

**Stormwater Report** 

LAND SURVEYING

In Support Of

**Special Permit Application** 

For

Atwater Avenue (Map 37, Lots 7 and 8) Manchester By the Sea, MA PREPARED BY: Hancock Associates #25770

PREPARED FOR: Cell Signaling Technologies, Inc. May 2024



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### Introduction

Cell Signaling Technologies, Inc. proposes to construct a research, development, and manufacturing facility at Atwater Avenue, Manchester-By-The-Sea. Associated improvements will include paved vehicular and pedestrian areas, recreational areas, landscaped areas, stormwater management systems, and utility services. The project area is currently comprised of a contractor's supply and storage yard with vehicular areas, dirt, gravel, and paved; grassed and wooded areas; and exposed ledge outcroppings. The project area is accessed by the Atwater Avenue and consists of 36.1± acres and is bounded by State Highway Route 128 to the west and south, commercial, and industrial uses to the north, and land belonging to the Trustees of Reservations to the northeast. Elevations on site range from 148 at the center of the site to 48 at the Route 128 sideline and elevation 50.0 at Atwater Avenue.

The entirety of the project area is not within but adjacent to a FEMA A flood zone with no associated elevation as shown on FEMA map number 25009C0432G and 25009C0434G dated July 16, 2014. No work is proposed within the associated flood zone. The proposed stormwater management system will include deep sump hooded catch basins, hydrodynamic separators, infiltration basins, and rain gardens. The discharge from the stormwater system will discharge to wetlands areas adjacent to the property.

The proposed stormwater management system was designed to meet the Stormwater Management Standards described in the Massachusetts Stormwater Handbook to the maximum extent practicable and the Town of Manchester-By-The-Sea Stormwater Standards. The following report describes the system's compliance with these standards.



# **Standard 1: No New Untreated Discharges**

The Massachusetts Stormwater Handbook states that no new stormwater conveyances may discharge untreated stormwater directly to or cause erosions in wetlands or waters of the Commonwealth. The project does not include new stormwater conveyances.



# **Standard 2: Peak Rate Attenuation**

The Massachusetts Stormwater Handbook states that stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. A summary of the existing and proposed discharge rates follows. The proposed condition discharge rates of runoff are at or below the existing rates to the same discharge points. Please see the attached "Existing Drainage Figure" and "Proposed Drainage Figure" figures (Appendix III) and HydroCAD output (Appendix IV) for more information.

For the purpose of these calculations the following assumptions were made:

- The project property lines, tributary areas, and the edge of the Route 128 Sideline were used to delineate watershed boundaries.
- The same total watershed area of the drainage areas is used to compare the existing and proposed conditions.
- The Natural Resources Conservation Service (NRCS) Web Soil Survey of Essex County defines multiple soils in the project area as a multitude ranging from Annisquam Sandy Loam (Hydrologic Soil Group B), Chatfield-Hollis-Rock Outcrop (Hydrologic Soil Group B/D), Udorthents (Hydrologic Soil Group not rated, assumed as HSG C), and Urban Land (Hydrologic Soil Group not rated, assumed as HSG C). A Preliminary Geotechnical Study completed by GZA, Inc. on February 25, 2022 indicate that the upper layer on fill on-site consisting of gravel and asphalt millings over a sandy subsoil with cobbles and trace amount of silt. Bedrock onsite varies from being exposed in some areas to being two (2) to over ten (10) feet below the existing ground surface. Soil testing was conducted by this office and had confirmed that the subsoil consisted of a loamy sand fill over a sandy loam parent material. The depth to ledge had varied across the site and the results of this testing can be seen on the attached pre and post development drainage features.
- Two (2) drainage analysis points have been modeled to represent the existing condition:
- Drainage Analysis Point DP1 consists of paved, gravel, and dirt vehicular areas; and grassed/wooded areas. Stormwater runoff from Subcatchments 1A, 1B, & 1C drains via overland flow to the north of the property and eventually discharges into Sawmill Brook.
- Drainage Analysis Point DP2 consists of gravel, and dirt vehicular areas; and grassed/wooded areas. Stormwater runoff from Subcatchments 2A, 2B, 2C, & 2D drains via overland flow to the south of the property and eventually discharges to Route 128.

In the proposed condition a stormwater management system will collect and treat stormwater runoff from the project site. This system will include the use of country drainage to capture stormwater from the access driveways, parking areas, and roofs into a series of water quality swales that convey stormwater down the slope and to an infiltration basin. Several drainage areas have been modeled to represent the proposed condition:

- Drainage Areas 1S and 2S will consist of landscaped areas and paved vehicular areas. Stormwater discharge from these areas will drain overland to catch basins piped to a water quality unit and eventually discharging to Infiltration Basin 1. Overflow from Infiltration Basin 1 will discharge via a plunge pool outlet.
- Drainage Areas 3S, 4S, 5S, 6S, 7S, 24S, & 25S will consist of landscaped areas and paved vehicular areas. Stormwater discharge from these areas will drain overland to catch basins and piped before eventually discharging to the Rain Garden 1. Overflow from Rain Garden will be conveyed via an overflow weir to Infiltration Basin 1.
- Drainage Areas 8S, 9S, 10S, 11S, 12S, 14S, 15S, 35S, & 36S will consist of landscaped areas, paved vehicular areas. Stormwater discharge from these areas will drain overland to catch basins and piped before eventually discharging to Wet Basin 1. Overflow from Wet Basin 1 will be conveyed via a pipe network down to Rain Garden 1 and eventually Infiltration Basin 1.
- Drainage Areas 16S, 17S, 18S, and 30s will consist of landscaped areas and paved vehicular areas. Stormwater discharge from these areas will drain overland to catch basins and piped to a water quality unit before eventually discharging to Rain Garden 1. Overflow from Rain Garden will be



conveyed via an overflow weir to Infiltration Basin 1. Overflow from Infiltration Basin 1 will discharge via a plunge pool outlet.

- Drainage Areas 19S, 20S, 21S, and 22S will consist of landscaped areas and paved vehicular areas. Stormwater discharge from these areas will drain overland to catch basins and piped before eventually discharging to Rain Garden 1. Overflow from Rain Garden 1 will be conveyed via an overflow weir to Infiltration Basin 1. Overflow from Infiltration Basin 1 will discharge via a plunge pool outlet.
- Drainage Area 31S will consist of landscaped areas. Stormwater discharge from these areas will drain overland before eventually discharging to Infiltration Basin 1. Overflow from Infiltration Basin 1 will discharge via a plunge pool outlet.
- Drainage Area 32S will consist of landscaped areas. Stormwater discharge from these areas will drain overland before eventually discharging to Rain Garden 1. Overflow from Rain Garden 1 will be conveyed via an overflow weir to Infiltration Basin 1. Overflow from Infiltration Basin 1 will discharge via a plunge pool outlet.
- Drainage Area 35S will consist of landscaped areas. Stormwater discharge from these areas will drain overland before eventually discharging to Wet Basin 1. Overflow from Wet Basin 1 will be conveyed via a pipe network down to Rain Garden 1 and eventually Infiltration Basin 1.
- Drainage Area 40S will consist of landscaped areas and paved pedestrian areas. Stormwater discharge from this area will drain overland before eventually discharging to Rain Garden 2. Overflow from Rain Garden 2 will discharge via an overflow catch basin and be piped before eventually discharging to Infiltration Basin 1. Overflow from Infiltration Basin 1 will discharge via a plunge pool outlet.
- Drainage Area 41S will consist of landscaped areas and paved pedestrian areas. Stormwater discharge from this area will drain overland before eventually discharging to Rain Garden 3. Overflow from Rain Garden 3 will discharge via an overflow catch basin and be piped before eventually discharging to Infiltration Basin 1. Overflow from Infiltration Basin 1 will discharge via a plunge pool outlet.
- Drainage Areas 50S will consist of rooftop areas for the Phase 1 and 2 parking garage. Stormwater discharge from these areas will be collected via roof drains and piped before eventually discharging to the Wet Basin 1. Overflow from Wet Basin 1 will be conveyed via a pipe network down to Rain Garden 1 and eventually Infiltration Basin 1.
- Drainage Areas 60S & 70S will consist of the rooftop areas for Phase 1 and 2 of the research and laboratory building. Stormwater discharge from these areas will be piped before eventually discharging to the Rain Garden 1. Overflow from Rain Garden 1 will be conveyed via an overflow weir to Infiltration Basin 1.
- Drainage Areas 10A, 10B, & 10C will consist of landscaped areas and wooded areas as well as some paved vehicular areas. Stormwater discharge from these areas will drain overland to the north and west of the property to the sideline property before discharging into Sawmill Brook.
- Drainage Areas 20A, 20B, 20C, & 20D will consist of landscaped areas and wooded areas. Stormwater discharge from these areas will drain overland to the south of the property to the sideline of Route 128.



The following table compares the peak rates of runoff under the existing and proposed conditions using Massachusetts RMAT Climate Change Resiliency Tool to forecast increased Precipitation Data due to climate change. The tool was able to forecast the projected storm events up until the year 2090 and these values were used for our analysis:

	Peak Rate (cfs)							
Discharge Point	<b>2-Year Storm</b> (4.70" Rainfall Depth)		<b>10-Year Storm</b> (7.40" Rainfall Depth)		<b>25-Year Storm</b> (9.10" Rainfall Depth)		<b>100-Year Storm</b> (11.70" Rainfall Depth)	
	Existing	Proposed	Existing	Proposed	Existing	Proposed	Existing	Proposed
DP1	50.26	30.09	95.19	56.89	123.82	95.16	167.52	147.60
DP2	16.66	14.79	39.04	35.21	55.14	49.26	80.71	71.51

#### Table 1: Peak Rates of Runoff

cfs - Cubic Feet per Second



# **Standard 3: Recharge**

The Massachusetts Stormwater Handbook states that loss of annual recharge to groundwater shall be eliminated or minimized. The annual recharge from the post-development site shall approximate the annual recharge from the pre-development conditions based on soil type. Recharge volumes are provided for all the proposed impervious areas. For the purpose of these calculations, all of the project areas are considered to be Hydrologic Soil Group B. The required recharge volume is 0.35" multiplied by the area of impervious surfaces. Please see the attached HydroCAD summaries for the recharge volumes provided within the infiltration basin (Appendix VI). The volumes is as follows:

Required Recharge Volume, HSG B = Target Depth \* Impervious Area = 0.35" \* 278,464 SF = 8,122 CF

This project is a redevelopment by reducing the overall impervious area onsite by introducing landscaped areas to a degraded site. This project is also an improvement on the existing condition since the installation of stormwater management on a site where none exists.

While stormwater from most of the development will drain to the storage volume, some paved areas will drain directly to the discharge point due to the elevation and slope of the entrance driveway. These include the impervious areas in Subcatchment 10A and 10B. Since not all of the impervious areas will be drained to the provided recharge volume a capture area adjustment is applied to the required volume. The calculation is as follows:

Ratio: Impervious area not draining to Recharge Volume/ Total Impervious Area = 37,970 SF / 278,464 SF x 100% =13.6% < 65%

Capture Area Adjustment Factor = Total Impervious Area / Impervious Area Draining to Recharge Volume = 278,464 SF / 240,494 SF = 1.16

Adjusted Required Recharge Volume = Required Recharge Volume \* Capture Area Adjustment Factor =8,122 CF \* 1.16 = **9,421 Cubic Feet** 

Recharge Volumes (volume under lowest outlet) Infiltration Basin 1: 13,939 CF

The recharge volume of Infiltration Basin 1 is 13,939 cubic feet. Since the volume provided is greater than the required recharge volume, the standard is met. Please refer to the HydroCAD output for Recharge Volumes (Appendix VI) and Sediment Forebay Calculations under Standard 4 for more information.

The Massachusetts Stormwater Handbook states that the recharge volume must drain within 72 hours. Observations in test pits observed on-site indicate that the soil that the infiltration basin will be installed upon is sand. Please see the attached "Geotechnical Engineering Report" (Appendix VII) and soil test pit information on the existing and proposed drainage feature maps (Appendix IV). The following "drawdown" calculation assumes a Rawl's Rate of 1.02 inches per hour, corresponding to texture class "sandy loam".

#### Infiltration Basin 1 (IB.1)

Drawdown Time = Storage Volume / (Rawl's Rate \* Bottom Area) = 13,939 CF / (1.02 in/hr \* 5,730 SF) = 28.6 Hours

Since the drawdown time of all infiltration practices is less than 72 hours, the requirement is met.

# **Standard 4: Water Quality**

The Massachusetts Stormwater Handbook states that systems shall be designed to remove 80% of the average annual post-development construction load of Total Suspended Solids (TSS). The project discharges to an area that is identified as an Interim Wellhead Protection Area and a Coldwater Fishery and requires 44% TSS removal prior to infiltration. The treatment BMP's have been sized to provide the required TSS Removal for 44% pretreatment and 80% total. Measures will be taken for long-term pollution prevention.

Stormwater runoff from vehicular paved areas will be treated to the required TSS removal via deep sump hooded catch basins, sediment forebays, and infiltration basin. The treatment train computation is as follows:

ВМР	TSS Removal Rate	Starting TSS Load	Amount Removed	Remaining Load
Oil Grit Separator	0.25	1	.25	.75
Wet Basin 1 with Sediment Forebay	.80	.75	.60	.15
Rain Garden 1	0.90	0.15 .13		.02
Total TSS Pretreatme	98%			
Infiltration Basin	0.80	0.02	0.02	0%
Total TSS Removal	100%			

Table 2A: Treatment Train Calculation: Parking Garage

#### Table 2B: Treatment Train Calculation: Wet Basin 1

ВМР	MP TSS Removal Rate		Amount Removed	Remaining Load	
Street Sweeping	0.10	1	0.10	.90	
Deep Sump with Hooded Catch Basin	.25	.90	.225	.675	
Wet Basin 1 with Sediment Forebay	.80	.675	.54	.135	
Rain Garden 1 w/ Forebays	.90	.135	.12	.01	
Total TSS Pretreatme	99%				
Infiltration Basin	0.80	0.01	0.01	0	
Total TSS Removal	100%				



Table 2C: Treatment Train	Calculation: Fes 5
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вмр	TSS Removal Rate	Starting TSS Load	Amount Removed	Remaining Load
Street Sweeping	0.10	1	0.10	.90
Deep Sump with Hooded Catch Basin	.25	.90	.225	.675
Water Quality Unit	.25	.675	.51	
Total TSS Pretreatme	49%			
Infiltration Basin 1	0.80	0.49	0.39	.1
Total TSS Removal	90%			

Table 2D: Treatment	Train Calculation: Fes 3
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ВМР	TSS Removal Rate	Starting TSS Load	Amount Removed	Remaining Load
Street Sweeping	0.10	1	0.10	.90
Deep Sump with Hooded Catch Basin	.25	.90	.225	.675
Rain Garden 1 w/ forebays	.90	.675	.61	.07
Total TSS Pretreatme	93%			
Infiltration Basin 0.80		0.07	0.05	.02
Total TSS Removal	98%			

#### Water Quality Volume Calculations

The Massachusetts Department of Environmental Protection Wetlands Program Standard Method to Convert Required Water Quality Volume to a Discharge Rate for Sizing Flow Based Manufactured Proprietary Stormwater Treatment Practices, the Q rate associated with the 1-inch water quality volume is calculated using the following equations:

 $WQV = (A)^*1in.$ Q1 = (qu)(A)(WQV)

Where:

Q1 = flow rate associated with first 1-inch of runoff

qu = the unit peak discharge, in csm/in.

A = impervious surface drainage area (in square feet)

WQV = water quality volume in watershed inches (1-inch in this case)

#### Infiltration Basin 1 (IB.1)

WQV = (55,300 SF)( 1 inch.) (1ft / 12inches) WQV = 4,608 CF (13,939 CF Provided)



#### Wet Basin 1 (WB.1)

WQV = (26,535 SF)( 1 inch.) (1ft / 12inches) WQV = 2,211 CF (2,427 CF Provided)

#### Rain Garden (RG.1)

WQV = (37,659 SF)( 1 inch.) (1ft / 12inches) WQV = 3,138 CF (9,650 CF Provided)

Rain Gardens 2 & 3 do not receive flows from paved vehicular areas and are not required to accommodate the 1" water quality volume.

#### **Sediment Forebay Calculations**

The Massachusetts Stormwater Handbook specifies that sediment forebays are be designed to hold the volume of 0.1 inches per impervious SF of area that drains to them and requires treatment. The following calculations are provided below:

#### FES1 (IB.2)

V = (26,531 SF) (0.1in/12 in/ft) = 221 CF (<350 CF provided)

#### FES3 (RG.1)

V = (37,655 SF) (0.1in/12 in/ft) = 314 CF (<375 CF provided)

#### FES5 (IB.1)

V = (5,505 SF) (0.1in/12 in/ft) = 42 CF (<208 CF provided)

#### FES6 (IB.1)

V = (49,813 SF) (0.1in/12 in/ft) = 415 CF (<544 CF provided)

#### FES4&9 (RG.1)

V = (103,923 SF) (0.1in/12 in/ft) = 866 CF (<900 CF provided)



# **Standard 5: Land Uses with Higher Potential Pollutant Loads**

Per the Massachusetts Stormwater Handbook, for land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.

Phase 1 will not be considered higher potential pollutant loading, based on 200 projected employees and total daily trips of 674 (TEC). Phase 2 will be considered higher potential pollutant loading, based on 550 projected employees and total daily trips of 1,896 (TEC). In both cases, at grade parking will be limited to 29 surface parking spaces and the remaining 259 parking spaces for phase 1 will be within the parking garage.

Per the existing design, the top floor of the parking garage will be covered by a solar array. Any stormwater runoff collected from the solar array and top deck will be collected by the buildings stormwater system and pass through a gas/sand interceptor and then to the site stormwater system. Please note the project architect for the parking garage refers to oil/grit separators as gas/sand interceptors. Per the design, the parking garage drainage system is a spur from the main stormwater network (ie offline). DMH9 is identified at the gas/sand interceptor, as shown on sheet C4.1.

Per MA DEP Stormwater Best Management Practices Volume 2, Chater 2 Oil/Grit Separators shall provide pretreatment when they are placed offline.



# **Standard 6: Critical Area**

The proposed project is discharges to a Critical Area. The project discharges to an area that is identified as an Interim Wellhead Protection Area and a Coldwater Fishery and requires 44% TSS removal prior to infiltration. 44% TSS removal is achieved throughout the site through treatment BMP's. These BMP's include monthly street sweeping using high powered vacuum machines, deep sump catch basins, water quality grit separator units, wet detention basins combined with sediment forebays, and rain gardens combined with sediment forebays. See Standard 4 of this report for more information and on treatment practices and for TSS removal calculations. The pre-treated stormwater then discharges to infiltration basin 1 where infiltration occurs and further TSS removal is achieved.



# **Standard 7: Redevelopment**

The proposed project is a redevelopment. The project aims to develop the existing contractor yard into a research laboratory facility. In doing so, the project will reduce the amount of impervious surfaces onsite and introduce native planted species and stormwater management as vital improvements to the existing condition. This project intends to comply with all the Massachusetts Stormwater Standards to the maximum extent practicable.



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

Best management practices (BMP) for erosion and sedimentation control are staked straw bales, filter fences, wattles, hydro seeding, and phased development. Many stormwater BMP technologies (e.g., infiltration technologies) are not designed to handle the high concentrations of sediments typically found in construction runoff and must be protected from construction-related sediment loadings. Construction BMP's must be maintained. In developing the proposed project certain measures will be implemented to minimize impacts erosion and sedimentation could have on surrounding areas. This section addresses items that involve proper construction techniques, close surveillance of workmanship, and immediate response to emergency situations. The developer must be prepared to provide whatever reasonable measures are necessary to protect the environment during construction and to stabilize all disturbed areas as soon as construction ends. Construction period pollution prevention and erosion and sediment control shall meet the requirements for the 2022 EPA Construction General Permit for all projects requiring coverage under the CGP.

#### **Pre-Construction**

- 1. The contractor shall have a stockpile of materials required to control erosion on-site to be used to supplement or repair erosion control devices. These materials shall include, but are not limited to straw bales, silt fence, wattles and crushed stone.
- 2. The contractor is responsible for erosion control on site and shall utilize erosion control measures where needed, regardless of whether the measures are specified on the plan or in the order of conditions.

#### **Preliminary Site Work**

- 1. Excavated materials should be stockpiled, separating the topsoil for future use on the site. Erosion control shall be utilized along the down slope side of the piles and side slopes shall not exceed 2:1.
- 2. If intense rainfall is anticipated, the installation of supplemental straw bale dikes, silt fences, or armored dikes shall be considered.
- 3. Unsuitable excavated material shall be removed from the site.
- 4. Construction entrance shall be installed.
- 5. Existing catchbasins shall be protected with silt sacks.

#### **Ongoing Site Work**

- 1. Erosion control measures shall be regularly inspected and replaced as needed.
- 2. Dewatering shall be done in a manner so as not to transmit silt, sand or particulate matter to the receiving water or existing drainage system.

#### Landscaping

- 1. Landscaping shall occur as soon as possible to provide permanent stabilization of disturbed surfaces.
- 2. If the season or adverse weather conditions do not allow the establishment of vegetation, temporary mulching with straw, wood chips weighted with snow fence or branches, or other methods shall be provided.
- 3. A minimum of 4 inches of topsoil shall be placed and its surface smoothed to the specified grades.
- 4. The use of herbicides is strongly discouraged.
- 5. Hydro seeding is encouraged for steep slopes. Application rates on slopes greater than 3:1 shall have a minimum seeding rate of 5-lbs/1000 SF. A latex or fiber tackifier shall be used on these slopes at a minimum rate of 50 lbs. of tackifier per 500 gallons of water used.



# **Standard 9: Operations and Maintenance Plan**

The information provided herein is intended to provide the base information for operation and maintenance of the site in perpetuity subject to updates and revisions as required at a future date. As such all future property owners must be notified in writing of this plan and be provided with a copy of this plan, a complete set of the design drawings and/or a completed as-built plan showing all the drainage features as they were constructed, which are considered part of this document. Please see the attached Operations and Maintenance Log (Appendix VII).

Stormwater management system owner:Cell Signaling Technologies, Inc.The party responsible for operation and maintenance:Cell Signaling Technologies, Inc.

#### **Preliminary Stormwater Operation and Maintenance Budget**

Quarterly Inspection and Maintenance x \$2,500 per visit = \$10,000 annually

#### Illicit Discharge - Practices to Minimize Storm Water Contamination

- All waste materials will be collected and stored in a securely lidded metal dumpster.
- All trash and debris from the site will be deposited in the dumpster. The dumpster will be emptied on a regular schedule prior to being over full.
- All personnel will be instructed regarding the correct procedure for waste disposal.
- Good housekeeping and spill control practices will be followed to minimize storm water contamination from petroleum products, paints, and cleaning products.
- All site vehicles will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.
- Spill kits will be provided with any activity that could provide contamination.
- All paint containers and curing compounds will be tightly sealed and stored when not required for use. Excess
  paint will not be discharged to the storm sewers but will be properly disposed of according to the
  manufacturer's instructions.
- All spills will be cleaned up immediately upon discovery. Spills large enough to reach the storm sewers will be reported to the Massachusetts Department of Environmental Protection Northeast Regional Office at 1-888-304-1133.

#### Infiltration Basins, Rain Gardens, Wet Basins, and Sediment Forebays

The infiltration basins, rain gardens, and wet basins shall be inspected in early May and the second half of October. Any accumulated silt, trash, or debris shall be removed from the infiltration basins and rain gardens. Outlet control structures should be cleaned as required for proper function. Note any settlement or erosion around drainage inlets, stabilize any eroded areas. The discharge ponds shall be inspected for stability, erosion, siltation and obstructions. Any obstructions including any woody vegetation in the flow path shall be removed. Riprap shall be replenished as needed. If silt reaches halfway up the riprap, it shall be removed, and the rocks replaced or replenished as needed.

#### **Roof Drain Leaders**

Routine roof inspections shall be performed two times per year. The roof shall be kept clean and free of debris, and the roof drainage systems shall be kept clear. Gutters and downspouts shall be cleaned at least twice per year, or more frequently as necessary.

#### **Vegetated Areas Maintenance**

Although not a structural component of the drainage system, the maintenance of vegetated areas may affect the functioning of stormwater management practices. This includes the health/density of vegetative cover and activities such as the application and disposal of lawn and garden care products, disposal of leaves and yard trimmings.



#### **Initial Post-Construction Inspection**

During the initial period of vegetation establishment pruning and weeding are required twice in first year by contractor or owner. Any dead vegetation/plantings found after the first year will be replaced. Proper mulching is mandatory and regular watering may be required initially to ensure proper establishment of new vegetation.

#### Long-Term Maintenance

The planted areas shall be inspected on a semi-annual basis and any litter removed. Weeds and invasive plant species shall be removed by hand. Maintain planted areas adjacent to pavement to prevent soil washout. Immediately clean any soil deposits on pavement. Leaf litter and other detritus shall be removed twice per year. If needed to maintain aesthetic appearance, perennial plantings may be trimmed at the end of the growing season.

Trees and shrubs shall be inspected twice per year to evaluate health and attended to as necessary. Seeded ground cover or grass areas shall not receive mulching. Re-seed bare areas; install appropriate erosion control measures when native soil is exposed or erosion channels are forming. Plant alternative mixtures of grass species in the event of unsuccessful establishment. The grass vegetation should not be cut to a height less than four inches.

#### Pesticide/Herbicide Usage

No pesticides are to be used unless a single spot treatment is required for a specific control application.

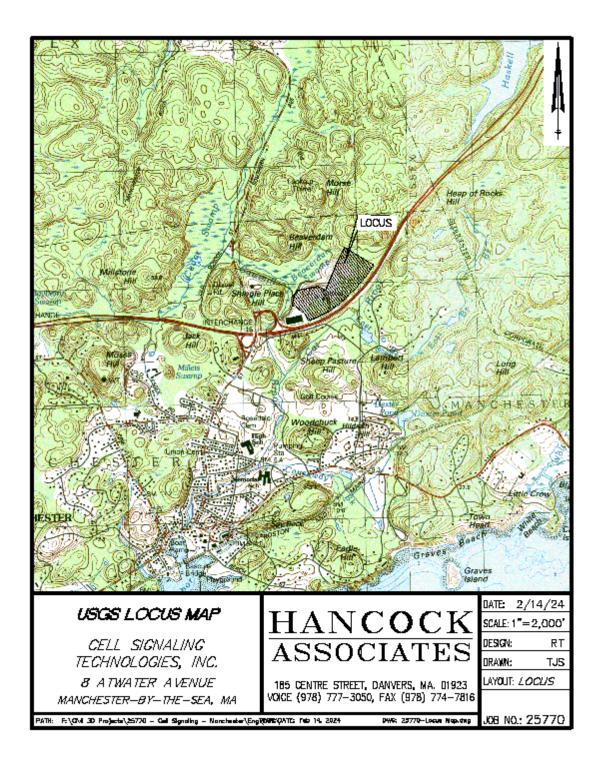


# Standard 10: Prohibition of Illicit Discharges

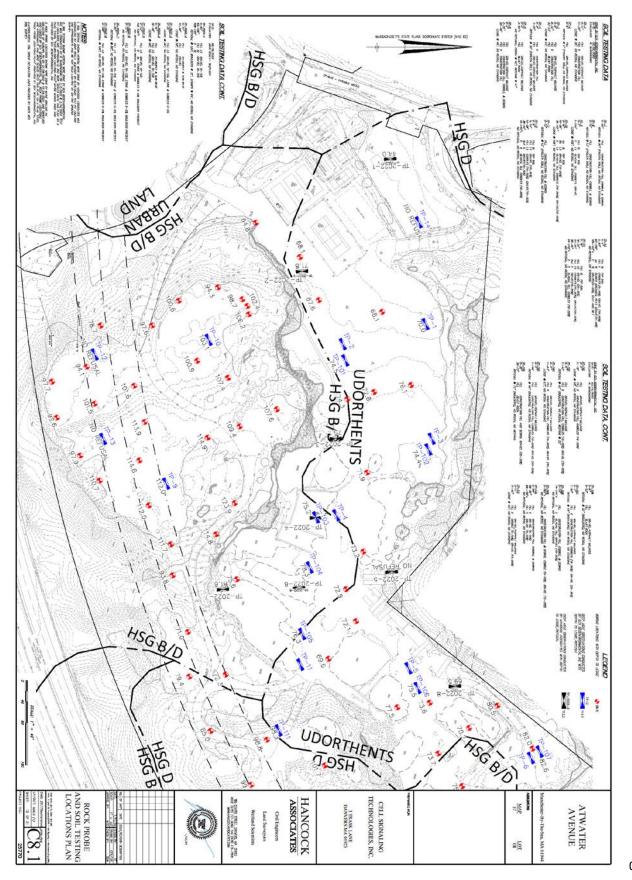
No illicit discharges currently exist and no future illicit discharges will be allowed including wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, soil, or grease.

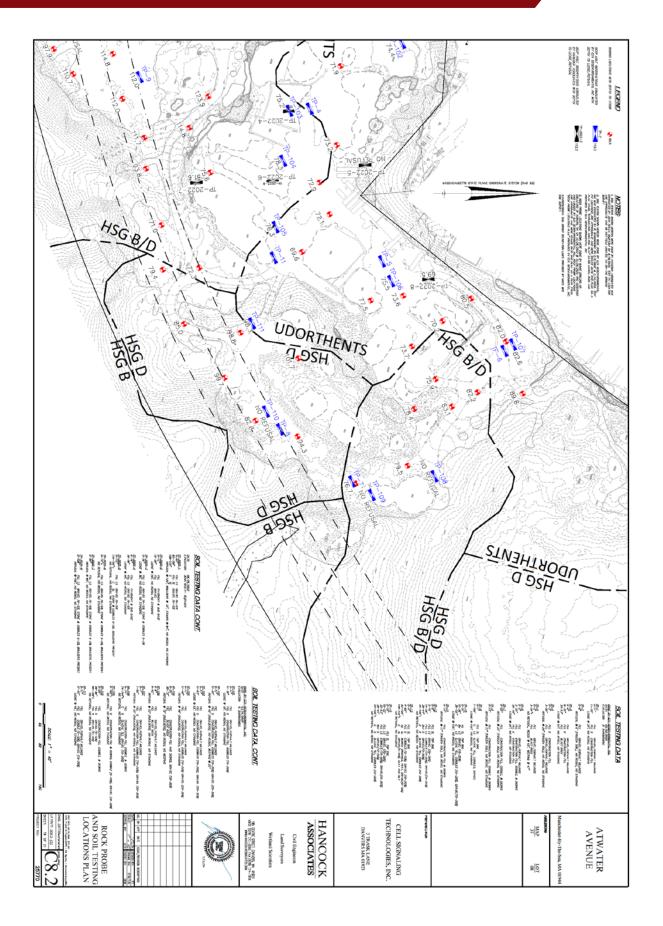


### **Appendix I Locus Map**



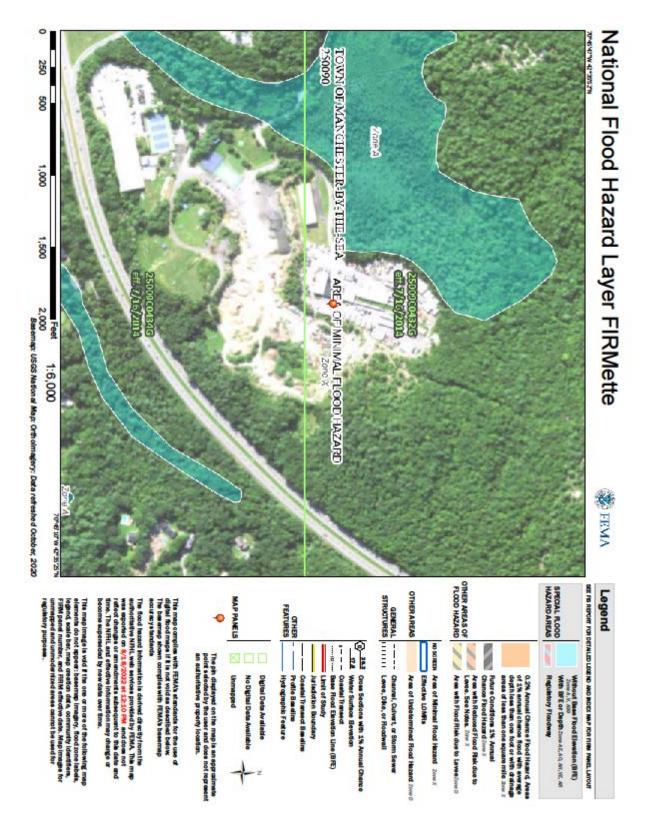
# **Appendix II NCRS Soils Map**





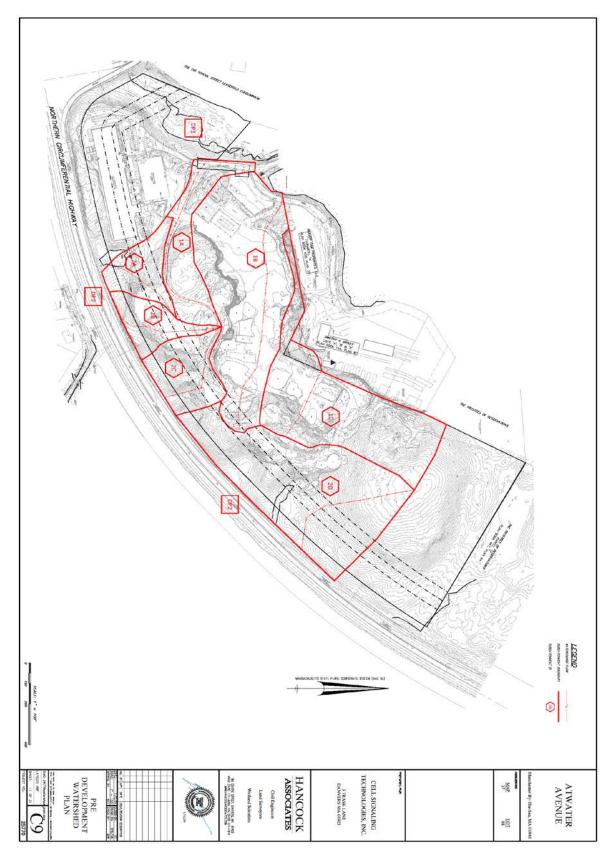


### **Appendix III FEMA Firmette**





# Appendix IV Existing and Proposed Drainage Figures

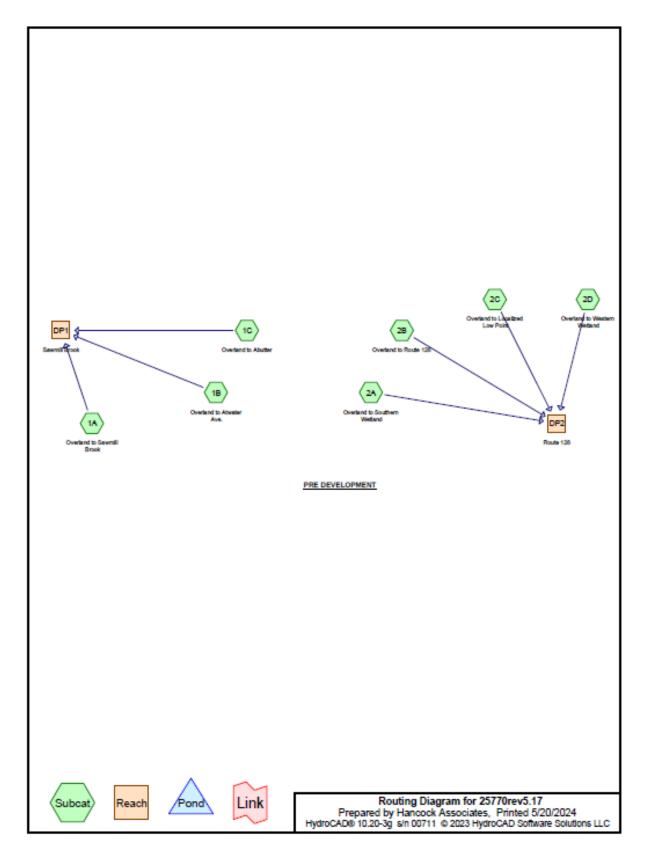








# Appendix V HydroCAD Output



### Area Listing (selected nodes)

Area	CN	Description
(sq-ft)		(subcatchment-numbers)
39,030	61	>75% Grass cover, Good, HSG B (2C, 2D)
204,165	70	>75% Grass cover, Good, HSG B/D (1A, 1B, 1C, 2A, 2B, 2D)
78,635	74	>75% Grass cover, Good, HSG C (1B, 1C, 2A)
36,565	80	>75% Grass cover, Good, HSG D (1C, 2C, 2D)
83,125	82	Dirt roads, HSG B (1B)
40,460	85	Dirt roads, HSG B/D (1C, 2B, 2C, 2D)
148,675	87	Dirt roads, HSG C (1B, 1C)
25,985	89	Dirt roads, HSG D (1C, 2D)
3,500	96	Gravel surface, HSG B/D (1A)
101,705	96	Gravel surface, HSG C (1B)
5,975	96	Gravel surface, HSG D (1B)
13,155	98	Ledge Outcroppings, HSG B (1B)
12,310	98	Ledge Outcroppings, HSG C (1B, 1C)
43,990	98	Paved parking, HSG B/D (1A, 1B)
18,330	98	Paved parking, HSG C (1B, 2A)
124,735	55	Woods, Good, HSG B (2C, 2D)
313,680	65	Woods, Good, HSG B/D (1A, 1B, 1C, 2A, 2B, 2C, 2D)
156,380	70	Woods, Good, HSG C (1B, 1C, 2D)
122,240	77	Woods, Good, HSG D (1B, 1C, 2C, 2D)
1,572,640	75	TOTAL AREA

### Summary for Subcatchment 1A: Overland to Sawmill Brook

Runoff = 8.43 cfs @ 12.09 hrs, Volume= 26,109 cf, Depth> 2.37" Routed to Reach DP1 : Sawmill Brook

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

	A	rea (sf)	CN E	<b>Description</b>			
*		30,870	65 Woods, Good, HSG B/D				
*		62,635	70 >	75% Gras	s cover, Go	ood, HSG B/D	
*		35,125	98 F	aved park	ing, HSG B	/D	
*		3,500	96 G	Gravel surfa	ace, HSG E	3/D	
	1	32,130	77 V	Veighted A	verage		
		97,005			vious Area		
		35,125	2	6.58% Imp	pervious Are	ea	
	Тс	Length	Slope	Velocity	Capacity	Description	
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)		
	0.7	50	0.0200	1.19		Sheet Flow,	
						Smooth surfaces n= 0.011 P2= 3.15"	
	0.6	185	0.0550	4.76		Shallow Concentrated Flow,	
						Paved Kv= 20.3 fps	
	1.5	185	0.0100	2.03		Shallow Concentrated Flow,	
						Paved Kv= 20.3 fps	
	1.6	280	0.0200	2.87		Shallow Concentrated Flow,	
						Paved Kv= 20.3 fps	
	4.4	700	Total, I	ncreased t	o minimum	Tc = 6.0 min	

### Summary for Subcatchment 1B: Overland to Atwater Ave.

Runoff = 25.40 cfs @ 12.21 hrs, Volume= 104,837 cf, Depth> 2.99" Routed to Reach DP1 : Sawmill Brook

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	А	rea (sf)	CN D	Description		
*		27,870			od, HSG B	/D
		18,145		,	ing, HSG C	
	1	01,705			ace, HSG (	
		35,050		)irt roads, I	,	
		16,700		,	od, HSG C	
*		45,570				bod, HSG B/D
		56,390				bod, HSG C
*		4,860	98 L	edge Outo	roppings, H	HSG C
*		8,865	98 F	aved park	ing, HSG E	3/D
		83,125	82 E	)irt roads, I	HŠG B	
*		13,155			roppings, H	
		3,525			od, HSG D	
		5,975	96 G	Gravel surfa	ace, HSG [	)
		20,935		Veighted A		
		75,910	-		rvious Area	
		45,025	1	0.70% Imp	pervious Ar	ea
	Тс	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	7.5	50	0.0100	0.11		Sheet Flow,
						Grass: Short n= 0.150 P2= 3.15"
	1.7	100	0.0200	0.99		Shallow Concentrated Flow,
						Short Grass Pasture Kv= 7.0 fps
	1.0	100	0.0600	1.71		Shallow Concentrated Flow,
						Short Grass Pasture Kv= 7.0 fps
	0.3	85	0.3500	4.14		Shallow Concentrated Flow,
						Short Grass Pasture Kv= 7.0 fps
	1.9	230	0.0150	1.97		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	2.9	150	0.0150	0.86		Shallow Concentrated Flow,
						Short Grass Pasture Kv= 7.0 fps
	15.3	715	Total			

### Summary for Subcatchment 1C: Overland to Abutter

Runoff = 23.06 cfs @ 12.09 hrs, Volume= Routed to Reach DP1 : Sawmill Brook

71,281 cf, Depth> 2.54"

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	A	rea (sf)	CN E	Description				
*		3,090	65 V	Noods, Good, HSG B/D				
	1	28,465	70 V	Voods, Go	od, HSG C			
	1	13,625	87 E	)irt roads, l	HSG C			
*		29,750	85 E	)irt roads, I	HSG B/D			
		5,550		)irt roads, I				
		13,305				ood, HSG D		
		2,840			od, HSG D			
		18,360				ood, HSG C		
*		7,450			roppings, H			
*		14,030				ood, HSG B/D		
		36,465		Veighted A	•			
	3	29,015	-		vious Area			
		7,450	2	21% Impe	ervious Area	а		
	Тс	Length	Slope	Velocity	Capacity	Description		
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	Decemption		
	2.2	50	0.0250	0.39		Sheet Flow,		
						Fallow n= 0.050 P2= 3.15"		
	0.1	30	0.0600	3.94		Shallow Concentrated Flow,		
						Unpaved Kv= 16.1 fps		
	0.7	75	0.0150	1.84		Shallow Concentrated Flow,		
						Grassed Waterway Kv= 15.0 fps		
	0.8	80	0.0100	1.61		Shallow Concentrated Flow,		
						Unpaved Kv= 16.1 fps		
	1.9	255	0.0200	2.28		Shallow Concentrated Flow,		
	~ ~	40	0 4000	0.04		Unpaved Kv= 16.1 fps		
	0.3	40	0.1000	2.21		Shallow Concentrated Flow,		
						Short Grass Pasture Kv= 7.0 fps		

6.0 530 Total

### Summary for Subcatchment 2A: Overland to Southern Wetland

Runoff = 3.23 cfs @ 12.10 hrs, Volume= Routed to Reach DP2 : Route 128 10,448 cf, Depth> 1.59"

	Area (sf)	CN	Description
*	46,830	65	Woods, Good, HSG B/D
	185	98	Paved parking, HSG C
*	27,715	70	>75% Grass cover, Good, HSG B/D
	3,885	74	>75% Grass cover, Good, HSG C
	78,615	67	Weighted Average
	78,430		99.76% Pervious Area
	185		0.24% Impervious Area

Type III 24-hr 2-Year (2090) Rainfall=4.70" Printed 5/20/2024

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	Тс	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	0.8	100	0.0600	2.12		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.15"
	1.2	280	0.0600	3.94		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	1.9	250	0.2000	2.24		Shallow Concentrated Flow,
_						Woodland Kv= 5.0 fps
	30	630	Total I	ncroscod t	o minimum	$T_{c} = 6.0 \text{ min}$

3.9 630 Total, Increased to minimum Tc = 6.0 min

#### Summary for Subcatchment 2B: Overland to Route 128

Runoff = 2.96 cfs @ 12.10 hrs, Volume= 9,577 cf, Depth> 1.59" Routed to Reach DP2 : Route 128

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

	A	rea (sf)	CN E	Description					
*		38,580	65 V	65 Woods, Good, HSG B/D					
*		115	85 E	Dirt roads, H	ISG B/D				
*		33,365	70 >	75% Gras	s cover, Go	bod, HSG B/D			
		72,060	67 V	Veighted A	verage				
		72,060			ervious Are	a			
	Тс	Length	Slope	Velocity	Capacity	Description			
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	· · · · · · · · · · · · · · · · · · ·			
	0.8	100	0.0600	2.12		Sheet Flow,			
						Smooth surfaces n= 0.011 P2= 3.15"			
	1.4	260	0.0350	3.01		Shallow Concentrated Flow,			
						Unpaved Kv= 16.1 fps			
	1.4	215	0.2500	2.50		Shallow Concentrated Flow,			
						Woodland Kv= 5.0 fps			
	3.6	575	Total, I	ncreased t	o minimum	Tc = 6.0 min			

### Summary for Subcatchment 2C: Overland to Localized Low Point

Runoff = 3.96 cfs @ 12.10 hrs, Volume= Routed to Reach DP2 : Route 128 13,039 cf, Depth> 1.46"

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	А	rea (sf)	CN [	Description		
*		64,195	65 \	Voods, Go	od, HSG B/	/D
*		4,750	85 E	Dirt roads, I	HSG B/D	
		710	77 \	Voods, Go	od, HSG D	
		28,110	61 >	>75% Gras	s cover, Go	bod, HSG B
		7,470	55 \	Voods, Go	od, HSG B	
_		2,300	80 >	>75% Gras	s cover, Go	bod, HSG D
	1	07,535	65 \	Veighted A	verage	
	1	07,535	-	100.00% Pe	ervious Are	а
	Тс	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	0.9	80	0.0300	1.53		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.15"
	1.5	245	0.3000	2.74		Shallow Concentrated Flow,
_						Woodland Kv= 5.0 fps
	2.4	325	Total,	ncreased t	o minimum	Tc = 6.0 min

### Summary for Subcatchment 2D: Overland to Western Wetland

Runoff = 11.74 cfs @ 12.33 hrs, Volume= 58,757 cf, Depth> 1.66" Routed to Reach DP2 : Route 128

Area (sf) CN Description	
117,265 55 Woods, Good, HSG B	
* 102,245 65 Woods, Good, HSG B/D	
115,165 77 Woods, Good, HSG D	
11,215 70 Woods, Good, HSG C	
20,435 89 Dirt roads, HSG D	
* 5,845 85 Dirt roads, HSG B/D	
10,920 61 >75% Grass cover, Good, HSG B	
20,960 80 >75% Grass cover, Good, HSG D	
* 20,850 70 >75% Grass cover, Good, HSG B/D	
424,900 68 Weighted Average	
424,900 100.00% Pervious Area	
Tc Length Slope Velocity Capacity Description	
(min) (feet) (ft/ft) (ft/sec) (cfs)	
16.4 50 0.0100 0.05 Sheet Flow,	
Woods: Light underbrush n= 0.400 P2	2= 3.15"
2.1 180 0.0800 1.41 Shallow Concentrated Flow,	
Woodland Kv= 5.0 fps	
4.0 480 0.1600 2.00 Shallow Concentrated Flow,	
Woodland Kv= 5.0 fps	
22.5 710 Total	

### Summary for Reach DP1: Sawmill Brook

 Inflow Area =
 889,530 sf,
 9.85% Impervious,
 Inflow Depth >
 2.73"
 for
 2-Year (2090) event

 Inflow =
 50.26 cfs @
 12.11 hrs,
 Volume=
 202,227 cf

 Outflow =
 50.26 cfs @
 12.11 hrs,
 Volume=
 202,227 cf,

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

### Summary for Reach DP2: Route 128

Inflow Are	a =	683,110 sf,	0.03% Impervious,	Inflow Depth >	1.61"	for 2-Year (2090) event
Inflow	=	16.66 cfs @	12.28 hrs, Volume=	91,821 c	f	
Outflow	=	16.66 cfs @	12.28 hrs, Volume=	91,821 c	f, Atten	n= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

25770rev5.17         Type III 24-hr         10-Year (2090) Rainfall=7.40"           Prepared by Hancock Associates         Printed 5/20/2024           HydroCAD® 10.20-3g s/n 00711 © 2023 HydroCAD Software Solutions LLC         Page 1
Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method
Subcatchment1A: Overland to Sawmill Runoff Area=132,130 sf 26.58% Impervious Runoff Depth>4.72" Flow Length=700' Tc=6.0 min CN=77 Runoff=16.73 cfs 51,993 cf
Subcatchment1B: Overland to Atwater Runoff Area=420,935 sf 10.70% Impervious Runoff Depth>5.51" Flow Length=715' Tc=15.3 min CN=84 Runoff=45.92 cfs 193,163 cf
Subcatchment 1C: Overland to Abutter Runoff Area=336,465 sf 2.21% Impervious Runoff Depth>4.95" Flow Length=530' Tc=6.0 min CN=79 Runoff=44.43 cfs 138,700 cf
Subcatchment 2A: Overland to Southern Runoff Area=78,615 sf 0.24% Impervious Runoff Depth>3.62" Flow Length=630' Tc=6.0 min CN=67 Runoff=7.66 cfs 23,743 cf
Subcatchment 2B: Overland to Route 128 Runoff Area=72,060 sf 0.00% Impervious Runoff Depth>3.62" Flow Length=575' Tc=6.0 min CN=67 Runoff=7.02 cfs 21,764 cf
Subcatchment 2C: Overland to Localized Runoff Area=107,535 sf 0.00% Impervious Runoff Depth>3.41" Flow Length=325' Tc=6.0 min CN=65 Runoff=9.83 cfs 30,563 cf
Subcatchment 2D: Overland to Western Runoff Area=424,900 sf 0.00% Impervious Runoff Depth>3.72" Flow Length=710' Tc=22.5 min CN=68 Runoff=27.35 cfs 131,657 cf
Reach DP1: Sawmill Brook         Inflow=95.19 cfs         383,856 cf           Outflow=95.19 cfs         383,856 cf
Reach DP2: Route 128         Inflow=39.04 cfs         207,727 cf           Outflow=39.04 cfs         207,727 cf

 Total Runoff Area = 1,572,640 sf
 Runoff Volume = 591,583 cf
 Average Runoff Depth = 4.51"

 94.42% Pervious = 1,484,855 sf
 5.58% Impervious = 87,785 sf

### Summary for Subcatchment 1A: Overland to Sawmill Brook

Runoff = 16.73 cfs @ 12.09 hrs, Volume= 51,993 cf, Depth> 4.72" Routed to Reach DP1 : Sawmill Brook

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

	A	rea (sf)	CN E	<b>Description</b>				
*		30,870	65 V	65 Woods, Good, HSG B/D				
*		62,635	70 >					
*		35,125	98 F	aved park	ing, HSG B	B/D		
*		3,500	96 0	Gravel surface, HSG B/D				
	1	32,130						
		97,005			vious Area			
		35,125	2	6.58% Imp	pervious Are	ea		
	Тс	Length	Slope	Velocity	Capacity	Description		
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)			
	0.7	50	0.0200	1.19		Sheet Flow,		
						Smooth surfaces n= 0.011 P2= 3.15"		
	0.6	185	0.0550	4.76		Shallow Concentrated Flow,		
						Paved Kv= 20.3 fps		
	1.5	185	0.0100	2.03		Shallow Concentrated Flow,		
						Paved Kv= 20.3 fps		
	1.6	280	0.0200	2.87		Shallow Concentrated Flow,		
						Paved Kv= 20.3 fps		
	4.4	700	Total, I	ncreased t	o minimum	Tc = 6.0 min		

### Summary for Subcatchment 1B: Overland to Atwater Ave.

Runoff = 45.92 cfs @ 12.20 hrs, Volume= 193,163 cf, Depth> 5.51" Routed to Reach DP1 : Sawmill Brook

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		rea (sf)		Description				
*		27,870	65 Woods, Good, HSG					
		18,145			ing, HSG C			
		01,705		Gravel surfa	ace, HSG (			
		35,050	87 E	Dirt roads, I	HSG C			
		16,700			s, Good, HSG C			
*		45,570				bod, HSG B/D		
		56,390			,	bod, HSG C		
*		4,860			roppings, H			
*		8,865		Paved parking, HSG B/D				
		83,125		Dirt roads, HSG B				
*		13,155			roppings, I			
		3,525			od, HSG D			
		5,975			ace, HSG [	)		
		20,935		Veighted A	0			
		75,910	-		vious Area			
		45,025	1	0.70% Imp	pervious Ar	ea		
	Та	l e ve exte	Clana	Valaaitu	Consister	Description		
	Tc (min)	Length	Slope	Velocity	Capacity	Description		
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)			
	7.5	50	0.0100	0.11		Sheet Flow,		
	1.7	100	0.0200	0.00		Grass: Short n= 0.150 P2= 3.15"		
	1.7	100	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps		
	1.0	100	0.0600	1.71		Shallow Concentrated Flow,		
	1.0	100	0.0000	1.7 1		Short Grass Pasture Kv= 7.0 fps		
	0.3	85	0.3500	4.14		Shallow Concentrated Flow,		
	0.0	00	0.0000	7.17		Short Grass Pasture Kv= 7.0 fps		
	1.9	230	0.0150	1.97		Shallow Concentrated Flow,		
	1.0	200	0.0100	1.07		Unpaved Kv= 16.1 fps		
	2.9	150	0.0150	0.86		Shallow Concentrated Flow,		
	2.0		5.0.00	0.00		Short Grass Pasture Kv= 7.0 fps		
	15.3	715	Total					
	10.0	110	10101					

### Summary for Subcatchment 1C: Overland to Abutter

Runoff = 44.43 cfs @ 12.09 hrs, Volume= 1 Routed to Reach DP1 : Sawmill Brook

138,700 cf, Depth> 4.95"

