HANCOCK ASSOCIATES

Stormwater Report

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

Table of Contents

Tables

Appendices

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:

Table 1: Peak Rates of Runoff

Discharge Point	**Peak Rate (cfs)**							
	2-Year Storm (4.70" Rainfall Depth)		**10-Year Storm** (7.40" Rainfall Depth)		**25-Year Storm** (9.10" Rainfall Depth)		**100-Year Storm** (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

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:

Table 2A: Treatment Train Calculation: Parking Garage

BMP	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 Pretreatment Removal (44% Required)				98%
Infiltration Basin	0.80	0.02	0.02	0%
Total TSS Removal				100%

Table 2B: Treatment Train Calculation: Wet Basin 1

BMP	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
Wet Basin 1 with Sediment Forebay	.80	.675	.54	.135
Rain Garden 1 w/ Forebays	.90	.135	.12	.01
Total TSS Pretreatment Removal				99%
Infiltration Basin	0.80	0.01	0.01	0
Total TSS Removal				100%

Table 2C: Treatment Train Calculation: Fes 5

BMP	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	.17	.51
Total TSS Pretreatment Removal				49%
Infiltration Basin 1	0.80	0.49	0.39	.1
Total TSS Removal				90%

Table 2D: Treatment Train Calculation: Fes 3

BMP	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 Pretreatment Removal				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 0.1inches 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. Construcion 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.

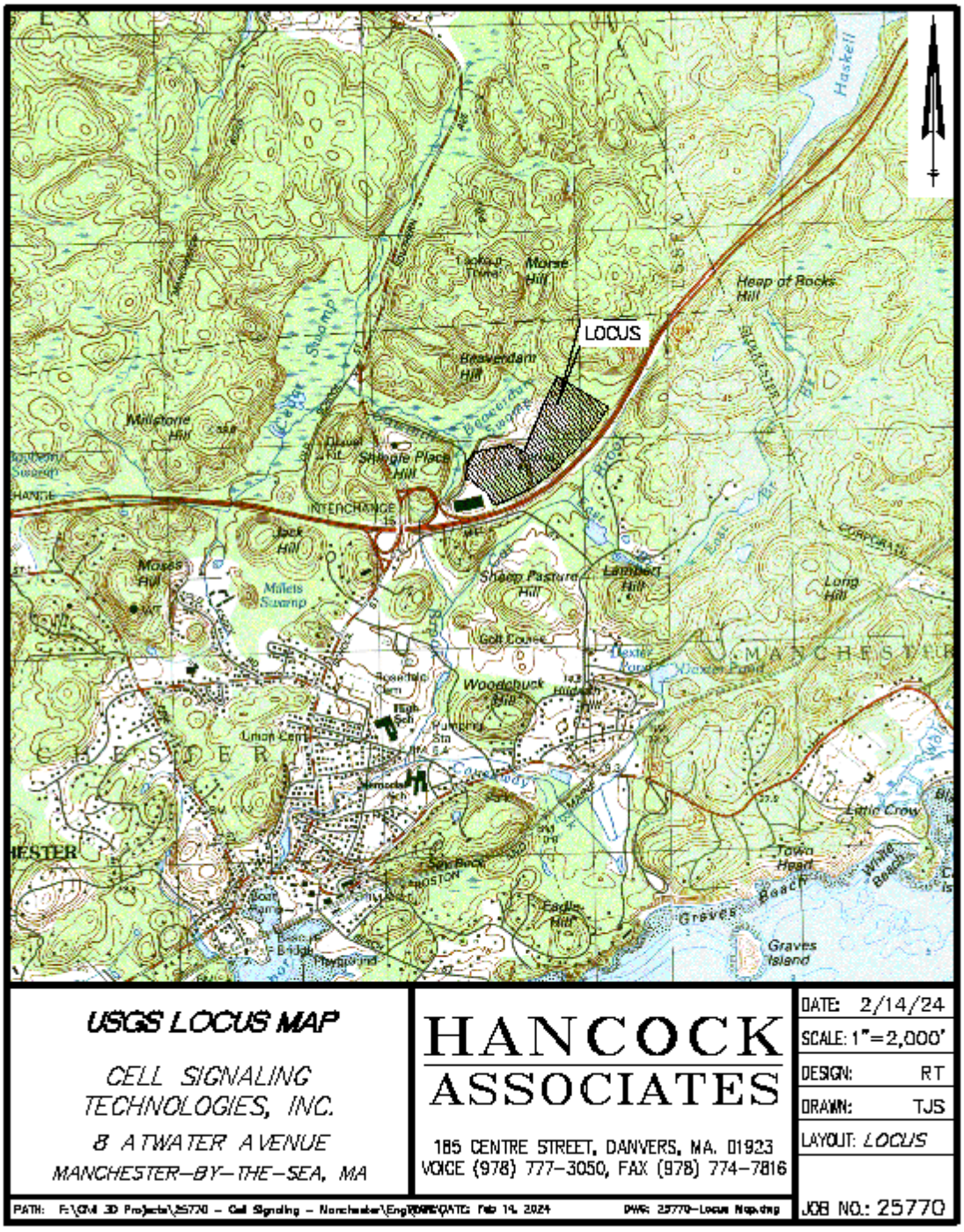
Pesticide/Herbicide Usage

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

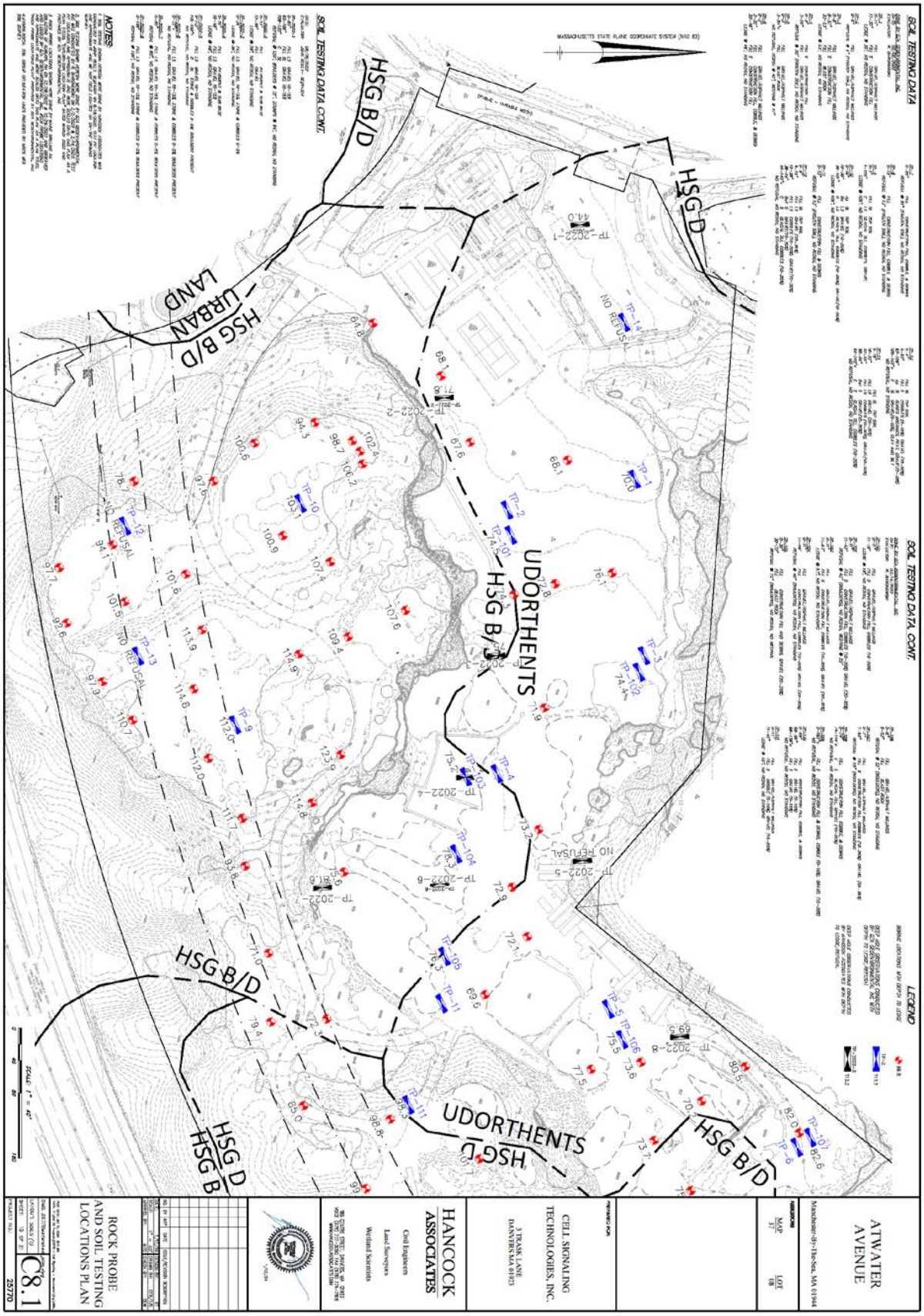
Standard 10: Prohibition of Illicit Discharges

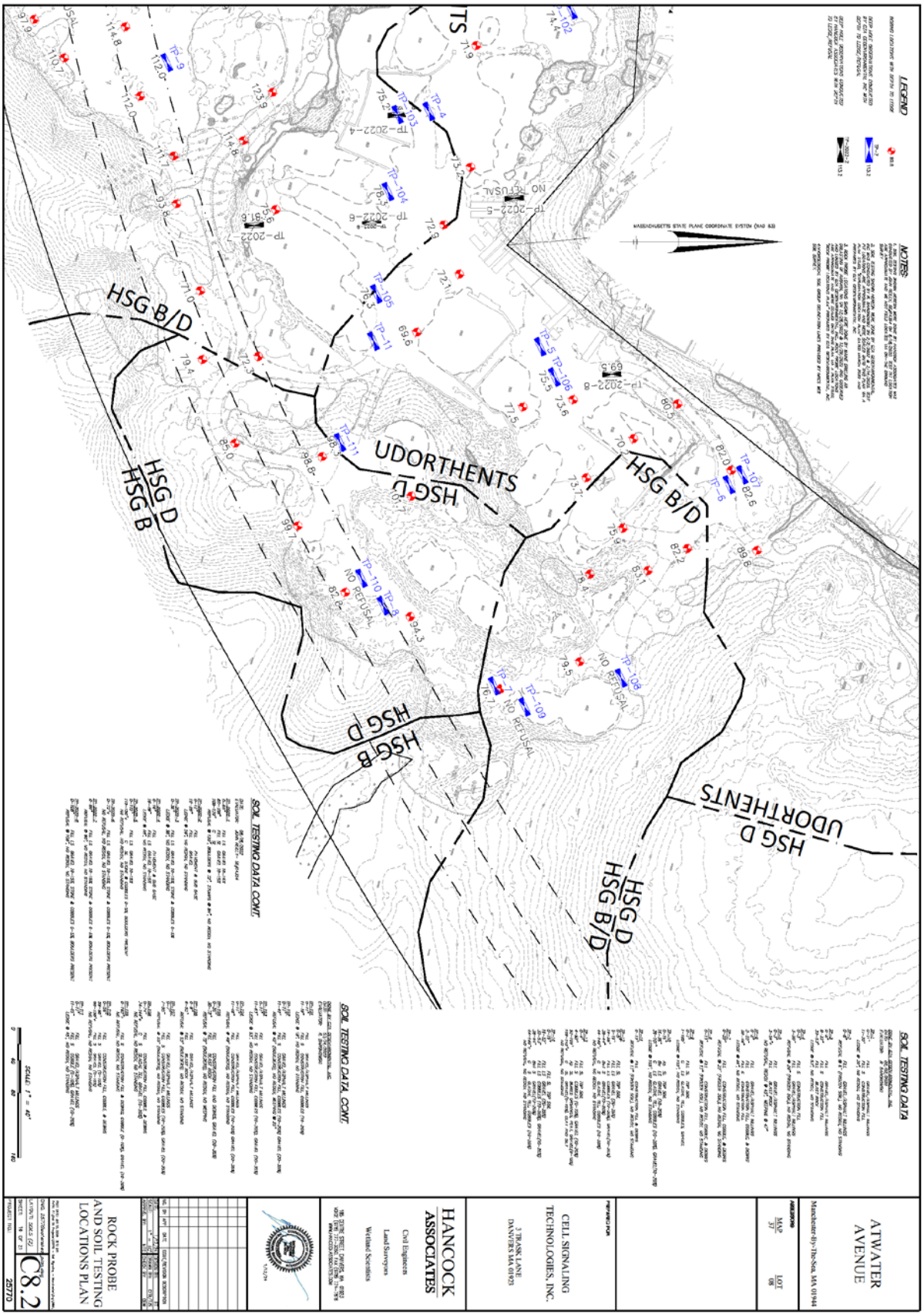
No illicit discharges currently exist and no future illicit discharges will be allowed including wastewater discharges and discharges of stormwater contaminated by contact with process wastes, raw materials, toxic pollutants, hazardous substances, soil, or grease.

