FINAL STORMWATER REPORT

FOR

HCA LSMC ASC

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CIVIL ENGINEERING / SURVEYING / UTILITIES

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1.0 GENERAL INFORMATION

This stormwater report is in support of a new approximately 20,000 square foot ambulatory surgery center on the HCA Lee's Summit Medical Center campus. The entire campus is approximately 28.5-acres located between SE Shenandoah Drive and SE Blue Parkway to the west of SE Cumberland Drive in Lee's Summit, Missouri. This proposed project will be on an approximately 4-acre piece of the southwest corner of the overall campus property. The site is currently vacant and used for agricultural purposes and is separated on the east by a wooded stream from the main hospital campus. The site lies within the northwest quarter of Section 10, Township 47, Range 31, in Jackson County. The site lies entirely within the South Prairie Lee watershed.

The site is generally rectangular. The site is bounded on the south by SE Blue Parkway and US 50 Highway, to the west by SE Cumberland Drive and vacant land, to the north by undeveloped land, and to the east by the existing Lee's Summit Medical Center campus. Refer to the aerial photograph in Appendix A for existing cover conditions and surrounding land use.

The proposed project consists of a one-story, approximately 20,000 square foot surgery center. The project will include the construction of parking lot and drive aisles, sidewalks, storm drainage improvements, and utility relocations.

The site generally consists of one watershed that slopes gently from the west to east. It eventually works to a wooded stream that runs along the east edge of the property to be developed. The property does not have any special flood hazard areas on it. Thus, there will be no floodplain issues with the project and no permitting will be needed with FEMA. All existing drainage patterns will be generally maintained.

Along the east side of the site is an existing wooded stream area. This stream has an upstream tributary greater than 40 acres but less than 160 acres. This requires a stream buffer of 60 feet on either side of the ordinary high-water mark for the stream. This stream buffer will not be encroached upon with the project.

The soil types that have been identified on the site for the areas to be disturbed are Arisbug-Urban land complex (1-5% slopes) and Udarents-Urban land-Sampsel complex (2-5% slopes). The soil type falls within Hydraulic Soil Group (HSG) C for the site. For additional information pertaining to the soils, refer to the NRCS soils report included in Appendix A.

The purpose of this plan is to identify existing and potential drainage issues, delineate required stormwater facilities and document that stormwater runoff from the development will not have an adverse impact on existing properties adjacent to or downstream of the project.

2.0 METHODOLOGY

To calculate stormwater runoff rates, the software Bentley PondPack V8i was used to model the drainage basins and ponds. The unit hydrograph method is used to determine runoff levels, based on the SCS, Type II 24-hour rainfall. The hydrograph routing through the ponds uses the modified-Puls level pool routing method. Storm events for the 50%, 10%, and 1% chance events were evaluated based on the comprehensive control requirements. As well, the 90% mean annual event was modeled to be released over a 40-hour period. The rainfall depths used are from "Precipitation Frequency Estimates for the Kansas City Metropolitan Area" (McEnroe, 2002) as shown below in Table 1.

Table 1 – Rainfall Depth (in.)

Storm Event	90%	50%	10%	1%
Depth	1.37	3.55	5.25	7.94

Analysis of the storm drainage systems followed all adopted City of Lee's Summit codes, ordinances, and design criteria. The stormwater facility design was analyzed using the current Section 5600 of KCAPWA and APWA/MARC BMP Manual design criteria.

3.0 EXISTING CONDITIONS ANALYSIS

3.1 WATERSHED

The site consists of one watershed that currently sheet drains to the east to the existing wooded area and stream. The entire site is within the South Prairie Lee Watershed. Refer to the Existing Drainage Area Map in Appendix B. Table 2 below summarizes the existing runoff conditions on the property.

Table 2 – Existing Runoff Conditions

Drainage Sub-Basin	Area (acres)	Runoff Coeff. (CN)	Time of Conc. (min.)	50% Runoff Rate (cfs)	10% Runoff Rate (cfs)	1% Runoff Rate (cfs)
Existing	4.02	85	10	11.25	19.26	31.99

3.2 CALCULATIONS

The site will need to follow the comprehensive control requirements outlined in section 5608.4 of the APWA design criteria. This allows 0.5 cfs per acre for the 50% event, 2.0 cfs per acre for the 10% event, and 3.0 cfs per acre for the 1% event. Refer to Table 3 below for the allowable release rates the site for each respective storm event

Table 3 – Allowable Release Rates (cfs)

Drainage Sub-Basin	50%	10%	1%
Existing	2.01	8.04	12.06

4.0 PROPOSED CONDITIONS ANALYSIS

4.1 WATERSHED

The site will generally maintain the same drainage patterns as currently exist. The site will be split into three watersheds in the proposed condition. The south part of the site and the building will be conveyed to a detention pond on the southwest corner. The north part of the site will be conveyed to a detention pond on the northeast corner. A small portion of the north end of the site will surface drain off the site undetained. Everything will continue to generally drain and discharge to the wooded area and stream along the east boundary of the site. Refer to the Proposed Drainage Map in Appendix B for more detailed information.

4.2 CALCULATIONS

To analyze the proposed conditions, the software Bentley PondPack V8i was used to model the drainage basins and ponds. The unit hydrograph method was used to determine runoff levels for the proposed conditions, based on the SCS, Type II 24-hour rainfall. The hydrograph routing through the ponds used the modified-Puls level pool routing method. The ponds and their outlets were designed so that the peak flows for the 50%, 10%, and 1% storm events at the proposed condition would not exceed the allowable release rates. The primary outlet control for the ponds will consist of an outlet control structure containing multiple orifices. This will then have a discharge pipe. The ponds are also designed to release the water quality event over a 40-hour period. See Table 4 below for a summary of the peak flows and water surface elevations for the detention and refer to the runoff calculations in Appendix C for detailed calculations. Table 5 shows a comparison between the allowable and proposed peak runoff rates. The proposed condition produces lower peak runoff rates than the allowable runoff rates.

Table 4 – Proposed Watershed Conditions

Drainage Sub-Basin	Runoff Coeff. (CN)	Time of Conc. (min)	Area (AC)	Proposed 50% Peak Flow (cfs)	50% Max. W.S.E.	Proposed 10% Peak Flow (cfs)	10% Max. W.S.E.	Proposed 1% Peak Flow (cfs)	1% Max. W.S.E.
North	90	6	1.45	5.26	-	8.44	-	13.40	-
N Detention	-	-	-	0.15	997.90	1.75	998.51	3.32	999.66
South	92	6	1.85	7.09	-	11.11	-	17.38	-
S Detention	-	-	-	0.27	999.52	2.56	999.99	4.28	1000.93
Undetained	80	5	0.71	1.79	-	3.34	-	5.92	-

Table 5 –Allowable vs. Proposed Release Rates (cfs)

Condition	50%	10%	1%
Allowable	2.01	8.04	12.06
Proposed	1.98	5.72	11.82

5.0 CONCLUSIONS AND RECOMMENDATIONS

This stormwater report is in support of a new approximately 20,000 square foot ambulatory surgery center on the HCA Lee's Summit Medical Center campus. The entire campus is approximately 28.5-acres located between SE Shenandoah Drive and SE Blue Parkway to the west of SE Cumberland Drive in Lee's Summit, Missouri. This proposed project will be on an approximately 4-acre piece of the southwest corner of the overall campus property. The site is currently vacant and used for agricultural purposes and is separated on the east by a wooded stream from the main hospital campus.

The proposed project consists of a one-story, approximately 20,000 square foot surgery center. The project will include the construction of parking lot and drive aisles, sidewalks, storm drainage improvements, and utility relocations.

The site consists of one watershed currently that slopes gently from the west to east. It eventually works to a wooded stream that runs along the east edge of the property to be developed. All existing drainage patterns will be generally maintained. The existing wooded stream area along the east edge of the site will require a stream buffer of 60 feet on either side of the ordinary high-water mark for the stream. This

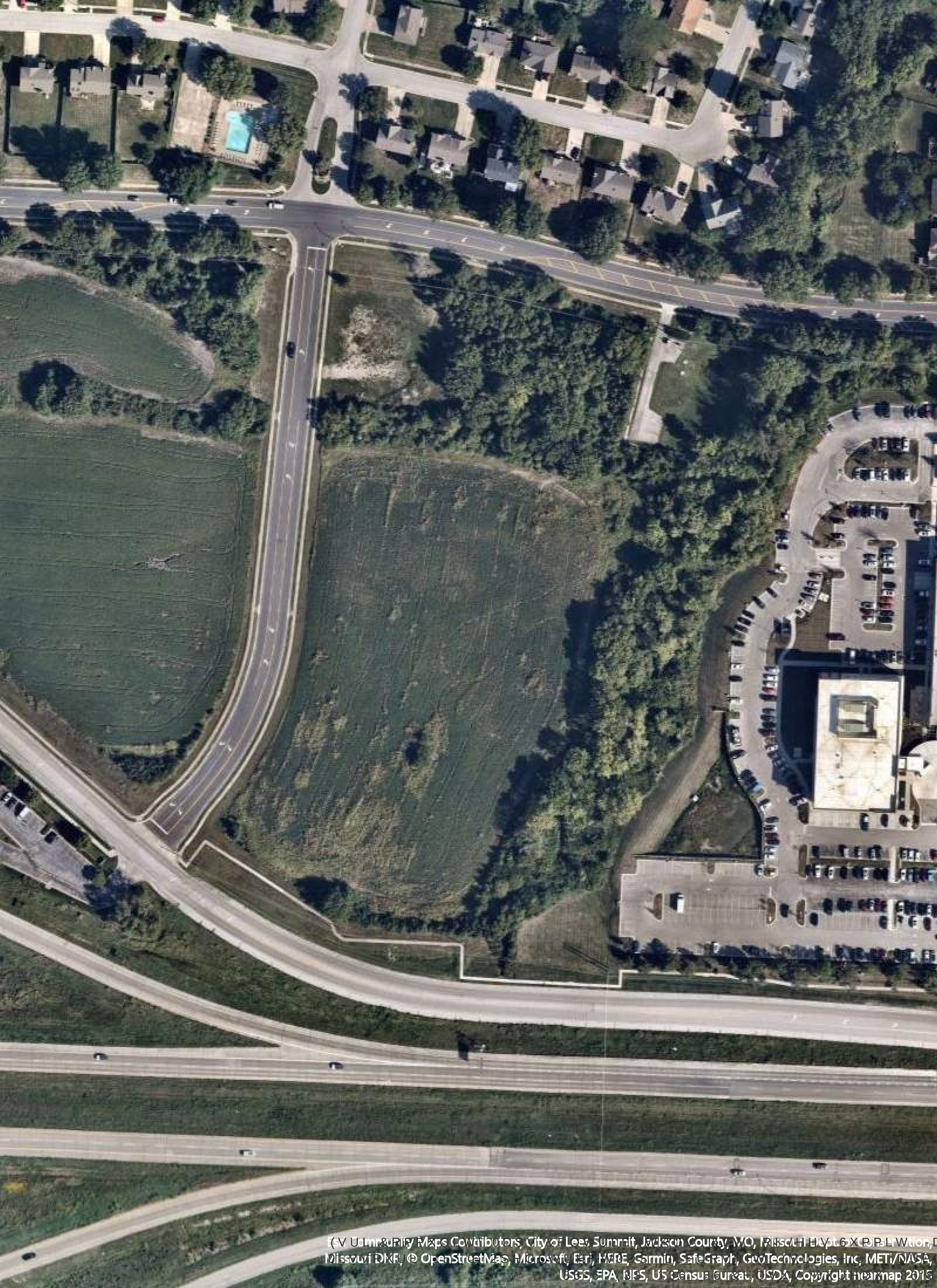
stream buffer will not be encroached upon with the project. The general drainage patterns will be maintained by the proposed site. The site will have two detention ponds, one that handles the north parking area and one that handles the south parking area and building. A small portion of the north end of the site will sheet drain undetained off the site.

Based on the codes of the City of Lee's Summit, detention is being provided to limit the proposed peak runoff rates to the allowable rates for the 50%, 10%, and 1% storm events.

An extended dry detention basin is proposed to release the water quality event over a 40-hour period utilizing a small orifice and trash rack in the outlet structure.

The project will not produce any impacts to the downstream system as the rates of runoff will be limited to below the allowed rate, which are also below existing conditions. The project will not impact any FEMA floodplains and will respect the existing stream buffer.