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	А	rea (sf)	CN E	Description				
*		3,090		Woods, Good, HSG B/D				
	1	28,465			od, HSG C			
		13,625		)irt roads, I				
*		29,750	85 E	)irt roads, l	HSG B/D			
		5,550	89 E	)irt roads, I	HSG D			
		13,305	80 >	75% Gras	s cover, Go	bod, HSG D		
		2,840	77 V	Voods, Go	od, HSG D			
		18,360				bod, HSG C		
*		7,450			roppings, H			
*		14,030				ood, HSG B/D		
		36,465		Veighted A				
	)			97.79% Pervious Area				
		7,450	2	21% Impe	ervious Are	a		
	То	Longth	Slope	Volooity	Conosity	Description		
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description		
	2.2	<u>(1881)</u> 50	0.0250	0.39	(015)	Shoot Flow		
	2.2	50	0.0250	0.59		<b>Sheet Flow,</b> Fallow n= 0.050 P2= 3.15"		
	0.1	30	0.0600	3.94		Shallow Concentrated Flow,		
	0.1	50	0.0000	0.04		Unpaved Kv= 16.1 fps		
	0.7	75	0.0150	1.84		Shallow Concentrated Flow,		
	0.1	10	0.0100	1.01		Grassed Waterway Kv= 15.0 fps		
	0.8	80	0.0100	1.61		Shallow Concentrated Flow,		
						Unpaved Kv= 16.1 fps		
	1.9	255	0.0200	2.28		Shallow Concentrated Flow,		
						Unpaved Kv= 16.1 fps		
	0.3	40	0.1000	2.21		Shallow Concentrated Flow,		

6.0 530 Total

### Summary for Subcatchment 2A: Overland to Southern Wetland

Runoff = 7.66 cfs @ 12.09 hrs, Volume= Routed to Reach DP2 : Route 128

23,743 cf, Depth> 3.62"

Short Grass Pasture Kv= 7.0 fps

	Area (sf)	CN	Description
*	46,830	65	Woods, Good, HSG B/D
	185	98	Paved parking, HSG C
*	27,715	70	>75% Grass cover, Good, HSG B/D
	3,885	74	>75% Grass cover, Good, HSG C
	78,615	67	Weighted Average
	78,430		99.76% Pervious Area
	185		0.24% Impervious Area

*Type III 24-hr 10-Year (2090) Rainfall=7.40"* Printed 5/20/2024

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	Тс	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	0.8	100	0.0600	2.12		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.15"
	1.2	280	0.0600	3.94		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	1.9	250	0.2000	2.24		Shallow Concentrated Flow,
_						Woodland Kv= 5.0 fps
	30	630	Total I	ncroscod t	o minimum	$T_{c} = 6.0 \text{ min}$

3.9 630 Total, Increased to minimum Tc = 6.0 min

#### Summary for Subcatchment 2B: Overland to Route 128

Runoff = 7.02 cfs @ 12.09 hrs, Volume= 21,764 cf, Depth> 3.62" Routed to Reach DP2 : Route 128

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

	A	rea (sf)	CN E	Description					
*		38,580	65 V	Woods, Good, HSG B/D					
*		115	85 E	Dirt roads, H	ISG B/D				
*		33,365	70 >	75% Gras	s cover, Go	ood, HSG B/D			
		72,060	67 V	Veighted A	verage				
		72,060	1	00.00% Pe	ervious Are	а			
	Тс	Length	Slope	Velocity	Capacity	Description			
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	0.8	100	0.0600	2.12		Sheet Flow,			
						Smooth surfaces n= 0.011 P2= 3.15"			
	1.4	260	0.0350	3.01		Shallow Concentrated Flow,			
						Unpaved Kv= 16.1 fps			
	1.4	215	0.2500	2.50		Shallow Concentrated Flow,			
						Woodland Kv= 5.0 fps			
	3.6	575	Total, I	ncreased t	o minimum	Tc = 6.0 min			

#### Summary for Subcatchment 2C: Overland to Localized Low Point

Runoff = 9.83 cfs @ 12.09 hrs, Volume= Routed to Reach DP2 : Route 128 30,563 cf, Depth> 3.41"

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	A	rea (sf)	CN	Description				
*		64,195	65	Woods, Go	od, HSG B/	/D		
*		4,750	85	Dirt roads, I	ISG B/D			
		710	77	Woods, Go	od, HSG D			
		28,110	61	>75% Gras	s cover, Go	bod, HSG B		
		7,470	55	Woods, Go	od, HSG B			
		2,300	80	>75% Gras	s cover, Go	ood, HSG D		
	1	07,535	65	Weighted A	verage			
	1	07,535		100.00% Pe	0.00% Pervious Area			
	Тс	Length	Slope		Capacity	Description		
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)			
	0.9	80	0.0300	1.53		Sheet Flow,		
						Smooth surfaces n= 0.011 P2= 3.15"		
	1.5	245	0.3000	2.74		Shallow Concentrated Flow,		
						Woodland Kv= 5.0 fps		
	2.4	325	Total,	Increased t	o minimum	Tc = 6.0 min		

## Summary for Subcatchment 2D: Overland to Western Wetland

Runoff = 27.35 cfs @ 12.32 hrs, Volume= 131,657 cf, Depth> 3.72" Routed to Reach DP2 : Route 128

	A	rea (sf)	CN	Description		
	1	17,265	55	Woods, Go	od, HSG B	
*	1	02,245	65	Woods, Go	od, HSG B/	/D
	1	15,165	77	Woods, Go	od, HSG D	
		11,215	70	Woods, Go	od, HSG C	
		20,435	89	Dirt roads, I	HSG D	
*		5,845	85	Dirt roads, I	HSG B/D	
		10,920	61	>75% Gras	s cover, Go	ood, HSG B
		20,960	80	>75% Gras	s cover, Go	ood, HSG D
*		20,850	70	>75% Gras	s cover, Go	ood, HSG B/D
	4	24,900	68	Weighted A	verage	
	4	24,900		100.00% Pe	ervious Are	a
	Тс	Length	Slope	e Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	) (ft/sec)	(cfs)	
	16.4	50	0.0100	0.05		Sheet Flow,
						Woods: Light underbrush n= 0.400 P2= 3.15"
	2.1	180	0.0800	) 1.41		Shallow Concentrated Flow,
						Woodland Kv= 5.0 fps
	4.0	480	0.1600	2.00		Shallow Concentrated Flow,
						Woodland Kv= 5.0 fps
	22.5	710	Total			

### Summary for Reach DP1: Sawmill Brook

889,530 sf, 9.85% Impervious, Inflow Depth > 5.18" for 10-Year (2090) event Inflow Area = Inflow 95.19 cfs @ 12.11 hrs, Volume= 383,856 cf = Outflow = 95.19 cfs @ 12.11 hrs, Volume= 383,856 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

#### Summary for Reach DP2: Route 128

Inflow Are	a =	683,110 sf, 0.03% Impervious, Inflow Depth > 3.65" for 10-Year (2090)	event
Inflow	=	39.04 cfs @ 12.12 hrs, Volume= 207,727 cf	
Outflow	=	39.04 cfs @ 12.12 hrs, Volume= 207,727 cf, Atten= 0%, Lag= 0.0 min	1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

<b>25770rev5.17</b> Prepared by Hancock Associates HydroCAD® 10.20-3g s/n 00711 © 2023 HydroCAD Softw	Type III 24-hr 100-Year (2090) Rainfall=11.70"Printed 5/20/2024vare Solutions LLCPage 8
Time span=0.00-24.00 hrs, d Runoff by SCS TR-20 metho Reach routing by Dyn-Stor-Ind method	od, UH=SCS, Weighted-CN
	ea=132,130 sf 26.58% Impervious Runoff Depth>8.74" =700' Tc=6.0 min CN=77 Runoff=30.28 cfs 96,240 cf
	ea=420,935 sf 10.70% Impervious Runoff Depth>9.67" 15' Tc=15.3 min CN=84 Runoff=78.40 cfs 339,052 cf
	rea=336,465 sf 2.21% Impervious Runoff Depth>9.01" 530' Tc=6.0 min CN=79 Runoff=78.92 cfs 252,705 cf
	Area=78,615 sf 0.24% Impervious Runoff Depth>7.33" =630' Tc=6.0 min CN=67 Runoff=15.48 cfs 48,038 cf
	Area=72,060 sf 0.00% Impervious Runoff Depth>7.33" =575' Tc=6.0 min CN=67 Runoff=14.19 cfs 44,033 cf
	rea=107,535 sf 0.00% Impervious Runoff Depth>7.04" =325' Tc=6.0 min CN=65 Runoff=20.38 cfs 63,104 cf
	rea=424,900 sf 0.00% Impervious Runoff Depth>7.45" 10' Tc=22.5 min CN=68 Runoff=54.74 cfs 263,903 cf
Reach DP1: Sawmill Brook	Inflow=167.52 cfs 687,997 cf Outflow=167.52 cfs 687,997 cf
Reach DP2: Route 128	Inflow=80.71 cfs 419,079 cf Outflow=80.71 cfs 419,079 cf

 Total Runoff Area = 1,572,640 sf
 Runoff Volume = 1,107,076 cf
 Average Runoff Depth = 8.45"

 94.42% Pervious = 1,484,855 sf
 5.58% Impervious = 87,785 sf

#### Summary for Subcatchment 1A: Overland to Sawmill Brook

Runoff = 30.28 cfs @ 12.09 hrs, Volume= 96,240 cf, Depth> 8.74" Routed to Reach DP1 : Sawmill Brook

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

	A	rea (sf)	CN E	<b>Description</b>						
*		30,870	65 V	Woods, Good, HSG B/D						
*		62,635	70 >	75% Gras	s cover, Go	ood, HSG B/D				
*		35,125	98 F	aved park	ing, HSG B	B/D				
*		3,500	96 0	Gravel surfa	ace, HSG E	3/D				
	1	32,130	77 V	Veighted A	verage					
		97,005			vious Area					
		35,125	2	6.58% Imp	pervious Are	ea				
	Тс	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	0.7	50	0.0200	1.19		Sheet Flow,				
						Smooth surfaces n= 0.011 P2= 3.15"				
	0.6	185	0.0550	4.76		Shallow Concentrated Flow,				
						Paved Kv= 20.3 fps				
	1.5	185	0.0100	2.03		Shallow Concentrated Flow,				
						Paved Kv= 20.3 fps				
	1.6	280	0.0200	2.87		Shallow Concentrated Flow,				
						Paved Kv= 20.3 fps				
	4.4	700	Total, I	ncreased t	o minimum	Tc = 6.0 min				

#### Summary for Subcatchment 1B: Overland to Atwater Ave.

Runoff = 78.40 cfs @ 12.20 hrs, Volume= 339,052 cf, Depth> 9.67" Routed to Reach DP1 : Sawmill Brook

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		rea (sf)		Description			
*		27,870		,	od, HSG B		
		18,145			ing, HSG C		
		01,705		Gravel surfa	ace, HSG (		
		35,050	87 E	Dirt roads, I	HSG C		
		16,700			od, HSG C		
*		45,570				bod, HSG B/D	
		56,390			,	bod, HSG C	
*		4,860			roppings, H		
*		8,865			ing, HSG E	3/D	
		83,125		Dirt roads, I			
*		13,155			roppings, ł		
		3,525			od, HSG D		
		5,975			ace, HSG [	)	
		20,935		Weighted Average			
		75,910	-		vious Area		
		45,025	1	0.70% Imp	pervious Ar	ea	
	т.	1	0	V/.1	0	Description	
	Tc	Length	Slope	Velocity	Capacity	Description	
	(min)	(feet)	<u>(ft/ft)</u>	(ft/sec)	(cfs)		
	7.5	50	0.0100	0.11		Sheet Flow,	
	4 7	400	0 0000	0.00		Grass: Short n= 0.150 P2= 3.15"	
	1.7	100	0.0200	0.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps	
	1.0	100	0.0600	1.71		Shallow Concentrated Flow,	
	1.0	100	0.0000	1.7 1		Short Grass Pasture Kv= 7.0 fps	
	0.3	85	0.3500	4.14		Shallow Concentrated Flow,	
	0.0	00	0.0000	7.17		Short Grass Pasture Kv= 7.0 fps	
	1.9	230	0.0150	1.97		Shallow Concentrated Flow,	
	1.5	200	0.0100	1.57		Unpaved Kv= 16.1 fps	
	2.9	150	0.0150	0.86		Shallow Concentrated Flow,	
	2.5		5.0.00	0.00		Short Grass Pasture Kv= 7.0 fps	
	15.3	715	Total				
	10.0	115	Total				

## Summary for Subcatchment 1C: Overland to Abutter

Runoff = 78.92 cfs @ 12.09 hrs, Volume= 28 Routed to Reach DP1 : Sawmill Brook

252,705 cf, Depth> 9.01"

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	А	rea (sf)	CN E	Description						
*		3,090	65 V	65 Woods, Good, HSG B/D						
	1	28,465	70 V	Voods, Go	od, HSG C					
	1	13,625	87 E	Dirt roads, I	HSG C					
*		29,750	85 E	Dirt roads, I	HSG B/D					
		5,550	89 E	Dirt roads, I	HSG D					
		13,305			,	ood, HSG D				
		2,840			od, HSG D					
		18,360				ood, HSG C				
*		7,450			roppings, H					
<u>*</u>		14,030				ood, HSG B/D				
		36,465		Veighted A						
	3	29,015	-		vious Area					
		7,450	2	2.21% Impe	ervious Area	3				
	Тс	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	2.2	50	0.0250	0.39	· · ·	Sheet Flow,				
						Fallow n= 0.050 P2= 3.15"				
	0.1	30	0.0600	3.94		Shallow Concentrated Flow,				
						Unpaved Kv= 16.1 fps				
	0.7	75	0.0150	1.84		Shallow Concentrated Flow,				
						Grassed Waterway Kv= 15.0 fps				
	0.8	80	0.0100	1.61		Shallow Concentrated Flow,				
						Unpaved Kv= 16.1 fps				
	1.9	255	0.0200	2.28		Shallow Concentrated Flow,				
	0.0	40	0 4000	0.04		Unpaved Kv= 16.1 fps				
	0.3	40	0.1000	2.21		Shallow Concentrated Flow,				
						Short Grass Pasture Kv= 7.0 fps				

6.0 530 Total

#### Summary for Subcatchment 2A: Overland to Southern Wetland

Runoff = 15.48 cfs @ 12.09 hrs, Volume= Routed to Reach DP2 : Route 128 48,038 cf, Depth> 7.33"

	Area (sf)	CN	Description
*	46,830	65	Woods, Good, HSG B/D
	185	98	Paved parking, HSG C
*	27,715	70	>75% Grass cover, Good, HSG B/D
	3,885	74	>75% Grass cover, Good, HSG C
	78,615	67	Weighted Average
	78,430		99.76% Pervious Area
	185		0.24% Impervious Area

Type III 24-hr 100-Year (2090) Rainfall=11.70" Printed 5/20/2024

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	Тс	Length	Slope	Velocity	Capacity	Description
(m	in)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
C	).8	100	0.0600	2.12		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.15"
1	1.2	280	0.0600	3.94		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
1	1.9	250	0.2000	2.24		Shallow Concentrated Flow,
						Woodland Kv= 5.0 fps
3	3.9	630	Total, li	ncreased t	o minimum	Tc = 6.0 min

# Summary for Subcatchment 2B: Overland to Route 128

Runoff = 14.19 cfs @ 12.09 hrs, Volume= 44,033 cf, Depth> 7.33" Routed to Reach DP2 : Route 128

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

	A	rea (sf)	CN [	Description		
*		38,580	65 V	Voods, Go	od, HSG B/	/D
*		115	85 E	Dirt roads, I	ISG B/D	
*		33,365	70 >	75% Gras	s cover, Go	bod, HSG B/D
		72,060	67 V	Veighted A	verage	
		72,060			ervious Are	a
	Тс	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	0.8	100	0.0600	2.12		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.15"
	1.4	260	0.0350	3.01		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	1.4	215	0.2500	2.50		Shallow Concentrated Flow,
						Woodland Kv= 5.0 fps
	3.6	575	Total, I	ncreased t	o minimum	1 Tc = 6.0 min

#### Summary for Subcatchment 2C: Overland to Localized Low Point

Runoff = 20.38 cfs @ 12.09 hrs, Volume= Routed to Reach DP2 : Route 128 63,104 cf, Depth> 7.04"

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 Type III 24-hr
 100-Year (2090) Rainfall=11.70"

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	A	rea (sf)	CN	Description					
*		64,195	65	65 Woods, Good, HSG B/D					
*		4,750	85	Dirt roads, I	HSG B/D				
		710	77	Woods, Go	od, HSG D				
		28,110	61	>75% Gras	s cover, Go	bod, HSG B			
		7,470	55	Woods, Go	od, HSG B				
		2,300	80	>75% Gras	s cover, Go	bod, HSG D			
107,535 65 Weighted Average					verage				
	1	07,535		100.00% Pe	ervious Are	a			
	Тс	Length	Slope		Capacity	Description			
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	0.9	80	0.0300	1.53		Sheet Flow,			
						Smooth surfaces n= 0.011 P2= 3.15"			
	1.5	245	0.3000	2.74		Shallow Concentrated Flow,			
						Woodland Kv= 5.0 fps			
	2.4	325	Total,	Increased t	o minimum	n Tc = 6.0 min			

## Summary for Subcatchment 2D: Overland to Western Wetland

Runoff = 54.74 cfs @ 12.30 hrs, Volume= 263,903 cf, Depth> 7.45" Routed to Reach DP2 : Route 128

	Ar	ea (sf)	CN	Description				
	1	17,265	55	Woods, Go	od, HSG B			
*	1(	02,245	65	Woods, Go	od, HSG B/	/D		
	1	15,165	77	Woods, Go	od, HSG D			
		11,215	70	Woods, Go	od, HSG C			
	2	20,435	89	Dirt roads, I	HSG D			
*		5,845	85	Dirt roads, I	HSG B/D			
		10,920	61	>75% Gras	s cover, Go	bod, HSG B		
	2	20,960	80	>75% Gras	s cover, Go	bod, HSG D		
*		20,850	70	>75% Gras	s cover, Go	bod, HSG B/D		
-	42	24,900	68	68 Weighted Average				
	42	24,900	5 5			а		
	Тс	Length	Slope	e Velocity	Capacity	Description		
(m	in)	(feet)	(ft/ft	) (ft/sec)	(cfs)			
10	6.4	50	0.0100	0.05		Sheet Flow,		
						Woods: Light underbrush n= 0.400 P2= 3.15"		
	2.1	180	0.0800	) 1.41		Shallow Concentrated Flow,		
						Woodland Kv= 5.0 fps		
4	4.0	480	0.1600	) 2.00		Shallow Concentrated Flow,		
						Woodland Kv= 5.0 fps		
2	2.5	710	Total			·		

### Summary for Reach DP1: Sawmill Brook

 Inflow Area =
 889,530 sf,
 9.85% Impervious,
 Inflow Depth >
 9.28"
 for
 100-Year (2090) event

 Inflow =
 167.52 cfs @
 12.10 hrs,
 Volume=
 687,997 cf

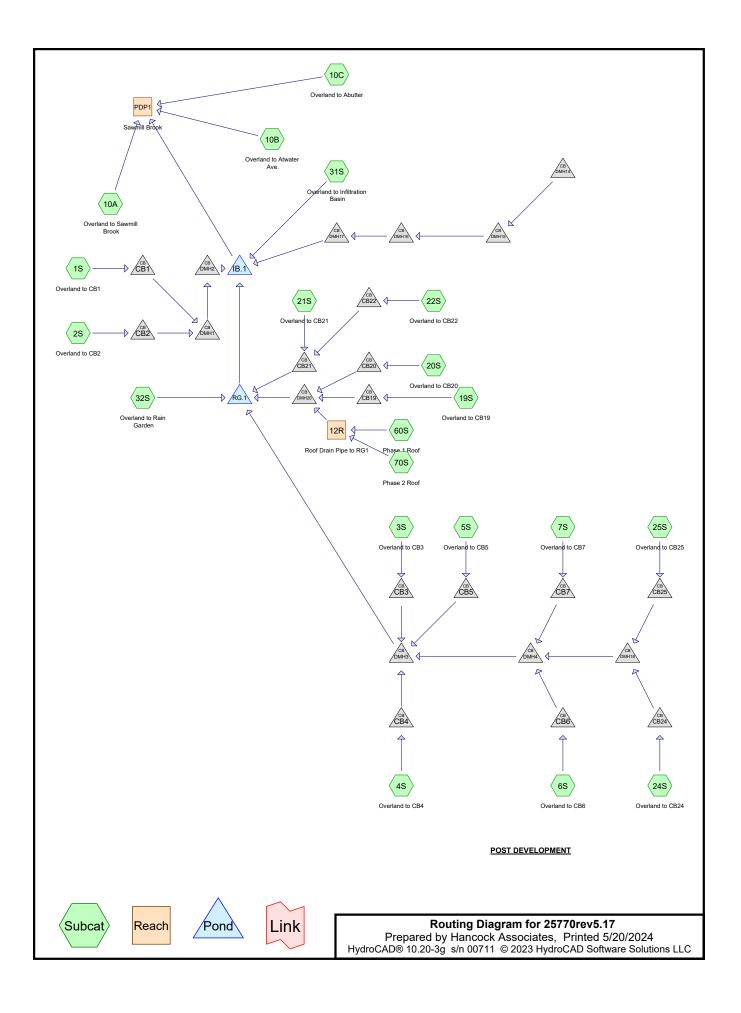
 Outflow =
 167.52 cfs @
 12.10 hrs,
 Volume=
 687,997 cf,

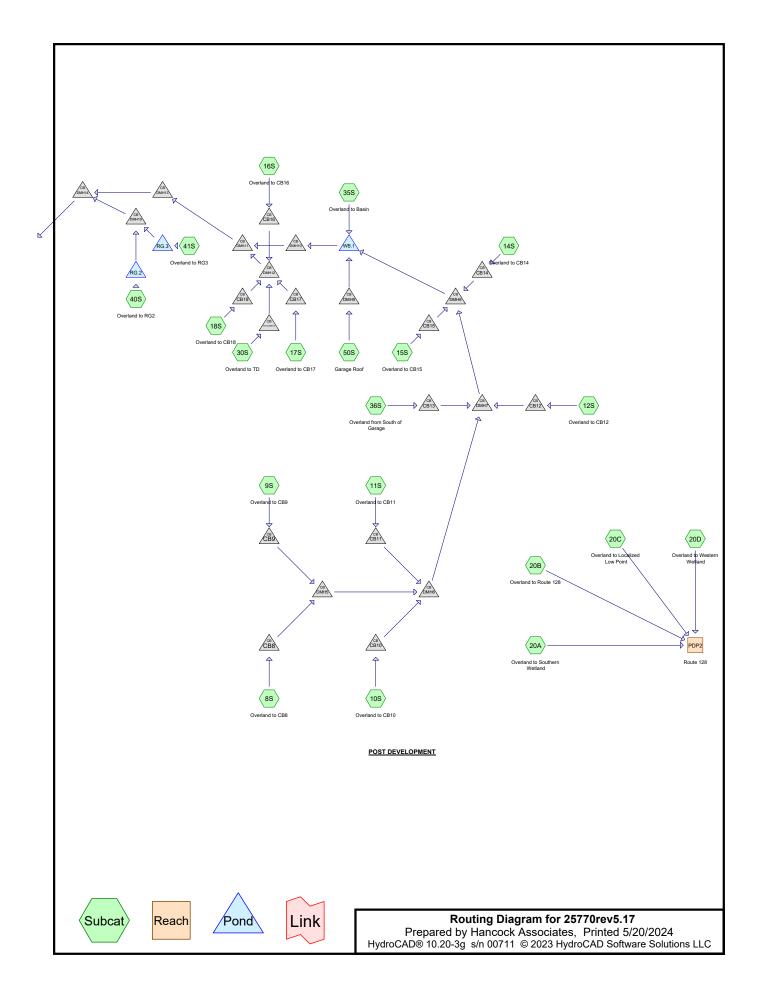
Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

#### Summary for Reach DP2: Route 128

Inflow Are	a =	683,110 sf, 0.03% Impervious, Inflow Depth > 7.36" for 100-Year (20	090) event
Inflow	=	80.71 cfs @ 12.11 hrs, Volume= 419,079 cf	
Outflow	=	80.71 cfs @ 12.11 hrs, Volume= 419,079 cf, Atten= 0%, Lag= 0.0	min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2





## Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
	C1	
16,395	61	>75% Grass cover, Good, HSG B (20B, 20C)
164,320	70	>75% Grass cover, Good, HSG B/D (1S, 2S, 3S, 5S, 7S, 9S, 10A, 17S, 20A,
047 070	74	20C, 25S, 30S, 32S, 36S, 40S, 41S)
247,273	74	>75% Grass cover, Good, HSG C (3S, 10B, 10C, 14S, 15S, 16S, 17S, 19S, 20A, 20S, 20S, 21S, 22S, 25S, 40S, 41S)
15 750	90	20S, 22S, 30S, 31S, 32S, 35S, 40S, 41S)
15,750	80	>75% Grass cover, Good, HSG D (10S, 12S, 14S, 20C, 36S)
2,265	98 00	Concrete Pad, HSG B/D (30S)
3,325	96 06	Gravel surface, HSG B/D (2S, 10C)
15,845	96 06	Gravel surface, HSG C (10B, 10C, 21S, 22S)
270	96 08	Gravel surface, HSG D (10S)
1,935	98 08	Ledge Outcropping, HSG B/D (3S)
3,990	98	Ledge Outcroppings, HSG B/D (40S)
7,450	98	Ledge Outcroppings, HSG C (10C)
10,760	58	Meadow, non-grazed, HSG B (20D)
73,810	68	Meadow, non-grazed, HSG B/D (10C, 20D)
22,755	71	Meadow, non-grazed, HSG C (10C)
74,262	78	Meadow, non-grazed, HSG D (10C, 20D)
78,307	98	Paved parking, HSG B/D (1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10A, 10S, 11S,
		17S, 18S, 24S, 25S, 30S, 36S, 40S)
58,278	98	Paved parking, HSG C (2S, 3S, 10B, 14S, 15S, 16S, 17S, 18S, 19S, 20A, 20S,
		21S, 22S, 40S, 41S)
6,950	98	Paved parking, HSG D (10S, 11S, 12S, 36S)
119,500	98	Roofs, HSG C (50S, 60S, 70S)
162,030	55	Woods, Good, HSG B (20B, 20C, 20D)
218,660	65	Woods, Good, HSG B/D (1S, 10A, 10C, 20A, 20C, 20D)
21,062	66	Woods, Good, HSG B/D (3S, 5S, 32S)
137,600	70	Woods, Good, HSG C (10B, 10C, 20D)
109,848	77	Woods, Good, HSG D (20C, 20D)
1,572,640	74	TOTAL AREA

#### Summary for Subcatchment 1S: Overland to CB1

Runoff = 0.69 cfs @ 12.09 hrs, Volume= 2,151 cf, Depth> 2.21" Routed to Pond CB1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

	Area (sf)	CN	Description		
*	2,830	98	Paved park	ing, HSG E	B/D
*	4,695	70	>75% Gras	s cover, Go	ood, HSG B/D
*	4,180	65	Woods, Go	od, HSG B	3/D
	11,705 8,875 2,830		Weighted A 75.82% Per 24.18% Imp	vious Area	
T (mir	c Length ) (feet)	Slope (ft/ft	,	Capacity (cfs)	1
6.	0				Direct Entry,

#### Summary for Subcatchment 2S: Overland to CB2

Runoff = 0.74 cfs @ 12.09 hrs, Volume= 2,311 cf, Depth> 3.28" Routed to Pond CB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

	Area (sf)	CN	Description
	740	98	Paved parking, HSG C
*	1,935	98	Paved parking, HSG B/D
*	3,245	70	>75% Grass cover, Good, HSG B/D
*	2,530	96	Gravel surface, HSG B/D
	8,450	87	Weighted Average
	5,775		68.34% Pervious Area
	2,675		31.66% Impervious Area
_			
To	5	Slop	
(min)	(feet)	(ft/f	ft) (ft/sec) (cfs)
6.0			Direct Entry,

## Summary for Subcatchment 3S: Overland to CB3

Runoff = 1.26 cfs @ 12.20 hrs, Volume= 5,022 cf, Depth> 2.63" Routed to Pond CB3 :

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	А	rea (sf)	CN [	Description		
*		5,710	98 F	Paved park	ing, HSG B	3/D
*		6,972	70 >	>75% Ġras	s cover, Go	ood, HSG B/D
		1,490	98 F	Paved park	ing, HSG C	
		168	74 >	>75% Ġras	s cover, Go	bod, HSG C
*		1,935	98 L	_edge Outc	ropping, H	SG B/D
*		6,678	66 \	Noods, Go	od, HSG B/	/D
		22,953	80 \	Neighted A	verage	
		13,818		60.20% Per	•	
		9,135	3	39.80% Imp	pervious Ar	еа
	Tc	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	9.9	50	0.0050	0.08		Sheet Flow,
						Grass: Short n= 0.150 P2= 3.15"
	4.0	135	0.0500	0.56		Shallow Concentrated Flow,
						Forest w/Heavy Litter Kv= 2.5 fps
	0.3	30	0.0500	1.57		Shallow Concentrated Flow,
						Short Grass Pasture Kv= 7.0 fps
	14.2	215	Total			

## Summary for Subcatchment 4S: Overland to CB4

Runoff	=	0.34 cfs @	12.08 hrs,	Volume=	1,182 cf,	Depth> 4.46"
Routed	to Pond	CB4 :				

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

A	rea (sf)	CN D	<b>Description</b>					
*	3,180	98 P	Paved parking, HSG B/D					
	3,180	1	100.00% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description			
6.0	(ieet)	(1011)	(11/360)	(013)	Direct Entry,			

#### Summary for Subcatchment 5S: Overland to CB5

Runoff = 1.31 cfs @ 12.20 hrs, Volume= 5,304 cf, Depth> 1.96" Routed to Pond CB5 :

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	A	rea (sf)	CN E	<b>Description</b>						
*		3,965	98 F	Paved parking, HSG B/D						
*		15,793	70 >	75% Gras	s cover, Go	ood, HSG B/D				
*		12,664	66 V	Voods, Go	od, HSG B/	/D				
		32,422	72 V	Veighted A	verage					
		28,457	8	7.77% Per	vious Area					
		3,965	1	2.23% Imp	pervious Are	ea				
	Тс	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	9.9	50	0.0050	0.08		Sheet Flow,				
						Grass: Short n= 0.150 P2= 3.15"				
	3.6	120	0.0500	0.56		Shallow Concentrated Flow,				
						Forest w/Heavy Litter Kv= 2.5 fps				
	0.4	40	0.0500	1.57		Shallow Concentrated Flow,				
						Short Grass Pasture Kv= 7.0 fps				
	13.9	210	Total							

### Summary for Subcatchment 6S: Overland to CB6

Runoff = 0.28 cfs @ 12.08 hrs, Volume= 976 cf, Depth> 4.46" Routed to Pond CB6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

	A	rea (sf)	CN I	Description						
*		2,625	98 I	Paved parking, HSG B/D						
		2,625		100.00% Impervious Area						
	Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	1				
	6.0		(1011)	(17300)	(003)	Direct Entry,				

## Summary for Subcatchment 7S: Overland to CB7

Runoff = 1.57 cfs @ 12.09 hrs, Volume= 4,887 cf, Depth> 2.12" Routed to Pond CB7 :

	Area (sf)	CN	Description				
*	3,850	98	Paved parking, HSG B/D				
*	23,750	70	>75% Grass cover, Good, HSG B/D				
	27,600	74	Weighted Average				
	23,750		86.05% Pervious Area				
	3,850		13.95% Impervious Area				

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Tc (min)	Length (feet)	Slope (ft/ft		Capacity (cfs)	Description				
6.0					Direct Entry,	,			
		S	ummary f	or Subca	tchment 8S	: Overla	and to CB8		
Runoff Route	= d to Pone		ofs @ 12.0	8 hrs, Volu	ime=	632 cf,	Depth> 4.46	5"	
			thod, UH=S 90) Rainfall		ted-CN, Time	Span= 0.0	00-24.00 hrs, o	dt= 0.01 hrs	
A	rea (sf)	CN	Description						
*	1,700	98	Paved park	ing, HSG B	s/D				
	1,700		100.00% In	npervious A	rea				
Tc (min)	Length (feet)	Slope (ft/ft		Capacity (cfs)	Description				
6.0					Direct Entry,	,			
		S	ummary f	or Subca	tchment 9S	: Overla	and to CB9		
Runoff Route	= d to Pone		cfs @ 12.0	9 hrs, Volu	ime=	2,508 cf,	Depth> 3.38	3"	
Runoff by Type III 2	y SCS TF 24-hr 2-Y	8-20 me ear (20	thod, UH=S 90) Rainfall	SCS, Weigh =4.70"	ted-CN, Time S	Span= 0.0	00-24.00 hrs, d	dt= 0.01 hrs	
A	rea (sf)	CN	Description						
*	5,575		Paved park						
*	3,325				od, HSG B/D				
	8,900	88	Weighted A						
	3,325		37.36% Pe	rvious Area					

	5,575	62	2.64% Imp	pervious Are	ea	
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
6.0					Direct Entry,	

## Summary for Subcatchment 10A: Overland to Sawmill Brook

Runoff = 1.63 cfs @ 12.09 hrs, Volume= 5,048 cf, Depth> 2.54" Routed to Reach PDP1 : Sawmill Brook

Type III 24-hr 2-Year (2090) Rainfall=4.70"Printed 5/20/2024Solutions LLCPage 6

	А	rea (sf)	CN	Description					
*		7,635	65	Woods, Go	od, HSG B/	3/D			
*		6,960	70	>75% Gras	s cover, Go	iood, HSG B/D			
*		9,235	98	Paved park	ing, HSG B	B/D			
		23,830	79	Weighted Average					
		14,595		61.25% Per	vious Area	а			
		9,235		38.75% Imp	ervious Ar	rea			
	Tc (min)	Length (feet)	Slope (ft/ft)						
	6.0					Direct Entry,			

### Summary for Subcatchment 10B: Overland to Atwater Ave.

Runoff = 2.05 cfs @ 12.21 hrs, Volume= 8,444 cf, Depth> 2.54" Routed to Reach PDP1 : Sawmill Brook

A	rea (sf)	CN D	escription							
	6,980	98 P	Paved parking, HSG C							
	11,900	70 V	Voods, Good, HSG C							
	17,140	74 >	75% Grass cover, Good, HSG C							
	3,915	96 G	Gravel surfa	ace, HSG C						
	39,935	79 V	Veighted A	verage						
	32,955	8	2.52% Per	vious Area						
	6,980	1	7.48% Imp	pervious Are	ea					
Tc	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
7.5	50	0.0100	0.11		Sheet Flow,					
					Grass: Short n= 0.150 P2= 3.15"					
1.7	100	0.0200	0.99		Shallow Concentrated Flow,					
					Short Grass Pasture Kv= 7.0 fps					
1.0	100	0.0600	1.71		Shallow Concentrated Flow,					
					Short Grass Pasture Kv= 7.0 fps					
0.3	85	0.3500	4.14		Shallow Concentrated Flow,					
4.0	000	0.0450	4.07		Short Grass Pasture Kv= 7.0 fps					
1.9	230	0.0150	1.97		Shallow Concentrated Flow,					
0.0	450	0.0450	0.00		Unpaved Kv= 16.1 fps					
2.9	150	0.0150	0.86		Shallow Concentrated Flow,					
45.0	74-	<b></b>			Short Grass Pasture Kv= 7.0 fps					
15.3	715	Total								

#### Summary for Subcatchment 10C: Overland to Abutter

Runoff = 16.17 cfs @ 12.09 hrs, Volume= 50,530 cf, Depth> 2.05" Routed to Reach PDP1 : Sawmill Brook

