APPENDIX G

TRAFFIC IMPACT ASSESSMENT

STORMWATER POLLUTION PREVENTION PLAN

LEGOLAND NEW YORK
COMMERCIAL RECREATION FACILITY
Town of Goshen, Orange County, New York

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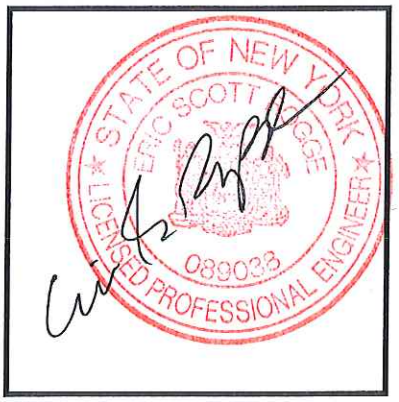

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LEGOLAND NEW YORK **SEPTEMBER 16, 2016**
STORMWATER POLLUTION PREVENTION PLAN
TOWN OF GOSHEN, ORANGE COUNTY, NY

I. INTRODUCTION

The LEGOLAND project consists development of theme park and resort on approximately 153 acres of a 524 acre site consisting of 13 total parcels located off Harriman Drive in the Town of Goshen. The theme park will include rides and attractions, an aquarium, theaters, restaurants, parking areas, a hotel, and various back of house facilities including offices and staff areas. Access to the project will be provided from Harriman Drive, South Street, and the NYS Route 17M Connector Road, these roads will be improved to handle traffic for the project. Stormwater runoff from the NYS Route 17M Connector Road and South Street improvements will be handled separately from the LEGOLAND project. The project will be serviced with municipal water and sewer from the Village of Goshen. The project is anticipated to disturb a total of approximately 146.13 acres. Based on the size of the proposed development and the grading required, the applicant will seek a waiver from the MS4 to allow greater than 5 acres to be disturbed at a time. Stormwater for the project will be collected and treated on-site and treated through several New York State Department of Environmental Conservation (NYSDEC) approved stormwater management practices before discharging to the Otter Kill and tributaries.

The impacts of this type of development must be evaluated, and if necessary, mitigated to ensure minimal impact on the stormwater drainage patterns within the site watershed areas. The purpose of this study is to evaluate if any impacts are associated with the proposed development, ensure treatment of the water quality volume as per current NYSDEC stormwater standards, and make certain that no increases in the peak discharge from the proposed construction are created as part of State Pollutant Discharge Elimination System (SPDES) General Stormwater Permit GP-0-15-002.

II. APPENDICES TO THIS PLAN

The following is a list of the Appendices included with this report.

A. Site Location Map
   Soils Report for Project
   Rainfall Data
B. Pre- and Post-Development Watershed Model
C. Pre- and Post-Development Watershed Maps
   Stormwater Practice Map
D. Calculations:
   Water Quality/Runoff Reduction Volume
   Channel Protection Volume
   Stormwater Practice Design
E. Excerpts from the "New York State Stormwater Design Manual"
   Construction Specifications
F. Standard Construction and Maintenance Inspections Forms
G. Notice of Intent
   Notice of Termination

MS4 SWPPP Acceptance

H. Construction Site Log Book
Contractor's Certification Statement

I. Pipe Sizing

J. Site Plans

III. CURRENT REGULATIONS

Current NYSDEC regulations under General Stormwater Permit GP-0-15-002 require that any construction site proposing a disturbance of one acre or greater prepare a Stormwater Pollution Prevention Plan. This SWPPP consists of the following: water quality treatment and control, water quantity control and an Erosion and Sediment Control Plan. Preparation of each portion of the SWPPP depends on the type and level of construction proposed. The proposed development requires the preparation of a full Stormwater Pollution Prevention Plan that includes all of the items mentioned above. Also as part of the SWPPP, the filing of a Notice of Intent ten days prior to construction to the NYSDEC Bureau of Water Permits located at 625 Broadway, Albany, New York (see Appendix G) is required. This NOI identifies all of the major requirements and design criteria that are necessary for the site drainage design. This form shall be signed and certified by the owner/operator of the site. A contractor's certification statement (see Appendix H) shall also be completed by the general contractor and subcontractors and submitted to the Town of Goshen Building Department to ensure on site compliance with local regulations.

IV. METHODOLOGY

The analysis presented in this report was developed using the Bentley Systems computer software program called PondPack. PondPack is based upon and implements the Soil Conservation Service Technical Release 55 (SCS TR-55) "Urban Hydrology for Small Watersheds Methodology" for computing CN, Tc, Runoff values, and hydrographs for the development of drainage and hydraulic calculations. For purposes of this report and in accordance with the regulations set forth by the NYSDEC as part of a SPDES Permit for Stormwater Discharges from Construction Activities, the 1-(Channel Protection), 10-(Overbank Flood), and 100-year (Extreme Storm) storm events were analyzed. This analysis is specific for this site and is based on current and proposed land cover, underlying soil types, weighted runoff coefficients, theoretical flow paths, and rain events. These were then input into the computer model, which developed hydrographs for both pre- and post-development conditions. This information is shown in Appendix B.

V. WATER QUANTITY

The NYSDEC has selected three criteria as part of the stormwater quantity regulations. They are summarized as follows:

Channel Protection: 24-hour extended detention of post-developed one-year, 24-hour storm event

Overbank Flood:	Control the peak discharge from the 10-year storm to 10-year pre-development rates
Extreme Storm:	Control the peak discharge from 100-year storm to 100-year pre-development rates

The site has been designed to limit post-development flow rates to less than or equal to pre-development flow rates at all study points. The site watershed has been divided into two areas in the pre-development model. Study point A is the Otter Kill discharge point beneath NYS Route 17. Study point B is the discharge point of the existing pond beneath NYS Route 17 to an unnamed tributary to the Otter Kill. In post-development conditions twenty one additional subareas representing the areas captured by the proposed stormwater areas were created. All watershed areas within the site have detailed summations of the characteristics for both pre- and post-development as listed in Section VI & VII of this report.

Channel protection volume control is provided through low-flow orifices in the proposed stormwater areas. Calculations for channel protection volume and orifices are provided in Appendix D.

VI. PRE-DEVELOPMENT CONDITIONS

With the information available on the Orange County Water Authority mapping, USGS Mapping, and the site survey, the drainage occurring on and through the project site has been divided into two watershed areas corresponding to culvert crossings under NYS Route 17. Figures are provided within Appendix C which depict the watershed areas that were utilized in the hydraulic computer model. The soil boundaries and types shown are provided by the U.S. Department of Agriculture National Resources Conservation Service, a detailed soil classification report including maps is provided in Appendix A. The soils at the site are detailed in Table 1 below.

Soil Description	Hydrologic Soil Group	Location/Notes
Alden silt loam	C/D	Wooded area, assumed HSG C
Alden extremely stony	C/D	Wetland area, assumed HSG D
Bath-Nassau channery silt loams	C	Located throughout watershed
Erie gravelly silt loam	D	Located throughout watershed
Farmington silt loam	D	Located in upland wooded area
Halsey silt loam	B/D	Residential development area, assumed HSG B
Hoosic gravelly sandy loam	A	In residential development area
Madalin silt loam	C/D	In large wetland surrounding Otterkill, assumed HSG D
Mardin gravelly silt loam	D	Located throughout watershed
Nassau channery silt loam	D	In upland wooded area
Rock outcrop-Farmington & Nassau	-	Located adjacent to HSG D soils, assumed to be HSG D

Table 1: Soil Types

Watershed A consists of approximately 1,216.22 acres of land encompassing the watershed of the Otter Kill to the south of NYS Route 17. Wetlands located in this watershed generally follow the Otter Kill and its tributaries. Arcadia Hills, a residential subdivision, is located to the east of the Otter Kill, adjacent to NYS Route 17. Portions of Arcadia Road, Conklingtown Road, Reservoir Road, and Fort Hill Road are also in this watershed. South of Conklingtown Road has several farms and larger lot residential areas. Approximately 67.13 acres of impervious cover exists in this watershed consisting of roads, buildings, and driveways. Goshen Reservoir #2 and its associated dam, part of the water supply for the Village of Goshen, are located in this watershed. The Otter Kill flows through the reservoir before entering the project area, the watershed area tributary to the reservoir is approximately 483.56 acres. A distributary splits from the Otter Kill just upstream of the reservoir which flows around the reservoir and rejoins the Otter Kill to the north. Due to the location of the Goshen Reservoir #2 and dam within a larger watershed and the presence of a distributary around the reservoir, the detention capability of the reservoir will be negligible and therefore has not been made part of the modeling. Stormwater runoff in the watershed is collected by smaller ditches and unnamed tributaries to the Otter Kill, then flows through and around the Goshen Reservoir #2. The Otter Kill then flows north through several culverts, along the west side of Arcadia Hills, where splits again before rejoining at the NYS Route 17 culvert crossing. The pre-development peak discharge for this watershed is summarized in Table 2, located below, as well as in the pre-development model located in Appendix B.

Watershed B consists of approximately 164.86 acres of land encompassing the watershed to the existing on-site pond adjacent to Harriman Drive and outlet culvert beneath NYS Route 17. The majority of the area is woods and wetland areas. A deteriorated paved access road runs south to the remains of a restaurant and a cell tower. A portion of Harriman Drive and two residential dwellings are located in this area. Approximately 2.48 acres of impervious cover exists in this watershed consisting of roads, buildings, and driveways. A small pond exists near the highest point adjacent to the cell tower. The small pond discharges to a ditch that runs north to the larger northern pond. The larger pond discharges to a ditch and culvert beneath NYS Route 17. This stream eventually joins the Otter Kill to the north of NYS Route 17. The pre-development peak discharge for this

watershed is summarized in Table 2, located below, as well as in the pre-development model located in Appendix B.

Watershed Area	Area (Ac.)	CN	Tc (hrs.)	1 Year Peak Runoff (cfs)	10 Year Peak Runoff (cfs)	100 Year Peak Runoff (cfs)
Watershed A	1,216.22	78	1.175	423.37	1,254.33	2,880.46
Watershed B	164.86	76	0.877	59.16	187.54	446.74
Study Point A	**1,216.22**	--	--	**423.37**	**1,254.33**	**2,880.46**
Study Point B	**164.86**	--	--	**59.16**	**187.54**	**446.74**

Table 2: Pre-Development Conditions

VII. POST-DEVELOPMENT CONDITIONS

The proposed development includes a theme park, hotel, parking area, back of house facilities and associated utilities. Twenty three stormwater areas are proposed at the project site for water quality treatment and stormwater quantity control. Stormwater water quality treatment will be provided through a filtration using seven underground stormwater sand filters, fourteen bio-retention areas, and one dry swale. The bio-retention areas and dry swale also provide runoff reduction volume credit (RRV). A stormwater pond will provide quantity control for the project. In order to minimize site disturbance and mimic existing drainage patterns, existing topography was held to the greatest extent possible when determining the proposed site grading. The study points utilized for the pre-development conditions were maintained and evaluated for post-development conditions. Below is a description of each watershed subarea that correlates with the post-development drainage area map provided in Appendix C.

Watershed A1 consists of approximately 1,153.67 acres of land encompassing the watershed of the Otterkill to the south of NYS Route 17, surrounding the area that is captured by proposed stormwater practices. The majority of this area is outside the project limits and will not change from pre-development conditions. Proposed improvements in this area include the perimeter grading around the project, emergency access to Arcadia Road, and hotel access road. Approximately 3.40 acres of impervious cover is proposed in this area including the gravel emergency access and hotel access road. Portions of the area surrounding the project are located near on-site wetlands and buffers and will use the sheetflow to riparian buffers green infrastructure technique for water quality treatment. No stormwater practices are proposed for this area. Stormwater runoff in this area follows pre-development patterns. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed A2 consists of approximately 2.00 acres of area that is captured by proposed bio-retention area A2. This area includes a portion of the back of house facility parking area. Approximately 0.40 acres of impervious cover is proposed in this area. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area A2. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to the wetland area surrounding the Otter Kill. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed A3 consists of approximately 5.68 acres of area that is captured by proposed bio-retention area A3. This area includes a portion of the back of house facility. Approximately 3.49 acres of impervious cover is proposed in this area, including the proposed parking area and buildings. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area A3. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to the wetland area surrounding the Otter Kill. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed A4 consists of approximately 5.40 acres of area that is captured by proposed bio-retention area A4. This area includes the proposed hotel and parking area. Approximately 3.63 acres of impervious cover is proposed in this area, including the proposed parking area and hotel. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area A4. The bio-retention area is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the bio-retention area. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to the adjacent wetland area that flows to the Otter Kill. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed A5 consists of approximately 5.31 acres of area that is captured by proposed underground sand filter A5. This area includes one of the proposed theme park visitor parking areas. Approximately 4.26 acres of impervious cover is proposed in this area, including the proposed parking area and walkways. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to underground sand filter A5. The underground sand filter is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the system. The underground sand filter consists of a chamber system with a sand filter bed beneath a portion of the system to provide water quality treatment. The stormwater treatment system will discharge to the Otter Kill. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed A6 consists of approximately 6.54 acres of area that is captured by proposed underground sand filter A6. This area includes one of the proposed theme park visitor parking areas. Approximately 5.51 acres of impervious cover is proposed in this area, including the proposed parking area and walkways. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to underground sand filter A6. The underground sand filter is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the system. The underground sand filter consists of a chamber system with a sand filter bed beneath a portion of the system to provide water quality treatment. The stormwater treatment system will discharge to the Otter Kill. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed A7 consists of approximately 6.66 acres of area that is captured by proposed underground sand filter A7. This area includes one of the proposed theme park visitor parking areas. Approximately 5.47 acres of impervious cover is proposed in this area, including the proposed parking area and walkways.

Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to underground sand filter A7. The underground sand filter is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the system. The underground sand filter consists of a chamber system with a sand filter bed beneath a portion of the system to provide water quality treatment. The stormwater treatment system will discharge to the Otter Kill. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed A8 consists of approximately 7.32 acres of area that is captured by proposed underground sand filter A8. This area includes one of the proposed theme park visitor parking areas. Approximately 6.14 acres of impervious cover is proposed in this area, including the proposed parking area and walkways. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to underground sand filter A8. The underground sand filter is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the system. The underground sand filter consists of a chamber system with a sand filter bed beneath a portion of the system to provide water quality treatment. The stormwater treatment system will discharge to the Otter Kill. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed A9 consists of approximately 9.40 acres of area that is captured by proposed underground sand filter A9. This area includes one of the proposed theme park visitor parking areas. Approximately 7.72 acres of impervious cover is proposed in this area, including the proposed parking area and walkways. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to underground sand filter A9. The underground sand filter is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the system. The underground sand filter consists of a chamber system with a sand filter bed beneath a portion of the system to provide water quality treatment. The stormwater treatment system will discharge to the Otter Kill. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed A10 consists of approximately 8.49 acres of area that is captured by proposed underground sand filter A10. This area includes one of the proposed theme park visitor parking areas. Approximately 7.94 acres of impervious cover is proposed in this area, including the proposed parking area and walkways. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to underground sand filter A10. The underground sand filter is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the system. The underground sand filter consists of a chamber system with a sand filter bed beneath a portion of the system to provide water quality treatment. The stormwater treatment system will discharge to the Otter Kill. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B1 consists of approximately 96.91 acres of land encompassing the watershed to the existing on-site pond adjacent to Harriman Drive and outlet culvert beneath NYS Route 17, surrounding the area that is captured by proposed stormwater practices. The majority of this area is outside the project limits and will not change from pre-development conditions. Proposed improvements in this area include the perimeter grading

around the project and Harriman Drive. Approximately 1.50 acres of impervious cover is proposed in this area. Portions of the area surrounding the project are located near on-site wetlands and buffers and will use the sheetflow to riparian buffers green infrastructure technique for water quality treatment. No stormwater practices are proposed for this area. Stormwater runoff in this area follows pre-development patterns. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B2 consists of approximately 1.13 acres of area that is captured by proposed bio-retention area B2. This area includes a portion of the theme park entrance road. Approximately 0.51 acres of impervious cover is proposed in this area. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area B2. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to the wetland area surrounding the existing on-site pond. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B3 consists of approximately 1.32 acres of area that is captured by proposed bio-retention area B3. This area includes a portion of the theme park entrance road. Approximately 0.67 acres of impervious cover is proposed in this area. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area B3. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to the wetland area surrounding the existing on-site pond. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B4 consists of approximately 1.70 acres of area that is captured by proposed bio-retention area B4. This area includes a portion of the theme park entrance road. Approximately 0.71 acres of impervious cover is proposed in this area. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area B4. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to a small on-site stream that flows to the wetland area surrounding the existing on-site pond. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B5 consists of approximately 1.44 acres of area that is captured by proposed bio-retention area B5. This area includes a portion of the theme park entrance. Approximately 0.60 acres of impervious cover is proposed in this area. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area B5. The bio-retention is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the bio-retention area. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to a small on-site stream that flows to the wetland area surrounding the existing on-site pond. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B6 consists of approximately 3.34 acres of area that is captured by proposed bio-retention area B6. This area includes a portion of the theme park entrance up to the parking control structure. Approximately 1.68 acres of impervious cover is proposed in this area. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area B6. The bio-retention area is

located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the bio-retention area. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to a small on-site stream that flows to the wetland area surrounding the existing on-site pond. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B7 consists of approximately 27.72 acres of area that encompasses the majority of the theme park area. This area includes a portion of the theme park and theme park service road. Approximately 13.83 acres of impervious cover is proposed in this area, including a portion of the perimeter service road, walkways, and areas surrounding rides. 2.48 acres of porous pavers are proposed in the pedestrian areas of the theme park. Porous pavers have been assumed to be impervious in the stormwater model, but pervious for the water quality calculations. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area B7. The bio-retention area will provide water quality treatment and runoff reduction volume. The bio-retention area includes a diversion forebay which allows larger storms to bypass the filter bed and flow to stormwater pond B7. Stormwater pond B7 is a dry basin design and will provide channel protection volume and quantity control. The stormwater treatment system will discharge to the wetland area surrounding the existing on-site pond. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B8 consists of approximately 16.54 acres of area that encompasses a portion of the theme park area that is captured by proposed bio-retention area B8. This area includes a portion of the theme park and theme park service road. Approximately 6.98 acres of impervious cover is proposed in this area, including a portion of the perimeter service road, walkways, and areas surrounding rides. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area B8. The bio-retention area is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the bio-retention area. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to the wetland area surrounding the existing on-site pond. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B9 consists of approximately 6.25 acres of area that encompasses a portion of the theme park area that is captured by proposed bio-retention area B9. This area includes a portion of the theme park and theme park service road. Approximately 3.43 acres of impervious cover is proposed in this area, including a portion of the perimeter service road, walkways, and areas surrounding rides. 0.57 acres of porous pavers are proposed in the pedestrian areas of the theme park. Porous pavers have been assumed to be impervious in the stormwater model, but pervious for the water quality calculations. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area B9. The bio-retention area is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the bio-retention area. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to a small on-site stream that flows to the wetland area surrounding the existing on-site pond. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B10 consists of approximately 1.94 acres of area that encompasses a portion of the theme park area that is captured by proposed bio-retention area B10. This area includes a portion of the theme park

and theme park service road. Approximately 0.91 acres of impervious cover is proposed in this area, including a portion of the perimeter service road, walkways, and areas surrounding rides. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area B10. The bio-retention area is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the bio-retention area. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to a small on-site stream that flows to the wetland area surrounding the existing on-site pond. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B11 consists of approximately 2.85 acres of area that is captured by proposed bio-retention area B11. This area includes a portion of the theme park entrance between parking control structure and parking areas. Approximately 1.72 acres of impervious cover is proposed in this area. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area B11. The bio-retention area is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the bio-retention area. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to the adjacent pond and wetland area that flows to the wetland area surrounding the existing on-site pond. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B12 consists of approximately 4.83 acres of area that is captured by proposed underground sand filter B12. This area includes a portion of the back of house facility parking area and access road. Approximately 3.96 acres of impervious cover is proposed in this area. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to underground sand filter B12. The underground sand filter is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the system. The underground sand filter consists of a chamber system with a sand filter bed beneath a portion of the system to provide water quality treatment. The stormwater treatment system will discharge to the adjacent wetland area. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed B13 consists of approximately 2.97 acres of area that is captured by proposed underground sand filter B12. This area includes a portion of the back of house facility and access road. Approximately 1.26 acres of impervious cover is proposed in this area. Stormwater runoff from this area will be collected by a stormwater collection system and conveyed to bio-retention area B13. The bio-retention area is located off-line by use of an upstream diversion structure that will divert storms larger than the 1-year storm around the bio-retention area. The bio-retention area will provide water quality treatment and runoff reduction volume. The stormwater treatment system will discharge to the adjacent wetland area. The post-development peak discharge for this area is summarized in Table 3, located below, as well as in the post-development model located in Appendix B.

Watershed Area	Area (Ac.)	CN	Tc (hrs.)	1 Year Peak Runoff (cfs)	10 Year Peak Runoff (cfs)	100 Year Peak Runoff (cfs)
Watershed A1	1,153.67	78	1.175	401.59	1,189.82	2,732.32
Watershed A2	2.00	90	0.083	3.42	7.14	13.56
Watershed A3	5.68	91	0.083	10.11	20.67	38.83
Watershed A4	5.40	92	0.339	7.49	15.14	28.29
Watershed A5	5.31	94	0.083	10.55	20.29	37.03
Watershed A6	6.54	95	0.087	13.35	25.22	45.67
Watershed A7	6.66	95	0.087	13.59	25.68	46.49
Watershed A8	7.32	95	0.089	14.95	28.25	51.15
Watershed A9	9.40	95	0.096	19.09	36.11	65.41
Watershed A10	8.49	97	0.141	17.44	32.01	57.28
Watershed B1	96.91	77	0.877	37.46	114.40	267.84
Watershed B2	1.13	88	0.083	1.77	3.86	7.51
Watershed B3	1.32	89	0.083	2.17	4.63	8.90
Watershed B4	1.70	88	0.083	2.66	5.82	11.32
Watershed B5	1.44	87	0.083	2.16	4.83	9.52
Watershed B6	3.34	89	0.184	4.88	10.53	20.34
Watershed B7	27.72	89	0.276	36.28	78.69	152.41
Watershed B8	16.54	88	0.190	22.93	50.76	99.36
Watershed B9	6.25	90	0.267	8.64	18.28	34.94
Watershed B10	1.94	88	0.174	2.74	6.04	11.80
Watershed B11	2.85	91	0.185	4.55	9.37	17.67
Watershed B12	4.83	95	0.083	9.89	18.68	33.82
Watershed B13	2.97	88	0.083	4.65	10.17	19.77
Study Point A	**1,210.47**	**--**	**--**	**404.77**	**1,247.36**	**2,859.11**
Study Point B	**168.95**	**--**	**--**	**41.06**	**186.97**	**446.04**

Table 3: Post-Development Conditions

VIII. WATER QUALITY AND RUNOFF REDUCTION

The water quality volume denoted as WQ_v is designed to improve water quality by capturing and treating 90% of the average annual stormwater runoff volume. The WQ_V is directly related to the amount impervious cover created at a site. As of 2010, the NYSDEC requires that the water quality volume be treated through use of specific green infrastructure practices. The design of these practices is based on promoting infiltration of the water quality volume. The treatment provided by the green infrastructure practices is called the runoff reduction volume (RR_V). The NYSDEC requires the RRv to equal the WQ_V unless site specific conditions do not allow the full treatment using green infrastructure practices. Table 4, shown below, describes the feasibility of the NYSDEC's Green Infrastructure Techniques.

Table 4: Green Infrastructure Technique Feasibility

Conservation of Natural Areas	
Retain the pre-development hydrologic and water quality characteristics of undisturbed natural areas, stream and wetland buffers by restoring and/or permanently conserving these areas on a site.	No natural areas exist within the project disturbance area delineated for the water quality calculation.
Sheetflow to Riparian Buffers or Filter Strips	
Undisturbed natural areas such as forested conservation areas and stream buffers or vegetated filter strips and riparian buffers can be used to treat and control stormwater runoff from some areas of a development project.	Portions Harriman Drive, the emergency access to Arcadia Road, and perimeter grading of the project sheet flow to the on-site wetlands and wetland buffers. See the description of this technique below.
Vegetated Open Swale	
The natural drainage paths, or properly designed vegetated channels, can be used instead of constructing underground storm sewers or concrete open channels to increase time of concentration, reduce the peak discharge, and provide infiltration.	Grades at the site and the theme park use do not allow the use of swales. However, a dry swale is proposed along Harriman Drive.
Tree Planting / Tree Box	
Plant or conserve trees to reduce stormwater runoff, increase nutrient uptake, and provide bank stabilization. Trees can be used for applications such as landscaping, stormwater management practice areas, conservation areas and erosion and sediment control.	Trees are proposed throughout the project area. See the description of this technique below.
Disconnection of Rooftop Runoff	
Direct runoff from residential rooftop areas and upland overland runoff flow to designated pervious areas to reduce runoff volumes and rates.	The theme park use does not allow for rooftops to be disconnected.
Stream Daylighting for Redevelopment Projects	
Stream Daylight previously-culverted/piped streams to restore natural habitats, better attenuate runoff by increasing the storage size, promoting infiltration, and help reduce pollutant loads.	The project is not a redevelopment, therefore this technique is not applicable.
Rain Garden	
Manage and treat small volumes of stormwater runoff using a conditioned planting soil bed and planting materials to filter runoff stored within a shallow depression.	Several bio-retention areas are proposed throughout the project area in place of rain gardens. See the description of this technique below.
Green Roof	
Capture runoff by a layer of vegetation and soil installed on top of a conventional flat or sloped roof. The rooftop vegetation allows evaporation and evapotranspiration processes to reduce volume and discharge rate of runoff entering conveyance system.	The structural design of the proposed buildings does not allow this technique.

Table 4: Green Infrastructure Technique Feasibility (continued)

Stormwater Planter	
Small landscaped stormwater treatment devices that can be designed as infiltration or filtering practices. Stormwater planters use soil infiltration and biogeochemical processes to decrease stormwater quantity and improve water quality.	Runoff from the building roofs is being treated by the bio-retention areas.
Rain Tank / Cistern	
Capture and store stormwater runoff to be used for irrigation systems or filtered and reused for non-contact activities.	Landscape irrigation or rainwater reuse is not proposed, building roofs will be treated by the proposed bio-retention areas. No cisterns are proposed.
Porous Pavement	
Pervious types of pavements that provide an alternative to conventional paved surfaces, designed to infiltrate rainfall through the surface, thereby reducing stormwater runoff from a site and providing some pollutant uptake in the underlying soils.	Porous pavers are proposed in the theme park area. See the description of this technique below.

Below are calculations developed specifically for the site. Details for the water quality volume and runoff reduction volume calculations are provided in Appendix D of this report. Below is summary of the required and provided water quality and runoff reduction volumes.

Required Water Quality Volume (WQ_V) = 408,646 cubic feet
Required Minimum Runoff Reduction Volume (RR_V) = 81,072 cubic feet
Provided Runoff Reduction Volume (RR_V) = 84,987 cubic feet
Required WQ_V minus the provided RR_V = 323,659 cubic feet
Provided Water Quality Volume (WQ_V) = 326,648 cubic feet
Total Treatment Volume Provided $WQ_V + RR_V$ = 411,634 cubic feet

Several different practices are being proposed throughout the site for treatment of the water quality and runoff reduction volumes. See the map in Appendix C for locations of the stormwater practices. Descriptions for practices are shown below.

Sheetflow to Riparian Buffers

Areas that drain to the wetland buffers can be deducted from the water quality volume. In order to claim this practice, all flow must enter the buffer in sheetflow form. Areas along the north side of Harriman Drive, portions of the emergency access to Arcadia Road, and perimeter of the project grading have been removed from the water quality volume using this practice. 223,108 square feet has been removed from the drainage area and 65,659 square feet has been removed from the impervious cover area.

Tree Planting

Trees planted adjacent to impervious cover allow the drainage area to be reduced when calculating the water quality volume. The method of reduction chosen for this site is 100 square feet of drainage area for each tree. The number of trees proposed for the project is to be determined.

Bio-Retention Areas

Fourteen bio-retention areas are proposed throughout the project. They have been designed to treat runoff from the lawn areas, proposed paved areas, and the building roofs. Soil types in the locations of the bio-retention areas are hydrologic soil group D, therefore the systems will be installed with underdrains. 40% of the treatment volume of the bio-retention areas can be claimed as runoff reduction volume and remaining volume will be claimed as water quality volume. The majority of the bio-retention areas will be located off-line from larger storms through using upstream diversion structures. Diversion structure calculations are provided in Appendix D. Provided treatment volume for the bio-retention areas are listed in Table 5 below. A total 62,975 cubic feet of treatment will deducted from the water quality volume, the remaining 94,463 cubic feet will treat standard water quality.

Bio-Retention Area	Online/Offline	Filter Bed Area (SF)	Total Treatment Volume (CF)
A2	Online	6,500	8,938
A3	Online	13,000	17,875
A4	Offline	8,500	11,688
B2	Online	2,000	2,750
B3	Online	4,000	5,500
B4	Online	2,500	3,438
B5	Offline	1,500	2,063
B6	Offline	7,500	10,313
B7	Online	21,500	29,563
B8	Offline	21,000	28,875
B9	Offline	7,000	9,625
B10	Offline	2,000	2,750
B11	Offline	4,000	5,500
B13	Offline	13,500	18,563
Total			**157,438**

Table 5: Bio-Retention Area Treatment Volumes

Porous Pavers

Porous pavers will be used in the pedestrian areas and walkways in the theme park area. Porous pavers consist of a interlocking paver blocks with spaces between blocks to allow infiltration and a stone layer of stone beneath the pavement designed to temporarily hold the water quality volume while it infiltrates. Swales and catch basins will be installed at the low points to allow stormwater from storm events larger than the water quality storm to exit the area. An underdrain will also be used to ensure proper drainage of larger storms. The

area of porous pavers is 132,997 square feet, this area will be deducted from the impervious area in the water quality volume calculation.

Dry Swale

A dry swale is proposed for treating runoff from the south side of Harriman Drive. The total length of swale with a slope of 4% or less is 1,500 feet. The dry swale will have a minimum 1 foot bottom width, 1 foot depth, with 3 horizontal to 1 vertical side slopes. Soil types in this area are hydrologic soil group D, meaning the up to 20% of the treatment volume of the dry swale can be claimed as runoff reduction volume and remaining volume will be claimed as water quality volume. 645 cubic feet of treatment will deducted from the water quality volume, the remaining 2,580 cubic feet will treat standard water quality.

Underground Sand Filter Areas

Underground sand filters are proposed for treating runoff from the theme park visitor parking areas and a portion of the back of house parking area. Soil types at the site are hydrologic soil group D, no infiltration is expected in these areas, therefore no runoff reduction will be claimed for this practice. The entrance rows of each system will consist of a separator row that wrapped with a geotextile and will provide pre-treatment for the sand filter area. Water quality will be provided by sand filtration beds installed under the separator rows. Additional rows in the system will provide channel protection volume. Provided treatment volume for the bio-retention areas are listed in Table 6 below.

Underground Sand Filter	Treatment Volume (CF)	Pre-Treatment Volume(CF)	Total Treatment Volume (CF)
A5	24,220	11,590	35,810
A6	24,220	11,590	35,810
A7	24,220	11,590	35,810
A8	24,220	11,590	35,810
A9	24,220	11,590	35,810
A10	24,220	11,590	35,810
B12	9,973	4,772	14,745
Total			**229,605**

Table 6: Underground Sand Filter Area Treatment Volumes

Stormwater Pond

A stormwater pond is proposed for handling channel protection volume and quantity control from the theme park area. The stormwater pond will be a dry basin and will not provide water quality treatment.

IX. EROSION AND SEDIMENT CONTROL MEASURES

The SPDES General Permit (GP-0-15-002) for construction activities requires that an Erosion and Sediment Control Plan be developed. This plan has provided as part of the Site Plans, and will be available at

Town Hall and the project site at the time of construction. The plan will also be in compliance with current regulations, including construction sequence, both short- and long-term maintenance of facilities, storage of materials and temporary and permanent structures.

The following temporary and permanent erosion control practices are proposed for use during construction and for long-term protection:

A. Stabilized Construction Entrance:
A stabilized pad of aggregate underlain with geotextile located at any point where traffic will be entering or leaving a construction site to or from a public right-of-way, street, alley, sidewalk, or parking area. The purpose of stabilized construction entrance is to reduce or eliminate the tracking of sediment onto public rights-of-way or streets. Stabilized construction entrances will be placed as shown on the Sediment and Erosion Control Plans.

B. Siltation Fence:
A temporary barrier of geotextile fabric installed on the contours across a slope used to intercept sediment laden runoff from small drainage areas of disturbed soil. The purpose of a silt fence is to reduce runoff velocity and effect deposition of transported sediment loads. Limits imposed by ultraviolet stability of the fabric will dictate the maximum period the silt fence may be used (approximately one year). Silt fence will be placed as shown on the Sediment and Erosion Control Plans.

C. Sediment Traps:
A temporary sediment control device formed by excavation and/or embankment to intercept sediment laden runoff and retain the sediment. The purpose of the structure is to intercept sediment-laden runoff and trap the sediment in order to protect drainage ways, properties, and rights-of-way below the sediment trap from sedimentation. Stone outlet sediment traps will be used at the locations shown on the Sediment and Erosion Control Plans.

D. Sediment Basins:
A temporary barrier or dam constructed across a drainage way or at other suitable locations to intercept sediment laden runoff to trap and retain the sediment to reduce the amount of sediment leaving the disturbed area in order to protect drainage ways, properties, and rights-of-way below the sediment basin. Sediment basins are proposed in the areas of the proposed bio-retention areas, calculations for the sizing of the temporary sediment basins are provided in Appendix D.

E. Diversion Swales:
A temporary excavated drainage way. The purpose of a temporary swale is to prevent runoff from entering disturbed areas by intercepting and diverting it to a stabilized outlet or to intercept sediment laden water and divert it to a sediment trapping device. Diversion swales will be used for diverting clean runoff around the project area and for intercept sediment laden runoff and directing it to sediment traps/basins. Diversion swales will be placed as shown on the Sediment and Erosion Control Plans.

F. Water Bars

A ridge or ridge and channel constructed diagonally across a sloping road or utility right-of-way that is subject to erosion. The purpose is to limit the accumulation of erosive velocity of water by diverting surface runoff at pre-designed intervals. Water bars will be placed as necessary during construction.

G. Storm Drain Inlet Protection:

A temporary, somewhat permeable barrier, installed around inlets in the form of a fence, berm, or excavation around an opening, trapping water and thereby reducing the sediment content of sediment laden water by settling. The purpose is to prevent heavily sediment laden water from entering a storm drain system through inlets. Curb drop, filter fabric drop, and excavated drop inlet protection will be used throughout the site. Inlet protection will only be used in road areas before pavement is placed. Locations of inlet protection are shown on Sediment and Erosion Control Plans.

H. Level Spreaders:

A temporary non-erosive outlet for concentrated runoff, constructed to disperse flow uniformly across a slope. The purpose is to convert concentrated flow to sheet flow and release it uniformly over a stabilized area. Level spreaders will be used at the ends of diversion swales used for diverting clean runoff around the project area. Level spreader locations are shown on the Sediment and Erosion Control Plans.

I. Slope Stabilization Matting:

Matting made synthetic or natural fibers that is placed on steep slopes to allow newly planted vegetation to take root and protect the slope from erosion before vegetation is fully established. Locations of slope stabilization matting are shown on Sediment and Erosion Control Plans.

J. Rock Outlet Protection:

A section of rock protection placed at the outlet of the culverts, conduits, or channels. The purpose of the rock outlet protection is to reduce the depth, velocity, and energy of water, such that the flow will not erode the receiving downstream reach. Rock outlet protection is proposed at all pipe discharge points. See the Sediment and Erosion Control Plans for locations of rock outlet protection.

K. Pipe Slope Drain:

A temporary structure placed from the top of a slope to the bottom of a slope to convey surface runoff down slopes without causing erosion. Pipe slope drains are proposed along the benched slopes along the western side of the project. See the Sediment and Erosion Control Plans for locations of pipe slope drains.

X. IMPLEMENTATION SCHEDULE & MAINTENANCE

A. Schedule

As part of the development of the Erosion and Sediment Control Plans for the project, preparation of construction sequencing was completed to ensure water quality discharges are

maintained during construction. The following construction schedule for implementing stormwater management during construction is proposed. Please refer to the Site Plans for specific sequencing and scheduling.

General Notes:

1. The owner or operator shall have a qualified inspector conduct at least two (2) site inspections in accordance with Part IV.C. every seven (7) calendar days, for as long as greater than five (5) acres of soil remain disturbed. The two (2) inspections shall be separated by a minimum of two (2) full calendar days.

2. In areas where soil disturbance activity has been temporarily or permanently ceased, temporary and/or permanent soil stabilization measures shall be installed and/or implemented within seven (7) days from the date the soil disturbance activity ceased.

3. Temporary Stabilization means that exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

4. Final Stabilization means that all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other equivalent stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

Construction Sequence:

1. Pre-construction meeting: Before construction activities an evaluation of the site will be performed with the site contractor, Town personnel and site design engineer to discuss general construction procedures and sequencing. During this meeting sensitive areas of the property shall be delineated and marked-out with orange construction fence (i.e.: trees, wetlands, wells, etc.).

2. Delineate total site disturbance limits: Placement of orange construction fencing along the limit of disturbance throughout the site.

3. Protect existing buffers: Place erosion control devices (silt fencing, diversion berms, etc.) upstream of any existing watercourse within or outside of construction areas, prior to the start of any construction.

4. Construction entrances/siltation controls: A temporary construction entrance will be installed at the site entrances Concord Road as shown on the Site Plans. In addition, any other siltation control devices, as shown on the erosion control plan are to be installed adjacent to the temporary entrance and staging area.

5. Construction of temporary sediment traps/basins: Construction of the temporary sediment traps prior to the start of any major earthwork movement or site construction.

6. Staging area: The staging area will be graded for storage of equipment and placement of construction trailers.

7. Strip topsoil: Topsoil will be stripped from this phase and will be stockpiled for later reuse.

8. Land grading: Bulk soil grading in this phase will commence. At this time, temporary stockpile areas should be utilized.

9. Retaining walls: Begin construction of on-site retaining walls. Walls to be installed concurrently with land grading.

10. Back of house construction: Upon completion of grading in back of house area, construction of buildings and roads will begin.

11. Utility installation: Install sanitary sewer, water, and stormwater. Inlet protection will be installed at all stormwater catch basins.

12. Stormwater installation: Install underground stormwater areas when all contributing areas have been stabilized. Protect areas during and after construction until pavement is installed.

13. Pavement construction: Construct paved parking and access roads.

14. Theme park construction: Upon completion of grading and retaining walls, construction of rides, buildings, and walkways will commence.

15. Landscaping and final stabilization: All open areas to be stabilized with topsoil and seeded as per the seeding schedule specified on the erosion and sediment control plans. Removal of all temporary measures, flushing/cleaning of all catch basins and pipe, and removal and disposal of all trapped sediment on site shall be completed.

16. Final site inspection and certification: At the end of construction a site evaluation of the site will be performed with site contractor, Town personnel, and site engineer to ensure that all stormwater facilities were constructed as per the SWPPP design and that the site has been stabilized. A Notice of Termination will be submitted to the NYSDEC.

Please refer to the Erosion and Sediment Control Plans within the Site Plans for construction notes and seeding schedule for disturbance and final stabilization.

B. Pollution Prevention Measures:

All pollutants, including waste materials and demolition debris, that occur onsite shall be handled and disposed of in a manner conforms to all applicable Federal and State regulations that does not

cause contamination of stormwater. Good housekeeping and preventative measures will be taken to ensure that the site will be kept clean, well organized, and free of debris. If required, BMPs to be implemented to control specific sources of pollutants are discussed below.

Vehicles, construction equipment, and/or petroleum product storage/dispensing:

1. All vehicles, equipment, and petroleum product storage/dispensing areas will be observed regularly during site observations to detect any leaks or spills, and to identify maintenance needs to prevent leaks or spills.

2. On-site fueling tanks and petroleum product storage containers shall include secondary containment.

3. Spill prevention measures, such as drip pans, will be used when conducting maintenance and repair of vehicles or equipment.

4. In order to perform emergency repairs on site, temporary plastic will be placed beneath and, if raining, over the vehicle.

5. Contaminated surfaces shall be cleaned immediately following any discharge or spill incident. Contaminated soil shall be removed from site and disposed of in accordance with all current Federal and State Regulations.

Chemical storage:

1. Any chemicals stored in the construction areas will conform to the appropriate manufacturer's recommendations and or the appropriate State/Federal Regulations. All chemicals shall have cover, containment, and protection provided on site, per all Federal and NYSDEC regulations.

2. Application of agricultural chemicals, including fertilizers and pesticides, shall be conducted in a manner and at application rates that will not result in loss of chemical to stormwater runoff. Manufacturers' recommendations for application procedures and rates shall be followed.

Demolition:

1. Dust released from demolished sidewalks, buildings, structures or on site grading operations will be controlled using Dust Control measures as specified in the N.Y.S. Erosion and Sediment Control Specification Manual.

2. Storm drain inlets vulnerable to stormwater discharge carrying dust, soil, or debris will be protected using Storm Drain Inlet Protection.

3. Process water and slurry resulting from saw cutting and surfacing operations will be prevented from entering the waters of the State by implementing Saw cutting and Surfacing Pollution Prevention measures.

Concrete and grout:

1. Process water and slurry resulting from concrete work will be prevented from entering the waters of the State by implementing Concrete Handling measures.

Sanitary wastewater:

1. Portable sanitation facilities will be firmly secured, regularly maintained, and emptied when necessary.

2. Wheel wash or tire bath wastewater shall be discharged to a temporary erosion and sediment control facility which has been constructed on site.

Solid Waste:

1. Solid waste will be stored in secure, clearly marked containers.

Litter/Trash:

1. Litter and Trash shall be cleaned and disposed of in secure clearly marked dumpsters or trash receptacles.

2. Site is to be cleaned daily of debris and disposed of on a daily basis.

Other:

1. Other BMPs will be administered as necessary to address any other additional pollutant sources on site.

C. Maintenance (Construction/Long-Term)

1. The property owner/operator will be responsible for the maintenance and operation of all site related stormwater management facilities during construction and the property owner will be responsible for long-term maintenance.

2. A standalone Operation and Maintenance Plan will be prepared prior to filing of the NOTs and will include the following: schedules, procedures, forms for inspections, maps showing stormwater practice areas, and the maintenance agreement. Please refer to Appendix F for standard Inspection and Maintenance Forms.

3. Construction and long-term maintenance shall be carried out in accordance with the following notes:

a. Bio-retention Areas: Inspection shall be made weekly by a licensed professional and after every ½" rainfall event by the owner or contractor during construction. During the first growing season inspections shall be conducted monthly and annually thereafter. The following tasks shall be performed as needed:

(1) Removal of accumulated sediment and cleaning and/or restoration of the filter bed areas whenever accumulated sediment reaches a volume of 50% of the available capacity.

(2) Restoration of any disturbed plant material and any eroded embankments.

(3) Removal of accumulated debris within the filter bed areas and at all inlet and outfall structures.

(4) Annual mowing of the berm and surrounding area of the basins. Removal of any fallen trees or limbs. No mowing or trimming is to occur within the constructed area of the wetland. Replacement of proposed plants shall occur if more then 50% of the coverage of the facility is not achieved.

b. Porous Pavers: Pavers shall be protected from silt and sediment during construction of surrounding areas, if possible, the pavers should be installed after stabilization of surrounding areas. During winter conditions, sand and salt should be avoided being utilized to the porous pavers sections. The following tasks shall be performed as needed:

(1) Clean debris and sediment from pavers monthly.

(2) Ensure paver area fully drains after storms monthly and after storms greater than 0.5 inches.

(3) Mow and seed bare areas upland and adjacent to the pavers as needed.

(4) Vacuum pavers surface 2 to 3 times a year depending on site conditions.

(5) Inspection of the surface for dislodged or damagers pavers, replacing as necessary.

c. Underground Sand Filtration Systems: Inspection shall be made weekly by a qualified professional and after every ½" rainfall event by the contractor during construction. For the first year following construction, the system shall be inspected quarterly by the owner and at the end of the year by a qualified professional. Thereafter, the system shall be inspected annually. The following tasks shall be performed as needed:

(1) Visual inspections to be performed at the inlet manhole and inspection ports.

(2) Removal of accumulated sediment every 5 years and/or when depth reaches 3" within the stormwater separator row by jetting and washing sediment to inlet manhole and vacuuming from the sump.

(3) Removal of accumulated debris within the system and at all inlet and outfall structures.

(4) Check for settlement of the ground above and around the underground system. Fill low spots as necessary.

(5) Restoration and repair of any damaged portion of the system. Sand filter replacement once every 10 years if warranted by visual inspection.

d. Swales: Inspection shall be made weekly and after every ½" rainfall event during construction. During the first growing season inspections shall be conducted monthly, and on an annual basis thereafter. The following tasks shall be performed as needed:

(1) Removal of accumulated sediment and cleaning and/or restoration whenever accumulated sediment reaches a volume of 50% of the available capacity.

(2) Restoration of any eroded embankments. Infrequent reshaping of the swale line should be completed as needed.

(3) Removal of accumulated debris/trash within the swale and at all inlet and outfall structures.

(4) Seasonal mowing of the swale bottom and surrounding side slopes. Removal of any fallen trees or limbs. Replacement and/or restoration of proposed grasses shall occur if more than 50% of the coverage of the facility is not achieved. Grasses should be kept at a maximum height of 6" – 8".

c. Dry Stormwater Pond: Inspection shall be made weekly by a licensed professional and after every ½" rainfall event by the owner or contractor during construction. During the first growing season inspections shall be conducted monthly and bi-annually thereafter. The following tasks shall be performed as needed:

(1) Removal of accumulated sediment and cleaning and/or restoration of the sediment forebays every 5 or 6 years or whenever accumulated sediment reaches a volume of 50% of the available capacity.

(2) Restoration of any disturbed plant material and any eroded embankments. Replacement of proposed plants shall occur if more than 50% of the coverage of the facility is not achieved.

(3) Removal of accumulated debris within the basin and at all inlet and outfall structures.

(4) Annual mowing of the berm and surrounding area of the basins. Removal of any fallen trees or limbs.

(5) Inspection of the outlet structure to ensure structural stability and removal of any accumulated trash within the structure.

d. Roadway Pavements: Roadway pavements shall be swept on a regular basis to remove accumulated sediment. Collected sediment shall be removed, which will not allow the re-entrance of silt into the storm water drainage system.

e. Catch Basins: Catch basins shall be flushed and cleaned of any collected sediment within the bottom of the basin approximately every 4-5 years. Collected sediment shall be removed, which will not allow the reentrance of silt into the storm water drainage system.

f. Vegetative Stabilization:

(1) All vegetative planting on areas that have been disturbed and are finish graded shall be inspected monthly during the first growing season and annually thereafter. Planting (or seeding) shall be maintained in viable conditions to stabilize the soil and to prevent soil erosion. Restore all site planting and/or seeding which has been damaged to a viable condition.

(2) If vegetative stabilization has been damaged from storm water erosion, correct upstream conditions that caused the erosion. Check dams may be required in drainage ways and stone outfall aprons may be required to be repaired on storm water outfall sites.

g. Temporary erosion and sediment control maintenance:

(1) All erosion and sediment control practices will be checked for stability and operation following every runoff-producing rainfall, but in no case less than once every week. Any needed repairs will be made immediately to maintain all practices as designed and installed for their appropriate phase of the project.

(2) Sediment will be removed from the sediment trap and inlet protection device when storage capacity has been approximately 50% filled.

(3) Sediment will be removed from behind the sediment fence when it becomes about 0.5 ft deep at the fence. The sediment fence will be repaired as necessary to maintain a barrier.

XI. ANALYSIS AND CONCLUSION

As can be seen from the calculations provided above the proposed bio-retention areas and dry swale provide water quality treatment and runoff reduction in accordance with the stormwater quality management guidelines set forth by the NYSDEC. Also, the proposed underground sand filter system will provide water quality treatment and the proposed stormwater pond will provide water quantity control. The project will also implement porous pavement and sheetflow to riparian buffers to meet runoff reduction requirements. The proposed stormwater practices and the post-development layout of the site show that peak stormwater runoff flowrates at the study point decrease for all analyzed storms. Based upon the results of this analysis, the site has demonstrated the ability to meet all requirements for stormwater quantity and quality and any impacts to the existing watershed and downstream waters should be negligible.

Table 7 below summarizes the pre- and post-development discharges for the development. Please refer to Appendix B for detailed analysis and calculations of the individual watershed subareas.

	Condition	1 Year Peak Runoff (cfs)	10 Year Peak Runoff (cfs)	100 Year Peak Runoff (cfs)
Study Point A	Pre-Development	423.37	1,254.33	2,880.46
	Post-Development	404.77	1,247.36	2,859.11
	Difference	**-18.60 (-4.4%)**	**-6.97 (-0.6%)**	**-21.35 (-0.7%)**
Study Point B	Pre-Development	59.16	187.54	446.74
	Post-Development	41.06	186.97	446.04
	Difference	**-18.10 (-30.6%)**	**-0.57 (-0.3%)**	**-0.70 (-0.2%)**

Table 7: Comparison of Pre- and Post-Development Conditions at Study Points

By implementing both the Stormwater Pollution Prevention Plan and Erosion and Sediment Control Plans during the construction of the proposed project, current NYSDEC and Town regulations can be met. However, the owner and contractor are responsible for implementation of the project's erosion and sedimentation controls and any required maintenance. In addition, this also includes filing the NOI for each project and meeting all requirements of the General Permit, including necessary site assessment and inspections.

Respectfully submitted,
LANC & TULLY, P.C.

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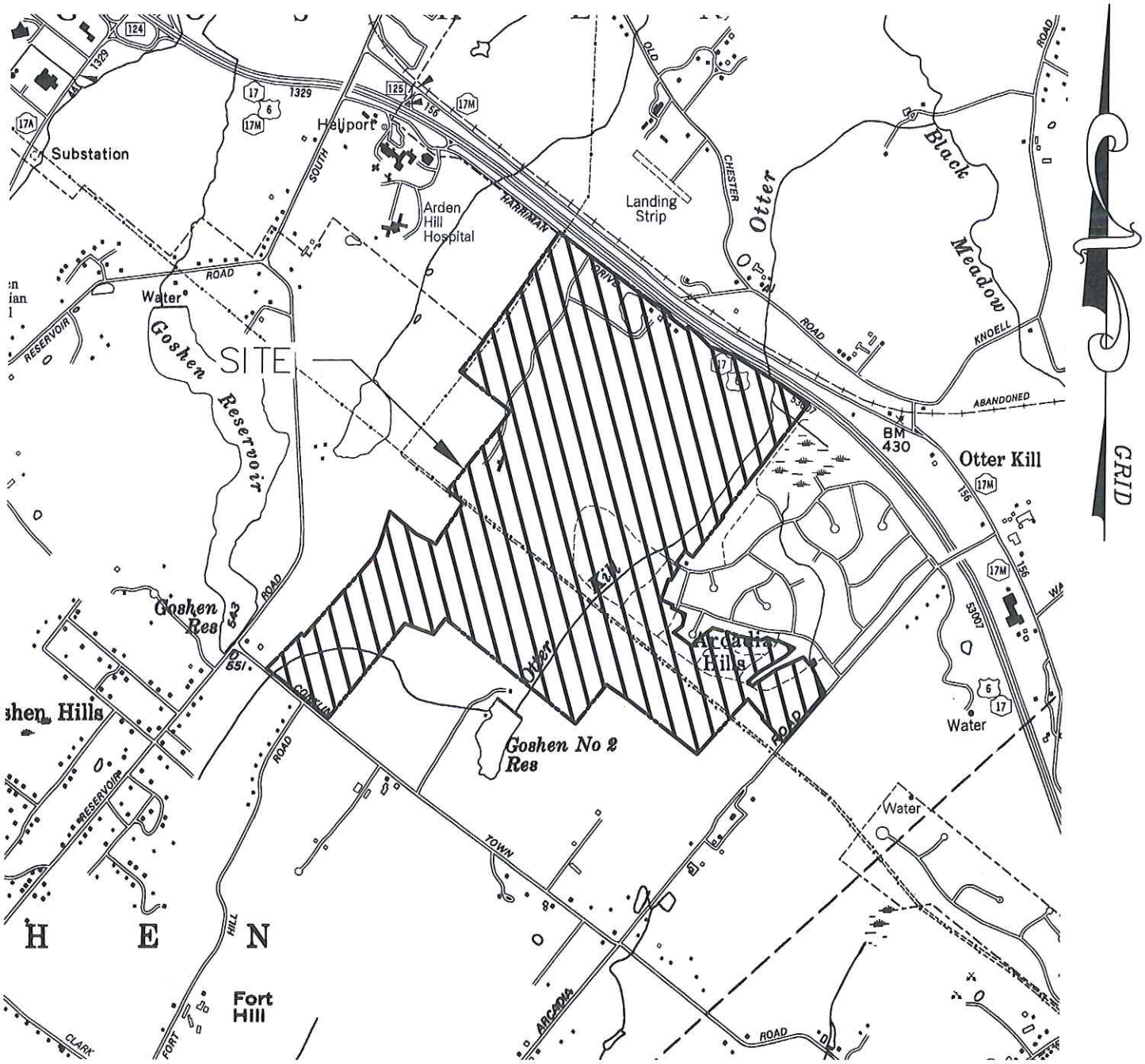
SOILS REPORT FOR PROJECT
RAINFALL DATA



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LANC & TULLY
ENGINEERING AND SURVEYING, P.C.
P.O. Box 687, Rt. 207
Goshen, N.Y. 10924
(845) 294-3700

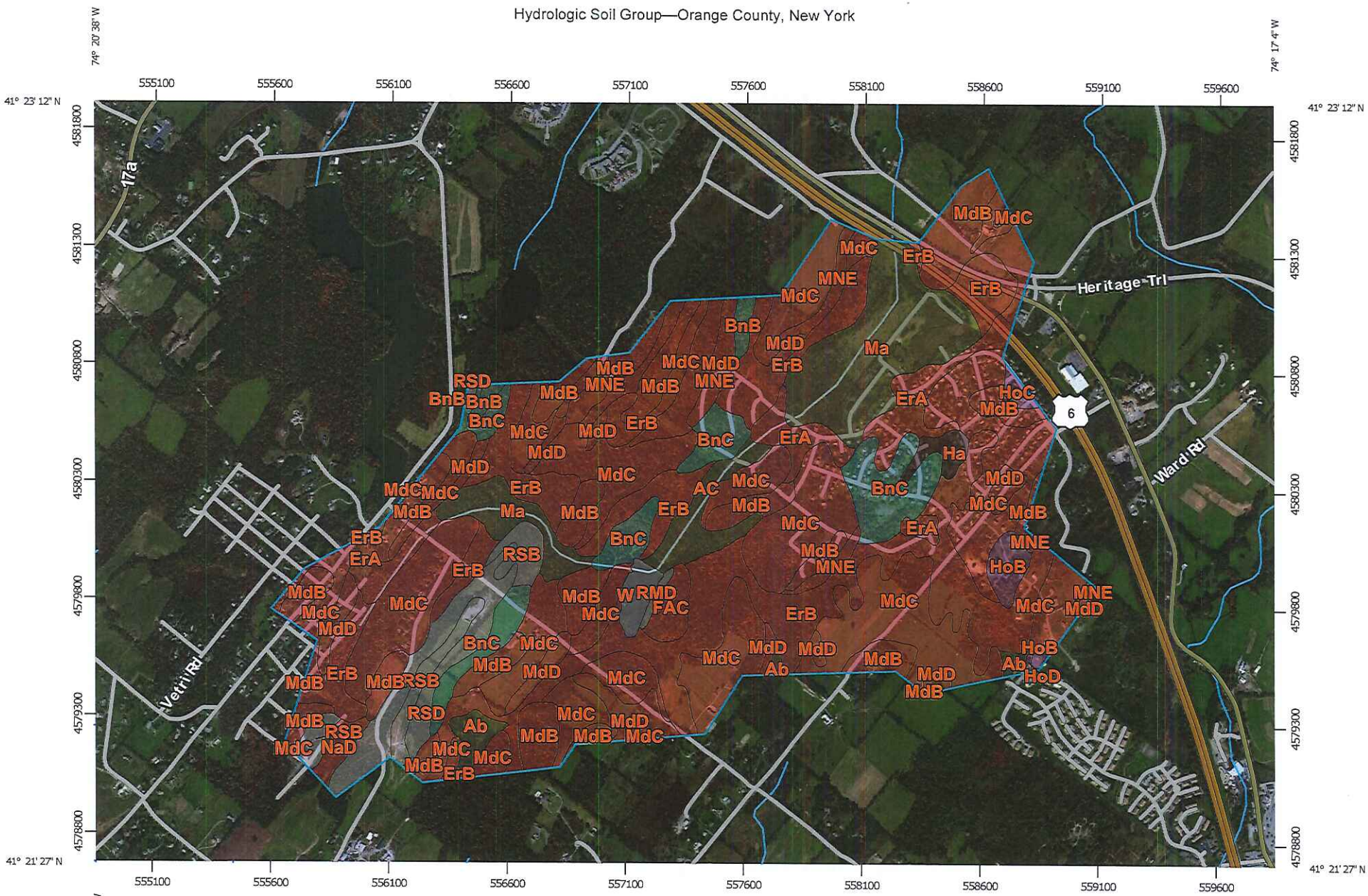
SITE LOCATION MAP

LEGOLAND NEW YORK
TOWN OF GOSHEN
ORANGE COUNTY, NEW YORK

Date:	SEPTEMBER 16, 2016
Revisions:	
CAD File:	160042-DRAINAGE
Layout:	LOCATION
Sheet No.:	1 OF 5
Drawing No.:	C3D F - 16 - 0042 - 01

Drawn By:	Checked By:	Scale:	Tax Map No.:
ESR		1" = 2,000'	SEE SITE PLANS

Hydrologic Soil Group—Orange County, New York



Map Scale: 1:22,800 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 300 600 1200 1800

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N 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 1:15,800.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
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: Orange County, New York
Survey Area Data: Version 16, Sep 24, 2015

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

Date(s) aerial images were photographed: Mar 20, 2011—Oct 10, 2011

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.

Hydrologic Soil Group

Hydrologic Soil Group— Summary by Map Unit — Orange County, New York (NY071)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
Ab	Alden silt loam	C/D	12.0	0.9%
AC	Alden extremely stony soils	C/D	21.6	1.7%
BnB	Bath-Nassau channery silt loams, 3 to 8 percent slopes	C	7.0	0.5%
BnC	Bath-Nassau channery silt loams, 8 to 15 percent slopes	C	71.2	5.5%
ErA	Erie gravelly silt loam, 0 to 3 percent slopes	D	53.0	4.1%
ErB	Erie gravelly silt loam, 3 to 8 percent slopes	D	243.5	18.9%
FAC	Farmington silt loam, sloping	D	10.3	0.8%
Ha	Halsey silt loam	B/D	7.8	0.6%
HoB	Hoosic gravelly sandy loam, 3 to 8 percent slopes	A	11.1	0.9%
HoC	Hoosic gravelly sandy loam, 8 to 15 percent slopes	A	3.4	0.3%
HoD	Hoosic gravelly sandy loam, 15 to 25 percent slopes	A	0.5	0.0%
Ma	Madalin silt loam	C/D	107.5	8.4%
MdB	Mardin gravelly silt loam, 3 to 8 percent slopes	D	158.9	12.4%
MdC	Mardin gravelly silt loam, 8 to 15 percent slopes	D	407.6	31.7%
MdD	Mardin gravelly silt loam, 15 to 25 percent slopes	D	53.8	4.2%
MNE	Mardin soils, steep	D	31.1	2.4%
NaD	Nassau channery silt loam, 15 to 25 percent slopes	D	7.1	0.5%
RMD	Rock outcrop-Farmington complex, hilly		2.0	0.2%
RSB	Rock outcrop-Nassau complex, undulating		26.7	2.1%

Hydrologic Soil Group— Summary by Map Unit — Orange County, New York (NY071)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
RSD	Rock outcrop-Nassau complex, hilly		40.9	3.2%
W	Water		8.9	0.7%
Totals for Area of Interest			**1,285.7**	**100.0%**

Description

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.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: *None Specified*

Tie-break Rule: Higher

Extreme Precipitation Tables

Northeast Regional Climate Center

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

Smoothing	Yes
State	New York
Location	
Longitude	74.316 degrees West
Latitude	41.378 degrees North
Elevation	0 feet
Date/Time	Tue, 26 Jul 2016 08:20:34 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.33	0.50	0.62	0.82	1.02	1.27	**1yr**	0.88	1.19	1.46	1.79	2.18	2.65	3.06	**1yr**	2.34	2.94	3.38	4.07	4.71	**1yr**
2yr	0.39	0.60	0.75	0.99	1.24	1.55	**2yr**	1.07	1.44	1.77	2.17	2.64	3.19	3.64	**2yr**	2.83	3.50	4.01	4.72	5.38	**2yr**
5yr	0.46	0.71	0.90	1.20	1.54	1.93	**5yr**	1.33	1.78	2.22	2.72	3.31	4.00	4.61	**5yr**	3.54	4.43	5.06	5.84	6.60	**5yr**
10yr	0.51	0.81	1.02	1.39	1.80	2.29	**10yr**	1.56	2.09	2.64	3.24	3.93	4.74	5.50	**10yr**	4.20	5.29	6.03	6.85	7.71	**10yr**
25yr	0.60	0.95	1.21	1.68	2.23	2.86	**25yr**	1.93	2.59	3.31	4.08	4.96	5.95	6.97	**25yr**	5.27	6.70	7.60	8.47	9.48	**25yr**
50yr	0.68	1.09	1.39	1.95	2.63	3.39	**50yr**	2.27	3.04	3.94	4.86	5.89	7.07	8.34	**50yr**	6.25	8.02	9.07	9.95	11.09	**50yr**
100yr	0.77	1.24	1.60	2.27	3.10	4.02	**100yr**	2.67	3.58	4.68	5.78	7.01	8.40	9.98	**100yr**	7.43	9.60	10.83	11.70	12.98	**100yr**
200yr	0.87	1.42	1.84	2.64	3.65	4.77	**200yr**	3.15	4.21	5.57	6.89	8.35	9.99	11.96	**200yr**	8.84	11.50	12.94	13.75	15.21	**200yr**
500yr	1.04	1.71	2.23	3.24	4.55	5.98	**500yr**	3.92	5.23	7.00	8.68	10.52	12.57	15.19	**500yr**	11.12	14.61	16.38	17.05	18.76	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.29	0.45	0.55	0.74	0.92	1.11	**1yr**	0.79	1.08	1.24	1.57	2.01	2.30	2.58	**1yr**	2.04	2.48	2.91	3.72	4.23	**1yr**
2yr	0.38	0.58	0.72	0.97	1.20	1.44	**2yr**	1.03	1.41	1.63	2.09	2.59	3.09	3.53	**2yr**	2.73	3.39	3.90	4.59	5.23	**2yr**
5yr	0.42	0.65	0.81	1.11	1.42	1.67	**5yr**	1.22	1.63	1.90	2.44	3.04	3.68	4.23	**5yr**	3.25	4.07	4.69	5.39	6.14	**5yr**
10yr	0.47	0.72	0.89	1.24	1.60	1.87	**10yr**	1.38	1.83	2.13	2.72	3.44	4.19	4.88	**10yr**	3.71	4.70	5.39	6.08	6.88	**10yr**
25yr	0.53	0.81	1.00	1.43	1.89	2.16	**25yr**	1.63	2.11	2.49	3.20	4.01	4.95	5.89	**25yr**	4.38	5.66	6.49	7.13	8.00	**25yr**
50yr	0.58	0.89	1.11	1.59	2.14	2.42	**50yr**	1.85	2.37	2.79	3.62	4.52	5.59	6.80	**50yr**	4.94	6.54	7.49	8.07	9.00	**50yr**
100yr	0.65	0.98	1.23	1.77	2.43	2.71	**100yr**	2.10	2.65	3.15	4.09	5.11	6.31	7.88	**100yr**	5.58	7.57	8.64	9.17	10.10	**100yr**
200yr	0.72	1.09	1.38	2.00	2.79	3.03	**200yr**	2.41	2.96	3.55	4.65	5.78	7.12	9.14	**200yr**	6.31	8.79	10.01	10.41	11.33	**200yr**
500yr	0.84	1.26	1.62	2.35	3.34	3.53	**500yr**	2.88	3.45	4.16	5.53	6.85	8.35	11.16	**500yr**	7.39	10.73	12.19	12.33	13.25	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.36	0.55	0.68	0.91	1.12	1.35	**1yr**	0.96	1.32	1.55	1.96	2.41	2.87	3.30	**1yr**	2.54	3.18	3.64	4.32	5.02	**1yr**
2yr	0.41	0.63	0.78	1.05	1.30	1.55	**2yr**	1.12	1.51	1.76	2.24	2.79	3.33	3.79	**2yr**	2.95	3.65	4.18	4.93	5.63	**2yr**
5yr	0.50	0.77	0.96	1.31	1.67	1.99	**5yr**	1.44	1.94	2.27	2.90	3.62	4.35	4.95	**5yr**	3.85	4.76	5.45	6.31	7.07	**5yr**
10yr	0.59	0.91	1.13	1.58	2.04	2.44	**10yr**	1.76	2.38	2.76	3.55	4.42	5.36	6.09	**10yr**	4.74	5.86	6.68	7.62	8.50	**10yr**
25yr	0.75	1.13	1.41	2.01	2.65	3.21	**25yr**	2.29	3.13	3.63	4.66	5.77	7.06	7.99	**25yr**	6.25	7.68	8.74	9.80	10.83	**25yr**
50yr	0.88	1.35	1.68	2.41	3.25	3.79	**50yr**	2.80	3.71	4.44	5.70	7.04	8.71	9.81	**50yr**	7.71	9.43	10.72	11.86	13.03	**50yr**
100yr	1.05	1.59	1.99	2.88	3.95	4.62	**100yr**	3.41	4.52	5.43	6.97	8.60	10.78	12.06	**100yr**	9.54	11.60	13.14	14.38	15.68	**100yr**
200yr	1.25	1.88	2.39	3.46	4.82	5.64	**200yr**	4.16	5.51	6.64	8.54	10.51	13.36	14.82	**200yr**	11.83	14.25	16.11	17.40	18.89	**200yr**
500yr	1.59	2.36	3.04	4.41	6.27	7.32	**500yr**	5.41	7.16	8.68	11.15	13.70	17.76	19.43	**500yr**	15.72	18.68	21.10	22.41	24.18	**500yr**

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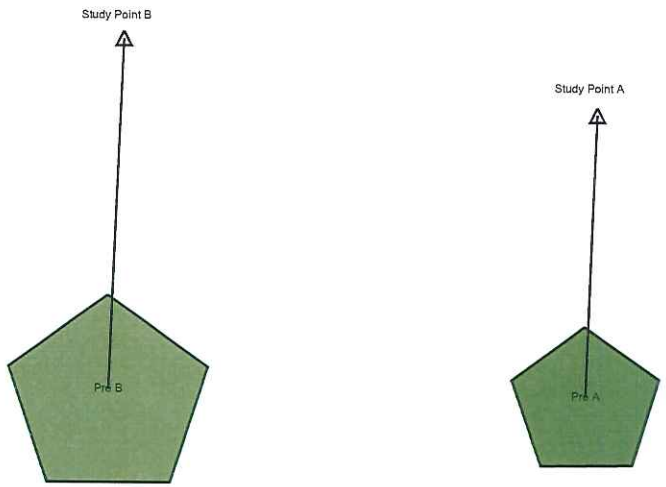
Northeast Regional Climate Center

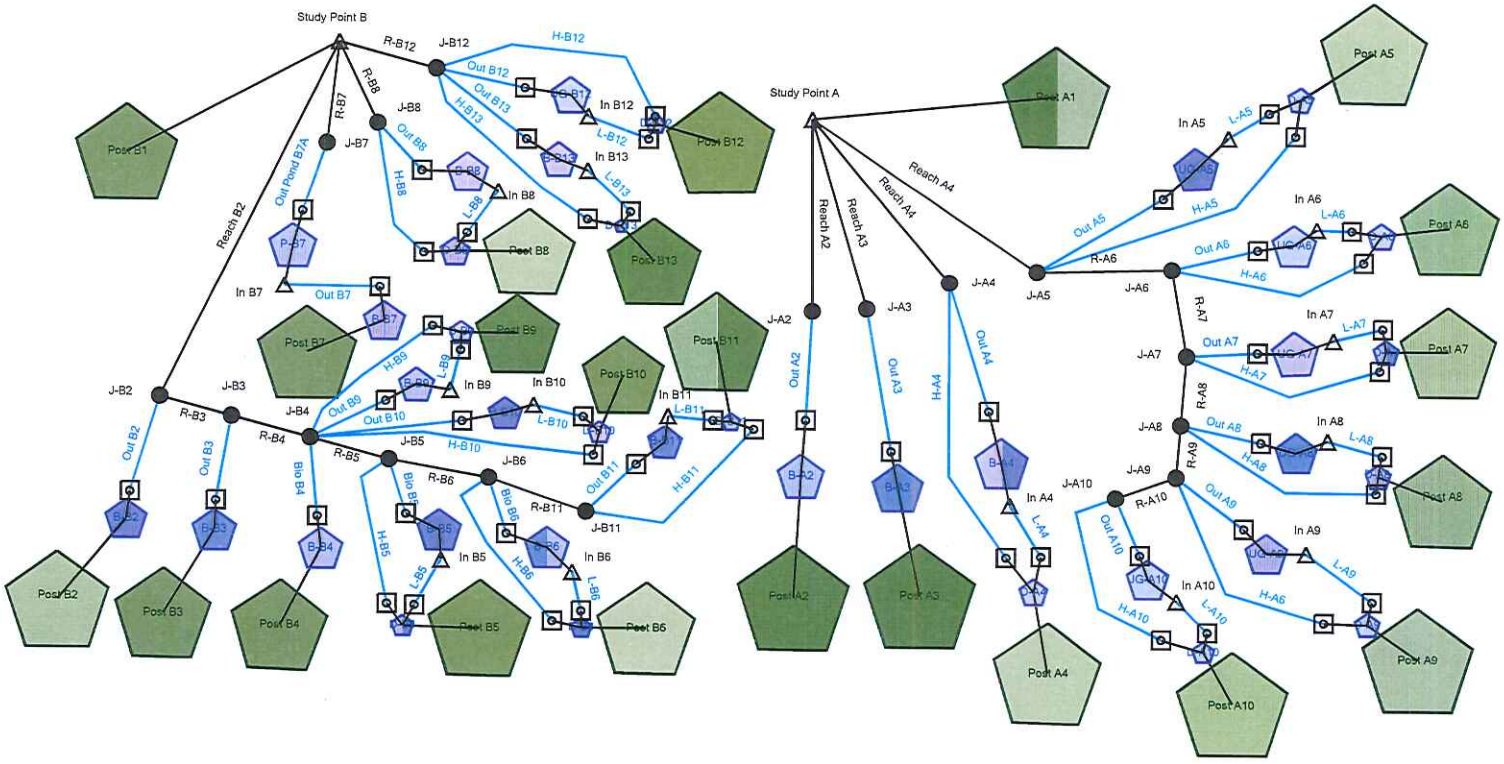
APPENDIX B

PRE/POST-DEVELOPMENT WATERSHED MODEL

Scenario: Pre 1-Year



Scenario: Post 1-Year



Project Summary	
Title	LEGOLAND NY
Engineer	Eric Rogge PE
Company	Lanc & Tully
Date	9/8/2016

Notes	Pre- vs. Post-Development Conditions

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Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
Pre B	Pre 1-Year	1	10.813	12.650	59.16
Pre B	Pre 10-Year	10	31.913	12.650	187.54
Pre B	Pre 100-Year	100	75.880	12.600	446.74
Pre A	Pre 1-Year	1	89.879	12.850	423.37
Pre A	Pre 10-Year	10	252.611	12.850	1,254.33
Pre A	Pre 100-Year	100	583.970	12.800	2,880.46
Post B1	Post 1-Year	1	6.751	12.650	37.46
Post B1	Post 10-Year	10	19.438	12.650	114.40
Post B1	Post 100-Year	100	45.567	12.600	267.84
Post A1	Post 1-Year	1	85.256	12.850	401.59
Post A1	Post 10-Year	10	239.619	12.850	1,189.82
Post A1	Post 100-Year	100	553.937	12.800	2,732.32
Post A2	Post 1-Year	1	0.278	12.100	3.42
Post A2	Post 10-Year	10	0.604	12.100	7.14
Post A2	Post 100-Year	100	1.200	12.100	13.56
Post B2	Post 1-Year	1	0.142	12.100	1.77
Post B2	Post 10-Year	10	0.322	12.100	3.86
Post B2	Post 100-Year	100	0.654	12.100	7.51
Post A4	Post 1-Year	1	0.825	12.250	7.49
Post A4	Post 10-Year	10	1.726	12.250	15.14
Post A4	Post 100-Year	100	3.348	12.250	28.29
Post A5	Post 1-Year	1	0.891	12.100	10.55
Post A5	Post 10-Year	10	1.793	12.100	20.29
Post A5	Post 100-Year	100	3.399	12.100	37.03
Post B7	Post 1-Year	1	3.665	12.200	36.28
Post B7	Post 10-Year	10	8.140	12.200	78.69
Post B7	Post 100-Year	100	16.355	12.200	152.41
Post B11	Post 1-Year	1	0.415	12.150	4.55
Post B11	Post 10-Year	10	0.886	12.150	9.37
Post B11	Post 100-Year	100	1.740	12.150	17.67
Post B12	Post 1-Year	1	0.848	12.100	9.89
Post B12	Post 10-Year	10	1.674	12.100	18.68
Post B12	Post 100-Year	100	3.137	12.100	33.82
Post A3	Post 1-Year	1	0.827	12.100	10.11
Post A3	Post 10-Year	10	1.765	12.100	20.67
Post A3	Post 100-Year	100	3.464	12.100	38.82
Post A6	Post 1-Year	1	1.149	12.100	13.35
Post A6	Post 10-Year	10	2.268	12.100	25.22
Post A6	Post 100-Year	100	4.250	12.100	45.67
Post A7	Post 1-Year	1	1.170	12.100	13.59
Post A7	Post 10-Year	10	2.309	12.100	25.68
Post A7	Post 100-Year	100	4.327	12.100	46.49
Post A8	Post 1-Year	1	1.286	12.100	14.95
Post A8	Post 10-Year	10	2.539	12.100	28.25
Post A8	Post 100-Year	100	4.759	12.100	51.15
Post A9	Post 1-Year	1	1.652	12.100	19.09
Post A9	Post 10-Year	10	3.260	12.100	36.11
Post A9	Post 100-Year	100	6.110	12.100	65.41
Post A10	Post 1-Year	1	1.635	12.100	17.44
Post A10	Post 10-Year	10	3.104	12.100	32.01
Post A10	Post 100-Year	100	5.687	12.100	57.28

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Post B3	Post 1-Year	1	0.175	12.100	2.17
Post B3	Post 10-Year	10	0.389	12.100	4.63
Post B3	Post 100-Year	100	0.781	12.100	8.90
Post B4	Post 1-Year	1	0.214	12.100	2.66
Post B4	Post 10-Year	10	0.485	12.100	5.82
Post B4	Post 100-Year	100	0.986	12.100	11.32
Post B5	Post 1-Year	1	0.173	12.100	2.16
Post B5	Post 10-Year	10	0.400	12.100	4.83
Post B5	Post 100-Year	100	0.823	12.100	9.52
Post B6	Post 1-Year	1	0.442	12.150	4.88
Post B6	Post 10-Year	10	0.981	12.150	10.53
Post B6	Post 100-Year	100	1.971	12.150	20.34
Post B8	Post 1-Year	1	2.083	12.150	22.93
Post B8	Post 10-Year	10	4.718	12.150	50.76
Post B8	Post 100-Year	100	9.594	12.150	99.36
Post B9	Post 1-Year	1	0.868	12.200	8.64
Post B9	Post 10-Year	10	1.889	12.200	18.28
Post B9	Post 100-Year	100	3.750	12.200	34.94
Post B10	Post 1-Year	1	0.245	12.150	2.74
Post B10	Post 10-Year	10	0.554	12.150	6.04
Post B10	Post 100-Year	100	1.127	12.150	11.80
Post B13	Post 1-Year	1	0.374	12.100	4.65
Post B13	Post 10-Year	10	0.847	12.100	10.17
Post B13	Post 100-Year	100	1.722	12.100	19.77