APPENDIX A – REFERENCE DOCUMENTS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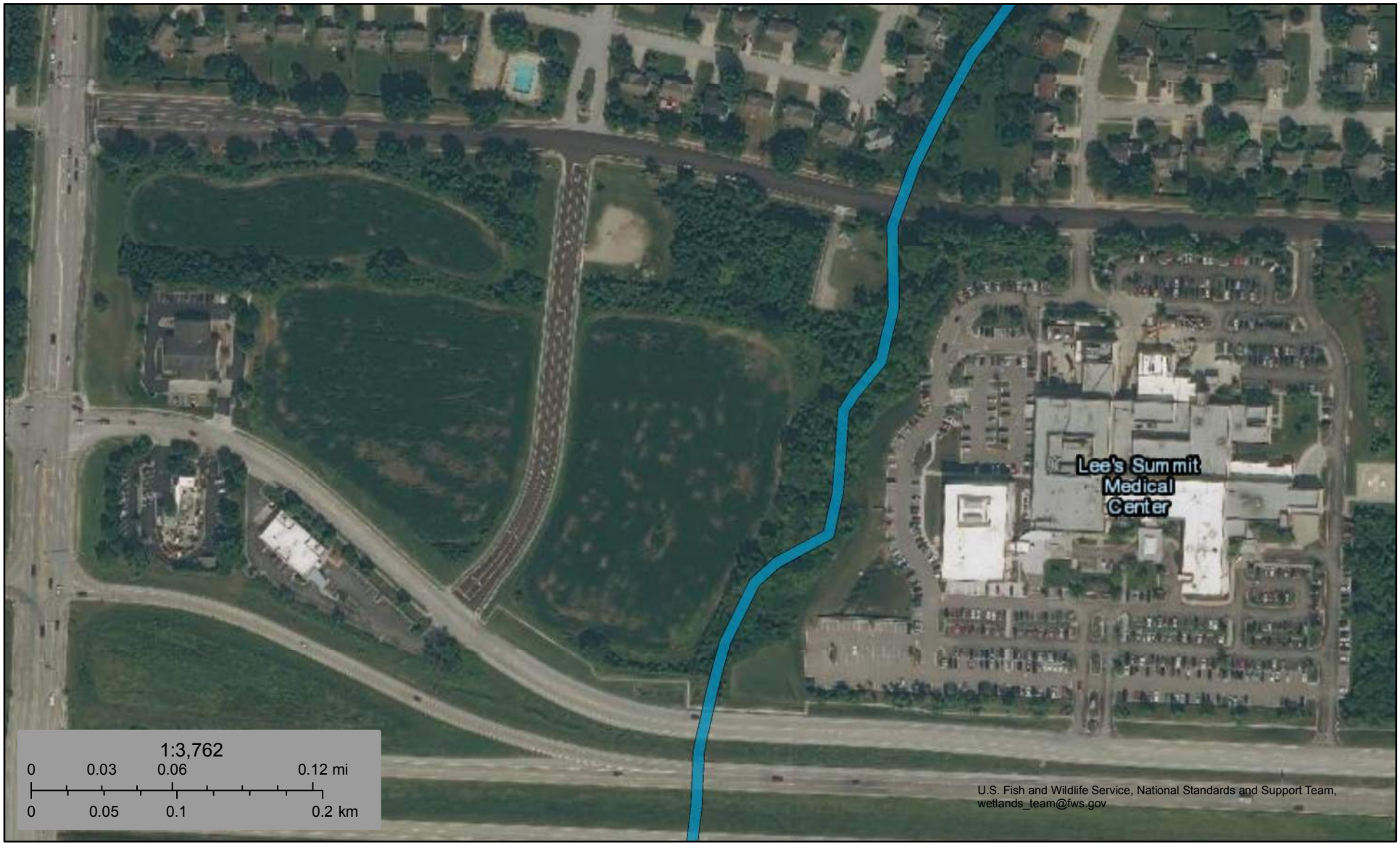
U.S. Fish and Wildlife Service
National Wetlands Inventory

Wetlands



October 19, 2022

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Jackson County, Missouri

October 19, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,320 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jackson County, Missouri
Survey Area Data: Version 24, Aug 31, 2022

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

Date(s) aerial images were photographed: Sep 6, 2019—Nov 16, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
10082	Arisburg-Urban land complex, 1 to 5 percent slopes	1.9	44.3%
10180	Udarents-Urban land-Sampsel complex, 2 to 5 percent slopes	2.4	55.7%
Totals for Area of Interest		**4.3**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Jackson County, Missouri

10082—Arisburg-Urban land complex, 1 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2w7ld
Elevation: 750 to 1,130 feet
Mean annual precipitation: 39 to 45 inches
Mean annual air temperature: 50 to 55 degrees F
Frost-free period: 177 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Arisburg and similar soils: 61 percent
Urban land: 30 percent
Minor components: 9 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Arisburg

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess

Typical profile

Ap - 0 to 6 inches: silt loam
A - 6 to 13 inches: silt loam
Bt - 13 to 19 inches: silty clay loam
Btg - 19 to 56 inches: silty clay loam
BCg - 56 to 79 inches: silty clay loam

Properties and qualities

Slope: 1 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: About 18 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R107XB007MO - Loess Upland Prairie
Hydric soil rating: No

Description of Urban Land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Sampsel

Percent of map unit: 3 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Concave
Ecological site: R109XY010MO - Interbedded Sedimentary Upland Savanna
Hydric soil rating: Yes

Greenton

Percent of map unit: 3 percent
Landform: Hillslopes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R109XY002MO - Loess Upland Prairie
Hydric soil rating: No

Sharpsburg

Percent of map unit: 3 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R109XY002MO - Loess Upland Prairie
Hydric soil rating: No

10180—Udarents-Urban land-Sampsel complex, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 1n85h
Elevation: 600 to 900 feet
Mean annual precipitation: 33 to 43 inches
Mean annual air temperature: 50 to 57 degrees F
Frost-free period: 175 to 220 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Udarents and similar soils: 46 percent
Urban land: 39 percent
Sampsel and similar soils: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Udarents

Setting

Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Mine spoil or earthy fill

Typical profile

C1 - 0 to 5 inches: silt loam
C2 - 5 to 80 inches: silty clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: C
Ecological site: R107XB002MO - Deep Loess Upland Prairie
Other vegetative classification: Mixed/Transitional (Mixed Native Vegetation)
Hydric soil rating: No

Description of Urban Land

Setting

Landform: Interfluves
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Across-slope shape: Convex

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Description of Sampsel

Setting

Landform: Hillslopes

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Residuum weathered from shale

Typical profile

Ap - 0 to 13 inches: silty clay loam
Bt - 13 to 80 inches: silty clay

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 0 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Ecological site: R109XY010MO - Interbedded Sedimentary Upland Savanna
Other vegetative classification: Grass/Prairie (Herbaceous Vegetation)
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

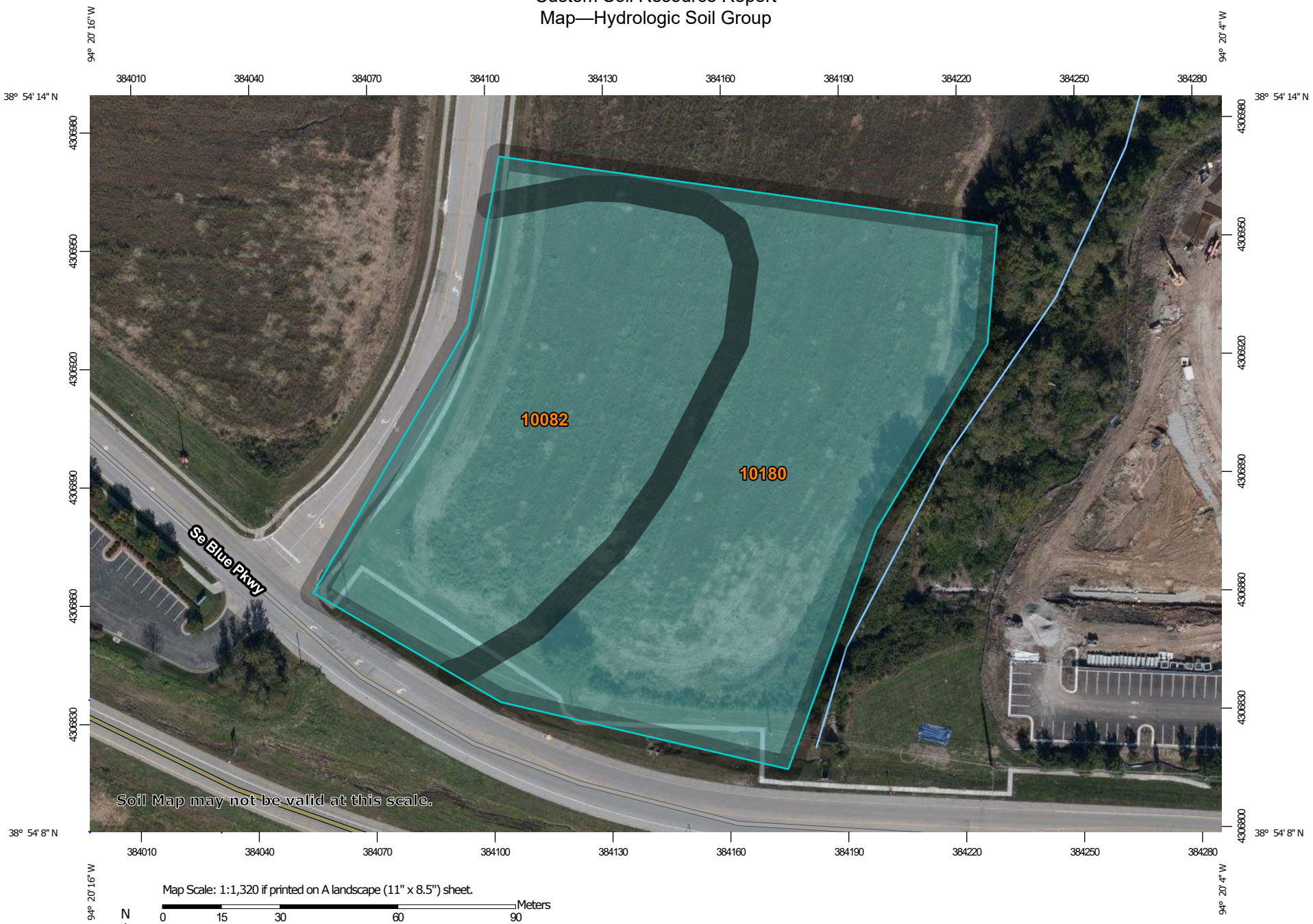
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Custom Soil Resource Report
Map—Hydrologic Soil Group



Map Scale: 1:1,320 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 15 30 60 90

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

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

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Jackson County, Missouri
Survey Area Data: Version 24, Aug 31, 2022

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

Date(s) aerial images were photographed: Sep 6, 2019—Nov 16, 2019

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

Table—Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
10082	Arisburg-Urban land complex, 1 to 5 percent slopes	C	1.9	44.3%
10180	Udarents-Urban land-Sampsel complex, 2 to 5 percent slopes	C	2.4	55.7%
Totals for Area of Interest			**4.3**	**100.0%**

Rating Options—Hydrologic Soil Group

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

1DWLRQDO)ORRG+D]DUG/D\HU),50HWWH

FEMA

ƒƒ1

)HHW

ƒƒ1

/HJHQG

6((),6 5(3257)25'(7$,/('/(*(1'$1',1'(;0$3)25),50 3$1(/ /$<287

6(&,$/)/22' +$=$5'$5($6

:LWKRXW %DVH)ORRG(OHYDWLRQ %)(=RQH$ 9 $
:LWK%)(RU'HSWK =RQH$($2 $+ 9($5
5HJXODWRU\)ORRGZD\

27+(5$5($6 2))/22' +$=$5'

$QQXDO &KDQFH)ORRG+D]DUG $UHDV RI DQQXDO FKDQFHIORRG ZLWKDYHUDJH GHSWKOHVV WKDQ RQHIRRW RU ZLWKGUDLQDJH DUHDV RI OHVV WKDQ RQHVTXDUHPLOH =RQH;
)XWXUH&RQGLWLRQV $QQXDO &KDQFH)ORRG+D]DUG =RQH;
$UHDZLWK5HGXFHG)ORRG5LVNGXHWR /HYHH 6HH1RWHV =RQH;
$UHDZLWK)ORRG5LVNGXHWR/HYHH =RQH'

27+(5 $5($6

12 6&5((1 $UHDRI 0LQLPDO)ORRG+D]DUG =RQH;
(IIHFWLYH/20$V
$UHDRI 8QGHWHUPLQHG)ORRG+D]DUG =RQH'

*(1(5$/ 6758&785(6

&KDQQHO &XOYHUW RU 6WRUPZDWHU
/HYHH'LNH RU)ORRGZDOO

27+(5)($785(6

&URVV6HFWLRQVZLWK$QQXDO &KDQFH
:DWHU6XUIDFH(OHYDWLRQ
&RDVWDO 7UDQVHFW
%DVH)ORRG(OHYDWLRQ/LQH %)(
/LPLW RI 6WXG\
-XULVGLFWLRQ%RXQGDU\
&RDVWDO 7UDQVHFW %DVHOLQH
3URILOH%DVHOLQH
+\GURJUDSKLF)HDWXUH

0$3 3$1(/6

'LJLWDO 'DWD$YDLODEOH
1R'LJLWDO 'DWD$YDLODEOH
8QPDSSHG

Š

7KHSLQGLVSOD\HGRQWKHPDSLVDQDSSUR[LPDWH SRLQW VHOHFWHGE\WKHXVHU DQGGRHVQRW UHSUHVHQW DQDXWKRULWDWLYHSURSHUW\ORFDWLRQ

7KLV PDSFRPSOLHV ZLWK)(0\$V VWDQGDUGV IRU WKHXVHRI GLJLWDO IORRGPDSV LI LW LV QRW YRLGDV GHVFULEHGEHORZ 7KHEDVHPDS VKRZQFRPSOLHV ZLWK)(0\$V EDVHPDS DFFXUDF\ VWDQGDUGV

7KHIORRG KD]DUG LQIRUPDWLRQ LV GHULYHGGLUHFWO\IURPWKH DXWKRULWDWLYH1)+/ZHEVHUYLFHV SURYLGHGE\)(0\$ 7KLV PDS ZDV H[SRUWHGRQ DW $0 DQGGRHVQRW UHIOHFW FKDQJHV RU DPHQGPHQWV VXEVHTXHQW WRWKLV GDWHDQG WLPH 7KH1)+/DQGHIIHFWLYHLQIRUPDWLRQPD\FKDQJHRU EHFRPHVXSHUVHGHGE\QHZGDWDRYHU WLPH

7KLV PDSLPDJHLV YRLGLI WKHRQHRU PRUHRI WKHIROORZLQJPDS HOHPHQWV GRQRW DSSHDU EDVHPDSLPDJHU\ IORRG]RQHODEHOV OHJHQG VFDOHEDU PDSFUHDWLRQGDWH FRPPXQLW\LGHQWLILHUV)\$50SDQHO QXPEHU DQG)\$50HIIHFWLYHGDWH 0DS LPDJHV IRU XQPDSSHGDQGXQPRGHUQL]HGDUHDV FDQQRW EHXVHGIRU UHJXODWRU\SXUSRVHV

%DVHPDS 86*6 1DWLRQDO 0DS 2UWKRLPDJHU\ 'DWDUHIUHVKHG 2FWREHU

APPENDIX B – DRAINAGE MAPS

DRAINAGE LEGEND

Symbol	Description
(heavy dashed line)	DRAINAGE AREA BOUNDARY
(arrow)	DRAINAGE DIRECTION
Field	AREA/DIRECTION OF DRAINAGE BOUNDARY
980	EXISTING GRADE MAJOR CONTOUR
982	EXISTING GRADE MINOR CONTOUR
℞	PROPERTY LINE
R/W	RIGHT-OF-WAY LINE

GRAPHIC SCALE
30 0 30

N

Rev.	Date	Description	By	App.

