11' Storage=11.246 af Inflow=90.38 cfs 23.509 af
Outflow=24.03 cfs 19.259 af

Pond 3-P: Peak Elev=86.49' Storage=0.711 af Inflow=10.82 cfs 0.711 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=371.42' Inflow=59.93 cfs 10.120 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=59.93 cfs 10.120 af

Pond CB-1-3: L1-3 Peak Elev=44.69' Inflow=93.81 cfs 20.681 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=93.81 cfs 20.681 af

Pond CB-1-4: L1-4 Peak Elev=57.21' Inflow=49.46 cfs 6.233 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=49.46 cfs 6.233 af

Pond CB-2-3: L2-2 Peak Elev=32.08' Inflow=25.63 cfs 21.653 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=25.63 cfs 21.653 af

Pond CB-2-4: L2-3 Peak Elev=33.96' Inflow=23.32 cfs 2.822 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=23.32 cfs 2.822 af

Pond CB-3-1: L3-1 Peak Elev=88.29' Inflow=8.38 cfs 1.461 af
Outflow=8.38 cfs 1.461 af

Pond CB-3-2: L3-2 Peak Elev=57.68' Inflow=24.79 cfs 4.219 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=24.79 cfs 4.219 af

Pond CB-4-1: L4-1 Peak Elev=55.46' Inflow=10.15 cfs 2.047 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=10.15 cfs 2.047 af

Pond CB-4-2: L4-2 Peak Elev=55.88' Inflow=14.34 cfs 2.665 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=14.34 cfs 2.665 af

Pond CB-5-1: L5-1 Peak Elev=57.66' Inflow=17.67 cfs 3.075 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=17.67 cfs 3.075 af

Pond CB-5-2: L5-2 Peak Elev=46.03' Inflow=58.29 cfs 7.926 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=58.29 cfs 7.926 af

Pond CB-6-1: L6-1 Peak Elev=49.47' Inflow=0.26 cfs 0.040 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.26 cfs 0.040 af

Link L1-5: L1-5 Inflow=93.49 cfs 20.672 af
Primary=93.49 cfs 20.672 af

Link L1-6: L1-6 Inflow=140.50 cfs 26.905 af
Primary=140.50 cfs 26.905 af

Link L2-1: L2-1 Inflow=24.03 cfs 19.259 af
Primary=24.03 cfs 19.259 af

Link L2-4: L2-4 Inflow=25.63 cfs 21.637 af
Primary=25.63 cfs 21.637 af

Link L2-5: L2-5 Inflow=23.28 cfs 2.822 af
Primary=23.28 cfs 2.822 af

Link L2-6: L2-6 Inflow=39.97 cfs 24.459 af
Primary=39.97 cfs 24.459 af

Link L4-3: L4-3 Inflow=10.15 cfs 2.047 af
Primary=10.15 cfs 2.047 af

Link L4-4: L4-4 Inflow=14.34 cfs 2.665 af
Primary=14.34 cfs 2.665 af

Link L4-5: L4-5 Inflow=24.43 cfs 4.712 af
Primary=24.43 cfs 4.712 af

Link L5-3: L5-3 Inflow=54.42 cfs 7.926 af
Primary=54.42 cfs 7.926 af

Link L6-2: L6-2 Inflow=0.25 cfs 0.040 af
Primary=0.25 cfs 0.040 af

Total Runoff Area = 323.908 ac Runoff Volume = 75.690 af Average Runoff Depth = 2.80"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=5.00-36.00 hrs, dt=0.02 hrs, 1551 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth>4.05"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=79.98 cfs 13.817 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth>4.43"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=53.33 cfs 8.315 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth>5.18"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=70.77 cfs 8.728 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth>5.21"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=62.01 cfs 8.030 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth>3.72"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=78.71 cfs 21.046 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth>2.67"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=45.20 cfs 11.692 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth>5.07"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=20.75 cfs 3.148 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth>5.10"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=29.42 cfs 3.660 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth>2.93"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=11.56 cfs 2.066 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>5.91"
Tc=0.0 min CN=98 Runoff=13.11 cfs 0.882 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth>1.90"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=28.92 cfs 4.079 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth>2.24"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=14.22 cfs 2.935 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth>4.27"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=18.79 cfs 3.564 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth>4.68"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=22.69 cfs 4.047 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth>5.59"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=63.73 cfs 6.130 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth>5.69"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.32 cfs 0.050 af

Reach R1-1: R1-1 Avg. Flow Depth=1.88' Max Vel=4.86 fps Inflow=79.98 cfs 13.817 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=79.33 cfs 13.817 af

Reach R1-2: R1-2 Avg. Flow Depth=0.26' Max Vel=3.27 fps Inflow=3.24 cfs 5.298 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=3.24 cfs 5.297 af

Reach R1-3: R-1-3 Avg. Flow Depth=3.09' Max Vel=2.36 fps Inflow=122.86 cfs 27.843 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=122.48 cfs 27.831 af

Reach R1-4: R1-4 Avg. Flow Depth=1.42' Max Vel=5.97 fps Inflow=62.01 cfs 8.030 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=61.83 cfs 8.030 af

Reach R1-5: R1-5 Inflow=122.48 cfs 27.831 af
Outflow=122.48 cfs 27.831 af

Reach R2-1: R2-1 Avg. Flow Depth=1.88' Max Vel=4.08 fps Inflow=66.11 cfs 28.294 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=66.04 cfs 28.269 af

Reach R2-2: R2-2 Avg. Flow Depth=1.24' Max Vel=5.29 fps Inflow=29.42 cfs 3.660 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=29.37 cfs 3.660 af

Reach R2-3: R2-3 Avg. Flow Depth=2.04' Max Vel=5.57 fps Inflow=69.04 cfs 31.416 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=69.01 cfs 31.400 af

Reach R3-1: R3-1 Avg. Flow Depth=0.74' Max Vel=4.34 fps Inflow=11.56 cfs 2.066 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=11.09 cfs 2.066 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.62' Max Vel=7.02 fps Inflow=14.22 cfs 2.935 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=14.23 cfs 2.935 af

Reach R4-2: R4-2 Avg. Flow Depth=0.70' Max Vel=7.92 fps Inflow=18.79 cfs 3.564 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=18.79 cfs 3.564 af

Reach R5-1: R5-1 Avg. Flow Depth=0.88' Max Vel=4.53 fps Inflow=22.69 cfs 4.047 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=22.57 cfs 4.047 af

Reach R5-2: R5-2 Avg. Flow Depth=1.88' Max Vel=4.17 fps Inflow=72.34 cfs 10.177 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=68.05 cfs 10.177 af

Reach R6-1: R6-1 Avg. Flow Depth=0.10' Max Vel=1.42 fps Inflow=0.32 cfs 0.050 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.31 cfs 0.050 af

Pond 1-P: Peak Elev=39.59' Storage=5.412 af Inflow=53.33 cfs 8.315 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=3.24 cfs 5.298 af

Pond 2-P: Peak Elev=38.27' Storage=12.399 af Inflow=123.65 cfs 32.738 af
Outflow=66.11 cfs 28.294 af

Pond 3-P: Peak Elev=86.61' Storage=0.882 af Inflow=13.11 cfs 0.882 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=624.27' Inflow=79.98 cfs 13.817 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=79.98 cfs 13.817 af

Pond CB-1-3: L1-3 Peak Elev=48.26' Inflow=122.86 cfs 27.843 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=122.86 cfs 27.843 af

Pond CB-1-4: L1-4 Peak Elev=69.92' Inflow=62.01 cfs 8.030 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=62.01 cfs 8.030 af

Pond CB-2-3: L2-2 Peak Elev=35.61' Inflow=69.04 cfs 31.416 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=69.04 cfs 31.416 af

Pond CB-2-4: L2-3 Peak Elev=35.13' Inflow=29.42 cfs 3.660 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=29.42 cfs 3.660 af

Pond CB-3-1: L3-1 Peak Elev=89.17' Inflow=11.56 cfs 2.066 af
Outflow=11.56 cfs 2.066 af

Pond CB-3-2: L3-2 Peak Elev=60.56' Inflow=35.65 cfs 6.145 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=35.65 cfs 6.145 af

Pond CB-4-1: L4-1 Peak Elev=55.87' Inflow=14.22 cfs 2.935 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=14.22 cfs 2.935 af

Pond CB-4-2: L4-2 Peak Elev=56.54' Inflow=18.79 cfs 3.564 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=18.79 cfs 3.564 af

Pond CB-5-1: L5-1 Peak Elev=57.93' Inflow=22.69 cfs 4.047 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=22.69 cfs 4.047 af

Pond CB-5-2: L5-2 Peak Elev=48.57' Inflow=72.34 cfs 10.177 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=72.34 cfs 10.177 af

Pond CB-6-1: L6-1 Peak Elev=49.50' Inflow=0.32 cfs 0.050 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.32 cfs 0.050 af

Link L1-5: L1-5 Inflow=122.48 cfs 27.831 af
Primary=122.48 cfs 27.831 af

Link L1-6: L1-6 Inflow=180.92 cfs 35.862 af
Primary=180.92 cfs 35.862 af

Link L2-1: L2-1 Inflow=66.11 cfs 28.294 af
Primary=66.11 cfs 28.294 af

Link L2-4: L2-4 Inflow=69.01 cfs 31.400 af
Primary=69.01 cfs 31.400 af

Link L2-5: L2-5 Inflow=29.37 cfs 3.660 af
Primary=29.37 cfs 3.660 af

Link L2-6: L2-6 Inflow=72.26 cfs 35.060 af
Primary=72.26 cfs 35.060 af

Link L4-3: L4-3 Inflow=14.23 cfs 2.935 af
Primary=14.23 cfs 2.935 af

Link L4-4: L4-4 Inflow=18.79 cfs 3.564 af
Primary=18.79 cfs 3.564 af

Link L4-5: L4-5 Inflow=32.94 cfs 6.499 af
Primary=32.94 cfs 6.499 af

Link L5-3: L5-3 Inflow=68.05 cfs 10.177 af
Primary=68.05 cfs 10.177 af

Link L6-2: L6-2 Inflow=0.31 cfs 0.050 af
Primary=0.31 cfs 0.050 af

Total Runoff Area = 323.908 ac Runoff Volume = 102.189 af Average Runoff Depth = 3.79"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=5.00-36.00 hrs, dt=0.02 hrs, 1551 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth>4.87"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=95.05 cfs 16.594 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth>5.27"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=62.77 cfs 9.890 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth>6.03"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=81.51 cfs 10.161 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth>6.07"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=71.38 cfs 9.347 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth>4.48"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=93.61 cfs 25.334 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth>3.31"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=55.76 cfs 14.494 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth>5.93"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=23.99 cfs 3.683 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth>5.96"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=33.96 cfs 4.275 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth>3.60"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=14.07 cfs 2.535 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>6.74"
Tc=0.0 min CN=98 Runoff=14.83 cfs 1.006 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth>2.41"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=36.12 cfs 5.155 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth>2.79"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=17.39 cfs 3.645 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth>5.08"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=22.15 cfs 4.236 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth>5.52"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=26.46 cfs 4.766 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth>6.44"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=72.65 cfs 7.063 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth>6.55"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.36 cfs 0.057 af

Reach R1-1: R1-1 Avg. Flow Depth=2.04' Max Vel=5.08 fps Inflow=95.05 cfs 16.594 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=94.33 cfs 16.594 af

Reach R1-2: R1-2 Avg. Flow Depth=0.28' Max Vel=3.39 fps Inflow=3.65 cfs 6.293 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=3.65 cfs 6.292 af

Reach R1-3: R-1-3 Avg. Flow Depth=3.46' Max Vel=2.41 fps Inflow=144.78 cfs 33.048 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=144.34 cfs 33.034 af

Reach R1-4: R1-4 Avg. Flow Depth=1.52' Max Vel=6.20 fps Inflow=71.38 cfs 9.347 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=71.18 cfs 9.347 af

Reach R1-5: R1-5 Inflow=144.34 cfs 33.034 af
Outflow=144.34 cfs 33.034 af

Reach R2-1: R2-1 Avg. Flow Depth=2.32' Max Vel=4.53 fps Inflow=103.38 cfs 35.316 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=103.25 cfs 35.290 af

Reach R2-2: R2-2 Avg. Flow Depth=1.33' Max Vel=5.49 fps Inflow=33.96 cfs 4.275 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=33.91 cfs 4.275 af

Reach R2-3: R2-3 Avg. Flow Depth=2.56' Max Vel=6.11 fps Inflow=107.33 cfs 38.972 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=107.27 cfs 38.956 af

Reach R3-1: R3-1 Avg. Flow Depth=0.81' Max Vel=4.58 fps Inflow=14.07 cfs 2.535 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=13.55 cfs 2.535 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.69' Max Vel=7.42 fps Inflow=17.39 cfs 3.645 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=17.38 cfs 3.645 af

Reach R4-2: R4-2 Avg. Flow Depth=0.76' Max Vel=8.29 fps Inflow=22.15 cfs 4.236 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=22.15 cfs 4.236 af

Reach R5-1: R5-1 Avg. Flow Depth=0.95' Max Vel=4.72 fps Inflow=26.46 cfs 4.766 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=26.33 cfs 4.766 af

Reach R5-2: R5-2 Avg. Flow Depth=2.01' Max Vel=4.32 fps Inflow=82.84 cfs 11.829 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=78.22 cfs 11.829 af

Reach R6-1: R6-1 Avg. Flow Depth=0.11' Max Vel=1.49 fps Inflow=0.36 cfs 0.057 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.36 cfs 0.057 af

Pond 1-P: Peak Elev=39.91' Storage=6.493 af Inflow=62.77 cfs 9.890 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=3.65 cfs 6.293 af

Pond 2-P: Peak Elev=38.38' Storage=13.173 af Inflow=149.09 cfs 39.827 af
Outflow=103.38 cfs 35.316 af

Pond 3-P: Peak Elev=86.69' Storage=1.006 af Inflow=14.83 cfs 1.006 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=861.96' Inflow=95.05 cfs 16.594 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=95.05 cfs 16.594 af

Pond CB-1-3: L1-3 Peak Elev=51.88' Inflow=144.78 cfs 33.048 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=144.78 cfs 33.048 af

Pond CB-1-4: L1-4 Peak Elev=81.27' Inflow=71.38 cfs 9.347 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=71.38 cfs 9.347 af

Pond CB-2-3: L2-2 Peak Elev=41.44' Inflow=107.33 cfs 38.972 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=107.33 cfs 38.972 af

Pond CB-2-4: L2-3 Peak Elev=36.36' Inflow=33.96 cfs 4.275 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=33.96 cfs 4.275 af

Pond CB-3-1: L3-1 Peak Elev=90.06' Inflow=14.07 cfs 2.535 af
Outflow=14.07 cfs 2.535 af

Pond CB-3-2: L3-2 Peak Elev=63.63' Inflow=44.45 cfs 7.690 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=44.45 cfs 7.690 af

Pond CB-4-1: L4-1 Peak Elev=56.32' Inflow=17.39 cfs 3.645 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=17.39 cfs 3.645 af

Pond CB-4-2: L4-2 Peak Elev=57.14' Inflow=22.15 cfs 4.236 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=22.15 cfs 4.236 af

Pond CB-5-1: L5-1 Peak Elev=58.12' Inflow=26.46 cfs 4.766 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=26.46 cfs 4.766 af

Pond CB-5-2: L5-2 Peak Elev=50.82' Inflow=82.84 cfs 11.829 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=82.84 cfs 11.829 af

Pond CB-6-1: L6-1 Peak Elev=49.51' Inflow=0.36 cfs 0.057 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.36 cfs 0.057 af

Link L1-5: L1-5 Inflow=144.34 cfs 33.034 af
Primary=144.34 cfs 33.034 af

Link L1-6: L1-6 Inflow=211.31 cfs 42.382 af
Primary=211.31 cfs 42.382 af

Link L2-1: L2-1 Inflow=103.38 cfs 35.316 af
Primary=103.38 cfs 35.316 af

Link L2-4: L2-4 Inflow=107.27 cfs 38.956 af
Primary=107.27 cfs 38.956 af

Link L2-5: L2-5 Inflow=33.91 cfs 4.275 af
Primary=33.91 cfs 4.275 af

Link L2-6: L2-6 Inflow=111.56 cfs 43.231 af
Primary=111.56 cfs 43.231 af

Link L4-3: L4-3 Inflow=17.38 cfs 3.645 af
Primary=17.38 cfs 3.645 af

Link L4-4: L4-4 Inflow=22.15 cfs 4.236 af
Primary=22.15 cfs 4.236 af

Link L4-5: L4-5 Inflow=39.45 cfs 7.881 af
Primary=39.45 cfs 7.881 af

Link L5-3: L5-3 Inflow=78.22 cfs 11.829 af
Primary=78.22 cfs 11.829 af

Link L6-2: L6-2 Inflow=0.36 cfs 0.057 af
Primary=0.36 cfs 0.057 af

Total Runoff Area = 323.908 ac Runoff Volume = 122.242 af Average Runoff Depth = 4.53"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=5.00-36.00 hrs, dt=0.02 hrs, 1551 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth>5.78"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=111.40 cfs 19.719 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth>6.21"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=72.97 cfs 11.653 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth>6.98"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=92.97 cfs 11.751 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth>7.02"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=81.38 cfs 10.807 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth>5.34"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=110.03 cfs 30.197 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth>4.05"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=67.76 cfs 17.750 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth>6.88"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=27.46 cfs 4.276 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth>6.91"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=38.81 cfs 4.956 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth>4.36"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=16.91 cfs 3.075 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>7.67"
Tc=0.0 min CN=98 Runoff=16.65 cfs 1.144 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth>3.00"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=44.42 cfs 6.438 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth>3.43"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=21.01 cfs 4.482 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth>5.98"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=25.82 cfs 4.992 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth>6.45"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=30.53 cfs 5.570 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth>7.38"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=82.11 cfs 8.094 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth>7.49"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.41 cfs 0.066 af