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

	A	rea (sf)	CN E	Description						
	1	14,485	70 V	Voods, Go	od, HSG C					
		65,825	74 >	75% Gras	s cover, Go	bod, HSG C				
*		7,450	98 L	Ledge Outcroppings, HSG C						
*		10,055	65 V	Voods, Go	od, HSG B/	/D				
		21,980	78 N	/leadow, no	on-grazed,	HSG D				
		22,755	71 N	leadow, no	on-grazed,	HSG C				
*		43,555			on-grazed,					
*		795	96 C	Gravel surfa	ace, HSG E	3/D				
		9,595	96 (	Gravel surfa	ace, HSG C					
	2	96,495	73 V	Veighted A	verage					
	2	89,045	g	7.49% Per	vious Area					
		7,450	2	2.51% Impe	ervious Are	а				
	Тс	Length	Slope	Velocity		Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	2.2	50	0.0250	0.39		Sheet Flow,				
						Fallow n= 0.050 P2= 3.15"				
	0.1	30	0.0600	3.94		Shallow Concentrated Flow,				
						Unpaved Kv= 16.1 fps				
	0.7	75	0.0150	1.84		Shallow Concentrated Flow,				
		~~~				Grassed Waterway Kv= 15.0 fps				
	0.8	80	0.0100	1.61		Shallow Concentrated Flow,				
	4.0	055	0 0000	0.00		Unpaved Kv= 16.1 fps				
	1.9	255	0.0200	2.28		Shallow Concentrated Flow,				
	0.2	40	0 1000	2.24		Unpaved Kv= 16.1 fps				
	0.3	40	0.1000	2.21		Shallow Concentrated Flow,				
	<u> </u>	500	Tatal			Short Grass Pasture Kv= 7.0 fps				
	6.0	530	Total							

#### Summary for Subcatchment 10S: Overland to CB10

Runoff = 0.45 cfs @ 12.08 hrs, Volume= Routed to Pond CB10 : 1,471 cf, Depth> 3.90"

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	Area (sf)	CN	Description							
*	1,995	98	Paved parking, HSG B/D							
	1,130	80	>75% Grass	s cover, Go	ood, HSG D					
	1,130	98	Paved parki	ng, HSG D	)					
	270	96	Gravel surfa	ace, HSG D	)					
	4,525	93	Weighted Average							
	1,400		30.94% Per	vious Area						
	3,125		69.06% Imp	ervious Are	ea					
Тс	5	Slop		Capacity	Description					
(min)	(feet)	(ft/ft	t) (ft/sec) (cfs)							
6.0					Direct Entry,					

#### Summary for Subcatchment 11S: Overland to CB11

Runoff 0.48 cfs @ 12.08 hrs, Volume= = Routed to Pond CB11 :

1,674 cf, Depth> 4.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

	A	rea (sf)	CN	Description							
*		3,235	98	Paved parking, HSG B/D							
		1,270	98	Paved park	Paved parking, HSG D						
		4,505	98	Weighted Average							
		4,505		100.00% Impervious Area							
	Тс	Length	Slop	e Velocity	Capacity	Description					
	(min)	(feet)	(ft/f	) (ft/sec)	(cfs)						
	6.0					Direct Entry,					

#### Summary for Subcatchment 12S: Overland to CB12

0.77 cfs @ 12.09 hrs, Volume= 2,376 cf, Depth> 2.90" Runoff = Routed to Pond CB12 :

Area (sf)	CN	Description				
8,225	80	>75% Grass cover, Good, HSG D				
1,605	98	Paved parking, HSG D				
9,830	83	Weighted Average				
8,225		83.67% Pervious Area				
1,605		16.33% Impervious Area				

25770rev5.17         Type III 24-hr 2-Year (2090) Rainfall=4.70"           Prepared by Hancock Associates         Printed 5/20/2024           HydroCAD® 10.20-3g s/n 00711 © 2023 HydroCAD Software Solutions LLC         Page 9
Tc Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs)
6.0 Direct Entry,
Summary for Subcatchment 14S: Overland to CB14
Runoff = 0.58 cfs @ 12.09 hrs, Volume= 1,790 cf, Depth> 2.63" Routed to Pond CB14 :
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"
Area (sf) CN Description
1,915 80 >75% Grass cover, Good, HSG D
1,495 98 Paved parking, HSG C
4,760 74 >75% Grass cover, Good, HSG C 8,170 80 Weighted Average
8,170 80 Weighted Average 6,675 81.70% Pervious Area
1,495 18.30% Impervious Area
Tc Length Slope Velocity Capacity Description
(min) (feet) (ft/ft) (ft/sec) (cfs)
6.0 Direct Entry,

#### Summary for Subcatchment 15S: Overland to CB15

Runoff = 0.54 cfs @ 12.09 hrs, Volume= Routed to Pond CB15 : 1,678 cf, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

A	rea (sf)	CN	Description				
	2,690	98	Paved park	ing, HSG C	C		
	4,250	74	>75% Gras	s cover, Go	ood, HSG C		
	6,940	83	Weighted Average				
	4,250		61.24% Per	vious Area	3		
	2,690		38.76% Impervious Area				
_							
Tc	Length	Slope	,	Capacity	Description		
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)			
6.0					Direct Entry,		

#### Summary for Subcatchment 16S: Overland to CB16

Runoff = 1.67 cfs @ 12.09 hrs, Volume= 5,164 cf, Depth> 2.72" Routed to Pond CB16 :

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Area (	sf) CN	Description	Description					
6,6	45 98	Paved park	ing, HSG C	;				
16,1	50 74							
22,7	95 81	Weighted A	verage					
16,1	50	70.85% Pei	vious Area					
6,6	45	29.15% Imp	pervious Are	ea				
			_					
Tc Len	•	ope Velocity	Capacity	Description				
<u>(min)</u> (fe	eet) (f	t/ft) (ft/sec)	(cfs)					
6.0				Direct Entry	/,			
	Summary for Subcatchment 17S: Overland to CB17							
Runoff =		8 cfs @ 12.1	3 hrs, Volu	me=	5,451 cf, Depth> 2.99"			
Routed to Pond CB17 :								

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

_	A	rea (sf)	CN E	Description							
*		920	70 >	>75% Grass cover, Good, HSG B/D							
*		112	98 F	Paved parking, HSG B/D							
		8,838			ing, HSG C						
_		11,990	74 >	75% Grass cover, Good, HSG C							
		21,860	84 V	Veighted A	verage						
		12,910	5	9.06% Per	vious Area						
		8,950	4	0.94% Imp	pervious Ar	ea					
	Tc	Length	Slope	Velocity	Capacity	Description					
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	5.7	50	0.0200	0.15		Sheet Flow,					
						Grass: Short n= 0.150 P2= 3.15"					
	1.5	90	0.0200	0.99		Shallow Concentrated Flow,					
						Short Grass Pasture Kv= 7.0 fps					
	1.9	207	0.0270	1.78		Sheet Flow,					
_						Smooth surfaces n= 0.011 P2= 3.15"					
	9.1	347	Total								

## Summary for Subcatchment 18S: Overland to CB18

Runoff	=	0.51 cfs @	12.08 hrs,	Volume=	1,784 cf,	Depth> 4.46"
Routed	I to Pond	CB18 :				

Type III 24-hr 2-Year (2090) Rainfall=4.70" Printed 5/20/2024 Solutions LLC Page 11

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	Α	rea (sf)	CN	Description	Description						
*		780	98	Paved park	Paved parking, HSG B/D						
		4,020	98	Paved park	Paved parking, HSG C						
		4,800	98	Weighted A	Veighted Average						
		4,800		100.00% In	100.00% Impervious Area						
	Та	Longth	Clan	a Valacity	Consoitu	Description					
(	TC (minu)	Length	Slop		Capacity	Description					
<u>    (ı</u>	min)	(feet)	(ft/f	t) (ft/sec)	(cfs)						
	6.0					Direct Entry,					

#### Summary for Subcatchment 19S: Overland to CB19

Runoff = 2.35 cfs @ 12.09 hrs, Volume= 7,308 cf, Depth> 2.99" Routed to Pond CB19 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

Are	ea (sf)	CN I	Description					
1	2,005	98	Paved park	ing, HSG C	)			
1	7,285	74 :	>75% Gras	s cover, Go	bod, HSG C			
2	9,290	84	Weighted Average					
1	7,285	!	59.01% Per	vious Area				
1	2,005	4	40.99% Imp	pervious Ar	ea			
-		<u>.</u>		<b>o</b>				
	Length	Slope	,	Capacity	Description			
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)				
6.0					Direct Entry,			

## Summary for Subcatchment 20A: Overland to Southern Wetland

Runoff = 2.90 cfs @ 12.10 hrs, Volume= 9,370 cf, Depth> 1.59" Routed to Reach PDP2 : Route 128

	Area (sf)	CN	Description
*	42,795	65	Woods, Good, HSG B/D
	185	98	Paved parking, HSG C
*	23,635	70	>75% Grass cover, Good, HSG B/D
	3,885	74	>75% Grass cover, Good, HSG C
	70,500 70,315	67	Weighted Average 99.74% Pervious Area
	185		0.26% Impervious Area
	105		

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٦	Гс	Length	Slope	Velocity	Capacity	Description
(mi	n)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
0	.8	100	0.0600	2.12		Sheet Flow,
						Smooth surfaces n= 0.011 P2= 3.15"
1	.2	280	0.0600	3.94		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
1	.9	250	0.2000	2.24		Shallow Concentrated Flow,
						Woodland Kv= 5.0 fps
3	.9	630	Total, li	ncreased t	o minimum	Tc = 6.0 min

#### Summary for Subcatchment 20B: Overland to Route 128

Runoff = 1.03 cfs @ 12.11 hrs, Volume= 3,924 cf, Depth> 0.95" Routed to Reach PDP2 : Route 128

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

_	A	rea (sf)	CN E	Description						
		33,640	55 V	5 Woods, Good, HSG B						
_		16,095	61 >	1 >75% Grass cover, Good, HSG B						
		49,735	57 V	57 Weighted Average						
		49,735	1	00.00% Pe	ervious Are	а				
	Тс	Length	Slope	Velocity	Capacity	Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	0.8	100	0.0600	2.12		Sheet Flow,				
						Smooth surfaces n= 0.011 P2= 3.15"				
	1.4	260	0.0350	3.01		Shallow Concentrated Flow,				
						Unpaved Kv= 16.1 fps				
	1.4	215	0.2500	2.50		Shallow Concentrated Flow,				
						Woodland Kv= 5.0 fps				
	3.6	575	Total, I	ncreased t	o minimum	Tc = 6.0 min				

#### Summary for Subcatchment 20C: Overland to Localized Low Point

Runoff = 3.05 cfs @ 12.10 hrs, Volume= 10,029 cf, Depth> 1.46" Routed to Reach PDP2 : Route 128

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	A	rea (sf)	CN	Description						
*		51,750	65	Woods, Good, HSG B/D						
		895	77	Woods, Go	od, HSG D					
		10,425	55	Woods, Good, HSG B						
*		17,695	70 3	>75% Grass cover, Good, HSG B/D						
		300	61	>75% Grass cover, Good, HSG B						
_		1,650	80	>75% Gras	s cover, Go	ood, HSG D				
		82,715	65	Weighted A	verage					
		82,715		100.00% Pervious Area						
	Тс	Length	Slope		Capacity	Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	0.9	80	0.0300	1.53		Sheet Flow,				
						Smooth surfaces n= 0.011 P2= 3.15"				
	1.5	245	0.3000	2.74		Shallow Concentrated Flow,				
_						Woodland Kv= 5.0 fps				
	2.4	325	Total,	Increased t	o minimum	Tc = 6.0 min				

## Summary for Subcatchment 20D: Overland to Western Wetland

Runoff = 11.38 cfs @ 12.33 hrs, Volume= 57,381 cf, Depth> 1.59" Routed to Reach PDP2 : Route 128

	A	rea (sf)	CN	Description		
	1	17,965	55	Woods, Go	od, HSG B	
*	1	02,245	65	Woods, Go	od, HSG B	/D
	1	08,953	77	Woods, Go	od, HSG D	
		11,215	70	Woods, Go	od, HSG C	
		10,760		Meadow, no		
		52,282		Meadow, no		
*		30,255	68	Meadow, no	on-grazed,	HSG B/D
	4	33,675		Weighted A		
	4	33,675		100.00% Pe	ervious Are	a
	Тс	Length	Slope		Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	16.4	50	0.0100	0.05		Sheet Flow,
						Woods: Light underbrush n= 0.400 P2= 3.15"
	2.1	180	0.0800	1.41		Shallow Concentrated Flow,
						Woodland Kv= 5.0 fps
	4.0	480	0.1600	2.00		Shallow Concentrated Flow,
_						Woodland Kv= 5.0 fps
	22.5	710	Total			

#### Summary for Subcatchment 20S: Overland to CB20

Runoff = 1.15 cfs @ 12.09 hrs, Volume= 3,559 cf, Depth> 2.63" Routed to Pond CB20 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

Α	rea (sf)	CN	Description						
	4,115	98	Paved parking, HSG C						
	12,125	74	>75% Grass cover, Good, HSG C						
	16,240	80	Weighted Average						
	12,125		74.66% Pervious Area						
	4,115		25.34% Impervious Area						
Тс	Length	Slope	,	Capacity	Description				
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
6.0					Direct Entry,				
					-				

#### Summary for Subcatchment 21S: Overland to CB21

Runoff = 0.34 cfs @ 12.08 hrs, Volume= Routed to Pond CB21 : 1,169 cf, Depth> 4.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

A	rea (sf)	CN	Description					
	2,295	98	Paved park	ing, HSG C	C			
	935	96	Gravel surfa	ace, HSG C	C			
	3,230	97	Weighted A	verage				
	935		28.95% Pervious Area					
	2,295		71.05% Imp	pervious Ar	rea			
Tc	Length	Slope		Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
6.0					Direct Entry,			

#### Summary for Subcatchment 22S: Overland to CB22

Runoff = 0.33 cfs @ 12.09 hrs, Volume= 1,030 cf, Depth> 2.99" Routed to Pond CB22 :

Type III 24-hr 2-Year (2090) Rainfall=4.70" Printed 5/20/2024 HydroCAD® 10.20-3g s/n 00711 © 2023 HydroCAD Software Solutions LLC Page 15

Are	ea (sf)	CN	Description						
	440	98	Paved park	ing, HSG C	;				
	2,290	,290 74 >75% Grass cover, Good, HSG C							
	1,400	96	Gravel surfa		2				
	4,130	84	Weighted A						
3	3,690		89.35% Per						
	440		10.65% Imp	pervious Ar	ea				
Tc L	_ength	Slop	e Velocity	Capacity	Description				
(min)	(feet)	(ft/ft	t) (ft/sec)	(cfs)	•				
6.0					Direct Entry	3			
		_	_	_	_				
	Summary for Subcatchment 24S: Overland to CB24								
Runoff Routed	= to Pond			8 hrs, Volu	ime=	1,795 cf, Depth> 4.46"			
	Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr  2-Year (2090) Rainfall=4.70"								
Are	Area (sf) CN Description								
* 4	4,830	98	Paved park	ing, HSG B	3/D				
	4,830		100.00% Im	pervious A	rea				
Tc L	ength	Slop	e Velocity	Capacity	Description				

(min) (feet) (ft/ft) (ft/sec) (cfs) 6.0

#### **Direct Entry**,

#### Summary for Subcatchment 25S: Overland to CB25

Runoff 1.37 cfs @ 12.09 hrs, Volume= 4,324 cf, Depth> 3.38" = Routed to Pond CB25 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

	A	rea (sf)	CN	Description		
*		10,065	98	Paved park	ing, HSG B	3/D
*		5,280	70	>75% Gras	s cover, Go	bod, HSG B/D
		15,345	88	Weighted A	verage	
		5,280		34.41% Per	vious Area	
		10,065		65.59% Imp	pervious Ar	ea
	Tc (min)	Length (feet)	Slope (ft/ft)		Capacity (cfs)	Description
_	6.0					Direct Entry,

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#### Summary for Subcatchment 30S: Overland to TD

Runoff = 1.54 cfs @ 12.09 hrs, Volume= 4,844 cf, Depth> 3.28" Routed to Pond TD & DMH12 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

	A	rea (sf)	CN	Description							
*		8,290	98	Paved parki	ng, HSG B	B/D					
*		6,545	70			Good, HSG B/D					
*		2,265	98	Concrete Pa	ad, HSG B/	B/D					
		610	74	>75% Grass	>75% Grass cover, Good, HSG C						
		17,710	87	Weighted Av	verage						
		7,155		40.40% Per	vious Area	а					
		10,555		59.60% Imp	ervious Are	rea					
	Тс	Length	Slop		Capacity	/ Description					
(	min)	(feet)	(ft/f	t) (ft/sec)	(cfs)						
	6.0					Direct Entry,					

#### Summary for Subcatchment 31S: Overland to Infiltration Basin

Runoff	=	1.20 cfs @	12.09 hrs,	Volume=	3,733 cf,	Depth>	2.12"
Routed	l to Pond	I IB.1 :				-	

	A	rea (sf)	CN [	Description		
		21,085	74 >	>75% Gras	s cover, Go	bod, HSG C
		21,085	-	100.00% Pe	ervious Are	a
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	2.2	50	0.0250	0.39		Sheet Flow,
						Fallow n= 0.050 P2= 3.15"
	0.1	30	0.0600	3.94		Shallow Concentrated Flow,
	~ <del>-</del>					Unpaved Kv= 16.1 fps
	0.7	75	0.0150	1.84		Shallow Concentrated Flow,
	0.8	80	0.0100	1.61		Grassed Waterway Kv= 15.0 fps Shallow Concentrated Flow,
	0.0	00	0.0100	1.01		Unpaved Kv= 16.1 fps
	1.9	255	0.0200	2.28		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	0.3	40	0.1000	2.21		Shallow Concentrated Flow,
_						Short Grass Pasture Kv= 7.0 fps
	6.0	530	Total			

#### Summary for Subcatchment 32S: Overland to Rain Garden

Runoff = 2.42 cfs @ 12.09 hrs, Volume= 7,603 cf, Depth> 1.97" Routed to Pond RG.1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

	A	rea (sf)	CN D	escription		
*		29,925 14,740 1,720 46,385	70 > 66 V 72 V	75% Grass Voods, Go Veighted A	s cover, Go od, HSG B/ verage	
		46,385	1	00.00% Pe	ervious Are	а
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	2.2	50	0.0250	0.39		Sheet Flow,
	0.1	30	0.0600	3.94		Fallow n= 0.050 P2= 3.15" <b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
	0.7	75	0.0150	1.84		Shallow Concentrated Flow,
	0.8	80	0.0100	1.61		Grassed Waterway Kv= 15.0 fps <b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps
	1.9	255	0.0200	2.28		Shallow Concentrated Flow,
	0.3	40	0.1000	2.21		Unpaved Kv= 16.1 fps <b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps
	6.0	530	Total			

## Summary for Subcatchment 35S: Overland to Basin

Runoff = 0.73 cfs @ 12.09 hrs, Volume= 2,266 cf, Depth> 2.12" Routed to Pond WB.1 :

 Area (sf)	CN	Description
12,800	74	>75% Grass cover, Good, HSG C
12,800		100.00% Pervious Area

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4,681 cf, Depth> 2.45"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	50	0.0250	0.39		Sheet Flow,
					Fallow n= 0.050 P2= 3.15"
0.1	30	0.0600	3.94		Shallow Concentrated Flow,
					Unpaved Kv= 16.1 fps
0.7	75	0.0150	1.84		Shallow Concentrated Flow,
					Grassed Waterway Kv= 15.0 fps
0.8	80	0.0100	1.61		Shallow Concentrated Flow,
					Unpaved Kv= 16.1 fps
1.9	255	0.0200	2.28		Shallow Concentrated Flow,
					Unpaved Kv= 16.1 fps
0.3	40	0.1000	2.21		Shallow Concentrated Flow,
					Short Grass Pasture Kv= 7.0 fps

6.0 530 Total

#### Summary for Subcatchment 36S: Overland from South of Garage

Runoff = 1.21 cfs @ 12.18 hrs, Volume= Routed to Pond CB13 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

	A	rea (sf)	CN E	Description		
*		2,890	98 F	Paved park	ing, HSG E	3/D
*		14,240				bod, HSG B/D
		2,945	98 F	Paved park	ing, HSG D	)
		2,830	80 >	•75% Ġras	s cover, Go	bod, HSG D
		22,905	78 V	Veighted A	verage	
		17,070			vious Area	l l
		5,835	2	25.47% Imp	pervious Ar	ea
	Тс	Length	Slope	Velocity	Capacity	Description
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	2.3	50	0.5000	0.37		Sheet Flow,
						Grass: Dense n= 0.240 P2= 3.15"
	8.5	355	0.0100	0.70		Shallow Concentrated Flow,
						Short Grass Pasture Kv= 7.0 fps
	2.0	130	0.0100	1.09		Sheet Flow,
_						Smooth surfaces n= 0.011 P2= 3.15"
	12.8	535	Total			

12.8 535 Total

#### Summary for Subcatchment 40S: Overland to RG2

Runoff = 2.83 cfs @ 12.17 hrs, Volume= 10,646 cf, Depth> 2.63" Routed to Pond RG.2 :

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	A	rea (sf)	CN	Description			
		20,530	74	>75% Gras	s cover, Go	bod, HSG C	
*		3,990			roppings, F		
*		13,975	70	>75% Gras	s cover, Go	ood, HSG B/D	
*		5,505	98	Paved park	aved parking, HSG B/D		
		4,640	98	Paved park	ing, HSG C	;	
		48,640	80	Weighted A	verage		
		34,505		70.94% Pei	rvious Area		
		14,135		29.06% Imp	pervious Are	ea	
	Тс	Length	Slope	Velocity	Capacity	Description	
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)		
	5.7	50	0.0200	0.15		Sheet Flow, Sheet Slow Grassed	
						Grass: Short n= 0.150 P2= 3.15"	
	2.4	125	0.0150	0.86		Shallow Concentrated Flow, Shallow Grassed	
						Short Grass Pasture Kv= 7.0 fps	
	4.0	240	0.0200	0.99		Shallow Concentrated Flow, Shallow Grassed Slope Change	
_						Short Grass Pasture Kv= 7.0 fps	
	12.1	415	Total				

#### Summary for Subcatchment 41S: Overland to RG3

Runoff = 0.56 cfs @ 12.17 hrs, Volume= Routed to Pond RG.3 : 2,112 cf, Depth> 2.37"

	A	rea (sf)	CN	Description						
		6,455	74	>75% Gras	s cover, Go	ood, HSG C				
*		2,550	70	>75% Gras	s cover, Go	bod, HSG B/D				
		1,700	98	Paved park	ing, HSG C					
		10,705	77	5 5						
		9,005		84.12% Pervious Area						
		1,700		15.88% Imp	pervious Are	ea				
				-						
	Тс	Length	Slope	Velocity	Capacity	Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	5.7	50	0.0200	0.15		Sheet Flow, Sheet Slow Grassed				
						Grass: Short n= 0.150 P2= 3.15"				
	2.4	125	0.0150	0.86		Shallow Concentrated Flow, Shallow Grassed				
						Short Grass Pasture Kv= 7.0 fps				
	4.0	240	0.0200	0.99		Shallow Concentrated Flow, Shallow Grassed Slope Change				
_						Short Grass Pasture Kv= 7.0 fps				
	12.1	415	Total							

#### Summary for Subcatchment 50S: Garage Roof

Runoff = 3.63 cfs @ 12.08 hrs, Volume= 12,797 cf, Depth> 4.46" Routed to Pond DMH9 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

Α	rea (sf)	CN	Description		
	34,430	98	Roofs, HSG	G C	
	34,430		100.00% In	npervious A	Area
Tc (min)	Length (feet)	Slope (ft/ft)		Capacity (cfs)	Description
6.0					Direct Entry,

#### Summary for Subcatchment 60S: Phase 1 Roof

Runoff = 5.06 cfs @ 12.08 hrs, Volume= 17,829 cf, Depth> 4.46" Routed to Reach 12R : Roof Drain Pipe to RG1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 2-Year (2090) Rainfall=4.70"

Area (sf)	CN	Description		
47,970	98	Roofs, HSC	G C	
47,970		100.00% In	npervious A	Area
Tc Length (min) (feet)	Slope (ft/ft	,	Capacity (cfs)	Description
6.0				Direct Entry,

#### Summary for Subcatchment 70S: Phase 2 Roof

Runoff = 3.91 cfs @ 12.08 hrs, Volume= 13,789 cf, Depth> 4.46" Routed to Reach 12R : Roof Drain Pipe to RG1

A	rea (sf)	CN I	Description		
	37,100	98 I	Roofs, HSG	G C	
	37,100		100.00% In	npervious A	rea
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

#### Summary for Reach 12R: Roof Drain Pipe to RG1

Inflow Area = 85,070 sf,100.00% Impervious, Inflow Depth > 4.46" for 2-Year (2090) event Inflow = 8.97 cfs @ 12.08 hrs, Volume= 31,619 cf Outflow = 8.97 cfs @ 12.08 hrs, Volume= 31,618 cf, Atten= 0%, Lag= 0.0 min Routed to Pond DMH20 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Max. Velocity= 13.98 fps, Min. Travel Time= 0.1 min Avg. Velocity = 4.61 fps, Avg. Travel Time= 0.2 min

Peak Storage= 33 cf @ 12.08 hrs Average Depth at Peak Storage= 0.52' , Surface Width= 1.75' Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 61.60 cfs

24.0" Round Pipe n= 0.018 Earth, clean & straight Length= 51.0' Slope= 0.1422 '/' Inlet Invert= 75.50', Outlet Invert= 68.25'

#### Summary for Reach PDP1: Sawmill Brook

 Inflow Area =
 936,015 sf, 29.75% Impervious, Inflow Depth > 2.23" for 2-Year (2090) event

 Inflow =
 30.09 cfs @ 12.11 hrs, Volume=
 173,868 cf

 Outflow =
 30.09 cfs @ 12.11 hrs, Volume=
 173,868 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

#### Summary for Reach PDP2: Route 128

Inflow Are	a =	636,625 sf,	0.03% Impervious,	Inflow Depth >	1.52"	for 2-Year (2090) event
Inflow	=	14.79 cfs @	12.31 hrs, Volume=	80,704 c	f	
Outflow	=	14.79 cfs @	12.31 hrs, Volume=	80,704 c	f, Atter	n= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

## Summary for Pond CB1:

 Inflow Area =
 11,705 sf, 24.18% Impervious, Inflow Depth > 2.21" for 2-Year (2090) event

 Inflow =
 0.69 cfs @
 12.09 hrs, Volume=
 2,151 cf

 Outflow =
 0.69 cfs @
 12.09 hrs, Volume=
 2,151 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.69 cfs @
 12.09 hrs, Volume=
 2,151 cf

 Routed to Pond DMH1 :
 12.09 hrs, Volume=
 2,151 cf

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 53.28' @ 12.09 hrs Flood Elev= 57.30'

#1 Primary 52.80' <b>12.0" Round Culvert</b> L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 52.80' / 52.40' S= 0.0667 '/' Cc= 0.900	Device	Routing	Invert	Outlet Devices
n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf	-	U		<b>12.0" Round Culvert</b> L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 52.80' / 52.40' S= 0.0667 '/' Cc= 0.900

Primary OutFlow Max=0.69 cfs @ 12.09 hrs HW=53.28' TW=52.14' (Dynamic Tailwater) ☐ 1=Culvert (Inlet Controls 0.69 cfs @ 1.86 fps)

#### Summary for Pond CB10:

 Inflow Area =
 4,525 sf, 69.06% Impervious, Inflow Depth > 3.90" for 2-Year (2090) event

 Inflow =
 0.45 cfs @
 12.08 hrs, Volume=
 1,471 cf

 Outflow =
 0.45 cfs @
 12.08 hrs, Volume=
 1,471 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.45 cfs @
 12.08 hrs, Volume=
 1,471 cf

 Routed to Pond DMH6 :
 12.08 hrs, Volume=
 1,471 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 86.59' @ 12.08 hrs Flood Elev= 89.80'

Device	Routing	Invert	Outlet Devices
-	Primary	86.00'	<b>12.0" Round Culvert</b> L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 86.00' / 85.90' S= 0.0200 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.45 cfs @ 12.08 hrs HW=86.59' TW=86.53' (Dynamic Tailwater) -1=Culvert (Inlet Controls 0.45 cfs @ 0.94 fps)

#### Summary for Pond CB11:

Inflow Are	a =	4,505 sf	,100.00% Impervious,	Inflow Depth > 4.46" for 2-Year (2090) event				
Inflow	=	0.48 cfs @	12.08 hrs, Volume=	1,674 cf				
Outflow	=	0.48 cfs @	12.08 hrs, Volume=	1,674 cf, Atten= 0%, Lag= 0.0 min				
Primary	=	0.48 cfs @	12.08 hrs, Volume=	1,674 cf				
Routed to Pond DMH6 :								

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 86.59' @ 12.08 hrs Flood Elev= 89.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	86.00'	12.0" Round Culvert
	-		L= 9.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 86.00' / 85.90' S= 0.0111 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.47 cfs @ 12.08 hrs HW=86.59' TW=86.53' (Dynamic Tailwater) ↓ 1=Culvert (Outlet Controls 0.47 cfs @ 1.41 fps)

#### Summary for Pond CB12:

Inflow Are	a =	9,830 sf,	16.33% Impervious,	Inflow Depth >	2.90"	for 2-Year (2090) event
Inflow	=	0.77 cfs @	12.09 hrs, Volume=	2,376 c	f	
Outflow	=	0.77 cfs @	12.09 hrs, Volume=	2,376 c	f, Atter	ı= 0%, Lag= 0.0 min
Primary	=	0.77 cfs @	12.09 hrs, Volume=	2,376 c	f	
Routed to Pond DMH7 :						

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 85.21' @ 12.09 hrs Flood Elev= 88.21'

#1 Primary 84.70' <b>12.0" Round Culvert</b> L= 9.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.70' / 84.50' S= 0.0222 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf	

Primary OutFlow Max=0.77 cfs @ 12.09 hrs HW=85.21' TW=84.91' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 0.77 cfs @ 1.91 fps)

#### Summary for Pond CB13:

Inflow Are	a =	22,905 sf	, 25.47% Impervious	, Inflow Depth >	2.45"	for 2-Year (2090) event
Inflow	=	1.21 cfs @	12.18 hrs, Volume=	4,681 c	f	
Outflow	=	1.21 cfs @	12.18 hrs, Volume=	4,681 c	f, Atter	n= 0%, Lag= 0.0 min
Primary	=	1.21 cfs @	12.18 hrs, Volume=	4,681 c	f	-
Routed to Pond DMH7 :						

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 85.30' @ 12.18 hrs Flood Elev= 88.23'

Device	Routing	Invert	Outlet Devices
#1	Primary	84.70'	<b>12.0" Round Culvert</b> L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 84.70' / 84.50' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.21 cfs @ 12.18 hrs HW=85.30' TW=84.82' (Dynamic Tailwater) **1=Culvert** (Barrel Controls 1.21 cfs @ 3.54 fps)

#### Summary for Pond CB14:

Inflow Area = 8,170 sf, 18.30% Impervious, Inflow Depth > 2.63" for 2-Year (2090) event Inflow 0.58 cfs @ 12.09 hrs. Volume= 1.790 cf = 0.58 cfs @ 12.09 hrs, Volume= Outflow = 1,790 cf, Atten= 0%, Lag= 0.0 min 0.58 cfs @ 12.09 hrs, Volume= Primary = 1,790 cf Routed to Pond DMH8 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 83.45' @ 12.09 hrs Flood Elev= 86.62' Device Routing Invert Outlet Devices #1 Primary 83.00' 12.0" Round Culvert L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.00' / 82.90' S= 0.0167 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf Primary OutFlow Max=0.58 cfs @ 12.09 hrs HW=83.44' TW=82.68' (Dynamic Tailwater) 1=Culvert (Barrel Controls 0.58 cfs @ 2.52 fps) Summary for Pond CB15:

 Inflow Area =
 6,940 sf, 38.76% Impervious, Inflow Depth > 2.90" for 2-Year (2090) event

 Inflow =
 0.54 cfs @
 12.09 hrs, Volume=
 1,678 cf

 Outflow =
 0.54 cfs @
 12.09 hrs, Volume=
 1,678 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.54 cfs @
 12.09 hrs, Volume=
 1,678 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.54 cfs @
 12.09 hrs, Volume=
 1,678 cf

 Routed to Pond DMH8 :
 12.09 hrs, Volume=
 1,678 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 83.43' @ 12.09 hrs Flood Elev= 86.54'

Device	Routing	Invert	Outlet Devices
#1	Primary	83.00'	12.0" Round Culvert
			L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.00' / 82.90' S= 0.0167 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.54 cfs @ 12.09 hrs HW=83.43' TW=82.68' (Dynamic Tailwater) **1=Culvert** (Barrel Controls 0.54 cfs @ 2.49 fps)

#### Summary for Pond CB16:

 Inflow Area =
 22,795 sf, 29.15% Impervious, Inflow Depth > 2.72" for 2-Year (2090) event

 Inflow =
 1.67 cfs @
 12.09 hrs, Volume=
 5,164 cf

 Outflow =
 1.67 cfs @
 12.09 hrs, Volume=
 5,164 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.67 cfs @
 12.09 hrs, Volume=
 5,164 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.67 cfs @
 12.09 hrs, Volume=
 5,164 cf

 Routed to Pond DMH12 :
 5,164 cf
 5,164 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

Peak Elev= 74.44' @ 12.10 hrs Flood Elev= 81.75'

Device	Routing	Invert	Outlet Devices
-	Primary	73.50'	<b>12.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.50' / 73.25' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=1.65 cfs @ 12.09 hrs HW=74.44' TW=74.19' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 1.65 cfs @ 2.79 fps)

#### Summary for Pond CB17:

Inflow Are	a =	21,860 sf	, 40.94% Impervious,	Inflow Depth > 2.99" for 2-Year (2090) event
Inflow	=	1.58 cfs @	12.13 hrs, Volume=	5,451 cf
Outflow	=	1.58 cfs @	12.13 hrs, Volume=	5,451 cf, Atten= 0%, Lag= 0.0 min
Primary	=	1.58 cfs @	12.13 hrs, Volume=	5,451 cf
Routed	to Pone	d DMH12 :		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 74.47' @ 12.11 hrs Flood Elev= 81.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.50'	<b>12.0" Round Culvert</b> L= 2.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 73.50' / 73.25' S= 0.1250 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.60 cfs @ 12.13 hrs HW=74.46' TW=74.17' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.60 cfs @ 2.06 fps)

## Summary for Pond CB18:

4,800 sf,100.00% Impervious, Inflow Depth > 4.46" for 2-Year (2090) event Inflow Area = 0.51 cfs @ 12.08 hrs, Volume= Inflow = 1,784 cf 0.51 cfs @ 12.08 hrs, Volume= 1,784 cf, Atten= 0%, Lag= 0.0 min Outflow = Primary = 0.51 cfs @ 12.08 hrs, Volume= 1,784 cf Routed to Pond DMH12 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 74.23' @ 12.10 hrs Flood Elev= 81.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.50'	12.0" Round Culvert
			L= 14.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 73.50' / 73.25' S= 0.0179 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.46 cfs @ 12.08 hrs HW=74.22' TW=74.19' (Dynamic Tailwater) ☐ 1=Culvert (Outlet Controls 0.46 cfs @ 1.06 fps)

## Summary for Pond CB19:

Inflow Are	a =	29,290 sf	, 40.99% Impervious,	Inflow Depth >	2.99"	for 2-Year (2090) event
Inflow	=	2.35 cfs @	12.09 hrs, Volume=	7,308 c	f	
Outflow	=	2.35 cfs @	12.09 hrs, Volume=	7,308 c	f, Atten	ı= 0%, Lag= 0.0 min
Primary	=	2.35 cfs @	12.09 hrs, Volume=	7,308 c	f	
Routed to Pond DMH20 :						

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 72.68' @ 12.09 hrs Flood Elev= 75.94'

	Device	Routing	Invert	Outlet Devices
#1 Primary 71.80' <b>12.0'' Round Culvert</b> L= 42.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.80' / 68.25' S= 0.0845 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf		<u>U</u>	71.80'	L= 42.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.80' / 68.25' S= 0.0845 '/' Cc= 0.900

Primary OutFlow Max=2.35 cfs @ 12.09 hrs HW=72.68' TW=69.47' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 2.35 cfs @ 3.20 fps)

## Summary for Pond CB2:

Inflow Are	ea =	8,450 sf	, 31.66% Impervious	, Inflow Depth >	3.28"	for 2-Year (2090) event
Inflow	=	0.74 cfs @	12.09 hrs, Volume=	2,311 0	cf	
Outflow	=	0.74 cfs @	12.09 hrs, Volume=	2,311 0	cf, Atter	n= 0%, Lag= 0.0 min
Primary	=	0.74 cfs @	12.09 hrs, Volume=	2,311 0	cf	
Routed to Pond DMH1 :						

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 53.50' @ 12.09 hrs Flood Elev= 58.17'

Device	Routing	Invert	Outlet Devices
#1	Primary	53.00'	<b>12.0" Round Culvert</b> L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 53.00' / 52.40' S= 0.0188 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.73 cfs @ 12.09 hrs HW=53.50' TW=52.13' (Dynamic Tailwater) -1=Culvert (Inlet Controls 0.73 cfs @ 1.89 fps)

# Summary for Pond CB20:

Inflow Area = 16,240 sf, 25.34% Impervious, Inflow Depth > 2.63" for 2-Year (2090) event Inflow 1.15 cfs @ 12.09 hrs. Volume= 3.559 cf = 1.15 cfs @ 12.09 hrs, Volume= Outflow = 3,559 cf, Atten= 0%, Lag= 0.0 min 1.15 cfs @ 12.09 hrs, Volume= Primary = 3.559 cf Routed to Pond DMH20 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 72.44' @ 12.09 hrs Flood Elev= 75.75' Device Routing Invert Outlet Devices #1 Primary 71.80' 12.0" Round Culvert L= 27.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 71.80' / 68.25' S= 0.1315 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf Primary OutFlow Max=1.15 cfs @ 12.09 hrs HW=72.44' TW=69.47' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.15 cfs @ 2.16 fps) Summary for Pond CB21:

 Inflow Area =
 7,360 sf, 37.16% Impervious, Inflow Depth > 3.59" for 2-Year (2090) event

 Inflow =
 0.67 cfs @
 12.09 hrs, Volume=
 2,200 cf

 Outflow =
 0.67 cfs @
 12.09 hrs, Volume=
 2,200 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.67 cfs @
 12.09 hrs, Volume=
 2,200 cf

 Routed to Pond RG.1 :
 0.67 cfs
 12.09 hrs, Volume=

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 68.16' @ 12.09 hrs Flood Elev= 72.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.75'	12.0" Round Culvert
			L= 30.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 67.75' / 67.25' S= 0.0167 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.67 cfs @ 12.09 hrs HW=68.16' TW=66.91' (Dynamic Tailwater) ↓ 1=Culvert (Inlet Controls 0.67 cfs @ 2.19 fps)

# Summary for Pond CB22:

 Inflow Area =
 4,130 sf, 10.65% Impervious, Inflow Depth > 2.99" for 2-Year (2090) event

 Inflow =
 0.33 cfs @
 12.09 hrs, Volume=
 1,030 cf

 Outflow =
 0.33 cfs @
 12.09 hrs, Volume=
 1,030 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.33 cfs @
 12.09 hrs, Volume=
 1,030 cf

 Routed to Pond CB21 :
 12.09 hrs, Volume=
 1,030 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

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Peak Elev= 68.34' @ 12.09 hrs Flood Elev= 71.00'

 
 Device
 Routing
 Invert
 Outlet Devices

 #1
 Primary
 68.00'
 **12.0" Round Culvert** L= 17.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 68.00' / 67.75' S= 0.0147 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 12.09 hrs HW=68.33' TW=68.16' (Dynamic Tailwater) -1=Culvert (Outlet Controls 0.33 cfs @ 2.14 fps)

#### Summary for Pond CB24:

 Inflow Area =
 4,830 sf,100.00% Impervious, Inflow Depth > 4.46" for 2-Year (2090) event

 Inflow =
 0.51 cfs @ 12.08 hrs, Volume=
 1,795 cf

 Outflow =
 0.51 cfs @ 12.08 hrs, Volume=
 1,795 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.51 cfs @ 12.08 hrs, Volume=
 1,795 cf

 Routed to Pond DMH18 :
 12.08 hrs, Volume=
 1,795 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 113.44' @ 12.08 hrs Flood Elev= 117.08'

#1 Primary 113.00' 12.0" Round Culvert	Device	Routing	Invert	Outlet Devices
L= 11.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.00' / 112.75' S= 0.0227 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf		<u> </u>	113.00'	L= 11.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.00' / 112.75' S= 0.0227 '/' Cc= 0.900

Primary OutFlow Max=0.51 cfs @ 12.08 hrs HW=113.44' TW=113.25' (Dynamic Tailwater) -1=Culvert (Outlet Controls 0.51 cfs @ 2.26 fps)

#### Summary for Pond CB25:

Inflow Area = 15.345 sf. 65.59% Impervious. Inflow Depth > 3.38" for 2-Year (2090) event Inflow = 1.37 cfs @ 12.09 hrs, Volume= 4,324 cf 1.37 cfs @ 12.09 hrs, Volume= 4,324 cf, Atten= 0%, Lag= 0.0 min Outflow = Primary = 1.37 cfs @ 12.09 hrs, Volume= 4,324 cf Routed to Pond DMH18 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 113.72' @ 12.09 hrs Flood Elev= 117.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.00'	12.0" Round Culvert
			L= 19.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 113.00' / 112.75' S= 0.0132 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.37 cfs @ 12.09 hrs HW=113.72' TW=113.25' (Dynamic Tailwater) ☐ 1=Culvert (Inlet Controls 1.37 cfs @ 2.27 fps)

# Summary for Pond CB3:

Inflow Are	a =	22,953 sf	, 39.80% Impervious,	Inflow Depth >	2.63"	for 2-Year (2090) event
Inflow	=	1.26 cfs @	12.20 hrs, Volume=	5,022 cf	F	
Outflow	=	1.26 cfs @	12.20 hrs, Volume=	5,022 cf	f, Atten	= 0%, Lag= 0.0 min
Primary	=	1.26 cfs @	12.20 hrs, Volume=	5,022 cf	F	
Routed to Pond DMH3 :						

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 69.97' @ 12.15 hrs Flood Elev= 72.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.33'	<b>15.0" Round Culvert</b> L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.33' / 69.00' S= 0.0110 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.26 cfs @ 12.20 hrs HW=69.96' TW=69.60' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 1.26 cfs @ 2.95 fps)

## Summary for Pond CB4:

Inflow Are	ea =	3,180 sf	,100.00% Impervious	, Inflow Depth > 4.46" for 2-Year (2090) event	
Inflow	=	0.34 cfs @	12.08 hrs, Volume=	1,182 cf	
Outflow	=	0.34 cfs @	12.08 hrs, Volume=	1,182 cf, Atten= 0%, Lag= 0.0 min	
Primary	=	0.34 cfs @	12.08 hrs, Volume=	1,182 cf	
Routed to Pond DMH3 :					

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 69.80' @ 12.10 hrs Flood Elev= 72.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.33'	<b>12.0" Round Culvert</b> L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.33' / 69.00' S= 0.0118 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 12.08 hrs HW=69.79' TW=69.70' (Dynamic Tailwater) -1=Culvert (Outlet Controls 0.33 cfs @ 1.40 fps)

# Summary for Pond CB5:

Inflow Area = 32,422 sf, 12.23% Impervious, Inflow Depth > 1.96" for 2-Year (2090) event Inflow 1.31 cfs @ 12.20 hrs. Volume= 5.304 cf = 1.31 cfs @ 12.20 hrs, Volume= Outflow 5,304 cf, Atten= 0%, Lag= 0.0 min = 1.31 cfs @ 12.20 hrs, Volume= Primary = 5.304 cf Routed to Pond DMH3 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 70.63' @ 12.20 hrs Flood Elev= 74.00' Device Routing Invert Outlet Devices #1 Primary 70.00' 15.0" Round Culvert L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.00' / 69.70' S= 0.0115 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf Primary OutFlow Max=1.31 cfs @ 12.20 hrs HW=70.63' TW=69.60' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.31 cfs @ 2.13 fps) Summary for Pond CB6: 2,625 sf,100.00% Impervious, Inflow Depth > 4.46" for 2-Year (2090) event Inflow Area = Inflow 0.28 cfs @ 12.08 hrs, Volume= 976 cf = 0.28 cfs @ 12.08 hrs, Volume= 976 cf, Atten= 0%, Lag= 0.0 min Outflow = Primary = 0.28 cfs @ 12.08 hrs, Volume= 976 cf Routed to Pond DMH4 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 90.79' @ 12.08 hrs Flood Elev= 94.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	90.50'	12.0" Round Culvert
			L= 3.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 90.50' / 90.25' S= 0.0833 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

# Summary for Pond CB7:

 Inflow Area =
 27,600 sf, 13.95% Impervious, Inflow Depth > 2.12" for 2-Year (2090) event

 Inflow =
 1.57 cfs @
 12.09 hrs, Volume=
 4,887 cf

 Outflow =
 1.57 cfs @
 12.09 hrs, Volume=
 4,887 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.57 cfs @
 12.09 hrs, Volume=
 4,887 cf

 Routed to Pond DMH4 :
 1.57 cfs
 12.09 hrs, Volume=

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

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Peak Elev= 91.18' @ 12.09 hrs Flood Elev= 94.50'

 
 Device
 Routing
 Invert
 Outlet Devices

 #1
 Primary
 90.50'
 **12.0" Round Culvert** L= 11.0'
 CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 90.50' / 90.25'
 S= 0.0227 '/'
 Cc= 0.900 n= 0.012
 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.57 cfs @ 12.09 hrs HW=91.18' TW=89.06' (Dynamic Tailwater) -1=Culvert (Barrel Controls 1.57 cfs @ 3.89 fps)

#### Summary for Pond CB8:

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 113.48' @ 12.08 hrs Flood Elev= 116.76'

Device Routing	Invert	Outlet Devices
#1 Primary	113.25'	<b>12.0" Round Culvert</b> L= 8.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.25' / 112.50' S= 0.0938 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.18 cfs @ 12.08 hrs HW=113.48' TW=112.83' (Dynamic Tailwater) -1=Culvert (Inlet Controls 0.18 cfs @ 1.29 fps)

## Summary for Pond CB9:

 Inflow Area =
 8,900 sf, 62.64% Impervious, Inflow Depth > 3.38" for 2-Year (2090) event

 Inflow =
 0.79 cfs @
 12.09 hrs, Volume=
 2,508 cf

 Outflow =
 0.79 cfs @
 12.09 hrs, Volume=
 2,508 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.79 cfs @
 12.09 hrs, Volume=
 2,508 cf

 Routed to Pond DMH5 :
 0.79 cfs @
 12.09 hrs, Volume=

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 113.77' @ 12.09 hrs Flood Elev= 116.77'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.25'	12.0" Round Culvert
			L= 11.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 113.25' / 112.50' S= 0.0682 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=113.77' TW=112.83' (Dynamic Tailwater) ↓ 1=Culvert (Inlet Controls 0.79 cfs @ 1.93 fps)

# **Summary for Pond DMH1:**

Inflow Are	a =	20,155 sf	, 27.31% Impervious,	Inflow Depth >	2.66"	for 2-Year (2090) event
Inflow	=	1.43 cfs @	12.09 hrs, Volume=	4,463 c	f	
Outflow	=	1.43 cfs @	12.09 hrs, Volume=	4,463 c	f, Atter	ı= 0%, Lag= 0.0 min
Primary	=	1.43 cfs @	12.09 hrs, Volume=	4,463 c	f	
Routed	d to Pone	d DMH2 :				

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 52.14' @ 12.09 hrs Flood Elev= 57.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.40'	<b>12.0" Round Culvert</b> L= 123.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 51.40' / 49.00' S= 0.0195 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.43 cfs @ 12.09 hrs HW=52.14' TW=49.35' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.43 cfs @ 2.30 fps)

## Summary for Pond DMH10:

Inflow Are	a =	114,705 sf	, 53.15% Impervious	Inflow Depth > 3	3.08"	for 2-Year (2090) event
Inflow	=	1.34 cfs @	12.66 hrs, Volume=	29,421 cf		. ,
Outflow	=	1.34 cfs @	12.66 hrs, Volume=	29,421 cf,	Atten=	= 0%, Lag= 0.0 min
Primary	=	1.34 cfs @	12.66 hrs, Volume=	29,421 cf		-
Routed	to Pond	d DMH11 :				

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 79.39' @ 12.66 hrs Flood Elev= 83.90'

Device Routing Invert Outlet Devices	
#1 Primary 78.80' <b>18.0" Round Culvert</b> L= 109.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.80' / 77.71' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf	

Primary OutFlow Max=1.34 cfs @ 12.66 hrs HW=79.39' TW=73.41' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.34 cfs @ 2.07 fps)

# Summary for Pond DMH11:

 Inflow Area =
 181,870 sf, 50.54% Impervious, Inflow Depth > 3.08" for 2-Year (2090) event

 Inflow =
 6.22 cfs @
 12.10 hrs, Volume=
 46,665 cf

 Outflow =
 6.22 cfs @
 12.10 hrs, Volume=
 46,665 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 6.22 cfs @
 12.10 hrs, Volume=
 46,665 cf

 Routed to Pond DMH13 :
 Pervet and meethod. Times One are 0.00.04.00 hrs. dts 0.04 hrs. (0)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 73.85' @ 12.10 hrs Flood Elev= 81.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.85'	<b>30.0" Round Culvert</b> L= 285.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 72.85' / 70.00' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=6.22 cfs @ 12.10 hrs HW=73.85' TW=70.85' (Dynamic Tailwater) -1=Culvert (Inlet Controls 6.22 cfs @ 3.40 fps)

#### Summary for Pond DMH12:

 Inflow Area =
 67,165 sf, 46.08% Impervious, Inflow Depth > 3.08" for 2-Year (2090) event

 Inflow =
 5.19 cfs @
 12.10 hrs, Volume=
 17,244 cf

 Outflow =
 5.19 cfs @
 12.10 hrs, Volume=
 17,244 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 5.19 cfs @
 12.10 hrs, Volume=
 17,244 cf

 Routed to Pond DMH11 :
 5.19 cfs @
 12.10 hrs, Volume=

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 74.20' @ 12.10 hrs Flood Elev= 81.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	24.0" Round Culvert
	-		L= 6.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 73.00' / 72.90' S= 0.0167 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

**Primary OutFlow** Max=5.19 cfs @ 12.10 hrs HW=74.20' TW=73.85' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 5.19 cfs @ 3.79 fps)

## Summary for Pond DMH13:

 Inflow Area =
 181,870 sf, 50.54% Impervious, Inflow Depth > 3.08" for 2-Year (2090) event

 Inflow =
 6.22 cfs @
 12.10 hrs, Volume=
 46,665 cf

 Outflow =
 6.22 cfs @
 12.10 hrs, Volume=
 46,665 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 6.22 cfs @
 12.10 hrs, Volume=
 46,665 cf

 Routed to Pond DMH14 :
 42.10 hrs, Volume=
 46,665 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

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Type III 24-hr 2-Year (2090) Rainfall=4.70" Printed 5/20/2024 Solutions LLC Page 34

Peak Elev= 70.85' @ 12.10 hrs Flood Elev= 88.50'

 Device
 Routing
 Invert
 Outlet Devices

 #1
 Primary
 69.85'
 **30.0" Round Culvert** L= 161.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 69.85' / 68.25' S= 0.0099 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=6.22 cfs @ 12.10 hrs HW=70.85' TW=69.16' (Dynamic Tailwater) -1=Culvert (Inlet Controls 6.22 cfs @ 3.40 fps)

#### **Summary for Pond DMH14:**

 Inflow Area =
 241,215 sf, 44.67% Impervious, Inflow Depth > 2.84" for 2-Year (2090) event

 Inflow =
 8.25 cfs @
 12.12 hrs, Volume=
 57,104 cf

 Outflow =
 8.25 cfs @
 12.12 hrs, Volume=
 57,104 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 8.25 cfs @
 12.12 hrs, Volume=
 57,104 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 8.25 cfs @
 12.12 hrs, Volume=
 57,104 cf

 Routed to Pond DMH15 :
 57,104 cf
 57,104 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 69.17' @ 12.12 hrs Flood Elev= 81.25'

Device	Routing	Invert	Outlet Devices
<u></u> #1	Primary		<b>30.0" Round Culvert</b> L= 147.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 68.00' / 66.30' S= 0.0116 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=8.24 cfs @ 12.12 hrs HW=69.17' TW=67.22' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 8.24 cfs @ 3.68 fps)

## Summary for Pond DMH15:

241.215 sf. 44.67% Impervious. Inflow Depth > 2.84" Inflow Area = for 2-Year (2090) event Inflow = 8.25 cfs @ 12.12 hrs, Volume= 57,104 cf 8.25 cfs @ 12.12 hrs, Volume= 57,104 cf, Atten= 0%, Lag= 0.0 min Outflow = Primary = 8.25 cfs @ 12.12 hrs, Volume= 57,104 cf Routed to Pond DMH16 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 67.22' @ 12.12 hrs Flood Elev= 76.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.05'	30.0" Round Culvert
			L= 99.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 66.05' / 62.75' S= 0.0333 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=8.24 cfs @ 12.12 hrs HW=67.22' TW=59.17' (Dynamic Tailwater) ☐ 1=Culvert (Inlet Controls 8.24 cfs @ 3.68 fps)

#### **Summary for Pond DMH16:**

Inflow Are	a =	241,215 sf, 44.67	% Impervious,	Inflow Depth >	2.84"	for 2-Year (2090) event
Inflow	=	8.25 cfs @ 12.12	nrs, Volume=	57,104 c	f	
Outflow	=	8.25 cfs @ 12.12	nrs, Volume=	57,104 c	f, Atter	n= 0%, Lag= 0.0 min
Primary	=	8.25 cfs @ 12.12	nrs, Volume=	57,104 c	f	-
Routed to Pond DMH17 :						

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 59.17' @ 12.12 hrs Flood Elev= 68.00'

Device Routing Invert Outlet Devices	
#1 Primary 58.00' <b>30.0'' Round Culvert</b> L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.00' / 54.70' S= 0.0532 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf	

Primary OutFlow Max=8.24 cfs @ 12.12 hrs HW=59.17' TW=55.17' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 8.24 cfs @ 3.68 fps)

#### **Summary for Pond DMH17:**

Inflow Area =		241,215 sf	, 44.67% Impervious	Inflow Depth >	2.84"	for 2-Year (2090) event
Inflow	=	8.25 cfs @	12.12 hrs, Volume=	57,104 c	of	
Outflow	=	8.25 cfs @	12.12 hrs, Volume=	57,104 c	of, Atter	ו= 0%, Lag= 0.0 min
Primary	=	8.25 cfs @	12.12 hrs, Volume=	57,104 c	of	-
Routed to Pond IB.1 :						

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 55.17' @ 12.12 hrs Flood Elev= 61.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.00'	<b>30.0" Round Culvert</b> L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.00' / 53.50' S= 0.0417 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=8.24 cfs @ 12.12 hrs HW=55.17' TW=49.02' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 8.24 cfs @ 3.68 fps)