BHC
CIVIL ENGINEERING / SURVEYING / UTILITIES
7101 College Blvd, Suite 400
Overland Park, Kansas 66210
p. (913) 663-1900

Prepared For:

HCA LSMC ASC

EXISTING DRAINAGE MAP

Design: TMS	Drawn: TMS
Checked:	ERB
Issue Date:	1/13/23
Project Number:	034660

B1

Jan 11, 2023 – 3:00pm Plotted By: Eric.Byrd V:\034660–HCA LSMC ASC\04–DWG\Eng\Sheet\PDF\034660–SHTS–DMAP.dwg Layout: Existing Drain Map

DRAINAGE LEGEND

Long dashed line	DRAINAGE AREA BOUNDARY
Arrow	DRAINAGE DIRECTION
Field (box with arrow)	AREA/DIRECTION OF DRAINAGE BOUNDARY
980	PROPOSED FINISH GRADE MAJOR CONTOUR
982	PROPOSED FINISH GRADE MINOR CONTOUR
980	EXISTING GRADE MAJOR CONTOUR
982	EXISTING GRADE MINOR CONTOUR
PL	PROPERTY LINE
R/W	RIGHT-OF-WAY LINE

GRAPHIC SCALE
30 0 30

Rev.	Date	Description	By	App.

BHC
CIVIL ENGINEERING / SURVEYING / UTILITIES
7101 College Blvd., Suite 400
Overland Park, Kansas 66210
p. (913) 663-1900
BHC is a trademark of Brungardt Honomichl & Company, P.A.

Prepared For:

HCA LSMC ASC

PROPOSED DRAINAGE MAP

Design: TMS	Drawn: TMS
Checked:	ERB
Issue Date:	1/13/23
Project Number:	034660

B2

Jan 11, 2023 – 3:01pm Plotted By: Eric.Byrd V:\034660–HCA LSMC ASC\04–DWG\Eng\Sheet\PDP\034660–SHTS–DMAP.dwg Layout: Proposed Drain Map

APPENDIX C – CALCULATIONS

Table of Contents

Table of Contents

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
CM-1	Existing WQ	1	0.124	12.000	1.92
CM-1	Proposed WQ	1	0.070	11.950	1.27
CM-1	Existing 2-yr	2	0.689	12.000	11.25
CM-1	Proposed 2-yr	2	0.301	11.950	5.26
CM-1	Proposed 10-yr	10	0.497	11.950	8.44
CM-1	Existing 10-yr	10	1.204	12.000	19.26
CM-1	Existing 100-yr	100	2.058	12.000	31.99
CM-1	Proposed 100-yr	100	0.814	11.950	13.40
CM-2	Proposed WQ	1	0.106	11.950	1.92
CM-2	Proposed 2-yr	2	0.413	11.950	7.09
CM-2	Proposed 10-yr	10	0.667	11.950	11.11
CM-2	Proposed 100-yr	100	1.075	11.950	17.38
CM-3	Proposed WQ	1	0.013	12.000	0.21
CM-3	Proposed 2-yr	2	0.099	11.950	1.79
CM-3	Proposed 10-yr	10	0.184	11.900	3.34
CM-3	Proposed 100-yr	100	0.329	11.900	5.92

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
O-1	Existing WQ	1	0.124	12.000	1.92
O-1	Proposed WQ	1	0.102	12.000	0.28
O-1	Existing 2-yr	2	0.689	12.000	11.25
O-1	Proposed 2-yr	2	0.449	11.950	1.98
O-1	Proposed 10-yr	10	0.929	12.050	5.72
O-1	Existing 10-yr	10	1.204	12.000	19.26
O-1	Existing 100-yr	100	2.058	12.000	31.99
O-1	Proposed 100-yr	100	1.756	12.000	11.82

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
PO-1 (IN)	Proposed WQ	1	0.070	11.950	1.27	(N/A)	(N/A)
PO-1 (OUT)	Proposed WQ	1	0.028	17.750	0.03	996.10	0.046
PO-1 (IN)	Proposed 2-yr	2	0.301	11.950	5.26	(N/A)	(N/A)
PO-1 (OUT)	Proposed 2-yr	2	0.148	14.750	0.15	997.90	0.198
PO-1 (IN)	Proposed 10-yr	10	0.497	11.950	8.44	(N/A)	(N/A)
PO-1 (OUT)	Proposed 10-yr	10	0.316	12.150	1.75	998.51	0.266
PO-1 (IN)	Proposed 100-yr	100	0.814	11.950	13.40	(N/A)	(N/A)
PO-1 (OUT)	Proposed 100-yr	100	0.612	12.150	3.32	999.66	0.416
PO-2 (IN)	Proposed WQ	1	0.106	11.950	1.92	(N/A)	(N/A)

Subsection: Master Network Summary

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
PO-2 (OUT)	Proposed WQ	1	0.061	15.100	0.06	998.15	0.063
PO-2 (IN)	Proposed 2-yr	2	0.413	11.950	7.09	(N/A)	(N/A)
PO-2 (OUT)	Proposed 2-yr	2	0.201	13.750	0.27	999.52	0.266
PO-2 (IN)	Proposed 10-yr	10	0.667	11.950	11.11	(N/A)	(N/A)
PO-2 (OUT)	Proposed 10-yr	10	0.429	12.150	2.56	999.99	0.352
PO-2 (IN)	Proposed 100-yr	100	1.075	11.950	17.38	(N/A)	(N/A)
PO-2 (OUT)	Proposed 100-yr	100	0.815	12.150	4.28	1,000.93	0.546

Time-Depth Curve: 100-yr	
Label	100-yr
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.1	0.1	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.2	0.2
2.000	0.2	0.2	0.2	0.2	0.2
2.500	0.2	0.2	0.2	0.3	0.3
3.000	0.3	0.3	0.3	0.3	0.3
3.500	0.3	0.3	0.3	0.4	0.4
4.000	0.4	0.4	0.4	0.4	0.4
4.500	0.4	0.5	0.5	0.5	0.5
5.000	0.5	0.5	0.5	0.5	0.6
5.500	0.6	0.6	0.6	0.6	0.6
6.000	0.6	0.6	0.7	0.7	0.7
6.500	0.7	0.7	0.7	0.8	0.8
7.000	0.8	0.8	0.8	0.8	0.9
7.500	0.9	0.9	0.9	0.9	0.9
8.000	1.0	1.0	1.0	1.0	1.0
8.500	1.1	1.1	1.1	1.1	1.1
9.000	1.2	1.2	1.2	1.2	1.3
9.500	1.3	1.3	1.3	1.4	1.4
10.000	1.4	1.5	1.5	1.5	1.6
10.500	1.6	1.7	1.7	1.8	1.8
11.000	1.9	1.9	2.0	2.1	2.2
11.500	2.2	2.4	2.8	3.4	4.5
12.000	5.3	5.4	5.5	5.7	5.8
12.500	5.8	5.9	6.0	6.0	6.1
13.000	6.1	6.2	6.2	6.3	6.3
13.500	6.3	6.4	6.4	6.4	6.5
14.000	6.5	6.5	6.6	6.6	6.6
14.500	6.7	6.7	6.7	6.7	6.8
15.000	6.8	6.8	6.8	6.8	6.9
15.500	6.9	6.9	6.9	6.9	7.0
16.000	7.0	7.0	7.0	7.0	7.1
16.500	7.1	7.1	7.1	7.1	7.1
17.000	7.2	7.2	7.2	7.2	7.2
17.500	7.2	7.3	7.3	7.3	7.3
18.000	7.3	7.3	7.3	7.4	7.4
18.500	7.4	7.4	7.4	7.4	7.4
19.000	7.4	7.5	7.5	7.5	7.5
19.500	7.5	7.5	7.5	7.5	7.5

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
20.000	7.6	7.6	7.6	7.6	7.6
20.500	7.6	7.6	7.6	7.6	7.7
21.000	7.7	7.7	7.7	7.7	7.7
21.500	7.7	7.7	7.7	7.7	7.7
22.000	7.8	7.8	7.8	7.8	7.8
22.500	7.8	7.8	7.8	7.8	7.8
23.000	7.9	7.9	7.9	7.9	7.9
23.500	7.9	7.9	7.9	7.9	7.9
24.000	7.9	(N/A)	(N/A)	(N/A)	(N/A)

Time-Depth Curve: 10-yr	
Label	10-yr
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.2	0.2	0.2	0.2
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.3	0.3	0.3	0.3	0.3
4.500	0.3	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.4	0.4
5.500	0.4	0.4	0.4	0.4	0.4
6.000	0.4	0.4	0.4	0.4	0.5
6.500	0.5	0.5	0.5	0.5	0.5
7.000	0.5	0.5	0.5	0.6	0.6
7.500	0.6	0.6	0.6	0.6	0.6
8.000	0.6	0.6	0.7	0.7	0.7
8.500	0.7	0.7	0.7	0.7	0.8
9.000	0.8	0.8	0.8	0.8	0.8
9.500	0.9	0.9	0.9	0.9	0.9
10.000	1.0	1.0	1.0	1.0	1.0
10.500	1.1	1.1	1.1	1.2	1.2
11.000	1.2	1.3	1.3	1.4	1.4
11.500	1.5	1.6	1.9	2.3	3.0
12.000	3.5	3.6	3.7	3.7	3.8
12.500	3.9	3.9	3.9	4.0	4.0
13.000	4.1	4.1	4.1	4.1	4.2
13.500	4.2	4.2	4.2	4.3	4.3
14.000	4.3	4.3	4.3	4.4	4.4
14.500	4.4	4.4	4.4	4.4	4.5
15.000	4.5	4.5	4.5	4.5	4.5
15.500	4.6	4.6	4.6	4.6	4.6
16.000	4.6	4.6	4.6	4.7	4.7
16.500	4.7	4.7	4.7	4.7	4.7
17.000	4.7	4.7	4.8	4.8	4.8
17.500	4.8	4.8	4.8	4.8	4.8
18.000	4.8	4.8	4.9	4.9	4.9
18.500	4.9	4.9	4.9	4.9	4.9
19.000	4.9	4.9	4.9	4.9	5.0
19.500	5.0	5.0	5.0	5.0	5.0

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
20.000	5.0	5.0	5.0	5.0	5.0
20.500	5.0	5.0	5.0	5.1	5.1
21.000	5.1	5.1	5.1	5.1	5.1
21.500	5.1	5.1	5.1	5.1	5.1
22.000	5.1	5.1	5.1	5.1	5.2
22.500	5.2	5.2	5.2	5.2	5.2
23.000	5.2	5.2	5.2	5.2	5.2
23.500	5.2	5.2	5.2	5.2	5.2
24.000	5.3	(N/A)	(N/A)	(N/A)	(N/A)

Time-Depth Curve: 2-yr	
Label	2-yr
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.0	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.1	0.1	0.1	0.1	0.1
3.500	0.1	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.2	0.2	0.2	0.2	0.2
5.000	0.2	0.2	0.2	0.2	0.2
5.500	0.3	0.3	0.3	0.3	0.3
6.000	0.3	0.3	0.3	0.3	0.3
6.500	0.3	0.3	0.3	0.3	0.3
7.000	0.4	0.4	0.4	0.4	0.4
7.500	0.4	0.4	0.4	0.4	0.4
8.000	0.4	0.4	0.4	0.5	0.5
8.500	0.5	0.5	0.5	0.5	0.5
9.000	0.5	0.5	0.5	0.6	0.6
9.500	0.6	0.6	0.6	0.6	0.6
10.000	0.6	0.7	0.7	0.7	0.7
10.500	0.7	0.7	0.8	0.8	0.8
11.000	0.8	0.9	0.9	0.9	1.0
11.500	1.0	1.1	1.3	1.5	2.0
12.000	2.4	2.4	2.5	2.5	2.6
12.500	2.6	2.6	2.7	2.7	2.7
13.000	2.7	2.8	2.8	2.8	2.8
13.500	2.8	2.9	2.9	2.9	2.9
14.000	2.9	2.9	2.9	2.9	3.0
14.500	3.0	3.0	3.0	3.0	3.0
15.000	3.0	3.0	3.1	3.1	3.1
15.500	3.1	3.1	3.1	3.1	3.1
16.000	3.1	3.1	3.1	3.1	3.2
16.500	3.2	3.2	3.2	3.2	3.2
17.000	3.2	3.2	3.2	3.2	3.2
17.500	3.2	3.2	3.2	3.3	3.3
18.000	3.3	3.3	3.3	3.3	3.3
18.500	3.3	3.3	3.3	3.3	3.3
19.000	3.3	3.3	3.3	3.3	3.4
19.500	3.4	3.4	3.4	3.4	3.4

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
20.000	3.4	3.4	3.4	3.4	3.4
20.500	3.4	3.4	3.4	3.4	3.4
21.000	3.4	3.4	3.4	3.4	3.4
21.500	3.4	3.5	3.5	3.5	3.5
22.000	3.5	3.5	3.5	3.5	3.5
22.500	3.5	3.5	3.5	3.5	3.5
23.000	3.5	3.5	3.5	3.5	3.5
23.500	3.5	3.5	3.5	3.5	3.5
24.000	3.6	(N/A)	(N/A)	(N/A)	(N/A)

Time-Depth Curve: WQ	
Label	WQ
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	1 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.0	0.0	0.0	0.0
1.500	0.0	0.0	0.0	0.0	0.0
2.000	0.0	0.0	0.0	0.0	0.0
2.500	0.0	0.0	0.0	0.0	0.0
3.000	0.0	0.0	0.1	0.1	0.1
3.500	0.1	0.1	0.1	0.1	0.1
4.000	0.1	0.1	0.1	0.1	0.1
4.500	0.1	0.1	0.1	0.1	0.1
5.000	0.1	0.1	0.1	0.1	0.1
5.500	0.1	0.1	0.1	0.1	0.1
6.000	0.1	0.1	0.1	0.1	0.1
6.500	0.1	0.1	0.1	0.1	0.1
7.000	0.1	0.1	0.1	0.1	0.1
7.500	0.1	0.2	0.2	0.2	0.2
8.000	0.2	0.2	0.2	0.2	0.2
8.500	0.2	0.2	0.2	0.2	0.2
9.000	0.2	0.2	0.2	0.2	0.2
9.500	0.2	0.2	0.2	0.2	0.2
10.000	0.2	0.3	0.3	0.3	0.3
10.500	0.3	0.3	0.3	0.3	0.3
11.000	0.3	0.3	0.3	0.4	0.4
11.500	0.4	0.4	0.5	0.6	0.8
12.000	0.9	0.9	1.0	1.0	1.0
12.500	1.0	1.0	1.0	1.0	1.0
13.000	1.1	1.1	1.1	1.1	1.1
13.500	1.1	1.1	1.1	1.1	1.1
14.000	1.1	1.1	1.1	1.1	1.1
14.500	1.1	1.2	1.2	1.2	1.2
15.000	1.2	1.2	1.2	1.2	1.2
15.500	1.2	1.2	1.2	1.2	1.2
16.000	1.2	1.2	1.2	1.2	1.2
16.500	1.2	1.2	1.2	1.2	1.2
17.000	1.2	1.2	1.2	1.2	1.2
17.500	1.2	1.3	1.3	1.3	1.3
18.000	1.3	1.3	1.3	1.3	1.3
18.500	1.3	1.3	1.3	1.3	1.3
19.000	1.3	1.3	1.3	1.3	1.3
19.500	1.3	1.3	1.3	1.3	1.3