Reach R1-1: R1-1 Avg. Flow Depth=2.20' Max Vel=5.27 fps Inflow=111.40 cfs 19.719 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=110.57 cfs 19.719 af

Reach R1-2: R1-2 Avg. Flow Depth=0.53' Max Vel=4.84 fps Inflow=11.59 cfs 7.803 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=11.86 cfs 7.803 af

Reach R1-3: R-1-3 Avg. Flow Depth=3.85' Max Vel=2.45 fps Inflow=168.55 cfs 39.273 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=168.02 cfs 39.259 af

Reach R1-4: R1-4 Avg. Flow Depth=1.61' Max Vel=6.41 fps Inflow=81.38 cfs 10.807 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=81.16 cfs 10.807 af

Reach R1-5: R1-5 Inflow=168.02 cfs 39.259 af
Outflow=168.02 cfs 39.259 af

Reach R2-1: R2-1 Avg. Flow Depth=2.81' Max Vel=4.80 fps Inflow=144.50 cfs 43.378 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=144.32 cfs 43.353 af

Reach R2-2: R2-2 Avg. Flow Depth=1.41' Max Vel=5.68 fps Inflow=38.81 cfs 4.956 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=38.75 cfs 4.956 af

Reach R2-3: R2-3 Avg. Flow Depth=3.14' Max Vel=6.42 fps Inflow=149.66 cfs 47.629 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=149.58 cfs 47.612 af

Reach R3-1: R3-1 Avg. Flow Depth=0.89' Max Vel=4.82 fps Inflow=16.91 cfs 3.075 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=16.34 cfs 3.075 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.76' Max Vel=7.81 fps Inflow=21.01 cfs 4.482 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=21.00 cfs 4.482 af

Reach R4-2: R4-2 Avg. Flow Depth=0.82' Max Vel=8.64 fps Inflow=25.82 cfs 4.992 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=25.81 cfs 4.992 af

Reach R5-1: R5-1 Avg. Flow Depth=1.02' Max Vel=4.90 fps Inflow=30.53 cfs 5.570 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=30.40 cfs 5.570 af

Reach R5-2: R5-2 Avg. Flow Depth=2.13' Max Vel=4.46 fps Inflow=94.05 cfs 13.664 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=89.01 cfs 13.664 af

Reach R6-1: R6-1 Avg. Flow Depth=0.12' Max Vel=1.55 fps Inflow=0.41 cfs 0.066 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.40 cfs 0.066 af

Pond 1-P: Peak Elev=53.49' Storage=6.806 af Inflow=72.97 cfs 11.653 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=11.59 cfs 7.803 af

Pond 2-P: Peak Elev=38.48' Storage=13.919 af Inflow=177.48 cfs 47.946 af
Outflow=144.50 cfs 43.378 af

Pond 3-P: Peak Elev=86.79' Storage=1.144 af Inflow=16.65 cfs 1.144 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=1,165.95' Inflow=111.40 cfs 19.719 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=111.40 cfs 19.719 af

Pond CB-1-3: L1-3 Peak Elev=56.40' Inflow=168.55 cfs 39.273 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=168.55 cfs 39.273 af

Pond CB-1-4: L1-4 Peak Elev=95.14' Inflow=81.38 cfs 10.807 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=81.38 cfs 10.807 af

Pond CB-2-3: L2-2 Peak Elev=50.96' Inflow=149.66 cfs 47.629 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=149.66 cfs 47.629 af

Pond CB-2-4: L2-3 Peak Elev=37.98' Inflow=38.81 cfs 4.956 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=38.81 cfs 4.956 af

Pond CB-3-1: L3-1 Peak Elev=91.28' Inflow=16.91 cfs 3.075 af
Outflow=16.91 cfs 3.075 af

Pond CB-3-2: L3-2 Peak Elev=68.03' Inflow=54.60 cfs 9.513 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=54.60 cfs 9.513 af

Pond CB-4-1: L4-1 Peak Elev=56.93' Inflow=21.01 cfs 4.482 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=21.01 cfs 4.482 af

Pond CB-4-2: L4-2 Peak Elev=57.91' Inflow=25.82 cfs 4.992 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=25.82 cfs 4.992 af

Pond CB-5-1: L5-1 Peak Elev=58.33' Inflow=30.53 cfs 5.570 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=30.53 cfs 5.570 af

Pond CB-5-2: L5-2 Peak Elev=53.56' Inflow=94.05 cfs 13.664 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=94.05 cfs 13.664 af

Pond CB-6-1: L6-1 Peak Elev=49.53' Inflow=0.41 cfs 0.066 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.41 cfs 0.066 af

Link L1-5: L1-5 Inflow=168.02 cfs 39.259 af
Primary=168.02 cfs 39.259 af

Link L1-6: L1-6 Inflow=244.12 cfs 50.066 af
Primary=244.12 cfs 50.066 af

Link L2-1: L2-1 Inflow=144.50 cfs 43.378 af
Primary=144.50 cfs 43.378 af

Link L2-4: L2-4 Inflow=149.58 cfs 47.612 af
Primary=149.58 cfs 47.612 af

Link L2-5: L2-5 Inflow=38.75 cfs 4.956 af
Primary=38.75 cfs 4.956 af

Link L2-6: L2-6 Inflow=154.99 cfs 52.568 af
Primary=154.99 cfs 52.568 af

Link L4-3: L4-3 Inflow=21.00 cfs 4.482 af
Primary=21.00 cfs 4.482 af

Link L4-4: L4-4 Inflow=25.81 cfs 4.992 af
Primary=25.81 cfs 4.992 af

Link L4-5: L4-5 Inflow=46.71 cfs 9.474 af
Primary=46.71 cfs 9.474 af

Link L5-3: L5-3 Inflow=89.01 cfs 13.664 af
Primary=89.01 cfs 13.664 af

Link L6-2: L6-2 Inflow=0.40 cfs 0.066 af
Primary=0.40 cfs 0.066 af

Total Runoff Area = 323.908 ac Runoff Volume = 144.969 af Average Runoff Depth = 5.37"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=5.00-36.00 hrs, dt=0.02 hrs, 1551 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth>1.16"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=22.69 cfs 3.966 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth>1.39"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=16.74 cfs 2.599 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth>1.95"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=27.54 cfs 3.284 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth>1.95"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=24.11 cfs 3.010 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth>1.07"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=22.65 cfs 6.067 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=0.62"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=9.30 cfs 2.738 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth>1.80"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=7.66 cfs 1.119 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth>1.85"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=11.04 cfs 1.324 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth>0.75"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=2.93 cfs 0.527 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>2.66"
Tc=0.0 min CN=98 Runoff=6.09 cfs 0.397 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth>0.42"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=6.21 cfs 0.908 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=0.56"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=3.31 cfs 0.731 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth>1.36"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=6.01 cfs 1.139 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth>1.60"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=7.92 cfs 1.382 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth>2.28"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=27.18 cfs 2.506 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth>2.36"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.14 cfs 0.021 af

Reach R1-1: R1-1 Avg. Flow Depth=1.04' Max Vel=3.50 fps Inflow=22.69 cfs 3.966 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=22.31 cfs 3.966 af

Reach R1-2: R1-2 Avg. Flow Depth=0.12' Max Vel=2.03 fps Inflow=0.79 cfs 1.237 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=0.79 cfs 1.237 af

Reach R1-3: R-1-3 Avg. Flow Depth=1.68' Max Vel=1.84 fps Inflow=39.48 cfs 8.488 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=39.25 cfs 8.483 af

Reach R1-4: R1-4 Avg. Flow Depth=0.90' Max Vel=4.65 fps Inflow=24.11 cfs 3.010 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=24.01 cfs 3.010 af

Reach R1-5: R1-5 Inflow=39.25 cfs 8.483 af
Outflow=39.25 cfs 8.483 af

Reach R2-1: R2-1 Avg. Flow Depth=0.52' Max Vel=2.02 fps Inflow=4.82 cfs 7.391 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=4.82 cfs 7.379 af

Reach R2-2: R2-2 Avg. Flow Depth=0.77' Max Vel=4.08 fps Inflow=11.04 cfs 1.324 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=11.02 cfs 1.324 af

Reach R2-3: R2-3 Avg. Flow Depth=0.76' Max Vel=3.24 fps Inflow=8.64 cfs 8.498 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=8.59 cfs 8.490 af

Reach R3-1: R3-1 Avg. Flow Depth=0.35' Max Vel=2.89 fps Inflow=2.93 cfs 0.527 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=2.70 cfs 0.527 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.28' Max Vel=4.57 fps Inflow=3.31 cfs 0.731 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=3.31 cfs 0.731 af

Reach R4-2: R4-2 Avg. Flow Depth=0.38' Max Vel=5.72 fps Inflow=6.01 cfs 1.139 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=6.01 cfs 1.139 af

Reach R5-1: R5-1 Avg. Flow Depth=0.51' Max Vel=3.37 fps Inflow=7.92 cfs 1.382 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=7.84 cfs 1.382 af

Reach R5-2: R5-2 Avg. Flow Depth=1.23' Max Vel=3.29 fps Inflow=29.85 cfs 3.888 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=27.23 cfs 3.888 af

Reach R6-1: R6-1 Avg. Flow Depth=0.06' Max Vel=1.04 fps Inflow=0.14 cfs 0.021 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.13 cfs 0.021 af

Pond 1-P: Peak Elev=38.57' Storage=1.930 af Inflow=16.74 cfs 2.599 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=0.79 cfs 1.237 af

Pond 2-P: Peak Elev=36.85' Storage=4.420 af Inflow=31.84 cfs 8.805 af
Outflow=4.82 cfs 7.391 af

Pond 3-P: Peak Elev=86.27' Storage=0.397 af Inflow=6.09 cfs 0.397 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=93.83' Inflow=22.69 cfs 3.966 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=22.69 cfs 3.966 af

Pond CB-1-3: L1-3 Peak Elev=40.31' Inflow=39.48 cfs 8.488 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=39.48 cfs 8.488 af

Pond CB-1-4: L1-4 Peak Elev=41.07' Inflow=24.11 cfs 3.010 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=24.11 cfs 3.010 af

Pond CB-2-3: L2-2 Peak Elev=31.12' Inflow=8.64 cfs 8.498 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=8.64 cfs 8.498 af

Pond CB-2-4: L2-3 Peak Elev=32.16' Inflow=11.04 cfs 1.324 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=11.04 cfs 1.324 af

Pond CB-3-1: L3-1 Peak Elev=87.36' Inflow=2.93 cfs 0.527 af
Outflow=2.93 cfs 0.527 af

Pond CB-3-2: L3-2 Peak Elev=55.22' Inflow=7.59 cfs 1.435 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=7.59 cfs 1.435 af

Pond CB-4-1: L4-1 Peak Elev=54.77' Inflow=3.31 cfs 0.731 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=3.31 cfs 0.731 af

Pond CB-4-2: L4-2 Peak Elev=55.07' Inflow=6.01 cfs 1.139 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=6.01 cfs 1.139 af

Pond CB-5-1: L5-1 Peak Elev=57.07' Inflow=7.92 cfs 1.382 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=7.92 cfs 1.382 af

Pond CB-5-2: L5-2 Peak Elev=42.55' Inflow=29.85 cfs 3.888 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=29.85 cfs 3.888 af

Pond CB-6-1: L6-1 Peak Elev=49.41' Inflow=0.14 cfs 0.021 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.14 cfs 0.021 af

Link L1-5: L1-5 Inflow=39.25 cfs 8.483 af
Primary=39.25 cfs 8.483 af

Link L1-6: L1-6 Inflow=62.71 cfs 11.493 af
Primary=62.71 cfs 11.493 af

Link L2-1: L2-1 Inflow=4.82 cfs 7.391 af
Primary=4.82 cfs 7.391 af

Link L2-4: L2-4 Inflow=8.59 cfs 8.490 af
Primary=8.59 cfs 8.490 af

Link L2-5: L2-5 Inflow=11.02 cfs 1.324 af
Primary=11.02 cfs 1.324 af

Link L2-6: L2-6 Inflow=18.48 cfs 9.814 af
Primary=18.48 cfs 9.814 af

Link L4-3: L4-3 Inflow=3.31 cfs 0.731 af
Primary=3.31 cfs 0.731 af

Link L4-4: L4-4 Inflow=6.01 cfs 1.139 af
Primary=6.01 cfs 1.139 af

Link L4-5: L4-5 Inflow=9.28 cfs 1.870 af
Primary=9.28 cfs 1.870 af

Link L5-3: L5-3 Inflow=27.23 cfs 3.888 af
Primary=27.23 cfs 3.888 af

Link L6-2: L6-2 Inflow=0.13 cfs 0.021 af
Primary=0.13 cfs 0.021 af

Total Runoff Area = 323.908 ac Runoff Volume = 31.719 af Average Runoff Depth = 1.18"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=5.00-36.00 hrs, dt=0.02 hrs, 1551 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: DA-1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth>2.97"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=59.93 cfs 10.120 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth>3.31"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=40.72 cfs 6.200 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth>4.02"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=56.41 cfs 6.777 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth>4.05"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=49.46 cfs 6.233 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth>2.72"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=58.98 cfs 15.387 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth>1.85"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=31.62 cfs 8.122 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth>3.89"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=16.40 cfs 2.419 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth>3.94"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=23.32 cfs 2.822 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth>2.07"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=8.38 cfs 1.461 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth>4.77"
Tc=0.0 min CN=98 Runoff=10.82 cfs 0.711 af

Subcatchment 3-2: DA-3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth>1.29"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=20.07 cfs 2.758 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth>1.57"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=10.15 cfs 2.047 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth>3.19"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=14.34 cfs 2.665 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth>3.56"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=17.67 cfs 3.075 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth>4.42"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=51.79 cfs 4.851 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth>4.52"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.26 cfs 0.040 af

Reach R1-1: R1-1 Avg. Flow Depth=1.65' Max Vel=4.52 fps Inflow=59.93 cfs 10.120 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=59.37 cfs 10.120 af

Reach R1-2: R1-2 Avg. Flow Depth=0.21' Max Vel=2.92 fps Inflow=2.28 cfs 3.784 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=2.28 cfs 3.784 af

Reach R1-3: R-1-3 Avg. Flow Depth=2.61' Max Vel=2.26 fps Inflow=93.81 cfs 20.681 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=93.49 cfs 20.672 af

Reach R1-4: R1-4 Avg. Flow Depth=1.28' Max Vel=5.63 fps Inflow=49.46 cfs 6.233 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=49.30 cfs 6.233 af

Reach R1-5: R1-5 Inflow=93.49 cfs 20.672 af
Outflow=93.49 cfs 20.672 af

Reach R2-1: R2-1 Avg. Flow Depth=1.17' Max Vel=3.13 fps Inflow=24.03 cfs 19.259 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=24.02 cfs 19.234 af

Reach R2-2: R2-2 Avg. Flow Depth=1.11' Max Vel=4.97 fps Inflow=23.32 cfs 2.822 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=23.28 cfs 2.822 af

Reach R2-3: R2-3 Avg. Flow Depth=1.29' Max Vel=4.33 fps Inflow=25.63 cfs 21.653 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=25.63 cfs 21.637 af

Reach R3-1: R3-1 Avg. Flow Depth=0.62' Max Vel=3.96 fps Inflow=8.38 cfs 1.461 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=7.98 cfs 1.461 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.52' Max Vel=6.38 fps Inflow=10.15 cfs 2.047 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=10.15 cfs 2.047 af

Reach R4-2: R4-2 Avg. Flow Depth=0.61' Max Vel=7.35 fps Inflow=14.34 cfs 2.665 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=14.34 cfs 2.665 af

Reach R5-1: R5-1 Avg. Flow Depth=0.78' Max Vel=4.23 fps Inflow=17.67 cfs 3.075 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=17.57 cfs 3.075 af