# Summary for Pond DMH18:

Inflow Area = 20,175 sf, 73.83% Impervious, Inflow Depth > 3.64" for 2-Year (2090) event Inflow 1.88 cfs @ 12.09 hrs. Volume= 6.119 cf = 1.88 cfs @ 12.09 hrs, Volume= Outflow = 6,119 cf, Atten= 0%, Lag= 0.0 min 1.88 cfs @ 12.09 hrs, Volume= Primary = 6,119 cf Routed to Pond DMH4 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 113.25' @ 12.09 hrs Flood Elev= 116.73' Invert Device Routing Outlet Devices #1 112.50' 12.0" Round Culvert L= 242.0' Ke= 0.500 Primary Inlet / Outlet Invert= 112.50' / 90.25' S= 0.0919 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.88 cfs @ 12.09 hrs HW=113.25' TW=89.06' (Dynamic Tailwater) -1=Culvert (Inlet Controls 1.88 cfs @ 2.96 fps)

#### Summary for Pond DMH19:

 Inflow Area =
 59,345 sf, 26.68% Impervious, Inflow Depth > 2.11" for 2-Year (2090) event

 Inflow =
 2.73 cfs @
 12.20 hrs, Volume=
 10,440 cf

 Outflow =
 2.73 cfs @
 12.20 hrs, Volume=
 10,440 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 2.73 cfs @
 12.20 hrs, Volume=
 10,440 cf

 Routed to Pond DMH14 :
 12.20 hrs, Volume=
 10,440 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 73.77' @ 12.20 hrs Flood Elev= 80.25'

	Device	ce Routing	Invert	Outlet Devices
#1 Primary 73.00" <b>18.0" Round Culvert</b> L= 133.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.00' / 69.90' S= 0.0233 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf	#1	9	73.00'	Inlet / Outlet Invert= 73.00' / 69.90' S= 0.0233 '/' Cc= 0.900

Primary OutFlow Max=2.73 cfs @ 12.20 hrs HW=73.77' TW=69.09' (Dynamic Tailwater) -1=Culvert (Inlet Controls 2.73 cfs @ 2.99 fps)

## **Summary for Pond DMH2:**

 Inflow Area =
 20,155 sf, 27.31% Impervious, Inflow Depth > 2.66" for 2-Year (2090) event

 Inflow =
 1.43 cfs @
 12.09 hrs, Volume=
 4,463 cf

 Outflow =
 1.43 cfs @
 12.09 hrs, Volume=
 4,463 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.43 cfs @
 12.09 hrs, Volume=
 4,463 cf

 Routed to Pond IB.1 :
 12.09 hrs, Volume=
 4,463 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

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Peak Elev= 49.79' @ 12.41 hrs Flood Elev= 52.77'

 Device
 Routing
 Invert
 Outlet Devices

 #1
 Primary
 48.67'
 **15.0" Round Culvert** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 48.67' / 47.50' S= 0.0183 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.43 cfs @ 12.09 hrs HW=49.35' TW=48.85' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 1.43 cfs @ 3.06 fps)

#### Summary for Pond DMH20:

 Inflow Area =
 130,600 sf, 77.48% Impervious, Inflow Depth > 3.90" for 2-Year (2090) event

 Inflow =
 12.47 cfs @
 12.09 hrs, Volume=
 42,484 cf

 Outflow =
 12.47 cfs @
 12.09 hrs, Volume=
 42,484 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 12.47 cfs @
 12.09 hrs, Volume=
 42,484 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 12.47 cfs @
 12.09 hrs, Volume=
 42,484 cf

 Routed to Pond RG.1 :
 12.09 hrs, Volume=
 42,484 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 69.48' @ 12.09 hrs Flood Elev= 76.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.00'	<b>30.0" Round Culvert</b> L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 68.00' / 67.25' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Primary OutFlow Max=12.45 cfs @ 12.09 hrs HW=69.47' TW=66.91' (Dynamic Tailwater) -1=Culvert (Inlet Controls 12.45 cfs @ 4.13 fps)

#### Summary for Pond DMH3:

 Inflow Area =
 108,955 sf, 34.56% Impervious, Inflow Depth > 2.59" for 2-Year (2090) event

 Inflow =
 5.94 cfs @
 12.11 hrs, Volume=
 23,489 cf

 Outflow =
 5.94 cfs @
 12.11 hrs, Volume=
 23,489 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 5.94 cfs @
 12.11 hrs, Volume=
 23,489 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 5.94 cfs @
 12.11 hrs, Volume=
 23,489 cf

 Routed to Pond RG.1 :
 12.11 hrs, Volume=
 23,489 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 69.72' @ 12.11 hrs Flood Elev= 73.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.50'	24.0" Round Culvert
			L= 140.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 68.50' / 67.50' S= 0.0071 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=5.93 cfs @ 12.11 hrs HW=69.72' TW=66.94' (Dynamic Tailwater) ↓ 1=Culvert (Inlet Controls 5.93 cfs @ 2.96 fps)

# **Summary for Pond DMH4:**

Inflow Are	a =	50,400 sf, 42.40% Impervio	us, Inflow Depth > 2.85" for 2-Year (2090) event
Inflow	=	3.72 cfs @ 12.09 hrs, Volum	e= 11,981 cf
Outflow	=	3.72 cfs @ 12.09 hrs, Volum	e= 11,981 cf, Atten= 0%, Lag= 0.0 min
Primary	=	3.72 cfs @ 12.09 hrs, Volum	e= 11,981 cf
Routed	to Pond	d DMH3 :	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 89.07' @ 12.09 hrs Flood Elev= 94.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.00'	<b>18.0" Round Culvert</b> L= 273.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 88.00' / 69.70' S= 0.0670 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=3.72 cfs @ 12.09 hrs HW=89.06' TW=69.70' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 3.72 cfs @ 2.77 fps)

## Summary for Pond DMH5:

Inflow Are	a =	10,600 sf	, 68.63% Impervious	, Inflow Depth >	3.55"	for 2-Year (2090) event
Inflow	=	0.97 cfs @	12.09 hrs, Volume=	3,140 0	of	
Outflow	=	0.97 cfs @	12.09 hrs, Volume=	3,140 0	of, Atter	n= 0%, Lag= 0.0 min
Primary	=	0.97 cfs @	12.09 hrs, Volume=	3,140 0	of	
Routed to Pond DMH6 :						

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 112.83' @ 12.09 hrs Flood Elev= 116.06'

#1 Primary 112.25' <b>12.0" Round Culvert</b>	Device	Routing	Invert	Outlet Devices
Inlet / Outlet Invert= 112.25' / 85.90' S= 0.0909 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf	#1	Primary	112.25'	L= 290.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 112.25' / 85.90' S= 0.0909 '/' Cc= 0.900

Primary OutFlow Max=0.97 cfs @ 12.09 hrs HW=112.83' TW=86.53' (Dynamic Tailwater) -1=Culvert (Inlet Controls 0.97 cfs @ 2.05 fps)

#### Summary for Pond DMH6:

Inflow Area = 19,630 sf, 75.93% Impervious, Inflow Depth > 3.84" for 2-Year (2090) event Inflow 1.90 cfs @ 12.08 hrs. Volume= 6.285 cf = 1.90 cfs @ 12.08 hrs, Volume= Outflow 6,285 cf, Atten= 0%, Lag= 0.0 min = 1.90 cfs @ 12.08 hrs, Volume= Primary = 6.285 cf Routed to Pond DMH7 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 86.53' @ 12.08 hrs Flood Elev= 89.80' Device Routing Invert Outlet Devices #1 Primary 85.75' 15.0" Round Culvert L= 148.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 85.75' / 84.25' S= 0.0101 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.89 cfs @ 12.08 hrs HW=86.53' TW=84.91' (Dynamic Tailwater) -1=Culvert (Inlet Controls 1.89 cfs @ 2.37 fps)

#### Summary for Pond DMH7:

 Inflow Area =
 52,365 sf, 42.67% Impervious, Inflow Depth > 3.06" for 2-Year (2090) event

 Inflow =
 3.60 cfs @
 12.10 hrs, Volume=
 13,342 cf

 Outflow =
 3.60 cfs @
 12.10 hrs, Volume=
 13,342 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 3.60 cfs @
 12.10 hrs, Volume=
 13,342 cf

 Routed to Pond DMH8 :
 12.10 hrs, Volume=
 13,342 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 84.91' @ 12.10 hrs Flood Elev= 88.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	24.0" Round Culvert
	-		L= 123.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 84.00' / 81.60' S= 0.0195 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

**Primary OutFlow** Max=3.60 cfs @ 12.10 hrs HW=84.91' TW=82.71' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 3.60 cfs @ 2.57 fps)

## **Summary for Pond DMH8:**

 Inflow Area =
 67,475 sf, 39.32% Impervious, Inflow Depth > 2.99" for 2-Year (2090) event

 Inflow =
 4.71 cfs @
 12.10 hrs, Volume=
 16,810 cf

 Outflow =
 4.71 cfs @
 12.10 hrs, Volume=
 16,810 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 4.71 cfs @
 12.10 hrs, Volume=
 16,810 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 4.71 cfs @
 12.10 hrs, Volume=
 16,810 cf

 Routed to Pond WB.1 :
 12.10 hrs, Volume=
 16,810 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

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Peak Elev= 83.06' @ 12.63 hrs Flood Elev= 86.70'

 
 Device
 Routing
 Invert
 Outlet Devices

 #1
 Primary
 81.50'
 24.0" Round Culvert L= 63.0'
 CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.50' / 81.00'
 S= 0.0079 '/'
 Cc= 0.900 n= 0.012

Primary OutFlow Max=4.71 cfs @ 12.10 hrs HW=82.70' TW=82.22' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 4.71 cfs @ 3.43 fps)

#### **Summary for Pond DMH9:**

 Inflow Area =
 34,430 sf,100.00% Impervious, Inflow Depth > 4.46" for 2-Year (2090) event

 Inflow =
 3.63 cfs @
 12.08 hrs, Volume=
 12,797 cf

 Outflow =
 3.63 cfs @
 12.08 hrs, Volume=
 12,797 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 3.63 cfs @
 12.08 hrs, Volume=
 12,797 cf

 Routed to Pond WB.1 :
 12.08 hrs, Volume=
 12,797 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 84.55' @ 12.08 hrs Flood Elev= 88.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	83.50'	<b>18.0" Round Culvert</b> L= 168.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.50' / 80.50' S= 0.0179 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

**Primary OutFlow** Max=3.63 cfs @ 12.08 hrs HW=84.55' TW=82.16' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 3.63 cfs @ 2.75 fps)

#### Summary for Pond IB.1:

Inflow Area = 575.755 sf. 44.26% Impervious. Inflow Depth > 2.82" for 2-Year (2090) event Inflow 27.03 cfs @ 12.14 hrs, Volume= 135,361 cf = 15.73 cfs @ 12.42 hrs, Volume= 120,701 cf, Atten= 42%, Lag= 16.7 min Outflow = Discarded = 0.25 cfs @ 12.42 hrs, Volume= 10.855 cf Primary = 15.48 cfs @ 12.42 hrs, Volume= 109,846 cf Routed to Reach PDP1 : Sawmill Brook

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 49.78' @ 12.42 hrs Surf.Area= 10,661 sf Storage= 30,731 cf

Plug-Flow detention time= 82.3 min calculated for 120,651 cf (89% of inflow) Center-of-Mass det. time= 33.2 min ( 880.6 - 847.4 )

Associates			Pri	inted 5/20/2024	
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				-	
Avail.Storage	Storage De	escription			
58.016 c	Custom St	tage Data (Pris	matic)Listed below (Re	ecalc)	
,		<b>J</b>		,	
rea Ir	nc.Store	Cum.Store			
-ft) (cul	oic-feet)	(cubic-feet)			
730	0	0			
	13.939	13,939			
	,	,			
940	24,904	58,016			
Invert Ou	tlet Devices				
47.10' <b>24</b>	0" Round C	ulvert			
L=	87.0' CPP, p	projecting, no h	eadwall, Ke= 0.900		
				= 0.900	
n=	0.012 Corruc	gated PP, smoo	th interior, Flow Area=	: 3.14 sf	
51.00' <b>24</b>	0" x 24.0" Ho	oriz. Orifice/Gr	ate C= 0.600		
Lin	nited to weir fl	ow at low head	S		
48.00' <b>4.0</b>	long Sharp	-Crested Recta	ngular Weir 0 End Co	ontraction(s)	
He	ad (feet) 0.20	0.40 0.60 0.	80 1.00 1.20 1.40 1.0	60	
Co	ef. (English) 2	2.49 2.56 2.70	2.69 2.68 2.69 2.67	2.64	
46.00' <b>1.0</b>	20 in/hr Exfil	tration over Si	urface area Phase-In	= 0.01'	
	DO711         © 2023           Avail.Storage         58,016 cf           rea         Ir           -ft)         (cut           '30         209           064         040           Invert         Ou           47.10'         24.           Inle         n=           51.00'         24.           Lin         48.00'           48.00'         15.           He         Co	DOT11         © 2023 HydroCAD So           Avail.Storage         Storage De           58,016 cf         Custom Si           rea         Inc.Store           -ft)         (cubic-feet)           '30         0           209         13,939           964         19,173           940         24,904           Invert         Outlet Devices           47.10'         24.0" Round Ci           L= 87.0'         CPP, p           Inlet / Outlet Invert         n= 0.012           51.00'         24.0" x 24.0" Hot           Limited to weir fl         48.00'           4.0'         Iong Sharp           51.00'         15.0'           Head (feet)         0.20           Coef. (English)         10	Associates	Associates         Pri           00711 © 2023 HydroCAD Software Solutions LLC         Avail.Storage         Storage Description           58,016 cf         Custom Stage Data (Prismatic)Listed below (Reference)         (cubic-feet)           -ft)         (cubic-feet)         (cubic-feet)           '30         0         0           209         13,939         13,939           964         19,173         33,112           940         24,904         58,016           Invert         Outlet Devices           47.10'         24.0" Round Culvert           L= 87.0'         CPP, projecting, no headwall, Ke= 0.900           Inlet / Outlet Invert= 47.10' / 46.10'         S= 0.0115 '/'           c= n= 0.012         Corrugated PP, smooth interior, Flow Area=           51.00'         24.0" x 24.0" Horiz. Orifice/Grate         C= 0.600           Limited to weir flow at low heads         48.00'         4.0' long Sharp-Crested Rectangular Weir 0 End Co           51.00'         15.0' long x 10.0' breadth Broad-Crested Rectangular Head (feet)         0.20         0.40         0.60         0.80         1.00         1.20         1.40         1.	

Type III 24-hr 2-Year (2090) Rainfall=4.70"

**Discarded OutFlow** Max=0.25 cfs @ 12.42 hrs HW=49.78' (Free Discharge) **5=Exfiltration** (Exfiltration Controls 0.25 cfs)

Primary OutFlow Max=15.48 cfs @ 12.42 hrs HW=49.78' TW=0.00' (Dynamic Tailwater) 1=Culvert (Inlet Controls 15.48 cfs @ 4.93 fps)

2=Orifice/Grate (Controls 0.00 cfs)

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**U-3=Sharp-Crested Rectangular Weir** (Passes 15.48 cfs of 31.06 cfs potential flow) **-4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

## Summary for Pond RG.1:

 Inflow Area =
 293,300 sf, 48.27% Impervious, Inflow Depth > 3.10" for 2-Year (2090) event

 Inflow =
 21.40 cfs @
 12.09 hrs, Volume=
 75,776 cf

 Outflow =
 16.86 cfs @
 12.16 hrs, Volume=
 70,061 cf, Atten= 21%, Lag= 4.2 min

 Primary =
 16.86 cfs @
 12.16 hrs, Volume=
 70,061 cf

 Routed to Pond IB.1 :
 200 hrs, Volume=
 70,061 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 66.97' @ 12.16 hrs Surf.Area= 20,083 sf Storage= 13,957 cf

Plug-Flow detention time= 79.0 min calculated for 70,061 cf (92% of inflow) Center-of-Mass det. time= 39.3 min (829.6 - 790.3)

Volume	Invert	Avail.Storage	Storage Description
#1	66.25'	24,916 cf	Custom Stage Data (Irregular)Listed below (Recalc)

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Type III 24-hr 2-Year (2090) Rainfall=4.70"

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Elevatio (fee		Surf.Area F (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft <u>)</u>
66.2 67.5	-	- )	560.0 582.0	0 24,916	0 24,916	18,885 21,008
Device	Routing	Invert	Outlet I	Devices		
#1	Primary	66.83'	66.83' <b>10.0' long x 10.0' breadth Broad-Crested Rectangular V</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60			0 1.40 1.60
#2	Primary	60.00'	Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67			0.500

n= 0.013. Flow Area= 4.91 sf

#3	Device 2	66.52'	<b>24.0" x 24.0" Horiz. Orifice/Grate X 2.00</b> C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=16.86 cfs @ 12.16 hrs HW=66.97' TW=49.23' (Dynamic Tailwater) 1=Broad-Crested Rectangular Weir (Weir Controls 1.25 cfs @ 0.92 fps) 2=Culvert (Passes 15.60 cfs of 56.51 cfs potential flow)

**3=Orifice/Grate** (Weir Controls 15.60 cfs @ 2.18 fps)

# Summary for Pond RG.2:

Inflow Are	a =	48,640 sf	, 29.06% Impervious,	Inflow Depth >	2.63"	for 2-Year (2090) event
Inflow	=	2.83 cfs @	12.17 hrs, Volume=	10,646 c	of	
Outflow	=	2.73 cfs @	12.20 hrs, Volume=	9,181 c	of, Atter	n= 4%, Lag= 2.0 min
Primary	=	2.73 cfs @	12.20 hrs, Volume=	9,181 c	of	-
Routed to Pond DMH19 :						

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 79.22' @ 12.20 hrs Surf.Area= 2,144 sf Storage= 1,890 cf

Plug-Flow detention time= 89.3 min calculated for 9,181 cf (86% of inflow) Center-of-Mass det. time= 28.9 min (857.6 - 828.7)

Volume	Inver	t Avail.Stor	age Storage	Description	
#1	78.00	' 3,85	5 cf Custom	Stage Data (Pi	rismatic)Listed below (Recalc)
Elevatio (fee		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
78.0	00	950	0	0	
80.0	00	2,905	3,855	3,855	
Device	Routing	Invert	Outlet Devices	S	
#1	Device 2	79.00'			Grate C= 0.600
#2	Primary	75.00'	Limited to weir flow at low heads <b>15.0" Round Culvert</b> L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 75.00' / 73.10' S= 0.0413 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf		

Primary OutFlow Max=2.73 cfs @ 12.20 hrs HW=79.22' TW=73.77' (Dynamic Tailwater) -2=Culvert (Passes 2.73 cfs of 8.85 cfs potential flow) -1=Orifice/Grate (Weir Controls 2.73 cfs @ 1.54 fps)

# Summary for Pond RG.3:

Inflow Are	a =	10,705 sf	, 15.88% Impervious,	Inflow Depth >	2.37"	for 2-Year (2090) event
Inflow	=	0.56 cfs @	12.17 hrs, Volume=	2,112 c	f	
Outflow	=	0.27 cfs @	12.46 hrs, Volume=	1,258 c	f, Atter	n= 52%, Lag= 17.3 min
Primary	=	0.27 cfs @	12.46 hrs, Volume=	1,258 c	f	
Routed to Pond DMH19 :						

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 79.05' @ 12.46 hrs Surf.Area= 1,219 sf Storage= 906 cf Flood Elev= 80.00' Surf.Area= 1,865 sf Storage= 2,375 cf

Plug-Flow detention time= 196.0 min calculated for 1,258 cf (60% of inflow) Center-of-Mass det. time= 86.9 min (923.6 - 836.7)

Volume	Inve	rt Avail.Stor	rage Storage	Description			
#1 78.00' 2,37		75 cf Custom	cf Custom Stage Data (Prismatic)Listed below (Recalc)				
Elevatio (fee		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)			
78.0	00	510	0	0			
80.0	00	1,865	2,375	2,375			
Device	Routing	Invert	Outlet Devices	6			
#1	Device 2	79.00'		Horiz. Orifice/G			
#2	Primary	75.50'	12.0" Round		ds headwall, Ke= 0.900		
			Inlet / Outlet Invert= 75.50' / 73.20' S= 0.0107 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf				

Primary OutFlow Max=0.27 cfs @ 12.46 hrs HW=79.05' TW=73.60' (Dynamic Tailwater) -2=Culvert (Passes 0.27 cfs of 5.03 cfs potential flow) -1=Orifice/Grate (Weir Controls 0.27 cfs @ 0.71 fps)

## Summary for Pond TD & DMH12:

 Inflow Area =
 17,710 sf, 59.60% Impervious, Inflow Depth > 3.28" for 2-Year (2090) event

 Inflow =
 1.54 cfs @
 12.09 hrs, Volume=
 4,844 cf

 Outflow =
 1.54 cfs @
 12.09 hrs, Volume=
 4,844 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.54 cfs @
 12.09 hrs, Volume=
 4,844 cf

 Routed to Pond DMH12 :
 12.09 hrs, Volume=
 4,844 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

Peak Elev= 74.57' @ 12.09 hrs Flood Elev= 77.50'

Device	Routing	Invert	Outlet Devices		
#1	Primary	73.75'	<b>15.0" Round Culvert</b> L= 106.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.75' / 73.25' S= 0.0047 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf		
			-		

**Primary OutFlow** Max=1.53 cfs @ 12.09 hrs HW=74.56' TW=74.19' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 1.53 cfs @ 2.56 fps)

#### Summary for Pond WB.1:

Inflow Are	a =	114,705 sf	, 53.15% Impervious,	Inflow Depth > 3.33" for 2-Year (2090) event
Inflow	=	9.05 cfs @	12.09 hrs, Volume=	31,873 cf
Outflow	=	1.34 cfs @	12.66 hrs, Volume=	29,421 cf, Atten= 85%, Lag= 34.1 min
Primary	=	1.34 cfs @	12.66 hrs, Volume=	29,421 cf
Routed	l to Pond	d DMH10 :		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 83.05' @ 12.66 hrs Surf.Area= 6,817 sf Storage= 14,629 cf Flood Elev= 86.00' Surf.Area= 10,339 sf Storage= 39,438 cf

Plug-Flow detention time= 167.3 min calculated for 29,421 cf (92% of inflow) Center-of-Mass det. time= 126.9 min ( 912.7 - 785.8 )

Volume	Inver	t Avail.Sto	rage Storage	Description	
#1	80.50	' 39,43	38 cf Custom	n Stage Data (Pr	r <b>ismatic)</b> Listed below (Recalc)
Elevatio		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
80.5		4,635	0	0	
82.0		5,950	7,939	7,939	
84.0		7,605	13,555	21,494	
86.0	00	10,339	17,944	39,438	
Device	Routing	Invert	Outlet Device	S	
#1 Primary 8		80.50'	Inlet / Outlet I	P, projecting, no nvert= 80.50' / 7	headwall, Ke= 0.900 '8.90' S= 0.0348 '/' Cc= 0.900 ooth interior, Flow Area= 0.79 sf
#2	#2 Device 1				tangular Weir 0 End Contraction(s)
#3	#3 Device 1 80.80'		6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads		
#4	Device 1	85.00'	-	.0" H Vert. Orifi ir flow at low hea	<b>ce/Grate</b> C= 0.600 ads
#5	Primary	85.00'	Head (feet) 0	0.20 0.40 0.60	road-Crested Rectangular Weir 0.80 1.00 1.20 1.40 1.60 70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=1.34 cfs @ 12.66 hrs HW=83.05' TW=79.39' (Dynamic Tailwater)

-1=Culvert (Passes 1.34 cfs of 4.27 cfs potential flow)

2=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

-3=Orifice/Grate (Orifice Controls 1.34 cfs @ 6.81 fps)

**4=Orifice/Grate** (Controls 0.00 cfs)

-5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

 25770rev5.17
 Type III 24-hr
 10-Year (2090) Rainfall=7.40"

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Overland to CB1	Runoff Area=11,705 sf 24.18% Impervious Runoff Depth>4.50" Tc=6.0 min CN=75 Runoff=1.42 cfs 4,388 cf
Subcatchment 2S: Overland to CB2	Runoff Area=8,450 sf 31.66% Impervious Runoff Depth>5.86" Tc=6.0 min CN=87 Runoff=1.28 cfs 4,127 cf
Subcatchment 3S: Overland to CB3	Runoff Area=22,953 sf 39.80% Impervious Runoff Depth>5.05" Flow Length=215' Tc=14.2 min CN=80 Runoff=2.40 cfs 9,663 cf
Subcatchment 4S: Overland to CB4	Runoff Area=3,180 sf 100.00% Impervious Runoff Depth>7.16" Tc=6.0 min CN=98 Runoff=0.53 cfs 1,896 cf
Subcatchment 5S: Overland to CB5	Runoff Area=32,422 sf 12.23% Impervious Runoff Depth>4.16" Flow Length=210' Tc=13.9 min CN=72 Runoff=2.84 cfs 11,241 cf
Subcatchment 6S: Overland to CB6	Runoff Area=2,625 sf 100.00% Impervious Runoff Depth>7.16" Tc=6.0 min CN=98 Runoff=0.44 cfs 1,565 cf
Subcatchment 7S: Overland to CB7	Runoff Area=27,600 sf 13.95% Impervious Runoff Depth>4.39" Tc=6.0 min CN=74 Runoff=3.26 cfs 10,092 cf
Subcatchment 8S: Overland to CB8	Runoff Area=1,700 sf 100.00% Impervious Runoff Depth>7.16" Tc=6.0 min CN=98 Runoff=0.28 cfs 1,014 cf
Subcatchment9S: Overland to CB9	Runoff Area=8,900 sf 62.64% Impervious Runoff Depth>5.98" Tc=6.0 min CN=88 Runoff=1.37 cfs 4,433 cf
Subcatchment 10A: Overland to Sawmi	II Runoff Area=23,830 sf 38.75% Impervious Runoff Depth>4.95" Tc=6.0 min CN=79 Runoff=3.15 cfs 9,823 cf
Subcatchment 10B: Overland to Atwate	r Runoff Area=39,935 sf 17.48% Impervious Runoff Depth>4.94" Flow Length=715' Tc=15.3 min CN=79 Runoff=3.97 cfs 16,434 cf
Subcatchment 10C: Overland to Abutte	<b>r</b> Runoff Area=296,495 sf 2.51% Impervious Runoff Depth>4.28" Flow Length=530' Tc=6.0 min CN=73 Runoff=34.18 cfs 105,685 cf
Subcatchment 10S: Overland to CB10	Runoff Area=4,525 sf 69.06% Impervious Runoff Depth>6.56" Tc=6.0 min CN=93 Runoff=0.73 cfs 2,474 cf
Subcatchment 11S: Overland to CB11	Runoff Area=4,505 sf 100.00% Impervious Runoff Depth>7.16" Tc=6.0 min CN=98 Runoff=0.75 cfs 2,686 cf
Subcatchment 12S: Overland to CB12	Runoff Area=9,830 sf 16.33% Impervious Runoff Depth>5.40" Tc=6.0 min CN=83 Runoff=1.40 cfs 4,424 cf
Subcatchment 14S: Overland to CB14	Runoff Area=8,170 sf 18.30% Impervious Runoff Depth>5.06" Tc=6.0 min CN=80 Runoff=1.10 cfs 3,445 cf

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Subcatchment15S: Overland to CB15	Runoff Area=6,940 sf 38.76% Impervious Runoff Depth>5.40" Tc=6.0 min CN=83 Runoff=0.99 cfs 3,124 cf
Subcatchment 16S: Overland to CB16	Runoff Area=22,795 sf 29.15% Impervious Runoff Depth>5.17" Tc=6.0 min CN=81 Runoff=3.13 cfs 9,827 cf
Subcatchment 17S: Overland to CB17	Runoff Area=21,860 sf 40.94% Impervious Runoff Depth>5.51" Flow Length=347' Tc=9.1 min CN=84 Runoff=2.85 cfs 10,042 cf
Subcatchment 18S: Overland to CB18	Runoff Area=4,800 sf 100.00% Impervious Runoff Depth>7.16" Tc=6.0 min CN=98 Runoff=0.80 cfs 2,862 cf
Subcatchment 19S: Overland to CB19	Runoff Area=29,290 sf 40.99% Impervious Runoff Depth>5.52" Tc=6.0 min CN=84 Runoff=4.24 cfs 13,463 cf
Subcatchment 20A: Overland to Southerr	<b>n</b> Runoff Area=70,500 sf 0.26% Impervious Runoff Depth>3.62" Flow Length=630' Tc=6.0 min CN=67 Runoff=6.87 cfs 21,292 cf
	28 Runoff Area=49,735 sf 0.00% Impervious Runoff Depth>2.58" Flow Length=575' Tc=6.0 min CN=57 Runoff=3.32 cfs 10,691 cf
Subcatchment 20C: Overland to Localized	<b>d</b> Runoff Area=82,715 sf 0.00% Impervious Runoff Depth>3.41" Flow Length=325' Tc=6.0 min CN=65 Runoff=7.56 cfs 23,509 cf
Subcatchment 20D: Overland to Western Flow	Runoff Area=433,675 sf 0.00% Impervious Runoff Depth>3.61" w Length=710' Tc=22.5 min CN=67 Runoff=27.06 cfs 130,492 cf
Subcatchment 20S: Overland to CB20	Runoff Area=16,240 sf 25.34% Impervious Runoff Depth>5.06" Tc=6.0 min CN=80 Runoff=2.19 cfs 6,847 cf
Subcatchment 21S: Overland to CB21	Runoff Area=3,230 sf  71.05% Impervious  Runoff Depth>7.04" Tc=6.0 min  CN=97  Runoff=0.54 cfs  1,894 cf
Subcatchment 22S: Overland to CB22	Runoff Area=4,130 sf  10.65% Impervious  Runoff Depth>5.52" Tc=6.0 min  CN=84  Runoff=0.60 cfs  1,898 cf
Subcatchment 24S: Overland to CB24	Runoff Area=4,830 sf 100.00% Impervious Runoff Depth>7.16" Tc=6.0 min CN=98 Runoff=0.81 cfs 2,880 cf
Subcatchment 25S: Overland to CB25	Runoff Area=15,345 sf 65.59% Impervious Runoff Depth>5.98" Tc=6.0 min CN=88 Runoff=2.35 cfs 7,643 cf
Subcatchment 30S: Overland to TD	Runoff Area=17,710 sf 59.60% Impervious Runoff Depth>5.86" Tc=6.0 min CN=87 Runoff=2.68 cfs 8,650 cf
Subcatchment 31S: Overland to Infiltratio	on Runoff Area=21,085 sf 0.00% Impervious Runoff Depth>4.39" Flow Length=530' Tc=6.0 min CN=74 Runoff=2.49 cfs 7,710 cf
Subcatchment 32S: Overland to Rain	Runoff Area=46,385 sf 0.00% Impervious Runoff Depth>4.17" Flow Length=530' Tc=6.0 min CN=72 Runoff=5.21 cfs 16,109 cf
Subcatchment35S: Overland to Basin	Runoff Area=12,800 sf 0.00% Impervious Runoff Depth>4.39" Flow Length=530' Tc=6.0 min CN=74 Runoff=1.51 cfs 4,680 cf

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Subcatchinen(365. Overland itol	Flow Length= $535'$ Tc= $12.8$ min CN= $78$ Runoff= $2.38$ cfs 9,215 cf
Subcatchment 40S: Overland to I	RG2 Runoff Area=48,640 sf 29.06% Impervious Runoff Depth>5.05" Flow Length=415' Tc=12.1 min CN=80 Runoff=5.38 cfs 20,486 cf
Subcatchment41S: Overland to I	RG3 Runoff Area=10,705 sf 15.88% Impervious Runoff Depth>4.72" Flow Length=415' Tc=12.1 min CN=77 Runoff=1.11 cfs 4,207 cf
Subcatchment 50S: Garage Roof	Runoff Area=34,430 sf 100.00% Impervious Runoff Depth>7.16" Tc=6.0 min CN=98 Runoff=5.74 cfs 20,529 cf
Subcatchment60S: Phase 1 Roo	f Runoff Area=47,970 sf 100.00% Impervious Runoff Depth>7.16" Tc=6.0 min CN=98 Runoff=8.00 cfs 28,602 cf
Subcatchment70S: Phase 2 Roo	f Runoff Area=37,100 sf 100.00% Impervious Runoff Depth>7.16" Tc=6.0 min CN=98 Runoff=6.19 cfs 22,121 cf
Reach 12R: Roof Drain Pipe to Reach 24.0" Round Pipe n=0.0	<b>G1</b> Avg. Flow Depth=0.65' Max Vel=15.93 fps Inflow=14.18 cfs 50,723 cf 018 L=51.0' S=0.1422 '/' Capacity=61.60 cfs Outflow=14.18 cfs 50,722 cf
Reach PDP1: Sawmill Brook	Inflow=56.89 cfs 357,426 cf Outflow=56.89 cfs 357,426 cf
Reach PDP2: Route 128	Inflow=35.21 cfs 185,985 cf Outflow=35.21 cfs 185,985 cf
<b>Pond CB1:</b> 1	Peak Elev=53.53' Inflow=1.42 cfs 4,388 cf 2.0" Round Culvert n=0.012 L=6.0' S=0.0667 '/' Outflow=1.42 cfs 4,388 cf
<b>Pond CB10:</b> 1	Peak Elev=86.89' Inflow=0.73 cfs 2,474 cf 2.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=0.73 cfs 2,474 cf
<b>Pond CB11:</b> 1	Peak Elev=86.90' Inflow=0.75 cfs 2,686 cf 2.0" Round Culvert n=0.012 L=9.0' S=0.0111 '/' Outflow=0.75 cfs 2,686 cf
<b>Pond CB12:</b> 1	Peak Elev=85.54' Inflow=1.40 cfs 4,424 cf 2.0" Round Culvert n=0.012 L=9.0' S=0.0222 '/' Outflow=1.40 cfs 4,424 cf
<b>Pond CB13:</b> 12	Peak Elev=85.64' Inflow=2.38 cfs 9,215 cf 0.0" Round Culvert n=0.012 L=10.0' S=0.0200 '/' Outflow=2.38 cfs 9,215 cf
<b>Pond CB14:</b> 1	Peak Elev=84.34' Inflow=1.10 cfs 3,445 cf 2.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=1.10 cfs 3,445 cf
<b>Pond CB15</b> : 1	Peak Elev=84.34' Inflow=0.99 cfs 3,124 cf 2.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=0.99 cfs 3,124 cf
Pond CB16: 12	Peak Elev=75.35' Inflow=3.13 cfs 9,827 cf 0.0" Round Culvert n=0.012 L=25.0' S=0.0100 '/' Outflow=3.13 cfs 9,827 cf.

Subcatchment 36S: Overland from South Runoff Area=22,905 sf 25.47% Impervious Runoff Depth>4.83"

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Pond CB17:	Peak Elev=75.56' Inflow=2.85 cfs 10,042 cf 12.0" Round Culvert n=0.012 L=2.0' S=0.1250 '/' Outflow=2.85 cfs 10,042 cf
Pond CB18:	Peak Elev=74.72' Inflow=0.80 cfs 2,862 cf 12.0" Round Culvert n=0.012 L=14.0' S=0.0179 '/' Outflow=0.80 cfs 2,862 cf
Pond CB19:	Peak Elev=73.56' Inflow=4.24 cfs 13,463 cf 12.0" Round Culvert n=0.012 L=42.0' S=0.0845 '/' Outflow=4.24 cfs 13,463 cf
Pond CB2:	Peak Elev=53.69' Inflow=1.28 cfs 4,127 cf 12.0" Round Culvert n=0.012 L=32.0' S=0.0188 '/' Outflow=1.28 cfs 4,127 cf
Pond CB20:	Peak Elev=72.84' Inflow=2.19 cfs 6,847 cf 12.0" Round Culvert n=0.012 L=27.0' S=0.1315 '/' Outflow=2.19 cfs 6,847 cf
Pond CB21:	Peak Elev=68.30' Inflow=1.13 cfs 3,792 cf 12.0" Round Culvert n=0.012 L=30.0' S=0.0167 '/' Outflow=1.13 cfs 3,792 cf
Pond CB22:	Peak Elev=68.48' Inflow=0.60 cfs 1,898 cf 12.0" Round Culvert n=0.012 L=17.0' S=0.0147 '/' Outflow=0.60 cfs 1,898 cf
Pond CB24:	Peak Elev=113.80' Inflow=0.81 cfs 2,880 cf 12.0" Round Culvert n=0.012 L=11.0' S=0.0227 '/' Outflow=0.81 cfs 2,880 cf
Pond CB25:	Peak Elev=114.32' Inflow=2.35 cfs 7,643 cf 12.0" Round Culvert n=0.012 L=19.0' S=0.0132 '/' Outflow=2.35 cfs 7,643 cf
Pond CB3:	Peak Elev=70.57' Inflow=2.40 cfs  9,663 cf 15.0" Round Culvert  n=0.012  L=30.0'  S=0.0110 '/' Outflow=2.40 cfs  9,663 cf
Pond CB4:	Peak Elev=70.42' Inflow=0.53 cfs 1,896 cf 12.0" Round Culvert n=0.012 L=28.0' S=0.0118 '/' Outflow=0.53 cfs 1,896 cf
Pond CB5:	Peak Elev=71.00' Inflow=2.84 cfs 11,241 cf 15.0" Round Culvert n=0.012 L=26.0' S=0.0115 '/' Outflow=2.84 cfs 11,241 cf
Pond CB6:	Peak Elev=90.87' Inflow=0.44 cfs 1,565 cf 12.0" Round Culvert n=0.012 L=3.0' S=0.0833 '/' Outflow=0.44 cfs 1,565 cf
Pond CB7:	Peak Elev=91.74' Inflow=3.26 cfs 10,092 cf 12.0" Round Culvert n=0.012 L=11.0' S=0.0227 '/' Outflow=3.26 cfs 10,092 cf
Pond CB8:	Peak Elev=113.55' Inflow=0.28 cfs 1,014 cf 12.0" Round Culvert n=0.012 L=8.0' S=0.0938 '/' Outflow=0.28 cfs 1,014 cf
Pond CB9:	Peak Elev=113.96' Inflow=1.37 cfs  4,433 cf 12.0" Round Culvert  n=0.012  L=11.0'  S=0.0682 '/'  Outflow=1.37 cfs  4,433 cf
Pond DMH1:	Peak Elev=52.71' Inflow=2.70 cfs 8,516 cf 12.0" Round Culvert n=0.012 L=123.0' S=0.0195 '/' Outflow=2.70 cfs 8,516 cf
Pond DMH10:	Peak Elev=80.03' Inflow=4.62 cfs 53,203 cf 18.0" Round Culvert n=0.012 L=109.0' S=0.0100 '/' Outflow=4.62 cfs 53,203 cf

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Pond DMH11:	Peak Elev=74.20' Inflow=10.68 cfs 84,584 cf 30.0" Round Culvert n=0.012 L=285.0' S=0.0100 '/' Outflow=10.68 cfs 84,584 cf
Pond DMH12:	Peak Elev=74.68' Inflow=9.28 cfs 31,381 cf 24.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=9.28 cfs 31,381 cf
Pond DMH13:	Peak Elev=71.20' Inflow=10.68 cfs 84,584 cf 30.0" Round Culvert n=0.012 L=161.0' S=0.0099 '/' Outflow=10.68 cfs 84,584 cf
Pond DMH14:	Peak Elev=69.69' Inflow=15.62 cfs 106,945 cf 30.0" Round Culvert n=0.012 L=147.0' S=0.0116 '/' Outflow=15.62 cfs 106,945 cf
Pond DMH15:	Peak Elev=67.74' Inflow=15.62 cfs 106,945 cf 30.0" Round Culvert n=0.012 L=99.0' S=0.0333 '/' Outflow=15.62 cfs 106,945 cf
Pond DMH16:	Peak Elev=59.69' Inflow=15.62 cfs 106,945 cf 30.0" Round Culvert n=0.012 L=62.0' S=0.0532 '/' Outflow=15.62 cfs 106,945 cf
Pond DMH17:	Peak Elev=55.72' Inflow=15.62 cfs 106,945 cf 30.0" Round Culvert n=0.012 L=12.0' S=0.0417 '/' Outflow=15.62 cfs 106,945 cf
Pond DMH18:	Peak Elev=113.70' Inflow=3.16 cfs 10,523 cf 12.0" Round Culvert n=0.012 L=242.0' S=0.0919 '/' Outflow=3.16 cfs 10,523 cf
Pond DMH19:	Peak Elev=74.30' Inflow=6.33 cfs 22,361 cf 18.0" Round Culvert n=0.012 L=133.0' S=0.0233 '/' Outflow=6.33 cfs 22,361 cf
Pond DMH2:	Peak Elev=51.40' Inflow=2.70 cfs 8,516 cf 15.0" Round Culvert n=0.012 L=64.0' S=0.0183 '/' Outflow=2.70 cfs 8,516 cf
Pond DMH20:	Peak Elev=70.02' Inflow=20.61 cfs 71,032 cf 30.0" Round Culvert n=0.013 L=30.0' S=0.0250 '/' Outflow=20.61 cfs 71,032 cf
Pond DMH3:	Peak Elev=70.39' Inflow=11.34 cfs 44,981 cf 24.0" Round Culvert n=0.012 L=140.0' S=0.0071 '/' Outflow=11.34 cfs 44,981 cf
Pond DMH4:	Peak Elev=89.79' Inflow=6.86 cfs 22,181 cf 18.0" Round Culvert n=0.012 L=273.0' S=0.0670 '/' Outflow=6.86 cfs 22,181 cf
Pond DMH5:	Peak Elev=113.06' Inflow=1.65 cfs 5,447 cf 12.0" Round Culvert n=0.012 L=290.0' S=0.0909 '/' Outflow=1.65 cfs 5,447 cf
Pond DMH6:	Peak Elev=86.83' Inflow=3.13 cfs 10,607 cf 15.0" Round Culvert n=0.012 L=148.0' S=0.0101 '/' Outflow=3.13 cfs 10,607 cf
Pond DMH7:	Peak Elev=85.28' Inflow=6.42 cfs 24,247 cf 24.0" Round Culvert n=0.012 L=123.0' S=0.0195 '/' Outflow=6.42 cfs 24,247 cf
Pond DMH8:	Peak Elev=84.33' Inflow=8.48 cfs 30,815 cf 24.0" Round Culvert n=0.012 L=63.0' S=0.0079 '/' Outflow=8.48 cfs 30,815 cf

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Pond DMH9:	Peak Elev=84.97' Inflow=5.74 cfs 20,529 cf 18.0" Round Culvert n=0.012 L=168.0' S=0.0179 '/' Outflow=5.74 cfs 20,529 cf
Pond IB.1:	Peak Elev=51.34' Storage=49,165 cf Inflow=52.22 cfs 253,145 cf Discarded=0.31 cfs 12,548 cf Primary=36.74 cfs 225,483 cf Outflow=37.04 cfs 238,032 cf
Pond RG.1:	Peak Elev=67.17' Storage=18,049 cf Inflow=38.10 cfs 135,914 cf Outflow=32.32 cfs 129,974 cf
Pond RG.2:	Peak Elev=79.34' Storage=2,156 cf Inflow=5.38 cfs 20,486 cf Outflow=5.24 cfs 19,010 cf
Pond RG.3:	Peak Elev=79.12' Storage=996 cf Inflow=1.11 cfs 4,207 cf Outflow=1.08 cfs 3,351 cf
Pond TD & DMH12	Peak Elev=75.02' Inflow=2.68 cfs 8,650 cf 15.0" Round Culvert n=0.012 L=106.0' S=0.0047 '/' Outflow=2.68 cfs 8,650 cf
Pond WB.1:	Peak Elev=84.27' Storage=23,584 cf Inflow=15.70 cfs 56,025 cf Outflow=4.62 cfs 53,203 cf
Total Run	off Area = 1,572,640 sf Runoff Volume = 582,167 cf Average Runoff Depth = 4.44'

Total Runoff Area = 1,572,640 sf Runoff Volume = 582,167 cf Average Runoff Depth = 4.44" 82.28% Pervious = 1,293,965 sf 17.72% Impervious = 278,675 sf

#### Summary for Subcatchment 1S: Overland to CB1

Runoff = 1.42 cfs @ 12.09 hrs, Volume= 4,388 cf, Depth> 4.50" Routed to Pond CB1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

	Area (	sf) Cl	N D	escription			
*	2,8	30 9	8 P	aved parki	ing, HSG B	3/D	
*	4,6	95 7	0 >	75% Ġras	s cover, Go	ood, HSG B/D	
*	4,1	80 6	5 V	Voods, Goo	od, HSG B/	3/D	
	11,7 8,8 2,8	75	7	Weighted Average 75.82% Pervious Area 24.18% Impervious Area			
(n	Tc Ler nin) (fe		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
	6.0					Direct Entry,	

#### Summary for Subcatchment 2S: Overland to CB2

Runoff = 1.28 cfs @ 12.08 hrs, Volume= 4,127 cf, Depth> 5.86" Routed to Pond CB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

A	Area (sf)	CN	Description				
	740	98	Paved park	ing, HSG C	C		
*	1,935	98	Paved park	ing, HSG B	3/D		
*	3,245	70	>75% Gras	s cover, Go	ood, HSG B/D		
*	2,530	96	Gravel surfa	ace, HSG E	B/D		
	8,450	87	37 Weighted Average				
	5,775		68.34% Pervious Area				
	2,675		31.66% Impervious Area				
_		<u>.</u>		<b>•</b> •	<b>–</b>		
Tc	5	Slope	,	Capacity	Description		
(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)			
6.0					Direct Entry,		

# Summary for Subcatchment 3S: Overland to CB3

Runoff = 2.40 cfs @ 12.19 hrs, Volume= 9,663 cf, Depth> 5.05" Routed to Pond CB3 :

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	A	rea (sf)	CN [	Description							
*		5,710	98 F	Paved parking, HSG B/D							
*		6,972	70 >	>75% Ġras	s cover, Go	bod, HSG B/D					
		1,490	98 F	Paved park	ing, HSG C						
		168				bod, HSG C					
*		1,935	98 L	_edge Outc	ropping, H	SG B/D					
*		6,678	66 V	Noods, Go	od, HSG B	/D					
		22,953	80 V	Veighted A	verage						
		13,818	6	60.20% Per	vious Area						
		9,135	3	39.80% Imp	pervious Ar	ea					
	Тс	Length	Slope		Capacity	Description					
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	9.9	50	0.0050	0.08		Sheet Flow,					
						Grass: Short n= 0.150 P2= 3.15"					
	4.0	135	0.0500	0.56		Shallow Concentrated Flow,					
						Forest w/Heavy Litter Kv= 2.5 fps					
	0.3	30	0.0500	1.57		Shallow Concentrated Flow,					
_						Short Grass Pasture Kv= 7.0 fps					
	14.2	215	Total								

# Summary for Subcatchment 4S: Overland to CB4

Runoff	=	0.53 cfs @	12.08 hrs,	Volume=	1,896 cf,	Depth>	7.16"
Routed	to Pond	CB4 :					

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

	A	rea (sf)	CN E	Description						
*		3,180	98 F	Paved parking, HSG B/D						
		3,180	1	100.00% Impervious Area						
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
	6.0	(	(1011)	(1.0000)	(010)	Direct Entry,				

## Summary for Subcatchment 5S: Overland to CB5

Runoff = 2.84 cfs @ 12.19 hrs, Volume= 11,241 cf, Depth> 4.16" Routed to Pond CB5 :

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	A	rea (sf)	CN E	Description						
*		3,965	98 F	Paved parking, HSG B/D						
*		15,793	70 >	75% Gras	s cover, Go	ood, HSG B/D				
*		12,664	66 V	Voods, Go	od, HSG B/	′D				
		32,422	72 V	Veighted A	verage					
		28,457	8	87.77% Per	vious Area					
		3,965	1	2.23% Imp	pervious Are	ea				
				·						
	Тс	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	9.9	50	0.0050	0.08		Sheet Flow,				
						Grass: Short n= 0.150 P2= 3.15"				
	3.6	120	0.0500	0.56		Shallow Concentrated Flow,				
						Forest w/Heavy Litter Kv= 2.5 fps				
	0.4	40	0.0500	1.57		Shallow Concentrated Flow,				
						Short Grass Pasture Kv= 7.0 fps				
	13.9	210	Total							

# Summary for Subcatchment 6S: Overland to CB6

Runoff = 0.44 cfs @ 12.08 hrs, Volume= 1,565 cf, Depth> 7.16" Routed to Pond CB6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

	A	rea (sf)	CN [	Description						
*		2,625	98 F	Paved parking, HSG B/D						
		2,625	1	00.00% Im	npervious A	Area				
		Length	Slope		Capacity					
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	6.0					Direct Entry,				

# Summary for Subcatchment 7S: Overland to CB7

Runoff = 3.26 cfs @ 12.09 hrs, Volume= 10,092 cf, Depth> 4.39" Routed to Pond CB7 :

	Area (sf)	CN	Description			
*	3,850	98	Paved parking, HSG B/D			
*	23,750	70	>75% Grass cover, Good, HSG B/D			
	27,600	74	Weighted Average			
	23,750		86.05% Pervious Area			
	3,850		13.95% Impervious Area			

25770rev5.17         Type III 24-hr         10-Year (2090) Rainfall=7.40"           Prepared by Hancock Associates         Printed 5/20/2024           HydroCAD® 10.20-3g s/n 00711 © 2023 HydroCAD Software Solutions LLC         Page 10							
Tc Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs)							
6.0 Direct Entry,							
Summary for Subcatchment 8S: Overland to CB8							
Runoff = 0.28 cfs @ 12.08 hrs, Volume= 1,014 cf, Depth> 7.16" Routed to Pond CB8 :							
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr  10-Year (2090) Rainfall=7.40"							
Area (sf) CN Description							
* 1,700 98 Paved parking, HSG B/D							
1,700 100.00% Impervious Area							
Tc Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs)							
6.0 Direct Entry,							
Summary for Subcatchment 9S: Overland to CB9							
Runoff = 1.37 cfs @ 12.08 hrs, Volume= 4,433 cf, Depth> 5.98" Routed to Pond CB9 :							
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr  10-Year (2090) Rainfall=7.40"							
Area (sf) CN Description							
<ul> <li>5,575 98 Paved parking, HSG B/D</li> <li>3,325 70 &gt;75% Grass cover, Good, HSG B/D</li> </ul>							
8,900 88 Weighted Average							
3,325       37.36% Pervious Area         5,575       62.64% Impervious Area							
5,575 62.64% Impervious Area							

TcLengthSlopeVelocityCapacityDescription(min)(feet)(ft/ft)(ft/sec)(cfs)6.0Direct Entry,

## Summary for Subcatchment 10A: Overland to Sawmill Brook

Runoff = 3.15 cfs @ 12.09 hrs, Volume= 9,823 cf, Depth> 4.95" Routed to Reach PDP1 : Sawmill Brook

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	Area	ı (sf) C	N D	Description					
*	7	,635 6	65 V	Voods, Goo	od, HSG B/	3/D			
*	6	,960 7	70 >	75% Grass	s cover, Go	ood, HSG B/D			
*	9	,235 9	98 F	aved parki	ing, HSG B	B/D			
	23	,830 7	79 V	Weighted Average					
	14	,595	6	1.25% Per	vious Area	a			
	9	,235	3	8.75% Imp	ervious Ar	rea			
		ength S (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	•			
	6.0					Direct Entry,			

# Summary for Subcatchment 10B: Overland to Atwater Ave.

Runoff = 3.97 cfs @ 12.21 hrs, Volume= 16,434 cf, Depth> 4.94" Routed to Reach PDP1 : Sawmill Brook

A	rea (sf)	CN D	escription								
	6,980	98 P	98 Paved parking, HSG C								
	11,900	70 V	Woods, Good, HSG C								
	17,140	74 >	75% Gras	s cover, Go	ood, HSG C						
	3,915	96 G	Gravel surfa	ace, HSG C							
	39,935	79 V	Veighted A	verage							
	32,955	8	2.52% Per	vious Area							
	6,980	1	7.48% Imp	pervious Are	ea						
Tc	Length	Slope	Velocity	Capacity	Description						
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)							
7.5	50	0.0100	0.11		Sheet Flow,						
					Grass: Short						
1.7	100	0.0200	0.99		Shallow Concentrated Flow,						
					Short Grass Pasture Kv= 7.0 fps						
1.0	100	0.0600	1.71		Shallow Concentrated Flow,						
					Short Grass Pasture Kv= 7.0 fps						
0.3	85	0.3500	4.14		Shallow Concentrated Flow,						
					Short Grass Pasture Kv= 7.0 fps						
1.9	230	0.0150	1.97		Shallow Concentrated Flow,						
		0.0450			Unpaved Kv= 16.1 fps						
2.9	150	0.0150	0.86		Shallow Concentrated Flow,						
					Short Grass Pasture Kv= 7.0 fps						
15.3	715	Total									

#### Summary for Subcatchment 10C: Overland to Abutter

Runoff = 34.18 cfs @ 12.09 hrs, Volume= 105,685 cf, Depth> 4.28" Routed to Reach PDP1 : Sawmill Brook

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

	A	rea (sf)	CN E	Description							
	1	14,485	70 V	Woods, Good, HSG C							
		65,825	74 >	>75% Grass cover, Good, HSG C							
*		7,450	98 L	.edge Outc	roppings, H	ISG C					
*		10,055	65 V	Voods, Go	od, HSG B/	/D					
		21,980	78 N	/leadow, no	on-grazed,	HSG D					
		22,755	71 N	leadow, no	on-grazed,	HSG C					
*		43,555			on-grazed,						
*		795	96 C	Gravel surfa	ace, HSG E	3/D					
_		9,595	96 0	Gravel surfa	ace, HSG C						
	2	96,495	73 V	Veighted A	verage						
	2	89,045	g	7.49% Per	vious Area						
		7,450	2	2.51% Impe	ervious Area	а					
	Tc	Length	Slope	Velocity		Description					
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	2.2	50	0.0250	0.39		Sheet Flow,					
						Fallow n= 0.050 P2= 3.15"					
	0.1	30	0.0600	3.94		Shallow Concentrated Flow,					
	<u> </u>					Unpaved Kv= 16.1 fps					
	0.7	75	0.0150	1.84		Shallow Concentrated Flow,					
	~ ~	00	0.0400	4.04		Grassed Waterway Kv= 15.0 fps					
	0.8	80	0.0100	1.61		Shallow Concentrated Flow,					
	1.0	055	0 0000	0.00		Unpaved Kv= 16.1 fps					
	1.9	255	0.0200	2.28		Shallow Concentrated Flow,					
	0.3	40	0.1000	2.21		Unpaved Kv= 16.1 fps Shallow Concentrated Flow,					
	0.5	40	0.1000	۲.۷۱		Short Grass Pasture Kv= 7.0 fps					
_	6.0	E 20	Tatal								
	6.0	530	Total								

#### Summary for Subcatchment 10S: Overland to CB10

Runoff = 0.73 cfs @ 12.08 hrs, Volume= Routed to Pond CB10 : 2,474 cf, Depth> 6.56"

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	Area (sf)	CN	Description								
*	1,995	98	Paved park	Paved parking, HSG B/D							
	1,130	80	>75% Gras	s cover, Go	Good, HSG D						
	1,130	98	Paved park								
	270	96	Gravel surfa	ace, HSG E	D						
	4,525	93	Weighted A	Weighted Average							
	1,400		30.94% Pervious Area								
	3,125		69.06% Impervious Area								
	Fc Length	Slop		Capacity							
(mi	n) (feet)	(ft/f	ft) (ft/sec)	(cfs)							
6	.0				Direct Entry,						

#### Summary for Subcatchment 11S: Overland to CB11

Runoff 0.75 cfs @ 12.08 hrs, Volume= = Routed to Pond CB11 :

2,686 cf, Depth> 7.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

	Ar	ea (sf)	CN	Description						
*		3,235	98	Paved park	Paved parking, HSG B/D					
		1,270	98	Paved park	ing, HSG D					
		4,505	98	Weighted A						
		4,505		100.00% In	npervious A	Area				
	Тс	Length	Slop	e Velocity	Capacity	Description				
(m	nin)	(feet)	(ft/f	t) (ft/sec)	(cfs)					
	6.0					Direct Entry,				

#### Summary for Subcatchment 12S: Overland to CB12

1.40 cfs @ 12.09 hrs, Volume= 4,424 cf, Depth> 5.40" Runoff = Routed to Pond CB12 :

Area (sf)	CN	Description
8,225	80	>75% Grass cover, Good, HSG D
1,605	98	Paved parking, HSG D
9,830	83	Weighted Average
8,225		83.67% Pervious Area
1,605		16.33% Impervious Area

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Tc Length Slope (min) (feet) (ft/ft)	Velocity Capacity Description (ft/sec) (cfs)							
6.0	Direct Entry,							
Sumi	mary for Subcatchment 14S: Overland to CB14							
Runoff = 1.10 cfs Routed to Pond CB14 :	@ 12.09 hrs, Volume= 3,445 cf, Depth> 5.06"							
Runoff by SCS TR-20 metho Type III 24-hr 10-Year (209	od, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs 0) Rainfall=7.40"							
Area (sf) CN De	escription							
1,915 80 >7	5% Grass cover, Good, HSG D							
	ved parking, HSG C							
	5% Grass cover, Good, HSG C							
,	eighted Average							
- )	.70% Pervious Area							
1,495 16	.30% Impervious Area							
Tc Length Slope (min) (feet) (ft/ft)	Velocity Capacity Description (ft/sec) (cfs)							
6.0	Direct Entry,							
Sumi	Summary for Subcatchment 15S: Overland to CB15							

Runoff = 0.99 cfs @ 12.09 hrs, Volume= Routed to Pond CB15 :

3,124 cf, Depth> 5.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

A	rea (sf)	CN	Description						
	2,690	98	Paved parking, HSG C						
	4,250	74	>75% Gras	s cover, Go	ood, HSG C				
	6,940 4,250 2,690		Weighted Average 61.24% Pervious Area 38.76% Impervious Area						
Tc (min)	Length (feet)	Slope (ft/ft)	,	Capacity (cfs)	Description				
6.0					Direct Entry,				

## Summary for Subcatchment 16S: Overland to CB16

Runoff = 3.13 cfs @ 12.09 hrs, Volume= 9,827 cf, Depth> 5.17" Routed to Pond CB16 :

A	rea (sf)	CN [	Description						
	6,645	98 F	8 Paved parking, HSG C						
	16,150	74 >	•75% Ġras	s cover, Go	od, HSG C				
	22,795	81 \	Veighted A	verage					
	16,150	7	0.85% Pe	rvious Area					
	6,645	2	9.15% Im	pervious Ar	ea				
Тс	Length	Slope	Velocity	Capacity	Description				
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
6.0	6.0 Direct Entry,								
Summary for Subcatchment 17S: Overland to CB17									
	Runoff = 2.85 cfs @ 12.12 hrs, Volume= 10,042 cf, Depth> 5.51"								
Route	Routed to Pond CB17 :								
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs									
Type III 24-hr  10-Year (2090) Rainfall=7.40"									

	A	rea (sf)	CN E	<b>Description</b>							
*		920	70 >	>75% Grass cover, Good, HSG B/D							
*		112	98 F	aved park	ing, HSG E	3/D					
		8,838		Paved parking, HSG C							
_		11,990	74 >	75% Gras	s cover, Go	bod, HSG C					
		21,860	84 V	Veighted A	verage						
		12,910	5	9.06% Per	vious Area						
		8,950	4	0.94% Imp	pervious Ar	ea					
	_										
	Tc	Length	Slope	Velocity	Capacity	Description					
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)						
	5.7	50	0.0200	0.15		Sheet Flow,					
						Grass: Short n= 0.150 P2= 3.15"					
	1.5	90	0.0200	0 0.99 Shallow Concentrated Flow,							
				Short Grass Pasture Kv= 7.0 fps							
	1.9	207	0.0270	1.78		Sheet Flow,					
						Smooth surfaces n= 0.011 P2= 3.15"					
	9.1	347	Total								

# Summary for Subcatchment 18S: Overland to CB18

Runoff	=	0.80 cfs @	12.08 hrs,	Volume=	2,862 cf,	Depth> 7.16"
Routed	l to Ponc	I CB18 :				

 Type III 24-hr
 10-Year (2090) Rainfall=7.40"

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A	vrea (sf)	CN	Description					
*	780	98	Paved parking, HSG B/D					
	4,020	98	Paved park	ing, HSG C	;			
	4,800	98	Weighted A	verage				
	4,800		100.00% Impervious Area					
Tc (min)	Length (feet)	Slope (ft/ft	,	Capacity (cfs)	Description			
6.0					Direct Entry,			

#### Summary for Subcatchment 19S: Overland to CB19

Runoff = 4.24 cfs @ 12.09 hrs, Volume= 13,463 cf, Depth> 5.52" Routed to Pond CB19 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