Appendix I Locus Map

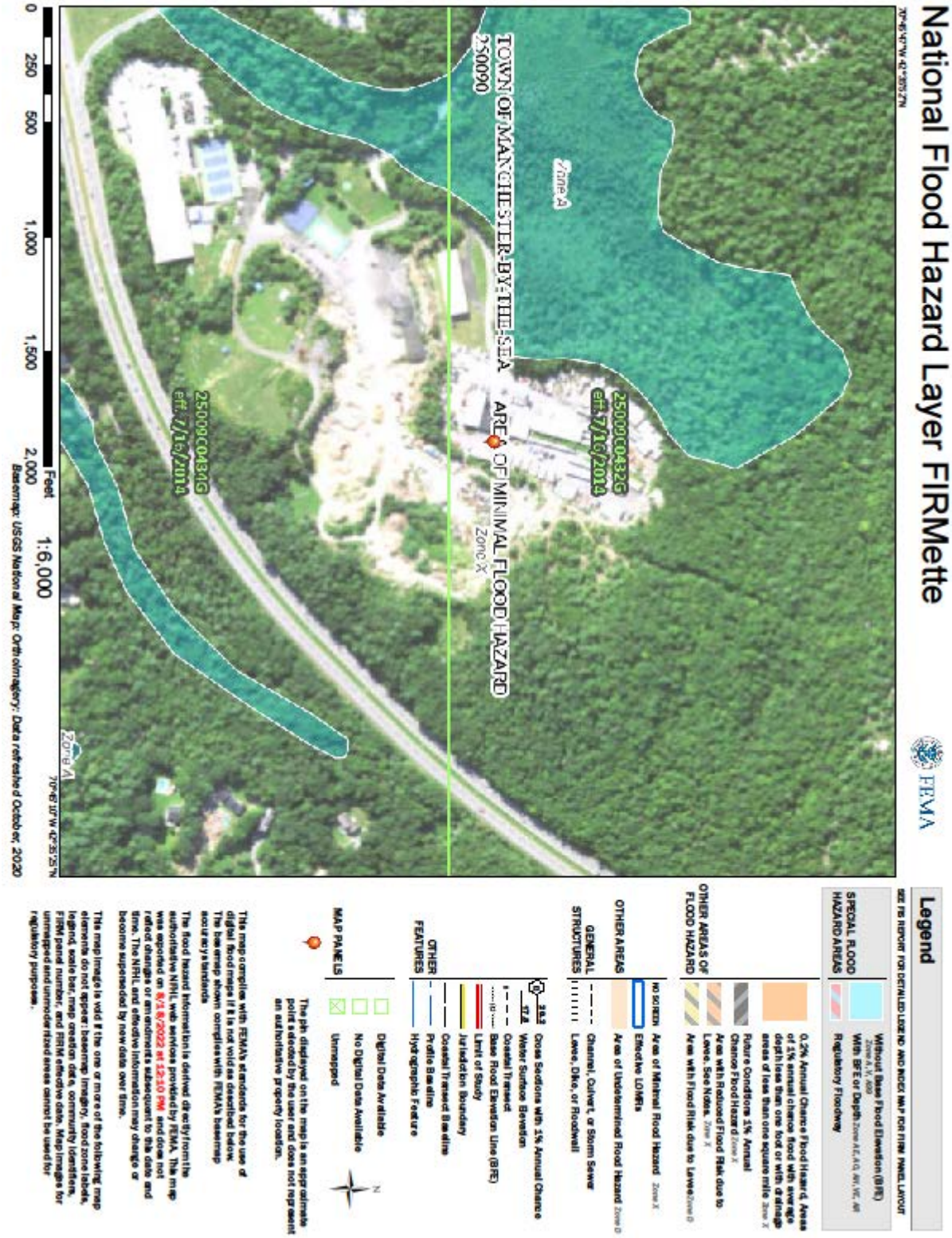


Appendix II NCRS Soils Map

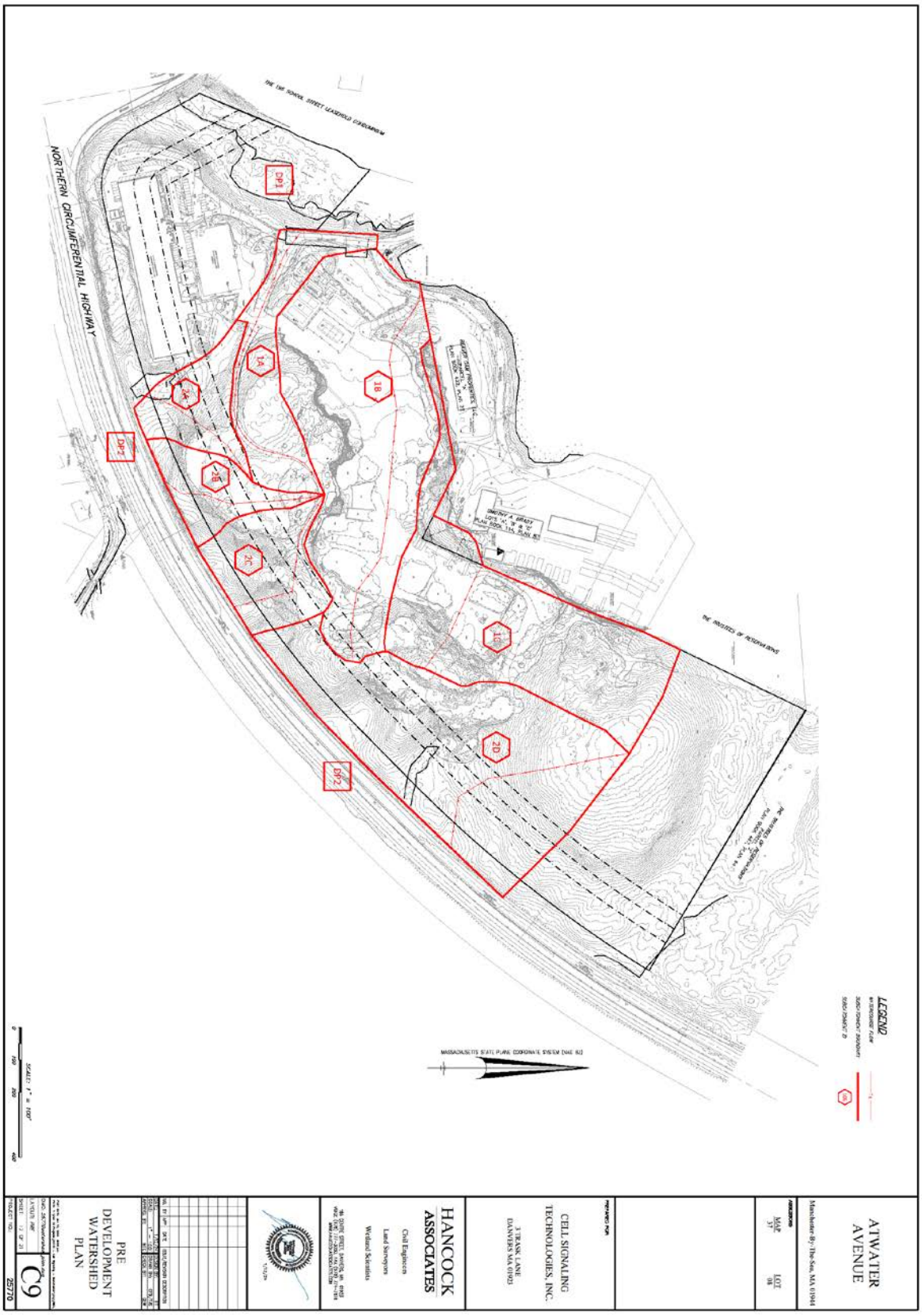



ATWATER AVENUE
Manchester-By-The-Sea, MA 01944
MAP 37
LOT 08
CELL SIGNALING TECHNOLOGIES, INC.
3 TRASK LANE
DANVERS MA 01923
HANCOCK ASSOCIATES
Civil Engineers
Land Surveyors
Wetland Scientists
ROCK PROBE AND SOIL TESTING LOCATIONS PLAN
C8.2
25770
SCALE: 1" = 40'
LEGEND
NOTES
SOIL TESTING DATA
SOIL TESTING DATA CONT.
MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD 83)
HSG B/D
HSG D
HSG B
UDORTHENTS
NO REFUSAL

Appendix III FEMA Firmette

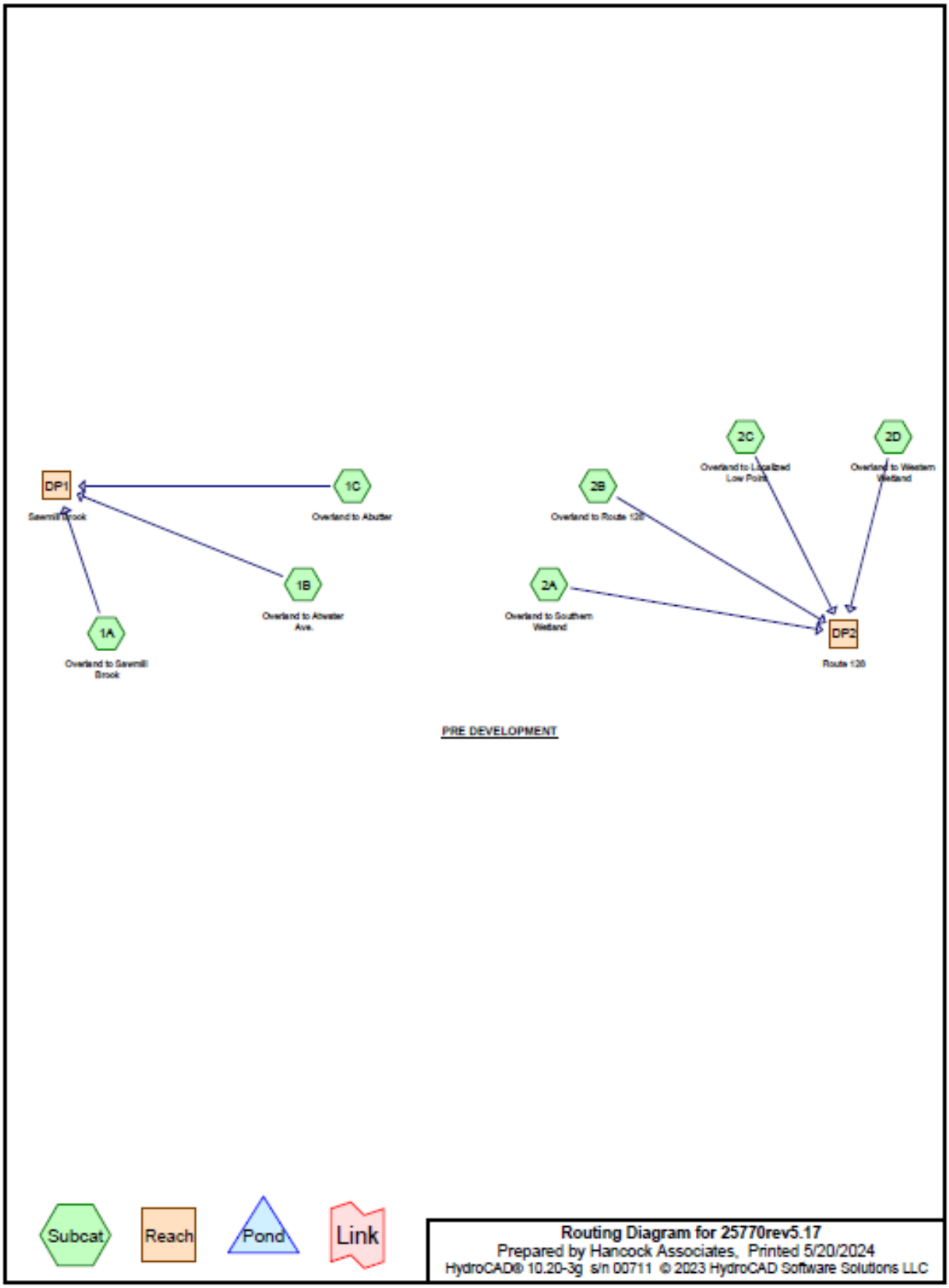


Appendix IV Existing and Proposed Drainage Figures




NORTHERN CIRCUMFERENTIAL HIGHWAY
196 195 SCHOOL STREET LEASEHOLD CONDOMINIUM
PDP1
PDP2
2.0A
2.0B
2.0C
10C
200
LEGEND
MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD 83)
SCALE: 1" = 100'
ATWATER AVENUE
Manchester-By-The-Sea, MA 01944
MAP 37
LOT 08
CELL SIGNALING TECHNOLOGIES, INC.
J. TRASK, LANE
DANVERS MA 01923
HANCOCK ASSOCIATES
Civil Engineers
Land Surveyors
Wetland Scientists
9/9/19
POST DEVELOPMENT WATERSHED PLAN
C11
2570

Appendix V HydroCAD Output



Area Listing (selected nodes)

Area (sq-ft)	CN	Description (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"

	Area (sf)	CN	Description
*	30,870	65	Woods, Good, HSG B/D
*	62,635	70	>75% Grass cover, Good, HSG B/D
*	35,125	98	Paved parking, HSG B/D
*	3,500	96	Gravel surface, HSG B/D
	132,130	77	Weighted Average
	97,005		73.42% Pervious Area
	35,125		26.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to 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

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
*	27,870	65	Woods, Good, HSG B/D
	18,145	98	Paved parking, HSG C
	101,705	96	Gravel surface, HSG C
	35,050	87	Dirt roads, HSG C
	16,700	70	Woods, Good, HSG C
*	45,570	70	>75% Grass cover, Good, HSG B/D
	56,390	74	>75% Grass cover, Good, HSG C
*	4,860	98	Ledge Outcroppings, HSG C
*	8,865	98	Paved parking, HSG B/D
	83,125	82	Dirt roads, HSG B
*	13,155	98	Ledge Outcroppings, HSG B
	3,525	77	Woods, Good, HSG D
	5,975	96	Gravel surface, HSG D
	420,935	84	Weighted Average
	375,910		89.30% Pervious Area
	45,025		10.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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= 71,281 cf, Depth> 2.54"
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"

	Area (sf)	CN	Description
*	3,090	65	Woods, Good, HSG B/D
	128,465	70	Woods, Good, HSG C
	113,625	87	Dirt roads, HSG C
*	29,750	85	Dirt roads, HSG B/D
	5,550	89	Dirt roads, HSG D
	13,305	80	>75% Grass cover, Good, HSG D
	2,840	77	Woods, Good, HSG D
	18,360	74	>75% Grass cover, Good, HSG C
*	7,450	98	Ledge Outcroppings, HSG C
*	14,030	70	>75% Grass cover, Good, HSG B/D
	336,465	79	Weighted Average
	329,015		97.79% Pervious Area
	7,450		2.21% Impervious Area

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 2A: Overland to Southern Wetland

Runoff = 3.23 cfs @ 12.10 hrs, Volume= 10,448 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"

	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

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, 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"

	Area (sf)	CN	Description
*	38,580	65	Woods, Good, HSG B/D
*	115	85	Dirt roads, HSG B/D
*	33,365	70	>75% Grass cover, Good, HSG B/D
	72,060	67	Weighted Average
	72,060		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2C: Overland to Localized Low Point

Runoff = 3.96 cfs @ 12.10 hrs, Volume= 13,039 cf, Depth> 1.46"
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"

	Area (sf)	CN	Description
*	64,195	65	Woods, Good, HSG B/D
*	4,750	85	Dirt roads, HSG B/D
	710	77	Woods, Good, HSG D
	28,110	61	>75% Grass cover, Good, HSG B
	7,470	55	Woods, Good, HSG B
	2,300	80	>75% Grass cover, Good, HSG D
	107,535	65	Weighted Average
	107,535		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 to 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

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
	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 (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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

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, 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 Area = 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 cf
Outflow = 16.66 cfs @ 12.28 hrs, Volume= 91,821 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

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 1A: 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

Subcatchment 1B: 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"

	Area (sf)	CN	Description
*	30,870	65	Woods, Good, HSG B/D
*	62,635	70	>75% Grass cover, Good, HSG B/D
*	35,125	98	Paved parking, HSG B/D
*	3,500	96	Gravel surface, HSG B/D
	132,130	77	Weighted Average
	97,005		73.42% Pervious Area
	35,125		26.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to 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

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
*	27,870	65	Woods, Good, HSG B/D
	18,145	98	Paved parking, HSG C
	101,705	96	Gravel surface, HSG C
	35,050	87	Dirt roads, HSG C
	16,700	70	Woods, Good, HSG C
*	45,570	70	>75% Grass cover, Good, HSG B/D
	56,390	74	>75% Grass cover, Good, HSG C
*	4,860	98	Ledge Outcroppings, HSG C
*	8,865	98	Paved parking, HSG B/D
	83,125	82	Dirt roads, HSG B
*	13,155	98	Ledge Outcroppings, HSG B
	3,525	77	Woods, Good, HSG D
	5,975	96	Gravel surface, HSG D
	420,935	84	Weighted Average
	375,910		89.30% Pervious Area
	45,025		10.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 = 44.43 cfs @ 12.09 hrs, Volume= 138,700 cf, Depth> 4.95"
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"

	Area (sf)	CN	Description
*	3,090	65	Woods, Good, HSG B/D
	128,465	70	Woods, Good, HSG C
	113,625	87	Dirt roads, HSG C
*	29,750	85	Dirt roads, HSG B/D
	5,550	89	Dirt roads, HSG D
	13,305	80	>75% Grass cover, Good, HSG D
	2,840	77	Woods, Good, HSG D
	18,360	74	>75% Grass cover, Good, HSG C
*	7,450	98	Ledge Outcroppings, HSG C
*	14,030	70	>75% Grass cover, Good, HSG B/D
	336,465	79	Weighted Average
	329,015		97.79% Pervious Area
	7,450		2.21% Impervious Area

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 2A: Overland to Southern Wetland

Runoff = 7.66 cfs @ 12.09 hrs, Volume= 23,743 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"

	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

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, 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"

	Area (sf)	CN	Description
*	38,580	65	Woods, Good, HSG B/D
*	115	85	Dirt roads, HSG B/D
*	33,365	70	>75% Grass cover, Good, HSG B/D
	72,060	67	Weighted Average
	72,060		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2C: Overland to Localized Low Point

Runoff = 9.83 cfs @ 12.09 hrs, Volume= 30,563 cf, Depth> 3.41"
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"

	Area (sf)	CN	Description
*	64,195	65	Woods, Good, HSG B/D
*	4,750	85	Dirt roads, HSG B/D
	710	77	Woods, Good, HSG D
	28,110	61	>75% Grass cover, Good, HSG B
	7,470	55	Woods, Good, HSG B
	2,300	80	>75% Grass cover, Good, HSG D
	107,535	65	Weighted Average
	107,535		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 to 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

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
	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 (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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

Inflow Area = 889,530 sf, 9.85% Impervious, Inflow Depth > 5.18" for 10-Year (2090) event
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 Area = 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

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

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 1A: Overland to Sawmill Runoff Area=132,130 sf 26.58% Impervious Runoff Depth>8.74"
Flow Length=700' Tc=6.0 min CN=77 Runoff=30.28 cfs 96,240 cf