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
20.000	1.3	1.3	1.3	1.3	1.3
20.500	1.3	1.3	1.3	1.3	1.3
21.000	1.3	1.3	1.3	1.3	1.3
21.500	1.3	1.3	1.3	1.3	1.3
22.000	1.3	1.3	1.3	1.3	1.3
22.500	1.3	1.3	1.3	1.4	1.4
23.000	1.4	1.4	1.4	1.4	1.4
23.500	1.4	1.4	1.4	1.4	1.4
24.000	1.4	(N/A)	(N/A)	(N/A)	(N/A)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.170
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.6 in
Average Velocity	0.19 ft/s
Segment Time of Concentration	0.146 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	230.00 ft
Is Paved?	False
Slope	0.030 ft/ft
Average Velocity	2.79 ft/s
Segment Time of Concentration	0.023 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.169 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Runoff CN-Area
Label: CM-1

Return Event: 1 years
Storm Event: WQ

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Row crops - Straight row (SR), good - Soil C	85.000	4.020	0.0	0.0	85.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	4.020	(N/A)	(N/A)	85.000

Subsection: Runoff CN-Area
Label: CM-1

Return Event: 1 years
Storm Event: WQ

Runoff Curve Number Data

Soil/Surface Description	CN	Area (acres)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	0.830	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	0.620	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1.450	(N/A)	(N/A)	90.303

Storm Event	WQ
Return Event	1 years
Duration	24.000 hours
Depth	1.4 in
Time of Concentration (Composite)	0.169 hours
Area (User Defined)	4.020 acres

Computational Time Increment	0.022 hours
Time to Peak (Computed)	12.025 hours
Flow (Peak, Computed)	1.95 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	1.92 ft³/s

Drainage Area	
SCS CN (Composite)	85.000
Area (User Defined)	4.020 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.4 in
Runoff Volume (Pervious)	0.125 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.124 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.169 hours
Computational Time Increment	0.022 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	27.02 ft³/s
Unit peak time, Tp	0.112 hours
Unit receding limb, Tr	0.450 hours
Total unit time, Tb	0.562 hours

Storm Event	WQ
Return Event	1 years
Duration	24.000 hours
Depth	1.4 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	1.450 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.933 hours
Flow (Peak, Computed)	1.28 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	11.950 hours
Flow (Peak Interpolated Output)	1.27 ft³/s

Drainage Area	
SCS CN (Composite)	90.000
Area (User Defined)	1.450 acres
Maximum Retention (Pervious)	1.1 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.6 in
Runoff Volume (Pervious)	0.070 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.070 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	16.43 ft³/s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	2-yr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.169 hours
Area (User Defined)	4.020 acres

Computational Time Increment	0.022 hours
Time to Peak (Computed)	11.980 hours
Flow (Peak, Computed)	11.26 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	11.25 ft³/s

Drainage Area	
SCS CN (Composite)	85.000
Area (User Defined)	4.020 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	0.690 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.689 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.169 hours
Computational Time Increment	0.022 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	27.02 ft³/s
Unit peak time, Tp	0.112 hours
Unit receding limb, Tr	0.450 hours
Total unit time, Tb	0.562 hours

Storm Event	2-yr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	1.450 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.933 hours
Flow (Peak, Computed)	5.40 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	11.950 hours
Flow (Peak Interpolated Output)	5.26 ft³/s

Drainage Area	
SCS CN (Composite)	90.000
Area (User Defined)	1.450 acres
Maximum Retention (Pervious)	1.1 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.5 in
Runoff Volume (Pervious)	0.301 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.301 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	16.43 ft³/s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	10-yr
Return Event	10 years
Duration	24.000 hours
Depth	5.3 in
Time of Concentration (Composite)	0.169 hours
Area (User Defined)	4.020 acres

Computational Time Increment	0.022 hours
Time to Peak (Computed)	11.980 hours
Flow (Peak, Computed)	19.40 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	19.26 ft³/s

Drainage Area	
SCS CN (Composite)	85.000
Area (User Defined)	4.020 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.6 in
Runoff Volume (Pervious)	1.206 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.204 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.169 hours
Computational Time Increment	0.022 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	27.02 ft³/s
Unit peak time, Tp	0.112 hours
Unit receding limb, Tr	0.450 hours
Total unit time, Tb	0.562 hours

Storm Event	10-yr
Return Event	10 years
Duration	24.000 hours
Depth	5.3 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	1.450 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.933 hours
Flow (Peak, Computed)	8.69 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	11.950 hours
Flow (Peak Interpolated Output)	8.44 ft³/s

Drainage Area	
SCS CN (Composite)	90.000
Area (User Defined)	1.450 acres
Maximum Retention (Pervious)	1.1 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.1 in
Runoff Volume (Pervious)	0.498 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.497 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	16.43 ft³/s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	100-yr
Return Event	100 years
Duration	24.000 hours
Depth	7.9 in
Time of Concentration (Composite)	0.169 hours
Area (User Defined)	4.020 acres

Computational Time Increment	0.022 hours
Time to Peak (Computed)	11.980 hours
Flow (Peak, Computed)	32.36 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	31.99 ft³/s

Drainage Area	
SCS CN (Composite)	85.000
Area (User Defined)	4.020 acres
Maximum Retention (Pervious)	1.8 in
Maximum Retention (Pervious, 20 percent)	0.4 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.2 in
Runoff Volume (Pervious)	2.062 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.058 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.169 hours
Computational Time Increment	0.022 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	27.02 ft³/s
Unit peak time, Tp	0.112 hours
Unit receding limb, Tr	0.450 hours
Total unit time, Tb	0.562 hours

Storm Event	100-yr
Return Event	100 years
Duration	24.000 hours
Depth	7.9 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	1.450 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.920 hours
Flow (Peak, Computed)	13.83 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	11.950 hours
Flow (Peak Interpolated Output)	13.40 ft³/s

Drainage Area	
SCS CN (Composite)	90.000
Area (User Defined)	1.450 acres
Maximum Retention (Pervious)	1.1 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.7 in
Runoff Volume (Pervious)	0.815 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.814 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	16.43 ft³/s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	WQ
Return Event	1 years
Duration	24.000 hours
Depth	1.4 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	1.850 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.933 hours
Flow (Peak, Computed)	1.95 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	11.950 hours
Flow (Peak Interpolated Output)	1.92 ft³/s

Drainage Area	
SCS CN (Composite)	91.968
Area (User Defined)	1.850 acres
Maximum Retention (Pervious)	0.9 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.7 in
Runoff Volume (Pervious)	0.106 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.106 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	20.96 ft³/s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	2-yr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	1.850 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.933 hours
Flow (Peak, Computed)	7.29 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	11.950 hours
Flow (Peak Interpolated Output)	7.09 ft³/s

Drainage Area	
SCS CN (Composite)	91.968
Area (User Defined)	1.850 acres
Maximum Retention (Pervious)	0.9 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.7 in
Runoff Volume (Pervious)	0.413 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.413 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	20.96 ft³/s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	10-yr
Return Event	10 years
Duration	24.000 hours
Depth	5.3 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	1.850 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.933 hours
Flow (Peak, Computed)	11.46 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	11.950 hours
Flow (Peak Interpolated Output)	11.11 ft³/s

Drainage Area	
SCS CN (Composite)	91.968
Area (User Defined)	1.850 acres
Maximum Retention (Pervious)	0.9 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.3 in
Runoff Volume (Pervious)	0.668 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.667 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	20.96 ft³/s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	100-yr
Return Event	100 years
Duration	24.000 hours
Depth	7.9 in
Time of Concentration (Composite)	0.100 hours
Area (User Defined)	1.850 acres

Computational Time Increment	0.013 hours
Time to Peak (Computed)	11.920 hours
Flow (Peak, Computed)	17.98 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	11.950 hours
Flow (Peak Interpolated Output)	17.38 ft³/s

Drainage Area	
SCS CN (Composite)	91.968
Area (User Defined)	1.850 acres
Maximum Retention (Pervious)	0.9 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.0 in
Runoff Volume (Pervious)	1.076 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.075 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.100 hours
Computational Time Increment	0.013 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	20.96 ft³/s
Unit peak time, Tp	0.067 hours
Unit receding limb, Tr	0.267 hours
Total unit time, Tb	0.333 hours

Storm Event	WQ
Return Event	1 years
Duration	24.000 hours
Depth	1.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.710 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.011 hours
Flow (Peak, Computed)	0.21 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.000 hours
Flow (Peak Interpolated Output)	0.21 ft³/s

Drainage Area	
SCS CN (Composite)	80.000
Area (User Defined)	0.710 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.2 in
Runoff Volume (Pervious)	0.013 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.013 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	9.65 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	2-yr
Return Event	2 years
Duration	24.000 hours
Depth	3.6 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.710 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	11.922 hours
Flow (Peak, Computed)	1.87 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	11.950 hours
Flow (Peak Interpolated Output)	1.79 ft³/s

Drainage Area	
SCS CN (Composite)	80.000
Area (User Defined)	0.710 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.7 in
Runoff Volume (Pervious)	0.099 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.099 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	9.65 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	10-yr
Return Event	10 years
Duration	24.000 hours
Depth	5.3 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.710 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	11.922 hours
Flow (Peak, Computed)	3.48 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	11.900 hours
Flow (Peak Interpolated Output)	3.34 ft³/s

Drainage Area	
SCS CN (Composite)	80.000
Area (User Defined)	0.710 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.1 in
Runoff Volume (Pervious)	0.184 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.184 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	9.65 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	100-yr
Return Event	100 years
Duration	24.000 hours
Depth	7.9 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	0.710 acres

Computational Time Increment	0.011 hours
Time to Peak (Computed)	11.922 hours
Flow (Peak, Computed)	6.10 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	11.900 hours
Flow (Peak Interpolated Output)	5.92 ft³/s

Drainage Area	
SCS CN (Composite)	80.000
Area (User Defined)	0.710 acres
Maximum Retention (Pervious)	2.5 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	0.329 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.329 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	9.65 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Elevation-Area Volume Curve
Label: PO-1

Return Event: 1 years
Storm Event: WQ

Elevation (ft)	Planimeter (ft²)	Area (acres)	A1+A2+sqr (A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
994.90	0.0	0.001	0.000	0.000	0.000
995.60	0.0	0.057	0.066	0.015	0.015
996.00	0.0	0.064	0.181	0.024	0.039
997.00	0.0	0.085	0.223	0.074	0.114
998.00	0.0	0.106	0.286	0.095	0.209
999.00	0.0	0.129	0.352	0.117	0.326
999.75	0.0	0.147	0.414	0.103	0.430

Subsection: Elevation-Area Volume Curve
Label: PO-2

Return Event: 1 years
Storm Event: WQ

Elevation (ft)	Planimeter (ft²)	Area (acres)	A1+A2+sqr (A1*A2) (acres)	Volume (ac-ft)	Volume (Total) (ac-ft)
997.00	0.0	0.001	0.000	0.000	0.000
998.00	0.0	0.120	0.132	0.044	0.044
999.00	0.0	0.155	0.411	0.137	0.181
1,000.00	0.0	0.190	0.517	0.172	0.353
1,001.00	0.0	0.226	0.623	0.208	0.561

Requested Pond Water Surface Elevations	
Minimum (Headwater)	994.90 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	999.75 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward	Culvert - 1	994.90	999.75
Orifice-Circular	Orifice - 2	Forward	Culvert - 1	996.70	999.75
Orifice-Area	Orifice - 3	Forward	Culvert - 1	998.00	999.75
Culvert-Circular	Culvert - 1	Forward	TW	994.90	999.75
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert - 1 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	15.0 in
Length	15.00 ft
Length (Computed Barrel)	15.02 ft
Slope (Computed)	0.047 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.023
Kr	0.200
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	0.000
T2 ratio (HW/D)	1.174
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	994.90 ft	T1 Flow	4.80 ft³/s
T2 Elevation	996.37 ft	T2 Flow	5.49 ft³/s

Structure ID: Orifice - 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	994.90 ft
Orifice Diameter	1.0 in
Orifice Coefficient	0.600

Structure ID: Orifice - 2 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	996.70 ft
Orifice Diameter	2.0 in
Orifice Coefficient	0.600

Structure ID: Orifice - 3 Structure Type: Orifice-Area	
Number of Openings	1
Elevation	998.00 ft
Orifice Area	0.5 ft^2
Top Elevation	998.50 ft
Datum Elevation	998.00 ft
Orifice Coefficient	0.600

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft^3/s
Flow Tolerance (Maximum)	10.000 ft^3/s

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Culvert - 1 (Culvert-Circular)

Mannings open channel maximum capacity: 15.01 ft³/s
Upstream ID = Orifice - 1, Orifice - 2, Orifice - 3
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)
994.90	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)
995.40	0.02	994.97	Free Outfall	Free Outfall	0.00	0.00	(N/A)
995.90	0.03	994.99	Free Outfall	Free Outfall	0.00	0.00	(N/A)
996.40	0.03	994.99	Free Outfall	Free Outfall	0.00	0.00	(N/A)
996.70	0.03	995.00	Free Outfall	Free Outfall	0.00	0.00	(N/A)
996.90	0.07	995.04	Free Outfall	Free Outfall	0.00	0.00	(N/A)
997.40	0.12	995.09	Free Outfall	Free Outfall	0.00	0.00	(N/A)
997.90	0.15	995.12	Free Outfall	Free Outfall	0.00	0.00	(N/A)
998.00	0.16	995.12	Free Outfall	Free Outfall	0.00	0.00	(N/A)
998.40	1.54	995.61	Free Outfall	Free Outfall	0.00	0.00	(N/A)
998.90	2.48	995.83	Free Outfall	Free Outfall	0.00	0.00	(N/A)
999.40	3.06	995.95	Free Outfall	Free Outfall	0.00	0.00	(N/A)
999.75	3.41	996.02	Free Outfall	Free Outfall	0.00	0.00	(N/A)