Reach R5-2: R5-2 Avg. Flow Depth=1.70' Max Vel=3.94 fps Inflow=58.29 cfs 7.926 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=54.42 cfs 7.926 af

Reach R6-1: R6-1 Avg. Flow Depth=0.09' Max Vel=1.32 fps Inflow=0.26 cfs 0.040 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.25 cfs 0.040 af

Pond 1-P: Peak Elev=39.21' Storage=4.113 af Inflow=40.72 cfs 6.200 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=2.28 cfs 3.784 af

Pond 2-P: Peak Elev=38.11' Storage=11.246 af Inflow=90.38 cfs 23.509 af
Outflow=24.03 cfs 19.259 af

Pond 3-P: Peak Elev=86.49' Storage=0.711 af Inflow=10.82 cfs 0.711 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=371.42' Inflow=59.93 cfs 10.120 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=59.93 cfs 10.120 af

Pond CB-1-3: L1-3 Peak Elev=44.69' Inflow=93.81 cfs 20.681 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=93.81 cfs 20.681 af

Pond CB-1-4: L1-4 Peak Elev=57.21' Inflow=49.46 cfs 6.233 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=49.46 cfs 6.233 af

Pond CB-2-3: L2-2 Peak Elev=32.08' Inflow=25.63 cfs 21.653 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=25.63 cfs 21.653 af

Pond CB-2-4: L2-3 Peak Elev=33.96' Inflow=23.32 cfs 2.822 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=23.32 cfs 2.822 af

Pond CB-3-1: L3-1 Peak Elev=88.29' Inflow=8.38 cfs 1.461 af
Outflow=8.38 cfs 1.461 af

Pond CB-3-2: L3-2 Peak Elev=57.68' Inflow=24.79 cfs 4.219 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=24.79 cfs 4.219 af

Pond CB-4-1: L4-1 Peak Elev=55.46' Inflow=10.15 cfs 2.047 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=10.15 cfs 2.047 af

Pond CB-4-2: L4-2 Peak Elev=55.88' Inflow=14.34 cfs 2.665 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=14.34 cfs 2.665 af

Pond CB-5-1: L5-1 Peak Elev=57.66' Inflow=17.67 cfs 3.075 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=17.67 cfs 3.075 af

Pond CB-5-2: L5-2 Peak Elev=46.03' Inflow=58.29 cfs 7.926 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=58.29 cfs 7.926 af

Pond CB-6-1: L6-1 Peak Elev=49.47' Inflow=0.26 cfs 0.040 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.26 cfs 0.040 af

Link L1-5: L1-5 Inflow=93.49 cfs 20.672 af
Primary=93.49 cfs 20.672 af

Link L1-6: L1-6 Inflow=140.50 cfs 26.905 af
Primary=140.50 cfs 26.905 af

Link L2-1: L2-1 Inflow=24.03 cfs 19.259 af
Primary=24.03 cfs 19.259 af

Link L2-4: L2-4 Inflow=25.63 cfs 21.637 af
Primary=25.63 cfs 21.637 af

Link L2-5: L2-5 Inflow=23.28 cfs 2.822 af
Primary=23.28 cfs 2.822 af

Link L2-6: L2-6 Inflow=39.97 cfs 24.459 af
Primary=39.97 cfs 24.459 af

Link L4-3: L4-3 Inflow=10.15 cfs 2.047 af
Primary=10.15 cfs 2.047 af

Link L4-4: L4-4 Inflow=14.34 cfs 2.665 af
Primary=14.34 cfs 2.665 af

Link L4-5: L4-5 Inflow=24.43 cfs 4.712 af
Primary=24.43 cfs 4.712 af

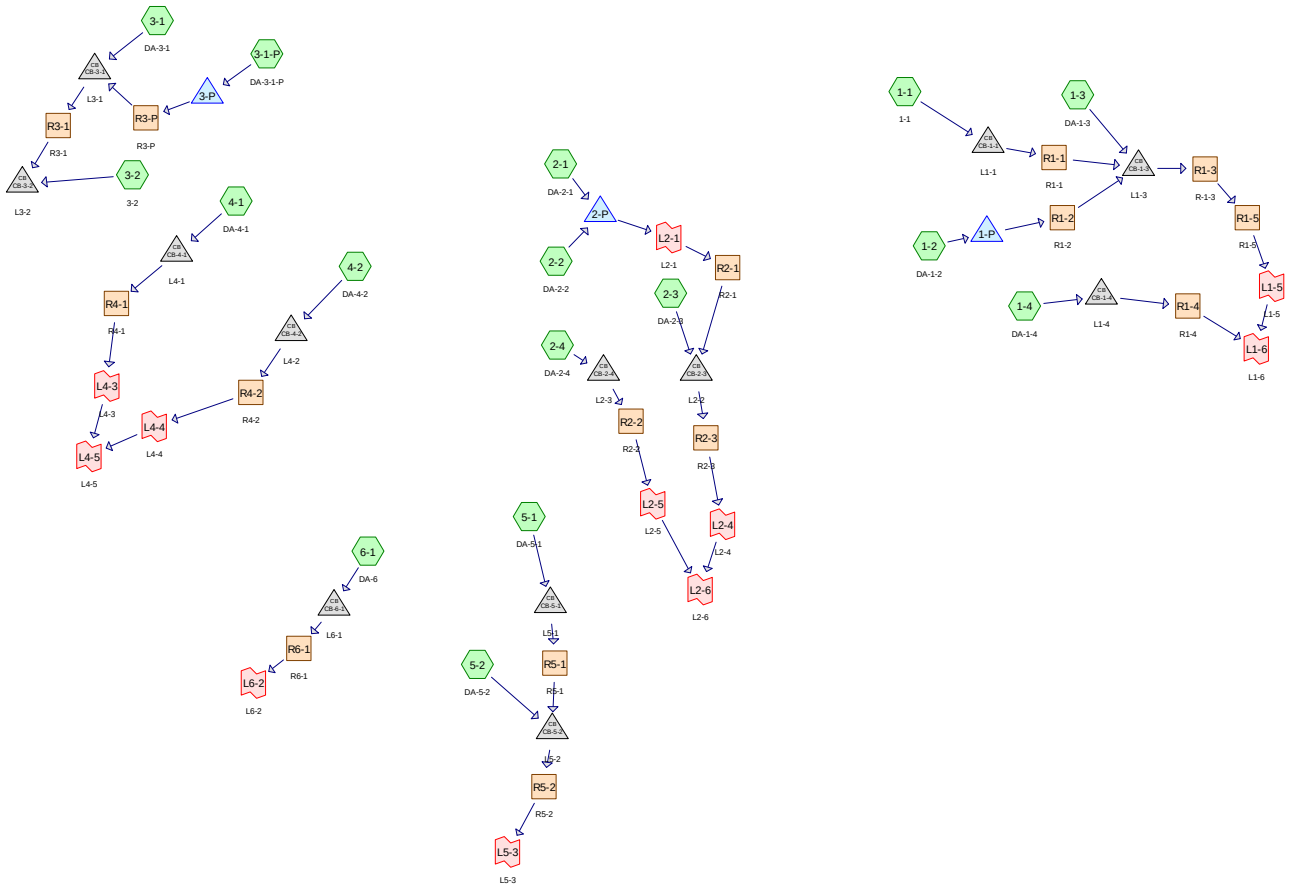
Link L5-3: L5-3 Inflow=54.42 cfs 7.926 af
Primary=54.42 cfs 7.926 af

Link L6-2: L6-2 Inflow=0.25 cfs 0.040 af
Primary=0.25 cfs 0.040 af

Total Runoff Area = 323.908 ac Runoff Volume = 75.690 af Average Runoff Depth = 2.80"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Appendix I

100% Build-Out HydroCAD Summary Report



Subcat Reach Pond Link

Routing Diagram for Kittery_100%Build (ID 2853681)
Prepared by Barton & Loguidice, DPC, Printed 8/7/2023

Project Notes

Copied 10 events from ME-DennettRoad 24-hr S1 storm

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	ME-DennettRoad 24-hr S1	1-yr	Default	24.00	1	2.63	2
2	2-yr	ME-DennettRoad 24-hr S1	2-yr	Default	24.00	1	3.31	2
3	5-yr	ME-DennettRoad 24-hr S1	5-yr	Default	24.00	1	4.41	2
4	10-yr	ME-DennettRoad 24-hr S1	10-yr	Default	24.00	1	5.32	2
5	25-yr	ME-DennettRoad 24-hr S1	25-yr	Default	24.00	1	6.58	2
6	50-yr	ME-DennettRoad 24-hr S1	50-yr	Default	24.00	1	7.50	2
7	100-yr	ME-DennettRoad 24-hr S1	100-yr	Default	24.00	1	8.52	2
8	Extreme: 1-yr	ME-DennettRoad 24-hr S1	1-yr	Default	24.00	1	2.63	2
9	Extreme: 10-yr	ME-DennettRoad 24-hr S1	10-yr	Default	24.00	1	5.32	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.423	95	*BARREN, D (89, 92, 95) (1-2)
0.723	89	*COMMERCIAL, A (89) (2-2)
9.929	95	*COMMERCIAL, D (95) (1-2, 1-3)
6.495	95	*RESIDENTIAL, D (85, 90, 95) (1-2, 1-3)
33.767	95	*WOODS, A (30, 60, 95) (2-1, 2-2, 4-1)
4.359	95	*WOODS, D (30, 86, 95) (2-1)
16.369	95	*WOODS, D (77, 86, 95) (1-3, 2-2, 4-1)
1.065	77	*WOODS, D (77, 86,95) (1-2)
8.453	54	1/2 acre lots, 25% imp, HSG A (2-1, 2-2, 3-1, 3-2, 4-1)
0.193	80	1/2 acre lots, 25% imp, HSG C (1-1)
12.899	85	1/2 acre lots, 25% imp, HSG D (1-1, 1-2, 2-1, 3-1, 3-2)
1.776	77	1/8 acre lots, 65% imp, HSG A (1-1, 3-1, 3-2, 4-1)
0.089	90	1/8 acre lots, 65% imp, HSG C (1-1)
3.453	92	1/8 acre lots, 65% imp, HSG D (1-1, 1-2, 2-1, 3-1, 3-2)
7.040	39	>75% Grass cover, Good, HSG A (2-1, 2-2, 3-1, 3-2, 4-1)
0.916	74	>75% Grass cover, Good, HSG C (1-1)
16.248	80	>75% Grass cover, Good, HSG D (1-1, 1-2, 2-1, 2-2, 3-1, 3-2)
0.006	65	Brush, Good, HSG C (1-1)
0.291	89	COMMERCIAL, A (89) (2-4, 5-1)
23.114	95	COMMERCIAL, D (95) (1-4, 2-3, 2-4, 4-2, 5-1, 5-2, 6-1)
3.708	95	RESIDENTIAL, D (85, 90, 95) (1-4)
4.367	95	WOODS, A (30, 60, 95) (2-4, 4-2, 5-1)
3.785	85	WOODS, D (77, 81, 85) (1-4)
32.923	95	WOODS, D (77, 86, 95) (1-4, 2-3, 2-4, 4-2, 5-1, 5-2, 6-1)
1.790	98	Water Surface, HSG A (3-1-P)
28.687	30	Woods, Good, HSG A (1-1, 2-1, 2-2, 3-1, 3-2, 4-1)
2.174	70	Woods, Good, HSG C (1-1)
98.866	77	Woods, Good, HSG D (1-1, 1-2, 1-3, 2-1, 2-2, 3-1, 3-2, 4-1)
323.908	**80**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
47.746	HSG A	1-1, 2-1, 2-2, 3-1, 3-1-P, 3-2, 4-1
0.000	HSG B	
3.378	HSG C	1-1
131.466	HSG D	1-1, 1-2, 1-3, 2-1, 2-2, 3-1, 3-2, 4-1
141.318	Other	1-2, 1-3, 1-4, 2-1, 2-2, 2-3, 2-4, 4-1, 4-2, 5-1, 5-2, 6-1
323.908		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.423	0.423	*BARREN, D (89, 92, 95)	1-2
0.000	0.000	0.000	0.000	0.723	0.723	*COMMERCIAL, A (89)	2-2
0.000	0.000	0.000	0.000	9.929	9.929	*COMMERCIAL, D (95)	1-2, 1-3
0.000	0.000	0.000	0.000	6.495	6.495	*RESIDENTIAL, D (85, 90, 95)	1-2, 1-3
0.000	0.000	0.000	0.000	33.767	33.767	*WOODS, A (30, 60, 95)	2-1, 2-2, 4-1
0.000	0.000	0.000	0.000	4.359	4.359	*WOODS, D (30, 86, 95)	2-1
0.000	0.000	0.000	0.000	16.369	16.369	*WOODS, D (77, 86, 95)	1-3, 2-2, 4-1
0.000	0.000	0.000	0.000	1.065	1.065	*WOODS, D (77, 86,95)	1-2
8.453	0.000	0.193	12.899	0.000	21.545	1/2 acre lots, 25% imp	1-1, 1-2, 2-1, 2-2, 3-1, 3-2, 4-1
1.776	0.000	0.089	3.453	0.000	5.318	1/8 acre lots, 65% imp	1-1, 1-2, 2-1, 3-1, 3-2, 4-1
7.040	0.000	0.916	16.248	0.000	24.204	>75% Grass cover, Good	1-1, 1-2, 2-1, 2-2, 3-1, 3-2, 4-1
0.000	0.000	0.006	0.000	0.000	0.006	Brush, Good	1-1
0.000	0.000	0.000	0.000	0.291	0.291	COMMERCIAL, A (89)	2-4, 5-1
0.000	0.000	0.000	0.000	23.114	23.114	COMMERCIAL, D (95)	1-4, 2-3, 2-4, 4-2, 5-1, 5-2, 6-1
0.000	0.000	0.000	0.000	3.708	3.708	RESIDENTIAL, D (85, 90, 95)	1-4
0.000	0.000	0.000	0.000	4.367	4.367	WOODS, A (30, 60, 95)	2-4, 4-2, 5-1
0.000	0.000	0.000	0.000	3.785	3.785	WOODS, D (77, 81, 85)	1-4
0.000	0.000	0.000	0.000	32.923	32.923	WOODS, D (77, 86, 95)	1-4, 2-3, 2-4, 4-2, 5-1, 5-2, 6-1
1.790	0.000	0.000	0.000	0.000	1.790	Water Surface	3-1-P
28.687	0.000	2.174	98.866	0.000	129.727	Woods, Good	1-1, 1-2, 1-3, 2-1, 2-2, 3-1, 3-2, 4-1
47.746	**0.000**	**3.378**	**131.466**	**141.318**	**323.908**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	1-4	0.00	0.00	225.0	0.0180	0.025	0.0	12.0	0.0
2	3-1	0.00	0.00	10.0	0.0500	0.013	0.0	6.0	0.0
3	3-2	0.00	0.00	68.0	0.0290	0.025	0.0	12.0	0.0
4	1-P	37.91	37.91	23.0	0.0000	0.012	0.0	12.0	0.0
5	2-P	35.58	32.78	50.0	0.0560	0.025	0.0	18.0	0.0
6	CB-1-1	47.05	46.31	50.0	0.0148	0.025	0.0	14.0	0.0
7	CB-1-3	36.98	36.80	95.0	0.0019	0.012	0.0	36.0	0.0
8	CB-1-4	36.00	33.00	84.0	0.0357	0.025	0.0	24.0	0.0
9	CB-2-3	30.00	28.50	150.0	0.0100	0.012	0.0	36.0	0.0
10	CB-2-4	30.00	30.00	75.0	0.0000	0.012	0.0	24.0	0.0
11	CB-3-1	86.11	86.46	20.0	-0.0175	0.012	0.0	6.0	0.0
12	CB-3-1	86.67	86.32	20.0	0.0175	0.012	0.0	12.0	0.0
13	CB-3-1	86.64	86.51	20.0	0.0065	0.012	0.0	6.0	0.0
14	CB-3-1	86.97	86.75	20.0	0.0110	0.012	0.0	14.0	0.0
15	CB-3-2	54.00	52.00	100.0	0.0200	0.012	0.0	24.0	0.0
16	CB-4-1	54.00	52.00	100.0	0.0200	0.012	0.0	24.0	0.0
17	CB-4-2	54.00	52.00	100.0	0.0200	0.012	0.0	24.0	0.0
18	CB-5-1	56.00	55.00	70.0	0.0143	0.012	0.0	36.0	0.0
19	CB-5-2	40.00	34.00	217.0	0.0276	0.012	0.0	32.0	0.0
20	CB-6-1	49.25	46.31	95.0	0.0309	0.012	0.0	18.0	0.0

