

PROJECT NARRATIVE and STORMWATER MANAGEMENT REPORT

For

South Kingstown High School

**215 Columbia Street
South Kingstown, RI 02879
Assessor's Plat 49-4, Lot 14**

prepared for:

Studio Jaed

**42 Weybosett Street #403
Providence, RI 02903**

prepared by:



GAROFALO

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April 15, 2025

PN 7458-00



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I. PROJECT SUMMARY

Garofalo and Associates, Inc. has prepared this Stormwater Management Report to outline drainage requirements for redevelopment activities proposed at South Kingstown High School, and outline the calculations and methodology used to design a proposed stormwater management system to comply with the Town of South Kingstown Stormwater Ordinance and the current edition of the *RI Stormwater Design and Installations Standards Manual (RISDISM)*.

The 15.60-acre project area is situated at 215 Columbia Street. The property is identified as the Town of South Kingstown Tax Assessor’s Plat 49-4, Lot 14. The site is bounded by Columbia Street to the west, School Street to the south, and residential properties to the north and east.

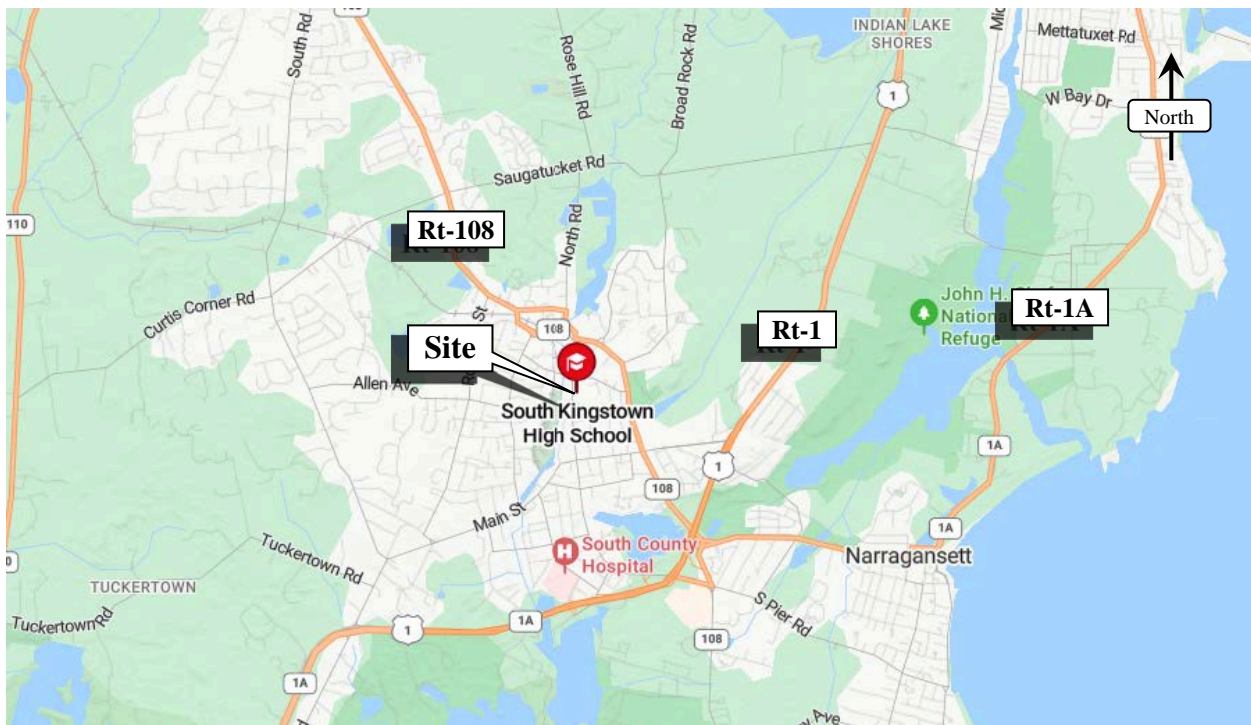


Figure 1. Locus Map

The existing use of the subject property will continue as South Kingstown High School. The proposed redevelopment primarily involves the construction of a new school building, access roadways and parking facilities. Site access is proposed at two (2) locations along Columbia Street, with access and egress provided at both locations. The northern Columbia Street access/egress will serve the main parking field, while the southern access/egress will accommodate a parent drop-off loop. Two (2) points of access and



egress are proposed along School Street as well, along with a third point of egress between them. The western access/egress along School Street will serve an existing parking field to be milled and overlaid within the southwestern portion of the site, the eastern School Street access/egress along School Street will connect to the parent drop-off loop that extends around the eastern and northern faces of the proposed school building, while the egress between them will provide the exit for the bus drop-off loop south along the southern face of the school. The project will also provide pedestrian walkways, lighting, landscaping, athletic fields, and other site amenities.



II. SITE CONDITIONS

2.1 Site Characteristics

The existing 15.60-acre project area is located on the eastern side of Columbia Street and is comprised of A.P. 49-4 Lot 14 in the town of South Kingstown. The site is presently developed and includes the existing South Kingstown High School, parking facilities, athletic fields, and other site features. Grades throughout the site are relatively mild, with steeper slopes present along the eastern and western sides of the property. The eastern side of the property generally drains to the east and southeast toward abutting residences and School Street, respectively, while the western side of the property generally drains to the west toward Columbia Street.



Figure 2. Aerial Image



2.2 Soils

The *Soil Survey of Rhode Island* prepared by the US Department of Agriculture, Soil Conservation Service depicts the underlying soils of the project site to be comprised of Udorthents-Urban land complex, Merrimac-Urban land complex and Urban land – all of which are classified as hydrologic soil group ‘A.’ See Appendix D for on-site soil evaluations.

Map Unit Symbol	Percent of Site	Map Unit Name	Hydrologic Soil Group
UD	43.8%	Udorthents-Urban land complex	A
MU	34.5%	Merrimac-Urban land complex, 0 to 8 percent slopes	A
Ur	21.7%	Urban land	A

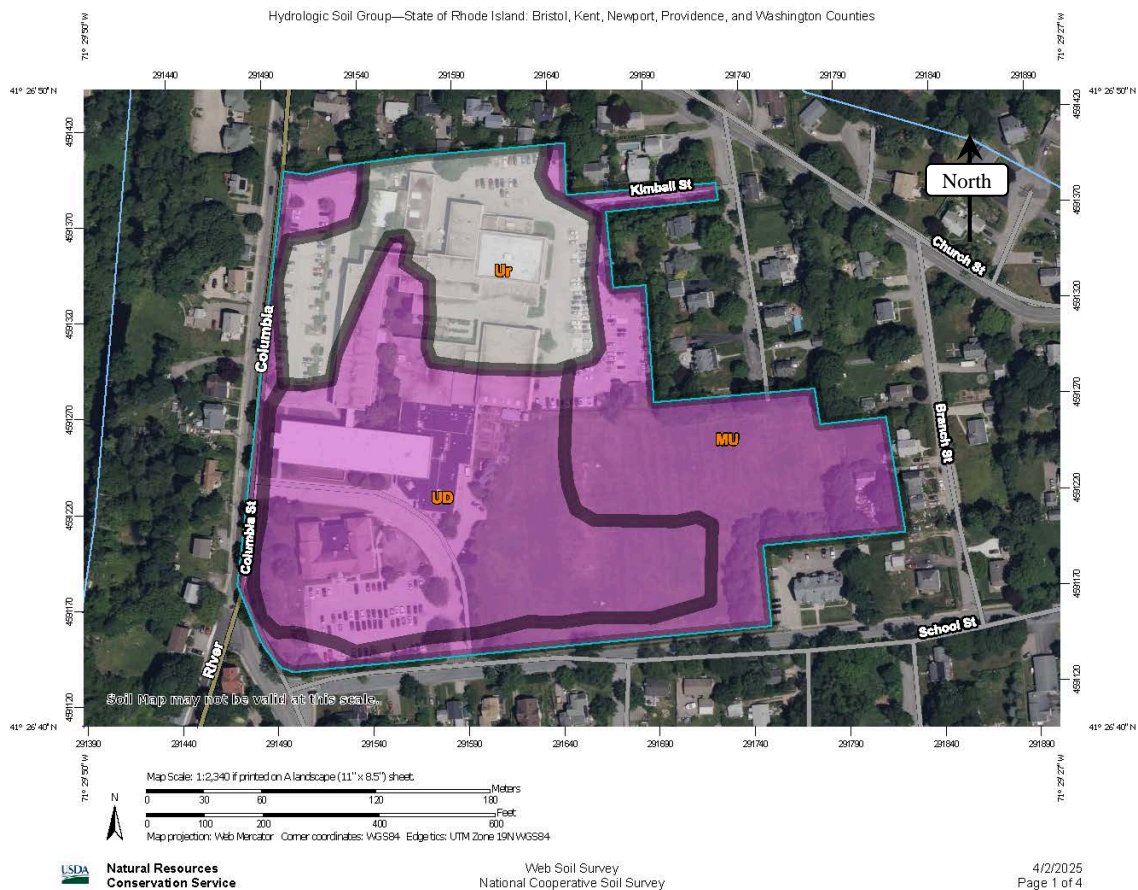


Figure 3. NRCS Soils Map



2.3 FEMA

The project area is located within Zone "X" (areas of 1% annual chance flood with average depth less than one foot), as shown on F.E.M.A. Flood Insurance Rate Map for the Town of South Kingstown, Washington County, Rhode Island, Community Panel No. 44009C0203K, having an effective date of April 3, 2020.

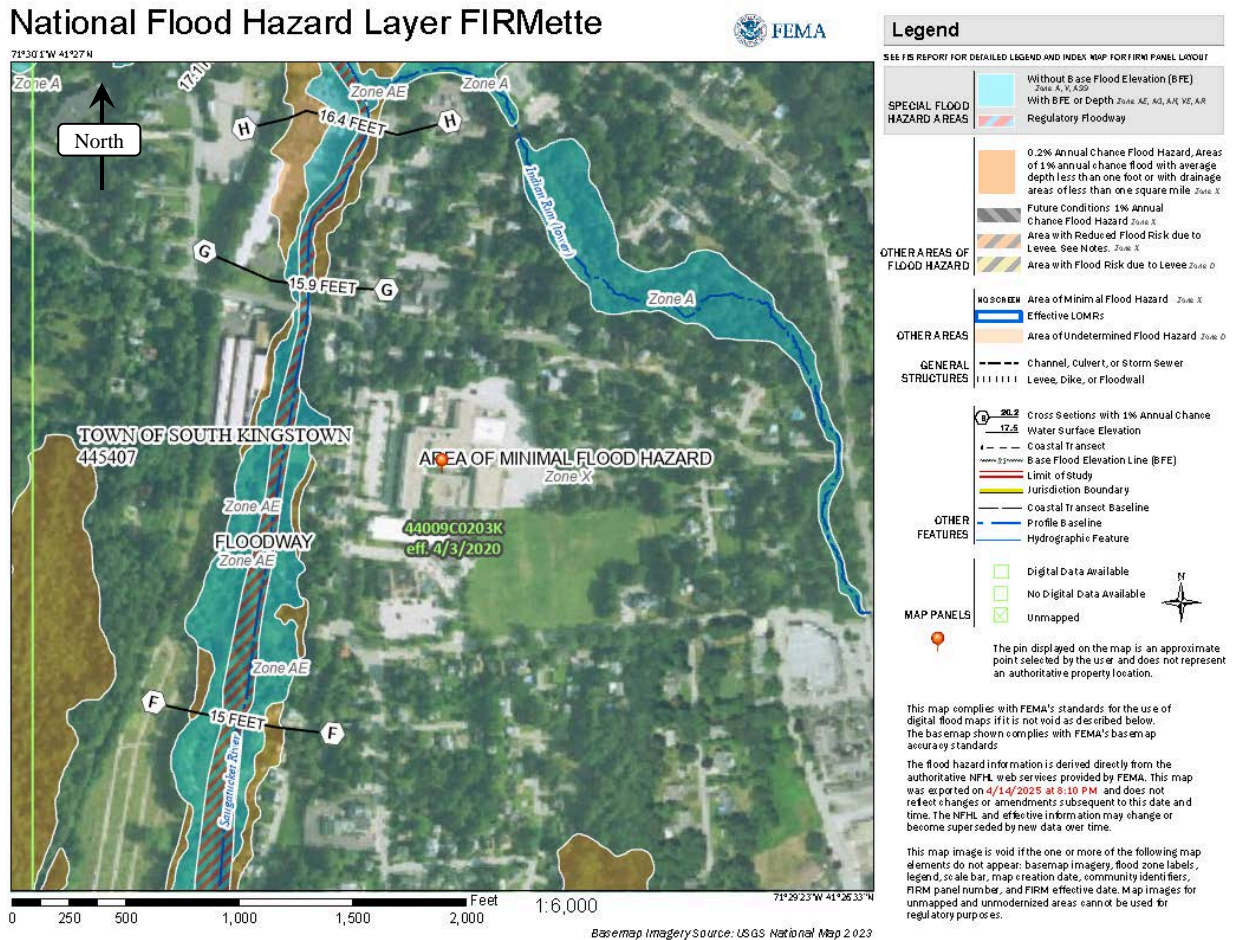


Figure 4. FEMA Flood Map



2.4 Natural Resource Inventory

The project site is not documented by the Rhode Island Department of Environmental Management (RIDEM) Geographic Information System (GIS) Mapping as being within a Natural Heritage Area.

The existing athletic field area within the southeast portion of the property is classified as both local conservation land (recreation), as well as 'Land and Water Conservation Fund: Hazard Field'. Additionally, the northwestern portion of the property containing most of the existing school building is also classified as Land and Water Conservation Fund: Hazard Field'



III. DRAINAGE ANALYSIS

3.1 Methodology

The project's stormwater management system has been designed to mitigate the impacts of stormwater runoff generated by the proposed site and comply with the redevelopment standards and performance criteria of the Town of South Kingstown and the RISDISM using low-impact development (LID) techniques and best management practices (BMP's).

Four (4) design points have been used in the analysis. Design Point 1 represents the northern portion of the closed drainage system within Columbia Street, located immediately west of the proposed redevelopment area. Design Point 2 represents the closed drainage system within Church Street to the northeast of the site, and Design Point 3 represents the closed drainage system within School Street to the southeast of the site. Design Point 4 represents the southern portion of the closed drainage system within Columbia Street. The project will generally maintain existing drainage patterns while addressing the requirements of the RISDISM. Specifically, the redeveloped site will provide recharge, water quality treatment, and runoff attenuation by directing stormwater flow into a system of both surface and sub-surface infiltration BMPs.

3.2 Existing Conditions

Existing stormwater conditions have been evaluated using eight (8) sub-watershed areas to account for stormwater flow generated by the existing site.

EWS-1A: This existing sub-watershed area includes the northwest portion of the property and majority of the existing school building, as well as exiting parking fields and grassed areas. Stormwater generally flows west over relatively mild grades, and is directed through a closed drainage system into existing drywell BMPs. These BMPs discharge and connect to the northern portion of the closed drainage system within Columbia Street (Design Point 1).

EWS-1B: This existing sub-watershed area represents areas of the northwest portion of the property that bypass the existing drywell BMP system. These areas include grassed areas adjacent to Columbia Street as well as existing paved areas directly north of the existing school building. Stormwater generally flows west over relatively mild grades, and discharges directly to the northern portion of the closed drainage system within Columbia Street (Design Point 1).



EWS-2: This existing sub-watershed area accounts for a northeast area property that primarily contains existing paved areas, including a portion of Kimball Street. Stormwater generally flows east over relatively mild grades, and is ultimately collected by an existing closed drainage system within Church Street (Design Point 2).

EWS-3: This existing sub-watershed area accounts for the southeastern portion of the property which primarily includes the existing school athletic fields. Stormwater generally flows southeast over relatively mild grades, and is ultimately collected by the existing closed drainage system within School Street (Design Point 3).

EWS-OS: This existing sub-watershed area accounts for a small off-site contributing area directly east of property that sheet flows west onto areas of the school property within the EWS-3 subwatershed area described above. This area contains two small rooftop areas, but is otherwise pervious landscape areas. This off-site area ultimately discharges to Design Point 3.

EWS-4A: This existing sub-watershed area includes school access roadway areas directly south of the existing school, as well as grassed landscape areas. These areas are collected within a closed drainage system that discharges to existing drywell BMPs. These BMPs ultimately discharge and connect to the southern portion of the closed drainage system within Columbia Street (Design Point 4).

EWS-4B: This existing sub-watershed area includes the special education building and southwestern parking field within the southwestern portion of the site. Stormwater generally flows west over relatively mild grades, and is collected within a closed drainage system that discharges to existing drywell BMPs located west of the special education building. These BMPs ultimately discharge and connect to the southern portion of the closed drainage system within Columbia Street (Design Point 4).

EWS-4C: This existing sub-watershed area represents areas of the southwest portion of the property that bypass the existing drywell BMP system to the west of the special education building. These areas primarily include grassed areas between the property and Columbia Street, and between the property and school street. Stormwater generally flows west over relatively mild



grades, and discharges directly to the southern portion of the closed drainage system within Columbia Street (Design Point 4).

3.3 Proposed Conditions

The proposed site conditions have been analyzed using ten (10) total sub-watershed areas, maintaining existing drainage patterns, and addressing the requirements of the RISDISM.

PWS-1A: This proposed sub-watershed area includes the majority of the northern and central portions of the property, as well as a southern portion of the property. These areas include the majority of the proposed school building rooftop, majority of proposed parking facilities and access roadways north of the school, the proposed athletic fields, and grassed landscape areas. Stormwater generally flows west over mild and moderate grades, and is directed through a closed drainage system to a proposed system of surface infiltration BMPs (BMP-1A) along the western and northwestern property line. Large storm overflows from these BMPs discharge and connect to the northern portion of the closed drainage system within Columbia Street (Design Point 1).

PWS-1B: This proposed sub-watershed area represents areas to the west of PWS-1A that bypass the proposed BMP system. These areas include grassed areas adjacent to Columbia Street. Stormwater generally flows west over mild grades, and discharges directly to the northern portion of the closed drainage system within Columbia Street (Design Point 1).

PWS-2A: This proposed sub-watershed area accounts for the proposed parking field located directly east of the proposed school building, a small portion of the proposed school building rooftop, along with pervious grassed areas. Stormwater generally flows north over relatively mild grades, and is collected by a proposed subsurface infiltration system (BMP-2A) at the northern end of the proposed parking field. Large storm overflows from this system connect to an existing catch basin farther north located at the southern end of Brown Street. This catch basin connects to the existing closed drainage system within Church Street (Design Point 2).

PWS-2B: This proposed sub-watershed area accounts for eastern landscape areas of the property and the western portion of Kimball Street. Stormwater generally flows east over mild and moderate grades, and is ultimately collected by an existing closed drainage system within Church Street (Design Point 2).



PWS-3A: This proposed sub-watershed area accounts for the southeastern portion of the proposed school building, the eastern portion of the proposed bus loop and associated landscape areas. Stormwater generally southeast over moderate grades, and is collected by a proposed subsurface infiltration system (BMP-3A) located beneath the proposed bus loop. Large storm overflows from this system discharge south to the existing closed drainage system within School Street (Design Point 3).

PWS-3B: This proposed sub-watershed area includes southeastern landscape areas of the property that bypass proposed BMP-3A, and discharge directly to the existing closed drainage system within School Street (Design Point 3).

PWS-OS: This sub-watershed area accounts for the same off-site contributing area directly east of property as described under EWS-OS. This off-site area ultimately discharges to Design Point 3 as under existing conditions.

PWS-4A: This proposed sub-watershed area includes a small area of the proposed school access roadway and landscape areas immediately north of the existing special education building. Stormwater from this area is collected within a portion of the existing drainage system that is proposed to remain, and will continue to discharge to the existing drywell system to the west of the special education building (also proposed to remain and function as it does under existing conditions). These drywells will continue to discharge to the southern portion of the closed drainage system within Columbia Street (Design Point 4).

PWS-4B: This proposed sub-watershed area includes the special education building and southwestern parking field (proposed for mill & overlay) within the southwestern portion of the site. Stormwater generally flows west over relatively mild grades, and is collected within the existing closed drainage system serving the parking field that is proposed to remain. This system will continue to discharge to the existing drywell BMPs located west of the special education building that will remain under proposed conditions. These BMPs will ultimately discharge and connect to the southern portion of the closed drainage system within Columbia Street (Design Point 4) as under existing conditions.



PWS-4C: This proposed sub-watershed area represents areas of the southwest portion of the property that bypass the existing drywell BMP system to the west of the special education building. These areas primarily include grassed areas between the property and Columbia Street, and between the property and school street. Stormwater generally flows west over relatively mild grades, and discharges directly to the southern portion of the closed drainage system within Columbia Street (Design Point 4).

3.4 Runoff Summary

The following is a comparison summary of the peak discharge rates and total discharge volumes for the existing and proposed site. Stormwater runoff from the proposed redevelopment has been successfully mitigated below pre-development levels during all design storm events. See *Appendix A Checklist: Table 5-1 'Hydraulic Analysis Summary'* (under separate cover).

Peak Discharge Rate (cfs)			
	1 yr	10 yr	100 yr
Design Point 1			
Existing Runoff	10.46	18.52	38.29
Proposed Runoff	2.03	13.20	20.58
ΔQ	-8.43	-5.32	-17.71
Total Discharge Volume (cf)			
	1 yr	10 yr	100 yr
Design Point 1			
Existing Runoff	26,569	59,135	124,003
Proposed Runoff	4,147	28,855	99,277
ΔQ	-22,422	-30,280	-24,726

Peak Discharge Rate (cfs)			
	1 yr	10 yr	100 yr
Design Point 2			
Existing Runoff	3.24	5.96	11.22
Proposed Runoff	0.30	0.55	9.57
ΔQ	-2.94	-5.41	-1.65
Total Discharge Volume (cf)			
	1 yr	10 yr	100 yr
Design Point 2			
Existing Runoff	11,937	22,903	43,839
Proposed Runoff	1,099	2,864	15,628
ΔQ	-10,838	-20,039	-28,211

Table 1. Watershed Runoff Summary



Peak Discharge Rate (cfs)			
	1 yr	10 yr	100 yr
Design Point 3			
Existing Runoff	0.36	0.67	7.76
Proposed Runoff	0.10	0.18	5.70
ΔQ	-0.26	-0.49	-2.06
Total Discharge Volume (cf)			
	1 yr	10 yr	100 yr
Design Point 3			
Existing Runoff	1,342	6,285	35,049
Proposed Runoff	356	1,108	7,355
ΔQ	-986	-5,177	-27,694

Peak Discharge Rate (cfs)			
	1 yr	10 yr	100 yr
Design Point 4			
Existing Runoff	3.10	6.44	11.75
Proposed Runoff	1.54	3.78	8.32
ΔQ	-1.56	-2.66	-3.43
Total Discharge Volume (cf)			
	1 yr	10 yr	100 yr
Design Point 4			
Existing Runoff	3,932	11,810	32,459
Proposed Runoff	1,625	6,178	18,766
ΔQ	-2,307	-5,632	-13,693

Table 1. Watershed Runoff Summary (cont.)

3.5 Water Quality

The design proposes surface infiltration basins as well as sub-surface infiltration chamber systems that satisfy the water quality treatment requirements of the redevelopment standard. See Appendix D for RIDEM Water Quality Volume Calculation Worksheet.



3.6 Pre-treatment

Pre-treatment for the proposed surface infiltration system basin is provided within a sediment forebay and additional deep-sump catch basins at the proposed northwestern access road entrance, while pre-treatment for the subsurface infiltration chamber systems is provided within isolator rows.

<u>Proposed Subwatershed</u>	<u>Pre-Treatment Required</u>	<u>Pre-Treatment Provided</u>
PWS-1A	2,294 CF	2,740 CF
PWS-2A	789 CF	880 CF
PWS-3A	357 CF	381 CF
PWS-4A&B	Ex. System to Remain	Ex. System to Remain



IV. STORMWATER STANDARDS:

The proposed redevelopment has been designed to meet all of the minimum standards identified in the RISDISM through utilization of infiltration practices and maintenance planning.

4.1 Standard 1: LID Planning and Design Strategies

LID site planning and design strategies must be used to the maximum extent practicable.

Standard Met – LID site planning and strategies have been employed to the maximum extent possible.

4.2 Standard 2: Groundwater Recharge

Stormwater must be recharged within the same sub-watershed to maintain base flow at pre-development recharge levels to the maximum extent practicable.

Standard Met – Recharge will be provided on-site through the proposed surface and subsurface infiltration systems. See *Appendix A Checklist: Table 2-1 ‘Summary of Recharge’* (under separate cover). The recharge factor for this property is 0.60.

<u>Proposed Subwatershed</u>	<u>REv Required</u>	<u>REv Provided</u>
PWS-1A	$(15,188 \text{ CF})(0.50)(0.60) = 4,557 \text{ CF}$	12,141 CF
PWS-2A	$(3,468 \text{ CF})(0.50)(0.60) = 1,041 \text{ CF}$	6,556 CF
PWS-3A	$(3,216 \text{ CF})(0.50)(0.60) = 965 \text{ CF}$	7,125 CF
PWS-4A&B	Ex. System to Remain	Ex. System to Remain



4.3 Standard 3: Water Quality

Stormwater runoff must be treated prior to discharge.

Standard Met – Water quality treatment will be provided on site through the proposed surface and subsurface infiltration systems. See *Appendix A Checklist: Table 3-1 ‘Summary of Water Quality’* (under separate cover).

<u>Proposed Subwatershed</u>	<u>WQv Required</u>	<u>WQv Provided</u>
PWS-1A	$(15,188 \text{ CF})(0.50) = 7,594 \text{ CF}$	12,141 CF
PWS-2A	$(3,468 \text{ CF})(0.50) = 1,734 \text{ CF}$	6,556 CF
PWS-3A	$(3,216 \text{ CF})(0.50) = 1,608 \text{ CF}$	7,125 CF
PWS-4A&B	Ex. System to Remain	Ex. System to Remain

4.4 Standard 4: Conveyance and Natural Channel Protection

This standard is designed to prevent erosive flow within natural channels and drainage ways.

Standard Waived – Redevelopment.

4.5 Standard 5: Overbank Flood Protection

Downstream overbank flood protection must be provided by attenuating the post development peak discharge rate to the pre-development levels for the 10-year and 100-year, Type III design storm events

Standard Waived – Redevelopment.

However, Post-development peak discharge rates have still been mitigated within the proposed infiltration systems and brought below pre-development levels during the 10-year and 100-year Type III storm events. See Table-1 Watershed Runoff Summary and *Appendix A Checklist: Table 5-1 ‘Hydraulic Analysis Summary’* (under separate cover).

4.6 Standard 6: Redevelopment and Infill Projects

For redevelopment sites with 40% or more existing impervious surface coverage and infill sites, only Standards 2, 3, and 7-11 must be addressed.

Standard Met – Total existing impervious surface coverage is > 40% of the site size.

(See Appendix D for RIDEM Water Quality Volume Calculation Worksheet)



4.7 Standard 7: Pollution Prevention

All development sites require the use of source control and pollution prevention measures to minimize the impact that the land use may have on stormwater runoff quality.

Standard Met – A Soil Erosion and Sediment Control (SESC) Plan has been prepared for the project and stormwater measures are proposed that comply with the Standard.

4.8 Standard 8: Land Uses with Higher Potential Pollutant Loads

Stormwater discharges from land uses with higher potential pollutant loads (LUHPPLs) require the use of specific source control and pollution prevention measures and the specific stormwater BMPs approved for such use.

Standard is not applicable – No LUHPPLs on site.

4.9 Standard 9: Illicit Discharges

All illicit discharges to stormwater management systems are prohibited, including discharges from OWTS, sub-drains and French drains near any OWTS that does not meet the State’s OWTS Rules.

Standard Met – There are no known illicit discharges at the site and none are proposed as part of this project.

4.10 Standard 10: Construction and Erosion Sedimentation Control

Erosion and sedimentation control practices must be utilized during the construction phase as well as during any land disturbing activities

Standard Met - Soil Erosion and Sediment Control Practices will be employed to avoid and minimize impacts to the existing stormwater systems. Detailed notes are included in the plans as well as within an Erosion and Sediment Control Report to ensure effective implementation of erosion and sedimentation controls.

4.11 Standard 11: Stormwater Management System Operation and Maintenance

The stormwater management system, including all structural stormwater controls and conveyances, must have an operation and maintenance plan to ensure that it continues to function as designed.



Standard Met - A long-term Stormwater Operation and Maintenance Plan has been prepared for the development in accordance with the Manual, and is provided as a separate document.



V. CONCLUSION

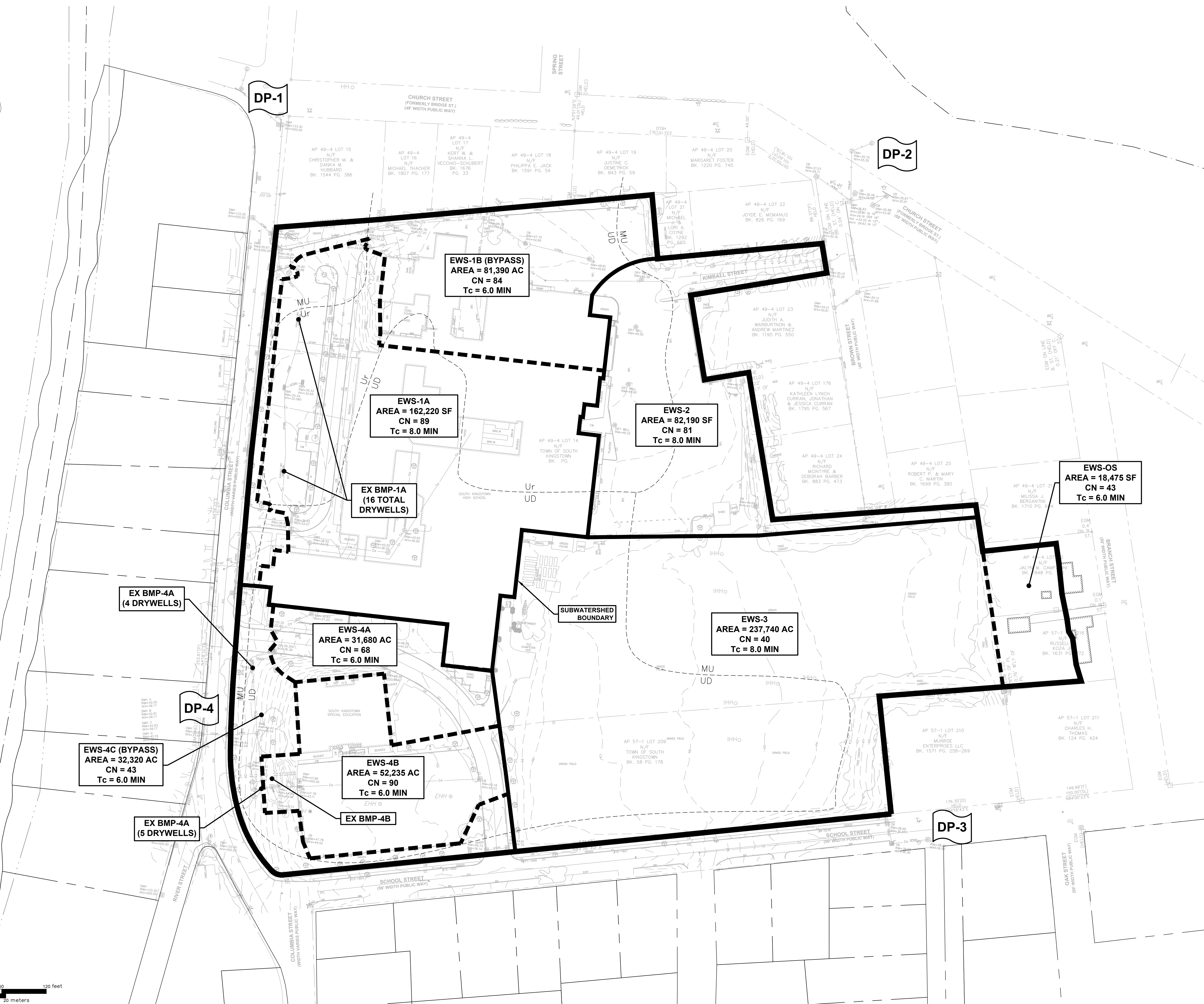
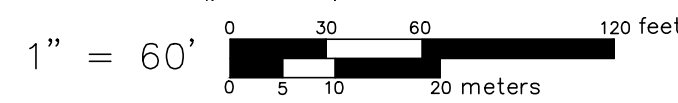
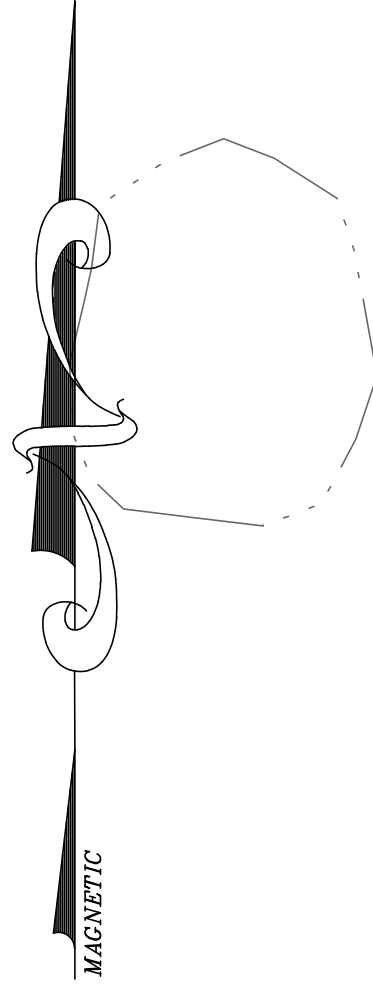
This project has been designed to mitigate the water quality impacts and runoff rates from the proposed redevelopment. Water quality treatment for proposed development areas is provided in accordance with the redevelopment standards and performance criteria of the Town of South Kingstown and the *State of Rhode Island Stormwater Design and Installation Standards Manual*. Finally, Best Management Practices will be employed to control temporary discharges associated with construction activities in accordance with the standards outlined in the *Rhode Island Soil and Erosion Sediment Control Handbook*.



Appendix A
Watershed Maps



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DP-1

DP-2

DP-4

DP-3

EWS-1B (BYPASS)
AREA = 81,390 AC
CN = 84
Tc = 6.0 MIN

EWS-1A
AREA = 162,220 SF
CN = 89
Tc = 8.0 MIN

EWS-2
AREA = 82,190 SF
CN = 81
Tc = 8.0 MIN

EWS-OS
AREA = 18,475 SF
CN = 43
Tc = 6.0 MIN

EWS-3
AREA = 237,740 AC
CN = 40
Tc = 8.0 MIN

EWS-4A
AREA = 31,680 AC
CN = 68
Tc = 6.0 MIN

EWS-4C (BYPASS)
AREA = 32,320 AC
CN = 43
Tc = 6.0 MIN

EWS-4B
AREA = 52,235 AC
CN = 90
Tc = 6.0 MIN

EX BMP-1A
(16 TOTAL DRYWELLS)

EX BMP-4A
(4 DRYWELLS)

EX BMP-4A
(5 DRYWELLS)

EX BMP-4B

SUBWATERSHED BOUNDARY

EXISTING CONDITIONS
WATERSHED MAPPING
FOR
SOUTH KINGSTOWN HIGH SCHOOL
215 COLUMBIA STREET
AP 49-4 LOT 14
SOUTH KINGSTOWN, RI
PREPARED FOR
StudioJAED
42 WEYBOSSET STREET #403
PROVIDENCE, RI 02903

NO.	REVISION	BY	DATE

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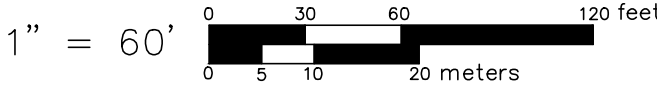
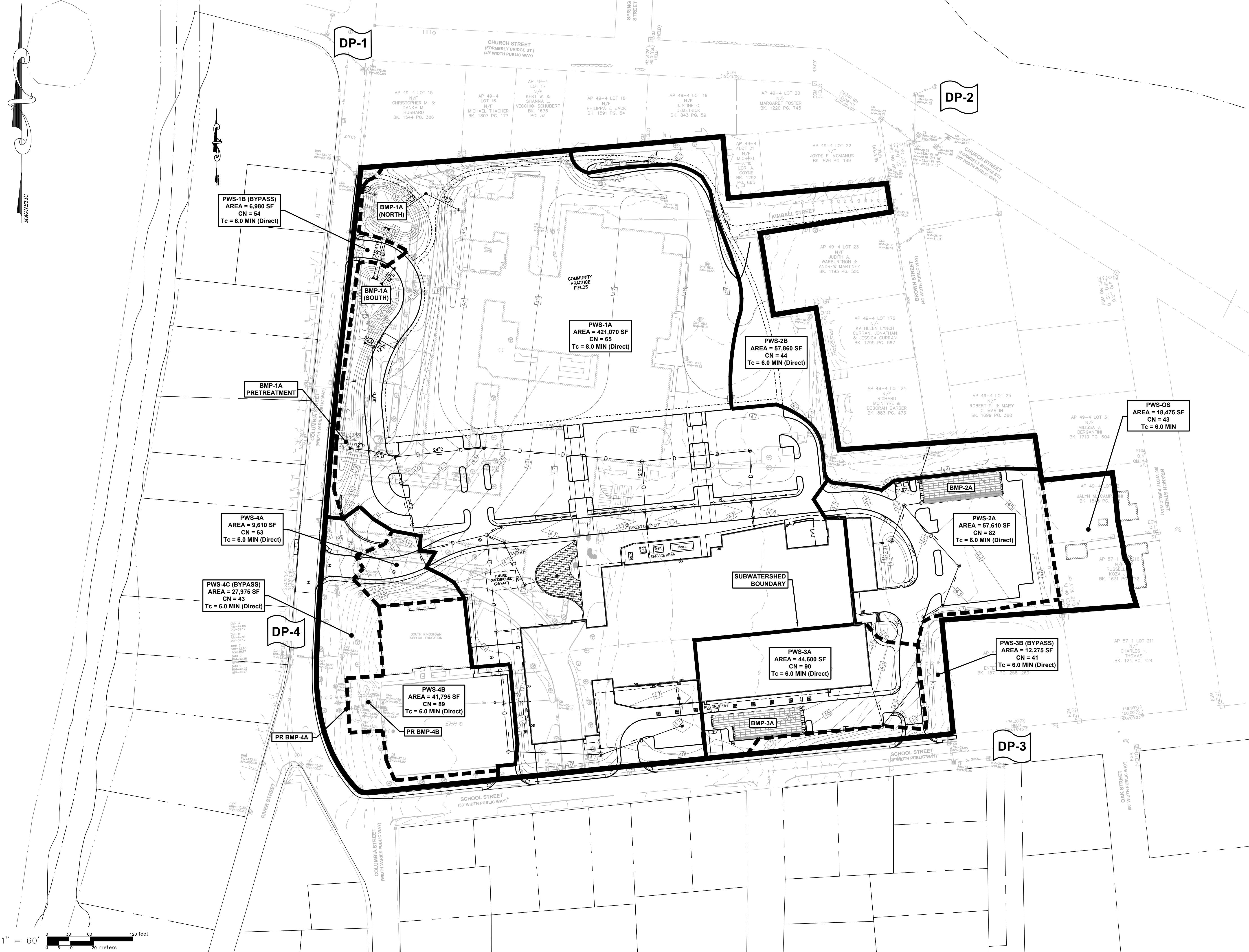
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DWG. NO. 7458-00 EWS	CHECK BY S.S.H.
SCALE: 1" = 60'	APPROVED S.S.H.
	DATE: JANUARY 22, 2025

SHEET

EWS

1 OF 2 SHEETS

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MAGNETIC

**PROPOSED CONDITIONS
WATERSHED MAPPING**
FOR
SOUTH KINGSTOWN HIGH SCHOOL
215 COLUMBIA STREET
AP 49-4 LOT 14
SOUTH KINGSTOWN, RI
PREPARED FOR
StudioJAED
42 WEYBOSSET STREET #403
PROVIDENCE, RI 02903

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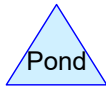
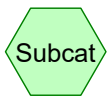
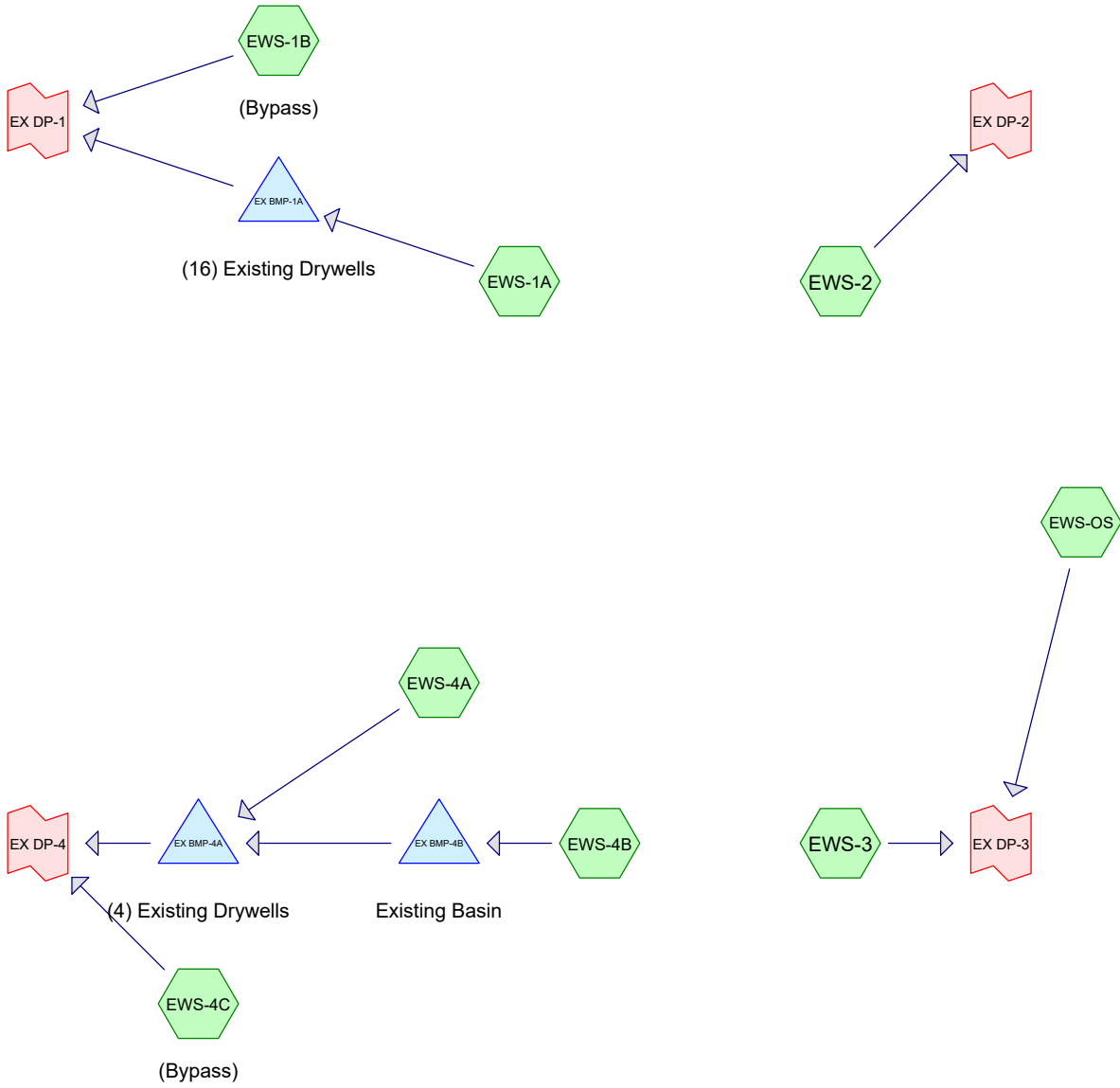
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JOB NO. 7458-00	DRAWN BY R.A.S.
DWG. NO. 7458-00 PWS	CHECK BY S.S.H.
SCALE: 1" = 60'	APPROVED S.S.H.
	DATE: JANUARY 22, 2025