Tailwater Error (ft)	Message
0.00	WS below an invert; no flow.
0.00	CRIT.DEPTH CONTROL Vh= .016ft Dcr= .049ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .021ft Dcr= .061ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .023ft Dcr= .067ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .024ft Dcr= .071ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .035ft Dcr= .102ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .046ft Dcr= .134ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .052ft Dcr= .151ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .053ft Dcr= .154ft CRIT.DEPTH Hev= .00ft

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Culvert - 1 (Culvert-Circular)

Mannings open channel maximum capacity: 15.01 ft³/s
Upstream ID = Orifice - 1, Orifice - 2, Orifice - 3
Downstream ID = Tailwater (Pond Outfall)

Tailwater Error (ft)	Message
0.00	FLOW PRECEDENCE SET TO UPSTREAM CONTROLLING STRUCTURE
0.00	CRIT.DEPTH CONTROL Vh= .248ft Dcr= .631ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .287ft Dcr= .704ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .311ft Dcr= .745ft CRIT.DEPTH Hev= .00ft

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 1 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Culvert - 1 (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
994.90	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
995.40	0.02	995.40	994.97	994.97	0.00	0.00	(N/A)	0.00	H =.43
995.90	0.03	995.90	994.99	994.99	0.00	0.00	(N/A)	0.00	H =.91
996.40	0.03	996.40	994.99	994.99	0.00	0.00	(N/A)	0.00	H =1.41
996.70	0.03	996.70	995.00	995.00	0.00	0.00	(N/A)	0.00	H =1.70
996.90	0.04	996.90	995.04	995.04	0.00	0.00	(N/A)	0.00	H =1.86
997.40	0.04	997.40	995.09	995.09	0.00	0.00	(N/A)	0.00	H =2.31
997.90	0.04	997.90	995.11	995.12	0.00	0.00	(N/A)	0.00	H =2.79
998.00	0.04	998.00	995.12	995.12	0.00	0.00	(N/A)	0.00	H =2.88
998.40	0.04	998.40	995.61	995.61	0.00	0.00	(N/A)	0.00	H =2.79
998.90	0.05	998.90	995.83	995.83	0.00	0.00	(N/A)	0.00	H =3.07
999.40	0.05	999.40	995.95	995.95	0.00	0.00	(N/A)	0.00	H =3.45
999.75	0.05	999.75	996.02	996.02	0.00	0.00	(N/A)	0.00	H =3.73

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 2 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Culvert - 1 (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
994.90	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
995.40	0.00	0.00	0.00	994.97	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
995.90	0.00	0.00	0.00	994.99	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
996.40	0.00	0.00	0.00	994.99	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
996.70	0.00	0.00	0.00	995.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
996.90	0.04	996.90	Free Outfall	995.04	0.00	0.00	(N/A)	0.00	H =.12
997.40	0.08	997.40	Free Outfall	995.09	0.00	0.00	(N/A)	0.00	H =.62
997.90	0.11	997.90	Free Outfall	995.12	0.00	0.00	(N/A)	0.00	H =1.12
998.00	0.12	998.00	Free Outfall	995.12	0.00	0.00	(N/A)	0.00	H =1.22
998.40	0.13	998.40	Free Outfall	995.61	0.00	0.00	(N/A)	0.00	H =1.62
998.90	0.15	998.90	Free Outfall	995.83	0.00	0.00	(N/A)	0.00	H =2.12
999.40	0.17	999.40	Free Outfall	995.95	0.00	0.00	(N/A)	0.00	H =2.62
999.75	0.18	999.75	Free Outfall	996.02	0.00	0.00	(N/A)	0.00	H =2.97

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 3 (Orifice-Area)

Upstream ID = (Pond Water Surface)
Downstream ID = Culvert - 1 (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
994.90	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
995.40	0.00	0.00	0.00	994.97	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
995.90	0.00	0.00	0.00	994.99	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
996.40	0.00	0.00	0.00	994.99	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
996.70	0.00	0.00	0.00	995.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
996.90	0.00	0.00	0.00	995.04	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
997.40	0.00	0.00	0.00	995.09	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
997.90	0.00	0.00	0.00	995.12	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
998.00	0.00	0.00	0.00	995.12	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
998.40	1.36	998.40	Free Outfall	995.61	0.00	0.00	(N/A)	0.00	Hi=.40; Ht=.50; Qt=1.70
998.90	2.28	998.90	Free Outfall	995.83	0.00	0.00	(N/A)	0.00	H =.90
999.40	2.85	999.40	Free Outfall	995.95	0.00	0.00	(N/A)	0.00	H =1.40
999.75	3.18	999.75	Free Outfall	996.02	0.00	0.00	(N/A)	0.00	H =1.75

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
994.90	0.00	(N/A)	0.00
995.40	0.02	(N/A)	0.00
995.90	0.03	(N/A)	0.00
996.40	0.03	(N/A)	0.00
996.70	0.03	(N/A)	0.00
996.90	0.07	(N/A)	0.00
997.40	0.12	(N/A)	0.00
997.90	0.15	(N/A)	0.00
998.00	0.16	(N/A)	0.00
998.40	1.54	(N/A)	0.00
998.90	2.48	(N/A)	0.00
999.40	3.06	(N/A)	0.00
999.75	3.41	(N/A)	0.00

Contributing Structures
(no Q: Orifice - 1,Orifice - 2,Orifice - 3,Culvert - 1)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2,Orifice - 3)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2,Orifice - 3)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2,Orifice - 3)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2,Orifice - 3)
Orifice - 1,Orifice - 2,Culvert - 1 (no Q: Orifice - 3)
Orifice - 1,Orifice - 2,Culvert - 1 (no Q: Orifice - 3)
Orifice - 1,Orifice - 2,Culvert - 1 (no Q: Orifice - 3)
Orifice - 1,Orifice - 2,Culvert - 1 (no Q: Orifice - 3)
Orifice - 1,Orifice - 2,Orifice - 3,Culvert - 1
Orifice - 1,Orifice - 2,Orifice - 3,Culvert - 1
Orifice - 1,Orifice - 2,Orifice - 3,Culvert - 1
Orifice - 1,Orifice - 2,Orifice - 3,Culvert - 1

Requested Pond Water Surface Elevations	
Minimum (Headwater)	997.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	1,001.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 1	Forward	Culvert - 1	997.00	1,001.00
Orifice-Circular	Orifice - 2	Forward	Culvert - 1	998.60	1,001.00
Orifice-Area	Orifice - 3	Forward	Culvert - 1	999.50	1,001.00
Culvert-Circular	Culvert - 1	Forward	TW	997.00	1,001.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Culvert - 1 Structure Type: Culvert-Circular	
Number of Barrels	1
Diameter	15.0 in
Length	18.00 ft
Length (Computed Barrel)	18.00 ft
Slope (Computed)	0.011 ft/ft

Outlet Control Data	
Manning's n	0.013
Ke	0.200
Kb	0.023
Kr	0.200
Convergence Tolerance	0.00 ft

Inlet Control Data	
Equation Form	Form 1
K	0.0045
M	2.0000
C	0.0317
Y	0.6900
T1 ratio (HW/D)	1.090
T2 ratio (HW/D)	1.192
Slope Correction Factor	-0.500

Use unsubmerged inlet control 0 equation below T1 elevation.
Use submerged inlet control 0 equation above T2 elevation

In transition zone between unsubmerged and submerged inlet control,
interpolate between flows at T1 & T2...

T1 Elevation	998.36 ft	T1 Flow	4.80 ft³/s
T2 Elevation	998.49 ft	T2 Flow	5.49 ft³/s

Structure ID: Orifice - 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	997.00 ft
Orifice Diameter	1.5 in
Orifice Coefficient	0.600

Structure ID: Orifice - 2 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	998.60 ft
Orifice Diameter	2.0 in
Orifice Coefficient	0.600

Structure ID: Orifice - 3 Structure Type: Orifice-Area	
Number of Openings	1
Elevation	999.50 ft
Orifice Area	0.7 ft²
Top Elevation	1,000.00 ft
Datum Elevation	999.50 ft
Orifice Coefficient	0.600

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Culvert - 1 (Culvert-Circular)

Mannings open channel maximum capacity: 7.32 ft³/s
Upstream ID = Orifice - 1, Orifice - 2, Orifice - 3
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)
997.00	0.00	0.00	0.00	Free Outfall	0.00	0.00	(N/A)
997.50	0.04	997.10	Free Outfall	Free Outfall	0.00	0.00	(N/A)
998.00	0.06	997.13	Free Outfall	Free Outfall	0.00	0.00	(N/A)
998.50	0.07	997.14	Free Outfall	Free Outfall	0.00	0.00	(N/A)
998.60	0.07	997.14	Free Outfall	Free Outfall	0.00	0.00	(N/A)
999.00	0.14	997.20	Free Outfall	Free Outfall	0.00	0.00	(N/A)
999.50	0.18	997.23	Free Outfall	Free Outfall	0.00	0.00	(N/A)
1,000.00	2.59	997.95	Free Outfall	Free Outfall	0.00	0.00	(N/A)
1,000.50	3.60	998.15	Free Outfall	Free Outfall	0.00	0.00	(N/A)
1,001.00	4.38	998.30	Free Outfall	Free Outfall	0.00	0.00	(N/A)

Tailwater Error (ft)	Message
0.00	WS below an invert; no flow.
0.00	CRIT.DEPTH CONTROL Vh= .025ft Dcr= .073ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .031ft Dcr= .090ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .034ft Dcr= .100ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .035ft Dcr= .102ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .049ft Dcr= .143ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .057ft Dcr= .166ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .255ft Dcr= .645ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .324ft Dcr= .766ft CRIT.DEPTH Hev= .00ft
0.00	CRIT.DEPTH CONTROL Vh= .380ft Dcr= .848ft CRIT.DEPTH Hev= .00ft

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 1 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Culvert - 1 (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)
997.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
997.50	0.04	997.50	997.10	997.10	0.00	0.00	(N/A)
998.00	0.06	998.00	997.13	997.13	0.00	0.00	(N/A)
998.50	0.07	998.50	997.14	997.14	0.00	0.00	(N/A)
998.60	0.07	998.60	997.14	997.14	0.00	0.00	(N/A)
999.00	0.08	999.00	997.20	997.20	0.00	0.00	(N/A)
999.50	0.09	999.50	997.23	997.23	0.00	0.00	(N/A)
1,000.00	0.08	1,000.00	997.95	997.95	0.00	0.00	(N/A)
1,000.50	0.09	1,000.50	998.15	998.15	0.00	0.00	(N/A)
1,001.00	0.10	1,001.00	998.30	998.30	0.00	0.00	(N/A)

Tailwater Error (ft)	Message
0.00	WS below an invert; no flow.
0.00	H =.40
0.00	H =.87
0.00	H =1.36
0.00	H =1.46
0.00	H =1.80
0.00	H =2.27
0.00	H =2.05
0.00	H =2.35
0.00	H =2.70

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 2 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Culvert - 1 (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)
997.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)
997.50	0.00	0.00	0.00	997.10	0.00	0.00	(N/A)
998.00	0.00	0.00	0.00	997.13	0.00	0.00	(N/A)
998.50	0.00	0.00	0.00	997.14	0.00	0.00	(N/A)
998.60	0.00	0.00	0.00	997.14	0.00	0.00	(N/A)
999.00	0.06	999.00	Free Outfall	997.20	0.00	0.00	(N/A)
999.50	0.09	999.50	Free Outfall	997.23	0.00	0.00	(N/A)
1,000.00	0.12	1,000.00	Free Outfall	997.95	0.00	0.00	(N/A)
1,000.50	0.14	1,000.50	Free Outfall	998.15	0.00	0.00	(N/A)
1,001.00	0.16	1,001.00	Free Outfall	998.30	0.00	0.00	(N/A)

Tailwater Error (ft)	Message
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	WS below an invert; no flow.
0.00	H =.32
0.00	H =.82
0.00	H =1.32
0.00	H =1.82
0.00	H =2.32

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 3 (Orifice-Area)

Upstream ID = (Pond Water Surface)
Downstream ID = Culvert - 1 (Culvert-Circular)

Water Surface Elevation (ft)	Device Flow (ft³/s)	(into) Headwater Hydraulic Grade Line (ft)	Converge Downstream Hydraulic Grade Line (ft)	Next Downstream Hydraulic Grade Line (ft)	Downstream Hydraulic Grade Line Error (ft)	Convergence Error (ft³/s)	Downstream Channel Tailwater (ft)	Tailwater Error (ft)	Message
997.00	0.00	0.00	0.00	0.00	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
997.50	0.00	0.00	0.00	997.10	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
998.00	0.00	0.00	0.00	997.13	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
998.50	0.00	0.00	0.00	997.14	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
998.60	0.00	0.00	0.00	997.14	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
999.00	0.00	0.00	0.00	997.20	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
999.50	0.00	0.00	0.00	997.23	0.00	0.00	(N/A)	0.00	WS below an invert; no flow.
1,000.00	2.38	1,000.00	Free Outfall	997.95	0.00	0.00	(N/A)	0.00	H =.50
1,000.50	3.37	1,000.50	Free Outfall	998.15	0.00	0.00	(N/A)	0.00	H =1.00
1,001.00	4.13	1,001.00	Free Outfall	998.30	0.00	0.00	(N/A)	0.00	H =1.50

Subsection: Composite Rating Curve
Label: Composite Outlet Structure - 2

Return Event: 1 years
Storm Event: WQ

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
997.00	0.00	(N/A)	0.00
997.50	0.04	(N/A)	0.00
998.00	0.06	(N/A)	0.00
998.50	0.07	(N/A)	0.00
998.60	0.07	(N/A)	0.00
999.00	0.14	(N/A)	0.00
999.50	0.18	(N/A)	0.00
1,000.00	2.59	(N/A)	0.00
1,000.50	3.60	(N/A)	0.00
1,001.00	4.38	(N/A)	0.00