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
Study Point A	Pre 1-Year	1	89.879	12.850	423.37
Study Point A	Post 1-Year	1	93.282	12.850	405.37
Study Point A	Pre 10-Year	10	252.611	12.850	1,254.33
Study Point A	Post 10-Year	10	257.277	12.800	1,246.38
Study Point A	Pre 100-Year	100	583.970	12.800	2,880.46
Study Point A	Post 100-Year	100	588.734	12.700	2,850.98
Study Point B	Pre 1-Year	1	10.813	12.650	59.16
Study Point B	Post 1-Year	1	13.781	12.650	40.91
Study Point B	Pre 10-Year	10	31.913	12.650	187.54
Study Point B	Post 10-Year	10	38.094	12.500	186.85
Study Point B	Pre 100-Year	100	75.880	12.600	446.74
Study Point B	Post 100-Year	100	85.568	12.500	446.04
J-A2	Post 1-Year	1	0.093	17.150	0.10
J-A2	Post 10-Year	10	0.420	12.600	1.06
J-A2	Post 100-Year	100	1.015	12.150	12.02
J-A4	Post 1-Year	1	0.588	14.200	0.67
J-A4	Post 10-Year	10	1.489	12.350	12.74
J-A4	Post 100-Year	100	3.111	12.250	27.38
J-A5	Post 1-Year	1	6.898	14.350	5.24
J-A5	Post 10-Year	10	14.372	12.250	104.85
J-A5	Post 100-Year	100	27.607	12.150	265.64
J-B2	Post 1-Year	1	1.719	15.200	1.73

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft³/s)
J-B2	Post 10-Year	10	4.950	12.350	35.71
J-B2	Post 100-Year	100	10.875	12.250	97.97
J-B7	Post 1-Year	1	3.087	15.100	2.55
J-B7	Post 10-Year	10	7.561	12.900	17.75
J-B7	Post 100-Year	100	15.775	12.600	66.01
J-B11	Post 1-Year	1	0.296	14.700	0.29
J-B11	Post 10-Year	10	0.767	12.200	8.09
J-B11	Post 100-Year	100	1.620	12.150	17.24
J-B12	Post 1-Year	1	0.711	14.200	0.59
J-B12	Post 10-Year	10	2.002	12.150	17.83
J-B12	Post 100-Year	100	4.337	12.100	46.90
J-A3	Post 1-Year	1	0.473	14.750	0.56
J-A3	Post 10-Year	10	1.411	12.150	15.25
J-A3	Post 100-Year	100	3.110	12.150	34.70
J-A6	Post 1-Year	1	6.110	14.350	4.62
J-A6	Post 10-Year	10	12.683	12.200	93.58
J-A6	Post 100-Year	100	24.314	12.150	239.33
J-A7	Post 1-Year	1	5.091	12.200	3.88
J-A7	Post 10-Year	10	10.548	12.200	79.51
J-A7	Post 100-Year	100	20.201	12.150	201.96
J-A8	Post 1-Year	1	4.052	12.200	3.40
J-A8	Post 10-Year	10	8.373	12.200	63.16
J-A8	Post 100-Year	100	16.011	12.150	161.42
J-A9	Post 1-Year	1	2.909	12.150	2.85
J-A9	Post 10-Year	10	5.980	12.200	44.94
J-A9	Post 100-Year	100	11.403	12.150	115.18
J-A10	Post 1-Year	1	1.451	12.150	2.16
J-A10	Post 10-Year	10	2.917	12.200	22.31
J-A10	Post 100-Year	100	5.496	12.150	55.31
J-B3	Post 1-Year	1	1.644	15.200	1.63
J-B3	Post 10-Year	10	4.695	12.300	34.38
J-B3	Post 100-Year	100	10.287	12.250	93.93
J-B4	Post 1-Year	1	1.589	15.000	1.59
J-B4	Post 10-Year	10	4.427	12.250	33.09
J-B4	Post 100-Year	100	9.626	12.200	90.18
J-B5	Post 1-Year	1	0.647	15.200	0.69
J-B5	Post 10-Year	10	1.884	12.300	10.47
J-B5	Post 100-Year	100	4.150	12.200	39.67
J-B6	Post 1-Year	1	0.527	15.050	0.59
J-B6	Post 10-Year	10	1.538	12.450	9.20
J-B6	Post 100-Year	100	3.381	12.200	33.91
J-B8	Post 1-Year	1	1.515	15.150	1.40
J-B8	Post 10-Year	10	4.147	12.200	38.89
J-B8	Post 100-Year	100	9.020	12.150	94.84

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)

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)
B-A2 (IN)	Post 1-Year	1	0.278	12.100	3.42	(N/A)	(N/A)
B-A2 (OUT)	Post 1-Year	1	0.093	17.150	0.10	424.70	0.219
B-A2 (IN)	Post 10-Year	10	0.604	12.100	7.14	(N/A)	(N/A)
B-A2 (OUT)	Post 10-Year	10	0.420	12.600	1.06	425.52	0.365
B-A2 (IN)	Post 100-Year	100	1.200	12.100	13.56	(N/A)	(N/A)
B-A2 (OUT)	Post 100-Year	100	1.015	12.150	12.02	425.89	0.434
B-A3 (IN)	Post 1-Year	1	0.827	12.100	10.11	(N/A)	(N/A)
B-A3 (OUT)	Post 1-Year	1	0.473	14.750	0.56	425.10	0.547
B-A3 (IN)	Post 10-Year	10	1.765	12.100	20.67	(N/A)	(N/A)
B-A3 (OUT)	Post 10-Year	10	1.411	12.150	15.25	425.57	0.706
B-A3 (IN)	Post 100-Year	100	3.464	12.100	38.82	(N/A)	(N/A)
B-A3 (OUT)	Post 100-Year	100	3.110	12.150	34.70	425.96	0.836
B-A4 (IN)	Post 1-Year	1	0.824	12.250	7.33	(N/A)	(N/A)
B-A4 (OUT)	Post 1-Year	1	0.587	14.200	0.67	452.31	0.529
B-A4 (IN)	Post 10-Year	10	1.594	12.250	9.94	(N/A)	(N/A)
B-A4 (OUT)	Post 10-Year	10	1.356	12.450	9.14	452.61	0.602
B-A4 (IN)	Post 100-Year	100	2.788	12.250	13.61	(N/A)	(N/A)
B-A4 (OUT)	Post 100-Year	100	2.551	12.300	13.15	452.71	0.625
UG-A10 (IN)	Post 1-Year	1	1.623	12.150	15.80	(N/A)	(N/A)
UG-A10 (OUT)	Post 1-Year	1	1.438	14.050	1.14	564.46	1.050
UG-A10 (IN)	Post 10-Year	10	2.885	12.150	19.77	(N/A)	(N/A)
UG-A10 (OUT)	Post 10-Year	10	2.698	12.300	16.41	565.54	1.224
UG-A10 (IN)	Post 100-Year	100	4.811	12.150	23.45	(N/A)	(N/A)
UG-A10 (OUT)	Post 100-Year	100	4.620	12.200	22.80	565.83	1.265
UG-A9 (IN)	Post 1-Year	1	1.652	12.100	18.76	(N/A)	(N/A)
UG-A9 (OUT)	Post 1-Year	1	1.458	14.300	1.12	546.36	1.072
UG-A9 (IN)	Post 10-Year	10	3.079	12.100	23.73	(N/A)	(N/A)
UG-A9 (OUT)	Post 10-Year	10	2.882	12.250	19.75	547.57	1.280
UG-A9 (IN)	Post 100-Year	100	5.244	12.100	27.33	(N/A)	(N/A)
UG-A9 (OUT)	Post 100-Year	100	5.041	12.150	26.62	547.87	1.323
UG-A8 (IN)	Post 1-Year	1	1.286	12.100	14.66	(N/A)	(N/A)
UG-A8 (OUT)	Post 1-Year	1	1.143	14.400	0.85	532.66	0.836
UG-A8 (IN)	Post 10-Year	10	2.387	12.100	17.92	(N/A)	(N/A)
UG-A8 (OUT)	Post 10-Year	10	2.241	12.250	15.91	533.72	0.958
UG-A8 (IN)	Post 100-Year	100	4.050	12.100	20.16	(N/A)	(N/A)
UG-A8 (OUT)	Post 100-Year	100	3.900	12.150	19.87	533.90	0.977
UG-A7 (IN)	Post 1-Year	1	1.169	12.100	13.31	(N/A)	(N/A)
UG-A7 (OUT)	Post 1-Year	1	1.039	14.500	0.76	514.69	0.764
UG-A7 (IN)	Post 10-Year	10	2.176	12.100	16.61	(N/A)	(N/A)
UG-A7 (OUT)	Post 10-Year	10	2.043	12.200	14.91	515.67	0.867

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)
UG-A7 (IN)	Post 100-Year	100	3.698	12.100	18.86	(N/A)	(N/A)
UG-A7 (OUT)	Post 100-Year	100	3.561	12.150	18.61	515.85	0.884
UG-A6 (IN)	Post 1-Year	1	1.149	12.100	13.06	(N/A)	(N/A)
UG-A6 (OUT)	Post 1-Year	1	1.018	14.450	0.75	494.84	0.750
UG-A6 (IN)	Post 10-Year	10	2.138	12.100	16.39	(N/A)	(N/A)
UG-A6 (OUT)	Post 10-Year	10	2.005	12.250	14.14	495.96	0.870
UG-A6 (IN)	Post 100-Year	100	3.636	12.100	18.64	(N/A)	(N/A)
UG-A6 (OUT)	Post 100-Year	100	3.499	12.150	18.28	496.19	0.892
UG-A5 (IN)	Post 1-Year	1	0.890	12.100	10.28	(N/A)	(N/A)
UG-A5 (OUT)	Post 1-Year	1	0.787	14.300	0.63	478.79	0.568
UG-A5 (IN)	Post 10-Year	10	1.698	12.100	13.69	(N/A)	(N/A)
UG-A5 (OUT)	Post 10-Year	10	1.594	12.200	11.91	479.78	0.666
UG-A5 (IN)	Post 100-Year	100	2.930	12.100	16.04	(N/A)	(N/A)
UG-A5 (OUT)	Post 100-Year	100	2.824	12.150	15.78	480.00	0.683
B-B2 (IN)	Post 1-Year	1	0.142	12.100	1.77	(N/A)	(N/A)
B-B2 (OUT)	Post 1-Year	1	0.075	15.150	0.09	447.41	0.094
B-B2 (IN)	Post 10-Year	10	0.322	12.100	3.86	(N/A)	(N/A)
B-B2 (OUT)	Post 10-Year	10	0.255	12.100	3.75	447.62	0.108
B-B2 (IN)	Post 100-Year	100	0.654	12.100	7.51	(N/A)	(N/A)
B-B2 (OUT)	Post 100-Year	100	0.588	12.100	7.39	447.74	0.117
B-B3 (IN)	Post 1-Year	1	0.175	12.100	2.17	(N/A)	(N/A)
B-B3 (OUT)	Post 1-Year	1	0.056	17.400	0.06	457.68	0.139
B-B3 (IN)	Post 10-Year	10	0.389	12.100	4.63	(N/A)	(N/A)
B-B3 (OUT)	Post 10-Year	10	0.269	12.200	3.22	457.90	0.165
B-B3 (IN)	Post 100-Year	100	0.781	12.100	8.90	(N/A)	(N/A)
B-B3 (OUT)	Post 100-Year	100	0.662	12.100	8.69	458.07	0.186
B-B4 (IN)	Post 1-Year	1	0.214	12.100	2.66	(N/A)	(N/A)
B-B4 (OUT)	Post 1-Year	1	0.134	15.000	0.15	462.75	0.139
B-B4 (IN)	Post 10-Year	10	0.485	12.100	5.82	(N/A)	(N/A)
B-B4 (OUT)	Post 10-Year	10	0.405	12.150	5.29	462.99	0.160
B-B4 (IN)	Post 100-Year	100	0.986	12.100	11.32	(N/A)	(N/A)
B-B4 (OUT)	Post 100-Year	100	0.906	12.100	11.19	463.13	0.172
B-B5 (IN)	Post 1-Year	1	0.173	12.100	2.06	(N/A)	(N/A)
B-B5 (OUT)	Post 1-Year	1	0.120	15.450	0.10	515.08	0.111
B-B5 (IN)	Post 10-Year	10	0.372	12.100	3.11	(N/A)	(N/A)
B-B5 (OUT)	Post 10-Year	10	0.319	12.150	2.93	515.38	0.129
B-B5 (IN)	Post 100-Year	100	0.693	12.100	4.46	(N/A)	(N/A)
B-B5 (OUT)	Post 100-Year	100	0.640	12.150	4.33	515.45	0.134
B-B6 (IN)	Post 1-Year	1	0.442	12.150	4.71	(N/A)	(N/A)
B-B6 (OUT)	Post 1-Year	1	0.231	15.100	0.29	539.42	0.292
B-B6 (IN)	Post 10-Year	10	0.898	12.150	6.25	(N/A)	(N/A)
B-B6 (OUT)	Post 10-Year	10	0.688	12.500	3.96	540.11	0.436
B-B6 (IN)	Post 100-Year	100	1.602	12.150	7.97	(N/A)	(N/A)
B-B6 (OUT)	Post 100-Year	100	1.391	12.250	7.53	540.23	0.462

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)
B-B11 (IN)	Post 1-Year	1	0.415	12.150	4.44	(N/A)	(N/A)
B-B11 (OUT)	Post 1-Year	1	0.296	14.700	0.29	610.50	0.265
B-B11 (IN)	Post 10-Year	10	0.821	12.150	5.86	(N/A)	(N/A)
B-B11 (OUT)	Post 10-Year	10	0.702	12.300	5.41	610.74	0.296
B-B11 (IN)	Post 100-Year	100	1.440	12.150	7.23	(N/A)	(N/A)
B-B11 (OUT)	Post 100-Year	100	1.321	12.200	7.13	610.79	0.302
B-B7 (IN)	Post 1-Year	1	3.665	12.200	36.28	(N/A)	(N/A)
B-B7 (OUT)	Post 1-Year	1	3.087	12.300	32.39	462.53	0.859
B-B7 (IN)	Post 10-Year	10	8.140	12.200	78.69	(N/A)	(N/A)
B-B7 (OUT)	Post 10-Year	10	7.562	12.250	74.49	462.92	1.076
B-B7 (IN)	Post 100-Year	100	16.355	12.200	152.41	(N/A)	(N/A)
B-B7 (OUT)	Post 100-Year	100	15.777	12.250	146.57	463.46	1.384
B-B8 (IN)	Post 1-Year	1	2.082	12.150	22.18	(N/A)	(N/A)
B-B8 (OUT)	Post 1-Year	1	1.514	15.150	1.40	468.98	1.316
B-B8 (IN)	Post 10-Year	10	4.340	12.150	31.00	(N/A)	(N/A)
B-B8 (OUT)	Post 10-Year	10	3.769	12.350	26.82	469.42	1.543
B-B8 (IN)	Post 100-Year	100	7.815	12.150	39.28	(N/A)	(N/A)
B-B8 (OUT)	Post 100-Year	100	7.241	12.200	37.98	469.56	1.615
B-B9 (IN)	Post 1-Year	1	0.867	12.200	8.41	(N/A)	(N/A)
B-B9 (OUT)	Post 1-Year	1	0.631	14.950	0.59	465.94	0.552
B-B9 (IN)	Post 10-Year	10	1.722	12.200	10.97	(N/A)	(N/A)
B-B9 (OUT)	Post 10-Year	10	1.486	12.300	10.53	466.17	0.604
B-B9 (IN)	Post 100-Year	100	3.020	12.200	13.37	(N/A)	(N/A)
B-B9 (OUT)	Post 100-Year	100	2.783	12.250	13.18	466.21	0.615
B-B10 (IN)	Post 1-Year	1	0.245	12.150	2.69	(N/A)	(N/A)
B-B10 (OUT)	Post 1-Year	1	0.177	15.150	0.16	480.61	0.154
B-B10 (IN)	Post 10-Year	10	0.505	12.150	3.51	(N/A)	(N/A)
B-B10 (OUT)	Post 10-Year	10	0.437	12.300	3.24	480.90	0.180
B-B10 (IN)	Post 100-Year	100	0.902	12.150	4.10	(N/A)	(N/A)
B-B10 (OUT)	Post 100-Year	100	0.834	12.200	4.04	480.93	0.184
UG-B12 (IN)	Post 1-Year	1	0.848	12.100	9.70	(N/A)	(N/A)
UG-B12 (OUT)	Post 1-Year	1	0.704	14.200	0.59	451.71	0.554
UG-B12 (IN)	Post 10-Year	10	1.601	12.100	13.55	(N/A)	(N/A)
UG-B12 (OUT)	Post 10-Year	10	1.457	12.200	11.61	452.72	0.656
UG-B12 (IN)	Post 100-Year	100	2.798	12.100	19.05	(N/A)	(N/A)
UG-B12 (OUT)	Post 100-Year	100	2.652	12.150	18.27	453.09	0.684
B-B13 (IN)	Post 1-Year	1	0.374	12.100	4.53	(N/A)	(N/A)
B-B13 (OUT)	Post 1-Year	1	0.007	24.150	0.01	467.52	0.373
B-B13 (IN)	Post 10-Year	10	0.783	12.100	6.16	(N/A)	(N/A)
B-B13 (OUT)	Post 10-Year	10	0.409	14.100	0.65	468.01	0.538
B-B13 (IN)	Post 100-Year	100	1.436	12.100	8.82	(N/A)	(N/A)
B-B13 (OUT)	Post 100-Year	100	1.060	12.250	6.19	468.20	0.601
P-B7 (IN)	Post 1-Year	1	3.087	12.300	32.39	(N/A)	(N/A)
P-B7 (OUT)	Post 1-Year	1	3.087	15.100	2.55	456.30	1.684
P-B7 (IN)	Post 10-Year	10	7.562	12.250	74.49	(N/A)	(N/A)
P-B7 (OUT)	Post 10-Year	10	7.561	12.900	17.75	459.49	3.511
P-B7 (IN)	Post 100-Year	100	15.777	12.250	146.57	(N/A)	(N/A)

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)
P-B7 (OUT)	Post 100-Year	100	15.775	12.600	66.01	463.45	6.733
D-A4 (IN)	Post 1-Year	1	0.825	12.250	7.49	(N/A)	(N/A)
D-A4 (OUT)	Post 1-Year	1	0.825	12.250	7.43	452.67	0.001
D-A4 (IN)	Post 10-Year	10	1.726	12.250	15.14	(N/A)	(N/A)
D-A4 (OUT)	Post 10-Year	10	1.726	12.250	15.08	453.96	0.002
D-A4 (IN)	Post 100-Year	100	3.348	12.250	28.29	(N/A)	(N/A)
D-A4 (OUT)	Post 100-Year	100	3.348	12.250	28.24	456.44	0.003
D-A5 (IN)	Post 1-Year	1	0.891	12.100	10.55	(N/A)	(N/A)
D-A5 (OUT)	Post 1-Year	1	0.891	12.100	10.40	477.72	0.001
D-A5 (IN)	Post 10-Year	10	1.793	12.100	20.29	(N/A)	(N/A)
D-A5 (OUT)	Post 10-Year	10	1.793	12.100	20.09	478.85	0.002
D-A5 (IN)	Post 100-Year	100	3.399	12.100	37.03	(N/A)	(N/A)
D-A5 (OUT)	Post 100-Year	100	3.399	12.100	36.73	479.81	0.002
D-A6 (IN)	Post 1-Year	1	1.149	12.100	13.35	(N/A)	(N/A)
D-A6 (OUT)	Post 1-Year	1	1.149	12.100	13.17	494.36	0.001
D-A6 (IN)	Post 10-Year	10	2.268	12.100	25.22	(N/A)	(N/A)
D-A6 (OUT)	Post 10-Year	10	2.268	12.100	24.98	495.71	0.002
D-A6 (IN)	Post 100-Year	100	4.250	12.100	45.67	(N/A)	(N/A)
D-A6 (OUT)	Post 100-Year	100	4.250	12.100	45.29	496.80	0.003
D-A7 (IN)	Post 1-Year	1	1.170	12.100	13.59	(N/A)	(N/A)
D-A7 (OUT)	Post 1-Year	1	1.170	12.100	13.41	514.21	0.001
D-A7 (IN)	Post 10-Year	10	2.309	12.100	25.68	(N/A)	(N/A)
D-A7 (OUT)	Post 10-Year	10	2.309	12.100	25.43	515.57	0.002
D-A7 (IN)	Post 100-Year	100	4.327	12.100	46.49	(N/A)	(N/A)
D-A7 (OUT)	Post 100-Year	100	4.327	12.100	46.10	516.67	0.003
D-A8 (IN)	Post 1-Year	1	1.286	12.100	14.95	(N/A)	(N/A)
D-A8 (OUT)	Post 1-Year	1	1.286	12.100	14.73	532.73	0.002
D-A8 (IN)	Post 10-Year	10	2.539	12.100	28.25	(N/A)	(N/A)
D-A8 (OUT)	Post 10-Year	10	2.539	12.100	27.94	534.19	0.002
D-A8 (IN)	Post 100-Year	100	4.759	12.100	51.15	(N/A)	(N/A)
D-A8 (OUT)	Post 100-Year	100	4.759	12.100	50.67	535.37	0.003
D-A9 (IN)	Post 1-Year	1	1.652	12.100	19.09	(N/A)	(N/A)
D-A9 (OUT)	Post 1-Year	1	1.652	12.100	18.77	546.50	0.002
D-A9 (IN)	Post 10-Year	10	3.260	12.100	36.11	(N/A)	(N/A)
D-A9 (OUT)	Post 10-Year	10	3.260	12.100	35.62	548.08	0.002
D-A9 (IN)	Post 100-Year	100	6.110	12.100	65.41	(N/A)	(N/A)
D-A9 (OUT)	Post 100-Year	100	6.110	12.100	64.62	549.45	0.003
D-A10 (IN)	Post 1-Year	1	1.635	12.100	17.44	(N/A)	(N/A)
D-A10 (OUT)	Post 1-Year	1	1.635	12.150	17.15	563.75	0.001
D-A10 (IN)	Post 10-Year	10	3.104	12.100	32.01	(N/A)	(N/A)
D-A10 (OUT)	Post 10-Year	10	3.104	12.150	31.45	564.80	0.002
D-A10 (IN)	Post 100-Year	100	5.687	12.100	57.28	(N/A)	(N/A)
D-A10 (OUT)	Post 100-Year	100	5.687	12.150	56.23	565.98	0.002
D-B5 (IN)	Post 1-Year	1	0.173	12.100	2.16	(N/A)	(N/A)
D-B5 (OUT)	Post 1-Year	1	0.173	12.100	2.10	514.54	0.000
D-B5 (IN)	Post 10-Year	10	0.400	12.100	4.83	(N/A)	(N/A)
D-B5 (OUT)	Post 10-Year	10	0.400	12.100	4.75	515.33	0.001
D-B5 (IN)	Post 100-Year	100	0.823	12.100	9.52	(N/A)	(N/A)
D-B5 (OUT)	Post 100-Year	100	0.823	12.100	9.40	516.81	0.002
D-B6 (IN)	Post 1-Year	1	0.442	12.150	4.88	(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 (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ac-ft)
D-B6 (OUT)	Post 1-Year	1	0.442	12.150	4.76	540.56	0.001
D-B6 (IN)	Post 10-Year	10	0.981	12.150	10.53	(N/A)	(N/A)
D-B6 (OUT)	Post 10-Year	10	0.981	12.150	10.36	541.74	0.001
D-B6 (IN)	Post 100-Year	100	1.971	12.150	20.34	(N/A)	(N/A)
D-B6 (OUT)	Post 100-Year	100	1.971	12.150	20.09	543.45	0.002
D-B8 (IN)	Post 1-Year	1	2.083	12.150	22.93	(N/A)	(N/A)
D-B8 (OUT)	Post 1-Year	1	2.083	12.150	22.26	470.66	0.001
D-B8 (IN)	Post 10-Year	10	4.718	12.150	50.76	(N/A)	(N/A)
D-B8 (OUT)	Post 10-Year	10	4.718	12.150	49.68	472.71	0.002
D-B8 (IN)	Post 100-Year	100	9.594	12.150	99.36	(N/A)	(N/A)
D-B8 (OUT)	Post 100-Year	100	9.594	12.150	97.68	475.25	0.004
D-B9 (IN)	Post 1-Year	1	0.868	12.200	8.64	(N/A)	(N/A)
D-B9 (OUT)	Post 1-Year	1	0.868	12.200	8.49	466.66	0.001
D-B9 (IN)	Post 10-Year	10	1.889	12.200	18.28	(N/A)	(N/A)
D-B9 (OUT)	Post 10-Year	10	1.889	12.200	18.06	468.08	0.002
D-B9 (IN)	Post 100-Year	100	3.750	12.200	34.94	(N/A)	(N/A)
D-B9 (OUT)	Post 100-Year	100	3.750	12.200	34.63	469.75	0.003
D-B10 (IN)	Post 1-Year	1	0.245	12.150	2.74	(N/A)	(N/A)
D-B10 (OUT)	Post 1-Year	1	0.245	12.150	2.69	480.47	0.001
D-B10 (IN)	Post 10-Year	10	0.554	12.150	6.04	(N/A)	(N/A)
D-B10 (OUT)	Post 10-Year	10	0.554	12.150	5.97	481.22	0.001
D-B10 (IN)	Post 100-Year	100	1.127	12.150	11.80	(N/A)	(N/A)
D-B10 (OUT)	Post 100-Year	100	1.127	12.150	11.72	481.86	0.001
D-B11 (IN)	Post 1-Year	1	0.415	12.150	4.55	(N/A)	(N/A)
D-B11 (OUT)	Post 1-Year	1	0.415	12.150	4.45	610.64	0.001
D-B11 (IN)	Post 10-Year	10	0.886	12.150	9.37	(N/A)	(N/A)
D-B11 (OUT)	Post 10-Year	10	0.886	12.150	9.23	611.66	0.001
D-B11 (IN)	Post 100-Year	100	1.740	12.150	17.67	(N/A)	(N/A)
D-B11 (OUT)	Post 100-Year	100	1.740	12.150	17.46	612.91	0.002
D-B12 (IN)	Post 1-Year	1	0.848	12.100	9.89	(N/A)	(N/A)
D-B12 (OUT)	Post 1-Year	1	0.848	12.100	9.77	450.55	0.001
D-B12 (IN)	Post 10-Year	10	1.674	12.100	18.68	(N/A)	(N/A)
D-B12 (OUT)	Post 10-Year	10	1.674	12.100	18.51	451.79	0.002
D-B12 (IN)	Post 100-Year	100	3.137	12.100	33.82	(N/A)	(N/A)
D-B12 (OUT)	Post 100-Year	100	3.137	12.100	33.56	454.27	0.003
D-B13 (IN)	Post 1-Year	1	0.374	12.100	4.65	(N/A)	(N/A)
D-B13 (OUT)	Post 1-Year	1	0.374	12.100	4.53	468.94	0.001
D-B13 (IN)	Post 10-Year	10	0.847	12.100	10.17	(N/A)	(N/A)
D-B13 (OUT)	Post 10-Year	10	0.847	12.100	10.00	470.16	0.001
D-B13 (IN)	Post 100-Year	100	1.722	12.100	19.77	(N/A)	(N/A)
D-B13 (OUT)	Post 100-Year	100	1.722	12.100	19.55	472.94	0.003

Subsection: Time-Depth Curve
Label: Orange County

Return Event: 100 years
Storm Event: 100-Year

Time-Depth Curve: 100-Year	
Label	100-Year
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	0.1	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	0.2	0.2
3.000	0.3	0.3	0.3	0.3	0.3
3.500	0.3	0.3	0.3	0.3	0.4
4.000	0.4	0.4	0.4	0.4	0.4
4.500	0.4	0.4	0.4	0.5	0.5
5.000	0.5	0.5	0.5	0.5	0.5
5.500	0.5	0.6	0.6	0.6	0.6
6.000	0.6	0.6	0.6	0.6	0.7
6.500	0.7	0.7	0.7	0.7	0.7
7.000	0.8	0.8	0.8	0.8	0.8
7.500	0.9	0.9	0.9	0.9	0.9
8.000	1.0	1.0	1.0	1.0	1.1
8.500	1.1	1.1	1.1	1.2	1.2
9.000	1.2	1.3	1.3	1.3	1.4
9.500	1.4	1.4	1.5	1.5	1.5
10.000	1.6	1.6	1.7	1.7	1.8
10.500	1.8	1.9	1.9	2.0	2.0
11.000	2.1	2.2	2.2	2.3	2.4
11.500	2.5	2.6	2.9	3.1	3.5
12.000	4.2	4.9	5.3	5.5	5.8
12.500	5.9	6.0	6.1	6.2	6.2
13.000	6.3	6.4	6.4	6.5	6.5
13.500	6.6	6.6	6.7	6.7	6.8
14.000	6.8	6.9	6.9	6.9	7.0
14.500	7.0	7.0	7.1	7.1	7.1
15.000	7.2	7.2	7.2	7.3	7.3
15.500	7.3	7.3	7.4	7.4	7.4
16.000	7.4	7.5	7.5	7.5	7.5
16.500	7.5	7.6	7.6	7.6	7.6
17.000	7.6	7.7	7.7	7.7	7.7
17.500	7.7	7.7	7.8	7.8	7.8
18.000	7.8	7.8	7.8	7.8	7.8
18.500	7.9	7.9	7.9	7.9	7.9
19.000	7.9	7.9	7.9	8.0	8.0
19.500	8.0	8.0	8.0	8.0	8.0
20.000	8.0	8.0	8.1	8.1	8.1
20.500	8.1	8.1	8.1	8.1	8.1

Subsection: Time-Depth Curve
Label: Orange County

Return Event: 100 years
Storm Event: 100-Year

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)
21.000	8.1	8.2	8.2	8.2	8.2
21.500	8.2	8.2	8.2	8.2	8.2
22.000	8.2	8.2	8.3	8.3	8.3
22.500	8.3	8.3	8.3	8.3	8.3
23.000	8.3	8.3	8.3	8.3	8.4
23.500	8.4	8.4	8.4	8.4	8.4
24.000	8.4	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: Orange County

Return Event: 10 years
Storm Event: 10-Year

Time-Depth Curve: 10-Year	
Label	10-Year
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	0.0	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	0.1	0.1	0.1	0.1
3.000	0.1	0.2	0.2	0.2	0.2
3.500	0.2	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	0.3	0.3
5.000	0.3	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.3	0.3
6.000	0.3	0.3	0.4	0.4	0.4
6.500	0.4	0.4	0.4	0.4	0.4
7.000	0.4	0.4	0.4	0.5	0.5
7.500	0.5	0.5	0.5	0.5	0.5
8.000	0.5	0.6	0.6	0.6	0.6
8.500	0.6	0.6	0.6	0.7	0.7
9.000	0.7	0.7	0.7	0.7	0.8
9.500	0.8	0.8	0.8	0.9	0.9
10.000	0.9	0.9	0.9	1.0	1.0
10.500	1.0	1.1	1.1	1.1	1.2
11.000	1.2	1.2	1.3	1.3	1.4
11.500	1.4	1.5	1.6	1.8	2.0
12.000	2.4	2.8	3.0	3.1	3.3
12.500	3.3	3.4	3.4	3.5	3.5
13.000	3.6	3.6	3.6	3.7	3.7
13.500	3.7	3.7	3.8	3.8	3.8
14.000	3.8	3.9	3.9	3.9	3.9
14.500	4.0	4.0	4.0	4.0	4.0
15.000	4.0	4.1	4.1	4.1	4.1
15.500	4.1	4.1	4.2	4.2	4.2
16.000	4.2	4.2	4.2	4.2	4.2
16.500	4.3	4.3	4.3	4.3	4.3
17.000	4.3	4.3	4.3	4.3	4.3
17.500	4.4	4.4	4.4	4.4	4.4
18.000	4.4	4.4	4.4	4.4	4.4
18.500	4.4	4.4	4.5	4.5	4.5
19.000	4.5	4.5	4.5	4.5	4.5
19.500	4.5	4.5	4.5	4.5	4.5
20.000	4.5	4.5	4.5	4.6	4.6
20.500	4.6	4.6	4.6	4.6	4.6

Subsection: Time-Depth Curve
Label: Orange County

Return Event: 10 years
Storm Event: 10-Year

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)
21.000	4.6	4.6	4.6	4.6	4.6
21.500	4.6	4.6	4.6	4.6	4.6
22.000	4.6	4.7	4.7	4.7	4.7
22.500	4.7	4.7	4.7	4.7	4.7
23.000	4.7	4.7	4.7	4.7	4.7
23.500	4.7	4.7	4.7	4.7	4.7
24.000	4.7	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: Orange County

Return Event: 1 years
Storm Event: 1-Year

Time-Depth Curve: 1-Year	
Label	1-Year
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	0.1
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	0.1	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	0.2	0.2	0.2	0.2	0.2
5.500	0.2	0.2	0.2	0.2	0.2
6.000	0.2	0.2	0.2	0.2	0.2
6.500	0.2	0.2	0.2	0.2	0.2
7.000	0.2	0.2	0.3	0.3	0.3
7.500	0.3	0.3	0.3	0.3	0.3
8.000	0.3	0.3	0.3	0.3	0.3
8.500	0.3	0.3	0.4	0.4	0.4
9.000	0.4	0.4	0.4	0.4	0.4
9.500	0.4	0.5	0.5	0.5	0.5
10.000	0.5	0.5	0.5	0.5	0.6
10.500	0.6	0.6	0.6	0.6	0.6
11.000	0.7	0.7	0.7	0.7	0.8
11.500	0.8	0.8	0.9	1.0	1.1
12.000	1.3	1.5	1.7	1.8	1.8
12.500	1.9	1.9	1.9	1.9	2.0
13.000	2.0	2.0	2.0	2.0	2.1
13.500	2.1	2.1	2.1	2.1	2.1
14.000	2.1	2.2	2.2	2.2	2.2
14.500	2.2	2.2	2.2	2.2	2.3
15.000	2.3	2.3	2.3	2.3	2.3
15.500	2.3	2.3	2.3	2.3	2.3
16.000	2.3	2.4	2.4	2.4	2.4
16.500	2.4	2.4	2.4	2.4	2.4
17.000	2.4	2.4	2.4	2.4	2.4
17.500	2.4	2.4	2.4	2.5	2.5
18.000	2.5	2.5	2.5	2.5	2.5
18.500	2.5	2.5	2.5	2.5	2.5
19.000	2.5	2.5	2.5	2.5	2.5
19.500	2.5	2.5	2.5	2.5	2.5
20.000	2.5	2.5	2.5	2.5	2.5
20.500	2.6	2.6	2.6	2.6	2.6

Subsection: Time-Depth Curve
Label: Orange County

Return Event: 1 years
Storm Event: 1-Year

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)
21.000	2.6	2.6	2.6	2.6	2.6
21.500	2.6	2.6	2.6	2.6	2.6
22.000	2.6	2.6	2.6	2.6	2.6
22.500	2.6	2.6	2.6	2.6	2.6
23.000	2.6	2.6	2.6	2.6	2.6
23.500	2.6	2.6	2.6	2.6	2.6
24.000	2.7	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time of Concentration Calculations
Label: Post A1

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.400
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.06 ft/s
Segment Time of Concentration	0.473 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	2,840.00 ft
Is Paved?	False
Slope	0.036 ft/ft
Average Velocity	3.06 ft/s
Segment Time of Concentration	0.258 hours

Segment #3: TR-55 Channel Flow	
Flow Area	18.0 ft²
Hydraulic Length	5,670.00 ft
Manning's n	0.040
Slope	0.006 ft/ft
Wetted Perimeter	13.20 ft
Average Velocity	3.55 ft/s
Segment Time of Concentration	0.444 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	1.175 hours

Subsection: Time of Concentration Calculations
Label: Post A1

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post A10

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	50.00 ft
Manning's n	0.240
Slope	0.055 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.15 ft/s
Segment Time of Concentration	0.091 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	50.00 ft
Manning's n	0.013
Slope	0.037 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	1.34 ft/s
Segment Time of Concentration	0.010 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	250.00 ft
Is Paved?	True
Slope	0.035 ft/ft
Average Velocity	3.80 ft/s
Segment Time of Concentration	0.018 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft^2
Hydraulic Length	790.00 ft
Manning's n	0.012
Slope	0.025 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	10.22 ft/s
Segment Time of Concentration	0.021 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.141 hours

Subsection: Time of Concentration Calculations
Label: Post A10

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post A2

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	36.00 ft
Manning's n	0.240
Slope	0.167 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.22 ft/s
Segment Time of Concentration	0.045 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	128.00 ft
Is Paved?	True
Slope	0.020 ft/ft
Average Velocity	2.87 ft/s
Segment Time of Concentration	0.012 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.8 ft²
Hydraulic Length	275.00 ft
Manning's n	0.012
Slope	0.141 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	24.28 ft/s
Segment Time of Concentration	0.003 hours

Segment #4: TR-55 Sheet Flow	
Hydraulic Length	64.00 ft
Manning's n	0.013
Slope	0.023 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	1.16 ft/s
Segment Time of Concentration	0.015 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: Post A2

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post A3

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.013
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.91 ft/s
Segment Time of Concentration	0.031 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	235.00 ft
Is Paved?	True
Slope	0.010 ft/ft
Average Velocity	2.03 ft/s
Segment Time of Concentration	0.032 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.8 ft²
Hydraulic Length	445.00 ft
Manning's n	0.012
Slope	0.080 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	18.29 ft/s
Segment Time of Concentration	0.007 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: Post A3

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post A4

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.240
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.09 ft/s
Segment Time of Concentration	0.314 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	74.00 ft
Is Paved?	False
Slope	0.010 ft/ft
Average Velocity	1.61 ft/s
Segment Time of Concentration	0.013 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	88.00 ft
Is Paved?	True
Slope	0.015 ft/ft
Average Velocity	2.49 ft/s
Segment Time of Concentration	0.010 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft^2
Hydraulic Length	215.00 ft
Manning's n	0.012
Slope	0.170 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	26.66 ft/s
Segment Time of Concentration	0.002 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.339 hours

Subsection: Time of Concentration Calculations
Label: Post A4

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post A5

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	47.00 ft
Manning's n	0.240
Slope	0.255 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.28 ft/s
Segment Time of Concentration	0.047 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	53.00 ft
Manning's n	0.013
Slope	0.037 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	1.36 ft/s
Segment Time of Concentration	0.011 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	185.00 ft
Is Paved?	True
Slope	0.035 ft/ft
Average Velocity	3.80 ft/s
Segment Time of Concentration	0.014 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft²
Hydraulic Length	403.00 ft
Manning's n	0.012
Slope	0.024 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	10.02 ft/s
Segment Time of Concentration	0.011 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: Post A5

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post A6

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	47.00 ft
Manning's n	0.240
Slope	0.255 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.28 ft/s
Segment Time of Concentration	0.047 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	53.00 ft
Manning's n	0.013
Slope	0.037 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	1.36 ft/s
Segment Time of Concentration	0.011 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.035 ft/ft
Average Velocity	3.80 ft/s
Segment Time of Concentration	0.015 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft^2
Hydraulic Length	525.00 ft
Manning's n	0.012
Slope	0.023 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	9.81 ft/s
Segment Time of Concentration	0.015 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.087 hours

Subsection: Time of Concentration Calculations
Label: Post A6

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post A7

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	47.00 ft
Manning's n	0.240
Slope	0.255 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.28 ft/s
Segment Time of Concentration	0.047 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	53.00 ft
Manning's n	0.013
Slope	0.037 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	1.36 ft/s
Segment Time of Concentration	0.011 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.035 ft/ft
Average Velocity	3.80 ft/s
Segment Time of Concentration	0.015 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft²
Hydraulic Length	525.00 ft
Manning's n	0.012
Slope	0.023 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	9.81 ft/s
Segment Time of Concentration	0.015 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.087 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	47.00 ft
Manning's n	0.240
Slope	0.255 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.28 ft/s
Segment Time of Concentration	0.047 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	53.00 ft
Manning's n	0.013
Slope	0.037 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	1.36 ft/s
Segment Time of Concentration	0.011 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.035 ft/ft
Average Velocity	3.80 ft/s
Segment Time of Concentration	0.015 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft²
Hydraulic Length	625.00 ft
Manning's n	0.012
Slope	0.026 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	10.43 ft/s
Segment Time of Concentration	0.017 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.089 hours

Subsection: Time of Concentration Calculations
Label: Post A8

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post A9

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	47.00 ft
Manning's n	0.240
Slope	0.255 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.28 ft/s
Segment Time of Concentration	0.047 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	53.00 ft
Manning's n	0.013
Slope	0.037 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	1.36 ft/s
Segment Time of Concentration	0.011 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.035 ft/ft
Average Velocity	3.80 ft/s
Segment Time of Concentration	0.015 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft²
Hydraulic Length	880.00 ft
Manning's n	0.012
Slope	0.025 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	10.22 ft/s
Segment Time of Concentration	0.024 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.096 hours

Subsection: Time of Concentration Calculations
Label: Post A9

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc =

(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post B1

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.400
Slope	0.019 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.08 ft/s
Segment Time of Concentration	0.366 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	930.00 ft
Is Paved?	False
Slope	0.021 ft/ft
Average Velocity	2.34 ft/s
Segment Time of Concentration	0.110 hours

Segment #3: TR-55 Channel Flow	
Flow Area	5.0 ft²
Hydraulic Length	1,925.00 ft
Manning's n	0.050
Slope	0.044 ft/ft
Wetted Perimeter	6.83 ft
Average Velocity	5.08 ft/s
Segment Time of Concentration	0.105 hours

Segment #4: TR-55 Shallow Concentrated Flow	
Hydraulic Length	1,591.00 ft
Is Paved?	False
Slope	0.017 ft/ft
Average Velocity	2.10 ft/s
Segment Time of Concentration	0.210 hours

Segment #5: TR-55 Channel Flow	
Flow Area	5.0 ft²
Hydraulic Length	470.00 ft
Manning's n	0.050
Slope	0.004 ft/ft
Wetted Perimeter	6.83 ft
Average Velocity	1.53 ft/s
Segment Time of Concentration	0.085 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.877 hours

Subsection: Time of Concentration Calculations
Label: Post B1

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc =

(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post B10

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.240
Slope	0.058 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.18 ft/s
Segment Time of Concentration	0.156 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	136.00 ft
Is Paved?	False
Slope	0.055 ft/ft
Average Velocity	3.78 ft/s
Segment Time of Concentration	0.010 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.8 ft^2
Hydraulic Length	440.00 ft
Manning's n	0.012
Slope	0.050 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	14.46 ft/s
Segment Time of Concentration	0.008 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.174 hours

Subsection: Time of Concentration Calculations
Label: Post B10

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc =

(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post B11

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	48.00 ft
Manning's n	0.240
Slope	0.015 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.09 ft/s
Segment Time of Concentration	0.149 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	52.00 ft
Manning's n	0.013
Slope	0.015 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.94 ft/s
Segment Time of Concentration	0.015 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	75.00 ft
Is Paved?	True
Slope	0.014 ft/ft
Average Velocity	2.41 ft/s
Segment Time of Concentration	0.009 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft^2
Hydraulic Length	450.00 ft
Manning's n	0.012
Slope	0.024 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	10.02 ft/s
Segment Time of Concentration	0.012 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.185 hours

Subsection: Time of Concentration Calculations
Label: Post B11

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post B12

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.013
Slope	0.015 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	1.07 ft/s
Segment Time of Concentration	0.026 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.015 ft/ft
Average Velocity	2.49 ft/s
Segment Time of Concentration	0.022 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.8 ft^2
Hydraulic Length	430.00 ft
Manning's n	0.012
Slope	0.010 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	6.47 ft/s
Segment Time of Concentration	0.018 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: Post B12

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc =
(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post B13

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.013
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.91 ft/s
Segment Time of Concentration	0.031 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	140.00 ft
Is Paved?	True
Slope	0.029 ft/ft
Average Velocity	3.46 ft/s
Segment Time of Concentration	0.011 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.8 ft^2
Hydraulic Length	95.00 ft
Manning's n	0.012
Slope	0.015 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	7.92 ft/s
Segment Time of Concentration	0.003 hours

Segment #4: TR-55 Shallow Concentrated Flow	
Hydraulic Length	15.00 ft
Is Paved?	False
Slope	0.010 ft/ft
Average Velocity	1.61 ft/s
Segment Time of Concentration	0.003 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: Post B13

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post B2

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	19.00 ft
Manning's n	0.240
Slope	0.054 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.12 ft/s
Segment Time of Concentration	0.042 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	81.00 ft
Manning's n	0.013
Slope	0.054 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	1.72 ft/s
Segment Time of Concentration	0.013 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	170.00 ft
Is Paved?	True
Slope	0.047 ft/ft
Average Velocity	4.41 ft/s
Segment Time of Concentration	0.011 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft^2
Hydraulic Length	355.00 ft
Manning's n	0.012
Slope	0.028 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	10.82 ft/s
Segment Time of Concentration	0.009 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: Post B2

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc =

(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post B3

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	19.00 ft
Manning's n	0.240
Slope	0.054 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.12 ft/s
Segment Time of Concentration	0.042 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	81.00 ft
Manning's n	0.013
Slope	0.054 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	1.72 ft/s
Segment Time of Concentration	0.013 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	42.00 ft
Is Paved?	True
Slope	0.057 ft/ft
Average Velocity	4.85 ft/s
Segment Time of Concentration	0.002 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft^2
Hydraulic Length	605.00 ft
Manning's n	0.012
Slope	0.050 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	14.46 ft/s
Segment Time of Concentration	0.012 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: Post B3

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc =

(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post B4

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	18.00 ft
Manning's n	0.240
Slope	0.055 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.12 ft/s
Segment Time of Concentration	0.040 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	82.00 ft
Manning's n	0.013
Slope	0.055 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	1.73 ft/s
Segment Time of Concentration	0.013 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	220.00 ft
Is Paved?	True
Slope	0.050 ft/ft
Average Velocity	4.55 ft/s
Segment Time of Concentration	0.013 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft^2
Hydraulic Length	630.00 ft
Manning's n	0.012
Slope	0.057 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	15.44 ft/s
Segment Time of Concentration	0.011 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	25.00 ft
Manning's n	0.240
Slope	0.055 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.13 ft/s
Segment Time of Concentration	0.052 hours

Segment #2: TR-55 Sheet Flow	
Hydraulic Length	75.00 ft
Manning's n	0.013
Slope	0.055 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	1.70 ft/s
Segment Time of Concentration	0.012 hours

Segment #3: TR-55 Shallow Concentrated Flow	
Hydraulic Length	55.00 ft
Is Paved?	True
Slope	0.048 ft/ft
Average Velocity	4.45 ft/s
Segment Time of Concentration	0.003 hours

Segment #4: TR-55 Channel Flow	
Flow Area	1.8 ft²
Hydraulic Length	615.00 ft
Manning's n	0.012
Slope	0.052 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	14.74 ft/s
Segment Time of Concentration	0.012 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

Subsection: Time of Concentration Calculations
Label: Post B5

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc =
(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post B6

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.240
Slope	0.052 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.17 ft/s
Segment Time of Concentration	0.163 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	50.00 ft
Is Paved?	True
Slope	0.052 ft/ft
Average Velocity	4.64 ft/s
Segment Time of Concentration	0.003 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.8 ft^2
Hydraulic Length	985.00 ft
Manning's n	0.012
Slope	0.051 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	14.60 ft/s
Segment Time of Concentration	0.019 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.184 hours

Subsection: Time of Concentration Calculations
Label: Post B6

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc =
(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post B7

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.240
Slope	0.025 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.13 ft/s
Segment Time of Concentration	0.218 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	86.00 ft
Is Paved?	False
Slope	0.025 ft/ft
Average Velocity	2.55 ft/s
Segment Time of Concentration	0.009 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.8 ft²
Hydraulic Length	1,520.00 ft
Manning's n	0.012
Slope	0.040 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	12.93 ft/s
Segment Time of Concentration	0.033 hours

Segment #4: TR-55 Shallow Concentrated Flow	
Hydraulic Length	140.00 ft
Is Paved?	True
Slope	0.015 ft/ft
Average Velocity	2.49 ft/s
Segment Time of Concentration	0.016 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.276 hours

Subsection: Time of Concentration Calculations
Label: Post B7

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post B8

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.240
Slope	0.070 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.19 ft/s
Segment Time of Concentration	0.144 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	87.00 ft
Is Paved?	False
Slope	0.034 ft/ft
Average Velocity	2.98 ft/s
Segment Time of Concentration	0.008 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.8 ft^2
Hydraulic Length	1,520.00 ft
Manning's n	0.012
Slope	0.030 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	11.20 ft/s
Segment Time of Concentration	0.038 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.190 hours

Subsection: Time of Concentration Calculations
Label: Post B8

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Post B9

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.240
Slope	0.020 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.12 ft/s
Segment Time of Concentration	0.238 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	20.00 ft
Is Paved?	False
Slope	0.020 ft/ft
Average Velocity	2.28 ft/s
Segment Time of Concentration	0.002 hours

Segment #3: TR-55 Channel Flow	
Flow Area	1.8 ft²
Hydraulic Length	780.00 ft
Manning's n	0.012
Slope	0.049 ft/ft
Wetted Perimeter	4.71 ft
Average Velocity	14.31 ft/s
Segment Time of Concentration	0.015 hours

Segment #4: TR-55 Shallow Concentrated Flow	
Hydraulic Length	21.00 ft
Is Paved?	True
Slope	0.020 ft/ft
Average Velocity	2.87 ft/s
Segment Time of Concentration	0.002 hours

Segment #5: TR-55 Shallow Concentrated Flow	
Hydraulic Length	160.00 ft
Is Paved?	False
Slope	0.081 ft/ft
Average Velocity	4.59 ft/s
Segment Time of Concentration	0.010 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.267 hours

Subsection: Time of Concentration Calculations
Label: Post B9

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc =

(0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:

Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Pre A

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.400
Slope	0.010 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.06 ft/s
Segment Time of Concentration	0.473 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	2,840.00 ft
Is Paved?	False
Slope	0.036 ft/ft
Average Velocity	3.06 ft/s
Segment Time of Concentration	0.258 hours

Segment #3: TR-55 Channel Flow	
Flow Area	18.0 ft²
Hydraulic Length	5,670.00 ft
Manning's n	0.040
Slope	0.006 ft/ft
Wetted Perimeter	13.20 ft
Average Velocity	3.55 ft/s
Segment Time of Concentration	0.444 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	1.175 hours

Subsection: Time of Concentration Calculations
Label: Pre A

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Time of Concentration Calculations
Label: Pre B

Return Event: 1 years
Storm Event: 1-Year

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.400
Slope	0.019 ft/ft
2 Year 24 Hour Depth	3.2 in
Average Velocity	0.08 ft/s
Segment Time of Concentration	0.366 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	930.00 ft
Is Paved?	False
Slope	0.021 ft/ft
Average Velocity	2.34 ft/s
Segment Time of Concentration	0.110 hours

Segment #3: TR-55 Channel Flow	
Flow Area	5.0 ft²
Hydraulic Length	1,925.00 ft
Manning's n	0.050
Slope	0.044 ft/ft
Wetted Perimeter	6.83 ft
Average Velocity	5.08 ft/s
Segment Time of Concentration	0.105 hours

Segment #4: TR-55 Shallow Concentrated Flow	
Hydraulic Length	1,591.00 ft
Is Paved?	False
Slope	0.017 ft/ft
Average Velocity	2.10 ft/s
Segment Time of Concentration	0.210 hours

Segment #5: TR-55 Channel Flow	
Flow Area	5.0 ft²
Hydraulic Length	470.00 ft
Manning's n	0.050
Slope	0.004 ft/ft
Wetted Perimeter	6.83 ft
Average Velocity	1.53 ft/s
Segment Time of Concentration	0.085 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.877 hours

Subsection: Time of Concentration Calculations
Label: Pre B

Return Event: 1 years
Storm Event: 1-Year

==== 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

==== SCS TR-55 Sheet Flow

Tc = (0.007 * ((n * Lf)**0.8)) / ((P**0.5) * (Sf**0.4))

Where:
Tc= Time of concentration, hours
n= Manning's n
Lf= Flow length, feet
P= 2yr, 24hr Rain depth, inches
Sf= Slope, %

Subsection: Runoff CN-Area
Label: Post A1

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	895,027	0.0	0.0	98.000
Impervious Areas - Gravel (w/ right-of-way) - Soil D	91.000	19,907	0.0	0.0	91.000
Water	100.000	527,860	0.0	0.0	100.000
Woods - good - Soil D	77.000	24,237,525	0.0	0.0	77.000
Woods - good - Soil C	70.000	982,017	0.0	0.0	70.000
Pasture, grassland, or range - good - Soil D	80.000	5,687,499	0.0	0.0	80.000
Residential Districts - 1/3 acre - Soil D	86.000	3,676,420	0.0	0.0	86.000
Residential Districts - 1/3 acre - Soil C	81.000	673,917	0.0	0.0	81.000
Residential Districts - 1/3 acre - Soil B	72.000	220,065	0.0	0.0	72.000
Residential Districts - 1 acre - Soil D	84.000	964,331	0.0	0.0	84.000
Residential Districts - 1 acre - Soil A	51.000	272,076	0.0	0.0	51.000
Brush - brush, weed, grass mix - good - Soil D	73.000	9,945,924	0.0	0.0	73.000
Pasture, grassland, or range - good - Soil C	74.000	424,492	0.0	0.0	74.000
Residential Districts - 1/2 acre - Soil D	85.000	1,413,522	0.0	0.0	85.000
Brush - brush, weed, grass mix - good - Soil C	65.000	156,990	0.0	0.0	65.000
New Impervious Areas	98.000	46,261	0.0	0.0	98.000
New Gravel Area	91.000	102,018	0.0	0.0	91.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	8,102	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	50,253,952	(N/A)	(N/A)	77.926

Subsection: Runoff CN-Area
Label: Post A10

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	345,866	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	23,914	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	369,781	(N/A)	(N/A)	96.836

Subsection: Runoff CN-Area
Label: Post A2

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	49,876	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	37,244	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	87,120	(N/A)	(N/A)	90.305

Subsection: Runoff CN-Area
Label: Post A3

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	151,894	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	95,484	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	247,377	(N/A)	(N/A)	91.052

Subsection: Runoff CN-Area
Label: Post A4

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	158,210	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	48,569	0.0	0.0	80.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil C	74.000	24,306	0.0	0.0	74.000
Water	100.000	4,138	0.0	0.0	100.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	235,224	(N/A)	(N/A)	91.839

Subsection: Runoff CN-Area
Label: Post A5

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	185,696	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	45,651	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	231,347	(N/A)	(N/A)	94.448

Subsection: Runoff CN-Area
Label: Post A6

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	240,408	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	44,431	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	284,839	(N/A)	(N/A)	95.192

Subsection: Runoff CN-Area
Label: Post A7

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	238,447	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	51,531	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	289,979	(N/A)	(N/A)	94.801

Subsection: Runoff CN-Area
Label: Post A8

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	267,589	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	51,314	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	318,903	(N/A)	(N/A)	95.104

Subsection: Runoff CN-Area
Label: Post A9

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	336,588	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	72,876	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	409,464	(N/A)	(N/A)	94.796

Subsection: Runoff CN-Area
Label: Post B1

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	31,363	0.0	0.0	98.000
Water	100.000	109,815	0.0	0.0	100.000
Brush - brush, weed, grass mix - good - Soil D	73.000	1,571,993	0.0	0.0	73.000
Woods - good - Soil D	77.000	2,422,894	0.0	0.0	77.000
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	65,253	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	19,994	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	4,221,312	(N/A)	(N/A)	76.604

Subsection: Runoff CN-Area
Label: Post B10

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	39,552	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	45,085	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	84,637	(N/A)	(N/A)	88.412

Subsection: Runoff CN-Area
Label: Post B11

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	74,749	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	49,484	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	124,233	(N/A)	(N/A)	90.830

Subsection: Runoff CN-Area
Label: Post B12

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	172,454	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	37,810	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	210,264	(N/A)	(N/A)	94.763

Subsection: Runoff CN-Area
Label: Post B13

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	54,798	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	74,575	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	129,373	(N/A)	(N/A)	87.624

Subsection: Runoff CN-Area
Label: Post B2

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	22,303	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	26,833	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	49,136	(N/A)	(N/A)	88.170

Subsection: Runoff CN-Area
Label: Post B3

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	29,272	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	28,401	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	57,673	(N/A)	(N/A)	89.136

Subsection: Runoff CN-Area
Label: Post B4

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	30,971	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	43,081	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	74,052	(N/A)	(N/A)	87.528

Subsection: Runoff CN-Area
Label: Post B5

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	26,092	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	36,808	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	62,901	(N/A)	(N/A)	87.467

Subsection: Runoff CN-Area
Label: Post B6

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	73,268	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	72,310	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	145,578	(N/A)	(N/A)	89.059

Subsection: Runoff CN-Area
Label: Post B7

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	584,445	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	523,635	0.0	0.0	80.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil C	74.000	64,904	0.0	0.0	74.000
Water	100.000	16,771	0.0	0.0	100.000
Impervious Areas - Gravel (w/ right-of-way) - Soil D	91.000	17,772	0.0	0.0	91.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	1,207,527	(N/A)	(N/A)	88.829

Subsection: Runoff CN-Area
Label: Post B8

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	303,831	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	406,502	0.0	0.0	80.000
Water	100.000	10,237	0.0	0.0	100.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	720,570	(N/A)	(N/A)	87.874

Subsection: Runoff CN-Area
Label: Post B9

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	149,454	0.0	0.0	98.000
Open space (Lawns,parks etc.) - Good condition; grass cover > 75% - Soil D	80.000	122,839	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	272,294	(N/A)	(N/A)	89.880

Subsection: Runoff CN-Area
Label: Pre A

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	895,027	0.0	0.0	98.000
Impervious Areas - Gravel (w/ right-of-way) - Soil D	91.000	57,238	0.0	0.0	91.000
Water	100.000	527,860	0.0	0.0	100.000
Woods - good - Soil D	77.000	26,244,726	0.0	0.0	77.000
Woods - good - Soil C	70.000	1,228,392	0.0	0.0	70.000
Pasture, grassland, or range - good - Soil D	80.000	5,838,913	0.0	0.0	80.000
Residential Districts - 1/3 acre - Soil D	86.000	3,676,420	0.0	0.0	86.000
Residential Districts - 1/3 acre - Soil C	81.000	673,917	0.0	0.0	81.000
Residential Districts - 1/3 acre - Soil B	72.000	220,065	0.0	0.0	72.000
Residential Districts - 1 acre - Soil D	84.000	964,331	0.0	0.0	84.000
Residential Districts - 1 acre - Soil A	51.000	272,076	0.0	0.0	51.000
Brush - brush, weed, grass mix - good - Soil D	73.000	10,384,573	0.0	0.0	73.000
Pasture, grassland, or range - good - Soil C	74.000	424,492	0.0	0.0	74.000
Residential Districts - 1/2 acre - Soil D	85.000	1,413,522	0.0	0.0	85.000
Brush - brush, weed, grass mix - good - Soil C	65.000	156,990	0.0	0.0	65.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	52,978,543	(N/A)	(N/A)	77.786

Subsection: Runoff CN-Area
Label: Pre B

Return Event: 1 years
Storm Event: 1-Year

Runoff Curve Number Data

Soil/Surface Description	CN	Area (ft²)	C (%)	UC (%)	Adjusted CN
Impervious Areas - Paved parking lots, roofs, driveways, Streets and roads - Soil D	98.000	108,072	0.0	0.0	98.000
Water	100.000	109,815	0.0	0.0	100.000
Brush - brush, weed, grass mix - good - Soil D	73.000	2,353,460	0.0	0.0	73.000
Woods - good - Soil D	77.000	3,865,035	0.0	0.0	77.000
Woods - good - Soil C	70.000	171,321	0.0	0.0	70.000
Pasture, grassland, or range - good - Soil D	80.000	573,598	0.0	0.0	80.000
COMPOSITE AREA & WEIGHTED CN --->	(N/A)	7,181,302	(N/A)	(N/A)	76.429

Subsection: Unit Hydrograph Summary
Label: Post A1

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	1.175 hours
Area (User Defined)	50,253,952 ft²

Computational Time Increment	0.157 hours
Time to Peak (Computed)	12.842 hours
Flow (Peak, Computed)	402.25 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.850 hours
Flow (Peak Interpolated Output)	401.59 ft³/s

Drainage Area	
SCS CN (Composite)	78.000
Area (User Defined)	50,253,952 ft²
Maximum Retention (Pervious)	2.8 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.9 in
Runoff Volume (Pervious)	85.256 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	85.256 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	1.175 hours
Computational Time Increment	0.157 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1,112.87 ft³/s
Unit peak time, Tp	0.783 hours
Unit receding limb, Tr	3.132 hours
Total unit time, Tb	3.915 hours

Subsection: Unit Hydrograph Summary
Label: Post A1

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	1.175 hours
Area (User Defined)	50,253,952 ft²

Computational Time Increment	0.157 hours
Time to Peak (Computed)	12.842 hours
Flow (Peak, Computed)	1,193.40 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.850 hours
Flow (Peak Interpolated Output)	1,189.82 ft³/s

Drainage Area	
SCS CN (Composite)	78.000
Area (User Defined)	50,253,952 ft²
Maximum Retention (Pervious)	2.8 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.5 in
Runoff Volume (Pervious)	239.621 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	239.619 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	1.175 hours
Computational Time Increment	0.157 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1,112.87 ft³/s
Unit peak time, Tp	0.783 hours
Unit receding limb, Tr	3.132 hours
Total unit time, Tb	3.915 hours

Subsection: Unit Hydrograph Summary
Label: Post A1

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	1.175 hours
Area (User Defined)	50,253,952 ft²

Computational Time Increment	0.157 hours
Time to Peak (Computed)	12.842 hours
Flow (Peak, Computed)	2,738.14 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.800 hours
Flow (Peak Interpolated Output)	2,732.32 ft³/s

Drainage Area	
SCS CN (Composite)	78.000
Area (User Defined)	50,253,952 ft²
Maximum Retention (Pervious)	2.8 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.8 in
Runoff Volume (Pervious)	553.946 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	553.937 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	1.175 hours
Computational Time Increment	0.157 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1,112.87 ft³/s
Unit peak time, Tp	0.783 hours
Unit receding limb, Tr	3.132 hours
Total unit time, Tb	3.915 hours

Subsection: Unit Hydrograph Summary
Label: Post A10

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.141 hours
Area (User Defined)	369,781 ft²

Computational Time Increment	0.019 hours
Time to Peak (Computed)	12.121 hours
Flow (Peak, Computed)	17.57 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	17.44 ft³/s

Drainage Area	
SCS CN (Composite)	97.000
Area (User Defined)	369,781 ft²
Maximum Retention (Pervious)	0.3 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.3 in
Runoff Volume (Pervious)	1.635 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.635 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.141 hours
Computational Time Increment	0.019 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	68.03 ft³/s
Unit peak time, Tp	0.094 hours
Unit receding limb, Tr	0.377 hours
Total unit time, Tb	0.471 hours

Subsection: Unit Hydrograph Summary
Label: Post A10

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.141 hours
Area (User Defined)	369,781 ft²

Computational Time Increment	0.019 hours
Time to Peak (Computed)	12.121 hours
Flow (Peak, Computed)	32.22 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	32.01 ft³/s

Drainage Area	
SCS CN (Composite)	97.000
Area (User Defined)	369,781 ft²
Maximum Retention (Pervious)	0.3 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.4 in
Runoff Volume (Pervious)	3.104 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.104 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.141 hours
Computational Time Increment	0.019 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	68.03 ft³/s
Unit peak time, Tp	0.094 hours
Unit receding limb, Tr	0.377 hours
Total unit time, Tb	0.471 hours

Subsection: Unit Hydrograph Summary
Label: Post A10

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.141 hours
Area (User Defined)	369,781 ft²

Computational Time Increment	0.019 hours
Time to Peak (Computed)	12.121 hours
Flow (Peak, Computed)	57.62 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	57.28 ft³/s

Drainage Area	
SCS CN (Composite)	97.000
Area (User Defined)	369,781 ft²
Maximum Retention (Pervious)	0.3 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	8.0 in
Runoff Volume (Pervious)	5.688 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	5.687 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.141 hours
Computational Time Increment	0.019 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	68.03 ft³/s
Unit peak time, Tp	0.094 hours
Unit receding limb, Tr	0.377 hours
Total unit time, Tb	0.471 hours

Subsection: Unit Hydrograph Summary
Label: Post A2

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	87,120 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	3.42 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	3.42 ft³/s

Drainage Area	
SCS CN (Composite)	90.000
Area (User Defined)	87,120 ft²
Maximum Retention (Pervious)	1.1 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.7 in
Runoff Volume (Pervious)	0.278 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.278 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	27.19 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post A2

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	87,120 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	7.14 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	7.14 ft³/s

Drainage Area	
SCS CN (Composite)	90.000
Area (User Defined)	87,120 ft²
Maximum Retention (Pervious)	1.1 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.6 in
Runoff Volume (Pervious)	0.604 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.604 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	27.19 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post A2

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	87,120 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	13.56 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	13.56 ft³/s

Drainage Area	
SCS CN (Composite)	90.000
Area (User Defined)	87,120 ft²
Maximum Retention (Pervious)	1.1 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.2 in
Runoff Volume (Pervious)	1.200 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.200 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	27.19 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post A3

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	247,377 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	10.11 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	10.11 ft³/s

Drainage Area	
SCS CN (Composite)	91.000
Area (User Defined)	247,377 ft²
Maximum Retention (Pervious)	1.0 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.7 in
Runoff Volume (Pervious)	0.827 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.827 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	77.21 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post A3

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	247,377 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	20.67 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	20.67 ft³/s

Drainage Area	
SCS CN (Composite)	91.000
Area (User Defined)	247,377 ft²
Maximum Retention (Pervious)	1.0 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.7 in
Runoff Volume (Pervious)	1.765 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.765 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	77.21 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post A3

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	247,377 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	38.82 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	38.82 ft³/s

Drainage Area	
SCS CN (Composite)	91.000
Area (User Defined)	247,377 ft²
Maximum Retention (Pervious)	1.0 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.3 in
Runoff Volume (Pervious)	3.464 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.464 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	77.21 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post A4

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.339 hours
Area (User Defined)	235,224 ft²

Computational Time Increment	0.045 hours
Time to Peak (Computed)	12.253 hours
Flow (Peak, Computed)	7.49 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.250 hours
Flow (Peak Interpolated Output)	7.49 ft³/s

Drainage Area	
SCS CN (Composite)	92.000
Area (User Defined)	235,224 ft²
Maximum Retention (Pervious)	0.9 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.8 in
Runoff Volume (Pervious)	0.825 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.825 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.339 hours
Computational Time Increment	0.045 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	18.04 ft³/s
Unit peak time, Tp	0.226 hours
Unit receding limb, Tr	0.904 hours
Total unit time, Tb	1.130 hours

Subsection: Unit Hydrograph Summary
Label: Post A4

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.339 hours
Area (User Defined)	235,224 ft²

Computational Time Increment	0.045 hours
Time to Peak (Computed)	12.208 hours
Flow (Peak, Computed)	15.18 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.250 hours
Flow (Peak Interpolated Output)	15.14 ft³/s

Drainage Area	
SCS CN (Composite)	92.000
Area (User Defined)	235,224 ft²
Maximum Retention (Pervious)	0.9 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.8 in
Runoff Volume (Pervious)	1.726 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.726 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.339 hours
Computational Time Increment	0.045 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	18.04 ft³/s
Unit peak time, Tp	0.226 hours
Unit receding limb, Tr	0.904 hours
Total unit time, Tb	1.130 hours

Subsection: Unit Hydrograph Summary
Label: Post A4

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.339 hours
Area (User Defined)	235,224 ft²

Computational Time Increment	0.045 hours
Time to Peak (Computed)	12.208 hours
Flow (Peak, Computed)	28.45 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.250 hours
Flow (Peak Interpolated Output)	28.29 ft³/s

Drainage Area	
SCS CN (Composite)	92.000
Area (User Defined)	235,224 ft²
Maximum Retention (Pervious)	0.9 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.4 in
Runoff Volume (Pervious)	3.348 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.348 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.339 hours
Computational Time Increment	0.045 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	18.04 ft³/s
Unit peak time, Tp	0.226 hours
Unit receding limb, Tr	0.904 hours
Total unit time, Tb	1.130 hours

Subsection: Unit Hydrograph Summary
Label: Post A5

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	231,347 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	10.55 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	10.55 ft³/s

Drainage Area	
SCS CN (Composite)	94.000
Area (User Defined)	231,347 ft²
Maximum Retention (Pervious)	0.6 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	0.891 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.891 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	72.21 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post A5

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	231,347 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	20.29 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	20.29 ft³/s

Drainage Area	
SCS CN (Composite)	94.000
Area (User Defined)	231,347 ft²
Maximum Retention (Pervious)	0.6 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.1 in
Runoff Volume (Pervious)	1.793 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.793 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	72.21 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post A5

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	231,347 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	37.03 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	37.03 ft³/s

Drainage Area	
SCS CN (Composite)	94.000
Area (User Defined)	231,347 ft²
Maximum Retention (Pervious)	0.6 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.7 in
Runoff Volume (Pervious)	3.399 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.399 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	72.21 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post A6

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.087 hours
Area (User Defined)	284,839 ft²

Computational Time Increment	0.012 hours
Time to Peak (Computed)	12.104 hours
Flow (Peak, Computed)	13.36 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	13.35 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	284,839 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	1.149 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.149 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.087 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	84.79 ft³/s
Unit peak time, Tp	0.058 hours
Unit receding limb, Tr	0.233 hours
Total unit time, Tb	0.291 hours

Subsection: Unit Hydrograph Summary
Label: Post A6

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.087 hours
Area (User Defined)	284,839 ft²

Computational Time Increment	0.012 hours
Time to Peak (Computed)	12.104 hours
Flow (Peak, Computed)	25.22 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	25.22 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	284,839 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.2 in
Runoff Volume (Pervious)	2.268 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.268 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.087 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	84.79 ft³/s
Unit peak time, Tp	0.058 hours
Unit receding limb, Tr	0.233 hours
Total unit time, Tb	0.291 hours

Subsection: Unit Hydrograph Summary
Label: Post A6

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.087 hours
Area (User Defined)	284,839 ft²

Computational Time Increment	0.012 hours
Time to Peak (Computed)	12.093 hours
Flow (Peak, Computed)	45.69 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	45.67 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	284,839 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.8 in
Runoff Volume (Pervious)	4.250 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	4.250 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.087 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	84.79 ft³/s
Unit peak time, Tp	0.058 hours
Unit receding limb, Tr	0.233 hours
Total unit time, Tb	0.291 hours

Subsection: Unit Hydrograph Summary
Label: Post A7

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.087 hours
Area (User Defined)	289,979 ft²

Computational Time Increment	0.012 hours
Time to Peak (Computed)	12.104 hours
Flow (Peak, Computed)	13.60 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	13.59 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	289,979 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	1.170 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.170 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.087 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	86.32 ft³/s
Unit peak time, Tp	0.058 hours
Unit receding limb, Tr	0.233 hours
Total unit time, Tb	0.291 hours

Subsection: Unit Hydrograph Summary
Label: Post A7

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.087 hours
Area (User Defined)	289,979 ft²

Computational Time Increment	0.012 hours
Time to Peak (Computed)	12.104 hours
Flow (Peak, Computed)	25.68 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	25.68 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	289,979 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.2 in
Runoff Volume (Pervious)	2.309 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.309 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.087 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	86.32 ft³/s
Unit peak time, Tp	0.058 hours
Unit receding limb, Tr	0.233 hours
Total unit time, Tb	0.291 hours

Subsection: Unit Hydrograph Summary
Label: Post A7

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.087 hours
Area (User Defined)	289,979 ft²

Computational Time Increment	0.012 hours
Time to Peak (Computed)	12.093 hours
Flow (Peak, Computed)	46.51 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	46.49 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	289,979 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.8 in
Runoff Volume (Pervious)	4.327 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	4.327 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.087 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	86.32 ft³/s
Unit peak time, Tp	0.058 hours
Unit receding limb, Tr	0.233 hours
Total unit time, Tb	0.291 hours

Subsection: Unit Hydrograph Summary
Label: Post A8

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.089 hours
Area (User Defined)	318,903 ft²

Computational Time Increment	0.012 hours
Time to Peak (Computed)	12.101 hours
Flow (Peak, Computed)	14.95 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	14.95 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	318,903 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	1.286 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.286 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.089 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	93.04 ft³/s
Unit peak time, Tp	0.059 hours
Unit receding limb, Tr	0.238 hours
Total unit time, Tb	0.297 hours

Subsection: Unit Hydrograph Summary
Label: Post A8

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.089 hours
Area (User Defined)	318,903 ft²

Computational Time Increment	0.012 hours
Time to Peak (Computed)	12.101 hours
Flow (Peak, Computed)	28.26 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	28.25 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	318,903 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.2 in
Runoff Volume (Pervious)	2.539 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.539 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.089 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	93.04 ft³/s
Unit peak time, Tp	0.059 hours
Unit receding limb, Tr	0.238 hours
Total unit time, Tb	0.297 hours

Subsection: Unit Hydrograph Summary
Label: Post A8

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.089 hours
Area (User Defined)	318,903 ft²

Computational Time Increment	0.012 hours
Time to Peak (Computed)	12.101 hours
Flow (Peak, Computed)	51.16 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	51.15 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	318,903 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.8 in
Runoff Volume (Pervious)	4.759 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	4.759 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.089 hours
Computational Time Increment	0.012 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	93.04 ft³/s
Unit peak time, Tp	0.059 hours
Unit receding limb, Tr	0.238 hours
Total unit time, Tb	0.297 hours

Subsection: Unit Hydrograph Summary
Label: Post A9

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.096 hours
Area (User Defined)	409,464 ft²

Computational Time Increment	0.013 hours
Time to Peak (Computed)	12.097 hours
Flow (Peak, Computed)	19.09 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	19.09 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	409,464 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	1.652 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.652 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.096 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	110.47 ft³/s
Unit peak time, Tp	0.064 hours
Unit receding limb, Tr	0.257 hours
Total unit time, Tb	0.321 hours

Subsection: Unit Hydrograph Summary
Label: Post A9

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.096 hours
Area (User Defined)	409,464 ft²

Computational Time Increment	0.013 hours
Time to Peak (Computed)	12.097 hours
Flow (Peak, Computed)	36.13 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	36.11 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	409,464 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.2 in
Runoff Volume (Pervious)	3.260 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.260 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.096 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	110.47 ft³/s
Unit peak time, Tp	0.064 hours
Unit receding limb, Tr	0.257 hours
Total unit time, Tb	0.321 hours

Subsection: Unit Hydrograph Summary
Label: Post A9

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.096 hours
Area (User Defined)	409,464 ft²

Computational Time Increment	0.013 hours
Time to Peak (Computed)	12.097 hours
Flow (Peak, Computed)	65.45 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	65.41 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	409,464 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.8 in
Runoff Volume (Pervious)	6.110 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	6.110 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.096 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	110.47 ft³/s
Unit peak time, Tp	0.064 hours
Unit receding limb, Tr	0.257 hours
Total unit time, Tb	0.321 hours

Subsection: Unit Hydrograph Summary
Label: Post B1

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.877 hours
Area (User Defined)	4,221,312 ft²

Computational Time Increment	0.117 hours
Time to Peak (Computed)	12.630 hours
Flow (Peak, Computed)	37.58 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.650 hours
Flow (Peak Interpolated Output)	37.46 ft³/s

Drainage Area	
SCS CN (Composite)	77.000
Area (User Defined)	4,221,312 ft²
Maximum Retention (Pervious)	3.0 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.8 in
Runoff Volume (Pervious)	6.751 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	6.751 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.877 hours
Computational Time Increment	0.117 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	125.19 ft³/s
Unit peak time, Tp	0.585 hours
Unit receding limb, Tr	2.339 hours
Total unit time, Tb	2.924 hours

Subsection: Unit Hydrograph Summary
Label: Post B1

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.877 hours
Area (User Defined)	4,221,312 ft²

Computational Time Increment	0.117 hours
Time to Peak (Computed)	12.630 hours
Flow (Peak, Computed)	115.34 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.650 hours
Flow (Peak Interpolated Output)	114.40 ft³/s

Drainage Area	
SCS CN (Composite)	77.000
Area (User Defined)	4,221,312 ft²
Maximum Retention (Pervious)	3.0 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.4 in
Runoff Volume (Pervious)	19.438 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	19.438 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.877 hours
Computational Time Increment	0.117 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	125.19 ft³/s
Unit peak time, Tp	0.585 hours
Unit receding limb, Tr	2.339 hours
Total unit time, Tb	2.924 hours

Subsection: Unit Hydrograph Summary
Label: Post B1

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.877 hours
Area (User Defined)	4,221,312 ft²

Computational Time Increment	0.117 hours
Time to Peak (Computed)	12.630 hours
Flow (Peak, Computed)	268.85 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.600 hours
Flow (Peak Interpolated Output)	267.84 ft³/s