SHEET
PWS
2 OF 2 SHEETS

Appendix B
Stormwater Analysis
Existing Conditions





Routing Diagram for 7458-00 HydroCAD Analysis
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7458-00 HydroCAD Analysis

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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
370,800	39	>75% Grass cover, Good, HSG A (EWS-1A, EWS-1B, EWS-2, EWS-3, EWS-4A, EWS-4B, EWS-4C, EWS-OS)
185,010	98	Paved parking, HSG A (EWS-1A, EWS-1B, EWS-2, EWS-3, EWS-4A, EWS-4B, EWS-4C, EWS-OS)
142,440	98	Roofs, HSG A (EWS-1A, EWS-1B, EWS-2, EWS-3, EWS-4B, EWS-OS)
698,250	67	TOTAL AREA

7458-00 HydroCAD Analysis

Type III 24-hr 1.2-Inch Rainfall=1.20"

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Time span=0.00-30.00 hrs, dt=0.02 hrs, 1501 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EWS-1A:	Runoff Area=162,220 sf 84.56% Impervious Runoff Depth=0.83" Tc=8.0 min CN=39/98 Runoff=3.22 cfs 11,267 cf
Subcatchment EWS-1B: (Bypass)	Runoff Area=81,390 sf 76.61% Impervious Runoff Depth=0.76" Tc=8.0 min CN=39/98 Runoff=1.46 cfs 5,121 cf
Subcatchment EWS-2:	Runoff Area=82,190 sf 70.57% Impervious Runoff Depth=0.70" Tc=8.0 min CN=39/98 Runoff=1.36 cfs 4,764 cf
Subcatchment EWS-3:	Runoff Area=237,740 sf 2.20% Impervious Runoff Depth=0.02" Tc=8.0 min CN=39/98 Runoff=0.12 cfs 429 cf
Subcatchment EWS-4A:	Runoff Area=31,680 sf 49.95% Impervious Runoff Depth=0.49" Tc=8.0 min CN=39/98 Runoff=0.37 cfs 1,300 cf
Subcatchment EWS-4B:	Runoff Area=52,235 sf 86.89% Impervious Runoff Depth=0.86" Tc=8.0 min CN=39/98 Runoff=1.06 cfs 3,728 cf
Subcatchment EWS-4C: (Bypass)	Runoff Area=32,320 sf 6.81% Impervious Runoff Depth=0.07" Tc=8.0 min CN=39/98 Runoff=0.05 cfs 181 cf
Subcatchment EWS-OS:	Runoff Area=18,475 sf 7.01% Impervious Runoff Depth=0.07" Tc=8.0 min CN=39/98 Runoff=0.03 cfs 106 cf
Pond EX BMP-1A: (16) Existing Drywells	Peak Elev=32.48' Storage=2,806 cf Inflow=3.22 cfs 11,267 cf Discarded=0.24 cfs 9,116 cf Primary=1.70 cfs 2,151 cf Outflow=1.95 cfs 11,267 cf
Pond EX BMP-4A: (4) Existing Drywells	Peak Elev=38.78' Storage=703 cf Inflow=0.62 cfs 1,627 cf Discarded=0.06 cfs 1,627 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 1,627 cf
Pond EX BMP-4B: Existing Basin	Peak Elev=43.79' Storage=752 cf Inflow=1.06 cfs 3,728 cf Discarded=0.22 cfs 3,401 cf Primary=0.40 cfs 327 cf Outflow=0.62 cfs 3,728 cf
Link EX DP-1:	Inflow=2.62 cfs 7,272 cf Primary=2.62 cfs 7,272 cf
Link EX DP-2:	Inflow=1.36 cfs 4,764 cf Primary=1.36 cfs 4,764 cf
Link EX DP-3:	Inflow=0.15 cfs 536 cf Primary=0.15 cfs 536 cf
Link EX DP-4:	Inflow=0.05 cfs 181 cf Primary=0.05 cfs 181 cf

Total Runoff Area = 698,250 sf Runoff Volume = 26,896 cf Average Runoff Depth = 0.46"
53.10% Pervious = 370,800 sf 46.90% Impervious = 327,450 sf

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment EWS-1A:

Runoff = 3.22 cfs @ 12.11 hrs, Volume= 11,267 cf, Depth= 0.83"

Routed to Pond EX BMP-1A : (16) Existing Drywells

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
100,505	98	Roofs, HSG A
36,665	98	Paved parking, HSG A
25,050	39	>75% Grass cover, Good, HSG A
162,220	89	Weighted Average
25,050	39	15.44% Pervious Area
137,170	98	84.56% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment EWS-1B: (Bypass)

Runoff = 1.46 cfs @ 12.11 hrs, Volume= 5,121 cf, Depth= 0.76"
Routed to Link EX DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
28,625	98	Roofs, HSG A
33,725	98	Paved parking, HSG A
19,040	39	>75% Grass cover, Good, HSG A
81,390	84	Weighted Average
19,040	39	23.39% Pervious Area
62,350	98	76.61% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment EWS-2:

Runoff = 1.36 cfs @ 12.11 hrs, Volume= 4,764 cf, Depth= 0.70"
Routed to Link EX DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
750	98	Roofs, HSG A
57,250	98	Paved parking, HSG A
24,190	39	>75% Grass cover, Good, HSG A
82,190	81	Weighted Average
24,190	39	29.43% Pervious Area
58,000	98	70.57% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment EWS-3:

Runoff = 0.12 cfs @ 12.11 hrs, Volume= 429 cf, Depth= 0.02"
Routed to Link EX DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
660	98	Roofs, HSG A
4,565	98	Paved parking, HSG A
232,515	39	>75% Grass cover, Good, HSG A
237,740	40	Weighted Average
232,515	39	97.80% Pervious Area
5,225	98	2.20% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment EWS-4A:

Runoff = 0.37 cfs @ 12.11 hrs, Volume= 1,300 cf, Depth= 0.49"

Routed to Pond EX BMP-4A : (4) Existing Drywells

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
15,825	98	Paved parking, HSG A
15,855	39	>75% Grass cover, Good, HSG A
31,680	68	Weighted Average
15,855	39	50.05% Pervious Area
15,825	98	49.95% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment EWS-4B:

Runoff = 1.06 cfs @ 12.11 hrs, Volume= 3,728 cf, Depth= 0.86"

Routed to Pond EX BMP-4B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
11,160	98	Roofs, HSG A
34,225	98	Paved parking, HSG A
6,850	39	>75% Grass cover, Good, HSG A
52,235	90	Weighted Average
6,850	39	13.11% Pervious Area
45,385	98	86.89% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment EWS-4C: (Bypass)

Runoff = 0.05 cfs @ 12.11 hrs, Volume= 181 cf, Depth= 0.07"
Routed to Link EX DP-4 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
2,200	98	Paved parking, HSG A
30,120	39	>75% Grass cover, Good, HSG A
32,320	43	Weighted Average
30,120	39	93.19% Pervious Area
2,200	98	6.81% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment EWS-OS:

Runoff = 0.03 cfs @ 12.11 hrs, Volume= 106 cf, Depth= 0.07"
Routed to Link EX DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
740	98	Roofs, HSG A
555	98	Paved parking, HSG A
17,180	39	>75% Grass cover, Good, HSG A
18,475	43	Weighted Average
17,180	39	92.99% Pervious Area
1,295	98	7.01% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Pond EX BMP-1A: (16) Existing Drywells

Inflow Area = 162,220 sf, 84.56% Impervious, Inflow Depth = 0.83" for 1.2-Inch event
 Inflow = 3.22 cfs @ 12.11 hrs, Volume= 11,267 cf
 Outflow = 1.95 cfs @ 12.24 hrs, Volume= 11,267 cf, Atten= 40%, Lag= 7.6 min
 Discarded = 0.24 cfs @ 11.22 hrs, Volume= 9,116 cf
 Primary = 1.70 cfs @ 12.24 hrs, Volume= 2,151 cf
 Routed to Link EX DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 32.48' @ 12.24 hrs Surf.Area= 1,257 sf Storage= 2,806 cf

Plug-Flow detention time= 63.6 min calculated for 11,260 cf (100% of inflow)
 Center-of-Mass det. time= 63.6 min (847.5 - 783.9)

Volume	Invert	Avail.Storage	Storage Description
#1	27.88'	1,684 cf	10.00'D x 7.00'H Vertical Cone/Cylinder x 16 8,796 cf Overall - 3,695 cf Embedded = 5,102 cf x 33.0% Voids
#2	28.88'	2,714 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 16 Inside #1 3,695 cf Overall - 6.0" Wall Thickness = 2,714 cf
		4,398 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	27.88'	8.270 in/hr Exfiltration over Surface area
#2	Primary	31.89'	18.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 31.89' / 29.86' S= 0.0508 ' S= 0.0508 ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Discarded OutFlow Max=0.24 cfs @ 11.22 hrs HW=27.95' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=1.70 cfs @ 12.24 hrs HW=32.48' (Free Discharge)
 ↑2=Culvert (Inlet Controls 1.70 cfs @ 2.62 fps)

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Stage-Area-Storage for Pond EX BMP-1A: (16) Existing Drywells

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
27.88	1,257	0	33.18	1,257	3,269
27.98	1,257	41	33.28	1,257	3,336
28.08	1,257	83	33.38	1,257	3,402
28.18	1,257	124	33.48	1,257	3,469
28.28	1,257	166	33.58	1,257	3,535
28.38	1,257	207	33.68	1,257	3,601
28.48	1,257	249	33.78	1,257	3,668
28.58	1,257	290	33.88	1,257	3,734
28.68	1,257	332	33.98	1,257	3,800
28.78	1,257	373	34.08	1,257	3,867
28.88	1,257	415	34.18	1,257	3,933
28.98	1,257	481	34.28	1,257	4,000
29.08	1,257	547	34.38	1,257	4,066
29.18	1,257	614	34.48	1,257	4,132
29.28	1,257	680	34.58	1,257	4,199
29.38	1,257	747	34.68	1,257	4,265
29.48	1,257	813	34.78	1,257	4,332
29.58	1,257	879	34.88	1,257	4,398
29.68	1,257	946			
29.78	1,257	1,012			
29.88	1,257	1,079			
29.98	1,257	1,145			
30.08	1,257	1,211			
30.18	1,257	1,278			
30.28	1,257	1,344			
30.38	1,257	1,411			
30.48	1,257	1,477			
30.58	1,257	1,543			
30.68	1,257	1,610			
30.78	1,257	1,676			
30.88	1,257	1,742			
30.98	1,257	1,809			
31.08	1,257	1,875			
31.18	1,257	1,942			
31.28	1,257	2,008			
31.38	1,257	2,074			
31.48	1,257	2,141			
31.58	1,257	2,207			
31.68	1,257	2,274			
31.78	1,257	2,340			
31.88	1,257	2,406			
31.98	1,257	2,473			
32.08	1,257	2,539			
32.18	1,257	2,605			
32.28	1,257	2,672			
32.38	1,257	2,738			
32.48	1,257	2,805			
32.58	1,257	2,871			
32.68	1,257	2,937			
32.78	1,257	3,004			
32.88	1,257	3,070			
32.98	1,257	3,137			
33.08	1,257	3,203			

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Pond EX BMP-4A: (4) Existing Drywells

Inflow Area = 83,915 sf, 72.94% Impervious, Inflow Depth = 0.23" for 1.2-Inch event
 Inflow = 0.62 cfs @ 12.24 hrs, Volume= 1,627 cf
 Outflow = 0.06 cfs @ 11.70 hrs, Volume= 1,627 cf, Atten= 90%, Lag= 0.0 min
 Discarded = 0.06 cfs @ 11.70 hrs, Volume= 1,627 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link EX DP-4 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 38.78' @ 12.63 hrs Surf.Area= 314 sf Storage= 703 cf

Plug-Flow detention time= 80.7 min calculated for 1,626 cf (100% of inflow)
 Center-of-Mass det. time= 80.6 min (855.7 - 775.0)

Volume	Invert	Avail.Storage	Storage Description
#1	34.17'	421 cf	10.00'D x 7.00'H Vertical Cone/Cylinder x 4 2,199 cf Overall - 924 cf Embedded = 1,275 cf x 33.0% Voids
#2	35.17'	679 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 4 Inside #1 924 cf Overall - 6.0" Wall Thickness = 679 cf
		1,099 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.17'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.17'	12.0" Round Culvert L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.17' / 34.54' S= 0.0772 ' S Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.06 cfs @ 11.70 hrs HW=34.24' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=34.17' (Free Discharge)
 ↑2=Culvert (Controls 0.00 cfs)

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Stage-Area-Storage for Pond EX BMP-4A: (4) Existing Drywells

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.17	314	0	39.47	314	817
34.27	314	10	39.57	314	834
34.37	314	21	39.67	314	851
34.47	314	31	39.77	314	867
34.57	314	41	39.87	314	884
34.67	314	52	39.97	314	900
34.77	314	62	40.07	314	917
34.87	314	73	40.17	314	934
34.97	314	83	40.27	314	950
35.07	314	93	40.37	314	967
35.17	314	104	40.47	314	983
35.27	314	120	40.57	314	1,000
35.37	314	137	40.67	314	1,017
35.47	314	153	40.77	314	1,033
35.57	314	170	40.87	314	1,050
35.67	314	187	40.97	314	1,066
35.77	314	203	41.07	314	1,083
35.87	314	220	41.17	314	1,099
35.97	314	236			
36.07	314	253			
36.17	314	270			
36.27	314	286			
36.37	314	303			
36.47	314	319			
36.57	314	336			
36.67	314	353			
36.77	314	369			
36.87	314	386			
36.97	314	402			
37.07	314	419			
37.17	314	436			
37.27	314	452			
37.37	314	469			
37.47	314	485			
37.57	314	502			
37.67	314	519			
37.77	314	535			
37.87	314	552			
37.97	314	568			
38.07	314	585			
38.17	314	602			
38.27	314	618			
38.37	314	635			
38.47	314	651			
38.57	314	668			
38.67	314	685			
38.77	314	701			
38.87	314	718			
38.97	314	734			
39.07	314	751			
39.17	314	768			
39.27	314	784			
39.37	314	801			

7458-00 HydroCAD Analysis

Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Pond EX BMP-4B: Existing Basin

Inflow Area = 52,235 sf, 86.89% Impervious, Inflow Depth = 0.86" for 1.2-Inch event
 Inflow = 1.06 cfs @ 12.11 hrs, Volume= 3,728 cf
 Outflow = 0.62 cfs @ 12.25 hrs, Volume= 3,728 cf, Atten= 41%, Lag= 8.2 min
 Discarded = 0.22 cfs @ 12.25 hrs, Volume= 3,401 cf
 Primary = 0.40 cfs @ 12.25 hrs, Volume= 327 cf
 Routed to Pond EX BMP-4A : (4) Existing Drywells

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 43.79' @ 12.25 hrs Surf.Area= 1,155 sf Storage= 752 cf

Plug-Flow detention time= 18.4 min calculated for 3,725 cf (100% of inflow)
 Center-of-Mass det. time= 18.4 min (802.2 - 783.9)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,525 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	745	0	0
45.00	1,780	2,525	2,525

Device	Routing	Invert	Outlet Devices
#1	Discarded	43.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.97'	12.0" Round Culvert L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.97' / 39.17' S= 0.0667 ' S= 0.0667 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	43.73'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.22 cfs @ 12.25 hrs HW=43.79' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=0.39 cfs @ 12.25 hrs HW=43.79' (Free Discharge)
 ↑**2=Culvert** (Passes 0.39 cfs of 6.89 cfs potential flow)
 ↑**3=Orifice/Grate** (Weir Controls 0.39 cfs @ 0.81 fps)

7458-00 HydroCAD Analysis

Type III 24-hr 1.2-Inch Rainfall=1.20"

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Stage-Area-Storage for Pond EX BMP-4B: Existing Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
43.00	745	0	44.06	1,294	1,080
43.02	755	15	44.08	1,304	1,106
43.04	766	30	44.10	1,314	1,133
43.06	776	46	44.12	1,325	1,159
43.08	786	61	44.14	1,335	1,186
43.10	797	77	44.16	1,345	1,212
43.12	807	93	44.18	1,356	1,239
43.14	817	109	44.20	1,366	1,267
43.16	828	126	44.22	1,376	1,294
43.18	838	142	44.24	1,387	1,322
43.20	849	159	44.26	1,397	1,349
43.22	859	176	44.28	1,407	1,378
43.24	869	194	44.30	1,418	1,406
43.26	880	211	44.32	1,428	1,434
43.28	890	229	44.34	1,438	1,463
43.30	900	247	44.36	1,449	1,492
43.32	911	265	44.38	1,459	1,521
43.34	921	283	44.40	1,469	1,550
43.36	931	302	44.42	1,480	1,580
43.38	942	320	44.44	1,490	1,609
43.40	952	339	44.46	1,501	1,639
43.42	962	359	44.48	1,511	1,669
43.44	973	378	44.50	1,521	1,700
43.46	983	397	44.52	1,532	1,730
43.48	993	417	44.54	1,542	1,761
43.50	1,004	437	44.56	1,552	1,792
43.52	1,014	457	44.58	1,563	1,823
43.54	1,024	478	44.60	1,573	1,854
43.56	1,035	498	44.62	1,583	1,886
43.58	1,045	519	44.64	1,594	1,918
43.60	1,056	540	44.66	1,604	1,950
43.62	1,066	561	44.68	1,614	1,982
43.64	1,076	583	44.70	1,625	2,014
43.66	1,087	604	44.72	1,635	2,047
43.68	1,097	626	44.74	1,645	2,080
43.70	1,107	648	44.76	1,656	2,113
43.72	1,118	671	44.78	1,666	2,146
43.74	1,128	693	44.80	1,676	2,179
43.76	1,138	716	44.82	1,687	2,213
43.78	1,149	739	44.84	1,697	2,247
43.80	1,159	762	44.86	1,708	2,281
43.82	1,169	785	44.88	1,718	2,315
43.84	1,180	808	44.90	1,728	2,350
43.86	1,190	832	44.92	1,739	2,384
43.88	1,200	856	44.94	1,749	2,419
43.90	1,211	880	44.96	1,759	2,454
43.92	1,221	904	44.98	1,770	2,490
43.94	1,231	929	45.00	1,780	2,525
43.96	1,242	954			
43.98	1,252	979			
44.00	1,263	1,004			
44.02	1,273	1,029			
44.04	1,283	1,055			

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Link EX DP-1:

Inflow Area = 243,610 sf, 81.90% Impervious, Inflow Depth = 0.36" for 1.2-Inch event
Inflow = 2.62 cfs @ 12.22 hrs, Volume= 7,272 cf
Primary = 2.62 cfs @ 12.22 hrs, Volume= 7,272 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Link EX DP-2:

Inflow Area = 82,190 sf, 70.57% Impervious, Inflow Depth = 0.70" for 1.2-Inch event
Inflow = 1.36 cfs @ 12.11 hrs, Volume= 4,764 cf
Primary = 1.36 cfs @ 12.11 hrs, Volume= 4,764 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Link EX DP-3:

Inflow Area = 256,215 sf, 2.54% Impervious, Inflow Depth = 0.03" for 1.2-Inch event
Inflow = 0.15 cfs @ 12.11 hrs, Volume= 536 cf
Primary = 0.15 cfs @ 12.11 hrs, Volume= 536 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 1.2-Inch Rainfall=1.20"

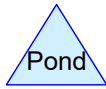
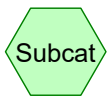
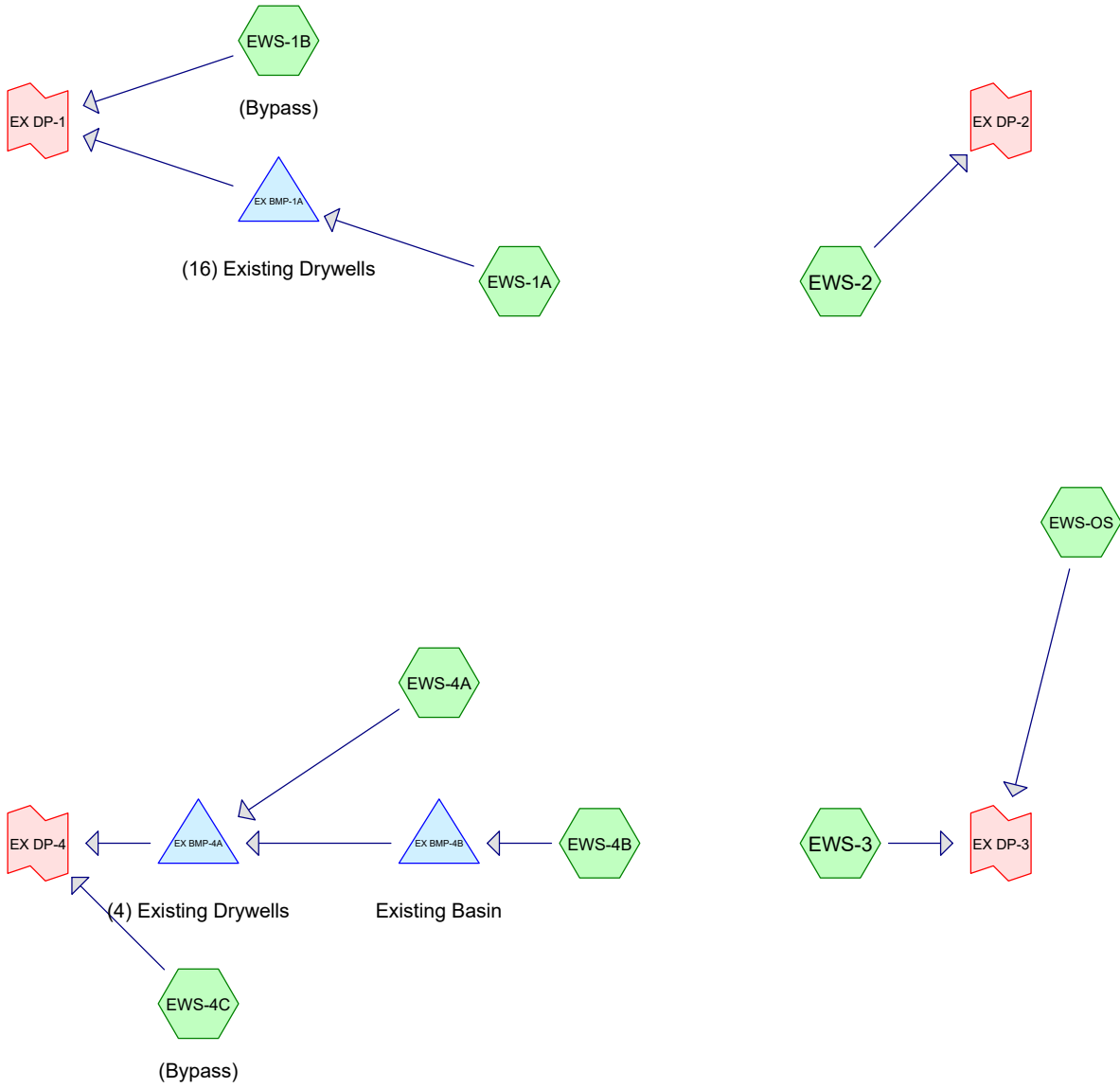
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Summary for Link EX DP-4:

Inflow Area = 116,235 sf, 54.55% Impervious, Inflow Depth = 0.02" for 1.2-Inch event
Inflow = 0.05 cfs @ 12.11 hrs, Volume= 181 cf
Primary = 0.05 cfs @ 12.11 hrs, Volume= 181 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs



Routing Diagram for 7458-00 HydroCAD Analysis
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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type III 24-hr		Default	24.00	1	2.70	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.90	2
3	100-Year	Type III 24-hr		Default	24.00	1	8.70	2

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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
370,800	39	>75% Grass cover, Good, HSG A (EWS-1A, EWS-1B, EWS-2, EWS-3, EWS-4A, EWS-4B, EWS-4C, EWS-OS)
185,010	98	Paved parking, HSG A (EWS-1A, EWS-1B, EWS-2, EWS-3, EWS-4A, EWS-4B, EWS-4C, EWS-OS)
142,440	98	Roofs, HSG A (EWS-1A, EWS-1B, EWS-2, EWS-3, EWS-4B, EWS-OS)
698,250	67	TOTAL AREA

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Type III 24-hr 1-Year Rainfall=2.70"

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Time span=0.00-30.00 hrs, dt=0.02 hrs, 1501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EWS-1A:	Runoff Area=162,220 sf 84.56% Impervious Runoff Depth=2.09" Tc=8.0 min CN=WQ Runoff=7.67 cfs 28,230 cf
Subcatchment EWS-1B: (Bypass)	Runoff Area=81,390 sf 76.61% Impervious Runoff Depth=1.89" Tc=8.0 min CN=WQ Runoff=3.49 cfs 12,832 cf
Subcatchment EWS-2:	Runoff Area=82,190 sf 70.57% Impervious Runoff Depth=1.74" Tc=8.0 min CN=WQ Runoff=3.24 cfs 11,937 cf
Subcatchment EWS-3:	Runoff Area=237,740 sf 2.20% Impervious Runoff Depth=0.05" Tc=8.0 min CN=WQ Runoff=0.29 cfs 1,075 cf
Subcatchment EWS-4A:	Runoff Area=31,680 sf 49.95% Impervious Runoff Depth=1.23" Tc=8.0 min CN=WQ Runoff=0.88 cfs 3,257 cf
Subcatchment EWS-4B:	Runoff Area=52,235 sf 86.89% Impervious Runoff Depth=2.15" Tc=8.0 min CN=WQ Runoff=2.54 cfs 9,340 cf
Subcatchment EWS-4C: (Bypass)	Runoff Area=32,320 sf 6.81% Impervious Runoff Depth=0.17" Tc=8.0 min CN=WQ Runoff=0.12 cfs 453 cf
Subcatchment EWS-OS:	Runoff Area=18,475 sf 7.01% Impervious Runoff Depth=0.17" Tc=8.0 min CN=WQ Runoff=0.07 cfs 267 cf
Pond EX BMP-1A: (16) Existing Drywells	Peak Elev=33.32' Storage=3,363 cf Inflow=7.67 cfs 28,230 cf Discarded=0.24 cfs 14,492 cf Primary=7.07 cfs 13,737 cf Outflow=7.31 cfs 28,229 cf
Pond EX BMP-4A: (4) Existing Drywells	Peak Elev=40.30' Storage=954 cf Inflow=3.12 cfs 6,173 cf Discarded=0.06 cfs 2,698 cf Primary=2.99 cfs 3,479 cf Outflow=3.05 cfs 6,177 cf
Pond EX BMP-4B: Existing Basin	Peak Elev=43.92' Storage=910 cf Inflow=2.54 cfs 9,340 cf Discarded=0.23 cfs 6,424 cf Primary=2.25 cfs 2,916 cf Outflow=2.48 cfs 9,340 cf
Link EX DP-1:	Inflow=10.46 cfs 26,569 cf Primary=10.46 cfs 26,569 cf
Link EX DP-2:	Inflow=3.24 cfs 11,937 cf Primary=3.24 cfs 11,937 cf
Link EX DP-3:	Inflow=0.36 cfs 1,342 cf Primary=0.36 cfs 1,342 cf
Link EX DP-4:	Inflow=3.10 cfs 3,932 cf Primary=3.10 cfs 3,932 cf

Total Runoff Area = 698,250 sf Runoff Volume = 67,391 cf Average Runoff Depth = 1.16"
53.10% Pervious = 370,800 sf 46.90% Impervious = 327,450 sf

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment EWS-1A:

Runoff = 7.67 cfs @ 12.11 hrs, Volume= 28,230 cf, Depth= 2.09"

Routed to Pond EX BMP-1A : (16) Existing Drywells

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
100,505	98	Roofs, HSG A
36,665	98	Paved parking, HSG A
25,050	39	>75% Grass cover, Good, HSG A
162,220		Weighted Average
25,050	39	15.44% Pervious Area
137,170	98	84.56% Impervious Area

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

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Summary for Subcatchment EWS-1B: (Bypass)

Runoff = 3.49 cfs @ 12.11 hrs, Volume= 12,832 cf, Depth= 1.89"

Routed to Link EX DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
28,625	98	Roofs, HSG A
33,725	98	Paved parking, HSG A
19,040	39	>75% Grass cover, Good, HSG A
81,390		Weighted Average
19,040	39	23.39% Pervious Area
62,350	98	76.61% Impervious Area

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

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment EWS-2:

Runoff = 3.24 cfs @ 12.11 hrs, Volume= 11,937 cf, Depth= 1.74"
Routed to Link EX DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
750	98	Roofs, HSG A
57,250	98	Paved parking, HSG A
24,190	39	>75% Grass cover, Good, HSG A
82,190		Weighted Average
24,190	39	29.43% Pervious Area
58,000	98	70.57% Impervious Area

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

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment EWS-3:

Runoff = 0.29 cfs @ 12.11 hrs, Volume= 1,075 cf, Depth= 0.05"
Routed to Link EX DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
660	98	Roofs, HSG A
4,565	98	Paved parking, HSG A
232,515	39	>75% Grass cover, Good, HSG A
237,740		Weighted Average
232,515	39	97.80% Pervious Area
5,225	98	2.20% Impervious Area

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

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Summary for Subcatchment EWS-4A:

Runoff = 0.88 cfs @ 12.11 hrs, Volume= 3,257 cf, Depth= 1.23"

Routed to Pond EX BMP-4A : (4) Existing Drywells

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
15,825	98	Paved parking, HSG A
15,855	39	>75% Grass cover, Good, HSG A
31,680		Weighted Average
15,855	39	50.05% Pervious Area
15,825	98	49.95% Impervious Area

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

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Summary for Subcatchment EWS-4B:

Runoff = 2.54 cfs @ 12.11 hrs, Volume= 9,340 cf, Depth= 2.15"

Routed to Pond EX BMP-4B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
11,160	98	Roofs, HSG A
34,225	98	Paved parking, HSG A
6,850	39	>75% Grass cover, Good, HSG A
52,235		Weighted Average
6,850	39	13.11% Pervious Area
45,385	98	86.89% Impervious Area

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

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment EWS-4C: (Bypass)

Runoff = 0.12 cfs @ 12.11 hrs, Volume= 453 cf, Depth= 0.17"
Routed to Link EX DP-4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
2,200	98	Paved parking, HSG A
30,120	39	>75% Grass cover, Good, HSG A
32,320		Weighted Average
30,120	39	93.19% Pervious Area
2,200	98	6.81% Impervious Area

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

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment EWS-OS:

Runoff = 0.07 cfs @ 12.11 hrs, Volume= 267 cf, Depth= 0.17"
Routed to Link EX DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
740	98	Roofs, HSG A
555	98	Paved parking, HSG A
17,180	39	>75% Grass cover, Good, HSG A
18,475		Weighted Average
17,180	39	92.99% Pervious Area
1,295	98	7.01% Impervious Area

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

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Pond EX BMP-1A: (16) Existing Drywells

Inflow Area = 162,220 sf, 84.56% Impervious, Inflow Depth = 2.09" for 1-Year event
 Inflow = 7.67 cfs @ 12.11 hrs, Volume= 28,230 cf
 Outflow = 7.31 cfs @ 12.14 hrs, Volume= 28,229 cf, Atten= 5%, Lag= 1.7 min
 Discarded = 0.24 cfs @ 8.78 hrs, Volume= 14,492 cf
 Primary = 7.07 cfs @ 12.14 hrs, Volume= 13,737 cf
 Routed to Link EX DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 33.32' @ 12.14 hrs Surf.Area= 1,257 sf Storage= 3,363 cf

Plug-Flow detention time= 48.3 min calculated for 28,210 cf (100% of inflow)
 Center-of-Mass det. time= 48.2 min (810.2 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	27.88'	1,684 cf	10.00'D x 7.00'H Vertical Cone/Cylinder x 16 8,796 cf Overall - 3,695 cf Embedded = 5,102 cf x 33.0% Voids
#2	28.88'	2,714 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 16 Inside #1 3,695 cf Overall - 6.0" Wall Thickness = 2,714 cf
		4,398 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	27.88'	8.270 in/hr Exfiltration over Surface area
#2	Primary	31.89'	18.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 31.89' / 29.86' S= 0.0508 ' S Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Discarded OutFlow Max=0.24 cfs @ 8.78 hrs HW=27.95' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=7.07 cfs @ 12.14 hrs HW=33.32' (Free Discharge)
 ↑2=Culvert (Inlet Controls 7.07 cfs @ 4.07 fps)

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Type III 24-hr 1-Year Rainfall=2.70"

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Stage-Area-Storage for Pond EX BMP-1A: (16) Existing Drywells

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
27.88	1,257	0	33.18	1,257	3,269
27.98	1,257	41	33.28	1,257	3,336
28.08	1,257	83	33.38	1,257	3,402
28.18	1,257	124	33.48	1,257	3,469
28.28	1,257	166	33.58	1,257	3,535
28.38	1,257	207	33.68	1,257	3,601
28.48	1,257	249	33.78	1,257	3,668
28.58	1,257	290	33.88	1,257	3,734
28.68	1,257	332	33.98	1,257	3,800
28.78	1,257	373	34.08	1,257	3,867
28.88	1,257	415	34.18	1,257	3,933
28.98	1,257	481	34.28	1,257	4,000
29.08	1,257	547	34.38	1,257	4,066
29.18	1,257	614	34.48	1,257	4,132
29.28	1,257	680	34.58	1,257	4,199
29.38	1,257	747	34.68	1,257	4,265
29.48	1,257	813	34.78	1,257	4,332
29.58	1,257	879	34.88	1,257	4,398
29.68	1,257	946			
29.78	1,257	1,012			
29.88	1,257	1,079			
29.98	1,257	1,145			
30.08	1,257	1,211			
30.18	1,257	1,278			
30.28	1,257	1,344			
30.38	1,257	1,411			
30.48	1,257	1,477			
30.58	1,257	1,543			
30.68	1,257	1,610			
30.78	1,257	1,676			
30.88	1,257	1,742			
30.98	1,257	1,809			
31.08	1,257	1,875			
31.18	1,257	1,942			
31.28	1,257	2,008			
31.38	1,257	2,074			
31.48	1,257	2,141			
31.58	1,257	2,207			
31.68	1,257	2,274			
31.78	1,257	2,340			
31.88	1,257	2,406			
31.98	1,257	2,473			
32.08	1,257	2,539			
32.18	1,257	2,605			
32.28	1,257	2,672			
32.38	1,257	2,738			
32.48	1,257	2,805			
32.58	1,257	2,871			
32.68	1,257	2,937			
32.78	1,257	3,004			
32.88	1,257	3,070			
32.98	1,257	3,137			
33.08	1,257	3,203			

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Summary for Pond EX BMP-4A: (4) Existing Drywells

Inflow Area = 83,915 sf, 72.94% Impervious, Inflow Depth = 0.88" for 1-Year event
Inflow = 3.12 cfs @ 12.12 hrs, Volume= 6,173 cf
Outflow = 3.05 cfs @ 12.14 hrs, Volume= 6,177 cf, Atten= 2%, Lag= 1.1 min
Discarded = 0.06 cfs @ 10.84 hrs, Volume= 2,698 cf
Primary = 2.99 cfs @ 12.14 hrs, Volume= 3,479 cf
Routed to Link EX DP-4 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
Peak Elev= 40.30' @ 12.14 hrs Surf.Area= 314 sf Storage= 954 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 42.8 min (791.4 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1	34.17'	421 cf	10.00'D x 7.00'H Vertical Cone/Cylinder x 4 2,199 cf Overall - 924 cf Embedded = 1,275 cf x 33.0% Voids
#2	35.17'	679 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 4 Inside #1 924 cf Overall - 6.0" Wall Thickness = 679 cf
		1,099 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.17'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.17'	12.0" Round Culvert L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.17' / 34.54' S= 0.0772 ' S= 0.0772 ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.06 cfs @ 10.84 hrs HW=34.24' (Free Discharge)
↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=2.99 cfs @ 12.14 hrs HW=40.29' (Free Discharge)
↑2=Culvert (Inlet Controls 2.99 cfs @ 3.80 fps)

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Stage-Area-Storage for Pond EX BMP-4A: (4) Existing Drywells

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.17	314	0	39.47	314	817
34.27	314	10	39.57	314	834
34.37	314	21	39.67	314	851
34.47	314	31	39.77	314	867
34.57	314	41	39.87	314	884
34.67	314	52	39.97	314	900
34.77	314	62	40.07	314	917
34.87	314	73	40.17	314	934
34.97	314	83	40.27	314	950
35.07	314	93	40.37	314	967
35.17	314	104	40.47	314	983
35.27	314	120	40.57	314	1,000
35.37	314	137	40.67	314	1,017
35.47	314	153	40.77	314	1,033
35.57	314	170	40.87	314	1,050
35.67	314	187	40.97	314	1,066
35.77	314	203	41.07	314	1,083
35.87	314	220	41.17	314	1,099
35.97	314	236			
36.07	314	253			
36.17	314	270			
36.27	314	286			
36.37	314	303			
36.47	314	319			
36.57	314	336			
36.67	314	353			
36.77	314	369			
36.87	314	386			
36.97	314	402			
37.07	314	419			
37.17	314	436			
37.27	314	452			
37.37	314	469			
37.47	314	485			
37.57	314	502			
37.67	314	519			
37.77	314	535			
37.87	314	552			
37.97	314	568			
38.07	314	585			
38.17	314	602			
38.27	314	618			
38.37	314	635			
38.47	314	651			
38.57	314	668			
38.67	314	685			
38.77	314	701			
38.87	314	718			
38.97	314	734			
39.07	314	751			
39.17	314	768			
39.27	314	784			
39.37	314	801			

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Summary for Pond EX BMP-4B: Existing Basin

Inflow Area = 52,235 sf, 86.89% Impervious, Inflow Depth = 2.15" for 1-Year event
 Inflow = 2.54 cfs @ 12.11 hrs, Volume= 9,340 cf
 Outflow = 2.48 cfs @ 12.13 hrs, Volume= 9,340 cf, Atten= 2%, Lag= 1.2 min
 Discarded = 0.23 cfs @ 12.13 hrs, Volume= 6,424 cf
 Primary = 2.25 cfs @ 12.13 hrs, Volume= 2,916 cf
 Routed to Pond EX BMP-4A : (4) Existing Drywells

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 43.92' @ 12.13 hrs Surf.Area= 1,224 sf Storage= 910 cf

Plug-Flow detention time= 15.8 min calculated for 9,340 cf (100% of inflow)
 Center-of-Mass det. time= 15.8 min (777.8 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,525 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	745	0	0
45.00	1,780	2,525	2,525

Device	Routing	Invert	Outlet Devices
#1	Discarded	43.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.97'	12.0" Round Culvert L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.97' / 39.17' S= 0.0667 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	43.73'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.23 cfs @ 12.13 hrs HW=43.92' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Primary OutFlow Max=2.23 cfs @ 12.13 hrs HW=43.92' (Free Discharge)
 ↑**2=Culvert** (Passes 2.23 cfs of 7.03 cfs potential flow)
 ↑**3=Orifice/Grate** (Weir Controls 2.23 cfs @ 1.44 fps)

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Stage-Area-Storage for Pond EX BMP-4B: Existing Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
43.00	745	0	44.06	1,294	1,080
43.02	755	15	44.08	1,304	1,106
43.04	766	30	44.10	1,314	1,133
43.06	776	46	44.12	1,325	1,159
43.08	786	61	44.14	1,335	1,186
43.10	797	77	44.16	1,345	1,212
43.12	807	93	44.18	1,356	1,239
43.14	817	109	44.20	1,366	1,267
43.16	828	126	44.22	1,376	1,294
43.18	838	142	44.24	1,387	1,322
43.20	849	159	44.26	1,397	1,349
43.22	859	176	44.28	1,407	1,378
43.24	869	194	44.30	1,418	1,406
43.26	880	211	44.32	1,428	1,434
43.28	890	229	44.34	1,438	1,463
43.30	900	247	44.36	1,449	1,492
43.32	911	265	44.38	1,459	1,521
43.34	921	283	44.40	1,469	1,550
43.36	931	302	44.42	1,480	1,580
43.38	942	320	44.44	1,490	1,609
43.40	952	339	44.46	1,501	1,639
43.42	962	359	44.48	1,511	1,669
43.44	973	378	44.50	1,521	1,700
43.46	983	397	44.52	1,532	1,730
43.48	993	417	44.54	1,542	1,761
43.50	1,004	437	44.56	1,552	1,792
43.52	1,014	457	44.58	1,563	1,823
43.54	1,024	478	44.60	1,573	1,854
43.56	1,035	498	44.62	1,583	1,886
43.58	1,045	519	44.64	1,594	1,918
43.60	1,056	540	44.66	1,604	1,950
43.62	1,066	561	44.68	1,614	1,982
43.64	1,076	583	44.70	1,625	2,014
43.66	1,087	604	44.72	1,635	2,047
43.68	1,097	626	44.74	1,645	2,080
43.70	1,107	648	44.76	1,656	2,113
43.72	1,118	671	44.78	1,666	2,146
43.74	1,128	693	44.80	1,676	2,179
43.76	1,138	716	44.82	1,687	2,213
43.78	1,149	739	44.84	1,697	2,247
43.80	1,159	762	44.86	1,708	2,281
43.82	1,169	785	44.88	1,718	2,315
43.84	1,180	808	44.90	1,728	2,350
43.86	1,190	832	44.92	1,739	2,384
43.88	1,200	856	44.94	1,749	2,419
43.90	1,211	880	44.96	1,759	2,454
43.92	1,221	904	44.98	1,770	2,490
43.94	1,231	929	45.00	1,780	2,525
43.96	1,242	954			
43.98	1,252	979			
44.00	1,263	1,004			
44.02	1,273	1,029			
44.04	1,283	1,055			

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Summary for Link EX DP-1:

Inflow Area = 243,610 sf, 81.90% Impervious, Inflow Depth = 1.31" for 1-Year event
Inflow = 10.46 cfs @ 12.13 hrs, Volume= 26,569 cf
Primary = 10.46 cfs @ 12.13 hrs, Volume= 26,569 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Summary for Link EX DP-2:

Inflow Area = 82,190 sf, 70.57% Impervious, Inflow Depth = 1.74" for 1-Year event
Inflow = 3.24 cfs @ 12.11 hrs, Volume= 11,937 cf
Primary = 3.24 cfs @ 12.11 hrs, Volume= 11,937 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Summary for Link EX DP-3:

Inflow Area = 256,215 sf, 2.54% Impervious, Inflow Depth = 0.06" for 1-Year event
Inflow = 0.36 cfs @ 12.11 hrs, Volume= 1,342 cf
Primary = 0.36 cfs @ 12.11 hrs, Volume= 1,342 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Link EX DP-4:

Inflow Area = 116,235 sf, 54.55% Impervious, Inflow Depth = 0.41" for 1-Year event
Inflow = 3.10 cfs @ 12.14 hrs, Volume= 3,932 cf
Primary = 3.10 cfs @ 12.14 hrs, Volume= 3,932 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 10-Year Rainfall=4.90"

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Time span=0.00-30.00 hrs, dt=0.02 hrs, 1501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EWS-1A:	Runoff Area=162,220 sf 84.56% Impervious Runoff Depth=3.97" Tc=8.0 min CN=WQ Runoff=14.09 cfs 53,682 cf
Subcatchment EWS-1B: (Bypass)	Runoff Area=81,390 sf 76.61% Impervious Runoff Depth=3.61" Tc=8.0 min CN=WQ Runoff=6.41 cfs 24,516 cf
Subcatchment EWS-2:	Runoff Area=82,190 sf 70.57% Impervious Runoff Depth=3.34" Tc=8.0 min CN=WQ Runoff=5.96 cfs 22,903 cf
Subcatchment EWS-3:	Runoff Area=237,740 sf 2.20% Impervious Runoff Depth=0.28" Tc=8.0 min CN=WQ Runoff=0.54 cfs 5,524 cf
Subcatchment EWS-4A:	Runoff Area=31,680 sf 49.95% Impervious Runoff Depth=2.42" Tc=8.0 min CN=WQ Runoff=1.63 cfs 6,388 cf
Subcatchment EWS-4B:	Runoff Area=52,235 sf 86.89% Impervious Runoff Depth=4.08" Tc=8.0 min CN=WQ Runoff=4.66 cfs 17,740 cf
Subcatchment EWS-4C: (Bypass)	Runoff Area=32,320 sf 6.81% Impervious Runoff Depth=0.49" Tc=8.0 min CN=WQ Runoff=0.23 cfs 1,307 cf
Subcatchment EWS-OS:	Runoff Area=18,475 sf 7.01% Impervious Runoff Depth=0.49" Tc=8.0 min CN=WQ Runoff=0.13 cfs 761 cf
Pond EX BMP-1A: (16) Existing Drywells	Peak Elev=34.79' Storage=4,339 cf Inflow=14.09 cfs 53,682 cf Discarded=0.24 cfs 19,063 cf Primary=12.48 cfs 34,619 cf Outflow=12.72 cfs 53,682 cf
Pond EX BMP-4A: (4) Existing Drywells	Peak Elev=42.37' Storage=1,099 cf Inflow=5.95 cfs 14,352 cf Discarded=0.06 cfs 3,813 cf Primary=6.22 cfs 10,503 cf Outflow=6.28 cfs 14,316 cf
Pond EX BMP-4B: Existing Basin	Peak Elev=44.03' Storage=1,045 cf Inflow=4.66 cfs 17,740 cf Discarded=0.24 cfs 9,776 cf Primary=4.35 cfs 7,964 cf Outflow=4.59 cfs 17,740 cf
Link EX DP-1:	Inflow=18.52 cfs 59,135 cf Primary=18.52 cfs 59,135 cf
Link EX DP-2:	Inflow=5.96 cfs 22,903 cf Primary=5.96 cfs 22,903 cf
Link EX DP-3:	Inflow=0.67 cfs 6,285 cf Primary=0.67 cfs 6,285 cf
Link EX DP-4:	Inflow=6.44 cfs 11,810 cf Primary=6.44 cfs 11,810 cf

Total Runoff Area = 698,250 sf Runoff Volume = 132,821 cf Average Runoff Depth = 2.28"
53.10% Pervious = 370,800 sf 46.90% Impervious = 327,450 sf

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Summary for Subcatchment EWS-1A:

Runoff = 14.09 cfs @ 12.11 hrs, Volume= 53,682 cf, Depth= 3.97"

Routed to Pond EX BMP-1A : (16) Existing Drywells

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
100,505	98	Roofs, HSG A
36,665	98	Paved parking, HSG A
25,050	39	>75% Grass cover, Good, HSG A
162,220		Weighted Average
25,050	39	15.44% Pervious Area
137,170	98	84.56% Impervious Area

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

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Summary for Subcatchment EWS-1B: (Bypass)

Runoff = 6.41 cfs @ 12.11 hrs, Volume= 24,516 cf, Depth= 3.61"
Routed to Link EX DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
28,625	98	Roofs, HSG A
33,725	98	Paved parking, HSG A
19,040	39	>75% Grass cover, Good, HSG A
81,390		Weighted Average
19,040	39	23.39% Pervious Area
62,350	98	76.61% Impervious Area

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

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Subcatchment EWS-2:

Runoff = 5.96 cfs @ 12.11 hrs, Volume= 22,903 cf, Depth= 3.34"
Routed to Link EX DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
750	98	Roofs, HSG A
57,250	98	Paved parking, HSG A
24,190	39	>75% Grass cover, Good, HSG A
82,190		Weighted Average
24,190	39	29.43% Pervious Area
58,000	98	70.57% Impervious Area

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

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Subcatchment EWS-3:

Runoff = 0.54 cfs @ 12.11 hrs, Volume= 5,524 cf, Depth= 0.28"
Routed to Link EX DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
660	98	Roofs, HSG A
4,565	98	Paved parking, HSG A
232,515	39	>75% Grass cover, Good, HSG A
237,740		Weighted Average
232,515	39	97.80% Pervious Area
5,225	98	2.20% Impervious Area

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

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Subcatchment EWS-4A:

Runoff = 1.63 cfs @ 12.11 hrs, Volume= 6,388 cf, Depth= 2.42"

Routed to Pond EX BMP-4A : (4) Existing Drywells

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
15,825	98	Paved parking, HSG A
15,855	39	>75% Grass cover, Good, HSG A
31,680		Weighted Average
15,855	39	50.05% Pervious Area
15,825	98	49.95% Impervious Area

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

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Summary for Subcatchment EWS-4B:

Runoff = 4.66 cfs @ 12.11 hrs, Volume= 17,740 cf, Depth= 4.08"

Routed to Pond EX BMP-4B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
11,160	98	Roofs, HSG A
34,225	98	Paved parking, HSG A
6,850	39	>75% Grass cover, Good, HSG A
52,235		Weighted Average
6,850	39	13.11% Pervious Area
45,385	98	86.89% Impervious Area

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

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Subcatchment EWS-4C: (Bypass)

Runoff = 0.23 cfs @ 12.11 hrs, Volume= 1,307 cf, Depth= 0.49"
 Routed to Link EX DP-4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
 Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
2,200	98	Paved parking, HSG A
30,120	39	>75% Grass cover, Good, HSG A
32,320		Weighted Average
30,120	39	93.19% Pervious Area
2,200	98	6.81% Impervious Area

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

7458-00 HydroCAD Analysis

Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Subcatchment EWS-OS:

Runoff = 0.13 cfs @ 12.11 hrs, Volume= 761 cf, Depth= 0.49"
Routed to Link EX DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
740	98	Roofs, HSG A
555	98	Paved parking, HSG A
17,180	39	>75% Grass cover, Good, HSG A
18,475		Weighted Average
17,180	39	92.99% Pervious Area
1,295	98	7.01% Impervious Area

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

7458-00 HydroCAD Analysis

Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Pond EX BMP-1A: (16) Existing Drywells

Inflow Area = 162,220 sf, 84.56% Impervious, Inflow Depth = 3.97" for 10-Year event
 Inflow = 14.09 cfs @ 12.11 hrs, Volume= 53,682 cf
 Outflow = 12.72 cfs @ 12.15 hrs, Volume= 53,682 cf, Atten= 10%, Lag= 2.6 min
 Discarded = 0.24 cfs @ 6.56 hrs, Volume= 19,063 cf
 Primary = 12.48 cfs @ 12.15 hrs, Volume= 34,619 cf
 Routed to Link EX DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 34.79' @ 12.15 hrs Surf.Area= 1,257 sf Storage= 4,339 cf

Plug-Flow detention time= 42.7 min calculated for 53,682 cf (100% of inflow)
 Center-of-Mass det. time= 42.7 min (794.8 - 752.1)

Volume	Invert	Avail.Storage	Storage Description
#1	27.88'	1,684 cf	10.00'D x 7.00'H Vertical Cone/Cylinder x 16 8,796 cf Overall - 3,695 cf Embedded = 5,102 cf x 33.0% Voids
#2	28.88'	2,714 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 16 Inside #1 3,695 cf Overall - 6.0" Wall Thickness = 2,714 cf
		4,398 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	27.88'	8.270 in/hr Exfiltration over Surface area
#2	Primary	31.89'	18.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 31.89' / 29.86' S= 0.0508 ' S= 0.0508 ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Discarded OutFlow Max=0.24 cfs @ 6.56 hrs HW=27.95' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=12.44 cfs @ 12.15 hrs HW=34.78' (Free Discharge)
 ↑2=Culvert (Inlet Controls 12.44 cfs @ 7.04 fps)

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Type III 24-hr 10-Year Rainfall=4.90"

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Stage-Area-Storage for Pond EX BMP-1A: (16) Existing Drywells

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
27.88	1,257	0	33.18	1,257	3,269
27.98	1,257	41	33.28	1,257	3,336
28.08	1,257	83	33.38	1,257	3,402
28.18	1,257	124	33.48	1,257	3,469
28.28	1,257	166	33.58	1,257	3,535
28.38	1,257	207	33.68	1,257	3,601
28.48	1,257	249	33.78	1,257	3,668
28.58	1,257	290	33.88	1,257	3,734
28.68	1,257	332	33.98	1,257	3,800
28.78	1,257	373	34.08	1,257	3,867
28.88	1,257	415	34.18	1,257	3,933
28.98	1,257	481	34.28	1,257	4,000
29.08	1,257	547	34.38	1,257	4,066
29.18	1,257	614	34.48	1,257	4,132
29.28	1,257	680	34.58	1,257	4,199
29.38	1,257	747	34.68	1,257	4,265
29.48	1,257	813	34.78	1,257	4,332
29.58	1,257	879	34.88	1,257	4,398
29.68	1,257	946			
29.78	1,257	1,012			
29.88	1,257	1,079			
29.98	1,257	1,145			
30.08	1,257	1,211			
30.18	1,257	1,278			
30.28	1,257	1,344			
30.38	1,257	1,411			
30.48	1,257	1,477			
30.58	1,257	1,543			
30.68	1,257	1,610			
30.78	1,257	1,676			
30.88	1,257	1,742			
30.98	1,257	1,809			
31.08	1,257	1,875			
31.18	1,257	1,942			
31.28	1,257	2,008			
31.38	1,257	2,074			
31.48	1,257	2,141			
31.58	1,257	2,207			
31.68	1,257	2,274			
31.78	1,257	2,340			
31.88	1,257	2,406			
31.98	1,257	2,473			
32.08	1,257	2,539			
32.18	1,257	2,605			
32.28	1,257	2,672			
32.38	1,257	2,738			
32.48	1,257	2,805			
32.58	1,257	2,871			
32.68	1,257	2,937			
32.78	1,257	3,004			
32.88	1,257	3,070			
32.98	1,257	3,137			
33.08	1,257	3,203			

7458-00 HydroCAD Analysis

Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Pond EX BMP-4A: (4) Existing Drywells

Inflow Area = 83,915 sf, 72.94% Impervious, Inflow Depth = 2.05" for 10-Year event
 Inflow = 5.95 cfs @ 12.12 hrs, Volume= 14,352 cf
 Outflow = 6.28 cfs @ 12.12 hrs, Volume= 14,316 cf, Atten= 0%, Lag= 0.0 min
 Discarded = 0.06 cfs @ 9.00 hrs, Volume= 3,813 cf
 Primary = 6.22 cfs @ 12.12 hrs, Volume= 10,503 cf
 Routed to Link EX DP-4 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 42.37' @ 12.12 hrs Surf.Area= 314 sf Storage= 1,099 cf

Plug-Flow detention time= 32.6 min calculated for 14,316 cf (100% of inflow)
 Center-of-Mass det. time= 30.9 min (776.8 - 745.9)

Volume	Invert	Avail.Storage	Storage Description
#1	34.17'	421 cf	10.00'D x 7.00'H Vertical Cone/Cylinder x 4 2,199 cf Overall - 924 cf Embedded = 1,275 cf x 33.0% Voids
#2	35.17'	679 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 4 Inside #1 924 cf Overall - 6.0" Wall Thickness = 679 cf
		1,099 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.17'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.17'	12.0" Round Culvert L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.17' / 34.54' S= 0.0772 ' S= 0.0772 ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.06 cfs @ 9.00 hrs HW=34.24' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=6.21 cfs @ 12.12 hrs HW=42.37' (Free Discharge)
 ↑2=Culvert (Inlet Controls 6.21 cfs @ 7.91 fps)

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Type III 24-hr 10-Year Rainfall=4.90"

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Stage-Area-Storage for Pond EX BMP-4A: (4) Existing Drywells

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.17	314	0	39.47	314	817
34.27	314	10	39.57	314	834
34.37	314	21	39.67	314	851
34.47	314	31	39.77	314	867
34.57	314	41	39.87	314	884
34.67	314	52	39.97	314	900
34.77	314	62	40.07	314	917
34.87	314	73	40.17	314	934
34.97	314	83	40.27	314	950
35.07	314	93	40.37	314	967
35.17	314	104	40.47	314	983
35.27	314	120	40.57	314	1,000
35.37	314	137	40.67	314	1,017
35.47	314	153	40.77	314	1,033
35.57	314	170	40.87	314	1,050
35.67	314	187	40.97	314	1,066
35.77	314	203	41.07	314	1,083
35.87	314	220	41.17	314	1,099
35.97	314	236	41.27	314	1,099
36.07	314	253	41.37	314	1,099
36.17	314	270	41.47	314	1,099
36.27	314	286	41.57	314	1,099
36.37	314	303	41.67	314	1,099
36.47	314	319	41.77	314	1,099
36.57	314	336	41.87	314	1,099
36.67	314	353	41.97	314	1,099
36.77	314	369	42.07	314	1,099
36.87	314	386	42.17	314	1,099
36.97	314	402	42.27	314	1,099
37.07	314	419	42.37	314	1,099
37.17	314	436			
37.27	314	452			
37.37	314	469			
37.47	314	485			
37.57	314	502			
37.67	314	519			
37.77	314	535			
37.87	314	552			
37.97	314	568			
38.07	314	585			
38.17	314	602			
38.27	314	618			
38.37	314	635			
38.47	314	651			
38.57	314	668			
38.67	314	685			
38.77	314	701			
38.87	314	718			
38.97	314	734			
39.07	314	751			
39.17	314	768			
39.27	314	784			
39.37	314	801			

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Pond EX BMP-4B: Existing Basin

Inflow Area = 52,235 sf, 86.89% Impervious, Inflow Depth = 4.08" for 10-Year event
 Inflow = 4.66 cfs @ 12.11 hrs, Volume= 17,740 cf
 Outflow = 4.59 cfs @ 12.13 hrs, Volume= 17,740 cf, Atten= 2%, Lag= 1.0 min
 Discarded = 0.24 cfs @ 12.13 hrs, Volume= 9,776 cf
 Primary = 4.35 cfs @ 12.13 hrs, Volume= 7,964 cf
 Routed to Pond EX BMP-4A : (4) Existing Drywells

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 44.03' @ 12.13 hrs Surf.Area= 1,279 sf Storage= 1,045 cf

Plug-Flow detention time= 16.4 min calculated for 17,728 cf (100% of inflow)
 Center-of-Mass det. time= 16.4 min (768.2 - 751.8)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,525 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	745	0	0
45.00	1,780	2,525	2,525

Device	Routing	Invert	Outlet Devices
#1	Discarded	43.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.97'	12.0" Round Culvert L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.97' / 39.17' S= 0.0667 ' S= 0.0667 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	43.73'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.24 cfs @ 12.13 hrs HW=44.03' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=4.32 cfs @ 12.13 hrs HW=44.03' (Free Discharge)
 ↑**2=Culvert** (Passes 4.32 cfs of 7.14 cfs potential flow)
 ↑**3=Orifice/Grate** (Weir Controls 4.32 cfs @ 1.79 fps)

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Type III 24-hr 10-Year Rainfall=4.90"

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Stage-Area-Storage for Pond EX BMP-4B: Existing Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
43.00	745	0	44.06	1,294	1,080
43.02	755	15	44.08	1,304	1,106
43.04	766	30	44.10	1,314	1,133
43.06	776	46	44.12	1,325	1,159
43.08	786	61	44.14	1,335	1,186
43.10	797	77	44.16	1,345	1,212
43.12	807	93	44.18	1,356	1,239
43.14	817	109	44.20	1,366	1,267
43.16	828	126	44.22	1,376	1,294
43.18	838	142	44.24	1,387	1,322
43.20	849	159	44.26	1,397	1,349
43.22	859	176	44.28	1,407	1,378
43.24	869	194	44.30	1,418	1,406
43.26	880	211	44.32	1,428	1,434
43.28	890	229	44.34	1,438	1,463
43.30	900	247	44.36	1,449	1,492
43.32	911	265	44.38	1,459	1,521
43.34	921	283	44.40	1,469	1,550
43.36	931	302	44.42	1,480	1,580
43.38	942	320	44.44	1,490	1,609
43.40	952	339	44.46	1,501	1,639
43.42	962	359	44.48	1,511	1,669
43.44	973	378	44.50	1,521	1,700
43.46	983	397	44.52	1,532	1,730
43.48	993	417	44.54	1,542	1,761
43.50	1,004	437	44.56	1,552	1,792
43.52	1,014	457	44.58	1,563	1,823
43.54	1,024	478	44.60	1,573	1,854
43.56	1,035	498	44.62	1,583	1,886
43.58	1,045	519	44.64	1,594	1,918
43.60	1,056	540	44.66	1,604	1,950
43.62	1,066	561	44.68	1,614	1,982
43.64	1,076	583	44.70	1,625	2,014
43.66	1,087	604	44.72	1,635	2,047
43.68	1,097	626	44.74	1,645	2,080
43.70	1,107	648	44.76	1,656	2,113
43.72	1,118	671	44.78	1,666	2,146
43.74	1,128	693	44.80	1,676	2,179
43.76	1,138	716	44.82	1,687	2,213
43.78	1,149	739	44.84	1,697	2,247
43.80	1,159	762	44.86	1,708	2,281
43.82	1,169	785	44.88	1,718	2,315
43.84	1,180	808	44.90	1,728	2,350
43.86	1,190	832	44.92	1,739	2,384
43.88	1,200	856	44.94	1,749	2,419
43.90	1,211	880	44.96	1,759	2,454
43.92	1,221	904	44.98	1,770	2,490
43.94	1,231	929	45.00	1,780	2,525
43.96	1,242	954			
43.98	1,252	979			
44.00	1,263	1,004			
44.02	1,273	1,029			
44.04	1,283	1,055			

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Summary for Link EX DP-1:

Inflow Area = 243,610 sf, 81.90% Impervious, Inflow Depth = 2.91" for 10-Year event
Inflow = 18.52 cfs @ 12.13 hrs, Volume= 59,135 cf
Primary = 18.52 cfs @ 12.13 hrs, Volume= 59,135 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Link EX DP-2:

Inflow Area = 82,190 sf, 70.57% Impervious, Inflow Depth = 3.34" for 10-Year event
Inflow = 5.96 cfs @ 12.11 hrs, Volume= 22,903 cf
Primary = 5.96 cfs @ 12.11 hrs, Volume= 22,903 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Link EX DP-3:

Inflow Area = 256,215 sf, 2.54% Impervious, Inflow Depth = 0.29" for 10-Year event
Inflow = 0.67 cfs @ 12.11 hrs, Volume= 6,285 cf
Primary = 0.67 cfs @ 12.11 hrs, Volume= 6,285 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Link EX DP-4:

Inflow Area = 116,235 sf, 54.55% Impervious, Inflow Depth = 1.22" for 10-Year event
Inflow = 6.44 cfs @ 12.12 hrs, Volume= 11,810 cf
Primary = 6.44 cfs @ 12.12 hrs, Volume= 11,810 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 100-Year Rainfall=8.70"

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Time span=0.00-30.00 hrs, dt=0.02 hrs, 1501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment EWS-1A:	Runoff Area=162,220 sf 84.56% Impervious Runoff Depth=7.38" Tc=8.0 min CN=WQ Runoff=25.75 cfs 99,758 cf
Subcatchment EWS-1B: (Bypass)	Runoff Area=81,390 sf 76.61% Impervious Runoff Depth=6.82" Tc=8.0 min CN=WQ Runoff=11.89 cfs 46,278 cf
Subcatchment EWS-2:	Runoff Area=82,190 sf 70.57% Impervious Runoff Depth=6.40" Tc=8.0 min CN=WQ Runoff=11.22 cfs 43,839 cf
Subcatchment EWS-3:	Runoff Area=237,740 sf 2.20% Impervious Runoff Depth=1.62" Tc=8.0 min CN=WQ Runoff=7.08 cfs 32,041 cf
Subcatchment EWS-4A:	Runoff Area=31,680 sf 49.95% Impervious Runoff Depth=4.96" Tc=8.0 min CN=WQ Runoff=3.29 cfs 13,090 cf
Subcatchment EWS-4B:	Runoff Area=52,235 sf 86.89% Impervious Runoff Depth=7.54" Tc=8.0 min CN=WQ Runoff=8.48 cfs 32,831 cf
Subcatchment EWS-4C: (Bypass)	Runoff Area=32,320 sf 6.81% Impervious Runoff Depth=1.94" Tc=8.0 min CN=WQ Runoff=1.18 cfs 5,224 cf
Subcatchment EWS-OS:	Runoff Area=18,475 sf 7.01% Impervious Runoff Depth=1.95" Tc=8.0 min CN=WQ Runoff=0.68 cfs 3,008 cf
Pond EX BMP-1A: (16) Existing Drywells	Peak Elev=42.30' Storage=4,398 cf Inflow=25.75 cfs 99,758 cf Discarded=0.24 cfs 21,943 cf Primary=26.44 cfs 77,725 cf Outflow=26.68 cfs 99,668 cf
Pond EX BMP-4A: (4) Existing Drywells	Peak Elev=47.49' Storage=1,099 cf Inflow=10.63 cfs 32,285 cf Discarded=0.06 cfs 5,061 cf Primary=10.57 cfs 27,235 cf Outflow=10.63 cfs 32,296 cf
Pond EX BMP-4B: Existing Basin	Peak Elev=44.28' Storage=1,375 cf Inflow=8.48 cfs 32,831 cf Discarded=0.27 cfs 13,636 cf Primary=7.38 cfs 19,195 cf Outflow=7.65 cfs 32,831 cf
Link EX DP-1:	Inflow=38.29 cfs 124,003 cf Primary=38.29 cfs 124,003 cf
Link EX DP-2:	Inflow=11.22 cfs 43,839 cf Primary=11.22 cfs 43,839 cf
Link EX DP-3:	Inflow=7.76 cfs 35,049 cf Primary=7.76 cfs 35,049 cf
Link EX DP-4:	Inflow=11.75 cfs 32,459 cf Primary=11.75 cfs 32,459 cf

Total Runoff Area = 698,250 sf Runoff Volume = 276,069 cf Average Runoff Depth = 4.74"
53.10% Pervious = 370,800 sf 46.90% Impervious = 327,450 sf

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Type III 24-hr 100-Year Rainfall=8.70"

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Summary for Subcatchment EWS-1A:

Runoff = 25.75 cfs @ 12.11 hrs, Volume= 99,758 cf, Depth= 7.38"

Routed to Pond EX BMP-1A : (16) Existing Drywells

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
100,505	98	Roofs, HSG A
36,665	98	Paved parking, HSG A
25,050	39	>75% Grass cover, Good, HSG A
162,220		Weighted Average
25,050	39	15.44% Pervious Area
137,170	98	84.56% Impervious Area

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

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Type III 24-hr 100-Year Rainfall=8.70"

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Summary for Subcatchment EWS-1B: (Bypass)

Runoff = 11.89 cfs @ 12.11 hrs, Volume= 46,278 cf, Depth= 6.82"
Routed to Link EX DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
28,625	98	Roofs, HSG A
33,725	98	Paved parking, HSG A
19,040	39	>75% Grass cover, Good, HSG A
81,390		Weighted Average
19,040	39	23.39% Pervious Area
62,350	98	76.61% Impervious Area

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

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Summary for Subcatchment EWS-2:

Runoff = 11.22 cfs @ 12.11 hrs, Volume= 43,839 cf, Depth= 6.40"
Routed to Link EX DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
750	98	Roofs, HSG A
57,250	98	Paved parking, HSG A
24,190	39	>75% Grass cover, Good, HSG A
82,190		Weighted Average
24,190	39	29.43% Pervious Area
58,000	98	70.57% Impervious Area

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

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Summary for Subcatchment EWS-3:

Runoff = 7.08 cfs @ 12.14 hrs, Volume= 32,041 cf, Depth= 1.62"
Routed to Link EX DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
660	98	Roofs, HSG A
4,565	98	Paved parking, HSG A
232,515	39	>75% Grass cover, Good, HSG A
237,740		Weighted Average
232,515	39	97.80% Pervious Area
5,225	98	2.20% Impervious Area

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

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Summary for Subcatchment EWS-4A:

Runoff = 3.29 cfs @ 12.11 hrs, Volume= 13,090 cf, Depth= 4.96"

Routed to Pond EX BMP-4A : (4) Existing Drywells

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
15,825	98	Paved parking, HSG A
15,855	39	>75% Grass cover, Good, HSG A
31,680		Weighted Average
15,855	39	50.05% Pervious Area
15,825	98	49.95% Impervious Area

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

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Type III 24-hr 100-Year Rainfall=8.70"

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Summary for Subcatchment EWS-4B:

Runoff = 8.48 cfs @ 12.11 hrs, Volume= 32,831 cf, Depth= 7.54"

Routed to Pond EX BMP-4B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
11,160	98	Roofs, HSG A
34,225	98	Paved parking, HSG A
6,850	39	>75% Grass cover, Good, HSG A
52,235		Weighted Average
6,850	39	13.11% Pervious Area
45,385	98	86.89% Impervious Area

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

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Type III 24-hr 100-Year Rainfall=8.70"

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Summary for Subcatchment EWS-4C: (Bypass)

Runoff = 1.18 cfs @ 12.13 hrs, Volume= 5,224 cf, Depth= 1.94"
Routed to Link EX DP-4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
2,200	98	Paved parking, HSG A
30,120	39	>75% Grass cover, Good, HSG A
32,320		Weighted Average
30,120	39	93.19% Pervious Area
2,200	98	6.81% Impervious Area

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

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Summary for Subcatchment EWS-OS:

Runoff = 0.68 cfs @ 12.13 hrs, Volume= 3,008 cf, Depth= 1.95"
Routed to Link EX DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
740	98	Roofs, HSG A
555	98	Paved parking, HSG A
17,180	39	>75% Grass cover, Good, HSG A
18,475		Weighted Average
17,180	39	92.99% Pervious Area
1,295	98	7.01% Impervious Area

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

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Summary for Pond EX BMP-1A: (16) Existing Drywells

Inflow Area = 162,220 sf, 84.56% Impervious, Inflow Depth = 7.38" for 100-Year event
 Inflow = 25.75 cfs @ 12.11 hrs, Volume= 99,758 cf
 Outflow = 26.68 cfs @ 12.12 hrs, Volume= 99,668 cf, Atten= 0%, Lag= 0.5 min
 Discarded = 0.24 cfs @ 3.12 hrs, Volume= 21,943 cf
 Primary = 26.44 cfs @ 12.12 hrs, Volume= 77,725 cf
 Routed to Link EX DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 42.30' @ 12.12 hrs Surf.Area= 1,257 sf Storage= 4,398 cf

Plug-Flow detention time= 31.7 min calculated for 99,601 cf (100% of inflow)
 Center-of-Mass det. time= 31.2 min (778.2 - 747.0)

Volume	Invert	Avail.Storage	Storage Description
#1	27.88'	1,684 cf	10.00'D x 7.00'H Vertical Cone/Cylinder x 16 8,796 cf Overall - 3,695 cf Embedded = 5,102 cf x 33.0% Voids
#2	28.88'	2,714 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 16 Inside #1 3,695 cf Overall - 6.0" Wall Thickness = 2,714 cf
		4,398 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	27.88'	8.270 in/hr Exfiltration over Surface area
#2	Primary	31.89'	18.0" Round Culvert L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 31.89' / 29.86' S= 0.0508 ' S= 0.0508 ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf

Discarded OutFlow Max=0.24 cfs @ 3.12 hrs HW=28.02' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=26.19 cfs @ 12.12 hrs HW=42.11' (Free Discharge)
 ↑2=Culvert (Inlet Controls 26.19 cfs @ 14.82 fps)

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Type III 24-hr 100-Year Rainfall=8.70"

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Stage-Area-Storage for Pond EX BMP-1A: (16) Existing Drywells

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
27.88	1,257	0	38.48	1,257	4,398
28.08	1,257	83	38.68	1,257	4,398
28.28	1,257	166	38.88	1,257	4,398
28.48	1,257	249	39.08	1,257	4,398
28.68	1,257	332	39.28	1,257	4,398
28.88	1,257	415	39.48	1,257	4,398
29.08	1,257	547	39.68	1,257	4,398
29.28	1,257	680	39.88	1,257	4,398
29.48	1,257	813	40.08	1,257	4,398
29.68	1,257	946	40.28	1,257	4,398
29.88	1,257	1,079	40.48	1,257	4,398
30.08	1,257	1,211	40.68	1,257	4,398
30.28	1,257	1,344	40.88	1,257	4,398
30.48	1,257	1,477	41.08	1,257	4,398
30.68	1,257	1,610	41.28	1,257	4,398
30.88	1,257	1,742	41.48	1,257	4,398
31.08	1,257	1,875	41.68	1,257	4,398
31.28	1,257	2,008	41.88	1,257	4,398
31.48	1,257	2,141	42.08	1,257	4,398
31.68	1,257	2,274	42.28	1,257	4,398
31.88	1,257	2,406			
32.08	1,257	2,539			
32.28	1,257	2,672			
32.48	1,257	2,805			
32.68	1,257	2,937			
32.88	1,257	3,070			
33.08	1,257	3,203			
33.28	1,257	3,336			
33.48	1,257	3,469			
33.68	1,257	3,601			
33.88	1,257	3,734			
34.08	1,257	3,867			
34.28	1,257	4,000			
34.48	1,257	4,132			
34.68	1,257	4,265			
34.88	1,257	4,398			
35.08	1,257	4,398			
35.28	1,257	4,398			
35.48	1,257	4,398			
35.68	1,257	4,398			
35.88	1,257	4,398			
36.08	1,257	4,398			
36.28	1,257	4,398			
36.48	1,257	4,398			
36.68	1,257	4,398			
36.88	1,257	4,398			
37.08	1,257	4,398			
37.28	1,257	4,398			
37.48	1,257	4,398			
37.68	1,257	4,398			
37.88	1,257	4,398			
38.08	1,257	4,398			
38.28	1,257	4,398			

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Summary for Pond EX BMP-4A: (4) Existing Drywells

Inflow Area = 83,915 sf, 72.94% Impervious, Inflow Depth = 4.62" for 100-Year event
 Inflow = 10.63 cfs @ 12.12 hrs, Volume= 32,285 cf
 Outflow = 10.63 cfs @ 12.12 hrs, Volume= 32,296 cf, Atten= 0%, Lag= 0.0 min
 Discarded = 0.06 cfs @ 6.94 hrs, Volume= 5,061 cf
 Primary = 10.57 cfs @ 12.12 hrs, Volume= 27,235 cf
 Routed to Link EX DP-4 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 47.49' @ 12.12 hrs Surf.Area= 314 sf Storage= 1,099 cf

Plug-Flow detention time= 23.1 min calculated for 32,275 cf (100% of inflow)
 Center-of-Mass det. time= 23.4 min (771.6 - 748.2)

Volume	Invert	Avail.Storage	Storage Description
#1	34.17'	421 cf	10.00'D x 7.00'H Vertical Cone/Cylinder x 4 2,199 cf Overall - 924 cf Embedded = 1,275 cf x 33.0% Voids
#2	35.17'	679 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 4 Inside #1 924 cf Overall - 6.0" Wall Thickness = 679 cf
		1,099 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.17'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.17'	12.0" Round Culvert L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.17' / 34.54' S= 0.0772 ' S= 0.0772 ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.06 cfs @ 6.94 hrs HW=34.24' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=10.57 cfs @ 12.12 hrs HW=47.48' (Free Discharge)
 ↑2=Culvert (Inlet Controls 10.57 cfs @ 13.46 fps)

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Stage-Area-Storage for Pond EX BMP-4A: (4) Existing Drywells

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.17	314	0	44.77	314	1,099
34.37	314	21	44.97	314	1,099
34.57	314	41	45.17	314	1,099
34.77	314	62	45.37	314	1,099
34.97	314	83	45.57	314	1,099
35.17	314	104	45.77	314	1,099
35.37	314	137	45.97	314	1,099
35.57	314	170	46.17	314	1,099
35.77	314	203	46.37	314	1,099
35.97	314	236	46.57	314	1,099
36.17	314	270	46.77	314	1,099
36.37	314	303	46.97	314	1,099
36.57	314	336	47.17	314	1,099
36.77	314	369	47.37	314	1,099
36.97	314	402			
37.17	314	436			
37.37	314	469			
37.57	314	502			
37.77	314	535			
37.97	314	568			
38.17	314	602			
38.37	314	635			
38.57	314	668			
38.77	314	701			
38.97	314	734			
39.17	314	768			
39.37	314	801			
39.57	314	834			
39.77	314	867			
39.97	314	900			
40.17	314	934			
40.37	314	967			
40.57	314	1,000			
40.77	314	1,033			
40.97	314	1,066			
41.17	314	1,099			
41.37	314	1,099			
41.57	314	1,099			
41.77	314	1,099			
41.97	314	1,099			
42.17	314	1,099			
42.37	314	1,099			
42.57	314	1,099			
42.77	314	1,099			
42.97	314	1,099			
43.17	314	1,099			
43.37	314	1,099			
43.57	314	1,099			
43.77	314	1,099			
43.97	314	1,099			
44.17	314	1,099			
44.37	314	1,099			
44.57	314	1,099			

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Summary for Pond EX BMP-4B: Existing Basin

Inflow Area = 52,235 sf, 86.89% Impervious, Inflow Depth = 7.54" for 100-Year event
 Inflow = 8.48 cfs @ 12.11 hrs, Volume= 32,831 cf
 Outflow = 7.65 cfs @ 12.15 hrs, Volume= 32,831 cf, Atten= 10%, Lag= 2.6 min
 Discarded = 0.27 cfs @ 12.15 hrs, Volume= 13,636 cf
 Primary = 7.38 cfs @ 12.15 hrs, Volume= 19,195 cf
 Routed to Pond EX BMP-4A : (4) Existing Drywells

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 44.28' @ 12.15 hrs Surf.Area= 1,406 sf Storage= 1,375 cf

Plug-Flow detention time= 15.2 min calculated for 32,831 cf (100% of inflow)
 Center-of-Mass det. time= 15.2 min (761.4 - 746.2)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,525 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	745	0	0
45.00	1,780	2,525	2,525

Device	Routing	Invert	Outlet Devices
#1	Discarded	43.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.97'	12.0" Round Culvert L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.97' / 39.17' S= 0.0667 ' S= 0.0667 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	43.73'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.27 cfs @ 12.15 hrs HW=44.27' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.27 cfs)

Primary OutFlow Max=7.38 cfs @ 12.15 hrs HW=44.27' (Free Discharge)
 ↑**2=Culvert** (Inlet Controls 7.38 cfs @ 9.39 fps)
 ↑**3=Orifice/Grate** (Passes 7.38 cfs of 10.50 cfs potential flow)

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Type III 24-hr 100-Year Rainfall=8.70"

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Stage-Area-Storage for Pond EX BMP-4B: Existing Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
43.00	745	0	44.06	1,294	1,080
43.02	755	15	44.08	1,304	1,106
43.04	766	30	44.10	1,314	1,133
43.06	776	46	44.12	1,325	1,159
43.08	786	61	44.14	1,335	1,186
43.10	797	77	44.16	1,345	1,212
43.12	807	93	44.18	1,356	1,239
43.14	817	109	44.20	1,366	1,267
43.16	828	126	44.22	1,376	1,294
43.18	838	142	44.24	1,387	1,322
43.20	849	159	44.26	1,397	1,349
43.22	859	176	44.28	1,407	1,378
43.24	869	194	44.30	1,418	1,406
43.26	880	211	44.32	1,428	1,434
43.28	890	229	44.34	1,438	1,463
43.30	900	247	44.36	1,449	1,492
43.32	911	265	44.38	1,459	1,521
43.34	921	283	44.40	1,469	1,550
43.36	931	302	44.42	1,480	1,580
43.38	942	320	44.44	1,490	1,609
43.40	952	339	44.46	1,501	1,639
43.42	962	359	44.48	1,511	1,669
43.44	973	378	44.50	1,521	1,700
43.46	983	397	44.52	1,532	1,730
43.48	993	417	44.54	1,542	1,761
43.50	1,004	437	44.56	1,552	1,792
43.52	1,014	457	44.58	1,563	1,823
43.54	1,024	478	44.60	1,573	1,854
43.56	1,035	498	44.62	1,583	1,886
43.58	1,045	519	44.64	1,594	1,918
43.60	1,056	540	44.66	1,604	1,950
43.62	1,066	561	44.68	1,614	1,982
43.64	1,076	583	44.70	1,625	2,014
43.66	1,087	604	44.72	1,635	2,047
43.68	1,097	626	44.74	1,645	2,080
43.70	1,107	648	44.76	1,656	2,113
43.72	1,118	671	44.78	1,666	2,146
43.74	1,128	693	44.80	1,676	2,179
43.76	1,138	716	44.82	1,687	2,213
43.78	1,149	739	44.84	1,697	2,247
43.80	1,159	762	44.86	1,708	2,281
43.82	1,169	785	44.88	1,718	2,315
43.84	1,180	808	44.90	1,728	2,350
43.86	1,190	832	44.92	1,739	2,384
43.88	1,200	856	44.94	1,749	2,419
43.90	1,211	880	44.96	1,759	2,454
43.92	1,221	904	44.98	1,770	2,490
43.94	1,231	929	45.00	1,780	2,525
43.96	1,242	954			
43.98	1,252	979			
44.00	1,263	1,004			
44.02	1,273	1,029			
44.04	1,283	1,055			

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Summary for Link EX DP-1:

Inflow Area = 243,610 sf, 81.90% Impervious, Inflow Depth = 6.11" for 100-Year event
Inflow = 38.29 cfs @ 12.12 hrs, Volume= 124,003 cf
Primary = 38.29 cfs @ 12.12 hrs, Volume= 124,003 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Summary for Link EX DP-2:

Inflow Area = 82,190 sf, 70.57% Impervious, Inflow Depth = 6.40" for 100-Year event
Inflow = 11.22 cfs @ 12.11 hrs, Volume= 43,839 cf
Primary = 11.22 cfs @ 12.11 hrs, Volume= 43,839 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

7458-00 HydroCAD Analysis

Type III 24-hr 100-Year Rainfall=8.70"

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Summary for Link EX DP-3:

Inflow Area = 256,215 sf, 2.54% Impervious, Inflow Depth = 1.64" for 100-Year event
Inflow = 7.76 cfs @ 12.14 hrs, Volume= 35,049 cf
Primary = 7.76 cfs @ 12.14 hrs, Volume= 35,049 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 100-Year Rainfall=8.70"

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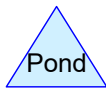
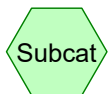
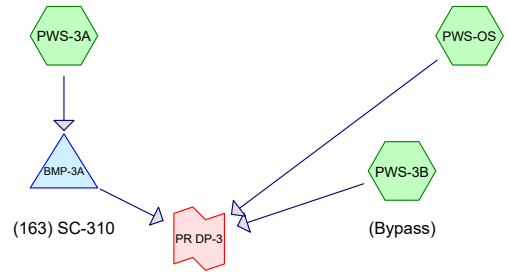
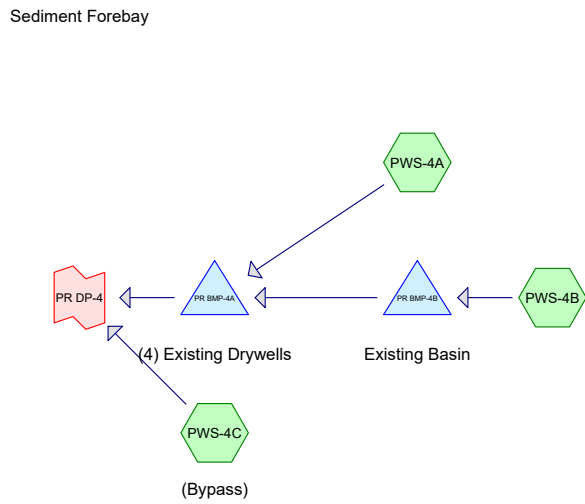
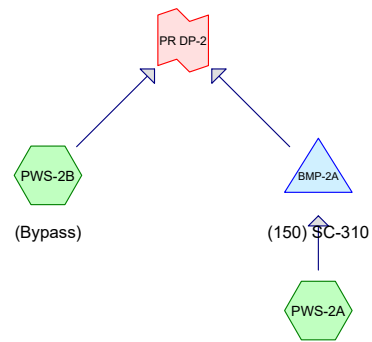
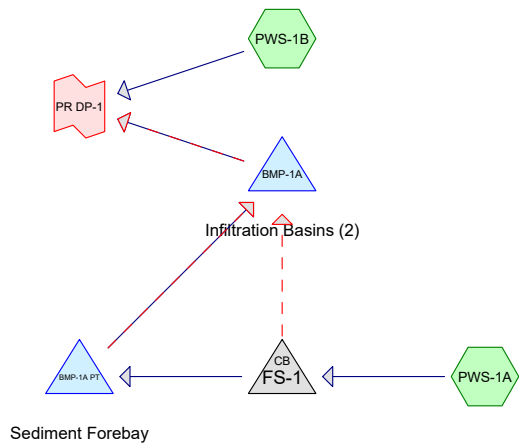
Summary for Link EX DP-4:

Inflow Area = 116,235 sf, 54.55% Impervious, Inflow Depth = 3.35" for 100-Year event
Inflow = 11.75 cfs @ 12.12 hrs, Volume= 32,459 cf
Primary = 11.75 cfs @ 12.12 hrs, Volume= 32,459 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Appendix C
Stormwater Analysis
Proposed Conditions





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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
385,380	39	>75% Grass cover, Good, HSG A (PWS-1A, PWS-1B, PWS-2A, PWS-2B, PWS-3A, PWS-3B, PWS-4A, PWS-4B, PWS-4C, PWS-OS)
203,635	98	Paved parking, HSG A (PWS-1A, PWS-1B, PWS-2A, PWS-2B, PWS-3A, PWS-3B, PWS-4A, PWS-4B, PWS-4C, PWS-OS)
109,235	98	Roofs, HSG A (PWS-1A, PWS-2A, PWS-3A, PWS-4B, PWS-OS)
698,250	65	TOTAL AREA