Subcatchment 1B: Overland to Atwater Runoff Area=420,935 sf 10.70% Impervious Runoff Depth>9.67"
Flow Length=715' Tc=15.3 min CN=84 Runoff=78.40 cfs 339,052 cf

Subcatchment 1C: Overland to Abutter Runoff Area=336,465 sf 2.21% Impervious Runoff Depth>9.01"
Flow Length=530' Tc=6.0 min CN=79 Runoff=78.92 cfs 252,705 cf

Subcatchment 2A: Overland to Southern Runoff Area=78,615 sf 0.24% Impervious Runoff Depth>7.33"
Flow Length=630' Tc=6.0 min CN=67 Runoff=15.48 cfs 48,038 cf

Subcatchment 2B: Overland to Route 128 Runoff Area=72,060 sf 0.00% Impervious Runoff Depth>7.33"
Flow Length=575' Tc=6.0 min CN=67 Runoff=14.19 cfs 44,033 cf

Subcatchment 2C: Overland to Localized Runoff Area=107,535 sf 0.00% Impervious Runoff Depth>7.04"
Flow Length=325' Tc=6.0 min CN=65 Runoff=20.38 cfs 63,104 cf

Subcatchment 2D: Overland to Western Runoff Area=424,900 sf 0.00% Impervious Runoff Depth>7.45"
Flow Length=710' 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"

	Area (sf)	CN	Description
*	30,870	65	Woods, Good, HSG B/D
*	62,635	70	>75% Grass cover, Good, HSG B/D
*	35,125	98	Paved parking, HSG B/D
*	3,500	96	Gravel surface, HSG B/D
	132,130	77	Weighted Average
	97,005		73.42% Pervious Area
	35,125		26.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to 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

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
*	27,870	65	Woods, Good, HSG B/D
	18,145	98	Paved parking, HSG C
	101,705	96	Gravel surface, HSG C
	35,050	87	Dirt roads, HSG C
	16,700	70	Woods, Good, HSG C
*	45,570	70	>75% Grass cover, Good, HSG B/D
	56,390	74	>75% Grass cover, Good, HSG C
*	4,860	98	Ledge Outcroppings, HSG C
*	8,865	98	Paved parking, HSG B/D
	83,125	82	Dirt roads, HSG B
*	13,155	98	Ledge Outcroppings, HSG B
	3,525	77	Woods, Good, HSG D
	5,975	96	Gravel surface, HSG D
	420,935	84	Weighted Average
	375,910		89.30% Pervious Area
	45,025		10.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 = 78.92 cfs @ 12.09 hrs, Volume= 252,705 cf, Depth> 9.01"
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"

	Area (sf)	CN	Description
*	3,090	65	Woods, Good, HSG B/D
	128,465	70	Woods, Good, HSG C
	113,625	87	Dirt roads, HSG C
*	29,750	85	Dirt roads, HSG B/D
	5,550	89	Dirt roads, HSG D
	13,305	80	>75% Grass cover, Good, HSG D
	2,840	77	Woods, Good, HSG D
	18,360	74	>75% Grass cover, Good, HSG C
*	7,450	98	Ledge Outcroppings, HSG C
*	14,030	70	>75% Grass cover, Good, HSG B/D
	336,465	79	Weighted Average
	329,015		97.79% Pervious Area
	7,450		2.21% Impervious Area

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 2A: Overland to Southern Wetland

Runoff = 15.48 cfs @ 12.09 hrs, Volume= 48,038 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"

	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

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to 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"

	Area (sf)	CN	Description
*	38,580	65	Woods, Good, HSG B/D
*	115	85	Dirt roads, HSG B/D
*	33,365	70	>75% Grass cover, Good, HSG B/D
	72,060	67	Weighted Average
	72,060		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment 2C: Overland to Localized Low Point

Runoff = 20.38 cfs @ 12.09 hrs, Volume= 63,104 cf, Depth> 7.04"
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"

	Area (sf)	CN	Description
*	64,195	65	Woods, Good, HSG B/D
*	4,750	85	Dirt roads, HSG B/D
	710	77	Woods, Good, HSG D
	28,110	61	>75% Grass cover, Good, HSG B
	7,470	55	Woods, Good, HSG B
	2,300	80	>75% Grass cover, Good, HSG D
	107,535	65	Weighted Average
	107,535		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 to minimum 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

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
	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 (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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

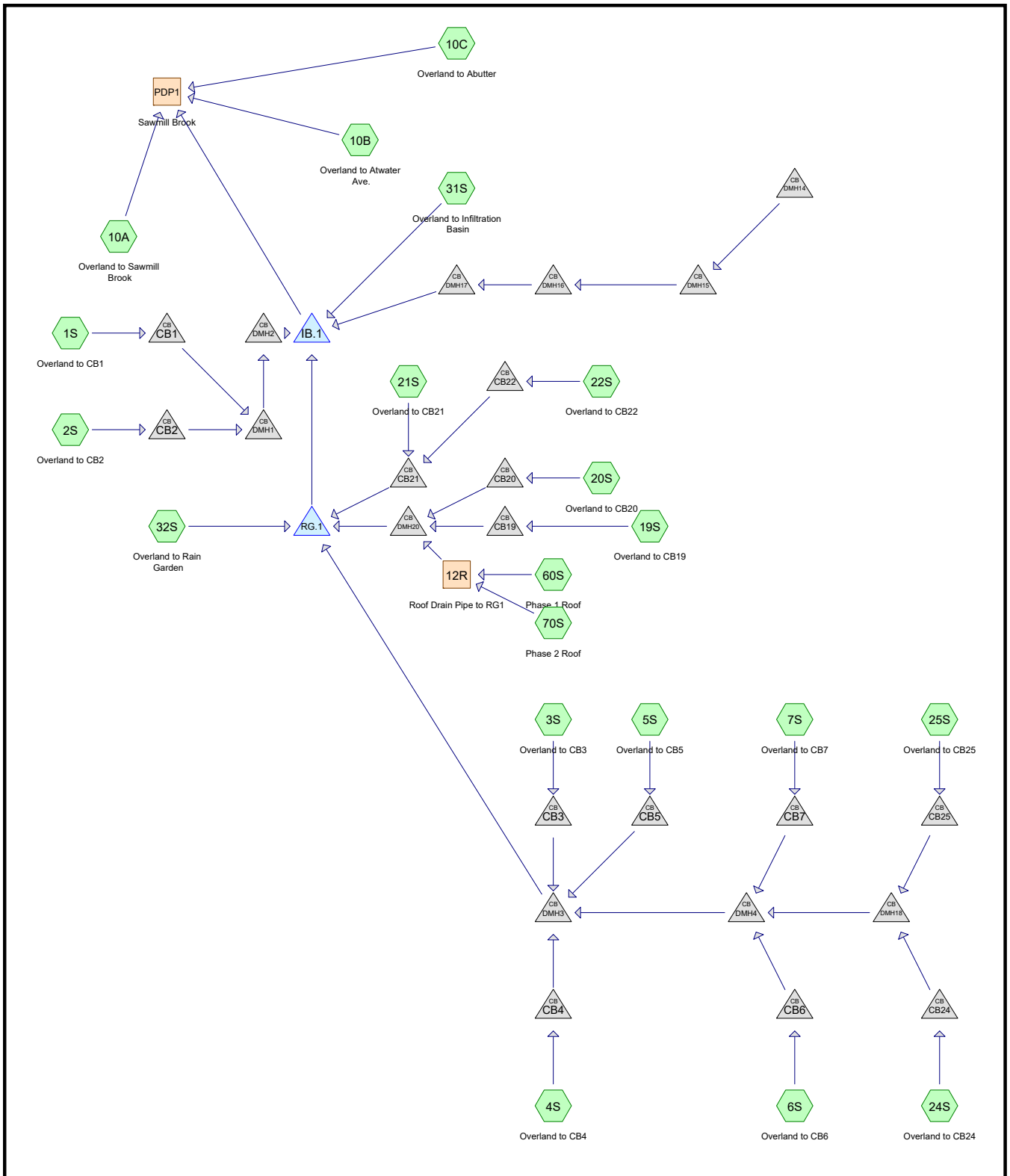
Inflow Area = 889,530 sf, 9.85% Impervious, Inflow Depth > 9.28" for 100-Year (2090) event
Inflow = 167.52 cfs @ 12.10 hrs, Volume= 687,997 cf
Outflow = 167.52 cfs @ 12.10 hrs, Volume= 687,997 cf, Atten= 0%, Lag= 0.0 min

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 Area = 683,110 sf, 0.03% Impervious, Inflow Depth > 7.36" for 100-Year (2090) 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



Routing Diagram for 25770rev5.17
Prepared by Hancock Associates, Printed 5/20/2024
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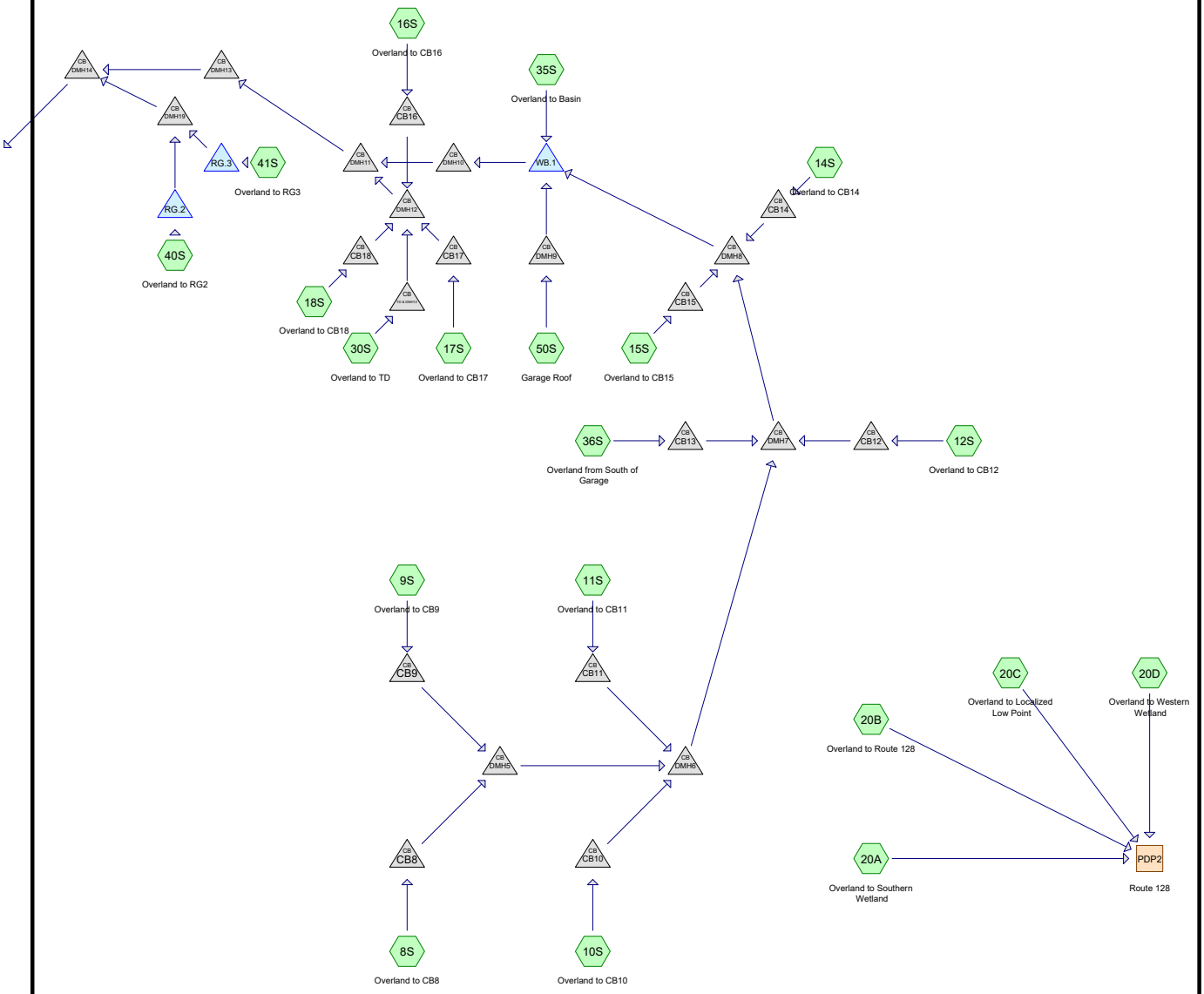

POST DEVELOPMENT

Subcat Reach Pond Link

Routing Diagram for 25770rev5.17
Prepared by Hancock Associates, Printed 5/20/2024
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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
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, 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, 22S, 30S, 31S, 32S, 35S, 40S, 41S)
15,750	80	>75% Grass cover, Good, HSG D (10S, 12S, 14S, 20C, 36S)
2,265	98	Concrete Pad, HSG B/D (30S)
3,325	96	Gravel surface, HSG B/D (2S, 10C)
15,845	96	Gravel surface, HSG C (10B, 10C, 21S, 22S)
270	96	Gravel surface, HSG D (10S)
1,935	98	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 parking, HSG B/D
*	4,695	70	>75% Grass cover, Good, HSG B/D
*	4,180	65	Woods, Good, HSG B/D
	11,705	75	Weighted Average
	8,875		75.82% Pervious Area
	2,830		24.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 :

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
*	5,710	98	Paved parking, HSG B/D
*	6,972	70	>75% Grass cover, Good, HSG B/D
	1,490	98	Paved parking, HSG C
	168	74	>75% Grass cover, Good, HSG C
*	1,935	98	Ledge Outcropping, HSG B/D
*	6,678	66	Woods, Good, HSG B/D
	22,953	80	Weighted Average
	13,818		60.20% Pervious Area
	9,135		39.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

	Area (sf)	CN	Description
*	3,180	98	Paved parking, HSG B/D
	3,180		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**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 :

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
*	3,965	98	Paved parking, HSG B/D
*	15,793	70	>75% Grass cover, Good, HSG B/D
*	12,664	66	Woods, Good, HSG B/D
	32,422	72	Weighted Average
	28,457		87.77% Pervious Area
	3,965		12.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

	Area (sf)	CN	Description
*	2,625	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 = 1.57 cfs @ 12.09 hrs, Volume= 4,887 cf, Depth> 2.12"
Routed to Pond CB7 :

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
*	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

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

Summary for Subcatchment 8S: Overland to CB8

Runoff = 0.18 cfs @ 12.08 hrs, Volume= 632 cf, Depth> 4.46"
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 2-Year (2090) Rainfall=4.70"

	Area (sf)	CN	Description
*	1,700	98	Paved parking, HSG B/D
	1,700		100.00% Impervious Area

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

Summary for Subcatchment 9S: Overland to CB9

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 2,508 cf, Depth> 3.38"
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 2-Year (2090) Rainfall=4.70"

	Area (sf)	CN	Description
*	5,575	98	Paved parking, HSG B/D
*	3,325	70	>75% Grass cover, Good, HSG B/D
	8,900	88	Weighted Average
	3,325		37.36% Pervious Area
	5,575		62.64% Impervious Area

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

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
*	7,635	65	Woods, Good, HSG B/D
*	6,960	70	>75% Grass cover, Good, HSG B/D
*	9,235	98	Paved parking, HSG B/D
	23,830	79	Weighted Average
	14,595		61.25% Pervious Area
	9,235		38.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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

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
6,980	98	Paved parking, HSG C
11,900	70	Woods, Good, HSG C
17,140	74	>75% Grass cover, Good, HSG C
3,915	96	Gravel surface, HSG C
39,935	79	Weighted Average
32,955		82.52% Pervious Area
6,980		17.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 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"

	Area (sf)	CN	Description
	114,485	70	Woods, Good, HSG C
	65,825	74	>75% Grass cover, Good, HSG C
*	7,450	98	Ledge Outcroppings, HSG C
*	10,055	65	Woods, Good, HSG B/D
	21,980	78	Meadow, non-grazed, HSG D
	22,755	71	Meadow, non-grazed, HSG C
*	43,555	68	Meadow, non-grazed, HSG B/D
*	795	96	Gravel surface, HSG B/D
	9,595	96	Gravel surface, HSG C
	296,495	73	Weighted Average
	289,045		97.49% Pervious Area
	7,450		2.51% Impervious Area