Drainage Area	
SCS CN (Composite)	77.000
Area (User Defined)	4,221,312 ft²
Maximum Retention (Pervious)	3.0 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.6 in
Runoff Volume (Pervious)	45.567 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	45.567 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.877 hours
Computational Time Increment	0.117 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	125.19 ft³/s
Unit peak time, Tp	0.585 hours
Unit receding limb, Tr	2.339 hours
Total unit time, Tb	2.924 hours

Subsection: Unit Hydrograph Summary
Label: Post B10

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.174 hours
Area (User Defined)	84,637 ft²

Computational Time Increment	0.023 hours
Time to Peak (Computed)	12.136 hours
Flow (Peak, Computed)	2.76 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	2.74 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	84,637 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.5 in
Runoff Volume (Pervious)	0.245 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.245 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.174 hours
Computational Time Increment	0.023 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	12.65 ft³/s
Unit peak time, Tp	0.116 hours
Unit receding limb, Tr	0.464 hours
Total unit time, Tb	0.580 hours

Subsection: Unit Hydrograph Summary
Label: Post B10

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.174 hours
Area (User Defined)	84,637 ft²
Computational Time Increment	0.023 hours
Time to Peak (Computed)	12.136 hours
Flow (Peak, Computed)	6.10 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	6.04 ft³/s
Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	84,637 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.4 in
Runoff Volume (Pervious)	0.554 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.554 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.174 hours
Computational Time Increment	0.023 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	12.65 ft³/s
Unit peak time, Tp	0.116 hours
Unit receding limb, Tr	0.464 hours
Total unit time, Tb	0.580 hours

Subsection: Unit Hydrograph Summary
Label: Post B10

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.174 hours
Area (User Defined)	84,637 ft²
Computational Time Increment	0.023 hours
Time to Peak (Computed)	12.136 hours
Flow (Peak, Computed)	11.95 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	11.80 ft³/s
Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	84,637 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in
Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.0 in
Runoff Volume (Pervious)	1.127 ac-ft
Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.127 ac-ft
SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.174 hours
Computational Time Increment	0.023 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	12.65 ft³/s
Unit peak time, Tp	0.116 hours
Unit receding limb, Tr	0.464 hours
Total unit time, Tb	0.580 hours

Subsection: Unit Hydrograph Summary
Label: Post B11

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.185 hours
Area (User Defined)	124,233 ft²

Computational Time Increment	0.025 hours
Time to Peak (Computed)	12.140 hours
Flow (Peak, Computed)	4.57 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	4.55 ft³/s

Drainage Area	
SCS CN (Composite)	91.000
Area (User Defined)	124,233 ft²
Maximum Retention (Pervious)	1.0 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.7 in
Runoff Volume (Pervious)	0.415 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.415 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.185 hours
Computational Time Increment	0.025 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	17.46 ft³/s
Unit peak time, Tp	0.123 hours
Unit receding limb, Tr	0.493 hours
Total unit time, Tb	0.617 hours

Subsection: Unit Hydrograph Summary
Label: Post B11

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.185 hours
Area (User Defined)	124,233 ft²

Computational Time Increment	0.025 hours
Time to Peak (Computed)	12.140 hours
Flow (Peak, Computed)	9.44 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	9.37 ft³/s

Drainage Area	
SCS CN (Composite)	91.000
Area (User Defined)	124,233 ft²
Maximum Retention (Pervious)	1.0 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.7 in
Runoff Volume (Pervious)	0.887 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.886 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.185 hours
Computational Time Increment	0.025 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	17.46 ft³/s
Unit peak time, Tp	0.123 hours
Unit receding limb, Tr	0.493 hours
Total unit time, Tb	0.617 hours

Subsection: Unit Hydrograph Summary
Label: Post B11

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.185 hours
Area (User Defined)	124,233 ft²

Computational Time Increment	0.025 hours
Time to Peak (Computed)	12.140 hours
Flow (Peak, Computed)	17.83 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	17.67 ft³/s

Drainage Area	
SCS CN (Composite)	91.000
Area (User Defined)	124,233 ft²
Maximum Retention (Pervious)	1.0 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.3 in
Runoff Volume (Pervious)	1.740 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.740 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.185 hours
Computational Time Increment	0.025 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	17.46 ft³/s
Unit peak time, Tp	0.123 hours
Unit receding limb, Tr	0.493 hours
Total unit time, Tb	0.617 hours

Subsection: Unit Hydrograph Summary
Label: Post B12

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	210,264 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	9.89 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	9.89 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	210,264 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.1 in
Runoff Volume (Pervious)	0.848 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.848 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	65.63 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B12

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	210,264 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	18.68 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	18.68 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	210,264 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.2 in
Runoff Volume (Pervious)	1.674 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.674 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	65.63 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B12

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	210,264 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	33.82 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	33.82 ft³/s

Drainage Area	
SCS CN (Composite)	95.000
Area (User Defined)	210,264 ft²
Maximum Retention (Pervious)	0.5 in
Maximum Retention (Pervious, 20 percent)	0.1 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.8 in
Runoff Volume (Pervious)	3.137 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.137 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	65.63 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B13

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	129,373 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	4.66 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	4.65 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	129,373 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.5 in
Runoff Volume (Pervious)	0.374 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.374 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	40.38 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B13

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	129,373 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	10.17 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	10.17 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	129,373 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.4 in
Runoff Volume (Pervious)	0.847 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.847 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	40.38 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B13

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	129,373 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	19.77 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	19.77 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	129,373 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.0 in
Runoff Volume (Pervious)	1.722 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.722 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	40.38 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B2

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	49,136 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	1.77 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	1.77 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	49,136 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.5 in
Runoff Volume (Pervious)	0.142 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.142 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	15.34 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B2

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	49,136 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	3.86 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	3.86 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	49,136 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.4 in
Runoff Volume (Pervious)	0.322 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.322 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	15.34 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B2

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	49,136 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	7.51 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	7.51 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	49,136 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.0 in
Runoff Volume (Pervious)	0.654 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.654 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	15.34 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B3

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	57,673 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	2.17 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	2.17 ft³/s

Drainage Area	
SCS CN (Composite)	89.000
Area (User Defined)	57,673 ft²
Maximum Retention (Pervious)	1.2 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.6 in
Runoff Volume (Pervious)	0.175 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.175 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	18.00 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B3

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	57,673 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	4.63 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	4.63 ft³/s

Drainage Area	
SCS CN (Composite)	89.000
Area (User Defined)	57,673 ft²
Maximum Retention (Pervious)	1.2 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.5 in
Runoff Volume (Pervious)	0.389 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.389 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	18.00 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B3

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	57,673 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	8.90 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	8.90 ft³/s

Drainage Area	
SCS CN (Composite)	89.000
Area (User Defined)	57,673 ft²
Maximum Retention (Pervious)	1.2 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.1 in
Runoff Volume (Pervious)	0.781 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.781 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	18.00 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B4

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	74,052 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	2.67 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	2.66 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	74,052 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.5 in
Runoff Volume (Pervious)	0.214 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.214 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	23.11 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B4

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	74,052 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	5.82 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	5.82 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	74,052 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.4 in
Runoff Volume (Pervious)	0.485 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.485 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	23.11 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B4

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	74,052 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	11.32 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	11.32 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	74,052 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.0 in
Runoff Volume (Pervious)	0.986 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.986 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	23.11 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B5

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	62,901 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	2.16 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	2.16 ft³/s

Drainage Area	
SCS CN (Composite)	87.000
Area (User Defined)	62,901 ft²
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.4 in
Runoff Volume (Pervious)	0.173 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.173 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	19.63 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B5

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	62,901 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	4.83 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	4.83 ft³/s

Drainage Area	
SCS CN (Composite)	87.000
Area (User Defined)	62,901 ft²
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.3 in
Runoff Volume (Pervious)	0.400 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.400 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	19.63 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B5

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	62,901 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.100 hours
Flow (Peak, Computed)	9.52 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	9.52 ft³/s

Drainage Area	
SCS CN (Composite)	87.000
Area (User Defined)	62,901 ft²
Maximum Retention (Pervious)	1.5 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.8 in
Runoff Volume (Pervious)	0.823 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.823 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	19.63 ft³/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph Summary
Label: Post B6

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.184 hours
Area (User Defined)	145,578 ft²

Computational Time Increment	0.025 hours
Time to Peak (Computed)	12.138 hours
Flow (Peak, Computed)	4.90 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	4.88 ft³/s

Drainage Area	
SCS CN (Composite)	89.000
Area (User Defined)	145,578 ft²
Maximum Retention (Pervious)	1.2 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.6 in
Runoff Volume (Pervious)	0.442 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.442 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.184 hours
Computational Time Increment	0.025 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	20.55 ft³/s
Unit peak time, Tp	0.123 hours
Unit receding limb, Tr	0.491 hours
Total unit time, Tb	0.614 hours

Subsection: Unit Hydrograph Summary
Label: Post B6

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.184 hours
Area (User Defined)	145,578 ft²

Computational Time Increment	0.025 hours
Time to Peak (Computed)	12.138 hours
Flow (Peak, Computed)	10.61 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	10.53 ft³/s

Drainage Area	
SCS CN (Composite)	89.000
Area (User Defined)	145,578 ft²
Maximum Retention (Pervious)	1.2 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.5 in
Runoff Volume (Pervious)	0.981 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.981 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.184 hours
Computational Time Increment	0.025 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	20.55 ft³/s
Unit peak time, Tp	0.123 hours
Unit receding limb, Tr	0.491 hours
Total unit time, Tb	0.614 hours

Subsection: Unit Hydrograph Summary
Label: Post B6

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.184 hours
Area (User Defined)	145,578 ft²

Computational Time Increment	0.025 hours
Time to Peak (Computed)	12.138 hours
Flow (Peak, Computed)	20.52 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	20.34 ft³/s

Drainage Area	
SCS CN (Composite)	89.000
Area (User Defined)	145,578 ft²
Maximum Retention (Pervious)	1.2 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.1 in
Runoff Volume (Pervious)	1.972 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.971 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.184 hours
Computational Time Increment	0.025 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	20.55 ft³/s
Unit peak time, Tp	0.123 hours
Unit receding limb, Tr	0.491 hours
Total unit time, Tb	0.614 hours

Subsection: Unit Hydrograph Summary
Label: Post B7

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.276 hours
Area (User Defined)	1,207,527 ft²

Computational Time Increment	0.037 hours
Time to Peak (Computed)	12.196 hours
Flow (Peak, Computed)	36.37 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.200 hours
Flow (Peak Interpolated Output)	36.28 ft³/s

Drainage Area	
SCS CN (Composite)	89.000
Area (User Defined)	1,207,527 ft²
Maximum Retention (Pervious)	1.2 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.6 in
Runoff Volume (Pervious)	3.665 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.665 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.276 hours
Computational Time Increment	0.037 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	114.01 ft³/s
Unit peak time, Tp	0.184 hours
Unit receding limb, Tr	0.735 hours
Total unit time, Tb	0.918 hours

Subsection: Unit Hydrograph Summary
Label: Post B7

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.276 hours
Area (User Defined)	1,207,527 ft²

Computational Time Increment	0.037 hours
Time to Peak (Computed)	12.196 hours
Flow (Peak, Computed)	78.96 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.200 hours
Flow (Peak Interpolated Output)	78.69 ft³/s

Drainage Area	
SCS CN (Composite)	89.000
Area (User Defined)	1,207,527 ft²
Maximum Retention (Pervious)	1.2 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.5 in
Runoff Volume (Pervious)	8.140 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	8.140 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.276 hours
Computational Time Increment	0.037 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	114.01 ft³/s
Unit peak time, Tp	0.184 hours
Unit receding limb, Tr	0.735 hours
Total unit time, Tb	0.918 hours

Subsection: Unit Hydrograph Summary
Label: Post B7

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.276 hours
Area (User Defined)	1,207,527 ft²

Computational Time Increment	0.037 hours
Time to Peak (Computed)	12.196 hours
Flow (Peak, Computed)	153.01 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.200 hours
Flow (Peak Interpolated Output)	152.41 ft³/s

Drainage Area	
SCS CN (Composite)	89.000
Area (User Defined)	1,207,527 ft²
Maximum Retention (Pervious)	1.2 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.1 in
Runoff Volume (Pervious)	16.354 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	16.355 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.276 hours
Computational Time Increment	0.037 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	114.01 ft³/s
Unit peak time, Tp	0.184 hours
Unit receding limb, Tr	0.735 hours
Total unit time, Tb	0.918 hours

Subsection: Unit Hydrograph Summary
Label: Post B8

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.190 hours
Area (User Defined)	720,570 ft²

Computational Time Increment	0.025 hours
Time to Peak (Computed)	12.144 hours
Flow (Peak, Computed)	22.99 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	22.93 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	720,570 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.5 in
Runoff Volume (Pervious)	2.083 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2.083 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.190 hours
Computational Time Increment	0.025 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	98.57 ft³/s
Unit peak time, Tp	0.127 hours
Unit receding limb, Tr	0.507 hours
Total unit time, Tb	0.634 hours

Subsection: Unit Hydrograph Summary
Label: Post B8

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.190 hours
Area (User Defined)	720,570 ft²

Computational Time Increment	0.025 hours
Time to Peak (Computed)	12.144 hours
Flow (Peak, Computed)	50.98 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	50.76 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	720,570 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.4 in
Runoff Volume (Pervious)	4.718 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	4.718 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.190 hours
Computational Time Increment	0.025 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	98.57 ft³/s
Unit peak time, Tp	0.127 hours
Unit receding limb, Tr	0.507 hours
Total unit time, Tb	0.634 hours

Subsection: Unit Hydrograph Summary
Label: Post B8

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.190 hours
Area (User Defined)	720,570 ft²

Computational Time Increment	0.025 hours
Time to Peak (Computed)	12.144 hours
Flow (Peak, Computed)	99.89 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.150 hours
Flow (Peak Interpolated Output)	99.36 ft³/s

Drainage Area	
SCS CN (Composite)	88.000
Area (User Defined)	720,570 ft²
Maximum Retention (Pervious)	1.4 in
Maximum Retention (Pervious, 20 percent)	0.3 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.0 in
Runoff Volume (Pervious)	9.594 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	9.594 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.190 hours
Computational Time Increment	0.025 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	98.57 ft³/s
Unit peak time, Tp	0.127 hours
Unit receding limb, Tr	0.507 hours
Total unit time, Tb	0.634 hours

Subsection: Unit Hydrograph Summary
Label: Post B9

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.267 hours
Area (User Defined)	272,294 ft²

Computational Time Increment	0.036 hours
Time to Peak (Computed)	12.198 hours
Flow (Peak, Computed)	8.66 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.200 hours
Flow (Peak Interpolated Output)	8.64 ft³/s

Drainage Area	
SCS CN (Composite)	90.000
Area (User Defined)	272,294 ft²
Maximum Retention (Pervious)	1.1 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	1.7 in
Runoff Volume (Pervious)	0.868 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.868 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.267 hours
Computational Time Increment	0.036 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	26.48 ft³/s
Unit peak time, Tp	0.178 hours
Unit receding limb, Tr	0.713 hours
Total unit time, Tb	0.892 hours

Subsection: Unit Hydrograph Summary
Label: Post B9

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.267 hours
Area (User Defined)	272,294 ft²

Computational Time Increment	0.036 hours
Time to Peak (Computed)	12.198 hours
Flow (Peak, Computed)	18.33 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.200 hours
Flow (Peak Interpolated Output)	18.28 ft³/s

Drainage Area	
SCS CN (Composite)	90.000
Area (User Defined)	272,294 ft²
Maximum Retention (Pervious)	1.1 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.6 in
Runoff Volume (Pervious)	1.889 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1.889 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.267 hours
Computational Time Increment	0.036 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	26.48 ft³/s
Unit peak time, Tp	0.178 hours
Unit receding limb, Tr	0.713 hours
Total unit time, Tb	0.892 hours

Subsection: Unit Hydrograph Summary
Label: Post B9

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.267 hours
Area (User Defined)	272,294 ft²

Computational Time Increment	0.036 hours
Time to Peak (Computed)	12.198 hours
Flow (Peak, Computed)	35.04 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.200 hours
Flow (Peak Interpolated Output)	34.94 ft³/s

Drainage Area	
SCS CN (Composite)	90.000
Area (User Defined)	272,294 ft²
Maximum Retention (Pervious)	1.1 in
Maximum Retention (Pervious, 20 percent)	0.2 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	7.2 in
Runoff Volume (Pervious)	3.750 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3.750 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.267 hours
Computational Time Increment	0.036 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	26.48 ft³/s
Unit peak time, Tp	0.178 hours
Unit receding limb, Tr	0.713 hours
Total unit time, Tb	0.892 hours

Subsection: Unit Hydrograph Summary
Label: Pre A

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	1.175 hours
Area (User Defined)	52,978,543 ft²

Computational Time Increment	0.157 hours
Time to Peak (Computed)	12.842 hours
Flow (Peak, Computed)	424.06 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.850 hours
Flow (Peak Interpolated Output)	423.37 ft³/s

Drainage Area	
SCS CN (Composite)	78.000
Area (User Defined)	52,978,543 ft²
Maximum Retention (Pervious)	2.8 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.9 in
Runoff Volume (Pervious)	89.878 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	89.879 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	1.175 hours
Computational Time Increment	0.157 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1,173.21 ft³/s
Unit peak time, Tp	0.783 hours
Unit receding limb, Tr	3.132 hours
Total unit time, Tb	3.915 hours

Subsection: Unit Hydrograph Summary
Label: Pre A

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	1.175 hours
Area (User Defined)	52,978,543 ft²

Computational Time Increment	0.157 hours
Time to Peak (Computed)	12.842 hours
Flow (Peak, Computed)	1,258.10 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.850 hours
Flow (Peak Interpolated Output)	1,254.33 ft³/s

Drainage Area	
SCS CN (Composite)	78.000
Area (User Defined)	52,978,543 ft²
Maximum Retention (Pervious)	2.8 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.5 in
Runoff Volume (Pervious)	252.613 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	252.611 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	1.175 hours
Computational Time Increment	0.157 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1,173.21 ft³/s
Unit peak time, Tp	0.783 hours
Unit receding limb, Tr	3.132 hours
Total unit time, Tb	3.915 hours

Subsection: Unit Hydrograph Summary
Label: Pre A

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	1.175 hours
Area (User Defined)	52,978,543 ft²

Computational Time Increment	0.157 hours
Time to Peak (Computed)	12.842 hours
Flow (Peak, Computed)	2,886.59 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.800 hours
Flow (Peak Interpolated Output)	2,880.46 ft³/s

Drainage Area	
SCS CN (Composite)	78.000
Area (User Defined)	52,978,543 ft²
Maximum Retention (Pervious)	2.8 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.8 in
Runoff Volume (Pervious)	583.979 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	583.970 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	1.175 hours
Computational Time Increment	0.157 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1,173.21 ft³/s
Unit peak time, Tp	0.783 hours
Unit receding limb, Tr	3.132 hours
Total unit time, Tb	3.915 hours

Subsection: Unit Hydrograph Summary
Label: Pre B

Return Event: 1 years
Storm Event: 1-Year

Storm Event	1-Year
Return Event	1 years
Duration	48.000 hours
Depth	2.7 in
Time of Concentration (Composite)	0.877 hours
Area (User Defined)	7,181,302 ft²

Computational Time Increment	0.117 hours
Time to Peak (Computed)	12.630 hours
Flow (Peak, Computed)	59.29 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.650 hours
Flow (Peak Interpolated Output)	59.16 ft³/s

Drainage Area	
SCS CN (Composite)	76.000
Area (User Defined)	7,181,302 ft²
Maximum Retention (Pervious)	3.2 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	0.8 in
Runoff Volume (Pervious)	10.813 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	10.813 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.877 hours
Computational Time Increment	0.117 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	212.98 ft³/s
Unit peak time, Tp	0.585 hours
Unit receding limb, Tr	2.339 hours
Total unit time, Tb	2.924 hours

Subsection: Unit Hydrograph Summary
Label: Pre B

Return Event: 10 years
Storm Event: 10-Year

Storm Event	10-Year
Return Event	10 years
Duration	48.000 hours
Depth	4.7 in
Time of Concentration (Composite)	0.877 hours
Area (User Defined)	7,181,302 ft²

Computational Time Increment	0.117 hours
Time to Peak (Computed)	12.630 hours
Flow (Peak, Computed)	189.02 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.650 hours
Flow (Peak Interpolated Output)	187.54 ft³/s

Drainage Area	
SCS CN (Composite)	76.000
Area (User Defined)	7,181,302 ft²
Maximum Retention (Pervious)	3.2 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.3 in
Runoff Volume (Pervious)	31.913 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	31.913 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.877 hours
Computational Time Increment	0.117 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	212.98 ft³/s
Unit peak time, Tp	0.585 hours
Unit receding limb, Tr	2.339 hours
Total unit time, Tb	2.924 hours

Subsection: Unit Hydrograph Summary
Label: Pre B

Return Event: 100 years
Storm Event: 100-Year

Storm Event	100-Year
Return Event	100 years
Duration	48.000 hours
Depth	8.4 in
Time of Concentration (Composite)	0.877 hours
Area (User Defined)	7,181,302 ft²

Computational Time Increment	0.117 hours
Time to Peak (Computed)	12.630 hours
Flow (Peak, Computed)	448.57 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.600 hours
Flow (Peak Interpolated Output)	446.74 ft³/s

Drainage Area	
SCS CN (Composite)	76.000
Area (User Defined)	7,181,302 ft²
Maximum Retention (Pervious)	3.2 in
Maximum Retention (Pervious, 20 percent)	0.6 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	5.5 in
Runoff Volume (Pervious)	75.880 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	75.880 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.877 hours
Computational Time Increment	0.117 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	212.98 ft³/s
Unit peak time, Tp	0.585 hours
Unit receding limb, Tr	2.339 hours
Total unit time, Tb	2.924 hours

Subsection: Trapezoidal Channel.
Label: On-Site Stream (Reach B2)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.007 ft/ft
Manning's n	0.050
Invert (Upstream)	437.80 ft
Bottom Width	4.00 ft
Right Side Slope	2.000 H:V
Left Side Slope	2.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
437.80	0.0	0.00	0.00	0.0	0.00	0.00	0.0
437.81	0.1	0.00	0.11	0.0	4.04	4.04	0.1
437.84	0.5	0.05	0.28	0.2	4.16	4.18	0.5
437.88	1.0	0.15	0.44	0.3	4.32	4.36	0.9
437.92	1.4	0.29	0.57	0.5	4.48	4.54	1.4
437.96	1.9	0.47	0.69	0.7	4.64	4.72	1.8
438.00	2.4	0.69	0.79	0.9	4.80	4.89	2.2
438.04	2.9	0.94	0.88	1.1	4.96	5.07	2.6
438.08	3.4	1.23	0.96	1.3	5.12	5.25	3.0
438.12	3.8	1.54	1.04	1.5	5.28	5.43	3.4
438.16	4.3	1.89	1.11	1.7	5.44	5.61	3.7
438.20	4.8	2.27	1.18	1.9	5.60	5.79	4.1
438.24	5.3	2.68	1.25	2.1	5.76	5.97	4.5
438.28	5.8	3.12	1.31	2.4	5.92	6.15	4.8
438.32	6.2	3.60	1.37	2.6	6.08	6.33	5.2
438.36	6.7	4.10	1.43	2.9	6.24	6.50	5.5
438.40	7.2	4.64	1.49	3.1	6.40	6.68	5.9
438.44	7.7	5.20	1.54	3.4	6.56	6.86	6.2
438.48	8.2	5.80	1.59	3.6	6.72	7.04	6.5
438.52	8.6	6.43	1.64	3.9	6.88	7.22	6.8
438.56	9.1	7.10	1.69	4.2	7.04	7.40	7.2
438.60	9.6	7.79	1.74	4.5	7.20	7.58	7.5
438.64	10.1	8.52	1.79	4.8	7.36	7.76	7.8
438.68	10.6	9.28	1.83	5.1	7.52	7.94	8.1
438.72	11.0	10.08	1.88	5.4	7.68	8.11	8.4
438.76	11.5	10.91	1.92	5.7	7.84	8.29	8.7
438.80	12.0	11.77	1.96	6.0	8.00	8.47	9.0
438.84	12.5	12.67	2.00	6.3	8.16	8.65	9.3
438.88	13.0	13.60	2.04	6.7	8.32	8.83	9.6
438.92	13.4	14.57	2.08	7.0	8.48	9.01	9.9
438.96	13.9	15.57	2.12	7.3	8.64	9.19	10.2
439.00	14.4	16.61	2.16	7.7	8.80	9.37	10.5
439.04	14.9	17.69	2.20	8.0	8.96	9.55	10.8
439.08	15.4	18.80	2.24	8.4	9.12	9.72	11.0
439.12	15.8	19.95	2.28	8.8	9.28	9.90	11.3
439.16	16.3	21.13	2.31	9.1	9.44	10.08	11.6
439.20	16.8	22.36	2.35	9.5	9.60	10.26	11.9
439.24	17.3	23.62	2.38	9.9	9.76	10.44	12.2

Subsection: Trapezoidal Channel.
Label: On-Site Stream (Reach B2)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
439.28	17.8	24.92	2.42	10.3	9.92	10.62	12.5
439.32	18.2	26.26	2.45	10.7	10.08	10.80	12.7
439.36	18.7	27.64	2.49	11.1	10.24	10.98	13.0
439.40	19.2	29.06	2.52	11.5	10.40	11.16	13.3
439.44	19.7	30.52	2.56	11.9	10.56	11.33	13.6
439.48	20.2	32.01	2.59	12.4	10.72	11.51	13.8
439.52	20.6	33.55	2.62	12.8	10.88	11.69	14.1
439.56	21.1	35.13	2.65	13.2	11.04	11.87	14.4
439.60	21.6	36.76	2.69	13.7	11.20	12.05	14.7
439.64	22.1	38.42	2.72	14.1	11.36	12.23	14.9
439.68	22.6	40.12	2.75	14.6	11.52	12.41	15.2
439.72	23.0	41.87	2.78	15.1	11.68	12.59	15.5
439.76	23.5	43.66	2.81	15.5	11.84	12.77	15.7
439.80	24.0	45.50	2.84	16.0	12.00	12.94	16.0

Froude No.
0.000
0.202
0.253
0.282
0.300
0.314
0.324
0.332
0.339
0.346
0.351
0.356
0.361
0.365
0.368
0.372
0.375
0.378
0.381
0.384
0.386
0.389
0.391
0.393
0.395
0.397
0.399
0.401
0.403
0.405
0.406
0.408

Subsection: Trapezoidal Channel.
Label: On-Site Stream (Reach B2)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
0.410
0.411
0.413
0.414
0.416
0.417
0.419
0.420
0.421
0.423
0.424
0.425
0.426
0.427
0.429
0.430
0.431
0.432
0.433
0.434

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B8)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.019 ft/ft
Manning's n	0.050
Invert (Upstream)	443.00 ft
Bottom Width	4.00 ft
Right Side Slope	2.000 H:V
Left Side Slope	2.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft^3/s)	Velocity (ft/s)	Area (ft^2)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
443.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
443.01	0.1	0.01	0.19	0.0	4.04	4.04	0.1
443.04	0.5	0.08	0.47	0.2	4.16	4.18	0.5
443.08	1.0	0.25	0.74	0.3	4.32	4.36	0.9
443.12	1.4	0.48	0.95	0.5	4.48	4.54	1.4
443.16	1.9	0.79	1.14	0.7	4.64	4.72	1.8
443.20	2.4	1.15	1.30	0.9	4.80	4.89	2.2
443.24	2.9	1.57	1.46	1.1	4.96	5.07	2.6
443.28	3.4	2.04	1.60	1.3	5.12	5.25	3.0
443.32	3.8	2.56	1.72	1.5	5.28	5.43	3.4
443.36	4.3	3.14	1.85	1.7	5.44	5.61	3.7
443.40	4.8	3.77	1.96	1.9	5.60	5.79	4.1
443.44	5.3	4.45	2.07	2.1	5.76	5.97	4.5
443.48	5.8	5.18	2.18	2.4	5.92	6.15	4.8
443.52	6.2	5.96	2.28	2.6	6.08	6.33	5.2
443.56	6.7	6.80	2.37	2.9	6.24	6.50	5.5
443.60	7.2	7.69	2.46	3.1	6.40	6.68	5.9
443.64	7.7	8.63	2.55	3.4	6.56	6.86	6.2
443.68	8.2	9.62	2.64	3.6	6.72	7.04	6.5
443.72	8.6	10.67	2.72	3.9	6.88	7.22	6.8
443.76	9.1	11.77	2.81	4.2	7.04	7.40	7.2
443.80	9.6	12.92	2.88	4.5	7.20	7.58	7.5
443.84	10.1	14.13	2.96	4.8	7.36	7.76	7.8
443.88	10.6	15.40	3.04	5.1	7.52	7.94	8.1
443.92	11.0	16.71	3.11	5.4	7.68	8.11	8.4
443.96	11.5	18.09	3.18	5.7	7.84	8.29	8.7
444.00	12.0	19.52	3.25	6.0	8.00	8.47	9.0
444.04	12.5	21.01	3.32	6.3	8.16	8.65	9.3
444.08	13.0	22.56	3.39	6.7	8.32	8.83	9.6
444.12	13.4	24.16	3.46	7.0	8.48	9.01	9.9
444.16	13.9	25.83	3.52	7.3	8.64	9.19	10.2
444.20	14.4	27.55	3.59	7.7	8.80	9.37	10.5
444.24	14.9	29.34	3.65	8.0	8.96	9.55	10.8
444.28	15.4	31.18	3.71	8.4	9.12	9.72	11.0
444.32	15.8	33.09	3.77	8.8	9.28	9.90	11.3
444.36	16.3	35.05	3.84	9.1	9.44	10.08	11.6
444.40	16.8	37.08	3.90	9.5	9.60	10.26	11.9
444.44	17.3	39.18	3.95	9.9	9.76	10.44	12.2

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B8)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft^3/s)	Velocity (ft/s)	Area (ft^2)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)	Froude No.
444.48	17.8	41.34	4.01	10.3	9.92	10.62	12.5	0.000
444.52	18.2	43.56	4.07	10.7	10.08	10.80	12.7	0.335
444.56	18.7	45.84	4.13	11.1	10.24	10.98	13.0	0.420
444.60	19.2	48.20	4.18	11.5	10.40	11.16	13.3	0.468
444.64	19.7	50.62	4.24	11.9	10.56	11.33	13.6	0.498
444.68	20.2	53.10	4.29	12.4	10.72	11.51	13.8	0.520
444.72	20.6	55.65	4.35	12.8	10.88	11.69	14.1	0.537
444.76	21.1	58.28	4.40	13.2	11.04	11.87	14.4	0.551
444.80	21.6	60.96	4.46	13.7	11.20	12.05	14.7	0.563
444.84	22.1	63.72	4.51	14.1	11.36	12.23	14.9	0.573
444.88	22.6	66.55	4.56	14.6	11.52	12.41	15.2	0.583
444.92	23.0	69.45	4.61	15.1	11.68	12.59	15.5	0.591
444.96	23.5	72.42	4.67	15.5	11.84	12.77	15.7	0.598
445.00	24.0	75.46	4.72	16.0	12.00	12.94	16.0	0.605
								0.611
								0.617
								0.622
								0.627
								0.632
								0.636
								0.641
								0.645
								0.649
								0.652
								0.656
								0.659
								0.662
								0.665
								0.668
								0.671
								0.674
								0.677

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B8)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
0.680
0.682
0.685
0.687
0.690
0.692
0.694
0.696
0.699
0.701
0.703
0.705
0.707
0.709
0.711
0.713
0.715
0.717
0.718
0.720

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B11)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.060 ft/ft
Manning's n	0.050
Invert (Upstream)	602.00 ft
Bottom Width	4.00 ft
Right Side Slope	2.000 H:V
Left Side Slope	2.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft^3/s)	Velocity (ft/s)	Area (ft^2)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
602.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
602.01	0.1	0.01	0.34	0.0	4.04	4.04	0.1
602.04	0.5	0.14	0.84	0.2	4.16	4.18	0.5
602.08	1.0	0.44	1.31	0.3	4.32	4.36	0.9
602.12	1.4	0.86	1.69	0.5	4.48	4.54	1.4
602.16	1.9	1.40	2.02	0.7	4.64	4.72	1.8
602.20	2.4	2.04	2.32	0.9	4.80	4.89	2.2
602.24	2.9	2.78	2.59	1.1	4.96	5.07	2.6
602.28	3.4	3.62	2.84	1.3	5.12	5.25	3.0
602.32	3.8	4.55	3.07	1.5	5.28	5.43	3.4
602.36	4.3	5.58	3.28	1.7	5.44	5.61	3.7
602.40	4.8	6.70	3.49	1.9	5.60	5.79	4.1
602.44	5.3	7.91	3.68	2.1	5.76	5.97	4.5
602.48	5.8	9.21	3.87	2.4	5.92	6.15	4.8
602.52	6.2	10.60	4.05	2.6	6.08	6.33	5.2
602.56	6.7	12.09	4.22	2.9	6.24	6.50	5.5
602.60	7.2	13.67	4.38	3.1	6.40	6.68	5.9
602.64	7.7	15.34	4.54	3.4	6.56	6.86	6.2
602.68	8.2	17.11	4.69	3.6	6.72	7.04	6.5
602.72	8.6	18.97	4.84	3.9	6.88	7.22	6.8
602.76	9.1	20.92	4.99	4.2	7.04	7.40	7.2
602.80	9.6	22.97	5.13	4.5	7.20	7.58	7.5
602.84	10.1	25.12	5.27	4.8	7.36	7.76	7.8
602.88	10.6	27.37	5.40	5.1	7.52	7.94	8.1
602.92	11.0	29.71	5.53	5.4	7.68	8.11	8.4
602.96	11.5	32.16	5.66	5.7	7.84	8.29	8.7
603.00	12.0	34.70	5.78	6.0	8.00	8.47	9.0
603.04	12.5	37.35	5.91	6.3	8.16	8.65	9.3
603.08	13.0	40.10	6.03	6.7	8.32	8.83	9.6
603.12	13.4	42.95	6.15	7.0	8.48	9.01	9.9
603.16	13.9	45.91	6.26	7.3	8.64	9.19	10.2
603.20	14.4	48.98	6.38	7.7	8.80	9.37	10.5
603.24	14.9	52.15	6.49	8.0	8.96	9.55	10.8
603.28	15.4	55.43	6.60	8.4	9.12	9.72	11.0
603.32	15.8	58.81	6.71	8.8	9.28	9.90	11.3
603.36	16.3	62.31	6.82	9.1	9.44	10.08	11.6
603.40	16.8	65.92	6.92	9.5	9.60	10.26	11.9
603.44	17.3	69.64	7.03	9.9	9.76	10.44	12.2

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B11)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
603.48	17.8	73.48	7.13	10.3	9.92	10.62	12.5
603.52	18.2	77.43	7.24	10.7	10.08	10.80	12.7
603.56	18.7	81.50	7.34	11.1	10.24	10.98	13.0
603.60	19.2	85.68	7.44	11.5	10.40	11.16	13.3
603.64	19.7	89.98	7.54	11.9	10.56	11.33	13.6
603.68	20.2	94.39	7.63	12.4	10.72	11.51	13.8
603.72	20.6	98.93	7.73	12.8	10.88	11.69	14.1
603.76	21.1	103.59	7.83	13.2	11.04	11.87	14.4
603.80	21.6	108.37	7.92	13.7	11.20	12.05	14.7
603.84	22.1	113.28	8.02	14.1	11.36	12.23	14.9
603.88	22.6	118.31	8.11	14.6	11.52	12.41	15.2
603.92	23.0	123.46	8.20	15.1	11.68	12.59	15.5
603.96	23.5	128.74	8.29	15.5	11.84	12.77	15.7
604.00	24.0	134.15	8.38	16.0	12.00	12.94	16.0

Froude No.
0.000
0.595
0.746
0.832
0.886
0.924
0.955
0.980
1.001
1.019
1.036
1.050
1.063
1.075
1.086
1.097
1.106
1.115
1.123
1.131
1.139
1.146
1.153
1.159
1.166
1.172
1.177
1.183
1.188
1.194
1.199
1.203

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B11)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
1.208
1.213
1.217
1.222
1.226
1.230
1.234
1.238
1.242
1.246
1.250
1.253
1.257
1.260
1.264
1.267
1.270
1.274
1.277
1.280

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B6)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.043 ft/ft
Manning's n	0.050
Invert (Upstream)	530.00 ft
Bottom Width	4.00 ft
Right Side Slope	2.000 H:V
Left Side Slope	2.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
530.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
530.01	0.1	0.01	0.28	0.0	4.04	4.04	0.1
530.04	0.5	0.12	0.71	0.2	4.16	4.18	0.5
530.08	1.0	0.37	1.11	0.3	4.32	4.36	0.9
530.12	1.4	0.73	1.43	0.5	4.48	4.54	1.4
530.16	1.9	1.18	1.71	0.7	4.64	4.72	1.8
530.20	2.4	1.72	1.96	0.9	4.80	4.89	2.2
530.24	2.9	2.35	2.18	1.1	4.96	5.07	2.6
530.28	3.4	3.06	2.39	1.3	5.12	5.25	3.0
530.32	3.8	3.84	2.59	1.5	5.28	5.43	3.4
530.36	4.3	4.71	2.77	1.7	5.44	5.61	3.7
530.40	4.8	5.65	2.94	1.9	5.60	5.79	4.1
530.44	5.3	6.67	3.11	2.1	5.76	5.97	4.5
530.48	5.8	7.77	3.26	2.4	5.92	6.15	4.8
530.52	6.2	8.95	3.41	2.6	6.08	6.33	5.2
530.56	6.7	10.20	3.56	2.9	6.24	6.50	5.5
530.60	7.2	11.53	3.70	3.1	6.40	6.68	5.9
530.64	7.7	12.94	3.83	3.4	6.56	6.86	6.2
530.68	8.2	14.43	3.96	3.6	6.72	7.04	6.5
530.72	8.6	16.00	4.09	3.9	6.88	7.22	6.8
530.76	9.1	17.65	4.21	4.2	7.04	7.40	7.2
530.80	9.6	19.39	4.33	4.5	7.20	7.58	7.5
530.84	10.1	21.20	4.44	4.8	7.36	7.76	7.8
530.88	10.6	23.09	4.56	5.1	7.52	7.94	8.1
530.92	11.0	25.07	4.67	5.4	7.68	8.11	8.4
530.96	11.5	27.14	4.77	5.7	7.84	8.29	8.7
531.00	12.0	29.28	4.88	6.0	8.00	8.47	9.0
531.04	12.5	31.52	4.98	6.3	8.16	8.65	9.3
531.08	13.0	33.84	5.09	6.7	8.32	8.83	9.6
531.12	13.4	36.25	5.19	7.0	8.48	9.01	9.9
531.16	13.9	38.74	5.28	7.3	8.64	9.19	10.2
531.20	14.4	41.33	5.38	7.7	8.80	9.37	10.5
531.24	14.9	44.01	5.48	8.0	8.96	9.55	10.8
531.28	15.4	46.77	5.57	8.4	9.12	9.72	11.0
531.32	15.8	49.63	5.66	8.8	9.28	9.90	11.3
531.36	16.3	52.58	5.75	9.1	9.44	10.08	11.6
531.40	16.8	55.63	5.84	9.5	9.60	10.26	11.9
531.44	17.3	58.77	5.93	9.9	9.76	10.44	12.2

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B6)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
531.48	17.8	62.01	6.02	10.3	9.92	10.62	12.5
531.52	18.2	65.34	6.11	10.7	10.08	10.80	12.7
531.56	18.7	68.77	6.19	11.1	10.24	10.98	13.0
531.60	19.2	72.30	6.28	11.5	10.40	11.16	13.3
531.64	19.7	75.93	6.36	11.9	10.56	11.33	13.6
531.68	20.2	79.66	6.44	12.4	10.72	11.51	13.8
531.72	20.6	83.49	6.52	12.8	10.88	11.69	14.1
531.76	21.1	87.42	6.61	13.2	11.04	11.87	14.4
531.80	21.6	91.45	6.69	13.7	11.20	12.05	14.7
531.84	22.1	95.59	6.76	14.1	11.36	12.23	14.9
531.88	22.6	99.84	6.84	14.6	11.52	12.41	15.2
531.92	23.0	104.18	6.92	15.1	11.68	12.59	15.5
531.96	23.5	108.64	7.00	15.5	11.84	12.77	15.7
532.00	24.0	113.20	7.08	16.0	12.00	12.94	16.0

Froude No.
0.000
0.502
0.629
0.702
0.747
0.780
0.806
0.827
0.845
0.860
0.874
0.886
0.897
0.907
0.917
0.925
0.933
0.941
0.948
0.955
0.961
0.967
0.973
0.978
0.984
0.989
0.994
0.998
1.003
1.007
1.011
1.016

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B6)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
1.020
1.023
1.027
1.031
1.035
1.038
1.041
1.045
1.048
1.051
1.054
1.058
1.061
1.064
1.066
1.069
1.072
1.075
1.078
1.080

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B7)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.023 ft/ft
Manning's n	0.050
Invert (Upstream)	457.00 ft
Bottom Width	4.00 ft
Right Side Slope	2.000 H:V
Left Side Slope	2.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
457.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
457.01	0.1	0.01	0.21	0.0	4.04	4.04	0.1
457.04	0.5	0.09	0.52	0.2	4.16	4.18	0.5
457.08	1.0	0.27	0.81	0.3	4.32	4.36	0.9
457.12	1.4	0.54	1.05	0.5	4.48	4.54	1.4
457.16	1.9	0.87	1.26	0.7	4.64	4.72	1.8
457.20	2.4	1.27	1.44	0.9	4.80	4.89	2.2
457.24	2.9	1.73	1.61	1.1	4.96	5.07	2.6
457.28	3.4	2.25	1.76	1.3	5.12	5.25	3.0
457.32	3.8	2.83	1.91	1.5	5.28	5.43	3.4
457.36	4.3	3.47	2.04	1.7	5.44	5.61	3.7
457.40	4.8	4.16	2.17	1.9	5.60	5.79	4.1
457.44	5.3	4.92	2.29	2.1	5.76	5.97	4.5
457.48	5.8	5.73	2.41	2.4	5.92	6.15	4.8
457.52	6.2	6.59	2.52	2.6	6.08	6.33	5.2
457.56	6.7	7.52	2.62	2.9	6.24	6.50	5.5
457.60	7.2	8.50	2.72	3.1	6.40	6.68	5.9
457.64	7.7	9.54	2.82	3.4	6.56	6.86	6.2
457.68	8.2	10.64	2.92	3.6	6.72	7.04	6.5
457.72	8.6	11.79	3.01	3.9	6.88	7.22	6.8
457.76	9.1	13.01	3.10	4.2	7.04	7.40	7.2
457.80	9.6	14.28	3.19	4.5	7.20	7.58	7.5
457.84	10.1	15.62	3.27	4.8	7.36	7.76	7.8
457.88	10.6	17.02	3.36	5.1	7.52	7.94	8.1
457.92	11.0	18.48	3.44	5.4	7.68	8.11	8.4
457.96	11.5	20.00	3.52	5.7	7.84	8.29	8.7
458.00	12.0	21.58	3.60	6.0	8.00	8.47	9.0
458.04	12.5	23.22	3.67	6.3	8.16	8.65	9.3
458.08	13.0	24.93	3.75	6.7	8.32	8.83	9.6
458.12	13.4	26.71	3.82	7.0	8.48	9.01	9.9
458.16	13.9	28.55	3.89	7.3	8.64	9.19	10.2
458.20	14.4	30.45	3.97	7.7	8.80	9.37	10.5
458.24	14.9	32.43	4.04	8.0	8.96	9.55	10.8
458.28	15.4	34.47	4.10	8.4	9.12	9.72	11.0
458.32	15.8	36.57	4.17	8.8	9.28	9.90	11.3
458.36	16.3	38.75	4.24	9.1	9.44	10.08	11.6
458.40	16.8	40.99	4.31	9.5	9.60	10.26	11.9
458.44	17.3	43.31	4.37	9.9	9.76	10.44	12.2

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B7)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
458.48	17.8	45.69	4.44	10.3	9.92	10.62	12.5
458.52	18.2	48.15	4.50	10.7	10.08	10.80	12.7
458.56	18.7	50.68	4.56	11.1	10.24	10.98	13.0
458.60	19.2	53.28	4.62	11.5	10.40	11.16	13.3
458.64	19.7	55.95	4.69	11.9	10.56	11.33	13.6
458.68	20.2	58.70	4.75	12.4	10.72	11.51	13.8
458.72	20.6	61.52	4.81	12.8	10.88	11.69	14.1
458.76	21.1	64.42	4.87	13.2	11.04	11.87	14.4
458.80	21.6	67.39	4.93	13.7	11.20	12.05	14.7
458.84	22.1	70.44	4.98	14.1	11.36	12.23	14.9
458.88	22.6	73.57	5.04	14.6	11.52	12.41	15.2
458.92	23.0	76.77	5.10	15.1	11.68	12.59	15.5
458.96	23.5	80.05	5.16	15.5	11.84	12.77	15.7
459.00	24.0	83.42	5.21	16.0	12.00	12.94	16.0

Froude No.
0.000
0.370
0.464
0.518
0.551
0.575
0.594
0.609
0.622
0.634
0.644
0.653
0.661
0.669
0.676
0.682
0.688
0.693
0.699
0.704
0.708
0.713
0.717
0.721
0.725
0.729
0.732
0.736
0.739
0.742
0.745
0.748

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B7)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
0.751
0.754
0.757
0.760
0.762
0.765
0.767
0.770
0.772
0.775
0.777
0.779
0.781
0.784
0.786
0.788
0.790
0.792
0.794
0.796

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B3)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.012 ft/ft
Manning's n	0.050
Invert (Upstream)	439.60 ft
Bottom Width	4.00 ft
Right Side Slope	2.000 H:V
Left Side Slope	2.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
439.60	0.0	0.00	0.00	0.0	0.00	0.00	0.0
439.61	0.1	0.01	0.15	0.0	4.04	4.04	0.1
439.64	0.5	0.06	0.37	0.2	4.16	4.18	0.5
439.68	1.0	0.20	0.59	0.3	4.32	4.36	0.9
439.72	1.4	0.39	0.76	0.5	4.48	4.54	1.4
439.76	1.9	0.63	0.91	0.7	4.64	4.72	1.8
439.80	2.4	0.91	1.04	0.9	4.80	4.89	2.2
439.84	2.9	1.24	1.16	1.1	4.96	5.07	2.6
439.88	3.4	1.62	1.27	1.3	5.12	5.25	3.0
439.92	3.8	2.04	1.37	1.5	5.28	5.43	3.4
439.96	4.3	2.49	1.47	1.7	5.44	5.61	3.7
440.00	4.8	2.99	1.56	1.9	5.60	5.79	4.1
440.04	5.3	3.54	1.65	2.1	5.76	5.97	4.5
440.08	5.8	4.12	1.73	2.4	5.92	6.15	4.8
440.12	6.2	4.74	1.81	2.6	6.08	6.33	5.2
440.16	6.7	5.41	1.89	2.9	6.24	6.50	5.5
440.20	7.2	6.11	1.96	3.1	6.40	6.68	5.9
440.24	7.7	6.86	2.03	3.4	6.56	6.86	6.2
440.28	8.2	7.65	2.10	3.6	6.72	7.04	6.5
440.32	8.6	8.48	2.17	3.9	6.88	7.22	6.8
440.36	9.1	9.36	2.23	4.2	7.04	7.40	7.2
440.40	9.6	10.27	2.29	4.5	7.20	7.58	7.5
440.44	10.1	11.23	2.35	4.8	7.36	7.76	7.8
440.48	10.6	12.24	2.41	5.1	7.52	7.94	8.1
440.52	11.0	13.29	2.47	5.4	7.68	8.11	8.4
440.56	11.5	14.38	2.53	5.7	7.84	8.29	8.7
440.60	12.0	15.52	2.59	6.0	8.00	8.47	9.0
440.64	12.5	16.70	2.64	6.3	8.16	8.65	9.3
440.68	13.0	17.93	2.70	6.7	8.32	8.83	9.6
440.72	13.4	19.21	2.75	7.0	8.48	9.01	9.9
440.76	13.9	20.53	2.80	7.3	8.64	9.19	10.2
440.80	14.4	21.90	2.85	7.7	8.80	9.37	10.5
440.84	14.9	23.32	2.90	8.0	8.96	9.55	10.8
440.88	15.4	24.79	2.95	8.4	9.12	9.72	11.0
440.92	15.8	26.30	3.00	8.8	9.28	9.90	11.3
440.96	16.3	27.87	3.05	9.1	9.44	10.08	11.6
441.00	16.8	29.48	3.10	9.5	9.60	10.26	11.9
441.04	17.3	31.15	3.14	9.9	9.76	10.44	12.2

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B3)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
441.08	17.8	32.86	3.19	10.3	9.92	10.62	12.5
441.12	18.2	34.63	3.24	10.7	10.08	10.80	12.7
441.16	18.7	36.45	3.28	11.1	10.24	10.98	13.0
441.20	19.2	38.32	3.33	11.5	10.40	11.16	13.3
441.24	19.7	40.24	3.37	11.9	10.56	11.33	13.6
441.28	20.2	42.21	3.41	12.4	10.72	11.51	13.8
441.32	20.6	44.24	3.46	12.8	10.88	11.69	14.1
441.36	21.1	46.33	3.50	13.2	11.04	11.87	14.4
441.40	21.6	48.47	3.54	13.7	11.20	12.05	14.7
441.44	22.1	50.66	3.58	14.1	11.36	12.23	14.9
441.48	22.6	52.91	3.63	14.6	11.52	12.41	15.2
441.52	23.0	55.21	3.67	15.1	11.68	12.59	15.5
441.56	23.5	57.57	3.71	15.5	11.84	12.77	15.7
441.60	24.0	59.99	3.75	16.0	12.00	12.94	16.0

Froude No.
0.000
0.266
0.334
0.372
0.396
0.413
0.427
0.438
0.448
0.456
0.463
0.470
0.476
0.481
0.486
0.490
0.495
0.499
0.502
0.506
0.509
0.513
0.516
0.518
0.521
0.524
0.527
0.529
0.531
0.534
0.536
0.538

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B3)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
0.540
0.542
0.544
0.546
0.548
0.550
0.552
0.554
0.555
0.557
0.559
0.560
0.562
0.564
0.565
0.567
0.568
0.570
0.571
0.572

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B5)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.061 ft/ft
Manning's n	0.050
Invert (Upstream)	506.50 ft
Bottom Width	4.00 ft
Right Side Slope	2.000 H:V
Left Side Slope	2.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
506.50	0.0	0.00	0.00	0.0	0.00	0.00	0.0
506.51	0.1	0.01	0.34	0.0	4.04	4.04	0.1
506.54	0.5	0.14	0.85	0.2	4.16	4.18	0.5
506.58	1.0	0.44	1.32	0.3	4.32	4.36	0.9
506.62	1.4	0.87	1.71	0.5	4.48	4.54	1.4
506.66	1.9	1.41	2.04	0.7	4.64	4.72	1.8
506.70	2.4	2.06	2.34	0.9	4.80	4.89	2.2
506.74	2.9	2.81	2.61	1.1	4.96	5.07	2.6
506.78	3.4	3.65	2.86	1.3	5.12	5.25	3.0
506.82	3.8	4.59	3.09	1.5	5.28	5.43	3.4
506.86	4.3	5.63	3.31	1.7	5.44	5.61	3.7
506.90	4.8	6.76	3.52	1.9	5.60	5.79	4.1
506.94	5.3	7.98	3.72	2.1	5.76	5.97	4.5
506.98	5.8	9.29	3.90	2.4	5.92	6.15	4.8
507.02	6.2	10.70	4.08	2.6	6.08	6.33	5.2
507.06	6.7	12.20	4.25	2.9	6.24	6.50	5.5
507.10	7.2	13.79	4.42	3.1	6.40	6.68	5.9
507.14	7.7	15.48	4.58	3.4	6.56	6.86	6.2
507.18	8.2	17.26	4.74	3.6	6.72	7.04	6.5
507.22	8.6	19.14	4.89	3.9	6.88	7.22	6.8
507.26	9.1	21.11	5.03	4.2	7.04	7.40	7.2
507.30	9.6	23.18	5.17	4.5	7.20	7.58	7.5
507.34	10.1	25.35	5.31	4.8	7.36	7.76	7.8
507.38	10.6	27.62	5.45	5.1	7.52	7.94	8.1
507.42	11.0	29.98	5.58	5.4	7.68	8.11	8.4
507.46	11.5	32.45	5.71	5.7	7.84	8.29	8.7
507.50	12.0	35.02	5.84	6.0	8.00	8.47	9.0
507.54	12.5	37.69	5.96	6.3	8.16	8.65	9.3
507.58	13.0	40.46	6.08	6.7	8.32	8.83	9.6
507.62	13.4	43.34	6.20	7.0	8.48	9.01	9.9
507.66	13.9	46.33	6.32	7.3	8.64	9.19	10.2
507.70	14.4	49.42	6.44	7.7	8.80	9.37	10.5
507.74	14.9	52.62	6.55	8.0	8.96	9.55	10.8
507.78	15.4	55.93	6.66	8.4	9.12	9.72	11.0
507.82	15.8	59.35	6.77	8.8	9.28	9.90	11.3
507.86	16.3	62.88	6.88	9.1	9.44	10.08	11.6
507.90	16.8	66.52	6.99	9.5	9.60	10.26	11.9
507.94	17.3	70.28	7.09	9.9	9.76	10.44	12.2

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B5)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
507.98	17.8	74.15	7.20	10.3	9.92	10.62	12.5
508.02	18.2	78.13	7.30	10.7	10.08	10.80	12.7
508.06	18.7	82.24	7.40	11.1	10.24	10.98	13.0
508.10	19.2	86.46	7.50	11.5	10.40	11.16	13.3
508.14	19.7	90.80	7.60	11.9	10.56	11.33	13.6
508.18	20.2	95.25	7.70	12.4	10.72	11.51	13.8
508.22	20.6	99.83	7.80	12.8	10.88	11.69	14.1
508.26	21.1	104.54	7.90	13.2	11.04	11.87	14.4
508.30	21.6	109.36	7.99	13.7	11.20	12.05	14.7
508.34	22.1	114.31	8.09	14.1	11.36	12.23	14.9
508.38	22.6	119.38	8.18	14.6	11.52	12.41	15.2
508.42	23.0	124.58	8.28	15.1	11.68	12.59	15.5
508.46	23.5	129.91	8.37	15.5	11.84	12.77	15.7
508.50	24.0	135.37	8.46	16.0	12.00	12.94	16.0

Froude No.
0.000
0.600
0.753
0.840
0.894
0.933
0.963
0.989
1.010
1.029
1.045
1.060
1.073
1.085
1.096
1.107
1.116
1.125
1.134
1.142
1.149
1.156
1.163
1.170
1.176
1.182
1.188
1.194
1.199
1.204
1.209
1.214

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B5)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
1.219
1.224
1.228
1.233
1.237
1.241
1.245
1.249
1.253
1.257
1.261
1.265
1.268
1.272
1.275
1.279
1.282
1.285
1.289
1.292

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B4)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.027 ft/ft
Manning's n	0.050
Invert (Upstream)	456.40 ft
Bottom Width	4.00 ft
Right Side Slope	2.000 H:V
Left Side Slope	2.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
456.40	0.0	0.00	0.00	0.0	0.00	0.00	0.0
456.41	0.1	0.01	0.22	0.0	4.04	4.04	0.1
456.44	0.5	0.09	0.56	0.2	4.16	4.18	0.5
456.48	1.0	0.29	0.87	0.3	4.32	4.36	0.9
456.52	1.4	0.57	1.13	0.5	4.48	4.54	1.4
456.56	1.9	0.93	1.35	0.7	4.64	4.72	1.8
456.60	2.4	1.36	1.55	0.9	4.80	4.89	2.2
456.64	2.9	1.85	1.73	1.1	4.96	5.07	2.6
456.68	3.4	2.41	1.89	1.3	5.12	5.25	3.0
456.72	3.8	3.04	2.04	1.5	5.28	5.43	3.4
456.76	4.3	3.72	2.19	1.7	5.44	5.61	3.7
456.80	4.8	4.46	2.33	1.9	5.60	5.79	4.1
456.84	5.3	5.27	2.45	2.1	5.76	5.97	4.5
456.88	5.8	6.14	2.58	2.4	5.92	6.15	4.8
456.92	6.2	7.07	2.70	2.6	6.08	6.33	5.2
456.96	6.7	8.06	2.81	2.9	6.24	6.50	5.5
457.00	7.2	9.11	2.92	3.1	6.40	6.68	5.9
457.04	7.7	10.23	3.03	3.4	6.56	6.86	6.2
457.08	8.2	11.40	3.13	3.6	6.72	7.04	6.5
457.12	8.6	12.64	3.23	3.9	6.88	7.22	6.8
457.16	9.1	13.95	3.32	4.2	7.04	7.40	7.2
457.20	9.6	15.31	3.42	4.5	7.20	7.58	7.5
457.24	10.1	16.75	3.51	4.8	7.36	7.76	7.8
457.28	10.6	18.24	3.60	5.1	7.52	7.94	8.1
457.32	11.0	19.81	3.69	5.4	7.68	8.11	8.4
457.36	11.5	21.44	3.77	5.7	7.84	8.29	8.7
457.40	12.0	23.13	3.86	6.0	8.00	8.47	9.0
457.44	12.5	24.90	3.94	6.3	8.16	8.65	9.3
457.48	13.0	26.73	4.02	6.7	8.32	8.83	9.6
457.52	13.4	28.64	4.10	7.0	8.48	9.01	9.9
457.56	13.9	30.61	4.17	7.3	8.64	9.19	10.2
457.60	14.4	32.65	4.25	7.7	8.80	9.37	10.5
457.64	14.9	34.76	4.33	8.0	8.96	9.55	10.8
457.68	15.4	36.95	4.40	8.4	9.12	9.72	11.0
457.72	15.8	39.21	4.47	8.8	9.28	9.90	11.3
457.76	16.3	41.54	4.55	9.1	9.44	10.08	11.6
457.80	16.8	43.95	4.62	9.5	9.60	10.26	11.9
457.84	17.3	46.43	4.69	9.9	9.76	10.44	12.2

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B4)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
457.88	17.8	48.99	4.76	10.3	9.92	10.62	12.5
457.92	18.2	51.62	4.82	10.7	10.08	10.80	12.7
457.96	18.7	54.33	4.89	11.1	10.24	10.98	13.0
458.00	19.2	57.12	4.96	11.5	10.40	11.16	13.3
458.04	19.7	59.98	5.02	11.9	10.56	11.33	13.6
458.08	20.2	62.93	5.09	12.4	10.72	11.51	13.8
458.12	20.6	65.96	5.15	12.8	10.88	11.69	14.1
458.16	21.1	69.06	5.22	13.2	11.04	11.87	14.4
458.20	21.6	72.25	5.28	13.7	11.20	12.05	14.7
458.24	22.1	75.52	5.34	14.1	11.36	12.23	14.9
458.28	22.6	78.87	5.41	14.6	11.52	12.41	15.2
458.32	23.0	82.31	5.47	15.1	11.68	12.59	15.5
458.36	23.5	85.83	5.53	15.5	11.84	12.77	15.7
458.40	24.0	89.43	5.59	16.0	12.00	12.94	16.0

Froude No.
0.000
0.396
0.497
0.555
0.590
0.616
0.637
0.653
0.667
0.680
0.690
0.700
0.709
0.717
0.724
0.731
0.737
0.743
0.749
0.754
0.759
0.764
0.769
0.773
0.777
0.781
0.785
0.789
0.792
0.796
0.799
0.802

Subsection: Trapezoidal Channel.
Label: On-Site Stream (R-B4)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
0.805
0.809
0.812
0.814
0.817
0.820
0.823
0.825
0.828
0.831
0.833
0.835
0.838
0.840
0.842
0.845
0.847
0.849
0.851
0.853

Subsection: Trapezoidal Channel.
Label: Otterkill Creek (Reach A5)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.006 ft/ft
Manning's n	0.040
Invert (Upstream)	419.00 ft
Bottom Width	17.00 ft
Right Side Slope	2.000 H:V
Left Side Slope	2.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
419.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
419.01	0.1	0.02	0.13	0.2	17.04	17.04	0.1
419.06	0.7	0.44	0.43	1.0	17.24	17.27	0.7
419.12	1.4	1.41	0.68	2.1	17.48	17.54	1.4
419.18	2.2	2.78	0.89	3.1	17.72	17.80	2.1
419.24	2.9	4.50	1.07	4.2	17.96	18.07	2.8
419.30	3.6	6.53	1.24	5.3	18.20	18.34	3.5
419.36	4.3	8.87	1.39	6.4	18.44	18.61	4.2
419.42	5.0	11.48	1.53	7.5	18.68	18.88	4.8
419.48	5.8	14.37	1.67	8.6	18.92	19.15	5.5
419.54	6.5	17.52	1.79	9.8	19.16	19.41	6.1
419.60	7.2	20.92	1.92	10.9	19.40	19.68	6.8
419.66	7.9	24.57	2.03	12.1	19.64	19.95	7.4
419.72	8.6	28.46	2.14	13.3	19.88	20.22	8.0
419.78	9.4	32.59	2.25	14.5	20.12	20.49	8.6
419.84	10.1	36.95	2.35	15.7	20.36	20.76	9.2
419.90	10.8	41.54	2.46	16.9	20.60	21.02	9.9
419.96	11.5	46.36	2.55	18.2	20.84	21.29	10.5
420.02	12.2	51.40	2.65	19.4	21.08	21.56	11.1
420.08	13.0	56.66	2.74	20.7	21.32	21.83	11.6
420.14	13.7	62.15	2.83	22.0	21.56	22.10	12.2
420.20	14.4	67.85	2.91	23.3	21.80	22.37	12.8
420.26	15.1	73.77	3.00	24.6	22.04	22.63	13.4
420.32	15.8	79.90	3.08	25.9	22.28	22.90	14.0
420.38	16.6	86.25	3.16	27.3	22.52	23.17	14.5
420.44	17.3	92.82	3.24	28.6	22.76	23.44	15.1
420.50	18.0	99.60	3.32	30.0	23.00	23.71	15.7
420.56	18.7	106.59	3.40	31.4	23.24	23.98	16.2
420.62	19.4	113.79	3.47	32.8	23.48	24.24	16.8
420.68	20.2	121.21	3.54	34.2	23.72	24.51	17.3
420.74	20.9	128.83	3.62	35.6	23.96	24.78	17.8
420.80	21.6	136.67	3.69	37.1	24.20	25.05	18.4
420.86	22.3	144.72	3.76	38.5	24.44	25.32	18.9
420.92	23.0	152.98	3.82	40.0	24.68	25.59	19.5
420.98	23.8	161.45	3.89	41.5	24.92	25.85	20.0
421.04	24.5	170.13	3.96	43.0	25.16	26.12	20.5
421.10	25.2	179.03	4.02	44.5	25.40	26.39	21.0
421.16	25.9	188.14	4.09	46.1	25.64	26.66	21.6

Subsection: Trapezoidal Channel.
Label: Otterkill Creek (Reach A5)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft^3/s)	Velocity (ft/s)	Area (ft^2)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
421.22	26.6	197.45	4.15	47.6	25.88	26.93	22.1
421.28	27.4	206.99	4.21	49.2	26.12	27.20	22.6
421.34	28.1	216.73	4.27	50.7	26.36	27.46	23.1
421.40	28.8	226.69	4.33	52.3	26.60	27.73	23.6
421.46	29.5	236.85	4.39	53.9	26.84	28.00	24.1
421.52	30.2	247.24	4.45	55.5	27.08	28.27	24.6
421.58	31.0	257.83	4.51	57.2	27.32	28.54	25.1
421.64	31.7	268.65	4.57	58.8	27.56	28.81	25.6
421.70	32.4	279.67	4.62	60.5	27.80	29.07	26.1
421.76	33.1	290.92	4.68	62.2	28.04	29.34	26.6
421.82	33.8	302.37	4.74	63.8	28.28	29.61	27.1
421.88	34.6	314.05	4.79	65.5	28.52	29.88	27.6
421.94	35.3	325.94	4.85	67.3	28.76	30.15	28.1
422.00	36.0	338.05	4.90	69.0	29.00	30.42	28.6

Froude No.
0.000
0.232
0.312
0.350
0.373
0.391
0.405
0.417
0.427
0.435
0.443
0.450
0.457
0.462
0.468
0.473
0.478
0.482
0.486
0.490
0.494
0.497
0.501
0.504
0.507
0.510
0.512
0.515
0.518
0.520
0.523
0.525

Subsection: Trapezoidal Channel.
Label: Otterkill Creek (Reach A5)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
0.527
0.529
0.531
0.534
0.535
0.537
0.539
0.541
0.543
0.545
0.546
0.548
0.550
0.551
0.553
0.554
0.556
0.557
0.559
0.560

Subsection: Trapezoidal Channel.
Label: Otterkill Creek (Reach A4)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.013 ft/ft
Manning's n	0.040
Invert (Upstream)	449.00 ft
Bottom Width	17.00 ft
Right Side Slope	2.000 H:V
Left Side Slope	2.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
449.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
449.01	0.1	0.03	0.19	0.2	17.04	17.04	0.1
449.06	0.7	0.65	0.64	1.0	17.24	17.27	0.7
449.12	1.4	2.08	1.01	2.1	17.48	17.54	1.4
449.18	2.2	4.10	1.31	3.1	17.72	17.80	2.1
449.24	2.9	6.63	1.58	4.2	17.96	18.07	2.8
449.30	3.6	9.63	1.82	5.3	18.20	18.34	3.5
449.36	4.3	13.07	2.05	6.4	18.44	18.61	4.2
449.42	5.0	16.93	2.26	7.5	18.68	18.88	4.8
449.48	5.8	21.19	2.46	8.6	18.92	19.15	5.5
449.54	6.5	25.83	2.65	9.8	19.16	19.41	6.1
449.60	7.2	30.84	2.82	10.9	19.40	19.68	6.8
449.66	7.9	36.23	3.00	12.1	19.64	19.95	7.4
449.72	8.6	41.96	3.16	13.3	19.88	20.22	8.0
449.78	9.4	48.05	3.32	14.5	20.12	20.49	8.6
449.84	10.1	54.48	3.47	15.7	20.36	20.76	9.2
449.90	10.8	61.24	3.62	16.9	20.60	21.02	9.9
449.96	11.5	68.34	3.76	18.2	20.84	21.29	10.5
450.02	12.2	75.78	3.90	19.4	21.08	21.56	11.1
450.08	13.0	83.54	4.04	20.7	21.32	21.83	11.6
450.14	13.7	91.62	4.17	22.0	21.56	22.10	12.2
450.20	14.4	100.03	4.30	23.3	21.80	22.37	12.8
450.26	15.1	108.75	4.42	24.6	22.04	22.63	13.4
450.32	15.8	117.80	4.54	25.9	22.28	22.90	14.0
450.38	16.6	127.16	4.66	27.3	22.52	23.17	14.5
450.44	17.3	136.84	4.78	28.6	22.76	23.44	15.1
450.50	18.0	146.83	4.89	30.0	23.00	23.71	15.7
450.56	18.7	157.14	5.01	31.4	23.24	23.98	16.2
450.62	19.4	167.75	5.12	32.8	23.48	24.24	16.8
450.68	20.2	178.69	5.22	34.2	23.72	24.51	17.3
450.74	20.9	189.93	5.33	35.6	23.96	24.78	17.8
450.80	21.6	201.48	5.43	37.1	24.20	25.05	18.4
450.86	22.3	213.35	5.54	38.5	24.44	25.32	18.9
450.92	23.0	225.53	5.64	40.0	24.68	25.59	19.5
450.98	23.8	238.02	5.74	41.5	24.92	25.85	20.0
451.04	24.5	250.82	5.83	43.0	25.16	26.12	20.5
451.10	25.2	263.93	5.93	44.5	25.40	26.39	21.0
451.16	25.9	277.36	6.02	46.1	25.64	26.66	21.6

Subsection: Trapezoidal Channel.
Label: Otterkill Creek (Reach A4)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
451.22	26.6	291.10	6.12	47.6	25.88	26.93	22.1
451.28	27.4	305.15	6.21	49.2	26.12	27.20	22.6
451.34	28.1	319.51	6.30	50.7	26.36	27.46	23.1
451.40	28.8	334.19	6.39	52.3	26.60	27.73	23.6
451.46	29.5	349.18	6.48	53.9	26.84	28.00	24.1
451.52	30.2	364.49	6.56	55.5	27.08	28.27	24.6
451.58	31.0	380.11	6.65	57.2	27.32	28.54	25.1
451.64	31.7	396.05	6.73	58.8	27.56	28.81	25.6
451.70	32.4	412.31	6.82	60.5	27.80	29.07	26.1
451.76	33.1	428.88	6.90	62.2	28.04	29.34	26.6
451.82	33.8	445.77	6.98	63.8	28.28	29.61	27.1
451.88	34.6	462.99	7.06	65.5	28.52	29.88	27.6
451.94	35.3	480.52	7.14	67.3	28.76	30.15	28.1
452.00	36.0	498.37	7.22	69.0	29.00	30.42	28.6

Froude No.
0.000
0.342
0.460
0.516
0.551
0.576
0.597
0.614
0.629
0.642
0.653
0.664
0.673
0.682
0.690
0.697
0.704
0.711
0.717
0.722
0.728
0.733
0.738
0.743
0.747
0.751
0.756
0.759
0.763
0.767
0.770
0.774

Subsection: Trapezoidal Channel.
Label: Otterkill Creek (Reach A4)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
0.777
0.780
0.784
0.787
0.789
0.792
0.795
0.798
0.800
0.803
0.805
0.808
0.810
0.813
0.815
0.817
0.819
0.821
0.823
0.826

Subsection: Trapezoidal Channel.
Label: Sheet Flow (Reach A2)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.076 ft/ft
Manning's n	0.240
Invert (Upstream)	429.00 ft
Bottom Width	50.00 ft
Right Side Slope	5.000 H:V
Left Side Slope	5.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft^3/s)	Velocity (ft/s)	Area (ft^2)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
429.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
429.01	0.1	0.04	0.08	0.5	50.10	50.10	0.1
429.04	0.5	0.40	0.20	2.0	50.40	50.41	0.5
429.08	1.0	1.27	0.32	4.0	50.80	50.82	1.0
429.12	1.4	2.50	0.41	6.1	51.20	51.22	1.4
429.16	1.9	4.05	0.50	8.1	51.60	51.63	1.9
429.20	2.4	5.88	0.58	10.2	52.00	52.04	2.4
429.24	2.9	7.98	0.65	12.3	52.40	52.45	2.8
429.28	3.4	10.33	0.72	14.4	52.80	52.86	3.3
429.32	3.8	12.93	0.78	16.5	53.20	53.26	3.7
429.36	4.3	15.75	0.84	18.6	53.60	53.67	4.2
429.40	4.8	18.80	0.90	20.8	54.00	54.08	4.6
429.44	5.3	22.07	0.96	23.0	54.40	54.49	5.1
429.48	5.8	25.55	1.02	25.2	54.80	54.90	5.5
429.52	6.2	29.23	1.07	27.4	55.20	55.30	5.9
429.56	6.7	33.12	1.12	29.6	55.60	55.71	6.4
429.60	7.2	37.21	1.17	31.8	56.00	56.12	6.8
429.64	7.7	41.50	1.22	34.0	56.40	56.53	7.2
429.68	8.2	45.98	1.27	36.3	56.80	56.93	7.7
429.72	8.6	50.65	1.31	38.6	57.20	57.34	8.1
429.76	9.1	55.51	1.36	40.9	57.60	57.75	8.5
429.80	9.6	60.55	1.40	43.2	58.00	58.16	8.9
429.84	10.1	65.78	1.44	45.5	58.40	58.57	9.4
429.88	10.6	71.19	1.49	47.9	58.80	58.97	9.8
429.92	11.0	76.78	1.53	50.2	59.20	59.38	10.2
429.96	11.5	82.55	1.57	52.6	59.60	59.79	10.6
430.00	12.0	88.50	1.61	55.0	60.00	60.20	11.0
430.04	12.5	94.63	1.65	57.4	60.40	60.61	11.4
430.08	13.0	100.93	1.69	59.8	60.80	61.01	11.8
430.12	13.4	107.40	1.72	62.3	61.20	61.42	12.2
430.16	13.9	114.05	1.76	64.7	61.60	61.83	12.6
430.20	14.4	120.87	1.80	67.2	62.00	62.24	13.0
430.24	14.9	127.86	1.83	69.7	62.40	62.65	13.4
430.28	15.4	135.02	1.87	72.2	62.80	63.05	13.8
430.32	15.8	142.36	1.91	74.7	63.20	63.46	14.2
430.36	16.3	149.86	1.94	77.2	63.60	63.87	14.6
430.40	16.8	157.53	1.97	79.8	64.00	64.28	15.0
430.44	17.3	165.37	2.01	82.4	64.40	64.69	15.3

Subsection: Trapezoidal Channel.
Label: Sheet Flow (Reach A2)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
430.48	17.8	173.38	2.04	85.0	64.80	65.09	15.7
430.52	18.2	181.56	2.07	87.6	65.20	65.50	16.1
430.56	18.7	189.90	2.11	90.2	65.60	65.91	16.5
430.60	19.2	198.41	2.14	92.8	66.00	66.32	16.9
430.64	19.7	207.09	2.17	95.4	66.40	66.72	17.2
430.68	20.2	215.93	2.20	98.1	66.80	67.13	17.6
430.72	20.6	224.94	2.23	100.8	67.20	67.54	18.0
430.76	21.1	234.12	2.26	103.5	67.60	67.95	18.4
430.80	21.6	243.46	2.29	106.2	68.00	68.36	18.7
430.84	22.1	252.96	2.32	108.9	68.40	68.76	19.1
430.88	22.6	262.64	2.35	111.7	68.80	69.17	19.5
430.92	23.0	272.47	2.38	114.4	69.20	69.58	19.8
430.96	23.5	282.47	2.41	117.2	69.60	69.99	20.2
431.00	24.0	292.64	2.44	120.0	70.00	70.40	20.6

Froude No.
0.000
0.140
0.176
0.197
0.211
0.221
0.230
0.236
0.242
0.248
0.252
0.257
0.261
0.264
0.268
0.271
0.274
0.277
0.279
0.282
0.284
0.286
0.288
0.291
0.293
0.294
0.296
0.298
0.300
0.301
0.303
0.305

Subsection: Trapezoidal Channel.
Label: Sheet Flow (Reach A2)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
0.306
0.308
0.309
0.310
0.312
0.313
0.314
0.315
0.317
0.318
0.319
0.320
0.321
0.322
0.323
0.324
0.325
0.326
0.327
0.328

Subsection: Trapezoidal Channel.
Label: Sheet Flow (R-B12)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.100 ft/ft
Manning's n	0.240
Invert (Upstream)	436.00 ft
Bottom Width	50.00 ft
Right Side Slope	5.000 H:V
Left Side Slope	5.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
436.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
436.01	0.1	0.05	0.09	0.5	50.10	50.10	0.1
436.04	0.5	0.46	0.23	2.0	50.40	50.41	0.5
436.08	1.0	1.46	0.36	4.0	50.80	50.82	1.0
436.12	1.4	2.87	0.47	6.1	51.20	51.22	1.4
436.16	1.9	4.64	0.57	8.1	51.60	51.63	1.9
436.20	2.4	6.74	0.66	10.2	52.00	52.04	2.4
436.24	2.9	9.14	0.74	12.3	52.40	52.45	2.8
436.28	3.4	11.84	0.82	14.4	52.80	52.86	3.3
436.32	3.8	14.81	0.90	16.5	53.20	53.26	3.7
436.36	4.3	18.04	0.97	18.6	53.60	53.67	4.2
436.40	4.8	21.54	1.04	20.8	54.00	54.08	4.6
436.44	5.3	25.28	1.10	23.0	54.40	54.49	5.1
436.48	5.8	29.27	1.16	25.2	54.80	54.90	5.5
436.52	6.2	33.49	1.22	27.4	55.20	55.30	5.9
436.56	6.7	37.95	1.28	29.6	55.60	55.71	6.4
436.60	7.2	42.63	1.34	31.8	56.00	56.12	6.8
436.64	7.7	47.54	1.40	34.0	56.40	56.53	7.2
436.68	8.2	52.68	1.45	36.3	56.80	56.93	7.7
436.72	8.6	58.03	1.50	38.6	57.20	57.34	8.1
436.76	9.1	63.59	1.56	40.9	57.60	57.75	8.5
436.80	9.6	69.37	1.61	43.2	58.00	58.16	8.9
436.84	10.1	75.36	1.66	45.5	58.40	58.57	9.4
436.88	10.6	81.56	1.70	47.9	58.80	58.97	9.8
436.92	11.0	87.97	1.75	50.2	59.20	59.38	10.2
436.96	11.5	94.58	1.80	52.6	59.60	59.79	10.6
437.00	12.0	101.39	1.84	55.0	60.00	60.20	11.0
437.04	12.5	108.41	1.89	57.4	60.40	60.61	11.4
437.08	13.0	115.63	1.93	59.8	60.80	61.01	11.8
437.12	13.4	123.04	1.98	62.3	61.20	61.42	12.2
437.16	13.9	130.66	2.02	64.7	61.60	61.83	12.6
437.20	14.4	138.47	2.06	67.2	62.00	62.24	13.0
437.24	14.9	146.48	2.10	69.7	62.40	62.65	13.4
437.28	15.4	154.69	2.14	72.2	62.80	63.05	13.8
437.32	15.8	163.09	2.18	74.7	63.20	63.46	14.2
437.36	16.3	171.69	2.22	77.2	63.60	63.87	14.6
437.40	16.8	180.48	2.26	79.8	64.00	64.28	15.0
437.44	17.3	189.46	2.30	82.4	64.40	64.69	15.3

Subsection: Trapezoidal Channel.
Label: Sheet Flow (R-B12)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
437.48	17.8	198.63	2.34	85.0	64.80	65.09	15.7
437.52	18.2	208.00	2.38	87.6	65.20	65.50	16.1
437.56	18.7	217.56	2.41	90.2	65.60	65.91	16.5
437.60	19.2	227.31	2.45	92.8	66.00	66.32	16.9
437.64	19.7	237.25	2.49	95.4	66.40	66.72	17.2
437.68	20.2	247.38	2.52	98.1	66.80	67.13	17.6
437.72	20.6	257.70	2.56	100.8	67.20	67.54	18.0
437.76	21.1	268.21	2.59	103.5	67.60	67.95	18.4
437.80	21.6	278.91	2.63	106.2	68.00	68.36	18.7
437.84	22.1	289.81	2.66	108.9	68.40	68.76	19.1
437.88	22.6	300.89	2.69	111.7	68.80	69.17	19.5
437.92	23.0	312.16	2.73	114.4	69.20	69.58	19.8
437.96	23.5	323.62	2.76	117.2	69.60	69.99	20.2
438.00	24.0	335.26	2.79	120.0	70.00	70.40	20.6

Froude No.
0.000
0.160
0.202
0.226
0.242
0.254
0.263
0.271
0.278
0.284
0.289
0.294
0.299
0.303
0.307
0.310
0.314
0.317
0.320
0.323
0.325
0.328
0.331
0.333
0.335
0.337
0.339
0.341
0.343
0.345
0.347
0.349

Subsection: Trapezoidal Channel.
Label: Sheet Flow (R-B12)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
0.351
0.352
0.354
0.356
0.357
0.359
0.360
0.361
0.363
0.364
0.365
0.367
0.368
0.369
0.370
0.372
0.373
0.374
0.375
0.376

Subsection: Trapezoidal Channel.
Label: Sheet Flow (Reach A3)

Return Event: 1 years
Storm Event: 1-Year

Trapezoidal Channel.	
Slope	0.035 ft/ft
Manning's n	0.240
Invert (Upstream)	429.00 ft
Bottom Width	50.00 ft
Right Side Slope	5.000 H:V
Left Side Slope	5.000 H:V

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft^3/s)	Velocity (ft/s)	Area (ft^2)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
429.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
429.01	0.1	0.03	0.05	0.5	50.10	50.10	0.1
429.04	0.5	0.27	0.14	2.0	50.40	50.41	0.5
429.08	1.0	0.87	0.22	4.0	50.80	50.82	1.0
429.12	1.4	1.71	0.28	6.1	51.20	51.22	1.4
429.16	1.9	2.76	0.34	8.1	51.60	51.63	1.9
429.20	2.4	4.01	0.39	10.2	52.00	52.04	2.4
429.24	2.9	5.45	0.44	12.3	52.40	52.45	2.8
429.28	3.4	7.05	0.49	14.4	52.80	52.86	3.3
429.32	3.8	8.82	0.53	16.5	53.20	53.26	3.7
429.36	4.3	10.75	0.58	18.6	53.60	53.67	4.2
429.40	4.8	12.83	0.62	20.8	54.00	54.08	4.6
429.44	5.3	15.06	0.66	23.0	54.40	54.49	5.1
429.48	5.8	17.43	0.69	25.2	54.80	54.90	5.5
429.52	6.2	19.95	0.73	27.4	55.20	55.30	5.9
429.56	6.7	22.60	0.76	29.6	55.60	55.71	6.4
429.60	7.2	25.39	0.80	31.8	56.00	56.12	6.8
429.64	7.7	28.32	0.83	34.0	56.40	56.53	7.2
429.68	8.2	31.38	0.86	36.3	56.80	56.93	7.7
429.72	8.6	34.56	0.90	38.6	57.20	57.34	8.1
429.76	9.1	37.88	0.93	40.9	57.60	57.75	8.5
429.80	9.6	41.32	0.96	43.2	58.00	58.16	8.9
429.84	10.1	44.89	0.99	45.5	58.40	58.57	9.4
429.88	10.6	48.58	1.01	47.9	58.80	58.97	9.8
429.92	11.0	52.39	1.04	50.2	59.20	59.38	10.2
429.96	11.5	56.33	1.07	52.6	59.60	59.79	10.6
430.00	12.0	60.39	1.10	55.0	60.00	60.20	11.0
430.04	12.5	64.57	1.12	57.4	60.40	60.61	11.4
430.08	13.0	68.87	1.15	59.8	60.80	61.01	11.8
430.12	13.4	73.29	1.18	62.3	61.20	61.42	12.2
430.16	13.9	77.82	1.20	64.7	61.60	61.83	12.6
430.20	14.4	82.48	1.23	67.2	62.00	62.24	13.0
430.24	14.9	87.25	1.25	69.7	62.40	62.65	13.4
430.28	15.4	92.14	1.28	72.2	62.80	63.05	13.8
430.32	15.8	97.14	1.30	74.7	63.20	63.46	14.2
430.36	16.3	102.26	1.32	77.2	63.60	63.87	14.6
430.40	16.8	107.50	1.35	79.8	64.00	64.28	15.0
430.44	17.3	112.85	1.37	82.4	64.40	64.69	15.3

Subsection: Trapezoidal Channel.
Label: Sheet Flow (Reach A3)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Elevation (ft)	Depth (in)	Flow (ft³/s)	Velocity (ft/s)	Area (ft²)	Top Width (ft)	Wetted Perimeter (ft)	Head (in)
430.48	17.8	118.31	1.39	85.0	64.80	65.09	15.7
430.52	18.2	123.89	1.42	87.6	65.20	65.50	16.1
430.56	18.7	129.58	1.44	90.2	65.60	65.91	16.5
430.60	19.2	135.39	1.46	92.8	66.00	66.32	16.9
430.64	19.7	141.31	1.48	95.4	66.40	66.72	17.2
430.68	20.2	147.35	1.50	98.1	66.80	67.13	17.6
430.72	20.6	153.49	1.52	100.8	67.20	67.54	18.0
430.76	21.1	159.75	1.54	103.5	67.60	67.95	18.4
430.80	21.6	166.13	1.56	106.2	68.00	68.36	18.7
430.84	22.1	172.62	1.58	108.9	68.40	68.76	19.1
430.88	22.6	179.22	1.60	111.7	68.80	69.17	19.5
430.92	23.0	185.93	1.62	114.4	69.20	69.58	19.8
430.96	23.5	192.75	1.64	117.2	69.60	69.99	20.2
431.00	24.0	199.69	1.66	120.0	70.00	70.40	20.6

Froude No.
0.000
0.095
0.120
0.135
0.144
0.151
0.157
0.161
0.165
0.169
0.172
0.175
0.178
0.180
0.183
0.185
0.187
0.189
0.191
0.192
0.194
0.195
0.197
0.198
0.200
0.201
0.202
0.203
0.205
0.206
0.207
0.208

Subsection: Trapezoidal Channel.
Label: Sheet Flow (Reach A3)

Return Event: 1 years
Storm Event: 1-Year

Solution to Mannings Open Channel Flow Equation
(Computed values are based on normal depth.)

