

Stormwater Management Report

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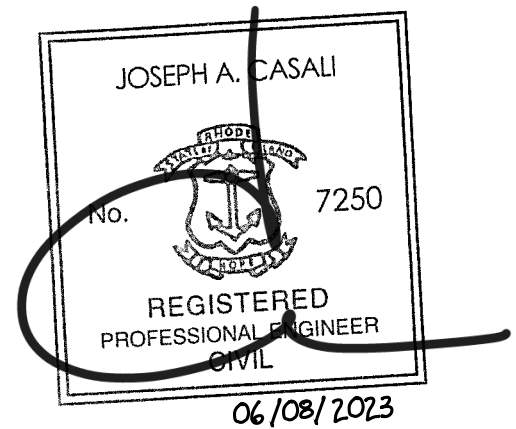
Briarwood Estates

A 14-Lot Major Subdivision

AP 18-3, Lots 1023 & 1026
Cranston, Rhode Island

Prepared for:

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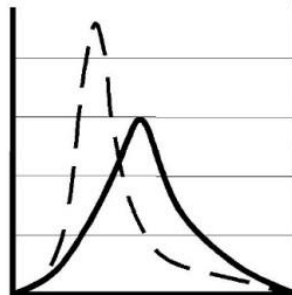


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1 INTRODUCTION

On behalf of the Applicant, Universal Realty, LLC, Joe Casali Engineering, Inc. (JCE) has prepared the following Stormwater Management Report to identify existing and proposed site conditions related to a proposed 14-lot major subdivision project located off New London Avenue in Cranston, Rhode Island. The subject properties are located on the west side of New London Avenue, between Warfield Avenue and Southview Terrace and can be identified as Tax Assessor's Plat Map (AP) 18-3, Lots 1023 and 1026. The property lies within the Residential A-8 Zoning District.

The scope of work includes subdividing the two (2) subject parcels into 14 residential lots of which 12 lots will be new construction and two (2) lots will contain existing residential homes. Other improvements include a new 1,070 linear feet proposed roadway extension, utility infrastructure, stormwater mitigation and landscaping improvements.

2 SITE DESCRIPTION

2.1 Existing Conditions

The proposed project encompasses two (2) parcels of land, specifically AP 18-3, Lots 1023 and 1026. According to a February 2022 Class I Comprehensive Boundary Survey performed by E. Greenwich Surveyors, LLC, the total area of all the subject parcels is 5.80 acres. AP 18-3, Lot 1026 is approximately 2.86 acres with frontage on New London Avenue and consists of a single-family residence (1365 New London Avenue) with a detached garage and in-ground pool. A 50-ft right-of-way is established providing access via a shared driveway to the subject parcel's detached garage, and adjacent parcels AP 18-3, Lot 2033 (#1335) and AP 18-3, Lot 2035 (#1365). The rear of Lot 1026 is currently vacant and heavily wooded. AP 18-3, Lot 1023 is approximately 2.94 acres. This parcel is located southwest of Lot 1026 and consists of a single-family residence (1375 New London Avenue). The parcel does not have frontage on new London Avenue; however, it utilizes a 12-ft access easement on AP 18-3, Lot 810 for access. Outside of the single-family residence and associated lawn, the remaining portion of the lot is vacant woodland.

The project site is bound by New London Avenue to the east, Interstate Route 295 to the west, the terminal end of Briarwood Road and residential properties to the north, and residential properties to the south. Please refer to Figure 1 – Locus Map for general site location information.



Figure 1 - Locus Map

NOT TO SCALE

2.2 Soil Classification

Natural Resources Conservation Service (NRCS), produced by the National Cooperative Soil Survey, the soils on-site consist of Hinckley loamy sand, 0-3 % slopes and 8-15% slopes (HkA and HkC). These soils generally consist of sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist. HkC soils are excessively drained and have a very low runoff class. HkA soils are excessively drained and have a negligible runoff class.



Figure 2 - Soils Map
NOT TO SCALE

Soil evaluations were observed and documented by JCE in October 2022 to determine the depth to the seasonal high groundwater table (SHGWT) and to estimate infiltration capacity of existing in-situ soils for the design of stormwater mitigation measures. Ten (10) soil evaluation test pits were excavated, ranging in depth from about 96-inches to 120-inches below the ground surface. In general, the SHGWT ranged from about 36-inches to 70-inches below the existing ground surface when encountered. Ledge was not encountered. A Soil Evaluation Test Pit Location Plan and Soil Evaluation Test Hole Logs are included in Appendix A.

2.5 Watershed

The site is located within the Pawtuxet River Watershed (RIDEM Inventory #010900040901). Stormwater runoff from the eastern portion of the site flows in a northeasterly direction and ultimately drains to the Meshanticut Brook (RI0006017R-02), a third order stream. Stormwater runoff from the western portion of the site flows in a northwesterly direction and ultimately drains to an unnamed tributary to the Meshanticut Brook (RI0006017R-02), a second order stream. Both the tributary and the brook are listed as impaired and have an established TMDL for enterococcus. Any development of the subject parcels will require a stormwater management design in accordance with the RI Stormwater and Installation Standards Manual, implemented December 2010, amended March 2015, and will be required to mitigate impairments identified for the tributary and Meshanticut Brook. Best Management Practices (BMPs) recommended to remove bacteria include sand filters and infiltration basins.

2.6 Zoning

According to the City of Cranston Zoning Maps, the site is currently zoned as Residential A-8. This district is intended for single-family dwellings on lots with a minimum area of 8,000 square feet. The surrounding properties are also zoned A-8 apart from the properties to the north of the site being zoned Residential A-6. The following are the dimensional requirements for the current zoning classification for the A-8 District:

Requirement	A-8 Zone
Minimum Lot Area	8,000 sq. ft.
Minimum Lot Width and Frontage	80 ft
Minimum Front Yard Setback	25 ft
Minimum Rear Yard Setback	20 ft
Minimum Side Yard Setback	10 ft
Maximum Lot Coverage	30%
Maximum Building Height	35 ft

2.7 Easements

Based on the February 2022 Class I Comprehensive Boundary Survey performed by E. Greenwich Surveyors, LLC, there is a right-of-way, so-called “Pelli Drive” within AP 18-3, Lot 1026 that provides access to AP 18-3, Lot 2033 (#1335) and AP 18-3, Lot 2035 (#1365) from New London Avenue. There is an existing 25-ft wide sewer easement within AP 18-3, Lot 1026. The easement generally follows the centerline of an existing right-of-way, conveying sewer from New London Avenue through the subject parcel to Gaunt Drive.

AP 18-3, Lot 1023 (1375 New London Avenue) utilizes a 12-ft access easement on AP 18-3, Lot 810 for access to New London Avenue.

2.8 Utilities

Water: The existing residences within the project site are serviced by public water and fall under the jurisdiction of Kent County Water Authority (KCWA). A 6-inch water stub exists at the terminus of Briarwood Road. A 12" water main exists along the western edge of New London Avenue. There also an existing hydrant on New London Avenue in front of the dwelling located at 1335 New London Avenue (AP 18-3, Lot 2033).

Sewer: The existing residences within the project site are serviced by public sewer. There is an existing 8-inch main located within New London Avenue which crosses through the subject parcels via a 25-ft sewer easement and continues to Gaunt Avenue.

Gas: Gas services are provided to the existing dwellings; gas services are provided by RI Energy.

Electric/Communications: Electric and communication services are provided to the existing dwellings via overhead lines from New London Avenue to an existing utility pole located within the existing right-of-way.

3 PROPOSED CONDITIONS

3.1 General

The proposed scope of work includes the subdivision of AP 18-3, Lots 1023 and 1026 into 14 residential lots, of which 12 lots will be new construction with a new single-family dwelling proposed on each, and two (2) lots will contain the existing residential homes. The existing Lot 1026 containing the existing single-family dwelling (#1365), detached garage and in-ground pool will be subdivided to have a new area of approximately 18,058 sq. ft. (0.41 acres). The remaining portion of the lot is approximately 100,345 sq. ft. (2.30 acres). Lot 1023 containing the existing single-family dwelling (#1375) will be subdivided and have a new area of approximately 53,279 sq. ft. (1.22 acres). The remaining portion of the lot is approximately 80,694 sq. ft. (1.85 acres).