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 10S: Overland to CB10

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

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
*	1,995	98	Paved parking, HSG B/D
	1,130	80	>75% Grass cover, Good, HSG D
	1,130	98	Paved parking, HSG D
	270	96	Gravel surface, HSG D
	4,525	93	Weighted Average
	1,400		30.94% Pervious Area
	3,125		69.06% Impervious Area

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

Summary for Subcatchment 11S: Overland to CB11

Runoff = 0.48 cfs @ 12.08 hrs, Volume= 1,674 cf, Depth> 4.46"
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 2-Year (2090) Rainfall=4.70"

	Area (sf)	CN	Description
*	3,235	98	Paved parking, HSG B/D
	1,270	98	Paved parking, HSG D
	4,505	98	Weighted Average
	4,505		100.00% Impervious Area

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

Summary for Subcatchment 12S: Overland to CB12

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

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
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

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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
6,675		81.70% Pervious Area
1,495		18.30% Impervious Area

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

Summary for Subcatchment 15S: Overland to CB15

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

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
2,690	98	Paved parking, HSG C
4,250	74	>75% Grass cover, Good, HSG C
6,940	83	Weighted Average
4,250		61.24% Pervious Area
2,690		38.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 :

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
6,645	98	Paved parking, HSG C
16,150	74	>75% Grass cover, Good, HSG C
22,795	81	Weighted Average
16,150		70.85% Pervious Area
6,645		29.15% Impervious Area

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

Summary for Subcatchment 17S: Overland to CB17

Runoff = 1.58 cfs @ 12.13 hrs, Volume= 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"

	Area (sf)	CN	Description
*	920	70	>75% Grass cover, Good, HSG B/D
*	112	98	Paved parking, HSG B/D
	8,838	98	Paved parking, HSG C
	11,990	74	>75% Grass cover, Good, HSG C
	21,860	84	Weighted Average
	12,910		59.06% Pervious Area
	8,950		40.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 to Pond CB18 :

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
*	780	98	Paved parking, HSG B/D
	4,020	98	Paved parking, HSG C
	4,800	98	Weighted Average
	4,800		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

	Area (sf)	CN	Description
	12,005	98	Paved parking, HSG C
	17,285	74	>75% Grass cover, Good, HSG C
	29,290	84	Weighted Average
	17,285		59.01% Pervious Area
	12,005		40.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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

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
*	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

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to 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"

Area (sf)	CN	Description
33,640	55	Woods, Good, HSG B
16,095	61	>75% Grass cover, Good, HSG B
49,735	57	Weighted Average
49,735		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to 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

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
*	51,750	65	Woods, Good, HSG B/D
	895	77	Woods, Good, HSG D
	10,425	55	Woods, Good, HSG B
*	17,695	70	>75% Grass cover, Good, HSG B/D
	300	61	>75% Grass cover, Good, HSG B
	1,650	80	>75% Grass cover, Good, HSG D
	82,715	65	Weighted Average
	82,715		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 to 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

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
	117,965	55	Woods, Good, HSG B
*	102,245	65	Woods, Good, HSG B/D
	108,953	77	Woods, Good, HSG D
	11,215	70	Woods, Good, HSG C
	10,760	58	Meadow, non-grazed, HSG B
	52,282	78	Meadow, non-grazed, HSG D
*	30,255	68	Meadow, non-grazed, HSG B/D
	433,675	67	Weighted Average
	433,675		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

Area (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

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

Summary for Subcatchment 21S: Overland to CB21

Runoff = 0.34 cfs @ 12.08 hrs, Volume= 1,169 cf, Depth> 4.34"
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 2-Year (2090) Rainfall=4.70"

Area (sf)	CN	Description
2,295	98	Paved parking, HSG C
935	96	Gravel surface, HSG C
3,230	97	Weighted Average
935		28.95% Pervious Area
2,295		71.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 :

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

Summary for Subcatchment 24S: Overland to CB24

Runoff = 0.51 cfs @ 12.08 hrs, Volume= 1,795 cf, Depth> 4.46"
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 2-Year (2090) Rainfall=4.70"

	Area (sf)	CN	Description
*	4,830	98	Paved parking, HSG B/D
	4,830		100.00% Impervious Area

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

Summary for Subcatchment 25S: 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"

	Area (sf)	CN	Description
*	10,065	98	Paved parking, HSG B/D
*	5,280	70	>75% Grass cover, Good, HSG B/D
	15,345	88	Weighted Average
	5,280		34.41% Pervious Area
	10,065		65.59% Impervious Area

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

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"

	Area (sf)	CN	Description
*	8,290	98	Paved parking, HSG B/D
*	6,545	70	>75% Grass cover, Good, HSG B/D
*	2,265	98	Concrete Pad, HSG B/D
	610	74	>75% Grass cover, Good, HSG C
	17,710	87	Weighted Average
	7,155		40.40% Pervious Area
	10,555		59.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 to Pond IB.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"

Area (sf)	CN	Description
21,085	74	>75% Grass cover, Good, HSG C
21,085		100.00% Pervious Area

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 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"

	Area (sf)	CN	Description
	29,925	74	>75% Grass cover, Good, HSG C
*	14,740	70	>75% Grass cover, Good, HSG B/D
*	1,720	66	Woods, Good, HSG B/D
	46,385	72	Weighted Average
	46,385		100.00% Pervious Area

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 35S: Overland to Basin

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

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

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= 4,681 cf, Depth> 2.45"
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"

	Area (sf)	CN	Description
*	2,890	98	Paved parking, HSG B/D
*	14,240	70	>75% Grass cover, Good, HSG B/D
	2,945	98	Paved parking, HSG D
	2,830	80	>75% Grass cover, Good, HSG D
	22,905	78	Weighted Average
	17,070		74.53% Pervious Area
	5,835		25.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 = 2.83 cfs @ 12.17 hrs, Volume= 10,646 cf, Depth> 2.63"
Routed to Pond RG.2 :

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
	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 parking, HSG C
	48,640	80	Weighted Average
	34,505		70.94% Pervious Area
	14,135		29.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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= 2,112 cf, Depth> 2.37"
Routed to Pond RG.3 :

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
	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 Average
	9,005		84.12% Pervious Area
	1,700		15.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

Area (sf)	CN	Description
34,430	98	Roofs, HSG C
34,430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	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, HSG C
47,970		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	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

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
37,100	98	Roofs, HSG C
37,100		100.00% Impervious Area

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

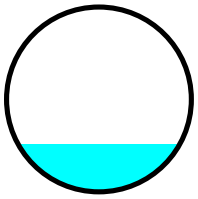
Summary for Reach 12R: Roof Drain Pipe to RG1

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 Area = 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 cf
Outflow = 14.79 cfs @ 12.31 hrs, Volume= 80,704 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 > 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 :

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'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.80'	**12.0" Round Culvert** 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=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 :

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= 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 Area = 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 Area = 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 cf
Outflow = 0.77 cfs @ 12.09 hrs, Volume= 2,376 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.77 cfs @ 12.09 hrs, Volume= 2,376 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= 85.21' @ 12.09 hrs
Flood Elev= 88.21'

Device	Routing	Invert	Outlet Devices
#1	Primary	84.70'	**12.0" Round Culvert** 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 Area = 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 cf
Outflow = 1.21 cfs @ 12.18 hrs, Volume= 4,681 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.21 cfs @ 12.18 hrs, Volume= 4,681 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= 85.30' @ 12.18 hrs
Flood Elev= 88.23'

Device	Routing	Invert	Outlet Devices
#1	Primary	84.70'	**12.0" Round Culvert** 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
Outflow = 0.58 cfs @ 12.09 hrs, Volume= 1,790 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.58 cfs @ 12.09 hrs, Volume= 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
Routed to Pond DMH8 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 83.43' @ 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
Routed to Pond DMH12 :

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

Peak Elev= 74.44' @ 12.10 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=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 Area = 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 Pond 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'	**12.0" Round Culvert** 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:

Inflow Area = 4,800 sf,100.00% Impervious, Inflow Depth > 4.46" for 2-Year (2090) event
Inflow = 0.51 cfs @ 12.08 hrs, Volume= 1,784 cf
Outflow = 0.51 cfs @ 12.08 hrs, Volume= 1,784 cf, Atten= 0%, Lag= 0.0 min
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 Area = 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 cf
Outflow = 2.35 cfs @ 12.09 hrs, Volume= 7,308 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.35 cfs @ 12.09 hrs, Volume= 7,308 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= 72.68' @ 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=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 Area = 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 cf
Outflow = 0.74 cfs @ 12.09 hrs, Volume= 2,311 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.74 cfs @ 12.09 hrs, Volume= 2,311 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'	**12.0" Round Culvert** 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
Outflow = 1.15 cfs @ 12.09 hrs, Volume= 3,559 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.15 cfs @ 12.09 hrs, Volume= 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 :

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 :

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

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 :

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'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.00'	**12.0" Round Culvert** 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

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
Outflow = 1.37 cfs @ 12.09 hrs, Volume= 4,324 cf, Atten= 0%, Lag= 0.0 min
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 Area = 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
Outflow = 1.26 cfs @ 12.20 hrs, Volume= 5,022 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.26 cfs @ 12.20 hrs, Volume= 5,022 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= 69.97' @ 12.15 hrs
Flood Elev= 72.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.33'	**15.0" Round Culvert** 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 Area = 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'	**12.0" Round Culvert** 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
Outflow = 1.31 cfs @ 12.20 hrs, Volume= 5,304 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.31 cfs @ 12.20 hrs, Volume= 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:

Inflow Area = 2,625 sf,100.00% Impervious, Inflow Depth > 4.46" for 2-Year (2090) event
Inflow = 0.28 cfs @ 12.08 hrs, Volume= 976 cf
Outflow = 0.28 cfs @ 12.08 hrs, Volume= 976 cf, Atten= 0%, Lag= 0.0 min
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

Primary OutFlow Max=0.28 cfs @ 12.08 hrs HW=90.79' TW=89.06' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.28 cfs @ 1.45 fps)

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 :

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

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:

Inflow Area = 1,700 sf,100.00% Impervious, Inflow Depth > 4.46" for 2-Year (2090) event
Inflow = 0.18 cfs @ 12.08 hrs, Volume= 632 cf
Outflow = 0.18 cfs @ 12.08 hrs, Volume= 632 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.18 cfs @ 12.08 hrs, Volume= 632 cf
Routed to Pond DMH5 :

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'	**12.0" Round Culvert** 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 :

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 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 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'	**12.0" Round Culvert** 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 Area = 114,705 sf, 53.15% Impervious, Inflow Depth > 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 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'	**18.0" Round Culvert** 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 :

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'	**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 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 :

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 :

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

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
Routed to Pond DMH15 :

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
#1	Primary	68.00'	**30.0" Round Culvert** 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:

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
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 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
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'	**30.0" Round Culvert** 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 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
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'	**30.0" Round Culvert** 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
Outflow = 1.88 cfs @ 12.09 hrs, Volume= 6,119 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.88 cfs @ 12.09 hrs, Volume= 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'

Device	Routing	Invert	Outlet Devices
#1	Primary	112.50'	**12.0" Round Culvert** L= 242.0' Ke= 0.500 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 :

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	Routing	Invert	Outlet Devices
#1	Primary	73.00'	**18.0" Round Culvert** 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=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 :

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

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
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= 69.48' @ 12.09 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=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
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= 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 Area = 50,400 sf, 42.40% Impervious, Inflow Depth > 2.85" for 2-Year (2090) event
Inflow = 3.72 cfs @ 12.09 hrs, Volume= 11,981 cf
Outflow = 3.72 cfs @ 12.09 hrs, Volume= 11,981 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.72 cfs @ 12.09 hrs, Volume= 11,981 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= 89.07' @ 12.09 hrs
Flood Elev= 94.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.00'	**18.0" Round Culvert** 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 Area = 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 cf
Outflow = 0.97 cfs @ 12.09 hrs, Volume= 3,140 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.97 cfs @ 12.09 hrs, Volume= 3,140 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= 112.83' @ 12.09 hrs
Flood Elev= 116.06'

Device	Routing	Invert	Outlet Devices
#1	Primary	112.25'	**12.0" Round Culvert** 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=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
Outflow = 1.90 cfs @ 12.08 hrs, Volume= 6,285 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.90 cfs @ 12.08 hrs, Volume= 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 :

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
Routed to Pond WB.1 :

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

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 Corrugated PP, smooth interior, Flow Area= 3.14 sf

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 :

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'	**18.0" Round Culvert** 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
Outflow = 15.73 cfs @ 12.42 hrs, Volume= 120,701 cf, Atten= 42%, Lag= 16.7 min
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)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	58,016 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	5,730	0	0
48.00	8,209	13,939	13,939
50.00	10,964	19,173	33,112
52.00	13,940	24,904	58,016

Device	Routing	Invert	Outlet Devices
#1	Primary	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 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	51.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	48.00'	**4.0' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)
#4	Primary	51.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#5	Discarded	46.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'

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)
│ └**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 :

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)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
66.25	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'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	60.00'	**30.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 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=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 Area = 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 cf
Outflow = 2.73 cfs @ 12.20 hrs, Volume= 9,181 cf, Atten= 4%, Lag= 2.0 min
Primary = 2.73 cfs @ 12.20 hrs, Volume= 9,181 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= 79.22' @ 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	Invert	Avail.Storage	Storage Description
#1	78.00'	3,855 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.00	950	0	0
80.00	2,905	3,855	3,855

Device	Routing	Invert	Outlet Devices
#1	Device 2	79.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	75.00'	**15.0" Round Culvert** 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 Area = 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 cf
Outflow = 0.27 cfs @ 12.46 hrs, Volume= 1,258 cf, Atten= 52%, Lag= 17.3 min
Primary = 0.27 cfs @ 12.46 hrs, Volume= 1,258 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= 79.05' @ 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	Invert	Avail.Storage	Storage Description
#1	78.00'	2,375 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.00	510	0	0
80.00	1,865	2,375	2,375

Device	Routing	Invert	Outlet Devices
#1	Device 2	79.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	75.50'	**12.0" Round Culvert** L= 214.0' CPP, projecting, no 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 :

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'	**15.0" Round Culvert** 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 Area = 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 to Pond 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	Invert	Avail.Storage	Storage Description
#1	80.50'	39,438 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
80.50	4,635	0	0
82.00	5,950	7,939	7,939
84.00	7,605	13,555	21,494
86.00	10,339	17,944	39,438

Device	Routing	Invert	Outlet Devices
#1	Primary	80.50'	**12.0" Round Culvert** 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'	**24.0" W x 24.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	85.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 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)

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

Subcatchment 9S: 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 Sawmill 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 Atwater 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 Abutter 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

Subcatchment 15S: 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 Southern 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

Subcatchment 20B: Overland to Route 128 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 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 Runoff Area=433,675 sf 0.00% Impervious Runoff Depth>3.61"
Flow 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 Infiltration 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

Subcatchment 35S: 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

Subcatchment 36S: Overland from South Runoff Area=22,905 sf 25.47% Impervious Runoff Depth>4.83"
Flow Length=535' Tc=12.8 min CN=78 Runoff=2.38 cfs 9,215 cf

Subcatchment 40S: Overland to 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

Subcatchment 41S: Overland to 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

Subcatchment 60S: Phase 1 Roof 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

Subcatchment 70S: Phase 2 Roof 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 RG1 Avg. Flow Depth=0.65' Max Vel=15.93 fps Inflow=14.18 cfs 50,723 cf
24.0" Round Pipe n=0.018 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

Pond CB1: Peak Elev=53.53' Inflow=1.42 cfs 4,388 cf
12.0" Round Culvert n=0.012 L=6.0' S=0.0667 '/' Outflow=1.42 cfs 4,388 cf

Pond CB10: Peak Elev=86.89' Inflow=0.73 cfs 2,474 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=0.73 cfs 2,474 cf