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Time span=0.00-30.00 hrs, dt=0.02 hrs, 1501 points
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv.
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PWS-1A:	Runoff Area=421,070 sf 43.28% Impervious Runoff Depth=0.43" Tc=8.0 min CN=39/98 Runoff=4.28 cfs 14,970 cf
Subcatchment PWS-1B:	Runoff Area=6,980 sf 25.14% Impervious Runoff Depth=0.25" Tc=6.0 min CN=39/98 Runoff=0.04 cfs 144 cf
Subcatchment PWS-2A:	Runoff Area=57,610 sf 72.23% Impervious Runoff Depth=0.71" Tc=8.0 min CN=39/98 Runoff=0.98 cfs 3,418 cf
Subcatchment PWS-2B: (Bypass)	Runoff Area=57,860 sf 9.23% Impervious Runoff Depth=0.09" Tc=8.0 min CN=39/98 Runoff=0.13 cfs 439 cf
Subcatchment PWS-3A:	Runoff Area=44,600 sf 86.52% Impervious Runoff Depth=0.85" Tc=8.0 min CN=39/98 Runoff=0.91 cfs 3,170 cf
Subcatchment PWS-3B: (Bypass)	Runoff Area=12,275 sf 3.54% Impervious Runoff Depth=0.03" Tc=8.0 min CN=39/98 Runoff=0.01 cfs 36 cf
Subcatchment PWS-4A:	Runoff Area=9,610 sf 40.79% Impervious Runoff Depth=0.40" Tc=6.0 min CN=39/98 Runoff=0.10 cfs 322 cf
Subcatchment PWS-4B:	Runoff Area=41,795 sf 85.24% Impervious Runoff Depth=0.84" Tc=8.0 min CN=39/98 Runoff=0.84 cfs 2,926 cf
Subcatchment PWS-4C: (Bypass)	Runoff Area=27,975 sf 7.29% Impervious Runoff Depth=0.07" Tc=8.0 min CN=39/98 Runoff=0.05 cfs 168 cf
Subcatchment PWS-OS:	Runoff Area=18,475 sf 7.01% Impervious Runoff Depth=0.07" Tc=8.0 min CN=39/98 Runoff=0.03 cfs 106 cf
Pond BMP-1A: Infiltration Basins (2)	Peak Elev=33.30' Storage=5,145 cf Inflow=3.81 cfs 13,955 cf Discarded=0.44 cfs 13,955 cf Primary=0.00 cfs 0 cf Secondary=0.00 cfs 0 cf Outflow=0.44 cfs 13,955 cf
Pond BMP-1A PT: Sediment Forebay	Peak Elev=34.73' Storage=593 cf Inflow=0.46 cfs 1,016 cf Discarded=0.03 cfs 1,016 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 1,016 cf
Pond BMP-2A: (150) SC-310	Peak Elev=36.35' Storage=217 cf Inflow=0.98 cfs 3,418 cf Discarded=0.61 cfs 3,419 cf Primary=0.00 cfs 0 cf Outflow=0.61 cfs 3,419 cf
Pond BMP-3A: (163) SC-310	Peak Elev=38.07' Storage=177 cf Inflow=0.91 cfs 3,170 cf Discarded=0.66 cfs 3,170 cf Primary=0.00 cfs 0 cf Outflow=0.66 cfs 3,170 cf
Pond FS-1:	Peak Elev=37.34' Inflow=4.28 cfs 14,970 cf Primary=0.46 cfs 1,016 cf Secondary=3.81 cfs 13,955 cf Outflow=4.28 cfs 14,970 cf
Pond PR BMP-4A: (4) Existing Drywells	Peak Elev=34.38' Storage=21 cf Inflow=0.10 cfs 333 cf Discarded=0.06 cfs 333 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 333 cf

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Pond PR BMP-4B: Existing Basin

Peak Elev=43.74' Storage=693 cf Inflow=0.84 cfs 2,926 cf
Discarded=0.22 cfs 2,916 cf Primary=0.03 cfs 11 cf Outflow=0.24 cfs 2,926 cf

Link PR DP-1:

Inflow=0.04 cfs 144 cf
Primary=0.04 cfs 144 cf

Link PR DP-2:

Inflow=0.13 cfs 439 cf
Primary=0.13 cfs 439 cf

Link PR DP-3:

Inflow=0.04 cfs 142 cf
Primary=0.04 cfs 142 cf

Link PR DP-4:

Inflow=0.05 cfs 168 cf
Primary=0.05 cfs 168 cf

Total Runoff Area = 698,250 sf Runoff Volume = 25,698 cf Average Runoff Depth = 0.44"
55.19% Pervious = 385,380 sf 44.81% Impervious = 312,870 sf

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment PWS-1A:

Runoff = 4.28 cfs @ 12.11 hrs, Volume= 14,970 cf, Depth= 0.43"
Routed to Pond FS-1 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
72,155	98	Roofs, HSG A
110,105	98	Paved parking, HSG A
238,810	39	>75% Grass cover, Good, HSG A
421,070	65	Weighted Average
238,810	39	56.72% Pervious Area
182,260	98	43.28% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment PWS-1B:

Runoff = 0.04 cfs @ 12.08 hrs, Volume= 144 cf, Depth= 0.25"
Routed to Link PR DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
1,755	98	Paved parking, HSG A
5,225	39	>75% Grass cover, Good, HSG A
6,980	54	Weighted Average
5,225	39	74.86% Pervious Area
1,755	98	25.14% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment PWS-2A:

Runoff = 0.98 cfs @ 12.11 hrs, Volume= 3,418 cf, Depth= 0.71"

Routed to Pond BMP-2A : (150) SC-310

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
3,725	98	Roofs, HSG A
37,885	98	Paved parking, HSG A
16,000	39	>75% Grass cover, Good, HSG A
57,610	82	Weighted Average
16,000	39	27.77% Pervious Area
41,610	98	72.23% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment PWS-2B: (Bypass)

Runoff = 0.13 cfs @ 12.11 hrs, Volume= 439 cf, Depth= 0.09"
Routed to Link PR DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
5,340	98	Paved parking, HSG A
52,520	39	>75% Grass cover, Good, HSG A
57,860	44	Weighted Average
52,520	39	90.77% Pervious Area
5,340	98	9.23% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment PWS-3A:

Runoff = 0.91 cfs @ 12.11 hrs, Volume= 3,170 cf, Depth= 0.85"

Routed to Pond BMP-3A : (163) SC-310

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
21,450	98	Roofs, HSG A
17,140	98	Paved parking, HSG A
6,010	39	>75% Grass cover, Good, HSG A
44,600	90	Weighted Average
6,010	39	13.48% Pervious Area
38,590	98	86.52% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment PWS-3B: (Bypass)

Runoff = 0.01 cfs @ 12.11 hrs, Volume= 36 cf, Depth= 0.03"
Routed to Link PR DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
435	98	Paved parking, HSG A
11,840	39	>75% Grass cover, Good, HSG A
12,275	41	Weighted Average
11,840	39	96.46% Pervious Area
435	98	3.54% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment PWS-4A:

Runoff = 0.10 cfs @ 12.08 hrs, Volume= 322 cf, Depth= 0.40"

Routed to Pond PR BMP-4A : (4) Existing Drywells

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
3,920	98	Paved parking, HSG A
5,690	39	>75% Grass cover, Good, HSG A
9,610	63	Weighted Average
5,690	39	59.21% Pervious Area
3,920	98	40.79% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment PWS-4B:

Runoff = 0.84 cfs @ 12.11 hrs, Volume= 2,926 cf, Depth= 0.84"
Routed to Pond PR BMP-4B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
11,165	98	Roofs, HSG A
24,460	98	Paved parking, HSG A
6,170	39	>75% Grass cover, Good, HSG A
41,795	89	Weighted Average
6,170	39	14.76% Pervious Area
35,625	98	85.24% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment PWS-4C: (Bypass)

Runoff = 0.05 cfs @ 12.11 hrs, Volume= 168 cf, Depth= 0.07"
Routed to Link PR DP-4 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
2,040	98	Paved parking, HSG A
25,935	39	>75% Grass cover, Good, HSG A
27,975	43	Weighted Average
25,935	39	92.71% Pervious Area
2,040	98	7.29% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Subcatchment PWS-OS:

Runoff = 0.03 cfs @ 12.11 hrs, Volume= 106 cf, Depth= 0.07"
Routed to Link PR DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1.2-Inch Rainfall=1.20"

Area (sf)	CN	Description
740	98	Roofs, HSG A
555	98	Paved parking, HSG A
17,180	39	>75% Grass cover, Good, HSG A
18,475	43	Weighted Average
17,180	39	92.99% Pervious Area
1,295	98	7.01% Impervious Area

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

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Pond BMP-1A: Infiltration Basins (2)

Inflow Area = 421,070 sf, 43.28% Impervious, Inflow Depth = 0.40" for 1.2-Inch event
 Inflow = 3.81 cfs @ 12.11 hrs, Volume= 13,955 cf
 Outflow = 0.44 cfs @ 12.88 hrs, Volume= 13,955 cf, Atten= 89%, Lag= 46.1 min
 Discarded = 0.44 cfs @ 12.88 hrs, Volume= 13,955 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link PR DP-1 :
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link PR DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 33.30' @ 12.88 hrs Surf.Area= 4,720 sf Storage= 5,145 cf

Plug-Flow detention time= 98.7 min calculated for 13,945 cf (100% of inflow)
 Center-of-Mass det. time= 98.7 min (884.0 - 785.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	34,365 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	33.00'	408 cf	24.0" Round Pipe Storage x 2 -Impervious L= 65.0'
		34,773 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	3,200	0	0
33.00	4,335	3,768	3,768
34.00	5,635	4,985	8,753
35.00	7,575	6,605	15,358
36.00	9,400	8,488	23,845
37.00	11,640	10,520	34,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.00'	4.000 in/hr Exfiltration over Surface area
#2	Primary	29.90'	18.0" Round Culvert L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	34.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	36.50'	20.0' long + 4.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir X 2. Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

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Discarded OutFlow Max=0.44 cfs @ 12.88 hrs HW=33.30' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.44 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=32.00' (Free Discharge)

↑**2=Culvert** (Passes 0.00 cfs of 9.89 cfs potential flow)

↑**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=32.00' (Free Discharge)

↑**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Stage-Area-Storage for Pond BMP-1A: Infiltration Basins (2)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
32.00	3,200	0	34.65	6,896	13,185
32.05	3,257	161	34.70	6,993	13,542
32.10	3,314	326	34.75	7,090	13,903
32.15	3,370	493	34.80	7,187	14,268
32.20	3,427	663	34.85	7,284	14,638
32.25	3,484	835	34.90	7,381	15,010
32.30	3,540	1,011	34.95	7,478	15,387
32.35	3,597	1,190	35.00	7,575	15,766
32.40	3,654	1,371	35.05	7,666	16,147
32.45	3,711	1,555	35.10	7,758	16,533
32.50	3,768	1,742	35.15	7,849	16,923
32.55	3,824	1,932	35.20	7,940	17,317
32.60	3,881	2,124	35.25	8,031	17,717
32.65	3,938	2,320	35.30	8,122	18,121
32.70	3,995	2,518	35.35	8,214	18,529
32.75	4,051	2,719	35.40	8,305	18,942
32.80	4,108	2,923	35.45	8,396	19,359
32.85	4,165	3,130	35.50	8,488	19,782
32.90	4,221	3,340	35.55	8,579	20,208
32.95	4,278	3,552	35.60	8,670	20,639
33.00	4,335	3,768	35.65	8,761	21,075
33.05	4,400	3,989	35.70	8,853	21,516
33.10	4,465	4,215	35.75	8,944	21,960
33.15	4,530	4,446	35.80	9,035	22,410
33.20	4,595	4,682	35.85	9,126	22,864
33.25	4,660	4,921	35.90	9,217	23,323
33.30	4,725	5,165	35.95	9,309	23,786
33.35	4,790	5,412	36.00	9,400	24,253
33.40	4,855	5,664	36.05	9,512	24,726
33.45	4,920	5,919	36.10	9,624	25,205
33.50	4,985	6,177	36.15	9,736	25,689
33.55	5,050	6,440	36.20	9,848	26,178
33.60	5,115	6,706	36.25	9,960	26,673
33.65	5,180	6,975	36.30	10,072	27,174
33.70	5,245	7,248	36.35	10,184	27,681
33.75	5,310	7,524	36.40	10,296	28,193
33.80	5,375	7,804	36.45	10,408	28,710
33.85	5,440	8,087	36.50	10,520	29,233
33.90	5,505	8,374	36.55	10,632	29,762
33.95	5,570	8,664	36.60	10,744	30,297
34.00	5,635	8,957	36.65	10,856	30,837
34.05	5,732	9,254	36.70	10,968	31,382
34.10	5,829	9,556	36.75	11,080	31,933
34.15	5,926	9,863	36.80	11,192	32,490
34.20	6,023	10,174	36.85	11,304	33,053
34.25	6,120	10,490	36.90	11,416	33,621
34.30	6,217	10,811	36.95	11,528	34,194
34.35	6,314	11,137	37.00	11,640	34,773
34.40	6,411	11,467			
34.45	6,508	11,802			
34.50	6,605	12,141			
34.55	6,702	12,485			
34.60	6,799	12,833			

7458-00 HydroCAD Analysis

Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Pond BMP-1A PT: Sediment Forebay

Inflow Area = 421,070 sf, 43.28% Impervious, Inflow Depth = 0.03" for 1.2-Inch event
 Inflow = 0.46 cfs @ 12.11 hrs, Volume= 1,016 cf
 Outflow = 0.03 cfs @ 12.92 hrs, Volume= 1,016 cf, Atten= 94%, Lag= 48.6 min
 Discarded = 0.03 cfs @ 12.92 hrs, Volume= 1,016 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Pond BMP-1A : Infiltration Basins (2)

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 6
 Peak Elev= 34.73' @ 12.92 hrs Surf.Area= 1,133 sf Storage= 593 cf

Plug-Flow detention time= 225.4 min calculated for 1,015 cf (100% of inflow)
 Center-of-Mass det. time= 225.3 min (988.3 - 763.0)

Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	5,423 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	495	0	0
37.00	3,120	5,423	5,423

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.00'	1.020 in/hr Exfiltration over Surface area
#2	Primary	36.00'	14.0' long + 4.0 ' SideZ x 3.0' breadth Broad-Crested Rectangular Weir
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00
			2.50 3.00 3.50 4.00 4.50
			Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
			2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.03 cfs @ 12.92 hrs HW=34.73' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=34.00' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Stage-Area-Storage for Pond BMP-1A PT: Sediment Forebay

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.00	495	0	36.65	2,814	4,384
34.05	539	26	36.70	2,858	4,526
34.10	583	54	36.75	2,901	4,670
34.15	626	84	36.80	2,945	4,816
34.20	670	117	36.85	2,989	4,964
34.25	714	151	36.90	3,032	5,115
34.30	757	188	36.95	3,076	5,268
34.35	801	227	37.00	3,120	5,423
34.40	845	268			
34.45	889	311			
34.50	933	357			
34.55	976	405			
34.60	1,020	455			
34.65	1,064	507			
34.70	1,108	561			
34.75	1,151	617			
34.80	1,195	676			
34.85	1,239	737			
34.90	1,282	800			
34.95	1,326	865			
35.00	1,370	933			
35.05	1,414	1,002			
35.10	1,458	1,074			
35.15	1,501	1,148			
35.20	1,545	1,224			
35.25	1,589	1,302			
35.30	1,632	1,383			
35.35	1,676	1,466			
35.40	1,720	1,550			
35.45	1,764	1,638			
35.50	1,808	1,727			
35.55	1,851	1,818			
35.60	1,895	1,912			
35.65	1,939	2,008			
35.70	1,983	2,106			
35.75	2,026	2,206			
35.80	2,070	2,308			
35.85	2,114	2,413			
35.90	2,157	2,520			
35.95	2,201	2,629			
36.00	2,245	2,740			
36.05	2,289	2,853			
36.10	2,333	2,969			
36.15	2,376	3,087			
36.20	2,420	3,207			
36.25	2,464	3,329			
36.30	2,507	3,453			
36.35	2,551	3,579			
36.40	2,595	3,708			
36.45	2,639	3,839			
36.50	2,683	3,972			
36.55	2,726	4,107			
36.60	2,770	4,245			

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Pond BMP-2A: (150) SC-310

Inflow Area = 57,610 sf, 72.23% Impervious, Inflow Depth = 0.71" for 1.2-Inch event
 Inflow = 0.98 cfs @ 12.11 hrs, Volume= 3,418 cf
 Outflow = 0.61 cfs @ 12.04 hrs, Volume= 3,419 cf, Atten= 37%, Lag= 0.0 min
 Discarded = 0.61 cfs @ 12.04 hrs, Volume= 3,419 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link PR DP-2 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 36.35' @ 12.23 hrs Surf.Area= 6,600 sf Storage= 217 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 2.4 min (786.2 - 783.9)

Volume	Invert	Avail.Storage	Storage Description
#1	36.25'	4,345 cf	Custom Stage Data (Prismatic) Listed below x 150 15,378 cf Overall - 2,211 cf Embedded = 13,167 cf x 33.0% Voids
#2	36.75'	2,211 cf	ADS_StormTech SC-310 +Cap x 150 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		6,556 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.25	44	0	0
38.58	44	103	103

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.25'	4.000 in/hr Exfiltration over Surface area
#2	Primary	38.10'	12.0" Round 36.20 L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.10' / 36.20' S= 0.0380 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	38.34'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.61 cfs @ 12.04 hrs HW=36.28' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.61 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=36.25' (Free Discharge)
 ↳2=36.20 (Controls 0.00 cfs)
 ↳3=Orifice/Grate (Controls 0.00 cfs)

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Stage-Area-Storage for Pond BMP-2A: (150) SC-310

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
36.25	6,600	0	38.90	6,600	6,556
36.30	6,600	109	38.95	6,600	6,556
36.35	6,600	218	39.00	6,600	6,556
36.40	6,600	327	39.05	6,600	6,556
36.45	6,600	436	39.10	6,600	6,556
36.50	6,600	545			
36.55	6,600	653			
36.60	6,600	762			
36.65	6,600	871			
36.70	6,600	980			
36.75	6,600	1,089			
36.80	6,600	1,284			
36.85	6,600	1,478			
36.90	6,600	1,672			
36.95	6,600	1,864			
37.00	6,600	2,055			
37.05	6,600	2,244			
37.10	6,600	2,431			
37.15	6,600	2,617			
37.20	6,600	2,801			
37.25	6,600	2,982			
37.30	6,600	3,161			
37.35	6,600	3,338			
37.40	6,600	3,513			
37.45	6,600	3,685			
37.50	6,600	3,854			
37.55	6,600	4,020			
37.60	6,600	4,182			
37.65	6,600	4,341			
37.70	6,600	4,495			
37.75	6,600	4,644			
37.80	6,600	4,787			
37.85	6,600	4,922			
37.90	6,600	5,049			
37.95	6,600	5,170			
38.00	6,600	5,287			
38.05	6,600	5,401			
38.10	6,600	5,511			
38.15	6,600	5,620			
38.20	6,600	5,729			
38.25	6,600	5,838			
38.30	6,600	5,946			
38.35	6,600	6,055			
38.40	6,600	6,164			
38.45	6,600	6,273			
38.50	6,600	6,382			
38.55	6,600	6,491			
38.60	6,600	6,556			
38.65	6,600	6,556			
38.70	6,600	6,556			
38.75	6,600	6,556			
38.80	6,600	6,556			
38.85	6,600	6,556			

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Pond BMP-3A: (163) SC-310

Inflow Area = 44,600 sf, 86.52% Impervious, Inflow Depth = 0.85" for 1.2-Inch event
 Inflow = 0.91 cfs @ 12.11 hrs, Volume= 3,170 cf
 Outflow = 0.66 cfs @ 12.08 hrs, Volume= 3,170 cf, Atten= 27%, Lag= 0.0 min
 Discarded = 0.66 cfs @ 12.08 hrs, Volume= 3,170 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link PR DP-3 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 38.07' @ 12.20 hrs Surf.Area= 7,172 sf Storage= 177 cf

Plug-Flow detention time= 2.8 min calculated for 3,168 cf (100% of inflow)
 Center-of-Mass det. time= 2.9 min (786.7 - 783.9)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	4,722 cf	Custom Stage Data (Prismatic) Listed below x 163 16,711 cf Overall - 2,403 cf Embedded = 14,308 cf x 33.0% Voids
#2	38.50'	2,403 cf	ADS_StormTech SC-310 +Cap x 163 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		7,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	44	0	0
40.33	44	103	103

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.00'	4.000 in/hr Exfiltration over Surface area
#2	Primary	42.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.66 cfs @ 12.08 hrs HW=38.05' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.66 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Stage-Area-Storage for Pond BMP-3A: (163) SC-310

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
38.00	7,172	0	40.65	7,172	7,125
38.05	7,172	118	40.70	7,172	7,125
38.10	7,172	237	40.75	7,172	7,125
38.15	7,172	355	40.80	7,172	7,125
38.20	7,172	473	40.85	7,172	7,125
38.25	7,172	592	40.90	7,172	7,125
38.30	7,172	710	40.95	7,172	7,125
38.35	7,172	828	41.00	7,172	7,125
38.40	7,172	947	41.05	7,172	7,125
38.45	7,172	1,065	41.10	7,172	7,125
38.50	7,172	1,183	41.15	7,172	7,125
38.55	7,172	1,395	41.20	7,172	7,125
38.60	7,172	1,606	41.25	7,172	7,125
38.65	7,172	1,817	41.30	7,172	7,125
38.70	7,172	2,025	41.35	7,172	7,125
38.75	7,172	2,233	41.40	7,172	7,125
38.80	7,172	2,438	41.45	7,172	7,125
38.85	7,172	2,642	41.50	7,172	7,125
38.90	7,172	2,844	41.55	7,172	7,125
38.95	7,172	3,043	41.60	7,172	7,125
39.00	7,172	3,241	41.65	7,172	7,125
39.05	7,172	3,435	41.70	7,172	7,125
39.10	7,172	3,628	41.75	7,172	7,125
39.15	7,172	3,818	41.80	7,172	7,125
39.20	7,172	4,005	41.85	7,172	7,125
39.25	7,172	4,188	41.90	7,172	7,125
39.30	7,172	4,369	41.95	7,172	7,125
39.35	7,172	4,545	42.00	7,172	7,125
39.40	7,172	4,717	42.05	7,172	7,125
39.45	7,172	4,884	42.10	7,172	7,125
39.50	7,172	5,047	42.15	7,172	7,125
39.55	7,172	5,202	42.20	7,172	7,125
39.60	7,172	5,348	42.25	7,172	7,125
39.65	7,172	5,487	42.30	7,172	7,125
39.70	7,172	5,618	42.35	7,172	7,125
39.75	7,172	5,746	42.40	7,172	7,125
39.80	7,172	5,869	42.45	7,172	7,125
39.85	7,172	5,988	42.50	7,172	7,125
39.90	7,172	6,107			
39.95	7,172	6,225			
40.00	7,172	6,343			
40.05	7,172	6,462			
40.10	7,172	6,580			
40.15	7,172	6,699			
40.20	7,172	6,817			
40.25	7,172	6,935			
40.30	7,172	7,054			
40.35	7,172	7,125			
40.40	7,172	7,125			
40.45	7,172	7,125			
40.50	7,172	7,125			
40.55	7,172	7,125			
40.60	7,172	7,125			

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Summary for Pond FS-1:

Inflow Area = 421,070 sf, 43.28% Impervious, Inflow Depth = 0.43" for 1.2-Inch event
Inflow = 4.28 cfs @ 12.11 hrs, Volume= 14,970 cf
Outflow = 4.28 cfs @ 12.11 hrs, Volume= 14,970 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 12.11 hrs, Volume= 1,016 cf
Routed to Pond BMP-1A PT : Sediment Forebay
Secondary = 3.81 cfs @ 12.11 hrs, Volume= 13,955 cf
Routed to Pond BMP-1A : Infiltration Basins (2)

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 6

Peak Elev= 37.34' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	12.0" Round Culvert L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.00' / 36.00' S= 0.0476 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	35.00'	30.0" Round Culvert L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.00' / 33.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#3	Device 2	37.00'	6.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=0.46 cfs @ 12.11 hrs HW=37.34' (Free Discharge)

↑**1=Culvert** (Inlet Controls 0.46 cfs @ 1.98 fps)

Secondary OutFlow Max=3.79 cfs @ 12.11 hrs HW=37.34' (Free Discharge)

↑**2=Culvert** (Passes 3.79 cfs of 24.84 cfs potential flow)

↑**3=Sharp-Crested Rectangular Weir** (Weir Controls 3.79 cfs @ 1.90 fps)

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Stage-Area-Storage for Pond FS-1:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
35.00	0	36.06	0	37.12	0
35.02	0	36.08	0	37.14	0
35.04	0	36.10	0	37.16	0
35.06	0	36.12	0	37.18	0
35.08	0	36.14	0	37.20	0
35.10	0	36.16	0	37.22	0
35.12	0	36.18	0	37.24	0
35.14	0	36.20	0	37.26	0
35.16	0	36.22	0	37.28	0
35.18	0	36.24	0	37.30	0
35.20	0	36.26	0	37.32	0
35.22	0	36.28	0	37.34	0
35.24	0	36.30	0	37.36	0
35.26	0	36.32	0	37.38	0
35.28	0	36.34	0	37.40	0
35.30	0	36.36	0	37.42	0
35.32	0	36.38	0	37.44	0
35.34	0	36.40	0	37.46	0
35.36	0	36.42	0	37.48	0
35.38	0	36.44	0	37.50	0
35.40	0	36.46	0	37.52	0
35.42	0	36.48	0	37.54	0
35.44	0	36.50	0	37.56	0
35.46	0	36.52	0	37.58	0
35.48	0	36.54	0	37.60	0
35.50	0	36.56	0	37.62	0
35.52	0	36.58	0	37.64	0
35.54	0	36.60	0	37.66	0
35.56	0	36.62	0	37.68	0
35.58	0	36.64	0	37.70	0
35.60	0	36.66	0	37.72	0
35.62	0	36.68	0	37.74	0
35.64	0	36.70	0	37.76	0
35.66	0	36.72	0	37.78	0
35.68	0	36.74	0	37.80	0
35.70	0	36.76	0	37.82	0
35.72	0	36.78	0	37.84	0
35.74	0	36.80	0	37.86	0
35.76	0	36.82	0	37.88	0
35.78	0	36.84	0	37.90	0
35.80	0	36.86	0	37.92	0
35.82	0	36.88	0	37.94	0
35.84	0	36.90	0	37.96	0
35.86	0	36.92	0	37.98	0
35.88	0	36.94	0	38.00	0
35.90	0	36.96	0		
35.92	0	36.98	0		
35.94	0	37.00	0		
35.96	0	37.02	0		
35.98	0	37.04	0		
36.00	0	37.06	0		
36.02	0	37.08	0		
36.04	0	37.10	0		

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Summary for Pond PR BMP-4A: (4) Existing Drywells

Inflow Area = 51,405 sf, 76.93% Impervious, Inflow Depth = 0.08" for 1.2-Inch event
 Inflow = 0.10 cfs @ 12.08 hrs, Volume= 333 cf
 Outflow = 0.06 cfs @ 12.04 hrs, Volume= 333 cf, Atten= 39%, Lag= 0.0 min
 Discarded = 0.06 cfs @ 12.04 hrs, Volume= 333 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link PR DP-4 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 34.38' @ 12.19 hrs Surf.Area= 314 sf Storage= 21 cf

Plug-Flow detention time= 2.5 min calculated for 332 cf (100% of inflow)
 Center-of-Mass det. time= 2.6 min (783.5 - 780.9)

Volume	Invert	Avail.Storage	Storage Description
#1	34.17'	421 cf	10.00'D x 7.00'H Vertical Cone/Cylinder x 4 2,199 cf Overall - 924 cf Embedded = 1,275 cf x 33.0% Voids
#2	35.17'	679 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 4 Inside #1 924 cf Overall - 6.0" Wall Thickness = 679 cf
		1,099 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.17'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.17'	12.0" Round Culvert L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.17' / 34.54' S= 0.0772 ' S' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.06 cfs @ 12.04 hrs HW=34.25' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=34.17' (Free Discharge)
 ↑2=Culvert (Controls 0.00 cfs)

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Stage-Area-Storage for Pond PR BMP-4A: (4) Existing Drywells

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.17	314	0	39.47	314	817
34.27	314	10	39.57	314	834
34.37	314	21	39.67	314	851
34.47	314	31	39.77	314	867
34.57	314	41	39.87	314	884
34.67	314	52	39.97	314	900
34.77	314	62	40.07	314	917
34.87	314	73	40.17	314	934
34.97	314	83	40.27	314	950
35.07	314	93	40.37	314	967
35.17	314	104	40.47	314	983
35.27	314	120	40.57	314	1,000
35.37	314	137	40.67	314	1,017
35.47	314	153	40.77	314	1,033
35.57	314	170	40.87	314	1,050
35.67	314	187	40.97	314	1,066
35.77	314	203	41.07	314	1,083
35.87	314	220	41.17	314	1,099
35.97	314	236			
36.07	314	253			
36.17	314	270			
36.27	314	286			
36.37	314	303			
36.47	314	319			
36.57	314	336			
36.67	314	353			
36.77	314	369			
36.87	314	386			
36.97	314	402			
37.07	314	419			
37.17	314	436			
37.27	314	452			
37.37	314	469			
37.47	314	485			
37.57	314	502			
37.67	314	519			
37.77	314	535			
37.87	314	552			
37.97	314	568			
38.07	314	585			
38.17	314	602			
38.27	314	618			
38.37	314	635			
38.47	314	651			
38.57	314	668			
38.67	314	685			
38.77	314	701			
38.87	314	718			
38.97	314	734			
39.07	314	751			
39.17	314	768			
39.27	314	784			
39.37	314	801			

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Summary for Pond PR BMP-4B: Existing Basin

Inflow Area = 41,795 sf, 85.24% Impervious, Inflow Depth = 0.84" for 1.2-Inch event
 Inflow = 0.84 cfs @ 12.11 hrs, Volume= 2,926 cf
 Outflow = 0.24 cfs @ 12.47 hrs, Volume= 2,926 cf, Atten= 71%, Lag= 21.6 min
 Discarded = 0.22 cfs @ 12.47 hrs, Volume= 2,916 cf
 Primary = 0.03 cfs @ 12.47 hrs, Volume= 11 cf
 Routed to Pond PR BMP-4A : (4) Existing Drywells

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 43.74' @ 12.47 hrs Surf.Area= 1,128 sf Storage= 693 cf

Plug-Flow detention time= 19.4 min calculated for 2,924 cf (100% of inflow)
 Center-of-Mass det. time= 19.4 min (803.2 - 783.9)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,525 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	745	0	0
45.00	1,780	2,525	2,525

Device	Routing	Invert	Outlet Devices
#1	Discarded	43.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.97'	12.0" Round Culvert L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.97' / 39.17' S= 0.0667 ' S= 0.0667 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	43.73'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.22 cfs @ 12.47 hrs HW=43.74' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=0.02 cfs @ 12.47 hrs HW=43.74' (Free Discharge)
 ↑**2=Culvert** (Passes 0.02 cfs of 6.84 cfs potential flow)
 ↑**3=Orifice/Grate** (Weir Controls 0.02 cfs @ 0.32 fps)

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Stage-Area-Storage for Pond PR BMP-4B: Existing Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
43.00	745	0	44.06	1,294	1,080
43.02	755	15	44.08	1,304	1,106
43.04	766	30	44.10	1,314	1,133
43.06	776	46	44.12	1,325	1,159
43.08	786	61	44.14	1,335	1,186
43.10	797	77	44.16	1,345	1,212
43.12	807	93	44.18	1,356	1,239
43.14	817	109	44.20	1,366	1,267
43.16	828	126	44.22	1,376	1,294
43.18	838	142	44.24	1,387	1,322
43.20	849	159	44.26	1,397	1,349
43.22	859	176	44.28	1,407	1,378
43.24	869	194	44.30	1,418	1,406
43.26	880	211	44.32	1,428	1,434
43.28	890	229	44.34	1,438	1,463
43.30	900	247	44.36	1,449	1,492
43.32	911	265	44.38	1,459	1,521
43.34	921	283	44.40	1,469	1,550
43.36	931	302	44.42	1,480	1,580
43.38	942	320	44.44	1,490	1,609
43.40	952	339	44.46	1,501	1,639
43.42	962	359	44.48	1,511	1,669
43.44	973	378	44.50	1,521	1,700
43.46	983	397	44.52	1,532	1,730
43.48	993	417	44.54	1,542	1,761
43.50	1,004	437	44.56	1,552	1,792
43.52	1,014	457	44.58	1,563	1,823
43.54	1,024	478	44.60	1,573	1,854
43.56	1,035	498	44.62	1,583	1,886
43.58	1,045	519	44.64	1,594	1,918
43.60	1,056	540	44.66	1,604	1,950
43.62	1,066	561	44.68	1,614	1,982
43.64	1,076	583	44.70	1,625	2,014
43.66	1,087	604	44.72	1,635	2,047
43.68	1,097	626	44.74	1,645	2,080
43.70	1,107	648	44.76	1,656	2,113
43.72	1,118	671	44.78	1,666	2,146
43.74	1,128	693	44.80	1,676	2,179
43.76	1,138	716	44.82	1,687	2,213
43.78	1,149	739	44.84	1,697	2,247
43.80	1,159	762	44.86	1,708	2,281
43.82	1,169	785	44.88	1,718	2,315
43.84	1,180	808	44.90	1,728	2,350
43.86	1,190	832	44.92	1,739	2,384
43.88	1,200	856	44.94	1,749	2,419
43.90	1,211	880	44.96	1,759	2,454
43.92	1,221	904	44.98	1,770	2,490
43.94	1,231	929	45.00	1,780	2,525
43.96	1,242	954			
43.98	1,252	979			
44.00	1,263	1,004			
44.02	1,273	1,029			
44.04	1,283	1,055			

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Summary for Link PR DP-1:

Inflow Area = 428,050 sf, 42.99% Impervious, Inflow Depth = 0.00" for 1.2-Inch event
Inflow = 0.04 cfs @ 12.08 hrs, Volume= 144 cf
Primary = 0.04 cfs @ 12.08 hrs, Volume= 144 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Summary for Link PR DP-2:

Inflow Area = 115,470 sf, 40.66% Impervious, Inflow Depth = 0.05" for 1.2-Inch event
Inflow = 0.13 cfs @ 12.11 hrs, Volume= 439 cf
Primary = 0.13 cfs @ 12.11 hrs, Volume= 439 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 1.2-Inch Rainfall=1.20"

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Summary for Link PR DP-3:

Inflow Area = 75,350 sf, 53.51% Impervious, Inflow Depth = 0.02" for 1.2-Inch event
Inflow = 0.04 cfs @ 12.11 hrs, Volume= 142 cf
Primary = 0.04 cfs @ 12.11 hrs, Volume= 142 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 1.2-Inch Rainfall=1.20"

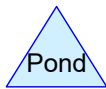
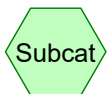
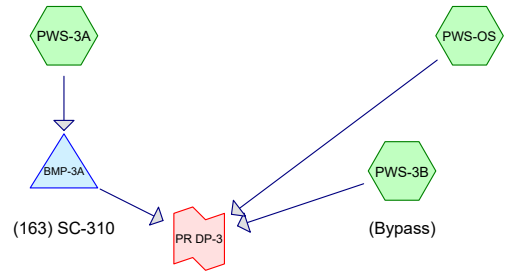
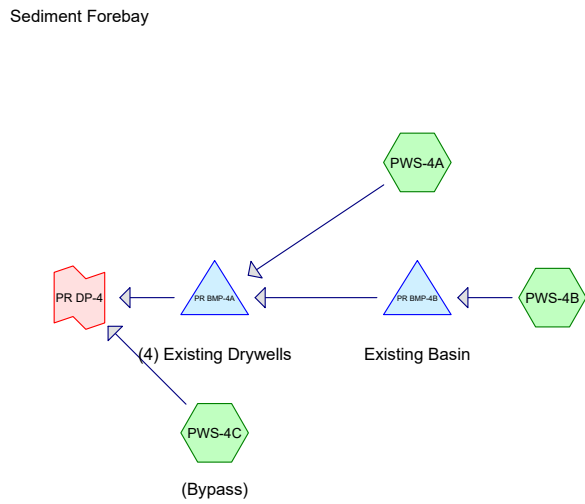
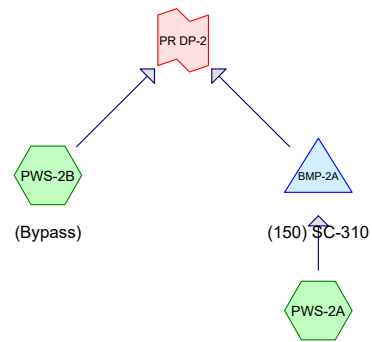
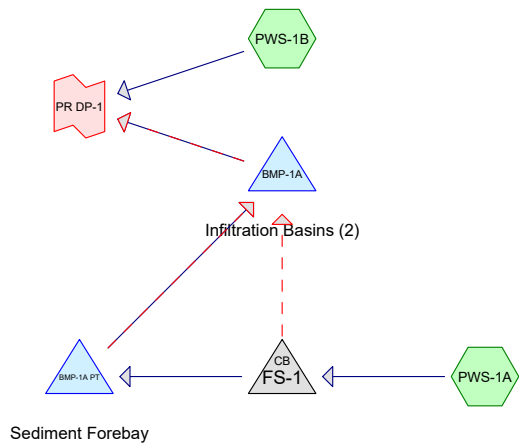
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Summary for Link PR DP-4:

Inflow Area = 79,380 sf, 52.39% Impervious, Inflow Depth = 0.03" for 1.2-Inch event
Inflow = 0.05 cfs @ 12.11 hrs, Volume= 168 cf
Primary = 0.05 cfs @ 12.11 hrs, Volume= 168 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs



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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-Year	Type III 24-hr		Default	24.00	1	2.70	2
2	10-Year	Type III 24-hr		Default	24.00	1	4.90	2
3	100-Year	Type III 24-hr		Default	24.00	1	8.70	2

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Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
385,380	39	>75% Grass cover, Good, HSG A (PWS-1A, PWS-1B, PWS-2A, PWS-2B, PWS-3A, PWS-3B, PWS-4A, PWS-4B, PWS-4C, PWS-OS)
203,635	98	Paved parking, HSG A (PWS-1A, PWS-1B, PWS-2A, PWS-2B, PWS-3A, PWS-3B, PWS-4A, PWS-4B, PWS-4C, PWS-OS)
109,235	98	Roofs, HSG A (PWS-1A, PWS-2A, PWS-3A, PWS-4B, PWS-OS)
698,250	65	TOTAL AREA

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Type III 24-hr 1-Year Rainfall=2.70"

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Time span=0.00-30.00 hrs, dt=0.02 hrs, 1501 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PWS-1A:	Runoff Area=421,070 sf 43.28% Impervious Runoff Depth=1.07" Tc=8.0 min CN=WQ Runoff=10.19 cfs 37,510 cf
Subcatchment PWS-1B:	Runoff Area=6,980 sf 25.14% Impervious Runoff Depth=0.62" Tc=6.0 min CN=WQ Runoff=0.10 cfs 361 cf
Subcatchment PWS-2A:	Runoff Area=57,610 sf 72.23% Impervious Runoff Depth=1.78" Tc=8.0 min CN=WQ Runoff=2.33 cfs 8,564 cf
Subcatchment PWS-2B: (Bypass)	Runoff Area=57,860 sf 9.23% Impervious Runoff Depth=0.23" Tc=8.0 min CN=WQ Runoff=0.30 cfs 1,099 cf
Subcatchment PWS-3A:	Runoff Area=44,600 sf 86.52% Impervious Runoff Depth=2.14" Tc=8.0 min CN=WQ Runoff=2.16 cfs 7,942 cf
Subcatchment PWS-3B: (Bypass)	Runoff Area=12,275 sf 3.54% Impervious Runoff Depth=0.09" Tc=8.0 min CN=WQ Runoff=0.02 cfs 90 cf
Subcatchment PWS-4A:	Runoff Area=9,610 sf 40.79% Impervious Runoff Depth=1.01" Tc=6.0 min CN=WQ Runoff=0.23 cfs 807 cf
Subcatchment PWS-4B:	Runoff Area=41,795 sf 85.24% Impervious Runoff Depth=2.11" Tc=8.0 min CN=WQ Runoff=1.99 cfs 7,332 cf
Subcatchment PWS-4C: (Bypass)	Runoff Area=27,975 sf 7.29% Impervious Runoff Depth=0.18" Tc=8.0 min CN=WQ Runoff=0.11 cfs 420 cf
Subcatchment PWS-OS:	Runoff Area=18,475 sf 7.01% Impervious Runoff Depth=0.17" Tc=8.0 min CN=WQ Runoff=0.07 cfs 267 cf
Pond BMP-1A: Infiltration Basins (2)	Peak Elev=34.68' Storage=13,395 cf Inflow=8.90 cfs 34,429 cf Discarded=0.64 cfs 30,642 cf Primary=2.00 cfs 3,786 cf Secondary=0.00 cfs 0 cf Outflow=2.65 cfs 34,427 cf
Pond BMP-1A PT: Sediment Forebay	Peak Elev=35.67' Storage=2,054 cf Inflow=1.29 cfs 3,081 cf Discarded=0.05 cfs 2,688 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 2,688 cf
Pond BMP-2A: (150) SC-310	Peak Elev=36.90' Storage=1,689 cf Inflow=2.33 cfs 8,564 cf Discarded=0.61 cfs 8,565 cf Primary=0.00 cfs 0 cf Outflow=0.61 cfs 8,565 cf
Pond BMP-3A: (163) SC-310	Peak Elev=38.54' Storage=1,373 cf Inflow=2.16 cfs 7,942 cf Discarded=0.66 cfs 7,942 cf Primary=0.00 cfs 0 cf Outflow=0.66 cfs 7,942 cf
Pond FS-1:	Peak Elev=37.60' Inflow=10.19 cfs 37,510 cf Primary=1.29 cfs 3,081 cf Secondary=8.90 cfs 34,429 cf Outflow=10.19 cfs 37,510 cf
Pond PR BMP-4A: (4) Existing Drywells	Peak Elev=39.81' Storage=874 cf Inflow=1.91 cfs 2,672 cf Discarded=0.06 cfs 1,468 cf Primary=1.46 cfs 1,205 cf Outflow=1.52 cfs 2,673 cf

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Type III 24-hr 1-Year Rainfall=2.70"

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Pond PR BMP-4B: Existing Basin

Peak Elev=43.89' Storage=870 cf Inflow=1.99 cfs 7,332 cf
Discarded=0.23 cfs 5,467 cf Primary=1.71 cfs 1,865 cf Outflow=1.94 cfs 7,332 cf

Link PR DP-1:

Inflow=2.03 cfs 4,147 cf
Primary=2.03 cfs 4,147 cf

Link PR DP-2:

Inflow=0.30 cfs 1,099 cf
Primary=0.30 cfs 1,099 cf

Link PR DP-3:

Inflow=0.10 cfs 356 cf
Primary=0.10 cfs 356 cf

Link PR DP-4:

Inflow=1.54 cfs 1,625 cf
Primary=1.54 cfs 1,625 cf

Total Runoff Area = 698,250 sf Runoff Volume = 64,390 cf Average Runoff Depth = 1.11"
55.19% Pervious = 385,380 sf 44.81% Impervious = 312,870 sf

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment PWS-1A:

Runoff = 10.19 cfs @ 12.11 hrs, Volume= 37,510 cf, Depth= 1.07"
Routed to Pond FS-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
72,155	98	Roofs, HSG A
110,105	98	Paved parking, HSG A
238,810	39	>75% Grass cover, Good, HSG A
421,070		Weighted Average
238,810	39	56.72% Pervious Area
182,260	98	43.28% Impervious Area

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

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment PWS-1B:

Runoff = 0.10 cfs @ 12.08 hrs, Volume= 361 cf, Depth= 0.62"
Routed to Link PR DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
1,755	98	Paved parking, HSG A
5,225	39	>75% Grass cover, Good, HSG A
6,980		Weighted Average
5,225	39	74.86% Pervious Area
1,755	98	25.14% Impervious Area

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

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment PWS-2A:

Runoff = 2.33 cfs @ 12.11 hrs, Volume= 8,564 cf, Depth= 1.78"

Routed to Pond BMP-2A : (150) SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
3,725	98	Roofs, HSG A
37,885	98	Paved parking, HSG A
16,000	39	>75% Grass cover, Good, HSG A
57,610		Weighted Average
16,000	39	27.77% Pervious Area
41,610	98	72.23% Impervious Area

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

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment PWS-2B: (Bypass)

Runoff = 0.30 cfs @ 12.11 hrs, Volume= 1,099 cf, Depth= 0.23"
Routed to Link PR DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
5,340	98	Paved parking, HSG A
52,520	39	>75% Grass cover, Good, HSG A
57,860		Weighted Average
52,520	39	90.77% Pervious Area
5,340	98	9.23% Impervious Area

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

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment PWS-3A:

Runoff = 2.16 cfs @ 12.11 hrs, Volume= 7,942 cf, Depth= 2.14"

Routed to Pond BMP-3A : (163) SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
21,450	98	Roofs, HSG A
17,140	98	Paved parking, HSG A
6,010	39	>75% Grass cover, Good, HSG A
44,600		Weighted Average
6,010	39	13.48% Pervious Area
38,590	98	86.52% Impervious Area

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

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment PWS-3B: (Bypass)

Runoff = 0.02 cfs @ 12.11 hrs, Volume= 90 cf, Depth= 0.09"
Routed to Link PR DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
435	98	Paved parking, HSG A
11,840	39	>75% Grass cover, Good, HSG A
12,275		Weighted Average
11,840	39	96.46% Pervious Area
435	98	3.54% Impervious Area

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

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Summary for Subcatchment PWS-4A:

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 807 cf, Depth= 1.01"

Routed to Pond PR BMP-4A : (4) Existing Drywells

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
3,920	98	Paved parking, HSG A
5,690	39	>75% Grass cover, Good, HSG A
9,610		Weighted Average
5,690	39	59.21% Pervious Area
3,920	98	40.79% Impervious Area

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

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment PWS-4B:

Runoff = 1.99 cfs @ 12.11 hrs, Volume= 7,332 cf, Depth= 2.11"
Routed to Pond PR BMP-4B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
11,165	98	Roofs, HSG A
24,460	98	Paved parking, HSG A
6,170	39	>75% Grass cover, Good, HSG A
41,795		Weighted Average
6,170	39	14.76% Pervious Area
35,625	98	85.24% Impervious Area

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

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Summary for Subcatchment PWS-4C: (Bypass)

Runoff = 0.11 cfs @ 12.11 hrs, Volume= 420 cf, Depth= 0.18"
Routed to Link PR DP-4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
2,040	98	Paved parking, HSG A
25,935	39	>75% Grass cover, Good, HSG A
27,975		Weighted Average
25,935	39	92.71% Pervious Area
2,040	98	7.29% Impervious Area

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

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Type III 24-hr 1-Year Rainfall=2.70"

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Summary for Subcatchment PWS-OS:

Runoff = 0.07 cfs @ 12.11 hrs, Volume= 267 cf, Depth= 0.17"
Routed to Link PR DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
740	98	Roofs, HSG A
555	98	Paved parking, HSG A
17,180	39	>75% Grass cover, Good, HSG A
18,475		Weighted Average
17,180	39	92.99% Pervious Area
1,295	98	7.01% Impervious Area

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

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Summary for Pond BMP-1A: Infiltration Basins (2)

Inflow Area = 421,070 sf, 43.28% Impervious, Inflow Depth = 0.98" for 1-Year event
 Inflow = 8.90 cfs @ 12.11 hrs, Volume= 34,429 cf
 Outflow = 2.65 cfs @ 12.46 hrs, Volume= 34,427 cf, Atten= 70%, Lag= 21.3 min
 Discarded = 0.64 cfs @ 12.46 hrs, Volume= 30,642 cf
 Primary = 2.00 cfs @ 12.46 hrs, Volume= 3,786 cf
 Routed to Link PR DP-1 :
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link PR DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 34.68' @ 12.46 hrs Surf.Area= 6,953 sf Storage= 13,395 cf

Plug-Flow detention time= 181.6 min calculated for 34,404 cf (100% of inflow)
 Center-of-Mass det. time= 181.6 min (944.8 - 763.2)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	34,365 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	33.00'	408 cf	24.0" Round Pipe Storage x 2 -Impervious L= 65.0'
		34,773 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	3,200	0	0
33.00	4,335	3,768	3,768
34.00	5,635	4,985	8,753
35.00	7,575	6,605	15,358
36.00	9,400	8,488	23,845
37.00	11,640	10,520	34,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.00'	4.000 in/hr Exfiltration over Surface area
#2	Primary	29.90'	18.0" Round Culvert L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	34.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	36.50'	20.0' long + 4.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir X 2. Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

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Type III 24-hr 1-Year Rainfall=2.70"

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Discarded OutFlow Max=0.64 cfs @ 12.46 hrs HW=34.68' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.64 cfs)

Primary OutFlow Max=1.99 cfs @ 12.46 hrs HW=34.68' (Free Discharge)

↑**2=Culvert** (Passes 1.99 cfs of 17.08 cfs potential flow)

↑**3=Orifice/Grate** (Weir Controls 1.99 cfs @ 1.38 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=32.00' (Free Discharge)

↑**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Stage-Area-Storage for Pond BMP-1A: Infiltration Basins (2)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
32.00	3,200	0	34.65	6,896	13,185
32.05	3,257	161	34.70	6,993	13,542
32.10	3,314	326	34.75	7,090	13,903
32.15	3,370	493	34.80	7,187	14,268
32.20	3,427	663	34.85	7,284	14,638
32.25	3,484	835	34.90	7,381	15,010
32.30	3,540	1,011	34.95	7,478	15,387
32.35	3,597	1,190	35.00	7,575	15,766
32.40	3,654	1,371	35.05	7,666	16,147
32.45	3,711	1,555	35.10	7,758	16,533
32.50	3,768	1,742	35.15	7,849	16,923
32.55	3,824	1,932	35.20	7,940	17,317
32.60	3,881	2,124	35.25	8,031	17,717
32.65	3,938	2,320	35.30	8,122	18,121
32.70	3,995	2,518	35.35	8,214	18,529
32.75	4,051	2,719	35.40	8,305	18,942
32.80	4,108	2,923	35.45	8,396	19,359
32.85	4,165	3,130	35.50	8,488	19,782
32.90	4,221	3,340	35.55	8,579	20,208
32.95	4,278	3,552	35.60	8,670	20,639
33.00	4,335	3,768	35.65	8,761	21,075
33.05	4,400	3,989	35.70	8,853	21,516
33.10	4,465	4,215	35.75	8,944	21,960
33.15	4,530	4,446	35.80	9,035	22,410
33.20	4,595	4,682	35.85	9,126	22,864
33.25	4,660	4,921	35.90	9,217	23,323
33.30	4,725	5,165	35.95	9,309	23,786
33.35	4,790	5,412	36.00	9,400	24,253
33.40	4,855	5,664	36.05	9,512	24,726
33.45	4,920	5,919	36.10	9,624	25,205
33.50	4,985	6,177	36.15	9,736	25,689
33.55	5,050	6,440	36.20	9,848	26,178
33.60	5,115	6,706	36.25	9,960	26,673
33.65	5,180	6,975	36.30	10,072	27,174
33.70	5,245	7,248	36.35	10,184	27,681
33.75	5,310	7,524	36.40	10,296	28,193
33.80	5,375	7,804	36.45	10,408	28,710
33.85	5,440	8,087	36.50	10,520	29,233
33.90	5,505	8,374	36.55	10,632	29,762
33.95	5,570	8,664	36.60	10,744	30,297
34.00	5,635	8,957	36.65	10,856	30,837
34.05	5,732	9,254	36.70	10,968	31,382
34.10	5,829	9,556	36.75	11,080	31,933
34.15	5,926	9,863	36.80	11,192	32,490
34.20	6,023	10,174	36.85	11,304	33,053
34.25	6,120	10,490	36.90	11,416	33,621
34.30	6,217	10,811	36.95	11,528	34,194
34.35	6,314	11,137	37.00	11,640	34,773
34.40	6,411	11,467			
34.45	6,508	11,802			
34.50	6,605	12,141			
34.55	6,702	12,485			
34.60	6,799	12,833			

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Summary for Pond BMP-1A PT: Sediment Forebay

Inflow Area = 421,070 sf, 43.28% Impervious, Inflow Depth = 0.09" for 1-Year event
 Inflow = 1.29 cfs @ 12.11 hrs, Volume= 3,081 cf
 Outflow = 0.05 cfs @ 13.63 hrs, Volume= 2,688 cf, Atten= 96%, Lag= 91.3 min
 Discarded = 0.05 cfs @ 13.63 hrs, Volume= 2,688 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Pond BMP-1A : Infiltration Basins (2)

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 6
 Peak Elev= 35.67' @ 13.63 hrs Surf.Area= 1,959 sf Storage= 2,054 cf

Plug-Flow detention time= 422.8 min calculated for 2,688 cf (87% of inflow)
 Center-of-Mass det. time= 380.2 min (1,128.1 - 747.9)

Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	5,423 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	495	0	0
37.00	3,120	5,423	5,423

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.00'	1.020 in/hr Exfiltration over Surface area
#2	Primary	36.00'	14.0' long + 4.0 ' SideZ x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.05 cfs @ 13.63 hrs HW=35.67' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=34.00' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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Stage-Area-Storage for Pond BMP-1A PT: Sediment Forebay

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.00	495	0	36.65	2,814	4,384
34.05	539	26	36.70	2,858	4,526
34.10	583	54	36.75	2,901	4,670
34.15	626	84	36.80	2,945	4,816
34.20	670	117	36.85	2,989	4,964
34.25	714	151	36.90	3,032	5,115
34.30	757	188	36.95	3,076	5,268
34.35	801	227	37.00	3,120	5,423
34.40	845	268			
34.45	889	311			
34.50	933	357			
34.55	976	405			
34.60	1,020	455			
34.65	1,064	507			
34.70	1,108	561			
34.75	1,151	617			
34.80	1,195	676			
34.85	1,239	737			
34.90	1,282	800			
34.95	1,326	865			
35.00	1,370	933			
35.05	1,414	1,002			
35.10	1,458	1,074			
35.15	1,501	1,148			
35.20	1,545	1,224			
35.25	1,589	1,302			
35.30	1,632	1,383			
35.35	1,676	1,466			
35.40	1,720	1,550			
35.45	1,764	1,638			
35.50	1,808	1,727			
35.55	1,851	1,818			
35.60	1,895	1,912			
35.65	1,939	2,008			
35.70	1,983	2,106			
35.75	2,026	2,206			
35.80	2,070	2,308			
35.85	2,114	2,413			
35.90	2,157	2,520			
35.95	2,201	2,629			
36.00	2,245	2,740			
36.05	2,289	2,853			
36.10	2,333	2,969			
36.15	2,376	3,087			
36.20	2,420	3,207			
36.25	2,464	3,329			
36.30	2,507	3,453			
36.35	2,551	3,579			
36.40	2,595	3,708			
36.45	2,639	3,839			
36.50	2,683	3,972			
36.55	2,726	4,107			
36.60	2,770	4,245			

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Summary for Pond BMP-2A: (150) SC-310

Inflow Area = 57,610 sf, 72.23% Impervious, Inflow Depth = 1.78" for 1-Year event
 Inflow = 2.33 cfs @ 12.11 hrs, Volume= 8,564 cf
 Outflow = 0.61 cfs @ 11.80 hrs, Volume= 8,565 cf, Atten= 74%, Lag= 0.0 min
 Discarded = 0.61 cfs @ 11.80 hrs, Volume= 8,565 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link PR DP-2 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 36.90' @ 12.49 hrs Surf.Area= 6,600 sf Storage= 1,689 cf

Plug-Flow detention time= 13.5 min calculated for 8,559 cf (100% of inflow)
 Center-of-Mass det. time= 13.6 min (775.6 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	36.25'	4,345 cf	Custom Stage Data (Prismatic) Listed below x 150 15,378 cf Overall - 2,211 cf Embedded = 13,167 cf x 33.0% Voids
#2	36.75'	2,211 cf	ADS_StormTech SC-310 +Cap x 150 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		6,556 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.25	44	0	0
38.58	44	103	103

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.25'	4.000 in/hr Exfiltration over Surface area
#2	Primary	38.10'	12.0" Round 36.20 L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.10' / 36.20' S= 0.0380 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	38.34'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.61 cfs @ 11.80 hrs HW=36.28' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.61 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=36.25' (Free Discharge)
 ↑2=36.20 (Controls 0.00 cfs)
 ↑3=Orifice/Grate (Controls 0.00 cfs)

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Stage-Area-Storage for Pond BMP-2A: (150) SC-310

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
36.25	6,600	0	38.90	6,600	6,556
36.30	6,600	109	38.95	6,600	6,556
36.35	6,600	218	39.00	6,600	6,556
36.40	6,600	327	39.05	6,600	6,556
36.45	6,600	436	39.10	6,600	6,556
36.50	6,600	545			
36.55	6,600	653			
36.60	6,600	762			
36.65	6,600	871			
36.70	6,600	980			
36.75	6,600	1,089			
36.80	6,600	1,284			
36.85	6,600	1,478			
36.90	6,600	1,672			
36.95	6,600	1,864			
37.00	6,600	2,055			
37.05	6,600	2,244			
37.10	6,600	2,431			
37.15	6,600	2,617			
37.20	6,600	2,801			
37.25	6,600	2,982			
37.30	6,600	3,161			
37.35	6,600	3,338			
37.40	6,600	3,513			
37.45	6,600	3,685			
37.50	6,600	3,854			
37.55	6,600	4,020			
37.60	6,600	4,182			
37.65	6,600	4,341			
37.70	6,600	4,495			
37.75	6,600	4,644			
37.80	6,600	4,787			
37.85	6,600	4,922			
37.90	6,600	5,049			
37.95	6,600	5,170			
38.00	6,600	5,287			
38.05	6,600	5,401			
38.10	6,600	5,511			
38.15	6,600	5,620			
38.20	6,600	5,729			
38.25	6,600	5,838			
38.30	6,600	5,946			
38.35	6,600	6,055			
38.40	6,600	6,164			
38.45	6,600	6,273			
38.50	6,600	6,382			
38.55	6,600	6,491			
38.60	6,600	6,556			
38.65	6,600	6,556			
38.70	6,600	6,556			
38.75	6,600	6,556			
38.80	6,600	6,556			
38.85	6,600	6,556			

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Summary for Pond BMP-3A: (163) SC-310

Inflow Area = 44,600 sf, 86.52% Impervious, Inflow Depth = 2.14" for 1-Year event
 Inflow = 2.16 cfs @ 12.11 hrs, Volume= 7,942 cf
 Outflow = 0.66 cfs @ 11.86 hrs, Volume= 7,942 cf, Atten= 69%, Lag= 0.0 min
 Discarded = 0.66 cfs @ 11.86 hrs, Volume= 7,942 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link PR DP-3 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 38.54' @ 12.44 hrs Surf.Area= 7,172 sf Storage= 1,373 cf

Plug-Flow detention time= 10.7 min calculated for 7,936 cf (100% of inflow)
 Center-of-Mass det. time= 10.6 min (772.6 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	4,722 cf	Custom Stage Data (Prismatic) Listed below x 163 16,711 cf Overall - 2,403 cf Embedded = 14,308 cf x 33.0% Voids
#2	38.50'	2,403 cf	ADS_StormTech SC-310 +Cap x 163 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		7,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	44	0	0
40.33	44	103	103

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.00'	4.000 in/hr Exfiltration over Surface area
#2	Primary	42.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.66 cfs @ 11.86 hrs HW=38.05' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.66 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

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Stage-Area-Storage for Pond BMP-3A: (163) SC-310

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
38.00	7,172	0	40.65	7,172	7,125
38.05	7,172	118	40.70	7,172	7,125
38.10	7,172	237	40.75	7,172	7,125
38.15	7,172	355	40.80	7,172	7,125
38.20	7,172	473	40.85	7,172	7,125
38.25	7,172	592	40.90	7,172	7,125
38.30	7,172	710	40.95	7,172	7,125
38.35	7,172	828	41.00	7,172	7,125
38.40	7,172	947	41.05	7,172	7,125
38.45	7,172	1,065	41.10	7,172	7,125
38.50	7,172	1,183	41.15	7,172	7,125
38.55	7,172	1,395	41.20	7,172	7,125
38.60	7,172	1,606	41.25	7,172	7,125
38.65	7,172	1,817	41.30	7,172	7,125
38.70	7,172	2,025	41.35	7,172	7,125
38.75	7,172	2,233	41.40	7,172	7,125
38.80	7,172	2,438	41.45	7,172	7,125
38.85	7,172	2,642	41.50	7,172	7,125
38.90	7,172	2,844	41.55	7,172	7,125
38.95	7,172	3,043	41.60	7,172	7,125
39.00	7,172	3,241	41.65	7,172	7,125
39.05	7,172	3,435	41.70	7,172	7,125
39.10	7,172	3,628	41.75	7,172	7,125
39.15	7,172	3,818	41.80	7,172	7,125
39.20	7,172	4,005	41.85	7,172	7,125
39.25	7,172	4,188	41.90	7,172	7,125
39.30	7,172	4,369	41.95	7,172	7,125
39.35	7,172	4,545	42.00	7,172	7,125
39.40	7,172	4,717	42.05	7,172	7,125
39.45	7,172	4,884	42.10	7,172	7,125
39.50	7,172	5,047	42.15	7,172	7,125
39.55	7,172	5,202	42.20	7,172	7,125
39.60	7,172	5,348	42.25	7,172	7,125
39.65	7,172	5,487	42.30	7,172	7,125
39.70	7,172	5,618	42.35	7,172	7,125
39.75	7,172	5,746	42.40	7,172	7,125
39.80	7,172	5,869	42.45	7,172	7,125
39.85	7,172	5,988	42.50	7,172	7,125
39.90	7,172	6,107			
39.95	7,172	6,225			
40.00	7,172	6,343			
40.05	7,172	6,462			
40.10	7,172	6,580			
40.15	7,172	6,699			
40.20	7,172	6,817			
40.25	7,172	6,935			
40.30	7,172	7,054			
40.35	7,172	7,125			
40.40	7,172	7,125			
40.45	7,172	7,125			
40.50	7,172	7,125			
40.55	7,172	7,125			
40.60	7,172	7,125			

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Summary for Pond FS-1:

Inflow Area = 421,070 sf, 43.28% Impervious, Inflow Depth = 1.07" for 1-Year event
Inflow = 10.19 cfs @ 12.11 hrs, Volume= 37,510 cf
Outflow = 10.19 cfs @ 12.11 hrs, Volume= 37,510 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.29 cfs @ 12.11 hrs, Volume= 3,081 cf
Routed to Pond BMP-1A PT : Sediment Forebay
Secondary = 8.90 cfs @ 12.11 hrs, Volume= 34,429 cf
Routed to Pond BMP-1A : Infiltration Basins (2)

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 6

Peak Elev= 37.60' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	12.0" Round Culvert L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.00' / 36.00' S= 0.0476 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	35.00'	30.0" Round Culvert L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.00' / 33.60' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#3	Device 2	37.00'	6.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=1.28 cfs @ 12.11 hrs HW=37.60' (Free Discharge)

↑**1=Culvert** (Inlet Controls 1.28 cfs @ 2.63 fps)

Secondary OutFlow Max=8.84 cfs @ 12.11 hrs HW=37.60' (Free Discharge)

↑**2=Culvert** (Passes 8.84 cfs of 27.42 cfs potential flow)

↑**3=Sharp-Crested Rectangular Weir** (Weir Controls 8.84 cfs @ 2.52 fps)

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Stage-Area-Storage for Pond FS-1:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
35.00	0	36.06	0	37.12	0
35.02	0	36.08	0	37.14	0
35.04	0	36.10	0	37.16	0
35.06	0	36.12	0	37.18	0
35.08	0	36.14	0	37.20	0
35.10	0	36.16	0	37.22	0
35.12	0	36.18	0	37.24	0
35.14	0	36.20	0	37.26	0
35.16	0	36.22	0	37.28	0
35.18	0	36.24	0	37.30	0
35.20	0	36.26	0	37.32	0
35.22	0	36.28	0	37.34	0
35.24	0	36.30	0	37.36	0
35.26	0	36.32	0	37.38	0
35.28	0	36.34	0	37.40	0
35.30	0	36.36	0	37.42	0
35.32	0	36.38	0	37.44	0
35.34	0	36.40	0	37.46	0
35.36	0	36.42	0	37.48	0
35.38	0	36.44	0	37.50	0
35.40	0	36.46	0	37.52	0
35.42	0	36.48	0	37.54	0
35.44	0	36.50	0	37.56	0
35.46	0	36.52	0	37.58	0
35.48	0	36.54	0	37.60	0
35.50	0	36.56	0	37.62	0
35.52	0	36.58	0	37.64	0
35.54	0	36.60	0	37.66	0
35.56	0	36.62	0	37.68	0
35.58	0	36.64	0	37.70	0
35.60	0	36.66	0	37.72	0
35.62	0	36.68	0	37.74	0
35.64	0	36.70	0	37.76	0
35.66	0	36.72	0	37.78	0
35.68	0	36.74	0	37.80	0
35.70	0	36.76	0	37.82	0
35.72	0	36.78	0	37.84	0
35.74	0	36.80	0	37.86	0
35.76	0	36.82	0	37.88	0
35.78	0	36.84	0	37.90	0
35.80	0	36.86	0	37.92	0
35.82	0	36.88	0	37.94	0
35.84	0	36.90	0	37.96	0
35.86	0	36.92	0	37.98	0
35.88	0	36.94	0	38.00	0
35.90	0	36.96	0		
35.92	0	36.98	0		
35.94	0	37.00	0		
35.96	0	37.02	0		
35.98	0	37.04	0		
36.00	0	37.06	0		
36.02	0	37.08	0		
36.04	0	37.10	0		

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Summary for Pond PR BMP-4A: (4) Existing Drywells

Inflow Area = 51,405 sf, 76.93% Impervious, Inflow Depth = 0.62" for 1-Year event
Inflow = 1.91 cfs @ 12.13 hrs, Volume= 2,672 cf
Outflow = 1.52 cfs @ 12.20 hrs, Volume= 2,673 cf, Atten= 21%, Lag= 4.4 min
Discarded = 0.06 cfs @ 11.80 hrs, Volume= 1,468 cf
Primary = 1.46 cfs @ 12.20 hrs, Volume= 1,205 cf
Routed to Link PR DP-4 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
Peak Elev= 39.81' @ 12.20 hrs Surf.Area= 314 sf Storage= 874 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 53.8 min (796.1 - 742.3)

Volume	Invert	Avail.Storage	Storage Description
#1	34.17'	421 cf	10.00'D x 7.00'H Vertical Cone/Cylinder x 4 2,199 cf Overall - 924 cf Embedded = 1,275 cf x 33.0% Voids
#2	35.17'	679 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 4 Inside #1 924 cf Overall - 6.0" Wall Thickness = 679 cf
		1,099 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.17'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.17'	12.0" Round Culvert L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.17' / 34.54' S= 0.0772 ' S= 0.0772 ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.06 cfs @ 11.80 hrs HW=34.25' (Free Discharge)
↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=1.45 cfs @ 12.20 hrs HW=39.81' (Free Discharge)
↑2=Culvert (Inlet Controls 1.45 cfs @ 2.73 fps)

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Stage-Area-Storage for Pond PR BMP-4A: (4) Existing Drywells

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.17	314	0	39.47	314	817
34.27	314	10	39.57	314	834
34.37	314	21	39.67	314	851
34.47	314	31	39.77	314	867
34.57	314	41	39.87	314	884
34.67	314	52	39.97	314	900
34.77	314	62	40.07	314	917
34.87	314	73	40.17	314	934
34.97	314	83	40.27	314	950
35.07	314	93	40.37	314	967
35.17	314	104	40.47	314	983
35.27	314	120	40.57	314	1,000
35.37	314	137	40.67	314	1,017
35.47	314	153	40.77	314	1,033
35.57	314	170	40.87	314	1,050
35.67	314	187	40.97	314	1,066
35.77	314	203	41.07	314	1,083
35.87	314	220	41.17	314	1,099
35.97	314	236			
36.07	314	253			
36.17	314	270			
36.27	314	286			
36.37	314	303			
36.47	314	319			
36.57	314	336			
36.67	314	353			
36.77	314	369			
36.87	314	386			
36.97	314	402			
37.07	314	419			
37.17	314	436			
37.27	314	452			
37.37	314	469			
37.47	314	485			
37.57	314	502			
37.67	314	519			
37.77	314	535			
37.87	314	552			
37.97	314	568			
38.07	314	585			
38.17	314	602			
38.27	314	618			
38.37	314	635			
38.47	314	651			
38.57	314	668			
38.67	314	685			
38.77	314	701			
38.87	314	718			
38.97	314	734			
39.07	314	751			
39.17	314	768			
39.27	314	784			
39.37	314	801			

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Summary for Pond PR BMP-4B: Existing Basin

Inflow Area = 41,795 sf, 85.24% Impervious, Inflow Depth = 2.11" for 1-Year event
 Inflow = 1.99 cfs @ 12.11 hrs, Volume= 7,332 cf
 Outflow = 1.94 cfs @ 12.13 hrs, Volume= 7,332 cf, Atten= 3%, Lag= 1.3 min
 Discarded = 0.23 cfs @ 12.13 hrs, Volume= 5,467 cf
 Primary = 1.71 cfs @ 12.13 hrs, Volume= 1,865 cf
 Routed to Pond PR BMP-4A : (4) Existing Drywells

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 43.89' @ 12.13 hrs Surf.Area= 1,207 sf Storage= 870 cf

Plug-Flow detention time= 15.7 min calculated for 7,332 cf (100% of inflow)
 Center-of-Mass det. time= 15.7 min (777.6 - 762.0)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,525 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	745	0	0
45.00	1,780	2,525	2,525

Device	Routing	Invert	Outlet Devices
#1	Discarded	43.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.97'	12.0" Round Culvert L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.97' / 39.17' S= 0.0667 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	43.73'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.23 cfs @ 12.13 hrs HW=43.89' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Primary OutFlow Max=1.69 cfs @ 12.13 hrs HW=43.89' (Free Discharge)
 ↑**2=Culvert** (Passes 1.69 cfs of 6.99 cfs potential flow)
 ↑**3=Orifice/Grate** (Weir Controls 1.69 cfs @ 1.31 fps)

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Stage-Area-Storage for Pond PR BMP-4B: Existing Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
43.00	745	0	44.06	1,294	1,080
43.02	755	15	44.08	1,304	1,106
43.04	766	30	44.10	1,314	1,133
43.06	776	46	44.12	1,325	1,159
43.08	786	61	44.14	1,335	1,186
43.10	797	77	44.16	1,345	1,212
43.12	807	93	44.18	1,356	1,239
43.14	817	109	44.20	1,366	1,267
43.16	828	126	44.22	1,376	1,294
43.18	838	142	44.24	1,387	1,322
43.20	849	159	44.26	1,397	1,349
43.22	859	176	44.28	1,407	1,378
43.24	869	194	44.30	1,418	1,406
43.26	880	211	44.32	1,428	1,434
43.28	890	229	44.34	1,438	1,463
43.30	900	247	44.36	1,449	1,492
43.32	911	265	44.38	1,459	1,521
43.34	921	283	44.40	1,469	1,550
43.36	931	302	44.42	1,480	1,580
43.38	942	320	44.44	1,490	1,609
43.40	952	339	44.46	1,501	1,639
43.42	962	359	44.48	1,511	1,669
43.44	973	378	44.50	1,521	1,700
43.46	983	397	44.52	1,532	1,730
43.48	993	417	44.54	1,542	1,761
43.50	1,004	437	44.56	1,552	1,792
43.52	1,014	457	44.58	1,563	1,823
43.54	1,024	478	44.60	1,573	1,854
43.56	1,035	498	44.62	1,583	1,886
43.58	1,045	519	44.64	1,594	1,918
43.60	1,056	540	44.66	1,604	1,950
43.62	1,066	561	44.68	1,614	1,982
43.64	1,076	583	44.70	1,625	2,014
43.66	1,087	604	44.72	1,635	2,047
43.68	1,097	626	44.74	1,645	2,080
43.70	1,107	648	44.76	1,656	2,113
43.72	1,118	671	44.78	1,666	2,146
43.74	1,128	693	44.80	1,676	2,179
43.76	1,138	716	44.82	1,687	2,213
43.78	1,149	739	44.84	1,697	2,247
43.80	1,159	762	44.86	1,708	2,281
43.82	1,169	785	44.88	1,718	2,315
43.84	1,180	808	44.90	1,728	2,350
43.86	1,190	832	44.92	1,739	2,384
43.88	1,200	856	44.94	1,749	2,419
43.90	1,211	880	44.96	1,759	2,454
43.92	1,221	904	44.98	1,770	2,490
43.94	1,231	929	45.00	1,780	2,525
43.96	1,242	954			
43.98	1,252	979			
44.00	1,263	1,004			
44.02	1,273	1,029			
44.04	1,283	1,055			

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Summary for Link PR DP-1:

Inflow Area = 428,050 sf, 42.99% Impervious, Inflow Depth = 0.12" for 1-Year event
Inflow = 2.03 cfs @ 12.46 hrs, Volume= 4,147 cf
Primary = 2.03 cfs @ 12.46 hrs, Volume= 4,147 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Summary for Link PR DP-2:

Inflow Area = 115,470 sf, 40.66% Impervious, Inflow Depth = 0.11" for 1-Year event
Inflow = 0.30 cfs @ 12.11 hrs, Volume= 1,099 cf
Primary = 0.30 cfs @ 12.11 hrs, Volume= 1,099 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Summary for Link PR DP-3:

Inflow Area = 75,350 sf, 53.51% Impervious, Inflow Depth = 0.06" for 1-Year event
Inflow = 0.10 cfs @ 12.11 hrs, Volume= 356 cf
Primary = 0.10 cfs @ 12.11 hrs, Volume= 356 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Summary for Link PR DP-4:

Inflow Area = 79,380 sf, 52.39% Impervious, Inflow Depth = 0.25" for 1-Year event
Inflow = 1.54 cfs @ 12.20 hrs, Volume= 1,625 cf
Primary = 1.54 cfs @ 12.20 hrs, Volume= 1,625 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 10-Year Rainfall=4.90"

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Time span=0.00-30.00 hrs, dt=0.02 hrs, 1501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PWS-1A:	Runoff Area=421,070 sf 43.28% Impervious Runoff Depth=2.12" Tc=8.0 min CN=WQ Runoff=18.72 cfs 74,416 cf
Subcatchment PWS-1B:	Runoff Area=6,980 sf 25.14% Impervious Runoff Depth=1.31" Tc=6.0 min CN=WQ Runoff=0.19 cfs 761 cf
Subcatchment PWS-2A:	Runoff Area=57,610 sf 72.23% Impervious Runoff Depth=3.42" Tc=8.0 min CN=WQ Runoff=4.27 cfs 16,410 cf
Subcatchment PWS-2B: (Bypass)	Runoff Area=57,860 sf 9.23% Impervious Runoff Depth=0.59" Tc=8.0 min CN=WQ Runoff=0.55 cfs 2,864 cf
Subcatchment PWS-3A:	Runoff Area=44,600 sf 86.52% Impervious Runoff Depth=4.06" Tc=8.0 min CN=WQ Runoff=3.96 cfs 15,087 cf
Subcatchment PWS-3B: (Bypass)	Runoff Area=12,275 sf 3.54% Impervious Runoff Depth=0.34" Tc=8.0 min CN=WQ Runoff=0.04 cfs 347 cf
Subcatchment PWS-4A:	Runoff Area=9,610 sf 40.79% Impervious Runoff Depth=2.01" Tc=6.0 min CN=WQ Runoff=0.43 cfs 1,609 cf
Subcatchment PWS-4B:	Runoff Area=41,795 sf 85.24% Impervious Runoff Depth=4.00" Tc=8.0 min CN=WQ Runoff=3.66 cfs 13,937 cf
Subcatchment PWS-4C: (Bypass)	Runoff Area=27,975 sf 7.29% Impervious Runoff Depth=0.51" Tc=8.0 min CN=WQ Runoff=0.21 cfs 1,182 cf
Subcatchment PWS-OS:	Runoff Area=18,475 sf 7.01% Impervious Runoff Depth=0.49" Tc=8.0 min CN=WQ Runoff=0.13 cfs 761 cf
Pond BMP-1A: Infiltration Basins (2)	Peak Elev=35.13' Storage=16,763 cf Inflow=16.31 cfs 69,777 cf Discarded=0.72 cfs 41,683 cf Primary=13.08 cfs 28,094 cf Secondary=0.00 cfs 0 cf Outflow=13.80 cfs 69,777 cf
Pond BMP-1A PT: Sediment Forebay	Peak Elev=36.12' Storage=3,017 cf Inflow=2.41 cfs 6,830 cf Discarded=0.06 cfs 3,572 cf Primary=1.48 cfs 2,190 cf Outflow=1.53 cfs 5,762 cf
Pond BMP-2A: (150) SC-310	Peak Elev=37.75' Storage=4,656 cf Inflow=4.27 cfs 16,410 cf Discarded=0.61 cfs 16,411 cf Primary=0.00 cfs 0 cf Outflow=0.61 cfs 16,411 cf
Pond BMP-3A: (163) SC-310	Peak Elev=39.20' Storage=4,012 cf Inflow=3.96 cfs 15,087 cf Discarded=0.66 cfs 15,086 cf Primary=0.00 cfs 0 cf Outflow=0.66 cfs 15,086 cf
Pond FS-1:	Peak Elev=37.90' Inflow=18.72 cfs 74,416 cf Primary=2.41 cfs 6,830 cf Secondary=16.31 cfs 67,586 cf Outflow=18.72 cfs 74,416 cf
Pond PR BMP-4A: (4) Existing Drywells	Peak Elev=40.57' Storage=999 cf Inflow=3.74 cfs 7,052 cf Discarded=0.06 cfs 2,055 cf Primary=3.58 cfs 4,996 cf Outflow=3.64 cfs 7,051 cf

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Type III 24-hr 10-Year Rainfall=4.90"

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Pond PR BMP-4B: Existing Basin Peak Elev=43.98' Storage=984 cf Inflow=3.66 cfs 13,937 cf
Discarded=0.24 cfs 8,494 cf Primary=3.36 cfs 5,443 cf Outflow=3.60 cfs 13,937 cf

Link PR DP-1: Inflow=13.20 cfs 28,855 cf
Primary=13.20 cfs 28,855 cf

Link PR DP-2: Inflow=0.55 cfs 2,864 cf
Primary=0.55 cfs 2,864 cf

Link PR DP-3: Inflow=0.18 cfs 1,108 cf
Primary=0.18 cfs 1,108 cf

Link PR DP-4: Inflow=3.78 cfs 6,178 cf
Primary=3.78 cfs 6,178 cf

Total Runoff Area = 698,250 sf Runoff Volume = 127,374 cf Average Runoff Depth = 2.19"
55.19% Pervious = 385,380 sf 44.81% Impervious = 312,870 sf

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Summary for Subcatchment PWS-1A:

Runoff = 18.72 cfs @ 12.11 hrs, Volume= 74,416 cf, Depth= 2.12"
Routed to Pond FS-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
72,155	98	Roofs, HSG A
110,105	98	Paved parking, HSG A
238,810	39	>75% Grass cover, Good, HSG A
421,070		Weighted Average
238,810	39	56.72% Pervious Area
182,260	98	43.28% Impervious Area

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

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Summary for Subcatchment PWS-1B:

Runoff = 0.19 cfs @ 12.08 hrs, Volume= 761 cf, Depth= 1.31"
Routed to Link PR DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
1,755	98	Paved parking, HSG A
5,225	39	>75% Grass cover, Good, HSG A
6,980		Weighted Average
5,225	39	74.86% Pervious Area
1,755	98	25.14% Impervious Area

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

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Summary for Subcatchment PWS-2A:

Runoff = 4.27 cfs @ 12.11 hrs, Volume= 16,410 cf, Depth= 3.42"

Routed to Pond BMP-2A : (150) SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
3,725	98	Roofs, HSG A
37,885	98	Paved parking, HSG A
16,000	39	>75% Grass cover, Good, HSG A
57,610		Weighted Average
16,000	39	27.77% Pervious Area
41,610	98	72.23% Impervious Area

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

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Summary for Subcatchment PWS-2B: (Bypass)

Runoff = 0.55 cfs @ 12.11 hrs, Volume= 2,864 cf, Depth= 0.59"
Routed to Link PR DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
5,340	98	Paved parking, HSG A
52,520	39	>75% Grass cover, Good, HSG A
57,860		Weighted Average
52,520	39	90.77% Pervious Area
5,340	98	9.23% Impervious Area

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

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Summary for Subcatchment PWS-3A:

Runoff = 3.96 cfs @ 12.11 hrs, Volume= 15,087 cf, Depth= 4.06"

Routed to Pond BMP-3A : (163) SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
21,450	98	Roofs, HSG A
17,140	98	Paved parking, HSG A
6,010	39	>75% Grass cover, Good, HSG A
44,600		Weighted Average
6,010	39	13.48% Pervious Area
38,590	98	86.52% Impervious Area

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

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Subcatchment PWS-3B: (Bypass)

Runoff = 0.04 cfs @ 12.11 hrs, Volume= 347 cf, Depth= 0.34"
Routed to Link PR DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
435	98	Paved parking, HSG A
11,840	39	>75% Grass cover, Good, HSG A
12,275		Weighted Average
11,840	39	96.46% Pervious Area
435	98	3.54% Impervious Area

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

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Subcatchment PWS-4A:

Runoff = 0.43 cfs @ 12.08 hrs, Volume= 1,609 cf, Depth= 2.01"

Routed to Pond PR BMP-4A : (4) Existing Drywells

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
3,920	98	Paved parking, HSG A
5,690	39	>75% Grass cover, Good, HSG A
9,610		Weighted Average
5,690	39	59.21% Pervious Area
3,920	98	40.79% Impervious Area

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

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Summary for Subcatchment PWS-4B:

Runoff = 3.66 cfs @ 12.11 hrs, Volume= 13,937 cf, Depth= 4.00"

Routed to Pond PR BMP-4B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
11,165	98	Roofs, HSG A
24,460	98	Paved parking, HSG A
6,170	39	>75% Grass cover, Good, HSG A
41,795		Weighted Average
6,170	39	14.76% Pervious Area
35,625	98	85.24% Impervious Area

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

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Summary for Subcatchment PWS-4C: (Bypass)

Runoff = 0.21 cfs @ 12.11 hrs, Volume= 1,182 cf, Depth= 0.51"
Routed to Link PR DP-4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
2,040	98	Paved parking, HSG A
25,935	39	>75% Grass cover, Good, HSG A
27,975		Weighted Average
25,935	39	92.71% Pervious Area
2,040	98	7.29% Impervious Area

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

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Summary for Subcatchment PWS-OS:

Runoff = 0.13 cfs @ 12.11 hrs, Volume= 761 cf, Depth= 0.49"
Routed to Link PR DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
740	98	Roofs, HSG A
555	98	Paved parking, HSG A
17,180	39	>75% Grass cover, Good, HSG A
18,475		Weighted Average
17,180	39	92.99% Pervious Area
1,295	98	7.01% Impervious Area

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

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Summary for Pond BMP-1A: Infiltration Basins (2)

Inflow Area = 421,070 sf, 43.28% Impervious, Inflow Depth = 1.99" for 10-Year event
 Inflow = 16.31 cfs @ 12.11 hrs, Volume= 69,777 cf
 Outflow = 13.80 cfs @ 12.18 hrs, Volume= 69,777 cf, Atten= 15%, Lag= 4.5 min
 Discarded = 0.72 cfs @ 12.18 hrs, Volume= 41,683 cf
 Primary = 13.08 cfs @ 12.18 hrs, Volume= 28,094 cf
 Routed to Link PR DP-1 :
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link PR DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 35.13' @ 12.18 hrs Surf.Area= 7,812 sf Storage= 16,763 cf

Plug-Flow detention time= 137.3 min calculated for 69,731 cf (100% of inflow)
 Center-of-Mass det. time= 137.4 min (901.6 - 764.2)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	34,365 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	33.00'	408 cf	24.0" Round Pipe Storage x 2 -Impervious L= 65.0'
		34,773 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	3,200	0	0
33.00	4,335	3,768	3,768
34.00	5,635	4,985	8,753
35.00	7,575	6,605	15,358
36.00	9,400	8,488	23,845
37.00	11,640	10,520	34,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.00'	4.000 in/hr Exfiltration over Surface area
#2	Primary	29.90'	18.0" Round Culvert L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	34.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	36.50'	20.0' long + 4.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir X 2. Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

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Type III 24-hr 10-Year Rainfall=4.90"

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Discarded OutFlow Max=0.72 cfs @ 12.18 hrs HW=35.13' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.72 cfs)

Primary OutFlow Max=13.05 cfs @ 12.18 hrs HW=35.13' (Free Discharge)

↑**2=Culvert** (Passes 13.05 cfs of 18.01 cfs potential flow)

↑**3=Orifice/Grate** (Weir Controls 13.05 cfs @ 2.59 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=32.00' (Free Discharge)

↑**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Type III 24-hr 10-Year Rainfall=4.90"

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Stage-Area-Storage for Pond BMP-1A: Infiltration Basins (2)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
32.00	3,200	0	34.65	6,896	13,185
32.05	3,257	161	34.70	6,993	13,542
32.10	3,314	326	34.75	7,090	13,903
32.15	3,370	493	34.80	7,187	14,268
32.20	3,427	663	34.85	7,284	14,638
32.25	3,484	835	34.90	7,381	15,010
32.30	3,540	1,011	34.95	7,478	15,387
32.35	3,597	1,190	35.00	7,575	15,766
32.40	3,654	1,371	35.05	7,666	16,147
32.45	3,711	1,555	35.10	7,758	16,533
32.50	3,768	1,742	35.15	7,849	16,923
32.55	3,824	1,932	35.20	7,940	17,317
32.60	3,881	2,124	35.25	8,031	17,717
32.65	3,938	2,320	35.30	8,122	18,121
32.70	3,995	2,518	35.35	8,214	18,529
32.75	4,051	2,719	35.40	8,305	18,942
32.80	4,108	2,923	35.45	8,396	19,359
32.85	4,165	3,130	35.50	8,488	19,782
32.90	4,221	3,340	35.55	8,579	20,208
32.95	4,278	3,552	35.60	8,670	20,639
33.00	4,335	3,768	35.65	8,761	21,075
33.05	4,400	3,989	35.70	8,853	21,516
33.10	4,465	4,215	35.75	8,944	21,960
33.15	4,530	4,446	35.80	9,035	22,410
33.20	4,595	4,682	35.85	9,126	22,864
33.25	4,660	4,921	35.90	9,217	23,323
33.30	4,725	5,165	35.95	9,309	23,786
33.35	4,790	5,412	36.00	9,400	24,253
33.40	4,855	5,664	36.05	9,512	24,726
33.45	4,920	5,919	36.10	9,624	25,205
33.50	4,985	6,177	36.15	9,736	25,689
33.55	5,050	6,440	36.20	9,848	26,178
33.60	5,115	6,706	36.25	9,960	26,673
33.65	5,180	6,975	36.30	10,072	27,174
33.70	5,245	7,248	36.35	10,184	27,681
33.75	5,310	7,524	36.40	10,296	28,193
33.80	5,375	7,804	36.45	10,408	28,710
33.85	5,440	8,087	36.50	10,520	29,233
33.90	5,505	8,374	36.55	10,632	29,762
33.95	5,570	8,664	36.60	10,744	30,297
34.00	5,635	8,957	36.65	10,856	30,837
34.05	5,732	9,254	36.70	10,968	31,382
34.10	5,829	9,556	36.75	11,080	31,933
34.15	5,926	9,863	36.80	11,192	32,490
34.20	6,023	10,174	36.85	11,304	33,053
34.25	6,120	10,490	36.90	11,416	33,621
34.30	6,217	10,811	36.95	11,528	34,194
34.35	6,314	11,137	37.00	11,640	34,773
34.40	6,411	11,467			
34.45	6,508	11,802			
34.50	6,605	12,141			
34.55	6,702	12,485			
34.60	6,799	12,833			