The undeveloped portions of Lots 1023 and 1026 have a total area of approximately 181,039 sq. ft. (4.15 acres) and will be utilized as part of the proposed twelve (12) new lot residential subdivision, entitled "Briarwood Estates". A single-family home will be constructed on each lot with associated utility services and driveways.

The proposed project has been designed in general accordance with the current City of Cranston's Land Development and Subdivision Regulations. All proposed residential lots have been designed to conform to the dimensional requirements of the A-8 Zone. The former Pelli Drive (private) 50-foot right-of-way will be improved and extended through the project, eventually connecting into the Briarwood Road dead-end. The new public roadway has been designed with a 24-foot-wide paved width, 40-foot right-of-way and will be approximately 1,070 linear feet long. The roadway will be designed and constructed in general accordance with City Standards.

A 32-foot-wide right-of-way has been incorporated between Lots 11 and 12 to provide access to the abutting parcel, AP 18-3, Lot 2006 from the new extended subdivision road. Other improvements associated with the proposed subdivision include new utility services, stormwater mitigations and landscaping improvements.

3.2 Utilities

Water: Water service is available to the project area. A water main runs along New London Avenue and within Briarwood Road. The proposed development will require an extension of the existing water main to provide domestic water and fire protection to the proposed subdivision. It is anticipated that a new water main will be looped from New London Avenue to Briarwood Road. Fire hydrants will be located per the City Fire Marshal's requirements. The water main extension and service design will require review and approval by the Kent County Water Authority.

Sewer: Sewer service is available within the project area. An 8-inch main runs through the eastern portion of the site within a 25-foot-wide sewer easement. The proposed residential lots will be serviced by municipal sewers. The sewer main is owned and maintained by Veolia Water. The sewer and service design will require review and approval by the City and Veolia Water

Electric/Communications/Gas: Electric services, communication services, and gas services are proposed to be extended to the proposed subdivision via existing services within New London Avenue.

4 STATE AND LOCAL PERMITTING

4.1 Planning Board of Review

According to the City of Cranston's Land Development Regulations, the proposed development is considered a Major Subdivision. The permitting schedule is as follows, and consists of abutter notification, public meetings, and Planning board Approval: Master Plan; Preliminary Plan; and Final Plan.

The project was presented before the Cranston City Plan Commission for a Pre-Application Review on April 5, 2022. The project appeared before the City Plan Commission again on June 7, 2022 where it received approval for Master Plan.

The project will require two (2) waivers. A waiver to allow a reduction in proposed right-of-way width from the required 40 feet to 32-feet; relief requested for 8 feet. A second waiver is requested to not install sidewalks at minimum on one side of the proposed new public street to match existing conditions of Briarwood Road.

4.2 Veolia Water

The proposed sewer main extension and sewer services will require review and approval from Veolia Water and the City of Cranston Department of Public Works.

4.3 Kent County Water Authority

The proposed water main extension and water services received approval from the Kent County Water Authority on May 17, 2023. The Kent County Water Authority's review consisted of the development of a hydraulic model evaluation to determine impacts of the development on the Kent County Water Authority water system as well as a review of design plans to determine conformance of the proposed water main extension design with the Kent County Water Authority Regulations (i.e. conflicts with existing utilities, conformity of proposed materials, sufficient number of valves and proper spacing, etc.).

4.4 Rhode Island Department of Environmental Management (RIDEM)

The proposed project will received a Groundwater Discharge Permit and a Rhode Island Pollutant Discharge Elimination System (RIPDES) Construction General Permit from the Rhode Island Department of Environmental Management (RIDEM) on April 24, 2023.

4.5 Rhode Island Department of Transportation (RIDOT)

The proposed project will require a Physical Alteration Permit (PAP) from the Rhode Island Department of Transportation (RIDOT) for the proposed curb cut for the new roadway connection to New London Avenue (Route 33), a state highway. RIDOT has reviewed the application and provided comments. Comments have been addressed and RIDOT approval is forthcoming.

4.6 Building Permit / Fire Department

A Building Permit will be required from the City of Cranston Building Official for construction of the proposed single-family dwellings.

5 STORMWATER MANAGEMENT PLAN

The proposed subdivision is subject to the Rhode Island Stormwater Design and Installation Standards Manual (RISDISM), implemented in December 2010, amended March 2015, by both the Rhode Island Department of Environmental Management (RIDEM) and the Rhode Island Coastal Resources Management Council (CRMC). The proposed stormwater management system will be designed to generally mimic existing conditions. The stormwater management system design will adhere to all State (RIDEM) and local (City of Cranston) standards and provide attenuation of peak stormwater runoff rates for the 1-, 10-, 25- and 100-year storm events while improving the quality of the stormwater leaving the site.

The proposed Stormwater Management Plan considers the existing impairment of enterococcus for the Meshanticut Brook by improving the overall quality of stormwater leaving the site through the use of Best Management Practices (BMPs). These water quality BMPs incorporate low-impact development techniques, including a sediment forebay, a bioretention basin, a StormCapture infiltration system, and numerous smaller underground infiltration chamber systems (UIC) to treat impervious areas associated with the individual residential lots. Pre-treatment has been included with the BMP designs to help reduce overall maintenance and to extend the design life of the BMPs. Pre-treatment practices include a sediment forebay and a grass swale.

5.1 Standard 1: LID Planning and Design Strategies

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

Standard Met

LID practices of a sediment forebay and bioretention system as well as multiple underground infiltration systems have been included in the site's stormwater management design. Proposed drainage patterns have been designed to closely mimic those of existing conditions. The stormwater BMP's were designed to capture, filter and infiltrate the stormwater quality volume generated from the proposed site improvements.

5.2 Standard 2: Groundwater Recharge

Stormwater must be recharged within the same subwatershed to maintain baseflow at pre-development recharge levels to the maximum extent practicable.

Standard Met

Groundwater recharge will be provided on site through multiple underground infiltration chamber systems and a bioretention basin. All calculations were completed in accordance with Section 3.3.2 of the RISDISM using the following formula:

$$Re_v = (1'') (F) (I) / 12$$

Based on the results of the soil evaluation test pits, a recharge factor of 0.35 was used, associated with Hydrologic Soil Group B.

Table 1A: Recharge Requirements	DP1		
Subwatershed	1B	1B-R1	1B-R2
Treatment System	Bioretention Basin	UIC #1	UIC #2 - #5
Total Impervious Area (sf)	24,171	1,592	6,368
Recharge factor (in)	0.35	0.35	0.35
Required Recharge Volume (cf)	705	46	186
Provided Recharge Volume (cf)	9,696	176	1,780
Recharge Requirement Met	Yes	Yes	Yes

Table 1B: Recharge Req.	DP2				
Subwatershed	2A	2A-R	2A-RF	2B-R1	2B-R2
Treatment System	Stormcapture System	UIC #6 - #7	UIC #8F - 11F	UIC #8R - #11R	UIC #12
Total Impervious Area (sf)	12,065	3,184	3,184	3,184	1,592
Recharge factor (in)	0.35	0.35	0.35	0.35	0.35
Required Recharge Volume (cf)	352	93	93	93	46
Provided Recharge Volume (cf)	1,363	371	392	719	218
Recharge Requirement Met	Yes	Yes	Yes	Yes	Yes

- Notes: 1. Refer to Proposed Watershed Map located in Appendix D for BMP locations.
 2. Based on Routing Analysis of WQ_v, the entire volume is infiltrated.
 3. Recharge Volumes are calculated as the Static Storage Volume.

5.3 Standard 3: Water Quality

The stormwater runoff from the site must be treated prior to discharge.

Standard Met

Because the site is not considered a redevelopment, 100% treatment for the water quality volume and recharge must be provided. Existing impervious areas being directed to the site do not require treatment. Calculations are provided in Appendix F. Treatment for the water quality volume will be met using the proposed infiltration basin and underground infiltration chamber systems. This system has been sized to capture and treat the required water quality volume prior to discharge. Pre-treatment will be provided via the proposed sediment forebays and a grassed swale.

Calculations were completed in accordance with Section 3.3.3 of the RISDISM using the following formula:

$$WQ_v = (1'') (I) / 12 \text{ in/ft}$$

Tables 2, 3 and 4 below provide sizing calculations for the Water Quality Volume (WQ_v) of the pretreatment area and the treatment area, respectively.