Pond CB11: Peak Elev=86.90' Inflow=0.75 cfs 2,686 cf
12.0" Round Culvert n=0.012 L=9.0' S=0.0111 '/' Outflow=0.75 cfs 2,686 cf

Pond CB12: Peak Elev=85.54' Inflow=1.40 cfs 4,424 cf
12.0" Round Culvert n=0.012 L=9.0' S=0.0222 '/' Outflow=1.40 cfs 4,424 cf

Pond CB13: Peak Elev=85.64' Inflow=2.38 cfs 9,215 cf
12.0" Round Culvert n=0.012 L=10.0' S=0.0200 '/' Outflow=2.38 cfs 9,215 cf

Pond CB14: Peak Elev=84.34' Inflow=1.10 cfs 3,445 cf
12.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=1.10 cfs 3,445 cf

Pond CB15: Peak Elev=84.34' Inflow=0.99 cfs 3,124 cf
12.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=0.99 cfs 3,124 cf

Pond CB16: Peak Elev=75.35' Inflow=3.13 cfs 9,827 cf
12.0" Round Culvert n=0.012 L=25.0' S=0.0100 '/' Outflow=3.13 cfs 9,827 cf

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

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

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 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)	CN	Description
*	2,830	98	Paved parking, HSG B/D
*	4,695	70	>75% Grass cover, Good, HSG B/D
*	4,180	65	Woods, Good, HSG B/D
	11,705	75	Weighted Average
	8,875		75.82% Pervious Area
	2,830		24.18% Impervious Area

Tc (min)	Length (feet)	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"

	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

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 :

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
*	5,710	98	Paved parking, HSG B/D
*	6,972	70	>75% Grass cover, Good, HSG B/D
	1,490	98	Paved parking, HSG C
	168	74	>75% Grass cover, Good, HSG C
*	1,935	98	Ledge Outcropping, HSG B/D
*	6,678	66	Woods, Good, HSG B/D
	22,953	80	Weighted Average
	13,818		60.20% Pervious Area
	9,135		39.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

	Area (sf)	CN	Description
*	3,180	98	Paved parking, HSG B/D
	3,180		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**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 :

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
*	3,965	98	Paved parking, HSG B/D
*	15,793	70	>75% Grass cover, Good, HSG B/D
*	12,664	66	Woods, Good, HSG B/D
	32,422	72	Weighted Average
	28,457		87.77% Pervious Area
	3,965		12.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

	Area (sf)	CN	Description
*	2,625	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 = 3.26 cfs @ 12.09 hrs, Volume= 10,092 cf, Depth> 4.39"
Routed to Pond CB7 :

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
*	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

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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
*	5,575	98	Paved parking, HSG B/D
*	3,325	70	>75% Grass cover, Good, HSG B/D
	8,900	88	Weighted Average
	3,325		37.36% Pervious Area
	5,575		62.64% Impervious Area

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 = 3.15 cfs @ 12.09 hrs, Volume= 9,823 cf, Depth> 4.95"
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"

	Area (sf)	CN	Description
*	7,635	65	Woods, Good, HSG B/D
*	6,960	70	>75% Grass cover, Good, HSG B/D
*	9,235	98	Paved parking, HSG B/D
	23,830	79	Weighted Average
	14,595		61.25% Pervious Area
	9,235		38.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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

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
6,980	98	Paved parking, HSG C
11,900	70	Woods, Good, HSG C
17,140	74	>75% Grass cover, Good, HSG C
3,915	96	Gravel surface, HSG C
39,935	79	Weighted Average
32,955		82.52% Pervious Area
6,980		17.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 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"

	Area (sf)	CN	Description
	114,485	70	Woods, Good, HSG C
	65,825	74	>75% Grass cover, Good, HSG C
*	7,450	98	Ledge Outcroppings, HSG C
*	10,055	65	Woods, Good, HSG B/D
	21,980	78	Meadow, non-grazed, HSG D
	22,755	71	Meadow, non-grazed, HSG C
*	43,555	68	Meadow, non-grazed, HSG B/D
*	795	96	Gravel surface, HSG B/D
	9,595	96	Gravel surface, HSG C
	296,495	73	Weighted Average
	289,045		97.49% Pervious Area
	7,450		2.51% Impervious Area

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 10S: Overland to CB10

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

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
*	1,995	98	Paved parking, HSG B/D
	1,130	80	>75% Grass cover, Good, HSG D
	1,130	98	Paved parking, HSG D
	270	96	Gravel surface, HSG D
	4,525	93	Weighted Average
	1,400		30.94% Pervious Area
	3,125		69.06% Impervious Area

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

Summary for Subcatchment 11S: Overland to CB11

Runoff = 0.75 cfs @ 12.08 hrs, Volume= 2,686 cf, Depth> 7.16"
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 10-Year (2090) Rainfall=7.40"

	Area (sf)	CN	Description
*	3,235	98	Paved parking, HSG B/D
	1,270	98	Paved parking, HSG D
	4,505	98	Weighted Average
	4,505		100.00% Impervious Area

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

Summary for Subcatchment 12S: Overland to CB12

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

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
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

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

Summary for Subcatchment 14S: Overland to CB14

Runoff = 1.10 cfs @ 12.09 hrs, Volume= 3,445 cf, Depth> 5.06"
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 10-Year (2090) Rainfall=7.40"

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

Summary for Subcatchment 15S: Overland to CB15

Runoff = 0.99 cfs @ 12.09 hrs, Volume= 3,124 cf, Depth> 5.40"
Routed to Pond CB15 :

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
2,690	98	Paved parking, HSG C
4,250	74	>75% Grass cover, Good, HSG C
6,940	83	Weighted Average
4,250		61.24% Pervious Area
2,690		38.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	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 :

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
6,645	98	Paved parking, HSG C
16,150	74	>75% Grass cover, Good, HSG C
22,795	81	Weighted Average
16,150		70.85% Pervious Area
6,645		29.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"
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"

	Area (sf)	CN	Description
*	920	70	>75% Grass cover, Good, HSG B/D
*	112	98	Paved parking, HSG B/D
	8,838	98	Paved parking, HSG C
	11,990	74	>75% Grass cover, Good, HSG C
	21,860	84	Weighted Average
	12,910		59.06% Pervious Area
	8,950		40.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 = 0.80 cfs @ 12.08 hrs, Volume= 2,862 cf, Depth> 7.16"
Routed to Pond CB18 :

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
*	780	98	Paved parking, HSG B/D
	4,020	98	Paved parking, HSG C
	4,800	98	Weighted Average
	4,800		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	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"

	Area (sf)	CN	Description
	12,005	98	Paved parking, HSG C
	17,285	74	>75% Grass cover, Good, HSG C
	29,290	84	Weighted Average
	17,285		59.01% Pervious Area
	12,005		40.99% Impervious Area

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

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

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
*	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

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to 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"

Area (sf)	CN	Description
33,640	55	Woods, Good, HSG B
16,095	61	>75% Grass cover, Good, HSG B
49,735	57	Weighted Average
49,735		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to 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

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
*	51,750	65	Woods, Good, HSG B/D
	895	77	Woods, Good, HSG D
	10,425	55	Woods, Good, HSG B
*	17,695	70	>75% Grass cover, Good, HSG B/D
	300	61	>75% Grass cover, Good, HSG B
	1,650	80	>75% Grass cover, Good, HSG D
	82,715	65	Weighted Average
	82,715		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 to 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

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
	117,965	55	Woods, Good, HSG B
*	102,245	65	Woods, Good, HSG B/D
	108,953	77	Woods, Good, HSG D
	11,215	70	Woods, Good, HSG C
	10,760	58	Meadow, non-grazed, HSG B
	52,282	78	Meadow, non-grazed, HSG D
*	30,255	68	Meadow, non-grazed, HSG B/D
	433,675	67	Weighted Average
	433,675		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

Area (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

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

Summary for Subcatchment 21S: Overland to CB21

Runoff = 0.54 cfs @ 12.08 hrs, Volume= 1,894 cf, Depth> 7.04"
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"

Area (sf)	CN	Description
2,295	98	Paved parking, HSG C
935	96	Gravel surface, HSG C
3,230	97	Weighted Average
935		28.95% Pervious Area
2,295		71.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 :

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
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 (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 :

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
*	10,065	98	Paved parking, HSG B/D
*	5,280	70	>75% Grass cover, Good, HSG B/D
	15,345	88	Weighted Average
	5,280		34.41% Pervious Area
	10,065		65.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	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"

	Area (sf)	CN	Description
*	8,290	98	Paved parking, HSG B/D
*	6,545	70	>75% Grass cover, Good, HSG B/D
*	2,265	98	Concrete Pad, HSG B/D
	610	74	>75% Grass cover, Good, HSG C
	17,710	87	Weighted Average
	7,155		40.40% Pervious Area
	10,555		59.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 IB.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"

Area (sf)	CN	Description
21,085	74	>75% Grass cover, Good, HSG C
21,085		100.00% Pervious Area

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 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"

	Area (sf)	CN	Description
	29,925	74	>75% Grass cover, Good, HSG C
*	14,740	70	>75% Grass cover, Good, HSG B/D
*	1,720	66	Woods, Good, HSG B/D
	46,385	72	Weighted Average
	46,385		100.00% Pervious Area

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 35S: Overland to Basin

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

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

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= 9,215 cf, Depth> 4.83"
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 10-Year (2090) Rainfall=7.40"

	Area (sf)	CN	Description
*	2,890	98	Paved parking, HSG B/D
*	14,240	70	>75% Grass cover, Good, HSG B/D
	2,945	98	Paved parking, HSG D
	2,830	80	>75% Grass cover, Good, HSG D
	22,905	78	Weighted Average
	17,070		74.53% Pervious Area
	5,835		25.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 = 5.38 cfs @ 12.17 hrs, Volume= 20,486 cf, Depth> 5.05"
Routed to Pond RG.2 :

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
	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 parking, HSG C
	48,640	80	Weighted Average
	34,505		70.94% Pervious Area
	14,135		29.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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= 4,207 cf, Depth> 4.72"
Routed to Pond RG.3 :

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
	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 Average
	9,005		84.12% Pervious Area
	1,700		15.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

Area (sf)	CN	Description
34,430	98	Roofs, HSG C
34,430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	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	Roofs, HSG C
47,970		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	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

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
37,100	98	Roofs, HSG C
37,100		100.00% Impervious Area

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

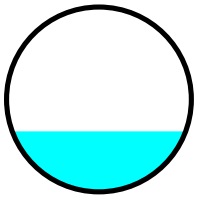
Summary for Reach 12R: Roof Drain Pipe to RG1

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 Area = 636,625 sf, 0.03% Impervious, Inflow Depth > 3.51" for 10-Year (2090) event
Inflow = 35.21 cfs @ 12.28 hrs, Volume= 185,985 cf
Outflow = 35.21 cfs @ 12.28 hrs, Volume= 185,985 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 > 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 :

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'	**12.0" Round Culvert** 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=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 :

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
#1	Primary	86.00'	**12.0" Round Culvert** 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, Atten= 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 Area = 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'	**12.0" Round Culvert** 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, Atten= 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'	**12.0" Round Culvert** 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
Outflow = 1.10 cfs @ 12.09 hrs, Volume= 3,445 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.10 cfs @ 12.09 hrs, Volume= 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 :

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
#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=0.74 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 :

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
#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=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, Atten= 0%, Lag= 0.0 min
Primary = 2.85 cfs @ 12.12 hrs, Volume= 10,042 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= 75.56' @ 12.12 hrs
Flood Elev= 81.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.50'	**12.0" Round Culvert** 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=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 :

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 Area = 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 min
Primary = 4.24 cfs @ 12.09 hrs, Volume= 13,463 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= 73.56' @ 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 Area = 8,450 sf, 31.66% Impervious, Inflow Depth > 5.86" for 10-Year (2090) event
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 to Pond 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'	**12.0" Round Culvert** 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
Outflow = 2.19 cfs @ 12.09 hrs, Volume= 6,847 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.19 cfs @ 12.09 hrs, Volume= 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 :

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	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=1.13 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 :

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'	**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=0.60 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
Routed to Pond DMH18 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 113.80' @ 12.08 hrs
Flood Elev= 117.08'

Device	Routing	Invert	Outlet Devices
#1	Primary	113.00'	**12.0" Round Culvert** 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

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 :

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 Area = 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, Atten= 0%, Lag= 0.0 min
Primary = 2.40 cfs @ 12.19 hrs, Volume= 9,663 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= 70.57' @ 12.12 hrs
Flood Elev= 72.95'

Device	Routing	Invert	Outlet Devices
#1	Primary	69.33'	**15.0" Round Culvert** 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 Area = 3,180 sf,100.00% Impervious, Inflow Depth > 7.16" 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, Atten= 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'	**12.0" Round Culvert** 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
Outflow = 2.84 cfs @ 12.19 hrs, Volume= 11,241 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.84 cfs @ 12.19 hrs, Volume= 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 :

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'	**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

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
Routed to Pond DMH4 :

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'	**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=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 :

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'	**12.0" Round Culvert** 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 :

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 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 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'	**12.0" Round Culvert** 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 Area = 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'	**18.0" Round Culvert** 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
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 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 n= 0.012 Corrugated PP, smooth interior, Flow Area= 4.91 sf

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:

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 :

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 :

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

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
Routed to Pond DMH15 :

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
#1	Primary	68.00'	**30.0" Round Culvert** 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:

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
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 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
Routed to Pond DMH17 :

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 59.69' @ 12.12 hrs
Flood Elev= 68.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	58.00'	**30.0" Round Culvert** 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 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
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'	**30.0" Round Culvert** 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
Outflow = 3.16 cfs @ 12.08 hrs, Volume= 10,523 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.16 cfs @ 12.08 hrs, Volume= 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'

Device	Routing	Invert	Outlet Devices
#1	Primary	112.50'	**12.0" Round Culvert** L= 242.0' Ke= 0.500 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 :

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'	**18.0" Round Culvert** 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 :

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

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
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= 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
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= 70.39' @ 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=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 Area = 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, Atten= 0%, Lag= 0.0 min
Primary = 6.86 cfs @ 12.09 hrs, Volume= 22,181 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= 89.79' @ 12.09 hrs
Flood Elev= 94.75'

Device	Routing	Invert	Outlet Devices
#1	Primary	88.00'	**18.0" Round Culvert** 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 Area = 10,600 sf, 68.63% Impervious, Inflow Depth > 6.17" for 10-Year (2090) event
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 to Pond 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'	**12.0" Round Culvert** 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
Outflow = 3.13 cfs @ 12.08 hrs, Volume= 10,607 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.13 cfs @ 12.08 hrs, Volume= 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 :

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
Routed to Pond WB.1 :

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	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 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 Area = 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, Atten= 0%, Lag= 0.0 min
Primary = 5.74 cfs @ 12.08 hrs, Volume= 20,529 cf
Routed to Pond 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'	**18.0" Round Culvert** 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 Reach PDP1 : Sawmill Brook

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 51.34' @ 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)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	58,016 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	5,730	0	0
48.00	8,209	13,939	13,939
50.00	10,964	19,173	33,112
52.00	13,940	24,904	58,016

Device	Routing	Invert	Outlet Devices
#1	Primary	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 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	51.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	48.00'	**4.0' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)
#4	Primary	51.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#5	Discarded	46.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'

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)
│ └**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 :

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)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
66.25	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'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	60.00'	**30.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 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 Area = 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, Atten= 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	Invert	Avail.Storage	Storage Description
#1	78.00'	3,855 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.00	950	0	0
80.00	2,905	3,855	3,855

Device	Routing	Invert	Outlet Devices
#1	Device 2	79.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	75.00'	**15.0" Round Culvert** 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=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 Area = 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	Invert	Avail.Storage	Storage Description
#1	78.00'	2,375 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.00	510	0	0
80.00	1,865	2,375	2,375