Time span=0.00-36.00 hrs, dt=0.02 hrs, 1801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: 1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=0.90"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=18.87 cfs 3.059 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=1.13"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=14.70 cfs 2.120 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=1.85"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=28.51 cfs 3.120 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=1.92"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=25.95 cfs 2.963 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=0.88"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=19.89 cfs 4.964 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=1.61"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=30.88 cfs 7.075 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=2.09"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=9.58 cfs 1.298 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=2.08"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=13.49 cfs 1.493 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=0.57"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=2.40 cfs 0.399 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth=2.40"
Tc=0.0 min CN=98 Runoff=5.87 cfs 0.358 af

Subcatchment 3-2: 3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=0.31"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=5.12 cfs 0.673 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=1.18"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=8.63 cfs 1.547 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=2.09"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=10.32 cfs 1.744 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=2.08"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=11.31 cfs 1.797 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=2.09"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=27.30 cfs 2.291 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=2.09"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.13 cfs 0.018 af

Reach R1-1: R1-1 Avg. Flow Depth=0.95' Max Vel=3.32 fps Inflow=18.87 cfs 3.059 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=18.51 cfs 3.059 af

Reach R1-2: R1-2 Avg. Flow Depth=0.10' Max Vel=1.83 fps Inflow=0.59 cfs 0.941 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=0.59 cfs 0.941 af

Reach R1-3: R-1-3 Avg. Flow Depth=1.63' Max Vel=1.81 fps Inflow=37.33 cfs 7.120 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=36.99 cfs 7.115 af

Reach R1-4: R1-4 Avg. Flow Depth=0.94' Max Vel=4.74 fps Inflow=25.95 cfs 2.963 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=25.84 cfs 2.963 af

Reach R1-5: R1-5 Inflow=36.99 cfs 7.115 af
Outflow=36.99 cfs 7.115 af

Reach R2-1: R2-1 Avg. Flow Depth=0.61' Max Vel=2.19 fps Inflow=6.43 cfs 10.108 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=6.43 cfs 10.093 af

Reach R2-2: R2-2 Avg. Flow Depth=0.85' Max Vel=4.30 fps Inflow=13.49 cfs 1.493 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=13.46 cfs 1.493 af

Reach R2-3: R2-3 Avg. Flow Depth=0.86' Max Vel=3.47 fps Inflow=11.19 cfs 11.390 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=11.14 cfs 11.381 af

Reach R3-1: R3-1 Avg. Flow Depth=0.31' Max Vel=2.71 fps Inflow=2.40 cfs 0.399 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=2.18 cfs 0.399 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.48' Max Vel=6.09 fps Inflow=8.63 cfs 1.547 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=8.63 cfs 1.547 af

Reach R4-2: R4-2 Avg. Flow Depth=0.51' Max Vel=6.70 fps Inflow=10.32 cfs 1.744 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=10.32 cfs 1.744 af

Reach R5-1: R5-1 Avg. Flow Depth=0.62' Max Vel=3.73 fps Inflow=11.31 cfs 1.797 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=11.22 cfs 1.797 af

Reach R5-2: R5-2 Avg. Flow Depth=1.27' Max Vel=3.34 fps Inflow=31.46 cfs 4.088 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=28.91 cfs 4.088 af

Reach R6-1: R6-1 Avg. Flow Depth=0.06' Max Vel=1.03 fps Inflow=0.13 cfs 0.018 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.13 cfs 0.018 af

Pond 1-P: Peak Elev=38.47' Storage=1.615 af Inflow=14.70 cfs 2.120 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=0.59 cfs 0.941 af

Pond 2-P: Peak Elev=37.25' Storage=6.505 af Inflow=50.35 cfs 12.039 af
Outflow=6.43 cfs 10.108 af

Pond 3-P: Peak Elev=86.25' Storage=0.358 af Inflow=5.87 cfs 0.358 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=79.53' Inflow=18.87 cfs 3.059 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=18.87 cfs 3.059 af

Pond CB-1-3: L1-3 Peak Elev=40.17' Inflow=37.33 cfs 7.120 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=37.33 cfs 7.120 af

Pond CB-1-4: L1-4 Peak Elev=41.72' Inflow=25.95 cfs 2.963 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=25.95 cfs 2.963 af

Pond CB-2-3: L2-2 Peak Elev=31.29' Inflow=11.19 cfs 11.390 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=11.19 cfs 11.390 af

Pond CB-2-4: L2-3 Peak Elev=32.56' Inflow=13.49 cfs 1.493 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=13.49 cfs 1.493 af

Pond CB-3-1: L3-1 Peak Elev=87.28' Inflow=2.40 cfs 0.399 af
Outflow=2.40 cfs 0.399 af

Pond CB-3-2: L3-2 Peak Elev=55.08' Inflow=6.14 cfs 1.073 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=6.14 cfs 1.073 af

Pond CB-4-1: L4-1 Peak Elev=55.32' Inflow=8.63 cfs 1.547 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=8.63 cfs 1.547 af

Pond CB-4-2: L4-2 Peak Elev=55.48' Inflow=10.32 cfs 1.744 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=10.32 cfs 1.744 af

Pond CB-5-1: L5-1 Peak Elev=57.29' Inflow=11.31 cfs 1.797 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=11.31 cfs 1.797 af

Pond CB-5-2: L5-2 Peak Elev=42.70' Inflow=31.46 cfs 4.088 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=31.46 cfs 4.088 af

Pond CB-6-1: L6-1 Peak Elev=49.41' Inflow=0.13 cfs 0.018 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.13 cfs 0.018 af

Link L1-5: L1-5 Inflow=36.99 cfs 7.115 af
Primary=36.99 cfs 7.115 af

Link L1-6: L1-6 Inflow=62.52 cfs 10.079 af
Primary=62.52 cfs 10.079 af

Link L2-1: L2-1 Inflow=6.43 cfs 10.108 af
Primary=6.43 cfs 10.108 af

Link L2-4: L2-4 Inflow=11.14 cfs 11.381 af
Primary=11.14 cfs 11.381 af

Link L2-5: L2-5
Inflow=13.46 cfs 1.493 af
Primary=13.46 cfs 1.493 af

Link L2-6: L2-6
Inflow=23.22 cfs 12.874 af
Primary=23.22 cfs 12.874 af

Link L4-3: L4-3
Inflow=8.63 cfs 1.547 af
Primary=8.63 cfs 1.547 af

Link L4-4: L4-4
Inflow=10.32 cfs 1.744 af
Primary=10.32 cfs 1.744 af

Link L4-5: L4-5
Inflow=18.91 cfs 3.291 af
Primary=18.91 cfs 3.291 af

Link L5-3: L5-3
Inflow=28.91 cfs 4.088 af
Primary=28.91 cfs 4.088 af

Link L6-2: L6-2
Inflow=0.13 cfs 0.018 af
Primary=0.13 cfs 0.018 af

Total Runoff Area = 323.908 ac Runoff Volume = 34.920 af Average Runoff Depth = 1.29"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=0.00-36.00 hrs, dt=0.02 hrs, 1801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: 1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=1.37"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=28.60 cfs 4.677 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=1.65"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=20.97 cfs 3.094 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=2.48"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=36.20 cfs 4.176 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=2.57"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=32.80 cfs 3.955 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=1.32"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=29.34 cfs 7.442 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=2.15"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=39.13 cfs 9.433 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=2.75"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=11.91 cfs 1.710 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=2.75"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=16.78 cfs 1.969 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=0.89"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=3.74 cfs 0.629 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth=3.08"
Tc=0.0 min CN=98 Runoff=7.12 cfs 0.459 af

Subcatchment 3-2: 3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=0.51"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=7.99 cfs 1.099 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=1.58"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=10.91 cfs 2.068 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=2.75"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=12.84 cfs 2.298 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=2.74"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=14.09 cfs 2.370 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=2.75"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=33.94 cfs 3.019 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=2.75"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.17 cfs 0.024 af

Reach R1-1: R1-1 Avg. Flow Depth=1.17' Max Vel=3.72 fps Inflow=28.60 cfs 4.677 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=28.18 cfs 4.677 af

Reach R1-2: R1-2 Avg. Flow Depth=0.13' Max Vel=2.20 fps Inflow=0.99 cfs 1.579 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=0.99 cfs 1.579 af

Reach R1-3: R-1-3 Avg. Flow Depth=1.90' Max Vel=1.97 fps Inflow=51.27 cfs 10.432 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=50.97 cfs 10.426 af

Reach R1-4: R1-4 Avg. Flow Depth=1.05' Max Vel=5.05 fps Inflow=32.80 cfs 3.955 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=32.68 cfs 3.955 af

Reach R1-5: R1-5 Inflow=50.97 cfs 10.426 af
Outflow=50.97 cfs 10.426 af

Reach R2-1: R2-1 Avg. Flow Depth=0.69' Max Vel=2.34 fps Inflow=8.18 cfs 13.716 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=8.18 cfs 13.696 af

Reach R2-2: R2-2 Avg. Flow Depth=0.94' Max Vel=4.56 fps Inflow=16.78 cfs 1.969 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=16.74 cfs 1.969 af

Reach R2-3: R2-3 Avg. Flow Depth=0.97' Max Vel=3.71 fps Inflow=14.34 cfs 15.406 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=14.28 cfs 15.393 af

Reach R3-1: R3-1 Avg. Flow Depth=0.40' Max Vel=3.12 fps Inflow=3.74 cfs 0.629 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=3.48 cfs 0.629 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.54' Max Vel=6.51 fps Inflow=10.91 cfs 2.068 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=10.91 cfs 2.068 af

Reach R4-2: R4-2 Avg. Flow Depth=0.57' Max Vel=7.13 fps Inflow=12.84 cfs 2.298 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=12.84 cfs 2.298 af

Reach R5-1: R5-1 Avg. Flow Depth=0.69' Max Vel=3.97 fps Inflow=14.09 cfs 2.370 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=13.99 cfs 2.370 af

Reach R5-2: R5-2 Avg. Flow Depth=1.41' Max Vel=3.55 fps Inflow=39.28 cfs 5.388 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=36.36 cfs 5.388 af

Reach R6-1: R6-1 Avg. Flow Depth=0.07' Max Vel=1.12 fps Inflow=0.17 cfs 0.024 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.16 cfs 0.024 af

Pond 1-P: Peak Elev=38.65' Storage=2.214 af Inflow=20.97 cfs 3.094 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=0.99 cfs 1.579 af

Pond 2-P: Peak Elev=37.81' Storage=9.450 af Inflow=68.04 cfs 16.875 af
Outflow=8.18 cfs 13.716 af

Pond 3-P: Peak Elev=86.32' Storage=0.459 af Inflow=7.12 cfs 0.459 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=121.15' Inflow=28.60 cfs 4.677 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=28.60 cfs 4.677 af

Pond CB-1-3: L1-3 Peak Elev=41.26' Inflow=51.27 cfs 10.432 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=51.27 cfs 10.432 af

Pond CB-1-4: L1-4 Peak Elev=44.77' Inflow=32.80 cfs 3.955 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=32.80 cfs 3.955 af

Pond CB-2-3: L2-2 Peak Elev=31.48' Inflow=14.34 cfs 15.406 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=14.34 cfs 15.406 af

Pond CB-2-4: L2-3 Peak Elev=33.02' Inflow=16.78 cfs 1.969 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=16.78 cfs 1.969 af

Pond CB-3-1: L3-1 Peak Elev=87.48' Inflow=3.74 cfs 0.629 af
Outflow=3.74 cfs 0.629 af

Pond CB-3-2: L3-2 Peak Elev=55.44' Inflow=9.84 cfs 1.728 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=9.84 cfs 1.728 af

Pond CB-4-1: L4-1 Peak Elev=55.53' Inflow=10.91 cfs 2.068 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=10.91 cfs 2.068 af

Pond CB-4-2: L4-2 Peak Elev=55.72' Inflow=12.84 cfs 2.298 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=12.84 cfs 2.298 af

Pond CB-5-1: L5-1 Peak Elev=57.46' Inflow=14.09 cfs 2.370 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=14.09 cfs 2.370 af

Pond CB-5-2: L5-2 Peak Elev=43.47' Inflow=39.28 cfs 5.388 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=39.28 cfs 5.388 af

Pond CB-6-1: L6-1 Peak Elev=49.43' Inflow=0.17 cfs 0.024 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.17 cfs 0.024 af

Link L1-5: L1-5 Inflow=50.97 cfs 10.426 af
Primary=50.97 cfs 10.426 af

Link L1-6: L1-6 Inflow=83.02 cfs 14.382 af
Primary=83.02 cfs 14.382 af

Link L2-1: L2-1 Inflow=8.18 cfs 13.716 af
Primary=8.18 cfs 13.716 af

Link L2-4: L2-4 Inflow=14.28 cfs 15.393 af
Primary=14.28 cfs 15.393 af

Link L2-5: L2-5 Inflow=16.74 cfs 1.969 af
Primary=16.74 cfs 1.969 af

Link L2-6: L2-6 Inflow=29.31 cfs 17.361 af
Primary=29.31 cfs 17.361 af

Link L4-3: L4-3 Inflow=10.91 cfs 2.068 af
Primary=10.91 cfs 2.068 af

Link L4-4: L4-4 Inflow=12.84 cfs 2.298 af
Primary=12.84 cfs 2.298 af

Link L4-5: L4-5 Inflow=23.69 cfs 4.365 af
Primary=23.69 cfs 4.365 af

Link L5-3: L5-3 Inflow=36.36 cfs 5.388 af
Primary=36.36 cfs 5.388 af

Link L6-2: L6-2 Inflow=0.16 cfs 0.024 af
Primary=0.16 cfs 0.024 af

Total Runoff Area = 323.908 ac Runoff Volume = 48.420 af Average Runoff Depth = 1.79"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=0.00-36.00 hrs, dt=0.02 hrs, 1801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: 1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=2.22"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=45.59 cfs 7.569 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=2.56"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=31.76 cfs 4.800 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=3.52"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=48.88 cfs 5.926 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=3.63"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=44.01 cfs 5.590 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=2.10"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=45.93 cfs 11.849 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=3.04"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=52.85 cfs 13.332 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=3.84"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=15.72 cfs 2.382 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=3.83"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=22.14 cfs 2.745 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=1.51"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=6.21 cfs 1.061 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth=4.17"
Tc=0.0 min CN=98 Runoff=9.15 cfs 0.623 af

Subcatchment 3-2: 3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=0.91"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=14.21 cfs 1.940 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=2.25"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=14.77 cfs 2.936 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=3.84"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=16.98 cfs 3.202 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=3.83"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=18.64 cfs 3.305 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=3.84"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=44.67 cfs 4.206 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=3.84"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.22 cfs 0.034 af

Reach R1-1: R1-1 Avg. Flow Depth=1.46' Max Vel=4.21 fps Inflow=45.59 cfs 7.569 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=45.09 cfs 7.569 af

Reach R1-2: R1-2 Avg. Flow Depth=0.18' Max Vel=2.67 fps Inflow=1.74 cfs 2.798 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=1.74 cfs 2.798 af

Reach R1-3: R-1-3 Avg. Flow Depth=2.31' Max Vel=2.17 fps Inflow=75.56 cfs 16.293 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=75.24 cfs 16.286 af

Reach R1-4: R1-4 Avg. Flow Depth=1.21' Max Vel=5.46 fps Inflow=44.01 cfs 5.590 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=43.87 cfs 5.590 af

Reach R1-5: R1-5 Inflow=75.24 cfs 16.286 af
Outflow=75.24 cfs 16.286 af

Reach R2-1: R2-1 Avg. Flow Depth=1.42' Max Vel=3.49 fps Inflow=36.05 cfs 21.065 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=36.02 cfs 21.041 af

Reach R2-2: R2-2 Avg. Flow Depth=1.08' Max Vel=4.91 fps Inflow=22.14 cfs 2.745 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=22.09 cfs 2.745 af

Reach R2-3: R2-3 Avg. Flow Depth=1.55' Max Vel=4.78 fps Inflow=37.80 cfs 23.423 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=37.79 cfs 23.407 af

Reach R3-1: R3-1 Avg. Flow Depth=0.53' Max Vel=3.64 fps Inflow=6.21 cfs 1.061 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=5.87 cfs 1.061 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.64' Max Vel=7.09 fps Inflow=14.77 cfs 2.936 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=14.77 cfs 2.936 af

Reach R4-2: R4-2 Avg. Flow Depth=0.66' Max Vel=7.70 fps Inflow=16.98 cfs 3.202 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=16.98 cfs 3.202 af

Reach R5-1: R5-1 Avg. Flow Depth=0.80' Max Vel=4.29 fps Inflow=18.64 cfs 3.305 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=18.53 cfs 3.305 af

Reach R5-2: R5-2 Avg. Flow Depth=1.62' Max Vel=3.82 fps Inflow=51.98 cfs 7.511 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=48.53 cfs 7.511 af

Reach R6-1: R6-1 Avg. Flow Depth=0.08' Max Vel=1.24 fps Inflow=0.22 cfs 0.034 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.21 cfs 0.034 af

Pond 1-P: Peak Elev=38.95' Storage=3.232 af Inflow=31.76 cfs 4.800 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=1.74 cfs 2.798 af