Table 2: Pretreatment Requirements	DP1	DP2
Subwatershed	1B	2A
Treatment Type	Sediment Forebay	Stormceptor STC-1800
Total Impervious Area (sf) ¹	24,171	12,065
Water Quality Factor (in)	1.00	1.00
Required Water Quality Volume (CF)	2,014	1,005
Required Static Volume for Pretreatment (25% of WQV)	504	251
Provided Static Storage Volume for Pretreatment	584	289
Pretreatment Requirement Met	Yes	Yes

Table 3A: Treatment Requirements	DP1		
Subwatershed	1B	1B-R1	1B-R2
Treatment Type	Bioretention Basin	UIC #1	UIC #2 - #5
Impervious Area (sf)	24,171	1,592	6,368
Water Quality Factor (in)	1.00	1.00	1.00
Required Water Quality Volume (CF)	2,014	133	531
Required Volume for Treatment (75% of WQV)	1,511 (75%)	133 (100%)	531 (100%)
Req. Static Storage Volume for Treatment (CF)	1,511	133	531
Provided Static Storage Volume for Treatment (CF)	9,696	176	1,780
Treatment Requirement Met	Yes	Yes	Yes

Table 3B: Treatment Req.	DP2				
Subwatershed	2A	2A-R	2A-RF	2B-R1	2B-R2
Treatment Type	Strmcap. System	UIC #6 - #7	UIC #8F - 11F	UIC #8R - #11R	UIC #12
Impervious Area (sf)	18,433	3,184	3,184	3,184	1,592
Water Quality Factor (in)	1.00	1.00	1.00	1.00	1.00
Required Water Quality Volume (CF)	1,536	265	265	265	133
Required Volume for Treatment (75% of WQV)	1,152 (75%)	265 (100%)	265 (100%)	265 (100%)	133 (100%)
Required Static Storage Volume for Treatment (CF)	610	265	265	265	133
Provided Static Storage Volume for Treatment (CF)	1,363	371	392	719	218
Treatment Requirement Met	Yes	Yes	Yes	Yes	Yes

- Notes:
1. Rooftop stormwater runoff is exempt from pretreatment requirements.
 2. Static Storage Volume = Volume of the chambers + volume of the voids in stone below outlet
 3. Static storage volume (infiltration basin) = Storage volume of system below spillway/outlet.
 4. As shown in the water quality calculations, Appendix F, the proposed BMPs fully contain and infiltrate the water quality and 2-year design storm event.

As shown in Tables 1 through 3 above, the site's proposed stormwater management system exceeds the requirements for groundwater recharge volume, water quality pre-treatment volume

and water quality treatment volume. This is in accordance with all RISDISM and City of Cranston Standards, and ultimately eliminates or reduces any instances of untreated stormwater flow towards the Meshanticut Brook.

5.4 Standard 4: Conveyance and Natural Channel Protection

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

Not Applicable

Stormwater conveyance systems have been designed to handle up to and including the 100-year storm event. The proposed bioretention basin and underground infiltration chamber systems reduce the existing 1-year storm event flow by approximately 9% compared to existing conditions for Design Point 1. The proposed StormCapture System, underground infiltration chamber systems and structural BMPs reduce the existing 1-year storm event flow by approximately 69% compared to existing conditions for Design Point 2. Design Point 3 has been reduced by approximately 39%. In addition, the site does not discharge into an existing drainage channel at the downstream design point and therefore, Channel Protection Volume Calculations are not warranted for the site.

5.5 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 1, 2, 10, 25 and 100-year, Type III design storm events.

Standard Met

HydroCAD calculations for the proposed site, included in Appendices E & G, show that post-development peak discharge rates are less than the pre-development peak discharges for the 1-, 2-, 10-, 25- and 100-year storm events. See Section 5.4 and Appendices E and G for supporting documentation and calculations.

5.6 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 Not Applicable

The subject site does not qualify as a redevelopment project.

5.7 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 Plan (SESCP), has been prepared in accordance with the manual and has been submitted under separate cover. An Operation and Maintenance Plan (O&M)

has been prepared in accordance with the Manual and has also been submitted under separate cover.

5.8 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.

A stormwater LUHPPL is defined as by the following land uses and activities:

1. Areas within an industrial site (as defined in RIPDES Rule 31(b)(15)) that are the location of activities subject to the RIPDES Multi-Sector General Permit (except where a No Exposure Certification for Exclusion from RIPDES Stormwater Permitting has been executed);
2. Auto fueling facilities (i.e., gas stations);
3. Exterior vehicle service, maintenance and equipment cleaning areas;
4. Road salt storage and loading areas (if exposed to rainfall); and
5. Outdoor storage and loading/unloading of hazardous substances.

Standard Not Applicable

The project site does not meet the definition of a LUHPPL as defined in the Manual.

5.9 Standard 9: Illicit Discharges

All illicit discharges to stormwater management systems are prohibited, including discharges from OWTS, and sub-drains and French drains near OWTSs that do 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.

5.10 Standard 10: Construction and Erosion Sedimentation Control

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

Standard Met

Soil Erosion and Sedimentation Control Practices have been employed to avoid and minimize impacts to abutting properties. Detailed notes have been included in the plans to ensure effective implementation of erosion and sedimentation controls. The soil erosion and sedimentation control measures will be installed prior to the initiation of construction activities and maintained throughout construction. Compost filter socks are proposed within the site. Once established, these measures will be monitored daily until construction activities are complete. The limits of clearing, grading, and disturbance will be kept to a minimum within the proposed area of construction. All areas outside of these limits, as depicted on the project site plans, will be totally undisturbed, to remain in a completely natural condition.

5.11 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 has been submitted under separate cover.

6 DRAINAGE ANALYSIS

6.1 Methodology

The comparative pre-development vs. post-development hydrologic analysis was performed using the Soil Conservation Service, Technical Release 20 and 55 (TR-20 and TR-55) methodology. The 1-, 2-, 10-, 25-, and 100-year storm events were modeled for a 24-hour, Type III storm utilizing HydroCAD version 10.00. As shown in the following sections, the proposed stormwater management system has been designed to attenuate peak stormwater runoff rates and reduce stormwater volumes leaving the site for the 1-, 2-, 10-, 25-, and 100-year design storm events. HydroCAD modeling reports for the existing and proposed conditions can be found in Appendices D and F, respectfully.

6.2 Existing Conditions

The existing site is composed of three (3) subwatershed areas, discharging to three (3) design points, as shown on the Existing Conditions Watershed Map included in Appendix B.

Design Point 1 – Northeastern Lower Gradient

Watershed 1: Consists of 74,984 sq. ft. of area, consisting primarily of wooded/vegetated cover along the northern portion of the project area. Accordingly, this watershed has been assigned a Time of Concentration (T_c) of 30.4 minutes and a Composite Runoff Number (CN) of 59. Stormwater runoff from this watershed area is conveyed via overland flow to a lower gradient, northeast of the project site.

Design Point 2 – Route 295

Watershed 2: Consists of 141,816 sq. ft. of area, consisting primarily of wooded/vegetated cover along the western portion of the project area. Accordingly, this watershed has been assigned a T_c of 30.2 minutes and a CN of 58. Stormwater runoff from this watershed area is conveyed via overland flow to a lower gradient within the Route 295 right-of-way, west of the project site.

Design Point 3 – Southeastern Lower Gradient

Watershed 3: Consists of 26,588 sq. ft. of area, consisting of the existing residential developments along New London Avenue, including existing private road, residential rooftop, hard landscape features, and lawn areas. Accordingly, this watershed has been assigned a minimum T_c of 6.0

minutes and a CN of 80. Stormwater runoff from this watershed area is conveyed via overland flow to a lower gradient, southeast of the project site.

6.3 Proposed Conditions

The Applicant is proposing to construct a 14-lot residential subdivision (12 new lots) with roadway extension, utility improvements and stormwater management. In general, the proposed drainage patterns mimic existing conditions, discharging to the same design points as under existing conditions. Under proposed conditions, the eastern portion of the project site will be directed to a stormwater management system, consisting of a sediment forebay and bioretention basin, which discharges to Design Point 1. The western portion of the project site will be directed to a stormwater management system, consisting of a Stormceptor for pre-treatment and a StormCapture system, which discharges to Design Point 2. The remaining portion of the project site is outside of proposed improvements, ultimately discharging to Design Point 3. Water quality and volume control are achieved by means of infiltration practices and detention practices. The Proposed Watershed Map is included in Appendix D.