Trapezoidal Cross Section

Froude No.
0.209
0.210
0.211
0.212
0.213
0.214
0.214
0.215
0.216
0.217
0.218
0.218
0.219
0.220
0.221
0.221
0.222
0.223
0.223
0.224

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	1,200.00 ft
Travel Time (Channel)	0.540 hours
Number of Sections	1
Length (Section)	1,200.00 ft
Flow (Weighted)	0.22 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	0.29 ft³/s	Time to Peak (In)	14.700 hours
Flow (Peak Out)	0.29 ft³/s	Time to Peak (Out)	15.050 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.296 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.296 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	550.00 ft
Travel Time (Channel)	0.196 hours
Number of Sections	1
Length (Section)	550.00 ft
Flow (Weighted)	0.41 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	0.59 ft³/s	Time to Peak (In)	15.050 hours
Flow (Peak Out)	0.59 ft³/s	Time to Peak (Out)	15.200 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.527 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.527 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	790.00 ft
Travel Time (Channel)	0.203 hours
Number of Sections	1
Length (Section)	790.00 ft
Flow (Weighted)	1.01 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	1.40 ft³/s	Time to Peak (In)	15.150 hours
Flow (Peak Out)	1.40 ft³/s	Time to Peak (Out)	15.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.515 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.514 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	150.00 ft
Travel Time (Channel)	0.037 hours
Number of Sections	1
Length (Section)	150.00 ft
Flow (Weighted)	1.18 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	1.63 ft³/s	Time to Peak (In)	15.200 hours
Flow (Peak Out)	1.63 ft³/s	Time to Peak (Out)	15.200 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.644 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.644 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	630.00 ft
Travel Time (Channel)	0.156 hours
Number of Sections	1
Length (Section)	630.00 ft
Flow (Weighted)	1.14 ft^3/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft^3/s
Infiltration (Starting, per section)	0.00 ft^3/s
Flow (Total Out Starting)	0.00 ft^3/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	1.59 ft^3/s	Time to Peak (In)	15.000 hours
Flow (Peak Out)	1.59 ft^3/s	Time to Peak (Out)	15.150 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.589 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.589 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	1,250.00 ft
Travel Time (Channel)	0.254 hours
Number of Sections	1
Length (Section)	1,250.00 ft
Flow (Weighted)	2.02 ft^3/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft^3/s
Infiltration (Starting, per section)	0.00 ft^3/s
Flow (Total Out Starting)	0.00 ft^3/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	2.55 ft^3/s	Time to Peak (In)	15.100 hours
Flow (Peak Out)	2.54 ft^3/s	Time to Peak (Out)	15.200 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	3.087 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	3.086 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	820.00 ft
Travel Time (Channel)	0.274 hours
Number of Sections	1
Length (Section)	820.00 ft
Flow (Weighted)	0.49 ft^3/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft^3/s
Infiltration (Starting, per section)	0.00 ft^3/s
Flow (Total Out Starting)	0.00 ft^3/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	0.69 ft^3/s	Time to Peak (In)	15.200 hours
Flow (Peak Out)	0.69 ft^3/s	Time to Peak (Out)	15.350 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.647 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.647 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	1,420.00 ft
Travel Time (Channel)	0.341 hours
Number of Sections	1
Length (Section)	1,420.00 ft
Flow (Weighted)	1.24 ft^3/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft^3/s
Infiltration (Starting, per section)	0.00 ft^3/s
Flow (Total Out Starting)	0.00 ft^3/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	1.73 ft^3/s	Time to Peak (In)	15.200 hours
Flow (Peak Out)	1.72 ft^3/s	Time to Peak (Out)	15.500 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.719 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.718 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	1,200.00 ft
Travel Time (Channel)	0.230 hours
Number of Sections	1
Length (Section)	1,200.00 ft
Flow (Weighted)	2.38 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	8.09 ft³/s	Time to Peak (In)	12.200 hours
Flow (Peak Out)	5.98 ft³/s	Time to Peak (Out)	12.350 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.767 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.767 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	790.00 ft
Travel Time (Channel)	0.092 hours
Number of Sections	1
Length (Section)	790.00 ft
Flow (Weighted)	11.86 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	38.89 ft³/s	Time to Peak (In)	12.200 hours
Flow (Peak Out)	36.11 ft³/s	Time to Peak (Out)	12.300 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	4.147 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	4.146 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	820.00 ft
Travel Time (Channel)	0.136 hours
Number of Sections	1
Length (Section)	820.00 ft
Flow (Weighted)	3.70 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	10.47 ft³/s	Time to Peak (In)	12.300 hours
Flow (Peak Out)	10.22 ft³/s	Time to Peak (Out)	12.550 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.884 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.883 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	1,250.00 ft
Travel Time (Channel)	0.159 hours
Number of Sections	1
Length (Section)	1,250.00 ft
Flow (Weighted)	8.71 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	17.75 ft³/s	Time to Peak (In)	12.900 hours
Flow (Peak Out)	17.67 ft³/s	Time to Peak (Out)	13.000 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	7.561 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	7.560 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	630.00 ft
Travel Time (Channel)	0.077 hours
Number of Sections	1
Length (Section)	630.00 ft
Flow (Weighted)	10.13 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	33.09 ft³/s	Time to Peak (In)	12.250 hours
Flow (Peak Out)	31.89 ft³/s	Time to Peak (Out)	12.300 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	4.427 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	4.426 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	1,420.00 ft
Travel Time (Channel)	0.168 hours
Number of Sections	1
Length (Section)	1,420.00 ft
Flow (Weighted)	11.19 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	35.71 ft³/s	Time to Peak (In)	12.350 hours
Flow (Peak Out)	31.74 ft³/s	Time to Peak (Out)	12.450 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	4.950 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	4.948 ac-ft
Volume (Retained)	0.002 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	550.00 ft
Travel Time (Channel)	0.097 hours
Number of Sections	1
Length (Section)	550.00 ft
Flow (Weighted)	3.06 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	9.20 ft³/s	Time to Peak (In)	12.450 hours
Flow (Peak Out)	9.00 ft³/s	Time to Peak (Out)	12.500 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.538 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.537 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	150.00 ft
Travel Time (Channel)	0.018 hours
Number of Sections	1
Length (Section)	150.00 ft
Flow (Weighted)	10.68 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	34.38 ft³/s	Time to Peak (In)	12.300 hours
Flow (Peak Out)	34.09 ft³/s	Time to Peak (Out)	12.350 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	4.695 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	4.695 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	630.00 ft
Travel Time (Channel)	0.055 hours
Number of Sections	1
Length (Section)	630.00 ft
Flow (Weighted)	32.52 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	90.18 ft³/s	Time to Peak (In)	12.200 hours
Flow (Peak Out)	88.73 ft³/s	Time to Peak (Out)	12.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	9.627 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	9.626 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	790.00 ft
Travel Time (Channel)	0.069 hours
Number of Sections	1
Length (Section)	790.00 ft
Flow (Weighted)	32.53 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	94.84 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	92.23 ft³/s	Time to Peak (Out)	12.200 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	9.020 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	9.018 ac-ft
Volume (Retained)	0.002 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	820.00 ft
Travel Time (Channel)	0.090 hours
Number of Sections	1
Length (Section)	820.00 ft
Flow (Weighted)	14.24 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	39.67 ft³/s	Time to Peak (In)	12.200 hours
Flow (Peak Out)	38.37 ft³/s	Time to Peak (Out)	12.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	4.150 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	4.149 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	1,200.00 ft
Travel Time (Channel)	0.173 hours
Number of Sections	1
Length (Section)	1,200.00 ft
Flow (Weighted)	5.81 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	17.24 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	15.30 ft³/s	Time to Peak (Out)	12.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.620 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.620 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	1,250.00 ft
Travel Time (Channel)	0.121 hours
Number of Sections	1
Length (Section)	1,250.00 ft
Flow (Weighted)	22.28 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	66.01 ft³/s	Time to Peak (In)	12.600 hours
Flow (Peak Out)	63.27 ft³/s	Time to Peak (Out)	12.700 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	15.775 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	15.773 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	1,420.00 ft
Travel Time (Channel)	0.120 hours
Number of Sections	1
Length (Section)	1,420.00 ft
Flow (Weighted)	36.54 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	97.97 ft³/s	Time to Peak (In)	12.250 hours
Flow (Peak Out)	92.66 ft³/s	Time to Peak (Out)	12.350 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	10.875 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	10.873 ac-ft
Volume (Retained)	0.002 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	550.00 ft
Travel Time (Channel)	0.064 hours
Number of Sections	1
Length (Section)	550.00 ft
Flow (Weighted)	11.90 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	33.91 ft³/s	Time to Peak (In)	12.200 hours
Flow (Peak Out)	33.10 ft³/s	Time to Peak (Out)	12.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	3.381 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	3.380 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: On-Site Stream

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	150.00 ft
Travel Time (Channel)	0.013 hours
Number of Sections	1
Length (Section)	150.00 ft
Flow (Weighted)	34.77 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	441.60 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	439.60 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	93.93 ft³/s	Time to Peak (In)	12.250 hours
Flow (Peak Out)	93.78 ft³/s	Time to Peak (Out)	12.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	10.287 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	10.287 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Otterkill Creek

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	3,770.00 ft
Travel Time (Channel)	0.818 hours
Number of Sections	1
Length (Section)	3,770.00 ft
Flow (Weighted)	3.80 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	452.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	449.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	5.24 ft³/s	Time to Peak (In)	14.350 hours
Flow (Peak Out)	5.22 ft³/s	Time to Peak (Out)	15.100 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	6.898 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	6.876 ac-ft
Volume (Retained)	0.021 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Otterkill Creek

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	4,100.00 ft
Travel Time (Channel)	1.905 hours
Number of Sections	1
Length (Section)	4,100.00 ft
Flow (Weighted)	0.42 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	452.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	449.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	0.67 ft³/s	Time to Peak (In)	14.200 hours
Flow (Peak Out)	0.52 ft³/s	Time to Peak (Out)	17.400 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.588 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.584 ac-ft
Volume (Retained)	0.004 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Otterkill Creek

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	4,100.00 ft
Travel Time (Channel)	0.880 hours
Number of Sections	1
Length (Section)	4,100.00 ft
Flow (Weighted)	3.93 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	452.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	449.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	12.74 ft³/s	Time to Peak (In)	12.350 hours
Flow (Peak Out)	5.41 ft³/s	Time to Peak (Out)	12.800 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.489 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.483 ac-ft
Volume (Retained)	0.006 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Otterkill Creek

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	3,770.00 ft
Travel Time (Channel)	0.382 hours
Number of Sections	1
Length (Section)	3,770.00 ft
Flow (Weighted)	28.36 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	452.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	449.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	104.85 ft³/s	Time to Peak (In)	12.250 hours
Flow (Peak Out)	76.37 ft³/s	Time to Peak (Out)	12.450 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	14.372 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	14.345 ac-ft
Volume (Retained)	0.027 ac-ft
Volume (Unrouted)	-0.001 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Otterkill Creek

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	3,770.00 ft
Travel Time (Channel)	0.259 hours
Number of Sections	1
Length (Section)	3,770.00 ft
Flow (Weighted)	83.91 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	452.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	449.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	265.64 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	219.71 ft³/s	Time to Peak (Out)	12.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	27.607 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	27.570 ac-ft
Volume (Retained)	0.036 ac-ft
Volume (Unrouted)	-0.001 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Otterkill Creek

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	4,100.00 ft
Travel Time (Channel)	0.612 hours
Number of Sections	1
Length (Section)	4,100.00 ft
Flow (Weighted)	10.12 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	452.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	449.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	27.38 ft³/s	Time to Peak (In)	12.250 hours
Flow (Peak Out)	18.20 ft³/s	Time to Peak (Out)	12.500 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	3.111 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	3.103 ac-ft
Volume (Retained)	0.008 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A10

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	240.00 ft
Travel Time (Channel)	0.010 hours
Number of Sections	1
Length (Section)	240.00 ft
Flow (Weighted)	0.83 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	564.75 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	561.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	2.16 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	2.04 ft³/s	Time to Peak (Out)	12.150 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.451 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.451 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A10

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	240.00 ft
Travel Time (Channel)	0.006 hours
Number of Sections	1
Length (Section)	240.00 ft
Flow (Weighted)	5.52 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	564.75 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	561.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	22.31 ft³/s	Time to Peak (In)	12.200 hours
Flow (Peak Out)	21.51 ft³/s	Time to Peak (Out)	12.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	2.917 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	2.917 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A10

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	240.00 ft
Travel Time (Channel)	0.004 hours
Number of Sections	1
Length (Section)	240.00 ft
Flow (Weighted)	16.52 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	564.75 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	561.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	55.31 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	54.44 ft³/s	Time to Peak (Out)	12.150 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	5.496 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	5.496 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A6

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	175.00 ft
Travel Time (Channel)	0.005 hours
Number of Sections	1
Length (Section)	175.00 ft
Flow (Weighted)	3.34 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	495.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	491.25 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	4.62 ft³/s	Time to Peak (In)	14.350 hours
Flow (Peak Out)	4.62 ft³/s	Time to Peak (Out)	14.400 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	6.110 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	6.110 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A6

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	175.00 ft
Travel Time (Channel)	0.002 hours
Number of Sections	1
Length (Section)	175.00 ft
Flow (Weighted)	25.05 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	495.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	491.25 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	93.58 ft³/s	Time to Peak (In)	12.200 hours
Flow (Peak Out)	92.99 ft³/s	Time to Peak (Out)	12.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	12.683 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	12.683 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A6

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	175.00 ft
Travel Time (Channel)	0.002 hours
Number of Sections	1
Length (Section)	175.00 ft
Flow (Weighted)	74.19 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	495.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	491.25 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	239.33 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	233.90 ft³/s	Time to Peak (Out)	12.200 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	24.314 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	24.314 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A7

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	330.00 ft
Travel Time (Channel)	0.010 hours
Number of Sections	1
Length (Section)	330.00 ft
Flow (Weighted)	2.80 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	514.75 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	511.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	3.88 ft³/s	Time to Peak (In)	12.200 hours
Flow (Peak Out)	3.87 ft³/s	Time to Peak (Out)	14.350 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	5.091 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	5.091 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A7

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	330.00 ft
Travel Time (Channel)	0.006 hours
Number of Sections	1
Length (Section)	330.00 ft
Flow (Weighted)	20.91 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	514.75 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	511.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	79.51 ft³/s	Time to Peak (In)	12.200 hours
Flow (Peak Out)	77.96 ft³/s	Time to Peak (Out)	12.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	10.548 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	10.548 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A7

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	330.00 ft
Travel Time (Channel)	0.004 hours
Number of Sections	1
Length (Section)	330.00 ft
Flow (Weighted)	61.92 ft^3/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	514.75 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	511.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft^3/s
Infiltration (Starting, per section)	0.00 ft^3/s
Flow (Total Out Starting)	0.00 ft^3/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	201.96 ft^3/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	197.44 ft^3/s	Time to Peak (Out)	12.150 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	20.201 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	20.201 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A8

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	345.00 ft
Travel Time (Channel)	0.012 hours
Number of Sections	1
Length (Section)	345.00 ft
Flow (Weighted)	2.25 ft^3/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	532.75 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	529.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft^3/s
Infiltration (Starting, per section)	0.00 ft^3/s
Flow (Total Out Starting)	0.00 ft^3/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	3.40 ft^3/s	Time to Peak (In)	12.200 hours
Flow (Peak Out)	3.29 ft^3/s	Time to Peak (Out)	12.200 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	4.052 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	4.052 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A8

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	345.00 ft
Travel Time (Channel)	0.007 hours
Number of Sections	1
Length (Section)	345.00 ft
Flow (Weighted)	16.48 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	532.75 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	529.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	63.16 ft³/s	Time to Peak (In)	12.200 hours
Flow (Peak Out)	61.51 ft³/s	Time to Peak (Out)	12.200 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	8.373 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	8.373 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A8

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	345.00 ft
Travel Time (Channel)	0.005 hours
Number of Sections	1
Length (Section)	345.00 ft
Flow (Weighted)	49.18 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	532.75 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	529.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	161.42 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	159.22 ft³/s	Time to Peak (Out)	12.150 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	16.011 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	16.011 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A9

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	615.00 ft
Travel Time (Channel)	0.032 hours
Number of Sections	1
Length (Section)	615.00 ft
Flow (Weighted)	1.63 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	546.75 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	543.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	2.85 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	2.73 ft³/s	Time to Peak (Out)	12.200 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	2.909 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	2.909 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A9

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	615.00 ft
Travel Time (Channel)	0.018 hours
Number of Sections	1
Length (Section)	615.00 ft
Flow (Weighted)	11.58 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	546.75 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	543.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	44.94 ft³/s	Time to Peak (In)	12.200 hours
Flow (Peak Out)	43.69 ft³/s	Time to Peak (Out)	12.200 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	5.980 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	5.979 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: R-A9

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	615.00 ft
Travel Time (Channel)	0.013 hours
Number of Sections	1
Length (Section)	615.00 ft
Flow (Weighted)	34.95 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	546.75 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	543.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	115.18 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	114.28 ft³/s	Time to Peak (Out)	12.150 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	11.403 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	11.403 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Sheet Flow

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	80.00 ft
Travel Time (Channel)	0.098 hours
Number of Sections	1
Length (Section)	80.00 ft
Flow (Weighted)	0.43 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	438.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	436.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	0.59 ft³/s	Time to Peak (In)	14.200 hours
Flow (Peak Out)	0.59 ft³/s	Time to Peak (Out)	14.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.711 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.711 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Sheet Flow

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	902.00 ft
Travel Time (Channel)	1.132 hours
Number of Sections	1
Length (Section)	902.00 ft
Flow (Weighted)	0.38 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	438.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	436.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	0.56 ft³/s	Time to Peak (In)	14.750 hours
Flow (Peak Out)	0.54 ft³/s	Time to Peak (Out)	15.700 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.473 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.472 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Sheet Flow

Return Event: 1 years
Storm Event: 1-Year

Modified Puls Results Summary	
Length (Channel)	420.00 ft
Travel Time (Channel)	0.977 hours
Number of Sections	1
Length (Section)	420.00 ft
Flow (Weighted)	0.07 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	438.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	436.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	0.10 ft³/s	Time to Peak (In)	17.150 hours
Flow (Peak Out)	0.10 ft³/s	Time to Peak (Out)	17.650 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.093 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.093 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Sheet Flow

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	902.00 ft
Travel Time (Channel)	0.432 hours
Number of Sections	1
Length (Section)	902.00 ft
Flow (Weighted)	4.81 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	438.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	436.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	15.25 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	8.80 ft³/s	Time to Peak (Out)	12.450 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.411 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.410 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Sheet Flow

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	80.00 ft
Travel Time (Channel)	0.042 hours
Number of Sections	1
Length (Section)	80.00 ft
Flow (Weighted)	3.80 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	438.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	436.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	17.83 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	17.12 ft³/s	Time to Peak (Out)	12.150 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	2.002 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	2.002 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Sheet Flow

Return Event: 10 years
Storm Event: 10-Year

Modified Puls Results Summary	
Length (Channel)	420.00 ft
Travel Time (Channel)	0.531 hours
Number of Sections	1
Length (Section)	420.00 ft
Flow (Weighted)	0.37 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	438.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	436.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	1.06 ft³/s	Time to Peak (In)	12.600 hours
Flow (Peak Out)	0.76 ft³/s	Time to Peak (Out)	13.000 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	0.420 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	0.420 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Sheet Flow

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	420.00 ft
Travel Time (Channel)	0.221 hours
Number of Sections	1
Length (Section)	420.00 ft
Flow (Weighted)	3.76 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	438.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	436.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	12.02 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	9.64 ft³/s	Time to Peak (Out)	12.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	1.015 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	1.015 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Sheet Flow

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	80.00 ft
Travel Time (Channel)	0.025 hours
Number of Sections	1
Length (Section)	80.00 ft
Flow (Weighted)	14.14 ft³/s
Overflow Channel	Approximate Extrapolation
Elevation (Overflow)	438.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	436.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	46.90 ft³/s	Time to Peak (In)	12.100 hours
Flow (Peak Out)	46.50 ft³/s	Time to Peak (Out)	12.150 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	4.337 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	4.337 ac-ft
Volume (Retained)	0.000 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Channel Routing Summary
Label: Sheet Flow

Return Event: 100 years
Storm Event: 100-Year

Modified Puls Results Summary	
Length (Channel)	902.00 ft
Travel Time (Channel)	0.304 hours
Number of Sections	1
Length (Section)	902.00 ft
Flow (Weighted)	11.94 ft³/s
Overflow Channel	No Overflow Data
Elevation (Overflow)	438.00 ft

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Starting Water Surface)	436.00 ft
Volume (Starting, per section)	0.000 ac-ft
Flow (Out Starting)	0.00 ft³/s
Infiltration (Starting, per section)	0.00 ft³/s
Flow (Total Out Starting)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	34.70 ft³/s	Time to Peak (In)	12.150 hours
Flow (Peak Out)	27.51 ft³/s	Time to Peak (Out)	12.250 hours

Mass Balance (ac-ft)	
Volume (Initial)	0.000 ac-ft
Volume (Total Inflow)	3.110 ac-ft
Volume (Total Infiltration)	0.000 ac-ft
Volume (Total Outlet Outflow)	3.109 ac-ft
Volume (Retained)	0.001 ac-ft
Volume (Unrouted)	0.000 ac-ft
Error (Mass Balance)	0.0 %

Subsection: Elevation-Area Volume Curve
Label: B-A2

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
421.00	0.0	1,400	0	0.000	0.000
423.90	0.0	1,400	4,200	0.093	0.093
424.00	0.0	7,000	11,530	0.009	0.102
426.00	0.0	8,400	23,068	0.353	0.455

Subsection: Elevation-Area Volume Curve
Label: B-A3

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
421.00	0.0	2,700	0	0.000	0.000
423.90	0.0	2,700	8,100	0.180	0.180
424.00	0.0	13,500	22,237	0.017	0.197
426.00	0.0	15,000	42,730	0.654	0.851

Subsection: Elevation-Area Volume Curve
Label: B-A4

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
447.50	0.0	1,800	0	0.000	0.000
450.40	0.0	1,800	5,400	0.120	0.120
450.50	0.0	9,000	14,825	0.011	0.131
453.00	0.0	10,700	29,513	0.565	0.696

Subsection: Elevation-Area Volume Curve
Label: B-B10

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
476.00	0.0	500	0	0.000	0.000
478.90	0.0	500	1,500	0.033	0.033
479.00	0.0	2,500	4,118	0.003	0.036
481.00	0.0	4,300	10,079	0.154	0.191

Subsection: Elevation-Area Volume Curve
Label: B-B11

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
605.75	0.0	900	0	0.000	0.000
608.65	0.0	900	2,700	0.060	0.060
608.75	0.0	4,500	7,412	0.006	0.066
611.25	0.0	5,900	15,553	0.298	0.363

Subsection: Elevation-Area Volume Curve
Label: B-B13

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
464.00	0.0	2,800	0	0.000	0.000
466.90	0.0	2,800	8,400	0.186	0.186
467.00	0.0	14,000	23,061	0.018	0.204
469.00	0.0	15,500	44,231	0.677	0.881

Subsection: Elevation-Area Volume Curve
Label: B-B2

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
443.50	0.0	500	0	0.000	0.000
446.40	0.0	500	1,500	0.033	0.033
446.50	0.0	2,500	4,118	0.003	0.036
448.50	0.0	3,600	9,100	0.139	0.176

Subsection: Elevation-Area Volume Curve
Label: B-B3

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
454.00	0.0	900	0	0.000	0.000
456.90	0.0	900	2,700	0.060	0.060
457.00	0.0	4,500	7,412	0.006	0.066
459.00	0.0	6,000	15,696	0.240	0.306

Subsection: Elevation-Area Volume Curve
Label: B-B4

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
458.50	0.0	600	0	0.000	0.000
461.40	0.0	600	1,800	0.040	0.040
461.50	0.0	3,000	4,942	0.004	0.044
463.50	0.0	4,100	10,607	0.162	0.206

Subsection: Elevation-Area Volume Curve
Label: B-B5

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
510.50	0.0	400	0	0.000	0.000
513.40	0.0	400	1,200	0.027	0.027
513.50	0.0	2,000	3,294	0.003	0.029
515.50	0.0	2,700	7,024	0.108	0.137

Subsection: Elevation-Area Volume Curve
Label: B-B6

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
535.50	0.0	1,600	0	0.000	0.000
538.40	0.0	1,600	4,800	0.107	0.107
538.50	0.0	8,000	13,178	0.010	0.117
540.50	0.0	9,600	26,364	0.403	0.520

Subsection: Elevation-Area Volume Curve
Label: B-B7

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
458.50	0.0	4,400	0	0.000	0.000
461.40	0.0	4,400	13,200	0.293	0.293
461.50	0.0	22,000	36,239	0.028	0.321
463.50	0.0	25,500	71,185	1.089	1.410

Subsection: Elevation-Area Volume Curve
Label: B-B8

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
464.00	0.0	4,300	0	0.000	0.000
466.90	0.0	4,300	12,900	0.286	0.286
467.00	0.0	21,500	35,415	0.027	0.313
470.00	0.0	23,000	66,737	1.532	1.845

Subsection: Elevation-Area Volume Curve
Label: B-B9

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
461.00	0.0	1,800	0	0.000	0.000
463.90	0.0	1,800	5,400	0.120	0.120
464.00	0.0	9,000	14,825	0.011	0.131
466.50	0.0	10,200	28,781	0.551	0.682

Subsection: Elevation-Area Volume Curve
Label: P-B7

Return Event: 1 years
Storm Event: 1-Year

Elevation (ft)	Planimeter (ft²)	Area (ft²)	A1+A2+sqr (A1*A2) (ft²)	Volume (ac-ft)	Volume (Total) (ac-ft)
451.50	0.0	10,300	0	0.000	0.000
453.50	0.0	14,300	36,736	0.562	0.562
455.50	0.0	18,800	49,496	0.758	1.320
457.50	0.0	23,900	63,897	0.978	2.298
459.50	0.0	29,400	79,808	1.221	3.519
461.50	0.0	35,500	97,206	1.488	5.007
463.50	0.0	42,000	116,113	1.777	6.784

Subsection: Storage Chamber System
Label: UG-A10

Return Event: 1 years
Storm Event: 1-Year

Storage Chamber			
ID	206	Notes	Created on 19 Dec 2011. Check with manufacturer for updates.
Label	Recharger (R) 900HD		

Storage Chamber			
Effective Length	7.00 ft	Manufacturer	CULTEC
Section Length Varies?	False	Default Spacing	0.75 ft

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
0.00	0.00
0.08	0.50
0.17	0.49
0.25	0.49
0.33	0.48
0.42	0.48
0.50	0.48
0.58	0.48
0.67	0.47
0.75	0.47
0.83	0.47
0.92	0.47
1.00	0.46
1.08	0.46
1.17	0.46
1.25	0.46
1.33	0.45
1.42	0.45
1.50	0.44
1.58	0.44
1.67	0.43
1.75	0.43
1.83	0.42
1.92	0.42
2.00	0.41
2.08	0.41
2.17	0.40
2.25	0.39
2.33	0.39
2.42	0.38
2.50	0.37
2.58	0.36
2.67	0.35
2.75	0.34
2.83	0.33
2.92	0.32
3.00	0.31

Subsection: Storage Chamber System
Label: UG-A10

Return Event: 1 years
Storm Event: 1-Year

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
3.08	0.30
3.17	0.28
3.25	0.27
3.33	0.25
3.42	0.24
3.50	0.22
3.58	0.20
3.67	0.17
3.75	0.14
3.83	0.10
3.92	0.06
4.00	0.03

Storage Chamber			
Storage Chamber Type	Incremental Volume Per Unit Length	Maximum Width	6.50 ft

Storage Chamber (Pond)	
Chamber System Invert	560.25 ft
Chamber System Rows	6
Chambers per Row	48
Chamber System Fill Void Space	40.0 %
Chamber System Row Spacing	9.0 in
Chamber System Side Fill	12.0 in
Chamber System Fill Cover Depth	12.0 in
Chamber System Fill Base Depth	9.0 in
Chamber System Fill Side Slope	0.000 H:V
Chamber System End Fill	12.0 in
Chamber System Includes Header?	False

Subsection: Storage Chamber System
Label: UG-A5

Return Event: 1 years
Storm Event: 1-Year

Storage Chamber			
ID	206	Notes	Created on 19 Dec 2011. Check with manufacturer for updates.
Label	Recharger (R) 900HD		

Subsection: Storage Chamber System
Label: UG-A5

Return Event: 1 years
Storm Event: 1-Year

Storage Chamber			
Effective Length	7.00 ft	Manufacturer	CULTEC
Section Length Varies?	False	Default Spacing	0.75 ft

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
0.00	0.00
0.08	0.50
0.17	0.49
0.25	0.49
0.33	0.48
0.42	0.48
0.50	0.48
0.58	0.48
0.67	0.47
0.75	0.47
0.83	0.47
0.92	0.47
1.00	0.46
1.08	0.46
1.17	0.46
1.25	0.46
1.33	0.45
1.42	0.45
1.50	0.44
1.58	0.44
1.67	0.43
1.75	0.43
1.83	0.42
1.92	0.42
2.00	0.41
2.08	0.41
2.17	0.40
2.25	0.39
2.33	0.39
2.42	0.38
2.50	0.37
2.58	0.36
2.67	0.35
2.75	0.34
2.83	0.33
2.92	0.32
3.00	0.31
3.08	0.30
3.17	0.28
3.25	0.27
3.33	0.25
3.42	0.24
3.50	0.22
3.58	0.20
3.67	0.17
3.75	0.14

Subsection: Storage Chamber System
Label: UG-A5

Return Event: 1 years
Storm Event: 1-Year

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
3.83	0.10
3.92	0.06
4.00	0.03

Storage Chamber			
Storage Chamber Type	Incremental Volume Per Unit Length	Maximum Width	6.50 ft

Storage Chamber (Pond)	
Chamber System Invert	474.75 ft
Chamber System Rows	4
Chambers per Row	40
Chamber System Fill Void Space	40.0 %
Chamber System Row Spacing	9.0 in
Chamber System Side Fill	12.0 in
Chamber System Fill Cover Depth	12.0 in
Chamber System Fill Base Depth	9.0 in
Chamber System Fill Side Slope	0.000 H:V
Chamber System End Fill	12.0 in
Chamber System Includes Header?	False

Subsection: Storage Chamber System
Label: UG-A6

Return Event: 1 years
Storm Event: 1-Year

Storage Chamber			
ID	206	Notes	Created on 19 Dec 2011. Check with manufacturer for updates.
Label	Recharger (R) 900HD		

Storage Chamber			
Effective Length	7.00 ft	Manufacturer	CULTEC
Section Length Varies?	False	Default Spacing	0.75 ft

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)

Subsection: Storage Chamber System
Label: UG-A6

Return Event: 1 years
Storm Event: 1-Year

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
0.00	0.00
0.08	0.50
0.17	0.49
0.25	0.49
0.33	0.48
0.42	0.48
0.50	0.48
0.58	0.48
0.67	0.47
0.75	0.47
0.83	0.47
0.92	0.47
1.00	0.46
1.08	0.46
1.17	0.46
1.25	0.46
1.33	0.45
1.42	0.45
1.50	0.44
1.58	0.44
1.67	0.43
1.75	0.43
1.83	0.42
1.92	0.42
2.00	0.41
2.08	0.41
2.17	0.40
2.25	0.39
2.33	0.39
2.42	0.38
2.50	0.37
2.58	0.36
2.67	0.35
2.75	0.34
2.83	0.33
2.92	0.32
3.00	0.31
3.08	0.30
3.17	0.28
3.25	0.27
3.33	0.25
3.42	0.24
3.50	0.22
3.58	0.20
3.67	0.17
3.75	0.14
3.83	0.10
3.92	0.06
4.00	0.03

Subsection: Storage Chamber System
Label: UG-A6

Return Event: 1 years
Storm Event: 1-Year

Storage Chamber			
Storage Chamber Type	Incremental Volume Per Unit Length	Maximum Width	6.50 ft

Storage Chamber (Pond)	
Chamber System Invert	490.50 ft
Chamber System Rows	5
Chambers per Row	40
Chamber System Fill Void Space	40.0 %
Chamber System Row Spacing	9.0 in
Chamber System Side Fill	12.0 in
Chamber System Fill Cover Depth	12.0 in
Chamber System Fill Base Depth	9.0 in
Chamber System Fill Side Slope	0.000 H:V
Chamber System End Fill	12.0 in
Chamber System Includes Header?	False

Subsection: Storage Chamber System
Label: UG-A7

Return Event: 1 years
Storm Event: 1-Year

Storage Chamber			
ID	206	Notes	Created on 19 Dec 2011. Check with manufacturer for updates.
Label	Recharger (R) 900HD		

Storage Chamber			
Effective Length	7.00 ft	Manufacturer	CULTEC
Section Length Varies?	False	Default Spacing	0.75 ft

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
0.00	0.00
0.08	0.50
0.17	0.49
0.25	0.49
0.33	0.48
0.42	0.48
0.50	0.48
0.58	0.48
0.67	0.47

Subsection: Storage Chamber System
Label: UG-A7

Return Event: 1 years
Storm Event: 1-Year

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
0.75	0.47
0.83	0.47
0.92	0.47
1.00	0.46
1.08	0.46
1.17	0.46
1.25	0.46
1.33	0.45
1.42	0.45
1.50	0.44
1.58	0.44
1.67	0.43
1.75	0.43
1.83	0.42
1.92	0.42
2.00	0.41
2.08	0.41
2.17	0.40
2.25	0.39
2.33	0.39
2.42	0.38
2.50	0.37
2.58	0.36
2.67	0.35
2.75	0.34
2.83	0.33
2.92	0.32
3.00	0.31
3.08	0.30
3.17	0.28
3.25	0.27
3.33	0.25
3.42	0.24
3.50	0.22
3.58	0.20
3.67	0.17
3.75	0.14
3.83	0.10
3.92	0.06
4.00	0.03

Storage Chamber			
Storage Chamber Type	Incremental Volume Per Unit Length	Maximum Width	5.50 ft

Storage Chamber (Pond)	
Chamber System Invert	510.25 ft
Chamber System Rows	5

Subsection: Storage Chamber System
Label: UG-A7

Return Event: 1 years
Storm Event: 1-Year

Storage Chamber (Pond)	
Chambers per Row	40
Chamber System Fill Void Space	40.0 %
Chamber System Row Spacing	9.0 in
Chamber System Side Fill	12.0 in
Chamber System Fill Cover Depth	12.0 in
Chamber System Fill Base Depth	9.0 in
Chamber System Fill Side Slope	0.000 H:V
Chamber System End Fill	12.0 in
Chamber System Includes Header?	False

Subsection: Storage Chamber System
Label: UG-A8

Return Event: 1 years
Storm Event: 1-Year

Storage Chamber			
ID	206	Notes	Created on 19 Dec 2011. Check with manufacturer for updates.
Label	Recharger (R) 900HD		

Storage Chamber			
Effective Length	7.00 ft	Manufacturer	CULTEC
Section Length Varies?	False	Default Spacing	0.75 ft

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
0.00	0.00
0.08	0.50
0.17	0.49
0.25	0.49
0.33	0.48
0.42	0.48
0.50	0.48
0.58	0.48
0.67	0.47
0.75	0.47
0.83	0.47
0.92	0.47
1.00	0.46
1.08	0.46
1.17	0.46
1.25	0.46

Subsection: Storage Chamber System
Label: UG-A8

Return Event: 1 years
Storm Event: 1-Year

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
1.33	0.45
1.42	0.45
1.50	0.44
1.58	0.44
1.67	0.43
1.75	0.43
1.83	0.42
1.92	0.42
2.00	0.41
2.08	0.41
2.17	0.40
2.25	0.39
2.33	0.39
2.42	0.38
2.50	0.37
2.58	0.36
2.67	0.35
2.75	0.34
2.83	0.33
2.92	0.32
3.00	0.31
3.08	0.30
3.17	0.28
3.25	0.27
3.33	0.25
3.42	0.24
3.50	0.22
3.58	0.20
3.67	0.17
3.75	0.14
3.83	0.10
3.92	0.06
4.00	0.03

Storage Chamber			
Storage Chamber Type	Incremental Volume Per Unit Length	Maximum Width	6.50 ft

Storage Chamber (Pond)	
Chamber System Invert	528.25 ft
Chamber System Rows	5
Chambers per Row	44
Chamber System Fill Void Space	40.0 %
Chamber System Row Spacing	9.0 in
Chamber System Side Fill	12.0 in

Subsection: Storage Chamber System
Label: UG-A8

Return Event: 1 years
Storm Event: 1-Year

Storage Chamber (Pond)	
Chamber System Fill Cover Depth	12.0 in
Chamber System Fill Base Depth	9.0 in
Chamber System Fill Side Slope	0.000 H:V
Chamber System End Fill	12.0 in
Chamber System Includes Header?	False

Subsection: Storage Chamber System
Label: UG-A9

Return Event: 1 years
Storm Event: 1-Year

Storage Chamber			
ID	206	Notes	Created on 19 Dec 2011. Check with manufacturer for updates.
Label	Recharger (R) 900HD		

Storage Chamber			
Effective Length	7.00 ft	Manufacturer	CULTEC
Section Length Varies?	False	Default Spacing	0.75 ft

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
0.00	0.00
0.08	0.50
0.17	0.49
0.25	0.49
0.33	0.48
0.42	0.48
0.50	0.48
0.58	0.48
0.67	0.47
0.75	0.47
0.83	0.47
0.92	0.47
1.00	0.46
1.08	0.46
1.17	0.46
1.25	0.46
1.33	0.45
1.42	0.45
1.50	0.44
1.58	0.44
1.67	0.43
1.75	0.43

Subsection: Storage Chamber System
Label: UG-A9

Return Event: 1 years
Storm Event: 1-Year

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
1.83	0.42
1.92	0.42
2.00	0.41
2.08	0.41
2.17	0.40
2.25	0.39
2.33	0.39
2.42	0.38
2.50	0.37
2.58	0.36
2.67	0.35
2.75	0.34
2.83	0.33
2.92	0.32
3.00	0.31
3.08	0.30
3.17	0.28
3.25	0.27
3.33	0.25
3.42	0.24
3.50	0.22
3.58	0.20
3.67	0.17
3.75	0.14
3.83	0.10
3.92	0.06
4.00	0.03

Storage Chamber			
Storage Chamber Type	Incremental Volume Per Unit Length	Maximum Width	6.50 ft

Storage Chamber (Pond)	
Chamber System Invert	542.25 ft
Chamber System Rows	6
Chambers per Row	50
Chamber System Fill Void Space	40.0 %
Chamber System Row Spacing	9.0 in
Chamber System Side Fill	12.0 in
Chamber System Fill Cover Depth	12.0 in
Chamber System Fill Base Depth	9.0 in
Chamber System Fill Side Slope	0.000 H:V
Chamber System End Fill	12.0 in

Subsection: Storage Chamber System
Label: UG-A9

Return Event: 1 years
Storm Event: 1-Year

Storage Chamber (Pond)	
Chamber System Includes Header?	False

Subsection: Storage Chamber System
Label: UG-B12

Return Event: 1 years
Storm Event: 1-Year

Storage Chamber			
ID	206	Notes	Created on 19 Dec 2011. Check with manufacturer for updates.
Label	Recharger (R) 900HD		

Storage Chamber			
Effective Length	7.00 ft	Manufacturer	CULTEC
Section Length Varies?	False	Default Spacing	0.75 ft

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
0.00	0.00
0.08	0.50
0.17	0.49
0.25	0.49
0.33	0.48
0.42	0.48
0.50	0.48
0.58	0.48
0.67	0.47
0.75	0.47
0.83	0.47
0.92	0.47
1.00	0.46
1.08	0.46
1.17	0.46
1.25	0.46
1.33	0.45
1.42	0.45
1.50	0.44
1.58	0.44
1.67	0.43
1.75	0.43
1.83	0.42
1.92	0.42
2.00	0.41
2.08	0.41
2.17	0.40
2.25	0.39
2.33	0.39

Subsection: Storage Chamber System
Label: UG-B12

Return Event: 1 years
Storm Event: 1-Year

Depth-Incremental Volume Per Unit Length Curve

Depth (ft)	Incremental Volume Per Unit Length (ft³/ft)
2.42	0.38
2.50	0.37
2.58	0.36
2.67	0.35
2.75	0.34
2.83	0.33
2.92	0.32
3.00	0.31
3.08	0.30
3.17	0.28
3.25	0.27
3.33	0.25
3.42	0.24
3.50	0.22
3.58	0.20
3.67	0.17
3.75	0.14
3.83	0.10
3.92	0.06
4.00	0.03

Storage Chamber			
Storage Chamber Type	Incremental Volume Per Unit Length	Maximum Width	6.50 ft

Storage Chamber (Pond)	
Chamber System Invert	447.75 ft
Chamber System Rows	8
Chambers per Row	20
Chamber System Fill Void Space	40.0 %
Chamber System Row Spacing	9.0 in
Chamber System Side Fill	12.0 in
Chamber System Fill Cover Depth	12.0 in
Chamber System Fill Base Depth	9.0 in
Chamber System Fill Side Slope	0.000 H:V
Chamber System End Fill	12.0 in
Chamber System Includes Header?	False

Subsection: Outlet Input Data
Label: Bio A2

Return Event: 1 years
Storm Event: 1-Year

Subsection: Outlet Input Data
Label: Bio A2

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	421.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	426.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser	Forward	TW	425.50	426.00
Orifice-Circular	Orifice 1	Forward	TW	424.50	426.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: Bio A2

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Riser Structure Type: Inlet Box	
Number of Openings	1
Elevation	425.50 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	424.50 ft
Orifice Diameter	4.00 in
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

Subsection: Individual Outlet Curves
Label: Bio A2

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
421.00	0.00	(N/A)	0.00
421.50	0.00	(N/A)	0.00
422.00	0.00	(N/A)	0.00
422.50	0.00	(N/A)	0.00
423.00	0.00	(N/A)	0.00
423.50	0.00	(N/A)	0.00
424.00	0.00	(N/A)	0.00
424.50	0.00	(N/A)	0.00
425.00	0.00	(N/A)	0.00
425.50	0.00	(N/A)	0.00
426.00	14.85	(N/A)	0.00

Computation Messages

HW & TW < Inv.El.=425.500
HW & TW < Inv.El.=425.500
HW & TW < Inv.El.=425.500
HW & TW < Inv.El.=425.500
HW & TW < Inv.El.=425.500
HW & TW < Inv.El.=425.500
HW & TW < Inv.El.=425.500
HW & TW < Inv.El.=425.500
HW & TW < Inv.El.=425.500
Weir: H =0ft
Weir: H =0.5ft

Subsection: Individual Outlet Curves
Label: Bio A2

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
421.00	0.00	(N/A)	0.00
421.50	0.00	(N/A)	0.00
422.00	0.00	(N/A)	0.00
422.50	0.00	(N/A)	0.00
423.00	0.00	(N/A)	0.00
423.50	0.00	(N/A)	0.00
424.00	0.00	(N/A)	0.00
424.50	0.00	(N/A)	0.00
425.00	0.24	(N/A)	0.00
425.50	0.38	(N/A)	0.00
426.00	0.48	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.33
H =.83
H =1.33

Subsection: Composite Rating Curve
Label: Bio A2

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
421.00	0.00	(N/A)	0.00
421.50	0.00	(N/A)	0.00
422.00	0.00	(N/A)	0.00
422.50	0.00	(N/A)	0.00
423.00	0.00	(N/A)	0.00
423.50	0.00	(N/A)	0.00
424.00	0.00	(N/A)	0.00
424.50	0.00	(N/A)	0.00
425.00	0.24	(N/A)	0.00
425.50	0.38	(N/A)	0.00
426.00	15.33	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice 1
Riser + Orifice 1
Riser + Orifice 1

Subsection: Outlet Input Data
Label: Bio A3

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	421.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	426.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser	Forward	TW	425.10	426.00
Orifice-Circular	Orifice 1	Forward	TW	424.50	426.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: Bio A3

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Riser Structure Type: Inlet Box	
Number of Openings	1
Elevation	425.10 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	424.50 ft
Orifice Diameter	6.00 in
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

Subsection: Individual Outlet Curves
Label: Bio A3

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
421.00	0.00	(N/A)	0.00
421.50	0.00	(N/A)	0.00
422.00	0.00	(N/A)	0.00
422.50	0.00	(N/A)	0.00
423.00	0.00	(N/A)	0.00
423.50	0.00	(N/A)	0.00
424.00	0.00	(N/A)	0.00
424.50	0.00	(N/A)	0.00
425.00	0.00	(N/A)	0.00
425.10	0.00	(N/A)	0.00
425.50	10.63	(N/A)	0.00
426.00	35.86	(N/A)	0.00

Computation Messages

HW & TW < Inv.El.=425.100
HW & TW < Inv.El.=425.100
HW & TW < Inv.El.=425.100
HW & TW < Inv.El.=425.100
HW & TW < Inv.El.=425.100
HW & TW < Inv.El.=425.100
HW & TW < Inv.El.=425.100
HW & TW < Inv.El.=425.100
HW & TW < Inv.El.=425.100
Weir: H =0ft
Weir: H =0.4ft
Weir: H =0.9ft

Subsection: Individual Outlet Curves
Label: Bio A3

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
421.00	0.00	(N/A)	0.00
421.50	0.00	(N/A)	0.00
422.00	0.00	(N/A)	0.00
422.50	0.00	(N/A)	0.00
423.00	0.00	(N/A)	0.00
423.50	0.00	(N/A)	0.00
424.00	0.00	(N/A)	0.00
424.50	0.00	(N/A)	0.00
425.00	0.47	(N/A)	0.00
425.10	0.56	(N/A)	0.00
425.50	0.82	(N/A)	0.00
426.00	1.06	(N/A)	0.00

Computation Messages
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.25
H =.35
H =.75
H =1.25

Subsection: Composite Rating Curve
Label: Bio A3

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
421.00	0.00	(N/A)	0.00
421.50	0.00	(N/A)	0.00
422.00	0.00	(N/A)	0.00
422.50	0.00	(N/A)	0.00
423.00	0.00	(N/A)	0.00
423.50	0.00	(N/A)	0.00
424.00	0.00	(N/A)	0.00
424.50	0.00	(N/A)	0.00
425.00	0.47	(N/A)	0.00
425.10	0.56	(N/A)	0.00
425.50	11.44	(N/A)	0.00
426.00	36.92	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice 1
Riser + Orifice 1
Riser + Orifice 1
Riser + Orifice 1

Requested Pond Water Surface Elevations	
Minimum (Headwater)	447.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	452.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser	Forward	TW	452.30	453.00
Orifice-Circular	Orifice 1	Forward	TW	451.00	453.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Riser Structure Type: Inlet Box	
Number of Openings	1
Elevation	452.30 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	451.00 ft
Orifice Diameter	4.50 in
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

Subsection: Individual Outlet Curves
Label: Bio A4

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
447.50	0.00	(N/A)	0.00
448.00	0.00	(N/A)	0.00
448.50	0.00	(N/A)	0.00
449.00	0.00	(N/A)	0.00
449.50	0.00	(N/A)	0.00
450.00	0.00	(N/A)	0.00
450.50	0.00	(N/A)	0.00
451.00	0.00	(N/A)	0.00
451.50	0.00	(N/A)	0.00
452.00	0.00	(N/A)	0.00
452.30	0.00	(N/A)	0.00
452.50	3.76	(N/A)	0.00
453.00	24.60	(N/A)	0.00

Computation Messages

HW & TW < Inv.El.=452.300
HW & TW < Inv.El.=452.300
HW & TW < Inv.El.=452.300
HW & TW < Inv.El.=452.300
HW & TW < Inv.El.=452.300
HW & TW < Inv.El.=452.300
HW & TW < Inv.El.=452.300
HW & TW < Inv.El.=452.300
HW & TW < Inv.El.=452.300
HW & TW < Inv.El.=452.300
Weir: H =0ft
Weir: H =0.2ft
Weir: H =0.7ft

Subsection: Individual Outlet Curves
Label: Bio A4

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
447.50	0.00	(N/A)	0.00
448.00	0.00	(N/A)	0.00
448.50	0.00	(N/A)	0.00
449.00	0.00	(N/A)	0.00
449.50	0.00	(N/A)	0.00
450.00	0.00	(N/A)	0.00
450.50	0.00	(N/A)	0.00
451.00	0.00	(N/A)	0.00
451.50	0.30	(N/A)	0.00
452.00	0.48	(N/A)	0.00
452.30	0.56	(N/A)	0.00
452.50	0.61	(N/A)	0.00
453.00	0.72	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.31
H =.81
H =1.11
H =1.31
H =1.81

Subsection: Composite Rating Curve
Label: Bio A4

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
447.50	0.00	(N/A)	0.00
448.00	0.00	(N/A)	0.00
448.50	0.00	(N/A)	0.00
449.00	0.00	(N/A)	0.00
449.50	0.00	(N/A)	0.00
450.00	0.00	(N/A)	0.00
450.50	0.00	(N/A)	0.00
451.00	0.00	(N/A)	0.00
451.50	0.30	(N/A)	0.00
452.00	0.48	(N/A)	0.00
452.30	0.56	(N/A)	0.00
452.50	4.37	(N/A)	0.00
453.00	25.31	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Riser + Orifice 1
Riser + Orifice 1
Riser + Orifice 1

Subsection: Outlet Input Data
Label: Bio B10

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	476.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	481.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser	Forward	TW	480.75	481.00
Orifice-Circular	Orifice 1	Forward	TW	479.50	481.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: Bio B10

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Riser Structure Type: Inlet Box	
Number of Openings	1
Elevation	480.75 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	479.50 ft
Orifice Diameter	2.50 in
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

Subsection: Individual Outlet Curves
Label: Bio B10

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
476.00	0.00	(N/A)	0.00
476.50	0.00	(N/A)	0.00
477.00	0.00	(N/A)	0.00
477.50	0.00	(N/A)	0.00
478.00	0.00	(N/A)	0.00
478.50	0.00	(N/A)	0.00
479.00	0.00	(N/A)	0.00
479.50	0.00	(N/A)	0.00
480.00	0.00	(N/A)	0.00
480.50	0.00	(N/A)	0.00
480.75	0.00	(N/A)	0.00
481.00	5.25	(N/A)	0.00

Computation Messages

HW & TW < Inv.El.=480.750
HW & TW < Inv.El.=480.750
HW & TW < Inv.El.=480.750
HW & TW < Inv.El.=480.750
HW & TW < Inv.El.=480.750
HW & TW < Inv.El.=480.750
HW & TW < Inv.El.=480.750
HW & TW < Inv.El.=480.750
HW & TW < Inv.El.=480.750
HW & TW < Inv.El.=480.750
Weir: H =0ft
Weir: H =0.25ft

Subsection: Individual Outlet Curves
Label: Bio B10

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
476.00	0.00	(N/A)	0.00
476.50	0.00	(N/A)	0.00
477.00	0.00	(N/A)	0.00
477.50	0.00	(N/A)	0.00
478.00	0.00	(N/A)	0.00
478.50	0.00	(N/A)	0.00
479.00	0.00	(N/A)	0.00
479.50	0.00	(N/A)	0.00
480.00	0.10	(N/A)	0.00
480.50	0.16	(N/A)	0.00
480.75	0.18	(N/A)	0.00
481.00	0.19	(N/A)	0.00

Computation Messages
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.40
H =.90
H =1.15
H =1.40

Subsection: Composite Rating Curve
Label: Bio B10

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
476.00	0.00	(N/A)	0.00
476.50	0.00	(N/A)	0.00
477.00	0.00	(N/A)	0.00
477.50	0.00	(N/A)	0.00
478.00	0.00	(N/A)	0.00
478.50	0.00	(N/A)	0.00
479.00	0.00	(N/A)	0.00
479.50	0.00	(N/A)	0.00
480.00	0.10	(N/A)	0.00
480.50	0.16	(N/A)	0.00
480.75	0.18	(N/A)	0.00
481.00	5.44	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Riser + Orifice 1
Riser + Orifice 1

Subsection: Outlet Input Data
Label: Bio B11

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	605.75 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	610.75 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser	Forward	TW	610.50	611.25
Orifice-Circular	Orifice 1	Forward	TW	609.25	611.25
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: Bio B11

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Riser Structure Type: Inlet Box	
Number of Openings	1
Elevation	610.50 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	609.25 ft
Orifice Diameter	3.25 in
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

Subsection: Individual Outlet Curves
Label: Bio B11

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
605.75	0.00	(N/A)	0.00
606.25	0.00	(N/A)	0.00
606.75	0.00	(N/A)	0.00
607.25	0.00	(N/A)	0.00
607.75	0.00	(N/A)	0.00
608.25	0.00	(N/A)	0.00
608.75	0.00	(N/A)	0.00
609.25	0.00	(N/A)	0.00
609.75	0.00	(N/A)	0.00
610.25	0.00	(N/A)	0.00
610.50	0.00	(N/A)	0.00
610.75	5.25	(N/A)	0.00
611.25	27.28	(N/A)	0.00

Computation Messages

HW & TW < Inv.El.=610.500
HW & TW < Inv.El.=610.500
HW & TW < Inv.El.=610.500
HW & TW < Inv.El.=610.500
HW & TW < Inv.El.=610.500
HW & TW < Inv.El.=610.500
HW & TW < Inv.El.=610.500
HW & TW < Inv.El.=610.500
HW & TW < Inv.El.=610.500
HW & TW < Inv.El.=610.500
Weir: H =0ft
Weir: H =0.25ft
Weir: H =0.75ft

Subsection: Individual Outlet Curves
Label: Bio B11

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
605.75	0.00	(N/A)	0.00
606.25	0.00	(N/A)	0.00
606.75	0.00	(N/A)	0.00
607.25	0.00	(N/A)	0.00
607.75	0.00	(N/A)	0.00
608.25	0.00	(N/A)	0.00
608.75	0.00	(N/A)	0.00
609.25	0.00	(N/A)	0.00
609.75	0.17	(N/A)	0.00
610.25	0.26	(N/A)	0.00
610.50	0.29	(N/A)	0.00
610.75	0.32	(N/A)	0.00
611.25	0.38	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.36
H =.86
H =1.11
H =1.36
H =1.86

Subsection: Composite Rating Curve
Label: Bio B11

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
605.75	0.00	(N/A)	0.00
606.25	0.00	(N/A)	0.00
606.75	0.00	(N/A)	0.00
607.25	0.00	(N/A)	0.00
607.75	0.00	(N/A)	0.00
608.25	0.00	(N/A)	0.00
608.75	0.00	(N/A)	0.00
609.25	0.00	(N/A)	0.00
609.75	0.17	(N/A)	0.00
610.25	0.26	(N/A)	0.00
610.50	0.29	(N/A)	0.00
610.75	5.57	(N/A)	0.00
611.25	27.66	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Riser + Orifice 1
Riser + Orifice 1
Riser + Orifice 1

Subsection: Outlet Input Data
Label: Bio B13

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	464.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	469.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser	Forward	TW	468.00	469.00
Orifice-Circular	Orifice 1	Forward	TW	467.50	469.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: Bio B13

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Riser Structure Type: Inlet Box	
Number of Openings	1
Elevation	468.00 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	467.50 ft
Orifice Diameter	4.00 in
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

Subsection: Individual Outlet Curves
Label: Bio B13

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.00	(N/A)	0.00
465.50	0.00	(N/A)	0.00
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.50	0.00	(N/A)	0.00
468.00	0.00	(N/A)	0.00
468.50	14.85	(N/A)	0.00
469.00	42.00	(N/A)	0.00

Computation Messages
HW & TW < Inv.El.=468.000
HW & TW < Inv.El.=468.000
HW & TW < Inv.El.=468.000
HW & TW < Inv.El.=468.000
HW & TW < Inv.El.=468.000
HW & TW < Inv.El.=468.000
HW & TW < Inv.El.=468.000
HW & TW < Inv.El.=468.000
Weir: H =0ft
Weir: H =0.5ft
Weir: H =1ft

Subsection: Individual Outlet Curves
Label: Bio B13

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.00	(N/A)	0.00
465.50	0.00	(N/A)	0.00
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.50	0.00	(N/A)	0.00
468.00	0.24	(N/A)	0.00
468.50	0.38	(N/A)	0.00
469.00	0.48	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.33
H =.83
H =1.33

Subsection: Composite Rating Curve
Label: Bio B13

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.00	(N/A)	0.00
465.50	0.00	(N/A)	0.00
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.50	0.00	(N/A)	0.00
468.00	0.24	(N/A)	0.00
468.50	15.23	(N/A)	0.00
469.00	42.48	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Riser + Orifice 1
Riser + Orifice 1
Riser + Orifice 1

Subsection: Outlet Input Data
Label: Bio B2

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	443.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	448.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser	Forward	TW	447.50	448.50
Orifice-Circular	Orifice 1	Forward	TW	447.00	448.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: Bio B2

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	447.00 ft
Orifice Diameter	2.60 in
Orifice Coefficient	0.600

Structure ID: Riser Structure Type: Inlet Box	
Number of Openings	1
Elevation	447.50 ft
Orifice Area	12.3 ft^2
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

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

Subsection: Individual Outlet Curves
Label: Bio B2

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
443.50	0.00	(N/A)	0.00
444.00	0.00	(N/A)	0.00
444.50	0.00	(N/A)	0.00
445.00	0.00	(N/A)	0.00
445.50	0.00	(N/A)	0.00
446.00	0.00	(N/A)	0.00
446.50	0.00	(N/A)	0.00
447.00	0.00	(N/A)	0.00
447.50	0.11	(N/A)	0.00
448.00	0.17	(N/A)	0.00
448.50	0.21	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.39
H =.89
H =1.39

Subsection: Individual Outlet Curves
Label: Bio B2

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
443.50	0.00	(N/A)	0.00
444.00	0.00	(N/A)	0.00
444.50	0.00	(N/A)	0.00
445.00	0.00	(N/A)	0.00
445.50	0.00	(N/A)	0.00
446.00	0.00	(N/A)	0.00
446.50	0.00	(N/A)	0.00
447.00	0.00	(N/A)	0.00
447.50	0.00	(N/A)	0.00
448.00	14.85	(N/A)	0.00
448.50	42.00	(N/A)	0.00

Computation Messages

HW & TW < Inv.El.=447.500
HW & TW < Inv.El.=447.500
HW & TW < Inv.El.=447.500
HW & TW < Inv.El.=447.500
HW & TW < Inv.El.=447.500
HW & TW < Inv.El.=447.500
HW & TW < Inv.El.=447.500
HW & TW < Inv.El.=447.500
Weir: H =0ft
Weir: H =0.5ft
Weir: H =1ft

Subsection: Composite Rating Curve
Label: Bio B2

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
443.50	0.00	(N/A)	0.00
444.00	0.00	(N/A)	0.00
444.50	0.00	(N/A)	0.00
445.00	0.00	(N/A)	0.00
445.50	0.00	(N/A)	0.00
446.00	0.00	(N/A)	0.00
446.50	0.00	(N/A)	0.00
447.00	0.00	(N/A)	0.00
447.50	0.11	(N/A)	0.00
448.00	15.02	(N/A)	0.00
448.50	42.21	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Riser + Orifice 1
Riser + Orifice 1
Riser + Orifice 1

Subsection: Outlet Input Data
Label: Bio B3

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	454.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	459.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser	Forward	TW	457.75	459.00
Orifice-Circular	Orifice 1	Forward	TW	457.50	459.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: Bio B3

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Riser Structure Type: Inlet Box	
Number of Openings	1
Elevation	457.75 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	457.50 ft
Orifice Diameter	3.00 in
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

Subsection: Individual Outlet Curves
Label: Bio B3

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
454.00	0.00	(N/A)	0.00
454.50	0.00	(N/A)	0.00
455.00	0.00	(N/A)	0.00
455.50	0.00	(N/A)	0.00
456.00	0.00	(N/A)	0.00
456.50	0.00	(N/A)	0.00
457.00	0.00	(N/A)	0.00
457.50	0.00	(N/A)	0.00
457.75	0.00	(N/A)	0.00
458.00	5.25	(N/A)	0.00
458.50	27.28	(N/A)	0.00
459.00	58.70	(N/A)	0.00

Computation Messages

HW & TW < Inv.El.=457.750
HW & TW < Inv.El.=457.750
HW & TW < Inv.El.=457.750
HW & TW < Inv.El.=457.750
HW & TW < Inv.El.=457.750
HW & TW < Inv.El.=457.750
HW & TW < Inv.El.=457.750
HW & TW < Inv.El.=457.750
Weir: H =0ft
Weir: H =0.25ft
Weir: H =0.75ft
Weir: H =1.25ft

Subsection: Individual Outlet Curves
Label: Bio B3

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
454.00	0.00	(N/A)	0.00
454.50	0.00	(N/A)	0.00
455.00	0.00	(N/A)	0.00
455.50	0.00	(N/A)	0.00
456.00	0.00	(N/A)	0.00
456.50	0.00	(N/A)	0.00
457.00	0.00	(N/A)	0.00
457.50	0.00	(N/A)	0.00
457.75	0.08	(N/A)	0.00
458.00	0.14	(N/A)	0.00
458.50	0.22	(N/A)	0.00
459.00	0.28	(N/A)	0.00

Computation Messages
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.13
H =.38
H =.88
H =1.38

Subsection: Composite Rating Curve
Label: Bio B3

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
454.00	0.00	(N/A)	0.00
454.50	0.00	(N/A)	0.00
455.00	0.00	(N/A)	0.00
455.50	0.00	(N/A)	0.00
456.00	0.00	(N/A)	0.00
456.50	0.00	(N/A)	0.00
457.00	0.00	(N/A)	0.00
457.50	0.00	(N/A)	0.00
457.75	0.08	(N/A)	0.00
458.00	5.39	(N/A)	0.00
458.50	27.50	(N/A)	0.00
459.00	58.97	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Riser + Orifice 1
Riser + Orifice 1
Riser + Orifice 1
Riser + Orifice 1

Subsection: Outlet Input Data
Label: Bio B4

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	458.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	463.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser	Forward	TW	462.75	463.50
Orifice-Circular	Orifice 1	Forward	TW	462.00	463.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: Bio B4

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Riser Structure Type: Inlet Box	
Number of Openings	1
Elevation	462.75 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	462.00 ft
Orifice Diameter	2.50 in
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

Subsection: Individual Outlet Curves
Label: Bio B4

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
458.50	0.00	(N/A)	0.00
459.00	0.00	(N/A)	0.00
459.50	0.00	(N/A)	0.00
460.00	0.00	(N/A)	0.00
460.50	0.00	(N/A)	0.00
461.00	0.00	(N/A)	0.00
461.50	0.00	(N/A)	0.00
462.00	0.00	(N/A)	0.00
462.50	0.00	(N/A)	0.00
462.75	0.00	(N/A)	0.00
463.00	5.25	(N/A)	0.00
463.50	27.28	(N/A)	0.00

Computation Messages

HW & TW < Inv.El.=462.750
HW & TW < Inv.El.=462.750
HW & TW < Inv.El.=462.750
HW & TW < Inv.El.=462.750
HW & TW < Inv.El.=462.750
HW & TW < Inv.El.=462.750
HW & TW < Inv.El.=462.750
HW & TW < Inv.El.=462.750
HW & TW < Inv.El.=462.750
Weir: H =0ft
Weir: H =0.25ft
Weir: H =0.75ft

Subsection: Individual Outlet Curves
Label: Bio B4

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
458.50	0.00	(N/A)	0.00
459.00	0.00	(N/A)	0.00
459.50	0.00	(N/A)	0.00
460.00	0.00	(N/A)	0.00
460.50	0.00	(N/A)	0.00
461.00	0.00	(N/A)	0.00
461.50	0.00	(N/A)	0.00
462.00	0.00	(N/A)	0.00
462.50	0.10	(N/A)	0.00
462.75	0.13	(N/A)	0.00
463.00	0.16	(N/A)	0.00
463.50	0.19	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.40
H =.65
H =.90
H =1.40

Subsection: Composite Rating Curve
Label: Bio B4

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
458.50	0.00	(N/A)	0.00
459.00	0.00	(N/A)	0.00
459.50	0.00	(N/A)	0.00
460.00	0.00	(N/A)	0.00
460.50	0.00	(N/A)	0.00
461.00	0.00	(N/A)	0.00
461.50	0.00	(N/A)	0.00
462.00	0.00	(N/A)	0.00
462.50	0.10	(N/A)	0.00
462.75	0.13	(N/A)	0.00
463.00	5.41	(N/A)	0.00
463.50	27.47	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice 1
Riser + Orifice 1
Riser + Orifice 1
Riser + Orifice 1

Subsection: Outlet Input Data
Label: Bio B5

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	510.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	515.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser	Forward	TW	515.25	515.50
Orifice-Circular	Orifice 1	Forward	TW	514.00	515.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: Bio B5

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Riser Structure Type: Inlet Box	
Number of Openings	1
Elevation	515.25 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	514.00 ft
Orifice Diameter	2.00 in
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

Subsection: Individual Outlet Curves
Label: Bio B5

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
510.50	0.00	(N/A)	0.00
511.00	0.00	(N/A)	0.00
511.50	0.00	(N/A)	0.00
512.00	0.00	(N/A)	0.00
512.50	0.00	(N/A)	0.00
513.00	0.00	(N/A)	0.00
513.50	0.00	(N/A)	0.00
514.00	0.00	(N/A)	0.00
514.50	0.00	(N/A)	0.00
515.00	0.00	(N/A)	0.00
515.25	0.00	(N/A)	0.00
515.50	5.25	(N/A)	0.00

Computation Messages
HW & TW < Inv.El.=515.250
HW & TW < Inv.El.=515.250
HW & TW < Inv.El.=515.250
HW & TW < Inv.El.=515.250
HW & TW < Inv.El.=515.250
HW & TW < Inv.El.=515.250
HW & TW < Inv.El.=515.250
HW & TW < Inv.El.=515.250
HW & TW < Inv.El.=515.250
HW & TW < Inv.El.=515.250
Weir: H =0ft
Weir: H =0.25ft

Subsection: Individual Outlet Curves
Label: Bio B5

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
510.50	0.00	(N/A)	0.00
511.00	0.00	(N/A)	0.00
511.50	0.00	(N/A)	0.00
512.00	0.00	(N/A)	0.00
512.50	0.00	(N/A)	0.00
513.00	0.00	(N/A)	0.00
513.50	0.00	(N/A)	0.00
514.00	0.00	(N/A)	0.00
514.50	0.07	(N/A)	0.00
515.00	0.10	(N/A)	0.00
515.25	0.11	(N/A)	0.00
515.50	0.12	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.42
H =.92
H =1.17
H =1.42

Subsection: Composite Rating Curve
Label: Bio B5

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
510.50	0.00	(N/A)	0.00
511.00	0.00	(N/A)	0.00
511.50	0.00	(N/A)	0.00
512.00	0.00	(N/A)	0.00
512.50	0.00	(N/A)	0.00
513.00	0.00	(N/A)	0.00
513.50	0.00	(N/A)	0.00
514.00	0.00	(N/A)	0.00
514.50	0.07	(N/A)	0.00
515.00	0.10	(N/A)	0.00
515.25	0.11	(N/A)	0.00
515.50	5.37	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Riser + Orifice 1
Riser + Orifice 1

Requested Pond Water Surface Elevations	
Minimum (Headwater)	535.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	540.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Inlet Box	Riser	Forward	TW	540.00	540.50
Orifice-Circular	Orifice 1	Forward	TW	539.00	540.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Riser Structure Type: Inlet Box	
Number of Openings	1
Elevation	540.00 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	539.00 ft
Orifice Diameter	5.00 in
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

Subsection: Individual Outlet Curves
Label: Bio B6

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
535.50	0.00	(N/A)	0.00
536.00	0.00	(N/A)	0.00
536.50	0.00	(N/A)	0.00
537.00	0.00	(N/A)	0.00
537.50	0.00	(N/A)	0.00
538.00	0.00	(N/A)	0.00
538.50	0.00	(N/A)	0.00
539.00	0.00	(N/A)	0.00
539.50	0.00	(N/A)	0.00
540.00	0.00	(N/A)	0.00
540.50	14.85	(N/A)	0.00

Computation Messages
HW & TW < Inv.El.=540.000
HW & TW < Inv.El.=540.000
HW & TW < Inv.El.=540.000
HW & TW < Inv.El.=540.000
HW & TW < Inv.El.=540.000
HW & TW < Inv.El.=540.000
HW & TW < Inv.El.=540.000
HW & TW < Inv.El.=540.000
HW & TW < Inv.El.=540.000
Weir: H =0ft
Weir: H =0.5ft

Subsection: Individual Outlet Curves
Label: Bio B6

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
535.50	0.00	(N/A)	0.00
536.00	0.00	(N/A)	0.00
536.50	0.00	(N/A)	0.00
537.00	0.00	(N/A)	0.00
537.50	0.00	(N/A)	0.00
538.00	0.00	(N/A)	0.00
538.50	0.00	(N/A)	0.00
539.00	0.00	(N/A)	0.00
539.50	0.35	(N/A)	0.00
540.00	0.58	(N/A)	0.00
540.50	0.75	(N/A)	0.00