Pond 2-P: Peak Elev=38.17' Storage=11.632 af Inflow=98.34 cfs 25.180 af
Outflow=36.05 cfs 21.065 af

Pond 3-P: Peak Elev=86.43' Storage=0.623 af Inflow=9.15 cfs 0.623 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=234.94' Inflow=45.59 cfs 7.569 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=45.59 cfs 7.569 af

Pond CB-1-3: L1-3 Peak Elev=42.97' Inflow=75.56 cfs 16.293 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=75.56 cfs 16.293 af

Pond CB-1-4: L1-4 Peak Elev=52.59' Inflow=44.01 cfs 5.590 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=44.01 cfs 5.590 af

Pond CB-2-3: L2-2 Peak Elev=32.72' Inflow=37.80 cfs 23.423 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=37.80 cfs 23.423 af

Pond CB-2-4: L2-3 Peak Elev=33.77' Inflow=22.14 cfs 2.745 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=22.14 cfs 2.745 af

Pond CB-3-1: L3-1 Peak Elev=87.86' Inflow=6.21 cfs 1.061 af
Outflow=6.21 cfs 1.061 af

Pond CB-3-2: L3-2 Peak Elev=56.35' Inflow=17.59 cfs 3.001 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=17.59 cfs 3.001 af

Pond CB-4-1: L4-1 Peak Elev=55.94' Inflow=14.77 cfs 2.936 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=14.77 cfs 2.936 af

Pond CB-4-2: L4-2 Peak Elev=56.26' Inflow=16.98 cfs 3.202 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=16.98 cfs 3.202 af

Pond CB-5-1: L5-1 Peak Elev=57.72' Inflow=18.64 cfs 3.305 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=18.64 cfs 3.305 af

Pond CB-5-2: L5-2 Peak Elev=45.07' Inflow=51.98 cfs 7.511 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=51.98 cfs 7.511 af

Pond CB-6-1: L6-1 Peak Elev=49.45' Inflow=0.22 cfs 0.034 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.22 cfs 0.034 af

Link L1-5: L1-5 Inflow=75.24 cfs 16.286 af
Primary=75.24 cfs 16.286 af

Link L1-6: L1-6 Inflow=117.74 cfs 21.875 af
Primary=117.74 cfs 21.875 af

Link L2-1: L2-1 Inflow=36.05 cfs 21.065 af
Primary=36.05 cfs 21.065 af

Link L2-4: L2-4 Inflow=37.79 cfs 23.407 af
Primary=37.79 cfs 23.407 af

Link L2-5: L2-5 Inflow=22.09 cfs 2.745 af
Primary=22.09 cfs 2.745 af

Link L2-6: L2-6 Inflow=39.75 cfs 26.152 af
Primary=39.75 cfs 26.152 af

Link L4-3: L4-3 Inflow=14.77 cfs 2.936 af
Primary=14.77 cfs 2.936 af

Link L4-4: L4-4 Inflow=16.98 cfs 3.202 af
Primary=16.98 cfs 3.202 af

Link L4-5: L4-5 Inflow=31.67 cfs 6.138 af
Primary=31.67 cfs 6.138 af

Link L5-3: L5-3 Inflow=48.53 cfs 7.511 af
Primary=48.53 cfs 7.511 af

Link L6-2: L6-2 Inflow=0.21 cfs 0.034 af
Primary=0.21 cfs 0.034 af

Total Runoff Area = 323.908 ac Runoff Volume = 71.499 af Average Runoff Depth = 2.65"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=0.00-36.00 hrs, dt=0.02 hrs, 1801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: 1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=2.97"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=59.93 cfs 10.129 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=3.35"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=40.78 cfs 6.290 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=4.39"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=59.18 cfs 7.398 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=4.52"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=53.04 cfs 6.957 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=2.79"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=59.94 cfs 15.750 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=3.79"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=63.87 cfs 16.616 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=4.74"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=18.78 cfs 2.942 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=4.73"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=26.44 cfs 3.391 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=2.07"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=8.38 cfs 1.462 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth=5.08"
Tc=0.0 min CN=98 Runoff=10.82 cfs 0.758 af

Subcatchment 3-2: 3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=1.29"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=20.07 cfs 2.759 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=2.81"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=17.92 cfs 3.680 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=4.74"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=20.29 cfs 3.954 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=4.73"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=22.27 cfs 4.082 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=4.74"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=53.33 cfs 5.194 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=4.74"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.26 cfs 0.041 af

Reach R1-1: R1-1 Avg. Flow Depth=1.65' Max Vel=4.52 fps Inflow=59.93 cfs 10.129 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=59.37 cfs 10.129 af

Reach R1-2: R1-2 Avg. Flow Depth=0.22' Max Vel=2.92 fps Inflow=2.30 cfs 3.848 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=2.30 cfs 3.848 af

Reach R1-3: R-1-3 Avg. Flow Depth=2.65' Max Vel=2.27 fps Inflow=96.07 cfs 21.375 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=95.72 cfs 21.365 af

Reach R1-4: R1-4 Avg. Flow Depth=1.32' Max Vel=5.73 fps Inflow=53.04 cfs 6.957 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=52.88 cfs 6.957 af

Reach R1-5: R1-5 Inflow=95.72 cfs 21.365 af
Outflow=95.72 cfs 21.365 af

Reach R2-1: R2-1 Avg. Flow Depth=1.97' Max Vel=4.19 fps Inflow=73.57 cfs 28.009 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=73.49 cfs 27.984 af

Reach R2-2: R2-2 Avg. Flow Depth=1.18' Max Vel=5.14 fps Inflow=26.44 cfs 3.391 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=26.39 cfs 3.391 af

Reach R2-3: R2-3 Avg. Flow Depth=2.14' Max Vel=5.71 fps Inflow=76.30 cfs 30.926 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=76.27 cfs 30.910 af

Reach R3-1: R3-1 Avg. Flow Depth=0.62' Max Vel=3.96 fps Inflow=8.38 cfs 1.462 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=7.98 cfs 1.462 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.70' Max Vel=7.48 fps Inflow=17.92 cfs 3.680 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=17.93 cfs 3.680 af

Reach R4-2: R4-2 Avg. Flow Depth=0.73' Max Vel=8.09 fps Inflow=20.29 cfs 3.954 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=20.29 cfs 3.954 af

Reach R5-1: R5-1 Avg. Flow Depth=0.87' Max Vel=4.50 fps Inflow=22.27 cfs 4.082 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=22.15 cfs 4.082 af

Reach R5-2: R5-2 Avg. Flow Depth=1.76' Max Vel=4.01 fps Inflow=62.19 cfs 9.277 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=58.35 cfs 9.277 af

Reach R6-1: R6-1 Avg. Flow Depth=0.09' Max Vel=1.33 fps Inflow=0.26 cfs 0.041 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.26 cfs 0.041 af

Pond 1-P: Peak Elev=39.23' Storage=4.171 af Inflow=40.78 cfs 6.290 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=2.30 cfs 3.848 af

Pond 2-P: Peak Elev=38.29' Storage=12.565 af Inflow=123.32 cfs 32.366 af
Outflow=73.57 cfs 28.009 af

Pond 3-P: Peak Elev=86.52' Storage=0.758 af Inflow=10.82 cfs 0.758 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=371.42' Inflow=59.93 cfs 10.129 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=59.93 cfs 10.129 af

Pond CB-1-3: L1-3 Peak Elev=44.93' Inflow=96.07 cfs 21.375 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=96.07 cfs 21.375 af

Pond CB-1-4: L1-4 Peak Elev=60.55' Inflow=53.04 cfs 6.957 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=53.04 cfs 6.957 af

Pond CB-2-3: L2-2 Peak Elev=36.53' Inflow=76.30 cfs 30.926 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=76.30 cfs 30.926 af

Pond CB-2-4: L2-3 Peak Elev=34.53' Inflow=26.44 cfs 3.391 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=26.44 cfs 3.391 af

Pond CB-3-1: L3-1 Peak Elev=88.29' Inflow=8.38 cfs 1.462 af
Outflow=8.38 cfs 1.462 af

Pond CB-3-2: L3-2 Peak Elev=57.68' Inflow=24.79 cfs 4.221 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=24.79 cfs 4.221 af

Pond CB-4-1: L4-1 Peak Elev=56.40' Inflow=17.92 cfs 3.680 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=17.92 cfs 3.680 af

Pond CB-4-2: L4-2 Peak Elev=56.80' Inflow=20.29 cfs 3.954 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=20.29 cfs 3.954 af

Pond CB-5-1: L5-1 Peak Elev=57.91' Inflow=22.27 cfs 4.082 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=22.27 cfs 4.082 af

Pond CB-5-2: L5-2 Peak Elev=46.68' Inflow=62.19 cfs 9.277 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=62.19 cfs 9.277 af

Pond CB-6-1: L6-1 Peak Elev=49.47' Inflow=0.26 cfs 0.041 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.26 cfs 0.041 af

Link L1-5: L1-5 Inflow=95.72 cfs 21.365 af
Primary=95.72 cfs 21.365 af

Link L1-6: L1-6 Inflow=146.48 cfs 28.323 af
Primary=146.48 cfs 28.323 af

Link L2-1: L2-1 Inflow=73.57 cfs 28.009 af
Primary=73.57 cfs 28.009 af

Link L2-4: L2-4 Inflow=76.27 cfs 30.910 af
Primary=76.27 cfs 30.910 af

Link L2-5: L2-5 Inflow=26.39 cfs 3.391 af
Primary=26.39 cfs 3.391 af

Link L2-6: L2-6 Inflow=79.25 cfs 34.301 af
Primary=79.25 cfs 34.301 af

Link L4-3: L4-3 Inflow=17.93 cfs 3.680 af
Primary=17.93 cfs 3.680 af

Link L4-4: L4-4 Inflow=20.29 cfs 3.954 af
Primary=20.29 cfs 3.954 af

Link L4-5: L4-5 Inflow=38.11 cfs 7.633 af
Primary=38.11 cfs 7.633 af

Link L5-3: L5-3 Inflow=58.35 cfs 9.277 af
Primary=58.35 cfs 9.277 af

Link L6-2: L6-2 Inflow=0.26 cfs 0.041 af
Primary=0.26 cfs 0.041 af

Total Runoff Area = 323.908 ac Runoff Volume = 91.403 af Average Runoff Depth = 3.39"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=0.00-36.00 hrs, dt=0.02 hrs, 1801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: 1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=4.06"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=79.98 cfs 13.839 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=4.49"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=53.32 cfs 8.427 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=5.61"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=73.30 cfs 9.457 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=5.76"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=65.36 cfs 8.864 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=3.79"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=79.60 cfs 21.444 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=4.86"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=78.99 cfs 21.273 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=5.99"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=22.94 cfs 3.719 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=5.98"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=32.31 cfs 4.288 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=2.93"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=11.56 cfs 2.067 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth=6.34"
Tc=0.0 min CN=98 Runoff=13.11 cfs 0.946 af

Subcatchment 3-2: 3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=1.90"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=28.92 cfs 4.082 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=3.65"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=22.29 cfs 4.770 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=5.99"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=24.79 cfs 4.998 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=5.98"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=27.22 cfs 5.163 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=5.99"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=65.14 cfs 6.566 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=5.99"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.32 cfs 0.052 af

Reach R1-1: R1-1 Avg. Flow Depth=1.88' Max Vel=4.86 fps Inflow=79.98 cfs 13.839 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=79.33 cfs 13.839 af

Reach R1-2: R1-2 Avg. Flow Depth=0.26' Max Vel=3.28 fps Inflow=3.27 cfs 5.383 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=3.27 cfs 5.382 af

Reach R1-3: R-1-3 Avg. Flow Depth=3.13' Max Vel=2.36 fps Inflow=124.89 cfs 28.679 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=124.46 cfs 28.667 af

Reach R1-4: R1-4 Avg. Flow Depth=1.46' Max Vel=6.05 fps Inflow=65.36 cfs 8.864 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=65.17 cfs 8.864 af

Reach R1-5: R1-5 Inflow=124.46 cfs 28.667 af
Outflow=124.46 cfs 28.667 af

Reach R2-1: R2-1 Avg. Flow Depth=2.61' Max Vel=4.71 fps Inflow=127.59 cfs 38.235 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=127.43 cfs 38.209 af

Reach R2-2: R2-2 Avg. Flow Depth=1.30' Max Vel=5.41 fps Inflow=32.31 cfs 4.288 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=32.26 cfs 4.288 af

Reach R2-3: R2-3 Avg. Flow Depth=2.89' Max Vel=6.31 fps Inflow=131.81 cfs 41.928 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=131.74 cfs 41.912 af

Reach R3-1: R3-1 Avg. Flow Depth=0.74' Max Vel=4.34 fps Inflow=11.56 cfs 2.067 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=11.09 cfs 2.067 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.79' Max Vel=7.94 fps Inflow=22.29 cfs 4.770 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=22.30 cfs 4.770 af

Reach R4-2: R4-2 Avg. Flow Depth=0.80' Max Vel=8.54 fps Inflow=24.79 cfs 4.998 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=24.79 cfs 4.998 af

Reach R5-1: R5-1 Avg. Flow Depth=0.97' Max Vel=4.75 fps Inflow=27.22 cfs 5.163 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=27.09 cfs 5.163 af

Reach R5-2: R5-2 Avg. Flow Depth=1.93' Max Vel=4.23 fps Inflow=76.12 cfs 11.729 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=71.88 cfs 11.729 af

Reach R6-1: R6-1 Avg. Flow Depth=0.10' Max Vel=1.42 fps Inflow=0.32 cfs 0.052 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.31 cfs 0.052 af

Pond 1-P: Peak Elev=39.61' Storage=5.480 af Inflow=53.32 cfs 8.427 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=3.27 cfs 5.383 af

Pond 2-P: Peak Elev=38.44' Storage=13.623 af Inflow=158.04 cfs 42.716 af
Outflow=127.59 cfs 38.235 af

Pond 3-P: Peak Elev=86.65' Storage=0.946 af Inflow=13.11 cfs 0.946 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=624.27' Inflow=79.98 cfs 13.839 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=79.98 cfs 13.839 af

Pond CB-1-3: L1-3 Peak Elev=48.57' Inflow=124.89 cfs 28.679 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=124.89 cfs 28.679 af

Pond CB-1-4: L1-4 Peak Elev=73.79' Inflow=65.36 cfs 8.864 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=65.36 cfs 8.864 af

Pond CB-2-3: L2-2 Peak Elev=46.50' Inflow=131.81 cfs 41.928 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=131.81 cfs 41.928 af

Pond CB-2-4: L2-3 Peak Elev=35.85' Inflow=32.31 cfs 4.288 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=32.31 cfs 4.288 af

Pond CB-3-1: L3-1 Peak Elev=89.17' Inflow=11.56 cfs 2.067 af
Outflow=11.56 cfs 2.067 af

Pond CB-3-2: L3-2 Peak Elev=60.56' Inflow=35.65 cfs 6.149 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=35.65 cfs 6.149 af

Pond CB-4-1: L4-1 Peak Elev=57.17' Inflow=22.29 cfs 4.770 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=22.29 cfs 4.770 af

Pond CB-4-2: L4-2 Peak Elev=57.69' Inflow=24.79 cfs 4.998 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=24.79 cfs 4.998 af

Pond CB-5-1: L5-1 Peak Elev=58.16' Inflow=27.22 cfs 5.163 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=27.22 cfs 5.163 af

Pond CB-5-2: L5-2 Peak Elev=49.35' Inflow=76.12 cfs 11.729 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=76.12 cfs 11.729 af

Pond CB-6-1: L6-1 Peak Elev=49.50' Inflow=0.32 cfs 0.052 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.32 cfs 0.052 af

Link L1-5: L1-5 Inflow=124.46 cfs 28.667 af
Primary=124.46 cfs 28.667 af

Link L1-6: L1-6 Inflow=186.43 cfs 37.532 af
Primary=186.43 cfs 37.532 af

Link L2-1: L2-1 Inflow=127.59 cfs 38.235 af
Primary=127.59 cfs 38.235 af

Link L2-4: L2-4 Inflow=131.74 cfs 41.912 af
Primary=131.74 cfs 41.912 af

Link L2-5: L2-5 Inflow=32.26 cfs 4.288 af
Primary=32.26 cfs 4.288 af

Link L2-6: L2-6 Inflow=136.12 cfs 46.199 af
Primary=136.12 cfs 46.199 af

Link L4-3: L4-3 Inflow=22.30 cfs 4.770 af
Primary=22.30 cfs 4.770 af

Link L4-4: L4-4 Inflow=24.79 cfs 4.998 af
Primary=24.79 cfs 4.998 af

Link L4-5: L4-5 Inflow=46.96 cfs 9.768 af
Primary=46.96 cfs 9.768 af

Link L5-3: L5-3 Inflow=71.88 cfs 11.729 af
Primary=71.88 cfs 11.729 af

Link L6-2: L6-2 Inflow=0.31 cfs 0.052 af
Primary=0.31 cfs 0.052 af

Total Runoff Area = 323.908 ac Runoff Volume = 119.955 af Average Runoff Depth = 4.44"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=0.00-36.00 hrs, dt=0.02 hrs, 1801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: 1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=4.88"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=95.05 cfs 16.633 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=5.34"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=62.73 cfs 10.024 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=6.51"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=83.88 cfs 10.972 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=6.66"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=74.57 cfs 10.263 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=4.56"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=94.46 cfs 25.759 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=5.65"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=90.35 cfs 24.739 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=6.90"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=26.06 cfs 4.288 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=6.89"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=36.70 cfs 4.944 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=3.60"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=14.07 cfs 2.537 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth=7.26"
Tc=0.0 min CN=98 Runoff=14.83 cfs 1.083 af