Design Point 1 – Northeastern Lower Gradient

Subwatershed 1A: Under proposed conditions, Watershed 1 has been divided into Subwatersheds 1A and 1B. Subwatershed 1A consists primarily of wooded/vegetated areas associated with the backyards of proposed Lots 1 through 5 and a portion of existing residential lots on Briarwood Avenue. Accordingly, Subwatershed 1A has been assigned a T_c of 30.4 minutes and a CN of 59. Stormwater runoff from this subwatershed area is conveyed via overland flow to a lower gradient, northeast of the project site.

Subwatershed 1B: Consists of a portion of the new roadway, proposed dwellings, driveways, and lawn areas associated with proposed Lots 1 through 5, and Lot 12 (driveway only). Accordingly, this Subwatershed area has been assigned a T_c of 13.9 minutes and a CN of 81. Stormwater runoff associated with each rooftop is directed to its own underground infiltration chamber system (UIC). Stormwater runoff associated with the proposed driveway and roadway extension sheet flows to a sediment forebay and bioretention basin. Excess stormwater runoff is conveyed via an emergency spillway towards Design Point 1, mimicking existing conditions.

Design Point 2 – Route 295

Subwatershed 2A: Under proposed conditions, Subwatershed 2 has been divided into Subwatersheds 2A and 2B. Subwatershed 2A consists primarily of areas of site improvements associated with proposed Lots 6 and 7 and a portion of the new roadway. Accordingly, Subwatershed 2A has been assigned a T_c of 29.6 minutes and a CN of 73. Stormwater runoff from this subwatershed area is conveyed via overland flow to a Stormceptor for pre-treatment and the proposed StormCapture System, which ultimately discharge to a lower gradient within the Route 295 right-of-way, west of the project site.

Subwatershed 2B: Consists primarily of rooftop and rear yards associated with proposed Lots 8 through 12. Accordingly, this Subwatershed area has been assigned a T_c of 8.4 minutes and a CN

of 58. Stormwater runoff from this Subwatershed area is conveyed via overland flow to lower gradient within the Route 295 right-of-way, west of the project site.

Design Point 3 – Southeastern Lower Gradient

Under proposed conditions, Watershed 3 has been reduced to the existing residential lot located at 1365 New London Avenue. Stormwater runoff from this watershed flows towards Design Point 3, mimicking existing conditions.

6.4 Results Summary

A runoff analysis of the pre- and post-construction conditions was completed using the TR-20 methodology and is summarized in the table below. Supporting calculations are included in Appendices E and G.

Table 4: Watershed Data

	Area (SF)	CN	Tc (min.)
Exist. Watershed 1	74,984	59	30.4
Exist. Watershed 2	141,816	58	30.2
Exist. Watershed 3	59,588	80	6.0
Existing Totals	243,388	66	--
<hr/>			
Prop. Subwatershed 1A	72,865	59	30.4
Prop. Subwatershed 1B	51,782	81	13.9
Prop. Subwatershed 2A	60,026	73	29.6
Prop. Subwatershed 2B	37,617	58	8.4
Watershed 3	21,098	76	6.0
Proposed Totals	243,388	69	--
Delta (Δ)	0	+3	--

Note: Minimum Tc = 6 minutes; Average CN is a weighted average.

As shown in Table 4 above, the overall watershed area remains unchanged when comparing existing to proposed conditions. However, under proposed conditions, the composite curve number increased due to the creation of impervious areas associated with the proposed development.

Table 5.1: Peak Discharge (cfs) to Design Point 1

	1-YR	2-YR	10-YR	25-YR	100-YR
Existing Condition	0.11	0.30	1.17	2.02	4.18
Proposed Condition	0.10	0.29	1.15	2.00	4.14
Delta (Δ)	-0.01	-0.02	-0.02	-0.02	-0.04

Note: Design Point 1 is identified as “Northeastern Lower Gradient”.

Table 5.2: Peak Discharge (cfs) to Design Point 2

	1-YR	2-YR	10-YR	25-YR	100-YR
Existing Condition	0.16	0.51	2.14	3.77	7.96
Proposed Condition	0.05	0.45	1.97	3.39	6.28
<i>Delta (Δ)</i>	-0.11	-0.06	-0.17	-0.38	-1.68

Note: Design Point 2 is identified as “Route 295”.

Table 5.3: Peak Discharge (cfs) to Design Point 3

	1-YR	2-YR	10-YR	25-YR	100-YR
Existing Condition	0.71	1.03	1.97	2.70	4.31
Proposed Condition	0.43	0.66	1.36	1.93	3.19
<i>Delta (Δ)</i>	-0.28	-0.37	-0.61	-0.77	-1.12

Note: Design Point 3 is identified as “Southeastern Lower Gradient”.

As shown in Table 5.1 through 5.3 above, via the implementation of the various BMPs proposed, the peak stormwater runoff rates realized at all design points have decreased for all design storm events when comparing the existing condition to the proposed condition.

Table 6.1: Total Runoff Volume (CF) to Design Point 1

	1-YR	2-YR	10-YR	25-YR	100-YR
Existing Condition	1,299	2,574	7,361	11,890	23,418
Proposed Condition	1,262	2,501	7,167	11,638	24,223
<i>Delta (Δ)</i>	-37	-73	-194	-252	+805

Note: Design Point 1 is identified as “Northeastern Lower Gradient”.

Table 6.2: Total Runoff Volume (CF) to Design Point 2

	1-YR	2-YR	10-YR	25-YR	100-YR
Existing Condition	2,180	4,456	13,168	21,502	42,881
Proposed Condition	505	2,143	8,472	14,803	30,613
<i>Delta (Δ)</i>	-1,675	-2,313	-4,696	-6,699	-12,268

Note: Design Point 2 is identified as “Route 295”.

Table 6.3: Total Runoff Volume (CF) to Design Point 3

	1-YR	2-YR	10-YR	25-YR	100-YR
Existing Condition	2,282	3,278	6,217	8,578	13,923
Proposed Condition	1,439	2,149	4,313	6,095	10,195
<i>Delta (Δ)</i>	-843	-1,129	-1,904	-2,483	-3,728

Note: Design Point 3 is identified as “Southeastern Lower Gradient”.

As shown in Table 6.1 through 6.3 above, via the implementation of the various BMPs proposed, the total stormwater runoff volumes realized at all design points have decreased for all design storm events when comparing the existing condition to the proposed condition. The exception being a nominal increase in total volume during the 100-year storm event to Design Point 1.

6.5 Stormwater Management Conclusions

The proposed stormwater management plan mimics existing conditions by safely conveying the site's stormwater runoff to the existing areas they presently discharge to. The stormwater management system utilizes BMPs which include a sediment forebay, a bioretention basin and numerous underground infiltration chamber systems to control and improve the quality of the stormwater runoff leaving the site as well as promoting groundwater recharge. For the 1-, 10-, 25-, and 100-year storm events, the peak stormwater runoff rates along with the total stormwater volume leaving the site have decreased from existing conditions (with the exception of the 100-year design storm event for Design Point 1). The stormwater management system as designed will not have any negative impacts to the surrounding land areas since both peak flow rates and volumes have been reduced compared to existing conditions. Because of this, the proposed design is in conformance with both the RISDISM and City Standards.