ea (sf)	CN I	N Description				
12,005	98 I	Paved park	ing, HSG C	;		
17,285	74 >	-75% Gras	s cover, Go	ood, HSG C		
29,290	84 \	Veighted A	verage			
17,285	Ę	59.01% Per	vious Area			
12,005	4	10.99% Imp	ervious Are	ea		
Length			Capacity	Description		
(feet)	(ft/ft)	(ft/sec)	(cfs)			
				Direct Entry,		
				-		
	12,005 17,285 29,290 17,285 12,005 Length	12,005         98         F           17,285         74         >           29,290         84         N           17,285         5           12,005         2           Length         Slope	12,005         98         Paved parki           17,285         74         >75% Grass           29,290         84         Weighted A           17,285         59.01% Per           12,005         40.99% Imp           Length         Slope         Velocity	12,00598Paved parking, HSG C17,28574>75% Grass cover, Gc29,29084Weighted Average17,28559.01% Pervious Area12,00540.99% Impervious AreaLengthSlopeVelocityCapacity		

# Summary for Subcatchment 20A: Overland to Southern Wetland

Runoff = 6.87 cfs @ 12.09 hrs, Volume= 21,292 cf, Depth> 3.62" Routed to Reach PDP2 : Route 128

	Area (sf)	CN	Description
*	42,795	65	Woods, Good, HSG B/D
	185	98	Paved parking, HSG C
*	23,635	70	>75% Grass cover, Good, HSG B/D
	3,885	74	>75% Grass cover, Good, HSG C
	70,500	67	Weighted Average
	70,315		99.74% Pervious Area
	185		0.26% Impervious Area

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Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
0.8	100	0.0600	2.12		Sheet Flow,
					Smooth surfaces n= 0.011 P2= 3.15"
1.2	280	0.0600	3.94		Shallow Concentrated Flow,
					Unpaved Kv= 16.1 fps
1.9	250	0.2000	2.24		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
3.9	630	Total, li	ncreased t	o minimum	Tc = 6.0 min

#### Summary for Subcatchment 20B: Overland to Route 128

Runoff = 3.32 cfs @ 12.09 hrs, Volume= 10,691 cf, Depth> 2.58" Routed to Reach PDP2 : Route 128

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

 A	rea (sf)	CN E	Description		
	33,640	55 V	Voods, Go	od, HSG B	
	16,095	61 >	75% Gras	s cover, Go	ood, HSG B
	49,735	57 V	Veighted A	verage	
	49,735	1	00.00% Pe	ervious Are	а
Тс	Length	Slope	Velocity	Capacity	Description
 <u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)	
0.8	100	0.0600	2.12		Sheet Flow,
					Smooth surfaces n= 0.011 P2= 3.15"
1.4	260	0.0350	3.01		Shallow Concentrated Flow,
					Unpaved Kv= 16.1 fps
1.4	215	0.2500	2.50		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
3.6	575	Total, I	ncreased t	o minimum	Tc = 6.0 min

#### Summary for Subcatchment 20C: Overland to Localized Low Point

Runoff = 7.56 cfs @ 12.09 hrs, Volume= 23,509 cf, Depth> 3.41" Routed to Reach PDP2 : Route 128

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	A	rea (sf)	CN I	Description					
*		51,750	65	Noods, Go	od, HSG B/	/D			
		895	77	Noods, Go	od, HSG D				
		10,425	55	Woods, Good, HSG B					
*		17,695	70 :	>75% Grass cover, Good, HSG B/D					
		300			,	ood, HSG B			
_		1,650	80 :	>75% Gras	s cover, Go	ood, HSG D			
		82,715	65	Neighted A	verage				
		82,715		100.00% Pe	ervious Are	а			
	Тс	Length	Slope		Capacity	Description			
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	0.9	80	0.0300	1.53		Sheet Flow,			
						Smooth surfaces n= 0.011 P2= 3.15"			
	1.5	245	0.3000	2.74		Shallow Concentrated Flow,			
						Woodland Kv= 5.0 fps			
	2.4	325	Total,	Increased t	o minimum	Tc = 6.0 min			

# Summary for Subcatchment 20D: Overland to Western Wetland

Runoff = 27.06 cfs @ 12.32 hrs, Volume= 130,492 cf, Depth> 3.61" Routed to Reach PDP2 : Route 128

_	А	rea (sf)	CN [	Description		
	1	17,965	55 \	Voods, Go	od, HSG B	
*	1	02,245	65 \	Voods, Go	od, HSG B	/D
	1	08,953	77 \	Voods, Go	od, HSG D	
		11,215	70 \	Noods, Go	od, HSG C	
		10,760	58 I	Aeadow, no	on-grazed,	HSG B
		52,282			on-grazed,	
*		30,255	68 I	Meadow, no	on-grazed,	HSG B/D
	4	33,675	67 ۱	Veighted A	verage	
	4	33,675		100.00% Pe	ervious Are	a
	Тс	Length	Slope		Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	16.4	50	0.0100	0.05		Sheet Flow,
						Woods: Light underbrush n= 0.400 P2= 3.15"
	2.1	180	0.0800	1.41		Shallow Concentrated Flow,
						Woodland Kv= 5.0 fps
	4.0	480	0.1600	2.00		Shallow Concentrated Flow,
_						Woodland Kv= 5.0 fps
	22.5	710	Total			

### Summary for Subcatchment 20S: Overland to CB20

Runoff = 2.19 cfs @ 12.09 hrs, Volume= 6,847 cf, Depth> 5.06" Routed to Pond CB20 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

Α	rea (sf)	CN	Description		
	4,115	98	Paved park	ing, HSG C	
	12,125	74	>75% Gras	s cover, Go	bod, HSG C
	16,240	80	Weighted A	verage	
	12,125		74.66% Pei	vious Area	
	4,115		25.34% Imp	pervious Are	ea
Тс	Length	Slope	,	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
6.0					Direct Entry,
					•

### Summary for Subcatchment 21S: Overland to CB21

1,894 cf, Depth> 7.04"

Runoff = 0.54 cfs @ 12.08 hrs, Volume= Routed to Pond CB21 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

A	rea (sf)	CN	Description		
	2,295	98	Paved park	ing, HSG C	
	935	96	Gravel surfa	ace, HSG C	C
	3,230	97	Weighted A	verage	
	935		28.95% Pei	vious Area	
	2,295		71.05% Imp	pervious Ar	ea
Тс	Length	Slope	e Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	) (ft/sec)	(cfs)	
6.0					Direct Entry,

### Summary for Subcatchment 22S: Overland to CB22

Runoff = 0.60 cfs @ 12.09 hrs, Volume= 1,898 cf, Depth> 5.52" Routed to Pond CB22 :

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Area (sf) CN Description						
440 98 Paved parking, HSG C						
2,290 74 >75% Grass cover, Good, HSG C						
1,400 96 Gravel surface, HSG C						
4,130 84 Weighted Average 3,690 89.35% Pervious Area						
440 10.65% Impervious Area						
Tc Length Slope Velocity Capacity Description						
(min) (feet) (ft/ft) (ft/sec) (cfs)						
6.0 Direct Entry,						
Summary for Subcatchment 24S: Overland to CB24						
Runoff = 0.81 cfs @ 12.08 hrs, Volume= 2,880 cf, Depth> 7.16" Routed to Pond CB24 :						
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr  10-Year (2090) Rainfall=7.40"						
Area (sf) CN Description						
* 4,830 98 Paved parking, HSG B/D						
4,830 100.00% Impervious Area						
Tc Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs)						
6.0 Direct Entry,						

### Summary for Subcatchment 25S: Overland to CB25

Runoff = 2.35 cfs @ 12.08 hrs, Volume= 7,643 cf, Depth> 5.98" Routed to Pond CB25 :

	A	rea (sf)	CN	Description					
*		10,065	98	Paved park	ing, HSG B	3/D			
*		5,280	70	>75% Grass cover, Good, HSG B/D					
		15,345	88	Weighted A	verage				
		5,280	;	34.41% Pervious Area					
		10,065		65.59% Imp	pervious Ar	ea			
	Tc (min)	Length (feet)	Slope (ft/ft)		Capacity (cfs)	Description			
	6.0					Direct Entry,			

#### Summary for Subcatchment 30S: Overland to TD

Runoff = 2.68 cfs @ 12.08 hrs, Volume= 8,650 cf, Depth> 5.86" Routed to Pond TD & DMH12 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

	A	rea (sf)	CN	Description		
*		8,290	98	Paved park	ing, HSG B	3/D
*		6,545	70	>75% Gras	s cover, Go	bod, HSG B/D
*		2,265	98	Concrete P	ad, HSG B/	/D
		610	74	>75% Gras	s cover, Go	bod, HSG C
		17,710	87	Weighted A	verage	
		7,155		40.40% Per	vious Area	1
		10,555		59.60% Imp	pervious Ar	ea
	Тс	Length	Slope		Capacity	Description
(	(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)	
	6.0					Direct Entry,

# Summary for Subcatchment 31S: Overland to Infiltration Basin

Runoff	=	2.49 cfs @	12.09 hrs,	Volume=	7,710 cf,	Depth> 4.39"
Routed	to Pond	I IB.1 :				-

_	A	rea (sf)	CN [	Description						
		21,085	35 74 >75% Grass cover, Good, HSG C							
		21,085	1	100.00% Pe	ervious Are	a				
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description				
_	2.2	50	0.0250	0.39	(/	Sheet Flow,				
						Fallow n= 0.050 P2= 3.15"				
	0.1	30	0.0600	3.94		Shallow Concentrated Flow,				
	07		0 0 4 5 0	4.04		Unpaved Kv= 16.1 fps				
	0.7	75	0.0150	1.84		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps				
	0.8	80	0.0100	1.61		Shallow Concentrated Flow,				
	0.0	00	0.0100	1.01		Unpaved Kv= 16.1 fps				
	1.9	255	0.0200	2.28		Shallow Concentrated Flow,				
						Unpaved Kv= 16.1 fps				
	0.3	40	0.1000	2.21		Shallow Concentrated Flow,				
_						Short Grass Pasture Kv= 7.0 fps				
	6.0	530	Total							

#### Summary for Subcatchment 32S: Overland to Rain Garden

Runoff = 5.21 cfs @ 12.09 hrs, Volume= 16,109 cf, Depth> 4.17" Routed to Pond RG.1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

_	А	rea (sf)	CN E	<b>Description</b>							
*		29,925 14,740									
*		1,720		>75% Grass cover, Good, HSG B/D Woods, Good, HSG B/D							
		46,385		Veighted A	,						
		46,385	1	00.00% Pe	ervious Are	а					
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description					
	2.2	50	0.0250	0.39		Sheet Flow,					
	0.1	30	0.0600	3.94		Fallow n= 0.050 P2= 3.15" <b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps					
	0.7	75	0.0150	1.84		Shallow Concentrated Flow,					
	0.8	80	0.0100	1.61		Grassed Waterway Kv= 15.0 fps <b>Shallow Concentrated Flow,</b> Unpaved Kv= 16.1 fps					
	1.9	255	0.0200	2.28		Shallow Concentrated Flow,					
	0.3	40	0.1000	2.21		Unpaved Kv= 16.1 fps <b>Shallow Concentrated Flow,</b> Short Grass Pasture Kv= 7.0 fps					
	6.0	530	Total								

# Summary for Subcatchment 35S: Overland to Basin

Runoff = 1.51 cfs @ 12.09 hrs, Volume= 4,680 cf, Depth> 4.39" Routed to Pond WB.1 :

 Area (sf)	CN	Description
12,800	74	>75% Grass cover, Good, HSG C
12,800		100.00% Pervious Area

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	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
	2.2	50	0.0250	0.39		Sheet Flow,
						Fallow n= 0.050 P2= 3.15"
	0.1	30	0.0600	3.94		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	0.7	75	0.0150	1.84		Shallow Concentrated Flow,
						Grassed Waterway Kv= 15.0 fps
	0.8	80	0.0100	1.61		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	1.9	255	0.0200	2.28		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	0.3	40	0.1000	2.21		Shallow Concentrated Flow,
_						Short Grass Pasture Kv= 7.0 fps

6.0 530 Total

### Summary for Subcatchment 36S: Overland from South of Garage

Runoff = 2.38 cfs @ 12.17 hrs, Volume= Routed to Pond CB13 : 9,215 cf, Depth> 4.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

	A	rea (sf)	CN E	Description						
*		2,890	98 F	Paved parking, HSG B/D						
*		14,240	70 >	>75% Grass cover, Good, HSG B/D						
		2,945	98 F	aved park	ing, HSG D	)				
		2,830	80 >	75% Gras	s cover, Go	bod, HSG D				
		22,905	78 V	Veighted A	verage					
		17,070	7	4.53% Per	vious Area					
		5,835	2	5.47% Imp	pervious Ar	ea				
	Тс	Length	Slope	Velocity	Capacity	Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	2.3	50	0.5000	0.37		Sheet Flow,				
						Grass: Dense n= 0.240 P2= 3.15"				
	8.5	355	0.0100	0.70		Shallow Concentrated Flow,				
						Short Grass Pasture Kv= 7.0 fps				
	2.0	130	0.0100	1.09		Sheet Flow,				
_						Smooth surfaces n= 0.011 P2= 3.15"				
	12.8	535	Total							

12.8 535 Total

#### Summary for Subcatchment 40S: Overland to RG2

Runoff = 5.38 cfs @ 12.17 hrs, Volume= 20,486 cf, Depth> 5.05" Routed to Pond RG.2 :

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	А	rea (sf)	CN	Description					
		20,530 74 >75% Grass cover, Good, HSG C							
*		3,990	98	Ledge Outcroppings, HSG B/D					
*		13,975	70	>75% Grass cover, Good, HSG B/D					
*		5,505	98	Paved parking, HSG B/D					
		4,640	98	Paved park	ing, HSG C				
		48,640	80	Weighted A	verage				
		34,505		70.94% Pe					
		14,135		29.06% Imp	pervious Are	ea			
	Tc	Length	Slope	e Velocity	Capacity	Description			
	(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)				
	5.7	50	0.0200	0.15		Sheet Flow, Sheet Slow Grassed			
						Grass: Short n= 0.150 P2= 3.15"			
	2.4	125	0.0150	0.86		Shallow Concentrated Flow, Shallow Grassed			
						Short Grass Pasture Kv= 7.0 fps			
	4.0	240	0.0200	0.99		Shallow Concentrated Flow, Shallow Grassed Slope Change			
						Short Grass Pasture Kv= 7.0 fps			
_	12.1	415	Total						

### Summary for Subcatchment 41S: Overland to RG3

Runoff = 1.11 cfs @ 12.17 hrs, Volume= Routed to Pond RG.3 : 4,207 cf, Depth> 4.72"

	A	rea (sf)	CN	Description						
		6,455	74	•75% Grass cover, Good, HSG C						
*		2,550	70	>75% Grass cover, Good, HSG B/D						
		1,700	98	Paved parking, HSG C						
		10,705	77	Weighted A	verage					
		9,005		84.12% Pei	rvious Area					
		1,700		15.88% Imp	pervious Are	ea				
				-						
	Тс	Length	Slope	Velocity	Capacity	Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	5.7	50	0.0200	0.15		Sheet Flow, Sheet Slow Grassed				
						Grass: Short n= 0.150 P2= 3.15"				
	2.4	125	0.0150	0.86		Shallow Concentrated Flow, Shallow Grassed				
						Short Grass Pasture Kv= 7.0 fps				
	4.0	240	0.0200	0.99		Shallow Concentrated Flow, Shallow Grassed Slope Change				
_						Short Grass Pasture Kv= 7.0 fps				
	12.1	415	Total							

#### Summary for Subcatchment 50S: Garage Roof

Runoff = 5.74 cfs @ 12.08 hrs, Volume= 20,529 cf, Depth> 7.16" Routed to Pond DMH9 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

Α	rea (sf)	CN	Description		
	34,430	98	Roofs, HSG	G C	
	34,430		100.00% In	npervious A	Area
Tc (min)	Length (feet)	Slope (ft/ft)		Capacity (cfs)	Description
6.0					Direct Entry,

#### Summary for Subcatchment 60S: Phase 1 Roof

Runoff = 8.00 cfs @ 12.08 hrs, Volume= 28,602 cf, Depth> 7.16" Routed to Reach 12R : Roof Drain Pipe to RG1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 10-Year (2090) Rainfall=7.40"

Area (sf)	CN	Description				
47,970	98	98 Roofs, HSG C				
47,970		100.00% Impervious Area				
Tc Length (min) (feet)	Slope (ft/ft	,	Capacity (cfs)	Description		
6.0				Direct Entry,		

#### Summary for Subcatchment 70S: Phase 2 Roof

Runoff = 6.19 cfs @ 12.08 hrs, Volume= 22,121 cf, Depth> 7.16" Routed to Reach 12R : Roof Drain Pipe to RG1

A	rea (sf)	CN I	Description		
	37,100	98 I	Roofs, HSG	G C	
	37,100		100.00% In	npervious A	rea
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

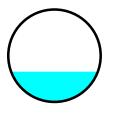
### Summary for Reach 12R: Roof Drain Pipe to RG1

Inflow Area = 85,070 sf,100.00% Impervious, Inflow Depth > 7.16" for 10-Year (2090) event Inflow = 14.18 cfs @ 12.08 hrs, Volume= 50,723 cf Outflow = 14.18 cfs @ 12.08 hrs, Volume= 50,722 cf, Atten= 0%, Lag= 0.0 min Routed to Pond DMH20 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Max. Velocity= 15.93 fps, Min. Travel Time= 0.1 min Avg. Velocity = 5.32 fps, Avg. Travel Time= 0.2 min

Peak Storage= 45 cf @ 12.08 hrs Average Depth at Peak Storage= 0.65', Surface Width= 1.88' Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 61.60 cfs

24.0" Round Pipe n= 0.018 Earth, clean & straight Length= 51.0' Slope= 0.1422 '/' Inlet Invert= 75.50', Outlet Invert= 68.25'



### Summary for Reach PDP1: Sawmill Brook

 Inflow Area =
 936,015 sf, 29.75% Impervious, Inflow Depth > 4.58" for 10-Year (2090) event

 Inflow =
 56.89 cfs @ 12.10 hrs, Volume=
 357,426 cf

 Outflow =
 56.89 cfs @ 12.10 hrs, Volume=
 357,426 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

### Summary for Reach PDP2: Route 128

Inflow Are	ea =	636,625 sf, 0.0	03% Impervious,	Inflow Depth >	3.51"	for 10-Year (2090) event
Inflow	=	35.21 cfs @ 12.2	8 hrs, Volume=	185,985 c	f	
Outflow	=	35.21 cfs @ 12.2	8 hrs, Volume=	185,985 c	f, Atter	ר= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

# Summary for Pond CB1:

 Inflow Area =
 11,705 sf, 24.18% Impervious, Inflow Depth > 4.50" for 10-Year (2090) event

 Inflow =
 1.42 cfs @
 12.09 hrs, Volume=
 4,388 cf

 Outflow =
 1.42 cfs @
 12.09 hrs, Volume=
 4,388 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.42 cfs @
 12.09 hrs, Volume=
 4,388 cf

 Routed to Pond DMH1 :
 12.09 hrs, Volume=
 4,388 cf

25770rev5.17	Type III 24-hr	10-Year (2090) Rainfall=7.40"
Prepared by Hancock Associates		Printed 5/20/2024
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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 53.53' @ 12.09 hrs Flood Elev= 57.30'

Device Routing Invert Outlet Devices	
#1 Primary 52.80' <b>12.0" Round Culvert</b> L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 52.80' / 52.40' S= 0.0667 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 s	

Primary OutFlow Max=1.41 cfs @ 12.09 hrs HW=53.53' TW=52.71' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.41 cfs @ 2.30 fps)

#### Summary for Pond CB10:

 Inflow Area =
 4,525 sf, 69.06% Impervious, Inflow Depth > 6.56" for 10-Year (2090) event

 Inflow =
 0.73 cfs @
 12.08 hrs, Volume=
 2,474 cf

 Outflow =
 0.73 cfs @
 12.08 hrs, Volume=
 2,474 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.73 cfs @
 12.08 hrs, Volume=
 2,474 cf

 Routed to Pond DMH6 :
 12.08 hrs, Volume=
 2,474 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 86.89' @ 12.08 hrs Flood Elev= 89.80'

Device	Routing	Invert	Outlet Devices
-	Primary	86.00'	<b>12.0" Round Culvert</b> L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 86.00' / 85.90' S= 0.0200 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.73 cfs @ 12.08 hrs HW=86.89' TW=86.82' (Dynamic Tailwater) -1=Culvert (Inlet Controls 0.73 cfs @ 0.99 fps)

#### Summary for Pond CB11:

Inflow Area =		4,505 sf	,100.00% Impervious,	Inflow Depth > 7.16"	for 10-Year (2090) event
Inflow	=	0.75 cfs @	12.08 hrs, Volume=	2,686 cf	
Outflow	=	0.75 cfs @	12.08 hrs, Volume=	2,686 cf, Atte	en= 0%, Lag= 0.0 min
Primary	=	0.75 cfs @	12.08 hrs, Volume=	2,686 cf	
Routed	to Pond	DMH6 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 86.90' @ 12.08 hrs Flood Elev= 89.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	86.00'	12.0" Round Culvert
	-		L= 9.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 86.00' / 85.90' S= 0.0111 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.75 cfs @ 12.08 hrs HW=86.90' TW=86.82' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 0.75 cfs @ 1.01 fps)

### Summary for Pond CB12:

Inflow Are	a =	9,830 sf	, 16.33% Impervious,	Inflow Depth > 5.40" for 10-Year (2090) event
Inflow	=	1.40 cfs @	12.09 hrs, Volume=	4,424 cf
Outflow	=	1.40 cfs @	12.09 hrs, Volume=	4,424 cf, Atten= 0%, Lag= 0.0 min
Primary	=	1.40 cfs @	12.09 hrs, Volume=	4,424 cf
Routed to Pond DMH7 :				

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 85.54' @ 12.09 hrs Flood Elev= 88.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	84.70'	<b>12.0" Round Culvert</b> L= 9.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.70' / 84.50' S= 0.0222 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.40 cfs @ 12.09 hrs HW=85.54' TW=85.27' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.40 cfs @ 1.99 fps)

#### Summary for Pond CB13:

Inflow Area =		22,905 sf	, 25.47% Impervious,	Inflow Depth > 4.83"	for 10-Year (2090) event
Inflow	=	2.38 cfs @	12.17 hrs, Volume=	9,215 cf	
Outflow	=	2.38 cfs @	12.17 hrs, Volume=	9,215 cf, Atte	n= 0%, Lag= 0.0 min
Primary	=	2.38 cfs @	12.17 hrs, Volume=	9,215 cf	-
Routed	to Pond	DMH7 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 85.64' @ 12.17 hrs Flood Elev= 88.23'

Device	Routing	Invert	Outlet Devices
#1	Primary	84.70'	<b>12.0" Round Culvert</b> L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 84.70' / 84.50' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.38 cfs @ 12.17 hrs HW=85.64' TW=85.15' (Dynamic Tailwater) **1=Culvert** (Barrel Controls 2.38 cfs @ 4.04 fps)

#### Summary for Pond CB14:

Inflow Area = 8,170 sf, 18.30% Impervious, Inflow Depth > 5.06" for 10-Year (2090) event Inflow 1.10 cfs @ 12.09 hrs. Volume= 3.445 cf = 1.10 cfs @ 12.09 hrs, Volume= Outflow = 3,445 cf, Atten= 0%, Lag= 0.0 min 1.10 cfs @ 12.09 hrs, Volume= Primary = 3.445 cf Routed to Pond DMH8 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 84.34' @ 12.41 hrs Flood Elev= 86.62' Device Routing Invert Outlet Devices #1 Primary 83.00' 12.0" Round Culvert L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.00' / 82.90' S= 0.0167 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf Primary OutFlow Max=0.86 cfs @ 12.09 hrs HW=83.79' TW=83.67' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 0.86 cfs @ 1.30 fps)

### Summary for Pond CB15:

 Inflow Area =
 6,940 sf, 38.76% Impervious, Inflow Depth > 5.40" for 10-Year (2090) event

 Inflow =
 0.99 cfs @
 12.09 hrs, Volume=
 3,124 cf

 Outflow =
 0.99 cfs @
 12.09 hrs, Volume=
 3,124 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.99 cfs @
 12.09 hrs, Volume=
 3,124 cf

 Routed to Pond DMH8 :
 12.09 hrs, Volume=
 3,124 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 84.34' @ 12.41 hrs Flood Elev= 86.54'

Device	Routing	Invert	Outlet Devices
	Primary		<b>12.0" Round Culvert</b> L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.00' / 82.90' S= 0.0167 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.74 cfs @ 12.09 hrs HW=83.75' TW=83.66' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 0.74 cfs @ 1.16 fps)

### Summary for Pond CB16:

 Inflow Area =
 22,795 sf, 29.15% Impervious, Inflow Depth > 5.17" for 10-Year (2090) event

 Inflow =
 3.13 cfs @
 12.09 hrs, Volume=
 9,827 cf

 Outflow =
 3.13 cfs @
 12.09 hrs, Volume=
 9,827 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 3.13 cfs @
 12.09 hrs, Volume=
 9,827 cf

 Routed to Pond DMH12 :
 12.09 hrs, Volume=
 9,827 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

Peak Elev= 75.35' @ 12.09 hrs Flood Elev= 81.75'

Device	Routing	Invert	Outlet Devices
-	Primary		<b>12.0" Round Culvert</b> L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.50' / 73.25' S= 0.0100 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.11 cfs @ 12.09 hrs HW=75.35' TW=74.67' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 3.11 cfs @ 3.95 fps)

#### Summary for Pond CB17:

 Inflow Area =
 21,860 sf, 40.94% Impervious, Inflow Depth > 5.51" for 10-Year (2090) event

 Inflow =
 2.85 cfs @
 12.12 hrs, Volume=
 10,042 cf

 Outflow =
 2.85 cfs @
 12.12 hrs, Volume=
 10,042 cf

 Primary =
 2.85 cfs @
 12.12 hrs, Volume=
 10,042 cf

 Routed to Pond DMH12 :
 10,042 cf
 10,042 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 75.56' @ 12.12 hrs Flood Elev= 81.75'

#1 Primary 73.50' <b>12.0" Round Culvert</b> L= 2.0' CPP, projecting, no headwall, Ke= 0.900	Device	Routing	Invert	Outlet Devices
n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf		<u>U</u>		<b>12.0" Round Culvert</b> L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 73.50' / 73.25' S= 0.1250 '/' Cc= 0.900

**Primary OutFlow** Max=2.86 cfs @ 12.12 hrs HW=75.55' TW=74.63' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 2.86 cfs @ 3.64 fps)

#### Summary for Pond CB18:

 Inflow Area =
 4,800 sf,100.00% Impervious, Inflow Depth > 7.16" for 10-Year (2090) event

 Inflow =
 0.80 cfs @
 12.08 hrs, Volume=
 2,862 cf

 Outflow =
 0.80 cfs @
 12.08 hrs, Volume=
 2,862 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.80 cfs @
 12.08 hrs, Volume=
 2,862 cf

 Routed to Pond DMH12 :
 0.80 cfs @
 12.08 hrs, Volume=

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 74.72' @ 12.10 hrs Flood Elev= 81.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.50'	12.0" Round Culvert
			L= 14.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 73.50' / 73.25' S= 0.0179 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.71 cfs @ 12.08 hrs HW=74.70' TW=74.67' (Dynamic Tailwater) ↓ 1=Culvert (Inlet Controls 0.71 cfs @ 0.90 fps)

#### Summary for Pond CB19:

Inflow Are	a =	29,290 sf	, 40.99% Impervious,	Inflow Depth > 5.52" for 10-Year (2090	)) event
Inflow	=	4.24 cfs @	12.09 hrs, Volume=	13,463 cf	
Outflow	=	4.24 cfs @	12.09 hrs, Volume=	13,463 cf, Atten= 0%, Lag= 0.0 m	in
Primary	=	4.24 cfs @	12.09 hrs, Volume=	13,463 cf	
Routed	to Pone	d DMH20 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 73.56' @ 12.09 hrs Flood Elev= 75.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.80'	12.0" Round Culvert
			L= 42.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.80' / 68.25' S= 0.0845 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.23 cfs @ 12.09 hrs HW=73.55' TW=70.02' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 4.23 cfs @ 5.39 fps)

### Summary for Pond CB2:

Inflow Are	a =	8,450 sf	, 31.66% Impervious,	Inflow Depth > 5.86" for 10-Year (2090) ev	ent
Inflow	=	1.28 cfs @	12.08 hrs, Volume=	4,127 cf	
Outflow	=	1.28 cfs @	12.08 hrs, Volume=	4,127 cf, Atten= 0%, Lag= 0.0 min	
Primary	=	1.28 cfs @	12.08 hrs, Volume=	4,127 cf	
Routed	d to Ponc	I DMH1 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 53.69' @ 12.08 hrs Flood Elev= 58.17'

Device Routing Invert Outlet Devices	
#1 Primary 53.00' <b>12.0'' Round Culvert</b> L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 53.00' / 52.40' S= 0.0188 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf	

Primary OutFlow Max=1.28 cfs @ 12.08 hrs HW=53.69' TW=52.71' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.28 cfs @ 2.23 fps)

#### Summary for Pond CB20:

Inflow Area = 16,240 sf, 25.34% Impervious, Inflow Depth > 5.06" for 10-Year (2090) event Inflow 2.19 cfs @ 12.09 hrs. Volume= 6.847 cf = 2.19 cfs @ 12.09 hrs, Volume= Outflow = 6,847 cf, Atten= 0%, Lag= 0.0 min 2.19 cfs @ 12.09 hrs, Volume= Primary = 6.847 cf Routed to Pond DMH20 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 72.84' @ 12.09 hrs Flood Elev= 75.75' Device Routing Invert Outlet Devices #1 Primary 71.80' 12.0" Round Culvert L= 27.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 71.80' / 68.25' S= 0.1315 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.18 cfs @ 12.09 hrs HW=72.83' TW=70.02' (Dynamic Tailwater) -1=Culvert (Inlet Controls 2.18 cfs @ 2.78 fps)

#### Summary for Pond CB21:

 Inflow Area =
 7,360 sf, 37.16% Impervious, Inflow Depth > 6.18" for 10-Year (2090) event

 Inflow =
 1.13 cfs @
 12.08 hrs, Volume=
 3,792 cf

 Outflow =
 1.13 cfs @
 12.08 hrs, Volume=
 3,792 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.13 cfs @
 12.08 hrs, Volume=
 3,792 cf

 Routed to Pond RG.1 :
 12.08 hrs, Volume=
 3,792 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 68.30' @ 12.08 hrs Flood Elev= 72.00'

Device	Routing	Invert	Outlet Devices
#1	Primary		<b>12.0" Round Culvert</b> L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.75' / 67.25' S= 0.0167 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.13 cfs @ 12.08 hrs HW=68.30' TW=67.11' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.13 cfs @ 2.53 fps)

#### Summary for Pond CB22:

 Inflow Area =
 4,130 sf, 10.65% Impervious, Inflow Depth > 5.52" for 10-Year (2090) event

 Inflow =
 0.60 cfs @
 12.09 hrs, Volume=
 1,898 cf

 Outflow =
 0.60 cfs @
 12.09 hrs, Volume=
 1,898 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.60 cfs @
 12.09 hrs, Volume=
 1,898 cf

 Routed to Pond CB21 :
 12.09 hrs, Volume=
 1,898 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

Peak Elev= 68.48' @ 12.09 hrs Flood Elev= 71.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.00'	<b>12.0" Round Culvert</b> L= 17.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 68.00' / 67.75' S= 0.0147 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.60 cfs @ 12.09 hrs HW=68.48' TW=68.30' (Dynamic Tailwater) -1=Culvert (Outlet Controls 0.60 cfs @ 2.33 fps)

#### Summary for Pond CB24:

 Inflow Area =
 4,830 sf,100.00% Impervious, Inflow Depth > 7.16" for 10-Year (2090) event

 Inflow =
 0.81 cfs @
 12.08 hrs, Volume=
 2,880 cf

 Outflow =
 0.81 cfs @
 12.08 hrs, Volume=
 2,880 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.81 cfs @
 12.08 hrs, Volume=
 2,880 cf, Atten= 0%, Lag= 0.0 min

 Routed to Pond DMH18 :
 12.08 hrs, Volume=
 2,880 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 113.80' @ 12.08 hrs Flood Elev= 117.08'

Device	Routing	Invert	Outlet Devices
	Primary	113.00'	<b>12.0" Round Culvert</b> L= 11.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.00' / 112.75' S= 0.0227 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.80 cfs @ 12.08 hrs HW=113.80' TW=113.70' (Dynamic Tailwater) -1=Culvert (Inlet Controls 0.80 cfs @ 1.20 fps)

### Summary for Pond CB25:

 Inflow Area =
 15,345 sf, 65.59% Impervious, Inflow Depth > 5.98" for 10-Year (2090) event

 Inflow =
 2.35 cfs @
 12.08 hrs, Volume=
 7,643 cf

 Outflow =
 2.35 cfs @
 12.08 hrs, Volume=
 7,643 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 2.35 cfs @
 12.08 hrs, Volume=
 7,643 cf

 Routed to Pond DMH18 :
 12.08 hrs, Volume=
 7,643 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 114.32' @ 12.08 hrs Flood Elev= 117.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.00'	12.0" Round Culvert
			L= 19.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.00' / 112.75' S= 0.0132 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.35 cfs @ 12.08 hrs HW=114.31' TW=113.70' (Dynamic Tailwater) ☐ 1=Culvert (Inlet Controls 2.35 cfs @ 2.99 fps)

### Summary for Pond CB3:

Inflow Are	a =	22,953 sf	, 39.80% Impervious,	Inflow Depth > 5.05"	for 10-Year (2090) event
Inflow	=	2.40 cfs @	12.19 hrs, Volume=	9,663 cf	
Outflow	=	2.40 cfs @	12.19 hrs, Volume=	9,663 cf, Atter	n= 0%, Lag= 0.0 min
Primary	=	2.40 cfs @	12.19 hrs, Volume=	9,663 cf	
Routed	d to Pond	d DMH3 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 70.57' @ 12.12 hrs Flood Elev= 72.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.33'	<b>15.0" Round Culvert</b> L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.33' / 69.00' S= 0.0110 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.40 cfs @ 12.19 hrs HW=70.45' TW=70.16' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 2.40 cfs @ 2.06 fps)

### Summary for Pond CB4:

Inflow Are	a =	3,180 sf	,100.00% Impervious,	Inflow Depth > 7.1	6" for 10-Year (2090) event
Inflow	=	0.53 cfs @	12.08 hrs, Volume=	1,896 cf	
Outflow	=	0.53 cfs @	12.08 hrs, Volume=	1,896 cf, A	tten= 0%, Lag= 0.0 min
Primary	=	0.53 cfs @	12.08 hrs, Volume=	1,896 cf	
Routed	to Pond	DMH3 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 70.42' @ 12.11 hrs Flood Elev= 72.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.33'	<b>12.0" Round Culvert</b> L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.33' / 69.00' S= 0.0118 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.53 cfs @ 12.08 hrs HW=70.37' TW=70.34' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 0.53 cfs @ 0.67 fps)

### Summary for Pond CB5:

Inflow Area = 32,422 sf, 12.23% Impervious, Inflow Depth > 4.16" for 10-Year (2090) event Inflow 2.84 cfs @ 12.19 hrs. Volume= 11.241 cf = 2.84 cfs @ 12.19 hrs, Volume= Outflow 11,241 cf, Atten= 0%, Lag= 0.0 min = 2.84 cfs @ 12.19 hrs, Volume= Primary = 11,241 cf Routed to Pond DMH3 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 71.00' @ 12.19 hrs Flood Elev= 74.00' Device Routing Invert Outlet Devices #1 Primary 70.00' 15.0" Round Culvert L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.00' / 69.70' S= 0.0115 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf Primary OutFlow Max=2.84 cfs @ 12.19 hrs HW=71.00' TW=70.16' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 2.84 cfs @ 2.69 fps)

# Summary for Pond CB6:

 Inflow Area =
 2,625 sf,100.00% Impervious, Inflow Depth > 7.16" for 10-Year (2090) event

 Inflow =
 0.44 cfs @
 12.08 hrs, Volume=
 1,565 cf

 Outflow =
 0.44 cfs @
 12.08 hrs, Volume=
 1,565 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.44 cfs @
 12.08 hrs, Volume=
 1,565 cf

 Routed to Pond DMH4 :
 12.08 hrs, Volume=
 1,565 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 90.87' @ 12.08 hrs Flood Elev= 94.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	90.50'	<b>12.0" Round Culvert</b> L= 3.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 90.50' / 90.25' S= 0.0833 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.44 cfs @ 12.08 hrs HW=90.87' TW=89.79' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 0.44 cfs @ 1.64 fps)

# Summary for Pond CB7:

 Inflow Area =
 27,600 sf, 13.95% Impervious, Inflow Depth > 4.39" for 10-Year (2090) event

 Inflow =
 3.26 cfs @
 12.09 hrs, Volume=
 10,092 cf

 Outflow =
 3.26 cfs @
 12.09 hrs, Volume=
 10,092 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 3.26 cfs @
 12.09 hrs, Volume=
 10,092 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 3.26 cfs @
 12.09 hrs, Volume=
 10,092 cf

 Routed to Pond DMH4 :
 12.09 hrs, Volume=
 10,092 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

Peak Elev= 91.74' @ 12.09 hrs Flood Elev= 94.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	90.50'	<b>12.0" Round Culvert</b> L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 90.50' / 90.25' S= 0.0227 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.26 cfs @ 12.09 hrs HW=91.74' TW=89.79' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 3.26 cfs @ 4.15 fps)

#### Summary for Pond CB8:

 Inflow Area =
 1,700 sf,100.00% Impervious, Inflow Depth > 7.16" for 10-Year (2090) event

 Inflow =
 0.28 cfs @
 12.08 hrs, Volume=
 1,014 cf

 Outflow =
 0.28 cfs @
 12.08 hrs, Volume=
 1,014 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.28 cfs @
 12.08 hrs, Volume=
 1,014 cf

 Routed to Pond DMH5 :
 12.08 hrs, Volume=
 1,014 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 113.55' @ 12.08 hrs Flood Elev= 116.76'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.25'	<b>12.0" Round Culvert</b> L= 8.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.25' / 112.50' S= 0.0938 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.28 cfs @ 12.08 hrs HW=113.55' TW=113.06' (Dynamic Tailwater) -1=Culvert (Inlet Controls 0.28 cfs @ 1.46 fps)

### Summary for Pond CB9:

 Inflow Area =
 8,900 sf, 62.64% Impervious, Inflow Depth > 5.98" for 10-Year (2090) event

 Inflow =
 1.37 cfs @
 12.08 hrs, Volume=
 4,433 cf

 Outflow =
 1.37 cfs @
 12.08 hrs, Volume=
 4,433 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.37 cfs @
 12.08 hrs, Volume=
 4,433 cf

 Routed to Pond DMH5 :
 12.08 hrs, Volume=
 4,433 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 113.96' @ 12.08 hrs Flood Elev= 116.77'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.25'	12.0" Round Culvert
			L= 11.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 113.25' / 112.50' S= 0.0682 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.36 cfs @ 12.08 hrs HW=113.96' TW=113.06' (Dynamic Tailwater) ☐ 1=Culvert (Inlet Controls 1.36 cfs @ 2.27 fps)

### **Summary for Pond DMH1:**

Inflow Are	a =	20,155 sf	, 27.31% Impervious,	Inflow Depth > 5.07"	for 10-Year (2090) event
Inflow	=	2.70 cfs @	12.09 hrs, Volume=	8,516 cf	
Outflow	=	2.70 cfs @	12.09 hrs, Volume=	8,516 cf, Atter	n= 0%, Lag= 0.0 min
Primary	=	2.70 cfs @	12.09 hrs, Volume=	8,516 cf	
Routed	d to Pond	d DMH2 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 52.71' @ 12.09 hrs Flood Elev= 57.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	51.40'	<b>12.0" Round Culvert</b> L= 123.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 51.40' / 49.00' S= 0.0195 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.69 cfs @ 12.09 hrs HW=52.71' TW=50.32' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 2.69 cfs @ 3.43 fps)

### Summary for Pond DMH10:

Inflow Are	a =	114,705 sf	, 53.15% Impervious,	Inflow Depth > 5.57" for 10-Year (2090) event
Inflow	=	4.62 cfs @	12.46 hrs, Volume=	53,203 cf
Outflow	=	4.62 cfs @	12.46 hrs, Volume=	53,203 cf, Atten= 0%, Lag= 0.0 min
Primary	=	4.62 cfs @	12.46 hrs, Volume=	53,203 cf
Routed to Pond DMH11 :				

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 80.03' @ 12.46 hrs Flood Elev= 83.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	78.80'	<b>18.0" Round Culvert</b> L= 109.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.80' / 77.71' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=4.62 cfs @ 12.46 hrs HW=80.03' TW=73.94' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 4.62 cfs @ 2.98 fps)

#### Summary for Pond DMH11:

Inflow Area = 181,870 sf, 50.54% Impervious, Inflow Depth > 5.58" for 10-Year (2090) event Inflow 10.68 cfs @ 12.10 hrs, Volume= 84.584 cf = 10.68 cfs @ 12.10 hrs, Volume= Outflow = 84,584 cf, Atten= 0%, Lag= 0.0 min 10.68 cfs @ 12.10 hrs, Volume= Primary = 84,584 cf Routed to Pond DMH13 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 74.20' @ 12.10 hrs Flood Elev= 81.95' Device Routing Invert Outlet Devices #1 Primary 72.85' 30.0" Round Culvert L= 285.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 72.85' / 70.00' S= 0.0100 '/' Cc= 0.900

Primary OutFlow Max=10.66 cfs @ 12.10 hrs HW=74.20' TW=71.20' (Dynamic Tailwater) -1=Culvert (Inlet Controls 10.66 cfs @ 3.95 fps)

#### **Summary for Pond DMH12:**

n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

 Inflow Area =
 67,165 sf, 46.08% Impervious, Inflow Depth > 5.61" for 10-Year (2090) event

 Inflow =
 9.28 cfs @
 12.09 hrs, Volume=
 31,381 cf

 Outflow =
 9.28 cfs @
 12.09 hrs, Volume=
 31,381 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 9.28 cfs @
 12.09 hrs, Volume=
 31,381 cf

 Routed to Pond DMH11 :
 5.61" for 10-Year (2090) event
 31,381 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 74.68' @ 12.10 hrs Flood Elev= 81.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	24.0" Round Culvert
			L= 6.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 73.00' / 72.90' S= 0.0167 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

**Primary OutFlow** Max=9.26 cfs @ 12.09 hrs HW=74.68' TW=74.20' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 9.26 cfs @ 4.46 fps)

#### **Summary for Pond DMH13:**

 Inflow Area =
 181,870 sf, 50.54% Impervious, Inflow Depth > 5.58" for 10-Year (2090) event

 Inflow =
 10.68 cfs @
 12.10 hrs, Volume=
 84,584 cf

 Outflow =
 10.68 cfs @
 12.10 hrs, Volume=
 84,584 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 10.68 cfs @
 12.10 hrs, Volume=
 84,584 cf

 Routed to Pond DMH14 :
 84,584 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

 25770rev5.17
 Type III 24-hr
 10-Year (2090) Rainfall=7.40"

 Prepared by Hancock Associates
 Printed 5/20/2024

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Peak Elev= 71.20' @ 12.10 hrs Flood Elev= 88.50'

 Device
 Routing
 Invert
 Outlet Devices

 #1
 Primary
 69.85'
 **30.0'' Round Culvert** L= 161.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 69.85' / 68.25' S= 0.0099 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=10.66 cfs @ 12.10 hrs HW=71.20' TW=69.66' (Dynamic Tailwater) -1=Culvert (Outlet Controls 10.66 cfs @ 5.71 fps)

#### **Summary for Pond DMH14:**

 Inflow Area =
 241,215 sf, 44.67% Impervious, Inflow Depth > 5.32" for 10-Year (2090) event

 Inflow =
 15.62 cfs @
 12.12 hrs, Volume=
 106,945 cf

 Outflow =
 15.62 cfs @
 12.12 hrs, Volume=
 106,945 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 15.62 cfs @
 12.12 hrs, Volume=
 106,945 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 15.62 cfs @
 12.12 hrs, Volume=
 106,945 cf

 Routed to Pond DMH15 :
 12.12 hrs, Volume=
 106,945 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 69.69' @ 12.12 hrs Flood Elev= 81.25'

Device	Routing	Invert	Outlet Devices
<u></u> #1	Primary		<b>30.0" Round Culvert</b> L= 147.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 68.00' / 66.30' S= 0.0116 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

**Primary OutFlow** Max=15.61 cfs @ 12.12 hrs HW=69.69' TW=67.74' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 15.61 cfs @ 4.42 fps)

### Summary for Pond DMH15:

241.215 sf. 44.67% Impervious. Inflow Depth > 5.32" Inflow Area = for 10-Year (2090) event Inflow = 15.62 cfs @ 12.12 hrs, Volume= 106,945 cf 15.62 cfs @ 12.12 hrs. Volume= 106,945 cf, Atten= 0%, Lag= 0.0 min Outflow = Primary = 15.62 cfs @ 12.12 hrs, Volume= 106,945 cf Routed to Pond DMH16 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 67.74' @ 12.12 hrs Flood Elev= 76.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.05'	30.0" Round Culvert
			L= 99.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 66.05' / 62.75' S= 0.0333 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=15.61 cfs @ 12.12 hrs HW=67.74' TW=59.69' (Dynamic Tailwater) ↓ 1=Culvert (Inlet Controls 15.61 cfs @ 4.42 fps)

#### **Summary for Pond DMH16:**

Inflow Are	ea =	241,215 sf	, 44.67% Impervious,	Inflow Depth > 5.32" for 10-Year (2090) event
Inflow	=	15.62 cfs @	12.12 hrs, Volume=	106,945 cf
Outflow	=	15.62 cfs @	12.12 hrs, Volume=	106,945 cf, Atten= 0%, Lag= 0.0 min
Primary	=	15.62 cfs @	12.12 hrs, Volume=	106,945 cf
Routed	d to Por	nd DMH17 :		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 59.69' @ 12.12 hrs Flood Elev= 68.00'

Device Routing	Invert	Outlet Devices
#1 Primary	58.00'	<b>30.0" Round Culvert</b> L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.00' / 54.70' S= 0.0532 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=15.61 cfs @ 12.12 hrs HW=59.69' TW=55.72' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 15.61 cfs @ 4.42 fps)

### Summary for Pond DMH17:

Inflow Are	ea =	241,215 sf	, 44.67% Impervious,	Inflow Depth > 5.32" for 1	0-Year (2090) event
Inflow	=	15.62 cfs @	12.12 hrs, Volume=	106,945 cf	
Outflow	=	15.62 cfs @	12.12 hrs, Volume=	106,945 cf, Atten= 0%,	, Lag= 0.0 min
Primary	=	15.62 cfs @	12.12 hrs, Volume=	106,945 cf	-
Routed to Pond IB.1 :					

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 55.72' @ 12.12 hrs Flood Elev= 61.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.00'	<b>30.0" Round Culvert</b> L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.00' / 53.50' S= 0.0417 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=15.61 cfs @ 12.12 hrs HW=55.72' TW=50.37' (Dynamic Tailwater) -1=Culvert (Barrel Controls 15.61 cfs @ 6.13 fps)

#### Summary for Pond DMH18:

Inflow Area = 20,175 sf, 73.83% Impervious, Inflow Depth > 6.26" for 10-Year (2090) event Inflow 3.16 cfs @ 12.08 hrs. Volume= 10.523 cf = 3.16 cfs @ 12.08 hrs, Volume= Outflow = 10,523 cf. Atten= 0%, Lag= 0.0 min 3.16 cfs @ 12.08 hrs, Volume= Primary = 10,523 cf Routed to Pond DMH4 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 113.70' @ 12.08 hrs Flood Elev= 116.73' Invert Device Routing Outlet Devices #1 112.50' 12.0" Round Culvert L= 242.0' Ke= 0.500 Primary Inlet / Outlet Invert= 112.50' / 90.25' S= 0.0919 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.15 cfs @ 12.08 hrs HW=113.70' TW=89.79' (Dynamic Tailwater) -1=Culvert (Inlet Controls 3.15 cfs @ 4.02 fps)

#### **Summary for Pond DMH19:**

 Inflow Area =
 59,345 sf, 26.68% Impervious, Inflow Depth > 4.52" for 10-Year (2090) event

 Inflow =
 6.33 cfs @
 12.19 hrs, Volume=
 22,361 cf

 Outflow =
 6.33 cfs @
 12.19 hrs, Volume=
 22,361 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 6.33 cfs @
 12.19 hrs, Volume=
 22,361 cf

 Routed to Pond DMH14 :
 22,361 cf
 22,361 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 74.30' @ 12.19 hrs Flood Elev= 80.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	<b>18.0" Round Culvert</b> L= 133.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.00' / 69.90' S= 0.0233 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.33 cfs @ 12.19 hrs HW=74.30' TW=69.59' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 6.33 cfs @ 3.88 fps)

#### **Summary for Pond DMH2:**

 Inflow Area =
 20,155 sf, 27.31% Impervious, Inflow Depth > 5.07" for 10-Year (2090) event

 Inflow =
 2.70 cfs @
 12.09 hrs, Volume=
 8,516 cf

 Outflow =
 2.70 cfs @
 12.09 hrs, Volume=
 8,516 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 2.70 cfs @
 12.09 hrs, Volume=
 8,516 cf

 Routed to Pond IB.1 :
 12.09 hrs, Volume=
 8,516 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

 25770rev5.17
 Type III 24-hr
 10-Year (2090) Rainfall=7.40"

 Prepared by Hancock Associates
 Printed 5/20/2024

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Peak Elev= 51.40' @ 12.29 hrs Flood Elev= 52.77'

 
 Device
 Routing
 Invert
 Outlet Devices

 #1
 Primary
 48.67'
 **15.0'' Round Culvert** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 48.67' / 47.50' S= 0.0183 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.69 cfs @ 12.09 hrs HW=50.32' TW=49.99' (Dynamic Tailwater) -1=Culvert (Inlet Controls 2.69 cfs @ 2.19 fps)

#### Summary for Pond DMH20:

 Inflow Area =
 130,600 sf, 77.48% Impervious, Inflow Depth > 6.53" for 10-Year (2090) event

 Inflow =
 20.61 cfs @
 12.08 hrs, Volume=
 71,032 cf

 Outflow =
 20.61 cfs @
 12.08 hrs, Volume=
 71,032 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 20.61 cfs @
 12.08 hrs, Volume=
 71,032 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 20.61 cfs @
 12.08 hrs, Volume=
 71,032 cf

 Routed to Pond RG.1 :
 71,032 cf
 71,032 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 70.02' @ 12.08 hrs Flood Elev= 76.40'

 
 Device
 Routing
 Invert
 Outlet Devices

 #1
 Primary
 68.00'
 **30.0" Round Culvert** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 68.00' / 67.25' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Primary OutFlow Max=20.57 cfs @ 12.08 hrs HW=70.02' TW=67.11' (Dynamic Tailwater) -1=Culvert (Inlet Controls 20.57 cfs @ 4.84 fps)

#### Summary for Pond DMH3:

 Inflow Area =
 108,955 sf, 34.56% Impervious, Inflow Depth > 4.95" for 10-Year (2090) event

 Inflow =
 11.34 cfs @
 12.11 hrs, Volume=
 44,981 cf

 Outflow =
 11.34 cfs @
 12.11 hrs, Volume=
 44,981 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 11.34 cfs @
 12.11 hrs, Volume=
 44,981 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 11.34 cfs @
 12.11 hrs, Volume=
 44,981 cf

 Routed to Pond RG.1 :
 12.11 hrs, Volume=
 44,981 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 70.39' @ 12.11 hrs Flood Elev= 73.90'

Device	Routing	Invert	Outlet Devices
<u></u> #1	Primary		<b>24.0" Round Culvert</b> L= 140.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 68.50' / 67.50' S= 0.0071 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=11.33 cfs @ 12.11 hrs HW=70.39' TW=67.15' (Dynamic Tailwater) ☐ 1=Culvert (Inlet Controls 11.33 cfs @ 3.69 fps)

### **Summary for Pond DMH4:**

Inflow Are	a =	50,400 sf	, 42.40% Impervious,	Inflow Depth > 5.28"	for 10-Year (2090) event
Inflow	=	6.86 cfs @	12.09 hrs, Volume=	22,181 cf	
Outflow	=	6.86 cfs @	12.09 hrs, Volume=	22,181 cf, Atter	n= 0%, Lag= 0.0 min
Primary	=	6.86 cfs @	12.09 hrs, Volume=	22,181 cf	
Routed	to Pond	d DMH3 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 89.79' @ 12.09 hrs Flood Elev= 94.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.00'	<b>18.0" Round Culvert</b> L= 273.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 88.00' / 69.70' S= 0.0670 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=6.84 cfs @ 12.09 hrs HW=89.79' TW=70.35' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 6.84 cfs @ 3.87 fps)

### Summary for Pond DMH5:

Inflow Are	ea =	10,600 sf	, 68.63% Impervious,	Inflow Depth > 6.17" for 10-Year (2090) event	t
Inflow	=	1.65 cfs @	12.08 hrs, Volume=	5,447 cf	
Outflow	=	1.65 cfs @	12.08 hrs, Volume=	5,447 cf, Atten= 0%, Lag= 0.0 min	
Primary	=	1.65 cfs @	12.08 hrs, Volume=	5,447 cf	
Routed	d to Pond	d DMH6 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 113.06' @ 12.08 hrs Flood Elev= 116.06'

Device	Routing	Invert	Outlet Devices
#1	Primary	112.25'	<b>12.0" Round Culvert</b> L= 290.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 112.25' / 85.90' S= 0.0909 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.65 cfs @ 12.08 hrs HW=113.06' TW=86.82' (Dynamic Tailwater) -1=Culvert (Inlet Controls 1.65 cfs @ 2.42 fps)