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Summary for Pond BMP-1A PT: Sediment Forebay

Inflow Area = 421,070 sf, 43.28% Impervious, Inflow Depth = 0.19" for 10-Year event
 Inflow = 2.41 cfs @ 12.11 hrs, Volume= 6,830 cf
 Outflow = 1.53 cfs @ 12.22 hrs, Volume= 5,762 cf, Atten= 36%, Lag= 6.9 min
 Discarded = 0.06 cfs @ 12.22 hrs, Volume= 3,572 cf
 Primary = 1.48 cfs @ 12.22 hrs, Volume= 2,190 cf
 Routed to Pond BMP-1A : Infiltration Basins (2)

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 6
 Peak Elev= 36.12' @ 12.22 hrs Surf.Area= 2,350 sf Storage= 3,017 cf

Plug-Flow detention time= 282.8 min calculated for 5,762 cf (84% of inflow)
 Center-of-Mass det. time= 229.1 min (981.5 - 752.3)

Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	5,423 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	495	0	0
37.00	3,120	5,423	5,423

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.00'	1.020 in/hr Exfiltration over Surface area
#2	Primary	36.00'	14.0' long + 4.0 ' SideZ x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.06 cfs @ 12.22 hrs HW=36.12' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=1.46 cfs @ 12.22 hrs HW=36.12' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 1.46 cfs @ 0.84 fps)

7458-00 HydroCAD Analysis

Type III 24-hr 10-Year Rainfall=4.90"

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Stage-Area-Storage for Pond BMP-1A PT: Sediment Forebay

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.00	495	0	36.65	2,814	4,384
34.05	539	26	36.70	2,858	4,526
34.10	583	54	36.75	2,901	4,670
34.15	626	84	36.80	2,945	4,816
34.20	670	117	36.85	2,989	4,964
34.25	714	151	36.90	3,032	5,115
34.30	757	188	36.95	3,076	5,268
34.35	801	227	37.00	3,120	5,423
34.40	845	268			
34.45	889	311			
34.50	933	357			
34.55	976	405			
34.60	1,020	455			
34.65	1,064	507			
34.70	1,108	561			
34.75	1,151	617			
34.80	1,195	676			
34.85	1,239	737			
34.90	1,282	800			
34.95	1,326	865			
35.00	1,370	933			
35.05	1,414	1,002			
35.10	1,458	1,074			
35.15	1,501	1,148			
35.20	1,545	1,224			
35.25	1,589	1,302			
35.30	1,632	1,383			
35.35	1,676	1,466			
35.40	1,720	1,550			
35.45	1,764	1,638			
35.50	1,808	1,727			
35.55	1,851	1,818			
35.60	1,895	1,912			
35.65	1,939	2,008			
35.70	1,983	2,106			
35.75	2,026	2,206			
35.80	2,070	2,308			
35.85	2,114	2,413			
35.90	2,157	2,520			
35.95	2,201	2,629			
36.00	2,245	2,740			
36.05	2,289	2,853			
36.10	2,333	2,969			
36.15	2,376	3,087			
36.20	2,420	3,207			
36.25	2,464	3,329			
36.30	2,507	3,453			
36.35	2,551	3,579			
36.40	2,595	3,708			
36.45	2,639	3,839			
36.50	2,683	3,972			
36.55	2,726	4,107			
36.60	2,770	4,245			

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Summary for Pond BMP-2A: (150) SC-310

Inflow Area = 57,610 sf, 72.23% Impervious, Inflow Depth = 3.42" for 10-Year event
 Inflow = 4.27 cfs @ 12.11 hrs, Volume= 16,410 cf
 Outflow = 0.61 cfs @ 11.64 hrs, Volume= 16,411 cf, Atten= 86%, Lag= 0.0 min
 Discarded = 0.61 cfs @ 11.64 hrs, Volume= 16,411 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link PR DP-2 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 37.75' @ 12.65 hrs Surf.Area= 6,600 sf Storage= 4,656 cf

Plug-Flow detention time= 44.9 min calculated for 16,401 cf (100% of inflow)
 Center-of-Mass det. time= 45.0 min (799.1 - 754.2)

Volume	Invert	Avail.Storage	Storage Description
#1	36.25'	4,345 cf	Custom Stage Data (Prismatic) Listed below x 150 15,378 cf Overall - 2,211 cf Embedded = 13,167 cf x 33.0% Voids
#2	36.75'	2,211 cf	ADS_StormTech SC-310 +Cap x 150 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		6,556 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.25	44	0	0
38.58	44	103	103

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.25'	4.000 in/hr Exfiltration over Surface area
#2	Primary	38.10'	12.0" Round 36.20 L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.10' / 36.20' S= 0.0380 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	38.34'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.61 cfs @ 11.64 hrs HW=36.28' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.61 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=36.25' (Free Discharge)
 ↑2=36.20 (Controls 0.00 cfs)
 ↑3=Orifice/Grate (Controls 0.00 cfs)

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Type III 24-hr 10-Year Rainfall=4.90"

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Stage-Area-Storage for Pond BMP-2A: (150) SC-310

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
36.25	6,600	0	38.90	6,600	6,556
36.30	6,600	109	38.95	6,600	6,556
36.35	6,600	218	39.00	6,600	6,556
36.40	6,600	327	39.05	6,600	6,556
36.45	6,600	436	39.10	6,600	6,556
36.50	6,600	545			
36.55	6,600	653			
36.60	6,600	762			
36.65	6,600	871			
36.70	6,600	980			
36.75	6,600	1,089			
36.80	6,600	1,284			
36.85	6,600	1,478			
36.90	6,600	1,672			
36.95	6,600	1,864			
37.00	6,600	2,055			
37.05	6,600	2,244			
37.10	6,600	2,431			
37.15	6,600	2,617			
37.20	6,600	2,801			
37.25	6,600	2,982			
37.30	6,600	3,161			
37.35	6,600	3,338			
37.40	6,600	3,513			
37.45	6,600	3,685			
37.50	6,600	3,854			
37.55	6,600	4,020			
37.60	6,600	4,182			
37.65	6,600	4,341			
37.70	6,600	4,495			
37.75	6,600	4,644			
37.80	6,600	4,787			
37.85	6,600	4,922			
37.90	6,600	5,049			
37.95	6,600	5,170			
38.00	6,600	5,287			
38.05	6,600	5,401			
38.10	6,600	5,511			
38.15	6,600	5,620			
38.20	6,600	5,729			
38.25	6,600	5,838			
38.30	6,600	5,946			
38.35	6,600	6,055			
38.40	6,600	6,164			
38.45	6,600	6,273			
38.50	6,600	6,382			
38.55	6,600	6,491			
38.60	6,600	6,556			
38.65	6,600	6,556			
38.70	6,600	6,556			
38.75	6,600	6,556			
38.80	6,600	6,556			
38.85	6,600	6,556			

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Pond BMP-3A: (163) SC-310

Inflow Area = 44,600 sf, 86.52% Impervious, Inflow Depth = 4.06" for 10-Year event
 Inflow = 3.96 cfs @ 12.11 hrs, Volume= 15,087 cf
 Outflow = 0.66 cfs @ 11.70 hrs, Volume= 15,086 cf, Atten= 83%, Lag= 0.0 min
 Discarded = 0.66 cfs @ 11.70 hrs, Volume= 15,086 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link PR DP-3 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 39.20' @ 12.60 hrs Surf.Area= 7,172 sf Storage= 4,012 cf

Plug-Flow detention time= 34.1 min calculated for 15,076 cf (100% of inflow)
 Center-of-Mass det. time= 34.0 min (785.8 - 751.8)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	4,722 cf	Custom Stage Data (Prismatic) Listed below x 163 16,711 cf Overall - 2,403 cf Embedded = 14,308 cf x 33.0% Voids
#2	38.50'	2,403 cf	ADS_StormTech SC-310 +Cap x 163 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		7,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	44	0	0
40.33	44	103	103

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.00'	4.000 in/hr Exfiltration over Surface area
#2	Primary	42.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.66 cfs @ 11.70 hrs HW=38.05' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.66 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=38.00' (Free Discharge)
 ↑2=Orifice/Grate (Controls 0.00 cfs)

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Type III 24-hr 10-Year Rainfall=4.90"

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Stage-Area-Storage for Pond BMP-3A: (163) SC-310

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
38.00	7,172	0	40.65	7,172	7,125
38.05	7,172	118	40.70	7,172	7,125
38.10	7,172	237	40.75	7,172	7,125
38.15	7,172	355	40.80	7,172	7,125
38.20	7,172	473	40.85	7,172	7,125
38.25	7,172	592	40.90	7,172	7,125
38.30	7,172	710	40.95	7,172	7,125
38.35	7,172	828	41.00	7,172	7,125
38.40	7,172	947	41.05	7,172	7,125
38.45	7,172	1,065	41.10	7,172	7,125
38.50	7,172	1,183	41.15	7,172	7,125
38.55	7,172	1,395	41.20	7,172	7,125
38.60	7,172	1,606	41.25	7,172	7,125
38.65	7,172	1,817	41.30	7,172	7,125
38.70	7,172	2,025	41.35	7,172	7,125
38.75	7,172	2,233	41.40	7,172	7,125
38.80	7,172	2,438	41.45	7,172	7,125
38.85	7,172	2,642	41.50	7,172	7,125
38.90	7,172	2,844	41.55	7,172	7,125
38.95	7,172	3,043	41.60	7,172	7,125
39.00	7,172	3,241	41.65	7,172	7,125
39.05	7,172	3,435	41.70	7,172	7,125
39.10	7,172	3,628	41.75	7,172	7,125
39.15	7,172	3,818	41.80	7,172	7,125
39.20	7,172	4,005	41.85	7,172	7,125
39.25	7,172	4,188	41.90	7,172	7,125
39.30	7,172	4,369	41.95	7,172	7,125
39.35	7,172	4,545	42.00	7,172	7,125
39.40	7,172	4,717	42.05	7,172	7,125
39.45	7,172	4,884	42.10	7,172	7,125
39.50	7,172	5,047	42.15	7,172	7,125
39.55	7,172	5,202	42.20	7,172	7,125
39.60	7,172	5,348	42.25	7,172	7,125
39.65	7,172	5,487	42.30	7,172	7,125
39.70	7,172	5,618	42.35	7,172	7,125
39.75	7,172	5,746	42.40	7,172	7,125
39.80	7,172	5,869	42.45	7,172	7,125
39.85	7,172	5,988	42.50	7,172	7,125
39.90	7,172	6,107			
39.95	7,172	6,225			
40.00	7,172	6,343			
40.05	7,172	6,462			
40.10	7,172	6,580			
40.15	7,172	6,699			
40.20	7,172	6,817			
40.25	7,172	6,935			
40.30	7,172	7,054			
40.35	7,172	7,125			
40.40	7,172	7,125			
40.45	7,172	7,125			
40.50	7,172	7,125			
40.55	7,172	7,125			
40.60	7,172	7,125			

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Summary for Pond FS-1:

Inflow Area = 421,070 sf, 43.28% Impervious, Inflow Depth = 2.12" for 10-Year event
Inflow = 18.72 cfs @ 12.11 hrs, Volume= 74,416 cf
Outflow = 18.72 cfs @ 12.11 hrs, Volume= 74,416 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.41 cfs @ 12.11 hrs, Volume= 6,830 cf
Routed to Pond BMP-1A PT : Sediment Forebay
Secondary = 16.31 cfs @ 12.11 hrs, Volume= 67,586 cf
Routed to Pond BMP-1A : Infiltration Basins (2)

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 6

Peak Elev= 37.90' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	12.0" Round Culvert L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.00' / 36.00' S= 0.0476 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	35.00'	30.0" Round Culvert L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.00' / 33.60' S= 0.0100 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#3	Device 2	37.00'	6.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=2.40 cfs @ 12.11 hrs HW=37.90' (Free Discharge)

↑**1=Culvert** (Inlet Controls 2.40 cfs @ 3.23 fps)

Secondary OutFlow Max=16.22 cfs @ 12.11 hrs HW=37.90' (Free Discharge)

↑**2=Culvert** (Passes 16.22 cfs of 30.35 cfs potential flow)

↑**3=Sharp-Crested Rectangular Weir** (Weir Controls 16.22 cfs @ 3.10 fps)

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Stage-Area-Storage for Pond FS-1:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
35.00	0	36.06	0	37.12	0
35.02	0	36.08	0	37.14	0
35.04	0	36.10	0	37.16	0
35.06	0	36.12	0	37.18	0
35.08	0	36.14	0	37.20	0
35.10	0	36.16	0	37.22	0
35.12	0	36.18	0	37.24	0
35.14	0	36.20	0	37.26	0
35.16	0	36.22	0	37.28	0
35.18	0	36.24	0	37.30	0
35.20	0	36.26	0	37.32	0
35.22	0	36.28	0	37.34	0
35.24	0	36.30	0	37.36	0
35.26	0	36.32	0	37.38	0
35.28	0	36.34	0	37.40	0
35.30	0	36.36	0	37.42	0
35.32	0	36.38	0	37.44	0
35.34	0	36.40	0	37.46	0
35.36	0	36.42	0	37.48	0
35.38	0	36.44	0	37.50	0
35.40	0	36.46	0	37.52	0
35.42	0	36.48	0	37.54	0
35.44	0	36.50	0	37.56	0
35.46	0	36.52	0	37.58	0
35.48	0	36.54	0	37.60	0
35.50	0	36.56	0	37.62	0
35.52	0	36.58	0	37.64	0
35.54	0	36.60	0	37.66	0
35.56	0	36.62	0	37.68	0
35.58	0	36.64	0	37.70	0
35.60	0	36.66	0	37.72	0
35.62	0	36.68	0	37.74	0
35.64	0	36.70	0	37.76	0
35.66	0	36.72	0	37.78	0
35.68	0	36.74	0	37.80	0
35.70	0	36.76	0	37.82	0
35.72	0	36.78	0	37.84	0
35.74	0	36.80	0	37.86	0
35.76	0	36.82	0	37.88	0
35.78	0	36.84	0	37.90	0
35.80	0	36.86	0	37.92	0
35.82	0	36.88	0	37.94	0
35.84	0	36.90	0	37.96	0
35.86	0	36.92	0	37.98	0
35.88	0	36.94	0	38.00	0
35.90	0	36.96	0		
35.92	0	36.98	0		
35.94	0	37.00	0		
35.96	0	37.02	0		
35.98	0	37.04	0		
36.00	0	37.06	0		
36.02	0	37.08	0		
36.04	0	37.10	0		

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Summary for Pond PR BMP-4A: (4) Existing Drywells

Inflow Area = 51,405 sf, 76.93% Impervious, Inflow Depth = 1.65" for 10-Year event
 Inflow = 3.74 cfs @ 12.12 hrs, Volume= 7,052 cf
 Outflow = 3.64 cfs @ 12.14 hrs, Volume= 7,051 cf, Atten= 3%, Lag= 1.2 min
 Discarded = 0.06 cfs @ 11.64 hrs, Volume= 2,055 cf
 Primary = 3.58 cfs @ 12.14 hrs, Volume= 4,996 cf
 Routed to Link PR DP-4 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 40.57' @ 12.14 hrs Surf.Area= 314 sf Storage= 999 cf

Plug-Flow detention time= 31.5 min calculated for 7,046 cf (100% of inflow)
 Center-of-Mass det. time= 31.4 min (771.7 - 740.3)

Volume	Invert	Avail.Storage	Storage Description
#1	34.17'	421 cf	10.00'D x 7.00'H Vertical Cone/Cylinder x 4 2,199 cf Overall - 924 cf Embedded = 1,275 cf x 33.0% Voids
#2	35.17'	679 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 4 Inside #1 924 cf Overall - 6.0" Wall Thickness = 679 cf
		1,099 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.17'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.17'	12.0" Round Culvert L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.17' / 34.54' S= 0.0772 ' S= 0.0772 ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.06 cfs @ 11.64 hrs HW=34.28' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=3.57 cfs @ 12.14 hrs HW=40.56' (Free Discharge)
 ↑2=Culvert (Inlet Controls 3.57 cfs @ 4.55 fps)

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Stage-Area-Storage for Pond PR BMP-4A: (4) Existing Drywells

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.17	314	0	39.47	314	817
34.27	314	10	39.57	314	834
34.37	314	21	39.67	314	851
34.47	314	31	39.77	314	867
34.57	314	41	39.87	314	884
34.67	314	52	39.97	314	900
34.77	314	62	40.07	314	917
34.87	314	73	40.17	314	934
34.97	314	83	40.27	314	950
35.07	314	93	40.37	314	967
35.17	314	104	40.47	314	983
35.27	314	120	40.57	314	1,000
35.37	314	137	40.67	314	1,017
35.47	314	153	40.77	314	1,033
35.57	314	170	40.87	314	1,050
35.67	314	187	40.97	314	1,066
35.77	314	203	41.07	314	1,083
35.87	314	220	41.17	314	1,099
35.97	314	236			
36.07	314	253			
36.17	314	270			
36.27	314	286			
36.37	314	303			
36.47	314	319			
36.57	314	336			
36.67	314	353			
36.77	314	369			
36.87	314	386			
36.97	314	402			
37.07	314	419			
37.17	314	436			
37.27	314	452			
37.37	314	469			
37.47	314	485			
37.57	314	502			
37.67	314	519			
37.77	314	535			
37.87	314	552			
37.97	314	568			
38.07	314	585			
38.17	314	602			
38.27	314	618			
38.37	314	635			
38.47	314	651			
38.57	314	668			
38.67	314	685			
38.77	314	701			
38.87	314	718			
38.97	314	734			
39.07	314	751			
39.17	314	768			
39.27	314	784			
39.37	314	801			

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Summary for Pond PR BMP-4B: Existing Basin

Inflow Area = 41,795 sf, 85.24% Impervious, Inflow Depth = 4.00" for 10-Year event
 Inflow = 3.66 cfs @ 12.11 hrs, Volume= 13,937 cf
 Outflow = 3.60 cfs @ 12.13 hrs, Volume= 13,937 cf, Atten= 2%, Lag= 1.1 min
 Discarded = 0.24 cfs @ 12.13 hrs, Volume= 8,494 cf
 Primary = 3.36 cfs @ 12.13 hrs, Volume= 5,443 cf
 Routed to Pond PR BMP-4A : (4) Existing Drywells

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 43.98' @ 12.13 hrs Surf.Area= 1,254 sf Storage= 984 cf

Plug-Flow detention time= 16.2 min calculated for 13,928 cf (100% of inflow)
 Center-of-Mass det. time= 16.2 min (768.2 - 752.0)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,525 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	745	0	0
45.00	1,780	2,525	2,525

Device	Routing	Invert	Outlet Devices
#1	Discarded	43.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.97'	12.0" Round Culvert L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.97' / 39.17' S= 0.0667 ' S= 0.0667 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	43.73'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.24 cfs @ 12.13 hrs HW=43.98' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.24 cfs)

Primary OutFlow Max=3.34 cfs @ 12.13 hrs HW=43.98' (Free Discharge)
 ↑**2=Culvert** (Passes 3.34 cfs of 7.09 cfs potential flow)
 ↑**3=Orifice/Grate** (Weir Controls 3.34 cfs @ 1.65 fps)

7458-00 HydroCAD Analysis

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Type III 24-hr 10-Year Rainfall=4.90"

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Stage-Area-Storage for Pond PR BMP-4B: Existing Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
43.00	745	0	44.06	1,294	1,080
43.02	755	15	44.08	1,304	1,106
43.04	766	30	44.10	1,314	1,133
43.06	776	46	44.12	1,325	1,159
43.08	786	61	44.14	1,335	1,186
43.10	797	77	44.16	1,345	1,212
43.12	807	93	44.18	1,356	1,239
43.14	817	109	44.20	1,366	1,267
43.16	828	126	44.22	1,376	1,294
43.18	838	142	44.24	1,387	1,322
43.20	849	159	44.26	1,397	1,349
43.22	859	176	44.28	1,407	1,378
43.24	869	194	44.30	1,418	1,406
43.26	880	211	44.32	1,428	1,434
43.28	890	229	44.34	1,438	1,463
43.30	900	247	44.36	1,449	1,492
43.32	911	265	44.38	1,459	1,521
43.34	921	283	44.40	1,469	1,550
43.36	931	302	44.42	1,480	1,580
43.38	942	320	44.44	1,490	1,609
43.40	952	339	44.46	1,501	1,639
43.42	962	359	44.48	1,511	1,669
43.44	973	378	44.50	1,521	1,700
43.46	983	397	44.52	1,532	1,730
43.48	993	417	44.54	1,542	1,761
43.50	1,004	437	44.56	1,552	1,792
43.52	1,014	457	44.58	1,563	1,823
43.54	1,024	478	44.60	1,573	1,854
43.56	1,035	498	44.62	1,583	1,886
43.58	1,045	519	44.64	1,594	1,918
43.60	1,056	540	44.66	1,604	1,950
43.62	1,066	561	44.68	1,614	1,982
43.64	1,076	583	44.70	1,625	2,014
43.66	1,087	604	44.72	1,635	2,047
43.68	1,097	626	44.74	1,645	2,080
43.70	1,107	648	44.76	1,656	2,113
43.72	1,118	671	44.78	1,666	2,146
43.74	1,128	693	44.80	1,676	2,179
43.76	1,138	716	44.82	1,687	2,213
43.78	1,149	739	44.84	1,697	2,247
43.80	1,159	762	44.86	1,708	2,281
43.82	1,169	785	44.88	1,718	2,315
43.84	1,180	808	44.90	1,728	2,350
43.86	1,190	832	44.92	1,739	2,384
43.88	1,200	856	44.94	1,749	2,419
43.90	1,211	880	44.96	1,759	2,454
43.92	1,221	904	44.98	1,770	2,490
43.94	1,231	929	45.00	1,780	2,525
43.96	1,242	954			
43.98	1,252	979			
44.00	1,263	1,004			
44.02	1,273	1,029			
44.04	1,283	1,055			

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Link PR DP-1:

Inflow Area = 428,050 sf, 42.99% Impervious, Inflow Depth = 0.81" for 10-Year event
Inflow = 13.20 cfs @ 12.18 hrs, Volume= 28,855 cf
Primary = 13.20 cfs @ 12.18 hrs, Volume= 28,855 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Summary for Link PR DP-2:

Inflow Area = 115,470 sf, 40.66% Impervious, Inflow Depth = 0.30" for 10-Year event
Inflow = 0.55 cfs @ 12.11 hrs, Volume= 2,864 cf
Primary = 0.55 cfs @ 12.11 hrs, Volume= 2,864 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Summary for Link PR DP-3:

Inflow Area = 75,350 sf, 53.51% Impervious, Inflow Depth = 0.18" for 10-Year event
Inflow = 0.18 cfs @ 12.11 hrs, Volume= 1,108 cf
Primary = 0.18 cfs @ 12.11 hrs, Volume= 1,108 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 10-Year Rainfall=4.90"

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Summary for Link PR DP-4:

Inflow Area = 79,380 sf, 52.39% Impervious, Inflow Depth = 0.93" for 10-Year event
Inflow = 3.78 cfs @ 12.14 hrs, Volume= 6,178 cf
Primary = 3.78 cfs @ 12.14 hrs, Volume= 6,178 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Type III 24-hr 100-Year Rainfall=8.70"

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Time span=0.00-30.00 hrs, dt=0.02 hrs, 1501 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-Q
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PWS-1A: Runoff Area=421,070 sf 43.28% Impervious Runoff Depth=4.49"
Tc=8.0 min CN=WQ Runoff=39.35 cfs 157,615 cf

Subcatchment PWS-1B: Runoff Area=6,980 sf 25.14% Impervious Runoff Depth=3.22"
Tc=6.0 min CN=WQ Runoff=0.49 cfs 1,874 cf

Subcatchment PWS-2A: Runoff Area=57,610 sf 72.23% Impervious Runoff Depth=6.52"
Tc=8.0 min CN=WQ Runoff=8.01 cfs 31,286 cf

Subcatchment PWS-2B: (Bypass) Runoff Area=57,860 sf 9.23% Impervious Runoff Depth=2.11"
Tc=8.0 min CN=WQ Runoff=2.34 cfs 10,170 cf

Subcatchment PWS-3A: Runoff Area=44,600 sf 86.52% Impervious Runoff Depth=7.52"
Tc=8.0 min CN=WQ Runoff=7.22 cfs 27,938 cf

Subcatchment PWS-3B: (Bypass) Runoff Area=12,275 sf 3.54% Impervious Runoff Depth=1.71"
Tc=8.0 min CN=WQ Runoff=0.39 cfs 1,751 cf

Subcatchment PWS-4A: Runoff Area=9,610 sf 40.79% Impervious Runoff Depth=4.32"
Tc=6.0 min CN=WQ Runoff=0.92 cfs 3,457 cf

Subcatchment PWS-4B: Runoff Area=41,795 sf 85.24% Impervious Runoff Depth=7.43"
Tc=8.0 min CN=WQ Runoff=6.68 cfs 25,868 cf

Subcatchment PWS-4C: (Bypass) Runoff Area=27,975 sf 7.29% Impervious Runoff Depth=1.97"
Tc=8.0 min CN=WQ Runoff=1.05 cfs 4,601 cf

Subcatchment PWS-OS: Runoff Area=18,475 sf 7.01% Impervious Runoff Depth=1.95"
Tc=8.0 min CN=WQ Runoff=0.68 cfs 3,008 cf

Pond BMP-1A: Infiltration Basins (2) Peak Elev=36.37' Storage=27,837 cf Inflow=39.13 cfs 151,873 cf
Discarded=0.95 cfs 52,695 cf Primary=20.34 cfs 97,403 cf Secondary=0.00 cfs 0 cf Outflow=21.29 cfs 150,098 cf

Pond BMP-1A PT: Sediment Forebay Peak Elev=36.22' Storage=3,254 cf Inflow=3.85 cfs 15,553 cf
Discarded=0.06 cfs 4,148 cf Primary=3.71 cfs 9,811 cf Outflow=3.77 cfs 13,959 cf

Pond BMP-2A: (150) SC-310 Peak Elev=42.47' Storage=6,556 cf Inflow=8.01 cfs 31,286 cf
Discarded=0.61 cfs 25,712 cf Primary=7.51 cfs 5,459 cf Outflow=8.12 cfs 31,171 cf

Pond BMP-3A: (163) SC-310 Peak Elev=42.83' Storage=7,125 cf Inflow=7.22 cfs 27,938 cf
Discarded=0.66 cfs 25,457 cf Primary=4.93 cfs 2,596 cf Outflow=5.60 cfs 28,053 cf

Pond FS-1: Peak Elev=38.54' Inflow=39.35 cfs 157,615 cf
Primary=3.85 cfs 15,553 cf Secondary=35.49 cfs 142,062 cf Outflow=39.35 cfs 157,615 cf

Pond PR BMP-4A: (4) Existing Drywells Peak Elev=43.34' Storage=1,099 cf Inflow=7.19 cfs 17,156 cf
Discarded=0.06 cfs 3,035 cf Primary=7.24 cfs 14,165 cf Outflow=7.30 cfs 17,200 cf

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Pond PR BMP-4B: Existing Basin

Peak Elev=44.12' Storage=1,157 cf Inflow=6.68 cfs 25,868 cf
Discarded=0.25 cfs 12,169 cf Primary=6.34 cfs 13,699 cf Outflow=6.59 cfs 25,868 cf

Link PR DP-1:

Inflow=20.58 cfs 99,277 cf
Primary=20.58 cfs 99,277 cf

Link PR DP-2:

Inflow=9.57 cfs 15,628 cf
Primary=9.57 cfs 15,628 cf

Link PR DP-3:

Inflow=5.70 cfs 7,355 cf
Primary=5.70 cfs 7,355 cf

Link PR DP-4:

Inflow=8.32 cfs 18,766 cf
Primary=8.32 cfs 18,766 cf

Total Runoff Area = 698,250 sf Runoff Volume = 267,568 cf Average Runoff Depth = 4.60"
55.19% Pervious = 385,380 sf 44.81% Impervious = 312,870 sf

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Summary for Subcatchment PWS-1A:

Runoff = 39.35 cfs @ 12.11 hrs, Volume= 157,615 cf, Depth= 4.49"
Routed to Pond FS-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
72,155	98	Roofs, HSG A
110,105	98	Paved parking, HSG A
238,810	39	>75% Grass cover, Good, HSG A
421,070		Weighted Average
238,810	39	56.72% Pervious Area
182,260	98	43.28% Impervious Area

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

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Summary for Subcatchment PWS-1B:

Runoff = 0.49 cfs @ 12.09 hrs, Volume= 1,874 cf, Depth= 3.22"
Routed to Link PR DP-1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
1,755	98	Paved parking, HSG A
5,225	39	>75% Grass cover, Good, HSG A
6,980		Weighted Average
5,225	39	74.86% Pervious Area
1,755	98	25.14% Impervious Area

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

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Summary for Subcatchment PWS-2A:

Runoff = 8.01 cfs @ 12.11 hrs, Volume= 31,286 cf, Depth= 6.52"

Routed to Pond BMP-2A : (150) SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
3,725	98	Roofs, HSG A
37,885	98	Paved parking, HSG A
16,000	39	>75% Grass cover, Good, HSG A
57,610		Weighted Average
16,000	39	27.77% Pervious Area
41,610	98	72.23% Impervious Area

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

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Type III 24-hr 100-Year Rainfall=8.70"

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Summary for Subcatchment PWS-2B: (Bypass)

Runoff = 2.34 cfs @ 12.13 hrs, Volume= 10,170 cf, Depth= 2.11"
Routed to Link PR DP-2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
5,340	98	Paved parking, HSG A
52,520	39	>75% Grass cover, Good, HSG A
57,860		Weighted Average
52,520	39	90.77% Pervious Area
5,340	98	9.23% Impervious Area

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

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Type III 24-hr 100-Year Rainfall=8.70"

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Summary for Subcatchment PWS-3A:

Runoff = 7.22 cfs @ 12.11 hrs, Volume= 27,938 cf, Depth= 7.52"

Routed to Pond BMP-3A : (163) SC-310

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
21,450	98	Roofs, HSG A
17,140	98	Paved parking, HSG A
6,010	39	>75% Grass cover, Good, HSG A
44,600		Weighted Average
6,010	39	13.48% Pervious Area
38,590	98	86.52% Impervious Area

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

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Type III 24-hr 100-Year Rainfall=8.70"

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Summary for Subcatchment PWS-3B: (Bypass)

Runoff = 0.39 cfs @ 12.14 hrs, Volume= 1,751 cf, Depth= 1.71"
Routed to Link PR DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
435	98	Paved parking, HSG A
11,840	39	>75% Grass cover, Good, HSG A
12,275		Weighted Average
11,840	39	96.46% Pervious Area
435	98	3.54% Impervious Area

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

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Summary for Subcatchment PWS-4A:

Runoff = 0.92 cfs @ 12.09 hrs, Volume= 3,457 cf, Depth= 4.32"

Routed to Pond PR BMP-4A : (4) Existing Drywells

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
3,920	98	Paved parking, HSG A
5,690	39	>75% Grass cover, Good, HSG A
9,610		Weighted Average
5,690	39	59.21% Pervious Area
3,920	98	40.79% Impervious Area

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

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Summary for Subcatchment PWS-4B:

Runoff = 6.68 cfs @ 12.11 hrs, Volume= 25,868 cf, Depth= 7.43"

Routed to Pond PR BMP-4B : Existing Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
11,165	98	Roofs, HSG A
24,460	98	Paved parking, HSG A
6,170	39	>75% Grass cover, Good, HSG A
41,795		Weighted Average
6,170	39	14.76% Pervious Area
35,625	98	85.24% Impervious Area

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

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Summary for Subcatchment PWS-4C: (Bypass)

Runoff = 1.05 cfs @ 12.13 hrs, Volume= 4,601 cf, Depth= 1.97"
Routed to Link PR DP-4 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
2,040	98	Paved parking, HSG A
25,935	39	>75% Grass cover, Good, HSG A
27,975		Weighted Average
25,935	39	92.71% Pervious Area
2,040	98	7.29% Impervious Area

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

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Summary for Subcatchment PWS-OS:

Runoff = 0.68 cfs @ 12.13 hrs, Volume= 3,008 cf, Depth= 1.95"
Routed to Link PR DP-3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
740	98	Roofs, HSG A
555	98	Paved parking, HSG A
17,180	39	>75% Grass cover, Good, HSG A
18,475		Weighted Average
17,180	39	92.99% Pervious Area
1,295	98	7.01% Impervious Area

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

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Type III 24-hr 100-Year Rainfall=8.70"

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Summary for Pond BMP-1A: Infiltration Basins (2)

Inflow Area = 421,070 sf, 43.28% Impervious, Inflow Depth = 4.33" for 100-Year event
 Inflow = 39.13 cfs @ 12.12 hrs, Volume= 151,873 cf
 Outflow = 21.29 cfs @ 12.29 hrs, Volume= 150,098 cf, Atten= 46%, Lag= 10.2 min
 Discarded = 0.95 cfs @ 12.29 hrs, Volume= 52,695 cf
 Primary = 20.34 cfs @ 12.29 hrs, Volume= 97,403 cf
 Routed to Link PR DP-1 :
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Routed to Link PR DP-1 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 36.37' @ 12.29 hrs Surf.Area= 10,218 sf Storage= 27,837 cf

Plug-Flow detention time= 91.4 min calculated for 150,098 cf (99% of inflow)
 Center-of-Mass det. time= 83.7 min (856.5 - 772.7)

Volume	Invert	Avail.Storage	Storage Description
#1	32.00'	34,365 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
#2	33.00'	408 cf	24.0" Round Pipe Storage x 2 -Impervious L= 65.0'
		34,773 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.00	3,200	0	0
33.00	4,335	3,768	3,768
34.00	5,635	4,985	8,753
35.00	7,575	6,605	15,358
36.00	9,400	8,488	23,845
37.00	11,640	10,520	34,365

Device	Routing	Invert	Outlet Devices
#1	Discarded	32.00'	4.000 in/hr Exfiltration over Surface area
#2	Primary	29.90'	18.0" Round Culvert L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 29.90' / 29.55' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#3	Device 2	34.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#4	Secondary	36.50'	20.0' long + 4.0 '/' SideZ x 6.0' breadth Broad-Crested Rectangular Weir X 2. Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

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Discarded OutFlow Max=0.95 cfs @ 12.29 hrs HW=36.36' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.95 cfs)

Primary OutFlow Max=20.34 cfs @ 12.29 hrs HW=36.36' (Free Discharge)

↑**2=Culvert** (Inlet Controls 20.34 cfs @ 11.51 fps)

↑**3=Orifice/Grate** (Passes 20.34 cfs of 26.30 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=32.00' (Free Discharge)

↑**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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Stage-Area-Storage for Pond BMP-1A: Infiltration Basins (2)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
32.00	3,200	0	34.65	6,896	13,185
32.05	3,257	161	34.70	6,993	13,542
32.10	3,314	326	34.75	7,090	13,903
32.15	3,370	493	34.80	7,187	14,268
32.20	3,427	663	34.85	7,284	14,638
32.25	3,484	835	34.90	7,381	15,010
32.30	3,540	1,011	34.95	7,478	15,387
32.35	3,597	1,190	35.00	7,575	15,766
32.40	3,654	1,371	35.05	7,666	16,147
32.45	3,711	1,555	35.10	7,758	16,533
32.50	3,768	1,742	35.15	7,849	16,923
32.55	3,824	1,932	35.20	7,940	17,317
32.60	3,881	2,124	35.25	8,031	17,717
32.65	3,938	2,320	35.30	8,122	18,121
32.70	3,995	2,518	35.35	8,214	18,529
32.75	4,051	2,719	35.40	8,305	18,942
32.80	4,108	2,923	35.45	8,396	19,359
32.85	4,165	3,130	35.50	8,488	19,782
32.90	4,221	3,340	35.55	8,579	20,208
32.95	4,278	3,552	35.60	8,670	20,639
33.00	4,335	3,768	35.65	8,761	21,075
33.05	4,400	3,989	35.70	8,853	21,516
33.10	4,465	4,215	35.75	8,944	21,960
33.15	4,530	4,446	35.80	9,035	22,410
33.20	4,595	4,682	35.85	9,126	22,864
33.25	4,660	4,921	35.90	9,217	23,323
33.30	4,725	5,165	35.95	9,309	23,786
33.35	4,790	5,412	36.00	9,400	24,253
33.40	4,855	5,664	36.05	9,512	24,726
33.45	4,920	5,919	36.10	9,624	25,205
33.50	4,985	6,177	36.15	9,736	25,689
33.55	5,050	6,440	36.20	9,848	26,178
33.60	5,115	6,706	36.25	9,960	26,673
33.65	5,180	6,975	36.30	10,072	27,174
33.70	5,245	7,248	36.35	10,184	27,681
33.75	5,310	7,524	36.40	10,296	28,193
33.80	5,375	7,804	36.45	10,408	28,710
33.85	5,440	8,087	36.50	10,520	29,233
33.90	5,505	8,374	36.55	10,632	29,762
33.95	5,570	8,664	36.60	10,744	30,297
34.00	5,635	8,957	36.65	10,856	30,837
34.05	5,732	9,254	36.70	10,968	31,382
34.10	5,829	9,556	36.75	11,080	31,933
34.15	5,926	9,863	36.80	11,192	32,490
34.20	6,023	10,174	36.85	11,304	33,053
34.25	6,120	10,490	36.90	11,416	33,621
34.30	6,217	10,811	36.95	11,528	34,194
34.35	6,314	11,137	37.00	11,640	34,773
34.40	6,411	11,467			
34.45	6,508	11,802			
34.50	6,605	12,141			
34.55	6,702	12,485			
34.60	6,799	12,833			

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Summary for Pond BMP-1A PT: Sediment Forebay

Inflow Area = 421,070 sf, 43.28% Impervious, Inflow Depth = 0.44" for 100-Year event
 Inflow = 3.85 cfs @ 12.11 hrs, Volume= 15,553 cf
 Outflow = 3.77 cfs @ 12.14 hrs, Volume= 13,959 cf, Atten= 2%, Lag= 1.6 min
 Discarded = 0.06 cfs @ 12.14 hrs, Volume= 4,148 cf
 Primary = 3.71 cfs @ 12.14 hrs, Volume= 9,811 cf
 Routed to Pond BMP-1A : Infiltration Basins (2)

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 6
 Peak Elev= 36.22' @ 12.14 hrs Surf.Area= 2,437 sf Storage= 3,254 cf

Plug-Flow detention time= 146.1 min calculated for 13,950 cf (90% of inflow)
 Center-of-Mass det. time= 100.7 min (866.8 - 766.1)

Volume	Invert	Avail.Storage	Storage Description
#1	34.00'	5,423 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
34.00	495	0	0
37.00	3,120	5,423	5,423

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.00'	1.020 in/hr Exfiltration over Surface area
#2	Primary	36.00'	14.0' long + 4.0 ' SideZ x 3.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.06 cfs @ 12.14 hrs HW=36.22' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=3.71 cfs @ 12.14 hrs HW=36.22' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Weir Controls 3.71 cfs @ 1.14 fps)

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Stage-Area-Storage for Pond BMP-1A PT: Sediment Forebay

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.00	495	0	36.65	2,814	4,384
34.05	539	26	36.70	2,858	4,526
34.10	583	54	36.75	2,901	4,670
34.15	626	84	36.80	2,945	4,816
34.20	670	117	36.85	2,989	4,964
34.25	714	151	36.90	3,032	5,115
34.30	757	188	36.95	3,076	5,268
34.35	801	227	37.00	3,120	5,423
34.40	845	268			
34.45	889	311			
34.50	933	357			
34.55	976	405			
34.60	1,020	455			
34.65	1,064	507			
34.70	1,108	561			
34.75	1,151	617			
34.80	1,195	676			
34.85	1,239	737			
34.90	1,282	800			
34.95	1,326	865			
35.00	1,370	933			
35.05	1,414	1,002			
35.10	1,458	1,074			
35.15	1,501	1,148			
35.20	1,545	1,224			
35.25	1,589	1,302			
35.30	1,632	1,383			
35.35	1,676	1,466			
35.40	1,720	1,550			
35.45	1,764	1,638			
35.50	1,808	1,727			
35.55	1,851	1,818			
35.60	1,895	1,912			
35.65	1,939	2,008			
35.70	1,983	2,106			
35.75	2,026	2,206			
35.80	2,070	2,308			
35.85	2,114	2,413			
35.90	2,157	2,520			
35.95	2,201	2,629			
36.00	2,245	2,740			
36.05	2,289	2,853			
36.10	2,333	2,969			
36.15	2,376	3,087			
36.20	2,420	3,207			
36.25	2,464	3,329			
36.30	2,507	3,453			
36.35	2,551	3,579			
36.40	2,595	3,708			
36.45	2,639	3,839			
36.50	2,683	3,972			
36.55	2,726	4,107			
36.60	2,770	4,245			

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Summary for Pond BMP-2A: (150) SC-310

Inflow Area = 57,610 sf, 72.23% Impervious, Inflow Depth = 6.52" for 100-Year event
 Inflow = 8.01 cfs @ 12.11 hrs, Volume= 31,286 cf
 Outflow = 8.12 cfs @ 12.18 hrs, Volume= 31,171 cf, Atten= 0%, Lag= 4.3 min
 Discarded = 0.61 cfs @ 11.16 hrs, Volume= 25,712 cf
 Primary = 7.51 cfs @ 12.18 hrs, Volume= 5,459 cf
 Routed to Link PR DP-2 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 42.47' @ 12.18 hrs Surf.Area= 6,600 sf Storage= 6,556 cf

Plug-Flow detention time= 60.4 min calculated for 31,150 cf (100% of inflow)
 Center-of-Mass det. time= 57.9 min (810.0 - 752.2)

Volume	Invert	Avail.Storage	Storage Description
#1	36.25'	4,345 cf	Custom Stage Data (Prismatic) Listed below x 150 15,378 cf Overall - 2,211 cf Embedded = 13,167 cf x 33.0% Voids
#2	36.75'	2,211 cf	ADS_StormTech SC-310 +Cap x 150 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		6,556 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
36.25	44	0	0
38.58	44	103	103

Device	Routing	Invert	Outlet Devices
#1	Discarded	36.25'	4.000 in/hr Exfiltration over Surface area
#2	Primary	38.10'	12.0" Round 36.20 L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 38.10' / 36.20' S= 0.0380 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	38.34'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.61 cfs @ 11.16 hrs HW=36.31' (Free Discharge)
 ↳1=Exfiltration (Exfiltration Controls 0.61 cfs)