Contributing Structures
(no Q: Orifice - 1,Orifice - 2,Orifice - 3,Culvert - 1)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2,Orifice - 3)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2,Orifice - 3)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2,Orifice - 3)
Orifice - 1,Culvert - 1 (no Q: Orifice - 2,Orifice - 3)
Orifice - 1,Orifice - 2,Culvert - 1 (no Q: Orifice - 3)
Orifice - 1,Orifice - 2,Culvert - 1 (no Q: Orifice - 3)
Orifice - 1,Orifice - 2,Orifice - 3,Culvert - 1
Orifice - 1,Orifice - 2,Orifice - 3,Culvert - 1
Orifice - 1,Orifice - 2,Orifice - 3,Culvert - 1

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	994.90 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (acres)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
994.90	0.00	0.000	0.001	0.00	0.00	0.00
995.40	0.02	0.006	0.032	0.00	0.02	3.16
995.90	0.03	0.033	0.062	0.00	0.03	16.08
996.40	0.03	0.067	0.072	0.00	0.03	32.30
996.70	0.03	0.089	0.078	0.00	0.03	43.22
996.90	0.07	0.105	0.083	0.00	0.07	51.06
997.40	0.12	0.149	0.093	0.00	0.12	72.41
997.90	0.15	0.199	0.104	0.00	0.15	96.25
998.00	0.16	0.209	0.106	0.00	0.16	101.34
998.40	1.54	0.253	0.115	0.00	1.54	124.09
998.90	2.48	0.314	0.127	0.00	2.48	154.25
999.40	3.06	0.380	0.138	0.00	3.06	186.90
999.75	3.41	0.430	0.147	0.00	3.41	211.43

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	994.90 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	1.27 ft³/s	Time to Peak (Flow, In)	11.950 hours
Flow (Peak Outlet)	0.03 ft³/s	Time to Peak (Flow, Outlet)	17.750 hours

Elevation (Water Surface, Peak)	996.10 ft
Volume (Peak)	0.046 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.070 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.028 ac-ft
Volume (Retained)	0.042 ac-ft
Volume (Unrouted)	-0.001 ac-ft
Error (Mass Balance)	0.9 %

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	994.90 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	5.26 ft³/s	Time to Peak (Flow, In)	11.950 hours
Flow (Peak Outlet)	0.15 ft³/s	Time to Peak (Flow, Outlet)	14.750 hours

Elevation (Water Surface, Peak)	997.90 ft
Volume (Peak)	0.198 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.301 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.148 ac-ft
Volume (Retained)	0.152 ac-ft
Volume (Unrouted)	-0.001 ac-ft
Error (Mass Balance)	0.2 %

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	994.90 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	8.44 ft³/s	Time to Peak (Flow, In)	11.950 hours
Flow (Peak Outlet)	1.75 ft³/s	Time to Peak (Flow, Outlet)	12.150 hours

Elevation (Water Surface, Peak)	998.51 ft
Volume (Peak)	0.266 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.497 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.316 ac-ft
Volume (Retained)	0.180 ac-ft
Volume (Unrouted)	-0.001 ac-ft
Error (Mass Balance)	0.2 %

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	994.90 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	13.40 ft³/s	Time to Peak (Flow, In)	11.950 hours
Flow (Peak Outlet)	3.32 ft³/s	Time to Peak (Flow, Outlet)	12.150 hours

Elevation (Water Surface, Peak)	999.66 ft
Volume (Peak)	0.416 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.814 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.612 ac-ft
Volume (Retained)	0.201 ac-ft
Volume (Unrouted)	-0.001 ac-ft
Error (Mass Balance)	0.1 %

Peak Discharge	0.03 ft³/s
Time to Peak	17.750 hours
Hydrograph Volume	0.028 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.650	0.00	0.00	0.00	0.00	0.00
10.900	0.00	0.00	0.00	0.00	0.00
11.150	0.00	0.00	0.00	0.00	0.00
11.400	0.00	0.00	0.01	0.01	0.01
11.650	0.01	0.01	0.01	0.02	0.02
11.900	0.02	0.02	0.02	0.02	0.02
12.150	0.02	0.03	0.03	0.03	0.03
12.400	0.03	0.03	0.03	0.03	0.03
12.650	0.03	0.03	0.03	0.03	0.03
12.900	0.03	0.03	0.03	0.03	0.03
13.150	0.03	0.03	0.03	0.03	0.03
13.400	0.03	0.03	0.03	0.03	0.03
13.650	0.03	0.03	0.03	0.03	0.03
13.900	0.03	0.03	0.03	0.03	0.03
14.150	0.03	0.03	0.03	0.03	0.03
14.400	0.03	0.03	0.03	0.03	0.03
14.650	0.03	0.03	0.03	0.03	0.03
14.900	0.03	0.03	0.03	0.03	0.03
15.150	0.03	0.03	0.03	0.03	0.03
15.400	0.03	0.03	0.03	0.03	0.03
15.650	0.03	0.03	0.03	0.03	0.03
15.900	0.03	0.03	0.03	0.03	0.03
16.150	0.03	0.03	0.03	0.03	0.03
16.400	0.03	0.03	0.03	0.03	0.03
16.650	0.03	0.03	0.03	0.03	0.03
16.900	0.03	0.03	0.03	0.03	0.03
17.150	0.03	0.03	0.03	0.03	0.03
17.400	0.03	0.03	0.03	0.03	0.03
17.650	0.03	0.03	0.03	0.03	0.03
17.900	0.03	0.03	0.03	0.03	0.03
18.150	0.03	0.03	0.03	0.03	0.03
18.400	0.03	0.03	0.03	0.03	0.03
18.650	0.03	0.03	0.03	0.03	0.03
18.900	0.03	0.03	0.03	0.03	0.03
19.150	0.03	0.03	0.03	0.03	0.03
19.400	0.03	0.03	0.03	0.03	0.03
19.650	0.03	0.03	0.03	0.03	0.03
19.900	0.03	0.03	0.03	0.03	0.03
20.150	0.03	0.03	0.03	0.03	0.03
20.400	0.03	0.03	0.03	0.03	0.03
20.650	0.03	0.03	0.03	0.03	0.03
20.900	0.03	0.03	0.03	0.03	0.03
21.150	0.03	0.03	0.03	0.03	0.03

Subsection: Pond Routed Hydrograph (total out) Return Event: 1 years
Label: PO-1 (OUT) Storm Event: WQ

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.400	0.03	0.03	0.03	0.03	0.03
21.650	0.03	0.03	0.03	0.03	0.03
21.900	0.03	0.03	0.03	0.03	0.03
22.150	0.03	0.03	0.03	0.03	0.03
22.400	0.03	0.03	0.03	0.03	0.03
22.650	0.03	0.03	0.03	0.03	0.03
22.900	0.03	0.03	0.03	0.03	0.03
23.150	0.03	0.03	0.03	0.03	0.03
23.400	0.03	0.03	0.03	0.03	0.03
23.650	0.03	0.03	0.03	0.03	0.03
23.900	0.03	0.03	0.03	(N/A)	(N/A)

Peak Discharge	0.15 ft³/s
Time to Peak	14.750 hours
Hydrograph Volume	0.148 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
6.100	0.00	0.00	0.00	0.00	0.00
6.350	0.00	0.00	0.00	0.00	0.00
6.600	0.00	0.00	0.00	0.00	0.00
6.850	0.00	0.00	0.00	0.00	0.00
7.100	0.00	0.00	0.00	0.00	0.00
7.350	0.00	0.00	0.01	0.01	0.01
7.600	0.01	0.01	0.01	0.01	0.01
7.850	0.01	0.01	0.01	0.01	0.01
8.100	0.01	0.01	0.01	0.01	0.01
8.350	0.01	0.01	0.01	0.01	0.01
8.600	0.01	0.01	0.01	0.01	0.01
8.850	0.01	0.01	0.01	0.01	0.02
9.100	0.02	0.02	0.02	0.02	0.02
9.350	0.02	0.02	0.02	0.02	0.02
9.600	0.02	0.02	0.02	0.02	0.02
9.850	0.02	0.02	0.02	0.02	0.02
10.100	0.02	0.02	0.02	0.02	0.02
10.350	0.02	0.02	0.02	0.02	0.02
10.600	0.02	0.02	0.02	0.02	0.02
10.850	0.02	0.02	0.02	0.02	0.02
11.100	0.02	0.02	0.02	0.02	0.02
11.350	0.02	0.02	0.02	0.02	0.03
11.600	0.03	0.03	0.03	0.03	0.03
11.850	0.03	0.04	0.08	0.10	0.12
12.100	0.13	0.13	0.13	0.14	0.14
12.350	0.14	0.14	0.14	0.14	0.14
12.600	0.14	0.14	0.15	0.15	0.15
12.850	0.15	0.15	0.15	0.15	0.15
13.100	0.15	0.15	0.15	0.15	0.15
13.350	0.15	0.15	0.15	0.15	0.15
13.600	0.15	0.15	0.15	0.15	0.15
13.850	0.15	0.15	0.15	0.15	0.15
14.100	0.15	0.15	0.15	0.15	0.15
14.350	0.15	0.15	0.15	0.15	0.15
14.600	0.15	0.15	0.15	0.15	0.15
14.850	0.15	0.15	0.15	0.15	0.15
15.100	0.15	0.15	0.15	0.15	0.15
15.350	0.15	0.15	0.15	0.15	0.15
15.600	0.15	0.15	0.15	0.15	0.15
15.850	0.15	0.15	0.15	0.15	0.15
16.100	0.15	0.15	0.15	0.15	0.15
16.350	0.15	0.15	0.15	0.15	0.15
16.600	0.15	0.15	0.15	0.15	0.15

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: PO-1 (OUT) Storm Event: 2-yr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.850	0.15	0.15	0.15	0.15	0.15
17.100	0.15	0.15	0.15	0.15	0.15
17.350	0.15	0.15	0.15	0.15	0.15
17.600	0.15	0.15	0.15	0.15	0.15
17.850	0.15	0.15	0.15	0.15	0.15
18.100	0.15	0.15	0.15	0.15	0.15
18.350	0.15	0.15	0.15	0.15	0.15
18.600	0.15	0.14	0.14	0.14	0.14
18.850	0.14	0.14	0.14	0.14	0.14
19.100	0.14	0.14	0.14	0.14	0.14
19.350	0.14	0.14	0.14	0.14	0.14
19.600	0.14	0.14	0.14	0.14	0.14
19.850	0.14	0.14	0.14	0.14	0.14
20.100	0.14	0.14	0.14	0.14	0.14
20.350	0.14	0.14	0.14	0.14	0.14
20.600	0.14	0.14	0.14	0.14	0.14
20.850	0.14	0.14	0.14	0.14	0.14
21.100	0.14	0.14	0.13	0.13	0.13
21.350	0.13	0.13	0.13	0.13	0.13
21.600	0.13	0.13	0.13	0.13	0.13
21.850	0.13	0.13	0.13	0.13	0.13
22.100	0.13	0.13	0.13	0.13	0.13
22.350	0.13	0.13	0.13	0.13	0.13
22.600	0.13	0.13	0.13	0.13	0.13
22.850	0.13	0.13	0.13	0.13	0.13
23.100	0.13	0.13	0.13	0.13	0.13
23.350	0.13	0.13	0.13	0.13	0.13
23.600	0.13	0.13	0.13	0.12	0.12
23.850	0.12	0.12	0.12	0.12	(N/A)

Peak Discharge	1.75 ft³/s
Time to Peak	12.150 hours
Hydrograph Volume	0.316 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.500	0.00	0.00	0.00	0.00	0.00
4.750	0.00	0.00	0.00	0.00	0.00
5.000	0.00	0.00	0.00	0.00	0.00
5.250	0.00	0.00	0.00	0.00	0.00
5.500	0.00	0.00	0.01	0.01	0.01
5.750	0.01	0.01	0.01	0.01	0.01
6.000	0.01	0.01	0.01	0.01	0.01
6.250	0.01	0.01	0.01	0.01	0.01
6.500	0.01	0.01	0.01	0.01	0.01
6.750	0.01	0.01	0.01	0.01	0.01
7.000	0.01	0.02	0.02	0.02	0.02
7.250	0.02	0.02	0.02	0.02	0.02
7.500	0.02	0.02	0.02	0.02	0.02
7.750	0.02	0.02	0.02	0.02	0.02
8.000	0.02	0.02	0.02	0.02	0.02
8.250	0.02	0.02	0.02	0.02	0.02
8.500	0.02	0.02	0.02	0.02	0.02
8.750	0.02	0.02	0.02	0.02	0.02
9.000	0.02	0.02	0.02	0.02	0.02
9.250	0.02	0.02	0.02	0.02	0.02
9.500	0.02	0.02	0.02	0.02	0.02
9.750	0.02	0.02	0.02	0.02	0.02
10.000	0.02	0.02	0.02	0.02	0.02
10.250	0.02	0.02	0.03	0.03	0.03
10.500	0.03	0.03	0.03	0.03	0.03
10.750	0.03	0.03	0.03	0.03	0.03
11.000	0.03	0.03	0.03	0.03	0.03
11.250	0.03	0.03	0.03	0.03	0.03
11.500	0.03	0.03	0.03	0.03	0.03
11.750	0.06	0.09	0.11	0.13	0.16
12.000	0.90	1.56	1.72	1.75	1.74
12.250	1.71	1.68	1.64	1.59	1.55
12.500	1.47	1.38	1.29	1.21	1.14
12.750	1.07	1.01	0.95	0.90	0.85
13.000	0.81	0.77	0.73	0.69	0.66
13.250	0.63	0.60	0.58	0.55	0.53
13.500	0.51	0.49	0.48	0.46	0.44
13.750	0.43	0.41	0.40	0.39	0.38
14.000	0.37	0.36	0.35	0.34	0.33
14.250	0.32	0.31	0.31	0.30	0.29
14.500	0.29	0.28	0.28	0.28	0.27
14.750	0.27	0.26	0.26	0.26	0.25
15.000	0.25	0.25	0.24	0.24	0.24