#### Summary for Pond DMH6:

Inflow Area = 19,630 sf, 75.93% Impervious, Inflow Depth > 6.48" for 10-Year (2090) event Inflow 3.13 cfs @ 12.08 hrs. Volume= 10.607 cf = 3.13 cfs @ 12.08 hrs, Volume= Outflow = 10,607 cf, Atten= 0%, Lag= 0.0 min 3.13 cfs @ 12.08 hrs, Volume= Primary = 10.607 cf Routed to Pond DMH7 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 86.83' @ 12.08 hrs Flood Elev= 89.80' Device Routing Invert Outlet Devices #1 Primary 85.75' 15.0" Round Culvert L= 148.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 85.75' / 84.25' S= 0.0101 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.13 cfs @ 12.08 hrs HW=86.82' TW=85.26' (Dynamic Tailwater) -1=Culvert (Inlet Controls 3.13 cfs @ 2.79 fps)

#### **Summary for Pond DMH7:**

 Inflow Area =
 52,365 sf, 42.67% Impervious, Inflow Depth > 5.56" for 10-Year (2090) event

 Inflow =
 6.42 cfs @
 12.10 hrs, Volume=
 24,247 cf

 Outflow =
 6.42 cfs @
 12.10 hrs, Volume=
 24,247 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 6.42 cfs @
 12.10 hrs, Volume=
 24,247 cf

 Routed to Pond DMH8 :
 12.10 hrs, Volume=
 24,247 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 85.28' @ 12.10 hrs Flood Elev= 88.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	24.0" Round Culvert
			L= 123.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 84.00' / 81.60' S= 0.0195 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

**Primary OutFlow** Max=6.42 cfs @ 12.10 hrs HW=85.28' TW=83.77' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 6.42 cfs @ 3.04 fps)

### **Summary for Pond DMH8:**

 Inflow Area =
 67,475 sf, 39.32% Impervious, Inflow Depth > 5.48" for 10-Year (2090) event

 Inflow =
 8.48 cfs @
 12.10 hrs, Volume=
 30,815 cf

 Outflow =
 8.48 cfs @
 12.10 hrs, Volume=
 30,815 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 8.48 cfs @
 12.10 hrs, Volume=
 30,815 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 8.48 cfs @
 12.10 hrs, Volume=
 30,815 cf

 Routed to Pond WB.1 :
 30,815 cf
 30,815 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

Peak Elev= 84.33' @ 12.41 hrs Flood Elev= 86.70'

Device	Routing	Invert	Outlet Devices
#1	Primary		<b>24.0" Round Culvert</b> L= 63.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.50' / 81.00' S= 0.0079 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=8.47 cfs @ 12.10 hrs HW=83.74' TW=83.24' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 8.47 cfs @ 2.70 fps)

#### Summary for Pond DMH9:

Inflow Are	a =	34,430 sf	,100.00% Impervious,	Inflow Depth > 7.16"	for 10-Year (2090) event
Inflow	=	5.74 cfs @	12.08 hrs, Volume=	20,529 cf	
Outflow	=	5.74 cfs @	12.08 hrs, Volume=	20,529 cf, Atte	n= 0%, Lag= 0.0 min
Primary	=	5.74 cfs @	12.08 hrs, Volume=	20,529 cf	
Routed	to Pond	d WB.1 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 84.97' @ 12.08 hrs Flood Elev= 88.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	83.50'	<b>18.0" Round Culvert</b> L= 168.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.50' / 80.50' S= 0.0179 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

**Primary OutFlow** Max=5.73 cfs @ 12.08 hrs HW=84.97' TW=83.15' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 5.73 cfs @ 3.26 fps)

### Summary for Pond IB.1:

Inflow Area =	575,755 sf, 44.26% Impervious,	Inflow Depth > 5.28" for 10-Year (2090) event
Inflow =	52.22 cfs @ 12.13 hrs, Volume=	253,145 cf
Outflow =	37.04 cfs @ 12.30 hrs, Volume=	238,032 cf, Atten= 29%, Lag= 10.3 min
Discarded =	0.31 cfs @ 12.30 hrs, Volume=	12,548 cf
Primary =	36.74 cfs @ 12.30 hrs, Volume=	225,483 cf
Routed to Rea	ach PDP1 : Sawmill Brook	

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 51.34' @ 12.30 hrs Surf.Area= 12,961 sf Storage= 49,165 cf

Plug-Flow detention time= 60.2 min calculated for 238,032 cf (94% of inflow) Center-of-Mass det. time= 29.2 min ( 860.3 - 831.1 )

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HvdroCA	HydroCAD® 10.20-3g s/n 00711 © 2023 HydroCAD Software Solutions LLC Page 46				
Volume	Invert	Avail.Sto	rage Storage	e Description	
#1	46.00'		<u> </u>	n Stage Data (Prismatic)	Listed below (Recalc)
$\pi$	40.00	50,0	Cusion	ii Stage Data (Frisinatic)	
Elevatio	n Si	urf.Area	Inc.Store	Cum.Store	
			(cubic-feet)		
(fee	1	(sq-ft)	1 1	(cubic-feet)	
46.0	00	5,730	0	0	
48.0	00	8,209	13,939	13,939	
50.0	00	10,964	19,173	33,112	
52.0	00	13,940	24,904	58,016	
02.0			,••• .	00,010	
Device	Routing	Invert	Outlet Device	es	
#1	Primary	47.10'	24.0" Roun	d Culvert	
				P, projecting, no headwal	l Ke= 0.900
				Invert= 47.10' / 46.10' S=	
	<b>—</b> · · ·	- 4 0 01		rrugated PP, smooth inter	
#2	Device 1	51.00'		" Horiz. Orifice/Grate C=	= 0.600
			Limited to we	eir flow at low heads	
#3	Device 1	48.00'	4.0' long Sh	arp-Crested Rectangula	r Weir 0 End Contraction(s)
#4	Primary	51.00'	15.0' long x	10.0' breadth Broad-Cre	ested Rectangular Weir X 2.00
	,			0.20 0.40 0.60 0.80 1.0	
				h) 2.49 2.56 2.70 2.69	
#5	Discorded	46.00	· •	,	
#5	Discarded	46.00'		Exfiltration over Surface	alea Fliase-III- U.U.I

Type III 24-hr 10-Year (2090) Rainfall=7.40"

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**Discarded OutFlow** Max=0.31 cfs @ 12.30 hrs HW=51.34' (Free Discharge) **5=Exfiltration** (Exfiltration Controls 0.31 cfs)

Primary OutFlow Max=36.72 cfs @ 12.30 hrs HW=51.34' TW=0.00' (Dynamic Tailwater) 1=Culvert (Inlet Controls 21.50 cfs @ 6.84 fps)

2=Orifice/Grate (Passes < 5.22 cfs potential flow)

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**3=Sharp-Crested Rectangular Weir** (Passes < 79.90 cfs potential flow)

-4=Broad-Crested Rectangular Weir (Weir Controls 15.22 cfs @ 1.48 fps)

### Summary for Pond RG.1:

 Inflow Area =
 293,300 sf, 48.27% Impervious, Inflow Depth > 5.56" for 10-Year (2090) event

 Inflow =
 38.10 cfs @
 12.09 hrs, Volume=
 135,914 cf

 Outflow =
 32.32 cfs @
 12.15 hrs, Volume=
 129,974 cf, Atten= 15%, Lag= 3.3 min

 Primary =
 32.32 cfs @
 12.15 hrs, Volume=
 129,974 cf

 Routed to Pond IB.1 :
 129,974 cf
 129,974 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 67.17' @ 12.15 hrs Surf.Area= 20,428 sf Storage= 18,049 cf

Plug-Flow detention time= 54.2 min calculated for 129,920 cf (96% of inflow) Center-of-Mass det. time= 29.1 min (810.1 - 781.1)

Volume	Invert	Avail.Storage	Storage Description
#1	66.25'	24,916 cf	Custom Stage Data (Irregular)Listed below (Recalc)

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Type III 24-hr 10-Year (2090) Rainfall=7.40"

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Elevatio (fee		Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
66.2 67.5	-	18,885 21,000	560.0 582.0	0 24,916	0 24,916	18,885 21,008
Device	Routing	Inve	rt Outlet	Devices		
#1	Primary	66.83			th Broad-Crested .60 0.80 1.00 1.2	
#2	Primary	60.00	)' <b>30.0''</b> `	Round Culvert	6 2.70 2.69 2.68 dge headwall. Ke=	

			L- 70.0 CFF, square euge neauwall, Re- 0.000
			Inlet / Outlet Invert= 60.00' / 47.00' S= 0.1857 '/' Cc= 0.900
			n= 0.013, Flow Area= 4.91 sf
#3	Device 2	66.52'	24.0" x 24.0" Horiz. Orifice/Grate X 2.00 C= 0.600
			Limited to weir flow at low heads

Primary OutFlow Max=32.29 cfs @ 12.15 hrs HW=67.17' TW=50.60' (Dynamic Tailwater) 1=Broad-Crested Rectangular Weir (Weir Controls 4.99 cfs @ 1.48 fps) 2=Culvert (Passes 27.30 cfs of 57.50 cfs potential flow) 3=Orifice/Grate (Weir Controls 27.30 cfs @ 2.63 fps)

# Summary for Pond RG.2:

Inflow Are	a =	48,640 sf	, 29.06% Impervious,	Inflow Depth > 5.05"	for 10-Year (2090) event
Inflow	=	5.38 cfs @	12.17 hrs, Volume=	20,486 cf	
Outflow	=	5.24 cfs @	12.19 hrs, Volume=	19,010 cf, Atte	n= 3%, Lag= 1.6 min
Primary	=	5.24 cfs @	12.19 hrs, Volume=	19,010 cf	-
Routed to Pond DMH19 :					

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 79.34' @ 12.19 hrs Surf.Area= 2,262 sf Storage= 2,156 cf

Plug-Flow detention time= 58.1 min calculated for 19,003 cf (93% of inflow) Center-of-Mass det. time= 21.1 min ( 831.2 - 810.1 )

Volume	Inv	ert Avail.Sto	orage Sto	rage Description	
#1	78.	00' 3,8	55 cf Cu	stom Stage Data (P	Prismatic)Listed below (Recalc)
Elevatio (fee		Surf.Area (sq-ft)	Inc.Stor (cubic-fee	••••••••	
78.0		950	2.05	0 0	
80.0	00	2,905	3,85	55 3,855	
Device	Routing	Invert	Outlet De	evices	
#1	Device 2	2 79.00'		4.0" Horiz. Orifice/	
#2	Primary	75.00'	<b>15.0" Ro</b> L= 46.0' Inlet / Ou	itlet Invert= 75.00' /	ads o headwall, Ke= 0.900 73.10' S= 0.0413 '/' Cc= 0.900 nooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.24 cfs @ 12.19 hrs HW=79.34' TW=74.30' (Dynamic Tailwater) -2=Culvert (Passes 5.24 cfs of 8.99 cfs potential flow) -1=Orifice/Grate (Weir Controls 5.24 cfs @ 1.91 fps)

## Summary for Pond RG.3:

Inflow Are	a =	10,705 sf	, 15.88% Impervious,	Inflow Depth > 4.72" for 10-Year (2090) event
Inflow	=	1.11 cfs @	12.17 hrs, Volume=	4,207 cf
Outflow	=	1.08 cfs @	12.19 hrs, Volume=	3,351 cf, Atten= 3%, Lag= 1.6 min
Primary	=	1.08 cfs @	12.19 hrs, Volume=	3,351 cf
Routed to Pond DMH19 :				

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 79.12' @ 12.19 hrs Surf.Area= 1,269 sf Storage= 996 cf Flood Elev= 80.00' Surf.Area= 1,865 sf Storage= 2,375 cf

Plug-Flow detention time= 117.7 min calculated for 3,349 cf (80% of inflow) Center-of-Mass det. time= 41.5 min (858.6 - 817.1)

Volume	Inver	t Avail.Sto	rage Storage	Description	
#1	78.00	2,37	75 cf Custom	Stage Data (Prismatic)Listed	below (Recalc)
Elevatio (fee		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
78.0	00	510	0	0	
80.0	00	1,865	2,375	2,375	
Device	Routing	Invert	Outlet Device	3	
#1	Device 2	79.00'		Horiz. Orifice/Grate C= 0.600	)
#2	Primary	75.50'	<b>12.0" Round</b> L= 214.0' CF Inlet / Outlet I		)7 '/' Cc= 0.900

Primary OutFlow Max=1.08 cfs @ 12.19 hrs HW=79.12' TW=74.30' (Dynamic Tailwater) -2=Culvert (Passes 1.08 cfs of 5.01 cfs potential flow) -1=Orifice/Grate (Weir Controls 1.08 cfs @ 1.13 fps)

### Summary for Pond TD & DMH12:

Inflow Area = 17,710 sf, 59.60% Impervious, Inflow Depth > 5.86" for 10-Year (2090) event 2.68 cfs @ 12.08 hrs, Volume= Inflow 8.650 cf = 2.68 cfs @ 12.08 hrs, Volume= 8,650 cf, Atten= 0%, Lag= 0.0 min Outflow = 2.68 cfs @ 12.08 hrs, Volume= Primarv = 8.650 cf Routed to Pond DMH12 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

Peak Elev= 75.02' @ 12.09 hrs Flood Elev= 77.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.75'	<b>15.0" Round Culvert</b> L= 106.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.75' / 73.25' S= 0.0047 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
			•

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Primary OutFlow Max=2.64 cfs @ 12.08 hrs HW=75.01' TW=74.67' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 2.64 cfs @ 2.65 fps)

#### Summary for Pond WB.1:

Inflow Are	ea =	114,705 sf	, 53.15% Impervious,	Inflow Depth > 5.86"	for 10-Year (2090) event
Inflow	=	15.70 cfs @	12.09 hrs, Volume=	56,025 cf	
Outflow	=	4.62 cfs @	12.46 hrs, Volume=	53,203 cf, Atten	= 71%, Lag= 22.1 min
Primary	=	4.62 cfs @	12.46 hrs, Volume=	53,203 cf	
Routed	d to Por	nd DMH10 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 84.27' @ 12.46 hrs Surf.Area= 7,972 sf Storage= 23,584 cf Flood Elev= 86.00' Surf.Area= 10,339 sf Storage= 39,438 cf

Plug-Flow detention time= 162.6 min calculated for 53,203 cf (95% of inflow) Center-of-Mass det. time= 134.1 min (910.2 - 776.2)

Volume	Inver	t Avail.Sto	rage Storage	Description	
#1	80.50	' 39,43	38 cf Custom	n Stage Data (Pr	rismatic)Listed below (Recalc)
Elevatio		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	
80.5		4,635	0	0	
82.0		5,950	7,939	7,939	
84.0		7,605	13,555	21,494	
86.0	00	10,339	17,944	39,438	
Device	Routing	Invert	Outlet Device	S	
#1	Primary	80.50'	Inlet / Outlet I	P, projecting, no nvert= 80.50' / 7	headwall, Ke= 0.900 '8.90' S= 0.0348 '/' Cc= 0.900 ooth interior, Flow Area= 0.79 sf
#2	Device 1	83.90'			ctangular Weir 0 End Contraction(s)
#3	Device 1	80.80'			0.600 Limited to weir flow at low heads
#4	Device 1	85.00'	-	.0" H Vert. Orifi ir flow at low hea	<b>ce/Grate</b> C= 0.600 ads
#5	Primary	85.00'	Head (feet) 0	0.20 0.40 0.60	road-Crested Rectangular Weir 0.80 1.00 1.20 1.40 1.60 70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=4.62 cfs @ 12.46 hrs HW=84.27' TW=80.03' (Dynamic Tailwater)

-1=Culvert (Passes 4.62 cfs of 5.40 cfs potential flow)

2=Sharp-Crested Rectangular Weir (Weir Controls 2.92 cfs @ 1.98 fps)

-3=Orifice/Grate (Orifice Controls 1.70 cfs @ 8.64 fps)

**4=Orifice/Grate** (Controls 0.00 cfs)

-5=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points x 2 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Overland to CB1	Runoff Area=11,705 sf 24.18% Impervious Runoff Depth>8.47" Tc=6.0 min CN=75 Runoff=2.61 cfs 8,257 cf
Subcatchment2S: Overland to CB2	Runoff Area=8,450 sf 31.66% Impervious Runoff Depth>10.07" Tc=6.0 min CN=87 Runoff=2.13 cfs 7,092 cf
Subcatchment 3S: Overland to CB3	Runoff Area=22,953 sf 39.80% Impervious Runoff Depth>9.14" Flow Length=215' Tc=14.2 min CN=80 Runoff=4.23 cfs 17,473 cf
Subcatchment4S: Overland to CB4	Runoff Area=3,180 sf 100.00% Impervious Runoff Depth>11.45" Tc=6.0 min CN=98 Runoff=0.84 cfs 3,034 cf
Subcatchment 5S: Overland to CB5	Runoff Area=32,422 sf 12.23% Impervious Runoff Depth>8.03" Flow Length=210' Tc=13.9 min CN=72 Runoff=5.42 cfs 21,708 cf
Subcatchment6S: Overland to CB6	Runoff Area=2,625 sf 100.00% Impervious Runoff Depth>11.45" Tc=6.0 min CN=98 Runoff=0.69 cfs 2,505 cf
Subcatchment7S: Overland to CB7	Runoff Area=27,600 sf 13.95% Impervious Runoff Depth>8.33" Tc=6.0 min CN=74 Runoff=6.08 cfs 19,150 cf
Subcatchment8S: Overland to CB8	Runoff Area=1,700 sf 100.00% Impervious Runoff Depth>11.45" Tc=6.0 min CN=98 Runoff=0.45 cfs 1,622 cf
Subcatchment9S: Overland to CB9	Runoff Area=8,900 sf 62.64% Impervious Runoff Depth>10.20" Tc=6.0 min CN=88 Runoff=2.26 cfs 7,565 cf
Subcatchment 10A: Overland to Sawmi	Runoff Area=23,830 sf 38.75% Impervious Runoff Depth>9.01" Tc=6.0 min CN=79 Runoff=5.59 cfs 17,898 cf
Subcatchment 10B: Overland to Atwate	<b>r</b> Runoff Area=39,935 sf 17.48% Impervious Runoff Depth>9.00" Flow Length=715' Tc=15.3 min CN=79 Runoff=7.07 cfs 29,947 cf
Subcatchment 10C: Overland to Abutte	r Runoff Area=296,495 sf 2.51% Impervious Runoff Depth>8.19" Flow Length=530' Tc=6.0 min CN=73 Runoff=64.40 cfs 202,274 cf
Subcatchment 10S: Overland to CB10	Runoff Area=4,525 sf 69.06% Impervious Runoff Depth>10.83" Tc=6.0 min CN=93 Runoff=1.18 cfs 4,085 cf
Subcatchment 11S: Overland to CB11	Runoff Area=4,505 sf 100.00% Impervious Runoff Depth>11.45" Tc=6.0 min CN=98 Runoff=1.19 cfs 4,298 cf
Subcatchment 12S: Overland to CB12	Runoff Area=9,830 sf 16.33% Impervious Runoff Depth>9.55" Tc=6.0 min CN=83 Runoff=2.40 cfs 7,821 cf
Subcatchment 14S: Overland to CB14	Runoff Area=8,170 sf 18.30% Impervious Runoff Depth>9.15" Tc=6.0 min CN=80 Runoff=1.94 cfs 6,228 cf

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Subcatchment15S: Overland to CB15	Runoff Area=6,940 sf 38.76% Impervious Runoff Depth>9.55" Tc=6.0 min CN=83 Runoff=1.70 cfs 5,522 cf
Subcatchment 16S: Overland to CB16	Runoff Area=22,795 sf 29.15% Impervious Runoff Depth>9.28" Tc=6.0 min CN=81 Runoff=5.46 cfs 17,632 cf
Subcatchment 17S: Overland to CB17	Runoff Area=21,860 sf 40.94% Impervious Runoff Depth>9.68" Flow Length=347' Tc=9.1 min CN=84 Runoff=4.86 cfs 17,625 cf
Subcatchment18S: Overland to CB18	Runoff Area=4,800 sf 100.00% Impervious Runoff Depth>11.45" Tc=6.0 min CN=98 Runoff=1.27 cfs 4,580 cf
Subcatchment 19S: Overland to CB19	Runoff Area=29,290 sf 40.99% Impervious Runoff Depth>9.68" Tc=6.0 min CN=84 Runoff=7.22 cfs 23,627 cf
Subcatchment 20A: Overland to Southe	ern Runoff Area=70,500 sf 0.26% Impervious Runoff Depth>7.33" Flow Length=630' Tc=6.0 min CN=67 Runoff=13.88 cfs 43,080 cf
Subcatchment 20B: Overland to Route	<b>128</b> Runoff Area=49,735 sf 0.00% Impervious Runoff Depth>5.85" Flow Length=575' Tc=6.0 min CN=57 Runoff=7.83 cfs 24,242 cf
Subcatchment 20C: Overland to Localiz	<b>zed</b> Runoff Area=82,715 sf 0.00% Impervious Runoff Depth>7.04" Flow Length=325' Tc=6.0 min CN=65 Runoff=15.68 cfs 48,539 cf
Subcatchment 20D: Overland to Wester F	<b>rn</b> Runoff Area=433,675 sf 0.00% Impervious Runoff Depth>7.31" Flow Length=710' Tc=22.5 min CN=67 Runoff=54.83 cfs 264,147 cf
Subcatchment 20S: Overland to CB20	Runoff Area=16,240 sf 25.34% Impervious Runoff Depth>9.15" Tc=6.0 min CN=80 Runoff=3.85 cfs 12,380 cf
Subcatchment 21S: Overland to CB21	Runoff Area=3,230 sf 71.05% Impervious Runoff Depth>11.33" Tc=6.0 min CN=97 Runoff=0.85 cfs 3,049 cf
Subcatchment 22S: Overland to CB22	Runoff Area=4,130 sf 10.65% Impervious Runoff Depth>9.68" Tc=6.0 min CN=84 Runoff=1.02 cfs 3,332 cf
Subcatchment 24S: Overland to CB24	Runoff Area=4,830 sf 100.00% Impervious Runoff Depth>11.45" Tc=6.0 min CN=98 Runoff=1.28 cfs 4,609 cf
Subcatchment 25S: Overland to CB25	Runoff Area=15,345 sf 65.59% Impervious Runoff Depth>10.20" Tc=6.0 min CN=88 Runoff=3.90 cfs 13,044 cf
Subcatchment 30S: Overland to TD	Runoff Area=17,710 sf 59.60% Impervious Runoff Depth>10.07" Tc=6.0 min CN=87 Runoff=4.47 cfs 14,864 cf
Subcatchment 31S: Overland to Infiltra	tion Runoff Area=21,085 sf 0.00% Impervious Runoff Depth>8.33" Flow Length=530' Tc=6.0 min CN=74 Runoff=4.65 cfs 14,630 cf
Subcatchment 32S: Overland to Rain	Runoff Area=46,385 sf 0.00% Impervious Runoff Depth>8.05" Flow Length=530' Tc=6.0 min CN=72 Runoff=9.93 cfs 31,102 cf
Subcatchment35S: Overland to Basin	Runoff Area=12,800 sf 0.00% Impervious Runoff Depth>8.33" Flow Length=530' Tc=6.0 min CN=74 Runoff=2.82 cfs 8,881 cf

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Subcatchment 36S: Overland from S	outh Runoff Area=22,905 sf 25.47% Impervious Runoff Depth>8.87" Flow Length=535' Tc=12.8 min CN=78 Runoff=4.28 cfs 16,924 cf
Subcatchment40S: Overland to RG2	Runoff Area=48,640 sf 29.06% Impervious Runoff Depth>9.14" Flow Length=415' Tc=12.1 min CN=80 Runoff=9.49 cfs 37,041 cf
Subcatchment41S: Overland to RG3	Runoff Area=10,705 sf 15.88% Impervious Runoff Depth>8.73" Flow Length=415' Tc=12.1 min CN=77 Runoff=2.02 cfs 7,789 cf
Subcatchment 50S: Garage Roof	Runoff Area=34,430 sf 100.00% Impervious Runoff Depth>11.45" Tc=6.0 min CN=98 Runoff=9.09 cfs 32,851 cf
Subcatchment60S: Phase 1 Roof	Runoff Area=47,970 sf 100.00% Impervious Runoff Depth>11.45" Tc=6.0 min CN=98 Runoff=12.67 cfs 45,771 cf
Subcatchment70S: Phase 2 Roof	Runoff Area=37,100 sf 100.00% Impervious Runoff Depth>11.45" Tc=6.0 min CN=98 Runoff=9.80 cfs 35,399 cf
Reach 12R: Roof Drain Pipe to RG1 24.0" Round Pipe n=0.018	Avg. Flow Depth=0.84' Max Vel=18.06 fps Inflow=22.46 cfs 81,170 cf L=51.0' S=0.1422 '/' Capacity=61.60 cfs Outflow=22.46 cfs 81,167 cf
Reach PDP1: Sawmill Brook	Inflow=147.60 cfs 669,297 cf Outflow=147.60 cfs 669,297 cf
Reach PDP2: Route 128	Inflow=71.51 cfs 380,008 cf Outflow=71.51 cfs 380,008 cf
Pond CB1: 12.0"	Peak Elev=56.26' Inflow=2.61 cfs 8,257 cf Round Culvert n=0.012 L=6.0' S=0.0667 '/' Outflow=2.61 cfs 8,257 cf
Pond CB10: 12.0"	Peak Elev=88.28' Inflow=1.18 cfs 4,085 cf Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=1.18 cfs 4,085 cf
Pond CB11: 12.0"	Peak Elev=88.28' Inflow=1.19 cfs 4,298 cf Round Culvert n=0.012 L=9.0' S=0.0111 '/' Outflow=1.19 cfs 4,298 cf
Pond CB12: 12.0"	Peak Elev=87.64' Inflow=2.40 cfs 7,821 cf Round Culvert n=0.012 L=9.0' S=0.0222 '/' Outflow=2.40 cfs 7,821 cf
Pond CB13: 12.0" R	Peak Elev=88.23' Inflow=4.28 cfs 16,924 cf cound Culvert n=0.012 L=10.0' S=0.0200 '/' Outflow=4.28 cfs 16,924 cf
Pond CB14: 12.0"	Peak Elev=86.57' Inflow=1.94 cfs 6,228 cf Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=1.94 cfs 6,228 cf
Pond CB15: 12.0"	Peak Elev=86.48' Inflow=1.70 cfs 5,522 cf Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=1.70 cfs 5,522 cf
Pond CB16: 12.0" R	Peak Elev=78.08' Inflow=5.46 cfs 17,632 cf cound Culvert n=0.012 L=25.0' S=0.0100 '/' Outflow=5.46 cfs 17,632 cf

25770rev5.17	Type III 24-hr 100-Year (2090) Rainfall=11.70" Printed 5/20/2024
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Pond CB17:	Peak Elev=78.58' Inflow=4.86 cfs 17,625 cf 12.0" Round Culvert n=0.012 L=2.0' S=0.1250 '/' Outflow=4.86 cfs 17,625 cf
Pond CB18:	Peak Elev=76.12' Inflow=1.27 cfs 4,580 cf 12.0" Round Culvert n=0.012 L=14.0' S=0.0179 '/' Outflow=1.27 cfs 4,580 cf
Pond CB19:	Peak Elev=75.94' Inflow=7.22 cfs 23,627 cf 12.0" Round Culvert n=0.012 L=42.0' S=0.0845 '/' Outflow=7.22 cfs 23,627 cf
Pond CB2:	Peak Elev=56.01' Inflow=2.13 cfs 7,092 cf 12.0" Round Culvert n=0.012 L=32.0' S=0.0188 '/' Outflow=2.13 cfs 7,092 cf
Pond CB20:	Peak Elev=73.96' Inflow=3.85 cfs 12,380 cf 12.0" Round Culvert n=0.012 L=27.0' S=0.1315 '/' Outflow=3.85 cfs 12,380 cf
Pond CB21:	Peak Elev=68.50' Inflow=1.87 cfs 6,381 cf 12.0" Round Culvert n=0.012 L=30.0' S=0.0167 '/' Outflow=1.87 cfs 6,381 cf
Pond CB22:	Peak Elev=68.69' Inflow=1.02 cfs 3,332 cf 12.0" Round Culvert n=0.012 L=17.0' S=0.0147 '/' Outflow=1.02 cfs 3,332 cf
Pond CB24:	Peak Elev=115.05' Inflow=1.28 cfs 4,609 cf 12.0" Round Culvert n=0.012 L=11.0' S=0.0227 '/' Outflow=1.28 cfs 4,609 cf
Pond CB25:	Peak Elev=116.57' Inflow=3.90 cfs 13,044 cf 12.0" Round Culvert n=0.012 L=19.0' S=0.0132 '/' Outflow=3.90 cfs 13,044 cf
Pond CB3:	Peak Elev=72.95' Inflow=4.23 cfs 17,473 cf 15.0" Round Culvert n=0.012 L=30.0' S=0.0110 '/' Outflow=4.23 cfs 17,473 cf
Pond CB4:	Peak Elev=72.44' Inflow=0.84 cfs 3,034 cf 12.0" Round Culvert n=0.012 L=28.0' S=0.0118 '/' Outflow=0.84 cfs 3,034 cf
Pond CB5:	Peak Elev=73.36' Inflow=5.42 cfs 21,708 cf 15.0" Round Culvert n=0.012 L=26.0' S=0.0115 '/' Outflow=5.42 cfs 21,708 cf
Pond CB6:	Peak Elev=91.97' Inflow=0.69 cfs 2,505 cf 12.0" Round Culvert n=0.012 L=3.0' S=0.0833 '/' Outflow=0.69 cfs 2,505 cf
Pond CB7:	Peak Elev=94.50' Inflow=6.08 cfs 19,150 cf 12.0" Round Culvert n=0.012 L=11.0' S=0.0227 '/' Outflow=6.08 cfs 19,150 cf
Pond CB8:	Peak Elev=113.70' Inflow=0.45 cfs 1,622 cf 12.0" Round Culvert n=0.012 L=8.0' S=0.0938 '/' Outflow=0.45 cfs 1,622 cf
Pond CB9:	Peak Elev=114.32' Inflow=2.26 cfs 7,565 cf 12.0" Round Culvert n=0.012 L=11.0' S=0.0682 '/' Outflow=2.26 cfs 7,565 cf
Pond DMH1:	Peak Elev=55.50' Inflow=4.75 cfs 15,349 cf 12.0" Round Culvert n=0.012 L=123.0' S=0.0195 '/' Outflow=4.75 cfs 15,349 cf
Pond DMH10:	Peak Elev=82.81' Inflow=12.13 cfs 92,210 cf 18.0" Round Culvert n=0.012 L=109.0' S=0.0100 '/' Outflow=12.13 cfs 92,210 cf

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Pond DMH11:	Peak Elev=74.93' Inflow=21.50 cfs 146,910 cf 30.0" Round Culvert n=0.012 L=285.0' S=0.0100 '/' Outflow=21.50 cfs 146,910 cf
Pond DMH12:	Peak Elev=76.02' Inflow=15.75 cfs 54,701 cf 24.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=15.75 cfs 54,701 cf
Pond DMH13:	Peak Elev=72.21' Inflow=21.50 cfs 146,910 cf 30.0" Round Culvert n=0.012 L=161.0' S=0.0099 '/' Outflow=21.50 cfs 146,910 cf
Pond DMH14:	Peak Elev=71.03' Inflow=31.53 cfs 189,391 cf 30.0" Round Culvert n=0.012 L=147.0' S=0.0116 '/' Outflow=31.53 cfs 189,391 cf
Pond DMH15:	Peak Elev=69.08' Inflow=31.53 cfs 189,391 cf 30.0" Round Culvert n=0.012 L=99.0' S=0.0333 '/' Outflow=31.53 cfs 189,391 cf
Pond DMH16:	Peak Elev=61.03' Inflow=31.53 cfs 189,391 cf 30.0" Round Culvert n=0.012 L=62.0' S=0.0532 '/' Outflow=31.53 cfs 189,391 cf
Pond DMH17:	Peak Elev=57.03' Inflow=31.53 cfs 189,391 cf 30.0" Round Culvert n=0.012 L=12.0' S=0.0417 '/' Outflow=31.53 cfs 189,391 cf
Pond DMH18:	Peak Elev=114.87' Inflow=5.17 cfs 17,652 cf 12.0" Round Culvert n=0.012 L=242.0' S=0.0919 '/' Outflow=5.17 cfs 17,652 cf
Pond DMH19:	Peak Elev=75.47' Inflow=11.17 cfs 42,480 cf 18.0" Round Culvert n=0.012 L=133.0' S=0.0233 '/' Outflow=11.17 cfs 42,480 cf
Pond DMH2:	Peak Elev=52.67' Inflow=4.75 cfs 15,349 cf 15.0" Round Culvert n=0.012 L=64.0' S=0.0183 '/' Outflow=4.75 cfs 15,349 cf
Pond DMH20:	Peak Elev=71.26' Inflow=33.53 cfs 117,175 cf 30.0" Round Culvert n=0.013 L=30.0' S=0.0250 '/' Outflow=33.53 cfs 117,175 cf
Pond DMH3:	Peak Elev=72.37' Inflow=20.23 cfs 81,523 cf 24.0" Round Culvert n=0.012 L=140.0' S=0.0071 '/' Outflow=20.23 cfs 81,523 cf
Pond DMH4:	Peak Elev=91.91' Inflow=11.94 cfs 39,307 cf 18.0" Round Culvert n=0.012 L=273.0' S=0.0670 '/' Outflow=11.94 cfs 39,307 cf
Pond DMH5:	Peak Elev=113.57' Inflow=2.71 cfs 9,187 cf 12.0" Round Culvert n=0.012 L=290.0' S=0.0909 '/' Outflow=2.71 cfs 9,187 cf
Pond DMH6:	Peak Elev=88.22' Inflow=5.08 cfs 17,571 cf 15.0" Round Culvert n=0.012 L=148.0' S=0.0101 '/' Outflow=5.08 cfs 17,571 cf
Pond DMH7:	Peak Elev=87.02' Inflow=10.92 cfs 42,317 cf 24.0" Round Culvert n=0.012 L=123.0' S=0.0195 '/' Outflow=10.92 cfs 42,317 cf
Pond DMH8:	Peak Elev=86.30' Inflow=14.51 cfs 54,067 cf 24.0" Round Culvert n=0.012 L=63.0' S=0.0079 '/' Outflow=14.51 cfs 54,067 cf

<b>25770rev5.17</b> Prepared by Hand HydroCAD® 10.20-3	Type III 24-hr 100-Year (2090) Rainfall=11.70"           cock Associates         Printed 5/20/2024           g s/n 00711 © 2023 HydroCAD Software Solutions LLC         Page 56
Pond DMH9:	Peak Elev=86.53' Inflow=9.09 cfs 32,851 cf 18.0" Round Culvert n=0.012 L=168.0' S=0.0179 '/' Outflow=9.09 cfs 32,851 cf
Pond IB.1:	Peak Elev=51.87' Storage=56,170 cf Inflow=91.17 cfs 449,311 cf Discarded=0.32 cfs 14,375 cf Primary=88.20 cfs 419,178 cf Outflow=88.53 cfs 433,553 cf
Pond RG.1:	Peak Elev=67.50' Storage=24,890 cf Inflow=65.22 cfs 236,181 cf Outflow=52.85 cfs 229,941 cf
Pond RG.2:	Peak Elev=79.50' Storage=2,536 cf Inflow=9.49 cfs 37,041 cf Outflow=9.19 cfs 35,551 cf
Pond RG.3:	Peak Elev=79.18' Storage=1,072 cf Inflow=2.02 cfs 7,789 cf Outflow=1.98 cfs 6,929 cf
Pond TD & DMH12	Peak Elev=76.74' Inflow=4.47 cfs 14,864 cf 15.0" Round Culvert n=0.012 L=106.0' S=0.0047 '/' Outflow=4.47 cfs 14,864 cf
Pond WB.1:	Peak Elev=85.43' Storage=33,778 cf Inflow=26.37 cfs 95,800 cf Outflow=12.13 cfs 92,210 cf
Total Runo	ff Area = 1,572,640 sf   Runoff Volume = 1,091,619 cf   Average Runoff Depth = 8.33'

Total Runoff Area = 1,572,640 sf Runoff Volume = 1,091,619 cf Average Runoff Depth = 8.33" 82.28% Pervious = 1,293,965 sf 17.72% Impervious = 278,675 sf

### Summary for Subcatchment 1S: Overland to CB1

Runoff = 2.61 cfs @ 12.09 hrs, Volume= 8,257 cf, Depth> 8.47" Routed to Pond CB1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

	Area (s	sf) CN	Descrip	Description				
*	2,83	30 98	Paved	parking, H	SG B	B/D		
*	4,69	95 70	>75% (	Grass cove	er, Go	ood, HSG B/D		
*	4,18	30 65	Woods	, Good, H	SG B/	3/D		
	11,70 8,87 2,83	75	75.82%	ed Averag Pervious Impervio	Area			
(r	Tc Len min) (fe		ope Velo t/ft) (ft/s	<i>,</i> ,	acity (cfs)			
	6.0					Direct Entry,		

#### Summary for Subcatchment 2S: Overland to CB2

Runoff = 2.13 cfs @ 12.08 hrs, Volume= 7,092 cf, Depth>10.07" Routed to Pond CB2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

	Area (sf)	CN	Description				
	740	98	Paved park	ng, HSG C	C		
*	1,935	98	Paved parki	ng, HSG B	3/D		
*	3,245	70	>75% Grass	s cover, Gc	ood, HSG B/D		
*	2,530	96	Gravel surfa	ace, HSG E	B/D		
	8,450	87	Weighted A	verage			
	5,775		68.34% Pervious Area				
	2,675		31.66% Impervious Area				
Tc	Length	Slop	e Velocity	Capacity	Description		
(min)	(feet)	(ft/f	t) (ft/sec)	(cfs)			
6.0					Direct Entry,		

#### Summary for Subcatchment 3S: Overland to CB3

Runoff = 4.23 cfs @ 12.19 hrs, Volume= 17,473 cf, Depth> 9.14" Routed to Pond CB3 :

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	А	rea (sf)	CN	Description					
*		5,710	98	Paved parking, HSG B/D					
*		6,972				bod, HSG B/D			
		1,490	98	Paved park	ing, HSG C				
		168	74	>75% Gras	s cover, Go	bod, HSG C			
*		1,935		Ledge Outc					
*		6,678	66	Woods, Go	od, HSG B	/D			
		22,953	80	Weighted A	verage				
		13,818		60.20% Per	1				
		9,135		39.80% Imp	pervious Ar	ea			
	_								
	Tc	Length	Slope		Capacity	Description			
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	9.9	50	0.0050	0.08		Sheet Flow,			
						Grass: Short n= 0.150 P2= 3.15"			
	4.0	135	0.0500	0.56		Shallow Concentrated Flow,			
	• •					Forest w/Heavy Litter Kv= 2.5 fps			
	0.3	30	0.0500	1.57		Shallow Concentrated Flow,			
_						Short Grass Pasture Kv= 7.0 fps			
	14.2	215	Total						

## Summary for Subcatchment 4S: Overland to CB4

Runoff	=	0.84 cfs @	12.08 hrs,	Volume=	3,034 cf,	Depth>11.45"
Routed	to Pond	CB4 :				

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

_	A	rea (sf)	CN I	Description					
*		3,180	98 I	Paved parking, HSG B/D					
		3,180		100.00% Impervious Area					
	Tc (min)	Length (feet)	Slope (ft/ft)		Capacity (cfs)	Description			
	6.0					Direct Entry,			

## Summary for Subcatchment 5S: Overland to CB5

Runoff = 5.42 cfs @ 12.19 hrs, Volume= 21,708 cf, Depth> 8.03" Routed to Pond CB5 :

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_	A	rea (sf)	CN E	Description						
*		3,965	98 F	Paved parking, HSG B/D						
*		15,793	70 >	75% Ġras	s cover, Go	ood, HSG B/D				
*		12,664	66 V	Voods, Go	od, HSG B/	/D				
_		32,422	72 V	Veighted A	verage					
		28,457	8	7.77% Pei	vious Area					
		3,965	1	2.23% Imp	pervious Are	ea				
	Tc	Length	Slope	Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	· · · · · · · · · · · · · · · · · · ·				
	9.9	50	0.0050	0.08		Sheet Flow,				
						Grass: Short n= 0.150 P2= 3.15"				
	3.6	120	0.0500	0.56		Shallow Concentrated Flow,				
						Forest w/Heavy Litter Kv= 2.5 fps				
	0.4	40	0.0500	1.57		Shallow Concentrated Flow,				
						Short Grass Pasture Kv= 7.0 fps				
	13.9	210	Total							

## Summary for Subcatchment 6S: Overland to CB6

Runoff = 0.69 cfs @ 12.08 hrs, Volume= 2,505 cf, Depth>11.45" Routed to Pond CB6 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

	A	rea (sf)	CN	Description							
*		2,625	98	98 Paved parking, HSG B/D							
		2,625		100.00% Impervious Area							
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description					
	6.0					Direct Entry,					

# Summary for Subcatchment 7S: Overland to CB7

Runoff = 6.08 cfs @ 12.09 hrs, Volume= 19,150 cf, Depth> 8.33" Routed to Pond CB7 :

	Area (sf)	CN	Description			
*	3,850	98	Paved parking, HSG B/D			
*	23,750	70	>75% Grass cover, Good, HSG B/D			
	27,600	74	Weighted Average			
	23,750		86.05% Pervious Area			
	3,850		13.95% Impervious Area			

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description						
6.0					Direct Entry	Ι,					
Summary for Subcatchment 8S: Overland to CB8											
Runoff Route	= ed to Pond		fs @ 12.0	8 hrs, Volu	ime=	1,622 cf,	Depth>11.45"				
	Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr  100-Year (2090) Rainfall=11.70"										
Α	rea (sf)	CN I	Description								
*	1,700			ing, HSG B							
	1,700		100.00% In	npervious A	rea						
Tc (min)	Length (feet)	Slope (ft/ft)		Capacity (cfs)	Description						
6.0					Direct Entry	Ι,					
		Su	mmary f	or Subca	tchment 9S	: Overla	nd to CB9				
Runoff Route	= ed to Pond		fs @ 12.0	8 hrs, Volu	ime=	7,565 cf,	Depth>10.20"				
			hod, UH=S 2090) Rainf		ited-CN, Time	Span= 0.0	0-24.00 hrs, dt= 0.01 hr	S			
А	rea (sf)	CN I	Description								
*	5,575 3,325			ing, HSG B s cover, Go	3/D bod, HSG B/D						
	8,900 3,325 5,575	(		verage rvious Area pervious Ar							
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description						
6.0					Direct Entry	Ι,					

## Summary for Subcatchment 10A: Overland to Sawmill Brook

Runoff = 5.59 cfs @ 12.09 hrs, Volume= 17,898 cf, Depth> 9.01" Routed to Reach PDP1 : Sawmill Brook

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_	А	rea (sf)	CN	Description	Description						
*		7,635	65	Woods, Go	od, HSG B/	′D					
*		6,960	70	>75% Gras	s cover, Go	od, HSG B/D					
*		9,235	98	Paved park	ing, HSG B	/D					
		23,830	79	Weighted A	Weighted Average						
		14,595		61.25% Per	vious Area						
		9,235		38.75% Imp	ervious Are	ea					
	-		0		0	<b>D</b>					
	Tc	Length	Slop	,	Capacity	Description					
_	(min)	(feet)	(ft/f	t) (ft/sec)	(cfs)						
	6.0					Direct Entry,					

## Summary for Subcatchment 10B: Overland to Atwater Ave.

7.07 cfs @ 12.20 hrs, Volume= 29,947 cf, Depth> 9.00" Runoff = Routed to Reach PDP1 : Sawmill Brook

A	rea (sf)	CN D	escription								
	6,980	98 P	98 Paved parking, HSG C								
	11,900	70 V	1 07								
	17,140	74 >	75% Gras	s cover, Go	ood, HSG C						
	3,915	96 G	Gravel surfa	ace, HSG C	<u> </u>						
	39,935	79 V	Veighted A	verage							
	32,955	8	2.52% Per	vious Area							
	6,980	1	7.48% Imp	pervious Are	ea						
Tc	Length	Slope	Velocity	Capacity	Description						
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)							
7.5	50	0.0100	0.11		Sheet Flow,						
					Grass: Short n= 0.150 P2= 3.15"						
1.7	100	0.0200	0.99		Shallow Concentrated Flow,						
					Short Grass Pasture Kv= 7.0 fps						
1.0	100	0.0600	1.71		Shallow Concentrated Flow,						
0.0	0.5	0 0 5 0 0			Short Grass Pasture Kv= 7.0 fps						
0.3	85	0.3500	4.14		Shallow Concentrated Flow,						
4.0	000	0.0450	4.07		Short Grass Pasture Kv= 7.0 fps						
1.9	230	0.0150	1.97		Shallow Concentrated Flow,						
2.0	150	0.0450	0.00		Unpaved Kv= 16.1 fps						
2.9	150	0.0150	0.86		Shallow Concentrated Flow,						
45.0	745	<b>T</b> . 4 . 1			Short Grass Pasture Kv= 7.0 fps						
15.3	715	Total									

### Summary for Subcatchment 10C: Overland to Abutter

Runoff = 64.40 cfs @ 12.09 hrs, Volume= 202,274 cf, Depth> 8.19" Routed to Reach PDP1 : Sawmill Brook

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

	A	rea (sf)	CN E	Description						
	1	14,485	70 V	Voods, Go	od, HSG C					
		65,825	74 >	75% Grass cover, Good, HSG C						
*		7,450	98 L	edge Outo	roppings, H	HSG C				
*		10,055	65 V	Voods, Go	od, HSG B/	/D				
		21,980	78 N	/leadow, no	on-grazed,	HSG D				
		22,755	71 N	/leadow, no	on-grazed,	HSG C				
*		43,555			on-grazed,					
*		795			ace, HSG E					
		9,595	96 (	Gravel surfa	ace, HSG (	2				
		96,495		Veighted A						
	2	89,045	-	-	vious Area					
		7,450	2	2.51% Impe	ervious Are	а				
	_									
	ŢĊ	Length	Slope			Description				
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	2.2	50	0.0250	0.39		Sheet Flow,				
						Fallow n= 0.050 P2= 3.15"				
	0.1	30	0.0600	3.94		Shallow Concentrated Flow,				
	07		0.0450	1.0.1		Unpaved Kv= 16.1 fps				
	0.7	75	0.0150	1.84		Shallow Concentrated Flow,				
	0.0	00	0.0400	1.01		Grassed Waterway Kv= 15.0 fps				
	0.8	80	0.0100	1.61		Shallow Concentrated Flow,				
	1.9	255	0.0200	2.28		Unpaved Kv= 16.1 fps Shallow Concentrated Flow,				
	1.9	200	0.0200	2.20		Unpaved Kv= 16.1 fps				
	0.3	40	0.1000	2.21		Shallow Concentrated Flow,				
	0.5	-0	0.1000	ا ۲.۲		Short Grass Pasture Kv= 7.0 fps				
_	6.0	530	Total							
	0.0	000	rulai							

#### Summary for Subcatchment 10S: Overland to CB10

Runoff = 1.18 cfs @ 12.08 hrs, Volume= Routed to Pond CB10 : 4,085 cf, Depth>10.83"

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4,298 cf, Depth>11.45"

_	A	rea (sf)	CN	Description						
*		1,995	98	Paved parking, HSG B/D						
		1,130	80	>75% Gras	s cover, Go	od, HSG D				
		1,130	98	Paved park	ing, HSG D	)				
_		270	96	Gravel surface, HSG D						
		4,525	93	Weighted Average						
		1,400		30.94% Per	vious Area					
		3,125		69.06% Imp	pervious Are	ea				
	Тс	Length	Slope		Capacity	Description				
_	(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)					
	~ ~									

6.0

#### **Direct Entry**,

#### Summary for Subcatchment 11S: Overland to CB11

Runoff 1.19 cfs @ 12.08 hrs, Volume= = Routed to Pond CB11 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

	Area (s	f) CN	De	escription						
*	3,23	5 98	Pa	Paved parking, HSG B/D						
	1,27	0 98	Pa	ived parki	ng, HSG D					
	4,50	5 98	We	Weighted Average						
	4,50	5	10	100.00% Impervious Area						
	Tc Leng	th Slo	ре	Velocity	Capacity	Description				
(m	in) (fee	et) (ft	:/ft)	(ft/sec)	(cfs)					
6	6.0					Direct Entry,				

#### Summary for Subcatchment 12S: Overland to CB12

2.40 cfs @ 12.08 hrs, Volume= 7,821 cf, Depth> 9.55" Runoff = Routed to Pond CB12 :

Area (sf)	CN	Description			
8,225	80	>75% Grass cover, Good, HSG D			
1,605	98	Paved parking, HSG D			
9,830	83	Weighted Average			
8,225		83.67% Pervious Area			
1,605		16.33% Impervious Area			

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Tc Length Slope Velocity Capacity Description (min) (feet) (ft/ft) (ft/sec) (cfs)										
6.0	Direct Entry,									
	Summary for Subcatchment 14S: Overland to CB14									
	Runoff = 1.94 cfs @ 12.08 hrs, Volume= 6,228 cf, Depth> 9.15" Routed to Pond CB14 :									
	20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Year (2090) Rainfall=11.70"									
Area (sf)	CN Description									
1,915	80 >75% Grass cover, Good, HSG D									
1,495	98 Paved parking, HSG C									
4,760	74 >75% Grass cover, Good, HSG C									
8,170	80 Weighted Average									
6,675	81.70% Pervious Area									
1,495	18.30% Impervious Area									
Tc Length (min) (feet)	Slope Velocity Capacity Description (ft/ft) (ft/sec) (cfs)									
6.0	Direct Entry,									
	Summary for Subcatchment 15S: Overland to CB15									

Runoff = 1.70 cfs @ 12.08 hrs, Volume= Routed to Pond CB15 :

5,522 cf, Depth> 9.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

A	rea (sf)	CN	Description			
	2,690	98	Paved park	ing, HSG C	C	
	4,250	74 :	>75% Gras	s cover, Go	ood, HSG C	
	6,940	83	Weighted Average			
	4,250		61.24% Pervious Area			
	2,690	:	38.76% Imp	pervious Ar	rea	
-				<b>o</b> "		
TC	Length	Slope	,	Capacity		
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)		
6.0					Direct Entry,	

## Summary for Subcatchment 16S: Overland to CB16

Runoff = 5.46 cfs @ 12.08 hrs, Volume= 17,632 cf, Depth> 9.28" Routed to Pond CB16 :

А	rea (sf)	CN E	Description							
	6,645	98 Paved parking, HSG C								
	16,150	74 >75% Grass cover, Good, HSG C								
	22,795 81 Weighted Average									
	16,150			vious Area						
	6,645	2	9.15% Imp	pervious Ar	ea					
-		01		0						
Tc (min)	Length	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description					
<u>(min)</u> 6.0	(feet)	(11/11)	(II/Sec)	(CIS)	Direct Entry,					
0.0					Direct Lindy;					
Summary for Subcatchment 17S: Overland to CB17										
Runoff Route	Runoff = 4.86 cfs @ 12.12 hrs, Volume= 17,625 cf, Depth> 9.68" Routed to Pond CB17 :									
			hod, UH=S 090) Rainf		ted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs					
A	rea (sf)		Description							
*	920				bod, HSG B/D					
*	112			ing, HSG B						
	8,838			ing, HSG C						
	11,990				ood, HSG C					
	21,860		Veighted A							
	12,910			vious Area						
	8,950	4	0.94% Imp	pervious Are	ea					
Тс	Length	Slope	Velocity	Capacity	Description					
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	Decemption					
5.7	50	0.0200	0.15		Sheet Flow,					
					Grass: Short n= 0.150 P2= 3.15"					
1.5	90	0.0200	0.99		Shallow Concentrated Flow,					
					Short Grass Pasture Kv= 7.0 fps					
1.9	207	0.0270	1.78		Sheet Flow,					
	- ·				Smooth surfaces n= 0.011 P2= 3.15"					
0.1	3/7	Total								

9.1 347 Total

# Summary for Subcatchment 18S: Overland to CB18

Runoff	=	1.27 cfs @	12.08 hrs,	Volume=	4,580 cf,	Depth>11.45"
Routed	I to Pond	CB18 :				-

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	A	rea (sf)	CN	Description							
*		780	98	Paved parking, HSG B/D							
		4,020	98	Paved park	Paved parking, HSG C						
		4,800	98	Weighted Average							
		4,800		100.00% Im	npervious A	rea					
	Tc (min)	Length (feet)	Slop (ft/ft		Capacity (cfs)	Description					
	6.0					Direct Entry,					

#### Summary for Subcatchment 19S: Overland to CB19

Runoff = 7.22 cfs @ 12.08 hrs, Volume= 23,627 cf, Depth> 9.68" Routed to Pond CB19 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

Are	ea (sf)	CN I	Description						
1	2,005	98	Paved park	ing, HSG C	)				
1	7,285	74 :	>75% Gras	s cover, Go	bod, HSG C				
2	9,290	84	Neighted A	verage					
1	7,285	!	59.01% Pervious Area						
1	2,005	4	40.99% Imp	pervious Are	ea				
-		<u>.</u>		<b>o</b>					
	Length	Slope	,	Capacity	Description				
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)					
6.0					Direct Entry,				

## Summary for Subcatchment 20A: Overland to Southern Wetland

Runoff = 13.88 cfs @ 12.09 hrs, Volume= 43,080 cf, Depth> 7.33" Routed to Reach PDP2 : Route 128

	Area (sf)	CN	Description				
*	42,795	65	Woods, Good, HSG B/D				
	185	98	Paved parking, HSG C				
*	23,635	70	>75% Grass cover, Good, HSG B/D				
	3,885	74	>75% Grass cover, Good, HSG C				
	70,500	67	Weighted Average				
	70,315		99.74% Pervious Area				
	185		0.26% Impervious Area				

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Tc	Length	Slope	Velocity	Capacity	Description
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
0.8	100	0.0600	2.12		Sheet Flow,
					Smooth surfaces n= 0.011 P2= 3.15"
1.2	280	0.0600	3.94		Shallow Concentrated Flow,
					Unpaved Kv= 16.1 fps
1.9	250	0.2000	2.24		Shallow Concentrated Flow,
					Woodland Kv= 5.0 fps
3.9	630	Total, I	ncreased t	o minimum	Tc = 6.0 min

Total, Increased to minimum Tc = 6.0 min 630

#### Summary for Subcatchment 20B: Overland to Route 128

Runoff = 7.83 cfs @ 12.09 hrs, Volume= 24,242 cf, Depth> 5.85" Routed to Reach PDP2 : Route 128

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

_	A	rea (sf)	CN E	Description						
		33,640	55 V	55 Woods, Good, HSG B						
_		16,095	61 >							
		49,735	57 V	Veighted A	verage					
		49,735	1	00.00% Pe	ervious Are	а				
	Тс	Length	Slope	Velocity	Capacity	Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	0.8	100	0.0600	2.12		Sheet Flow,				
						Smooth surfaces n= 0.011 P2= 3.15"				
	1.4	260	0.0350	3.01		Shallow Concentrated Flow,				
						Unpaved Kv= 16.1 fps				
	1.4	215	0.2500	2.50		Shallow Concentrated Flow,				
						Woodland Kv= 5.0 fps				
	3.6	575	Total, I	ncreased t	o minimum	Tc = 6.0 min				

#### Summary for Subcatchment 20C: Overland to Localized Low Point

Runoff 15.68 cfs @ 12.09 hrs, Volume= 48,539 cf, Depth> 7.04" = Routed to Reach PDP2 : Route 128

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	A	rea (sf)	CN	Description					
*		51,750	65	Woods, Good, HSG B/D					
		895	77	Woods, Go	od, HSG D				
		10,425	55	Woods, Good, HSG B					
*		17,695	70	>75% Grass cover, Good, HSG B/D					
		300			,	ood, HSG B			
		1,650	80	80 >75% Grass cover, Good, HSG D					
		82,715		65 Weighted Average					
		82,715		100.00% Pe	ervious Are	а			
	Tc	Length	Slope		Capacity	Description			
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	0.9	80	0.0300	1.53		Sheet Flow,			
						Smooth surfaces n= 0.011 P2= 3.15"			
	1.5	245	0.3000	2.74		Shallow Concentrated Flow,			
						Woodland Kv= 5.0 fps			
	2.4	325	Total,	Increased t	o minimum	Tc = 6.0 min			

## Summary for Subcatchment 20D: Overland to Western Wetland

Runoff = 54.83 cfs @ 12.31 hrs, Volume= 264,147 cf, Depth> 7.31" Routed to Reach PDP2 : Route 128

_	A	rea (sf)	CN [	Description						
	1	17,965	55 \	Voods, Go	od, HSG B					
*	1	02,245	65 \	Woods, Good, HSG B/D						
	1	08,953	77 \	Woods, Good, HSG D						
		11,215	70 \	Woods, Good, HSG C						
		10,760	58 N	Aeadow, no	on-grazed,	HSG B				
		52,282			on-grazed,					
*		30,255	68 N	leadow, no	on-grazed,	HSG B/D				
	4	33,675	67 \	Veighted A	verage					
	4	33,675		00.00% Pe	ervious Are	a				
	Тс	Length	Slope		Capacity	Description				
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)					
	16.4	50	0.0100	0.05		Sheet Flow,				
						Woods: Light underbrush n= 0.400 P2= 3.15"				
	2.1	180	0.0800	1.41		Shallow Concentrated Flow,				
						Woodland Kv= 5.0 fps				
	4.0	480	0.1600	2.00		Shallow Concentrated Flow,				
_						Woodland Kv= 5.0 fps				
	22.5	710	Total							

### Summary for Subcatchment 20S: Overland to CB20

Runoff = 3.85 cfs @ 12.08 hrs, Volume= 12,380 cf, Depth> 9.15" Routed to Pond CB20 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

Α	rea (sf)	CN	Description					
	4,115	98	Paved park	ing, HSG C				
	12,125	74 :	>75% Ġras	s cover, Go	bod, HSG C			
	16,240	80	Weighted Average					
	12,125		74.66% Pervious Area					
	4,115	:	25.34% Imp	pervious Are	ea			
_								
Тс	Length	Slope	,	Capacity	Description			
<u>(min)</u>	(feet)	(ft/ft)	(ft/sec)	(cfs)				
6.0					Direct Entry,			

#### Summary for Subcatchment 21S: Overland to CB21

Runoff = 0.85 cfs @ 12.08 hrs, Volume= Routed to Pond CB21 : 3,049 cf, Depth>11.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

A	rea (sf)	CN	Description					
	2,295	98	Paved park	ing, HSG C				
	935	96	Gravel surfa	ace, HSG C	C			
	3,230	97	Weighted A	verage				
	935		28.95% Per	vious Area	1			
	2,295		71.05% Imp	pervious Ar	ea			
Тс	Length	Slope	Velocity	Capacity	Description			
(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
6.0					Direct Entry,			

#### Summary for Subcatchment 22S: Overland to CB22

Runoff = 1.02 cfs @ 12.08 hrs, Volume= 3,332 cf, Depth> 9.68" Routed to Pond CB22 :

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 Type III 24-hr
 100-Year (2090) Rainfall=11.70"

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Area	(sf) CN	Description							
	140 98								
,	290 74								
	<u>100 96</u>	Gravel surfa		; ;					
	130 84 390	Weighted A 89.35% Per							
,	140	10.65% Imp							
		10.0070 mip		ou -					
	ngth Slop		Capacity	Description					
	eet) (ft/	ft) (ft/sec)	(cfs)						
6.0				Direct Entry	,				
	Sı	ummary fo	r Subcate	chment 24S	: Overland to CB24				
Runoff = Routed to	1.28 Pond CB24	cfs @ 12.08 4:	8 hrs, Volu	ime=	4,609 cf, Depth>11.45"				
		ethod, UH=S (2090) Rainf		ted-CN, Time	Span= 0.00-24.00 hrs, dt= 0.01 hrs				
Area	(sf) CN	Description							
* 4,8	330 98	Paved park	ing, HSG B	B/D					
4,8	330	100.00% Im	pervious A	rea					
	ngth Slop eet) (ft/i		Capacity (cfs)	Description					
6.0				Direct Entry	,				

## Summary for Subcatchment 25S: Overland to CB25

Runoff = 3.90 cfs @ 12.08 hrs, Volume= 13,044 cf, Depth>10.20" Routed to Pond CB25 :

	A	rea (sf)	CN	Description					
*		10,065	98	Paved park	ing, HSG B	3/D			
*		5,280	70	>75% Ġras	s cover, Go	bod, HSG B/D			
		15,345	88	Weighted A	verage				
		5,280		34.41% Pei	vious Area	l			
		10,065		65.59% Imp	pervious Ar	ea			
	Tc Length Slope Velocity Capacity I (min) (feet) (ft/ft) (ft/sec) (cfs)			Description					
	6.0					Direct Entry,			

### Summary for Subcatchment 30S: Overland to TD

Runoff = 4.47 cfs @ 12.08 hrs, Volume= 14,864 cf, Depth>10.07" Routed to Pond TD & DMH12 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

	A	rea (sf)	CN	Description					
*		8,290	98	Paved park	ing, HSG B	3/D			
*		6,545				ood, HSG B/D			
*		2,265	98	Concrete Pa	ad, HSG B/	B/D			
		610	74	>75% Gras	s cover, Go	ood, HSG C			
		17,710	87	Weighted A	verage				
		7,155		40.40% Per	vious Area	a			
		10,555		59.60% Imp	ervious Ar	rea			
	Тс	Length	Slope	e Velocity	Capacity	Description			
_	(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)				
	6.0					Direct Entry,			

# Summary for Subcatchment 31S: Overland to Infiltration Basin

Runoff	=	4.65 cfs @	12.09 hrs,	Volume=	14,630 cf,	Depth>	8.33"
Routed	to Ponc	IB.1 :				-	

_	A	rea (sf)	CN [	Description		
		21,085	74 >	>75% Gras	s cover, Go	bod, HSG C
		21,085	1	100.00% Pe	ervious Are	a
	Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
_	2.2	50	0.0250	0.39	(/	Sheet Flow,
						Fallow n= 0.050 P2= 3.15"
	0.1	30	0.0600	3.94		Shallow Concentrated Flow,
	07		0 0 4 5 0	4.04		Unpaved Kv= 16.1 fps
	0.7	75	0.0150	1.84		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
	0.8	80	0.0100	1.61		Shallow Concentrated Flow,
	0.0	00	0.0100	1.01		Unpaved Kv= 16.1 fps
	1.9	255	0.0200	2.28		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	0.3	40	0.1000	2.21		Shallow Concentrated Flow,
_						Short Grass Pasture Kv= 7.0 fps
	6.0	530	Total			