Computation Messages
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.29
H =.79
H =1.29

Subsection: Composite Rating Curve
Label: Bio B6

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
535.50	0.00	(N/A)	0.00
536.00	0.00	(N/A)	0.00
536.50	0.00	(N/A)	0.00
537.00	0.00	(N/A)	0.00
537.50	0.00	(N/A)	0.00
538.00	0.00	(N/A)	0.00
538.50	0.00	(N/A)	0.00
539.00	0.00	(N/A)	0.00
539.50	0.35	(N/A)	0.00
540.00	0.58	(N/A)	0.00
540.50	15.60	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice 1
Riser + Orifice 1
Riser + Orifice 1

Subsection: Outlet Input Data
Label: Bio B7

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	458.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	463.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Rectangular Weir	Weir 1	Forward	TW	462.00	463.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: Bio B7

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Weir 1 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	462.00 ft
Weir Length	28.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

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

Subsection: Individual Outlet Curves
Label: Bio B7

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir 1 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
458.50	0.00	(N/A)	0.00
459.00	0.00	(N/A)	0.00
459.50	0.00	(N/A)	0.00
460.00	0.00	(N/A)	0.00
460.50	0.00	(N/A)	0.00
461.00	0.00	(N/A)	0.00
461.50	0.00	(N/A)	0.00
462.00	0.00	(N/A)	0.00
462.50	29.59	(N/A)	0.00
463.00	83.40	(N/A)	0.00
463.50	152.66	(N/A)	0.00

Computation Messages

```
HW & TW below Inv.El.=462.000
HW & TW below Inv.El.=462.000
HW & TW below Inv.El.=462.000
HW & TW below Inv.El.=462.000
HW & TW below Inv.El.=462.000
HW & TW below Inv.El.=462.000
HW & TW below Inv.El.=462.000
H=.00; Htw=.00; Qfree=.00;
H=.50; Htw=.00; Qfree=29.59;
H=1.00; Htw=.00; Qfree=83.40;
H=1.50; Htw=.00; Qfree=152.66;
```

Subsection: Composite Rating Curve
Label: Bio B7

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
458.50	0.00	(N/A)	0.00
459.00	0.00	(N/A)	0.00
459.50	0.00	(N/A)	0.00
460.00	0.00	(N/A)	0.00
460.50	0.00	(N/A)	0.00
461.00	0.00	(N/A)	0.00
461.50	0.00	(N/A)	0.00
462.00	0.00	(N/A)	0.00
462.50	29.59	(N/A)	0.00
463.00	83.40	(N/A)	0.00
463.50	152.66	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Weir 1
Weir 1
Weir 1
Weir 1

Subsection: Outlet Input Data
Label: Bio B8

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	464.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	470.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice 1	Forward	TW	467.50	470.00
Inlet Box	Riser 1	Forward	TW	469.00	470.00
Inlet Box	Riser 2	Forward	TW	469.00	470.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Riser 1 Structure Type: Inlet Box	
Number of Openings	1
Elevation	469.00 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Riser 2 Structure Type: Inlet Box	
Number of Openings	1
Elevation	469.00 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	467.50 ft
Orifice Diameter	7.00 in
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

Convergence Tolerances	
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: Bio B8

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser 1 (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.00	(N/A)	0.00
465.50	0.00	(N/A)	0.00
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.50	0.00	(N/A)	0.00
468.00	0.00	(N/A)	0.00
468.50	0.00	(N/A)	0.00
469.00	0.00	(N/A)	0.00
469.50	14.85	(N/A)	0.00
470.00	42.00	(N/A)	0.00

Computation Messages

HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
Weir: H =0ft
Weir: H =0.5ft
Weir: H =1ft

Subsection: Individual Outlet Curves
Label: Bio B8

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser 2 (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.00	(N/A)	0.00
465.50	0.00	(N/A)	0.00
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.50	0.00	(N/A)	0.00
468.00	0.00	(N/A)	0.00
468.50	0.00	(N/A)	0.00
469.00	0.00	(N/A)	0.00
469.50	14.85	(N/A)	0.00
470.00	42.00	(N/A)	0.00

Computation Messages

HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
HW & TW < Inv.El.=469.000
Weir: H =0ft
Weir: H =0.5ft
Weir: H =1ft

Subsection: Individual Outlet Curves
Label: Bio B8

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.00	(N/A)	0.00
465.50	0.00	(N/A)	0.00
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.50	0.00	(N/A)	0.00
468.00	0.52	(N/A)	0.00
468.50	1.08	(N/A)	0.00
469.00	1.41	(N/A)	0.00
469.50	1.68	(N/A)	0.00
470.00	1.91	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .148ft
Dcr= .352ft CRIT.DEPTH Hev= .00ft
H =.71
H =1.21
H =1.71
H =2.21

Subsection: Composite Rating Curve
Label: Bio B8

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.00	(N/A)	0.00
465.50	0.00	(N/A)	0.00
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.50	0.00	(N/A)	0.00
468.00	0.52	(N/A)	0.00
468.50	1.08	(N/A)	0.00
469.00	1.41	(N/A)	0.00
469.50	31.38	(N/A)	0.00
470.00	85.91	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Orifice 1 + Riser 1 + Riser 2
Orifice 1 + Riser 1 + Riser 2
Orifice 1 + Riser 1 + Riser 2

Requested Pond Water Surface Elevations	
Minimum (Headwater)	461.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	466.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice 1	Forward	TW	464.50	466.50
Inlet Box	Riser 1	Forward	TW	466.00	466.50
Inlet Box	Riser 2	Forward	TW	466.00	466.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Riser 1 Structure Type: Inlet Box	
Number of Openings	1
Elevation	466.00 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	464.50 ft
Orifice Diameter	4.50 in
Orifice Coefficient	0.600

Structure ID: Riser 2 Structure Type: Inlet Box	
Number of Openings	1
Elevation	466.00 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

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

Subsection: Outlet Input Data
Label: Bio B9

Return Event: 1 years
Storm Event: 1-Year

Convergence Tolerances	
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: Bio B9

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser 1 (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
461.00	0.00	(N/A)	0.00
461.50	0.00	(N/A)	0.00
462.00	0.00	(N/A)	0.00
462.50	0.00	(N/A)	0.00
463.00	0.00	(N/A)	0.00
463.50	0.00	(N/A)	0.00
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.00	(N/A)	0.00
465.50	0.00	(N/A)	0.00
466.00	0.00	(N/A)	0.00
466.50	14.85	(N/A)	0.00

Computation Messages

HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
Weir: H =0ft
Weir: H =0.5ft

Subsection: Individual Outlet Curves
Label: Bio B9

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
461.00	0.00	(N/A)	0.00
461.50	0.00	(N/A)	0.00
462.00	0.00	(N/A)	0.00
462.50	0.00	(N/A)	0.00
463.00	0.00	(N/A)	0.00
463.50	0.00	(N/A)	0.00
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.30	(N/A)	0.00
465.50	0.48	(N/A)	0.00
466.00	0.61	(N/A)	0.00
466.50	0.72	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.31
H =.81
H =1.31
H =1.81

Subsection: Individual Outlet Curves
Label: Bio B9

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser 2 (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
461.00	0.00	(N/A)	0.00
461.50	0.00	(N/A)	0.00
462.00	0.00	(N/A)	0.00
462.50	0.00	(N/A)	0.00
463.00	0.00	(N/A)	0.00
463.50	0.00	(N/A)	0.00
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.00	(N/A)	0.00
465.50	0.00	(N/A)	0.00
466.00	0.00	(N/A)	0.00
466.50	14.85	(N/A)	0.00

Computation Messages

HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
HW & TW < Inv.El.=466.000
Weir: H =0ft
Weir: H =0.5ft

Subsection: Composite Rating Curve
Label: Bio B9

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
461.00	0.00	(N/A)	0.00
461.50	0.00	(N/A)	0.00
462.00	0.00	(N/A)	0.00
462.50	0.00	(N/A)	0.00
463.00	0.00	(N/A)	0.00
463.50	0.00	(N/A)	0.00
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.30	(N/A)	0.00
465.50	0.48	(N/A)	0.00
466.00	0.61	(N/A)	0.00
466.50	30.41	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Orifice 1 + Riser 1 + Riser 2
Orifice 1 + Riser 1 + Riser 2

Subsection: Outlet Input Data
Label: H-A10

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	561.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	581.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	563.33	581.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-A10

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	563.33 ft
Orifice Diameter	36.00 in
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

Subsection: Individual Outlet Curves
Label: H-A10

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
561.00	0.00	(N/A)	0.00
561.50	0.00	(N/A)	0.00
562.00	0.00	(N/A)	0.00
562.50	0.00	(N/A)	0.00
563.00	0.00	(N/A)	0.00
563.33	0.00	(N/A)	0.00
563.50	0.17	(N/A)	0.00
564.00	2.56	(N/A)	0.00
564.50	7.49	(N/A)	0.00
565.00	14.53	(N/A)	0.00
565.50	23.28	(N/A)	0.00
566.00	33.24	(N/A)	0.00
566.50	43.97	(N/A)	0.00
567.00	50.12	(N/A)	0.00
567.50	55.59	(N/A)	0.00
568.00	60.57	(N/A)	0.00
568.50	65.18	(N/A)	0.00
569.00	69.47	(N/A)	0.00
569.50	73.52	(N/A)	0.00
570.00	77.36	(N/A)	0.00
570.50	81.01	(N/A)	0.00
571.00	84.51	(N/A)	0.00
571.50	87.86	(N/A)	0.00
572.00	91.10	(N/A)	0.00
572.50	94.22	(N/A)	0.00
573.00	97.24	(N/A)	0.00
573.50	100.18	(N/A)	0.00
574.00	103.02	(N/A)	0.00
574.50	105.79	(N/A)	0.00
575.00	108.50	(N/A)	0.00
575.50	111.13	(N/A)	0.00
576.00	113.70	(N/A)	0.00
576.50	116.22	(N/A)	0.00
577.00	118.69	(N/A)	0.00
577.50	121.10	(N/A)	0.00
578.00	123.47	(N/A)	0.00
578.50	125.79	(N/A)	0.00
579.00	128.07	(N/A)	0.00
579.50	130.31	(N/A)	0.00
580.00	132.51	(N/A)	0.00
580.50	134.67	(N/A)	0.00
581.00	136.81	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-A10

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

```
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL  Vh= .043ft
Dcr= .127ft  CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL  Vh= .172ft
Dcr= .498ft  CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL  Vh= .309ft
Dcr= .862ft  CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL  Vh= .455ft
Dcr= 1.215ft  CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL  Vh= .616ft
Dcr= 1.554ft  CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL  Vh= .798ft
Dcr= 1.872ft  CRIT.DEPTH Hev= .00ft
H =1.67
H =2.17
H =2.67
H =3.17
H =3.67
H =4.17
H =4.67
H =5.17
H =5.67
H =6.17
H =6.67
H =7.17
H =7.67
H =8.17
H =8.67
H =9.17
H =9.67
H =10.17
H =10.67
H =11.17
H =11.67
H =12.17
H =12.67
H =13.17
H =13.67
H =14.17
H =14.67
H =15.17
H =15.67
H =16.17
```


Subsection: Composite Rating Curve
Label: H-A10

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
561.00	0.00	(N/A)	0.00
561.50	0.00	(N/A)	0.00
562.00	0.00	(N/A)	0.00
562.50	0.00	(N/A)	0.00
563.00	0.00	(N/A)	0.00
563.33	0.00	(N/A)	0.00
563.50	0.17	(N/A)	0.00
564.00	2.56	(N/A)	0.00
564.50	7.49	(N/A)	0.00
565.00	14.53	(N/A)	0.00
565.50	23.28	(N/A)	0.00
566.00	33.24	(N/A)	0.00
566.50	43.97	(N/A)	0.00
567.00	50.12	(N/A)	0.00
567.50	55.59	(N/A)	0.00
568.00	60.57	(N/A)	0.00
568.50	65.18	(N/A)	0.00
569.00	69.47	(N/A)	0.00
569.50	73.52	(N/A)	0.00
570.00	77.36	(N/A)	0.00
570.50	81.01	(N/A)	0.00
571.00	84.51	(N/A)	0.00
571.50	87.86	(N/A)	0.00
572.00	91.10	(N/A)	0.00
572.50	94.22	(N/A)	0.00
573.00	97.24	(N/A)	0.00
573.50	100.18	(N/A)	0.00
574.00	103.02	(N/A)	0.00
574.50	105.79	(N/A)	0.00
575.00	108.50	(N/A)	0.00
575.50	111.13	(N/A)	0.00
576.00	113.70	(N/A)	0.00
576.50	116.22	(N/A)	0.00
577.00	118.69	(N/A)	0.00
577.50	121.10	(N/A)	0.00
578.00	123.47	(N/A)	0.00
578.50	125.79	(N/A)	0.00
579.00	128.07	(N/A)	0.00
579.50	130.31	(N/A)	0.00
580.00	132.51	(N/A)	0.00
580.50	134.67	(N/A)	0.00
581.00	136.81	(N/A)	0.00

Contributing Structures

```
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice
```

Composite Outflow Summary

Contributing Structures
Orifice
Orifice
Orifice
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Orifice

Requested Pond Water Surface Elevations	
Minimum (Headwater)	450.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	470.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	452.73	470.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-A4

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	452.73 ft
Orifice Diameter	18.00 in
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

Subsection: Individual Outlet Curves
Label: H-A4

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
450.50	0.00	(N/A)	0.00
451.00	0.00	(N/A)	0.00
451.50	0.00	(N/A)	0.00
452.00	0.00	(N/A)	0.00
452.50	0.00	(N/A)	0.00
452.73	0.00	(N/A)	0.00
453.00	0.30	(N/A)	0.00
453.50	2.22	(N/A)	0.00
454.00	5.41	(N/A)	0.00
454.50	8.59	(N/A)	0.00
455.00	10.49	(N/A)	0.00
455.50	12.09	(N/A)	0.00
456.00	13.50	(N/A)	0.00
456.50	14.78	(N/A)	0.00
457.00	15.96	(N/A)	0.00
457.50	17.05	(N/A)	0.00
458.00	18.08	(N/A)	0.00
458.50	19.06	(N/A)	0.00
459.00	19.98	(N/A)	0.00
459.50	20.87	(N/A)	0.00
460.00	21.72	(N/A)	0.00
460.50	22.54	(N/A)	0.00
461.00	23.32	(N/A)	0.00
461.50	24.09	(N/A)	0.00
462.00	24.83	(N/A)	0.00
462.50	25.54	(N/A)	0.00
463.00	26.24	(N/A)	0.00
463.50	26.92	(N/A)	0.00
464.00	27.59	(N/A)	0.00
464.50	28.23	(N/A)	0.00
465.00	28.87	(N/A)	0.00
465.50	29.49	(N/A)	0.00
466.00	30.09	(N/A)	0.00
466.50	30.69	(N/A)	0.00
467.00	31.27	(N/A)	0.00
467.50	31.85	(N/A)	0.00
468.00	32.41	(N/A)	0.00
468.50	32.96	(N/A)	0.00
469.00	33.51	(N/A)	0.00
469.50	34.04	(N/A)	0.00
470.00	34.57	(N/A)	0.00
470.50	35.09	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-A4

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .069ft
Dcr= .201ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .208ft
Dcr= .562ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .375ft
Dcr= .896ft CRIT.DEPTH Hev= .00ft
H =1.02
H =1.52
H =2.02
H =2.52
H =3.02
H =3.52
H =4.02
H =4.52
H =5.02
H =5.52
H =6.02
H =6.52
H =7.02
H =7.52
H =8.02
H =8.52
H =9.02
H =9.52
H =10.02
H =10.52
H =11.02
H =11.52
H =12.02
H =12.52
H =13.02
H =13.52
H =14.02
H =14.52
H =15.02
H =15.52
H =16.02
H =16.52
H =17.02

Subsection: Composite Rating Curve
Label: H-A4

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
450.50	0.00	(N/A)	0.00
451.00	0.00	(N/A)	0.00
451.50	0.00	(N/A)	0.00
452.00	0.00	(N/A)	0.00
452.50	0.00	(N/A)	0.00
452.73	0.00	(N/A)	0.00
453.00	0.30	(N/A)	0.00
453.50	2.22	(N/A)	0.00
454.00	5.41	(N/A)	0.00
454.50	8.59	(N/A)	0.00
455.00	10.49	(N/A)	0.00
455.50	12.09	(N/A)	0.00
456.00	13.50	(N/A)	0.00
456.50	14.78	(N/A)	0.00
457.00	15.96	(N/A)	0.00
457.50	17.05	(N/A)	0.00
458.00	18.08	(N/A)	0.00
458.50	19.06	(N/A)	0.00
459.00	19.98	(N/A)	0.00
459.50	20.87	(N/A)	0.00
460.00	21.72	(N/A)	0.00
460.50	22.54	(N/A)	0.00
461.00	23.32	(N/A)	0.00
461.50	24.09	(N/A)	0.00
462.00	24.83	(N/A)	0.00
462.50	25.54	(N/A)	0.00
463.00	26.24	(N/A)	0.00
463.50	26.92	(N/A)	0.00
464.00	27.59	(N/A)	0.00
464.50	28.23	(N/A)	0.00
465.00	28.87	(N/A)	0.00
465.50	29.49	(N/A)	0.00
466.00	30.09	(N/A)	0.00
466.50	30.69	(N/A)	0.00
467.00	31.27	(N/A)	0.00
467.50	31.85	(N/A)	0.00
468.00	32.41	(N/A)	0.00
468.50	32.96	(N/A)	0.00
469.00	33.51	(N/A)	0.00
469.50	34.04	(N/A)	0.00
470.00	34.57	(N/A)	0.00
470.50	35.09	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice

Composite Outflow Summary

Contributing Structures
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Requested Pond Water Surface Elevations	
Minimum (Headwater)	475.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	495.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	477.79	495.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-A5

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	477.79 ft
Orifice Diameter	36.00 in
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

Subsection: Individual Outlet Curves
Label: H-A5

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
475.50	0.00	(N/A)	0.00
476.00	0.00	(N/A)	0.00
476.50	0.00	(N/A)	0.00
477.00	0.00	(N/A)	0.00
477.50	0.00	(N/A)	0.00
477.79	0.00	(N/A)	0.00
478.00	0.26	(N/A)	0.00
478.50	2.87	(N/A)	0.00
479.00	7.98	(N/A)	0.00
479.50	15.18	(N/A)	0.00
480.00	24.05	(N/A)	0.00
480.50	34.06	(N/A)	0.00
481.00	44.49	(N/A)	0.00
481.50	50.58	(N/A)	0.00
482.00	56.01	(N/A)	0.00
482.50	60.95	(N/A)	0.00
483.00	65.53	(N/A)	0.00
483.50	69.81	(N/A)	0.00
484.00	73.83	(N/A)	0.00
484.50	77.66	(N/A)	0.00
485.00	81.30	(N/A)	0.00
485.50	84.78	(N/A)	0.00
486.00	88.13	(N/A)	0.00
486.50	91.35	(N/A)	0.00
487.00	94.47	(N/A)	0.00
487.50	97.48	(N/A)	0.00
488.00	100.41	(N/A)	0.00
488.50	103.25	(N/A)	0.00
489.00	106.01	(N/A)	0.00
489.50	108.71	(N/A)	0.00
490.00	111.34	(N/A)	0.00
490.50	113.91	(N/A)	0.00
491.00	116.42	(N/A)	0.00
491.50	118.88	(N/A)	0.00
492.00	121.29	(N/A)	0.00
492.50	123.65	(N/A)	0.00
493.00	125.97	(N/A)	0.00
493.50	128.25	(N/A)	0.00
494.00	130.49	(N/A)	0.00
494.50	132.68	(N/A)	0.00
495.00	134.85	(N/A)	0.00
495.50	136.98	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-A5

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

```
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .053ft
Dcr= .157ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .183ft
Dcr= .527ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .320ft
Dcr= .890ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .468ft
Dcr= 1.243ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .630ft
Dcr= 1.581ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .813ft
Dcr= 1.896ft CRIT.DEPTH Hev= .00ft
H =1.71
H =2.21
H =2.71
H =3.21
H =3.71
H =4.21
H =4.71
H =5.21
H =5.71
H =6.21
H =6.71
H =7.21
H =7.71
H =8.21
H =8.71
H =9.21
H =9.71
H =10.21
H =10.71
H =11.21
H =11.71
H =12.21
H =12.71
H =13.21
H =13.71
H =14.21
H =14.71
H =15.21
H =15.71
H =16.21
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Subsection: Composite Rating Curve
Label: H-A5

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
475.50	0.00	(N/A)	0.00
476.00	0.00	(N/A)	0.00
476.50	0.00	(N/A)	0.00
477.00	0.00	(N/A)	0.00
477.50	0.00	(N/A)	0.00
477.79	0.00	(N/A)	0.00
478.00	0.26	(N/A)	0.00
478.50	2.87	(N/A)	0.00
479.00	7.98	(N/A)	0.00
479.50	15.18	(N/A)	0.00
480.00	24.05	(N/A)	0.00
480.50	34.06	(N/A)	0.00
481.00	44.49	(N/A)	0.00
481.50	50.58	(N/A)	0.00
482.00	56.01	(N/A)	0.00
482.50	60.95	(N/A)	0.00
483.00	65.53	(N/A)	0.00
483.50	69.81	(N/A)	0.00
484.00	73.83	(N/A)	0.00
484.50	77.66	(N/A)	0.00
485.00	81.30	(N/A)	0.00
485.50	84.78	(N/A)	0.00
486.00	88.13	(N/A)	0.00
486.50	91.35	(N/A)	0.00
487.00	94.47	(N/A)	0.00
487.50	97.48	(N/A)	0.00
488.00	100.41	(N/A)	0.00
488.50	103.25	(N/A)	0.00
489.00	106.01	(N/A)	0.00
489.50	108.71	(N/A)	0.00
490.00	111.34	(N/A)	0.00
490.50	113.91	(N/A)	0.00
491.00	116.42	(N/A)	0.00
491.50	118.88	(N/A)	0.00
492.00	121.29	(N/A)	0.00
492.50	123.65	(N/A)	0.00
493.00	125.97	(N/A)	0.00
493.50	128.25	(N/A)	0.00
494.00	130.48	(N/A)	0.00
494.50	132.68	(N/A)	0.00
495.00	134.85	(N/A)	0.00
495.50	136.98	(N/A)	0.00

Contributing Structures

```
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice
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Subsection: Composite Rating Curve
Label: H-A5

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
Orifice
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Subsection: Outlet Input Data
Label: H-A6

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	491.25 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	511.25 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	494.46	511.25
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-A6

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	494.46 ft
Orifice Diameter	36.00 in
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

Subsection: Individual Outlet Curves
Label: H-A6

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
491.25	0.00	(N/A)	0.00
491.75	0.00	(N/A)	0.00
492.25	0.00	(N/A)	0.00
492.75	0.00	(N/A)	0.00
493.25	0.00	(N/A)	0.00
493.75	0.00	(N/A)	0.00
494.25	0.00	(N/A)	0.00
494.46	0.00	(N/A)	0.00
494.75	0.49	(N/A)	0.00
495.25	3.52	(N/A)	0.00
495.75	8.99	(N/A)	0.00
496.25	16.48	(N/A)	0.00
496.75	25.55	(N/A)	0.00
497.25	35.77	(N/A)	0.00
497.75	45.52	(N/A)	0.00
498.25	51.48	(N/A)	0.00
498.75	56.83	(N/A)	0.00
499.25	61.71	(N/A)	0.00
499.75	66.23	(N/A)	0.00
500.25	70.47	(N/A)	0.00
500.75	74.46	(N/A)	0.00
501.25	78.25	(N/A)	0.00
501.75	81.86	(N/A)	0.00
502.25	85.33	(N/A)	0.00
502.75	88.65	(N/A)	0.00
503.25	91.86	(N/A)	0.00
503.75	94.96	(N/A)	0.00
504.25	97.96	(N/A)	0.00
504.75	100.87	(N/A)	0.00
505.25	103.70	(N/A)	0.00
505.75	106.45	(N/A)	0.00
506.25	109.13	(N/A)	0.00
506.75	111.75	(N/A)	0.00
507.25	114.31	(N/A)	0.00
507.75	116.82	(N/A)	0.00
508.25	119.27	(N/A)	0.00
508.75	121.67	(N/A)	0.00
509.25	124.03	(N/A)	0.00
509.75	126.34	(N/A)	0.00
510.25	128.61	(N/A)	0.00
510.75	130.84	(N/A)	0.00
511.25	133.03	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-A6

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .073ft
Dcr= .216ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .204ft
Dcr= .585ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .343ft
Dcr= .947ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .492ft
Dcr= 1.297ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .657ft
Dcr= 1.632ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .846ft
Dcr= 1.944ft CRIT.DEPTH Hev= .00ft
H =1.79
H =2.29
H =2.79
H =3.29
H =3.79
H =4.29
H =4.79
H =5.29
H =5.79
H =6.29
H =6.79
H =7.29
H =7.79
H =8.29
H =8.79
H =9.29
H =9.79
H =10.29
H =10.79
H =11.29
H =11.79
H =12.29
H =12.79
H =13.29
H =13.79
H =14.29
H =14.79
H =15.29

Subsection: Composite Rating Curve
Label: H-A6

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
491.25	0.00	(N/A)	0.00
491.75	0.00	(N/A)	0.00
492.25	0.00	(N/A)	0.00
492.75	0.00	(N/A)	0.00
493.25	0.00	(N/A)	0.00
493.75	0.00	(N/A)	0.00
494.25	0.00	(N/A)	0.00
494.46	0.00	(N/A)	0.00
494.75	0.49	(N/A)	0.00
495.25	3.52	(N/A)	0.00
495.75	8.99	(N/A)	0.00
496.25	16.48	(N/A)	0.00
496.75	25.55	(N/A)	0.00
497.25	35.77	(N/A)	0.00
497.75	45.52	(N/A)	0.00
498.25	51.48	(N/A)	0.00
498.75	56.83	(N/A)	0.00
499.25	61.71	(N/A)	0.00
499.75	66.23	(N/A)	0.00
500.25	70.47	(N/A)	0.00
500.75	74.46	(N/A)	0.00
501.25	78.25	(N/A)	0.00
501.75	81.86	(N/A)	0.00
502.25	85.33	(N/A)	0.00
502.75	88.65	(N/A)	0.00
503.25	91.86	(N/A)	0.00
503.75	94.96	(N/A)	0.00
504.25	97.96	(N/A)	0.00
504.75	100.87	(N/A)	0.00
505.25	103.70	(N/A)	0.00
505.75	106.45	(N/A)	0.00
506.25	109.13	(N/A)	0.00
506.75	111.75	(N/A)	0.00
507.25	114.31	(N/A)	0.00
507.75	116.82	(N/A)	0.00
508.25	119.27	(N/A)	0.00
508.75	121.67	(N/A)	0.00
509.25	124.03	(N/A)	0.00
509.75	126.34	(N/A)	0.00
510.25	128.61	(N/A)	0.00
510.75	130.84	(N/A)	0.00
511.25	133.03	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing

Subsection: Composite Rating Curve
Label: H-A6

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
None Contributing
Orifice
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Subsection: Outlet Input Data
Label: H-A7

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	511.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	531.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	514.30	531.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-A7

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	514.30 ft
Orifice Diameter	36.00 in
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

Subsection: Individual Outlet Curves
Label: H-A7

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
511.00	0.00	(N/A)	0.00
511.50	0.00	(N/A)	0.00
512.00	0.00	(N/A)	0.00
512.50	0.00	(N/A)	0.00
513.00	0.00	(N/A)	0.00
513.50	0.00	(N/A)	0.00
514.00	0.00	(N/A)	0.00
514.30	0.00	(N/A)	0.00
514.50	0.24	(N/A)	0.00
515.00	2.79	(N/A)	0.00
515.50	7.85	(N/A)	0.00
516.00	15.01	(N/A)	0.00
516.50	23.84	(N/A)	0.00
517.00	33.85	(N/A)	0.00
517.50	44.36	(N/A)	0.00
518.00	50.46	(N/A)	0.00
518.50	55.90	(N/A)	0.00
519.00	60.86	(N/A)	0.00
519.50	65.44	(N/A)	0.00
520.00	69.72	(N/A)	0.00
520.50	73.76	(N/A)	0.00
521.00	77.58	(N/A)	0.00
521.50	81.22	(N/A)	0.00
522.00	84.71	(N/A)	0.00
522.50	88.06	(N/A)	0.00
523.00	91.29	(N/A)	0.00
523.50	94.41	(N/A)	0.00
524.00	97.42	(N/A)	0.00
524.50	100.35	(N/A)	0.00
525.00	103.19	(N/A)	0.00
525.50	105.96	(N/A)	0.00
526.00	108.66	(N/A)	0.00
526.50	111.29	(N/A)	0.00
527.00	113.86	(N/A)	0.00
527.50	116.37	(N/A)	0.00
528.00	118.83	(N/A)	0.00
528.50	121.24	(N/A)	0.00
529.00	123.61	(N/A)	0.00
529.50	125.92	(N/A)	0.00
530.00	128.20	(N/A)	0.00
530.50	130.44	(N/A)	0.00
531.00	132.64	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-A7

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

```
HW & TW below Invert
HW & TW below Invert
HW & TW below Invert
HW & TW below Invert
HW & TW below Invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL  Vh= .051ft
Dcr= .150ft  CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL  Vh= .180ft
Dcr= .520ft  CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL  Vh= .318ft
Dcr= .883ft  CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL  Vh= .465ft
Dcr= 1.236ft  CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL  Vh= .627ft
Dcr= 1.574ft  CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL  Vh= .810ft
Dcr= 1.890ft  CRIT.DEPTH Hev= .00ft
H =1.70
H =2.20
H =2.70
H =3.20
H =3.70
H =4.20
H =4.70
H =5.20
H =5.70
H =6.20
H =6.70
H =7.20
H =7.70
H =8.20
H =8.70
H =9.20
H =9.70
H =10.20
H =10.70
H =11.20
H =11.70
H =12.20
H =12.70
H =13.20
H =13.70
H =14.20
H =14.70
H =15.20
```


Subsection: Composite Rating Curve
Label: H-A7

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
511.00	0.00	(N/A)	0.00
511.50	0.00	(N/A)	0.00
512.00	0.00	(N/A)	0.00
512.50	0.00	(N/A)	0.00
513.00	0.00	(N/A)	0.00
513.50	0.00	(N/A)	0.00
514.00	0.00	(N/A)	0.00
514.30	0.00	(N/A)	0.00
514.50	0.24	(N/A)	0.00
515.00	2.79	(N/A)	0.00
515.50	7.85	(N/A)	0.00
516.00	15.01	(N/A)	0.00
516.50	23.84	(N/A)	0.00
517.00	33.85	(N/A)	0.00
517.50	44.36	(N/A)	0.00
518.00	50.46	(N/A)	0.00
518.50	55.90	(N/A)	0.00
519.00	60.86	(N/A)	0.00
519.50	65.44	(N/A)	0.00
520.00	69.72	(N/A)	0.00
520.50	73.76	(N/A)	0.00
521.00	77.58	(N/A)	0.00
521.50	81.22	(N/A)	0.00
522.00	84.71	(N/A)	0.00
522.50	88.06	(N/A)	0.00
523.00	91.29	(N/A)	0.00
523.50	94.41	(N/A)	0.00
524.00	97.42	(N/A)	0.00
524.50	100.35	(N/A)	0.00
525.00	103.19	(N/A)	0.00
525.50	105.96	(N/A)	0.00
526.00	108.66	(N/A)	0.00
526.50	111.29	(N/A)	0.00
527.00	113.86	(N/A)	0.00
527.50	116.37	(N/A)	0.00
528.00	118.83	(N/A)	0.00
528.50	121.24	(N/A)	0.00
529.00	123.61	(N/A)	0.00
529.50	125.92	(N/A)	0.00
530.00	128.20	(N/A)	0.00
530.50	130.44	(N/A)	0.00
531.00	132.64	(N/A)	0.00

Contributing Structures

```
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
```

Subsection: Composite Rating Curve
Label: H-A7

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
None Contributing
Orifice
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Orifice

Subsection: Outlet Input Data
Label: H-A8

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	529.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	549.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	532.84	549.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-A8

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	532.84 ft
Orifice Diameter	36.00 in
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

Subsection: Individual Outlet Curves
Label: H-A8

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
529.00	0.00	(N/A)	0.00
529.50	0.00	(N/A)	0.00
530.00	0.00	(N/A)	0.00
530.50	0.00	(N/A)	0.00
531.00	0.00	(N/A)	0.00
531.50	0.00	(N/A)	0.00
532.00	0.00	(N/A)	0.00
532.50	0.00	(N/A)	0.00
532.84	0.00	(N/A)	0.00
533.00	0.15	(N/A)	0.00
533.50	2.48	(N/A)	0.00
534.00	7.37	(N/A)	0.00
534.50	14.36	(N/A)	0.00
535.00	23.07	(N/A)	0.00
535.50	33.04	(N/A)	0.00
536.00	43.83	(N/A)	0.00
536.50	50.00	(N/A)	0.00
537.00	55.49	(N/A)	0.00
537.50	60.48	(N/A)	0.00
538.00	65.09	(N/A)	0.00
538.50	69.39	(N/A)	0.00
539.00	73.44	(N/A)	0.00
539.50	77.28	(N/A)	0.00
540.00	80.94	(N/A)	0.00
540.50	84.44	(N/A)	0.00
541.00	87.80	(N/A)	0.00
541.50	91.03	(N/A)	0.00
542.00	94.16	(N/A)	0.00
542.50	97.18	(N/A)	0.00
543.00	100.12	(N/A)	0.00
543.50	102.97	(N/A)	0.00
544.00	105.74	(N/A)	0.00
544.50	108.44	(N/A)	0.00
545.00	111.08	(N/A)	0.00
545.50	113.65	(N/A)	0.00
546.00	116.17	(N/A)	0.00
546.50	118.64	(N/A)	0.00
547.00	121.05	(N/A)	0.00
547.50	123.42	(N/A)	0.00
548.00	125.74	(N/A)	0.00
548.50	128.02	(N/A)	0.00
549.00	130.26	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-A8

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .040ft
Dcr= .120ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .170ft
Dcr= .490ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .306ft
Dcr= .854ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .452ft
Dcr= 1.207ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .613ft
Dcr= 1.547ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .794ft
Dcr= 1.866ft CRIT.DEPTH Hev= .00ft
H =1.66
H =2.16
H =2.66
H =3.16
H =3.66
H =4.16
H =4.66
H =5.16
H =5.66
H =6.16
H =6.66
H =7.16
H =7.66
H =8.16
H =8.66
H =9.16
H =9.66
H =10.16
H =10.66
H =11.16
H =11.66
H =12.16
H =12.66
H =13.16
H =13.66
H =14.16
H =14.66

Subsection: Composite Rating Curve
Label: H-A8

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
529.00	0.00	(N/A)	0.00
529.50	0.00	(N/A)	0.00
530.00	0.00	(N/A)	0.00
530.50	0.00	(N/A)	0.00
531.00	0.00	(N/A)	0.00
531.50	0.00	(N/A)	0.00
532.00	0.00	(N/A)	0.00
532.50	0.00	(N/A)	0.00
532.84	0.00	(N/A)	0.00
533.00	0.15	(N/A)	0.00
533.50	2.48	(N/A)	0.00
534.00	7.37	(N/A)	0.00
534.50	14.36	(N/A)	0.00
535.00	23.07	(N/A)	0.00
535.50	33.04	(N/A)	0.00
536.00	43.83	(N/A)	0.00
536.50	50.00	(N/A)	0.00
537.00	55.49	(N/A)	0.00
537.50	60.48	(N/A)	0.00
538.00	65.09	(N/A)	0.00
538.50	69.39	(N/A)	0.00
539.00	73.44	(N/A)	0.00
539.50	77.28	(N/A)	0.00
540.00	80.94	(N/A)	0.00
540.50	84.44	(N/A)	0.00
541.00	87.80	(N/A)	0.00
541.50	91.03	(N/A)	0.00
542.00	94.16	(N/A)	0.00
542.50	97.18	(N/A)	0.00
543.00	100.12	(N/A)	0.00
543.50	102.97	(N/A)	0.00
544.00	105.74	(N/A)	0.00
544.50	108.44	(N/A)	0.00
545.00	111.08	(N/A)	0.00
545.50	113.65	(N/A)	0.00
546.00	116.17	(N/A)	0.00
546.50	118.64	(N/A)	0.00
547.00	121.05	(N/A)	0.00
547.50	123.42	(N/A)	0.00
548.00	125.74	(N/A)	0.00
548.50	128.02	(N/A)	0.00
549.00	130.26	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing

Subsection: Composite Rating Curve
Label: H-A8

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
None Contributing
None Contributing
Orifice
Orifice
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Subsection: Outlet Input Data
Label: H-A9

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	543.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	563.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	546.59	563.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-A9

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	546.59 ft
Orifice Diameter	36.00 in
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

Subsection: Individual Outlet Curves
Label: H-A9

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
543.00	0.00	(N/A)	0.00
543.50	0.00	(N/A)	0.00
544.00	0.00	(N/A)	0.00
544.50	0.00	(N/A)	0.00
545.00	0.00	(N/A)	0.00
545.50	0.00	(N/A)	0.00
546.00	0.00	(N/A)	0.00
546.50	0.00	(N/A)	0.00
546.59	0.00	(N/A)	0.00
547.00	0.98	(N/A)	0.00
547.50	4.64	(N/A)	0.00
548.00	10.62	(N/A)	0.00
548.50	18.56	(N/A)	0.00
549.00	27.93	(N/A)	0.00
549.50	38.33	(N/A)	0.00
550.00	47.02	(N/A)	0.00
550.50	52.82	(N/A)	0.00
551.00	58.04	(N/A)	0.00
551.50	62.82	(N/A)	0.00
552.00	67.27	(N/A)	0.00
552.50	71.44	(N/A)	0.00
553.00	75.39	(N/A)	0.00
553.50	79.13	(N/A)	0.00
554.00	82.71	(N/A)	0.00
554.50	86.14	(N/A)	0.00
555.00	89.43	(N/A)	0.00
555.50	92.61	(N/A)	0.00
556.00	95.68	(N/A)	0.00
556.50	98.66	(N/A)	0.00
557.00	101.55	(N/A)	0.00
557.50	104.36	(N/A)	0.00
558.00	107.10	(N/A)	0.00
558.50	109.77	(N/A)	0.00
559.00	112.37	(N/A)	0.00
559.50	114.92	(N/A)	0.00
560.00	117.41	(N/A)	0.00
560.50	119.85	(N/A)	0.00
561.00	122.24	(N/A)	0.00
561.50	124.58	(N/A)	0.00
562.00	126.89	(N/A)	0.00
562.50	129.15	(N/A)	0.00
563.00	131.37	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-A9

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .104ft
Dcr= .305ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .237ft
Dcr= .674ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .378ft
Dcr= 1.032ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .531ft
Dcr= 1.380ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .700ft
Dcr= 1.710ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .896ft
Dcr= 2.015ft CRIT.DEPTH Hev= .00ft
H =1.91
H =2.41
H =2.91
H =3.41
H =3.91
H =4.41
H =4.91
H =5.41
H =5.91
H =6.41
H =6.91
H =7.41
H =7.91
H =8.41
H =8.91
H =9.41
H =9.91
H =10.41
H =10.91
H =11.41
H =11.91
H =12.41
H =12.91
H =13.41
H =13.91
H =14.41
H =14.91

Subsection: Composite Rating Curve
Label: H-A9

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
543.00	0.00	(N/A)	0.00
543.50	0.00	(N/A)	0.00
544.00	0.00	(N/A)	0.00
544.50	0.00	(N/A)	0.00
545.00	0.00	(N/A)	0.00
545.50	0.00	(N/A)	0.00
546.00	0.00	(N/A)	0.00
546.50	0.00	(N/A)	0.00
546.59	0.00	(N/A)	0.00
547.00	0.98	(N/A)	0.00
547.50	4.64	(N/A)	0.00
548.00	10.62	(N/A)	0.00
548.50	18.56	(N/A)	0.00
549.00	27.93	(N/A)	0.00
549.50	38.33	(N/A)	0.00
550.00	47.02	(N/A)	0.00
550.50	52.82	(N/A)	0.00
551.00	58.04	(N/A)	0.00
551.50	62.82	(N/A)	0.00
552.00	67.27	(N/A)	0.00
552.50	71.44	(N/A)	0.00
553.00	75.39	(N/A)	0.00
553.50	79.13	(N/A)	0.00
554.00	82.71	(N/A)	0.00
554.50	86.14	(N/A)	0.00
555.00	89.43	(N/A)	0.00
555.50	92.61	(N/A)	0.00
556.00	95.68	(N/A)	0.00
556.50	98.66	(N/A)	0.00
557.00	101.55	(N/A)	0.00
557.50	104.36	(N/A)	0.00
558.00	107.10	(N/A)	0.00
558.50	109.77	(N/A)	0.00
559.00	112.37	(N/A)	0.00
559.50	114.92	(N/A)	0.00
560.00	117.41	(N/A)	0.00
560.50	119.85	(N/A)	0.00
561.00	122.24	(N/A)	0.00
561.50	124.58	(N/A)	0.00
562.00	126.89	(N/A)	0.00
562.50	129.15	(N/A)	0.00
563.00	131.37	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing

Subsection: Composite Rating Curve
Label: H-A9

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
None Contributing
None Contributing
Orifice
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Subsection: Outlet Input Data
Label: H-B10

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	479.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	499.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	480.51	499.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-B10

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	480.51 ft
Orifice Diameter	24.00 in
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

Subsection: Individual Outlet Curves
Label: H-B10

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
479.00	0.00	(N/A)	0.00
479.50	0.00	(N/A)	0.00
480.00	0.00	(N/A)	0.00
480.50	0.00	(N/A)	0.00
480.51	0.00	(N/A)	0.00
481.00	1.11	(N/A)	0.00
481.50	4.24	(N/A)	0.00
482.00	8.89	(N/A)	0.00
482.50	14.49	(N/A)	0.00
483.00	18.46	(N/A)	0.00
483.50	21.33	(N/A)	0.00
484.00	23.86	(N/A)	0.00
484.50	26.15	(N/A)	0.00
485.00	28.25	(N/A)	0.00
485.50	30.20	(N/A)	0.00
486.00	32.04	(N/A)	0.00
486.50	33.78	(N/A)	0.00
487.00	35.43	(N/A)	0.00
487.50	37.01	(N/A)	0.00
488.00	38.52	(N/A)	0.00
488.50	39.98	(N/A)	0.00
489.00	41.38	(N/A)	0.00
489.50	42.74	(N/A)	0.00
490.00	44.06	(N/A)	0.00
490.50	45.34	(N/A)	0.00
491.00	46.58	(N/A)	0.00
491.50	47.79	(N/A)	0.00
492.00	48.97	(N/A)	0.00
492.50	50.13	(N/A)	0.00
493.00	51.25	(N/A)	0.00
493.50	52.36	(N/A)	0.00
494.00	53.44	(N/A)	0.00
494.50	54.50	(N/A)	0.00
495.00	55.54	(N/A)	0.00
495.50	56.56	(N/A)	0.00
496.00	57.56	(N/A)	0.00
496.50	58.54	(N/A)	0.00
497.00	59.51	(N/A)	0.00
497.50	60.46	(N/A)	0.00
498.00	61.40	(N/A)	0.00
498.50	62.33	(N/A)	0.00
499.00	63.24	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-B10

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .126ft
Dcr= .364ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .266ft
Dcr= .723ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .426ft
Dcr= 1.064ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .618ft
Dcr= 1.372ft CRIT.DEPTH Hev= .00ft
H =1.49
H =1.99
H =2.49
H =2.99
H =3.49
H =3.99
H =4.49
H =4.99
H =5.49
H =5.99
H =6.49
H =6.99
H =7.49
H =7.99
H =8.49
H =8.99
H =9.49
H =9.99
H =10.49
H =10.99
H =11.49
H =11.99
H =12.49
H =12.99
H =13.49
H =13.99
H =14.49
H =14.99
H =15.49
H =15.99
H =16.49
H =16.99
H =17.49

Subsection: Composite Rating Curve
Label: H-B10

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
479.00	0.00	(N/A)	0.00
479.50	0.00	(N/A)	0.00
480.00	0.00	(N/A)	0.00
480.50	0.00	(N/A)	0.00
480.51	0.00	(N/A)	0.00
481.00	1.11	(N/A)	0.00
481.50	4.24	(N/A)	0.00
482.00	8.89	(N/A)	0.00
482.50	14.49	(N/A)	0.00
483.00	18.46	(N/A)	0.00
483.50	21.33	(N/A)	0.00
484.00	23.86	(N/A)	0.00
484.50	26.15	(N/A)	0.00
485.00	28.25	(N/A)	0.00
485.50	30.20	(N/A)	0.00
486.00	32.04	(N/A)	0.00
486.50	33.78	(N/A)	0.00
487.00	35.43	(N/A)	0.00
487.50	37.01	(N/A)	0.00
488.00	38.52	(N/A)	0.00
488.50	39.98	(N/A)	0.00
489.00	41.38	(N/A)	0.00
489.50	42.74	(N/A)	0.00
490.00	44.06	(N/A)	0.00
490.50	45.34	(N/A)	0.00
491.00	46.58	(N/A)	0.00
491.50	47.79	(N/A)	0.00
492.00	48.97	(N/A)	0.00
492.50	50.13	(N/A)	0.00
493.00	51.25	(N/A)	0.00
493.50	52.36	(N/A)	0.00
494.00	53.44	(N/A)	0.00
494.50	54.50	(N/A)	0.00
495.00	55.54	(N/A)	0.00
495.50	56.56	(N/A)	0.00
496.00	57.56	(N/A)	0.00
496.50	58.54	(N/A)	0.00
497.00	59.51	(N/A)	0.00
497.50	60.46	(N/A)	0.00
498.00	61.40	(N/A)	0.00
498.50	62.33	(N/A)	0.00
499.00	63.24	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice
Orifice

Subsection: Composite Rating Curve
Label: H-B10

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
Orifice
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Subsection: Outlet Input Data
Label: H-B11

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	608.75 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	628.75 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	610.70	628.75
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-B11

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	610.70 ft
Orifice Diameter	18.00 in
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

Subsection: Individual Outlet Curves
Label: H-B11

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
608.75	0.00	(N/A)	0.00
609.25	0.00	(N/A)	0.00
609.75	0.00	(N/A)	0.00
610.25	0.00	(N/A)	0.00
610.70	0.00	(N/A)	0.00
610.75	0.01	(N/A)	0.00
611.25	1.18	(N/A)	0.00
611.75	3.88	(N/A)	0.00
612.25	7.61	(N/A)	0.00
612.75	9.70	(N/A)	0.00
613.25	11.41	(N/A)	0.00
613.75	12.90	(N/A)	0.00
614.25	14.23	(N/A)	0.00
614.75	15.45	(N/A)	0.00
615.25	16.58	(N/A)	0.00
615.75	17.64	(N/A)	0.00
616.25	18.63	(N/A)	0.00
616.75	19.58	(N/A)	0.00
617.25	20.48	(N/A)	0.00
617.75	21.35	(N/A)	0.00
618.25	22.18	(N/A)	0.00
618.75	22.98	(N/A)	0.00
619.25	23.75	(N/A)	0.00
619.75	24.50	(N/A)	0.00
620.25	25.23	(N/A)	0.00
620.75	25.94	(N/A)	0.00
621.25	26.63	(N/A)	0.00
621.75	27.30	(N/A)	0.00
622.25	27.95	(N/A)	0.00
622.75	28.59	(N/A)	0.00
623.25	29.22	(N/A)	0.00
623.75	29.83	(N/A)	0.00
624.25	30.43	(N/A)	0.00
624.75	31.02	(N/A)	0.00
625.25	31.60	(N/A)	0.00
625.75	32.16	(N/A)	0.00
626.25	32.72	(N/A)	0.00
626.75	33.27	(N/A)	0.00
627.25	33.81	(N/A)	0.00
627.75	34.34	(N/A)	0.00
628.25	34.86	(N/A)	0.00
628.75	35.38	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-B11

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .012ft
Dcr= .038ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .145ft
Dcr= .406ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .296ft
Dcr= .754ft CRIT.DEPTH Hev= .00ft
H =.80
H =1.30
H =1.80
H =2.30
H =2.80
H =3.30
H =3.80
H =4.30
H =4.80
H =5.30
H =5.80
H =6.30
H =6.80
H =7.30
H =7.80
H =8.30
H =8.80
H =9.30
H =9.80
H =10.30
H =10.80
H =11.30
H =11.80
H =12.30
H =12.80
H =13.30
H =13.80
H =14.30
H =14.80
H =15.30
H =15.80
H =16.30
H =16.80
H =17.30

Subsection: Composite Rating Curve
Label: H-B11

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
608.75	0.00	(N/A)	0.00
609.25	0.00	(N/A)	0.00
609.75	0.00	(N/A)	0.00
610.25	0.00	(N/A)	0.00
610.70	0.00	(N/A)	0.00
610.75	0.01	(N/A)	0.00
611.25	1.18	(N/A)	0.00
611.75	3.88	(N/A)	0.00
612.25	7.61	(N/A)	0.00
612.75	9.70	(N/A)	0.00
613.25	11.41	(N/A)	0.00
613.75	12.90	(N/A)	0.00
614.25	14.23	(N/A)	0.00
614.75	15.45	(N/A)	0.00
615.25	16.58	(N/A)	0.00
615.75	17.64	(N/A)	0.00
616.25	18.63	(N/A)	0.00
616.75	19.58	(N/A)	0.00
617.25	20.48	(N/A)	0.00
617.75	21.35	(N/A)	0.00
618.25	22.18	(N/A)	0.00
618.75	22.98	(N/A)	0.00
619.25	23.75	(N/A)	0.00
619.75	24.50	(N/A)	0.00
620.25	25.23	(N/A)	0.00
620.75	25.94	(N/A)	0.00
621.25	26.63	(N/A)	0.00
621.75	27.30	(N/A)	0.00
622.25	27.95	(N/A)	0.00
622.75	28.59	(N/A)	0.00
623.25	29.22	(N/A)	0.00
623.75	29.83	(N/A)	0.00
624.25	30.43	(N/A)	0.00
624.75	31.02	(N/A)	0.00
625.25	31.60	(N/A)	0.00
625.75	32.16	(N/A)	0.00
626.25	32.72	(N/A)	0.00
626.75	33.27	(N/A)	0.00
627.25	33.81	(N/A)	0.00
627.75	34.34	(N/A)	0.00
628.25	34.86	(N/A)	0.00
628.75	35.38	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice
Orifice

Subsection: Composite Rating Curve
Label: H-B11

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
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Subsection: Outlet Input Data
Label: H-B12

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	448.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	468.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	450.60	468.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-B12

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	450.60 ft
Orifice Diameter	18.00 in
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

Subsection: Individual Outlet Curves
Label: H-B12

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
448.50	0.00	(N/A)	0.00
449.00	0.00	(N/A)	0.00
449.50	0.00	(N/A)	0.00
450.00	0.00	(N/A)	0.00
450.50	0.00	(N/A)	0.00
450.60	0.00	(N/A)	0.00
451.00	0.64	(N/A)	0.00
451.50	2.95	(N/A)	0.00
452.00	6.36	(N/A)	0.00
452.50	9.12	(N/A)	0.00
453.00	10.93	(N/A)	0.00
453.50	12.47	(N/A)	0.00
454.00	13.85	(N/A)	0.00
454.50	15.10	(N/A)	0.00
455.00	16.25	(N/A)	0.00
455.50	17.33	(N/A)	0.00
456.00	18.34	(N/A)	0.00
456.50	19.30	(N/A)	0.00
457.00	20.22	(N/A)	0.00
457.50	21.09	(N/A)	0.00
458.00	21.93	(N/A)	0.00
458.50	22.74	(N/A)	0.00
459.00	23.52	(N/A)	0.00
459.50	24.28	(N/A)	0.00
460.00	25.01	(N/A)	0.00
460.50	25.73	(N/A)	0.00
461.00	26.42	(N/A)	0.00
461.50	27.10	(N/A)	0.00
462.00	27.76	(N/A)	0.00
462.50	28.40	(N/A)	0.00
463.00	29.03	(N/A)	0.00
463.50	29.65	(N/A)	0.00
464.00	30.25	(N/A)	0.00
464.50	30.84	(N/A)	0.00
465.00	31.42	(N/A)	0.00
465.50	31.99	(N/A)	0.00
466.00	32.55	(N/A)	0.00
466.50	33.11	(N/A)	0.00
467.00	33.65	(N/A)	0.00
467.50	34.18	(N/A)	0.00
468.00	34.71	(N/A)	0.00
468.50	35.22	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-B12

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .104ft
Dcr= .297ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .248ft
Dcr= .653ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .425ft
Dcr= .975ft CRIT.DEPTH Hev= .00ft
H =1.15
H =1.65
H =2.15
H =2.65
H =3.15
H =3.65
H =4.15
H =4.65
H =5.15
H =5.65
H =6.15
H =6.65
H =7.15
H =7.65
H =8.15
H =8.65
H =9.15
H =9.65
H =10.15
H =10.65
H =11.15
H =11.65
H =12.15
H =12.65
H =13.15
H =13.65
H =14.15
H =14.65
H =15.15
H =15.65
H =16.15
H =16.65
H =17.15

Subsection: Composite Rating Curve
Label: H-B12

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
448.50	0.00	(N/A)	0.00
449.00	0.00	(N/A)	0.00
449.50	0.00	(N/A)	0.00
450.00	0.00	(N/A)	0.00
450.50	0.00	(N/A)	0.00
450.60	0.00	(N/A)	0.00
451.00	0.64	(N/A)	0.00
451.50	2.95	(N/A)	0.00
452.00	6.36	(N/A)	0.00
452.50	9.12	(N/A)	0.00
453.00	10.93	(N/A)	0.00
453.50	12.47	(N/A)	0.00
454.00	13.85	(N/A)	0.00
454.50	15.10	(N/A)	0.00
455.00	16.25	(N/A)	0.00
455.50	17.33	(N/A)	0.00
456.00	18.34	(N/A)	0.00
456.50	19.30	(N/A)	0.00
457.00	20.22	(N/A)	0.00
457.50	21.09	(N/A)	0.00
458.00	21.93	(N/A)	0.00
458.50	22.74	(N/A)	0.00
459.00	23.52	(N/A)	0.00
459.50	24.28	(N/A)	0.00
460.00	25.01	(N/A)	0.00
460.50	25.73	(N/A)	0.00
461.00	26.42	(N/A)	0.00
461.50	27.10	(N/A)	0.00
462.00	27.76	(N/A)	0.00
462.50	28.40	(N/A)	0.00
463.00	29.03	(N/A)	0.00
463.50	29.65	(N/A)	0.00
464.00	30.25	(N/A)	0.00
464.50	30.84	(N/A)	0.00
465.00	31.42	(N/A)	0.00
465.50	31.99	(N/A)	0.00
466.00	32.55	(N/A)	0.00
466.50	33.11	(N/A)	0.00
467.00	33.65	(N/A)	0.00
467.50	34.18	(N/A)	0.00
468.00	34.71	(N/A)	0.00
468.50	35.22	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice

Composite Outflow Summary

Contributing Structures
Orifice
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Requested Pond Water Surface Elevations	
Minimum (Headwater)	467.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	487.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	469.01	487.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-B13

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	469.01 ft
Orifice Diameter	15.00 in
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

Subsection: Individual Outlet Curves
Label: H-B13

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
467.00	0.00	(N/A)	0.00
467.50	0.00	(N/A)	0.00
468.00	0.00	(N/A)	0.00
468.50	0.00	(N/A)	0.00
469.00	0.00	(N/A)	0.00
469.01	0.00	(N/A)	0.00
469.50	0.85	(N/A)	0.00
470.00	3.06	(N/A)	0.00
470.50	5.49	(N/A)	0.00
471.00	6.90	(N/A)	0.00
471.50	8.07	(N/A)	0.00
472.00	9.08	(N/A)	0.00
472.50	10.00	(N/A)	0.00
473.00	10.83	(N/A)	0.00
473.50	11.61	(N/A)	0.00
474.00	12.34	(N/A)	0.00
474.50	13.03	(N/A)	0.00
475.00	13.68	(N/A)	0.00
475.50	14.30	(N/A)	0.00
476.00	14.90	(N/A)	0.00
476.50	15.48	(N/A)	0.00
477.00	16.03	(N/A)	0.00
477.50	16.56	(N/A)	0.00
478.00	17.08	(N/A)	0.00
478.50	17.59	(N/A)	0.00
479.00	18.08	(N/A)	0.00
479.50	18.55	(N/A)	0.00
480.00	19.02	(N/A)	0.00
480.50	19.47	(N/A)	0.00
481.00	19.91	(N/A)	0.00
481.50	20.35	(N/A)	0.00
482.00	20.77	(N/A)	0.00
482.50	21.19	(N/A)	0.00
483.00	21.59	(N/A)	0.00
483.50	21.99	(N/A)	0.00
484.00	22.39	(N/A)	0.00
484.50	22.77	(N/A)	0.00
485.00	23.15	(N/A)	0.00
485.50	23.53	(N/A)	0.00
486.00	23.89	(N/A)	0.00
486.50	24.26	(N/A)	0.00
487.00	24.61	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-B13

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .129ft
Dcr= .361ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .287ft
Dcr= .703ft CRIT.DEPTH Hev= .00ft
H =.87
H =1.37
H =1.87
H =2.37
H =2.87
H =3.37
H =3.87
H =4.37
H =4.87
H =5.37
H =5.87
H =6.37
H =6.87
H =7.37
H =7.87
H =8.37
H =8.87
H =9.37
H =9.87
H =10.37
H =10.87
H =11.37
H =11.87
H =12.37
H =12.87
H =13.37
H =13.87
H =14.37
H =14.87
H =15.37
H =15.87
H =16.37
H =16.87
H =17.37

Subsection: Composite Rating Curve
Label: H-B13

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
467.00	0.00	(N/A)	0.00
467.50	0.00	(N/A)	0.00
468.00	0.00	(N/A)	0.00
468.50	0.00	(N/A)	0.00
469.00	0.00	(N/A)	0.00
469.01	0.00	(N/A)	0.00
469.50	0.85	(N/A)	0.00
470.00	3.06	(N/A)	0.00
470.50	5.49	(N/A)	0.00
471.00	6.90	(N/A)	0.00
471.50	8.07	(N/A)	0.00
472.00	9.08	(N/A)	0.00
472.50	10.00	(N/A)	0.00
473.00	10.83	(N/A)	0.00
473.50	11.61	(N/A)	0.00
474.00	12.34	(N/A)	0.00
474.50	13.03	(N/A)	0.00
475.00	13.68	(N/A)	0.00
475.50	14.30	(N/A)	0.00
476.00	14.90	(N/A)	0.00
476.50	15.48	(N/A)	0.00
477.00	16.03	(N/A)	0.00
477.50	16.56	(N/A)	0.00
478.00	17.08	(N/A)	0.00
478.50	17.59	(N/A)	0.00
479.00	18.08	(N/A)	0.00
479.50	18.55	(N/A)	0.00
480.00	19.02	(N/A)	0.00
480.50	19.47	(N/A)	0.00
481.00	19.91	(N/A)	0.00
481.50	20.35	(N/A)	0.00
482.00	20.77	(N/A)	0.00
482.50	21.19	(N/A)	0.00
483.00	21.59	(N/A)	0.00
483.50	21.99	(N/A)	0.00
484.00	22.39	(N/A)	0.00
484.50	22.77	(N/A)	0.00
485.00	23.15	(N/A)	0.00
485.50	23.53	(N/A)	0.00
486.00	23.89	(N/A)	0.00
486.50	24.26	(N/A)	0.00
487.00	24.61	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice

Subsection: Composite Rating Curve
Label: H-B13

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
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Subsection: Outlet Input Data
Label: H-B5

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	513.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	533.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	514.59	533.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-B5

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	514.59 ft
Orifice Diameter	12.00 in
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

Subsection: Individual Outlet Curves
Label: H-B5

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
513.50	0.00	(N/A)	0.00
514.00	0.00	(N/A)	0.00
514.50	0.00	(N/A)	0.00
514.59	0.00	(N/A)	0.00
515.00	0.53	(N/A)	0.00
515.50	2.21	(N/A)	0.00
516.00	3.61	(N/A)	0.00
516.50	4.49	(N/A)	0.00
517.00	5.22	(N/A)	0.00
517.50	5.87	(N/A)	0.00
518.00	6.45	(N/A)	0.00
518.50	6.98	(N/A)	0.00
519.00	7.47	(N/A)	0.00
519.50	7.94	(N/A)	0.00
520.00	8.38	(N/A)	0.00
520.50	8.79	(N/A)	0.00
521.00	9.19	(N/A)	0.00
521.50	9.57	(N/A)	0.00
522.00	9.94	(N/A)	0.00
522.50	10.29	(N/A)	0.00
523.00	10.63	(N/A)	0.00
523.50	10.96	(N/A)	0.00
524.00	11.28	(N/A)	0.00
524.50	11.60	(N/A)	0.00
525.00	11.90	(N/A)	0.00
525.50	12.20	(N/A)	0.00
526.00	12.49	(N/A)	0.00
526.50	12.77	(N/A)	0.00
527.00	13.05	(N/A)	0.00
527.50	13.32	(N/A)	0.00
528.00	13.58	(N/A)	0.00
528.50	13.84	(N/A)	0.00
529.00	14.10	(N/A)	0.00
529.50	14.35	(N/A)	0.00
530.00	14.60	(N/A)	0.00
530.50	14.84	(N/A)	0.00
531.00	15.08	(N/A)	0.00
531.50	15.31	(N/A)	0.00
532.00	15.54	(N/A)	0.00
532.50	15.77	(N/A)	0.00
533.00	16.00	(N/A)	0.00
533.50	16.22	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-B5

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

```
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL  Vh= .108ft
Dcr= .302ft  CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL  Vh= .274ft
Dcr= .636ft  CRIT.DEPTH Hev= .00ft
H =.91
H =1.41
H =1.91
H =2.41
H =2.91
H =3.41
H =3.91
H =4.41
H =4.91
H =5.41
H =5.91
H =6.41
H =6.91
H =7.41
H =7.91
H =8.41
H =8.91
H =9.41
H =9.91
H =10.41
H =10.91
H =11.41
H =11.91
H =12.41
H =12.91
H =13.41
H =13.91
H =14.41
H =14.91
H =15.41
H =15.91
H =16.41
H =16.91
H =17.41
H =17.91
H =18.41
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Subsection: Composite Rating Curve
Label: H-B5

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
513.50	0.00	(N/A)	0.00
514.00	0.00	(N/A)	0.00
514.50	0.00	(N/A)	0.00
514.59	0.00	(N/A)	0.00
515.00	0.53	(N/A)	0.00
515.50	2.21	(N/A)	0.00
516.00	3.61	(N/A)	0.00
516.50	4.49	(N/A)	0.00
517.00	5.22	(N/A)	0.00
517.50	5.87	(N/A)	0.00
518.00	6.45	(N/A)	0.00
518.50	6.98	(N/A)	0.00
519.00	7.47	(N/A)	0.00
519.50	7.94	(N/A)	0.00
520.00	8.38	(N/A)	0.00
520.50	8.79	(N/A)	0.00
521.00	9.19	(N/A)	0.00
521.50	9.57	(N/A)	0.00
522.00	9.94	(N/A)	0.00
522.50	10.29	(N/A)	0.00
523.00	10.63	(N/A)	0.00
523.50	10.96	(N/A)	0.00
524.00	11.28	(N/A)	0.00
524.50	11.60	(N/A)	0.00
525.00	11.90	(N/A)	0.00
525.50	12.20	(N/A)	0.00
526.00	12.49	(N/A)	0.00
526.50	12.77	(N/A)	0.00
527.00	13.05	(N/A)	0.00
527.50	13.32	(N/A)	0.00
528.00	13.58	(N/A)	0.00
528.50	13.84	(N/A)	0.00
529.00	14.10	(N/A)	0.00
529.50	14.35	(N/A)	0.00
530.00	14.60	(N/A)	0.00
530.50	14.84	(N/A)	0.00
531.00	15.08	(N/A)	0.00
531.50	15.31	(N/A)	0.00
532.00	15.54	(N/A)	0.00
532.50	15.77	(N/A)	0.00
533.00	16.00	(N/A)	0.00
533.50	16.22	(N/A)	0.00

Contributing Structures

```
None Contributing
None Contributing
None Contributing
None Contributing
Orifice
Orifice
Orifice
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Subsection: Composite Rating Curve
Label: H-B5

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
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Subsection: Outlet Input Data
Label: H-B6

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	538.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	558.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	540.67	558.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-B6

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	540.67 ft
Orifice Diameter	18.00 in
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

Subsection: Individual Outlet Curves
Label: H-B6

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
538.50	0.00	(N/A)	0.00
539.00	0.00	(N/A)	0.00
539.50	0.00	(N/A)	0.00
540.00	0.00	(N/A)	0.00
540.50	0.00	(N/A)	0.00
540.67	0.00	(N/A)	0.00
541.00	0.44	(N/A)	0.00
541.50	2.54	(N/A)	0.00
542.00	5.84	(N/A)	0.00
542.50	8.84	(N/A)	0.00
543.00	10.69	(N/A)	0.00
543.50	12.27	(N/A)	0.00
544.00	13.66	(N/A)	0.00
544.50	14.93	(N/A)	0.00
545.00	16.09	(N/A)	0.00
545.50	17.18	(N/A)	0.00
546.00	18.20	(N/A)	0.00
546.50	19.17	(N/A)	0.00
547.00	20.09	(N/A)	0.00
547.50	20.97	(N/A)	0.00
548.00	21.82	(N/A)	0.00
548.50	22.63	(N/A)	0.00
549.00	23.42	(N/A)	0.00
549.50	24.18	(N/A)	0.00
550.00	24.91	(N/A)	0.00
550.50	25.63	(N/A)	0.00
551.00	26.33	(N/A)	0.00
551.50	27.00	(N/A)	0.00
552.00	27.67	(N/A)	0.00
552.50	28.31	(N/A)	0.00
553.00	28.94	(N/A)	0.00
553.50	29.56	(N/A)	0.00
554.00	30.17	(N/A)	0.00
554.50	30.76	(N/A)	0.00
555.00	31.34	(N/A)	0.00
555.50	31.91	(N/A)	0.00
556.00	32.48	(N/A)	0.00
556.50	33.03	(N/A)	0.00
557.00	33.57	(N/A)	0.00
557.50	34.11	(N/A)	0.00
558.00	34.63	(N/A)	0.00
558.50	35.15	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-B6

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .085ft
Dcr= .245ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .226ft
Dcr= .604ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .397ft
Dcr= .933ft CRIT.DEPTH Hev= .00ft
H =1.08
H =1.58
H =2.08
H =2.58
H =3.08
H =3.58
H =4.08
H =4.58
H =5.08
H =5.58
H =6.08
H =6.58
H =7.08
H =7.58
H =8.08
H =8.58
H =9.08
H =9.58
H =10.08
H =10.58
H =11.08
H =11.58
H =12.08
H =12.58
H =13.08
H =13.58
H =14.08
H =14.58
H =15.08
H =15.58
H =16.08
H =16.58
H =17.08

Subsection: Composite Rating Curve
Label: H-B6

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
538.50	0.00	(N/A)	0.00
539.00	0.00	(N/A)	0.00
539.50	0.00	(N/A)	0.00
540.00	0.00	(N/A)	0.00
540.50	0.00	(N/A)	0.00
540.67	0.00	(N/A)	0.00
541.00	0.44	(N/A)	0.00
541.50	2.54	(N/A)	0.00
542.00	5.84	(N/A)	0.00
542.50	8.84	(N/A)	0.00
543.00	10.69	(N/A)	0.00
543.50	12.27	(N/A)	0.00
544.00	13.66	(N/A)	0.00
544.50	14.93	(N/A)	0.00
545.00	16.09	(N/A)	0.00
545.50	17.18	(N/A)	0.00
546.00	18.20	(N/A)	0.00
546.50	19.17	(N/A)	0.00
547.00	20.09	(N/A)	0.00
547.50	20.97	(N/A)	0.00
548.00	21.82	(N/A)	0.00
548.50	22.63	(N/A)	0.00
549.00	23.42	(N/A)	0.00
549.50	24.18	(N/A)	0.00
550.00	24.91	(N/A)	0.00
550.50	25.63	(N/A)	0.00
551.00	26.33	(N/A)	0.00
551.50	27.00	(N/A)	0.00
552.00	27.67	(N/A)	0.00
552.50	28.31	(N/A)	0.00
553.00	28.94	(N/A)	0.00
553.50	29.56	(N/A)	0.00
554.00	30.17	(N/A)	0.00
554.50	30.76	(N/A)	0.00
555.00	31.34	(N/A)	0.00
555.50	31.91	(N/A)	0.00
556.00	32.48	(N/A)	0.00
556.50	33.03	(N/A)	0.00
557.00	33.57	(N/A)	0.00
557.50	34.11	(N/A)	0.00
558.00	34.63	(N/A)	0.00
558.50	35.15	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
Orifice

Composite Outflow Summary

Contributing Structures
Orifice
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Orifice

Requested Pond Water Surface Elevations	
Minimum (Headwater)	467.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	487.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	470.80	487.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-B8

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	470.80 ft
Orifice Diameter	36.00 in
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

Subsection: Individual Outlet Curves
Label: H-B8

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
467.50	0.00	(N/A)	0.00
468.00	0.00	(N/A)	0.00
468.50	0.00	(N/A)	0.00
469.00	0.00	(N/A)	0.00
469.50	0.00	(N/A)	0.00
470.00	0.00	(N/A)	0.00
470.50	0.00	(N/A)	0.00
470.80	0.00	(N/A)	0.00
471.00	0.24	(N/A)	0.00
471.50	2.79	(N/A)	0.00
472.00	7.85	(N/A)	0.00
472.50	15.01	(N/A)	0.00
473.00	23.84	(N/A)	0.00
473.50	33.85	(N/A)	0.00
474.00	44.36	(N/A)	0.00
474.50	50.46	(N/A)	0.00
475.00	55.90	(N/A)	0.00
475.50	60.86	(N/A)	0.00
476.00	65.44	(N/A)	0.00
476.50	69.72	(N/A)	0.00
477.00	73.76	(N/A)	0.00
477.50	77.58	(N/A)	0.00
478.00	81.22	(N/A)	0.00
478.50	84.71	(N/A)	0.00
479.00	88.06	(N/A)	0.00
479.50	91.29	(N/A)	0.00
480.00	94.41	(N/A)	0.00
480.50	97.42	(N/A)	0.00
481.00	100.35	(N/A)	0.00
481.50	103.19	(N/A)	0.00
482.00	105.96	(N/A)	0.00
482.50	108.66	(N/A)	0.00
483.00	111.29	(N/A)	0.00
483.50	113.86	(N/A)	0.00
484.00	116.37	(N/A)	0.00
484.50	118.83	(N/A)	0.00
485.00	121.24	(N/A)	0.00
485.50	123.61	(N/A)	0.00
486.00	125.92	(N/A)	0.00
486.50	128.20	(N/A)	0.00
487.00	130.44	(N/A)	0.00
487.50	132.64	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-B8

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .051ft
Dcr= .150ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .180ft
Dcr= .520ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .318ft
Dcr= .883ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .465ft
Dcr= 1.236ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .627ft
Dcr= 1.574ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .810ft
Dcr= 1.890ft CRIT.DEPTH Hev= .00ft
H =1.70
H =2.20
H =2.70
H =3.20
H =3.70
H =4.20
H =4.70
H =5.20
H =5.70
H =6.20
H =6.70
H =7.20
H =7.70
H =8.20
H =8.70
H =9.20
H =9.70
H =10.20
H =10.70
H =11.20
H =11.70
H =12.20
H =12.70
H =13.20
H =13.70
H =14.20
H =14.70
H =15.20

Subsection: Composite Rating Curve
Label: H-B8

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
467.50	0.00	(N/A)	0.00
468.00	0.00	(N/A)	0.00
468.50	0.00	(N/A)	0.00
469.00	0.00	(N/A)	0.00
469.50	0.00	(N/A)	0.00
470.00	0.00	(N/A)	0.00
470.50	0.00	(N/A)	0.00
470.80	0.00	(N/A)	0.00
471.00	0.24	(N/A)	0.00
471.50	2.79	(N/A)	0.00
472.00	7.85	(N/A)	0.00
472.50	15.01	(N/A)	0.00
473.00	23.84	(N/A)	0.00
473.50	33.85	(N/A)	0.00
474.00	44.36	(N/A)	0.00
474.50	50.46	(N/A)	0.00
475.00	55.90	(N/A)	0.00
475.50	60.86	(N/A)	0.00
476.00	65.44	(N/A)	0.00
476.50	69.72	(N/A)	0.00
477.00	73.76	(N/A)	0.00
477.50	77.58	(N/A)	0.00
478.00	81.22	(N/A)	0.00
478.50	84.71	(N/A)	0.00
479.00	88.06	(N/A)	0.00
479.50	91.29	(N/A)	0.00
480.00	94.41	(N/A)	0.00
480.50	97.42	(N/A)	0.00
481.00	100.35	(N/A)	0.00
481.50	103.19	(N/A)	0.00
482.00	105.96	(N/A)	0.00
482.50	108.66	(N/A)	0.00
483.00	111.29	(N/A)	0.00
483.50	113.86	(N/A)	0.00
484.00	116.37	(N/A)	0.00
484.50	118.83	(N/A)	0.00
485.00	121.24	(N/A)	0.00
485.50	123.61	(N/A)	0.00
486.00	125.92	(N/A)	0.00
486.50	128.20	(N/A)	0.00
487.00	130.44	(N/A)	0.00
487.50	132.64	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing

Subsection: Composite Rating Curve
Label: H-B8

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
None Contributing
Orifice
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Subsection: Outlet Input Data
Label: H-B9

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	464.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	484.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	466.77	484.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: H-B9

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	466.77 ft
Orifice Diameter	24.00 in
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

Subsection: Individual Outlet Curves
Label: H-B9

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.00	(N/A)	0.00
465.50	0.00	(N/A)	0.00
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
466.77	0.00	(N/A)	0.00
467.00	0.25	(N/A)	0.00
467.50	2.39	(N/A)	0.00
468.00	6.32	(N/A)	0.00
468.50	11.49	(N/A)	0.00
469.00	16.77	(N/A)	0.00
469.50	19.89	(N/A)	0.00
470.00	22.58	(N/A)	0.00
470.50	24.98	(N/A)	0.00
471.00	27.18	(N/A)	0.00
471.50	29.20	(N/A)	0.00
472.00	31.10	(N/A)	0.00
472.50	32.89	(N/A)	0.00
473.00	34.58	(N/A)	0.00
473.50	36.19	(N/A)	0.00
474.00	37.74	(N/A)	0.00
474.50	39.23	(N/A)	0.00
475.00	40.66	(N/A)	0.00
475.50	42.04	(N/A)	0.00
476.00	43.38	(N/A)	0.00
476.50	44.68	(N/A)	0.00
477.00	45.94	(N/A)	0.00
477.50	47.17	(N/A)	0.00
478.00	48.36	(N/A)	0.00
478.50	49.53	(N/A)	0.00
479.00	50.67	(N/A)	0.00
479.50	51.79	(N/A)	0.00
480.00	52.88	(N/A)	0.00
480.50	53.95	(N/A)	0.00
481.00	55.00	(N/A)	0.00
481.50	56.03	(N/A)	0.00
482.00	57.04	(N/A)	0.00
482.50	58.03	(N/A)	0.00
483.00	59.01	(N/A)	0.00
483.50	59.97	(N/A)	0.00
484.00	60.92	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert

Subsection: Individual Outlet Curves
Label: H-B9

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .058ft
Dcr= .171ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .192ft
Dcr= .538ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .340ft
Dcr= .890ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .512ft
Dcr= 1.217ft CRIT.DEPTH Hev= .00ft
H =1.23
H =1.73
H =2.23
H =2.73
H =3.23
H =3.73
H =4.23
H =4.73
H =5.23
H =5.73
H =6.23
H =6.73
H =7.23
H =7.73
H =8.23
H =8.73
H =9.23
H =9.73
H =10.23
H =10.73
H =11.23
H =11.73
H =12.23
H =12.73
H =13.23
H =13.73
H =14.23
H =14.73
H =15.23
H =15.73
H =16.23