Subcatchment 3-2: 3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=2.41"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=36.12 cfs 5.162 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=4.29"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=25.60 cfs 5.605 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=6.90"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=28.17 cfs 5.762 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=6.89"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=30.93 cfs 5.954 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=6.90"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=73.98 cfs 7.570 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=6.90"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.37 cfs 0.060 af

Reach R1-1: R1-1 Avg. Flow Depth=2.04' Max Vel=5.08 fps Inflow=95.05 cfs 16.633 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=94.33 cfs 16.633 af

Reach R1-2: R1-2 Avg. Flow Depth=0.28' Max Vel=3.40 fps Inflow=3.68 cfs 6.386 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=3.68 cfs 6.386 af

Reach R1-3: R-1-3 Avg. Flow Depth=3.49' Max Vel=2.41 fps Inflow=146.68 cfs 33.991 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=146.19 cfs 33.977 af

Reach R1-4: R1-4 Avg. Flow Depth=1.55' Max Vel=6.27 fps Inflow=74.57 cfs 10.263 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=74.36 cfs 10.263 af

Reach R1-5: R1-5 Inflow=146.19 cfs 33.977 af
Outflow=146.19 cfs 33.977 af

Reach R2-1: R2-1 Avg. Flow Depth=3.02' Max Vel=4.88 fps Inflow=162.88 cfs 45.960 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=162.70 cfs 45.934 af

Reach R2-2: R2-2 Avg. Flow Depth=1.38' Max Vel=5.60 fps Inflow=36.70 cfs 4.944 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=36.65 cfs 4.944 af

Reach R2-3: R2-3 Avg. Flow Depth=3.39' Max Vel=6.51 fps Inflow=168.24 cfs 50.221 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=168.16 cfs 50.205 af

Reach R3-1: R3-1 Avg. Flow Depth=0.81' Max Vel=4.58 fps Inflow=14.07 cfs 2.537 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=13.55 cfs 2.537 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.84' Max Vel=8.24 fps Inflow=25.60 cfs 5.605 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=25.62 cfs 5.605 af

Reach R4-2: R4-2 Avg. Flow Depth=0.86' Max Vel=8.84 fps Inflow=28.17 cfs 5.762 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=28.17 cfs 5.762 af

Reach R5-1: R5-1 Avg. Flow Depth=1.03' Max Vel=4.92 fps Inflow=30.93 cfs 5.954 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=30.80 cfs 5.954 af

Reach R5-2: R5-2 Avg. Flow Depth=2.05' Max Vel=4.37 fps Inflow=86.55 cfs 13.524 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=81.95 cfs 13.524 af

Reach R6-1: R6-1 Avg. Flow Depth=0.11' Max Vel=1.49 fps Inflow=0.37 cfs 0.060 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.36 cfs 0.060 af

Pond 1-P: Peak Elev=39.93' Storage=6.578 af Inflow=62.73 cfs 10.024 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=3.68 cfs 6.386 af

Pond 2-P: Peak Elev=38.52' Storage=14.228 af Inflow=184.22 cfs 50.498 af
Outflow=162.88 cfs 45.960 af

Pond 3-P: Peak Elev=86.74' Storage=1.083 af Inflow=14.83 cfs 1.083 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=861.96' Inflow=95.05 cfs 16.633 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=95.05 cfs 16.633 af

Pond CB-1-3: L1-3 Peak Elev=52.21' Inflow=146.68 cfs 33.991 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=146.68 cfs 33.991 af

Pond CB-1-4: L1-4 Peak Elev=85.49' Inflow=74.57 cfs 10.263 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=74.57 cfs 10.263 af

Pond CB-2-3: L2-2 Peak Elev=56.32' Inflow=168.24 cfs 50.221 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=168.24 cfs 50.221 af

Pond CB-2-4: L2-3 Peak Elev=37.25' Inflow=36.70 cfs 4.944 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=36.70 cfs 4.944 af

Pond CB-3-1: L3-1 Peak Elev=90.06' Inflow=14.07 cfs 2.537 af
Outflow=14.07 cfs 2.537 af

Pond CB-3-2: L3-2 Peak Elev=63.63' Inflow=44.45 cfs 7.698 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=44.45 cfs 7.698 af

Pond CB-4-1: L4-1 Peak Elev=57.86' Inflow=25.60 cfs 5.605 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=25.60 cfs 5.605 af

Pond CB-4-2: L4-2 Peak Elev=58.47' Inflow=28.17 cfs 5.762 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=28.17 cfs 5.762 af

Pond CB-5-1: L5-1 Peak Elev=58.35' Inflow=30.93 cfs 5.954 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=30.93 cfs 5.954 af

Pond CB-5-2: L5-2 Peak Elev=51.69' Inflow=86.55 cfs 13.524 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=86.55 cfs 13.524 af

Pond CB-6-1: L6-1 Peak Elev=49.51' Inflow=0.37 cfs 0.060 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.37 cfs 0.060 af

Link L1-5: L1-5 Inflow=146.19 cfs 33.977 af
Primary=146.19 cfs 33.977 af

Link L1-6: L1-6 Inflow=216.52 cfs 44.240 af
Primary=216.52 cfs 44.240 af

Link L2-1: L2-1 Inflow=162.88 cfs 45.960 af
Primary=162.88 cfs 45.960 af

Link L2-4: L2-4 Inflow=168.16 cfs 50.205 af
Primary=168.16 cfs 50.205 af

Link L2-5: L2-5 Inflow=36.65 cfs 4.944 af
Primary=36.65 cfs 4.944 af

Link L2-6: L2-6 Inflow=173.54 cfs 55.149 af
Primary=173.54 cfs 55.149 af

Link L4-3: L4-3 Inflow=25.62 cfs 5.605 af
Primary=25.62 cfs 5.605 af

Link L4-4: L4-4 Inflow=28.17 cfs 5.762 af
Primary=28.17 cfs 5.762 af

Link L4-5: L4-5 Inflow=53.63 cfs 11.367 af
Primary=53.63 cfs 11.367 af

Link L5-3: L5-3 Inflow=81.95 cfs 13.524 af
Primary=81.95 cfs 13.524 af

Link L6-2: L6-2 Inflow=0.36 cfs 0.060 af
Primary=0.36 cfs 0.060 af

Total Runoff Area = 323.908 ac Runoff Volume = 141.354 af Average Runoff Depth = 5.24"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=0.00-36.00 hrs, dt=0.02 hrs, 1801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: 1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=5.80"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=111.40 cfs 19.791 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=6.30"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=72.89 cfs 11.821 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=7.51"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=95.18 cfs 12.658 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=7.67"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=84.39 cfs 11.818 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=5.42"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=110.82 cfs 30.661 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=6.54"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=102.76 cfs 28.635 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=7.92"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=29.39 cfs 4.919 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=7.91"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=41.38 cfs 5.673 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=4.37"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=16.91 cfs 3.080 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth=8.28"
Tc=0.0 min CN=98 Runoff=16.65 cfs 1.235 af

Subcatchment 3-2: 3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=3.01"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=44.42 cfs 6.451 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=5.02"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=29.28 cfs 6.563 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=7.92"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=31.79 cfs 6.610 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=7.91"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=34.91 cfs 6.831 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=7.92"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=83.36 cfs 8.684 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=7.92"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.41 cfs 0.069 af

Reach R1-1: R1-1 Avg. Flow Depth=2.20' Max Vel=5.27 fps Inflow=111.40 cfs 19.791 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=110.57 cfs 19.791 af

Reach R1-2: R1-2 Avg. Flow Depth=0.63' Max Vel=5.27 fps Inflow=17.05 cfs 7.971 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=16.07 cfs 7.971 af

Reach R1-3: R-1-3 Avg. Flow Depth=3.88' Max Vel=2.45 fps Inflow=170.30 cfs 40.420 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=169.74 cfs 40.406 af

Reach R1-4: R1-4 Avg. Flow Depth=1.64' Max Vel=6.47 fps Inflow=84.39 cfs 11.818 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=84.18 cfs 11.818 af

Reach R1-5: R1-5 Inflow=169.74 cfs 40.406 af
Outflow=169.74 cfs 40.406 af

Reach R2-1: R2-1 Avg. Flow Depth=3.42' Max Vel=5.00 fps Inflow=196.48 cfs 54.709 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=196.28 cfs 54.683 af

Reach R2-2: R2-2 Avg. Flow Depth=1.46' Max Vel=5.77 fps Inflow=41.38 cfs 5.673 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=41.33 cfs 5.673 af

Reach R2-3: R2-3 Avg. Flow Depth=3.86' Max Vel=6.64 fps Inflow=203.01 cfs 59.602 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=202.92 cfs 59.585 af

Reach R3-1: R3-1 Avg. Flow Depth=0.89' Max Vel=4.82 fps Inflow=16.91 cfs 3.080 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=16.34 cfs 3.080 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.90' Max Vel=8.54 fps Inflow=29.28 cfs 6.563 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=29.29 cfs 6.563 af

Reach R4-2: R4-2 Avg. Flow Depth=0.91' Max Vel=9.13 fps Inflow=31.79 cfs 6.610 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=31.79 cfs 6.610 af

Reach R5-1: R5-1 Avg. Flow Depth=1.09' Max Vel=5.08 fps Inflow=34.91 cfs 6.831 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=34.77 cfs 6.831 af

Reach R5-2: R5-2 Avg. Flow Depth=2.17' Max Vel=4.50 fps Inflow=97.66 cfs 15.515 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=92.61 cfs 15.515 af

Reach R6-1: R6-1 Avg. Flow Depth=0.12' Max Vel=1.56 fps Inflow=0.41 cfs 0.069 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.40 cfs 0.069 af

Pond 1-P: Peak Elev=71.01' Storage=6.806 af Inflow=72.89 cfs 11.821 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=17.05 cfs 7.971 af

Pond 2-P: Peak Elev=38.60' Storage=14.763 af Inflow=212.96 cfs 59.296 af
Outflow=196.48 cfs 54.709 af

Pond 3-P: Peak Elev=86.85' Storage=1.235 af Inflow=16.65 cfs 1.235 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=1,165.95' Inflow=111.40 cfs 19.791 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=111.40 cfs 19.791 af

Pond CB-1-3: L1-3 Peak Elev=56.76' Inflow=170.30 cfs 40.420 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=170.30 cfs 40.420 af

Pond CB-1-4: L1-4 Peak Elev=99.67' Inflow=84.39 cfs 11.818 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=84.39 cfs 11.818 af

Pond CB-2-3: L2-2 Peak Elev=67.93' Inflow=203.01 cfs 59.602 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=203.01 cfs 59.602 af

Pond CB-2-4: L2-3 Peak Elev=38.93' Inflow=41.38 cfs 5.673 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=41.38 cfs 5.673 af

Pond CB-3-1: L3-1 Peak Elev=91.28' Inflow=16.91 cfs 3.080 af
Outflow=16.91 cfs 3.080 af

Pond CB-3-2: L3-2 Peak Elev=68.03' Inflow=54.60 cfs 9.531 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=54.60 cfs 9.531 af

Pond CB-4-1: L4-1 Peak Elev=58.75' Inflow=29.28 cfs 6.563 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=29.28 cfs 6.563 af

Pond CB-4-2: L4-2 Peak Elev=59.42' Inflow=31.79 cfs 6.610 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=31.79 cfs 6.610 af

Pond CB-5-1: L5-1 Peak Elev=58.56' Inflow=34.91 cfs 6.831 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=34.91 cfs 6.831 af

Pond CB-5-2: L5-2 Peak Elev=54.52' Inflow=97.66 cfs 15.515 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=97.66 cfs 15.515 af

Pond CB-6-1: L6-1 Peak Elev=49.53' Inflow=0.41 cfs 0.069 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.41 cfs 0.069 af

Link L1-5: L1-5 Inflow=169.74 cfs 40.406 af
Primary=169.74 cfs 40.406 af

Link L1-6: L1-6 Inflow=249.02 cfs 52.223 af
Primary=249.02 cfs 52.223 af

Link L2-1: L2-1 Inflow=196.48 cfs 54.709 af
Primary=196.48 cfs 54.709 af

Link L2-4: L2-4 Inflow=202.92 cfs 59.585 af
Primary=202.92 cfs 59.585 af

Link L2-5: L2-5 Inflow=41.33 cfs 5.673 af
Primary=41.33 cfs 5.673 af

Link L2-6: L2-6 Inflow=209.35 cfs 65.257 af
Primary=209.35 cfs 65.257 af

Link L4-3: L4-3 Inflow=29.29 cfs 6.563 af
Primary=29.29 cfs 6.563 af

Link L4-4: L4-4 Inflow=31.79 cfs 6.610 af
Primary=31.79 cfs 6.610 af

Link L4-5: L4-5 Inflow=60.90 cfs 13.173 af
Primary=60.90 cfs 13.173 af

Link L5-3: L5-3 Inflow=92.61 cfs 15.515 af
Primary=92.61 cfs 15.515 af

Link L6-2: L6-2 Inflow=0.40 cfs 0.069 af
Primary=0.40 cfs 0.069 af

Total Runoff Area = 323.908 ac Runoff Volume = 165.498 af Average Runoff Depth = 6.13"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=0.00-36.00 hrs, dt=0.02 hrs, 1801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: 1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=0.90"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=18.87 cfs 3.059 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=1.13"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=14.70 cfs 2.120 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=1.85"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=28.51 cfs 3.120 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=1.92"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=25.95 cfs 2.963 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=0.88"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=19.89 cfs 4.964 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=1.61"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=30.88 cfs 7.075 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=2.09"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=9.58 cfs 1.298 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=2.08"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=13.49 cfs 1.493 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=0.57"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=2.40 cfs 0.399 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth=2.40"
Tc=0.0 min CN=98 Runoff=5.87 cfs 0.358 af

Subcatchment 3-2: 3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=0.31"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=5.12 cfs 0.673 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=1.18"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=8.63 cfs 1.547 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=2.09"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=10.32 cfs 1.744 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=2.08"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=11.31 cfs 1.797 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=2.09"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=27.30 cfs 2.291 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=2.09"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.13 cfs 0.018 af

Reach R1-1: R1-1 Avg. Flow Depth=0.95' Max Vel=3.32 fps Inflow=18.87 cfs 3.059 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=18.51 cfs 3.059 af

Reach R1-2: R1-2 Avg. Flow Depth=0.10' Max Vel=1.83 fps Inflow=0.59 cfs 0.941 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=0.59 cfs 0.941 af

Reach R1-3: R-1-3 Avg. Flow Depth=1.63' Max Vel=1.81 fps Inflow=37.33 cfs 7.120 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=36.99 cfs 7.115 af

Reach R1-4: R1-4 Avg. Flow Depth=0.94' Max Vel=4.74 fps Inflow=25.95 cfs 2.963 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=25.84 cfs 2.963 af

Reach R1-5: R1-5 Inflow=36.99 cfs 7.115 af
Outflow=36.99 cfs 7.115 af

Reach R2-1: R2-1 Avg. Flow Depth=0.61' Max Vel=2.19 fps Inflow=6.43 cfs 10.108 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=6.43 cfs 10.093 af

Reach R2-2: R2-2 Avg. Flow Depth=0.85' Max Vel=4.30 fps Inflow=13.49 cfs 1.493 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=13.46 cfs 1.493 af

Reach R2-3: R2-3 Avg. Flow Depth=0.86' Max Vel=3.47 fps Inflow=11.19 cfs 11.390 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=11.14 cfs 11.381 af

Reach R3-1: R3-1 Avg. Flow Depth=0.31' Max Vel=2.71 fps Inflow=2.40 cfs 0.399 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=2.18 cfs 0.399 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.48' Max Vel=6.09 fps Inflow=8.63 cfs 1.547 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=8.63 cfs 1.547 af

Reach R4-2: R4-2 Avg. Flow Depth=0.51' Max Vel=6.70 fps Inflow=10.32 cfs 1.744 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=10.32 cfs 1.744 af

Reach R5-1: R5-1 Avg. Flow Depth=0.62' Max Vel=3.73 fps Inflow=11.31 cfs 1.797 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=11.22 cfs 1.797 af