Device	Routing	Invert	Outlet Devices
#1	Device 2	79.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	75.50'	**12.0" Round Culvert** L= 214.0' CPP, projecting, no 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=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
Inflow = 2.68 cfs @ 12.08 hrs, Volume= 8,650 cf
Outflow = 2.68 cfs @ 12.08 hrs, Volume= 8,650 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.68 cfs @ 12.08 hrs, Volume= 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'	**15.0" Round Culvert** 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=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 Area = 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 to Pond 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	Invert	Avail.Storage	Storage Description
#1	80.50'	39,438 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
80.50	4,635	0	0
82.00	5,950	7,939	7,939
84.00	7,605	13,555	21,494
86.00	10,339	17,944	39,438

Device	Routing	Invert	Outlet Devices
#1	Primary	80.50'	**12.0" Round Culvert** 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'	**24.0" W x 24.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	85.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 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)

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

Subcatchment 2S: 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

Subcatchment 4S: 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

Subcatchment 6S: 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

Subcatchment 7S: 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

Subcatchment 8S: 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

Subcatchment 9S: 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 Sawmill 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 Atwater 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 Abutter 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

Subcatchment 15S: 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

Subcatchment 18S: 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 Southern 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 128 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 Localized 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 Western 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 Infiltration 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

Subcatchment 35S: 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

Subcatchment 36S: Overland from South 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

Subcatchment 40S: 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

Subcatchment 41S: 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

Subcatchment 60S: 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

Subcatchment 70S: 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 Avg. Flow Depth=0.84' Max Vel=18.06 fps Inflow=22.46 cfs 81,170 cf
24.0" Round Pipe n=0.018 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: Peak Elev=56.26' Inflow=2.61 cfs 8,257 cf
12.0" Round Culvert n=0.012 L=6.0' S=0.0667 '/' Outflow=2.61 cfs 8,257 cf

Pond CB10: Peak Elev=88.28' Inflow=1.18 cfs 4,085 cf
12.0" Round Culvert n=0.012 L=5.0' S=0.0200 '/' Outflow=1.18 cfs 4,085 cf

Pond CB11: Peak Elev=88.28' Inflow=1.19 cfs 4,298 cf
12.0" Round Culvert n=0.012 L=9.0' S=0.0111 '/' Outflow=1.19 cfs 4,298 cf

Pond CB12: Peak Elev=87.64' Inflow=2.40 cfs 7,821 cf
12.0" Round Culvert n=0.012 L=9.0' S=0.0222 '/' Outflow=2.40 cfs 7,821 cf

Pond CB13: Peak Elev=88.23' Inflow=4.28 cfs 16,924 cf
12.0" Round Culvert n=0.012 L=10.0' S=0.0200 '/' Outflow=4.28 cfs 16,924 cf

Pond CB14: Peak Elev=86.57' Inflow=1.94 cfs 6,228 cf
12.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=1.94 cfs 6,228 cf

Pond CB15: Peak Elev=86.48' Inflow=1.70 cfs 5,522 cf
12.0" Round Culvert n=0.012 L=6.0' S=0.0167 '/' Outflow=1.70 cfs 5,522 cf

Pond CB16: Peak Elev=78.08' Inflow=5.46 cfs 17,632 cf
12.0" Round Culvert n=0.012 L=25.0' S=0.0100 '/' Outflow=5.46 cfs 17,632 cf

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

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

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 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 (sf)	CN	Description
*	2,830	98	Paved parking, HSG B/D
*	4,695	70	>75% Grass cover, Good, HSG B/D
*	4,180	65	Woods, Good, HSG B/D
	11,705	75	Weighted Average
	8,875		75.82% Pervious Area
	2,830		24.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 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

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 :

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
*	5,710	98	Paved parking, HSG B/D
*	6,972	70	>75% Grass cover, Good, HSG B/D
	1,490	98	Paved parking, HSG C
	168	74	>75% Grass cover, Good, HSG C
*	1,935	98	Ledge Outcropping, HSG B/D
*	6,678	66	Woods, Good, HSG B/D
	22,953	80	Weighted Average
	13,818		60.20% Pervious Area
	9,135		39.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

	Area (sf)	CN	Description
*	3,180	98	Paved parking, HSG B/D
	3,180		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	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 :

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
*	3,965	98	Paved parking, HSG B/D
*	15,793	70	>75% Grass cover, Good, HSG B/D
*	12,664	66	Woods, Good, HSG B/D
	32,422	72	Weighted Average
	28,457		87.77% Pervious Area
	3,965		12.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

	Area (sf)	CN	Description
*	2,625	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 :

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
*	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

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

Summary for Subcatchment 8S: Overland to CB8

Runoff = 0.45 cfs @ 12.08 hrs, Volume= 1,622 cf, Depth>11.45"
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 100-Year (2090) Rainfall=11.70"

	Area (sf)	CN	Description
*	1,700	98	Paved parking, HSG B/D
	1,700		100.00% Impervious Area

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

Summary for Subcatchment 9S: Overland to CB9

Runoff = 2.26 cfs @ 12.08 hrs, Volume= 7,565 cf, Depth>10.20"
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 100-Year (2090) Rainfall=11.70"

	Area (sf)	CN	Description
*	5,575	98	Paved parking, HSG B/D
*	3,325	70	>75% Grass cover, Good, HSG B/D
	8,900	88	Weighted Average
	3,325		37.36% Pervious Area
	5,575		62.64% Impervious Area

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 = 5.59 cfs @ 12.09 hrs, Volume= 17,898 cf, Depth> 9.01"
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"

	Area (sf)	CN	Description
*	7,635	65	Woods, Good, HSG B/D
*	6,960	70	>75% Grass cover, Good, HSG B/D
*	9,235	98	Paved parking, HSG B/D
	23,830	79	Weighted Average
	14,595		61.25% Pervious Area
	9,235		38.75% Impervious Area

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

Summary for Subcatchment 10B: Overland to Atwater Ave.

Runoff = 7.07 cfs @ 12.20 hrs, Volume= 29,947 cf, Depth> 9.00"
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"

Area (sf)	CN	Description
6,980	98	Paved parking, HSG C
11,900	70	Woods, Good, HSG C
17,140	74	>75% Grass cover, Good, HSG C
3,915	96	Gravel surface, HSG C
39,935	79	Weighted Average
32,955		82.52% Pervious Area
6,980		17.48% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 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"

	Area (sf)	CN	Description
	114,485	70	Woods, Good, HSG C
	65,825	74	>75% Grass cover, Good, HSG C
*	7,450	98	Ledge Outcroppings, HSG C
*	10,055	65	Woods, Good, HSG B/D
	21,980	78	Meadow, non-grazed, HSG D
	22,755	71	Meadow, non-grazed, HSG C
*	43,555	68	Meadow, non-grazed, HSG B/D
*	795	96	Gravel surface, HSG B/D
	9,595	96	Gravel surface, HSG C
	296,495	73	Weighted Average
	289,045		97.49% Pervious Area
	7,450		2.51% Impervious Area

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 10S: Overland to CB10

Runoff = 1.18 cfs @ 12.08 hrs, Volume= 4,085 cf, Depth>10.83"
Routed to Pond CB10 :

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
*	1,995	98	Paved parking, HSG B/D
	1,130	80	>75% Grass cover, Good, HSG D
	1,130	98	Paved parking, HSG D
	270	96	Gravel surface, HSG D
	4,525	93	Weighted Average
	1,400		30.94% Pervious Area
	3,125		69.06% Impervious Area

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

Summary for Subcatchment 11S: Overland to CB11

Runoff = 1.19 cfs @ 12.08 hrs, Volume= 4,298 cf, Depth>11.45"
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 (sf)	CN	Description
*	3,235	98	Paved parking, HSG B/D
	1,270	98	Paved parking, HSG D
	4,505	98	Weighted Average
	4,505		100.00% Impervious Area

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

Summary for Subcatchment 12S: Overland to CB12

Runoff = 2.40 cfs @ 12.08 hrs, Volume= 7,821 cf, Depth> 9.55"
Routed to Pond CB12 :

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
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

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 :

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

Summary for Subcatchment 15S: Overland to CB15

Runoff = 1.70 cfs @ 12.08 hrs, Volume= 5,522 cf, Depth> 9.55"
Routed to Pond CB15 :

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
2,690	98	Paved parking, HSG C
4,250	74	>75% Grass cover, Good, HSG C
6,940	83	Weighted Average
4,250		61.24% Pervious Area
2,690		38.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 :

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
6,645	98	Paved parking, HSG C
16,150	74	>75% Grass cover, Good, HSG C
22,795	81	Weighted Average
16,150		70.85% Pervious Area
6,645		29.15% Impervious Area

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

Summary for Subcatchment 17S: Overland to CB17

Runoff = 4.86 cfs @ 12.12 hrs, Volume= 17,625 cf, Depth> 9.68"
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 100-Year (2090) Rainfall=11.70"

	Area (sf)	CN	Description
*	920	70	>75% Grass cover, Good, HSG B/D
*	112	98	Paved parking, HSG B/D
	8,838	98	Paved parking, HSG C
	11,990	74	>75% Grass cover, Good, HSG C
	21,860	84	Weighted Average
	12,910		59.06% Pervious Area
	8,950		40.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 = 1.27 cfs @ 12.08 hrs, Volume= 4,580 cf, Depth>11.45"
Routed to Pond CB18 :

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
*	780	98	Paved parking, HSG B/D
	4,020	98	Paved parking, HSG C
	4,800	98	Weighted Average
	4,800		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	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"

Area (sf)	CN	Description
12,005	98	Paved parking, HSG C
17,285	74	>75% Grass cover, Good, HSG C
29,290	84	Weighted Average
17,285		59.01% Pervious Area
12,005		40.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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

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
*	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

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to minimum Tc = 6.0 min			

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"

Area (sf)	CN	Description
33,640	55	Woods, Good, HSG B
16,095	61	>75% Grass cover, Good, HSG B
49,735	57	Weighted Average
49,735		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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, Increased to 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

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
*	51,750	65	Woods, Good, HSG B/D
	895	77	Woods, Good, HSG D
	10,425	55	Woods, Good, HSG B
*	17,695	70	>75% Grass cover, Good, HSG B/D
	300	61	>75% Grass cover, Good, HSG B
	1,650	80	>75% Grass cover, Good, HSG D
	82,715	65	Weighted Average
	82,715		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 to 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

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
	117,965	55	Woods, Good, HSG B
*	102,245	65	Woods, Good, HSG B/D
	108,953	77	Woods, Good, HSG D
	11,215	70	Woods, Good, HSG C
	10,760	58	Meadow, non-grazed, HSG B
	52,282	78	Meadow, non-grazed, HSG D
*	30,255	68	Meadow, non-grazed, HSG B/D
	433,675	67	Weighted Average
	433,675		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

Area (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

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

Summary for Subcatchment 21S: Overland to CB21

Runoff = 0.85 cfs @ 12.08 hrs, Volume= 3,049 cf, Depth>11.33"
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 100-Year (2090) Rainfall=11.70"

Area (sf)	CN	Description
2,295	98	Paved parking, HSG C
935	96	Gravel surface, HSG C
3,230	97	Weighted Average
935		28.95% Pervious Area
2,295		71.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 :

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

Summary for Subcatchment 24S: Overland to CB24

Runoff = 1.28 cfs @ 12.08 hrs, Volume= 4,609 cf, Depth>11.45"
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 100-Year (2090) Rainfall=11.70"

	Area (sf)	CN	Description
*	4,830	98	Paved parking, HSG B/D
	4,830		100.00% Impervious Area

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

Summary for Subcatchment 25S: Overland to CB25

Runoff = 3.90 cfs @ 12.08 hrs, Volume= 13,044 cf, Depth>10.20"
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 100-Year (2090) Rainfall=11.70"

	Area (sf)	CN	Description
*	10,065	98	Paved parking, HSG B/D
*	5,280	70	>75% Grass cover, Good, HSG B/D
	15,345	88	Weighted Average
	5,280		34.41% Pervious Area
	10,065		65.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (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"

	Area (sf)	CN	Description
*	8,290	98	Paved parking, HSG B/D
*	6,545	70	>75% Grass cover, Good, HSG B/D
*	2,265	98	Concrete Pad, HSG B/D
	610	74	>75% Grass cover, Good, HSG C
	17,710	87	Weighted Average
	7,155		40.40% Pervious Area
	10,555		59.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 Pond IB.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"

Area (sf)	CN	Description
21,085	74	>75% Grass cover, Good, HSG C
21,085		100.00% Pervious Area

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 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"

	Area (sf)	CN	Description
	29,925	74	>75% Grass cover, Good, HSG C
*	14,740	70	>75% Grass cover, Good, HSG B/D
*	1,720	66	Woods, Good, HSG B/D
	46,385	72	Weighted Average
	46,385		100.00% Pervious Area

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 35S: Overland to Basin

Runoff = 2.82 cfs @ 12.09 hrs, Volume= 8,881 cf, Depth> 8.33"
Routed to Pond WB.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"

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

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 = 4.28 cfs @ 12.17 hrs, Volume= 16,924 cf, Depth> 8.87"
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 100-Year (2090) Rainfall=11.70"

	Area (sf)	CN	Description
*	2,890	98	Paved parking, HSG B/D
*	14,240	70	>75% Grass cover, Good, HSG B/D
	2,945	98	Paved parking, HSG D
	2,830	80	>75% Grass cover, Good, HSG D
	22,905	78	Weighted Average
	17,070		74.53% Pervious Area
	5,835		25.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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 :

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
	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 parking, HSG C
	48,640	80	Weighted Average
	34,505		70.94% Pervious Area
	14,135		29.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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= 7,789 cf, Depth> 8.73"
Routed to Pond RG.3 :

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
	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 Average
	9,005		84.12% Pervious Area
	1,700		15.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
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"

Area (sf)	CN	Description
34,430	98	Roofs, HSG C
34,430		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	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, HSG C
47,970		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	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

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
37,100	98	Roofs, HSG C
37,100		100.00% Impervious Area

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

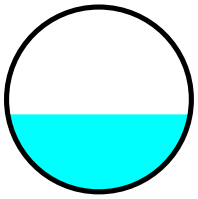
Summary for Reach 12R: Roof Drain Pipe to RG1

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 Area = 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 :

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
#1	Primary	52.80'	**12.0" Round Culvert** 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 :

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'	**12.0" Round Culvert** 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 Area = 4,505 sf,100.00% Impervious, 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'	**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=0.55 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 Area = 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	Routing	Invert	Outlet Devices
#1	Primary	84.70'	**12.0" Round Culvert** 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=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 Area = 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, Atten= 0%, Lag= 0.0 min
Primary = 4.28 cfs @ 12.17 hrs, Volume= 16,924 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= 88.23' @ 12.14 hrs
Flood Elev= 88.23'

Device	Routing	Invert	Outlet Devices
#1	Primary	84.70'	**12.0" Round Culvert** 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
Outflow = 1.94 cfs @ 12.08 hrs, Volume= 6,228 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.94 cfs @ 12.08 hrs, Volume= 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 :

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'

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=1.44 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 :

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

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 :

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
#1	Primary	73.50'	**12.0" Round Culvert** 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=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 :

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 Area = 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 to Pond 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'	**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=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 Area = 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 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'

Device	Routing	Invert	Outlet Devices
#1	Primary	53.00'	**12.0" Round Culvert** 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=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
Outflow = 3.85 cfs @ 12.08 hrs, Volume= 12,380 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.85 cfs @ 12.08 hrs, Volume= 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 :

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 :

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

Peak Elev= 68.69' @ 12.08 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=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:

Inflow Area = 4,830 sf,100.00% Impervious, Inflow Depth > 11.45" for 100-Year (2090) event
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
#1	Primary	113.00'	**12.0" Round Culvert** 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

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:

Inflow Area = 15,345 sf, 65.59% Impervious, Inflow Depth > 10.20" for 100-Year (2090) event
Inflow = 3.90 cfs @ 12.08 hrs, Volume= 13,044 cf
Outflow = 3.90 cfs @ 12.08 hrs, Volume= 13,044 cf, Atten= 0%, Lag= 0.0 min
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 Area = 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 to Pond 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'	**15.0" Round Culvert** 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 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'	**12.0" Round Culvert** 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
Outflow = 5.42 cfs @ 12.19 hrs, Volume= 21,708 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.42 cfs @ 12.19 hrs, Volume= 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 :

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'