Subsection: Composite Rating Curve
Label: H-B9

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
464.00	0.00	(N/A)	0.00
464.50	0.00	(N/A)	0.00
465.00	0.00	(N/A)	0.00
465.50	0.00	(N/A)	0.00
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
466.77	0.00	(N/A)	0.00
467.00	0.25	(N/A)	0.00
467.50	2.39	(N/A)	0.00
468.00	6.32	(N/A)	0.00
468.50	11.49	(N/A)	0.00
469.00	16.77	(N/A)	0.00
469.50	19.89	(N/A)	0.00
470.00	22.58	(N/A)	0.00
470.50	24.98	(N/A)	0.00
471.00	27.18	(N/A)	0.00
471.50	29.20	(N/A)	0.00
472.00	31.10	(N/A)	0.00
472.50	32.89	(N/A)	0.00
473.00	34.58	(N/A)	0.00
473.50	36.19	(N/A)	0.00
474.00	37.74	(N/A)	0.00
474.50	39.23	(N/A)	0.00
475.00	40.66	(N/A)	0.00
475.50	42.04	(N/A)	0.00
476.00	43.38	(N/A)	0.00
476.50	44.68	(N/A)	0.00
477.00	45.94	(N/A)	0.00
477.50	47.17	(N/A)	0.00
478.00	48.36	(N/A)	0.00
478.50	49.53	(N/A)	0.00
479.00	50.67	(N/A)	0.00
479.50	51.79	(N/A)	0.00
480.00	52.88	(N/A)	0.00
480.50	53.95	(N/A)	0.00
481.00	55.00	(N/A)	0.00
481.50	56.03	(N/A)	0.00
482.00	57.04	(N/A)	0.00
482.50	58.03	(N/A)	0.00
483.00	59.01	(N/A)	0.00
483.50	59.97	(N/A)	0.00
484.00	60.92	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing
None Contributing

Subsection: Outlet Input Data
Label: L-A10

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	561.00 ft
Orifice Diameter	21.00 in
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

Subsection: Individual Outlet Curves
Label: L-A10

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
561.00	0.00	(N/A)	0.00
561.50	1.07	(N/A)	0.00
562.00	3.96	(N/A)	0.00
562.50	8.10	(N/A)	0.00
563.00	12.28	(N/A)	0.00
563.50	14.76	(N/A)	0.00
564.00	16.88	(N/A)	0.00
564.50	18.76	(N/A)	0.00
565.00	20.46	(N/A)	0.00
565.50	22.04	(N/A)	0.00
566.00	23.51	(N/A)	0.00
566.50	24.90	(N/A)	0.00
567.00	26.21	(N/A)	0.00
567.50	27.46	(N/A)	0.00
568.00	28.65	(N/A)	0.00
568.50	29.80	(N/A)	0.00
569.00	30.90	(N/A)	0.00
569.50	31.97	(N/A)	0.00
570.00	33.00	(N/A)	0.00
570.50	34.00	(N/A)	0.00
571.00	34.97	(N/A)	0.00
571.50	35.92	(N/A)	0.00
572.00	36.84	(N/A)	0.00
572.50	37.74	(N/A)	0.00
573.00	38.61	(N/A)	0.00
573.50	39.47	(N/A)	0.00
574.00	40.31	(N/A)	0.00
574.50	41.13	(N/A)	0.00
575.00	41.94	(N/A)	0.00
575.50	42.73	(N/A)	0.00
576.00	43.51	(N/A)	0.00
576.50	44.27	(N/A)	0.00
577.00	45.02	(N/A)	0.00
577.50	45.76	(N/A)	0.00
578.00	46.49	(N/A)	0.00
578.50	47.20	(N/A)	0.00
579.00	47.91	(N/A)	0.00
579.50	48.60	(N/A)	0.00
580.00	49.29	(N/A)	0.00
580.50	49.96	(N/A)	0.00
581.00	50.63	(N/A)	0.00

Computation Messages

Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .130ft
Dcr= .370ft CRIT.DEPTH Hev= .00ft

Subsection: Individual Outlet Curves
Label: L-A10

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

```
CRIT.DEPTH CONTROL  Vh= .273ft
Dcr= .726ft  CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL  Vh= .443ft
Dcr= 1.056ft  CRIT.DEPTH Hev= .00ft
H =1.13
H =1.63
H =2.13
H =2.63
H =3.13
H =3.63
H =4.13
H =4.63
H =5.13
H =5.63
H =6.13
H =6.63
H =7.13
H =7.63
H =8.13
H =8.63
H =9.13
H =9.63
H =10.13
H =10.63
H =11.13
H =11.63
H =12.13
H =12.63
H =13.13
H =13.63
H =14.13
H =14.63
H =15.13
H =15.63
H =16.13
H =16.63
H =17.13
H =17.63
H =18.13
H =18.63
H =19.13
```


Subsection: Composite Rating Curve
Label: L-A10

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
561.00	0.00	(N/A)	0.00
561.50	1.07	(N/A)	0.00
562.00	3.96	(N/A)	0.00
562.50	8.10	(N/A)	0.00
563.00	12.28	(N/A)	0.00
563.50	14.76	(N/A)	0.00
564.00	16.88	(N/A)	0.00
564.50	18.76	(N/A)	0.00
565.00	20.46	(N/A)	0.00
565.50	22.04	(N/A)	0.00
566.00	23.51	(N/A)	0.00
566.50	24.90	(N/A)	0.00
567.00	26.21	(N/A)	0.00
567.50	27.46	(N/A)	0.00
568.00	28.65	(N/A)	0.00
568.50	29.80	(N/A)	0.00
569.00	30.90	(N/A)	0.00
569.50	31.97	(N/A)	0.00
570.00	33.00	(N/A)	0.00
570.50	34.00	(N/A)	0.00
571.00	34.97	(N/A)	0.00
571.50	35.92	(N/A)	0.00
572.00	36.84	(N/A)	0.00
572.50	37.74	(N/A)	0.00
573.00	38.61	(N/A)	0.00
573.50	39.47	(N/A)	0.00
574.00	40.31	(N/A)	0.00
574.50	41.13	(N/A)	0.00
575.00	41.94	(N/A)	0.00
575.50	42.73	(N/A)	0.00
576.00	43.51	(N/A)	0.00
576.50	44.27	(N/A)	0.00
577.00	45.02	(N/A)	0.00
577.50	45.76	(N/A)	0.00
578.00	46.49	(N/A)	0.00
578.50	47.20	(N/A)	0.00
579.00	47.91	(N/A)	0.00
579.50	48.60	(N/A)	0.00
580.00	49.29	(N/A)	0.00
580.50	49.96	(N/A)	0.00
581.00	50.63	(N/A)	0.00

Contributing Structures

```
None Contributing
Orifice
Orifice
Orifice
Orifice
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Orifice
Orifice
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Subsection: Composite Rating Curve
Label: L-A10

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
Orifice
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Subsection: Outlet Input Data
Label: L-A4

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	450.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	470.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	450.50	470.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-A4

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	450.50 ft
Orifice Diameter	15.00 in
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

Subsection: Individual Outlet Curves
Label: L-A4

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
450.50	0.00	(N/A)	0.00
451.00	0.88	(N/A)	0.00
451.50	3.11	(N/A)	0.00
452.00	5.53	(N/A)	0.00
452.50	6.93	(N/A)	0.00
453.00	8.09	(N/A)	0.00
453.50	9.10	(N/A)	0.00
454.00	10.01	(N/A)	0.00
454.50	10.85	(N/A)	0.00
455.00	11.63	(N/A)	0.00
455.50	12.35	(N/A)	0.00
456.00	13.04	(N/A)	0.00
456.50	13.69	(N/A)	0.00
457.00	14.32	(N/A)	0.00
457.50	14.91	(N/A)	0.00
458.00	15.49	(N/A)	0.00
458.50	16.04	(N/A)	0.00
459.00	16.58	(N/A)	0.00
459.50	17.09	(N/A)	0.00
460.00	17.60	(N/A)	0.00
460.50	18.08	(N/A)	0.00
461.00	18.56	(N/A)	0.00
461.50	19.02	(N/A)	0.00
462.00	19.48	(N/A)	0.00
462.50	19.92	(N/A)	0.00
463.00	20.35	(N/A)	0.00
463.50	20.78	(N/A)	0.00
464.00	21.19	(N/A)	0.00
464.50	21.60	(N/A)	0.00
465.00	22.00	(N/A)	0.00
465.50	22.39	(N/A)	0.00
466.00	22.78	(N/A)	0.00
466.50	23.16	(N/A)	0.00
467.00	23.53	(N/A)	0.00
467.50	23.90	(N/A)	0.00
468.00	24.26	(N/A)	0.00
468.50	24.62	(N/A)	0.00
469.00	24.97	(N/A)	0.00
469.50	25.32	(N/A)	0.00
470.00	25.66	(N/A)	0.00
470.50	26.00	(N/A)	0.00

Computation Messages

```
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL  Vh= .132ft
Dcr= .368ft  CRIT.DEPTH Hev= .00ft
```

Subsection: Individual Outlet Curves
Label: L-A4

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

CRIT.DEPTH CONTROL Vh= .291ft
Dcr= .710ft CRIT.DEPTH Hev= .00ft
H =.88
H =1.38
H =1.88
H =2.38
H =2.88
H =3.38
H =3.88
H =4.38
H =4.88
H =5.38
H =5.88
H =6.38
H =6.88
H =7.38
H =7.88
H =8.38
H =8.88
H =9.38
H =9.88
H =10.38
H =10.88
H =11.38
H =11.88
H =12.38
H =12.88
H =13.38
H =13.88
H =14.38
H =14.88
H =15.38
H =15.88
H =16.38
H =16.88
H =17.38
H =17.88
H =18.38
H =18.88
H =19.38

Subsection: Composite Rating Curve
Label: L-A4

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
450.50	0.00	(N/A)	0.00
451.00	0.88	(N/A)	0.00
451.50	3.11	(N/A)	0.00
452.00	5.53	(N/A)	0.00
452.50	6.93	(N/A)	0.00
453.00	8.09	(N/A)	0.00
453.50	9.10	(N/A)	0.00
454.00	10.01	(N/A)	0.00
454.50	10.85	(N/A)	0.00
455.00	11.63	(N/A)	0.00
455.50	12.35	(N/A)	0.00
456.00	13.04	(N/A)	0.00
456.50	13.69	(N/A)	0.00
457.00	14.32	(N/A)	0.00
457.50	14.91	(N/A)	0.00
458.00	15.49	(N/A)	0.00
458.50	16.04	(N/A)	0.00
459.00	16.58	(N/A)	0.00
459.50	17.09	(N/A)	0.00
460.00	17.60	(N/A)	0.00
460.50	18.08	(N/A)	0.00
461.00	18.56	(N/A)	0.00
461.50	19.02	(N/A)	0.00
462.00	19.48	(N/A)	0.00
462.50	19.92	(N/A)	0.00
463.00	20.35	(N/A)	0.00
463.50	20.78	(N/A)	0.00
464.00	21.19	(N/A)	0.00
464.50	21.60	(N/A)	0.00
465.00	22.00	(N/A)	0.00
465.50	22.39	(N/A)	0.00
466.00	22.78	(N/A)	0.00
466.50	23.16	(N/A)	0.00
467.00	23.53	(N/A)	0.00
467.50	23.90	(N/A)	0.00
468.00	24.26	(N/A)	0.00
468.50	24.62	(N/A)	0.00
469.00	24.97	(N/A)	0.00
469.50	25.32	(N/A)	0.00
470.00	25.66	(N/A)	0.00
470.50	26.00	(N/A)	0.00

Contributing Structures

None Contributing
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice

Subsection: Composite Rating Curve
Label: L-A4

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
Orifice
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Subsection: Outlet Input Data
Label: L-A5

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	475.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	495.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	475.50	495.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-A5

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	475.50 ft
Orifice Diameter	18.00 in
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

Subsection: Individual Outlet Curves
Label: L-A5

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
475.50	0.00	(N/A)	0.00
476.00	0.98	(N/A)	0.00
476.50	3.55	(N/A)	0.00
477.00	7.37	(N/A)	0.00
477.50	9.51	(N/A)	0.00
478.00	11.25	(N/A)	0.00
478.50	12.76	(N/A)	0.00
479.00	14.10	(N/A)	0.00
479.50	15.33	(N/A)	0.00
480.00	16.47	(N/A)	0.00
480.50	17.53	(N/A)	0.00
481.00	18.54	(N/A)	0.00
481.50	19.49	(N/A)	0.00
482.00	20.40	(N/A)	0.00
482.50	21.26	(N/A)	0.00
483.00	22.10	(N/A)	0.00
483.50	22.90	(N/A)	0.00
484.00	23.68	(N/A)	0.00
484.50	24.43	(N/A)	0.00
485.00	25.16	(N/A)	0.00
485.50	25.87	(N/A)	0.00
486.00	26.56	(N/A)	0.00
486.50	27.23	(N/A)	0.00
487.00	27.89	(N/A)	0.00
487.50	28.53	(N/A)	0.00
488.00	29.15	(N/A)	0.00
488.50	29.77	(N/A)	0.00
489.00	30.37	(N/A)	0.00
489.50	30.96	(N/A)	0.00
490.00	31.54	(N/A)	0.00
490.50	32.11	(N/A)	0.00
491.00	32.67	(N/A)	0.00
491.50	33.21	(N/A)	0.00
492.00	33.75	(N/A)	0.00
492.50	34.29	(N/A)	0.00
493.00	34.81	(N/A)	0.00
493.50	35.33	(N/A)	0.00
494.00	35.83	(N/A)	0.00
494.50	36.33	(N/A)	0.00
495.00	36.83	(N/A)	0.00
495.50	37.32	(N/A)	0.00

Computation Messages

Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .130ft
Dcr= .369ft CRIT.DEPTH Hev= .00ft

Subsection: Individual Outlet Curves
Label: L-A5

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

```
CRIT.DEPTH CONTROL  Vh= .279ft
Dcr= .720ft  CRIT.DEPTH Hev= .00ft
H =.75
H =1.25
H =1.75
H =2.25
H =2.75
H =3.25
H =3.75
H =4.25
H =4.75
H =5.25
H =5.75
H =6.25
H =6.75
H =7.25
H =7.75
H =8.25
H =8.75
H =9.25
H =9.75
H =10.25
H =10.75
H =11.25
H =11.75
H =12.25
H =12.75
H =13.25
H =13.75
H =14.25
H =14.75
H =15.25
H =15.75
H =16.25
H =16.75
H =17.25
H =17.75
H =18.25
H =18.75
H =19.25
```


Subsection: Composite Rating Curve
Label: L-A5

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
475.50	0.00	(N/A)	0.00
476.00	0.98	(N/A)	0.00
476.50	3.55	(N/A)	0.00
477.00	7.37	(N/A)	0.00
477.50	9.51	(N/A)	0.00
478.00	11.25	(N/A)	0.00
478.50	12.76	(N/A)	0.00
479.00	14.10	(N/A)	0.00
479.50	15.33	(N/A)	0.00
480.00	16.47	(N/A)	0.00
480.50	17.53	(N/A)	0.00
481.00	18.54	(N/A)	0.00
481.50	19.49	(N/A)	0.00
482.00	20.40	(N/A)	0.00
482.50	21.26	(N/A)	0.00
483.00	22.10	(N/A)	0.00
483.50	22.90	(N/A)	0.00
484.00	23.68	(N/A)	0.00
484.50	24.43	(N/A)	0.00
485.00	25.16	(N/A)	0.00
485.50	25.87	(N/A)	0.00
486.00	26.56	(N/A)	0.00
486.50	27.23	(N/A)	0.00
487.00	27.89	(N/A)	0.00
487.50	28.53	(N/A)	0.00
488.00	29.15	(N/A)	0.00
488.50	29.77	(N/A)	0.00
489.00	30.37	(N/A)	0.00
489.50	30.96	(N/A)	0.00
490.00	31.54	(N/A)	0.00
490.50	32.11	(N/A)	0.00
491.00	32.67	(N/A)	0.00
491.50	33.21	(N/A)	0.00
492.00	33.75	(N/A)	0.00
492.50	34.29	(N/A)	0.00
493.00	34.81	(N/A)	0.00
493.50	35.33	(N/A)	0.00
494.00	35.83	(N/A)	0.00
494.50	36.33	(N/A)	0.00
495.00	36.83	(N/A)	0.00
495.50	37.32	(N/A)	0.00

Contributing Structures

```
None Contributing
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
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Subsection: Composite Rating Curve
Label: L-A5

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
Orifice
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Subsection: Outlet Input Data
Label: L-A6

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	491.25 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	511.25 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	491.25	511.25
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-A6

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	491.25 ft
Orifice Diameter	18.00 in
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

Subsection: Individual Outlet Curves
Label: L-A6

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
491.25	0.00	(N/A)	0.00
491.75	0.98	(N/A)	0.00
492.25	3.55	(N/A)	0.00
492.75	7.37	(N/A)	0.00
493.25	9.51	(N/A)	0.00
493.75	11.25	(N/A)	0.00
494.25	12.76	(N/A)	0.00
494.75	14.10	(N/A)	0.00
495.25	15.33	(N/A)	0.00
495.75	16.47	(N/A)	0.00
496.25	17.53	(N/A)	0.00
496.75	18.54	(N/A)	0.00
497.25	19.49	(N/A)	0.00
497.75	20.40	(N/A)	0.00
498.25	21.26	(N/A)	0.00
498.75	22.10	(N/A)	0.00
499.25	22.90	(N/A)	0.00
499.75	23.68	(N/A)	0.00
500.25	24.43	(N/A)	0.00
500.75	25.16	(N/A)	0.00
501.25	25.87	(N/A)	0.00
501.75	26.56	(N/A)	0.00
502.25	27.23	(N/A)	0.00
502.75	27.89	(N/A)	0.00
503.25	28.53	(N/A)	0.00
503.75	29.15	(N/A)	0.00
504.25	29.77	(N/A)	0.00
504.75	30.37	(N/A)	0.00
505.25	30.96	(N/A)	0.00
505.75	31.54	(N/A)	0.00
506.25	32.11	(N/A)	0.00
506.75	32.67	(N/A)	0.00
507.25	33.21	(N/A)	0.00
507.75	33.75	(N/A)	0.00
508.25	34.29	(N/A)	0.00
508.75	34.81	(N/A)	0.00
509.25	35.33	(N/A)	0.00
509.75	35.83	(N/A)	0.00
510.25	36.33	(N/A)	0.00
510.75	36.83	(N/A)	0.00
511.25	37.32	(N/A)	0.00

Computation Messages

Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .130ft
Dcr= .369ft CRIT.DEPTH Hev= .00ft

Subsection: Individual Outlet Curves
Label: L-A6

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

```
CRIT.DEPTH CONTROL  Vh= .279ft
Dcr= .720ft  CRIT.DEPTH Hev= .00ft
H =.75
H =1.25
H =1.75
H =2.25
H =2.75
H =3.25
H =3.75
H =4.25
H =4.75
H =5.25
H =5.75
H =6.25
H =6.75
H =7.25
H =7.75
H =8.25
H =8.75
H =9.25
H =9.75
H =10.25
H =10.75
H =11.25
H =11.75
H =12.25
H =12.75
H =13.25
H =13.75
H =14.25
H =14.75
H =15.25
H =15.75
H =16.25
H =16.75
H =17.25
H =17.75
H =18.25
H =18.75
H =19.25
```


Subsection: Composite Rating Curve
Label: L-A6

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
491.25	0.00	(N/A)	0.00
491.75	0.98	(N/A)	0.00
492.25	3.55	(N/A)	0.00
492.75	7.37	(N/A)	0.00
493.25	9.51	(N/A)	0.00
493.75	11.25	(N/A)	0.00
494.25	12.76	(N/A)	0.00
494.75	14.10	(N/A)	0.00
495.25	15.33	(N/A)	0.00
495.75	16.47	(N/A)	0.00
496.25	17.53	(N/A)	0.00
496.75	18.54	(N/A)	0.00
497.25	19.49	(N/A)	0.00
497.75	20.40	(N/A)	0.00
498.25	21.26	(N/A)	0.00
498.75	22.10	(N/A)	0.00
499.25	22.90	(N/A)	0.00
499.75	23.68	(N/A)	0.00
500.25	24.43	(N/A)	0.00
500.75	25.16	(N/A)	0.00
501.25	25.87	(N/A)	0.00
501.75	26.56	(N/A)	0.00
502.25	27.23	(N/A)	0.00
502.75	27.89	(N/A)	0.00
503.25	28.53	(N/A)	0.00
503.75	29.15	(N/A)	0.00
504.25	29.77	(N/A)	0.00
504.75	30.37	(N/A)	0.00
505.25	30.96	(N/A)	0.00
505.75	31.54	(N/A)	0.00
506.25	32.11	(N/A)	0.00
506.75	32.67	(N/A)	0.00
507.25	33.21	(N/A)	0.00
507.75	33.75	(N/A)	0.00
508.25	34.29	(N/A)	0.00
508.75	34.81	(N/A)	0.00
509.25	35.33	(N/A)	0.00
509.75	35.83	(N/A)	0.00
510.25	36.33	(N/A)	0.00
510.75	36.83	(N/A)	0.00
511.25	37.32	(N/A)	0.00

Contributing Structures

```
None Contributing
Orifice
Orifice
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Orifice
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Subsection: Composite Rating Curve
Label: L-A6

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
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Subsection: Outlet Input Data
Label: L-A7

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	511.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	531.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	511.00	531.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-A7

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	511.00 ft
Orifice Diameter	18.00 in
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

Subsection: Individual Outlet Curves
Label: L-A7

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
511.00	0.00	(N/A)	0.00
511.50	0.98	(N/A)	0.00
512.00	3.55	(N/A)	0.00
512.50	7.37	(N/A)	0.00
513.00	9.51	(N/A)	0.00
513.50	11.25	(N/A)	0.00
514.00	12.76	(N/A)	0.00
514.50	14.10	(N/A)	0.00
515.00	15.33	(N/A)	0.00
515.50	16.47	(N/A)	0.00
516.00	17.53	(N/A)	0.00
516.50	18.54	(N/A)	0.00
517.00	19.49	(N/A)	0.00
517.50	20.40	(N/A)	0.00
518.00	21.26	(N/A)	0.00
518.50	22.10	(N/A)	0.00
519.00	22.90	(N/A)	0.00
519.50	23.68	(N/A)	0.00
520.00	24.43	(N/A)	0.00
520.50	25.16	(N/A)	0.00
521.00	25.87	(N/A)	0.00
521.50	26.56	(N/A)	0.00
522.00	27.23	(N/A)	0.00
522.50	27.89	(N/A)	0.00
523.00	28.53	(N/A)	0.00
523.50	29.15	(N/A)	0.00
524.00	29.77	(N/A)	0.00
524.50	30.37	(N/A)	0.00
525.00	30.96	(N/A)	0.00
525.50	31.54	(N/A)	0.00
526.00	32.11	(N/A)	0.00
526.50	32.67	(N/A)	0.00
527.00	33.21	(N/A)	0.00
527.50	33.75	(N/A)	0.00
528.00	34.29	(N/A)	0.00
528.50	34.81	(N/A)	0.00
529.00	35.33	(N/A)	0.00
529.50	35.83	(N/A)	0.00
530.00	36.33	(N/A)	0.00
530.50	36.83	(N/A)	0.00
531.00	37.32	(N/A)	0.00

Computation Messages

Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .130ft
Dcr= .369ft CRIT.DEPTH Hev= .00ft

Subsection: Individual Outlet Curves
Label: L-A7

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

CRIT.DEPTH CONTROL Vh= .279ft
Dcr= .720ft CRIT.DEPTH Hev= .00ft
H =.75
H =1.25
H =1.75
H =2.25
H =2.75
H =3.25
H =3.75
H =4.25
H =4.75
H =5.25
H =5.75
H =6.25
H =6.75
H =7.25
H =7.75
H =8.25
H =8.75
H =9.25
H =9.75
H =10.25
H =10.75
H =11.25
H =11.75
H =12.25
H =12.75
H =13.25
H =13.75
H =14.25
H =14.75
H =15.25
H =15.75
H =16.25
H =16.75
H =17.25
H =17.75
H =18.25
H =18.75
H =19.25

Subsection: Composite Rating Curve
Label: L-A7

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
511.00	0.00	(N/A)	0.00
511.50	0.98	(N/A)	0.00
512.00	3.55	(N/A)	0.00
512.50	7.37	(N/A)	0.00
513.00	9.51	(N/A)	0.00
513.50	11.25	(N/A)	0.00
514.00	12.76	(N/A)	0.00
514.50	14.10	(N/A)	0.00
515.00	15.33	(N/A)	0.00
515.50	16.47	(N/A)	0.00
516.00	17.53	(N/A)	0.00
516.50	18.54	(N/A)	0.00
517.00	19.49	(N/A)	0.00
517.50	20.40	(N/A)	0.00
518.00	21.26	(N/A)	0.00
518.50	22.10	(N/A)	0.00
519.00	22.90	(N/A)	0.00
519.50	23.68	(N/A)	0.00
520.00	24.43	(N/A)	0.00
520.50	25.16	(N/A)	0.00
521.00	25.87	(N/A)	0.00
521.50	26.56	(N/A)	0.00
522.00	27.23	(N/A)	0.00
522.50	27.89	(N/A)	0.00
523.00	28.53	(N/A)	0.00
523.50	29.15	(N/A)	0.00
524.00	29.77	(N/A)	0.00
524.50	30.37	(N/A)	0.00
525.00	30.96	(N/A)	0.00
525.50	31.54	(N/A)	0.00
526.00	32.11	(N/A)	0.00
526.50	32.67	(N/A)	0.00
527.00	33.21	(N/A)	0.00
527.50	33.75	(N/A)	0.00
528.00	34.29	(N/A)	0.00
528.50	34.81	(N/A)	0.00
529.00	35.33	(N/A)	0.00
529.50	35.83	(N/A)	0.00
530.00	36.33	(N/A)	0.00
530.50	36.83	(N/A)	0.00
531.00	37.32	(N/A)	0.00

Contributing Structures

None Contributing
Orifice
Orifice
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Orifice
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Orifice
Orifice

Subsection: Composite Rating Curve
Label: L-A7

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
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Subsection: Outlet Input Data
Label: L-A8

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	529.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	549.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	529.00	549.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-A8

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	529.00 ft
Orifice Diameter	18.00 in
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

Subsection: Individual Outlet Curves
Label: L-A8

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
529.00	0.00	(N/A)	0.00
529.50	0.98	(N/A)	0.00
530.00	3.55	(N/A)	0.00
530.50	7.37	(N/A)	0.00
531.00	9.51	(N/A)	0.00
531.50	11.25	(N/A)	0.00
532.00	12.76	(N/A)	0.00
532.50	14.10	(N/A)	0.00
533.00	15.33	(N/A)	0.00
533.50	16.47	(N/A)	0.00
534.00	17.53	(N/A)	0.00
534.50	18.54	(N/A)	0.00
535.00	19.49	(N/A)	0.00
535.50	20.40	(N/A)	0.00
536.00	21.26	(N/A)	0.00
536.50	22.10	(N/A)	0.00
537.00	22.90	(N/A)	0.00
537.50	23.68	(N/A)	0.00
538.00	24.43	(N/A)	0.00
538.50	25.16	(N/A)	0.00
539.00	25.87	(N/A)	0.00
539.50	26.56	(N/A)	0.00
540.00	27.23	(N/A)	0.00
540.50	27.89	(N/A)	0.00
541.00	28.53	(N/A)	0.00
541.50	29.15	(N/A)	0.00
542.00	29.77	(N/A)	0.00
542.50	30.37	(N/A)	0.00
543.00	30.96	(N/A)	0.00
543.50	31.54	(N/A)	0.00
544.00	32.11	(N/A)	0.00
544.50	32.67	(N/A)	0.00
545.00	33.21	(N/A)	0.00
545.50	33.75	(N/A)	0.00
546.00	34.29	(N/A)	0.00
546.50	34.81	(N/A)	0.00
547.00	35.33	(N/A)	0.00
547.50	35.83	(N/A)	0.00
548.00	36.33	(N/A)	0.00
548.50	36.83	(N/A)	0.00
549.00	37.32	(N/A)	0.00

Computation Messages

Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .130ft
Dcr= .369ft CRIT.DEPTH Hev= .00ft

Subsection: Individual Outlet Curves
Label: L-A8

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

CRIT.DEPTH CONTROL Vh= .279ft
Dcr= .720ft CRIT.DEPTH Hev= .00ft
H =.75
H =1.25
H =1.75
H =2.25
H =2.75
H =3.25
H =3.75
H =4.25
H =4.75
H =5.25
H =5.75
H =6.25
H =6.75
H =7.25
H =7.75
H =8.25
H =8.75
H =9.25
H =9.75
H =10.25
H =10.75
H =11.25
H =11.75
H =12.25
H =12.75
H =13.25
H =13.75
H =14.25
H =14.75
H =15.25
H =15.75
H =16.25
H =16.75
H =17.25
H =17.75
H =18.25
H =18.75
H =19.25

Subsection: Composite Rating Curve
Label: L-A8

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
529.00	0.00	(N/A)	0.00
529.50	0.98	(N/A)	0.00
530.00	3.55	(N/A)	0.00
530.50	7.37	(N/A)	0.00
531.00	9.51	(N/A)	0.00
531.50	11.25	(N/A)	0.00
532.00	12.76	(N/A)	0.00
532.50	14.10	(N/A)	0.00
533.00	15.33	(N/A)	0.00
533.50	16.47	(N/A)	0.00
534.00	17.53	(N/A)	0.00
534.50	18.54	(N/A)	0.00
535.00	19.49	(N/A)	0.00
535.50	20.40	(N/A)	0.00
536.00	21.26	(N/A)	0.00
536.50	22.10	(N/A)	0.00
537.00	22.90	(N/A)	0.00
537.50	23.68	(N/A)	0.00
538.00	24.43	(N/A)	0.00
538.50	25.16	(N/A)	0.00
539.00	25.87	(N/A)	0.00
539.50	26.56	(N/A)	0.00
540.00	27.23	(N/A)	0.00
540.50	27.89	(N/A)	0.00
541.00	28.53	(N/A)	0.00
541.50	29.15	(N/A)	0.00
542.00	29.77	(N/A)	0.00
542.50	30.37	(N/A)	0.00
543.00	30.96	(N/A)	0.00
543.50	31.54	(N/A)	0.00
544.00	32.11	(N/A)	0.00
544.50	32.67	(N/A)	0.00
545.00	33.21	(N/A)	0.00
545.50	33.75	(N/A)	0.00
546.00	34.29	(N/A)	0.00
546.50	34.81	(N/A)	0.00
547.00	35.33	(N/A)	0.00
547.50	35.83	(N/A)	0.00
548.00	36.33	(N/A)	0.00
548.50	36.83	(N/A)	0.00
549.00	37.32	(N/A)	0.00

Contributing Structures

None Contributing
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice

Subsection: Composite Rating Curve
Label: L-A8

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
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Subsection: Outlet Input Data
Label: L-A9

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	543.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	563.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	543.00	563.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-A9

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	543.00 ft
Orifice Diameter	21.00 in
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

Subsection: Individual Outlet Curves
Label: L-A9

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
543.00	0.00	(N/A)	0.00
543.50	1.07	(N/A)	0.00
544.00	3.96	(N/A)	0.00
544.50	8.10	(N/A)	0.00
545.00	12.28	(N/A)	0.00
545.50	14.76	(N/A)	0.00
546.00	16.88	(N/A)	0.00
546.50	18.76	(N/A)	0.00
547.00	20.46	(N/A)	0.00
547.50	22.04	(N/A)	0.00
548.00	23.51	(N/A)	0.00
548.50	24.90	(N/A)	0.00
549.00	26.21	(N/A)	0.00
549.50	27.46	(N/A)	0.00
550.00	28.65	(N/A)	0.00
550.50	29.80	(N/A)	0.00
551.00	30.90	(N/A)	0.00
551.50	31.97	(N/A)	0.00
552.00	33.00	(N/A)	0.00
552.50	34.00	(N/A)	0.00
553.00	34.97	(N/A)	0.00
553.50	35.92	(N/A)	0.00
554.00	36.84	(N/A)	0.00
554.50	37.74	(N/A)	0.00
555.00	38.61	(N/A)	0.00
555.50	39.47	(N/A)	0.00
556.00	40.31	(N/A)	0.00
556.50	41.13	(N/A)	0.00
557.00	41.94	(N/A)	0.00
557.50	42.73	(N/A)	0.00
558.00	43.51	(N/A)	0.00
558.50	44.27	(N/A)	0.00
559.00	45.02	(N/A)	0.00
559.50	45.76	(N/A)	0.00
560.00	46.49	(N/A)	0.00
560.50	47.20	(N/A)	0.00
561.00	47.91	(N/A)	0.00
561.50	48.60	(N/A)	0.00
562.00	49.29	(N/A)	0.00
562.50	49.96	(N/A)	0.00
563.00	50.63	(N/A)	0.00

Computation Messages

Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .130ft
Dcr= .370ft CRIT.DEPTH Hev= .00ft

Subsection: Individual Outlet Curves
Label: L-A9

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

CRIT.DEPTH CONTROL Vh= .273ft
Dcr= .726ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .443ft
Dcr= 1.056ft CRIT.DEPTH Hev= .00ft
H =1.13
H =1.63
H =2.13
H =2.63
H =3.13
H =3.63
H =4.13
H =4.63
H =5.13
H =5.63
H =6.13
H =6.63
H =7.13
H =7.63
H =8.13
H =8.63
H =9.13
H =9.63
H =10.13
H =10.63
H =11.13
H =11.63
H =12.13
H =12.63
H =13.13
H =13.63
H =14.13
H =14.63
H =15.13
H =15.63
H =16.13
H =16.63
H =17.13
H =17.63
H =18.13
H =18.63
H =19.13

Subsection: Composite Rating Curve
Label: L-A9

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
543.00	0.00	(N/A)	0.00
543.50	1.07	(N/A)	0.00
544.00	3.96	(N/A)	0.00
544.50	8.10	(N/A)	0.00
545.00	12.28	(N/A)	0.00
545.50	14.76	(N/A)	0.00
546.00	16.88	(N/A)	0.00
546.50	18.76	(N/A)	0.00
547.00	20.46	(N/A)	0.00
547.50	22.04	(N/A)	0.00
548.00	23.51	(N/A)	0.00
548.50	24.90	(N/A)	0.00
549.00	26.21	(N/A)	0.00
549.50	27.46	(N/A)	0.00
550.00	28.65	(N/A)	0.00
550.50	29.80	(N/A)	0.00
551.00	30.90	(N/A)	0.00
551.50	31.97	(N/A)	0.00
552.00	33.00	(N/A)	0.00
552.50	34.00	(N/A)	0.00
553.00	34.97	(N/A)	0.00
553.50	35.92	(N/A)	0.00
554.00	36.84	(N/A)	0.00
554.50	37.74	(N/A)	0.00
555.00	38.61	(N/A)	0.00
555.50	39.47	(N/A)	0.00
556.00	40.31	(N/A)	0.00
556.50	41.13	(N/A)	0.00
557.00	41.94	(N/A)	0.00
557.50	42.73	(N/A)	0.00
558.00	43.51	(N/A)	0.00
558.50	44.27	(N/A)	0.00
559.00	45.02	(N/A)	0.00
559.50	45.76	(N/A)	0.00
560.00	46.49	(N/A)	0.00
560.50	47.20	(N/A)	0.00
561.00	47.91	(N/A)	0.00
561.50	48.60	(N/A)	0.00
562.00	49.29	(N/A)	0.00
562.50	49.96	(N/A)	0.00
563.00	50.63	(N/A)	0.00

Contributing Structures

None Contributing
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice

Subsection: Composite Rating Curve
Label: L-A9

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
Orifice
Orifice
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Subsection: Outlet Input Data
Label: L-B10

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	479.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	499.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	479.00	499.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-B10

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	479.00 ft
Orifice Diameter	10.00 in
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

Subsection: Individual Outlet Curves
Label: L-B10

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
479.00	0.00	(N/A)	0.00
479.50	0.68	(N/A)	0.00
480.00	2.00	(N/A)	0.00
480.50	2.73	(N/A)	0.00
481.00	3.30	(N/A)	0.00
481.50	3.79	(N/A)	0.00
482.00	4.22	(N/A)	0.00
482.50	4.61	(N/A)	0.00
483.00	4.97	(N/A)	0.00
483.50	5.30	(N/A)	0.00
484.00	5.62	(N/A)	0.00
484.50	5.92	(N/A)	0.00
485.00	6.20	(N/A)	0.00
485.50	6.47	(N/A)	0.00
486.00	6.74	(N/A)	0.00
486.50	6.99	(N/A)	0.00
487.00	7.23	(N/A)	0.00
487.50	7.46	(N/A)	0.00
488.00	7.69	(N/A)	0.00
488.50	7.91	(N/A)	0.00
489.00	8.13	(N/A)	0.00
489.50	8.34	(N/A)	0.00
490.00	8.54	(N/A)	0.00
490.50	8.74	(N/A)	0.00
491.00	8.93	(N/A)	0.00
491.50	9.13	(N/A)	0.00
492.00	9.31	(N/A)	0.00
492.50	9.50	(N/A)	0.00
493.00	9.67	(N/A)	0.00
493.50	9.85	(N/A)	0.00
494.00	10.02	(N/A)	0.00
494.50	10.20	(N/A)	0.00
495.00	10.36	(N/A)	0.00
495.50	10.53	(N/A)	0.00
496.00	10.69	(N/A)	0.00
496.50	10.85	(N/A)	0.00
497.00	11.01	(N/A)	0.00
497.50	11.16	(N/A)	0.00
498.00	11.32	(N/A)	0.00
498.50	11.47	(N/A)	0.00
499.00	11.62	(N/A)	0.00

Computation Messages

```
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL  Vh= .137ft
Dcr= .362ft   CRIT.DEPTH Hev= .00ft
```

Subsection: Individual Outlet Curves
Label: L-B10

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

H =.58
H =1.08
H =1.58
H =2.08
H =2.58
H =3.08
H =3.58
H =4.08
H =4.58
H =5.08
H =5.58
H =6.08
H =6.58
H =7.08
H =7.58
H =8.08
H =8.58
H =9.08
H =9.58
H =10.08
H =10.58
H =11.08
H =11.58
H =12.08
H =12.58
H =13.08
H =13.58
H =14.08
H =14.58
H =15.08
H =15.58
H =16.08
H =16.58
H =17.08
H =17.58
H =18.08
H =18.58
H =19.08
H =19.58

Subsection: Composite Rating Curve
Label: L-B10

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
479.00	0.00	(N/A)	0.00
479.50	0.68	(N/A)	0.00
480.00	2.00	(N/A)	0.00
480.50	2.73	(N/A)	0.00
481.00	3.30	(N/A)	0.00
481.50	3.79	(N/A)	0.00
482.00	4.22	(N/A)	0.00
482.50	4.61	(N/A)	0.00
483.00	4.97	(N/A)	0.00
483.50	5.30	(N/A)	0.00
484.00	5.62	(N/A)	0.00
484.50	5.92	(N/A)	0.00
485.00	6.20	(N/A)	0.00
485.50	6.47	(N/A)	0.00
486.00	6.74	(N/A)	0.00
486.50	6.99	(N/A)	0.00
487.00	7.23	(N/A)	0.00
487.50	7.46	(N/A)	0.00
488.00	7.69	(N/A)	0.00
488.50	7.91	(N/A)	0.00
489.00	8.13	(N/A)	0.00
489.50	8.34	(N/A)	0.00
490.00	8.54	(N/A)	0.00
490.50	8.74	(N/A)	0.00
491.00	8.93	(N/A)	0.00
491.50	9.13	(N/A)	0.00
492.00	9.31	(N/A)	0.00
492.50	9.50	(N/A)	0.00
493.00	9.67	(N/A)	0.00
493.50	9.85	(N/A)	0.00
494.00	10.02	(N/A)	0.00
494.50	10.20	(N/A)	0.00
495.00	10.36	(N/A)	0.00
495.50	10.53	(N/A)	0.00
496.00	10.69	(N/A)	0.00
496.50	10.85	(N/A)	0.00
497.00	11.01	(N/A)	0.00
497.50	11.16	(N/A)	0.00
498.00	11.32	(N/A)	0.00
498.50	11.47	(N/A)	0.00
499.00	11.62	(N/A)	0.00

Contributing Structures

None Contributing
Orifice
Orifice
Orifice
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Orifice
Orifice

Subsection: Composite Rating Curve
Label: L-B10

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
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Subsection: Outlet Input Data
Label: L-B11

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	608.75 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	628.75 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	608.75	628.75
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-B11

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	608.75 ft
Orifice Diameter	12.00 in
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

Subsection: Individual Outlet Curves
Label: L-B11

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
608.75	0.00	(N/A)	0.00
609.25	0.76	(N/A)	0.00
609.75	2.67	(N/A)	0.00
610.25	3.78	(N/A)	0.00
610.75	4.63	(N/A)	0.00
611.25	5.35	(N/A)	0.00
611.75	5.98	(N/A)	0.00
612.25	6.55	(N/A)	0.00
612.75	7.07	(N/A)	0.00
613.25	7.56	(N/A)	0.00
613.75	8.02	(N/A)	0.00
614.25	8.45	(N/A)	0.00
614.75	8.87	(N/A)	0.00
615.25	9.26	(N/A)	0.00
615.75	9.64	(N/A)	0.00
616.25	10.00	(N/A)	0.00
616.75	10.35	(N/A)	0.00
617.25	10.69	(N/A)	0.00
617.75	11.02	(N/A)	0.00
618.25	11.34	(N/A)	0.00
618.75	11.65	(N/A)	0.00
619.25	11.95	(N/A)	0.00
619.75	12.25	(N/A)	0.00
620.25	12.54	(N/A)	0.00
620.75	12.82	(N/A)	0.00
621.25	13.09	(N/A)	0.00
621.75	13.36	(N/A)	0.00
622.25	13.63	(N/A)	0.00
622.75	13.89	(N/A)	0.00
623.25	14.14	(N/A)	0.00
623.75	14.39	(N/A)	0.00
624.25	14.64	(N/A)	0.00
624.75	14.88	(N/A)	0.00
625.25	15.12	(N/A)	0.00
625.75	15.36	(N/A)	0.00
626.25	15.59	(N/A)	0.00
626.75	15.81	(N/A)	0.00
627.25	16.04	(N/A)	0.00
627.75	16.26	(N/A)	0.00
628.25	16.48	(N/A)	0.00
628.75	16.69	(N/A)	0.00

Computation Messages

Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .135ft
Dcr= .365ft CRIT.DEPTH Hev= .00ft

Subsection: Individual Outlet Curves
Label: L-B11

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages
H =.50
H =1.00
H =1.50
H =2.00
H =2.50
H =3.00
H =3.50
H =4.00
H =4.50
H =5.00
H =5.50
H =6.00
H =6.50
H =7.00
H =7.50
H =8.00
H =8.50
H =9.00
H =9.50
H =10.00
H =10.50
H =11.00
H =11.50
H =12.00
H =12.50
H =13.00
H =13.50
H =14.00
H =14.50
H =15.00
H =15.50
H =16.00
H =16.50
H =17.00
H =17.50
H =18.00
H =18.50
H =19.00
H =19.50

Subsection: Composite Rating Curve
Label: L-B11

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
608.75	0.00	(N/A)	0.00
609.25	0.76	(N/A)	0.00
609.75	2.67	(N/A)	0.00
610.25	3.78	(N/A)	0.00
610.75	4.63	(N/A)	0.00
611.25	5.35	(N/A)	0.00
611.75	5.98	(N/A)	0.00
612.25	6.55	(N/A)	0.00
612.75	7.07	(N/A)	0.00
613.25	7.56	(N/A)	0.00
613.75	8.02	(N/A)	0.00
614.25	8.45	(N/A)	0.00
614.75	8.87	(N/A)	0.00
615.25	9.26	(N/A)	0.00
615.75	9.64	(N/A)	0.00
616.25	10.00	(N/A)	0.00
616.75	10.35	(N/A)	0.00
617.25	10.69	(N/A)	0.00
617.75	11.02	(N/A)	0.00
618.25	11.34	(N/A)	0.00
618.75	11.65	(N/A)	0.00
619.25	11.95	(N/A)	0.00
619.75	12.25	(N/A)	0.00
620.25	12.54	(N/A)	0.00
620.75	12.82	(N/A)	0.00
621.25	13.09	(N/A)	0.00
621.75	13.36	(N/A)	0.00
622.25	13.63	(N/A)	0.00
622.75	13.89	(N/A)	0.00
623.25	14.14	(N/A)	0.00
623.75	14.39	(N/A)	0.00
624.25	14.64	(N/A)	0.00
624.75	14.88	(N/A)	0.00
625.25	15.12	(N/A)	0.00
625.75	15.36	(N/A)	0.00
626.25	15.59	(N/A)	0.00
626.75	15.81	(N/A)	0.00
627.25	16.04	(N/A)	0.00
627.75	16.26	(N/A)	0.00
628.25	16.48	(N/A)	0.00
628.75	16.69	(N/A)	0.00

Contributing Structures
None Contributing
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice

Composite Outflow Summary

Contributing Structures
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
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Requested Pond Water Surface Elevations	
Minimum (Headwater)	448.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	468.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	448.50	468.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-B12

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	448.50 ft
Orifice Diameter	18.00 in
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

Subsection: Individual Outlet Curves
Label: L-B12

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
448.50	0.00	(N/A)	0.00
449.00	0.98	(N/A)	0.00
449.50	3.55	(N/A)	0.00
450.00	7.37	(N/A)	0.00
450.50	9.51	(N/A)	0.00
451.00	11.25	(N/A)	0.00
451.50	12.76	(N/A)	0.00
452.00	14.10	(N/A)	0.00
452.50	15.33	(N/A)	0.00
453.00	16.47	(N/A)	0.00
453.50	17.53	(N/A)	0.00
454.00	18.54	(N/A)	0.00
454.50	19.49	(N/A)	0.00
455.00	20.40	(N/A)	0.00
455.50	21.26	(N/A)	0.00
456.00	22.10	(N/A)	0.00
456.50	22.90	(N/A)	0.00
457.00	23.68	(N/A)	0.00
457.50	24.43	(N/A)	0.00
458.00	25.16	(N/A)	0.00
458.50	25.87	(N/A)	0.00
459.00	26.56	(N/A)	0.00
459.50	27.23	(N/A)	0.00
460.00	27.89	(N/A)	0.00
460.50	28.53	(N/A)	0.00
461.00	29.15	(N/A)	0.00
461.50	29.77	(N/A)	0.00
462.00	30.37	(N/A)	0.00
462.50	30.96	(N/A)	0.00
463.00	31.54	(N/A)	0.00
463.50	32.11	(N/A)	0.00
464.00	32.67	(N/A)	0.00
464.50	33.21	(N/A)	0.00
465.00	33.75	(N/A)	0.00
465.50	34.29	(N/A)	0.00
466.00	34.81	(N/A)	0.00
466.50	35.33	(N/A)	0.00
467.00	35.83	(N/A)	0.00
467.50	36.33	(N/A)	0.00
468.00	36.83	(N/A)	0.00
468.50	37.32	(N/A)	0.00

Computation Messages

Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .130ft
Dcr= .369ft CRIT.DEPTH Hev= .00ft

Subsection: Individual Outlet Curves
Label: L-B12

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

CRIT.DEPTH CONTROL Vh= .279ft
Dcr= .720ft CRIT.DEPTH Hev= .00ft
H =.75
H =1.25
H =1.75
H =2.25
H =2.75
H =3.25
H =3.75
H =4.25
H =4.75
H =5.25
H =5.75
H =6.25
H =6.75
H =7.25
H =7.75
H =8.25
H =8.75
H =9.25
H =9.75
H =10.25
H =10.75
H =11.25
H =11.75
H =12.25
H =12.75
H =13.25
H =13.75
H =14.25
H =14.75
H =15.25
H =15.75
H =16.25
H =16.75
H =17.25
H =17.75
H =18.25
H =18.75
H =19.25

Subsection: Composite Rating Curve
Label: L-B12

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
448.50	0.00	(N/A)	0.00
449.00	0.98	(N/A)	0.00
449.50	3.55	(N/A)	0.00
450.00	7.37	(N/A)	0.00
450.50	9.51	(N/A)	0.00
451.00	11.25	(N/A)	0.00
451.50	12.76	(N/A)	0.00
452.00	14.10	(N/A)	0.00
452.50	15.33	(N/A)	0.00
453.00	16.47	(N/A)	0.00
453.50	17.53	(N/A)	0.00
454.00	18.54	(N/A)	0.00
454.50	19.49	(N/A)	0.00
455.00	20.40	(N/A)	0.00
455.50	21.26	(N/A)	0.00
456.00	22.10	(N/A)	0.00
456.50	22.90	(N/A)	0.00
457.00	23.68	(N/A)	0.00
457.50	24.43	(N/A)	0.00
458.00	25.16	(N/A)	0.00
458.50	25.87	(N/A)	0.00
459.00	26.56	(N/A)	0.00
459.50	27.23	(N/A)	0.00
460.00	27.89	(N/A)	0.00
460.50	28.53	(N/A)	0.00
461.00	29.15	(N/A)	0.00
461.50	29.77	(N/A)	0.00
462.00	30.37	(N/A)	0.00
462.50	30.96	(N/A)	0.00
463.00	31.54	(N/A)	0.00
463.50	32.11	(N/A)	0.00
464.00	32.67	(N/A)	0.00
464.50	33.21	(N/A)	0.00
465.00	33.75	(N/A)	0.00
465.50	34.29	(N/A)	0.00
466.00	34.81	(N/A)	0.00
466.50	35.33	(N/A)	0.00
467.00	35.83	(N/A)	0.00
467.50	36.33	(N/A)	0.00
468.00	36.83	(N/A)	0.00
468.50	37.32	(N/A)	0.00

Contributing Structures

None Contributing
Orifice
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Subsection: Composite Rating Curve
Label: L-B12

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
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Subsection: Outlet Input Data
Label: L-B13

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	467.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	487.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	467.00	487.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-B13

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	467.00 ft
Orifice Diameter	12.00 in
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

Subsection: Individual Outlet Curves
Label: L-B13

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
467.00	0.00	(N/A)	0.00
467.50	0.76	(N/A)	0.00
468.00	2.67	(N/A)	0.00
468.50	3.78	(N/A)	0.00
469.00	4.63	(N/A)	0.00
469.50	5.35	(N/A)	0.00
470.00	5.98	(N/A)	0.00
470.50	6.55	(N/A)	0.00
471.00	7.07	(N/A)	0.00
471.50	7.56	(N/A)	0.00
472.00	8.02	(N/A)	0.00
472.50	8.45	(N/A)	0.00
473.00	8.87	(N/A)	0.00
473.50	9.26	(N/A)	0.00
474.00	9.64	(N/A)	0.00
474.50	10.00	(N/A)	0.00
475.00	10.35	(N/A)	0.00
475.50	10.69	(N/A)	0.00
476.00	11.02	(N/A)	0.00
476.50	11.34	(N/A)	0.00
477.00	11.65	(N/A)	0.00
477.50	11.95	(N/A)	0.00
478.00	12.25	(N/A)	0.00
478.50	12.54	(N/A)	0.00
479.00	12.82	(N/A)	0.00
479.50	13.09	(N/A)	0.00
480.00	13.36	(N/A)	0.00
480.50	13.63	(N/A)	0.00
481.00	13.89	(N/A)	0.00
481.50	14.14	(N/A)	0.00
482.00	14.39	(N/A)	0.00
482.50	14.64	(N/A)	0.00
483.00	14.88	(N/A)	0.00
483.50	15.12	(N/A)	0.00
484.00	15.36	(N/A)	0.00
484.50	15.59	(N/A)	0.00
485.00	15.81	(N/A)	0.00
485.50	16.04	(N/A)	0.00
486.00	16.26	(N/A)	0.00
486.50	16.48	(N/A)	0.00
487.00	16.69	(N/A)	0.00

Computation Messages

```
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL  Vh= .135ft
Dcr= .365ft  CRIT.DEPTH Hev= .00ft
```

Subsection: Individual Outlet Curves
Label: L-B13

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

H =.50
H =1.00
H =1.50
H =2.00
H =2.50
H =3.00
H =3.50
H =4.00
H =4.50
H =5.00
H =5.50
H =6.00
H =6.50
H =7.00
H =7.50
H =8.00
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H =9.00
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H =10.00
H =10.50
H =11.00
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H =13.50
H =14.00
H =14.50
H =15.00
H =15.50
H =16.00
H =16.50
H =17.00
H =17.50
H =18.00
H =18.50
H =19.00
H =19.50

Subsection: Composite Rating Curve
Label: L-B13

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
467.00	0.00	(N/A)	0.00
467.50	0.76	(N/A)	0.00
468.00	2.67	(N/A)	0.00
468.50	3.78	(N/A)	0.00
469.00	4.63	(N/A)	0.00
469.50	5.35	(N/A)	0.00
470.00	5.98	(N/A)	0.00
470.50	6.55	(N/A)	0.00
471.00	7.07	(N/A)	0.00
471.50	7.56	(N/A)	0.00
472.00	8.02	(N/A)	0.00
472.50	8.45	(N/A)	0.00
473.00	8.87	(N/A)	0.00
473.50	9.26	(N/A)	0.00
474.00	9.64	(N/A)	0.00
474.50	10.00	(N/A)	0.00
475.00	10.35	(N/A)	0.00
475.50	10.69	(N/A)	0.00
476.00	11.02	(N/A)	0.00
476.50	11.34	(N/A)	0.00
477.00	11.65	(N/A)	0.00
477.50	11.95	(N/A)	0.00
478.00	12.25	(N/A)	0.00
478.50	12.54	(N/A)	0.00
479.00	12.82	(N/A)	0.00
479.50	13.09	(N/A)	0.00
480.00	13.36	(N/A)	0.00
480.50	13.63	(N/A)	0.00
481.00	13.89	(N/A)	0.00
481.50	14.14	(N/A)	0.00
482.00	14.39	(N/A)	0.00
482.50	14.64	(N/A)	0.00
483.00	14.88	(N/A)	0.00
483.50	15.12	(N/A)	0.00
484.00	15.36	(N/A)	0.00
484.50	15.59	(N/A)	0.00
485.00	15.81	(N/A)	0.00
485.50	16.04	(N/A)	0.00
486.00	16.26	(N/A)	0.00
486.50	16.48	(N/A)	0.00
487.00	16.69	(N/A)	0.00

Contributing Structures

None Contributing
Orifice
Orifice
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Orifice

Subsection: Composite Rating Curve
Label: L-B13

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
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Subsection: Outlet Input Data
Label: L-B5

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	513.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	533.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	513.50	533.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-B5

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	513.50 ft
Orifice Diameter	10.00 in
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

Subsection: Individual Outlet Curves
Label: L-B5

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
513.50	0.00	(N/A)	0.00
514.00	0.68	(N/A)	0.00
514.50	2.00	(N/A)	0.00
515.00	2.73	(N/A)	0.00
515.50	3.30	(N/A)	0.00
516.00	3.79	(N/A)	0.00
516.50	4.22	(N/A)	0.00
517.00	4.61	(N/A)	0.00
517.50	4.97	(N/A)	0.00
518.00	5.30	(N/A)	0.00
518.50	5.62	(N/A)	0.00
519.00	5.92	(N/A)	0.00
519.50	6.20	(N/A)	0.00
520.00	6.47	(N/A)	0.00
520.50	6.74	(N/A)	0.00
521.00	6.99	(N/A)	0.00
521.50	7.23	(N/A)	0.00
522.00	7.46	(N/A)	0.00
522.50	7.69	(N/A)	0.00
523.00	7.91	(N/A)	0.00
523.50	8.13	(N/A)	0.00
524.00	8.34	(N/A)	0.00
524.50	8.54	(N/A)	0.00
525.00	8.74	(N/A)	0.00
525.50	8.93	(N/A)	0.00
526.00	9.13	(N/A)	0.00
526.50	9.31	(N/A)	0.00
527.00	9.50	(N/A)	0.00
527.50	9.67	(N/A)	0.00
528.00	9.85	(N/A)	0.00
528.50	10.02	(N/A)	0.00
529.00	10.20	(N/A)	0.00
529.50	10.36	(N/A)	0.00
530.00	10.53	(N/A)	0.00
530.50	10.69	(N/A)	0.00
531.00	10.85	(N/A)	0.00
531.50	11.01	(N/A)	0.00
532.00	11.16	(N/A)	0.00
532.50	11.32	(N/A)	0.00
533.00	11.47	(N/A)	0.00
533.50	11.62	(N/A)	0.00

Computation Messages

Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .137ft
Dcr= .362ft CRIT.DEPTH Hev= .00ft

Subsection: Individual Outlet Curves
Label: L-B5

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

H =.58
H =1.08
H =1.58
H =2.08
H =2.58
H =3.08
H =3.58
H =4.08
H =4.58
H =5.08
H =5.58
H =6.08
H =6.58
H =7.08
H =7.58
H =8.08
H =8.58
H =9.08
H =9.58
H =10.08
H =10.58
H =11.08
H =11.58
H =12.08
H =12.58
H =13.08
H =13.58
H =14.08
H =14.58
H =15.08
H =15.58
H =16.08
H =16.58
H =17.08
H =17.58
H =18.08
H =18.58
H =19.08
H =19.58

Subsection: Composite Rating Curve
Label: L-B5

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
513.50	0.00	(N/A)	0.00
514.00	0.68	(N/A)	0.00
514.50	2.00	(N/A)	0.00
515.00	2.73	(N/A)	0.00
515.50	3.30	(N/A)	0.00
516.00	3.79	(N/A)	0.00
516.50	4.22	(N/A)	0.00
517.00	4.61	(N/A)	0.00
517.50	4.97	(N/A)	0.00
518.00	5.30	(N/A)	0.00
518.50	5.62	(N/A)	0.00
519.00	5.92	(N/A)	0.00
519.50	6.20	(N/A)	0.00
520.00	6.47	(N/A)	0.00
520.50	6.74	(N/A)	0.00
521.00	6.99	(N/A)	0.00
521.50	7.23	(N/A)	0.00
522.00	7.46	(N/A)	0.00
522.50	7.69	(N/A)	0.00
523.00	7.91	(N/A)	0.00
523.50	8.13	(N/A)	0.00
524.00	8.34	(N/A)	0.00
524.50	8.54	(N/A)	0.00
525.00	8.74	(N/A)	0.00
525.50	8.93	(N/A)	0.00
526.00	9.13	(N/A)	0.00
526.50	9.31	(N/A)	0.00
527.00	9.50	(N/A)	0.00
527.50	9.67	(N/A)	0.00
528.00	9.85	(N/A)	0.00
528.50	10.02	(N/A)	0.00
529.00	10.20	(N/A)	0.00
529.50	10.36	(N/A)	0.00
530.00	10.53	(N/A)	0.00
530.50	10.69	(N/A)	0.00
531.00	10.85	(N/A)	0.00
531.50	11.01	(N/A)	0.00
532.00	11.16	(N/A)	0.00
532.50	11.32	(N/A)	0.00
533.00	11.47	(N/A)	0.00
533.50	11.62	(N/A)	0.00

Contributing Structures

None Contributing
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice

Subsection: Composite Rating Curve
Label: L-B5

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
Orifice
Orifice
Orifice
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Orifice
Orifice

Subsection: Outlet Input Data
Label: L-B6

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	538.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	558.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	538.50	558.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-B6

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	538.50 ft
Orifice Diameter	12.00 in
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

Subsection: Individual Outlet Curves
Label: L-B6

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
538.50	0.00	(N/A)	0.00
539.00	0.76	(N/A)	0.00
539.50	2.67	(N/A)	0.00
540.00	3.78	(N/A)	0.00
540.50	4.63	(N/A)	0.00
541.00	5.35	(N/A)	0.00
541.50	5.98	(N/A)	0.00
542.00	6.55	(N/A)	0.00
542.50	7.07	(N/A)	0.00
543.00	7.56	(N/A)	0.00
543.50	8.02	(N/A)	0.00
544.00	8.45	(N/A)	0.00
544.50	8.87	(N/A)	0.00
545.00	9.26	(N/A)	0.00
545.50	9.64	(N/A)	0.00
546.00	10.00	(N/A)	0.00
546.50	10.35	(N/A)	0.00
547.00	10.69	(N/A)	0.00
547.50	11.02	(N/A)	0.00
548.00	11.34	(N/A)	0.00
548.50	11.65	(N/A)	0.00
549.00	11.95	(N/A)	0.00
549.50	12.25	(N/A)	0.00
550.00	12.54	(N/A)	0.00
550.50	12.82	(N/A)	0.00
551.00	13.09	(N/A)	0.00
551.50	13.36	(N/A)	0.00
552.00	13.63	(N/A)	0.00
552.50	13.89	(N/A)	0.00
553.00	14.14	(N/A)	0.00
553.50	14.39	(N/A)	0.00
554.00	14.64	(N/A)	0.00
554.50	14.88	(N/A)	0.00
555.00	15.12	(N/A)	0.00
555.50	15.36	(N/A)	0.00
556.00	15.59	(N/A)	0.00
556.50	15.81	(N/A)	0.00
557.00	16.04	(N/A)	0.00
557.50	16.26	(N/A)	0.00
558.00	16.48	(N/A)	0.00
558.50	16.69	(N/A)	0.00

Computation Messages

```
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL  Vh= .135ft
Dcr= .365ft  CRIT.DEPTH Hev= .00ft
```

Subsection: Individual Outlet Curves
Label: L-B6

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

H =.50
H =1.00
H =1.50
H =2.00
H =2.50
H =3.00
H =3.50
H =4.00
H =4.50
H =5.00
H =5.50
H =6.00
H =6.50
H =7.00
H =7.50
H =8.00
H =8.50
H =9.00
H =9.50
H =10.00
H =10.50
H =11.00
H =11.50
H =12.00
H =12.50
H =13.00
H =13.50
H =14.00
H =14.50
H =15.00
H =15.50
H =16.00
H =16.50
H =17.00
H =17.50
H =18.00
H =18.50
H =19.00
H =19.50

Subsection: Composite Rating Curve
Label: L-B6

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
538.50	0.00	(N/A)	0.00
539.00	0.76	(N/A)	0.00
539.50	2.67	(N/A)	0.00
540.00	3.78	(N/A)	0.00
540.50	4.63	(N/A)	0.00
541.00	5.35	(N/A)	0.00
541.50	5.98	(N/A)	0.00
542.00	6.55	(N/A)	0.00
542.50	7.07	(N/A)	0.00
543.00	7.56	(N/A)	0.00
543.50	8.02	(N/A)	0.00
544.00	8.45	(N/A)	0.00
544.50	8.87	(N/A)	0.00
545.00	9.26	(N/A)	0.00
545.50	9.64	(N/A)	0.00
546.00	10.00	(N/A)	0.00
546.50	10.35	(N/A)	0.00
547.00	10.69	(N/A)	0.00
547.50	11.02	(N/A)	0.00
548.00	11.34	(N/A)	0.00
548.50	11.65	(N/A)	0.00
549.00	11.95	(N/A)	0.00
549.50	12.25	(N/A)	0.00
550.00	12.54	(N/A)	0.00
550.50	12.82	(N/A)	0.00
551.00	13.09	(N/A)	0.00
551.50	13.36	(N/A)	0.00
552.00	13.63	(N/A)	0.00
552.50	13.89	(N/A)	0.00
553.00	14.14	(N/A)	0.00
553.50	14.39	(N/A)	0.00
554.00	14.64	(N/A)	0.00
554.50	14.88	(N/A)	0.00
555.00	15.12	(N/A)	0.00
555.50	15.36	(N/A)	0.00
556.00	15.59	(N/A)	0.00
556.50	15.81	(N/A)	0.00
557.00	16.04	(N/A)	0.00
557.50	16.26	(N/A)	0.00
558.00	16.48	(N/A)	0.00
558.50	16.69	(N/A)	0.00

Contributing Structures

None Contributing
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice

Subsection: Composite Rating Curve
Label: L-B6

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
Orifice
Orifice
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Orifice

Subsection: Outlet Input Data
Label: L-B8

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	467.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	487.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	467.50	487.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-B8

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	467.50 ft
Orifice Diameter	24.00 in
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

Subsection: Individual Outlet Curves
Label: L-B8

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
467.50	0.00	(N/A)	0.00
468.00	1.16	(N/A)	0.00
468.50	4.33	(N/A)	0.00
469.00	9.01	(N/A)	0.00
469.50	15.12	(N/A)	0.00
470.00	18.52	(N/A)	0.00
470.50	21.38	(N/A)	0.00
471.00	23.91	(N/A)	0.00
471.50	26.19	(N/A)	0.00
472.00	28.29	(N/A)	0.00
472.50	30.24	(N/A)	0.00
473.00	32.08	(N/A)	0.00
473.50	33.81	(N/A)	0.00
474.00	35.46	(N/A)	0.00
474.50	37.04	(N/A)	0.00
475.00	38.55	(N/A)	0.00
475.50	40.01	(N/A)	0.00
476.00	41.41	(N/A)	0.00
476.50	42.77	(N/A)	0.00
477.00	44.08	(N/A)	0.00
477.50	45.36	(N/A)	0.00
478.00	46.60	(N/A)	0.00
478.50	47.82	(N/A)	0.00
479.00	49.00	(N/A)	0.00
479.50	50.15	(N/A)	0.00
480.00	51.28	(N/A)	0.00
480.50	52.38	(N/A)	0.00
481.00	53.46	(N/A)	0.00
481.50	54.52	(N/A)	0.00
482.00	55.56	(N/A)	0.00
482.50	56.58	(N/A)	0.00
483.00	57.58	(N/A)	0.00
483.50	58.56	(N/A)	0.00
484.00	59.53	(N/A)	0.00
484.50	60.48	(N/A)	0.00
485.00	61.42	(N/A)	0.00
485.50	62.34	(N/A)	0.00
486.00	63.25	(N/A)	0.00
486.50	64.15	(N/A)	0.00
487.00	65.04	(N/A)	0.00
487.50	65.91	(N/A)	0.00

Computation Messages

Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .129ft
Dcr= .371ft CRIT.DEPTH Hev= .00ft

Subsection: Individual Outlet Curves
Label: L-B8

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

CRIT.DEPTH CONTROL Vh= .270ft
Dcr= .731ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .429ft
Dcr= 1.071ft CRIT.DEPTH Hev= .00ft
H =1.00
H =1.50
H =2.00
H =2.50
H =3.00
H =3.50
H =4.00
H =4.50
H =5.00
H =5.50
H =6.00
H =6.50
H =7.00
H =7.50
H =8.00
H =8.50
H =9.00
H =9.50
H =10.00
H =10.50
H =11.00
H =11.50
H =12.00
H =12.50
H =13.00
H =13.50
H =14.00
H =14.50
H =15.00
H =15.50
H =16.00
H =16.50
H =17.00
H =17.50
H =18.00
H =18.50
H =19.00

Subsection: Composite Rating Curve
Label: L-B8

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
467.50	0.00	(N/A)	0.00
468.00	1.16	(N/A)	0.00
468.50	4.33	(N/A)	0.00
469.00	9.01	(N/A)	0.00
469.50	15.12	(N/A)	0.00
470.00	18.52	(N/A)	0.00
470.50	21.38	(N/A)	0.00
471.00	23.91	(N/A)	0.00
471.50	26.19	(N/A)	0.00
472.00	28.29	(N/A)	0.00
472.50	30.24	(N/A)	0.00
473.00	32.08	(N/A)	0.00
473.50	33.81	(N/A)	0.00
474.00	35.46	(N/A)	0.00
474.50	37.04	(N/A)	0.00
475.00	38.55	(N/A)	0.00
475.50	40.01	(N/A)	0.00
476.00	41.41	(N/A)	0.00
476.50	42.77	(N/A)	0.00
477.00	44.08	(N/A)	0.00
477.50	45.36	(N/A)	0.00
478.00	46.60	(N/A)	0.00
478.50	47.82	(N/A)	0.00
479.00	49.00	(N/A)	0.00
479.50	50.15	(N/A)	0.00
480.00	51.28	(N/A)	0.00
480.50	52.38	(N/A)	0.00
481.00	53.46	(N/A)	0.00
481.50	54.52	(N/A)	0.00
482.00	55.56	(N/A)	0.00
482.50	56.58	(N/A)	0.00
483.00	57.58	(N/A)	0.00
483.50	58.56	(N/A)	0.00
484.00	59.53	(N/A)	0.00
484.50	60.48	(N/A)	0.00
485.00	61.42	(N/A)	0.00
485.50	62.34	(N/A)	0.00
486.00	63.25	(N/A)	0.00
486.50	64.15	(N/A)	0.00
487.00	65.04	(N/A)	0.00
487.50	65.91	(N/A)	0.00

Contributing Structures

None Contributing
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice

Subsection: Composite Rating Curve
Label: L-B8

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
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Subsection: Outlet Input Data
Label: L-B9

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	464.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	484.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice	Forward	TW	464.00	484.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: L-B9

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	464.00 ft
Orifice Diameter	15.00 in
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

Subsection: Individual Outlet Curves
Label: L-B9

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
464.00	0.00	(N/A)	0.00
464.50	0.88	(N/A)	0.00
465.00	3.11	(N/A)	0.00
465.50	5.53	(N/A)	0.00
466.00	6.93	(N/A)	0.00
466.50	8.09	(N/A)	0.00
467.00	9.10	(N/A)	0.00
467.50	10.01	(N/A)	0.00
468.00	10.85	(N/A)	0.00
468.50	11.63	(N/A)	0.00
469.00	12.35	(N/A)	0.00
469.50	13.04	(N/A)	0.00
470.00	13.69	(N/A)	0.00
470.50	14.32	(N/A)	0.00
471.00	14.91	(N/A)	0.00
471.50	15.49	(N/A)	0.00
472.00	16.04	(N/A)	0.00
472.50	16.58	(N/A)	0.00
473.00	17.09	(N/A)	0.00
473.50	17.60	(N/A)	0.00
474.00	18.08	(N/A)	0.00
474.50	18.56	(N/A)	0.00
475.00	19.02	(N/A)	0.00
475.50	19.48	(N/A)	0.00
476.00	19.92	(N/A)	0.00
476.50	20.35	(N/A)	0.00
477.00	20.78	(N/A)	0.00
477.50	21.19	(N/A)	0.00
478.00	21.60	(N/A)	0.00
478.50	22.00	(N/A)	0.00
479.00	22.39	(N/A)	0.00
479.50	22.78	(N/A)	0.00
480.00	23.16	(N/A)	0.00
480.50	23.53	(N/A)	0.00
481.00	23.90	(N/A)	0.00
481.50	24.26	(N/A)	0.00
482.00	24.62	(N/A)	0.00
482.50	24.97	(N/A)	0.00
483.00	25.32	(N/A)	0.00
483.50	25.66	(N/A)	0.00
484.00	26.00	(N/A)	0.00

Computation Messages

```
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL  Vh= .132ft
Dcr= .368ft  CRIT.DEPTH Hev= .00ft
```

Subsection: Individual Outlet Curves
Label: L-B9

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

```
CRIT.DEPTH CONTROL  Vh= .291ft
Dc= .710ft  CRIT.DEPTH Hev= .00ft
H =.88
H =1.38
H =1.88
H =2.38
H =2.88
H =3.38
H =3.88
H =4.38
H =4.88
H =5.38
H =5.88
H =6.38
H =6.88
H =7.38
H =7.88
H =8.38
H =8.88
H =9.38
H =9.88
H =10.38
H =10.88
H =11.38
H =11.88
H =12.38
H =12.88
H =13.38
H =13.88
H =14.38
H =14.88
H =15.38
H =15.88
H =16.38
H =16.88
H =17.38
H =17.88
H =18.38
H =18.88
H =19.38
```


Subsection: Composite Rating Curve
Label: L-B9

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
464.00	0.00	(N/A)	0.00
464.50	0.88	(N/A)	0.00
465.00	3.11	(N/A)	0.00
465.50	5.53	(N/A)	0.00
466.00	6.93	(N/A)	0.00
466.50	8.09	(N/A)	0.00
467.00	9.10	(N/A)	0.00
467.50	10.01	(N/A)	0.00
468.00	10.85	(N/A)	0.00
468.50	11.63	(N/A)	0.00
469.00	12.35	(N/A)	0.00
469.50	13.04	(N/A)	0.00
470.00	13.69	(N/A)	0.00
470.50	14.32	(N/A)	0.00
471.00	14.91	(N/A)	0.00
471.50	15.49	(N/A)	0.00
472.00	16.04	(N/A)	0.00
472.50	16.58	(N/A)	0.00
473.00	17.09	(N/A)	0.00
473.50	17.60	(N/A)	0.00
474.00	18.08	(N/A)	0.00
474.50	18.56	(N/A)	0.00
475.00	19.02	(N/A)	0.00
475.50	19.48	(N/A)	0.00
476.00	19.92	(N/A)	0.00
476.50	20.35	(N/A)	0.00
477.00	20.78	(N/A)	0.00
477.50	21.19	(N/A)	0.00
478.00	21.60	(N/A)	0.00
478.50	22.00	(N/A)	0.00
479.00	22.39	(N/A)	0.00
479.50	22.78	(N/A)	0.00
480.00	23.16	(N/A)	0.00
480.50	23.53	(N/A)	0.00
481.00	23.90	(N/A)	0.00
481.50	24.26	(N/A)	0.00
482.00	24.62	(N/A)	0.00
482.50	24.97	(N/A)	0.00
483.00	25.32	(N/A)	0.00
483.50	25.66	(N/A)	0.00
484.00	26.00	(N/A)	0.00

Contributing Structures