Appendix A

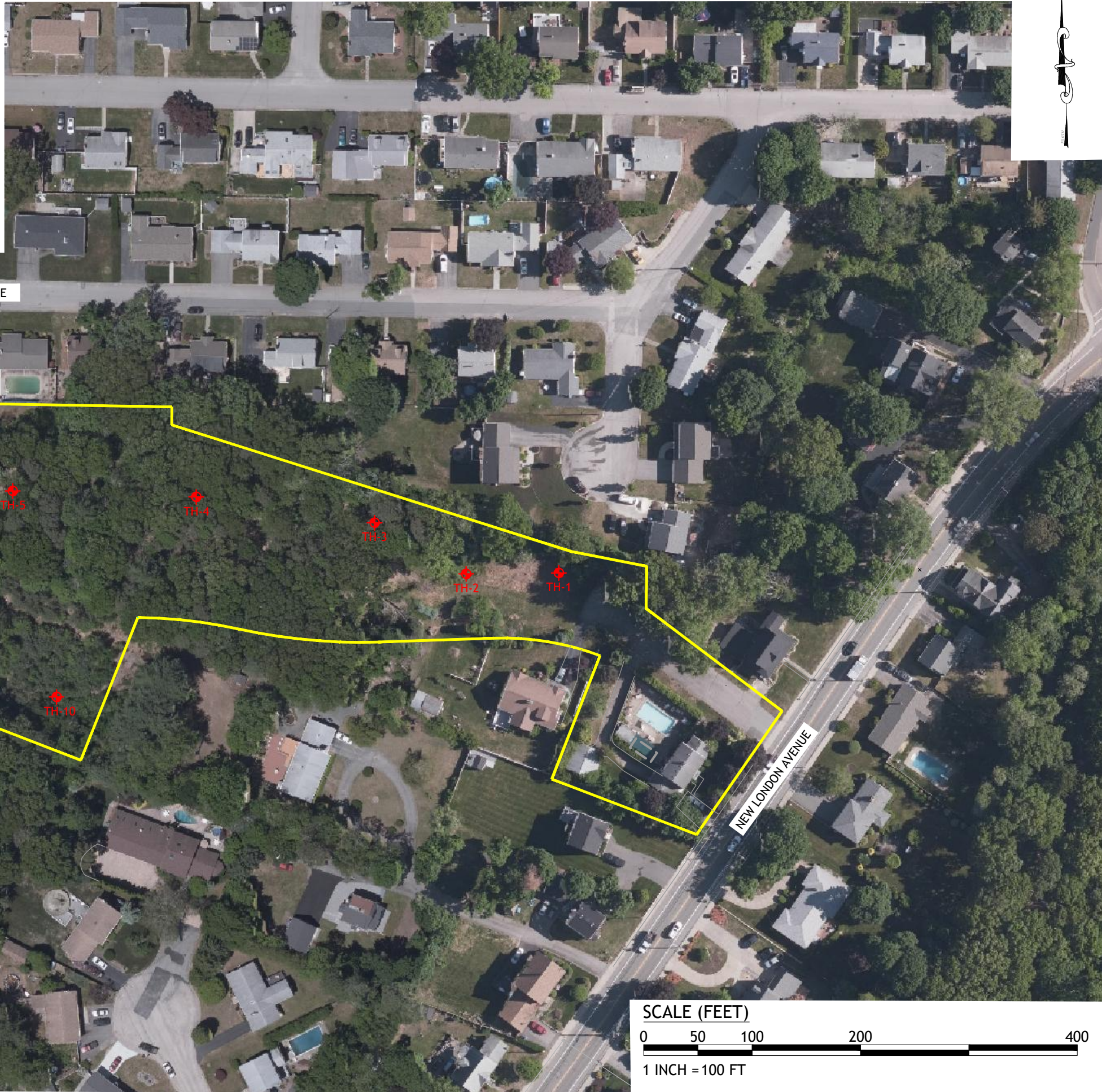
Soil Evaluation Test Hole Logs

LEGEND:

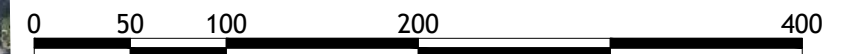
 **TH** TEST HOLE LOCATION (JCE, OCTOBER 2022)

GENERAL NOTES:

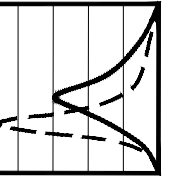
1. CLASS I PROPERTY LINE AND CLASS III TOPOGRAPHIC SURVEY COMPLETED BY E. GREENWICH SURVEYORS, 1050 MAIN STREET, EAST GREENWICH, RI 02818 IN FEBRUARY 2022.
2. TEST PIT LOCATIONS SHOWN ARE APPROXIMATE AND WERE LOCATED BY TAPING TO EXISTING SITE FEATURES.



SCALE (FEET)



1 INCH = 100 FT



JCE
 JOE CASALI ENGINEERING, INC.
 CIVIL - SITE DEVELOPMENT - TRANSPORTATION
 DRAINAGE - WETLANDS - ISDS - TRAFFIC - FLOODPLAIN
 300 POST ROAD, WARWICK, RI 02886
 (401) 944-1900 (401) 944-1313 FAX WWW.JOECASALI.COM

**A 14-LOT MAJOR SUBDIVISION
 BRIARWOOD ESTATES**
 CRANSTON, RHODE ISLAND
 AP 18/3, LOTS 1023 & 1026

REVISIONS:		
NO.	DATE	DESCRIPTION

DESIGNED BY: SD
 DRAWN BY: SD
 CHECKED BY: JAC
 DATE: OCTOBER 2022
 PROJECT NO: 21-71

STORMWATER REPORT

SUBSURFACE EXPLORATION LOCATION PLAN

SHEET 1 OF 1

Test Pit Location: See Test Pit Location Plan
 Ground Surface El. / Datum: El. 67.0' - NAVD 88
 Excavator Type: CAT 307D
 Operator: Universal Excavating

Date Start / Finish: October 13, 2022
 Conditions: Overcast and windy, 60 deg. F
 Excavator Reach: Approx. 12-feet
 JCE Rep.: Daniel R. Decesaris (RI P.E. No. 10162)

TH-1

Page 1 of 1

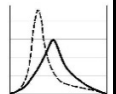
Depth (ft)	Sample Type/No.	Layer	Remarks	Soil and Rock Description	Estimated Hydraulic Conductivity	
1		TS		(0 - 4"): SILTY SAND (SM); Dark brown, dry, ~65% fine to medium sand, ~35% nonplastic fines. TOPSOIL.	NA	
2		GLACIAL DEPOSITS		(4 - 16"): WELL GRADED SAND (SW); Light brown, dry, ~85% fine to coarse sand, ~5% nonplastic fines, ~10% fine to coarse gravel.		
3				(16 - 96"): WELL GRADED SAND WITH GRAVEL (SW); Light gray/brown, dry, ~80% fine to coarse sand, ~5% nonplastic fines, ~15% fine to coarse gravel.		
4						
5						
6						
7				Iron oxide staining observed at 70-inches.		
8				Large boulder observed at 84-inches.		
9				Bottom of test hole at 96-inches. Open excavation backfilled with previously excavated material upon completion.		
10						
11						
12						

Notes:

SHWT: 70-inches
 Impervious/Limiting Layer Depth: Not Encountered

Project Name: Briarwood Estates - New London Ave, Cranston
 Project Number: 21-71

JOE CASALI ENGINEERING, INC.



Test Pit Location: See Test Pit Location Plan
 Ground Surface El. / Datum: El. 67.6' - NAVD 88
 Excavator Type: CAT 307D
 Operator: Universal Excavating

Date Start / Finish: October 13, 2022
 Conditions: Overcast and windy, 60 deg. F
 Excavator Reach: Approx. 12-feet
 JCE Rep.: Daniel R. Decesaris (RI P.E. No. 10162)

TH-2

Page 1 of 1

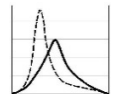
Depth (ft)	Sample Type/No.	Layer	Remarks	Soil and Rock Description	Estimated Hydraulic Conductivity
1		TS		(0 - 6"): SILTY SAND (SM); Dark brown, dry, ~65% fine to medium sand, ~35% nonplastic fines. TOPSOIL. (6 - 18"): SILTY SAND (SM); Light brown, dry, ~80% fine to coarse sand, ~15% nonplastic fines, ~5% fine to coarse gravel.	NA
2		GLACIAL DEPOSITS	Iron oxide staining observed at 65-inches.	(18 - 96"): WELL GRADED SAND WITH GRAVEL (SW); Light gray/brown, dry, ~80% fine to coarse sand, ~5% nonplastic fines, ~15% fine to coarse gravel.	
3					
4					
5					
6					
7					
8				(96 - 110"): WELL GRADED SAND (SW); Light gray/white, dry, ~100% fine to medium sand.	
9				Bottom of test hole at 110-inches. Open excavation backfilled with previously excavated material upon completion.	
10					
11					
12					

Notes:

SHWT: 65-inches
 Impervious/Limiting Layer Depth: Not Encountered

Project Name: Briarwood Estates - New London Ave, Cranston
 Project Number: 21-71

JOE CASALI ENGINEERING, INC.