#### Summary for Subcatchment 32S: Overland to Rain Garden

Runoff = 9.93 cfs @ 12.09 hrs, Volume= 31,102 cf, Depth> 8.05" Routed to Pond RG.1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

_	A	rea (sf)	CN E	<b>Description</b>		
*		29,925				bod, HSG C
*		14,740			,	ood, HSG B/D
_		1,720		,	od, HSG B/	
		46,385		Veighted A		
		46,385	1	00.00% Pe	ervious Are	а
	Тс	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	· · · · · · · · · · · · · · · · · · ·
	2.2	50	0.0250	0.39		Sheet Flow,
						Fallow n= 0.050 P2= 3.15"
	0.1	30	0.0600	3.94		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	0.7	75	0.0150	1.84		Shallow Concentrated Flow,
						Grassed Waterway Kv= 15.0 fps
	0.8	80	0.0100	1.61		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	1.9	255	0.0200	2.28		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
	0.3	40	0.1000	2.21		Shallow Concentrated Flow,
_						Short Grass Pasture Kv= 7.0 fps
	6.0	530	Total			

# Summary for Subcatchment 35S: Overland to Basin

Runoff = 2.82 cfs @ 12.09 hrs, Volume= 8,881 cf, Depth> 8.33" Routed to Pond WB.1 :

 Area (sf)	CN	Description
12,800	74	>75% Grass cover, Good, HSG C
12,800		100.00% Pervious Area

Type III 24-hr 100-Year (2090) Rainfall=11.70" Printed 5/20/2024

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Tc (min)	Length (feet)		Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.2	50	50 0.	.0250	0.39		Sheet Flow,
						Fallow n= 0.050 P2= 3.15"
0.1	30	30 0.	.0600	3.94		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
0.7	75	75 0.	.0150	1.84		Shallow Concentrated Flow,
						Grassed Waterway Kv= 15.0 fps
0.8	80	80 0.	.0100	1.61		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
1.9	255	255 0.	.0200	2.28		Shallow Concentrated Flow,
						Unpaved Kv= 16.1 fps
0.3	40	40 0.	.1000	2.21		Shallow Concentrated Flow,
						Short Grass Pasture Kv= 7.0 fps
_		40 0.	.1000	-		Unpaved Kv= 16.1 fps Shallow Concentrated Flow,

6.0 530 Total

## Summary for Subcatchment 36S: Overland from South of Garage

Runoff = 4.28 cfs @ 12.17 hrs, Volume= Routed to Pond CB13 : 16,924 cf, Depth> 8.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

_	A	rea (sf)	CN E	Description		
*		2,890	98 F	aved park	ing, HSG E	3/D
*		14,240	70 >	75% Gras	s cover, Go	bod, HSG B/D
		2,945	98 F	aved park	ing, HSG D	
_		2,830	80 >	75% Gras	s cover, Go	bod, HSG D
		22,905	78 V	Veighted A	verage	
		17,070	7	4.53% Per	vious Area	
		5,835	2	5.47% Imp	pervious Ar	ea
	Тс	Length	Slope	Velocity	Capacity	Description
	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)	
	2.3	50	0.5000	0.37		Sheet Flow,
						Grass: Dense n= 0.240 P2= 3.15"
	8.5	355	0.0100	0.70		Shallow Concentrated Flow,
						Short Grass Pasture Kv= 7.0 fps
	2.0	130	0.0100	1.09		Sheet Flow,
_						Smooth surfaces n= 0.011 P2= 3.15"
	12.8	535	Total			

#### Summary for Subcatchment 40S: Overland to RG2

Runoff = 9.49 cfs @ 12.16 hrs, Volume= 37,041 cf, Depth> 9.14" Routed to Pond RG.2 :

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	А	rea (sf)	CN	Description						
		20,530	74	>75% Gras	75% Grass cover, Good, HSG C					
*		3,990	98	Ledge Outo	edge Outcroppings, HSG B/D					
*		13,975	70	>75% Grass cover, Good, HSG B/D						
*		5,505	98	Paved park	Paved parking, HSG B/D					
		4,640	98	Paved park	Paved parking, HSG C					
_		48,640	80	Weighted A	verage					
		34,505		70.94% Pei						
		14,135		29.06% Imp	pervious Are	ea				
	Tc	Length	Slope	e Velocity	Capacity	Description				
	(min)	(feet)	(ft/ft	) (ft/sec)	(cfs)					
	5.7	50	0.0200	0.15		Sheet Flow, Sheet Slow Grassed				
						Grass: Short n= 0.150 P2= 3.15"				
	2.4	125	0.0150	0.86		Shallow Concentrated Flow, Shallow Grassed				
						Short Grass Pasture Kv= 7.0 fps				
	4.0	240	0.0200	0.99		Shallow Concentrated Flow, Shallow Grassed Slope Change				
						Short Grass Pasture Kv= 7.0 fps				
	12.1	415	Total							

## Summary for Subcatchment 41S: Overland to RG3

Runoff = 2.02 cfs @ 12.16 hrs, Volume= Routed to Pond RG.3 : 7,789 cf, Depth> 8.73"

	А	rea (sf)	CN	Description					
		6,455	74	>75% Gras	s cover, Go	bod, HSG C			
*		2,550	70	>75% Gras	s cover, Go	ood, HSG B/D			
		1,700	98	Paved parking, HSG C					
		10,705 77 Weighted Average							
		9,005		84.12% Pei	rvious Area				
		1,700		15.88% Imp	pervious Are	ea			
	Тс	Length	Slope		Capacity	Description			
_	(min)	(feet)	(ft/ft)	(ft/sec)	(cfs)				
	5.7	50	0.0200	0.15		Sheet Flow, Sheet Slow Grassed			
						Grass: Short n= 0.150 P2= 3.15"			
	2.4	125	0.0150	0.86		Shallow Concentrated Flow, Shallow Grassed			
						Short Grass Pasture Kv= 7.0 fps			
	4.0	240	0.0200	0.99		Shallow Concentrated Flow, Shallow Grassed Slope Change			
_						Short Grass Pasture Kv= 7.0 fps			
	12.1	415	Total						

### Summary for Subcatchment 50S: Garage Roof

Runoff = 9.09 cfs @ 12.08 hrs, Volume= 32,851 cf, Depth>11.45" Routed to Pond DMH9 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

Α	rea (sf)	CN	Description		
	34,430	98	Roofs, HSG	G C	
	34,430		100.00% In	npervious A	Area
Tc (min)	Length (feet)	Slope (ft/ft)		Capacity (cfs)	Description
6.0					Direct Entry,

#### Summary for Subcatchment 60S: Phase 1 Roof

Runoff = 12.67 cfs @ 12.08 hrs, Volume= 45,771 cf, Depth>11.45" Routed to Reach 12R : Roof Drain Pipe to RG1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs Type III 24-hr 100-Year (2090) Rainfall=11.70"

Area (sf)	CN	Description		
47,970	98	Roofs, HSC	G C	
47,970		100.00% In	npervious A	Area
Tc Length (min) (feet)	Slope (ft/ft		Capacity (cfs)	Description
6.0				Direct Entry,

#### Summary for Subcatchment 70S: Phase 2 Roof

Runoff = 9.80 cfs @ 12.08 hrs, Volume= 35,399 cf, Depth>11.45" Routed to Reach 12R : Roof Drain Pipe to RG1

A	rea (sf)	CN [	Description		
	37,100	98 F	Roofs, HSG	G C	
	37,100		100.00% Im	npervious A	rea
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

## Summary for Reach 12R: Roof Drain Pipe to RG1

Inflow Area = 85,070 sf,100.00% Impervious, Inflow Depth > 11.45" for 100-Year (2090) event Inflow = 22.46 cfs @ 12.08 hrs, Volume= 81,170 cf Outflow = 22.46 cfs @ 12.08 hrs, Volume= 81,167 cf, Atten= 0%, Lag= 0.0 min Routed to Pond DMH20 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Max. Velocity= 18.06 fps, Min. Travel Time= 0.0 min Avg. Velocity = 6.14 fps, Avg. Travel Time= 0.1 min

Peak Storage= 63 cf @ 12.08 hrs Average Depth at Peak Storage= 0.84', Surface Width= 1.97' Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 61.60 cfs

24.0" Round Pipe n= 0.018 Earth, clean & straight Length= 51.0' Slope= 0.1422 '/' Inlet Invert= 75.50', Outlet Invert= 68.25'

## Summary for Reach PDP1: Sawmill Brook

 Inflow Area =
 936,015 sf, 29.75% Impervious, Inflow Depth > 8.58" for 100-Year (2090) event

 Inflow =
 147.60 cfs @
 12.13 hrs, Volume=
 669,297 cf

 Outflow =
 147.60 cfs @
 12.13 hrs, Volume=
 669,297 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

## Summary for Reach PDP2: Route 128

Inflow Are	ea =	636,625 sf, 0.03% Impervious	, Inflow Depth > 7.16" for 100-Year (2090) event
Inflow	=	71.51 cfs @ 12.27 hrs, Volume=	380,008 cf
Outflow	=	71.51 cfs @ 12.27 hrs, Volume=	380,008 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

# Summary for Pond CB1:

 Inflow Area =
 11,705 sf, 24.18% Impervious, Inflow Depth > 8.47" for 100-Year (2090) event

 Inflow =
 2.61 cfs @
 12.09 hrs, Volume=
 8,257 cf

 Outflow =
 2.61 cfs @
 12.09 hrs, Volume=
 8,257 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 2.61 cfs @
 12.09 hrs, Volume=
 8,257 cf

 Routed to Pond DMH1 :
 2.61 cfs @
 12.09 hrs, Volume=

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Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 56.26' @ 12.09 hrs Flood Elev= 57.30'

Device	Routing	Invert	Outlet Devices
-	Primary	52.80'	<b>12.0" Round Culvert</b> L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 52.80' / 52.40' S= 0.0667 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.59 cfs @ 12.09 hrs HW=56.21' TW=55.45' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 2.59 cfs @ 3.29 fps)

#### Summary for Pond CB10:

 Inflow Area =
 4,525 sf, 69.06% Impervious, Inflow Depth > 10.83" for 100-Year (2090) event

 Inflow =
 1.18 cfs @
 12.08 hrs, Volume=
 4,085 cf

 Outflow =
 1.18 cfs @
 12.08 hrs, Volume=
 4,085 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.18 cfs @
 12.08 hrs, Volume=
 4,085 cf

 Routed to Pond DMH6 :
 12.08 hrs, Volume=
 4,085 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 88.28' @ 12.11 hrs Flood Elev= 89.80'

Device	Routing	Invert	Outlet Devices
-	Primary		<b>12.0" Round Culvert</b> L= 5.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 86.00' / 85.90' S= 0.0200 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.53 cfs @ 12.08 hrs HW=88.03' TW=88.00' (Dynamic Tailwater) -1=Culvert (Inlet Controls 0.53 cfs @ 0.68 fps)

#### Summary for Pond CB11:

Inflow Are	a =	4,505 sf	,100.00% Imperviou	s, Inflow Depth > 11.45" for 100-Year (2090) event
Inflow	=	1.19 cfs @	12.08 hrs, Volume	= 4,298 cf
Outflow	=	1.19 cfs @	12.08 hrs, Volume	= 4,298 cf, Atten= 0%, Lag= 0.0 min
Primary	=	1.19 cfs @	12.08 hrs, Volume	= 4,298 cf
Routed to Pond DMH6 :				

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 88.28' @ 12.11 hrs Flood Elev= 89.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	86.00'	<b>12.0" Round Culvert</b> L= 9.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 86.00' / 85.90' S= 0.0111 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 12.08 hrs HW=88.03' TW=88.00' (Dynamic Tailwater) ↓ 1=Culvert (Inlet Controls 0.55 cfs @ 0.70 fps)

## Summary for Pond CB12:

Inflow Are	a =	9,830 sf,	, 16.33% Impervious,	Inflow Depth > 9.55" for 100-Year (2090) event
Inflow	=	2.40 cfs @	12.08 hrs, Volume=	7,821 cf
Outflow	=	2.40 cfs @	12.08 hrs, Volume=	7,821 cf, Atten= 0%, Lag= 0.0 min
Primary	=	2.40 cfs @	12.08 hrs, Volume=	7,821 cf
Routed to Pond DMH7 :				

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 87.64' @ 12.11 hrs Flood Elev= 88.21'

	Device	e Routing	Invert	Outlet Devices
#1 Primary 84.70' <b>12.0" Round Culvert</b> L= 9.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.70' / 84.50' S= 0.0222 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf		Primary	84.70'	L= 9.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 84.70' / 84.50' S= 0.0222 '/' Cc= 0.900

Primary OutFlow Max=2.30 cfs @ 12.08 hrs HW=87.38' TW=86.79' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 2.30 cfs @ 2.93 fps)

## Summary for Pond CB13:

Inflow Are	ea =	22,905 sf	, 25.47% Impervious,	Inflow Depth > 8.87"	for 100-Year (2090) event
Inflow	=	4.28 cfs @	12.17 hrs, Volume=	16,924 cf	
Outflow	=	4.28 cfs @	12.17 hrs, Volume=	16,924 cf, Atter	n= 0%, Lag= 0.0 min
Primary	=	4.28 cfs @	12.17 hrs, Volume=	16,924 cf	
Routed	d to Pon	d DMH7:			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 88.23' @ 12.14 hrs Flood Elev= 88.23'

Device	Routing	Invert	Outlet Devices
#1	Primary	84.70'	<b>12.0" Round Culvert</b> L= 10.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 84.70' / 84.50' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=4.42 cfs @ 12.17 hrs HW=88.10' TW=86.73' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 4.42 cfs @ 5.63 fps)

## Summary for Pond CB14:

Inflow Area = 8,170 sf, 18.30% Impervious, Inflow Depth > 9.15" for 100-Year (2090) event Inflow 1.94 cfs @ 12.08 hrs. Volume= 6.228 cf = 1.94 cfs @ 12.08 hrs, Volume= Outflow 6,228 cf, Atten= 0%, Lag= 0.0 min = 1.94 cfs @ 12.08 hrs, Volume= Primary = 6.228 cf Routed to Pond DMH8 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 86.57' @ 12.11 hrs Flood Elev= 86.62' Device Routing Invert Outlet Devices #1 Primary 83.00' 12.0" Round Culvert L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.00' / 82.90' S= 0.0167 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.72 cfs @ 12.08 hrs HW=86.40' TW=86.07' (Dynamic Tailwater) -1=Culvert (Inlet Controls 1.72 cfs @ 2.19 fps)

## Summary for Pond CB15:

 Inflow Area =
 6,940 sf, 38.76% Impervious, Inflow Depth > 9.55" for 100-Year (2090) event

 Inflow =
 1.70 cfs @
 12.08 hrs, Volume=
 5,522 cf

 Outflow =
 1.70 cfs @
 12.08 hrs, Volume=
 5,522 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.70 cfs @
 12.08 hrs, Volume=
 5,522 cf

 Routed to Pond DMH8 :
 1.70 cfs @
 12.08 hrs, Volume=

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 86.48' @ 12.12 hrs Flood Elev= 86.54'

#1 Primary 83.00' <b>12.0" Round Culvert</b> L= 6.0' CPP, projecting, no headwall, Ke= 0.900	
Inlet / Outlet Invert= 83.00' / 82.90' S= 0.0167 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf	

**Primary OutFlow** Max=1.44 cfs @ 12.08 hrs HW=86.30' TW=86.06' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.44 cfs @ 1.84 fps)

## Summary for Pond CB16:

 Inflow Area =
 22,795 sf, 29.15% Impervious, Inflow Depth > 9.28" for 100-Year (2090) event

 Inflow =
 5.46 cfs @
 12.08 hrs, Volume=
 17,632 cf

 Outflow =
 5.46 cfs @
 12.08 hrs, Volume=
 17,632 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 5.46 cfs @
 12.08 hrs, Volume=
 17,632 cf

 Routed to Pond DMH12 :
 12.08 hrs, Volume=
 17,632 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

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Peak Elev= 78.08' @ 12.09 hrs Flood Elev= 81.75'

 
 Device
 Routing
 Invert
 Outlet Devices

 #1
 Primary
 73.50'
 **12.0'' Round Culvert** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.50' / 73.25' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=5.42 cfs @ 12.08 hrs HW=78.05' TW=75.99' (Dynamic Tailwater) -1=Culvert (Inlet Controls 5.42 cfs @ 6.90 fps)

#### Summary for Pond CB17:

 Inflow Area =
 21,860 sf, 40.94% Impervious, Inflow Depth > 9.68" for 100-Year (2090) event

 Inflow =
 4.86 cfs @
 12.12 hrs, Volume=
 17,625 cf

 Outflow =
 4.86 cfs @
 12.12 hrs, Volume=
 17,625 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 4.86 cfs @
 12.12 hrs, Volume=
 17,625 cf

 Routed to Pond DMH12 :
 12.12 hrs, Volume=
 17,625 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 78.58' @ 12.11 hrs Flood Elev= 81.75'

Device	Routing	Invert	Outlet Devices
<u></u> #1	Primary		<b>12.0" Round Culvert</b> L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 73.50' / 73.25' S= 0.1250 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
			n= 0.012 Confugated 11, smooth Interior, 110w Area= 0.79 Si

Primary OutFlow Max=4.88 cfs @ 12.12 hrs HW=78.53' TW=75.86' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 4.88 cfs @ 6.21 fps)

#### Summary for Pond CB18:

 Inflow Area =
 4,800 sf,100.00% Impervious, Inflow Depth > 11.45" for 100-Year (2090) event

 Inflow =
 1.27 cfs @
 12.08 hrs, Volume=
 4,580 cf

 Outflow =
 1.27 cfs @
 12.08 hrs, Volume=
 4,580 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.27 cfs @
 12.08 hrs, Volume=
 4,580 cf

 Routed to Pond DMH12 :
 12.08 hrs, Volume=
 4,580 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 76.12' @ 12.10 hrs Flood Elev= 81.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.50'	12.0" Round Culvert
			L= 14.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 73.50' / 73.25' S= 0.0179 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.11 cfs @ 12.08 hrs HW=76.07' TW=75.99' (Dynamic Tailwater) ☐ 1=Culvert (Inlet Controls 1.11 cfs @ 1.41 fps)

### Summary for Pond CB19:

Inflow Are	a =	29,290 sf	, 40.99% Impervious,	Inflow Depth > 9.68" for 100-Year (2090) event
Inflow	=	7.22 cfs @	12.08 hrs, Volume=	23,627 cf
Outflow	=	7.22 cfs @	12.08 hrs, Volume=	23,627 cf, Atten= 0%, Lag= 0.0 min
Primary	=	7.22 cfs @	12.08 hrs, Volume=	23,627 cf
Routed	d to Pone	d DMH20 :		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 75.94' @ 12.08 hrs Flood Elev= 75.94'

Device	Routing	Invert	Outlet Devices
#1	Primary	71.80'	<b>12.0" Round Culvert</b> L= 42.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.80' / 68.25' S= 0.0845 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=7.20 cfs @ 12.08 hrs HW=75.93' TW=71.26' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 7.20 cfs @ 9.17 fps)

## Summary for Pond CB2:

Inflow Are	ea =	8,450 sf	, 31.66% Impervious,	Inflow Depth > 10.07" for 100-Year (2090) event
Inflow	=	2.13 cfs @	12.08 hrs, Volume=	7,092 cf
Outflow	=	2.13 cfs @	12.08 hrs, Volume=	7,092 cf, Atten= 0%, Lag= 0.0 min
Primary	=	2.13 cfs @	12.08 hrs, Volume=	7,092 cf
Routed	d to Pond	DMH1 :		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 56.01' @ 12.09 hrs Flood Elev= 58.17'

#1 Primary 53.00' <b>12.0" Round Culvert</b> L= 32.0' CPP, projecting, no headwall, Ke= 0.900	Device	ce Routing	Invert	Outlet Devices
Inlet / Outlet Invert= 53.00' / 52.40' S= 0.0188 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf		5	53.00'	L= 32.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 53.00' / 52.40' S= 0.0188 '/' Cc= 0.900

Primary OutFlow Max=2.09 cfs @ 12.08 hrs HW=55.93' TW=55.44' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 2.09 cfs @ 2.66 fps)

## Summary for Pond CB20:

Inflow Area = 16,240 sf, 25.34% Impervious, Inflow Depth > 9.15" for 100-Year (2090) event Inflow 3.85 cfs @ 12.08 hrs. Volume= 12.380 cf = 3.85 cfs @ 12.08 hrs, Volume= Outflow = 12,380 cf, Atten= 0%, Lag= 0.0 min 3.85 cfs @ 12.08 hrs, Volume= Primary = 12,380 cf Routed to Pond DMH20 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 73.96' @ 12.08 hrs Flood Elev= 75.75' Device Routing Invert Outlet Devices #1 Primary 71.80' 12.0" Round Culvert L= 27.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 71.80' / 68.25' S= 0.1315 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.84 cfs @ 12.08 hrs HW=73.96' TW=71.25' (Dynamic Tailwater) -1=Culvert (Inlet Controls 3.84 cfs @ 4.89 fps)

### Summary for Pond CB21:

 Inflow Area =
 7,360 sf, 37.16% Impervious, Inflow Depth > 10.40" for 100-Year (2090) event

 Inflow =
 1.87 cfs @
 12.08 hrs, Volume=
 6,381 cf

 Outflow =
 1.87 cfs @
 12.08 hrs, Volume=
 6,381 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.87 cfs @
 12.08 hrs, Volume=
 6,381 cf

 Routed to Pond RG.1 :
 12.08 hrs, Volume=
 6,381 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 68.50' @ 12.08 hrs Flood Elev= 72.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	67.75'	12.0" Round Culvert
			L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 67.75' / 67.25' S= 0.0167 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.87 cfs @ 12.08 hrs HW=68.50' TW=67.38' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.87 cfs @ 2.95 fps)

## Summary for Pond CB22:

 Inflow Area =
 4,130 sf, 10.65% Impervious, Inflow Depth > 9.68" for 100-Year (2090) event

 Inflow =
 1.02 cfs @
 12.08 hrs, Volume=
 3,332 cf

 Outflow =
 1.02 cfs @
 12.08 hrs, Volume=
 3,332 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 1.02 cfs @
 12.08 hrs, Volume=
 3,332 cf

 Routed to Pond CB21 :
 12.08 hrs, Volume=
 3,332 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

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Peak Elev= 68.69' @ 12.08 hrs Flood Elev= 71.00'

Device	Routing	Invert	Outlet Devices
-	Primary	68.00'	<b>12.0" Round Culvert</b> L= 17.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 68.00' / 67.75' S= 0.0147 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

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Primary OutFlow Max=1.02 cfs @ 12.08 hrs HW=68.69' TW=68.50' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 1.02 cfs @ 2.49 fps)

#### Summary for Pond CB24:

4,830 sf,100.00% Impervious, Inflow Depth > 11.45" for 100-Year (2090) event Inflow Area = Inflow = 1.28 cfs @ 12.08 hrs, Volume= 4.609 cf Outflow = 1.28 cfs @ 12.08 hrs, Volume= 4,609 cf, Atten= 0%, Lag= 0.0 min Primary 1.28 cfs @ 12.08 hrs, Volume= 4,609 cf = Routed to Pond DMH18 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 115.05' @ 12.08 hrs Flood Elev= 117.08'

Device	Routing	Invert	Outlet Devices
	Primary	113.00'	<b>12.0" Round Culvert</b> L= 11.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.00' / 112.75' S= 0.0227 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
			II- 0.012 Confugated 11, Shooth Interior, 110W Area- 0.79 Si

Primary OutFlow Max=1.27 cfs @ 12.08 hrs HW=115.05' TW=114.86' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 1.27 cfs @ 1.62 fps)

#### Summary for Pond CB25:

15.345 sf. 65.59% Impervious. Inflow Depth > 10.20" for 100-Year (2090) event Inflow Area = 3.90 cfs @ 12.08 hrs, Volume= Inflow = 13,044 cf 3.90 cfs @ 12.08 hrs, Volume= 13,044 cf, Atten= 0%, Lag= 0.0 min Outflow = Primary = 3.90 cfs @ 12.08 hrs, Volume= 13,044 cf Routed to Pond DMH18 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 116.57' @ 12.08 hrs Flood Elev= 117.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.00'	12.0" Round Culvert
			L= 19.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 113.00' / 112.75' S= 0.0132 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=3.89 cfs @ 12.08 hrs HW=116.56' TW=114.86' (Dynamic Tailwater) ↓ 1=Culvert (Inlet Controls 3.89 cfs @ 4.95 fps)

## Summary for Pond CB3:

Inflow Are	ea =	22,953 sf	, 39.80% Impervious,	Inflow Depth > 9.14" for 100-Year (2090) event	
Inflow	=	4.23 cfs @	12.19 hrs, Volume=	17,473 cf	
Outflow	=	4.23 cfs @	12.19 hrs, Volume=	17,473 cf,Atten= 0%,Lag= 0.0 min	
Primary	=	4.23 cfs @	12.19 hrs, Volume=	17,473 cf	
Routed	d to Pon	d DMH3 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 72.95' @ 12.12 hrs Flood Elev= 72.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.33'	<b>15.0" Round Culvert</b> L= 30.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.33' / 69.00' S= 0.0110 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.23 cfs @ 12.19 hrs HW=72.42' TW=71.59' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 4.23 cfs @ 3.45 fps)

## Summary for Pond CB4:

Inflow Area =		3,180 sf	,100.00% Impervious,	Inflow Depth > 11.45" for 100-Year (2090) event
Inflow	=	0.84 cfs @	12.08 hrs, Volume=	3,034 cf
Outflow	=	0.84 cfs @	12.08 hrs, Volume=	3,034 cf, Atten= 0%, Lag= 0.0 min
Primary	=	0.84 cfs @	12.08 hrs, Volume=	3,034 cf
Routed	to Pond	d DMH3 :		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 72.44' @ 12.11 hrs Flood Elev= 72.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.33'	<b>12.0" Round Culvert</b> L= 28.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 69.33' / 69.00' S= 0.0118 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.84 cfs @ 12.08 hrs HW=72.31' TW=72.23' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 0.84 cfs @ 1.07 fps)

## Summary for Pond CB5:

Inflow Area = 32,422 sf, 12.23% Impervious, Inflow Depth > 8.03" for 100-Year (2090) event Inflow 5.42 cfs @ 12.19 hrs. Volume= 21.708 cf = 5.42 cfs @ 12.19 hrs, Volume= Outflow 21,708 cf, Atten= 0%, Lag= 0.0 min = 5.42 cfs @ 12.19 hrs, Volume= Primary = 21,708 cf Routed to Pond DMH3 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 73.36' @ 12.13 hrs Flood Elev= 74.00' Device Routing Invert Outlet Devices #1 Primary 70.00' 15.0" Round Culvert L= 26.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 70.00' / 69.70' S= 0.0115 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf Primary OutFlow Max=5.42 cfs @ 12.19 hrs HW=72.97' TW=71.62' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 5.42 cfs @ 4.42 fps) Summary for Pond CB6:

 Inflow Area =
 2,625 sf,100.00% Impervious, Inflow Depth > 11.45" for 100-Year (2090) event

 Inflow =
 0.69 cfs @
 12.08 hrs, Volume=
 2,505 cf

 Outflow =
 0.69 cfs @
 12.08 hrs, Volume=
 2,505 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.69 cfs @
 12.08 hrs, Volume=
 2,505 cf

 Routed to Pond DMH4 :
 0.69 cfs @
 12.08 hrs, Volume=

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 91.97' @ 12.08 hrs Flood Elev= 94.50'

#1 Primary 90.50' 12.0" Round Culvert	Device R	Routing	Invert	Outlet Devices
L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 90.50' / 90.25' S= 0.0833 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf		0		<b>12.0" Round Culvert</b> L= 3.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 90.50' / 90.25' S= 0.0833 '/' Cc= 0.900

## Summary for Pond CB7:

 Inflow Area =
 27,600 sf, 13.95% Impervious, Inflow Depth > 8.33" for 100-Year (2090) event

 Inflow =
 6.08 cfs @
 12.09 hrs, Volume=
 19,150 cf

 Outflow =
 6.08 cfs @
 12.09 hrs, Volume=
 19,150 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 6.08 cfs @
 12.09 hrs, Volume=
 19,150 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 6.08 cfs @
 12.09 hrs, Volume=
 19,150 cf

 Routed to Pond DMH4 :
 12.09 hrs, Volume=
 19,150 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

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Peak Elev= 94.50' @ 12.09 hrs Flood Elev= 94.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	90.50'	<b>12.0" Round Culvert</b> L= 11.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 90.50' / 90.25' S= 0.0227 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=6.07 cfs @ 12.09 hrs HW=94.48' TW=91.90' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 6.07 cfs @ 7.73 fps)

#### Summary for Pond CB8:

 Inflow Area =
 1,700 sf,100.00% Impervious, Inflow Depth > 11.45" for 100-Year (2090) event

 Inflow =
 0.45 cfs @
 12.08 hrs, Volume=
 1,622 cf

 Outflow =
 0.45 cfs @
 12.08 hrs, Volume=
 1,622 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 0.45 cfs @
 12.08 hrs, Volume=
 1,622 cf

 Routed to Pond DMH5 :
 12.08 hrs, Volume=
 1,622 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 113.70' @ 12.08 hrs Flood Elev= 116.76'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.25'	<b>12.0" Round Culvert</b> L= 8.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 113.25' / 112.50' S= 0.0938 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.45 cfs @ 12.08 hrs HW=113.70' TW=113.57' (Dynamic Tailwater) -1=Culvert (Outlet Controls 0.45 cfs @ 1.93 fps)

## Summary for Pond CB9:

 Inflow Area =
 8,900 sf, 62.64% Impervious, Inflow Depth > 10.20" for 100-Year (2090) event

 Inflow =
 2.26 cfs @
 12.08 hrs, Volume=
 7,565 cf

 Outflow =
 2.26 cfs @
 12.08 hrs, Volume=
 7,565 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 2.26 cfs @
 12.08 hrs, Volume=
 7,565 cf

 Routed to Pond DMH5 :
 12.08 hrs, Volume=
 7,565 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 114.32' @ 12.08 hrs Flood Elev= 116.77'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.25'	12.0" Round Culvert
			L= 11.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 113.25' / 112.50' S= 0.0682 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.26 cfs @ 12.08 hrs HW=114.32' TW=113.57' (Dynamic Tailwater) ☐ 1=Culvert (Inlet Controls 2.26 cfs @ 2.87 fps)

## **Summary for Pond DMH1:**

Inflow Are	a =	20,155 sf	, 27.31% Impervious,	Inflow Depth > 9.14" for 100-Year (2090) event
Inflow	=	4.75 cfs @	12.09 hrs, Volume=	15,349 cf
Outflow	=	4.75 cfs @	12.09 hrs, Volume=	15,349 cf, Atten= 0%, Lag= 0.0 min
Primary	=	4.75 cfs @	12.09 hrs, Volume=	15,349 cf
Routed to Pond DMH2 :				

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 55.50' @ 12.09 hrs Flood Elev= 57.00'

Device Routing Invert Outlet Devices	
#1 Primary 51.40' <b>12.0'' Round Culvert</b> L= 123.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 51.40' / 49.00' S= 0.0195 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf	

Primary OutFlow Max=4.67 cfs @ 12.09 hrs HW=55.45' TW=52.60' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 4.67 cfs @ 5.94 fps)

## Summary for Pond DMH10:

Inflow Are	ea =	114,705 sf	, 53.15% Impervious,	Inflow Depth > 9.65"	for 100-Year (2090) event
Inflow	=	12.13 cfs @	12.31 hrs, Volume=	92,210 cf	· · ·
Outflow	=	12.13 cfs @	12.31 hrs, Volume=	92,210 cf, Atte	n= 0%, Lag= 0.0 min
Primary	=	12.13 cfs @	12.31 hrs, Volume=	92,210 cf	-
Routed to Pond DMH11 :					

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 82.81' @ 12.31 hrs Flood Elev= 83.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	78.80'	<b>18.0" Round Culvert</b> L= 109.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 78.80' / 77.71' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=12.13 cfs @ 12.31 hrs HW=82.81' TW=74.77' (Dynamic Tailwater) -1=Culvert (Inlet Controls 12.13 cfs @ 6.86 fps)

#### Summary for Pond DMH11:

Inflow Area = 181,870 sf, 50.54% Impervious, Inflow Depth > 9.69" for 100-Year (2090) event Inflow = 21.50 cfs @ 12.10 hrs, Volume= 146,910 cf Outflow = 21.50 cfs @ 12.10 hrs, Volume= 146,910 cf, Atten= 0%, Lag= 0.0 min Primary = 21.50 cfs @ 12.10 hrs, Volume= 146,910 cf Routed to Pond DMH13 : Pouting by Dyn Star Ind method. Time Spane 0.00 24.00 hrs. dt= 0.01 hrs. (2)

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 74.93' @ 12.10 hrs Flood Elev= 81.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	72.85'	<b>30.0" Round Culvert</b> L= 285.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 72.85' / 70.00' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=21.48 cfs @ 12.10 hrs HW=74.93' TW=72.19' (Dynamic Tailwater) -1=Culvert (Inlet Controls 21.48 cfs @ 4.91 fps)

#### Summary for Pond DMH12:

 Inflow Area =
 67,165 sf, 46.08% Impervious, Inflow Depth > 9.77" for 100-Year (2090) event

 Inflow =
 15.75 cfs @
 12.09 hrs, Volume=
 54,701 cf

 Outflow =
 15.75 cfs @
 12.09 hrs, Volume=
 54,701 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 15.75 cfs @
 12.09 hrs, Volume=
 54,701 cf

 Routed to Pond DMH11 :
 54,701 cf
 54,701 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 76.02' @ 12.09 hrs Flood Elev= 81.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	24.0" Round Culvert
			L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.00' / 72.90' S= 0.0167 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=15.73 cfs @ 12.09 hrs HW=76.01' TW=74.93' (Dynamic Tailwater) -1=Culvert (Inlet Controls 15.73 cfs @ 5.01 fps)

#### Summary for Pond DMH13:

 Inflow Area =
 181,870 sf, 50.54% Impervious, Inflow Depth > 9.69" for 100-Year (2090) event

 Inflow =
 21.50 cfs @
 12.10 hrs, Volume=
 146,910 cf

 Outflow =
 21.50 cfs @
 12.10 hrs, Volume=
 146,910 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 21.50 cfs @
 12.10 hrs, Volume=
 146,910 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 21.50 cfs @
 12.10 hrs, Volume=
 146,910 cf

 Routed to Pond DMH14 :
 12.10 hrs, Volume=
 146,910 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

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Peak Elev= 72.21' @ 12.17 hrs Flood Elev= 88.50'

 
 Device
 Routing
 Invert
 Outlet Devices

 #1
 Primary
 69.85'
 **30.0'' Round Culvert** L= 161.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 69.85' / 68.25' S= 0.0099 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=21.48 cfs @ 12.10 hrs HW=72.19' TW=70.86' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 21.48 cfs @ 5.83 fps)

#### **Summary for Pond DMH14:**

 Inflow Area =
 241,215 sf, 44.67% Impervious, Inflow Depth > 9.42" for 100-Year (2090) event

 Inflow =
 31.53 cfs @
 12.17 hrs, Volume=
 189,391 cf

 Outflow =
 31.53 cfs @
 12.17 hrs, Volume=
 189,391 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 31.53 cfs @
 12.17 hrs, Volume=
 189,391 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 31.53 cfs @
 12.17 hrs, Volume=
 189,391 cf

 Routed to Pond DMH15 :
 12.17 hrs, Volume=
 189,391 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 71.03' @ 12.17 hrs Flood Elev= 81.25'

Device	Routing	Invert	Outlet Devices
<u>#1</u>	Primary		<b>30.0" Round Culvert</b> L= 147.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 68.00' / 66.30' S= 0.0116 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=31.51 cfs @ 12.17 hrs HW=71.03' TW=69.08' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 31.51 cfs @ 6.42 fps)

#### Summary for Pond DMH15:

 Inflow Area =
 241,215 sf, 44.67% Impervious, Inflow Depth > 9.42" for 100-Year (2090) event

 Inflow =
 31.53 cfs @
 12.17 hrs, Volume=
 189,391 cf

 Outflow =
 31.53 cfs @
 12.17 hrs, Volume=
 189,391 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 31.53 cfs @
 12.17 hrs, Volume=
 189,391 cf

 Routed to Pond DMH16 :
 12.17 hrs, Volume=
 189,391 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 69.08' @ 12.17 hrs Flood Elev= 76.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	66.05'	30.0" Round Culvert
			L= 99.0' CPP, square edge headwall, Ke= 0.500
			Inlet / Outlet Invert= 66.05' / 62.75' S= 0.0333 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

**Primary OutFlow** Max=31.51 cfs @ 12.17 hrs HW=69.08' TW=61.03' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 31.51 cfs @ 6.42 fps)

#### **Summary for Pond DMH16:**

Inflow Are	ea =	241,215 sf	, 44.67% Impervious,	Inflow Depth > 9.42"	for 100-Year (2090) event
Inflow	=	31.53 cfs @	12.17 hrs, Volume=	189,391 cf	
Outflow	=	31.53 cfs @	12.17 hrs, Volume=	189,391 cf, Atter	n= 0%, Lag= 0.0 min
Primary	=	31.53 cfs @	12.17 hrs, Volume=	189,391 cf	
Routed	d to Por	nd DMH17 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 61.03' @ 12.17 hrs Flood Elev= 68.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	<b>30.0" Round Culvert</b> L= 62.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 58.00' / 54.70' S= 0.0532 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=31.51 cfs @ 12.17 hrs HW=61.03' TW=57.03' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 31.51 cfs @ 6.42 fps)

#### Summary for Pond DMH17:

Inflow Area =		241,215 sf	, 44.67% Impervious,	Inflow Depth > 9.42" f	or 100-Year (2090) event
Inflow	=	31.53 cfs @	12.17 hrs, Volume=	189,391 cf	
Outflow	=	31.53 cfs @	12.17 hrs, Volume=	189,391 cf, Atten=	0%, Lag= 0.0 min
Primary	=	31.53 cfs @	12.17 hrs, Volume=	189,391 cf	-
Routed to Pond IB.1 :					

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 57.03' @ 12.17 hrs Flood Elev= 61.20'

Device	Routing	Invert	Outlet Devices
<u></u> #1	Primary		<b>30.0" Round Culvert</b> L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.00' / 53.50' S= 0.0417 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

Primary OutFlow Max=31.51 cfs @ 12.17 hrs HW=57.03' TW=51.86' (Dynamic Tailwater) -1=Culvert (Inlet Controls 31.51 cfs @ 6.42 fps)

#### Summary for Pond DMH18:

Inflow Area = 20,175 sf, 73.83% Impervious, Inflow Depth > 10.50" for 100-Year (2090) event Inflow 5.17 cfs @ 12.08 hrs. Volume= 17.652 cf = 5.17 cfs @ 12.08 hrs, Volume= Outflow = 17,652 cf. Atten= 0%, Lag= 0.0 min 5.17 cfs @ 12.08 hrs, Volume= Primary = 17.652 cf Routed to Pond DMH4 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 114.87' @ 12.08 hrs Flood Elev= 116.73' Device Routing Invert Outlet Devices #1 112.50' 12.0" Round Culvert L= 242.0' Ke= 0.500 Primary Inlet / Outlet Invert= 112.50' / 90.25' S= 0.0919 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=5.16 cfs @ 12.08 hrs HW=114.86' TW=91.90' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 5.16 cfs @ 6.57 fps)

#### Summary for Pond DMH19:

 Inflow Area =
 59,345 sf, 26.68% Impervious, Inflow Depth > 8.59" for 100-Year (2090) event

 Inflow =
 11.17 cfs @
 12.19 hrs, Volume=
 42,480 cf

 Outflow =
 11.17 cfs @
 12.19 hrs, Volume=
 42,480 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 11.17 cfs @
 12.19 hrs, Volume=
 42,480 cf

 Routed to Pond DMH14 :
 12.19 hrs, Volume=
 42,480 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 75.47' @ 12.19 hrs Flood Elev= 80.25'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	<b>18.0" Round Culvert</b> L= 133.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.00' / 69.90' S= 0.0233 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=11.17 cfs @ 12.19 hrs HW=75.47' TW=71.02' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 11.17 cfs @ 6.32 fps)

#### **Summary for Pond DMH2:**

 Inflow Area =
 20,155 sf, 27.31% Impervious, Inflow Depth > 9.14" for 100-Year (2090) event

 Inflow =
 4.75 cfs @
 12.09 hrs, Volume=
 15,349 cf

 Outflow =
 4.75 cfs @
 12.09 hrs, Volume=
 15,349 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 4.75 cfs @
 12.09 hrs, Volume=
 15,349 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 4.75 cfs @
 12.09 hrs, Volume=
 15,349 cf

 Routed to Pond IB.1 :
 12.09 hrs, Volume=
 15,349 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

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 100-Year (2090) Rainfall=11.70"

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Peak Elev= 52.67' @ 12.10 hrs Flood Elev= 52.77'

 Device
 Routing
 Invert
 Outlet Devices

 #1
 Primary
 48.67'
 **15.0" Round Culvert** L= 64.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 48.67' / 47.50' S= 0.0183 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.74 cfs @ 12.09 hrs HW=52.60' TW=51.57' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 4.74 cfs @ 3.86 fps)

#### Summary for Pond DMH20:

 Inflow Area =
 130,600 sf, 77.48% Impervious, Inflow Depth > 10.77" for 100-Year (2090) event

 Inflow =
 33.53 cfs @
 12.08 hrs, Volume=
 117,175 cf

 Outflow =
 33.53 cfs @
 12.08 hrs, Volume=
 117,175 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 33.53 cfs @
 12.08 hrs, Volume=
 117,175 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 33.53 cfs @
 12.08 hrs, Volume=
 117,175 cf

 Routed to Pond RG.1 :
 117,175 cf
 117,175 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 71.26' @ 12.08 hrs Flood Elev= 76.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.00'	<b>30.0" Round Culvert</b> L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 68.00' / 67.25' S= 0.0250 '/' Cc= 0.900 n= 0.013, Flow Area= 4.91 sf

Primary OutFlow Max=33.47 cfs @ 12.08 hrs HW=71.26' TW=67.38' (Dynamic Tailwater) -1=Culvert (Inlet Controls 33.47 cfs @ 6.82 fps)

#### Summary for Pond DMH3:

Inflow Area = 108,955 sf, 34.56% Impervious, Inflow Depth > 8.98" for 100-Year (2090) event Inflow 20.23 cfs @ 12.11 hrs. Volume= 81.523 cf = 20.23 cfs @ 12.11 hrs, Volume= 81,523 cf, Atten= 0%, Lag= 0.0 min Outflow = 20.23 cfs @ 12.11 hrs, Volume= = 81,523 cf Primarv Routed to Pond RG.1 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 72.37' @ 12.11 hrs Flood Elev= 73.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	68.50'	24.0" Round Culvert
			L= 140.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 68.50' / 67.50' S= 0.0071 '/' Cc= 0.900
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

**Primary OutFlow** Max=20.21 cfs @ 12.11 hrs HW=72.36' TW=67.44' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 20.21 cfs @ 6.43 fps)

#### **Summary for Pond DMH4:**

Inflow Area =		50,400 sf	, 42.40% Impervious,	Inflow Depth > 9.36" for 100-Ye	ear (2090) event
Inflow	=	11.94 cfs @	12.08 hrs, Volume=	39,307 cf	
Outflow	=	11.94 cfs @	12.08 hrs, Volume=	39,307 cf, Atten= 0%, Lag	= 0.0 min
Primary	=	11.94 cfs @	12.08 hrs, Volume=	39,307 cf	
Routed to Pond DMH3 :					

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 91.91' @ 12.08 hrs Flood Elev= 94.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.00'	<b>18.0" Round Culvert</b> L= 273.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 88.00' / 69.70' S= 0.0670 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=11.92 cfs @ 12.08 hrs HW=91.90' TW=72.25' (Dynamic Tailwater) ☐ 1=Culvert (Inlet Controls 11.92 cfs @ 6.75 fps)

#### Summary for Pond DMH5:

Inflow Are	a =	10,600 sf	, 68.63% Impervious,	Inflow Depth > 10.40" for 100-Year (2090) event
Inflow	=	2.71 cfs @	12.08 hrs, Volume=	9,187 cf
Outflow	=	2.71 cfs @	12.08 hrs, Volume=	9,187 cf, Atten= 0%, Lag= 0.0 min
Primary	=	2.71 cfs @	12.08 hrs, Volume=	9,187 cf
Routed	to Pond	DMH6 :		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 113.57' @ 12.08 hrs Flood Elev= 116.06'

Device	Routing	Invert	Outlet Devices
#1	Primary	112.25'	<b>12.0" Round Culvert</b> L= 290.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 112.25' / 85.90' S= 0.0909 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.70 cfs @ 12.08 hrs HW=113.57' TW=88.01' (Dynamic Tailwater) -1=Culvert (Inlet Controls 2.70 cfs @ 3.44 fps)

#### Summary for Pond DMH6:

Inflow Area = 19,630 sf, 75.93% Impervious, Inflow Depth > 10.74" for 100-Year (2090) event Inflow 5.08 cfs @ 12.08 hrs. Volume= 17.571 cf = 5.08 cfs @ 12.08 hrs, Volume= Outflow = 17,571 cf, Atten= 0%, Lag= 0.0 min 5.08 cfs @ 12.08 hrs, Volume= Primary = 17,571 cf Routed to Pond DMH7 : Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 88.22' @ 12.11 hrs Flood Elev= 89.80' Device Routing Invert Outlet Devices #1 Primary 85.75' 15.0" Round Culvert L= 148.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 85.75' / 84.25' S= 0.0101 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.96 cfs @ 12.08 hrs HW=88.00' TW=86.78' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 4.96 cfs @ 4.04 fps)

#### **Summary for Pond DMH7:**

 Inflow Area =
 52,365 sf, 42.67% Impervious, Inflow Depth > 9.70" for 100-Year (2090) event

 Inflow =
 10.92 cfs @
 12.10 hrs, Volume=
 42,317 cf

 Outflow =
 10.92 cfs @
 12.10 hrs, Volume=
 42,317 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 10.92 cfs @
 12.10 hrs, Volume=
 42,317 cf

 Routed to Pond DMH8 :
 10.92 cfs
 12.10 hrs, Volume=

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 87.02' @ 12.12 hrs Flood Elev= 88.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	84.00'	24.0" Round Culvert
			L= 123.0' CPP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 84.00' / 81.60' S= 0.0195 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf

**Primary OutFlow** Max=10.34 cfs @ 12.10 hrs HW=86.97' TW=86.22' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 10.34 cfs @ 3.29 fps)

#### Summary for Pond DMH8:

 Inflow Area =
 67,475 sf, 39.32% Impervious, Inflow Depth > 9.62" for 100-Year (2090) event

 Inflow =
 14.51 cfs @
 12.10 hrs, Volume=
 54,067 cf

 Outflow =
 14.51 cfs @
 12.10 hrs, Volume=
 54,067 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 14.51 cfs @
 12.10 hrs, Volume=
 54,067 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 14.51 cfs @
 12.10 hrs, Volume=
 54,067 cf

 Routed to Pond WB.1 :
 54,067 cf
 54,067 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

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Peak Elev= 86.30' @ 12.13 hrs Flood Elev= 86.70'

#1 Primary 81.50' <b>24.0" Round Culvert</b> L= 63.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 81.50' / 81.00' S= 0.0079 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf	

Primary OutFlow Max=14.49 cfs @ 12.10 hrs HW=86.18' TW=84.70' (Dynamic Tailwater) **1=Culvert** (Inlet Controls 14.49 cfs @ 4.61 fps)

#### Summary for Pond DMH9:

Inflow Area =		34,430 sf	,100.00% Impervious,	Inflow Depth > 11.45" for 100-Year (2090) event
Inflow	=	9.09 cfs @	12.08 hrs, Volume=	32,851 cf
Outflow	=	9.09 cfs @	12.08 hrs, Volume=	32,851 cf, Atten= 0%, Lag= 0.0 min
Primary	=	9.09 cfs @	12.08 hrs, Volume=	32,851 cf
Routed	to Pond	d WB.1 :		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 86.53' @ 12.10 hrs Flood Elev= 88.51'

Device	Routing	Invert	Outlet Devices
#1	Primary	83.50'	<b>18.0" Round Culvert</b> L= 168.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 83.50' / 80.50' S= 0.0179 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Primary OutFlow Max=9.08 cfs @ 12.08 hrs HW=86.45' TW=84.60' (Dynamic Tailwater) -1=Culvert (Outlet Controls 9.08 cfs @ 5.14 fps)

#### Summary for Pond IB.1:

575,755 sf, 44.26% Impervious, Inflow Depth > 9.36" for 100-Year (2090) event Inflow Area = 91.17 cfs @ 12.15 hrs, Volume= Inflow = 449,311 cf 88.53 cfs @ 12.19 hrs, Volume= 433,553 cf, Atten= 3%, Lag= 2.6 min Outflow = 0.32 cfs @ 12.19 hrs, Volume= Discarded = 14,375 cf Primary = 88.20 cfs @ 12.19 hrs, Volume= 419,178 cf Routed to Reach PDP1 : Sawmill Brook

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 51.87' @ 12.19 hrs Surf.Area= 13,742 sf Storage= 56,170 cf

Plug-Flow detention time= 43.3 min calculated for 433,373 cf (96% of inflow) Center-of-Mass det. time= 23.3 min ( 833.0 - 809.8 )

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Volume	Invert	Avail.Sto	rage Stora	age Description		
#1	46.00'	58,01	16 cf Cus	tom Stage Data (P	rismatic)Listed below (Re	ecalc)
Elevatio (fee		urf.Area (sq-ft)	Inc.Store (cubic-feet	-		
46.0	00	5,730	(	) 0		
48.0		8,209	13,939			
50.0		10,964	19,173	,		
52.0	00	13,940	24,904	58,016		
Device	Routing	Invert	Outlet Dev	vices		
#1	Primary	47.10'		und Culvert		
					headwall, Ke= 0.900	
					6.10' S= 0.0115 '/' Cc=	
				0	ooth interior, Flow Area=	3.14 sf
#2	Device 1	51.00'	-	I.0" Horiz. Orifice/		
	During	40.00		weir flow at low he		· · · · · · · · · · · · · · · · · · ·
#3	Device 1	48.00'			ctangular Weir 0 End Co	
#4	Primary	51.00'	Head (fee	t) 0.20 0.40 0.60	road-Crested Rectangu 0.80 1.00 1.20 1.40 1.6 70 2.69 2.68 2.69 2.67	60
#5	Discarded	46.00'			Surface area Phase-In:	

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Discarded OutFlow Max=0.32 cfs @ 12.19 hrs HW=51.87' (Free Discharge) **5=Exfiltration** (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=88.19 cfs @ 12.19 hrs HW=51.87' TW=0.00' (Dynamic Tailwater) -1=Culvert (Inlet Controls 23.18 cfs @ 7.38 fps)

-2=Orifice/Grate (Passes < 17.93 cfs potential flow)

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-3=Sharp-Crested Rectangular Weir (Passes < 99.45 cfs potential flow)

4=Broad-Crested Rectangular Weir (Weir Controls 65.01 cfs @ 2.50 fps)

#### Summary for Pond RG.1:

293,300 sf, 48.27% Impervious, Inflow Depth > 9.66" for 100-Year (2090) event Inflow Area = 65.22 cfs @ 12.09 hrs, Volume= Inflow = 236,181 cf 52.85 cfs @ 12.15 hrs, Volume= Outflow = 229,941 cf, Atten= 19%, Lag= 3.9 min Primary 52.85 cfs @ 12.15 hrs, Volume= = 229,941 cf Routed to Pond IB.1:

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 67.50' @ 12.15 hrs Surf.Area= 20,998 sf Storage= 24,890 cf

Plug-Flow detention time= 37.8 min calculated for 229,846 cf (97% of inflow) Center-of-Mass det. time= 21.7 min (793.2 - 771.6)

Volume	Invert	Avail.Storage	Storage Description
#1	66.25'	24,916 cf	Custom Stage Data (Irregular)Listed below (Recalc)

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Elevation (feet)		Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft <u>)</u>
66.2	25	18,885	560.0	0	0	18,885
67.	50	21,000	582.0	24,916	24,916	21,008
Device	Routing	Invert	Outlet	Devices		
#1	Primary	66.83' <b>10.0' long x 10.0' breadth Broad-Crested Rectangular V</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60			0 1.40 1.60	
#2	Primary	60.00'	Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.6 60.00' <b>30.0'' Round Culvert</b> L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 60.00' / 47.00' S= 0.1857 '/' Cc n= 0.013, Flow Area= 4.91 sf			0.500

#3 Device 2 66.52' **24.0'' x 24.0'' Horiz. Orifice/Grate X 2.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=52.82 cfs @ 12.15 hrs HW=67.50' TW=51.84' (Dynamic Tailwater) 1=Broad-Crested Rectangular Weir (Weir Controls 14.73 cfs @ 2.20 fps) 2=Culvert (Passes 38.10 cfs of 59.08 cfs potential flow)

**Galaxies (Orifice Controls 38.10 cfs @ 4.76 fps)** 

#### Summary for Pond RG.2:

Inflow Are	a =	48,640 sf,	, 29.06% Impervious,	Inflow Depth > 9.14"	for 100-Year (2090) event
Inflow	=	9.49 cfs @	12.16 hrs, Volume=	37,041 cf	
Outflow	=	9.19 cfs @	12.19 hrs, Volume=	35,551 cf, Atte	en= 3%, Lag= 1.8 min
Primary	=	9.19 cfs @	12.19 hrs, Volume=	35,551 cf	-
Routed	to Pond	d DMH19 :			

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 79.50' @ 12.19 hrs Surf.Area= 2,421 sf Storage= 2,536 cf

Plug-Flow detention time= 39.1 min calculated for 35,536 cf (96% of inflow) Center-of-Mass det. time= 16.2 min ( 810.0 - 793.8 )