Reach R5-2: R5-2 Avg. Flow Depth=1.27' Max Vel=3.34 fps Inflow=31.46 cfs 4.088 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=28.91 cfs 4.088 af

Reach R6-1: R6-1 Avg. Flow Depth=0.06' Max Vel=1.03 fps Inflow=0.13 cfs 0.018 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.13 cfs 0.018 af

Pond 1-P: Peak Elev=38.47' Storage=1.615 af Inflow=14.70 cfs 2.120 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=0.59 cfs 0.941 af

Pond 2-P: Peak Elev=37.25' Storage=6.505 af Inflow=50.35 cfs 12.039 af
Outflow=6.43 cfs 10.108 af

Pond 3-P: Peak Elev=86.25' Storage=0.358 af Inflow=5.87 cfs 0.358 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=79.53' Inflow=18.87 cfs 3.059 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=18.87 cfs 3.059 af

Pond CB-1-3: L1-3 Peak Elev=40.17' Inflow=37.33 cfs 7.120 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=37.33 cfs 7.120 af

Pond CB-1-4: L1-4 Peak Elev=41.72' Inflow=25.95 cfs 2.963 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=25.95 cfs 2.963 af

Pond CB-2-3: L2-2 Peak Elev=31.29' Inflow=11.19 cfs 11.390 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=11.19 cfs 11.390 af

Pond CB-2-4: L2-3 Peak Elev=32.56' Inflow=13.49 cfs 1.493 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=13.49 cfs 1.493 af

Pond CB-3-1: L3-1 Peak Elev=87.28' Inflow=2.40 cfs 0.399 af
Outflow=2.40 cfs 0.399 af

Pond CB-3-2: L3-2 Peak Elev=55.08' Inflow=6.14 cfs 1.073 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=6.14 cfs 1.073 af

Pond CB-4-1: L4-1 Peak Elev=55.32' Inflow=8.63 cfs 1.547 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=8.63 cfs 1.547 af

Pond CB-4-2: L4-2 Peak Elev=55.48' Inflow=10.32 cfs 1.744 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=10.32 cfs 1.744 af

Pond CB-5-1: L5-1 Peak Elev=57.29' Inflow=11.31 cfs 1.797 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=11.31 cfs 1.797 af

Pond CB-5-2: L5-2 Peak Elev=42.70' Inflow=31.46 cfs 4.088 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=31.46 cfs 4.088 af

Pond CB-6-1: L6-1 Peak Elev=49.41' Inflow=0.13 cfs 0.018 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.13 cfs 0.018 af

Link L1-5: L1-5 Inflow=36.99 cfs 7.115 af
Primary=36.99 cfs 7.115 af

Link L1-6: L1-6 Inflow=62.52 cfs 10.079 af
Primary=62.52 cfs 10.079 af

Link L2-1: L2-1 Inflow=6.43 cfs 10.108 af
Primary=6.43 cfs 10.108 af

Link L2-4: L2-4 Inflow=11.14 cfs 11.381 af
Primary=11.14 cfs 11.381 af

Link L2-5: L2-5 Inflow=13.46 cfs 1.493 af
Primary=13.46 cfs 1.493 af

Link L2-6: L2-6 Inflow=23.22 cfs 12.874 af
Primary=23.22 cfs 12.874 af

Link L4-3: L4-3 Inflow=8.63 cfs 1.547 af
Primary=8.63 cfs 1.547 af

Link L4-4: L4-4 Inflow=10.32 cfs 1.744 af
Primary=10.32 cfs 1.744 af

Link L4-5: L4-5 Inflow=18.91 cfs 3.291 af
Primary=18.91 cfs 3.291 af

Link L5-3: L5-3 Inflow=28.91 cfs 4.088 af
Primary=28.91 cfs 4.088 af

Link L6-2: L6-2 Inflow=0.13 cfs 0.018 af
Primary=0.13 cfs 0.018 af

Total Runoff Area = 323.908 ac Runoff Volume = 34.920 af Average Runoff Depth = 1.29"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Time span=0.00-36.00 hrs, dt=0.02 hrs, 1801 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1-1: 1-1 Runoff Area=40.914 ac 5.72% Impervious Runoff Depth=2.97"
Flow Length=1,330' Tc=33.2 min CN=WQ Runoff=59.93 cfs 10.129 af

Subcatchment 1-2: DA-1-2 Runoff Area=22.507 ac 1.83% Impervious Runoff Depth=3.35"
Flow Length=485' Tc=27.5 min CN=WQ Runoff=40.78 cfs 6.290 af

Subcatchment 1-3: DA-1-3 Runoff Area=20.216 ac 0.00% Impervious Runoff Depth=4.39"
Flow Length=1,275' Tc=17.2 min CN=WQ Runoff=59.18 cfs 7.398 af

Subcatchment 1-4: DA-1-4 Runoff Area=18.482 ac 0.00% Impervious Runoff Depth=4.52"
Flow Length=875' Tc=18.9 min CN=WQ Runoff=53.04 cfs 6.957 af

Subcatchment 2-1: DA-2-1 Runoff Area=67.852 ac 3.96% Impervious Runoff Depth=2.79"
Flow Length=3,230' Tc=68.9 min CN=WQ Runoff=59.94 cfs 15.750 af

Subcatchment 2-2: DA-2-2 Runoff Area=52.573 ac 0.05% Impervious Runoff Depth=3.79"
Flow Length=1,550' Tc=62.4 min CN=WQ Runoff=63.87 cfs 16.616 af

Subcatchment 2-3: DA-2-3 Runoff Area=7.453 ac 0.00% Impervious Runoff Depth=4.74"
Flow Length=850' Tc=25.6 min CN=WQ Runoff=18.78 cfs 2.942 af

Subcatchment 2-4: DA-2-4 Runoff Area=8.606 ac 0.00% Impervious Runoff Depth=4.73"
Flow Length=745' Tc=17.7 min CN=WQ Runoff=26.44 cfs 3.391 af

Subcatchment 3-1: DA-3-1 Runoff Area=8.461 ac 6.06% Impervious Runoff Depth=2.07"
Flow Length=688' Tc=33.2 min CN=WQ Runoff=8.38 cfs 1.462 af

Subcatchment 3-1-P: DA-3-1-P Runoff Area=1.790 ac 100.00% Impervious Runoff Depth=5.08"
Tc=0.0 min CN=98 Runoff=10.82 cfs 0.758 af

Subcatchment 3-2: 3-2 Runoff Area=25.718 ac 10.45% Impervious Runoff Depth=1.29"
Flow Length=1,578' Tc=19.9 min CN=WQ Runoff=20.07 cfs 2.759 af

Subcatchment 4-1: DA-4-1 Runoff Area=15.689 ac 1.12% Impervious Runoff Depth=2.81"
Flow Length=1,170' Tc=41.1 min CN=WQ Runoff=17.92 cfs 3.680 af

Subcatchment 4-2: DA-4-2 Runoff Area=10.016 ac 0.00% Impervious Runoff Depth=4.74"
Flow Length=955' Tc=37.6 min CN=WQ Runoff=20.29 cfs 3.954 af

Subcatchment 5-1: DA-5-1 Runoff Area=10.367 ac 0.00% Impervious Runoff Depth=4.73"
Flow Length=625' Tc=33.8 min CN=WQ Runoff=22.27 cfs 4.082 af

Subcatchment 5-2: DA-5-2 Runoff Area=13.159 ac 0.00% Impervious Runoff Depth=4.74"
Flow Length=1,025' Tc=10.3 min CN=WQ Runoff=53.33 cfs 5.194 af

Subcatchment 6-1: DA-6 Runoff Area=0.105 ac 0.00% Impervious Runoff Depth=4.74"
Flow Length=135' Slope=0.0150 '/' Tc=25.6 min CN=WQ Runoff=0.26 cfs 0.041 af

Reach R1-1: R1-1 Avg. Flow Depth=1.65' Max Vel=4.52 fps Inflow=59.93 cfs 10.129 af
n=0.035 L=800.0' S=0.0117 '/' Capacity=90.60 cfs Outflow=59.37 cfs 10.129 af

Reach R1-2: R1-2 Avg. Flow Depth=0.22' Max Vel=2.92 fps Inflow=2.30 cfs 3.848 af
n=0.035 L=20.0' S=0.0465 '/' Capacity=180.91 cfs Outflow=2.30 cfs 3.848 af

Reach R1-3: R-1-3 Avg. Flow Depth=2.65' Max Vel=2.27 fps Inflow=96.07 cfs 21.375 af
n=0.040 L=225.0' S=0.0022 '/' Capacity=56.74 cfs Outflow=95.72 cfs 21.365 af

Reach R1-4: R1-4 Avg. Flow Depth=1.32' Max Vel=5.73 fps Inflow=53.04 cfs 6.957 af
n=0.035 L=290.0' S=0.0241 '/' Capacity=130.35 cfs Outflow=52.88 cfs 6.957 af

Reach R1-5: R1-5 Inflow=95.72 cfs 21.365 af
Outflow=95.72 cfs 21.365 af

Reach R2-1: R2-1 Avg. Flow Depth=1.97' Max Vel=4.19 fps Inflow=73.57 cfs 28.009 af
n=0.035 L=460.0' S=0.0082 '/' Capacity=76.05 cfs Outflow=73.49 cfs 27.984 af

Reach R2-2: R2-2 Avg. Flow Depth=1.18' Max Vel=5.14 fps Inflow=26.44 cfs 3.391 af
n=0.030 L=175.0' S=0.0171 '/' Capacity=82.75 cfs Outflow=26.39 cfs 3.391 af

Reach R2-3: R2-3 Avg. Flow Depth=2.14' Max Vel=5.71 fps Inflow=76.30 cfs 30.926 af
n=0.030 L=410.0' S=0.0110 '/' Capacity=66.21 cfs Outflow=76.27 cfs 30.910 af

Reach R3-1: R3-1 Avg. Flow Depth=0.62' Max Vel=3.96 fps Inflow=8.38 cfs 1.462 af
n=0.030 L=1,596.0' S=0.0203 '/' Capacity=89.94 cfs Outflow=7.98 cfs 1.462 af

Reach R3-P: R3-P Avg. Flow Depth=0.00' Max Vel=0.00 fps Inflow=0.00 cfs 0.000 af
n=0.040 L=276.0' S=0.0056 '/' Capacity=3.77 cfs Outflow=0.00 cfs 0.000 af

Reach R4-1: R4-1 Avg. Flow Depth=0.70' Max Vel=7.48 fps Inflow=17.92 cfs 3.680 af
n=0.030 L=95.0' S=0.0632 '/' Capacity=158.84 cfs Outflow=17.93 cfs 3.680 af

Reach R4-2: R4-2 Avg. Flow Depth=0.73' Max Vel=8.09 fps Inflow=20.29 cfs 3.954 af
n=0.030 L=140.0' S=0.0714 '/' Capacity=168.92 cfs Outflow=20.29 cfs 3.954 af

Reach R5-1: R5-1 Avg. Flow Depth=0.87' Max Vel=4.50 fps Inflow=22.27 cfs 4.082 af
n=0.035 L=640.0' S=0.0234 '/' Capacity=325.19 cfs Outflow=22.15 cfs 4.082 af

Reach R5-2: R5-2 Avg. Flow Depth=1.76' Max Vel=4.01 fps Inflow=62.19 cfs 9.277 af
n=0.035 L=700.0' S=0.0086 '/' Capacity=77.67 cfs Outflow=58.35 cfs 9.277 af

Reach R6-1: R6-1 Avg. Flow Depth=0.09' Max Vel=1.33 fps Inflow=0.26 cfs 0.041 af
n=0.030 L=360.0' S=0.0203 '/' Capacity=90.06 cfs Outflow=0.26 cfs 0.041 af

Pond 1-P: Peak Elev=39.23' Storage=4.171 af Inflow=40.78 cfs 6.290 af
12.0" Round Culvert n=0.012 L=23.0' S=0.0000 '/' Outflow=2.30 cfs 3.848 af

Pond 2-P: Peak Elev=38.29' Storage=12.565 af Inflow=123.32 cfs 32.366 af
Outflow=73.57 cfs 28.009 af

Pond 3-P: Peak Elev=86.52' Storage=0.758 af Inflow=10.82 cfs 0.758 af
Outflow=0.00 cfs 0.000 af

Pond CB-1-1: L1-1 Peak Elev=371.42' Inflow=59.93 cfs 10.129 af
14.0" Round Culvert n=0.025 L=50.0' S=0.0148 '/' Outflow=59.93 cfs 10.129 af

Pond CB-1-3: L1-3 Peak Elev=44.93' Inflow=96.07 cfs 21.375 af
36.0" Round Culvert n=0.012 L=95.0' S=0.0019 '/' Outflow=96.07 cfs 21.375 af

Pond CB-1-4: L1-4 Peak Elev=60.55' Inflow=53.04 cfs 6.957 af
24.0" Round Culvert n=0.025 L=84.0' S=0.0357 '/' Outflow=53.04 cfs 6.957 af

Pond CB-2-3: L2-2 Peak Elev=36.53' Inflow=76.30 cfs 30.926 af
36.0" Round Culvert n=0.012 L=150.0' S=0.0100 '/' Outflow=76.30 cfs 30.926 af

Pond CB-2-4: L2-3 Peak Elev=34.53' Inflow=26.44 cfs 3.391 af
24.0" Round Culvert n=0.012 L=75.0' S=0.0000 '/' Outflow=26.44 cfs 3.391 af

Pond CB-3-1: L3-1 Peak Elev=88.29' Inflow=8.38 cfs 1.462 af
Outflow=8.38 cfs 1.462 af

Pond CB-3-2: L3-2 Peak Elev=57.68' Inflow=24.79 cfs 4.221 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=24.79 cfs 4.221 af

Pond CB-4-1: L4-1 Peak Elev=56.40' Inflow=17.92 cfs 3.680 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=17.92 cfs 3.680 af

Pond CB-4-2: L4-2 Peak Elev=56.80' Inflow=20.29 cfs 3.954 af
24.0" Round Culvert n=0.012 L=100.0' S=0.0200 '/' Outflow=20.29 cfs 3.954 af

Pond CB-5-1: L5-1 Peak Elev=57.91' Inflow=22.27 cfs 4.082 af
36.0" Round Culvert n=0.012 L=70.0' S=0.0143 '/' Outflow=22.27 cfs 4.082 af

Pond CB-5-2: L5-2 Peak Elev=46.68' Inflow=62.19 cfs 9.277 af
32.0" Round Culvert n=0.012 L=217.0' S=0.0276 '/' Outflow=62.19 cfs 9.277 af

Pond CB-6-1: L6-1 Peak Elev=49.47' Inflow=0.26 cfs 0.041 af
18.0" Round Culvert n=0.012 L=95.0' S=0.0309 '/' Outflow=0.26 cfs 0.041 af

Link L1-5: L1-5 Inflow=95.72 cfs 21.365 af
Primary=95.72 cfs 21.365 af

Link L1-6: L1-6 Inflow=146.48 cfs 28.323 af
Primary=146.48 cfs 28.323 af

Link L2-1: L2-1 Inflow=73.57 cfs 28.009 af
Primary=73.57 cfs 28.009 af

Link L2-4: L2-4 Inflow=76.27 cfs 30.910 af
Primary=76.27 cfs 30.910 af

Link L2-5: L2-5 Inflow=26.39 cfs 3.391 af
Primary=26.39 cfs 3.391 af

Link L2-6: L2-6 Inflow=79.25 cfs 34.301 af
Primary=79.25 cfs 34.301 af

Link L4-3: L4-3 Inflow=17.93 cfs 3.680 af
Primary=17.93 cfs 3.680 af

Link L4-4: L4-4 Inflow=20.29 cfs 3.954 af
Primary=20.29 cfs 3.954 af

Link L4-5: L4-5 Inflow=38.11 cfs 7.633 af
Primary=38.11 cfs 7.633 af

Link L5-3: L5-3 Inflow=58.35 cfs 9.277 af
Primary=58.35 cfs 9.277 af

Link L6-2: L6-2 Inflow=0.26 cfs 0.041 af
Primary=0.26 cfs 0.041 af

Total Runoff Area = 323.908 ac Runoff Volume = 91.403 af Average Runoff Depth = 3.39"
96.72% Pervious = 313.275 ac 3.28% Impervious = 10.633 ac