Primary OutFlow Max=7.05 cfs @ 12.18 hrs HW=42.08' (Free Discharge)
 ↳2=36.20 (Inlet Controls 7.05 cfs @ 8.98 fps)
 ↳3=Orifice/Grate (Passes 7.05 cfs of 37.23 cfs potential flow)

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Stage-Area-Storage for Pond BMP-2A: (150) SC-310

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
36.25	6,600	0	41.55	6,600	6,556
36.35	6,600	218	41.65	6,600	6,556
36.45	6,600	436	41.75	6,600	6,556
36.55	6,600	653	41.85	6,600	6,556
36.65	6,600	871	41.95	6,600	6,556
36.75	6,600	1,089	42.05	6,600	6,556
36.85	6,600	1,478	42.15	6,600	6,556
36.95	6,600	1,864	42.25	6,600	6,556
37.05	6,600	2,244	42.35	6,600	6,556
37.15	6,600	2,617	42.45	6,600	6,556
37.25	6,600	2,982	42.55	6,600	6,556
37.35	6,600	3,338	42.65	6,600	6,556
37.45	6,600	3,685	42.75	6,600	6,556
37.55	6,600	4,020	42.85	6,600	6,556
37.65	6,600	4,341	42.95	6,600	6,556
37.75	6,600	4,644			
37.85	6,600	4,922			
37.95	6,600	5,170			
38.05	6,600	5,401			
38.15	6,600	5,620			
38.25	6,600	5,838			
38.35	6,600	6,055			
38.45	6,600	6,273			
38.55	6,600	6,491			
38.65	6,600	6,556			
38.75	6,600	6,556			
38.85	6,600	6,556			
38.95	6,600	6,556			
39.05	6,600	6,556			
39.15	6,600	6,556			
39.25	6,600	6,556			
39.35	6,600	6,556			
39.45	6,600	6,556			
39.55	6,600	6,556			
39.65	6,600	6,556			
39.75	6,600	6,556			
39.85	6,600	6,556			
39.95	6,600	6,556			
40.05	6,600	6,556			
40.15	6,600	6,556			
40.25	6,600	6,556			
40.35	6,600	6,556			
40.45	6,600	6,556			
40.55	6,600	6,556			
40.65	6,600	6,556			
40.75	6,600	6,556			
40.85	6,600	6,556			
40.95	6,600	6,556			
41.05	6,600	6,556			
41.15	6,600	6,556			
41.25	6,600	6,556			
41.35	6,600	6,556			
41.45	6,600	6,556			

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Summary for Pond BMP-3A: (163) SC-310

Inflow Area = 44,600 sf, 86.52% Impervious, Inflow Depth = 7.52" for 100-Year event
 Inflow = 7.22 cfs @ 12.11 hrs, Volume= 27,938 cf
 Outflow = 5.60 cfs @ 12.26 hrs, Volume= 28,053 cf, Atten= 22%, Lag= 9.1 min
 Discarded = 0.66 cfs @ 11.32 hrs, Volume= 25,457 cf
 Primary = 4.93 cfs @ 12.26 hrs, Volume= 2,596 cf
 Routed to Link PR DP-3 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 42.83' @ 12.26 hrs Surf.Area= 7,172 sf Storage= 7,125 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 65.0 min (811.3 - 746.3)

Volume	Invert	Avail.Storage	Storage Description
#1	38.00'	4,722 cf	Custom Stage Data (Prismatic) Listed below x 163 16,711 cf Overall - 2,403 cf Embedded = 14,308 cf x 33.0% Voids
#2	38.50'	2,403 cf	ADS_StormTech SC-310 +Cap x 163 Inside #1 Effective Size= 28.9"W x 16.0"H => 2.07 sf x 7.12'L = 14.7 cf Overall Size= 34.0"W x 16.0"H x 7.56'L with 0.44' Overlap
		7,125 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
38.00	44	0	0
40.33	44	103	103

Device	Routing	Invert	Outlet Devices
#1	Discarded	38.00'	4.000 in/hr Exfiltration over Surface area
#2	Primary	42.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.66 cfs @ 11.32 hrs HW=38.05' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.66 cfs)

Primary OutFlow Max=4.56 cfs @ 12.26 hrs HW=42.81' (Free Discharge)
 ↑2=Orifice/Grate (Weir Controls 4.56 cfs @ 1.83 fps)

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Stage-Area-Storage for Pond BMP-3A: (163) SC-310

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
38.00	7,172	0	40.65	7,172	7,125
38.05	7,172	118	40.70	7,172	7,125
38.10	7,172	237	40.75	7,172	7,125
38.15	7,172	355	40.80	7,172	7,125
38.20	7,172	473	40.85	7,172	7,125
38.25	7,172	592	40.90	7,172	7,125
38.30	7,172	710	40.95	7,172	7,125
38.35	7,172	828	41.00	7,172	7,125
38.40	7,172	947	41.05	7,172	7,125
38.45	7,172	1,065	41.10	7,172	7,125
38.50	7,172	1,183	41.15	7,172	7,125
38.55	7,172	1,395	41.20	7,172	7,125
38.60	7,172	1,606	41.25	7,172	7,125
38.65	7,172	1,817	41.30	7,172	7,125
38.70	7,172	2,025	41.35	7,172	7,125
38.75	7,172	2,233	41.40	7,172	7,125
38.80	7,172	2,438	41.45	7,172	7,125
38.85	7,172	2,642	41.50	7,172	7,125
38.90	7,172	2,844	41.55	7,172	7,125
38.95	7,172	3,043	41.60	7,172	7,125
39.00	7,172	3,241	41.65	7,172	7,125
39.05	7,172	3,435	41.70	7,172	7,125
39.10	7,172	3,628	41.75	7,172	7,125
39.15	7,172	3,818	41.80	7,172	7,125
39.20	7,172	4,005	41.85	7,172	7,125
39.25	7,172	4,188	41.90	7,172	7,125
39.30	7,172	4,369	41.95	7,172	7,125
39.35	7,172	4,545	42.00	7,172	7,125
39.40	7,172	4,717	42.05	7,172	7,125
39.45	7,172	4,884	42.10	7,172	7,125
39.50	7,172	5,047	42.15	7,172	7,125
39.55	7,172	5,202	42.20	7,172	7,125
39.60	7,172	5,348	42.25	7,172	7,125
39.65	7,172	5,487	42.30	7,172	7,125
39.70	7,172	5,618	42.35	7,172	7,125
39.75	7,172	5,746	42.40	7,172	7,125
39.80	7,172	5,869	42.45	7,172	7,125
39.85	7,172	5,988	42.50	7,172	7,125
39.90	7,172	6,107	42.55	7,172	7,125
39.95	7,172	6,225	42.60	7,172	7,125
40.00	7,172	6,343	42.65	7,172	7,125
40.05	7,172	6,462	42.70	7,172	7,125
40.10	7,172	6,580	42.75	7,172	7,125
40.15	7,172	6,699	42.80	7,172	7,125
40.20	7,172	6,817	42.85	7,172	7,125
40.25	7,172	6,935			
40.30	7,172	7,054			
40.35	7,172	7,125			
40.40	7,172	7,125			
40.45	7,172	7,125			
40.50	7,172	7,125			
40.55	7,172	7,125			
40.60	7,172	7,125			

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Summary for Pond FS-1:

Inflow Area = 421,070 sf, 43.28% Impervious, Inflow Depth = 4.49" for 100-Year event
Inflow = 39.35 cfs @ 12.11 hrs, Volume= 157,615 cf
Outflow = 39.35 cfs @ 12.11 hrs, Volume= 157,615 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.85 cfs @ 12.11 hrs, Volume= 15,553 cf
Routed to Pond BMP-1A PT : Sediment Forebay
Secondary = 35.49 cfs @ 12.11 hrs, Volume= 142,062 cf
Routed to Pond BMP-1A : Infiltration Basins (2)

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 6

Peak Elev= 38.54' @ 12.11 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	37.00'	12.0" Round Culvert L= 21.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 37.00' / 36.00' S= 0.0476 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	35.00'	30.0" Round Culvert L= 140.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 35.00' / 33.60' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 4.91 sf
#3	Device 2	37.00'	6.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=3.84 cfs @ 12.11 hrs HW=38.53' (Free Discharge)

↑**1=Culvert** (Inlet Controls 3.84 cfs @ 4.89 fps)

Secondary OutFlow Max=35.33 cfs @ 12.11 hrs HW=38.53' (Free Discharge)

↑**2=Culvert** (Passes 35.33 cfs of 35.71 cfs potential flow)

↑**3=Sharp-Crested Rectangular Weir** (Weir Controls 35.33 cfs @ 4.05 fps)

7458-00 HydroCAD Analysis

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Type III 24-hr 100-Year Rainfall=8.70"

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Stage-Area-Storage for Pond FS-1:

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
35.00	0	37.65	0
35.05	0	37.70	0
35.10	0	37.75	0
35.15	0	37.80	0
35.20	0	37.85	0
35.25	0	37.90	0
35.30	0	37.95	0
35.35	0	38.00	0
35.40	0	38.05	0
35.45	0	38.10	0
35.50	0	38.15	0
35.55	0	38.20	0
35.60	0	38.25	0
35.65	0	38.30	0
35.70	0	38.35	0
35.75	0	38.40	0
35.80	0	38.45	0
35.85	0	38.50	0
35.90	0		
35.95	0		
36.00	0		
36.05	0		
36.10	0		
36.15	0		
36.20	0		
36.25	0		
36.30	0		
36.35	0		
36.40	0		
36.45	0		
36.50	0		
36.55	0		
36.60	0		
36.65	0		
36.70	0		
36.75	0		
36.80	0		
36.85	0		
36.90	0		
36.95	0		
37.00	0		
37.05	0		
37.10	0		
37.15	0		
37.20	0		
37.25	0		
37.30	0		
37.35	0		
37.40	0		
37.45	0		
37.50	0		
37.55	0		
37.60	0		

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Type III 24-hr 100-Year Rainfall=8.70"

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Summary for Pond PR BMP-4A: (4) Existing Drywells

Inflow Area = 51,405 sf, 76.93% Impervious, Inflow Depth = 4.01" for 100-Year event
 Inflow = 7.19 cfs @ 12.12 hrs, Volume= 17,156 cf
 Outflow = 7.30 cfs @ 12.14 hrs, Volume= 17,200 cf, Atten= 0%, Lag= 1.2 min
 Discarded = 0.06 cfs @ 10.18 hrs, Volume= 3,035 cf
 Primary = 7.24 cfs @ 12.14 hrs, Volume= 14,165 cf
 Routed to Link PR DP-4 :

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs / 5
 Peak Elev= 43.34' @ 12.14 hrs Surf.Area= 314 sf Storage= 1,099 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 22.9 min (766.5 - 743.6)

Volume	Invert	Avail.Storage	Storage Description
#1	34.17'	421 cf	10.00'D x 7.00'H Vertical Cone/Cylinder x 4 2,199 cf Overall - 924 cf Embedded = 1,275 cf x 33.0% Voids
#2	35.17'	679 cf	6.00'D x 6.00'H Vertical Cone/Cylinder x 4 Inside #1 924 cf Overall - 6.0" Wall Thickness = 679 cf
		1,099 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Discarded	34.17'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.17'	12.0" Round Culvert L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.17' / 34.54' S= 0.0772 ' S= 0.0772 ' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Discarded OutFlow Max=0.06 cfs @ 10.18 hrs HW=34.26' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=7.24 cfs @ 12.14 hrs HW=43.34' (Free Discharge)
 ↑2=Culvert (Inlet Controls 7.24 cfs @ 9.22 fps)

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Type III 24-hr 100-Year Rainfall=8.70"

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Stage-Area-Storage for Pond PR BMP-4A: (4) Existing Drywells

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
34.17	314	0	39.47	314	817
34.27	314	10	39.57	314	834
34.37	314	21	39.67	314	851
34.47	314	31	39.77	314	867
34.57	314	41	39.87	314	884
34.67	314	52	39.97	314	900
34.77	314	62	40.07	314	917
34.87	314	73	40.17	314	934
34.97	314	83	40.27	314	950
35.07	314	93	40.37	314	967
35.17	314	104	40.47	314	983
35.27	314	120	40.57	314	1,000
35.37	314	137	40.67	314	1,017
35.47	314	153	40.77	314	1,033
35.57	314	170	40.87	314	1,050
35.67	314	187	40.97	314	1,066
35.77	314	203	41.07	314	1,083
35.87	314	220	41.17	314	1,099
35.97	314	236	41.27	314	1,099
36.07	314	253	41.37	314	1,099
36.17	314	270	41.47	314	1,099
36.27	314	286	41.57	314	1,099
36.37	314	303	41.67	314	1,099
36.47	314	319	41.77	314	1,099
36.57	314	336	41.87	314	1,099
36.67	314	353	41.97	314	1,099
36.77	314	369	42.07	314	1,099
36.87	314	386	42.17	314	1,099
36.97	314	402	42.27	314	1,099
37.07	314	419	42.37	314	1,099
37.17	314	436	42.47	314	1,099
37.27	314	452	42.57	314	1,099
37.37	314	469	42.67	314	1,099
37.47	314	485	42.77	314	1,099
37.57	314	502	42.87	314	1,099
37.67	314	519	42.97	314	1,099
37.77	314	535	43.07	314	1,099
37.87	314	552	43.17	314	1,099
37.97	314	568	43.27	314	1,099
38.07	314	585	43.37	314	1,099
38.17	314	602	43.47	314	1,099
38.27	314	618			
38.37	314	635			
38.47	314	651			
38.57	314	668			
38.67	314	685			
38.77	314	701			
38.87	314	718			
38.97	314	734			
39.07	314	751			
39.17	314	768			
39.27	314	784			
39.37	314	801			

7458-00 HydroCAD Analysis

Type III 24-hr 100-Year Rainfall=8.70"

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Summary for Pond PR BMP-4B: Existing Basin

Inflow Area = 41,795 sf, 85.24% Impervious, Inflow Depth = 7.43" for 100-Year event
 Inflow = 6.68 cfs @ 12.11 hrs, Volume= 25,868 cf
 Outflow = 6.59 cfs @ 12.12 hrs, Volume= 25,868 cf, Atten= 1%, Lag= 0.9 min
 Discarded = 0.25 cfs @ 12.12 hrs, Volume= 12,169 cf
 Primary = 6.34 cfs @ 12.12 hrs, Volume= 13,699 cf
 Routed to Pond PR BMP-4A : (4) Existing Drywells

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 44.12' @ 12.12 hrs Surf.Area= 1,324 sf Storage= 1,157 cf

Plug-Flow detention time= 15.7 min calculated for 25,850 cf (100% of inflow)
 Center-of-Mass det. time= 15.7 min (762.5 - 746.8)

Volume	Invert	Avail.Storage	Storage Description
#1	43.00'	2,525 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
43.00	745	0	0
45.00	1,780	2,525	2,525

Device	Routing	Invert	Outlet Devices
#1	Discarded	43.00'	8.270 in/hr Exfiltration over Surface area
#2	Primary	39.97'	12.0" Round Culvert L= 12.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 39.97' / 39.17' S= 0.0667 ' S= 0.0667 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	43.73'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.25 cfs @ 12.12 hrs HW=44.12' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.25 cfs)

Primary OutFlow Max=6.31 cfs @ 12.12 hrs HW=44.12' (Free Discharge)
 ↑**2=Culvert** (Passes 6.31 cfs of 7.22 cfs potential flow)
 ↑**3=Orifice/Grate** (Weir Controls 6.31 cfs @ 2.04 fps)

7458-00 HydroCAD Analysis

Type III 24-hr 100-Year Rainfall=8.70"

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Stage-Area-Storage for Pond PR BMP-4B: Existing Basin

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
43.00	745	0	44.06	1,294	1,080
43.02	755	15	44.08	1,304	1,106
43.04	766	30	44.10	1,314	1,133
43.06	776	46	44.12	1,325	1,159
43.08	786	61	44.14	1,335	1,186
43.10	797	77	44.16	1,345	1,212
43.12	807	93	44.18	1,356	1,239
43.14	817	109	44.20	1,366	1,267
43.16	828	126	44.22	1,376	1,294
43.18	838	142	44.24	1,387	1,322
43.20	849	159	44.26	1,397	1,349
43.22	859	176	44.28	1,407	1,378
43.24	869	194	44.30	1,418	1,406
43.26	880	211	44.32	1,428	1,434
43.28	890	229	44.34	1,438	1,463
43.30	900	247	44.36	1,449	1,492
43.32	911	265	44.38	1,459	1,521
43.34	921	283	44.40	1,469	1,550
43.36	931	302	44.42	1,480	1,580
43.38	942	320	44.44	1,490	1,609
43.40	952	339	44.46	1,501	1,639
43.42	962	359	44.48	1,511	1,669
43.44	973	378	44.50	1,521	1,700
43.46	983	397	44.52	1,532	1,730
43.48	993	417	44.54	1,542	1,761
43.50	1,004	437	44.56	1,552	1,792
43.52	1,014	457	44.58	1,563	1,823
43.54	1,024	478	44.60	1,573	1,854
43.56	1,035	498	44.62	1,583	1,886
43.58	1,045	519	44.64	1,594	1,918
43.60	1,056	540	44.66	1,604	1,950
43.62	1,066	561	44.68	1,614	1,982
43.64	1,076	583	44.70	1,625	2,014
43.66	1,087	604	44.72	1,635	2,047
43.68	1,097	626	44.74	1,645	2,080
43.70	1,107	648	44.76	1,656	2,113
43.72	1,118	671	44.78	1,666	2,146
43.74	1,128	693	44.80	1,676	2,179
43.76	1,138	716	44.82	1,687	2,213
43.78	1,149	739	44.84	1,697	2,247
43.80	1,159	762	44.86	1,708	2,281
43.82	1,169	785	44.88	1,718	2,315
43.84	1,180	808	44.90	1,728	2,350
43.86	1,190	832	44.92	1,739	2,384
43.88	1,200	856	44.94	1,749	2,419
43.90	1,211	880	44.96	1,759	2,454
43.92	1,221	904	44.98	1,770	2,490
43.94	1,231	929	45.00	1,780	2,525
43.96	1,242	954			
43.98	1,252	979			
44.00	1,263	1,004			
44.02	1,273	1,029			
44.04	1,283	1,055			

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Summary for Link PR DP-1:

Inflow Area = 428,050 sf, 42.99% Impervious, Inflow Depth = 2.78" for 100-Year event
Inflow = 20.58 cfs @ 12.27 hrs, Volume= 99,277 cf
Primary = 20.58 cfs @ 12.27 hrs, Volume= 99,277 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Summary for Link PR DP-2:

Inflow Area = 115,470 sf, 40.66% Impervious, Inflow Depth = 1.62" for 100-Year event
Inflow = 9.57 cfs @ 12.18 hrs, Volume= 15,628 cf
Primary = 9.57 cfs @ 12.18 hrs, Volume= 15,628 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Summary for Link PR DP-3:

Inflow Area = 75,350 sf, 53.51% Impervious, Inflow Depth = 1.17" for 100-Year event
Inflow = 5.70 cfs @ 12.26 hrs, Volume= 7,355 cf
Primary = 5.70 cfs @ 12.26 hrs, Volume= 7,355 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

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Summary for Link PR DP-4:

Inflow Area = 79,380 sf, 52.39% Impervious, Inflow Depth = 2.84" for 100-Year event
Inflow = 8.32 cfs @ 12.14 hrs, Volume= 18,766 cf
Primary = 8.32 cfs @ 12.14 hrs, Volume= 18,766 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.02 hrs

Appendix D
Supporting Documentation



Version: 4/2015

Project Name **South Kingstown High School**Date **04-03-2025**

Water Quality Volume Calculation WorkSheet

This worksheet is designed to assist the project engineer with a determination of the required water quality treatment area. The worksheet leads the designer through redevelopment applicability first and then receiving water requirements. This tool is intended to compliment to the Redevelopment Criteria Guidance and the Water Quality Guidance and assist both the designer and the permit application reviewer towards consistent results. Enter information into only the **YELLOW** Boxes.

[Redevelopment Criteria Guidance](#)

[Water Quality Goals "Stormwater Compensation Method"](#)

Step 1 - Determine which office in OWR you are applying to: [Application Guidance](#)

Step 2 - Site Information value/calculation units

Total Site Area (total area of project parcels)	TS	15.60	acres
Total Jurisdictional Wetlands and/or floodplain within the above TSA	JW1	0.00	acres
Existing impervious also within the Jurisdictional Wetlands	-JW2	0.00	acres
Conservation Land within the TSA	CL	5.80	acres
Site Size = (TSA)-(JW1-JW2)-CL	SS=	9.80	acres

Step 3 - Redevelopment Applicability

Total Impervious Area (pre-construction)	TIA=	4.34	acres
% Impervious (if ≥40% - redevelopment standard 3.2.6 applies)		0.44	

REPEAT IF NECESSARY Steps 4, 5 and 6 for EACH Waterbody ID (RIVER-ID as found in the GIS Map Server)

Step 4 - Receiving waterbody information

Waterbody ID or RIVER ID from GIS Map Server	
Waterbody Name from GIS Map Server	
Name the sub-watersheds (design-points) contributing to this Waterbody ID	
Is this Waterbody Impaired/TMDL for any Phosphorus, Metals or Bacteria?	YES
Is this Waterbody Impaired for Nitrogen?	NO

Step 5 - Pre-Post Construction Conditions to the Waterbody

Total Pre-Construction Impervious Surface to this Waterbody ID	4.34	acres
Total Disturbed Existing Impervious (DI)	4.08	acres
Total Post-Construction Impervious to this Waterbody ID	7.15	acres
Net Increased Impervious (NII)	2.81	acres

Step 6 - Infiltration and BMP information - Note: Increasing infiltration will likely decrease stormwater treatment area for Metals, Bacteria and Phosphorus

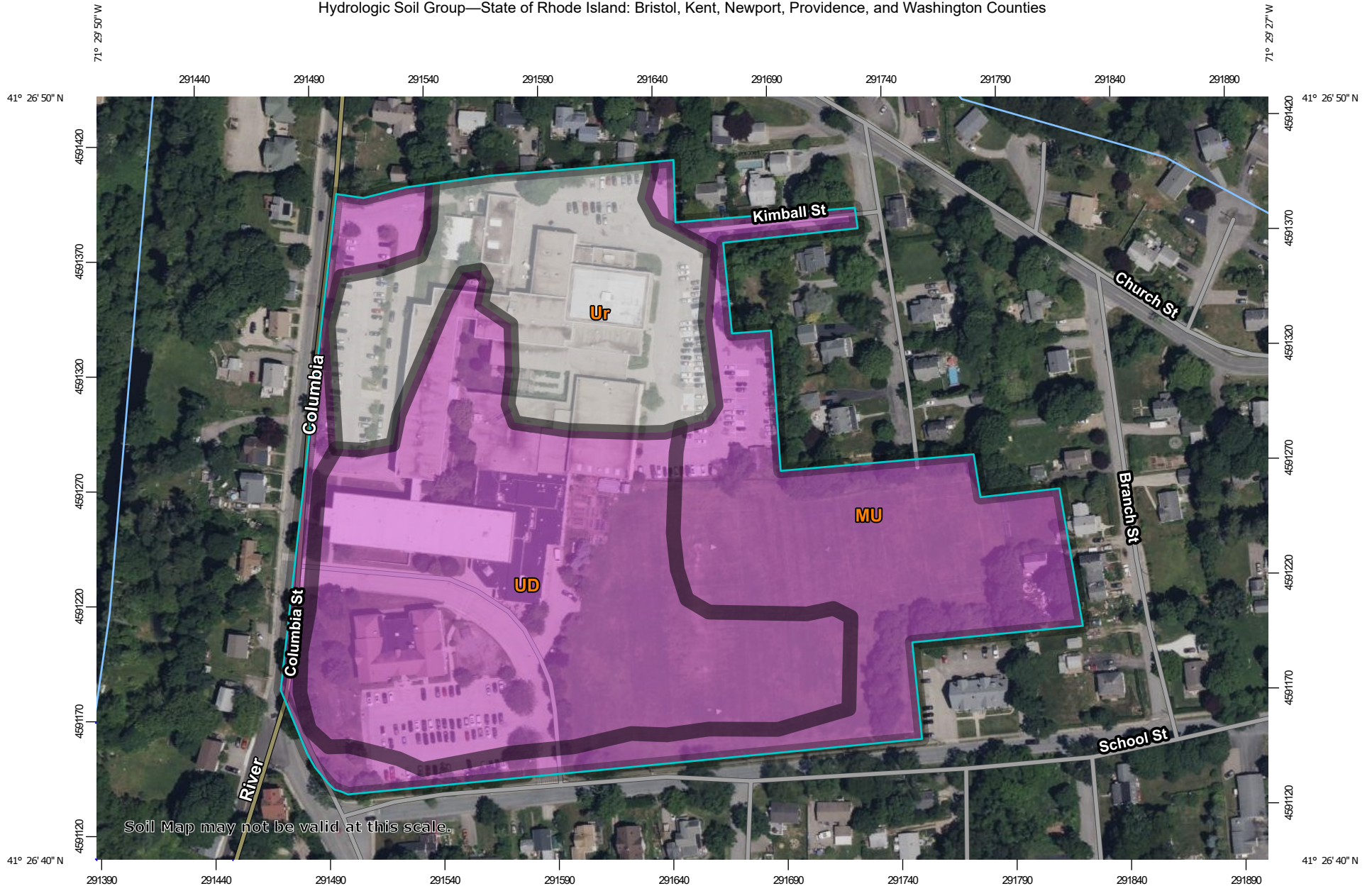
I am proposing to infiltrate this percentage WQv to this WBID	100%	%
I am proposing this number of BMP's	3	#

RESULTS - Select the Larger Number of the 2 numbers provided

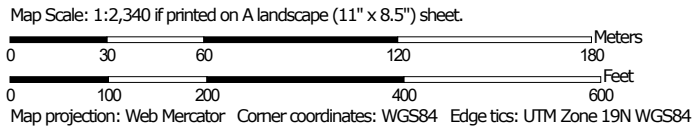
Applicable Condition	Min Water Quality Treatment Area	Min Treatment w/o WQ consideration
No Impairment or TMDL - New Development		
No Impairment or TMDL - Redevelopment		
Only Phosphorus, Metals or Bacteria Impairment - New Development		
Only Phosphorus, Metals or Bacteria Impairment - Redevelopment	2.81	4.85
Nitrogen Impairment - New Development		
Nitrogen Impairment - Redevelopment		
REQUIRED STORMWATER TREATMENT AREA	4.9	acres

* Enter the name of the STP (both type and label) which has been designed to treat this particular Rev or Rea.

Hydrologic Soil Group—State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties




Soil Map may not be valid at this scale.



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 1:12,000.

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

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

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

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

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

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

Soil Survey Area: State of Rhode Island: Bristol, Kent, Newport, Providence, and Washington Counties
 Survey Area Data: Version 24, Aug 30, 2024

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

Date(s) aerial images were photographed: Jun 14, 2022—Jul 1, 2022

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

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
MU	Merrimac-Urban land complex, 0 to 8 percent slopes	A	5.5	34.5%
UD	Udorthents-Urban land complex	A	7.0	43.8%
Ur	Urban land		3.4	21.7%
Totals for Area of Interest			15.9	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

G&A PN: 7458



STATE OF RHODE ISLAND
 Department of Environmental Management
 Office of Water Resources
 Email: dem.OWTS@dem.ri.gov
 Site Evaluation Form

pg 1 of 3



Part A - Soil Profile Description Application Number _____

Property Owner: Town of South Kingstown
 Property Location: 215 Columbia St., Sd. Kingstown Plat: 49-4 Lot: 14
 Date of Test Hole: April 14, 2009 Weather: 60° P. CLOUDY Shaded: Yes No Time: 9:00 - 11 AM
 Soil Evaluator: Steven Henry License Number: D9026
 Soil Evaluator email address: shenry@gardfalaassociates.com

TH 1 Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox	Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.				
Ap	0" - 8"	CL	W	10YR 3/3			SL	mqr	Vfr-fr	
Bw	8" - 24"	CL	W	10YR 4/3			SL	F-mqr	Vfr	
2C1	24" - 42"	CL	W	2.5Y 6/3		none visible	FS, S	φSG	L	
2C2	42" - 10'			2.5Y 6/4			S, TR, CS	φSG	L	
TH 2 Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox	Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.				
Ap	0"			no natural Ap encountered						
Bw	0" - 58"	-	-	SL	subsoil consists of (2.5Y 5/4) many stones - appears to have been					
2C1	58" - 66"	CL	W	2.5Y 5/3	previously disturbed - filled/excavated		FS, TR, S	OM	Vfr-L	
2C2	66" - 10'			2.5Y 6/4			S, TR, CS	φSG	L	

TH 1 Soil Class _____ Total Depth 10' Impervious/Limiting Layer Depth None(og) GW Seepage Depth None SHWT _____ (og)

TH 2 Soil Class _____ Total Depth 10' Impervious/Limiting Layer Depth None(og) GW Seepage Depth None SHWT _____ (og)

Comments: pipes installed

note: upper soil horizons Ap & Bw may have been impacted when school was constructed and/or may have developed since





Part B

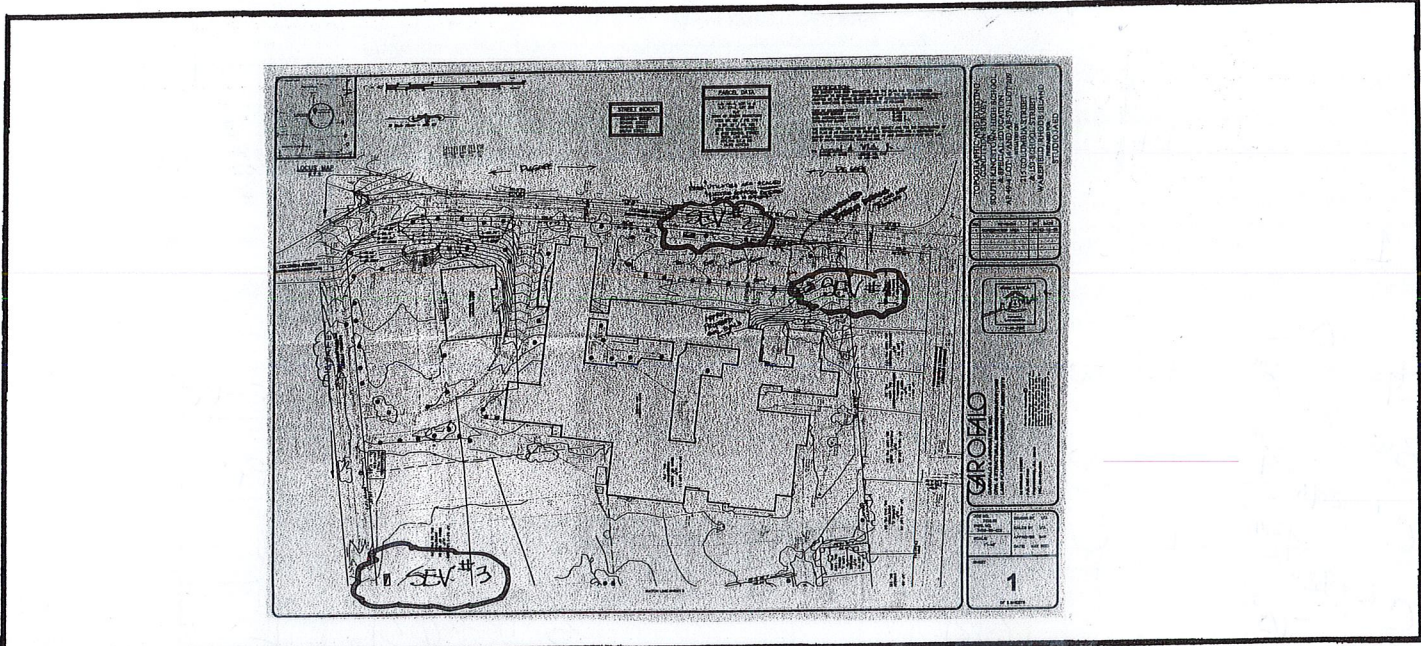
Site Evaluation -- to be completed by Soil Evaluator or Class II or III Designer

Please use the area below to locate:

1. Test holes and bedrock test holes,
2. Approximate direction of due north
3. Offsets from test holes to fixed points such as street, utility pole, or other permanent, marked object*
*OFFSETS MUST BE SHOWN

Key:

-  Approximate location of test holes
-  Approximate location of bedrock test holes
-  Estimated gradient and direction of slope
-  Approximate direction of due north



1. Relief and Slope: 290 w'ly
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes: Saugatucket River NO YES
3. Restrictive Layer or Bedrock within 4' below original ground within 25 feet of test hole. Provide all test hole locations & depths above. NO YES
4. Presence of existing or proposed private drinking water wells within 200 feet of test holes? If yes, locate on above sketch. NO YES
5. Public drinking water wells within 500 feet of test holes? If yes, locate on above sketch. NO YES
6. Is site within the watershed of a public drinking water reservoir or other critical area defined in Rule 6.42? NO YES
7. Has soil been excavated from or fill deposited on site? If yes, locate on above sketch. * Previously Filtered developed site NO YES
8. Site's potential for flooding or ponding: NONE SLIGHT MODERATE SEVERE
9. Landscape position: Back slope / 700' slope
10. Vegetation: Lawn & Ornamental trees
11. Indicate approximate location of property lines and roadways.
12. Additional comments, site constraints or additional information regarding site: _____

Certification
The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: [Signature] Signature License # DA026
Part B prepared by: [Signature] Signature

DO NOT WRITE IN THIS SPACE

Witnessed Soil Evaluation Decision:	Concur	Inconclusive	Disclaim
Unwitnessed Soil Evaluation Decision:	Accept	Inconclusive	Disclaim

Wet Season Determination required Additional Field Review Required

Explanatoin: _____

Signature Authorized Agent Date

G&A PN: 7458



STATE OF RHODE ISLAND
 Department of Environmental Management
 Office of Water Resources
 Email: dem.OWTS@dem.ri.gov
 Site Evaluation Form



09.2.08.3

Part A - Soil Profile Description Application Number _____

Property Owner: Town of South Kingstown
 Property Location: 215 Columbia St. Sd. Kingstown Plat: 42-4 Lot: 14
 Date of Test Hole: April 14, '25 Weather: 60° P. Wind Shaded: Yes No Time: 11:30 - 1:30 PM
 Soil Evaluator: Steven Henry License Number: D9026
 Soil Evaluator email address: shenry@gardfalcoassociates.com

TH 3 Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox		Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.					
Ap	0" - 6"	CL	W	10YR 4/3				SL	F-mgt	Vfr	
Bw	6" - 24"	CL	W	2.5Y 5/2	many conc. & texture change			SL	WSBK	Vfr-Fr	
2C	24" - 10'			2.5Y 4/3	none visible			S, TR GCS	φSG	L	
TH 4 Horizon	Depth	Horizon Boundaries		Soil Colors		Re-Dox		Texture	Structure	Consistence	Soil Category
		Dist	Topo	Matrix	Re-Dox Features	Ab. S. Contr.					
Ap	0" - 6"	CL	W	10YR 4/3				SL	F-mgt	Vfr	
Bw	6" - 7 1/2'	CL	W	2.5Y 5/3	none visible			Gr SL	CM	Fr - somewhat firm	
2C	7 1/2' - 10'			2.5Y 4/3				S, TR GCS	φSG	L	

TH 3 Soil Class _____ Total Depth 10' Impervious/Limiting Layer Depth none (og) GW Seepage Depth none SHWT _____ (og)
 TH 4 Soil Class _____ Total Depth 10' Impervious/Limiting Layer Depth none (og) GW Seepage Depth none SHWT _____ (og)

Comments: PIPES installed
WR5' in nearby C basin
Notes: upper soil horizons may have been previously impacted when ballfields were developed

Part B

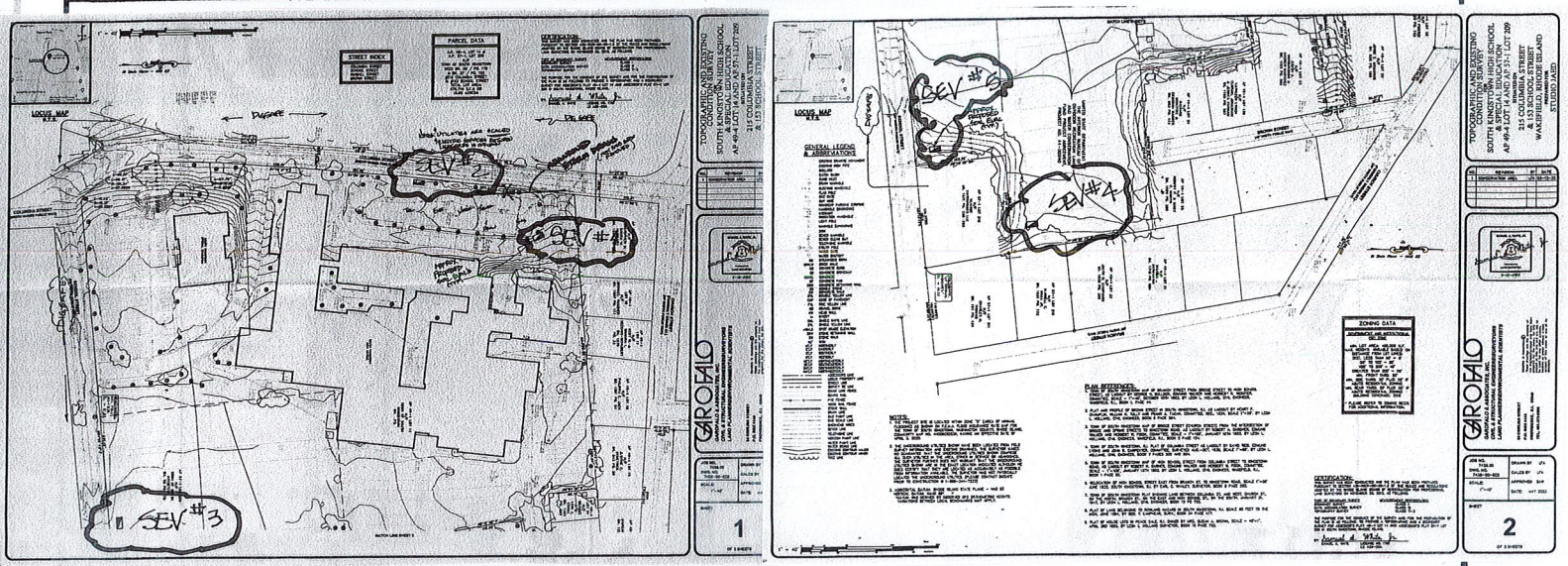
Site Evaluation – to be completed by Soil Evaluator or Class II or III Designer

Please use the area below to locate:

1. Test holes and bedrock test holes,
2. Approximate direction of due north
3. Offsets from test holes to fixed points such as street, utility pole, or other permanent, marked object*
*OFFSETS MUST BE SHOWN

Key:

- Approximate location of test holes
- Approximate location of bedrock test holes
- Estimated gradient and direction of slope
- Approximate direction of due north



1. Relief and Slope: 2% ESE
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes: NO YES
3. Restrictive Layer or Bedrock within 4' below original ground within 25 feet of test hole. Provide all test hole locations & depths above. NO YES
4. Presence of existing or proposed private drinking water wells within 200 feet of test holes? If yes, locate on above sketch. NO YES
5. Public drinking water wells within 500 feet of test holes? If yes, locate on above sketch. NO YES
6. Is site within the watershed of a public drinking water reservoir or other critical area defined in Rule 6.427? NO YES
7. Has soil been excavated from or fill deposited on site? If yes, locate on above sketch. Previously disturbed to create ball fields NO YES
8. Site's potential for flooding or ponding: NONE SLIGHT MODERATE SEVERE
9. Landscape position: terrace
10. Vegetation: lawn
11. Indicate approximate location of property lines and roadways.
12. Additional comments, site constraints or additional information regarding site: _____

Certification
 The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: [Signature] License # D4066 Part B prepared by: [Signature] License # D4026

DO NOT WRITE IN THIS SPACE

Witnessed Soil Evaluation Decision:	Concur	Inconclusive	Disclaim
Unwitnessed Soil Evaluation Decision:	Accept	Inconclusive	Disclaim

Wet Season Determination required Additional Field Review Required

Explanatoin: _____

Signature Authorized Agent _____ Date _____

Part B

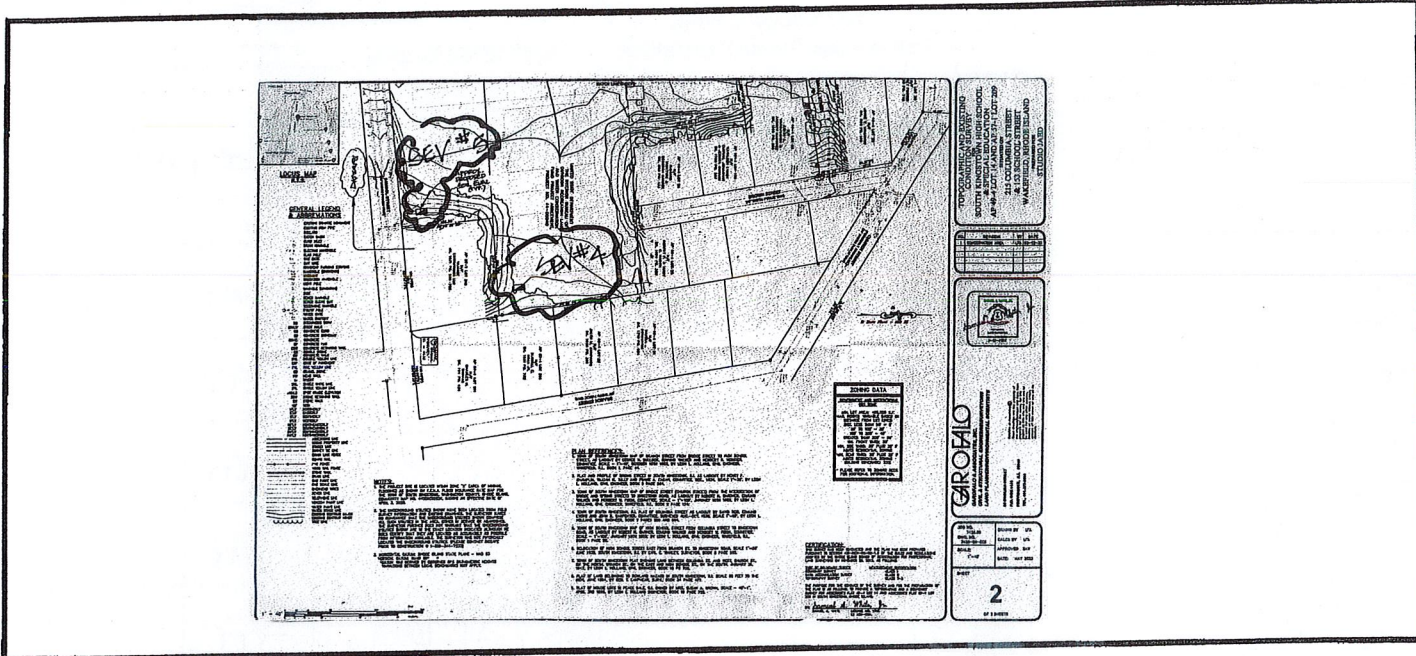
Site Evaluation - to be completed by Soil Evaluator or Class II or III Designer

Please use the area below to locate:

1. Test holes and bedrock test holes,
2. Approximate direction of due north
3. Offsets from test holes to fixed points such as street, utility pole, or other permanent, marked object*
*OFFSETS MUST BE SHOWN

Key:

- Approximate location of test holes
- Approximate location of bedrock test holes
- Estimated gradient and direction of slope
- Approximate direction of due north



1. Relief and Slope: 5-7% ESE
2. Presence of any watercourse, wetlands or surface water bodies, within 200 feet of test holes: NO YES
3. Restrictive Layer or Bedrock within 4' below original ground within 25 feet of test hole. Provide all test hole locations & depths above. NO YES
4. Presence of existing or proposed private drinking water wells within 200 feet of test holes? If yes, locate on above sketch. NO YES
5. Public drinking water wells within 500 feet of test holes? If yes, locate on above sketch. NO YES
6. Is site within the watershed of a public drinking water reservoir or other critical area defined in Rule 6.42? NO YES
7. Has soil been excavated from or fill deposited on site? If yes, locate on above sketch. Previously disturbed to create ballfields NO YES
8. Site's potential for flooding or ponding: NONE SLIGHT MODERATE SEVERE
9. Landscape position: Back slope / foot slope
10. Vegetation: grass
11. Indicate approximate location of property lines and roadways.
12. Additional comments, site constraints or additional information regarding site: _____

Certification
 The undersigned hereby certifies that all information on this application and accompanying forms, submittals and sketches are true and accurate and that I have been authorized by the owner(s) to conduct these necessary field investigations and submit this request.