Volume	Inv	ert Avail.Sto	orage					
#1	78.0	00' 3,8	55 cf	Custom S	Stage Data (P	rismatic)Listed below (Recalc)		
Elevatio (fee		Surf.Area (sq-ft)		.Store c-feet)	Cum.Store (cubic-feet)			
78.0	00	950		0	0			
80.0	00	2,905		3,855	3,855			
Device	Routing	Invert	Outle	et Devices				
#1	Device 2	2 79.00'				Grate C= 0.600		
#2	Primary	75.00'	<b>15.0'</b> L= 40 Inlet	Limited to weir flow at low heads <b>15.0" Round Culvert</b> L= 46.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 75.00' / 73.10' S= 0.0413 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf				

Primary OutFlow Max=9.19 cfs @ 12.19 hrs HW=79.50' TW=75.47' (Dynamic Tailwater) -2=Culvert (Inlet Controls 9.19 cfs @ 7.49 fps) -1=Orifice/Grate (Passes 9.19 cfs of 9.38 cfs potential flow)

#### Summary for Pond RG.3:

Inflow Are	a =	10,705 sf,	15.88% Impervious,	Inflow Depth > 8.73" for 100-Year (2090) event
Inflow	=	2.02 cfs @	12.16 hrs, Volume=	7,789 cf
Outflow	=	1.98 cfs @	12.18 hrs, Volume=	6,929 cf, Atten= 2%, Lag= 1.3 min
Primary	=	1.98 cfs @	12.18 hrs, Volume=	6,929 cf
Routed	to Pond	d DMH19 :		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 79.18' @ 12.18 hrs Surf.Area= 1,309 sf Storage= 1,072 cf Flood Elev= 80.00' Surf.Area= 1,865 sf Storage= 2,375 cf

Plug-Flow detention time= 81.6 min calculated for 6,929 cf (89% of inflow) Center-of-Mass det. time= 30.3 min ( 830.2 - 799.9 )

Volume	Inve	rt Avail.Stor	rage Storage					
#1	78.00	D' 2,37	75 cf Custom	Stage Data (Pri	smatic)Listed below (Recalc)			
Elevatio		Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)				
78.0	00	510	0	0				
80.0	00	1,865	2,375	2,375				
Device	Routing	Invert	Outlet Devices	6				
#1	Device 2	79.00'		Horiz. Orifice/G				
#2	Primary	75.50'	12.0" Round		ds headwall, Ke= 0.900			
			Inlet / Outlet In	vert= 75.50' / 73	3.20' S= 0.0107 '/' Cc= 0.900 oth interior, Flow Area= 0.79 sf			

Primary OutFlow Max=1.98 cfs @ 12.18 hrs HW=79.18' TW=75.47' (Dynamic Tailwater) -2=Culvert (Passes 1.98 cfs of 4.39 cfs potential flow) -1=Orifice/Grate (Weir Controls 1.08 cfs @ 1.38 fps)

**1=Orifice/Grate** (Weir Controls 1.98 cfs @ 1.38 fps)

#### Summary for Pond TD & DMH12:

 Inflow Area =
 17,710 sf, 59.60% Impervious, Inflow Depth > 10.07" for 100-Year (2090) event

 Inflow =
 4.47 cfs @
 12.08 hrs, Volume=
 14,864 cf

 Outflow =
 4.47 cfs @
 12.08 hrs, Volume=
 14,864 cf, Atten= 0%, Lag= 0.0 min

 Primary =
 4.47 cfs @
 12.08 hrs, Volume=
 14,864 cf

 Routed to Pond DMH12 :
 12.08 hrs, Volume=
 14,864 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2

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Peak Elev= 76.74' @ 12.09 hrs Flood Elev= 77.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.75'	<b>15.0" Round Culvert</b> L= 106.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.75' / 73.25' S= 0.0047 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
			•

Primary OutFlow Max=4.38 cfs @ 12.08 hrs HW=76.70' TW=75.99' (Dynamic Tailwater) **1=Culvert** (Outlet Controls 4.38 cfs @ 3.57 fps)

#### Summary for Pond WB.1:

Inflow Are	a =	114,705 sf	, 53.15% Impervious,	Inflow Depth > 10.02" for 100-Year (2090) event
Inflow	=	26.37 cfs @	12.09 hrs, Volume=	95,800 cf
Outflow	=	12.13 cfs @	12.31 hrs, Volume=	92,210 cf, Atten= 54%, Lag= 13.1 min
Primary	=	12.13 cfs @	12.31 hrs, Volume=	92,210 cf
Routed	to Por	nd DMH10 :		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2 Peak Elev= 85.43' @ 12.30 hrs Surf.Area= 9,561 sf Storage= 33,778 cf Flood Elev= 86.00' Surf.Area= 10,339 sf Storage= 39,438 cf

Plug-Flow detention time= 129.3 min calculated for 92,210 cf (96% of inflow) Center-of-Mass det. time= 107.0 min (873.7 - 766.7)

Volume	Inver			Description			
#1	80.50	39,43	38 cf Custom	i Stage Data (Pi	r <b>ismatic)</b> Listed below (Recalc)		
Elevation Surf.Area (feet) (sq-ft)		Inc.Store (cubic-feet)	-				
80.5		4,635	0	0			
82.0		5,950	7,939	7,939			
84.0		7,605	13,555	21,494			
86.0	00	10,339	17,944	39,438			
Device	Routing	Invert	Outlet Device	s			
#1 Primary 80.50'		80.50'	<b>12.0" Round Culvert</b> L= 46.0' CPP, projecting, no headwall, Ke= 0.900				
			Inlet / Outlet Invert= 80.50' / 78.90' S= 0.0348 '/' Cc= 0.900				
			n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf				
#2	Device 1	83.90'	4.0' long Sharp-Crested Rectangular Weir 0 End Contraction(s)				
#3	Device 1	80.80'	6.0" Vert. Orifice/Grate C= 0.600 Limited to weir flow at low heads				
#4	Device 1	85.00'	-		<b>ce/Grate</b> C= 0.600		
#5	Primary	85.00'	<b>10.0' long x</b> Head (feet) 0	.20 0.40 0.60	ads <b>road-Crested Rectangular Weir</b> 0.80 1.00 1.20 1.40 1.60 70 2.69 2.68 2.69 2.67 2.64		

Primary OutFlow Max=12.14 cfs @ 12.31 hrs HW=85.43' TW=82.81' (Dynamic Tailwater)

-1=Culvert (Inlet Controls 4.83 cfs @ 6.15 fps)

**2=Sharp-Crested Rectangular Weir** (Passes < 24.78 cfs potential flow)

-3=Orifice/Grate (Passes < 1.53 cfs potential flow)

**4=Orifice/Grate** (Passes < 1.82 cfs potential flow)

-5=Broad-Crested Rectangular Weir (Weir Controls 7.30 cfs @ 1.69 fps)



# Appendix VI HydroCAD Output for Recharge Volume

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Elevation		Storage	Elevation	Surface	Storage
(feet		(cubic-feet)	(feet)	(sq-ft)	(cubic-feet)
46.00	) 5,730	0	49.70	10,551	29,885
46.10	5,854	579	49.80	10,688	30,947
46.20	) 5,978	1,171	49.90	10,826	32,022
46.30	0 6,102	1,775	50.00	10,964	33,112
46.40		2,391	50.10	11,113	34,216
46.50		3,020	50.20	11,262	35,335
46.60		3,661	50.30	11,410	36,468
46.70	) 6,598	4,315	50.40	11,559	37,617
46.80		4,981	50.50	11,708	38,780
46.90		5,659	50.60	11,857	39,958
47.00		6,350	50.70	12,006	41,151
47.10		7,053	50.80	12,154	42,359
47.20		7,768	50.90	12,303	43,582
47.30		8,496	51.00	12,452	44,820
47.40		9,237	51.10	12,601	46,073
47.50		9,989	51.20	12,750	47,340
47.60		10,755	51.30	12,898	48,623
47.70	7,837	11,532	51.40	13,047	49,920
47.80	) 7,961	12,322	51.50	13,196	51,232
47.90		13,124	51.60	13,345	52,559
Recharge vol 48.00	8,209	13,939	51.70	13,494	53,901
48.10	8,347	14,767	51.80	13,642	55,258
48.20		15,608	51.90	13,791	56,629
48.30	) 8,622	16,464	52.00	13,940	58,016
48.40	) 8,760	17,333			
48.50	) 8,898	18,216			
48.60		19,112			
48.70	) 9,173	20,023			
48.80	) 9,311	20,947			
48.90	9,449	21,885			
49.00	9,587	22,837			
49.10	9,724	23,802			
49.20	9,862	24,782			
49.30		25,775			
49.40		26,782			
49.50		27,802			
49.60	) 10,413	28,837			

#### Stage-Area-Storage for Pond IB.1:



#### Infiltration Basin 1

80.50	4,635	0
80.60	4,723	468
80.70	4,810	945
80.80	4,898	1,430
80.90	4,986	1,924
81.00	5,073	2,427
81.10	5,161	2,939
81.20	5,249	3,459
81.30	5,336	3,989
81.40	5,424	4,527
81.50	5,512	5,073
81.60	5,599	5,629
81.70	5,687	6,193
81.80	5,775	6,766
81.90	5,862	7,348
82.00	5,950	7,939
82.10	6,033	8,538
82.20	6,116	9,145
82.30	6,198	9,761
82.40	6,281	10,385
82.50	6,364	11,017
82.60	6,446	11,658
82.70	6,529	12,306
82.80	6,612	12,964
82.90	6,695	13,629
83.00	6,778	14,303
83.10	6,860	14,984

#### Rain Garden 2

Elevation	Surface	Storage
(feet)	(sq-ft)	(cubic-feet)
78.00	950	0
78.10	1,048	100
78.20	1,146	210
78.30	1,243	329
78.40	1,341	458
78.50	1,439	597
78.60	1,536	746
78,70	1,634	904
78.80	1,732	1,073
78.90	1,830	1,251
79.00	1,928	1,439
79.10	2,025	1,636
79.20	2,123	1,844
79.30	2,221	2,061
79.40	2,319	2,288
79.50	2,416	2,525
79.60	2,514	2,771
79.70	2,612	3,027
79.80		3,027
79.90	2,709	
	2,807	3,569
80.00	2,905	3,855

#### Rain Garden 1

Elevation	Surface	Storage
(feet)	(sq-ft)	(cubic-feet)
66.25	18,885	0
66.30	18,967	946
66.35	19,050	1,897
66.40	19,133	2,851
66.45	19,216	3,810
66.50	19,299	4,773
66.55	19,382	5,740
66.60	19,466	6,711
66.65	19,550	7,687
66.70	19,633	8,666
66.75	19,718	9,650
66.80	19,802	10,638
66.85	19,886	11,630
66.90	19,971	12,626
66.95	20,056	13,627
67.00	20,141	14,632
67.05	20,226	15,641
67.10	20,311	16,655
67.15	20,396	17,672
67.20	20,482	18,694

#### Rain Garden 3

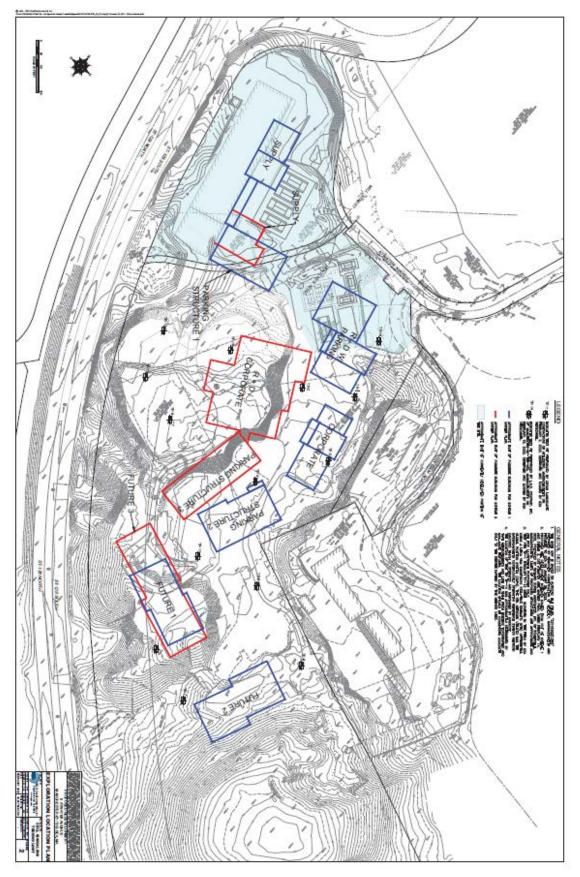
Elevation	Surface	Storage
(feet)	(sq-ft)	(cubic-feet)
78.00	510	0
78.10	578	54
78.20	646	116
78.30	713	183
78.40	781	258
78.50	849	340
78.60	916	428
78.70	984	523
78.80	1,052	625
78.90	1,120	733
79.00	1,188	849
79.10	1,255	971
79.20	1,323	1,100
79.30	1,391	1,235
79.40	1,459	1,378
79.50	1,526	1,527
79.60	1,594	1,683
79.70	1,662	1,846
79.80	1,729	2,016
79.90	1,797	2,192
80.00	1,865	2,375

# Appendix VII Riprap outfall sizing calcs

RIP RAP OUTLET SIZING @25 yr(2090) storm- Cell Signaling								
Apron	Q(cfs)	D0(ft)	Tw(ft)	La(ft)	Wstart(ft)	Wend(ft)	D50(in)	
Fes2	7.07	1.50	0.75	17.43	4.50	21.93	0.23	use 6" stone
Fes5	3.51	1.25	0.38	13.27	3.75	17.02	0.22	use 6" stone
Fes9	1.49	1.00	0.25	9.68	3.00	12.68	0.13	use 6" stone
Plunge Pool	Q(CFS)	dia (d)	F(depth)	С	В	Туре	D50(in)	
Fes1	10.87	2.00	1.00	12	10	1	0.22	use 6" stone
Fes3	14.84	2	1	12	10	1	0.33	use 6" stone
Fes4	25.72	2.5	1.25	15	12.5	1	0.44	use 6" stone
Fes6	29.1	2.5	1.25	15	12.5	1	0.51	use 6" stone
Fes7	22.31	2	1	12	10	1	0.57	use 8" stone
Fes 8	33.61	2.5	1.25	15	12.5	1	0.62	use 8" stone



# **Appendix VIII Geotechnical Report**



Depth       Soil Description       No.       Test Data       Excav. Effort         - 0       0.9'       Black, F-C GRAVEL and Asphalt MILLINGS, some F-C Sand (Asphalt FILL)       M         - 1'       Brown, F-C SAND, some F-C Gravel, little Cobbles, little Silt       D         - 2'	TP-1 of 1 18.0175487.00 MPS
Weather       Cloudy, 30's       Operator Make Capacity       Make no.25 CY       State No.el       Ground Elev. Time Started         Depth       Soil Description       Sample no.9       Field Test Data       Excav. Effort         0       Black, F-C.GRAVEL and Asphalt MILLINGS, some F-C Sand (Asphalt FILL)       M         2       2.6'       M       D         3'       Brown, F-C SAND, some F-C Gravel, little Cobbles, little Silt       D         2.6'       Excavator refusal on apparent Bedrock.       D         3'       Bottom of Test Pit 2.6 feet below ground surface.       D         6'	WIT J
Depth       Soil Description       No.       Test Data       Excav. Effort         - 0       0.9'       Black, F-C GRAVEL and Asphalt MILLINGS, some F-C Sand (Asphalt FILL)       M         - 2'       Brown, F-C SAND, some F-C Gravel, little Cobbles, little Silt       D         - 2'       (FILL)       D         - 3'       Excavator refusal on apparent Bedrock.       D         - 4'       -       -         - 5'       -       -         - 6'       -       -         - 7'       -       -         - 8'       -       -         - 9'       -       -         - 10'       -       -         - 11'       -       -         - 12'       -       -         - 13'       -       -         - 16'       -       -         - 16'       -       -         - 16'       -       -         - 16'       -       -         - 16'       -       -         - 16'       -       -         - 16'       -       -         - 16'       -       -         - 16'       -       -	2/2/2022 73.0 0830 0900
0       9'       Black, F-C GRAVEL and Asphalt MILLINGS, some F-C Sand (Asphalt FILL)       M         1'       Brown, F-C SAND, some F-C Gravel, little Cobbles, little Silt (FILL)       D         2'       2.6'       D         3'       Excavator refusal on apparent Bedrock. Bottom of Test Pit 2.6 feet below ground surface.       D         4'       5'       G       D         6'       7'       G       D         8'       9'       D       D         10'       10'       D       D         11'       11'       D       D         12'       13'       D       D         15'       16'       D       D         16'       16'       D       D         16'       Count surface elevation surveyed by GZA using a Leica Viva Smartworx Real-Time Kinematic Differential GPS.       Z.Angular Cobbles and Boulders appeared to be fractured rock.	Boulders: Count/ Note Class No.
1'       Brown, F-C SAND, some F-C Gravel, little Silt       D         2'       2.6'       D         3'       Excavator refusal on apparent Bedrock.       D         4'       Bottom of Test Pit 2.6 feet below ground surface.       D         6'       -       -         7'       -       -         8'       -       -         9'       -       -         10'       -       -         11'       -       -         12'       -       -         13'       -       -         16'       -       -         16'       -       -         16'       -       -         1. Ground surface elevation surveyed by GZA using a Leica Viva Smartworx Real-Time Kinematic Differential GPS.       2. Angular Cobbles and Boulders appeared to be fractured rock.	3A 1
2       2.6'       D         3'       Excavator refusal on apparent Bedrock. Bottom of Test Pit 2.6 feet below ground surface.       D         4'	
3'       Bottom of Test Pit 2.6 feet below ground surface.         4'	7A 2
6'-       -         7'-       -         8'-       -         9'-       -         10'-       -         11'-       -         12'-       -         13'-       -         14'-       -         15'-       -         16'-       -         Notes:       -         1. Ground surface elevation surveyed by GZA using a Leica Viva Smartworx Real-Time Kinematic Differential GPS.         2. Angular Cobbles and Boulders appeared to be fractured rock.	2A 3
- 6' -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       - <td></td>	
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<ul> <li>10'-</li> <li>11'-</li> <li>12'-</li> <li>13'-</li> <li>14'-</li> <li>15'-</li> <li>16'-</li> </ul> Notes: 1. Ground surface elevation surveyed by GZA using a Leica Viva Smartworx Real-Time Kinematic Differential GPS. 2. Angular Cobbles and Boulders appeared to be fractured rock.	
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12' - 13' - 14' - 15' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16'	
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15'       Image: Constraint of the second seco	
16'       Image: Comparison of the second seco	
Notes:         1. Ground surface elevation surveyed by GZA using a Leica Viva Smartworx Real-Time Kinematic Differential GPS.         2. Angular Cobbles and Boulders appeared to be fractured rock.	
<ol> <li>Ground surface elevation surveyed by GZA using a Leica Viva Smartworx Real-Time Kinematic Differential GPS.</li> <li>Angular Cobbles and Boulders appeared to be fractured rock.</li> </ol>	
3. Test pit terminated at approximately 2.6 feet below ground surface (bgs) due to excavator refusal on apparent bedrock. Upon completion, test pit was backfi material in lifts and tamped with the heel of the excavator bucket.	illed with excavated
9.5'     Letter     Size Range     Used     F = Fine     () En       3.75'     A     6" - 17"     TRACE (TR.)     0 - 10%     C = Coarse     (X) N       Image: Comparison of the state of the stat	b to
NORTH     Excavation Effort EEasy MModerate DDifficuit     SOME (SO.)     20 - 35%     GR = Gray BN = Brown YEL = Yellow     (Hours) BN = Brown	
Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated.	<u> </u>

<b>2 2 2 3</b>	GZA GeoEnvironmental, Inc Engineers/Scientists		Cell	oosed Redevel Signaling Tech 8 Atwater Ave hester-by-the	nnology nue			Test Pit No Page No. File No. Checked B		1 o 18.01		1 7.00
	, MA 01913				,				/·		-	
GZA Rep	o. R. Bar	onowski	Contractor Operator		yan Landsca lingo Chamo			Date Ground Ele	ρv	2	2/2/20 74.2	
Weathe	r <u>Cloud</u>	dy, 30's	Make Capacity	CAT ~ 0.25 CY	Model Reach	315 LF ~ 15	R FT	Time Start	ed		0915 0945	5
Depth		S	Soil Descriptio	n			Sample No.	Field Test Data	Excav. Effort		nt/	Note No.
- 0	0.5' Black,	F-C GRAVEL and Asp			(Asphalt FILL	_)			D			
1'	B	Excavator refusal ottom of Test Pit 0.5										1, 2
2'												
— 3' —												
— 4' —												
— 5' —												
— 6' —												
7'												
<u> </u>												
— 9' —												
<u> </u>												
— 11' —												
<u> </u>												
<u> </u>												
— 14' —												
— 15' —												
<u> </u>												
2. Test pit	surface elevation surveyed b was terminated at approxima n time, encountering refusal a bucket.	ately 0.5 feet below gro	ound surface (bgs	) due to excavato	r refusal on ap	parent froze		•				
	Test Pit Plan 10.5' 3.3 A NORTH	A 6" - B 18" . C 36" and Excavation Effort EEasy	ication 17" - 36"	Propo US TRACE (TR.) LITTLE (LI.) SOME (SO.)		%	F = Fine M = Mediu C = Coarse V = Very F/M = Fine F/C = Fine GR = Gray BN = Brow	to medium to coarse n	( ( Ela Tim Rea	GROUNDWAT ) Encountered X ) Not Encour psed ne to ading nurs)	i ntered D to G	Depth o Ground- vater
		MModerate DDifficult		AND	35 - 50	%	YEL = Yello	w				
	ion lines represent approximate b ons of groundwater may occur due					ave been mad	le at times	and under cond	itions stated	I.		

GZN) 144 Elm Str	GZA GeoEnvironmental, Inc.	Cell	Proposed Redevelopment Cell Signaling Technology 8 Atwater Avenue Manchester-by-the-Sea, MA					TP-3 1 of 1 18.0175487.00 MPS		
Amesbury, GZA Rep. Weather		Contractor Operator Make Capacity		yan Landscaping lingo Chamorro Model <u>315 L</u> Reach <u>~ 15</u>		Date Ground El Time Start Time Com	ed	2/2/2 79 09 10	.1 50	
Depth		Soil Descriptio	n		Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.	
0 0	D.7' Black, F-C GRAVEL	and Asphalt MILLINGS,	some F-C Sand	(Asphalt FILL)			D			
1'	Brown, F-C SAND,	little F-C Gravel, litle Cc (FILL)	bbles, little Silt				М	2A 6A	1	
— 2' —	2.7'	()					D			
— 3' —	Gray, COBBLES a	nd F-C SAND, some Gra (BLAST ROCK)	avel, trace Silt				D	7A/2B 9A/1B	2	
4'	4.4'				_		D			
5'		or refusal on apparent I st Pit 4.4 feet below gro						3A	3	
- 6'										
— 7' —										
9' 10'										
11'										
— 12' —										
— 13' <b>—</b>										
— 14' —										
— 15' —										
— 16' —										
Notes:										
<ol> <li>Ground :</li> <li>Angular (</li> <li>Test pit t</li> </ol>	surface elevation surveyed by GZA using a Cobbles and Boulders appeared to be fract erminated at approximately 4.4 feet belov lifts and tamped with the heel of the excav	ured rock. v ground surface (bgs) due			. Upon cor	npletion, test	pit was bac	kfilled with exc	avated	
т —	11' Letter	der Class Size Range Classification		ed	Abbr F = Fine M = Mediu	reviations	()	GROUNDWATER		
L	3.3' Designation A B C	6" - 17" 18" - 36" 36" and Larger	TRACE (TR.) LITTLE (LI.)	0 - 10% 10 - 20%	C = Coarse V = Very		( X Elap Time		Depth to	
	NORTH EEas	on Effort Y	SOME (SO.)	20 - 35%	F/C = Fine GR = Gray BN = Brow	n	Read (Hou	ding	Ground- water	
	MDif	oderate	AND	35 - 50%	YEL = Yello	w	F			
	on lines represent approximate boundaries betw s of groundwater may occur due to factors othe				ade at times	and under cond	itions stated.			

GZN	GZA GeoEnvironmental, Ir	nc		oosed Redevel Signaling Tecl			Test Pit N	0	TP-4 L of	1	
	Engineers/Scientists			8 Atwater Ave			Page No. File No.		18.0175487.00		
144 Elm St	treet		Mano	hester-by-the	-Sea, MA		Checked E	Ву:	MPS		
Amesbury	, MA 01913										
GZA Rep	о. <u> </u>	ronowski	Contractor Operator		yan Landscap 1ingo Chamor		Date Ground El	<u>AV</u>		2022	
Weathe	r Clou	ıdy, 30's	Make	CAT	Model	315 LRR	Time Star			)20	
			Capacity	~0.25 CY	Reach	~ 15 FT	Time Com		10	)40	
Depth			Soil Descriptio	'n		Sampl No.	e Field Test Data	Excav.	Boulders: Count/	Note	
0	0.25' B	rown, F-C GRAVEL an						Effort	Class	No.	
— 1' —		, F-C GRAVEL and Asp			(Asphalt EILL)			D		1,	
1	1.7'	Excavator refusal						D			
2'		Bottom of Test Pit 1.									
<u> </u>											
4'											
— 5' —											
6'											
- 7'											
<u> </u>											
— 9' —											
<u> </u>											
11'											
— 12' —											
<u> </u>											
— 14' —											
— 15' —											
— 16' —											
Notes:											
2. Test pit	d surface elevation surveyed was terminated at approxin h time, encountering refusal bucket.	nately 1.7 feet below gro	ound surface (bgs	) due to excavato	r refusal on appa	arent frozen soil. T					
	Test Pit Plan 10.5'	Boulder Class Letter Size F	Range		ortions sed	Ab F = Fine	breviations		ROUNDWATER		
	3.5'	Designation Classif A 6" -	ication 17"	TRACE (TR.)	0 - 10%	M = Meo C = Coar	se		) Not Encountered		
	←──	B 18" C 36" and	- 36" Larger	LITTLE (LI.)	10 - 20%		ne to medium le to coarse	Elaps Time Read	to	Depth to Ground-	
	NORTH	Excavation Effort EEasy		SOME (SO.)	20 - 35%	GR = Gra BN = Bro	iy own	(Hou		water	
		MModerate DDifficult		AND	35 - 50%	YEL = Ye	llow				
Stratifier t	ion lines represent construction	boundarios boturas as 11-5	nos tronsitione			o hoon made at time	and under each				
	ion lines represent approximate ons of groundwater may occur d					ie been made at time	and under cont	הנוסוום שנפובט.			

144 Elm Str		Cell	oosed Redevel Signaling Tech 8 Atwater Ave hester-by-the	ninology nue		Test Pit No Page No. File No. Checked E	1	TP-5 of 18.01754 MPS	1 87.00
<u>Amesbury,</u> GZA Rep. Weather	R. Baronowski	Contractor Operator Make Capacity		yan Landscaping lingo Chamorro Model 315 Reach ~ 1!		Date Ground El Time Start Time Com	ed	7	/2022 9.3 100 130
Depth		Soil Descriptio	n		Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
- 0	0.25' Black, F-C GRAVEI	and Asphalt MILLINGS,	some F-C Sand	(Asphalt FILL)			M		
— 1' — — 2' —	Brown, COBBLES ar	nd F-C GRAVEL, some F-N	VI Sand, trace Si	lt			M/D	7A 20A/6B	1,
<u> </u>		(BLAST ROCK)					D	16A/2B	_
4'							D	11A	2, 3
5'	4.5' Bottom of T	est Pit 4.5 feet below gr	ound surface				М	4A	4
— 6' —									
— 7' —									-
— 8' —									
9'									
— 10' —									
— 11' —									
— 12' —									1
— 13' —									1
— 14' —									1
— 15' —									<u> </u>
— 16' —									
2. Staining 3. Groundv 4. Test pit t	surface elevation surveyed by GZA using observed on fractured rock at approxima vater observed seeping through test pit s erminated at approximately 4.5 feet belo tamped with the heel of the excavator bu	tely 3.5 feet below ground : idewalls at approximately 3 ow ground surface due to gr	surface (bgs). .9 feet bgs.		pon comple	tion, test pit v	vas backfille	d with excava	ted material
т С	10.5         Letter           3.75         A	ulder Class Size Range Classification 6" - 17"	Propo Us TRACE (TR.)		F = Fine M = Mediu C = Coarse		( X ) ( )	ROUNDWATER Encountered Not Encountered	
	B C	18" - 36" 36" and Larger	LITTLE (LI.)	10 - 20%	V = Very F/M = Fine F/C = Fine	to medium	Elaps Time Roadi	to	Depth to Ground-
	NORTH EE		SOME (SO.)	20 - 35%	GR = Gray BN = Brow	n	Readi (Hour	-s)	water
		Moderate Difficult	AND	35 - 50%	YEL = Yello	W	10	min	3.9 feet
	on lines represent approximate boundaries bet is of groundwater may occur due to factors oth				ade at times	and under cond	itions stated.	•	

GZA Rep.       R. Baronowski       Contractor       Cryan Landscaping       Date       2/2/2022         Weather       Cloudy, 30's       Make       CAT       Model       315 LRR       Time Started       1135         Capacity       ~ 0.25 CY       Reach       ~ 15 FT       Time Completed       1155	144 Elm Str Amesbury,		Cell E	Proposed Redevelopment Cell Signaling Technology 8 Atwater Avenue Manchester-by-the-Sea, MA					TP-6 1 of 18.0175487.00 MPS	
Deptity         Soil Description         No.         Test Data         Excav.         County/ No.         No.         Test Data         <			Operator Make	M CAT	ingo Chamorro Model 31		Ground El Time Start	ted	86 11	5.5 35
0         0.2         Black, F- GRAVEL and Apphat MLLINOS, some F-C Sand (Apphat FLL)           1         Brown, F-C SAND, some Cobbes, little / C-Gravel, little SBI, trace Brick, race Slit (SAND & GRAVEL)         0         3.4           2         Brown, F-C SAND, some Cobbes, little / C-Gravel, trace Slit (SAND & GRAVEL)         0         7.4           3.8         CRAVEL)         Brown, F-C SAND, some Cobbes, little / C-Gravel, trace Slit (SAND & GRAVEL)         0         7.4           4         Eccavator refusal on apparent Bedrock.         0         5.4         3           6         -         -         -         -           7         -         -         -         -         -           9         -         -         -         -         -         -           10         -         -         -         -         -         -           11         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         - <td>Depth</td> <td></td> <td>Soil Description</td> <td>n</td> <td></td> <td></td> <td></td> <td></td> <td>Count/</td> <td>Note</td>	Depth		Soil Description	n					Count/	Note
2         Brown, F-C SAND, some Cobbies, little F-C Gravel, trace slit (SAND & GRAVEL)         D         3.A         2.           4         Brown, F-C SAND, some Cobbies, little F-C Gravel, trace slit (SAND & GRAVEL)         D         5.A         3.3           4         Bottom of Test Pit 3.8 feet below ground surface.         D         5.A         3.4           5         G         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -	0(	D.2' Black, F-C GRAVI Brown, F-C SAND, some	EL and Asphalt MILLINGS, e F-C Gravel, little Cobbles	some F-C Sand , little Silt, trace	(Asphalt FILL) Brick,	-				
3/2       GRAVEL)       0       7A         4       Becavator refusal on apparent Bedrock. Bottom of Test Pit 3.8 feet below ground surface.       0       5A       3         5       6       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -			· · ·					D	3A	2
4     Excavator refusal on apparent Bedrock. Bottom of Test Pit 3.8 feet below ground surface.     0     5.A     3.       6     7     -     -     -     -     -     -       7     -     -     -     -     -     -     -       9     -     -     -     -     -     -     -       10'     -     -     -     -     -     -       11'     -     -     -     -     -     -       12'     -     -     -     -     -     -       13'     -     -     -     -     -     -       14'     -     -     -     -     -     -       12'     -     -     -     -     -     -       14'     -     -     -     -     -     -       15'     -     -     -     -     -     -       16'     -     -     -     -     -     -       16'     -     -     -     -     -     -       11'     -     -     -     -     -     -       16'     -     -     -     -     -     -   <	— 3' — <u>-</u>			el, trace silt (SA	ND&				7A	
-6     -7     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -     -<	<u> </u>	Excav						D	5A	3
10'-       10'-         11'-       11'-         12'-       13'-         13'-       14'-         15'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-	5'									
10'-       10'-         11'-       11'-         12'-       13'-         13'-       14'-         15'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-										
10'-       10'-         11'-       11'-         12'-       13'-         13'-       14'-         15'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-										
Image: 11' - 12' - 13' - 14' - 14' - 15' - 15' - 15' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' -	9'									
12'       13'       13'       14'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       15'       1	<u> </u>									
13'-       14'-         14'-       15'-         15'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         16'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-       16'-         11'-	<u> </u>									
Image: state of the second state of	— 12' —									
Image: constraint of the second se	— 13' —									
Image: 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16' - 16'										
1. Ground surface elevation surveyed by GZA using a Leica Viva Smartworx Real-Time Kinematic Differential GPS.         2. Significant effort required to excavate top 1.5 feet of test pit due to frozen soil.         3. Test pit terminated at approximately 3.8 feet below ground surface (bgs) due to excavator refusal on apparent bedrock. Upon completion, test pit was backfilled with excavated material in lifts and tamped with the heel of the excavator bucket.         Test Pit Plan       Boulder Class         11'       3.3'         Letter       Size Range         Designation       Classification         A       6"-17"         B       18" - 36"         C       36" and Larger         LTLE (LI.)       10 - 20%         F/C = Fine to coarse       GROUNDWATER         C = 0.36" and Larger       UTTLE (LI.)         Excavation Effort       SOME (SO.)       20 - 35%         B = Brown       SOME (SO.)       20 - 35%         B = Brown       B = Brown       Weat	_									
1. Ground surface elevation surveyed by GZA using a Leica Viva Smartworx Real-Time Kinematic Differential GPS.         2. Significant effort required to excavate top 1.5 feet of test pit due to frozen soil.         3. Test pit terminated at approximately 3.8 feet below ground surface (bgs) due to excavator refusal on apparent bedrock. Upon completion, test pit was backfilled with excavated material in lifts and tamped with the heel of the excavator bucket.         Test Pit Plan       Boulder Class         11       3.3'         Letter       Size Range         Designation       Classification         A       6"-17"         B       18"-36"         C       36" and Larger         LITLE (LI.)       10 - 20%         F/C = Fine to coarse       GROUNDWATER         Excavation Effort       SOME (SO.)       20 - 35%         NORTH       Excavation Effort       SOME (SO.)       20 - 35%         Momentarizet       Wead       Time to coarse         Momentarizet       Builton to complete the coarse       Rading         Monderate       Up on 10%       VE = Velow       Time to coarse	Notes:									
11'     Letter     Size Range     Used     Fabre Reliance       3.3'     A     6"-17"     Value     Value     Not Encountered       NORTH     Excavation Effort EEasy     C     35     SOME (SO.)     20 - 35%     B     B     B     B     Group       NORTH     Excavation Effort EEasy     SOME (SO.)     20 - 35%     B     B     B     B     Group	<ol> <li>Ground :</li> <li>Significar</li> <li>Test pit t</li> </ol>	nt effort required to excavate top 1.5 fe erminated at approximately 3.8 feet be	eet of test pit due to frozen so slow ground surface (bgs) due	il.		ock. Upon coi	mpletion, test	pit was ba	ickfilled with exc	avated
A     6''-1/'     INACL (IR.)     0' 10%     C = coarse       B     18"-36"     V = Very     Elapsed     Depth       C     36" and Larger     LITTLE (LI.)     10 - 20%     F/M = Fine to medium     Time to     to       NORTH     Excavation Effort EEasy     SOME (SO.)     20 - 35%     B = Brown     B = Brown       MModerate     MModerate     M =     55,50%     YEL = Yellow     V = Very	T.	11' Letter	Size Range n Classification	Use	ed	F = Fine M = Mediu	ım		) Encountered	
NORTH     Excavation Effort EEasy     SOME (SO.)     20 - 35%     GR = Gray BN = Brown YEL = Yellow     GR = Gray (Hours)     Water		A B	18" - 36"			V = Very F/M = Fine	to medium	Tir	ne to	to
		NORTH E M	Easy Moderate			GR = Gray BN = Brow	'n			
Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated.	Stratification					made at times	and under cond		4	

= 3	GZA GeoEnvironmental, Inc. Engineers/Scientists	Cell	osed Redevelopm Signaling Technol 3 Atwater Avenue	ogy	Test Pit No. Page No. 1 File No.		TP-7 of 18.017548	1	
144 Elm Stre			hester-by-the-Sea			Checked B	sy:	18.017548 MPS	
Amesbury, I	MA 01913						-		
GZA Rep. Weather	R. Baronows Cloudy, 30's	Operator	Ming	Landscaping o Chamorro odel 315 L	PP	Date Ground Ele Time Start		2/2/2 10- 12	4.6
weather		Capacity		ach ~ 15		Time Com		12	
					Sample	Field		Boulders:	<u> </u>
Depth		Soil Description	า		No.	Test Data	Excav. Effort	Count/ Class	Note No.
1'1	Brown, F-C SAND, so	ome F-C Gravel, little Silt, tra- trace Plastic, (FILL)	ce Brick, trace Woo	d <i>,</i>			D	1A	1
2'	I	Excavator refusal on frozen F					D	1A	2
-	Bottom	of Test Pit 1.8 feet below gro	und surface.						
— 3' —									
4'									
5'									
- 6'									
8'									
9'									
— 10' —									
<u> </u>									
— 12' —									
— 13' —									
— 14' —									
— 15' —									
— 16' —									
Notes: 1. Ground s	surface elevation surveyed by GZA u	sing a Leica Viva Smartworx Real	-Time Kinematic Diffe	rential GPS.					
north and ~	vas terminated at approximately 1.8 5 feet to the east, encountering refu					•			-
heel of the e	excavator bucket.								
Te	est Pit Plan	Boulder Class	Proportions		Abb	eviations	G	ROUNDWATER	
	8' Lette	Size Range	Used		F = Fine M = Mediu		()	Encountered	
	3.3' Designa A B	6" - 17" 18" - 36"	TRACE (TR.)	0 - 10%	C = Coarse V = Very			) Not Encountered	Depth
	č	36" and Larger	LITTLE (LI.)	10 - 20%		to medium to coarse	Elaps Time Road	to	Depth to Ground-
		Excavation Effort EEasy	SOME (SO.)	20 - 35%	GR = Gray BN = Brow		Read (Hou		water
		MModerate DDifficult	AND	35 - 50%	YEL = Yello				
Chronifi	n lines represent approximate boundarie		ha made - L Mr L	uppellage based			itians -to t		

Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

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	GZA GeoEnvironmental, Inc.	Cell	osed Redevelopn Signaling Techno Atwater Avenue	ogy		Test Pit No Page No. File No.		TP-8 L of 18.01754	1	
144 Elm Stro			hester-by-the-Sea			Checked B	By:	MPS		
Amesbury, I	MA 01913									
GZA Rep.	R. Baronowski	Contractor Operator		Landscaping o Chamorro		Date Ground El	ev.		2022 5.0	
Weather	Cloudy, 30's	Make	CAT M	odel 315 L		Time Start	ed	12	1230	
		Capacity	~0.25 CY R	each ~ 15	FT	Time Com	pleted	12	255	
Depth		Soil Description	n		Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.	
1'	Brown, F-C SAND, som	ne F-C Gravel, little Silt	, trace Brick, trace	Wood (FILL)			D	1A	1	
2'	Excava	tor refusal on frozen F Pit 1.1 feet below gro					D	1A	2	
<u> </u>										
— 4' —										
— 5' — — 6' —										
7'										
— 9' —										
<u> </u>										
<u> </u>										
— 12' —										
— 13' — — 14' —										
14 15'										
<u> </u>										
2. Test pit w south and ~	surface elevation surveyed by GZA using a L vas terminated at approximately 1.1 feet be 5 feet to the west, encountering refusal at e excavator bucket.	low ground surface (bgs)	) due to excavator ref	usal on apparent froz						
Te	est Pit Plan Boulde 8' Letter	r Class Size Range	Proportions Used		Abbr F = Fine	reviations		ROUNDWATER		
	3.3' Designation	Classification 6" - 17"	TRACE (TR.)	0 - 10%	M = Mediu C = Coarse			Encountered ) Not Encountered		
	ВС	18" - 36" 36" and Larger	LITTLE (LI.)	10 - 20%	V = Very F/M = Fine	to medium	Elap		Depth to	
	NORTH EEasy	-	SOME (SO.)	20 - 35%	F/C = Fine GR = Gray BN = Brow	to coarse	Read (Hou	ling	Ground- water	
	NORTH EEasy MMod DDiffid		AND	35 - 50%	YEL = Yello					
Stratificatio	n lines represent approximate boundaries betwee		/ be gradual. Water leve	l readings have been ma	de at times	and under cond	itions stated.			

Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

Engin 144 Elm Street	nvironmental, Inc.	Cell Sign 8 Atv	d Redevelopme aling Technolo vater Avenue er-by-the-Sea,		Test Pit No Page No. File No. Checked B	1	TP-9 1 of 1 18.0175487.00 MPS		
Amesbury, MA 019 GZA Rep. Weather	R. Baronowski Cloudy, 30's		Cryan La Mingo CAT Mo J.25 CY Rea			Date Ground Ele Time Start Time Com	ed	12	/2022 20.9 300 320
Depth		Soil Description			Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0.1	Dark brown, SILT and fine S	AND, trace Roots/Organi	cs, trace F-C Gra	vel (TOPSOIL)			E	4A	1,
— 1' —							E	6A	
— 2' —	Dark brown, F-C SAND, som	e () Cobbles little Clavey	Silt little E-C G	avel			М	12A	1
— 3' —		(GLACIAL TILL)					М		
— 4' —							М	9A	+
— 5' —							D	8A/2B	
— 6' —							D	6A	
— 7' —							D	4A	
— 8' — 8.7'		//					D	6A	
— 9' —		refusal on apparent Bedro Pit 8.7 feet below ground					D	2A	+
— 10' —									
_ 11'									<u> </u>
— 12' —									
— 13' —									
— 14' —									
— 15' —									
— 16' —									
10									
2. Test pit terminat	elevation surveyed by GZA using a Lei ed at approximately 8.7 feet below gr th the heel of the excavator bucket.				n completi	ion, test pit wa	as backfilled	l with excavat	ed material i
Test Pit P 21'	3.3 Designation B C 3 Excavation E	Size Range           Classification           6" - 17"           18" - 36"           36" and Larger           LITTI           ffort	Proportions Used CE (TR.) LE (LI.) IE (SO.)	0 - 10% 10 - 20% 20 - 35%	F = Fine M = Mediu C = Coarse V = Very	e to medium to coarse 'n	()	to ling	d Depth to Ground- water
	MModer DDifficult			35 - 50%	122 - 1600				

	GZA GeoEnvironmental, Inc. Engineers/ScientistsProposed RedevelopmentTest Pit No.TP-1GeoEnvironmental, Inc. Engineers/ScientistsCell Signaling TechnologyPage No.1of144 Elm Street Amesbury, MA 01913Manchester-by-the-Sea, MAChecked By:MPS											
GZA Rep. Weather	R. Baronow	Operator	Ming CAT M	Landscaping o Chamorro odel 315 L each ~ 15		Date Ground Ele Time Start Time Com	ed	2/2/2 11( 13 13	).0 25			
Depth		Soil Description	n		Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.			
0 1'	Dark brown, SILT ar	nd fine SAND, trace Roots/Org (TOPSOIL)	anics, trace F-C Gra	avel			E	1A	1			
2'		/I SAND, some Silt, some F-C G	Gravel (SUBSOIL)				E M	2A				
	3.0						М	2A 6A				
— 4' — — 5' —							D	5A/1B				
6'	Dark brown, F-C S	SAND, little F-C Gravel, little Co (GLACIAL TILL)	obbles, little Clayey	Silt			D	7A				
							D	6A 3A/2B				
		xcavator refusal on apparent E			-		D	2A	2			
10'	Botton	n of Test Pit 8.4 feet below gro	ound surface.									
11'												
— 12' —												
— 13' — — 14' —												
— 15' —												
<u> </u>												
2. Test pit te	surface elevation surveyed by GZA erminated at approximately 8.4 fee nped with the heel of the excavato	et below ground surface due to ex			n completi	ion, test pit wa	as backfilled	with excavate	d material iı			
Te	Ast Pit Plan	nation Classification A 6" - 17" 3 18" - 36"	Proportions Used TRACE (TR.) LITTLE (LI.) SOME (SO.) AND	0 - 10% 10 - 20% 20 - 35% 35 - 50%	F = Fine M = Mediu C = Coarse V = Very	to medium to coarse n	()	to ing	Depth to Ground- water			
	n lines represent approximate boundar s of groundwater may occur due to fact				ade at times	and under cond	itions stated.					

GAN)	GZA GeoEnvironment Engineers/Scienti		Cell	oosed Redevelopr Signaling Techno	logy		Test Pit No Page No.	D.	1	TP-11 of	1
144 Elm Str				8 Atwater Avenue hester-by-the-Sea			File No. Checked B		18.0	17548 MPS	7.00
Amesbury,			mane	fiester sy the set	.,		encence	.y		1111 3	
GZA Rep. Weather		R. Baronowski Cloudy, 30's	Contractor Operator Make Capacity	Ming CAT M	Landscaping o Chamorro odel 315 L each ~ 15		Date Ground El Time Start Time Com	ed		2/2/2 84 13: 14:	.2 50
Depth			Soil Descriptio	n		Sample No.	Field Test Data	Excav	/. Co	ders: unt/	Note
0 1'	Brown,	F-C SAND, some F-C Grav	el, litle Silt, trace astic (FILL)	e Brick, trace Wood	, trace			Effor D		lass 1A	No. 1
	1.1'		fusal on frozen F	ill				D		1A	2
2'		Bottom of Test Pit 1								17	2
<u> </u>											
— 4' —											
— 5' —									_		
- 6'											
- 7'											
<u> </u>											
9'											
<u> </u>											
11'											
— 12' —											
<u> </u>											
— 14' —											
— 15' —											
<u> </u>											
Notes:											
<ol> <li>Ground s</li> <li>Test pit w</li> </ol>	vas terminated at app	reyed by GZA using a Leica V roximately 1.1 feet below gr feet bgs and 0.9 feet bgs res	ound surface (bgs)	) due to excavator ref	usal on frozen soil. Th	•					
	est Pit Plan 8.5' 3.3' NORTH	Designation Class A 6" B 18'	Range ification - 17" '- 36" d Larger	Proportions Used TRACE (TR.) LITTLE (LI.) SOME (SO.) AND	0 - 10% 10 - 20% 20 - 35% 35 - 50%	F = Fine M = Mediu C = Coarse V = Very	to medium to coarse	E T R	GROUNDV () Encounte (X) Not Enc lapsed lime to leading Hours)	ered	Depth to Ground- water
<u> </u>		l		I						I	

Stratification lines represent approximate boundaries between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to factors other than those present at the time measurements were made.

144 Elm Str		Proposed Redevelopment Cell Signaling Technology 8 Atwater Avenue Manchester-by-the-Sea, MA					Test Pit No. Page No. File No. Checked By:		TP-12 1 of 1 18.0175487.00 MPS	
Amesbury, GZA Rep. Weather	R. Baronowski	Contractor Operator Make Capacity	Cry Mi CAT ~ 0.25 CY	an Landscapir ngo Chamorr Model Reach	0 315 LRI	R FT	Date Ground Ele Time Start Time Com	ed	10 14	2022 5.0 115 135
Depth		Soil Description			S	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0(	0.4' Dark brown, SILT and fine	SAND, trace Roots/Org	anics, trace F-C	C Gravel (TOPS)	OIL)			E		
— 1' —	Brown, F-C SAND and S	ILT & CLAY, some F-C G	Gravel (SUBSOI	L)				E	2A	1
2'	Dark brown/Red, F-C SAND, 3.2'	little F-C Gravel, little C ace Wood (SUBSOIL)	Cobbles, little C	layey Silt,				M	1A 3A/2B	
3'	Brown, F-M SAND, little	F-C Gravel, little Silt (S	SAND & GRAVE	L)				М		1
4'	3.7	,						D	9A 14A	1
— 5' —								D	11A	
								D	17A	
, 8'	Dark brown, F-C SAND, little Co	bbles, little Clayey Silt,	, trace Roots (G	GLACIAL TILL)				D	14A	
— 9' —								D	12A/2B	
— 10' —								D	19A/1B	
11'	11.6'							D	14A	
— 12' —		Pit 11.6 feet below gro	und surface.					D	7A	2
— 13' —										
— 14' —										
— 15' —										
<u> </u>										
2. Test pit t	surface elevation surveyed by GZA using a Le erminated at approximately 11.6 feet below nped with the heel of the excavator bucket.				Upon con	npletion,	test pit was b	ackfilled wi	ith excavated r	naterial in
Г	est Pit Plan 11' 3.5 NORTH Bouider Letter Designation A B C Excavation EEasy MMode DDiffice	Size Range Classification 6" - 17" 18" - 36" 36" and Larger Effort	Proport User TRACE (TR.) LITTLE (LI.) SOME (SO.) AND			F = Fine M = Mediu C = Coarse V = Very	to medium o coarse n	()	e to ding	Depth to Ground- water
	on lines represent approximate boundaries betwee as of groundwater may occur due to factors other t				been made	e at times a	and under cond	itions stated.		

GZN) 144 Elm Stree		Proposed Redevelopment Cell Signaling Technology 8 Atwater Avenue Manchester-by-the-Sea, MA			Test Pit N Page No. File No. Checked B	1	TP-13 1 of 1 18.0175487.00 MPS			
Amesbury, M GZA Rep. Weather	R. Baronowski Cloudy, 30's	Contractor Operator Make Capacity	erator Mingo Chamorro ke CAT Model 315 LRR			Time Star	Date Ground Elev. Time Started Time Completed		2/2/2022 115.8 1440 1510	
Depth		Soil Description	1			nple Field o. Test Data	Excav. Effort	Boulders: Count/ Class	Note No.	
0.3	3' Dark brown, SILT and fine SA	ND, trace Roots/Org	ganics, trace F-C	Gravel (TOP	SOIL)		E	1A	1	
1'							E	3A		
<u> </u>				E						
— 3' —	Descue E M CAND Prot		trace Cable (	<b>-</b> )			м	6A	<u> </u>	
4'	Brown, F-M SAND, little	r-c Gravel, little Silt,	trace Cobbles (	FILL)			м	4A	<u> </u>	
	-						M	9A 14A		
— 6' —				М	12A/2B					
<u>7'</u>	7'						E	4A		
	Dark brown, Fine-Grained PEA	AT, little F-M SAND, t JRRIED ORGANICS)	race F-C Gravel	, trace			E	2A		
9' <u>9.1</u>		JANIED UNGAMICS)					E		<u> </u>	
— 10' —	Gray, CLAY & SILT, little F-	M Sand, trace F-C Gr	avel (CLAY & SI	LT)			М	1A	<u> </u>	
— 11' — <u>11</u>	.8'			,			м	1A		
— 12' —	Bottom of Test Pi	t 11.8 feet below gro	ound surface.					1A	2	
— 13' —									<u> </u>	
— 14' —										
— 15' —									<u> </u>	
<u> </u>									<u> </u>	
Notes:										
<ol> <li>Ground su</li> <li>Test pit ter</li> </ol>	rface elevation surveyed by GZA using a Leic minated at approximately 11.8 feet below g led with the heel of the excavator bucket.					tion, test pit was b	ackfilled wit	h excavated m	aterial in	
	3.5 A B C 36 Excavation Ef	Size Range Classification 6" - 17" 18" - 36" " and Larger	Proport Use TRACE (TR.) LITTLE (LI.) SOME (SO.)	0 - 10% 10 - 20%	C = 0 V = V F/M F/C	Medium Coarse	() (X Elaps Time Read	GROUNDWATER ( ) Encountered ( X ) Not Encountered Elapsed Depth Time to to Reading Ground- (Hours) water		
Ν	IORTH EEasy MModera	te	SOME (SO.) AND	20 - 35% 35 - 50%	BN = YEL	= Brown = Yellow	(1100			
	DDifficult			55 - 5070						
	lines represent approximate boundaries between a of groundwater may occur due to factors other that a second sec				ve been made at t	imes and under cond	litions stated.			

= GZN	GZA GeoEnvironmental, Inc. Engineers/Scientists	Propose Cell Sigr 8 At		Test Pit No.         TP-14           Page No.         1         of           File No.         18.0175487.0			1	
144 Elm Stro Amesbury, I		Manches	ter-by-the-Sea, MA		Checked B	y:	MPS	
GZA Rep. Weather	R. Baronowski Partly Cloudy, 40's	ContractorL.A.D Company Inc.OperatorMike KwedorMakeDoosanModelDataDX1406CCapacity~ 0.25 CYReach			Date Ground Elev. Time Started Time Completed		2/18/2022 54 0800 0845	
Depth		Soil Description		Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
1'	Dark brown, SILT and F-M	SAND, trace Roots/Orga	anics (TOPSOIL)			E	2A	1
2'	1.3' Brown, F-M SAND, little F-C G 2.7' tr	Gravel, trace Cobbles, tra ace roots (FILL)	ice Brick, trace Silt,			E	1A	
3'	Light brown, F-C SAND, little	F-C Gravel, little Silt, trad	ce angular Cobbles			M D	1A	
-	4.4'	GLACIAL TILL)				D	4A 2A	2
— 5' — — 6' —		efusal on apparent Bedr Pit 4.4 feet below ground						
— 8' —								
9' —								
— 10' — — 11' —								
— 12' —								
— 13' —								
— 14' —								
— 15' —								
— 16' —								
2022. 2. Angular ( 3. Test pit te	surface elevation estimated from AutoCAD file Cobbles and Boulders appeared to be fracture erminated at approximately 4.4 feet below gr lifts and tamped with the heel of the excavato	d rock. ound surface (bgs) due to e				·		
Te	est Pit Plan Boulder C <u>12.5'</u> Letter 3.5'A	Size Range Classification 6" - 17" TRA	Proportions Used ACE (TR.) 0 - 10%	F = Fine M = Mediu C = Coarse		(X) (_)	ROUNDWATER Encountered Not Encountered	
	NORTH B B C S S S S S S S S S S S S S S S S S	(f)	TLE (LI.) 10 - 20% ME (SO.) 20 - 35%	F/C = Fine		Elaps Time Readi (Hour	to ng	Depth to Ground- water
	MDifficult		D 35 - 50%	YEL = Yello		0	.25	2.1
	n lines represent approximate boundaries between			ve been made at times	and under cond	itions stated.		



### Appendix VIII Operation and Maintenance Log

# Atwater Avenue, Manchester-By-The-Sea

#### **Operations and Maintenance Log**

Inspections for Year:

Structural Best	Action	Date	Completed By	Comments
Management Practice		Completed		
Infiltration Basins, Rain	Inspect/repair/			
Gardens, and Wet Basins-	clean			
Inspect twice per year.	Inspect/repair/			
Clean as required	clean			
Sediment Forebay-Inspect	Inspect/repair/			
twice per year. Clean as	clean			
required				
Roof Drain Leaders –	Inspect/Clean			
Inspect/clean twice per				
year.				
Deep Sump Hooded Catch	Inspect/Clean			
<b>Basins/Outlet Control</b>				
Structures/Water Quality				
Units-Inspect/clean four				
times per year. Clean when				
sump is 50% full.				
Riprap outlet protection &	Inspect/repair			
spillway-inspect quarterly,				
repair as required				
Vegetated Areas	Inspect			
Maintenance – Inspect				
twice per year. Maintain	Inspect			
as required.				

- Refer to the Massachusetts Stormwater Management, Volume Two: Stormwater Technical Handbook (March 1997) for recommendations regarding frequency for inspection and maintenance of specific BMP's.
- (2) Inspections to be conducted by qualified professionals such as an environmental scientist or civil engineer.
- (3) Maintenance logs shall be submitted annually to ConComm staff via email on October 31 and after cleaning.

Limited or no use of sodium chloride salts, fertilizers or pesticides recommended.

Other notes: (Included deviations from: Con Comm. Order of Conditions, PB Approval, Construction Sequence and Approved Plan).

Stormwater Control Manager:\_

Signature

Date





# HANCOCK ASSOCIATES Surveyors | Engineers | Scientists

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