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

Primary OutFlow Max=0.69 cfs @ 12.08 hrs HW=91.95' TW=91.90' (Dynamic Tailwater)
1=Culvert (Inlet Controls 0.69 cfs @ 0.88 fps)

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
Routed to Pond DMH4 :

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

Peak Elev= 94.50' @ 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=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 :

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'	**12.0" Round Culvert** 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 :

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 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
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'	**12.0" Round Culvert** 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 Area = 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, Atten= 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'	**18.0" Round Culvert** 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 :

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'	**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 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 :

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
Routed to Pond DMH14 :

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

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
Routed to Pond DMH15 :

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
#1	Primary	68.00'	**30.0" Round Culvert** 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 :

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 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 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'	**30.0" Round Culvert** 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" 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 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
#1	Primary	54.00'	**30.0" Round Culvert** 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
Outflow = 5.17 cfs @ 12.08 hrs, Volume= 17,652 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.17 cfs @ 12.08 hrs, Volume= 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	Primary	112.50'	**12.0" Round Culvert** L= 242.0' Ke= 0.500 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 :

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'	**18.0" Round Culvert** 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
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= 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
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= 71.26' @ 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=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
Outflow = 20.23 cfs @ 12.11 hrs, Volume= 81,523 cf, Atten= 0%, Lag= 0.0 min
Primary = 20.23 cfs @ 12.11 hrs, Volume= 81,523 cf
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-Year (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'	**18.0" Round Culvert** 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 Area = 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'	**12.0" Round Culvert** 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
Outflow = 5.08 cfs @ 12.08 hrs, Volume= 17,571 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.08 cfs @ 12.08 hrs, Volume= 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 :

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
Routed to Pond WB.1 :

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

Peak Elev= 86.30' @ 12.13 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 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 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'	**18.0" Round Culvert** 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:

Inflow Area = 575,755 sf, 44.26% Impervious, Inflow Depth > 9.36" for 100-Year (2090) event
Inflow = 91.17 cfs @ 12.15 hrs, Volume= 449,311 cf
Outflow = 88.53 cfs @ 12.19 hrs, Volume= 433,553 cf, Atten= 3%, Lag= 2.6 min
Discarded = 0.32 cfs @ 12.19 hrs, Volume= 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)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	58,016 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	5,730	0	0
48.00	8,209	13,939	13,939
50.00	10,964	19,173	33,112
52.00	13,940	24,904	58,016

Device	Routing	Invert	Outlet Devices
#1	Primary	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 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	51.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	48.00'	**4.0' long Sharp-Crested Rectangular Weir** 0 End Contraction(s)
#4	Primary	51.00'	**15.0' long x 10.0' breadth Broad-Crested Rectangular Weir X 2.00** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#5	Discarded	46.00'	**1.020 in/hr Exfiltration over Surface area** Phase-In= 0.01'

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)
│ └**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:

Inflow Area = 293,300 sf, 48.27% Impervious, Inflow Depth > 9.66" for 100-Year (2090) event
Inflow = 65.22 cfs @ 12.09 hrs, Volume= 236,181 cf
Outflow = 52.85 cfs @ 12.15 hrs, Volume= 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)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
66.25	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'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Primary	60.00'	**30.0" Round Culvert** L= 70.0' CPP, square edge headwall, Ke= 0.500 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=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)
  - **3=Orifice/Grate** (Orifice Controls 38.10 cfs @ 4.76 fps)

Summary for Pond RG.2:

Inflow Area = 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, Atten= 3%, Lag= 1.8 min
Primary = 9.19 cfs @ 12.19 hrs, Volume= 35,551 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= 79.50' @ 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	Invert	Avail.Storage	Storage Description
#1	78.00'	3,855 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.00	950	0	0
80.00	2,905	3,855	3,855

Device	Routing	Invert	Outlet Devices
#1	Device 2	79.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	75.00'	**15.0" Round Culvert** 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 Area = 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 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	Invert	Avail.Storage	Storage Description
#1	78.00'	2,375 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
78.00	510	0	0
80.00	1,865	2,375	2,375

Device	Routing	Invert	Outlet Devices
#1	Device 2	79.00'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	75.50'	**12.0" Round Culvert** L= 214.0' CPP, projecting, no 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=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 1.98 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 :

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

Peak Elev= 76.74' @ 12.09 hrs
Flood Elev= 77.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	73.75'	**15.0" Round Culvert** 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 Area = 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 Pond 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	Invert	Avail.Storage	Storage Description
#1	80.50'	39,438 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
80.50	4,635	0	0
82.00	5,950	7,939	7,939
84.00	7,605	13,555	21,494
86.00	10,339	17,944	39,438

Device	Routing	Invert	Outlet Devices
#1	Primary	80.50'	**12.0" Round Culvert** 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'	**24.0" W x 24.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	85.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 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

25770
Prepared by Hancock Associates
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Stage-Area-Storage for Pond IB.1:

	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (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	6,102	1,775	50.00	10,964	33,112
	46.40	6,226	2,391	50.10	11,113	34,216
	46.50	6,350	3,020	50.20	11,262	35,335
	46.60	6,474	3,661	50.30	11,410	36,468
	46.70	6,598	4,315	50.40	11,559	37,617
	46.80	6,722	4,981	50.50	11,708	38,780
	46.90	6,846	5,659	50.60	11,857	39,958
	47.00	6,970	6,350	50.70	12,006	41,151
	47.10	7,093	7,053	50.80	12,154	42,359
	47.20	7,217	7,768	50.90	12,303	43,582
	47.30	7,341	8,496	51.00	12,452	44,820
	47.40	7,465	9,237	51.10	12,601	46,073
	47.50	7,589	9,989	51.20	12,750	47,340
	47.60	7,713	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	8,085	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	8,485	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	9,036	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	10,000	25,775			
	49.40	10,137	26,782			
	49.50	10,275	27,802			
	49.60	10,413	28,837			

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 1

Elevation (feet)	Surface (sq-ft)	Storage (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 2

Elevation (feet)	Surface (sq-ft)	Storage (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	2,709	3,294
79.90	2,807	3,569
80.00	**2,905**	**3,855**

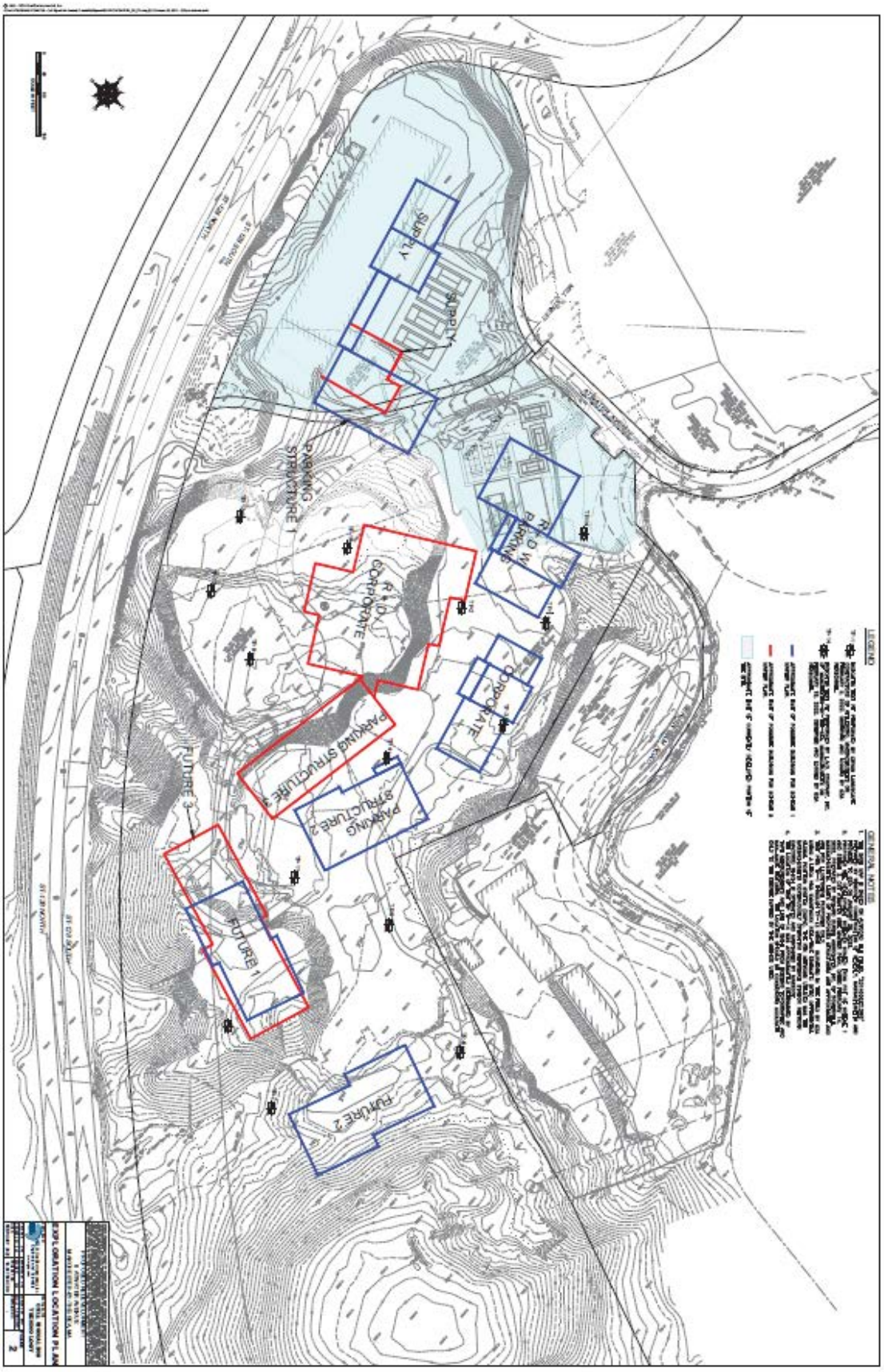
Rain Garden 3

Elevation (feet)	Surface (sq-ft)	Storage (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)	C	B	Type	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



GZA
GeoEnvironmental, Inc.
Engineers/Scientists
144 Elm Street
Amesbury, MA 01913

Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-1
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

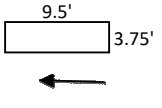
GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	73.0
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	0830
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	0900

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0						
0.9'	Black, F-C GRAVEL and Asphalt MILLINGS, some F-C Sand (Asphalt FILL)			M	3A	1
1'	Brown, F-C SAND, some F-C Gravel, little Cobbles, little Silt (FILL)			D	7A	2
2'						
2.6'				D	2A	3
3'	Excavator refusal on apparent Bedrock. Bottom of Test Pit 2.6 feet below ground surface.					
4'						
5'						
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.
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 backfilled with excavated material in lifts and tamped with the heel of the excavator bucket.

Test Pit Plan



Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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.

GZA
GeoEnvironmental, Inc.
Engineers/Scientists
144 Elm Street
Amesbury, MA 01913

Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-2
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	74.2
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	0915
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	0945

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0	0.5' Black, F-C GRAVEL and Asphalt MILLINGS, some F-C Sand (Asphalt FILL)			D		1, 2
1'	Excavator refusal on frozen Asphalt Fill.					
	Bottom of Test Pit 0.5 feet below ground surface.					
2'						
3'						
4'						
5'						
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. Test pit was terminated at approximately 0.5 feet below ground surface (bgs) due to excavator refusal on apparent frozen soil. The test pit was offset two additional times, ~5 ft to north each time, encountering refusal at 0.2 feet bgs and 0.4 feet bgs respectively. Upon completion, test pit was backfilled with excavated material and tamped with the heel of the excavator bucket.

Test Pit Plan

10.5' × 3.3

NORTH

Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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.

GZA
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Engineers/Scientists
144 Elm Street
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Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-3
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

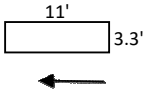
GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	79.1
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	0950
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	1015

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0	0.7' Black, F-C GRAVEL and Asphalt MILLINGS, some F-C Sand (Asphalt FILL)			D	2A	1
1'	Brown, F-C SAND, little F-C Gravel, litle Cobbles, little Silt (FILL)			M	6A	
2'	2.7'			D	7A/2B	
3'	Gray, COBBLES and F-C SAND, some Gravel, trace Silt (BLAST ROCK)			D	9A/1B	2
4'	4.4'			D	3A	3
5'	Excavator refusal on apparent Bedrock. Bottom of Test Pit 4.4 feet below ground surface.					
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.
3. Test pit terminated at approximately 4.4 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

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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.

GZA
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Engineers/Scientists
144 Elm Street
Amesbury, MA 01913

Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-4
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

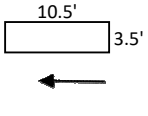
GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	80.4
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	1020
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	1040

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0	0.25' Brown, F-C GRAVEL and F-C SAND, little Silt (FILL)			D		1,
1'	1.7' Black, F-C GRAVEL and Asphalt MILLINGS, some F-C Sand (Asphalt FILL)			D		
2'	Excavator refusal on frozen Asphalt Fill. Bottom of Test Pit 1.7 feet below ground surface.					
3'						
4'						
5'						
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. Test pit was terminated at approximately 1.7 feet below ground surface (bgs) due to excavator refusal on apparent frozen soil. The test pit was offset two additional times, ~5 ft to north each time, encountering refusal at 1.4 feet bgs and 1.1 feet bgs respectively. Upon completion, test pit was backfilled with excavated material and tamped with the heel of the excavator bucket.

Test Pit Plan



Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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.

GZA
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Engineers/Scientists
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Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-5
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

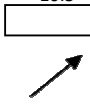
GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	79.3
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	1100
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	1130

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0	0.25' Black, F-C GRAVEL and Asphalt MILLINGS, some F-C Sand (Asphalt FILL)			M	7A	1,
1'	Brown, COBBLES and F-C GRAVEL, some F-M Sand, trace Silt (BLAST ROCK)			M/D	20A/6B	
2'				D	16A/2B	
3'				D	11A	2, 3
4'	4.5'			M	4A	4
5'	Bottom of Test Pit 4.5 feet below ground surface					
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. Staining observed on fractured rock at approximately 3.5 feet below ground surface (bgs).
3. Groundwater observed seeping through test pit sidewalls at approximately 3.9 feet bgs.
4. Test pit terminated at approximately 4.5 feet below ground surface due to groundwater infiltration into excavation. 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

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
(X) Encountered
( ) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water
10 min	3.9 feet

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.

GZA
GeoEnvironmental, Inc.
Engineers/Scientists
144 Elm Street
Amesbury, MA 01913

Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-6
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

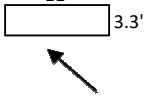
GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	86.5
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	1135
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	1155

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0	0.2' Black, F-C GRAVEL and Asphalt MILLINGS, some F-C Sand (Asphalt FILL)			D	2A	1
1'	Brown, F-C SAND, some F-C Gravel, little Cobbles, little Silt, trace Brick,			D	3A	2
	1.8' trace Metal, trace Wood (FILL)			D	7A	
2'	Brown, F-C SAND, some Cobbles, little F-C Gravel, trace Silt (SAND & GRAVEL)			D	5A	3
3'	3.8' Excavator refusal on apparent Bedrock.					
4'	Bottom of Test Pit 3.8 feet below ground surface.					
5'						
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. 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

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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.

GZA
GeoEnvironmental, Inc.
Engineers/Scientists
144 Elm Street
Amesbury, MA 01913

Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-7
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

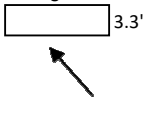
GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	104.6
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	1200
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	1225

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0						
1'	Brown, F-C SAND, some F-C Gravel, little Silt, trace Brick, trace Wood, trace Plastic, (FILL)			D	1A	1
1.8'				D	1A	2
2'	Excavator refusal on frozen Fill. Bottom of Test Pit 1.8 feet below ground surface.					
3'						
4'						
5'						
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. Test pit was terminated at approximately 1.8 feet below ground surface (bgs) due to excavator refusal on apparent frozen soil. The test pit was offset two additional times, ~5 ft to north and ~5 feet to the east, encountering refusal at 0.6 feet bgs and 1.3 feet bgs respectively. Upon completion, test pit was backfilled with excavated material and tamped with the heel of the excavator bucket.