Appendix J

Extreme Storm Event HydroCAD Summary Report

Appendix K

Stormwater Opportunity Ranking Matrix

			40	5	5	10	5	5	5	15	2	2	2	2	2	50	20	20	10	100
			Stormwater Benefits			Constructability			Cost		Co-Benefits									
Subcatchment	Project Type	Location	Water Quantity / Flood Reduction	TSS Reduction	Nutrient Reduction	Land Acquisition or Public Partnership Potential	Known Constraints (utilities, depth to groundwater, site access, soils)	Permitting	Maintenance	Fundability	Energy and Air Quality Impacts	Habitat & Biodiversity	Community & Aesthetic Benefits	Human Health Benefits	Educational Opportunities/ Visibility	Stormwater Benefits Total	Constructability Total	Cost Total	Co-Benefits Total	Project Ranking Total
DA-2-Pond	Expanding Stormwater Storage	98 Dennett Parcel	40	5	5	5	5	1	3	15	2	2	2	2	2	50	11	18	10	89
DA-4-1, DA-4-2	Expanding Stormwater Storage	East side of Dennett Road	40	5	5	5	3	1	3	15	2	2	2	2	2	50	9	18	10	87
DA-1-1	Upstream Detention/Wetland Expansion	Above Martin Rd.	40	5	5	5	1	1	1	15	2	2	2	2	2	50	7	16	10	83
All	Low-Impact Development Considerations	Areas currently zoned B-PK and C-2	20	5	5	10	5	5	5	10	2	2	2	2	2	30	20	15	10	75
Multiple	Sizing of Critical Infrastructure - Culvert and Drainage Modifications	Martin Rd., Rt-236, Dennett and Old Dennett Rds., I-95	30	0	0	10	3	3	5	10	0	0	2	2	1	30	16	15	5	66
DA-2-1, DA-2-2, DA-2-4, DA-4-1, DA-4-2, DA-1-2, DA-1-4	Land Conservation	Areas currently zoned B-PK and C-2	20	5	5	5	5	5	5	5	2	2	2	2	2	30	15	10	10	65
DA-1-2, DA-1-3	Wetland Restoration	41 Rt. 236	10	5	5	5	3	1	1	15	2	2	2	2	2	20	9	16	10	55
All Residential	Homeowner Floodproofing	All Residential	10	0	0	10	5	5	5	5	2	2	2	2	2	10	20	10	10	50
DA-3-1; DA-2-1, DA-1-1	Installation of Sewer Line Seep Collars	Martin Rd.	10	0	0	10	3	5	5	5	0	0	0	1	0	10	18	10	1	39
DA-3	Drainage Infrastructure Modifications	Roseberry Lane	10	0	0	10	3	3	5	5	0	0	0	1	0	10	16	10	1	37
DA-3-1	Culvert Modifications	Old Dennett Road	10	0	0	10	3	3	5	5	0	0	0	1	0	10	16	10	1	37
DA-3-1	Access Road Culvert Improvements	Happy Avenue	10	0	0	5	3	5	5	5	0	0	0	1	0	10	13	10	1	34
DA-2-1	Drainage Improvements	Summer Lane	10	0	0	5	3	3	5	5	0	0	0	1	0	10	11	10	1	32
															Appenidx					

Notes - Initiall construction/implementation cost not included in priority ranking. Intent is to develop projects with a varying range of costs.
Projects in BOLD represent the 6 projects selected for further evaluation as part of Engineering Study Report.
Recommendations for Homeowner Floodproofing are also provided in the Report.

Stormwater Benefits:
Quantity:
0 - negligible reduction in peak flow.
10 - addresses lot level localized flooding or potenitally minimizes groundwater intrusion
20 - assists with off-setting potential drainage issues associated with future development
30 - addresses localized flooding (road/culvert overtopping) or GI practice that promotes infiltration or impervious reduction 1,000 - 100,000 sf
40 - creation of stormwater attenuation or impervious reduction over 100,000 sf

TSS & Nutrients:
0 - negligibile benefit
5 - water quality benefit

Constructability:
Ownership
0 - uninterested private owner
5 - interested private owner or unknown interest level private owner
10 - public

Known Constraints
1 - Constraints identified
3 - Possible constraints identified
5 - No constraints identified

Permitting
1 - Multiple permits required (MDEP, ACOE, Local ROW, etc.) and Project is located on Private Property
3 - Multiple permits required (MDEP, ACOE, Local ROW, etc.) and Project is located on Public Property
5 - Low permitting demand anticipated

Cost:
Maintenance
1 - Hiigh $
3 - Medium $
5 - Low $

Fundability
5- not fundable through existing stormwater management and flooding prevention grants
10 - Grant assistance possible
15 - Grant assitance likely

Co-Benefits modified from "The Value of Green Infrastructure: A Guide to Recognizing its Economic, Environmental, and Social Benefits," Center for Neighborhood Technology and American Rivers, 2010 and "Green Infrastructure Practices and Benefits", National Oceanic and Atmospheric Administration, 2014"

Co-benefits on a scale from 0 (no benefit) to 2 (significant benefit)
Energy and Air Quality Impacts includes: energy use reduction, air quality improvements and atmospheric C02 reduction
Habitat and Biodiversity includes: increases biodiversity, increases habitat connectivity, and provides pollinator habitat
Community and Aesthetic Benefits includes: improved aesthetics, increased recreational opportunities, and increased property values
Human health benefits includes health benefits and accident reduction

Appendix L

Herb Parsons Pond Evaluation

Assessment of Groundwater Conditions Proximal to Herb Parson Pond, Kittery, ME

Streamworks

27 January 2023

Objective: Assess whether Herb Parson Pond along Martin Road in Kittery, ME creates high groundwater resulting in nearby basement flooding.

Result of Assessment: Herb Parsons Pond acts like a large diameter groundwater well: the pond surface being the groundwater elevation. Because the Pond has very little surface water drainage area, the Pond water surface elevation simply bears witness to local groundwater conditions and does not control that condition.

A site inspection was conducted January 14, 2023. 90% of the Pond perimeter was walked as well as Martin Road ¼ mile either side of the Pond. As evidenced in Figures 1 and 2, the pond water level was low at both times photos were taken as evidenced by the noticeable bank scarp at the high-water line where woody vegetation starts.

Figure 1. Herb Parson Pond Looking North 14 January 2023

Figure 2. Herb Parson Pond Looking East Fall 202s (photo by B&L).

Figure 3 depicts the local topography from a USGS Quadrangle map (Portsmouth, NH 7.5-minute Quadrangle 2021 with imagery from 2015-2016). Martin Road runs East-West along a topographic high (possibly an esker or kame deposit) and the pond resides just left of the center of the figure. Elevation drops off quickly to the north (towards Spinney Creek) and gently to the south. Notice that the eastern extension of Happy Avenue does not appear on this map.

Walking the perimeter of the pond displayed no streams or storm drains flowing into or out of the pond. The pond watershed area is not much larger than the pond surface area itself, most-likely due to two factors: setting and excavation. The pond setting is near a local topographic high and the pond watershed appears as though it is a relic gravel pit with the pond in the center where gravel excavation proceeded below the water table. From the USDA soil survey, the pond is identified as a gravel pit (Appendix).

Because of the very small watershed area, which possesses very little impervious cover, the pond water surface is simply a reflection of the local groundwater table. It does appear that at least one basement sump pump delivers water to the pond, but this would be insufficient to

dramatically increase the pond water level, and essentially a zero-sum issue: groundwater is pumped from one spot and moved to another. There are some rooftops that also drain into the pond. This runoff could result in measurable (but very small) increases in the pond level, but such an increase would become undetectable after say one hundred feet away.

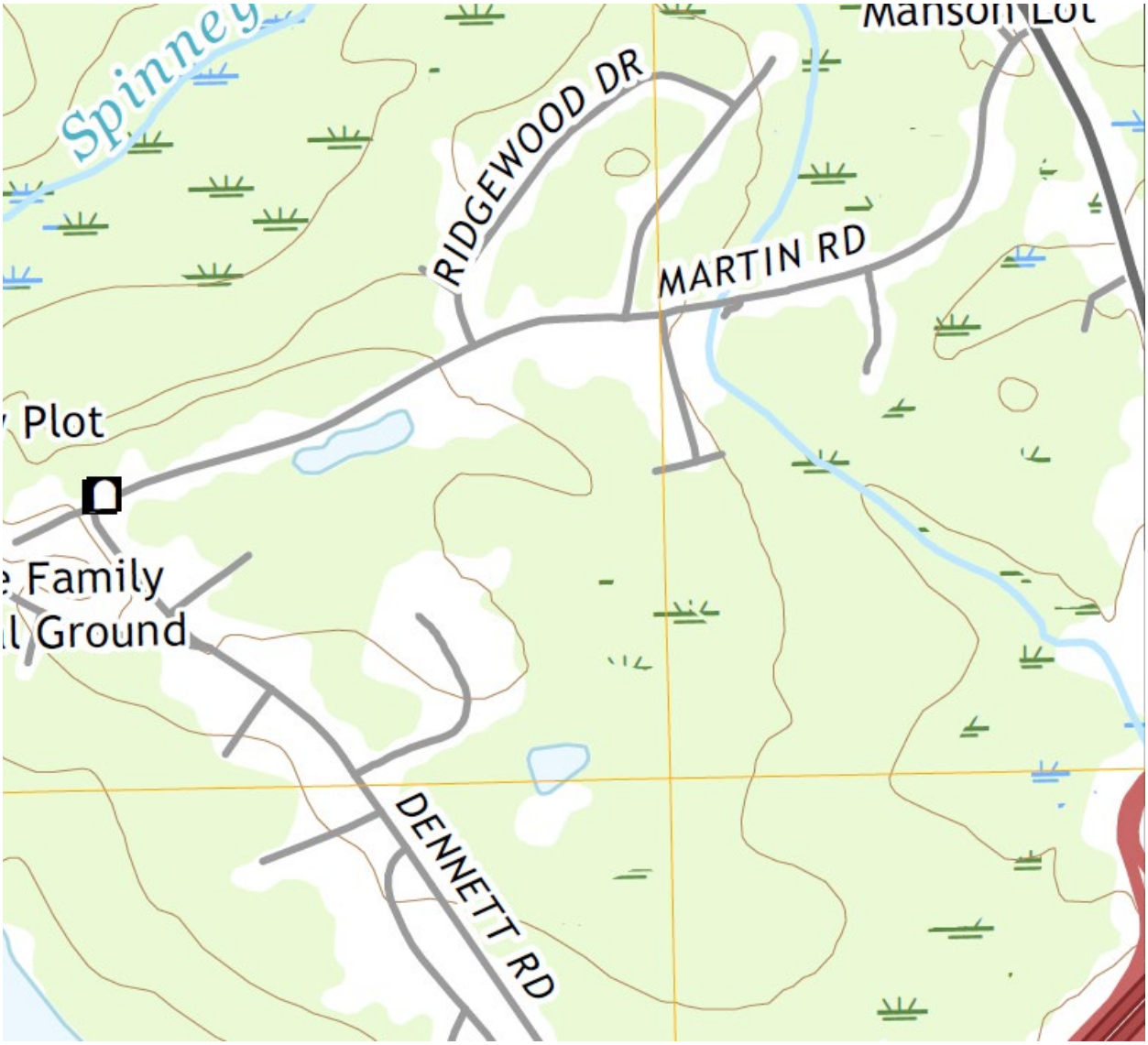


Figure 3. USGS Topographic map in the Vicinity of Herb Parson Pond

From the Soils report, the pond is in the Colton gravelly sandy loam soil type which possesses a high infiltration rate. As such any road or rooftop runoff from Martin Road or nearby houses to the pond, that is directed to the pond, would not dramatically effect pond hydrology because in the absence of those impervious covers, precipitation would have infiltrated to groundwater in the high permeability Colton soil.

A very interesting feature of the Soils Report is that south of the pond, and along Happy Avenue, the soil is listed as “water”. It did not appear as water at the time of the site visit or from aerial imagery. Earlier USGS maps indicated the wetland symbol at the eastern portion of Happy Avenue.

Many of the houses along Martin Road appear over 50 years old (many appear on the oldest Google Earth image of 1992). Some of these older homes were built with their first floors above grade and have raised bed septic systems, as in Figure 5. Many of these homes appear to have basements. Not all homes inspected during the field visit had rooftop gutters and downspouts to move roof runoff away from the house foundation (a very common cause for basement wetness and flooding).

Figure 5. Evidence of raising local terrain to accommodate infrastructure.

The weight of evidence from the site visit is that Herb Parson Pond does not cause high groundwater levels in its vicinity, but rather witnesses the groundwater condition.

Appendix

Soils Report from Web Soil Survey

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for York County, Maine

January 26, 2023

Preface

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

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

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

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

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

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

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Custom Soil Resource Report
Soil Map

Map Scale: 1:4,410 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

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 1:20,000.

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: York County, Maine
Survey Area Data: Version 21, Aug 30, 2022

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

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

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
AgB	Adams-Urban land complex, 0 to 8 percent slopes	6.2	10.8%
CoB	Colton gravelly sandy loam, 0 to 8 percent slopes	14.1	24.8%
CoD	Colton gravelly sandy loam, 15 to 25 percent slopes	2.9	5.2%
CrB	Croghan loamy fine sand, 0 to 8 percent slopes, wooded	0.6	1.0%
LnB	Lyman loam, 3 to 8 percent slopes, rocky	2.8	5.0%
LnC	Lyman loam, 8 to 15 percent slopes, rocky	2.6	4.6%
Pg	Pits, gravel	7.0	12.3%
SkB	Skerry fine sandy loam, 0 to 8 percent slopes	3.2	5.7%
W	Water bodies	17.5	30.7%
Totals for Area of Interest		**56.9**	**100.0%**

Map Unit Descriptions

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

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

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

are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

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

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

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

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

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

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

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

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

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

York County, Maine

AgB—Adams-Urban land complex, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2wqnv
Elevation: 490 to 1,310 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 28 to 52 degrees F
Frost-free period: 110 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Adams and similar soils: 45 percent
Urban land: 40 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Adams

Setting

Landform: Outwash deltas
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Sandy glaciofluvial deposits

Typical profile

Ap - 0 to 7 inches: loamy sand
Bs - 7 to 21 inches: sand
BC - 21 to 27 inches: sand
C - 27 to 65 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Outwash deltas

Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Linear

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

CoB—Colton gravelly sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2ym4k
Elevation: 10 to 2,000 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Colton and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Kames, eskers
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy-skeletal glaciofluvial deposits

Typical profile

Oe - 0 to 4 inches: moderately decomposed plant material
E - 4 to 6 inches: gravelly sandy loam
Bs - 6 to 14 inches: gravelly loamy sand
BC - 14 to 24 inches: very gravelly coarse sand
C - 24 to 65 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)

Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

CoD—Colton gravelly sandy loam, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: 2yjfr
Elevation: 540 to 2,000 feet
Mean annual precipitation: 31 to 95 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Colton and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Colton

Setting

Landform: Kames, eskers
Landform position (two-dimensional): Summit, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy-skeletal glaciofluvial deposits

Typical profile

Oe - 0 to 4 inches: moderately decomposed plant material
E - 4 to 6 inches: gravelly sandy loam
Bs - 6 to 14 inches: gravelly loamy sand
BC - 14 to 24 inches: very gravelly coarse sand
C - 24 to 65 inches: extremely gravelly coarse sand

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: F144BY601ME - Dry Sand
Hydric soil rating: No

CrB—Croghan loamy fine sand, 0 to 8 percent slopes, wooded

Map Unit Setting

National map unit symbol: 2wqp0
Elevation: 150 to 2,300 feet
Mean annual precipitation: 40 to 55 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 135 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Croghan and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Croghan

Setting

Landform: Marine terraces, outwash deltas
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, base slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Sandy glaciofluvial deposits

Typical profile

Oa - 0 to 4 inches: highly decomposed plant material
E - 4 to 6 inches: loamy fine sand
Bs - 6 to 17 inches: loamy fine sand
BC - 17 to 30 inches: fine sand
C - 30 to 65 inches: sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 4.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: A
Ecological site: F144BY602ME - Sandy Toeslope
Hydric soil rating: No

LnB—Lyman loam, 3 to 8 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2trq7
Elevation: 0 to 520 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Lyman, rocky, and similar soils: 86 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Rocky

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: D
Hydric soil rating: No

LnC—Lyman loam, 8 to 15 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2trq9
Elevation: 0 to 690 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyman, rocky, and similar soils: 86 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Rocky

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: No

Pg—Pits, gravel

Map Unit Composition

Pits: 88 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pits

Setting

Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear

Typical profile

H1 - 0 to 6 inches: extremely gravelly sand
H2 - 6 to 60 inches: extremely gravelly sand

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

SkB—Skerry fine sandy loam, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w9pg
Elevation: 160 to 750 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Skerry and similar soils: 85 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Skerry

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope

Landform position (three-dimensional): Mountainbase, interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy lodgment till derived from granite and gneiss and/or schist over sandy lodgment till derived from granite and gneiss and/or schist

Typical profile

Ap - 0 to 6 inches: fine sandy loam
Bs1 - 6 to 20 inches: gravelly fine sandy loam
Bs2 - 20 to 25 inches: gravelly fine sandy loam
Cd1 - 25 to 34 inches: gravelly loamy sand
Cd2 - 34 to 65 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 21 to 43 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F144BY501ME - Loamy Slope (Northern Hardwoods)
Hydric soil rating: No

W—Water bodies

Map Unit Composition

Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Hills

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