Test Pit Location: See Test Pit Location Plan
 Ground Surface El. / Datum: El. 75.5' - NAVD 88
 Excavator Type: CAT 307D
 Operator: Universal Excavating

Date Start / Finish: October 13, 2022
 Conditions: Overcast and windy, 60 deg. F
 Excavator Reach: Approx. 12-feet
 JCE Rep.: Daniel R. Decesaris (RI P.E. No. 10162)

TH-3

Page 1 of 1

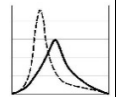
Depth (ft)	Sample Type/No.	Layer	Remarks	Soil and Rock Description	Estimated Hydraulic Conductivity
1		TS		(0 - 12"): SILTY SAND (SM); Dark brown, dry, ~65% fine to medium sand, ~35% nonplastic fines. TOPSOIL.	NA
2		GLACIAL DEPOSITS		(12 - 36"): SILTY SAND (SM); Orangish brown, dry, ~80% fine to medium sand, ~20% nonplastic fines.	
3				(36 - 48"): POORLY GRADED SAND WITH SILT (SP-SM); Light gray, dry, ~90% fine to medium sand, ~10% nonplastic fines.	
4				(48 - 120"): WELL GRADED SAND (SW); Light gray/brown, dry, ~90% fine to coarse sand, ~5% nonplastic fines, ~5% fine to coarse gravel.	
5			Heavy iron oxide staining observed at 48-inches.		
6					
7					
8					
9					
10					
11				Bottom of test hole at 120-inches. Open excavation backfilled with previously excavated material upon completion.	
12					

Notes:

SHWT: 48-inches
 Impervious/Limiting Layer Depth: Not Encountered

Project Name: Briarwood Estates - New London Ave, Cranston
 Project Number: 21-71

JOE CASALI ENGINEERING, INC.



Test Pit Location: See Test Pit Location Plan
 Ground Surface El. / Datum: El. 77.5' - NAVD 88
 Excavator Type: CAT 307D
 Operator: Universal Excavating

Date Start / Finish: October 13, 2022
 Conditions: Overcast and windy, 60 deg. F
 Excavator Reach: Approx. 12-feet
 JCE Rep.: Daniel R. Decesaris (RI P.E. No. 10162)

TH-4

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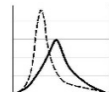
Depth (ft)	Sample Type/No.	Layer	Remarks	Soil and Rock Description	Estimated Hydraulic Conductivity
1		TS		(0 - 12"): SILTY SAND (SM); Dark brown, dry, ~65% fine to medium sand, ~35% nonplastic fines. TOPSOIL.	NA
2		GLACIAL DEPOSITS	Heavy iron oxide staining observed at 60-inches.	(12 - 42"): SILTY SAND (SM); Orangish brown, dry, ~80% fine to medium sand, ~20% nonplastic fines.	
3				(42 - 60"): POORLY GRADED SAND WITH SILT (SP-SM); Light gray, dry, ~90% fine to medium sand, ~10% nonplastic fines.	
4				(60 - 120"): WELL GRADED SAND WITH GRAVEL (SW); Light gray/brown, dry, ~60% fine to coarse sand, ~5% nonplastic fines, ~35% fine to coarse gravel.	
5					
6					
7					
8					
9					
10					
11				Bottom of test hole at 120-inches. Open excavation backfilled with previously excavated material upon completion.	
12					

Notes:

SHWT: 60-inches
 Impervious/Limiting Layer Depth: Not Encountered

Project Name: Briarwood Estates - New London Ave, Cranston
 Project Number: 21-71

JOE CASALI ENGINEERING, INC.



Test Pit Location: See Test Pit Location Plan
 Ground Surface El. / Datum: El. 77.0' - NAVD 88
 Excavator Type: CAT 307D
 Operator: Universal Excavating

Date Start / Finish: October 13, 2022
 Conditions: Overcast and windy, 60 deg. F
 Excavator Reach: Approx. 12-feet
 JCE Rep.: Daniel R. Decesaris (RI P.E. No. 10162)

TH-5

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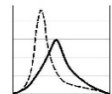
Depth (ft)	Sample Type/No.	Layer	Remarks	Soil and Rock Description	Estimated Hydraulic Conductivity
1		TS		(0 - 12"): SILTY SAND (SM); Dark brown, dry, ~65% fine to medium sand, ~35% nonplastic fines. TOPSOIL.	NA
2		GLACIAL DEPOSITS	Heavy iron oxide staining observed at 60-inches.	(12 - 42"): SILTY SAND (SM); Orangish brown, dry, ~80% fine to medium sand, ~20% nonplastic fines.	
3				(42 - 60"): POORLY GRADED SAND WITH SILT (SP-SM); Light gray, dry, ~90% fine to medium sand, ~10% nonplastic fines.	
4				(60 - 120"): WELL GRADED SAND WITH GRAVEL (SW); Light gray/brown, dry, ~60% fine to coarse sand, ~5% nonplastic fines, ~35% fine to coarse gravel.	
5					
6					
7					
8					
9					
10					
11				Bottom of test hole at 120-inches. Open excavation backfilled with previously excavated material upon completion.	
12					

Notes:

SHWT: 60-inches
 Impervious/Limiting Layer Depth: Not Encountered

Project Name: Briarwood Estates - New London Ave, Cranston
 Project Number: 21-71

JOE CASALI ENGINEERING, INC.



Test Pit Location: See Test Pit Location Plan
 Ground Surface El. / Datum: El. 76.3' - NAVD 88
 Excavator Type: CAT 307D
 Operator: Universal Excavating

Date Start / Finish: October 13, 2022
 Conditions: Overcast and windy, 60 deg. F
 Excavator Reach: Approx. 12-feet
 JCE Rep.: Daniel R. Decesaris (RI P.E. No. 10162)

TH-6

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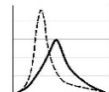
Depth (ft)	Sample Type/No.	Layer	Remarks	Soil and Rock Description	Estimated Hydraulic Conductivity
1		TS		(0 - 12"): SILTY SAND (SM); Dark brown, dry, ~65% fine to medium sand, ~35% nonplastic fines. TOPSOIL.	NA
2		GLACIAL DEPOSITS		(12 - 36"): SILTY SAND (SM); Orangish brown, dry, ~80% fine to medium sand, ~20% nonplastic fines.	
3				(36 - 96"): WELL GRADED SAND WITH GRAVEL (SW); Light gray/brown, dry, ~60% fine to coarse sand, ~5% nonplastic fines, 35% fine to coarse gravel.	
4				Light iron oxide staining observed at 60-inches.	
5				(96 - 110"): WELL GRADED SAND (SW); Light gray/white, dry, ~95% fine to medium sand, ~5% nonplastic fines.	
6					
7					
8					
9					
10				Bottom of test hole at 110-inches. Open excavation backfilled with previously excavated material upon completion.	
11					
12					

Notes:

SHWT: 60-inches
 Impervious/Limiting Layer Depth: Not Encountered

Project Name: Briarwood Estates - New London Ave, Cranston
 Project Number: 21-71

JOE CASALI ENGINEERING, INC.



Test Pit Location: See Test Pit Location Plan
Ground Surface El. / Datum: El. 77.1' - NAVD 88
Excavator Type: CAT 307D
Operator: Universal Excavating

Date Start / Finish: October 13, 2022
Conditions: Overcast and windy, 60 deg. F
Excavator Reach: Approx. 12-feet
JCE Rep.: Daniel R. Decesaris (RI P.E. No. 10162)

TH-7

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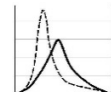
Depth (ft)	Sample Type/No.	Layer	Remarks	Soil and Rock Description	Estimated Hydraulic Conductivity
1		TS		(0 - 12"): SILTY SAND (SM); Dark brown, dry, ~65% fine to medium sand, ~35% nonplastic fines. TOPSOIL.	NA
2		FILL		(12 - 60"): SILTY SAND (SM); Light brown, dry, ~60% fine to medium sand, ~30% nonplastic fines, ~10% fine to coarse gravel.	
3					
4					
5		BTS		BURIED TOPSOIL; ROOTS	
6				(64 - 80"): SILTY SAND (SM); Orangish brown, dry, ~80% fine to medium sand, ~20% nonplastic fines.	
7		GLACIAL DEPOSITS		(80 - 108"): WELL GRADED SAND WITH GRAVEL (SW); Light gray/brown, dry, ~60% fine to coarse sand, ~5% nonplastic fines, 35% fine to coarse gravel.	
8					
9					
10				Bottom of test hole at 110-inches. Open excavation backfilled with previously excavated material upon completion.	
11					
12					

Notes:

SHWT: Not Encountered
Impervious/Limiting Layer Depth: Not Encountered

Project Name: Briarwood Estates - New London Ave, Cranston
Project Number: 21-71

JOE CASALI ENGINEERING, INC.