Part A prepared by: [Signature] License # 124026 Part B prepared by: [Signature] License # 124026

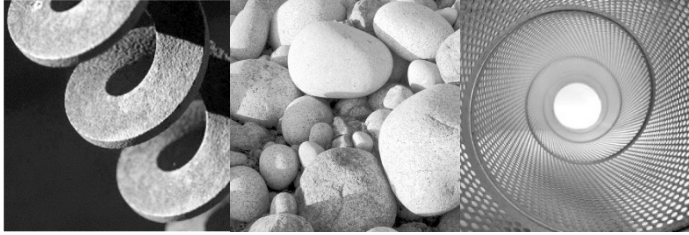
DO NOT WRITE IN THIS SPACE

Witnessed Soil Evaluation Decision:	Concur	Inconclusive	Disclaim
Unwitnessed Soil Evaluation Decision:	Accept	Inconclusive	Disclaim

Wet Season Determination required Additional Field Review Required

Explanatoin: _____

 Signature Authorized Agent Date



Consulting
Engineers and
Scientists

Preliminary Geotechnical Report New South Kingstown High School

215 Columbia Street
Wakefield, Rhode Island

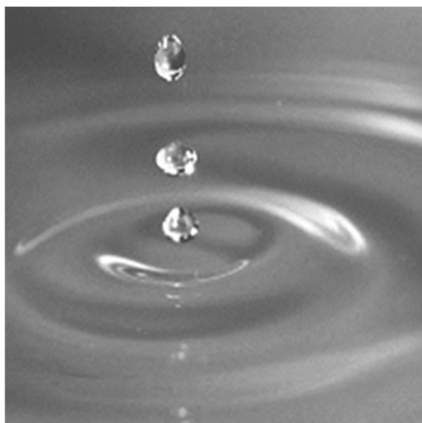
Submitted to:

Garofalo & Associates, Inc.
85 Corliss Street
Providence, RI 02940

Submitted by:

GEI Consultants, Inc.
455 Winding Brook Drive, Suite 201
Glastonbury, CT 06033
860-368-5300

July 14, 2023
Project No. 2302246



Thomas Rezzani, E.I.T.
Geotechnical Professional

Matthew Glunt, P.E.
Senior Geotechnical Engineer

Parking and Drive Areas

4.0 inches bituminous concrete

- 1.5 inches wearing course
- 2.5 inches binder course

8.0 inches of processed aggregate base (*RIDOT Standard Specifications for Road and Bridge Construction, March 2018, Section 301 and M.0109, Table I, Column Ia*)

For areas expected to be subjected to repeated, heavy traffic loads, such as dumpster pads, we recommend a rigid concrete section as such:

Heavy-Duty Rigid Concrete Section

6.0 inches of 4,000-psi jointed concrete

8.0 inches of processed aggregate base (*RIDOT Standard Specifications for Road and Bridge Construction, March 2018, Section 301 and M.0109, Table I, Column Ia*)

Pavement materials should conform with and be placed in accordance with the most recent edition of the *Rhode Island Department of Transportation (RIDOT) Standard Specifications for Road and Bridge Construction (Blue Book)*. Rigid pavement sections should be designed and constructed in accordance with appropriate American Concrete Institute (ACI) recommendations and with the applicable specifications of the *RIDOT Standard Specifications*.

The recommended pavement sections shown above are generally suitable for a 20-year design life; however, maintenance such as sealing of cracks and localized patching due to normal weathering should be expected within the first 5 to 10 years of life.

5.8 Subsurface Drainage

Boring B-1 was conducted primarily to support site stormwater design, which is currently in the schematic design phase. Based on experience with similar facilities, we expect stormwater will be managed on-site using basins and/or subsurface detention chambers installed on lower areas of the site.

Based on the results of boring B-1, stormwater features on this area of the site would likely be founded in moderate to highly permeable native sand to gravelly sand, with groundwater at least 12 feet below current grade. From our experience and testing in similar soils, a field-measured infiltration rate on the order of 10 inches/hour may be assumed for preliminary design and costing. Final design of stormwater features must include confirmation infiltration testing at the actual stormwater feature location(s) and bottom depth(s).



Source: ArcGIS Online, 6/30/2023.



BORING LOCATION PLAN – SOUTH KINGSTOWN HIGH SCHOOL
215 COLUMBIA ST.
WAKEFIELD, RI

GEI PROJECT NO: 2302246

FIGURE NO.

1

Appendix A

Boring Logs

BORING INFORMATION

LOCATION: See plan.

GROUND SURFACE EL. (ft): NM

DATE START/END: 6/5/2023 - 6/5/2023

VERTICAL DATUM:

DRILLING COMPANY: New England Boring

TOTAL DEPTH (ft): 12.3

DRILLER NAME: Dave DeAngelis

LOGGED BY: T. Rezzani

RIG TYPE:

BORING**B-1**

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: Automatic

CASING I.D./O.D.: NA/ NA

CORE BARREL TYPE:

AUGER I.D./O.D.: 3.25 inch / NA

DRILL ROD O.D.: NM

CORE BARREL I.D./O.D.: NA / NA

DRILLING METHOD: Solid Stem Auger

WATER LEVEL DEPTHS (ft): Free groundwater not encountered.

ABBREVIATIONS:

Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer

S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger

Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter

NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0.3 to 2.3	24/14	5-10-13-8		3 inches ASPHALT S1: SILTY SAND WITH GRAVEL (SM); ~70% F-C sand, ~15% F-C gravel, ~15% NP fines, more coarse with depth, brown, dry.	
		S2	2.3 to 4.3	24/22	14-6-8-8		S2: SILTY SAND (SM); ~70% F-M sand, ~20% NP fines, ~10% F-C gravel, light-brown, dry.	
	5	S3	4.3 to 6.3	24/20	9-12-8-12		S3: WIDELY GRADED SAND (SW); ~95% F-C sand, ~5% NP fines, grayish-brown, dry.	
		S4	6.3 to 8.3	24/22	11-9-10-9		S4: WIDELY GRADED SAND (SW); 94.7% F-C sand, 2.8% F-gravel, 2.5% NP fines, grayish-brown, dry.	
	10	S5	8.3 to 10.3	24/17	12-6-14-20		S5: Similar to S4.	
		S6	10.3 to 12.3	24/12	20-12-8-9		S6: Similar to S5.	
	15						Planned depth. Backfilled with drill cuttings.	
	20							

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246



BORING INFORMATION		BORING B-2 PAGE 1 of 1
LOCATION: See plan.		
GROUND SURFACE EL. (ft): <u>NM</u>	DATE START/END: <u>6/5/2023 - 6/5/2023</u>	
VERTICAL DATUM: _____	DRILLING COMPANY: <u>New England Boring</u>	
TOTAL DEPTH (ft): <u>4.3</u>	DRILLER NAME: <u>Dave DeAngelis</u>	
LOGGED BY: <u>T. Rezzani</u>	RIG TYPE: _____	

DRILLING INFORMATION		
HAMMER TYPE: <u>Automatic</u>	CASING I.D./O.D.: <u>NA/ NA</u>	CORE BARREL TYPE: _____
AUGER I.D./O.D.: <u>3.25 inch / NA</u>	DRILL ROD O.D.: <u>NM</u>	CORE BARREL I.D./O.D. <u>NA / NA</u>
DRILLING METHOD: <u>Hollow Stem Auger</u>		
WATER LEVEL DEPTHS (ft): <u>Free groundwater not encountered.</u>		

ABBREVIATIONS:

Pen. = Penetration Length	S = Split Spoon Sample	Qp = Pocket Penetrometer Strength	NA, NM = Not Applicable, Not Measured
Rec. = Recovery Length	C = Core Sample	Sv = Pocket Torvane Shear Strength	Blows per 6 in.: 140-lb hammer falling
RQD = Rock Quality Designation	U = Undisturbed Sample	LL = Liquid Limit	30 inches to drive a 2-inch-O.D.
= Length of Sound Cores > 4 in / Pen., %	SC = Sonic Core	PI = Plasticity Index	split spoon sampler.
WOR = Weight of Rods	DP = Direct Push Sample	PID = Photoionization Detector	
WOH = Weight of Hammer	HSA = Hollow-Stem Auger	I.D./O.D. = Inside Diameter/Outside Diameter	

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0.3 to 2.3	24/11	14-18-7-7		SAND & GRAVEL	4 inches of ASPHALT S1: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% F-C sand, ~25% F-C gravel, ~10% NP fines, with asphalt, black to dark-gray, dry.
		S2	2.3 to 4.3	24/13	7-6-4-3			S2: WIDELY GRADED SAND WITH GRAVEL (SW); ~60% F-C sand, ~35% F-C gravel, ~5% NP fines, grayish-brown, dry.
	5							Planned depth. Backfilled with drill cuttings.
	10							
	15							
	20							

NOTES: 	PROJECT NAME: South Kingstown High School CITY/STATE: South Kingstown, Rhode Island GEI PROJECT NUMBER: 2302246
-----------------------	--



GEI WOBURN STD 1-LOCATION-LAYER NAME 2302246 - GAROFALO-SOUTH KINGSTOWN HIGH SCHOOL.GPJ GEI DATA TEMPLATE 2013.GDT 7/14/23

BORING

B-3

PAGE 1 of 1

BORING INFORMATION

LOCATION: See plan.
GROUND SURFACE EL. (ft): NM **DATE START/END:** 6/6/2023 - 6/6/2023
VERTICAL DATUM: **DRILLING COMPANY:** New England Boring
TOTAL DEPTH (ft): 6.0 **DRILLER NAME:** Dave DeAngelis
LOGGED BY: T. Yurman **RIG TYPE:**

DRILLING INFORMATION

HAMMER TYPE: Automatic **CASING I.D./O.D.:** NA/ NA **CORE BARREL TYPE:**
AUGER I.D./O.D.: 3.25 inch / NA **DRILL ROD O.D.:** NM **CORE BARREL I.D./O.D.:** NA / NA
DRILLING METHOD: Hollow Stem Auger
WATER LEVEL DEPTHS (ft): Free groundwater not encountered.

ABBREVIATIONS: Pen. = Penetration Length S = Split Spoon Sample Qp = Pocket Penetrometer Strength NA, NM = Not Applicable, Not Measured
 Rec. = Recovery Length C = Core Sample Sv = Pocket Torvane Shear Strength Blows per 6 in.: 140-lb hammer falling
 RQD = Rock Quality Designation U = Undisturbed Sample LL = Liquid Limit 30 inches to drive a 2-inch-O.D.
 = Length of Sound Cores > 4 in / Pen., % SC = Sonic Core PI = Plasticity Index split spoon sampler.
 WOR = Weight of Rods DP = Direct Push Sample PID = Photoionization Detector
 WOH = Weight of Hammer HSA = Hollow-Stem Auger I.D./O.D. = Inside Diameter/Outside Diameter

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0 to 2	24/19	2-4-8-10	SAND & GRAVEL	S1A (0-13"): SILT WITH SAND (ML); ~70% NP fines, ~25% F-sand, ~5% F-gravel, organic fibers, brown, dry. TOPSOIL S1B (13-19"): NARROWLY GRADED SAND WITH SILT (SP); ~90% F-sand, ~10% F-gravel, cobbles to small boulders, light-brown, dry. S2: Similar to S1B, sand is F-C.	
		S2	2 to 4	24/20	13-22-23-32		S3: WIDELY GRADED SAND WITH GRAVEL (SW); ~80% F-C sand, ~20% F-gravel, cobbles to small boulders, light-brown, dry to moist.	
	5	S3	4 to 6	24/15	30-31-37-39		Planned depth. Backfilled with drill cuttings.	
	10							
	15							
	20							

NOTES:

PROJECT NAME: South Kingstown High School
CITY/STATE: South Kingstown, Rhode Island
GEI PROJECT NUMBER: 2302246



GEI WOBURN STD 1-LOCATION-LAYER NAME 2302246 - GAROFALO-SOUTH KINGSTOWN HIGH SCHOOL_GPJ_GEI DATA TEMPLATE 7/14/23

BORING INFORMATION

LOCATION: See plan.

GROUND SURFACE EL. (ft): NM

DATE START/END: 6/6/2023 - 6/6/2023

VERTICAL DATUM:

DRILLING COMPANY: New England Boring

TOTAL DEPTH (ft): 12.0

DRILLER NAME: Dave DeAngelis

LOGGED BY: T. Yurman

RIG TYPE:

BORING**B-4**

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: Automatic

CASING I.D./O.D.: NA/ NA

CORE BARREL TYPE:

AUGER I.D./O.D.: 3.25 inch / NA

DRILL ROD O.D.: NM

CORE BARREL I.D./O.D. NA / NA

DRILLING METHOD: Hollow Stem Auger

WATER LEVEL DEPTHS (ft): Free groundwater not encountered.

ABBREVIATIONS:

Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer

S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger

Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter

NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0 to 2	24/13	2-4-9-13	Auger grinding	SAND & GRAVEL	S1: SILT WITH SAND (ML); ~70% NP fines, ~25% F-sand, ~5% F-gravel, organic fibers, brown, dry. TOPSOIL
		S2	2 to 4	24/24	9-10-10-10			S2: WIDELY GRADED SAND WITH GRAVEL (SW); 47.5% F-C sand, 45.6% F-gravel, 6.9% NP fines, with cobbles, brown, dry.
	5	S3	4 to 6	24/12	12-11-11-12			S3: WIDELY GRADED SAND (SW); ~85% F-C sand, ~10% F-C gravel, ~5% NP fines, cobbles to small boulders, light-brown to dark-brown, dry to moist.
		S4	6 to 8	24/6	20-20-10-9			S4: WIDELY GRADED SAND WITH SILT (SW-SM); ~85% F-C sand, ~10% NP fines, ~5% F-gravel, brown, dry.
	10	S5	10 to 12	24/19	3-6-7-7			S5: WIDELY GRADED SAND (SW); ~100% F-C sand, light-brown with dark brown, moist.
	15							Planned depth. Backfilled with drill cuttings.
	20							

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246



BORING INFORMATION

LOCATION: See plan.

GROUND SURFACE EL. (ft): NM

DATE START/END: 6/7/2023 - 6/7/2023

VERTICAL DATUM:

DRILLING COMPANY: New England Boring

TOTAL DEPTH (ft): 12.0

DRILLER NAME: Dave DeAngelis

LOGGED BY: T. Yurman

RIG TYPE:

BORING**B-5**

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: Automatic

CASING I.D./O.D.: NA/ NA

CORE BARREL TYPE:

AUGER I.D./O.D.: 3.25 inch / NA

DRILL ROD O.D.: NM

CORE BARREL I.D./O.D. NA / NA

DRILLING METHOD: Hollow Stem Auger

WATER LEVEL DEPTHS (ft): Free groundwater not encountered.

ABBREVIATIONS:

Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer

S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger

Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter

NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0 to 2	24/21	2-3-4-4	Auger grinding	SAND & GRAVEL	S1: SANDY SILT (ML); ~60% NP fines, ~40% F-sand, more sand with depth, organic fibers, brown to light-brown, dry. TOPSOIL
		S2	2 to 4	24/7	8-15-42-30			S2: WIDELY GRADED SAND (SW); ~95% F-C sand, ~5% NP fines, grayish-brown, dry.
	5	S3	4 to 6	24/7	24-22-30-29			S3: WIDELY GRADED SAND WITH GRAVEL (SW); ~70% F-C sand, ~25% F-C gravel, ~5% NP fines, cobbles to small boulders, gray to brown, dry to moist.
		S4	6 to 8	24/10	20-17-23-15			S4: NARROWLY GRADED SAND WITH SILT (SP-SM); ~85% M-C sand, ~10% NP fines, ~5% F-gravel, cobbles to small boulder fragments at top of spoon, brown, moist.
	10	S5	10 to 12	24/12	11-11-9-12			S5: NARROWLY GRADED SAND (SP); ~90% F-M sand, ~5% F-gravel, ~5% NP fines, light-brown, moist.
	15							Planned depth. Backfilled with drill cuttings.
	20							

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246



BORING INFORMATION

LOCATION: See plan.
 GROUND SURFACE EL. (ft): NM DATE START/END: 6/5/2023 - 6/5/2023
 VERTICAL DATUM: _____ DRILLING COMPANY: New England Boring
 TOTAL DEPTH (ft): 22.0 DRILLER NAME: Dave DeAngelis
 LOGGED BY: T. Rezzani RIG TYPE: _____

BORING

B-6

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: Automatic CASING I.D./O.D.: NA/ NA CORE BARREL TYPE: _____
 AUGER I.D./O.D.: 3.25 inch / NA DRILL ROD O.D.: NM CORE BARREL I.D./O.D. NA / NA
 DRILLING METHOD: Solid Stem Auger
 WATER LEVEL DEPTHS (ft): Free groundwater not encountered.

ABBREVIATIONS: Pen. = Penetration Length S = Split Spoon Sample Qp = Pocket Penetrometer Strength NA, NM = Not Applicable, Not Measured
 Rec. = Recovery Length C = Core Sample Sv = Pocket Torvane Shear Strength Blows per 6 in.: 140-lb hammer falling
 RQD = Rock Quality Designation U = Undisturbed Sample LL = Liquid Limit 30 inches to drive a 2-inch-O.D.
 = Length of Sound Cores > 4 in / Pen., % SC = Sonic Core PI = Plasticity Index split spoon sampler.
 WOR = Weight of Rods DP = Direct Push Sample PID = Photoionization Detector
 WOH = Weight of Hammer HSA = Hollow-Stem Auger I.D./O.D. = Inside Diameter/Outside Diameter

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0.5 to 2.5	24/14	9-5-6-7	FILL	4 inches ASPHALT S1A (0-7"): NARROWLY GRADED SAND WITH GRAVEL (SW); ~70% F-M sand, ~25% F-C gravel (R, SR), ~5% NP fines, brown, dry. BASE S1B (7-14"): SANDY SILT WITH GRAVEL (ML); ~65% LP fines, ~20% F-sand, ~15% F-C gravel, brown, dry.	
		S2	2.5 to 4.5	24/12	13-15-22-17		S2: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~65% F-C sand, ~25% F-C gravel, ~10% NP fines, brick, asphalt, processed stone, brown to gray, dry.	
	5	S3	4.5 to 6.5	24/12	20-17-19-23		S3: WIDELY GRADED SAND WITH GRAVEL (SW); ~65% F-C sand, ~30% F-C gravel, ~5% NP fines, gray, dry.	
		S4	6.5 to 8.5	24/20	16-25-13-14		S4: Similar to S3, yellowish-brown, moist.	
	10	S5	10 to 12	24/10	12-10-8-9	SAND & GRAVEL	S5 (7-17"): WIDELY GRADED SAND (SW); ~85% F-C sand, ~10% F-gravel, ~5% NP fines, gray, dry.	
	15	S6	15 to 17	24/13	6-7-7-6		S6: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% F-C sand, ~20% F-C gravel (R, SR), ~10% NP fines, dark-gray, moist.	
	20	S7	20 to 22	24/24	7-7-8-13		S7A (0-10"): Similar to S6. S7B (10-24"): WIDELY GRADED SAND (SW); ~90% F-C sand, ~5% F-gravel, ~5% NP fines, grayish-brown, dry.	
							Planned depth. Backfilled with drill cuttings.	

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246



GEI WOBURN STD 1-LOCATION-LAYER NAME 2302246 - GAROFALO-SOUTH KINGSTOWN HIGH SCHOOL_GPJ_GEI DATA TEMPLATE 2013.GDT 7/14/23

BORING INFORMATION

LOCATION: See plan.

GROUND SURFACE EL. (ft): NM

VERTICAL DATUM:

TOTAL DEPTH (ft): 27.0

LOGGED BY: T. Rezzani

DATE START/END: 6/5/2023 - 6/5/2023

DRILLING COMPANY: New England Boring

DRILLER NAME: Dave DeAngelis

RIG TYPE:

BORING**B-7**

PAGE 1 of 2

DRILLING INFORMATION

HAMMER TYPE: Automatic

CASING I.D./O.D.: NA/ NA

CORE BARREL TYPE:

AUGER I.D./O.D.: 3.25 inch / NA

DRILL ROD O.D.: NM

CORE BARREL I.D./O.D. NA / NA

DRILLING METHOD: Hollow Stem Auger

WATER LEVEL DEPTHS (ft): Wet sample observed at 25 feet.

ABBREVIATIONS:

Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer

S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger

Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter

NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0 to 2	24/6	3-5-5-6		S1: SILTY SAND WITH GRAVEL (SW); ~70% F-C sand, ~15% NP fines, ~15% F-C gravel, few organic fibers, brown, dry. TOPSOIL	
		S2	2 to 2.9	11/0	29-50/5"		S2: No recovery, cave-in.	
	5	S3	4 to 6	24/18	16-23-18-22		S3: WIDELY GRADED SAND WITH GRAVEL (SW); ~65% F-C sand, ~30% F-C gravel, ~5% NP fines, cobbles to small boulders, yellowish-brown, dry.	
		S4	6 to 8	24/16	22-21-13-13		S4: WIDELY GRADED SAND WITH GRAVEL (SW); ~80% F-C sand, ~15% F-gravel, ~5% NP fines, gray with orange seams, dry.	
	10	S5	10 to 12	24/15	6-5-8-7		S5: Similar to S4.	
	15	S6	15 to 17	24/11	13-7-7-8		S6: Similar to S4.	
	20	S7	20 to 22	24/17	6-6-16-10		S7: Similar to S4, moist, seams of F-gravel, yellowish-gray.	

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246



BORING**B-7**

PAGE 2 of 2

LOCATION: See plan.

GROUND SURFACE EL. (ft): NM

DATE START/END: 6/5/2023 - 6/5/2023

VERTICAL DATUM:

DRILLING COMPANY: New England Boring

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S8	25 to 27	24/15	7-8-7-8		SAND	S8: NARROWLY GRADED SAND (SP); ~90% F-M sand, ~5% F-gravel, ~5% NP fines, dark-gray, wet.
	30							Planned depth. Backfilled with drill cuttings.
	35							
	40							
	45							
	50							
	55							

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246



BORING INFORMATION

LOCATION: See plan.
 GROUND SURFACE EL. (ft): NM DATE START/END: 6/7/2023 - 6/7/2023
 VERTICAL DATUM: _____ DRILLING COMPANY: New England Boring
 TOTAL DEPTH (ft): 22.0 DRILLER NAME: Dave DeAngelis
 LOGGED BY: T. Yurman RIG TYPE: _____

BORING

B-8

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: Automatic CASING I.D./O.D.: NA/ NA CORE BARREL TYPE: _____
 AUGER I.D./O.D.: 3.25 inch / NA DRILL ROD O.D.: NM CORE BARREL I.D./O.D. NA / NA
 DRILLING METHOD: Hollow Stem Auger
 WATER LEVEL DEPTHS (ft): Wet sample observed at 20 feet.

ABBREVIATIONS: Pen. = Penetration Length S = Split Spoon Sample Qp = Pocket Penetrometer Strength NA, NM = Not Applicable, Not Measured
 Rec. = Recovery Length C = Core Sample Sv = Pocket Torvane Shear Strength Blows per 6 in.: 140-lb hammer falling
 RQD = Rock Quality Designation U = Undisturbed Sample LL = Liquid Limit 30 inches to drive a 2-inch-O.D.
 = Length of Sound Cores > 4 in / Pen., % SC = Sonic Core PI = Plasticity Index split spoon sampler.
 WOR = Weight of Rods DP = Direct Push Sample PID = Photoionization Detector
 WOH = Weight of Hammer HSA = Hollow-Stem Auger I.D./O.D. = Inside Diameter/Outside Diameter

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0 to 2	24/10	3-6-15-12	Auger grinding/resistance, small boulder	SAND & GRAVEL	S1: SILT WITH SAND (SP); ~80% NP fines, ~10% F-sand, ~10% F-gravel, organic fibers, cobbles to small boulders, brown, dry. TOPSOIL
		S2	2 to 4	24/7	20-23-13-8			S2: NARROWLY GRADED SAND WITH GRAVEL (SP); ~75% F-M sand, ~20% F-C gravel, ~5% NP fines, cobbles to small boulders, grayish-brown, dry.
	5	S3	4 to 6	24/12	40-36-40-30			S3: Similar to S2, cobbles to small boulders at top of recovery.
		S4	6 to 8	24/17	32-26-25-27			S4: WIDELY GRADED SAND WITH SILT (SW-SM); ~85% F-C sand, ~10% NP fines, ~5% F-gravel, brown, moist.
	10	S5	10 to 12	24/10	5-9-12-12	SAND	S5: WIDELY GRADED SAND (SW); ~95% F-C sand, ~5% NP fines, light-brown, moist.	
	15	S6	15 to 17	24/13	7-12-10-10		S6: Similar to S5, damp.	
	20	S7	20 to 22	24/16	6-7-10-16		S7: Similar to S5, light-brown to brown, orange discoloration, wet.	
								Planned depth. Backfilled with drill cuttings.

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246



GEI WOBURN STD 1-LOCATION-LAYER NAME 2302246 - GAROFALO-SOUTH KINGSTOWN HIGH SCHOOL_GPJ_GEI DATA TEMPLATE 2013.GDT 7/14/23

BORING INFORMATION

LOCATION: See plan.

GROUND SURFACE EL. (ft): NM

VERTICAL DATUM:

TOTAL DEPTH (ft): 22.0

LOGGED BY: T. Rezzani

DATE START/END: 6/5/2023 - 6/5/2023

DRILLING COMPANY: New England Boring

DRILLER NAME: Dave DeAngelis

RIG TYPE:

BORING**B-9**

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: Automatic

CASING I.D./O.D.: NA/ NA

CORE BARREL TYPE:

AUGER I.D./O.D.: 3.25 inch / NA

DRILL ROD O.D.: NM

CORE BARREL I.D./O.D. NA / NA

DRILLING METHOD: Hollow Stem Auger

WATER LEVEL DEPTHS (ft): Free groundwater not encountered.

ABBREVIATIONS:

Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer

S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger

Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter

NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0 to 2	24/17	2-4-6-11	SAND & GRAVEL	S1A (0-8"): TOPSOIL, brown. S1B (8-17"): WIDELY GRADED SAND WITH GRAVEL (SW); ~70% F-C sand, ~25% F-C gravel, ~5% NP fines, grayish-brown, dry. S2: SILTY SAND WITH GRAVEL (SM); 50.0% F-C sand, 33.3% F-C gravel (up to 1 1/4 in.), 16.7% NP fines, grayish-brown, dry. S3: Similar to S2. S4: WIDELY GRADED SAND WITH GRAVEL (SW); ~75% F-C sand, ~20% F-C gravel, ~5% NP fines, gray, dry.	
		S2	2 to 4	24/18	8-12-30-18			
	5	S3	4 to 6	24/10	26-25-21-20			
		S4	6 to 8	24/21	16-12-15-24			
	10	S5	10 to 12	24/7	8-8-9-7	SAND	S5: NARROWLY GRADED SAND WITH SILT (SW-SM); ~90% F-M sand, ~10% NP fines, gray, moist. S6: WIDELY GRADED SAND (SW); ~85% F-C sand, ~10% F-gravel, ~5% NP fines, gray, moist. S7A (0-8"): Similar to S6. S7B (8-15"): SILTY SAND (SM); ~70% v.F-sand, ~30% NP fines, dark-gray, damp.	
	15	S6	15 to 17	24/15	8-8-7-8			
	20	S7	20 to 22	24/15	9-10-12-10			
							Planned depth. Backfilled with drill cuttings.	

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246



BORING INFORMATION

LOCATION: See plan.

GROUND SURFACE EL. (ft): NM

VERTICAL DATUM:

TOTAL DEPTH (ft): 22.0

LOGGED BY: T. Yurman

DATE START/END: 6/7/2023 - 6/7/2023

DRILLING COMPANY: New England Boring

DRILLER NAME: Dave DeAngelis

RIG TYPE:

BORING**B-10**

PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: Automatic

CASING I.D./O.D.: NA/ NA

CORE BARREL TYPE:

AUGER I.D./O.D.: 3.25 inch / NA

DRILL ROD O.D.: NM

CORE BARREL I.D./O.D. NA / NA

DRILLING METHOD: Hollow Stem Auger

WATER LEVEL DEPTHS (ft): Wet sample observed at 20 feet.

ABBREVIATIONS:

Pen. = Penetration Length
 Rec. = Recovery Length
 RQD = Rock Quality Designation
 = Length of Sound Cores > 4 in / Pen., %
 WOR = Weight of Rods
 WOH = Weight of Hammer

S = Split Spoon Sample
 C = Core Sample
 U = Undisturbed Sample
 SC = Sonic Core
 DP = Direct Push Sample
 HSA = Hollow-Stem Auger

Qp = Pocket Penetrometer Strength
 Sv = Pocket Torvane Shear Strength
 LL = Liquid Limit
 PI = Plasticity Index
 PID = Photoionization Detector
 I.D./O.D. = Inside Diameter/Outside Diameter

NA, NM = Not Applicable, Not Measured
 Blows per 6 in.: 140-lb hammer falling
 30 inches to drive a 2-inch-O.D.
 split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0 to 2	24/14	6-18-18-11	SAND & GRAVEL	S1: SILTY SAND WITH GRAVEL (SM); ~45% NP fines, ~40% F-sand, ~15% F-gravel, organic fibers, cobbles to small boulders, brown, dry. TOPSOIL	
		S2	2 to 4	24/12	17-33-28-25		S2: WIDELY GRADED SAND WITH GRAVEL (SW); ~80% F-C sand (mostly F-sand), ~15% F-gravel, ~5% NP fines, grayish-brown, dry.	
	5	S3	4 to 6	24/10	23-27-19-15		S3: NARROWLY GRADED SAND (SP); ~85% F-M sand, ~10% F-gravel, ~5% NP fines, cobbles to small boulders, light-brown, dry to moist with depth.	
		S4	6 to 8	24/20	10-11-11-12		S4: WIDELY GRADED SAND (SW); ~95% F-C sand, ~5% NP fines, light-brown, moist.	
	10	S5	10 to 12	24/14	19-8-8-10	SAND	S5: Similar to S4, F-M sand.	
	15	S6	15 to 17	24/15	6-8-10-9		S6: WIDELY GRADED SAND (SW); ~95% F-C sand (mostly M-C sand), ~5% NP fines, light-brown, moist to damp.	
	20	S7	20 to 22	24/15	7-15-15-17		S7: Similar to S6, wet, brown.	
							Planned depth. Backfilled with drill cuttings.	

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246



BORING INFORMATION

LOCATION: See plan.

GROUND SURFACE EL. (ft): NM

VERTICAL DATUM:

TOTAL DEPTH (ft): 27.0

LOGGED BY: T. Yurman

DATE START/END: 6/6/2023 - 6/6/2023

DRILLING COMPANY: New England Boring

DRILLER NAME: Dave DeAngelis

RIG TYPE:

BORING**B-11**

PAGE 1 of 2

DRILLING INFORMATION

HAMMER TYPE: Automatic

CASING I.D./O.D.: NA/ NA

CORE BARREL TYPE:

AUGER I.D./O.D.: 3.25 inch / NA

DRILL ROD O.D.: NM

CORE BARREL I.D./O.D. NA / NA

DRILLING METHOD: Hollow Stem Auger

WATER LEVEL DEPTHS (ft): Wet sample observed at 20 feet.

ABBREVIATIONS:

Pen. = Penetration Length

Rec. = Recovery Length

RQD = Rock Quality Designation

= Length of Sound Cores > 4 in / Pen., %

WOR = Weight of Rods

WOH = Weight of Hammer

S = Split Spoon Sample

C = Core Sample

U = Undisturbed Sample

SC = Sonic Core

DP = Direct Push Sample

HSA = Hollow-Stem Auger

Qp = Pocket Penetrometer Strength

Sv = Pocket Torvane Shear Strength

LL = Liquid Limit

PI = Plasticity Index

PID = Photoionization Detector

I.D./O.D. = Inside Diameter/Outside Diameter

NA, NM = Not Applicable, Not Measured

Blows per 6 in.: 140-lb hammer falling

30 inches to drive a 2-inch-O.D.

split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0 to 2	24/12	2-8-12-14	SANDY SILT	S1: SANDY SILT (ML); ~70% NP fines, ~20% F-sand, ~10% F-C gravel, organic fibers, cobbles to small boulders, brown, dry. TOPSOIL	
		S2	2 to 4	24/12	12-17-13-9		S2: SILT WITH SAND (ML); ~85% NP-LP fines, ~10% F-sand, ~5% F-gravel, cobbles to small boulders, light-brown, dry to moist.	
	5	S3	4 to 6	24/12	5-5-10-16		S3: Similar to S2, cobbles to small boulders at top of recovery.	
		S4	6 to 8	24/10	20-30-32-27		S4: SILTY SAND WITH GRAVEL (SM); ~55% F-M sand, ~30% NP fines, ~15% F-gravel, cobbles to small boulders, grayish-brown, moist.	
	10	S5	10 to 12	24/10	20-40-68-30	SAND & GRAVEL	S5: WIDELY GRADED SAND WITH GRAVEL (SW); ~75% F-C sand, ~20% F-gravel, ~5% NP fines, cobbles to small boulders, light-brown, dry to moist.	
	15	S6	15 to 17	24/16	8-9-11-12		S6: NARROWLY GRADED SAND (SP); ~95% F-M sand, ~5% NP fines, light-brown to brown, damp.	
	20	S7	20 to 22	24/16	6-7-7-9	SAND	S7: WIDELY GRADED SAND (SW); ~95% F-C sand, ~5% NP fines, brown, wet.	

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246



LOCATION: See plan.

GROUND SURFACE EL. (ft): NM

VERTICAL DATUM:

DATE START/END: 6/6/2023 - 6/6/2023

DRILLING COMPANY: New England Boring

BORING

B-11

PAGE 2 of 2

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S8	25 to 27	24/24	10-11-14-28		SAND	S8: Similar to S7.
								Planned depth. Backfilled with drill cuttings.
	30							
	35							
	40							
	45							
	50							
	55							

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246



BORING INFORMATION

LOCATION: See plan.

GROUND SURFACE EL. (ft): NM

VERTICAL DATUM:

TOTAL DEPTH (ft): 27.0

LOGGED BY: T. Yurman

DATE START/END: 6/7/2023 - 6/7/2023

DRILLING COMPANY: New England Boring

DRILLER NAME: Dave DeAngelis

RIG TYPE:

BORING**B-12**

PAGE 1 of 2

DRILLING INFORMATION

HAMMER TYPE: Automatic

CASING I.D./O.D.: NA/ NA

CORE BARREL TYPE:

AUGER I.D./O.D.: 3.25 inch / NA

DRILL ROD O.D.: NM

CORE BARREL I.D./O.D. NA / NA

DRILLING METHOD: Hollow Stem Auger

WATER LEVEL DEPTHS (ft): Wet sample observed at 20 feet.

ABBREVIATIONS:

Pen. = Penetration Length

Rec. = Recovery Length

RQD = Rock Quality Designation

= Length of Sound Cores > 4 in / Pen., %

WOR = Weight of Rods

WOH = Weight of Hammer

S = Split Spoon Sample

C = Core Sample

U = Undisturbed Sample

SC = Sonic Core

DP = Direct Push Sample

HSA = Hollow-Stem Auger

Qp = Pocket Penetrometer Strength

Sv = Pocket Torvane Shear Strength

LL = Liquid Limit

PI = Plasticity Index

PID = Photoionization Detector

I.D./O.D. = Inside Diameter/Outside Diameter

NA, NM = Not Applicable, Not Measured

Blows per 6 in.: 140-lb hammer falling

30 inches to drive a 2-inch-O.D.

split spoon sampler.

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0 to 2	24/9	6-13-15- 19		S1: SANDY SILT (ML); ~70% NP fines, ~25% F-sand, ~5% F-C gravel, organic fibers, mostly brown (some gray sand at bottom of spoon), dry. TOPSOIL	
		S2	2 to 4	24/18	15-9-12- 15		S2: WIDELY GRADED SAND (SW); ~85% F-C sand, ~10% F-gravel, ~5% NP fines, grayish-brown to brown, dry.	
	5	S3	4 to 6	24/12	30-25-8- 6		S3: NARROWLY GRADED SAND (SP); ~95% F-M sand, ~5% NP fines, brown, dry to moist.	
		S4	6 to 8	24/19	12-9-8- 10		S4: Similar to S3, light-brown.	
	10	S5	10 to 12	24/5	14-13- 15-15		S5: NARROWLY GRADED SAND WITH GRAVEL (SP); ~70% F-M sand, ~25% F-C gravel, ~5% NP fines, cobbles to small boulders, light-brown, dry.	
	15	S6	15 to 17	24/12	7-6-8-12		S6: NARROWLY GRADED SAND (SP); ~95% F-M sand, ~5% NP fines, light-brown, dry to moist.	
	20	S7	20 to 22	24/20	10-12- 15-15		S7: SILTY SAND (SM); ~80% F-C sand, ~20% NP-MP fines, increase in fines with depth, grayish-brown, damp to wet.	

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246


GEI Consultants

LOCATION: See plan.

GROUND SURFACE EL. (ft): NM

VERTICAL DATUM:

DATE START/END: 6/7/2023 - 6/7/2023

DRILLING COMPANY: New England Boring

BORING

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PAGE 2 of 2

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S8	25 to 27	24/24	14-16-17-25		SILT	S8: SILT (ML); ~95% LP-MP fines (thinly interbedded), ~5% F-sand, gray, wet.
	30							Planned depth. Backfilled with drill cuttings.
	35							
	40							
	45							
	50							
	55							

NOTES:

PROJECT NAME: South Kingstown High School

CITY/STATE: South Kingstown, Rhode Island

GEI PROJECT NUMBER: 2302246



BORING INFORMATION

LOCATION: See plan.
 GROUND SURFACE EL. (ft): NM DATE START/END: 6/6/2023 - 6/6/2023
 VERTICAL DATUM: DRILLING COMPANY: New England Boring
 TOTAL DEPTH (ft): 22.0 DRILLER NAME: Dave DeAngelis
 LOGGED BY: T. Yurman RIG TYPE:

BORING

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PAGE 1 of 1

DRILLING INFORMATION

HAMMER TYPE: Automatic CASING I.D./O.D.: NA/ NA CORE BARREL TYPE:
 AUGER I.D./O.D.: 3.25 inch / NA DRILL ROD O.D.: NM CORE BARREL I.D./O.D. NA / NA
 DRILLING METHOD: Hollow Stem Auger
 WATER LEVEL DEPTHS (ft): Wet sample observed at 20 feet.

ABBREVIATIONS: Pen. = Penetration Length S = Split Spoon Sample Qp = Pocket Penetrometer Strength NA, NM = Not Applicable, Not Measured
 Rec. = Recovery Length C = Core Sample Sv = Pocket Torvane Shear Strength Blows per 6 in.: 140-lb hammer falling
 RQD = Rock Quality Designation U = Undisturbed Sample LL = Liquid Limit 30 inches to drive a 2-inch-O.D.
 = Length of Sound Cores > 4 in / Pen., % SC = Sonic Core PI = Plasticity Index split spoon sampler.
 WOR = Weight of Rods DP = Direct Push Sample PID = Photoionization Detector
 WOH = Weight of Hammer HSA = Hollow-Stem Auger I.D./O.D. = Inside Diameter/Outside Diameter

Elev. (ft)	Depth (ft)	Sample Information				Drilling Remarks/ Field Test Data	Layer Name	Soil and Rock Description
		Sample No.	Depth (ft)	Pen./ Rec. (in)	Blows per 6 in. or RQD			
		S1	0 to 2	24/12	1-2-3-6	SANDY SILT	S1: SILT WITH SAND (ML); ~80% NP fines, ~20% F-sand, organic fibers, brown, dry. TOPSOIL	
		S2	2 to 4	24/16	5-5-8-10		S2: SILT WITH SAND (ML); 64.9% NP-LP fines, 31.4% F-sand (bottom of sample), 3.7% F- gravel, brown to light-brown, dry.	
	5	S3	4 to 6	24/15	12-15-15-15		S3: WIDELY GRADED SAND (SW); ~90% F-C sand, ~5% NP fines, ~5% F-gravel, grayish-brown, moist.	
		S4	6 to 8	24/9	16-14-15-17		S4: Similar to S3, cobbles to small boulders, moist.	
	10	S5	10 to 12	24/13	12-13-11-8	SAND & GRAVEL	S5: WIDELY GRADED SAND WITH SILT AND GRAVEL (SW-SM); ~70% F-C sand, ~20% F-gravel, ~10% NP fines, cobbles to small boulders, brown, moist to damp.	
	15	S6	15 to 17	24/12	7-11-14-13		S6: NARROWLY GRADED SAND WITH SILT (SP-SM); ~90% F-M sand, ~10% NP fines, grayish-brown, damp (dry at top of spoon).	
	20	S7	20 to 22	24/24	17-18-26-30		S7: WIDELY GRADED SAND (SW); ~95% F-C sand, ~5% NP fines, brown with dark brown, wet.	
							Planned depth. Backfilled with drill cuttings.	

NOTES:

PROJECT NAME: South Kingstown High School
CITY/STATE: South Kingstown, Rhode Island
GEI PROJECT NUMBER: 2302246

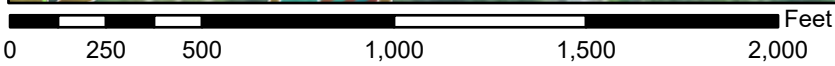


GEI WOBURN STD 1-LOCATION-LAYER NAME 2302246 - GAROFALO-SOUTH KINGSTOWN HIGH SCHOOL_GPJ_GEI DATA TEMPLATE 2013.GDT 7/14/23

National Flood Hazard Layer FIRMMette



71°30'1"W 41°27'N



1:6,000 71°29'23"W 41°26'33"N

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i> With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i> Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i> Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i> Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i> Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i> Effective LOMRs Area of Undetermined Flood Hazard <i>Zone D</i>
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance 17.5 Water Surface Elevation Coastal Transect Base Flood Elevation Line (BFE) Limit of Study Jurisdiction Boundary Coastal Transect Baseline Profile Baseline Hydrographic Feature
MAP PANELS		Digital Data Available No Digital Data Available Unmapped

N
 The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **4/14/2025 at 8:10 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.