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.250	0.23	0.23	0.23	0.23	0.22
15.500	0.22	0.22	0.21	0.21	0.21
15.750	0.21	0.20	0.20	0.20	0.20
16.000	0.19	0.19	0.19	0.19	0.18
16.250	0.18	0.18	0.18	0.18	0.17
16.500	0.17	0.17	0.17	0.17	0.17
16.750	0.17	0.17	0.16	0.16	0.16
17.000	0.16	0.16	0.16	0.16	0.16
17.250	0.16	0.16	0.16	0.16	0.16
17.500	0.16	0.16	0.16	0.16	0.16
17.750	0.16	0.16	0.16	0.16	0.16
18.000	0.16	0.16	0.16	0.16	0.16
18.250	0.16	0.16	0.16	0.16	0.16
18.500	0.16	0.16	0.16	0.16	0.16
18.750	0.16	0.16	0.16	0.16	0.16
19.000	0.16	0.16	0.16	0.16	0.16
19.250	0.16	0.16	0.16	0.16	0.16
19.500	0.16	0.16	0.16	0.16	0.16
19.750	0.16	0.16	0.16	0.16	0.16
20.000	0.16	0.16	0.15	0.15	0.15
20.250	0.15	0.15	0.15	0.15	0.15
20.500	0.15	0.15	0.15	0.15	0.15
20.750	0.15	0.15	0.15	0.15	0.15
21.000	0.15	0.15	0.15	0.15	0.15
21.250	0.15	0.15	0.15	0.15	0.15
21.500	0.15	0.15	0.15	0.15	0.15
21.750	0.15	0.15	0.15	0.15	0.15
22.000	0.15	0.15	0.15	0.15	0.15
22.250	0.15	0.15	0.15	0.15	0.15
22.500	0.15	0.15	0.15	0.15	0.15
22.750	0.15	0.15	0.15	0.15	0.15
23.000	0.15	0.15	0.15	0.15	0.15
23.250	0.14	0.14	0.14	0.14	0.14
23.500	0.14	0.14	0.14	0.14	0.14
23.750	0.14	0.14	0.14	0.14	0.14
24.000	0.14	(N/A)	(N/A)	(N/A)	(N/A)

Peak Discharge	3.32 ft³/s
Time to Peak	12.150 hours
Hydrograph Volume	0.612 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
3.200	0.00	0.00	0.00	0.00	0.00
3.450	0.00	0.00	0.00	0.00	0.00
3.700	0.00	0.00	0.00	0.00	0.00
3.950	0.00	0.00	0.01	0.01	0.01
4.200	0.01	0.01	0.01	0.01	0.01
4.450	0.01	0.01	0.01	0.01	0.01
4.700	0.01	0.01	0.01	0.01	0.01
4.950	0.01	0.01	0.01	0.01	0.02
5.200	0.02	0.02	0.02	0.02	0.02
5.450	0.02	0.02	0.02	0.02	0.02
5.700	0.02	0.02	0.02	0.02	0.02
5.950	0.02	0.02	0.02	0.02	0.02
6.200	0.02	0.02	0.02	0.02	0.02
6.450	0.02	0.02	0.02	0.02	0.02
6.700	0.02	0.02	0.02	0.02	0.02
6.950	0.02	0.02	0.02	0.02	0.02
7.200	0.02	0.02	0.02	0.02	0.02
7.450	0.02	0.02	0.02	0.02	0.02
7.700	0.02	0.02	0.02	0.02	0.02
7.950	0.02	0.02	0.02	0.02	0.02
8.200	0.02	0.02	0.02	0.03	0.03
8.450	0.03	0.03	0.03	0.03	0.03
8.700	0.03	0.03	0.03	0.03	0.03
8.950	0.03	0.03	0.03	0.03	0.03
9.200	0.03	0.03	0.03	0.03	0.03
9.450	0.03	0.03	0.03	0.03	0.03
9.700	0.03	0.03	0.03	0.03	0.03
9.950	0.03	0.03	0.03	0.03	0.03
10.200	0.03	0.03	0.03	0.03	0.03
10.450	0.03	0.03	0.03	0.03	0.03
10.700	0.03	0.03	0.04	0.04	0.05
10.950	0.05	0.06	0.07	0.07	0.08
11.200	0.08	0.08	0.09	0.09	0.09
11.450	0.10	0.10	0.11	0.12	0.13
11.700	0.14	0.15	0.38	1.37	2.08
11.950	2.66	3.01	3.22	3.32	3.32
12.200	3.30	3.26	3.22	3.17	3.12
12.450	3.08	3.01	2.95	2.88	2.81
12.700	2.74	2.68	2.61	2.55	2.49
12.950	2.39	2.28	2.19	2.09	2.00
13.200	1.92	1.84	1.76	1.69	1.62
13.450	1.56	1.46	1.35	1.25	1.16
13.700	1.08	1.01	0.95	0.89	0.84

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
13.950	0.79	0.75	0.71	0.68	0.65
14.200	0.62	0.59	0.57	0.55	0.53
14.450	0.51	0.50	0.49	0.47	0.46
14.700	0.45	0.44	0.43	0.42	0.41
14.950	0.41	0.40	0.39	0.39	0.38
15.200	0.38	0.37	0.36	0.36	0.35
15.450	0.35	0.34	0.34	0.34	0.33
15.700	0.33	0.32	0.32	0.31	0.31
15.950	0.30	0.30	0.30	0.29	0.29
16.200	0.28	0.28	0.28	0.28	0.27
16.450	0.27	0.27	0.27	0.26	0.26
16.700	0.26	0.26	0.26	0.25	0.25
16.950	0.25	0.25	0.25	0.25	0.24
17.200	0.24	0.24	0.24	0.24	0.24
17.450	0.23	0.23	0.23	0.23	0.23
17.700	0.23	0.23	0.22	0.22	0.22
17.950	0.22	0.22	0.22	0.22	0.21
18.200	0.21	0.21	0.21	0.21	0.21
18.450	0.21	0.20	0.20	0.20	0.20
18.700	0.20	0.20	0.20	0.19	0.19
18.950	0.19	0.19	0.19	0.19	0.19
19.200	0.18	0.18	0.18	0.18	0.18
19.450	0.18	0.18	0.17	0.17	0.17
19.700	0.17	0.17	0.17	0.17	0.16
19.950	0.16	0.16	0.16	0.16	0.16
20.200	0.16	0.16	0.16	0.16	0.16
20.450	0.16	0.16	0.16	0.16	0.16
20.700	0.16	0.16	0.16	0.16	0.16
20.950	0.16	0.16	0.16	0.16	0.16
21.200	0.16	0.16	0.16	0.16	0.16
21.450	0.16	0.16	0.16	0.16	0.16
21.700	0.16	0.16	0.16	0.16	0.16
21.950	0.16	0.16	0.16	0.16	0.16
22.200	0.16	0.16	0.16	0.16	0.16
22.450	0.16	0.16	0.16	0.16	0.16
22.700	0.16	0.16	0.16	0.16	0.16
22.950	0.16	0.16	0.16	0.16	0.16
23.200	0.16	0.16	0.16	0.16	0.16
23.450	0.16	0.16	0.16	0.16	0.16
23.700	0.16	0.16	0.16	0.16	0.16
23.950	0.16	0.16	(N/A)	(N/A)	(N/A)

Subsection: Elevation-Volume-Flow Table (Pond)
Label: PO-2

Return Event: 1 years
Storm Event: WQ

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	997.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ac-ft)	Area (acres)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
997.00	0.00	0.000	0.001	0.00	0.00	0.00
997.50	0.04	0.007	0.036	0.00	0.04	3.48
998.00	0.06	0.044	0.120	0.00	0.06	21.34
998.50	0.07	0.108	0.137	0.00	0.07	52.42
998.60	0.07	0.122	0.140	0.00	0.07	59.14
999.00	0.14	0.181	0.155	0.00	0.14	87.80
999.50	0.18	0.263	0.172	0.00	0.18	127.40
1,000.00	2.59	0.353	0.190	0.00	2.59	173.59
1,000.50	3.60	0.453	0.208	0.00	3.60	222.70
1,001.00	4.38	0.561	0.226	0.00	4.38	275.93

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	997.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	1.92 ft³/s	Time to Peak (Flow, In)	11.950 hours
Flow (Peak Outlet)	0.06 ft³/s	Time to Peak (Flow, Outlet)	15.100 hours

Elevation (Water Surface, Peak)	998.15 ft
Volume (Peak)	0.063 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.106 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.061 ac-ft
Volume (Retained)	0.045 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.3 %

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	997.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	7.09 ft³/s	Time to Peak (Flow, In)	11.950 hours
Flow (Peak Outlet)	0.27 ft³/s	Time to Peak (Flow, Outlet)	13.750 hours

Elevation (Water Surface, Peak)	999.52 ft
Volume (Peak)	0.266 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.413 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.201 ac-ft
Volume (Retained)	0.210 ac-ft
Volume (Unrouted)	-0.002 ac-ft
Error (Mass Balance)	0.4 %

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	997.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	11.11 ft³/s	Time to Peak (Flow, In)	11.950 hours
Flow (Peak Outlet)	2.56 ft³/s	Time to Peak (Flow, Outlet)	12.150 hours

Elevation (Water Surface, Peak)	999.99 ft
Volume (Peak)	0.352 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.667 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.429 ac-ft
Volume (Retained)	0.236 ac-ft
Volume (Unrouted)	-0.002 ac-ft
Error (Mass Balance)	0.2 %

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	997.00 ft
Volume (Initial)	0.000 ac-ft
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	17.38 ft³/s	Time to Peak (Flow, In)	11.950 hours
Flow (Peak Outlet)	4.28 ft³/s	Time to Peak (Flow, Outlet)	12.150 hours

Elevation (Water Surface, Peak)	1,000.93 ft
Volume (Peak)	0.546 ac-ft

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.075 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.815 ac-ft
Volume (Retained)	0.259 ac-ft
Volume (Unrouted)	-0.001 ac-ft
Error (Mass Balance)	0.1 %

Peak Discharge	0.06 ft³/s
Time to Peak	15.100 hours
Hydrograph Volume	0.061 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.300	0.00	0.00	0.00	0.00	0.00
9.550	0.00	0.00	0.00	0.00	0.00
9.800	0.00	0.00	0.00	0.00	0.00
10.050	0.00	0.00	0.00	0.00	0.00
10.300	0.00	0.01	0.01	0.01	0.01
10.550	0.01	0.01	0.01	0.01	0.01
10.800	0.01	0.01	0.01	0.01	0.01
11.050	0.01	0.01	0.01	0.02	0.02
11.300	0.02	0.02	0.02	0.02	0.02
11.550	0.02	0.03	0.03	0.04	0.04
11.800	0.04	0.04	0.04	0.05	0.05
12.050	0.06	0.06	0.06	0.06	0.06
12.300	0.06	0.06	0.06	0.06	0.06
12.550	0.06	0.06	0.06	0.06	0.06
12.800	0.06	0.06	0.06	0.06	0.06
13.050	0.06	0.06	0.06	0.06	0.06
13.300	0.06	0.06	0.06	0.06	0.06
13.550	0.06	0.06	0.06	0.06	0.06
13.800	0.06	0.06	0.06	0.06	0.06
14.050	0.06	0.06	0.06	0.06	0.06
14.300	0.06	0.06	0.06	0.06	0.06
14.550	0.06	0.06	0.06	0.06	0.06
14.800	0.06	0.06	0.06	0.06	0.06
15.050	0.06	0.06	0.06	0.06	0.06
15.300	0.06	0.06	0.06	0.06	0.06
15.550	0.06	0.06	0.06	0.06	0.06
15.800	0.06	0.06	0.06	0.06	0.06
16.050	0.06	0.06	0.06	0.06	0.06
16.300	0.06	0.06	0.06	0.06	0.06
16.550	0.06	0.06	0.06	0.06	0.06
16.800	0.06	0.06	0.06	0.06	0.06
17.050	0.06	0.06	0.06	0.06	0.06
17.300	0.06	0.06	0.06	0.06	0.06
17.550	0.06	0.06	0.06	0.06	0.06
17.800	0.06	0.06	0.06	0.06	0.06
18.050	0.06	0.06	0.06	0.06	0.06
18.300	0.06	0.06	0.06	0.06	0.06
18.550	0.06	0.06	0.06	0.06	0.06
18.800	0.06	0.06	0.06	0.06	0.06
19.050	0.06	0.06	0.06	0.06	0.06
19.300	0.06	0.06	0.06	0.06	0.06
19.550	0.06	0.06	0.06	0.06	0.06
19.800	0.06	0.06	0.06	0.06	0.06

Subsection: Pond Routed Hydrograph (total out) Return Event: 1 years
Label: PO-2 (OUT) Storm Event: WQ

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.050	0.06	0.06	0.06	0.06	0.06
20.300	0.06	0.06	0.06	0.06	0.06
20.550	0.06	0.06	0.06	0.06	0.06
20.800	0.06	0.06	0.06	0.06	0.06
21.050	0.06	0.06	0.06	0.06	0.06
21.300	0.06	0.06	0.06	0.06	0.06
21.550	0.06	0.06	0.06	0.06	0.06
21.800	0.06	0.06	0.06	0.06	0.06
22.050	0.06	0.06	0.06	0.06	0.06
22.300	0.06	0.06	0.06	0.06	0.06
22.550	0.06	0.06	0.06	0.06	0.06
22.800	0.06	0.06	0.06	0.06	0.06
23.050	0.06	0.06	0.06	0.06	0.06
23.300	0.06	0.06	0.06	0.06	0.06
23.550	0.06	0.06	0.06	0.06	0.06
23.800	0.06	0.06	0.06	0.06	0.06