Test Pit Location: See Test Pit Location Plan
 Ground Surface El. / Datum: El. 77.2' - NAVD 88
 Excavator Type: CAT 307D
 Operator: Universal Excavating

Date Start / Finish: October 13, 2022
 Conditions: Overcast and windy, 60 deg. F
 Excavator Reach: Approx. 12-feet
 JCE Rep.: Daniel R. Decesaris (RI P.E. No. 10162)

TH-8

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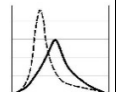
Depth (ft)	Sample Type/No.	Layer	Remarks	Soil and Rock Description	Estimated Hydraulic Conductivity
1		TS		(0 - 12"): SILTY SAND (SM); Dark brown, dry, ~65% fine to medium sand, ~35% nonplastic fines. TOPSOIL.	NA
2		FILL		(12 - 60"): SILTY SAND (SM); Light brown, dry, ~60% fine to medium sand, ~30% nonplastic fines, ~10% fine to coarse gravel.	
3					
4		BTS		BURIED TOPSOIL; ROOTS	
5					
6		GLACIAL DEPOSITS		(64 - 80"): SILTY SAND (SM); Orangish brown, dry, ~80% fine to medium sand, ~20% nonplastic fines.	
7				(80 - 108"): WELL GRADED SAND WITH GRAVEL (SW); Light gray/brown, dry, ~60% fine to coarse sand, ~5% nonplastic fines, 35% fine to coarse gravel.	
8					
9				Bottom of test hole at 110-inches. Open excavation backfilled with previously excavated material upon completion.	
10					
11					
12					

Notes: Large dump piles of construction debris within area of test pit; asphalt, concrete blocks, trash/debris. Test pit taken at grade between piles.

SHWT: Not Encountered
Impervious/Limiting Layer Depth: Not Encountered

Project Name: Briarwood Estates - New London Ave, Cranston
Project Number: 21-71

JOE CASALI ENGINEERING, INC.



Test Pit Location: See Test Pit Location Plan
 Ground Surface El. / Datum: El. 75.0' - NAVD 88
 Excavator Type: CAT 307D
 Operator: Universal Excavating

Date Start / Finish: October 13, 2022
 Conditions: Overcast and windy, 60 deg. F
 Excavator Reach: Approx. 12-feet
 JCE Rep.: Daniel R. Decesaris (RI P.E. No. 10162)

TH-9

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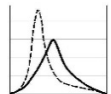
Depth (ft)	Sample Type/No.	Layer	Remarks	Soil and Rock Description	Estimated Hydraulic Conductivity
1		TS		(0 - 24"): SILTY SAND (SM); Dark brown, dry, ~65% fine to medium sand, ~35% nonplastic fines. TOPSOIL.	NA
2		GLACIAL DEPOSITS		(24 - 36"): SILTY SAND (SM); Orangish brown, dry, ~75% fine to medium sand, ~25% nonplastic fines.	
3				(36 - 84"): POORLY GRADED SAND WITH GRAVEL (SP); Light gray, dry, ~80% fine to medium sand, ~5% nonplastic fines, ~15% fine to coarse gravel.	
4					
5					
6					
7				(84-90"): POORLY GRADED SAND WITH GRAVEL (SP); Light gray/white, dry, ~95% fine sand, ~5% nonplastic fines.	
8				(90-120"): WELL GRADED SAND WITH GRAVEL (SW); Light gray, dry, ~60% fine to coarse sand, ~5% nonplastic fines, ~35% fine to coarse gravel.	
9					
10					
11				Bottom of test hole at 120-inches. Open excavation backfilled with previously excavated material upon completion.	
12					

Notes:

SHWT: Not Encountered
 Impervious/Limiting Layer Depth: Not Encountered

Project Name: Briarwood Estates - New London Ave, Cranston
 Project Number: 21-71

JOE CASALI ENGINEERING, INC.



Test Pit Location: See Test Pit Location Plan
 Ground Surface El. / Datum: El. 76.0' - NAVD 88
 Excavator Type: CAT 307D
 Operator: Universal Excavating

Date Start / Finish: October 13, 2022
 Conditions: Overcast and windy, 60 deg. F
 Excavator Reach: Approx. 12-feet
 JCE Rep.: Daniel R. Decesaris (RI P.E. No. 10162)

TH-10

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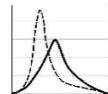
Depth (ft)	Sample Type/No.	Layer	Remarks	Soil and Rock Description	Estimated Hydraulic Conductivity
1		TS		(0 - 6"): SILTY SAND (SM); Dark brown, dry, ~65% fine to medium sand, ~35% nonplastic fines. TOPSOIL.	NA
2		GLACIAL DEPOSITS		(6 - 36"): SILTY SAND (SM); Orangish brown, dry, ~75% fine to medium sand, ~25% nonplastic fines.	
3					
4			Iron oxide staining observed at 36-inches.	(36 - 108"): WELL GRADED SAND WITH GRAVEL (SW); Light gray/brown, dry, ~60% fine to coarse sand, ~5% nonplastic fines, ~35% fine to coarse gravel.	
5					
6					
7					
8					
9					
10				Bottom of test hole at 108-inches. Open excavation backfilled with previously excavated material upon completion.	
11					
12					

Notes:

SHWT: 36-inches
 Impervious/Limiting Layer Depth: Not Encountered

Project Name: Briarwood Estates - New London Ave, Cranston
 Project Number: 21-71

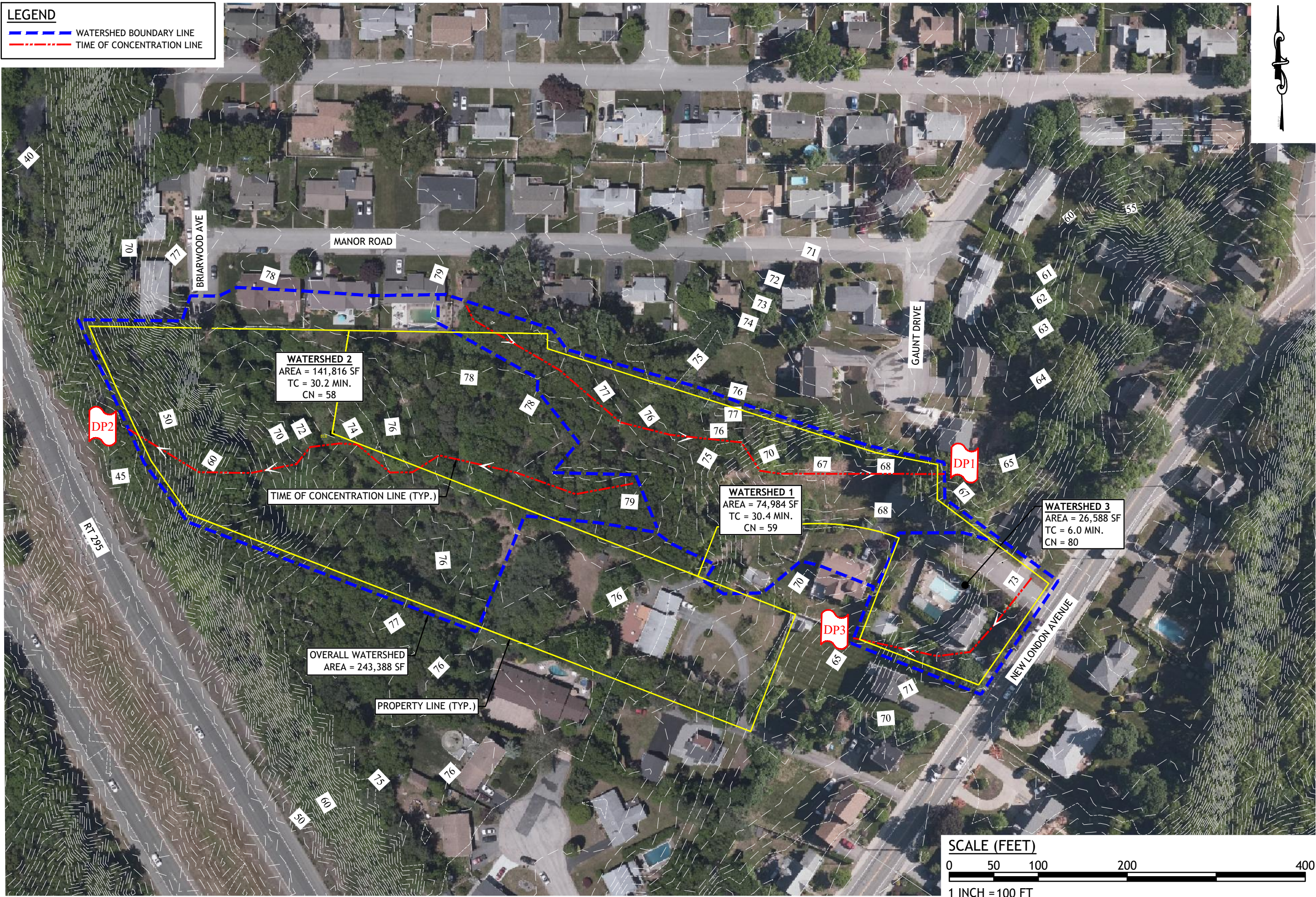
JOE CASALI ENGINEERING, INC.