```
None Contributing
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
```

Subsection: Composite Rating Curve
Label: L-B9

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
Orifice
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Orifice
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Orifice
Orifice
Orifice
Orifice
Orifice
Orifice

Subsection: Outlet Input Data
Label: Pond B7

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	451.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	463.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice 2	Forward	TW	456.30	463.50
Inlet Box	Riser 1	Forward	TW	462.50	463.50
Orifice-Circular	Orifice 1	Forward	TW	451.50	463.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: Pond B7

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Riser 1 Structure Type: Inlet Box	
Number of Openings	1
Elevation	462.50 ft
Orifice Area	12.3 ft²
Orifice Coefficient	0.600
Weir Length	14.00 ft
Weir Coefficient	3.00 (ft^0.5)/s
K Reverse	1.000
Manning's n	0.000
Kev, Charged Riser	0.000
Weir Submergence	False
Orifice H to crest	True

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	451.50 ft
Orifice Diameter	6.75 in
Orifice Coefficient	0.600

Structure ID: Orifice 2 Structure Type: Orifice-Circular	
Number of Openings	2
Elevation	456.30 ft
Orifice Diameter	13.00 in
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

Subsection: Individual Outlet Curves
Label: Pond B7

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser 1 (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
451.50	0.00	(N/A)	0.00
452.00	0.00	(N/A)	0.00
452.50	0.00	(N/A)	0.00
453.00	0.00	(N/A)	0.00
453.50	0.00	(N/A)	0.00
454.00	0.00	(N/A)	0.00
454.50	0.00	(N/A)	0.00
455.00	0.00	(N/A)	0.00
455.50	0.00	(N/A)	0.00
456.00	0.00	(N/A)	0.00
456.30	0.00	(N/A)	0.00
456.50	0.00	(N/A)	0.00
457.00	0.00	(N/A)	0.00
457.50	0.00	(N/A)	0.00
458.00	0.00	(N/A)	0.00
458.50	0.00	(N/A)	0.00
459.00	0.00	(N/A)	0.00
459.50	0.00	(N/A)	0.00
460.00	0.00	(N/A)	0.00
460.50	0.00	(N/A)	0.00
461.00	0.00	(N/A)	0.00
461.50	0.00	(N/A)	0.00
462.00	0.00	(N/A)	0.00
462.50	0.00	(N/A)	0.00
463.00	14.85	(N/A)	0.00
463.50	42.00	(N/A)	0.00

Computation Messages
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500

Subsection: Individual Outlet Curves
Label: Pond B7

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Riser 1 (Inlet Box)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
HW & TW < Inv.El.=462.500
Weir: H =0ft
Weir: H =0.5ft
Weir: H =1ft

Subsection: Individual Outlet Curves
Label: Pond B7

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
451.50	0.00	(N/A)	0.00
452.00	0.51	(N/A)	0.00
452.50	1.01	(N/A)	0.00
453.00	1.32	(N/A)	0.00
453.50	1.57	(N/A)	0.00
454.00	1.78	(N/A)	0.00
454.50	1.97	(N/A)	0.00
455.00	2.15	(N/A)	0.00
455.50	2.31	(N/A)	0.00
456.00	2.46	(N/A)	0.00
456.30	2.54	(N/A)	0.00
456.50	2.60	(N/A)	0.00
457.00	2.73	(N/A)	0.00
457.50	2.86	(N/A)	0.00
458.00	2.98	(N/A)	0.00
458.50	3.10	(N/A)	0.00
459.00	3.21	(N/A)	0.00
459.50	3.32	(N/A)	0.00
460.00	3.43	(N/A)	0.00
460.50	3.53	(N/A)	0.00
461.00	3.63	(N/A)	0.00
461.50	3.73	(N/A)	0.00
462.00	3.82	(N/A)	0.00
462.50	3.92	(N/A)	0.00
463.00	4.01	(N/A)	0.00
463.50	4.09	(N/A)	0.00

Computation Messages

Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .149ft
Dcr= .351ft CRIT.DEPTH Hev= .00ft
H =.72
H =1.22
H =1.72
H =2.22
H =2.72
H =3.22
H =3.72
H =4.22
H =4.52
H =4.72
H =5.22
H =5.72
H =6.22
H =6.72
H =7.22

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

H =7.72
H =8.22
H =8.72
H =9.22
H =9.72
H =10.22
H =10.72
H =11.22
H =11.72

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
451.50	0.00	(N/A)	0.00
452.00	0.00	(N/A)	0.00
452.50	0.00	(N/A)	0.00
453.00	0.00	(N/A)	0.00
453.50	0.00	(N/A)	0.00
454.00	0.00	(N/A)	0.00
454.50	0.00	(N/A)	0.00
455.00	0.00	(N/A)	0.00
455.50	0.00	(N/A)	0.00
456.00	0.00	(N/A)	0.00
456.30	0.00	(N/A)	0.00
456.50	0.28	(N/A)	0.00
457.00	2.98	(N/A)	0.00
457.50	7.20	(N/A)	0.00
458.00	9.55	(N/A)	0.00
458.50	11.43	(N/A)	0.00
459.00	13.04	(N/A)	0.00
459.50	14.47	(N/A)	0.00
460.00	15.77	(N/A)	0.00
460.50	16.97	(N/A)	0.00
461.00	18.09	(N/A)	0.00
461.50	19.15	(N/A)	0.00
462.00	20.15	(N/A)	0.00
462.50	21.11	(N/A)	0.00
463.00	22.02	(N/A)	0.00
463.50	22.90	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .051ft
Dcr= .149ft CRIT.DEPTH Hev= .00ft
CRIT.DEPTH CONTROL Vh= .195ft
Dcr= .505ft CRIT.DEPTH Hev= .00ft
H =.66
H =1.16
H =1.66

Subsection: Individual Outlet Curves
Label: Pond B7

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Computation Messages

H =2.16
H =2.66
H =3.16
H =3.66
H =4.16
H =4.66
H =5.16
H =5.66
H =6.16
H =6.66

Subsection: Composite Rating Curve
Label: Pond B7

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
451.50	0.00	(N/A)	0.00
452.00	0.51	(N/A)	0.00
452.50	1.01	(N/A)	0.00
453.00	1.32	(N/A)	0.00
453.50	1.57	(N/A)	0.00
454.00	1.78	(N/A)	0.00
454.50	1.97	(N/A)	0.00
455.00	2.15	(N/A)	0.00
455.50	2.31	(N/A)	0.00
456.00	2.46	(N/A)	0.00
456.30	2.54	(N/A)	0.00
456.50	2.88	(N/A)	0.00
457.00	5.72	(N/A)	0.00
457.50	10.06	(N/A)	0.00
458.00	12.53	(N/A)	0.00
458.50	14.53	(N/A)	0.00
459.00	16.25	(N/A)	0.00
459.50	17.79	(N/A)	0.00
460.00	19.20	(N/A)	0.00
460.50	20.50	(N/A)	0.00
461.00	21.73	(N/A)	0.00
461.50	22.88	(N/A)	0.00
462.00	23.98	(N/A)	0.00
462.50	25.02	(N/A)	0.00
463.00	40.87	(N/A)	0.00
463.50	68.99	(N/A)	0.00

Contributing Structures

None Contributing
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 2 + Orifice 1
Orifice 2 + Orifice 1
Orifice 2 + Orifice 1
Orifice 2 + Orifice 1
Orifice 2 + Orifice 1
Orifice 2 + Orifice 1
Orifice 2 + Orifice 1
Orifice 2 + Orifice 1
Orifice 2 + Orifice 1
Orifice 2 + Orifice 1
Orifice 2 + Orifice 1
Orifice 2 + Orifice 1

Subsection: Composite Rating Curve
Label: Pond B7

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Contributing Structures
Orifice 2 + Riser 1 + Orifice 1
Orifice 2 + Riser 1 + Orifice 1
Orifice 2 + Riser 1 + Orifice 1

Subsection: Outlet Input Data
Label: UG A10

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	560.25 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	566.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice 1	Forward	TW	561.25	566.00
Rectangular Weir	Weir 1	Forward	TW	564.52	566.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: UG A10

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	561.25 ft
Orifice Diameter	5.00 in
Orifice Coefficient	0.600

Structure ID: Weir 1 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	564.52 ft
Weir Length	5.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

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

Subsection: Individual Outlet Curves
Label: UG A10

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
560.25	0.00	(N/A)	0.00
560.75	0.00	(N/A)	0.00
561.25	0.00	(N/A)	0.00
561.75	0.35	(N/A)	0.00
562.25	0.58	(N/A)	0.00
562.75	0.75	(N/A)	0.00
563.25	0.88	(N/A)	0.00
563.75	0.99	(N/A)	0.00
564.25	1.10	(N/A)	0.00
564.52	1.15	(N/A)	0.00
564.75	1.19	(N/A)	0.00
565.25	1.28	(N/A)	0.00
565.75	1.36	(N/A)	0.00
566.00	1.40	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.29
H =.79
H =1.29
H =1.79
H =2.29
H =2.79
H =3.06
H =3.29
H =3.79
H =4.29
H =4.54

Subsection: Individual Outlet Curves
Label: UG A10

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir 1 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
560.25	0.00	(N/A)	0.00
560.75	0.00	(N/A)	0.00
561.25	0.00	(N/A)	0.00
561.75	0.00	(N/A)	0.00
562.25	0.00	(N/A)	0.00
562.75	0.00	(N/A)	0.00
563.25	0.00	(N/A)	0.00
563.75	0.00	(N/A)	0.00
564.25	0.00	(N/A)	0.00
564.52	0.00	(N/A)	0.00
564.75	1.64	(N/A)	0.00
565.25	9.08	(N/A)	0.00
565.75	19.46	(N/A)	0.00
566.00	25.41	(N/A)	0.00

Computation Messages

HW & TW below Inv.El.=564.520
HW & TW below Inv.El.=564.520
HW & TW below Inv.El.=564.520
HW & TW below Inv.El.=564.520
HW & TW below Inv.El.=564.520
HW & TW below Inv.El.=564.520
HW & TW below Inv.El.=564.520
HW & TW below Inv.El.=564.520
HW & TW below Inv.El.=564.520
H=.00; Htw=.00; Qfree=.00;
H=.23; Htw=.00; Qfree=1.64;
H=.73; Htw=.00; Qfree=9.08;
H=1.23; Htw=.00; Qfree=19.46;
H=1.48; Htw=.00; Qfree=25.41;

Subsection: Composite Rating Curve
Label: UG A10

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
560.25	0.00	(N/A)	0.00
560.75	0.00	(N/A)	0.00
561.25	0.00	(N/A)	0.00
561.75	0.35	(N/A)	0.00
562.25	0.58	(N/A)	0.00
562.75	0.75	(N/A)	0.00
563.25	0.88	(N/A)	0.00
563.75	0.99	(N/A)	0.00
564.25	1.10	(N/A)	0.00
564.52	1.15	(N/A)	0.00
564.75	2.83	(N/A)	0.00
565.25	10.36	(N/A)	0.00
565.75	20.81	(N/A)	0.00
566.00	26.81	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1

Subsection: Outlet Input Data
Label: UG A5

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	474.75 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	480.50 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice 1	Forward	TW	475.75	480.50
Rectangular Weir	Weir 1	Forward	TW	478.80	480.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: UG A5

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	475.75 ft
Orifice Diameter	3.75 in
Orifice Coefficient	0.600

Structure ID: Weir 1 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	478.80 ft
Weir Length	4.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

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

Subsection: Individual Outlet Curves
Label: UG A5

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
474.75	0.00	(N/A)	0.00
475.25	0.00	(N/A)	0.00
475.75	0.00	(N/A)	0.00
476.25	0.22	(N/A)	0.00
476.75	0.34	(N/A)	0.00
477.25	0.43	(N/A)	0.00
477.75	0.50	(N/A)	0.00
478.25	0.57	(N/A)	0.00
478.75	0.62	(N/A)	0.00
478.80	0.63	(N/A)	0.00
479.25	0.68	(N/A)	0.00
479.75	0.72	(N/A)	0.00
480.25	0.77	(N/A)	0.00
480.50	0.79	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.34
H =.84
H =1.34
H =1.84
H =2.34
H =2.84
H =2.89
H =3.34
H =3.84
H =4.34
H =4.59

Subsection: Individual Outlet Curves
Label: UG A5

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir 1 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
474.75	0.00	(N/A)	0.00
475.25	0.00	(N/A)	0.00
475.75	0.00	(N/A)	0.00
476.25	0.00	(N/A)	0.00
476.75	0.00	(N/A)	0.00
477.25	0.00	(N/A)	0.00
477.75	0.00	(N/A)	0.00
478.25	0.00	(N/A)	0.00
478.75	0.00	(N/A)	0.00
478.80	0.00	(N/A)	0.00
479.25	3.54	(N/A)	0.00
479.75	10.58	(N/A)	0.00
480.25	19.43	(N/A)	0.00
480.50	24.34	(N/A)	0.00

Computation Messages

HW & TW below Inv.El.=478.800
HW & TW below Inv.El.=478.800
HW & TW below Inv.El.=478.800
HW & TW below Inv.El.=478.800
HW & TW below Inv.El.=478.800
HW & TW below Inv.El.=478.800
HW & TW below Inv.El.=478.800
HW & TW below Inv.El.=478.800
HW & TW below Inv.El.=478.800
H=.00; Htw=.00; Qfree=.00;
H=.45; Htw=.00; Qfree=3.54;
H=.95; Htw=.00; Qfree=10.58;
H=1.45; Htw=.00; Qfree=19.43;
H=1.70; Htw=.00; Qfree=24.34;

Subsection: Composite Rating Curve
Label: UG A5

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
474.75	0.00	(N/A)	0.00
475.25	0.00	(N/A)	0.00
475.75	0.00	(N/A)	0.00
476.25	0.22	(N/A)	0.00
476.75	0.34	(N/A)	0.00
477.25	0.43	(N/A)	0.00
477.75	0.50	(N/A)	0.00
478.25	0.57	(N/A)	0.00
478.75	0.62	(N/A)	0.00
478.80	0.63	(N/A)	0.00
479.25	4.22	(N/A)	0.00
479.75	11.31	(N/A)	0.00
480.25	20.20	(N/A)	0.00
480.50	25.13	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1

Subsection: Outlet Input Data
Label: UG A6

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	490.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	496.25 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice 1	Forward	TW	491.50	496.25
Rectangular Weir	Weir 1	Forward	TW	494.85	496.25
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: UG A6

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	491.50 ft
Orifice Diameter	4.00 in
Orifice Coefficient	0.600

Structure ID: Weir 1 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	494.85 ft
Weir Length	4.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

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

Subsection: Individual Outlet Curves
Label: UG A6

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
490.50	0.00	(N/A)	0.00
491.00	0.00	(N/A)	0.00
491.50	0.00	(N/A)	0.00
492.00	0.24	(N/A)	0.00
492.50	0.38	(N/A)	0.00
493.00	0.48	(N/A)	0.00
493.50	0.57	(N/A)	0.00
494.00	0.64	(N/A)	0.00
494.50	0.71	(N/A)	0.00
494.85	0.75	(N/A)	0.00
495.00	0.77	(N/A)	0.00
495.50	0.82	(N/A)	0.00
496.00	0.87	(N/A)	0.00
496.25	0.90	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.33
H =.83
H =1.33
H =1.83
H =2.33
H =2.83
H =3.18
H =3.33
H =3.83
H =4.33
H =4.58

Subsection: Individual Outlet Curves
Label: UG A6

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir 1 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
490.50	0.00	(N/A)	0.00
491.00	0.00	(N/A)	0.00
491.50	0.00	(N/A)	0.00
492.00	0.00	(N/A)	0.00
492.50	0.00	(N/A)	0.00
493.00	0.00	(N/A)	0.00
493.50	0.00	(N/A)	0.00
494.00	0.00	(N/A)	0.00
494.50	0.00	(N/A)	0.00
494.85	0.00	(N/A)	0.00
495.00	0.69	(N/A)	0.00
495.50	6.08	(N/A)	0.00
496.00	13.95	(N/A)	0.00
496.25	18.49	(N/A)	0.00

Computation Messages

HW & TW below Inv.El.=494.850
HW & TW below Inv.El.=494.850
HW & TW below Inv.El.=494.850
HW & TW below Inv.El.=494.850
HW & TW below Inv.El.=494.850
HW & TW below Inv.El.=494.850
HW & TW below Inv.El.=494.850
HW & TW below Inv.El.=494.850
HW & TW below Inv.El.=494.850
H=.00; Htw=.00; Qfree=.00;
H=.15; Htw=.00; Qfree=.69;
H=.65; Htw=.00; Qfree=6.08;
H=1.15; Htw=.00; Qfree=13.95;
H=1.40; Htw=.00; Qfree=18.49;

Subsection: Composite Rating Curve
Label: UG A6

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
490.50	0.00	(N/A)	0.00
491.00	0.00	(N/A)	0.00
491.50	0.00	(N/A)	0.00
492.00	0.24	(N/A)	0.00
492.50	0.38	(N/A)	0.00
493.00	0.48	(N/A)	0.00
493.50	0.57	(N/A)	0.00
494.00	0.64	(N/A)	0.00
494.50	0.71	(N/A)	0.00
494.85	0.75	(N/A)	0.00
495.00	1.46	(N/A)	0.00
495.50	6.91	(N/A)	0.00
496.00	14.82	(N/A)	0.00
496.25	19.39	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1

Subsection: Outlet Input Data
Label: UG A7

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	510.25 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	516.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice 1	Forward	TW	511.25	516.00
Rectangular Weir	Weir 1	Forward	TW	514.70	516.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: UG A7

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	511.25 ft
Orifice Diameter	4.00 in
Orifice Coefficient	0.600

Structure ID: Weir 1 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	514.70 ft
Weir Length	5.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

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

Subsection: Individual Outlet Curves
Label: UG A7

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
510.25	0.00	(N/A)	0.00
510.75	0.00	(N/A)	0.00
511.25	0.00	(N/A)	0.00
511.75	0.24	(N/A)	0.00
512.25	0.38	(N/A)	0.00
512.75	0.48	(N/A)	0.00
513.25	0.57	(N/A)	0.00
513.75	0.64	(N/A)	0.00
514.25	0.71	(N/A)	0.00
514.70	0.76	(N/A)	0.00
514.75	0.77	(N/A)	0.00
515.25	0.82	(N/A)	0.00
515.75	0.87	(N/A)	0.00
516.00	0.90	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.33
H =.83
H =1.33
H =1.83
H =2.33
H =2.83
H =3.28
H =3.33
H =3.83
H =4.33
H =4.58

Subsection: Individual Outlet Curves
Label: UG A7

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir 1 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
510.25	0.00	(N/A)	0.00
510.75	0.00	(N/A)	0.00
511.25	0.00	(N/A)	0.00
511.75	0.00	(N/A)	0.00
512.25	0.00	(N/A)	0.00
512.75	0.00	(N/A)	0.00
513.25	0.00	(N/A)	0.00
513.75	0.00	(N/A)	0.00
514.25	0.00	(N/A)	0.00
514.70	0.00	(N/A)	0.00
514.75	0.17	(N/A)	0.00
515.25	5.98	(N/A)	0.00
515.75	15.46	(N/A)	0.00
516.00	21.08	(N/A)	0.00

Computation Messages

HW & TW below Inv.El.=514.700
HW & TW below Inv.El.=514.700
HW & TW below Inv.El.=514.700
HW & TW below Inv.El.=514.700
HW & TW below Inv.El.=514.700
HW & TW below Inv.El.=514.700
HW & TW below Inv.El.=514.700
HW & TW below Inv.El.=514.700
HW & TW below Inv.El.=514.700
H=.00; Htw=.00; Qfree=.00;
H=.05; Htw=.00; Qfree=.17;
H=.55; Htw=.00; Qfree=5.98;
H=1.05; Htw=.00; Qfree=15.46;
H=1.30; Htw=.00; Qfree=21.08;

Subsection: Composite Rating Curve
Label: UG A7

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
510.25	0.00	(N/A)	0.00
510.75	0.00	(N/A)	0.00
511.25	0.00	(N/A)	0.00
511.75	0.24	(N/A)	0.00
512.25	0.38	(N/A)	0.00
512.75	0.48	(N/A)	0.00
513.25	0.57	(N/A)	0.00
513.75	0.64	(N/A)	0.00
514.25	0.71	(N/A)	0.00
514.70	0.76	(N/A)	0.00
514.75	0.93	(N/A)	0.00
515.25	6.81	(N/A)	0.00
515.75	16.34	(N/A)	0.00
516.00	21.98	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1

Subsection: Outlet Input Data
Label: UG A8

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	528.25 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	534.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice 1	Forward	TW	529.25	534.00
Rectangular Weir	Weir 1	Forward	TW	532.70	534.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: UG A8

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	529.25 ft
Orifice Diameter	4.25 in
Orifice Coefficient	0.600

Structure ID: Weir 1 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	532.70 ft
Weir Length	5.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

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

Subsection: Individual Outlet Curves
Label: UG A8

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
528.25	0.00	(N/A)	0.00
528.75	0.00	(N/A)	0.00
529.25	0.00	(N/A)	0.00
529.75	0.27	(N/A)	0.00
530.25	0.43	(N/A)	0.00
530.75	0.55	(N/A)	0.00
531.25	0.64	(N/A)	0.00
531.75	0.72	(N/A)	0.00
532.25	0.80	(N/A)	0.00
532.70	0.86	(N/A)	0.00
532.75	0.86	(N/A)	0.00
533.25	0.93	(N/A)	0.00
533.75	0.99	(N/A)	0.00
534.00	1.01	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.32
H =.82
H =1.32
H =1.82
H =2.32
H =2.82
H =3.27
H =3.32
H =3.82
H =4.32
H =4.57

Subsection: Individual Outlet Curves
Label: UG A8

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir 1 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
528.25	0.00	(N/A)	0.00
528.75	0.00	(N/A)	0.00
529.25	0.00	(N/A)	0.00
529.75	0.00	(N/A)	0.00
530.25	0.00	(N/A)	0.00
530.75	0.00	(N/A)	0.00
531.25	0.00	(N/A)	0.00
531.75	0.00	(N/A)	0.00
532.25	0.00	(N/A)	0.00
532.70	0.00	(N/A)	0.00
532.75	0.17	(N/A)	0.00
533.25	5.98	(N/A)	0.00
533.75	15.46	(N/A)	0.00
534.00	21.08	(N/A)	0.00

Computation Messages

HW & TW below Inv.El.=532.700
HW & TW below Inv.El.=532.700
HW & TW below Inv.El.=532.700
HW & TW below Inv.El.=532.700
HW & TW below Inv.El.=532.700
HW & TW below Inv.El.=532.700
HW & TW below Inv.El.=532.700
HW & TW below Inv.El.=532.700
HW & TW below Inv.El.=532.700
H=.00; Htw=.00; Qfree=.00;
H=.05; Htw=.00; Qfree=.17;
H=.55; Htw=.00; Qfree=5.98;
H=1.05; Htw=.00; Qfree=15.46;
H=1.30; Htw=.00; Qfree=21.08;

Subsection: Composite Rating Curve
Label: UG A8

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
528.25	0.00	(N/A)	0.00
528.75	0.00	(N/A)	0.00
529.25	0.00	(N/A)	0.00
529.75	0.27	(N/A)	0.00
530.25	0.43	(N/A)	0.00
530.75	0.55	(N/A)	0.00
531.25	0.64	(N/A)	0.00
531.75	0.72	(N/A)	0.00
532.25	0.80	(N/A)	0.00
532.70	0.86	(N/A)	0.00
532.75	1.03	(N/A)	0.00
533.25	6.91	(N/A)	0.00
533.75	16.45	(N/A)	0.00
534.00	22.09	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1

Subsection: Outlet Input Data
Label: UG A9

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	542.25 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	548.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice 1	Forward	TW	543.25	548.00
Rectangular Weir	Weir 1	Forward	TW	546.40	548.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: UG A9

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	543.25 ft
Orifice Diameter	5.00 in
Orifice Coefficient	0.600

Structure ID: Weir 1 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	546.40 ft
Weir Length	5.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

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

Subsection: Individual Outlet Curves
Label: UG A9

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
542.25	0.00	(N/A)	0.00
542.75	0.00	(N/A)	0.00
543.25	0.00	(N/A)	0.00
543.75	0.35	(N/A)	0.00
544.25	0.58	(N/A)	0.00
544.75	0.75	(N/A)	0.00
545.25	0.88	(N/A)	0.00
545.75	0.99	(N/A)	0.00
546.25	1.10	(N/A)	0.00
546.40	1.13	(N/A)	0.00
546.75	1.19	(N/A)	0.00
547.25	1.28	(N/A)	0.00
547.75	1.36	(N/A)	0.00
548.00	1.40	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.29
H =.79
H =1.29
H =1.79
H =2.29
H =2.79
H =2.94
H =3.29
H =3.79
H =4.29
H =4.54

Subsection: Individual Outlet Curves
Label: UG A9

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir 1 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
542.25	0.00	(N/A)	0.00
542.75	0.00	(N/A)	0.00
543.25	0.00	(N/A)	0.00
543.75	0.00	(N/A)	0.00
544.25	0.00	(N/A)	0.00
544.75	0.00	(N/A)	0.00
545.25	0.00	(N/A)	0.00
545.75	0.00	(N/A)	0.00
546.25	0.00	(N/A)	0.00
546.40	0.00	(N/A)	0.00
546.75	3.06	(N/A)	0.00
547.25	11.36	(N/A)	0.00
547.75	22.26	(N/A)	0.00
548.00	28.41	(N/A)	0.00

Computation Messages

HW & TW below Inv.El.=546.400
HW & TW below Inv.El.=546.400
HW & TW below Inv.El.=546.400
HW & TW below Inv.El.=546.400
HW & TW below Inv.El.=546.400
HW & TW below Inv.El.=546.400
HW & TW below Inv.El.=546.400
HW & TW below Inv.El.=546.400
HW & TW below Inv.El.=546.400
H=.00; Htw=.00; Qfree=.00;
H=.35; Htw=.00; Qfree=3.06;
H=.85; Htw=.00; Qfree=11.36;
H=1.35; Htw=.00; Qfree=22.26;
H=1.60; Htw=.00; Qfree=28.41;

Subsection: Composite Rating Curve
Label: UG A9

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
542.25	0.00	(N/A)	0.00
542.75	0.00	(N/A)	0.00
543.25	0.00	(N/A)	0.00
543.75	0.35	(N/A)	0.00
544.25	0.58	(N/A)	0.00
544.75	0.75	(N/A)	0.00
545.25	0.88	(N/A)	0.00
545.75	0.99	(N/A)	0.00
546.25	1.10	(N/A)	0.00
546.40	1.13	(N/A)	0.00
546.75	4.25	(N/A)	0.00
547.25	12.63	(N/A)	0.00
547.75	23.62	(N/A)	0.00
548.00	29.81	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1

Subsection: Outlet Input Data
Label: UG B12

Return Event: 1 years
Storm Event: 1-Year

Requested Pond Water Surface Elevations	
Minimum (Headwater)	448.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	453.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice 1	Forward	TW	449.00	453.50
Rectangular Weir	Weir 1	Forward	TW	451.75	453.50
Tailwater Settings	Tailwater			(N/A)	(N/A)

Subsection: Outlet Input Data
Label: UG B12

Return Event: 1 years
Storm Event: 1-Year

Structure ID: Weir 1 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	451.75 ft
Weir Length	4.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: Orifice 1 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	449.00 ft
Orifice Diameter	3.75 in
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

Subsection: Individual Outlet Curves
Label: UG B12

Return Event: 1 years
Storm Event: 1-Year

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir 1 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft³/s)	Tailwater Elevation (ft)	Convergence Error (ft)
447.75	0.00	(N/A)	0.00
448.25	0.00	(N/A)	0.00
448.75	0.00	(N/A)	0.00
449.00	0.00	(N/A)	0.00
449.25	0.00	(N/A)	0.00
449.75	0.00	(N/A)	0.00
450.25	0.00	(N/A)	0.00
450.75	0.00	(N/A)	0.00
451.25	0.00	(N/A)	0.00
451.75	0.00	(N/A)	0.00
452.25	4.14	(N/A)	0.00
452.75	11.40	(N/A)	0.00
453.25	20.39	(N/A)	0.00
453.50	25.35	(N/A)	0.00

Computation Messages