Test Pit Plan



Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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.

GZA
GeoEnvironmental, Inc.
Engineers/Scientists
144 Elm Street
Amesbury, MA 01913

Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-8
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

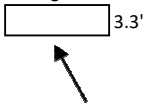
GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	105.0
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	1230
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	1255

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0						
1'	Brown, F-C SAND, some F-C Gravel, little Silt, trace Brick, trace Wood (FILL)			D	1A	1
1.1'	Excavator refusal on frozen Fill.			D	1A	2
2'	Bottom of Test Pit 1.1 feet below ground surface.					
3'						
4'						
5'						
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. Test pit was terminated at approximately 1.1 feet below ground surface (bgs) due to excavator refusal on apparent frozen soil. The test pit was offset two additional times, ~5 ft to south and ~5 feet to the west, encountering refusal at 0.5 feet bgs and 0.8 feet bgs respectively. Upon completion, test pit was backfilled with excavated material and tamped with the heel of the excavator bucket.

Test Pit Plan



Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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.

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Engineers/Scientists
144 Elm Street
Amesbury, MA 01913

Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-9
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

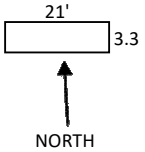
GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	120.9
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	1300
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	1320

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0	0.1 Dark brown, SILT and fine SAND, trace Roots/Organics, trace F-C Gravel (TOPSOIL)			E	4A	1,
1'				E	6A	
2'	Dark brown, F-C SAND, some (-) Cobbles, little Clayey Silt, little F-C Gravel (GLACIAL TILL)			M	12A	
3'				M	9A	
4'				M	8A/2B	
5'				D	6A	
6'				D	4A	
7'				D	6A	
8'	8.7'			D	2A	
9'	Excavator refusal on apparent Bedrock. Bottom of Test Pit 8.7 feet below ground surface.					
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. Test pit terminated at approximately 8.7 feet below ground surface 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

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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.

GZA
GeoEnvironmental, Inc.
Engineers/Scientists
144 Elm Street
Amesbury, MA 01913

Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-10
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

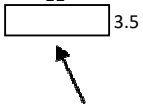
GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	110.0
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	1325
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	1345

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0	Dark brown, SILT and fine SAND, trace Roots/Organics, trace F-C Gravel (TOPSOIL)			E	1A	1
1'				E	2A	
1.4'	Brown, F-M SAND, some Silt, some F-C Gravel (SUBSOIL)			M	2A	
2'				M	6A	
3'				D	5A/1B	
3.0'	Dark brown, F-C SAND, little F-C Gravel, little Cobbles, little Clayey Silt (GLACIAL TILL)			D	7A	
4'				D	6A	
5'				D	3A/2B	
6'				D	2A	2
7'						
8'						
8.4'	Excavator refusal on apparent Bedrock. Bottom of Test Pit 8.4 feet below ground surface.					
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. Test pit terminated at approximately 8.4 feet below ground surface 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

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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.

GZA
GeoEnvironmental, Inc.
Engineers/Scientists
144 Elm Street
Amesbury, MA 01913

Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-11
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

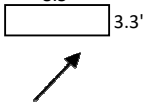
GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	84.2
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	1350
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	1410

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0	Brown, F-C SAND, some F-C Gravel, litle Silt, trace Brick, trace Wood, trace Plastic (FILL)			D	1A	1
1'	1.1'			D	1A	2
2'	Excavator refusal on frozen Fill. Bottom of Test Pit 1.1 feet below ground surface.					
3'						
4'						
5'						
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. Test pit was terminated at approximately 1.1 feet below ground surface (bgs) due to excavator refusal on frozen soil. The test pit was offset two additional times, ~5 ft to north each time, encountering refusal at 0.5 feet bgs and 0.9 feet bgs respectively. Upon completion, test pit was backfilled with excavated material and tamped with the heel of the excavator bucket.

Test Pit Plan



Boulder Class

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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.

GZA
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Engineers/Scientists
144 Elm Street
Amesbury, MA 01913

Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-12
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

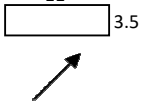
GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	105.0
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	1415
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	1435

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0	0.4' Dark brown, SILT and fine SAND, trace Roots/Organics, trace F-C Gravel (TOPSOIL)			E	2A	1
1'	Brown, F-C SAND and SILT & CLAY, some F-C Gravel (SUBSOIL) 1.6'			E	1A	
2'	Dark brown/Red, F-C SAND, little F-C Gravel, little Cobbles, little Clayey Silt, trace Wood (SUBSOIL) 3.2'			M	3A/2B	
3'	Brown, F-M SAND, little F-C Gravel, little Silt (SAND & GRAVEL) 3.7			M	9A	
4'	Dark brown, F-C SAND, little Cobbles, little Clayey Silt, trace Roots (GLACIAL TILL)			D	14A	
5'				D	11A	
6'				D	17A	
7'				D	14A	
8'				D	12A/2B	
9'				D	19A/1B	
10'				D	14A	
11'	11.6'			D	7A	2
12'	Bottom of Test Pit 11.6 feet below ground surface.					
13'						
14'						
15'						
16'						

Notes:

1. Ground surface elevation surveyed by GZA using a Leica Viva Smartworx Real-Time Kinematic Differential GPS.
2. Test pit terminated at approximately 11.6 feet below ground surface due to multiple test pit sidewall collapses. 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

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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.

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Engineers/Scientists
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Amesbury, MA 01913

Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-13
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

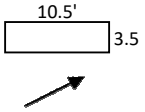
GZA Rep.	R. Baronowski	Contractor	Cryan Landscaping			Date	2/2/2022
		Operator	Mingo Chamorro			Ground Elev.	115.8
Weather	Cloudy, 30's	Make	CAT	Model	315 LRR	Time Started	1440
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	1510

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0	0.3' Dark brown, SILT and fine SAND, trace Roots/Organics, trace F-C Gravel (TOPSOIL)			E	1A	1
1'	Brown, F-M SAND, little F-C Gravel, little Silt, trace Cobbles (FILL)			E	3A	
2'				E	6A	
3'				M	4A	
4'				M	9A	
5'				M	14A	
6'				M	12A/2B	
7'	7.7'			E	4A	
8'	Dark brown, Fine-Grained PEAT, little F-M SAND, trace F-C Gravel, trace Silt (BURRIED ORGANICS)			E	2A	
9'	9.1'			E	1A	
10'	Gray, CLAY & SILT, little F-M Sand, trace F-C Gravel (CLAY & SILT)			M	1A	
11'	11.8'			M	1A	2
12'	Bottom of Test Pit 11.8 feet below ground surface.					
13'						
14'						
15'						
16'						

Notes:

1. Ground surface elevation surveyed by GZA using a Leica Viva Smartworx Real-Time Kinematic Differential GPS.
2. Test pit terminated at approximately 11.8 feet below ground surface due to multple test pit sidewall collpases. 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

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
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C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
( ) Encountered
(X) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water

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.

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Engineers/Scientists
144 Elm Street
Amesbury, MA 01913

Proposed Redevelopment	
Cell Signaling Technology	
8 Atwater Avenue	
Manchester-by-the-Sea, MA	
Test Pit No.	TP-14
Page No.	1 of 1
File No.	18.0175487.00
Checked By:	MPS

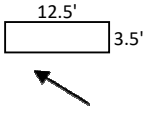
GZA Rep.	R. Baronowski	Contractor	L.A.D Company Inc.			Date	2/18/2022
		Operator	Mike Kwedor			Ground Elev.	54
Weather	Partly Cloudy, 40's	Make	Doosan	Model	DX1406C	Time Started	0800
		Capacity	~ 0.25 CY	Reach	~ 15 FT	Time Completed	0845

Depth	Soil Description	Sample No.	Field Test Data	Excav. Effort	Boulders: Count/ Class	Note No.
0						
1'	Dark brown, SILT and F-M SAND, trace Roots/Organics (TOPSOIL)			E	2A	1
	1.3'					
2'	Brown, F-M SAND, little F-C Gravel, trace Cobbles, trace Brick, trace Silt,			E	1A	
	2.7' trace roots (FILL)					
3'	Light brown, F-C SAND, little F-C Gravel, little Silt, trace angular Cobbles			M	1A	
	(GLACIAL TILL)			D	4A	2
4'	4.4'					
5'	Excavator refusal on apparent Bedrock.			D	2A	3
	Bottom of Test Pit 4.4 feet below ground surface.					
6'						
7'						
8'						
9'						
10'						
11'						
12'						
13'						
14'						
15'						
16'						

Notes:

1. Ground surface elevation estimated from AutoCAD file title "2314502EC.dwg" prepared by Windover Construction of Beverly, Massachusetts and provided to GZA on January 28, 2022.
2. Angular Cobbles and Boulders appeared to be fractured rock.
3. Test pit terminated at approximately 4.4 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

Letter Designation	Size Range Classification
A	6" - 17"
B	18" - 36"
C	36" and Larger

Excavation Effort
E-----Easy
M-----Moderate
D-----Difficult

Proportions Used

TRACE (TR.)	0 - 10%
LITTLE (LI.)	10 - 20%
SOME (SO.)	20 - 35%
AND	35 - 50%

Abbreviations
F = Fine
M = Medium
C = Coarse
V = Very
F/M = Fine to medium
F/C = Fine to coarse
GR = Gray
BN = Brown
YEL = Yellow

GROUNDWATER
(X) Encountered
( ) Not Encountered

Elapsed Time to Reading (Hours)	Depth to Ground-water
0.25	2.1

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Appendix VIII Operation and Maintenance Log

Atwater Avenue, Manchester-By-The-Sea

Operations and Maintenance Log

Inspections for Year:_____

Structural Best Management Practice	Action	Date Completed	Completed By	Comments
Infiltration Basins, Rain Gardens, and Wet Basins- Inspect twice per year. Clean as required	Inspect/repair/ clean			
	Inspect/repair/ clean			
Sediment Forebay– Inspect twice per year. Clean as required	Inspect/repair/ clean			
Roof Drain Leaders – Inspect/clean twice per year.	Inspect/Clean			
Deep Sump Hooded Catch Basins/Outlet Control Structures/Water Quality Units– Inspect/clean four times per year. Clean when sump is 50% full.	Inspect/Clean			
Riprap outlet protection & spillway-inspect quarterly, repair as required	Inspect/repair			
Vegetated Areas Maintenance – Inspect twice per year. Maintain as required.	Inspect			
	Inspect			

(1) 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.

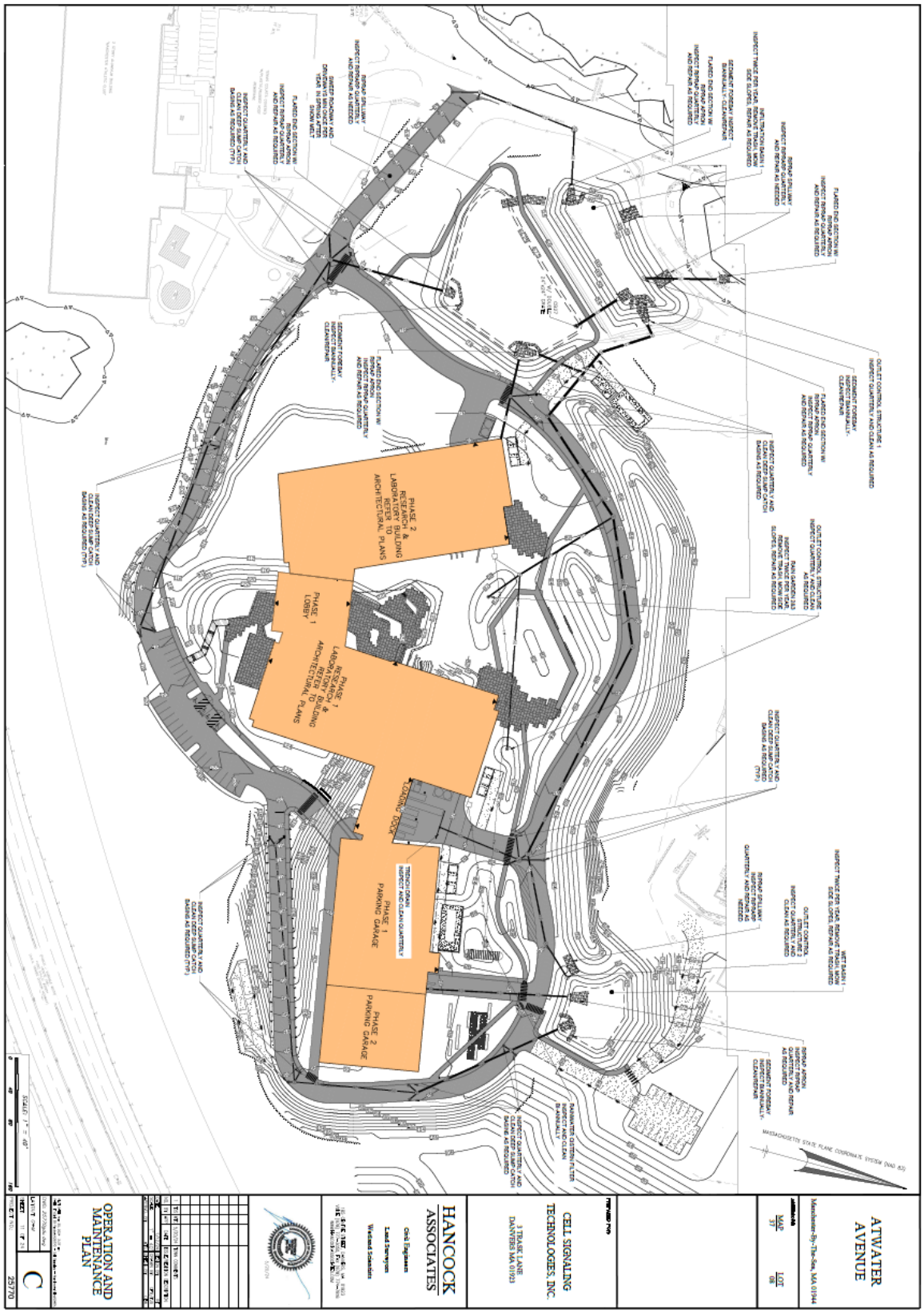
(3) Maintenance logs shall be submitted annually to ConComm staff via email on October 31 and after cleaning.

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


ATWATER AVENUE
Mansfield
MAP 37
LOT 08
CELL SIGNALING TECHNOLOGIES, INC.
3 TRASE LANE
DANVERS MA 01923
HANCOCK ASSOCIATES
Civil Engineers
Land Surveyors
Wetland Scientists
OPERATION AND MAINTENANCE PLAN
C
25770
PHASE 2 RESEARCH & LABORATORY BUILDING REFER TO ARCHITECTURAL PLANS
PHASE 1 LOBBY
PHASE 1 RESEARCH & LABORATORY BUILDING REFER TO ARCHITECTURAL PLANS
LOADING DOCK
PHASE 1 PARKING GARAGE
PHASE 2 PARKING GARAGE
TRENCH DRAIN INSPECT AND CLEAN QUARTERLY
INSPECT QUARTERLY AND CLEAN DEEP SUMP CATCH BASINS AS REQUIRED (TYP.)
SEDIMENT FOREBAY INSPECT MANUALLY - CLEAN/REPAIR
RIPRAP SPILLWAY INSPECT RIPRAP QUARTERLY AND REPAIR AS NEEDED
FLARED END SECTION W/ RIPRAP APRON INSPECT RIPRAP QUARTERLY AND REPAIR AS REQUIRED
OUTLET CONTROL STRUCTURE 1 INSPECT QUARTERLY AND CLEAN AS REQUIRED
INSPECT TWICE PER YEAR, REMOVE TRASH, MOW SIDE SLOPES, REPAIR AS REQUIRED
WET BASIN I
RAIN GARDEN 1
OUTLET CONTROL STRUCTURE 2
MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD 83)

HANCOCK
ASSOCIATES

Surveyors | Engineers | Scientists

Boston, Brockton, Chelmsford, Danvers, Marlborough, Newburyport and Palmer, MA | Concord, NH
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