Peak Discharge	0.27 ft³/s
Time to Peak	13.750 hours
Hydrograph Volume	0.201 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.850	0.00	0.00	0.00	0.00	0.00
5.100	0.00	0.00	0.00	0.00	0.00
5.350	0.00	0.00	0.00	0.00	0.00
5.600	0.00	0.00	0.00	0.01	0.01
5.850	0.01	0.01	0.01	0.01	0.01
6.100	0.01	0.01	0.01	0.01	0.01
6.350	0.01	0.01	0.01	0.01	0.01
6.600	0.01	0.01	0.01	0.01	0.01
6.850	0.01	0.01	0.02	0.02	0.02
7.100	0.02	0.02	0.02	0.02	0.02
7.350	0.02	0.02	0.02	0.02	0.02
7.600	0.02	0.02	0.02	0.02	0.02
7.850	0.03	0.03	0.03	0.03	0.03
8.100	0.03	0.03	0.03	0.03	0.03
8.350	0.03	0.03	0.03	0.03	0.04
8.600	0.04	0.04	0.04	0.04	0.04
8.850	0.04	0.04	0.04	0.04	0.04
9.100	0.04	0.04	0.04	0.04	0.04
9.350	0.04	0.04	0.04	0.04	0.04
9.600	0.04	0.04	0.04	0.04	0.04
9.850	0.04	0.04	0.04	0.04	0.04
10.100	0.04	0.04	0.04	0.04	0.04
10.350	0.04	0.04	0.04	0.04	0.04
10.600	0.04	0.04	0.05	0.05	0.05
10.850	0.05	0.05	0.05	0.05	0.05
11.100	0.05	0.05	0.05	0.05	0.05
11.350	0.05	0.05	0.05	0.06	0.06
11.600	0.06	0.06	0.06	0.06	0.06
11.850	0.07	0.08	0.11	0.14	0.15
12.100	0.16	0.16	0.17	0.17	0.17
12.350	0.17	0.17	0.17	0.18	0.18
12.600	0.18	0.18	0.18	0.18	0.18
12.850	0.18	0.18	0.18	0.18	0.18
13.100	0.18	0.19	0.21	0.22	0.23
13.350	0.24	0.25	0.26	0.26	0.27
13.600	0.27	0.27	0.27	0.27	0.27
13.850	0.27	0.27	0.27	0.27	0.26
14.100	0.26	0.26	0.25	0.25	0.25
14.350	0.24	0.24	0.24	0.24	0.23
14.600	0.23	0.23	0.23	0.22	0.22
14.850	0.22	0.22	0.21	0.21	0.21
15.100	0.21	0.21	0.20	0.20	0.20
15.350	0.20	0.19	0.19	0.19	0.19

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.600	0.19	0.18	0.18	0.18	0.18
15.850	0.18	0.18	0.18	0.18	0.18
16.100	0.18	0.18	0.18	0.18	0.18
16.350	0.18	0.18	0.18	0.18	0.18
16.600	0.18	0.18	0.18	0.18	0.18
16.850	0.18	0.18	0.18	0.18	0.18
17.100	0.18	0.18	0.18	0.18	0.18
17.350	0.18	0.18	0.18	0.18	0.18
17.600	0.18	0.18	0.18	0.18	0.18
17.850	0.18	0.18	0.18	0.18	0.18
18.100	0.18	0.18	0.18	0.18	0.18
18.350	0.18	0.18	0.18	0.18	0.18
18.600	0.18	0.18	0.18	0.18	0.18
18.850	0.18	0.18	0.18	0.18	0.18
19.100	0.18	0.18	0.18	0.17	0.17
19.350	0.17	0.17	0.17	0.17	0.17
19.600	0.17	0.17	0.17	0.17	0.17
19.850	0.17	0.17	0.17	0.17	0.17
20.100	0.17	0.17	0.17	0.17	0.17
20.350	0.17	0.17	0.17	0.17	0.17
20.600	0.17	0.17	0.17	0.17	0.17
20.850	0.17	0.17	0.17	0.17	0.17
21.100	0.17	0.17	0.17	0.17	0.17
21.350	0.17	0.17	0.17	0.17	0.17
21.600	0.17	0.17	0.16	0.16	0.16
21.850	0.16	0.16	0.16	0.16	0.16
22.100	0.16	0.16	0.16	0.16	0.16
22.350	0.16	0.16	0.16	0.16	0.16
22.600	0.16	0.16	0.16	0.16	0.16
22.850	0.16	0.16	0.16	0.16	0.16
23.100	0.16	0.16	0.16	0.16	0.16
23.350	0.16	0.16	0.16	0.16	0.16
23.600	0.16	0.16	0.16	0.16	0.16
23.850	0.16	0.16	0.16	0.16	(N/A)

Peak Discharge	2.56 ft³/s
Time to Peak	12.150 hours
Hydrograph Volume	0.429 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
3.500	0.00	0.00	0.00	0.00	0.00
3.750	0.00	0.00	0.00	0.00	0.00
4.000	0.00	0.00	0.00	0.00	0.01
4.250	0.01	0.01	0.01	0.01	0.01
4.500	0.01	0.01	0.01	0.01	0.01
4.750	0.01	0.01	0.01	0.01	0.01
5.000	0.01	0.01	0.01	0.02	0.02
5.250	0.02	0.02	0.02	0.02	0.02
5.500	0.02	0.02	0.02	0.02	0.02
5.750	0.02	0.02	0.03	0.03	0.03
6.000	0.03	0.03	0.03	0.03	0.03
6.250	0.03	0.03	0.03	0.03	0.04
6.500	0.04	0.04	0.04	0.04	0.04
6.750	0.04	0.04	0.04	0.04	0.04
7.000	0.04	0.04	0.04	0.04	0.04
7.250	0.04	0.04	0.04	0.04	0.04
7.500	0.04	0.04	0.04	0.04	0.04
7.750	0.04	0.04	0.04	0.04	0.04
8.000	0.04	0.04	0.04	0.04	0.04
8.250	0.04	0.04	0.04	0.04	0.04
8.500	0.04	0.04	0.04	0.04	0.04
8.750	0.04	0.04	0.04	0.04	0.05
9.000	0.05	0.05	0.05	0.05	0.05
9.250	0.05	0.05	0.05	0.05	0.05
9.500	0.05	0.05	0.05	0.05	0.05
9.750	0.05	0.05	0.05	0.05	0.05
10.000	0.05	0.05	0.05	0.05	0.05
10.250	0.06	0.06	0.06	0.06	0.06
10.500	0.06	0.06	0.06	0.06	0.06
10.750	0.06	0.06	0.06	0.06	0.06
11.000	0.06	0.06	0.06	0.06	0.06
11.250	0.06	0.06	0.06	0.06	0.06
11.500	0.06	0.07	0.07	0.07	0.07
11.750	0.09	0.11	0.14	0.16	0.41
12.000	1.45	2.18	2.52	2.56	2.50
12.250	2.42	2.32	2.22	2.12	2.02
12.500	1.92	1.82	1.72	1.63	1.54
12.750	1.46	1.38	1.31	1.24	1.18
13.000	1.12	1.07	1.02	0.97	0.93
13.250	0.89	0.85	0.82	0.78	0.75
13.500	0.72	0.70	0.67	0.65	0.62
13.750	0.60	0.58	0.56	0.54	0.53
14.000	0.51	0.50	0.48	0.47	0.45

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: PO-2 (OUT) Storm Event: 10-yr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.250	0.44	0.43	0.42	0.41	0.40
14.500	0.40	0.39	0.38	0.37	0.37
14.750	0.36	0.36	0.35	0.34	0.34
15.000	0.33	0.33	0.33	0.32	0.32
15.250	0.31	0.31	0.30	0.30	0.30
15.500	0.29	0.29	0.28	0.28	0.28
15.750	0.27	0.27	0.27	0.26	0.26
16.000	0.26	0.25	0.25	0.25	0.24
16.250	0.24	0.24	0.24	0.23	0.23
16.500	0.23	0.23	0.22	0.22	0.22
16.750	0.22	0.22	0.22	0.21	0.21
17.000	0.21	0.21	0.21	0.21	0.21
17.250	0.20	0.20	0.20	0.20	0.20
17.500	0.20	0.20	0.19	0.19	0.19
17.750	0.19	0.19	0.19	0.19	0.19
18.000	0.18	0.18	0.18	0.18	0.18
18.250	0.18	0.18	0.18	0.18	0.18
18.500	0.18	0.18	0.18	0.18	0.18
18.750	0.18	0.18	0.18	0.18	0.18
19.000	0.18	0.18	0.18	0.18	0.18
19.250	0.18	0.18	0.18	0.18	0.18
19.500	0.18	0.18	0.18	0.18	0.18
19.750	0.18	0.18	0.18	0.18	0.18
20.000	0.18	0.18	0.18	0.18	0.18
20.250	0.18	0.18	0.18	0.18	0.18
20.500	0.18	0.18	0.18	0.18	0.18
20.750	0.18	0.18	0.18	0.18	0.18
21.000	0.18	0.18	0.18	0.18	0.18
21.250	0.18	0.18	0.18	0.18	0.18
21.500	0.18	0.18	0.18	0.18	0.18
21.750	0.18	0.18	0.18	0.18	0.18
22.000	0.18	0.18	0.18	0.18	0.18
22.250	0.18	0.18	0.17	0.17	0.17
22.500	0.17	0.17	0.17	0.17	0.17
22.750	0.17	0.17	0.17	0.17	0.17
23.000	0.17	0.17	0.17	0.17	0.17
23.250	0.17	0.17	0.17	0.17	0.17
23.500	0.17	0.17	0.17	0.17	0.17
23.750	0.17	0.17	0.17	0.17	0.17
24.000	0.17	(N/A)	(N/A)	(N/A)	(N/A)

Peak Discharge	4.28 ft³/s
Time to Peak	12.150 hours
Hydrograph Volume	0.815 ac-ft

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
2.400	0.00	0.00	0.00	0.00	0.00
2.650	0.00	0.00	0.00	0.00	0.00
2.900	0.00	0.01	0.01	0.01	0.01
3.150	0.01	0.01	0.01	0.01	0.01
3.400	0.01	0.01	0.01	0.01	0.02
3.650	0.02	0.02	0.02	0.02	0.02
3.900	0.02	0.02	0.02	0.02	0.02
4.150	0.03	0.03	0.03	0.03	0.03
4.400	0.03	0.03	0.03	0.03	0.04
4.650	0.04	0.04	0.04	0.04	0.04
4.900	0.04	0.04	0.04	0.04	0.04
5.150	0.04	0.04	0.04	0.04	0.04
5.400	0.04	0.04	0.04	0.04	0.04
5.650	0.04	0.04	0.04	0.04	0.04
5.900	0.04	0.04	0.04	0.04	0.04
6.150	0.04	0.04	0.04	0.04	0.04
6.400	0.04	0.04	0.04	0.04	0.04
6.650	0.04	0.05	0.05	0.05	0.05
6.900	0.05	0.05	0.05	0.05	0.05
7.150	0.05	0.05	0.05	0.05	0.05
7.400	0.05	0.05	0.05	0.05	0.05
7.650	0.05	0.05	0.05	0.05	0.05
7.900	0.05	0.05	0.05	0.05	0.05
8.150	0.05	0.06	0.06	0.06	0.06
8.400	0.06	0.06	0.06	0.06	0.06
8.650	0.06	0.06	0.06	0.06	0.06
8.900	0.06	0.06	0.06	0.06	0.06
9.150	0.06	0.06	0.06	0.06	0.06
9.400	0.06	0.06	0.06	0.06	0.06
9.650	0.06	0.06	0.06	0.06	0.06
9.900	0.06	0.06	0.06	0.06	0.06
10.150	0.06	0.07	0.07	0.07	0.07
10.400	0.07	0.07	0.07	0.07	0.07
10.650	0.07	0.07	0.07	0.07	0.08
10.900	0.08	0.08	0.09	0.09	0.09
11.150	0.10	0.10	0.11	0.11	0.12
11.400	0.12	0.13	0.14	0.14	0.15
11.650	0.15	0.17	0.18	0.85	1.92
11.900	2.86	3.46	3.87	4.15	4.27
12.150	4.28	4.25	4.20	4.14	4.08
12.400	4.02	3.95	3.88	3.81	3.74
12.650	3.67	3.59	3.49	3.39	3.30
12.900	3.20	3.11	3.03	2.94	2.86

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: PO-2 (OUT) Storm Event: 100-yr

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
13.150	2.77	2.70	2.62	2.48	2.30
13.400	2.14	2.00	1.87	1.74	1.64
13.650	1.54	1.44	1.36	1.28	1.21
13.900	1.15	1.09	1.04	0.99	0.94
14.150	0.90	0.86	0.83	0.79	0.77
14.400	0.74	0.71	0.69	0.67	0.65
14.650	0.64	0.62	0.60	0.59	0.58
14.900	0.56	0.55	0.54	0.53	0.52
15.150	0.51	0.50	0.50	0.49	0.48
15.400	0.47	0.47	0.46	0.45	0.44
15.650	0.44	0.43	0.43	0.42	0.41
15.900	0.41	0.40	0.40	0.39	0.39
16.150	0.38	0.38	0.37	0.37	0.36
16.400	0.36	0.35	0.35	0.35	0.34
16.650	0.34	0.34	0.34	0.33	0.33
16.900	0.33	0.33	0.32	0.32	0.32
17.150	0.32	0.32	0.31	0.31	0.31
17.400	0.31	0.30	0.30	0.30	0.30
17.650	0.30	0.29	0.29	0.29	0.29
17.900	0.29	0.29	0.28	0.28	0.28
18.150	0.28	0.28	0.27	0.27	0.27
18.400	0.27	0.27	0.26	0.26	0.26
18.650	0.26	0.26	0.26	0.25	0.25
18.900	0.25	0.25	0.25	0.24	0.24
19.150	0.24	0.24	0.24	0.24	0.23
19.400	0.23	0.23	0.23	0.23	0.22
19.650	0.22	0.22	0.22	0.22	0.22
19.900	0.21	0.21	0.21	0.21	0.21
20.150	0.20	0.20	0.20	0.20	0.20
20.400	0.20	0.20	0.20	0.20	0.19
20.650	0.19	0.19	0.19	0.19	0.19
20.900	0.19	0.19	0.19	0.19	0.19
21.150	0.19	0.19	0.19	0.19	0.19
21.400	0.18	0.18	0.18	0.18	0.18
21.650	0.18	0.18	0.18	0.18	0.18
21.900	0.18	0.18	0.18	0.18	0.18
22.150	0.18	0.18	0.18	0.18	0.18
22.400	0.18	0.18	0.18	0.18	0.18
22.650	0.18	0.18	0.18	0.18	0.18
22.900	0.18	0.18	0.18	0.18	0.18
23.150	0.18	0.18	0.18	0.18	0.18
23.400	0.18	0.18	0.18	0.18	0.18
23.650	0.18	0.18	0.18	0.18	0.18
23.900	0.18	0.18	0.18	(N/A)	(N/A)

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