```
HW & TW below Inv.El.=451.750
HW & TW below Inv.El.=451.750
HW & TW below Inv.El.=451.750
HW & TW below Inv.El.=451.750
HW & TW below Inv.El.=451.750
HW & TW below Inv.El.=451.750
HW & TW below Inv.El.=451.750
HW & TW below Inv.El.=451.750
HW & TW below Inv.El.=451.750
H=.00; Htw=.00; Qfree=.00;
H=.50; Htw=.00; Qfree=4.14;
H=1.00; Htw=.00; Qfree=11.40;
H=1.50; Htw=.00; Qfree=20.39;
H=1.75; Htw=.00; Qfree=25.35;
```

Subsection: Individual Outlet Curves
Label: UG B12

Return Event: 1 years
Storm Event: 1-Year

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

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
447.75	0.00	(N/A)	0.00
448.25	0.00	(N/A)	0.00
448.75	0.00	(N/A)	0.00
449.00	0.00	(N/A)	0.00
449.25	0.10	(N/A)	0.00
449.75	0.28	(N/A)	0.00
450.25	0.39	(N/A)	0.00
450.75	0.47	(N/A)	0.00
451.25	0.53	(N/A)	0.00
451.75	0.59	(N/A)	0.00
452.25	0.65	(N/A)	0.00
452.75	0.70	(N/A)	0.00
453.25	0.75	(N/A)	0.00
453.50	0.77	(N/A)	0.00

Computation Messages

HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
CRIT.DEPTH CONTROL Vh= .072ft
Dcr= .178ft CRIT.DEPTH Hev= .00ft
H =.59
H =1.09
H =1.59
H =2.09
H =2.59
H =3.09
H =3.59
H =4.09
H =4.34

Subsection: Composite Rating Curve
Label: UG B12

Return Event: 1 years
Storm Event: 1-Year

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
447.75	0.00	(N/A)	0.00
448.25	0.00	(N/A)	0.00
448.75	0.00	(N/A)	0.00
449.00	0.00	(N/A)	0.00
449.25	0.10	(N/A)	0.00
449.75	0.28	(N/A)	0.00
450.25	0.39	(N/A)	0.00
450.75	0.47	(N/A)	0.00
451.25	0.53	(N/A)	0.00
451.75	0.59	(N/A)	0.00
452.25	4.79	(N/A)	0.00
452.75	12.10	(N/A)	0.00
453.25	21.14	(N/A)	0.00
453.50	26.12	(N/A)	0.00

Contributing Structures

None Contributing
None Contributing
None Contributing
None Contributing
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1
Orifice 1 + Weir 1

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-A2

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	421.00 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
421.00	0.00	0.000	1,400	0.00	0.00	0.00
421.50	0.00	0.016	1,400	0.00	0.00	7.78
422.00	0.00	0.032	1,400	0.00	0.00	15.56
422.50	0.00	0.048	1,400	0.00	0.00	23.33
423.00	0.00	0.064	1,400	0.00	0.00	31.11
423.50	0.00	0.080	1,400	0.00	0.00	38.89
424.00	0.00	0.102	7,000	0.00	0.00	49.38
424.50	0.00	0.184	7,338	0.00	0.00	89.21
425.00	0.24	0.271	7,684	0.00	0.24	131.17
425.50	0.38	0.361	8,038	0.00	0.38	174.98
426.00	15.33	0.455	8,400	0.00	15.33	235.59

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-A3

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	421.00 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
421.00	0.00	0.000	2,700	0.00	0.00	0.00
421.50	0.00	0.031	2,700	0.00	0.00	15.00
422.00	0.00	0.062	2,700	0.00	0.00	30.00
422.50	0.00	0.093	2,700	0.00	0.00	45.00
423.00	0.00	0.124	2,700	0.00	0.00	60.00
423.50	0.00	0.155	2,700	0.00	0.00	75.00
424.00	0.00	0.197	13,500	0.00	0.00	95.24
424.50	0.00	0.354	13,868	0.00	0.00	171.25
425.00	0.47	0.515	14,240	0.00	0.47	249.80
425.10	0.56	0.548	14,315	0.00	0.56	265.75
425.50	11.44	0.681	14,618	0.00	11.44	340.93
426.00	36.92	0.851	15,000	0.00	36.92	448.67

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-A4

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	447.50 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
447.50	0.00	0.000	1,800	0.00	0.00	0.00
448.00	0.00	0.021	1,800	0.00	0.00	10.00
448.50	0.00	0.041	1,800	0.00	0.00	20.00
449.00	0.00	0.062	1,800	0.00	0.00	30.00
449.50	0.00	0.083	1,800	0.00	0.00	40.00
450.00	0.00	0.103	1,800	0.00	0.00	50.00
450.50	0.00	0.131	9,000	0.00	0.00	63.49
451.00	0.00	0.236	9,328	0.00	0.00	114.40
451.50	0.30	0.345	9,662	0.00	0.30	167.45
452.00	0.48	0.458	10,002	0.00	0.48	222.25
452.30	0.56	0.528	10,209	0.00	0.56	256.02
452.50	4.37	0.575	10,348	0.00	4.37	282.66
453.00	25.31	0.696	10,700	0.00	25.31	362.08

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-B10

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	476.00 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
476.00	0.00	0.000	500	0.00	0.00	0.00
476.50	0.00	0.006	500	0.00	0.00	2.78
477.00	0.00	0.011	500	0.00	0.00	5.56
477.50	0.00	0.017	500	0.00	0.00	8.33
478.00	0.00	0.023	500	0.00	0.00	11.11
478.50	0.00	0.029	500	0.00	0.00	13.89
479.00	0.00	0.036	2,500	0.00	0.00	17.64
479.50	0.00	0.067	2,905	0.00	0.00	32.63
480.00	0.10	0.103	3,339	0.00	0.10	50.07
480.50	0.16	0.144	3,805	0.00	0.16	69.95
480.75	0.18	0.167	4,048	0.00	0.18	80.88
481.00	5.44	0.191	4,300	0.00	5.44	97.74

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-B11

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	605.75 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
605.75	0.00	0.000	900	0.00	0.00	0.00
606.25	0.00	0.010	900	0.00	0.00	5.00
606.75	0.00	0.021	900	0.00	0.00	10.00
607.25	0.00	0.031	900	0.00	0.00	15.00
607.75	0.00	0.041	900	0.00	0.00	20.00
608.25	0.00	0.052	900	0.00	0.00	25.00
608.75	0.00	0.066	4,500	0.00	0.00	31.75
609.25	0.00	0.119	4,765	0.00	0.00	57.48
609.75	0.17	0.175	5,037	0.00	0.17	84.87
610.25	0.26	0.234	5,317	0.00	0.26	113.72
610.50	0.29	0.265	5,460	0.00	0.29	128.72
610.75	5.57	0.297	5,605	0.00	5.57	149.37
611.25	27.66	0.363	5,900	0.00	27.66	203.41

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-B13

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	464.00 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
464.00	0.00	0.000	2,800	0.00	0.00	0.00
464.50	0.00	0.032	2,800	0.00	0.00	15.56
465.00	0.00	0.064	2,800	0.00	0.00	31.11
465.50	0.00	0.096	2,800	0.00	0.00	46.67
466.00	0.00	0.129	2,800	0.00	0.00	62.22
466.50	0.00	0.161	2,800	0.00	0.00	77.78
467.00	0.00	0.204	14,000	0.00	0.00	98.76
467.50	0.00	0.367	14,368	0.00	0.00	177.56
468.00	0.24	0.534	14,740	0.00	0.24	258.66
468.50	15.23	0.705	15,118	0.00	15.23	356.59
469.00	42.48	0.881	15,500	0.00	42.48	468.88

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-B2

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	443.50 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
443.50	0.00	0.000	500	0.00	0.00	0.00
444.00	0.00	0.006	500	0.00	0.00	2.78
444.50	0.00	0.011	500	0.00	0.00	5.56
445.00	0.00	0.017	500	0.00	0.00	8.33
445.50	0.00	0.023	500	0.00	0.00	11.11
446.00	0.00	0.029	500	0.00	0.00	13.89
446.50	0.00	0.036	2,500	0.00	0.00	17.64
447.00	0.00	0.067	2,756	0.00	0.00	32.23
447.50	0.11	0.100	3,025	0.00	0.11	48.40
448.00	15.02	0.136	3,306	0.00	15.02	80.88
448.50	42.21	0.176	3,600	0.00	42.21	127.25

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-B3

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	454.00 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
454.00	0.00	0.000	900	0.00	0.00	0.00
454.50	0.00	0.010	900	0.00	0.00	5.00
455.00	0.00	0.021	900	0.00	0.00	10.00
455.50	0.00	0.031	900	0.00	0.00	15.00
456.00	0.00	0.041	900	0.00	0.00	20.00
456.50	0.00	0.052	900	0.00	0.00	25.00
457.00	0.00	0.066	4,500	0.00	0.00	31.75
457.50	0.00	0.119	4,855	0.00	0.00	57.72
457.75	0.08	0.148	5,037	0.00	0.08	71.55
458.00	5.39	0.177	5,223	0.00	5.39	91.11
458.50	27.50	0.239	5,605	0.00	27.50	143.28
459.00	58.97	0.306	6,000	0.00	58.97	206.99

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-B4

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	458.50 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
458.50	0.00	0.000	600	0.00	0.00	0.00
459.00	0.00	0.007	600	0.00	0.00	3.33
459.50	0.00	0.014	600	0.00	0.00	6.67
460.00	0.00	0.021	600	0.00	0.00	10.00
460.50	0.00	0.028	600	0.00	0.00	13.33
461.00	0.00	0.034	600	0.00	0.00	16.67
461.50	0.00	0.044	3,000	0.00	0.00	21.16
462.00	0.00	0.080	3,259	0.00	0.00	38.54
462.50	0.10	0.119	3,529	0.00	0.10	57.50
462.75	0.13	0.139	3,667	0.00	0.13	67.52
463.00	5.41	0.161	3,809	0.00	5.41	83.18
463.50	27.47	0.206	4,100	0.00	27.47	127.21

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-B5

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	510.50 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
510.50	0.00	0.000	400	0.00	0.00	0.00
511.00	0.00	0.005	400	0.00	0.00	2.22
511.50	0.00	0.009	400	0.00	0.00	4.44
512.00	0.00	0.014	400	0.00	0.00	6.67
512.50	0.00	0.018	400	0.00	0.00	8.89
513.00	0.00	0.023	400	0.00	0.00	11.11
513.50	0.00	0.029	2,000	0.00	0.00	14.11
514.00	0.00	0.053	2,165	0.00	0.00	25.68
514.50	0.07	0.079	2,337	0.00	0.07	38.25
515.00	0.10	0.107	2,515	0.00	0.10	51.75
515.25	0.11	0.121	2,607	0.00	0.11	58.88
515.50	5.37	0.137	2,700	0.00	5.37	71.51

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-B6

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	535.50 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
535.50	0.00	0.000	1,600	0.00	0.00	0.00
536.00	0.00	0.018	1,600	0.00	0.00	8.89
536.50	0.00	0.037	1,600	0.00	0.00	17.78
537.00	0.00	0.055	1,600	0.00	0.00	26.67
537.50	0.00	0.073	1,600	0.00	0.00	35.56
538.00	0.00	0.092	1,600	0.00	0.00	44.44
538.50	0.00	0.117	8,000	0.00	0.00	56.44
539.00	0.00	0.211	8,386	0.00	0.00	101.95
539.50	0.35	0.309	8,782	0.00	0.35	149.99
540.00	0.58	0.412	9,186	0.00	0.58	200.13
540.50	15.60	0.520	9,600	0.00	15.60	267.32

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-B7

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	458.50 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
458.50	0.00	0.000	4,400	0.00	0.00	0.00
459.00	0.00	0.051	4,400	0.00	0.00	24.44
459.50	0.00	0.101	4,400	0.00	0.00	48.89
460.00	0.00	0.152	4,400	0.00	0.00	73.33
460.50	0.00	0.202	4,400	0.00	0.00	97.78
461.00	0.00	0.253	4,400	0.00	0.00	122.22
461.50	0.00	0.321	22,000	0.00	0.00	155.20
462.00	0.00	0.578	22,851	0.00	0.00	279.78
462.50	29.59	0.845	23,718	0.00	29.59	438.72
463.00	83.40	1.123	24,601	0.00	83.40	626.74
463.50	152.66	1.410	25,500	0.00	152.66	835.16

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-B8

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	464.00 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
464.00	0.00	0.000	4,300	0.00	0.00	0.00
464.50	0.00	0.049	4,300	0.00	0.00	23.89
465.00	0.00	0.099	4,300	0.00	0.00	47.78
465.50	0.00	0.148	4,300	0.00	0.00	71.67
466.00	0.00	0.197	4,300	0.00	0.00	95.56
466.50	0.00	0.247	4,300	0.00	0.00	119.44
467.00	0.00	0.313	21,500	0.00	0.00	151.67
467.50	0.00	0.562	21,746	0.00	0.00	271.80
468.00	0.52	0.813	21,994	0.00	0.52	393.82
468.50	1.08	1.066	22,244	0.00	1.08	517.27
469.00	1.41	1.323	22,494	0.00	1.41	641.87
469.50	31.38	1.583	22,746	0.00	31.38	797.51
470.00	85.91	1.845	23,000	0.00	85.91	979.11

Subsection: Elevation-Volume-Flow Table (Pond)
Label: B-B9

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	461.00 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
461.00	0.00	0.000	1,800	0.00	0.00	0.00
461.50	0.00	0.021	1,800	0.00	0.00	10.00
462.00	0.00	0.041	1,800	0.00	0.00	20.00
462.50	0.00	0.062	1,800	0.00	0.00	30.00
463.00	0.00	0.083	1,800	0.00	0.00	40.00
463.50	0.00	0.103	1,800	0.00	0.00	50.00
464.00	0.00	0.131	9,000	0.00	0.00	63.49
464.50	0.00	0.236	9,234	0.00	0.00	114.14
465.00	0.30	0.343	9,471	0.00	0.30	166.39
465.50	0.48	0.453	9,711	0.00	0.48	219.86
466.00	0.61	0.566	9,954	0.00	0.61	274.61
466.50	30.41	0.682	10,200	0.00	30.41	360.40

Subsection: Elevation-Volume-Flow Table (Pond)
Label: P-B7

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	451.50 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
451.50	0.00	0.000	10,300	0.00	0.00	0.00
452.00	0.51	0.124	11,239	0.00	0.51	60.32
452.50	1.01	0.258	12,218	0.00	1.01	125.96
453.00	1.32	0.404	13,239	0.00	1.32	196.96
453.50	1.57	0.562	14,300	0.00	1.57	273.69
454.00	1.78	0.732	15,367	0.00	1.78	356.29
454.50	1.97	0.915	16,473	0.00	1.97	444.91
455.00	2.15	1.111	17,617	0.00	2.15	539.76
455.50	2.31	1.320	18,800	0.00	2.31	641.07
456.00	2.46	1.542	20,018	0.00	2.46	749.03
456.30	2.54	1.683	20,767	0.00	2.54	817.08
456.50	2.88	1.779	21,274	0.00	2.88	864.13
457.00	5.72	2.031	22,568	0.00	5.72	988.73
457.50	10.06	2.298	23,900	0.00	10.06	1,122.13
458.00	12.53	2.580	25,222	0.00	12.53	1,261.04
458.50	14.53	2.877	26,579	0.00	14.53	1,406.91
459.00	16.25	3.190	27,972	0.00	16.25	1,560.14
459.50	17.79	3.519	29,400	0.00	17.79	1,721.03
460.00	19.20	3.865	30,871	0.00	19.20	1,889.84
460.50	20.50	4.228	32,378	0.00	20.50	2,066.82
461.00	21.73	4.608	33,921	0.00	21.73	2,252.19
461.50	22.88	5.007	35,500	0.00	22.88	2,446.17
462.00	23.98	5.423	37,074	0.00	23.98	2,648.84
462.50	25.02	5.858	38,682	0.00	25.02	2,860.30
463.00	40.87	6.311	40,324	0.00	40.87	3,095.60
463.50	68.99	6.784	42,000	0.00	68.99	3,352.38

Subsection: Elevation-Volume-Flow Table (Pond)
Label: UG-A10

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	560.25 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
560.25	0.00	0.000	0	0.00	0.00	0.00
560.75	0.00	0.069	0	0.00	0.00	33.61
561.25	0.00	0.180	0	0.00	0.00	87.08
561.75	0.35	0.329	0	0.00	0.35	159.53
562.25	0.58	0.475	0	0.00	0.58	230.67
562.75	0.75	0.618	0	0.00	0.75	300.01
563.25	0.88	0.756	0	0.00	0.88	366.77
563.75	0.99	0.886	0	0.00	0.99	429.89
564.25	1.10	1.006	0	0.00	1.10	487.93
564.52	1.15	1.062	0	0.00	1.15	514.97
564.75	2.83	1.109	0	0.00	2.83	539.64
565.25	10.36	1.184	0	0.00	10.36	583.30
565.75	20.81	1.253	0	0.00	20.81	627.36
566.00	26.81	1.288	0	0.00	26.81	650.16

Subsection: Elevation-Volume-Flow Table (Pond)
Label: UG-A5

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	474.75 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
474.75	0.00	0.000	0	0.00	0.00	0.00
475.25	0.00	0.039	0	0.00	0.00	18.96
475.75	0.00	0.101	0	0.00	0.00	48.95
476.25	0.22	0.184	0	0.00	0.22	89.50
476.75	0.34	0.266	0	0.00	0.34	129.30
477.25	0.43	0.346	0	0.00	0.43	168.10
477.75	0.50	0.424	0	0.00	0.50	205.48
478.25	0.57	0.496	0	0.00	0.57	240.83
478.75	0.62	0.563	0	0.00	0.62	273.35
478.80	0.63	0.569	0	0.00	0.63	276.16
479.25	4.22	0.621	0	0.00	4.22	304.99
479.75	11.31	0.663	0	0.00	11.31	332.44
480.25	20.20	0.703	0	0.00	20.20	360.29
480.50	25.13	0.722	0	0.00	25.13	374.69

Subsection: Elevation-Volume-Flow Table (Pond)
Label: UG-A6

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	490.50 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
490.50	0.00	0.000	0	0.00	0.00	0.00
491.00	0.00	0.049	0	0.00	0.00	23.50
491.50	0.00	0.126	0	0.00	0.00	60.79
492.00	0.24	0.229	0	0.00	0.24	111.25
492.50	0.38	0.331	0	0.00	0.38	160.80
493.00	0.48	0.431	0	0.00	0.48	209.10
493.50	0.57	0.527	0	0.00	0.57	255.61
494.00	0.64	0.618	0	0.00	0.64	299.60
494.50	0.71	0.701	0	0.00	0.71	340.05
494.85	0.75	0.752	0	0.00	0.75	364.50
495.00	1.46	0.773	0	0.00	1.46	375.67
495.50	6.91	0.825	0	0.00	6.91	406.36
496.00	14.82	0.874	0	0.00	14.82	437.78
496.25	19.39	0.898	0	0.00	19.39	454.09

Subsection: Elevation-Volume-Flow Table (Pond)
Label: UG-A7

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	510.25 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
510.25	0.00	0.000	0	0.00	0.00	0.00
510.75	0.00	0.049	0	0.00	0.00	23.50
511.25	0.00	0.126	0	0.00	0.00	60.79
511.75	0.24	0.229	0	0.00	0.24	111.25
512.25	0.38	0.331	0	0.00	0.38	160.80
512.75	0.48	0.431	0	0.00	0.48	209.10
513.25	0.57	0.527	0	0.00	0.57	255.61
513.75	0.64	0.618	0	0.00	0.64	299.60
514.25	0.71	0.701	0	0.00	0.71	340.05
514.70	0.76	0.766	0	0.00	0.76	371.48
514.75	0.93	0.773	0	0.00	0.93	375.14
515.25	6.81	0.825	0	0.00	6.81	406.26
515.75	16.34	0.874	0	0.00	16.34	439.29
516.00	21.98	0.898	0	0.00	21.98	456.68

Subsection: Elevation-Volume-Flow Table (Pond)
Label: UG-A8

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	528.25 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
528.25	0.00	0.000	0	0.00	0.00	0.00
528.75	0.00	0.053	0	0.00	0.00	25.83
529.25	0.00	0.138	0	0.00	0.00	66.84
529.75	0.27	0.252	0	0.00	0.27	122.33
530.25	0.43	0.364	0	0.00	0.43	176.82
530.75	0.55	0.474	0	0.00	0.55	229.94
531.25	0.64	0.579	0	0.00	0.64	281.09
531.75	0.72	0.679	0	0.00	0.72	329.46
532.25	0.80	0.771	0	0.00	0.80	373.94
532.70	0.86	0.842	0	0.00	0.86	408.50
532.75	1.03	0.850	0	0.00	1.03	412.51
533.25	6.91	0.908	0	0.00	6.91	446.14
533.75	16.45	0.961	0	0.00	16.45	481.51
534.00	22.09	0.988	0	0.00	22.09	500.07

Subsection: Elevation-Volume-Flow Table (Pond)
Label: UG-A9

Return Event: 1 years
Storm Event: 1-Year

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	542.25 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
542.25	0.00	0.000	0	0.00	0.00	0.00
542.75	0.00	0.072	0	0.00	0.00	35.00
543.25	0.00	0.187	0	0.00	0.00	90.70
543.75	0.35	0.343	0	0.00	0.35	166.14
544.25	0.58	0.495	0	0.00	0.58	240.23
544.75	0.75	0.644	0	0.00	0.75	312.44
545.25	0.88	0.787	0	0.00	0.88	381.97
545.75	0.99	0.923	0	0.00	0.99	447.71
546.25	1.10	1.048	0	0.00	1.10	508.14
546.40	1.13	1.080	0	0.00	1.13	523.79
546.75	4.25	1.155	0	0.00	4.25	563.35
547.25	12.63	1.233	0	0.00	12.63	609.36
547.75	23.62	1.305	0	0.00	23.62	655.35
548.00	29.81	1.341	0	0.00	29.81	679.05

Subsection: Elevation-Volume-Flow Table (Pond)
Label: UG-B12

Return Event: 1 years
Storm Event: 1-Year

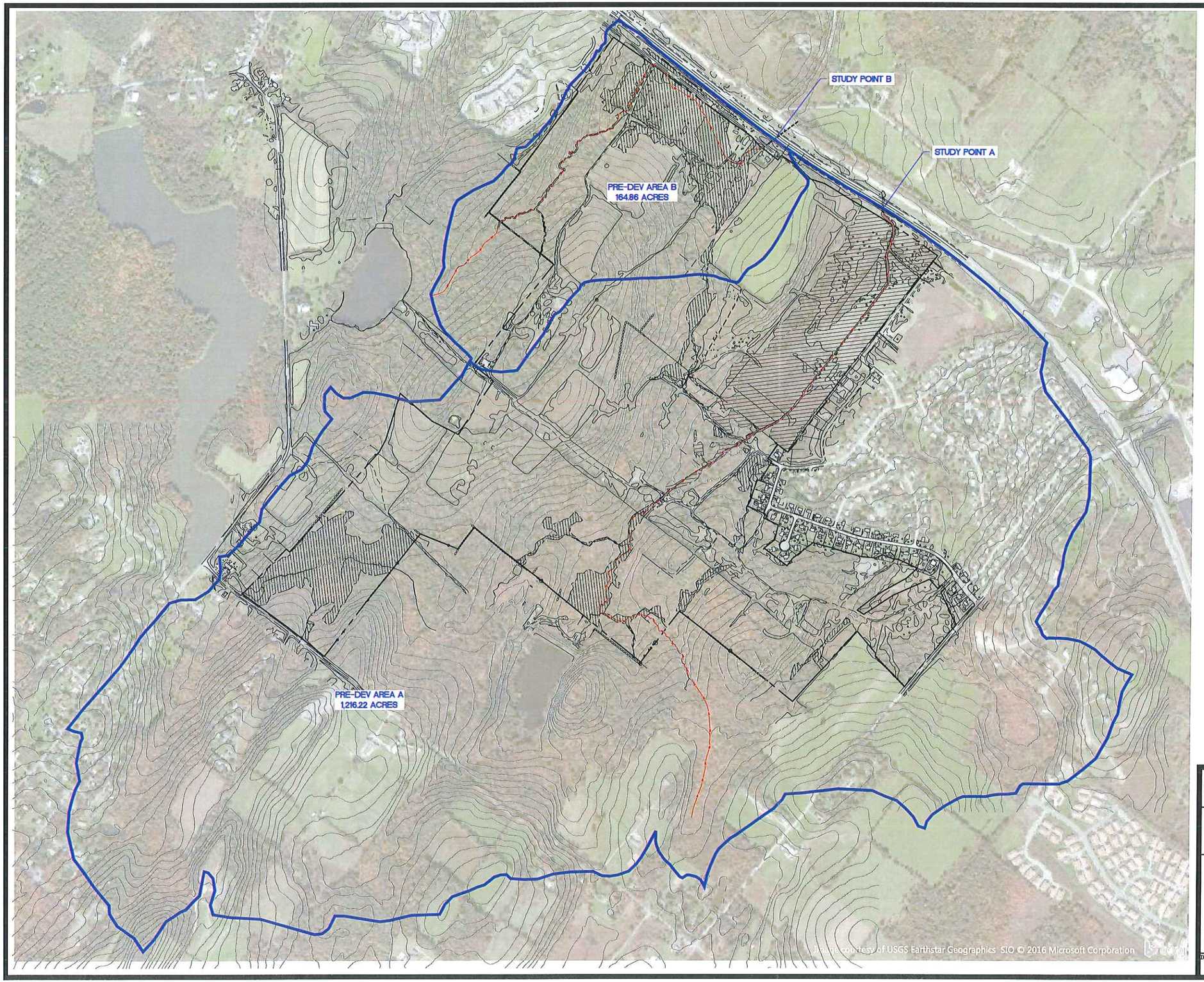
Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	447.75 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 (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
447.75	0.00	0.000	0	0.00	0.00	0.00
448.25	0.00	0.039	0	0.00	0.00	18.70
448.75	0.00	0.100	0	0.00	0.00	48.43
449.00	0.00	0.141	0	0.00	0.00	68.46
449.25	0.10	0.183	0	0.00	0.10	88.60
449.75	0.28	0.264	0	0.00	0.28	128.21
450.25	0.39	0.344	0	0.00	0.39	166.76
450.75	0.47	0.420	0	0.00	0.47	203.88
451.25	0.53	0.493	0	0.00	0.53	238.97
451.75	0.59	0.559	0	0.00	0.59	271.24
452.25	4.79	0.617	0	0.00	4.79	303.22
452.75	12.10	0.658	0	0.00	12.10	330.63
453.25	21.14	0.697	0	0.00	21.14	358.37
453.50	26.12	0.716	0	0.00	26.12	372.69

APPENDIX C

PRE/POST-DEVELOPMENT DRAINAGE CONDITIONS MAPS
STORMWATER PRACTICE MAP



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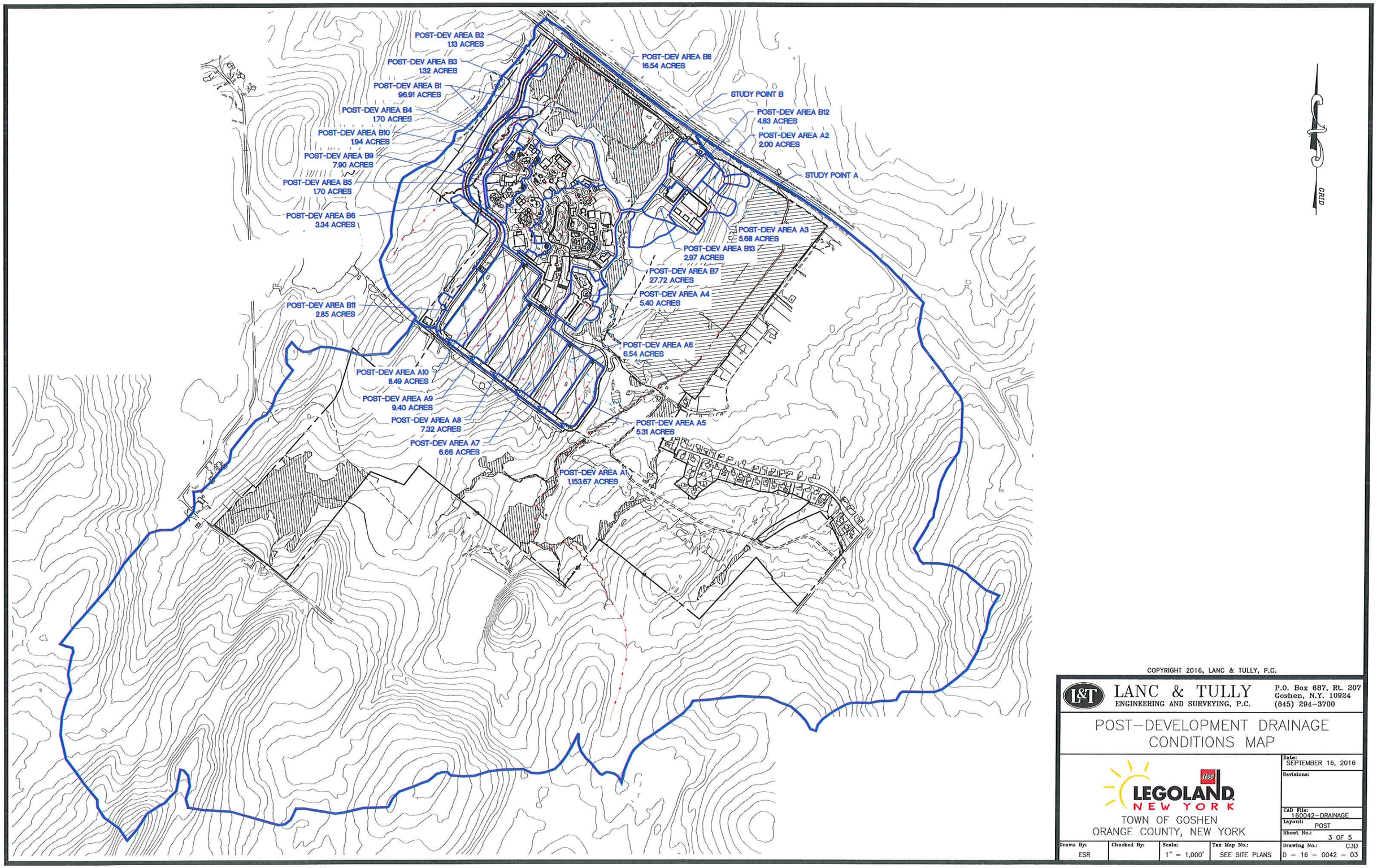
PRE-DEVELOPMENT DRAINAGE CONDITIONS MAP

LEGOLAND NEW YORK

TOWN OF GOSHEN
ORANGE COUNTY, NEW YORK

Date:	SEPTEMBER 16, 2016
Revisions:	
CAD File:	160042-DRAINAGE
Layout:	PRE
Sheet No.:	2 OF 5
Drawing No.:	C3D
Drawn By:	ESR
Checked By:	
Scale:	1" = 1,000'
Tax Map No.:	SEE SITE PLANS
	D – 16 – 0042 – 02



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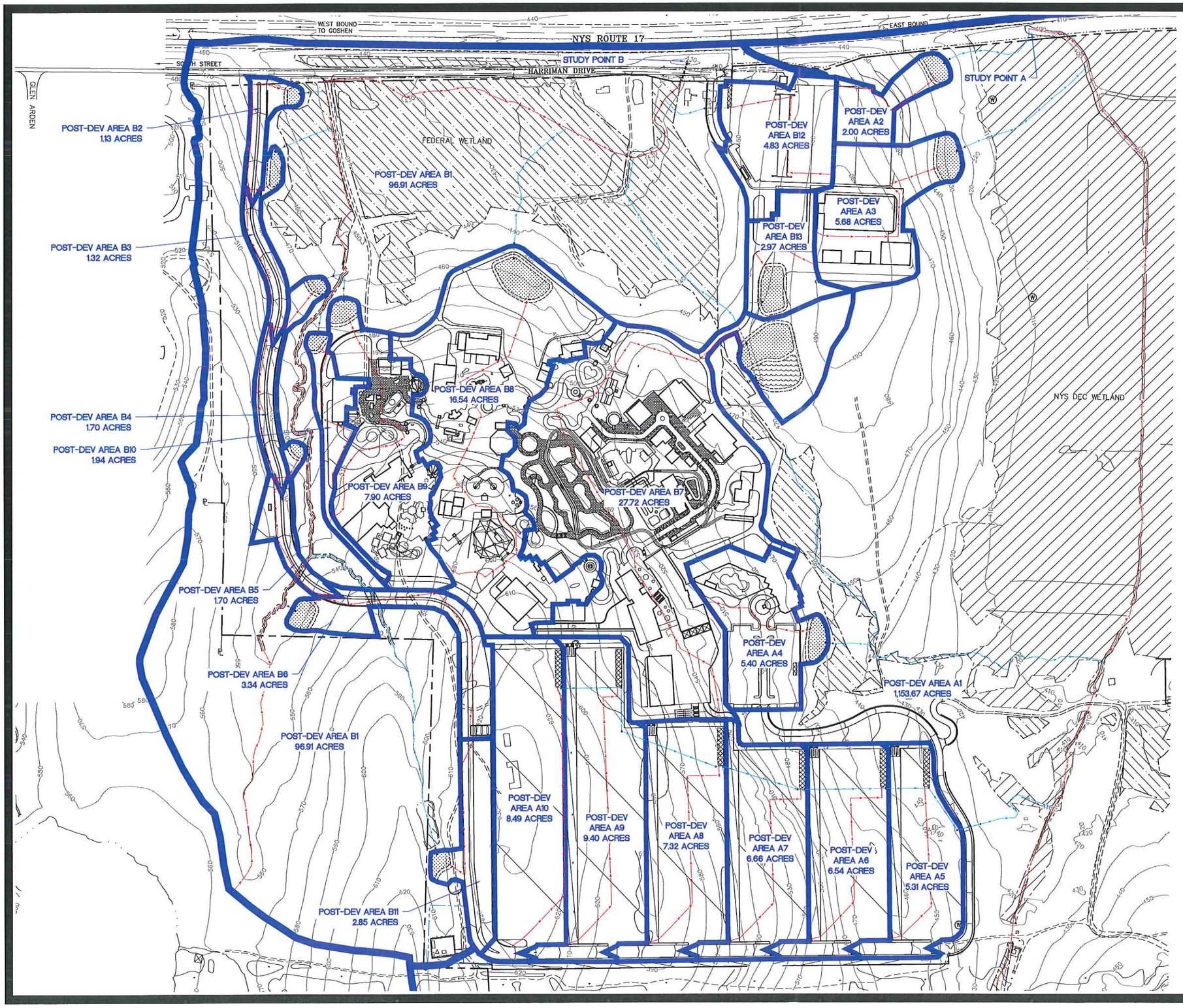
POST–DEVELOPMENT DRAINAGE CONDITIONS MAP

LEGOLAND NEW YORK

TOWN OF GOSHEN
ORANGE COUNTY, NEW YORK

Date:	SEPTEMBER 16, 2016
Revisions:	
CAD File:	160042–DRAINAGE
Layout:	POST
Sheet No.:	3 OF 5
Drawing No.:	C3D D – 16 – 0042 – 03

Drawn By:	Checked By:	Scale:	Tax Map No.:
ESR		1" = 1,000'	SEE SITE PLANS



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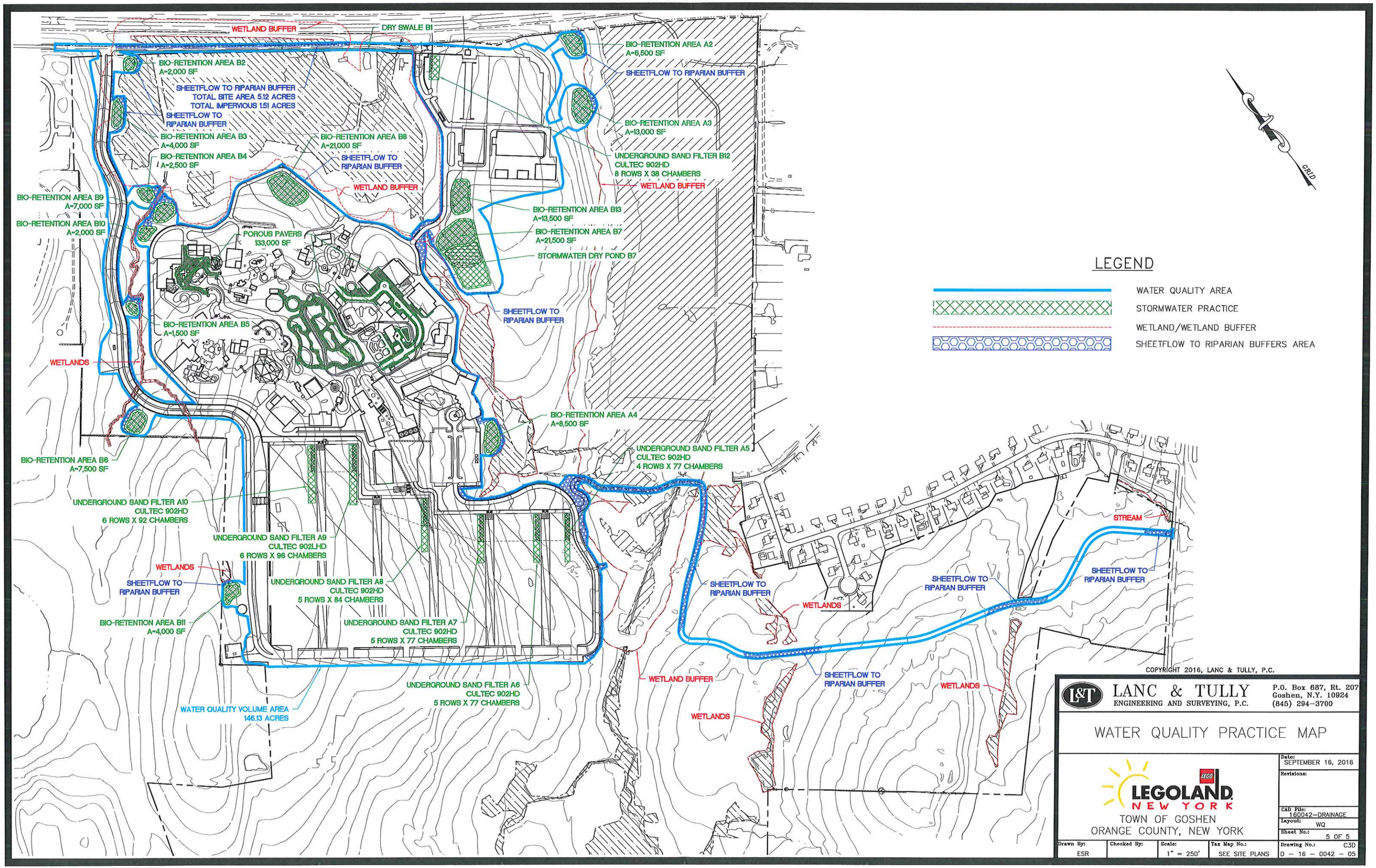
P.O. Box 687, Rt. 207
Goshen, N.Y. 10924
(845) 294-3700

POST-DEVELOPMENT DRAINAGE CONDITIONS MAP

LEGOLAND NEW YORK

TOWN OF GOSHEN
ORANGE COUNTY, NEW YORK

Date:	SEPTEMBER 16, 2016
Revisions:	
CAD File:	160042-DRAINAGE
Layout:	POST 2
Sheet No.:	4 OF 5
Drawn By:	ESR
Checked By:	
Scale:	1" = 400'
Tax Map No.:	SEE SITE PLANS
Drawing No.:	C3D D - 16 - 0042 - 04


WETLAND BUFFER
DRY SWALE B1
BIO-RETENTION AREA B2
A=2,000 SF
SHEETFLOW TO RIPARIAN BUFFER
TOTAL SITE AREA 5.12 ACRES
TOTAL IMPERVIOUS 1.51 ACRES
SHEETFLOW TO
RIPARIAN BUFFER
BIO-RETENTION AREA B3
A=4,000 SF
BIO-RETENTION AREA B4
A=2,500 SF
BIO-RETENTION AREA B8
A=21,000 SF
SHEETFLOW TO
RIPARIAN BUFFER
WETLAND BUFFER
BIO-RETENTION AREA B9
A=7,000 SF
BIO-RETENTION AREA B10
A=2,000 SF
POROUS PAVERS
133,000 SF
BIO-RETENTION AREA B5
A=1,500 SF
WETLANDS
BIO-RETENTION AREA B6
A=7,500 SF
BIO-RETENTION AREA A2
A=6,500 SF
SHEETFLOW TO RIPARIAN BUFFER
BIO-RETENTION AREA A3
A=13,000 SF
UNDERGROUND SAND FILTER B12
CULTEC 902HD
8 ROWS X 38 CHAMBERS
WETLAND BUFFER
BIO-RETENTION AREA B13
A=13,500 SF
BIO-RETENTION AREA B7
A=21,500 SF
STORMWATER DRY POND B7
SHEETFLOW TO
RIPARIAN BUFFER
BIO-RETENTION AREA A4
A=8,500 SF
UNDERGROUND SAND FILTER A5
CULTEC 902HD
4 ROWS X 77 CHAMBERS
UNDERGROUND SAND FILTER A10
CULTEC 902HD
6 ROWS X 92 CHAMBERS
UNDERGROUND SAND FILTER A9
CULTEC 902LHD
6 ROWS X 96 CHAMBERS
WETLANDS
SHEETFLOW TO
RIPARIAN BUFFER
UNDERGROUND SAND FILTER A8
CULTEC 902HD
5 ROWS X 84 CHAMBERS
BIO-RETENTION AREA B11
A=4,000 SF
UNDERGROUND SAND FILTER A7
CULTEC 902HD
5 ROWS X 77 CHAMBERS
UNDERGROUND SAND FILTER A6
CULTEC 902HD
5 ROWS X 77 CHAMBERS
WATER QUALITY VOLUME AREA
146.13 ACRES
WETLAND BUFFER
WETLANDS
SHEETFLOW TO
RIPARIAN BUFFER
WETLANDS
SHEETFLOW TO
RIPARIAN BUFFER
SHEETFLOW TO
RIPARIAN BUFFER
STREAM
SHEETFLOW TO
RIPARIAN BUFFER
GRID
LEGEND
WATER QUALITY AREA
STORMWATER PRACTICE
WETLAND/WETLAND BUFFER
SHEETFLOW TO RIPARIAN BUFFERS AREA
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WATER QUALITY PRACTICE MAP
LEGOLAND
NEW YORK
TOWN OF GOSHEN
ORANGE COUNTY, NEW YORK
Date: SEPTEMBER 16, 2016
Revisions:
CAD File: 160042-DRAINAGE
Layout: WQ
Sheet No.: 5 OF 5
Drawing No.: C3D
D - 16 - 0042 - 05
Drawn By: ESR
Checked By:
Scale: 1" = 250'
Tax Map No.: SEE SITE PLANS

APPENDIX D

CALCULATIONS:
WATER QUALITY/RUNOFF REDUCTION VOLUME
CHANNEL PROTECTION VOLUME
STORMWATER PRACTICE DESIGN

LEGOLAND NEW YORK
Town of Goshen, New York

Water Quality/Runoff Reduction Volume Summary
Total Site

Required Water Quality Volume (WQv)

Drainage Area = 6,365,489 SF
Impervious Area = 3,682,367 SF
Required WQv = 408,646 CF (from water quality calc sheet)

NYSDEC requires that WQv be treated through use of Green Infrastructure Practices. These practices reduce the required WQv by reducing the drainage area or impervious area in the WQv calculation or by direct volume reduction of the required WQv. WQv treatment provided by the Green Infrastructure Practices is called Runoff Reduction Volume (RRv). The project must provide a minimum amount of WQv treatment in the Green Infrastructure Practices based on the Hydrologic Soil Group at the site.

Runoff Reduction/Water Quality Treatment Practices	RRv Deductions: Drainage Area (SF)	RRv Deductions: Impervious Area (SF)	RRv Deductions: Volume (CF)	WQv Treatment Volume (CF)
Sheetflow to Riparian Buffers or Filter Strips (Area Based Deduction) Notes: Half Harriman Drive, portions of emergency access, & perimeter grading throughout project Total Drainage Area to Buffers = **223,108** SF Impervious Area Draining to Buffers = **65,659** SF	223,108	65,659		
Tree Planting/Tree Pit (Area Based Deduction) Notes: To be determined Number of Roadside Proposed Trees = Drainage Area Reduction (100 SF/Tree)= **0** SF		0		
Porous Pavers (Area Based Deduction) Notes: Pavers areas in theme park Area of Porous Pavers = **132,977** SF (from pavement calc sheet)		132,977		
Standard SMP - Dry Swale (Volume Based Deduction) Notes: Half Harriman Drive Total Dry Swale Treatment Capacity = 3,225 CF (from dry swale calc sheet) Maximum Deduction Allowed = **645** CF Deduction = 20% Remaining Treatment is standard WQv = **2,580** CF			645	2,580
Standard SMP - Bio-Retention Areas (Volume Based Deduction) Notes: 14 bio-retention areas throughout project Total Bio. Area Treatment Capacity = 157,438 CF (from bio calc sheet) Maximum Deduction Allowed = **62,975** CF Deduction = 40% Remaining Treatment is standard WQv = **94,463** CF			62,975	94,463
Standard SMP - Underground Sand Filtration Areas (Volume Based Deduction) Notes: 7 underground sand filters for visitor parking area and portion of back of house area Total UG Treatment Capacity = 229,605 CF (from sand filter calc sheet) Maximum Deduction Allowed = **0** CF Deduction = 0% Remaining Treatment is standard WQv = **229,605** CF			0	229,605
Total	223,108	198,636	63,620	326,648

Provided Runoff Reduction Volume Calculation

Drainage Area = 6,365,489 SF
- Drainage Area Deduction = 223,108 SF
New Drainage Area = 6,142,381 SF

Impervious Area = 3,682,367 SF
- Impervious Area Deduction = 198,636 SF
New Impervious Area = 3,483,731 SF

New Drainage Area = 6,142,381
New Impervious Area = 3,483,731
New Rv = 0.56

Reduced WQv = 387,279 CF
- Volume Deduction = 63,620 CF
Reduced WQv = 323,659 CF

Provided RRv = Original WQv - Reduced WQv
Provided RRv = 84,987 CF

Required Water Quality Volume (WQv) =	**408,646**	**CF**
Provided Runoff Reduction Volume (RRv) =	**84,987**	**CF**
Provided Water Quality Volume (WQv) =	**326,648**	**CF**
Total Provided RRv and WQv =	**411,634**	**CF**

LEGOLAND NEW YORK
Town of Goshen, New York

Minimum Required Runoff Reduction Volume Treatment

$$\text{Minimum RRv} = \frac{P*Rv*Ai}{12}$$

P = 1.35 inch

Rv = 0.05+0.009*I (I=100%)

Ai (Impervious for Runoff Reduction) =	S* Aic	
Aic (New Impervious Cover) =	3,682,367	SF
Specific Reduction Factor (HSG C) =	0.206	
Ai =	758,568	SF

Minimum RRv =	**81,072**	**CF**
Provided RRv =	**84,987**	**CF**
Provided RRv is Greater than the Minimum.		

Specific Reduction Factor Calculation

HSG	Reduction Factor	Percent of Site	Weighted Reduction Factor
A	0.55	0.00%	0.000
B	0.40	0.00%	0.000
C	0.30	6.00%	0.018
D	0.20	94.00%	0.188
			0.206

Lanc and Tully Engineering, P.C.

Project Name: LEGOLAND New York - Total Site
Project Location: Town of Goshen, New York

Water Quality Volume Calculation:

$$WQv = \frac{(P) * (Rv) * (A)}{12}$$

$$Rv = 0.05 + 0.009(I)$$

WQv = Water Quality Volume (ac-ft)
P = 90% Rainfall Event (in)
Rv = Runoff Coefficient
I = % impervious of the site
A = Area of the site (Contributing Acreage)

Impervious Acreage	=	84.536	Acres
Contributing Site Area	=	146.132	Acres
I (% Impervious)	=	57.8	%
Runoff Coefficient (Rv)	=	0.57	
90% Rainfall Event		P	1.35 *Rainfall from NYSDEC SWM Figure 4.1
Site Area (Contributing)		A	146.13152

REQUIRED WATER QUALITY VOLUME	=	9.381	AC-FT
		408,646	CU-FT

LEGOLAND NEW YORK
Town of Goshen, New York
Channel Protection Volume Orifice Sizing

Total CPv = Channel Protection Volume

Qo = Average Outflow discharge, CPv/24 hr*60 min* 60 sec

h = head at orifice centerline, ft

C = Orifice Coefficient = 0.6

g = 32.2, ft^/s

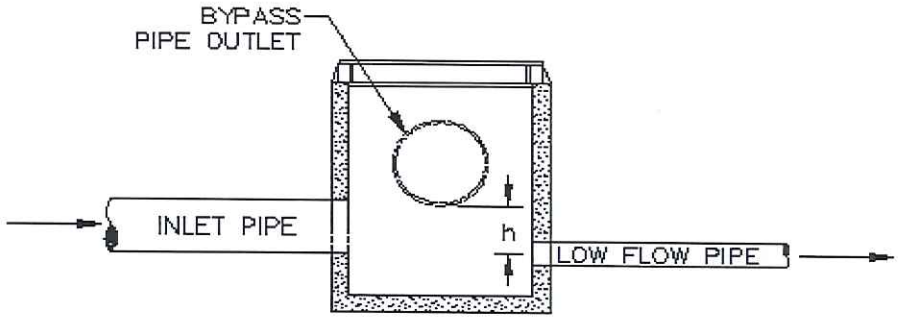
A = Qo/C*sqrt(2*g*h)

Area	Practice	Total CPv (CF)	Qo (CFS)	1-Year Peak Water Surface El.	Orifice Invert	Orifice Diameter (in)	Average Flowrate (CFS)
A2	Bio A2	12,066	0.140	424.70	424.50	4	0.054
A3	Bio A3	35,981	0.416	425.10	424.50	6	0.395
A4	Bio A4, UG A4	35,806	0.414	452.30	451.00	4.5	0.396
A5	UG A5	38,768	0.449	478.79	475.75	3.75	0.443
A6	UG A6	50,007	0.579	494.84	491.50	4	0.529
A7	UG A7	50,922	0.589	514.69	511.25	4	0.537
A8	UG A8	55,975	0.648	532.66	529.25	4.25	0.603
A9	UG A9	71,874	0.832	546.36	543.25	5	0.790
A10	UG A10	71,177	0.824	564.46	561.25	5	0.804
B2	Bio B2	6,186	0.072	447.43	447.00	2.5	0.066
B3	Bio B3	7,623	0.088	457.69	457.50	3	0.043
B4	Bio B4	9,322	0.108	462.75	462.00	2.5	0.093
B5	Bio B5	7,536	0.087	515.08	514.00	2	0.074
B6	Bio B6	19,210	0.222	539.42	539.00	5	0.213
B7	Pond B7	159,212	1.843	456.30	451.50	6.75	1.798
B8	Bio B8, Pavers	90,518	1.048	468.98	467.50	7	0.991
B9	Bio B9, Pavers	37,679	0.436	465.92	464.50	4.5	0.417
B10	Bio B10	10,629	0.123	480.61	479.50	2.5	0.116
B11	Bio B11	18,077	0.209	610.46	609.25	3.25	0.203
B12	UG 12	36,939	0.428	449.81	448.75	3.75	0.248
B13	Bio B13	16,291	0.189	467.52	467.50	4	Low
Total		841,797					

LEGOLAND NEW YORK
Town of Goshen, New York

Diversion Structure Design

Low flow pipe sized using orifice equation



Q = CA*sqrt(2gh)

Q = Low Flow Pipe discharge, CFS
h = head at orifice centerline, ft
C = Orifice Coefficient = 0.6
g = 32.2, ft^/s

SMP Downstream	Watershed Area	1-Year Storm Flowrate (CFS)	Low Flow Pipe Diameter (in.)	Low Flow Pipe Invert	Minimum h (FT)	Bypass Pipe Invert
B-A4	A4	7.490	15	450.50	1.6084	452.73
UG-A5	A5	10.550	18	475.50	1.5389	477.79
UG-A6	A6	13.350	18	491.25	2.4642	494.46
UG-A7	A7	13.590	18	511.00	2.5536	514.30
UG-A8	A8	14.950	18	529.00	3.0902	532.84
UG-A9	A9	19.090	21	543.00	2.7198	546.59
UG-A10	A10	17.440	21	561.00	2.2699	564.14
B-B5	B5	2.160	10	513.50	0.6772	514.59
B-B6	B6	4.880	12	538.50	1.6669	540.67
B-B8	B8	22.930	24	467.50	2.3002	470.80
B-B9	B9	8.640	15	464.00	2.1402	466.77
B-B10	B10	2.740	10	479.00	1.0897	480.51
B-B11	B11	4.550	12	608.75	1.4491	610.70
UG-B12	B12	9.890	18	448.50	1.3524	450.60
B-B13	B13	4.650	12	467.00	1.5135	469.01

LEGOLAND NEW YORK
Town of Goshen, New York
Underground Sand Filtration Area Water Quality Volume and Design

Filtration Area Characteristics

Af = (WQv x df)/(k (hf+df) tf)

Af =	surface area of filter bed, sf	
df =	filter media depth, ft	
k =	infiltration rate, ft/day	3.5
hf =	average water height, ft	0.50
tf =	bed drain time, days	1.67

Area I.D.	Sand Filter Chamber Row Length (LF)	Filter Bed Area* (SF)	Filter Bed Depth (FT)	Underdrain Inv. El.	Bed El. (Top of Sand)	Top of UG System El.	Lowest Outlet El.	Provided Water Quality Volume (CF)	Provided Pre-Treatment (CF)	Total Provided Treatment (CF)
A5	425	2,763	1	473.25	474.75	480.50	475.75	24,220	11,590	35,810
A6	425	2,763	1	489.00	490.5	496.25	491.50	24,220	11,590	35,810
A7	425	2,763	1	508.75	510.25	516.00	511.25	24,220	11,590	35,810
A8	425	2,763	1	526.75	528.25	534.00	529.25	24,220	11,590	35,810
A9	425	2,763	1	540.75	542.25	548.00	543.25	24,220	11,590	35,810
A10	425	2,763	1	558.75	560.25	566.00	561.25	24,220	11,590	35,810
B12	175	1,138	1	446.25	447.75	453.50	448.75	9,973	4,772	14,745
Total										229,605

* Filter bed width is 6.5' under chamber row

Separator Row (Pre-Treatment)

Geotextile wrapped separator row to provide water quality pre-treatment.
Volume of chamber and surrounding stone from manufacturer cut sheets.

Area I.D.	Chamber Row Length (LF)	Chamber and Stone Volume /LF (CF/FT)	Total Volume of Separator Row (CF)	Required Pre-Treatment Volume (25%) (CF)
A5	425	27.27	11,590	6,055
A6	425	27.27	11,590	6,055
A7	425	27.27	11,590	6,055
A8	425	27.27	11,590	6,055
A9	425	27.27	11,590	6,055
A10	425	27.27	11,590	6,055
B12	175	27.27	4,772	2,493

LEGOLAND NEW YORK
Town of Goshen, New York

Bio-Retention Area Water Quality Volume and Design

Bio-Retention Area Characteristics

Af = (WQv x df)/(k (hf+df) tf)

Af = surface area of filter bed, sf
df = filter bed depth, ft
k = media permeability, ft/day 0.5
hf = average water height, ft 0.25
tf = bed drain time, days 2

Area I.D.	Filter Bed Area (SF)	Filter Bed Depth (FT)	Underdrain Inv. El.	Bed El.	Berm El.	First Orifice/Riser El.	Provided Water Quality Volume (CF)	Provided Pre-Treatment (CF)	Total Provided Treatment (CF)
A2	6,500	2.5	421.00	424.00	426.00	424.50	7,150	1,788	8,938
A3	13,000	2.5	421.00	424.00	426.00	424.50	14,300	3,575	17,875
A4	8,500	2.5	447.50	450.50	453.00	451.00	9,350	2,338	11,688
B2	2,000	2.5	443.50	446.50	448.50	447.00	2,200	550	2,750
B3	4,000	2.5	454.00	457.00	459.00	457.50	4,400	1,100	5,500
B4	2,500	2.5	458.50	461.50	463.50	462.00	2,750	688	3,438
B5	1,500	2.5	510.50	513.50	515.50	514.00	1,650	413	2,063
B6	7,500	2.5	535.50	538.50	540.50	539.00	8,250	2,063	10,313
B7	21,500	2.5	458.50	461.50	463.50	462.00	23,650	5,913	29,563
B8	21,000	2.5	464.00	467.00	470.00	467.50	23,100	5,775	28,875
B9	7,000	2.5	461.00	464.00	466.50	464.50	7,700	1,925	9,625
B10	2,000	2.5	476.00	479.00	481.00	479.50	2,200	550	2,750
B11	4,000	2.5	605.75	608.75	611.25	609.25	4,400	1,100	5,500
B13	13,500	2.5	464.00	467.00	469.00	467.50	14,850	3,713	18,563
Total									157,438

LEGOLAND NEW YORK
Town of Goshen, New York

Dry Swale Water Quality Volume

d = filter media depth 2.5
n = media porosity 0.2
Slope = must be less than 4%

Swale I.D.	Swale Segment Slope (%)	Length (FT)	Swale Dimensions					Provided Water Quality Volume (CF)	Provided Pre-Treatment (CF)	Total Provided Treatment (CF)
			Depth (FT)	Side Slope (y:1)	Bottom Width (SF)	Underdrain Volume (SF)	Flow Area (SF)			
B1		1,500	0.5	3.0	1	0.5	1.25	2,625	600	3,225
Total										3,225

Gravel Diaphragm Water Quality Volume

n = stone porosity 0.4

Gravel Diaphragm I.D.	Length (FT)	Width (FT)	Depth (FT)	Volume (CF)	Required Pre-Treatment Volume (10%) (CF)	Provided Water Quality Pre-Treatment Volume (CF)
B1	1,500	1	1	600	263	600

APPENDIX E

EXCERPTS FROM THE "NY STATE STORMWATER DESIGN MANUAL"
CONSTRUCTION SPECIFICATIONS

Appendix C: Construction Standards and Specifications

C.1 Pond Construction Standards/Specifications

These specifications are generally appropriate to all earthen ponds, and are adapted from NRCS Pond Code 378. This document is available at http://www.dec.state.ny.us/website/dow/toolbox/tools.html. Practitioners should always consult the New York State Department of Environmental Conservation – Dam Safety Division for the most recent guidance. All references to ASTM and AASHTO specifications apply to the most recent version.

C.3 Construction Specifications for Bioretention, Sand Filters and Open Channels

Sand Filter Specifications

Material Specifications for Sand Filters

The allowable materials for sand filter construction are detailed in Table 1.

Sand Filter Testing Specifications

Underground sand filters, facilities within sensitive groundwater aquifers, and filters designed to serve urban hot spots are to be tested for water tightness prior to placement of filter layers. Entrances and exits should be plugged and the system completely filled with water to demonstrate water tightness.

All overflow weirs, multiple orifices and flow distribution slots to be field-tested as to verify adequate distribution of flows.

Sand Filter Construction Specifications

Provide sufficient maintenance access; 12-foot-wide road with legally recorded easement. Vegetated access slopes to be a maximum of 10%; gravel slopes to 15%; paved slopes to 25%.

Absolutely no runoff is to enter the filter until all contributing drainage areas have been stabilized.

Surface of filter bed to be *completely level.*

All sand filters should be clearly delineated with signs so that they may be located when maintenance is due.

Surface sand filters shall be planted with appropriate grasses as specified in your local NRCS Standards and Specifications guidance.

Pocket sand filters (and residential bioretention facilities treating areas larger than an acre) shall be sized with an ornamental stone window covering approximately 10% of the filter area. This surface shall be 2" to 5" size stone on top of a pea gravel layer (3/4 inch stone) approximately 4 to 6" of pea gravel.

Specifications Pertaining to Underground Sand Filters

Provide manhole and/or grates to all underground and below grade structures. Manholes shall be in compliance with standard specifications for each jurisdiction but diameters should be 30" minimum (to comply with OSHA confined space requirements) but not too heavy to lift. Aluminum and steel louvered doors are also acceptable. Ten-inch long (minimum) manhole steps (12" o.c.) shall be cast in place or drilled and mortared into the wall below each manhole. A 5= minimum height clearance (from the top of the sand layer to the bottom of the slab) is required for all permanent underground structures. Lift rings are to be supplied to remove/replace top slabs. Manholes may need to be grated to allow for proper ventilation; if required, place manholes *away* from areas of heavy pedestrian traffic.

Underground sand filters shall be constructed with a dewatering gate valve located just above the top of the filter bed should the bed clog.

Underground sand beds shall be protected from trash accumulation by a wide mesh geotextile screen to be placed on the surface of the sand bed; screen is to be rolled up, removed, cleaned and re-installed during maintenance operations.

Table C-1 Sand Filter Material Specifications

Parameter	Specification	Size	Notes
Sand	Clean AASHTO M-6 or ASTM C-33 concrete sand	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. "Rock dust" cannot be substituted for sand.
Peat	Ash content: < 15% PH range: 5.2 to 4.9 Loose bulk density 0.12 to 0.15 g/cc	n/a	The material must be Reed-Sedge Hemic Peat, shredded, uncompacted, uniform, and clean.
Underdrain Gravel	AASHTO M-43 No. 67	0.25" to 0.75"	
Geotextile Fabric (if required)	ASTM D-751 (puncture strength - 125 lb.) ASTM D-1117 (Mullen Burst Strength - 400 psi) ASTM D-1682 (Tensile Strength - 300 lb.)	0.08" thick equivalent opening size of #80 sieve	Must maintain 125 gpm per sq. ft. flow rate. Note: a 4" pea gravel layer may be substituted for geotextiles meant to separate sand filter layers.
Impermeable Liner (if required)	ASTM D 751 (thickness) ASTM D 412 (tensile strength 1,100 lb., elongation 200%) ASTM D 624 (Tear resistance - 150 lb./in) ASTM D 471 (water adsorption: +8 to -2% mass)	30mil thickness	Liner to be ultraviolet resistant. A geotextile fabric should be used to protect the liner from puncture.
Underdrain Piping	ASTM D-1785 or AASHTO M-278	6" rigid schedule 40 PVC	3/8" perf. 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
Concrete (Cast-in-place)	See local DOT Standards and Specs. f=c = 3500 psi, normal weight, air-entrained; re-inforcing to meet ASTM 615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a licensed professional structural engineer.
Concrete (pre-cast)	per pre-cast manufacturer	n/a	SEE ABOVE NOTE
Non-rebar steel	ASTM A-36	n/a	structural steel to be hot-dipped galvanized ASTM A123

Specifications for Bioretention

Material Specifications

The allowable materials to be used in bioretention area are detailed in Table G.2.

Planting Soil

The soil shall be a uniform mix, free of stones, stumps, roots or other similar objects larger than two inches. No other materials or substances shall be mixed or dumped within the bioretention area that may be harmful to plant growth, or prove a hindrance to the planting or maintenance operations. The planting soil shall be free of noxious weeds.

The planting soil shall be tested and shall meet the following criteria:

pH range	5.2 - 7.0
organic matter	1.5 - 4%
magnesium	35 lb./ac
phosphorus P_2O_5	75 lb./ac
potassium K_2O	85 lb./ac
soluble salts	not to exceed 500 ppm

All bioretention areas shall have a minimum of one test. Each test shall consist of both the standard soil test for pH, phosphorus, and potassium and additional tests of organic matter, and soluble salts. A textural analysis is required from the site stockpiled topsoil. If topsoil is imported, then a texture analysis shall be performed for each location where the top soil was excavated.

Since different labs calibrate their testing equipment differently, all testing results shall come from the same testing facility.

Should the pH fall out of the acceptable range, it may be modified (higher) with lime or (lower) with iron sulfate plus sulfur.

Compaction

It is very important to minimize compaction of both the base of the bioretention area and the required backfill. When possible, use excavation hoes to remove original soil. If bioretention areas are excavated using a loader, the contractor should use wide track or marsh track equipment, or light equipment with turf type tires. Use of equipment with narrow tracks or narrow tires, rubber tires with large lugs, or high pressure tires will cause excessive compaction resulting in reduced infiltration rates and storage volumes and is not acceptable. Compaction will significantly contribute to design failure.

Compaction can be alleviated at the base of the bioretention facility by using a primary tilling operation such as a chisel plow, ripper, or subsoiler. These tilling operations are to refracture the soil profile through the 12 inch compaction zone. Substitute methods must be approved by the engineer. Rototillers typically do not till deep enough to reduce the effects of compaction from heavy equipment.

Rototill 2 to 3 inches of sand into the base of the bioretention facility before back filling the required sand layer. Pump any ponded water before preparing (rototilling) base.

When back filling the topsoil over the sand layer, first place 3 to 4 inches of topsoil over the sand, then rototill the sand/topsoil to create a gradation zone. Backfill the remainder of the topsoil to final grade.

When back filling the bioretention facility, place soil in lifts 12" or greater. Do not use heavy equipment within the bioretention basin. Heavy equipment can be used around the perimeter of the basin to supply soils and sand. Grade bioretention materials by hand or with light equipment such as a compact loader or a dozer/loader with marsh tracks.

Plant Installation

Mulch around individual plants only. Shredded hardwood mulch is the only accepted mulch. Pine mulch and wood chips will float and move to the perimeter of the bioretention area during a storm event and are not acceptable. Shredded mulch must be well aged (6 to 12 months) for acceptance.

The plant root ball should be planted so $1/8^{th}$ of the ball is above final grade surface.

Root stock of the plant material shall be kept moist during transport and on-site storage. The diameter of the planting pit shall be at least six inches larger than the diameter of the planting ball. Set and maintain the plant straight during the entire planting process. Thoroughly water ground bed cover after installation.

Trees shall be braced using 2" X 2" stakes only as necessary and for the first growing season only. Stakes are to be equally spaced on the outside of the tree ball.

Grasses and legume seed shall be tilled into the soil to a depth of at least one inch. Grass and legume plugs shall be planted following the non-grass ground cover planting specifications.

The topsoil specifications provide enough organic material to adequately supply nutrients from natural cycling. The primary function of the bioretention structure is to improve water quality. Adding fertilizers defeats, or at a minimum, impedes this goal. Only add fertilizer if wood chips or mulch is used to amend the soil. Rototill urea fertilizer at a rate of 2 pounds per 1000 square feet.

Underdrains

Under drains to be placed on a 3'-0" wide section of filter cloth. Pipe is placed next, followed by the gravel bedding. The ends of under drain pipes not terminating in an observation well shall be capped.

The main collector pipe for underdrain systems shall be constructed at a minimum slope of 0.5%. Observation wells and/or clean-out pipes must be provided (one minimum per every 1000 square feet of surface area).

Miscellaneous

The bioretention facility may not be constructed until all contributing drainage area has been stabilized.

Table C.2 Materials Specifications for Bioretention

Parameter	Specification	Size	Notes
Plantings	see your local NRCS Standards and Specifications guidance.	n/a	plantings are site-specific
Planting Soil [4= deep]	sand 35 - 60% silt 30 - 55% clay 10 - 25%	n/a	USDA soil types loamy sand, sandy loam or loam
Mulch	shredded hardwood		aged 6 months, minimum
pea gravel diaphragm and curtain drain	pea gravel: ASTM D 448 ornamental stone: washed cobbles	pea gravel: No. 6 stone: 2" to 5"	
Geotextile	Class "C" apparent opening size (ASTM-D-4751) grab tensile strength (ASTM-D-4632) burst strength (ASTM-D-4833)	n/a	for use as necessary beneath underdrains only
underdrain gravel	AASHTO M-43. No. 67.	0.25" to 0.75"	
underdrain piping	ASTM D 1785 or AASHTO M-278	6" rigid schedule 40 PVC	3/8" perf. @ 6" on center, 4 holes per row; minimum of 3" of gravel over pipes; not necessary underneath pipes
poured in place concrete (if required)	See local DOT Standards and Specs.; f=c = 3500 psi. @ 28 days, normal weight, air-entrained; re-inforcing to meet ASTM 615-60	n/a	on-site testing of poured-in-place concrete required: 28 day strength and slump test; all concrete design (cast-in-place or pre-cast) *not using previously approved State or local standards* requires design drawings sealed and approved by a licensed professional structural engineer.
sand [1= deep]	AASHTO M-6 or ASTM C-33	0.02" to 0.04"	Sand substitutions such as Diabase and Graystone #10 are not acceptable. No calcium carbonated or dolomitic sand substitutions are acceptable. No "rock dust" can be used for sand.

Specifications for Open Channels and Filter Strips

Material Specifications
The recommended construction materials for open channels and filter strips are detailed in Table G.3.

Dry Swales

Roto-till soil/gravel interface approximately 6" to avoid a sharp soil/gravel interface.

Permeable soil mixture (20" to 30" deep) should meet the bioretention planting soil specifications.

Check dams, if required, shall be placed as specified.

System to have 6" of freeboard, minimum.

Side slopes to be 3:1 minimum; (4:1 or greater preferred).

No gravel or perforated pipe is to be placed under driveways.

Bottom of facility to be above the seasonably high water table.

Seed with flood/drought resistant grasses; see your local NRCS Standards and Specifications guidance.

Longitudinal slope to be 1 to 2%, maximum [up to 5% with check dams].

Bottom width to be 8'= maximum to avoid braiding; larger widths may be used if proper berming is supplied. Width to be 2'= minimum.

Wet Swales
Follow above information for dry swales, with the following exceptions: the seasonally high water table may inundate the swale; but not above the design bottom of the channel [NOTE: if the water table is stable within the channel; the WQv storage may start at this point]

Excavate into undisturbed soils; do not use an underdrain system.

Filter Strips

Construct pea gravel diaphragms 12" wide, minimum, and 24" deep minimum.

Pervious berms to be a sand/gravel mix (35-60% sand, 30-55% silt, and 10-25% gravel). Berms to have overflow weirs with 6 inch minimum avilable head.

Slope range to be 2% minimum to 6% maximum.

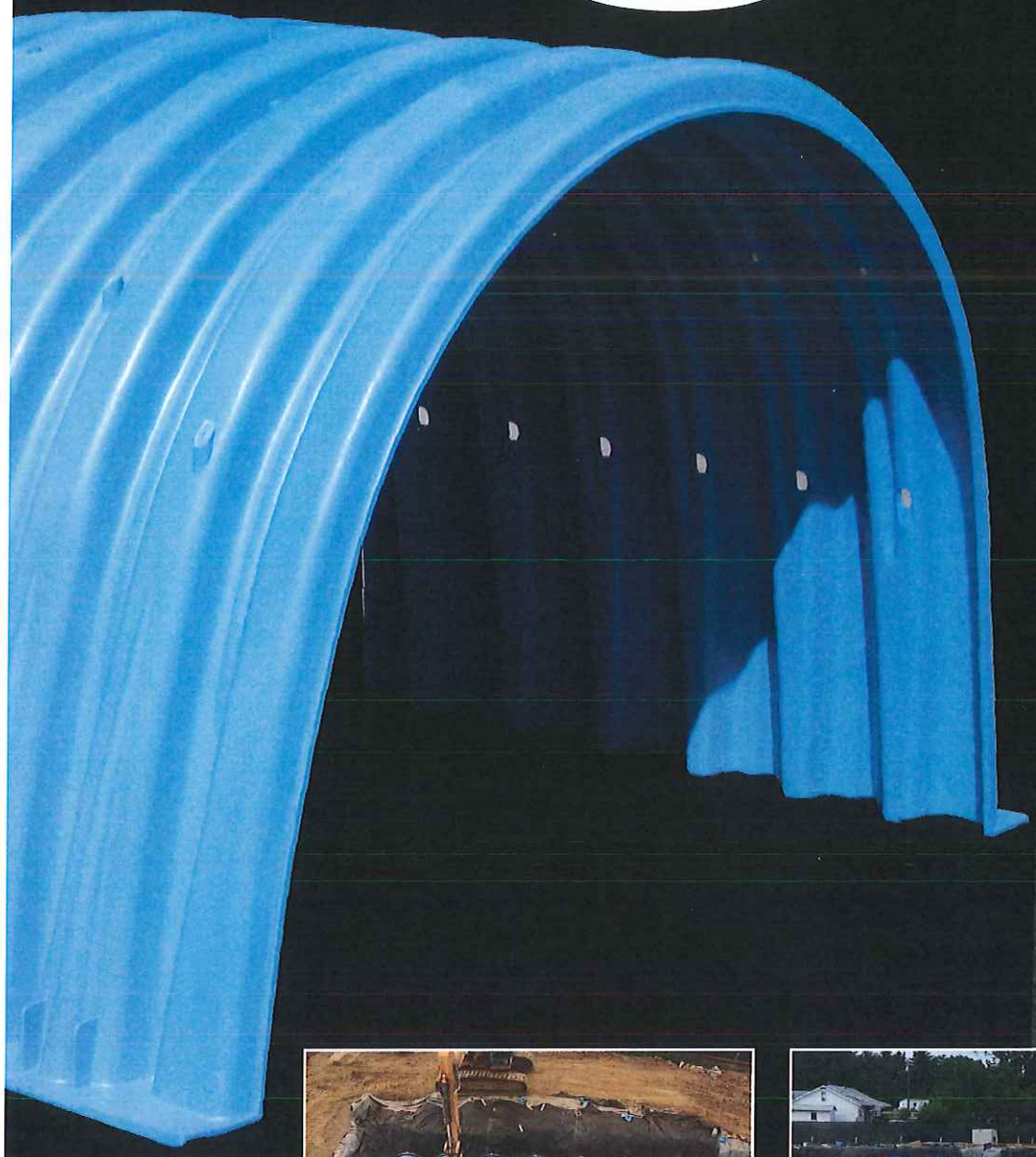
Table C.3 Open Vegetated Swale and Filter Strip Materials Specifications

Parameter	Specification	Size	Notes
Dry swale soil	USCS; ML, SM, SC	n/a	soil with a higher percent organic content is preferred
Dry Swale sand	ASTM C-33 fine aggregate concrete sand	0.02" to 0.04"	
Check Dam (pressure treated)	AWPA Standard C6	6" by 6" or 8" by 8"	*do not* coat with creosote; embed at least 3= into side slopes
Check Dam (natural wood)	Black Locust, Red Mulberry, Cedars, Catalpa, White Oak, Chestnut Oak, Black Walnut	6" to 12" diameter; notch as necessary	*do not* use the following, as these species have a predisposition towards rot: Ash, Beech, Birch, Elm, Hackberry, hemlock, Hickories, Maples, Red and Black Oak, Pines, Poplar, Spruce, Sweetgum, Willow
Filter Strip sand/gravel pervious berm	sand: per dry swale sand gravel; AASHTO M-43 No. 57	sand: 0.02" to 0.04" gravel: 2" to 1"	mix with approximately 25% loan soil to support grass cover crop; see Bioretention planting soil notes for more detail.
pea gravel diaphragm and curtain drain	ASTM D 448	varies (No. 6) or (1/8" to 3/8")	use clean bank-run gravel
under drain gravel	AASHTO M-43 No. 67	0.25" to 0.75"	
under drain	ASTM D -1785 or AASHTO M-278	6" rigid Schedule 40 PVC	3/8" perf. @ 6" o.c.; 4 holes per row
Geotextile	See local DOT Standards and Specs	n/a	
rip rap	per local DOT criteria	size per New York State DOT requirements based on 10-year design flows	

think big

Ultra high capacity stormwater chamber

Recharger® 902HD



- Minimize cost by maximizing storage volume in a given footprint
- Optimal for replacing large diameter pipe, concrete structures and crate systems
- Shorter length for easier handling
- Stockpiles neatly on site in condensed area
- Features internal manifold for efficiency, design flexibility and cost-effectiveness

The Founder of Plastic Chamber Technology

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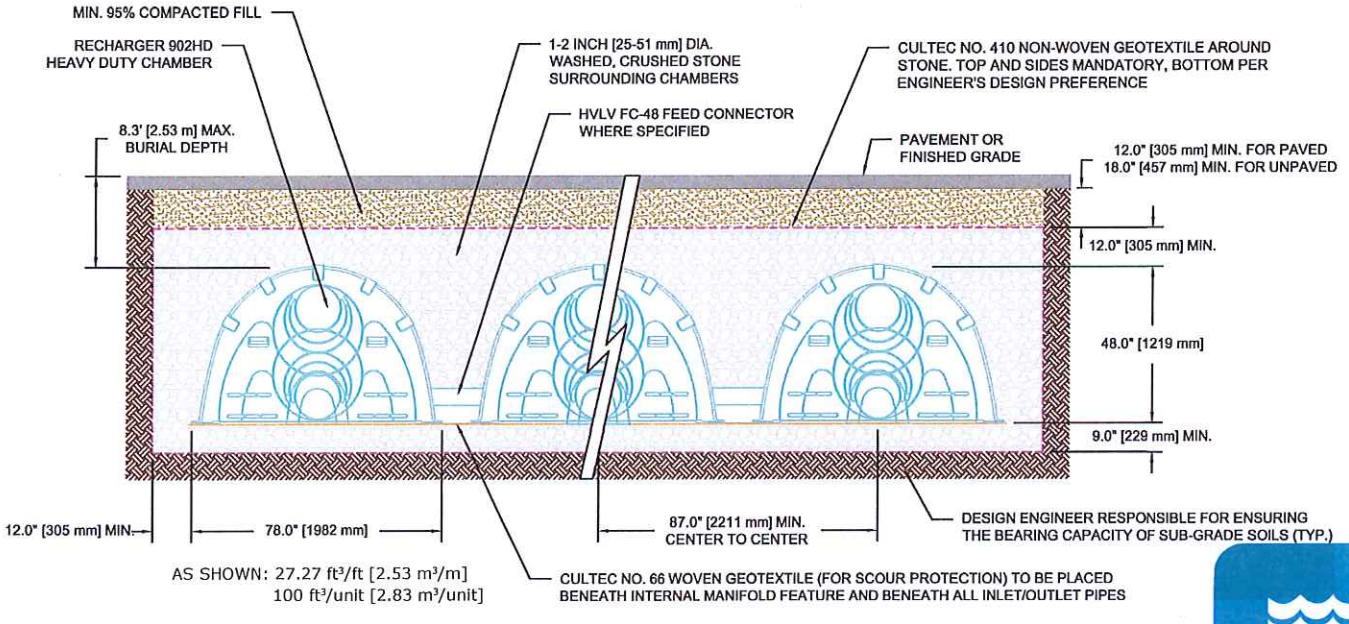
CULTEC Recharger® 902HD

Recharger 902HD Chamber	
Size (L x W x H)	4.10' x 78" x 48" 1.25 m x 1981 mm x 1219 mm
Installed Length	3.67' 1.12 m
Length Adjustment per Row - with two end caps installed	1.03' 0.31 m
Length Adjustment per Row - when not using end caps	0.44' 0.133 m
Chamber Storage	17.66 ft^3/ft 1.64 m^3/m 64.75 $ft^3/unit$ 1.84 $m^3/unit$
Min. Installed Storage	27.27 ft^3/ft 2.53 m^3/m 100 $ft^3/unit$ 2.83 $m^3/unit$
Min. Area Required	26.58 ft^2 2.47 m^2
Min. Center-to-Center Spacing	7.25' 2.21 m
Max. Allowable Cover	8.3' 2.53 m
Max. Allowable O.D. in Side Portal	11.5" 292 mm
Compatible Feed Connector	HVLV FC-48 Feed Connector

Recharger 902HD End Cap	
Size (L x W x H)	9.7" x 78" x 48.5" 246 mm x 1982 mm x 1231 mm
Installed Length	6.2" 157 mm
End Cap Storage	5.34 ft^3/ft 0.50 m^3/m 2.76 $ft^3/unit$ 0.08 $m^3/unit$
Min. Installed Storage	19.88 ft^3/ft 1.85 m^3/m 10.28 $ft^3/unit$ 0.96 $m^3/unit$
Max. Inlet Opening	24" 600 mm



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APPENDIX F

STANDARD CONSTRUCTION INSPECTION FORMS
STANDARD MAINTENANCE INSPECTION FORMS

Stormwater/Wetland Pond Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
Pre-Construction/Materials and Equipment		
Pre-construction meeting		
Pipe and appurtenances on-site prior to construction and dimensions checked		
1. Material (including protective coating, if specified)		
2. Diameter		
3. Dimensions of metal riser or pre-cast concrete outlet structure		
4. Required dimensions between water control structures (orifices, weirs, etc.) are in accordance with approved plans		
5. Barrel stub for prefabricated pipe structures at proper angle for design barrel slope		
6. Number and dimensions of prefabricated anti-seep collars		
7. Watertight connectors and gaskets		
8. Outlet drain valve		
Project benchmark near pond site		
Equipment for temporary de-watering		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
2. Subgrade Preparation		
Area beneath embankment stripped of all vegetation, topsoil, and organic matter		
3. Pipe Spillway Installation		
Method of installation detailed on plans		
A. Bed preparation		
Installation trench excavated with specified side slopes		
Stable, uniform, dry subgrade of relatively impervious material (If subgrade is wet, contractor shall have defined steps before proceeding with installation)		
Invert at proper elevation and grade		
B. Pipe placement		
Metal / plastic pipe		
1. Watertight connectors and gaskets properly installed		
2. Anti-seep collars properly spaced and having watertight connections to pipe		
3. Backfill placed and tamped by hand under "haunches" of pipe		
4. Remaining backfill placed in max. 8 inch lifts using small power tamping equipment until 2 feet cover over pipe is reached		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
3. Pipe Spillway Installation		
Concrete pipe		
1. Pipe set on blocks or concrete slab for pouring of low cradle		
2. Pipe installed with rubber gasket joints with no spalling in gasket interface area		
3. Excavation for lower half of anti-seep collar(s) with reinforcing steel set		
4. Entire area where anti-seep collar(s) will come in contact with pipe coated with mastic or other approved waterproof sealant		
5. Low cradle and bottom half of anti-seep collar installed as monolithic pour and of an approved mix		
6. Upper half of anti-seep collar(s) formed with reinforcing steel set		
7. Concrete for collar of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
8. Forms stripped and collar inspected for honeycomb prior to backfilling. Parge if necessary.		
C. Backfilling		
Fill placed in maximum 8 inch lifts		
Backfill taken minimum 2 feet above top of anti-seep collar elevation before traversing with heavy equipment		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
4. Riser / Outlet Structure Installation		
Riser located within embankment		
A. Metal riser		
Riser base excavated or formed on stable subgrade to design dimensions		
Set on blocks to design elevations and plumbed		
Reinforcing bars placed at right angles and projecting into sides of riser		
Concrete poured so as to fill inside of riser to invert of barrel		
B. Pre-cast concrete structure		
Dry and stable subgrade		
Riser base set to design elevation		
If more than one section, no spalling in gasket interface area; gasket or approved caulking material placed securely		
Watertight and structurally sound collar or gasket joint where structure connects to pipe spillway		
C. Poured concrete structure		
Footing excavated or formed on stable subgrade, to design dimensions with reinforcing steel set		
Structure formed to design dimensions, with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
Forms stripped & inspected for "honeycomb" prior to backfilling; parge if necessary		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Embankment Construction		
Fill material		
Compaction		
Embankment		
1. Fill placed in specified lifts and compacted with appropriate equipment		
2. Constructed to design cross-section, side slopes and top width		
3. Constructed to design elevation plus allowance for settlement		
6. Impounded Area Construction		
Excavated / graded to design contours and side slopes		
Inlet pipes have adequate outfall protection		
Forebay(s)		
Pond benches		
7. Earth Emergency Spillway Construction		
Spillway located in cut or structurally stabilized with riprap, gabions, concrete, etc.		
Excavated to proper cross-section, side slopes and bottom width		
Entrance channel, crest, and exit channel constructed to design grades and elevations		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
8. Outlet Protection		
A. End section		
Securely in place and properly backfilled		
B. Endwall		
Footing excavated or formed on stable subgrade, to design dimensions and reinforcing steel set, if specified		
Endwall formed to design dimensions with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing, if necessary)		
Forms stripped and structure inspected for "honeycomb" prior to backfilling; parge if necessary		
C. Riprap apron / channel		
Apron / channel excavated to design cross-section with proper transition to existing ground		
Filter fabric in place		
Stone sized as per plan and uniformly place at the thickness specified		
9. Vegetative Stabilization		
Approved seed mixture or sod		
Proper surface preparation and required soil amendments		
Excelsior mat or other stabilization, as per plan		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
10. Miscellaneous		
Drain for ponds having a permanent pool		
Trash rack / anti-vortex device secured to outlet structure		
Trash protection for low flow pipes, orifices, etc.		
Fencing (when required)		
Access road		
Set aside for clean-out maintenance		
11. Stormwater Wetlands		
Adequate water balance		
Variety of depth zones present		
Approved pondscaping plan in place Reinforcement budget for additional plantings		
Plants and materials ordered 6 months prior to construction		
Construction planned to allow for adequate planting and establishment of plant community (April-June planting window)		
Wetland buffer area preserved to maximum extent possible		

Comments:

Actions to be Taken:

Sand/Organic Filter System Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Pre-construction		
Pre-construction meeting		
Runoff diverted		
Facility area cleared		
Facility location staked out		
2. Excavation		
Size and location		
Side slopes stable		
Foundation cleared of debris		
If designed as exfilter, excavation does not compact subsoils		
Foundation area compacted		
3. Structural Components		
Dimensions and materials		
Forms adequately sized		
Concrete meets standards		
Prefabricated joints sealed		
Underdrains (size, materials)		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
4. Completed Facility Components		
24 hour water filled test		
Contributing area stabilized		
Filter material per specification		
Underdrains installed to grade		
Flow diversion structure properly installed		
Pretreatment devices properly installed		
Level overflow weirs, multiple orifices, distribution slots		
5. Final Inspection		
Dimensions		
Surface completely level		
Structural components		
Proper outlet		
Ensure that site is properly stabilized before flow is directed to the structure.		

Comments:

Actions to be Taken:

Bioretention Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility area cleared		
If designed as exfilter, soil testing for permeability		
Facility location staked out		
2. Excavation		
Size and location		
Lateral slopes completely level		
If designed as exfilter, ensure that excavation does not compact susoils.		
Longitudinal slopes within design range		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
3. Structural Components		
Stone diaphragm installed correctly		
Outlets installed correctly		
Underdrain		
Pretreatment devices installed		
Soil bed composition and texture		
4. Vegetation		
Complies with planting specs		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		
5. Final Inspection		
Dimensions		
Proper stone diaphragm		
Proper outlet		
Soil/ filter bed permeability testing		
Effective stand of vegetation and stabilization		
Construction generated sediments removed		
Contributing watershed stabilized before flow is diverted to the practice		

Comments:

Actions to be Taken:

Open Channel System Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility location staked out		
2. Excavation		
Size and location		
Side slope stable		
Soil permeability		
Groundwater / bedrock		
Lateral slopes completely level		
Longitudinal slopes within design range		
Excavation does not compact subsoils		
3. Check dams		
Dimensions		
Spacing		
Materials		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
4. Structural Components		
Underdrain installed correctly		
Inflow installed correctly		
Pretreatment devices installed		
5. Vegetation		
Complies with planting specifications		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		
6. Final inspection		
Dimensions		
Check dams		
Proper outlet		
Effective stand of vegetation and stabilization		
Contributing watershed stabilized before flow is routed to the factility		

Comments:

Actions to be Taken:

BIO-RETENTION AREA
MAINTENANCE AND INSPECTION CHECKLIST

Section A: General Information

Site:	NYSDEC SPDES Permit No.:
Site Location:	Bio-Retention Area ID:
Date:	Time:
Weather:	
Inspector:	

Section B: Debris Cleanout

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Bioretention and contributing areas clean of debris	☐	☐	☐	
2.No dumping of yard waste or trash into practice	☐	☐	☐	
3.Litter (branches, etc.) have been removed	☐	☐	☐	
4. Other (specify)	☐	☐	☐	

Section C: Vegetation

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Plant height	☐	☐	☐	
2.Fertilized per specifications	☐	☐	☐	
3.No placement or growth of inappropriate plants	☐	☐	☐	
4.Grass height not greater than 6 inches	☐	☐	☐	
5.No evidence of erosion	☐	☐	☐	
6. Other (specify)	☐	☐	☐	

Section D: Check Dams/Energy Dissipaters/Outlet Structure

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.No evidence of sediment buildup	☐	☐	☐	
2.Sumps should not be more than 50% full of sediment	☐	☐	☐	
3.No evidence of erosion at downstream toe of structure	☐	☐	☐	
4. Integrity of structure	☐	☐	☐	
5. Cleaning necessary	☐	☐	☐	
6. Other (Specify)	☐	☐	☐	

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BIO-RETENTION AREA
MAINTENANCE AND INSPECTION CHECKLIST

Section E: Dewatering

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Dewaters between storms within 2 days	☐	☐	☐	
2.No evidence of standing water	☐	☐	☐	
3. Other (specify)	☐	☐	☐	

Section F: Sediment Deposition/Pre-Treatment

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Sediments should not be >1" deep	☐	☐	☐	
2. Gravel Diaphragm Condition	☐	☐	☐	
3. Grass Filter Condition	☐	☐	☐	
4. Other (specify)	☐	☐	☐	

Section G: Outlet/Overflow Spillway

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Good Condition, no need for repair	☐	☐	☐	
2.No evidence of erosion	☐	☐	☐	
3.No evidence of any blockages	☐	☐	☐	
4. Other (specify)	☐	☐	☐	

Section H: Integrity of Filter Bed

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Filter bed has not been blocked or filled inappropriately	☐	☐	☐	
2.Other (specify)	☐	☐	☐	

Section I: Comments

_____

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Section J: Actions Required

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_____

_____

_____

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UNDERGROUND SAND FILTRATION SYSTEM
MAINTENANCE AND INSPECTION CHECKLIST

Section A: General Information

Site:	NYSDEC SPDES Permit No.:
Site Location:	Area ID:
Date:	Time:
Weather:	
Inspector:	

Do not enter the system unless properly trained, equipped and qualified to enter a confined space as identified by local occupational safety and health regulations.

Section B: Debris Cleanout

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Filter area and contributing areas clean of debris	☐	☐	☐	
2. Facility clean of debris	☐	☐	☐	
3.Inlets/trash racks and outlets clear of debris	☐	☐	☐	
4. Other (specify)	☐	☐	☐	

Section C: Filter Bed Condition

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.No evidence of filter surface clogging	☐	☐	☐	
2.Filter bed drains within 48 hours of storm	☐	☐	☐	
3. Other (specify)	☐	☐	☐	

Section D: Vegetation

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Contributing drainage area stabilized	☐	☐	☐	
2. No evidence of erosion in contributing areas	☐	☐	☐	
3. Other (specify)	☐	☐	☐	

Section E: Water Retention

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Water quantity areas temporarily holding water during storms	☐	☐	☐	
2.No evidence of leakage	☐	☐	☐	
3. Other (specify)	☐	☐	☐	

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UNDERGROUND SAND FILTRATION SYSTEM
MAINTENANCE AND INSPECTION CHECKLIST

Section F: Sediment Deposition

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Sediments should not be >1" deep in filter bed area	☐	☐	☐	
2. Isolation row not more than half full of sediments	☐	☐	☐	
3. Other (specify)	☐	☐	☐	

Section G: Structural Components

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.No evidence of structural deterioration	☐	☐	☐	
2.Any grates are in good condition	☐	☐	☐	
3. No evidence of erosion (if draining into a natural channel)	☐	☐	☐	
4. Other (specify)	☐	☐	☐	

Section H: Outlet/Overflow Spillway

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Good Condition, no need for repairs	☐	☐	☐	
2.No evidence of erosion (if draining into a natural channel)	☐	☐	☐	
3. Other (specify)	☐	☐	☐	

Section I: Overall Function of Facility

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Evidence of flow bypassing facility	☐	☐	☐	
2.No noticeable odors outside of facility	☐	☐	☐	
3. Other (specify)	☐	☐	☐	

Section J: Comments

_____

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Section K: Actions Required

_____

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_____

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STORMWATER POND
MAINTENANCE AND INSPECTION CHECKLIST

Section A: General Information

Site: Wallkill Gardens	NYSDEC SPDES Permit No.: NYR10Q792
Site Location: Town of Wallkill, NY	Stormwater Pond ID:
Date:	Time:
Weather:	
Inspector:	

Section B: Embankment and emergency spillway

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1. Vegetation and ground cover adequate	☐	☐	☐	
2. Embankment erosion	☐	☐	☐	
3. Animal burrows	☐	☐	☐	
4. Unauthorized planting	☐	☐	☐	
5. Cracking, bulging, or sliding of berm	☐	☐	☐	
a. Upstream face	☐	☐	☐	
b. Downstream face	☐	☐	☐	
c. At or beyond toe downstream	☐	☐	☐	
upstream	☐	☐	☐	
d. Emergency spillway	☐	☐	☐	
6. Pond, toe & chimney drains clear and functioning	☐	☐	☐	
7. Seeps/leaks on downstream face	☐	☐	☐	
8. Slope protection or riprap failure	☐	☐	☐	
9. Emergency spillway clear of obstructions and debris	☐	☐	☐	
10. Other (specify)	☐	☐	☐	

Section C: Outlet Structure

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Pipe Type: Size Reinforced concrete ____ Corrugated metal ____ HDPE ____	☐	☐	☐	
2.Low flow orifice obstructed	☐	☐	☐	
3. Low flow trash rack. a. Debris removal necessary	☐	☐	☐	

b. Corrosion	☐	☐	☐	
4. Weir trash rack maintenance a. Debris removal necessary	☐	☐	☐	
b. Corrosion	☐	☐	☐	
5. Excessive sediment accumulation inside outlet structure	☐	☐	☐	
6. Concrete/masonry condition outlet structure and barrels a. cracks or displacement	☐	☐	☐	
b. Minor spalling (<1")	☐	☐	☐	
c. Major spalling (rebars exposed)	☐	☐	☐	
d. Joint failures	☐	☐	☐	
e. Water tightness	☐	☐	☐	
7. Pipe condition	☐	☐	☐	
8. Control valve a. Operation/exercised	☐	☐	☐	
9. Pond drain valve a. Operation/exercised	☐	☐	☐	
10. Chained/locked	☐	☐	☐	
11. Outfall channels functioning	☐	☐	☐	
12. Other (specify)	☐	☐	☐	

Section D: Permanent Pool

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1. Undesirable vegetative growth	☐	☐	☐	
2. Floating or floatable debris removal required	☐	☐	☐	
3. Visible pollution	☐	☐	☐	
4. Shoreline problem	☐	☐	☐	
5. Other (specify)	☐	☐	☐	

Section E: Sediment Forebays

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1. Sedimentation noted	☐	☐	☐	
2. Sediment cleanout required (depth <50% design depth)	☐	☐	☐	
3.Other (specify)	☐	☐	☐	

STORMWATER POND
MAINTENANCE AND INSPECTION CHECKLIST

Section F: Dry Pond Areas

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1. Vegetation Adequate	☐	☐	☐	
2. Undesirable vegetative growth	☐	☐	☐	
3. Undesirable woody vegetation	☐	☐	☐	
4. Low flow channels clear of obstructions	☐	☐	☐	
5. Standing water or wet areas	☐	☐	☐	
6. Sediment and/or trash accumulation	☐	☐	☐	
7. Other (specify)	☐	☐	☐	

Section G: Condition of Outfalls

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1. Riprap failures	☐	☐	☐	
2. Slope erosion	☐	☐	☐	
3. Storm drain pipes condition	☐	☐	☐	
4. Endwalls/Headwalls	☐	☐	☐	
5. Other (specify)	☐	☐	☐	

Section H: Other (Misc.)

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1. Any Encroachment on pond, wetland or easement area	☐	☐	☐	
2. Complaints from residents	☐	☐	☐	
3. Aesthetics a. Grass growing required	☐	☐	☐	
b. Vandalism Repairs needed	☐	☐	☐	
c. Other (specify)	☐	☐	☐	
4. Conditions of maintenance access routes	☐	☐	☐	
5. Any public hazards (specify)	☐	☐	☐	

STORMWATER POND
MAINTENANCE AND INSPECTION CHECKLIST

Section I: Comments

_____
_____
_____
_____
_____
_____

Section J: Actions Required

_____
_____
_____
_____
_____
_____
_____

OPEN CHANNEL (SWALE)
MAINTENANCE AND INSPECTION CHECKLIST

Section A: General Information

Site:	NYSDEC SPDES Permit No.:
Site Location:	Open Channel ID:
Date:	Time:
Weather:	
Inspector:	

Section B: Debris Cleanout

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Contributing areas clean of debris	☐	☐	☐	
2. Other (specify)	☐	☐	☐	

Section C: Check Dams or Energy Dissipators

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.No evidence of flow outside swale line	☐	☐	☐	
2.No evidence of erosion within swale	☐	☐	☐	
3. Other (specify)	☐	☐	☐	

Section D: Vegetation

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Mowing done when needed	☐	☐	☐	
2.Minimum mowing depth not exceeded 6"-8"	☐	☐	☐	
3.No evidence of erosion	☐	☐	☐	
4.Fertilized per specification	☐	☐	☐	
5. Other (specify)	☐	☐	☐	

Section E: Dewatering

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Dewaters between storms	☐	☐	☐	
2. Other (specify)	☐	☐	☐	

Section F: Sediment Deposition

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Clean of sediment	☐	☐	☐	
2. Other (specify)	☐	☐	☐	

OPEN CHANNEL (SWALE)
MAINTENANCE AND INSPECTION CHECKLIST

Section G: Outlet/Overflow Spillway

Maintenance Item	Satisfactory	Unsatisfactory	N/A	Comments
1.Good Condition, no need for repair	☐	☐	☐	
2.No evidence of erosion	☐	☐	☐	
3. Other (specify)	☐	☐	☐	

Section H: Comments

_____
_____
_____
_____
_____
_____

Section I: Actions Required

_____
_____
_____
_____
_____
_____

CATCH BASIN
MAINTENANCE AND INSPECTION CHECKLIST

Section A: General Information

Site:	NYSDEC SPDES Permit No.:
Site Location:	
Date:	Time:
Weather:	
Inspector:	

Section B: Catch Basin Conditions

CB ID. CB Location:	□Standing Water □Cleaning Necessary □ Sump □Trash/debris □Repairs Necessary □Pipe Damage □Sediment □Grate Damaged □Structure Damaged
Notes:	
CB ID. CB Location:	□Standing Water □Cleaning Necessary □ Sump □Trash/debris □Repairs Necessary □Pipe Damage □Sediment □Grate Damaged □Structure Damaged
Notes:	
CB ID. CB Location:	□Standing Water □Cleaning Necessary □ Sump □Trash/debris □Repairs Necessary □Pipe Damage □Sediment □Grate Damaged □Structure Damaged
Notes:	
CB ID. CB Location:	□Standing Water □Cleaning Necessary □ Sump □Trash/debris □Repairs Necessary □Pipe Damage □Sediment □Grate Damaged □Structure Damaged
Notes:	

Lanc & Tully Engineering and Surveying, P.C.
Goshen, NY 10924
Phone: (845)294-3700 Fax: (845)294-8609 E-Mail: eng@lanctully.com

CATCH BASIN
MAINTENANCE AND INSPECTION CHECKLIST

CB ID. CB Location:	□Standing Water □Cleaning Necessary □ Sump □Trash/debris □Repairs Necessary □Pipe Damage □Sediment □Grate Damaged □Structure Damaged
Notes:	
CB ID. CB Location:	□Standing Water □Cleaning Necessary □ Sump □Trash/debris □Repairs Necessary □Pipe Damage □Sediment □Grate Damaged □Structure Damaged
Notes:	
CB ID. CB Location:	□Standing Water □Cleaning Necessary □ Sump □Trash/debris □Repairs Necessary □Pipe Damage □Sediment □Grate Damaged □Structure Damaged
Notes:	
CB No. Location:	□Standing Water □Cleaning Necessary □ Sump □Trash/debris □Repairs Necessary □Pipe Damage □Sediment □Grate Damaged □Structure Damaged
Notes:	
CB ID. CB Location:	□Standing Water □Cleaning Necessary □ Sump □Trash/debris □Repairs Necessary □Pipe Damage □Sediment □Grate Damaged □Structure Damaged
Notes:	

Lanc & Tully Engineering and Surveying, P.C.
Goshen, NY 10924
Phone: (845)294-3700 Fax: (845)294-8609 E-Mail: eng@lanctully.com

APPENDIX G

NOTICE OF INTENT
NOTICE OF TERMINATION
MS4 SWPPP ACCEPTANCE

0806372691

NOTICE OF INTENT

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

NYR [ ][ ][ ][ ][ ][ ]
(for DEC use only)

Stormwater Discharges Associated with Construction Activity Under State Pollutant Discharge Elimination System (SPDES) General Permit # GP-0-15-002

All sections must be completed unless otherwise noted. Failure to complete all items may result in this form being returned to you, thereby delaying your coverage under this General Permit. Applicants must read and understand the conditions of the permit and prepare a Stormwater Pollution Prevention Plan prior to submitting this NOI. Applicants are responsible for identifying and obtaining other DEC permits that may be required.

-IMPORTANT-

RETURN THIS FORM TO THE ADDRESS ABOVE

OWNER/OPERATOR **MUST SIGN FORM**

Owner/Operator Information

Owner/Operator (Company Name/Private Owner Name/Municipality Name)

Owner/Operator Contact Person Last Name (NOT CONSULTANT)

Owner/Operator Contact Person First Name

Owner/Operator Mailing Address

City

State

Zip -

Phone (Owner/Operator) - -

Fax (Owner/Operator) - -

Email (Owner/Operator)

FED TAX ID -
(not required for individuals)

Project Site Information

Project/Site Name

Street Address (NOT P.O. BOX)

Side of Street

○ **North** ○ **South** ○ **East** ○ **West**

City/Town/Village (THAT ISSUES BUILDING PERMIT)

State N Y Zip - County DEC Region

Name of Nearest Cross Street

Distance to Nearest Cross Street (Feet)

Project In Relation to Cross Street

○ **North** ○ **South** ○ **East** ○ **West**

Tax Map Numbers
Section-Block-Parcel

Tax Map Numbers

1. Provide the Geographic Coordinates for the project site in NYTM Units. To do this you **must** go to the NYSDEC Stormwater Interactive Map on the DEC website at:

www.dec.ny.gov/imsmaps/stormwater/viewer.htm

Zoom into your Project Location such that you can accurately click on the centroid of your site. Once you have located your project site, go to the tool boxes on the top and choose "i"(identify). Then click on the center of your site and a new window containing the X, Y coordinates in UTM will pop up. Transcribe these coordinates into the boxes below. For problems with the interactive map use the help function.

X Coordinates (Easting)

Y Coordinates (Northing) 4

2. What is the nature of this construction project?

○ **New Construction**

○ **Redevelopment with increase in impervious area**

○ **Redevelopment with no increase in impervious area**

3. Select the predominant land use for both pre and post development conditions.
SELECT ONLY ONE CHOICE FOR EACH

Pre-Development Existing Land Use

- O FOREST
- O PASTURE/OPEN LAND
- O CULTIVATED LAND
- O SINGLE FAMILY HOME
- O SINGLE FAMILY SUBDIVISION
- O TOWN HOME RESIDENTIAL
- O MULTIFAMILY RESIDENTIAL
- O INSTITUTIONAL/SCHOOL
- O INDUSTRIAL
- O COMMERCIAL
- O ROAD/HIGHWAY
- O RECREATIONAL/SPORTS FIELD
- O BIKE PATH/TRAIL
- O LINEAR UTILITY
- O PARKING LOT
- O OTHER

Post-Development Future Land Use

- O SINGLE FAMILY HOME
- O SINGLE FAMILY SUBDIVISION — Number of Lots
- O TOWN HOME RESIDENTIAL
- O MULTIFAMILY RESIDENTIAL
- O INSTITUTIONAL/SCHOOL
- O INDUSTRIAL
- O COMMERCIAL
- O MUNICIPAL
- O ROAD/HIGHWAY
- O RECREATIONAL/SPORTS FIELD
- O BIKE PATH/TRAIL
- O LINEAR UTILITY (water, sewer, gas, etc.)
- O PARKING LOT
- O CLEARING/GRADING ONLY
- O DEMOLITION, NO REDEVELOPMENT
- O WELL DRILLING ACTIVITY *(Oil, Gas, etc.)
- O OTHER

***Note:** for gas well drilling, non-high volume hydraulic fractured wells only

4. In accordance with the larger common plan of development or sale, enter the total project site area; the total area to be disturbed; existing impervious area to be disturbed (for redevelopment activities); and the future impervious area constructed within the disturbed area. (Round to the nearest tenth of an acre.)

Total Site Area	Total Area To Be Disturbed	Existing Impervious Area To Be Disturbed	Future Impervious Area Within Disturbed Area
____.__	____.__	____.__	____.__

5. Do you plan to disturb more than 5 acres of soil at any one time? O **Yes** O **No**

6. Indicate the percentage of each Hydrologic Soil Group(HSG) at the site.

A	B	C	D
___ %	___ %	___ %	___ %

7. Is this a phased project? O **Yes** O **No**

8. Enter the planned start and end dates of the disturbance activities.

Start Date __ / __ / ____ – **End Date** __ / __ / ____

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.

Name

9a. Type of waterbody identified in Question 9?

- ○ Wetland / State Jurisdiction On Site (Answer 9b)
- ○ Wetland / State Jurisdiction Off Site
- ○ Wetland / Federal Jurisdiction On Site (Answer 9b)
- ○ Wetland / Federal Jurisdiction Off Site
- ○ Stream / Creek On Site
- ○ Stream / Creek Off Site
- ○ River On Site
- ○ River Off Site
- ○ Lake On Site
- ○ Lake Off Site
- ○ Other Type On Site
- ○ Other Type Off Site

9b. How was the wetland identified?

- ○ Regulatory Map
- ○ Delineated by Consultant
- ○ Delineated by Army Corps of Engineers
- ○ Other (identify)

10. Has the surface waterbody(ies) in question 9 been identified as a 303(d) segment in Appendix E of GP-0-15-002? ○ **Yes** ○ **No**

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-15-002? ○ **Yes** ○ **No**

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters? ○ **Yes** ○ **No**
If no, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey? ○ **Yes** ○ **No**
If Yes, what is the acreage to be disturbed?

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area? ○ **Yes** ○ **No**

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)? ○ **Yes** ○ **No** ○ **Unknown**

16. What is the name of the municipality/entity that owns the separate storm sewer system?

17. Does any runoff from the site enter a sewer classified as a Combined Sewer? ○ **Yes** ○ **No** ○ **Unknown**

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law? ○ **Yes** ○ **No**

19. Is this property owned by a state authority, state agency, federal government or local government? ○ **Yes** ○ **No**

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) ○ **Yes** ○ **No**

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)? ○ **Yes** ○ **No**

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)? ○ **Yes** ○ **No**
If No, skip questions 23 and 27-39.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual? ○ **Yes** ○ **No**

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:

- ○ **Professional Engineer (P.E.)**
- ○ **Soil and Water Conservation District (SWCD)**
- ○ **Registered Landscape Architect (R.L.A)**
- ○ **Certified Professional in Erosion and Sediment Control (CPESC)**
- ○ **Owner/Operator**
- ○ **Other**

SWPPP Preparer

Contact Name (Last, Space, First)

Mailing Address

City

State Zip -

Phone - -

Fax - -

Email

SWPPP Preparer Certification

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) for this project has been prepared in accordance with the terms and conditions of the GP-0-15-002. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of this permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

First Name **MI**

Last Name

Signature

Date / /

25. Has a construction sequence schedule for the planned management practices been prepared? ○ Yes ○ No

26. Select **all** of the erosion and sediment control practices that will be employed on the project site:

Temporary Structural

- ○ Check Dams
- ○ Construction Road Stabilization
- ○ Dust Control
- ○ Earth Dike
- ○ Level Spreader
- ○ Perimeter Dike/Swale
- ○ Pipe Slope Drain
- ○ Portable Sediment Tank
- ○ Rock Dam
- ○ Sediment Basin
- ○ Sediment Traps
- ○ Silt Fence
- ○ Stabilized Construction Entrance
- ○ Storm Drain Inlet Protection
- ○ Straw/Hay Bale Dike
- ○ Temporary Access Waterway Crossing
- ○ Temporary Stormdrain Diversion
- ○ Temporary Swale
- ○ Turbidity Curtain
- ○ Water bars

Biotechnical

- ○ Brush Matting
- ○ Wattling

Vegetative Measures

- ○ Brush Matting
- ○ Dune Stabilization
- ○ Grassed Waterway
- ○ Mulching
- ○ Protecting Vegetation
- ○ Recreation Area Improvement
- ○ Seeding
- ○ Sodding
- ○ Straw/Hay Bale Dike
- ○ Streambank Protection
- ○ Temporary Swale
- ○ Topsoiling
- ○ Vegetating Waterways

Permanent Structural

- ○ Debris Basin
- ○ Diversion
- ○ Grade Stabilization Structure
- ○ Land Grading
- ○ Lined Waterway (Rock)
- ○ Paved Channel (Concrete)
- ○ Paved Flume
- ○ Retaining Wall
- ○ Riprap Slope Protection
- ○ Rock Outlet Protection
- ○ Streambank Protection

Other

Post-construction Stormwater Management Practice (SMP) Requirements

Important: Completion of Questions 27-39 is not required if response to Question 22 is No.

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

O **Preservation of Undisturbed Areas**

O **Preservation of Buffers**

O **Reduction of Clearing and Grading**

O **Locating Development in Less Sensitive Areas**

O **Roadway Reduction**

O **Sidewalk Reduction**

O **Driveway Reduction**

O **Cul-de-sac Reduction**

O **Building Footprint Reduction**

O **Parking Reduction**

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (2010 version).

O All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

O Compacted areas were considered as impervious cover when calculating the **WQv Required**, and the compacted areas were assigned a post-construction Hydrologic Soil Group (HSG) designation that is one level less permeable than existing conditions for the hydrology analysis.

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout).

Total WQv Required

[ ][ ][ ].[ ][ ][ ] **acre-feet**

29. Identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity in Table 1 (See Page 9) that were used to reduce the Total WQv Required(#28).

Also, provide in Table 1 the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use Tables 1 and 2 to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

Table 1 - Runoff Reduction (RR) Techniques and Standard Stormwater Management Practices (SMPs)

	Total Contributing Area (acres)		Total Contributing Impervious Area (acres)
RR Techniques (Area Reduction)			
○ Conservation of Natural Areas (RR-1) ...	___.___	and/or	___.___
○ Sheetflow to Riparian Buffers/Filters Strips (RR-2)	___.___	and/or	___.___
○ Tree Planting/Tree Pit (RR-3)	___.___	and/or	___.___
○ Disconnection of Rooftop Runoff (RR-4) ..	___.___	and/or	___.___
RR Techniques (Volume Reduction)			
○ Vegetated Swale (RR-5)			___.___
○ Rain Garden (RR-6)			___.___
○ Stormwater Planter (RR-7)			___.___
○ Rain Barrel/Cistern (RR-8)			___.___
○ Porous Pavement (RR-9)			___.___
○ Green Roof (RR-10)			___.___
Standard SMPs with RRv Capacity			
○ Infiltration Trench (I-1)			___.___
○ Infiltration Basin (I-2)			___.___
○ Dry Well (I-3)			___.___
○ Underground Infiltration System (I-4)			___.___
○ Bioretention (F-5)			___.___
○ Dry Swale (O-1)			___.___
Standard SMPs			
○ Micropool Extended Detention (P-1)			___.___
○ Wet Pond (P-2)			___.___
○ Wet Extended Detention (P-3)			___.___
○ Multiple Pond System (P-4)			___.___
○ Pocket Pond (P-5)			___.___
○ Surface Sand Filter (F-1)			___.___
○ Underground Sand Filter (F-2)			___.___
○ Perimeter Sand Filter (F-3)			___.___
○ Organic Filter (F-4)			___.___
○ Shallow Wetland (W-1)			___.___
○ Extended Detention Wetland (W-2)			___.___
○ Pond/Wetland System (W-3)			___.___
○ Pocket Wetland (W-4)			___.___
○ Wet Swale (O-2)			___.___

Table 2 - Alternative SMPs
(DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Alternative SMP	Total Contributing Impervious Area (acres)
○ Hydrodynamic	
○ Wet Vault	
○ Media Filter	
○ Other	

Provide the name and manufacturer of the Alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Name

Manufacturer

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29.

Total RRv provided

acre-feet

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28).

○ Yes ○ No

If Yes, go to question 36.
If No, go to question 32.

32. Provide the Minimum RRv required based on HSG.
[Minimum RRv Required = (P)(0.95)(Ai)/12, Ai=(S)(Aic)]

Minimum RRv Required

acre-feet

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

○ Yes ○ No

If Yes, go to question 33.
Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. Identify the Standard SMPs in Table 1 and, if applicable, the Alternative SMPs in Table 2 that were used to treat the remaining total WQv(=Total WQv Required in 28 - Total RRv Provided in 30).

Also, provide in Table 1 and 2 the total impervious area that contributes runoff to each practice selected.

Note: Use Tables 1 and 2 to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question 29.

WQv Provided

[ ][ ][ ].[ ][ ][ ] **acre-feet**

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - RRv provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a). [ ][ ][ ].[ ][ ][ ]

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)? ○ **Yes** ○ **No**

If Yes, go to question 36.
If No, sizing criteria has not been met, so NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv) required and provided or select waiver (36a), if applicable.

CPv Required

[ ][ ][ ].[ ][ ][ ] **acre-feet**

CPv Provided

[ ][ ][ ].[ ][ ][ ] **acre-feet**

36a. The need to provide channel protection has been waived because:

○ Site discharges directly to tidal waters or a fifth order or larger stream.

○ Reduction of the total CPv is achieved on site through runoff reduction techniques or infiltration systems.

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (37a), if applicable.

Total Overbank Flood Control Criteria (Qp)

Pre-Development

[ ][ ][ ].[ ][ ][ ] CFS

Post-development

[ ][ ][ ].[ ][ ][ ] CFS

Total Extreme Flood Control Criteria (Qf)

Pre-Development

[ ][ ][ ].[ ][ ][ ] CFS

Post-development

[ ][ ][ ].[ ][ ][ ] CFS

37a. The need to meet the Qp and Qf criteria has been waived because:

- ○ Site discharges directly to tidal waters or a fifth order or larger stream.
- ○ Downstream analysis reveals that the Qp and Qf controls are not required

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed? ○ **Yes** ○ **No**

If Yes, Identify the entity responsible for the long term Operation and Maintenance

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required(#28). (See question 32a) This space can also be used for other pertinent project information.

40. Identify other DEC permits, existing and new, that are required for this project/facility.

O Air Pollution Control

O Coastal Erosion

O Hazardous Waste

O Long Island Wells

O Mined Land Reclamation

O Solid Waste

O Navigable Waters Protection / Article 15

O Water Quality Certificate

O Dam Safety

O Water Supply

O Freshwater Wetlands/Article 24

O Tidal Wetlands

O Wild, Scenic and Recreational Rivers

O Stream Bed or Bank Protection / Article 15

O Endangered or Threatened Species(Incidental Take Permit)

O Individual SPDES

O SPDES Multi-Sector GP N Y R

O Other

O None

41. Does this project require a US Army Corps of Engineers Wetland Permit? O **Yes** O **No**
If Yes, Indicate Size of Impact. .

42. Is this project subject to the requirements of a regulated, traditional land use control MS4? O **Yes** O **No**
(If No, skip question 43)

43. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI? O **Yes** O **No**

44. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned. N Y R

Owner/Operator Certification

I have read or been advised of the permit conditions and believe that I understand them. I also understand that, under the terms of the permit, there may be reporting requirements. I hereby certify that this document and the corresponding documents were prepared under my direction or supervision. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further understand that coverage under the general permit will be identified in the acknowledgment that I will receive as a result of submitting this NOI and can be as long as sixty (60) business days as provided for in the general permit. I also understand that, by submitting this NOI, I am acknowledging that the SWPPP has been developed and will be implemented as the first element of construction, and agreeing to comply with all the terms and conditions of the general permit for which this NOI is being submitted.

Print First Name

MI

Print Last Name

Owner/Operator Signature

Date

/ /

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

4b. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. □ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP. ***Date final stabilization completed** (month/year): _____

9b. □ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. □ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? □ yes □ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? □ yes □ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? □ yes □ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

□ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.

□ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).

□ For post-construction stormwater management practices that are privately owned, a mechanism is in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

□ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, university or hospital), government agency or authority, or public utility; policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? □ yes □ no

(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:

(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:	
Title/Position:	
Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued	
VII. Qualified Inspector Certification - Final Stabilization:	
I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):	
I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
IX. Owner or Operator Certification	
I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2015)

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

NYS Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form

for

Construction Activities Seeking Authorization Under SPDES General Permit

*(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information
1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:
II. Project Site Information
5. Project/Site Name:
6. Street Address:
7. City/State/Zip:
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information
8. SWPPP Reviewed by:
9. Title/Position:
10. Date Final SWPPP Reviewed and Accepted:
IV. Regulated MS4 Information
11. Name of MS4:
12. MS4 SPDES Permit Identification Number: NYR20A _____
13. Contact Person:
14. Street Address:
15. City/State/Zip:
16. Telephone Number:

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

(NYS DEC - MS4 SWPPP Acceptance Form - January 2015)

APPENDIX H

CONSTRUCTION SITE LOG BOOK
CONTRACTOR'S CERTIFICATION FORM

APPENDIX F
CONSTRUCTION SITE INSPECTION AND MAINTENANCE LOG BOOK

STATE POLLUTANT DISCHARGE ELIMINATION SYSTEM FOR CONSTRUCTION ACTIVITIES

SAMPLE CONSTRUCTION SITE LOG BOOK

Table of Contents

I. Pre-Construction Meeting Documents
   a. Preamble to Site Assessment and Inspections
   b. Pre-Construction Site Assessment Checklist

II. Construction Duration Inspections
   a. Directions
   b. Modification to the SWPPP

I. PRE-CONSTRUCTION MEETING DOCUMENTS

Project Name _____

Permit No. _____ **Date of Authorization** _____

Name of Operator _____

Prime Contractor _____

a. Preamble to Site Assessment and Inspections

The Following Information To Be Read By All Person's Involved in The Construction of Stormwater Related Activities:

The Operator agrees to have a qualified inspector[1] conduct an assessment of the site prior to the commencement of construction[2] and certify in this inspection report that the appropriate erosion and sediment controls described in the SWPPP have been adequately installed or implemented to ensure overall preparedness of the site for the commencement of construction.

Prior to the commencement of construction, the Operator shall certify in this site logbook that the SWPPP has been prepared in accordance with the State's standards and meets all Federal, State and local erosion and sediment control requirements.

When construction starts, site inspections shall be conducted by the qualified inspector at least every 7 calendar days. The Operator shall maintain a record of all inspection reports in this site logbook. The site logbook shall be maintained on site and be made available to the permitting authorities upon request.

Prior to filing the Notice of Termination or the end of permit term, the Operator shall have a qualified inspector perform a final site inspection. The qualified inspector shall certify that the site has undergone final stabilization[3] using either vegetative or structural stabilization methods and that all temporary erosion and sediment controls (such as silt fencing) not needed for long-term erosion control have been removed. In addition, the Operator must identify and certify that all permanent structures described in the SWPPP have been constructed and provide the owner(s) with an operation and maintenance plan that ensures the structure(s) continuously functions as designed.

1 Refer to "Qualified Inspector" inspection requirements in the current SPDES General Permit for Stormwater Discharges from Construction Activity for complete list of inspection requirements.
2 "Commencement of construction" means the initial removal of vegetation and disturbance of soils associated with clearing, grading or excavating activities or other construction activities.
3 "Final stabilization" means that all soil-disturbing activities at the site have been completed and a uniform, perennial vegetative cover with a density of eighty (80) percent has been established or equivalent stabilization measures (such as the use of mulches or geotextiles) have been employed on all unpaved areas and areas not covered by permanent structures.

b. Pre-construction Site Assessment Checklist
(NOTE: Provide comments below as necessary)

1. Notice of Intent, SWPPP, and Contractors Certification:

Yes No NA

[ ] [ ] [ ] Has a Notice of Intent been filed with the NYS Department of Conservation?
[ ] [ ] [ ] Is the SWPPP on-site? Where?_____
[ ] [ ] [ ] Is the Plan current? What is the latest revision date?_____
[ ] [ ] [ ] Is a copy of the NOI (with brief description) onsite? Where?_____
[ ] [ ] [ ] Have all contractors involved with stormwater related activities signed a contractor's certification?

2. Resource Protection

Yes No NA

[ ] [ ] [ ] Are construction limits clearly flagged or fenced?
[ ] [ ] [ ] Important trees and associated rooting zones, on-site septic system absorption fields, existing vegetated areas suitable for filter strips, especially in perimeter areas, have been flagged for protection.
[ ] [ ] [ ] Creek crossings installed prior to land-disturbing activity, including clearing and blasting.

3. Surface Water Protection

Yes No NA

[ ] [ ] [ ] Clean stormwater runoff has been diverted from areas to be disturbed.
[ ] [ ] [ ] Bodies of water located either on site or in the vicinity of the site have been identified and protected.
[ ] [ ] [ ] Appropriate practices to protect on-site or downstream surface water are installed.
[ ] [ ] [ ] Are clearing and grading operations divided into areas <5 acres?

4. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] A temporary construction entrance to capture mud and debris from construction vehicles before they enter the public highway has been installed.
[ ] [ ] [ ] Other access areas (entrances, construction routes, equipment parking areas) are stabilized immediately as work takes place with gravel or other cover.
[ ] [ ] [ ] Sediment tracked onto public streets is removed or cleaned on a regular basis.

5. Perimeter Sediment Controls

Yes No NA

[ ] [ ] [ ] Silt fence material and installation comply with the standard drawing and specifications.
[ ] [ ] [ ] Silt fences are installed at appropriate spacing intervals
[ ] [ ] [ ] Sediment/detention basin was installed as first land disturbing activity.
[ ] [ ] [ ] Sediment traps and barriers are installed.

6. Pollution Prevention for Waste and Hazardous Materials

Yes No NA

[ ] [ ] [ ] The Operator or designated representative has been assigned to implement the spill prevention avoidance and response plan.
[ ] [ ] [ ] The plan is contained in the SWPPP on page _____
[ ] [ ] [ ] Appropriate materials to control spills are onsite. Where? _____

II. CONSTRUCTION DURATION INSPECTIONS

a. Directions:

Inspection Forms will be filled out during the entire construction phase of the project.

Required Elements:

1) On a site map, indicate the extent of all disturbed site areas and drainage pathways. Indicate site areas that are expected to undergo initial disturbance or significant site work within the next 14-day period;

2) Indicate on a site map all areas of the site that have undergone temporary or permanent stabilization;

3) Indicate all disturbed site areas that have not undergone active site work during the previous 14-day period;

4) Inspect all sediment control practices and record the approximate degree of sediment accumulation as a percentage of sediment storage volume (for example, 10 percent, 20 percent, 50 percent);

5) Inspect all erosion and sediment control practices and record all maintenance requirements such as verifying the integrity of barrier or diversion systems (earthen berms or silt fencing) and containment systems (sediment basins and sediment traps). Identify any evidence of rill or gully erosion occurring on slopes and any loss of stabilizing vegetation or seeding/mulching. Document any excessive deposition of sediment or ponding water along barrier or diversion systems. Record the depth of sediment within containment structures, any erosion near outlet and overflow structures, and verify the ability of rock filters around perforated riser pipes to pass water; and

6) Immediately report to the Operator any deficiencies that are identified with the implementation of the SWPPP.

SITE PLAN/SKETCH

Inspector (print name)	**Date of Inspection**
Qualified Inspector (print name)	**Qualified Inspector Signature**

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

Maintaining Water Quality

Yes No NA
[ ] [ ] [ ] Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
[ ] [ ] [ ] Is there residue from oil and floating substances, visible oil film, or globules or grease?
[ ] [ ] [ ] All disturbance is within the limits of the approved plans.
[ ] [ ] [ ] Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping

1. General Site Conditions

Yes No NA
[ ] [ ] [ ] Is construction site litter and debris appropriately managed?
[ ] [ ] [ ] Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ] [ ] [ ] Is construction impacting the adjacent property?
[ ] [ ] [ ] Is dust adequately controlled?

2. Temporary Stream Crossing

Yes No NA
[ ] [ ] [ ] Maximum diameter pipes necessary to span creek without dredging are installed.
[ ] [ ] [ ] Installed non-woven geotextile fabric beneath approaches.
[ ] [ ] [ ] Is fill composed of aggregate (no earth or soil)?
[ ] [ ] [ ] Rock on approaches is clean enough to remove mud from vehicles & prevent sediment from entering stream during high flow.

Runoff Control Practices

1. Excavation Dewatering

Yes No NA
[ ] [ ] [ ] Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ] [ ] [ ] Clean water from upstream pool is being pumped to the downstream pool.
[ ] [ ] [ ] Sediment laden water from work area is being discharged to a silt-trapping device.
[ ] [ ] [ ] Constructed upstream berm with one-foot minimum freeboard.

2. Flow Spreader

Yes No NA
[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Constructed on undisturbed soil, not on fill, receiving only clear, non-sediment laden flow.
[ ] [ ] [ ] Flow sheets out of level spreader without erosion on downstream edge.

3. Interceptor Dikes and Swales

Yes No NA
[ ] [ ] [ ] Installed per plan with minimum side slopes 2H:1V or flatter.
[ ] [ ] [ ] Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ] [ ] [ ] Sediment-laden runoff directed to sediment trapping structure

Runoff Control Practices (continued)

4. Stone Check Dam

Yes No NA

[ ] [ ] [ ] Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ] [ ] [ ] Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ] [ ] [ ] Has accumulated sediment been removed?.

5. Rock Outlet Protection

Yes No NA

[ ] [ ] [ ] Installed per plan.
[ ] [ ] [ ] Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes No NA

[ ] [ ] [ ] Stockpiles are stabilized with vegetation and/or mulch.
[ ] [ ] [ ] Sediment control is installed at the toe of the slope.

2. Revegetation

Yes No NA

[ ] [ ] [ ] Temporary seedings and mulch have been applied to idle areas.
[ ] [ ] [ ] 4 inches minimum of topsoil has been applied under permanent seedings

Sediment Control Practices

1. Stabilized Construction Entrance

Yes No NA

[ ] [ ] [ ] Stone is clean enough to effectively remove mud from vehicles.
[ ] [ ] [ ] Installed per standards and specifications?
[ ] [ ] [ ] Does all traffic use the stabilized entrance to enter and leave site?
[ ] [ ] [ ] Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence

Yes No NA

[ ] [ ] [ ] Installed on Contour, 10 feet from toe of slope (not across conveyance channels).
[ ] [ ] [ ] Joints constructed by wrapping the two ends together for continuous support.
[ ] [ ] [ ] Fabric buried 6 inches minimum.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation is ___% of design capacity.

Sediment Control Practices (continued)

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)

Yes No NA

[ ] [ ] [ ] Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ] [ ] [ ] Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ] [ ] [ ] Drainage area is 1acre or less.
[ ] [ ] [ ] Excavated area is 900 cubic feet.
[ ] [ ] [ ] Excavated side slopes should be 2:1.
[ ] [ ] [ ] 2" x 4" frame is constructed and structurally sound.
[ ] [ ] [ ] Posts 3-foot maximum spacing between posts.
[ ] [ ] [ ] Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at max 8-inch spacing.
[ ] [ ] [ ] Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation ___% of design capacity.

4. Temporary Sediment Trap

Yes No NA

[ ] [ ] [ ] Outlet structure is constructed per the approved plan or drawing.
[ ] [ ] [ ] Geotextile fabric has been placed beneath rock fill.

Sediment accumulation is ___% of design capacity.

5. Temporary Sediment Basin

Yes No NA

[ ] [ ] [ ] Basin and outlet structure constructed per the approved plan.
[ ] [ ] [ ] Basin side slopes are stabilized with seed/mulch.
[ ] [ ] [ ] Drainage structure flushed and basin surface restored upon removal of sediment basin facility.

Sediment accumulation is ___% of design capacity.

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site specific design. All practices shall be maintained in accordance with their respective standards.

Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

CONSTRUCTION DURATION INSPECTIONS

b. Modifications to the SWPPP (To be completed as described below)

The Operator shall amend the SWPPP whenever:

1. There is a significant change in design, construction, operation, or maintenance which may have a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the SWPPP; or
2. The SWPPP proves to be ineffective in:
   a. Eliminating or significantly minimizing pollutants from sources identified in the SWPPP and as required by this permit; or
   b. Achieving the general objectives of controlling pollutants in stormwater discharges from permitted construction activity; and
3. Additionally, the SWPPP shall be amended to identify any new contractor or subcontractor that will implement any measure of the SWPPP.

Modification & Reason:

Contractor/Subcontractor Certification Statement

Site Name:_____

Site Address:_____

In accordance with Part III.A.6 of the General Permit GP-0-15-002, all contractors and subcontractors identified in the SWPPP shall sign a copy of the following certification statement before undertaking any construction activity at the site identified in the SWPPP.

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings."

Contractor Name: _____

Contractor Address: _____

Contractor Phone Number: _____

Name (please print): _____ **Title:** _____

Signature: _____ **Date:** _____

Contractor/Subcontractor SWPPP Responsibilities

The above reference contractor/subcontractor is responsible for the following elements of the SWPPP:

APPENDIX I

PIPE SIZING
(TO BE PROVIDED)

APPENDIX J

SITE PLANS
(ATTACHED)