Appendix B

Existing Conditions Watershed Map

LEGEND
 - - - - - WATERSHED BOUNDARY LINE
 - - - - - TIME OF CONCENTRATION LINE



WATERSHED 2
 AREA = 141,816 SF
 TC = 30.2 MIN.
 CN = 58

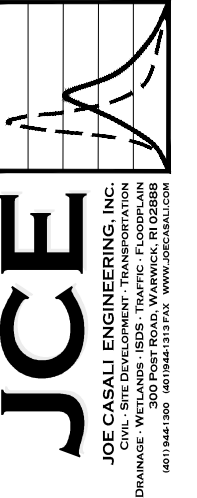
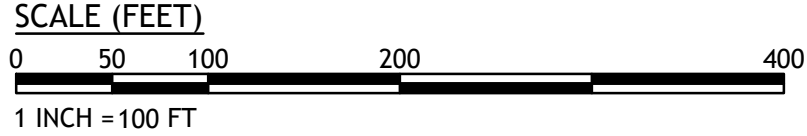
WATERSHED 1
 AREA = 74,984 SF
 TC = 30.4 MIN.
 CN = 59

WATERSHED 3
 AREA = 26,588 SF
 TC = 6.0 MIN.
 CN = 80

OVERALL WATERSHED
 AREA = 243,388 SF

TIME OF CONCENTRATION LINE (TYP.)

PROPERTY LINE (TYP.)



**A 14-LOT MAJOR SUBDIVISION
 BRIARWOOD ESTATES**
 CRANSTON, RHODE ISLAND
 AP 18/3, LOTS 1023 & 1026

REVISIONS:

NO.	DATE	DESCRIPTION

DESIGNED BY: SD
 DRAWN BY: SD
 CHECKED BY: JAC
 DATE: FEBRUARY 2023
 PROJECT NO: 21-71

STORMWATER REPORT

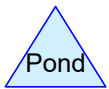
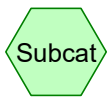
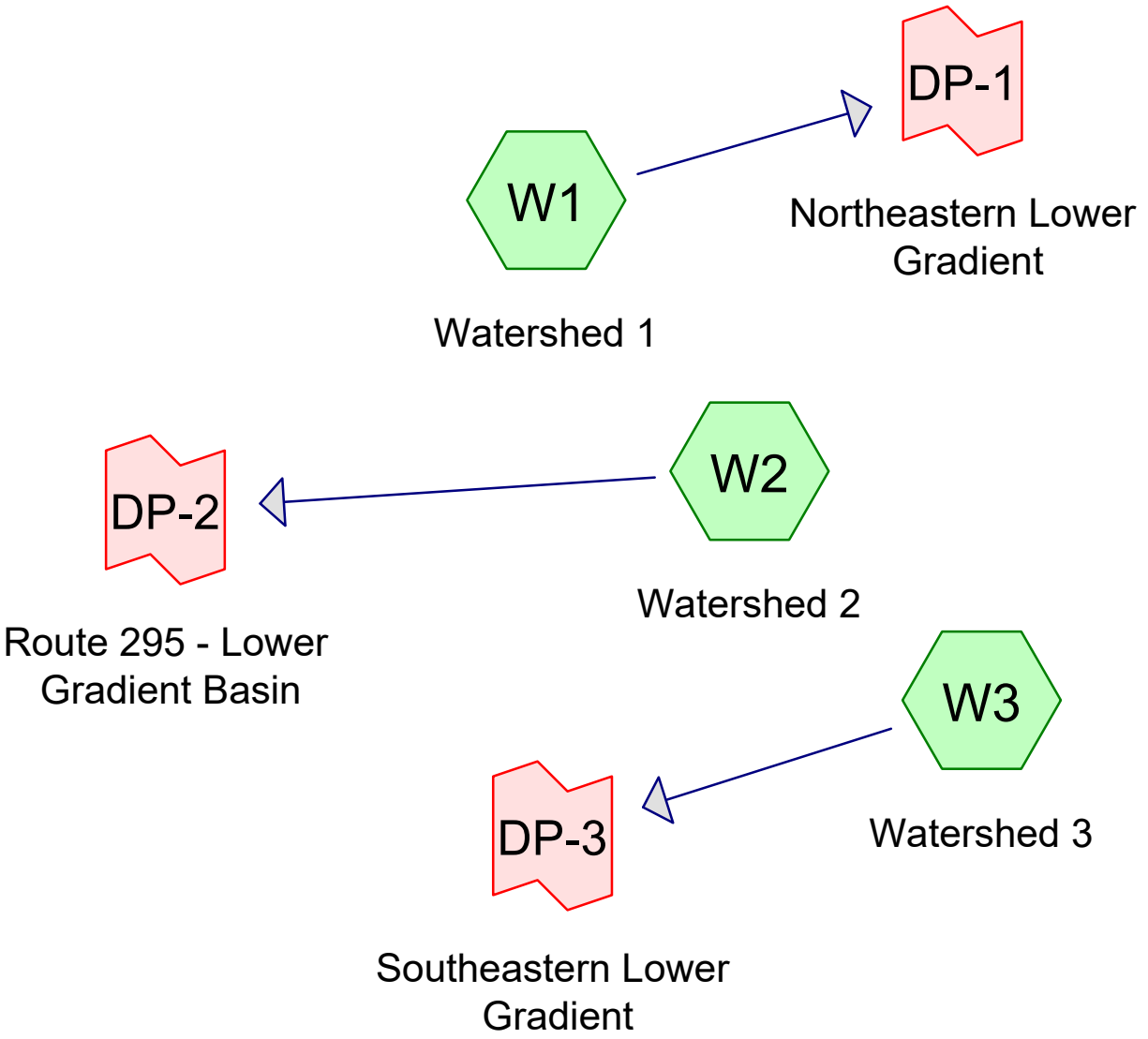
**EXISTING
 CONDITIONS
 WATERSHED
 MAP**

**SHEET
 1 OF 1**

Q:\21-71 Rudy Procaccianti\Drainage\Watershed Maps\New London Ave [Watershed Map] - R4.dwg, Feb. 16, 2023 10:05am

Appendix C

Existing Conditions HydroCAD Calculations



Routing Diagram for New London Ave - Existing - {RTCDEM}
 Prepared by Joe Casali Engineering, Inc., Printed 4/6/2023
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New London Ave - Existing - {RTCDDEM}

Prepared by Joe Casali Engineering, Inc.

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
43,663	61	>75% Grass cover, Good, HSG B (W1, W2, W3)
2,822	98	Impervious, HSG B (W1)
21,406	98	Paved parking, HSG B (W2, W3)
175,497	55	Woods, Good, HSG B (W1, W2)
243,388	60	TOTAL AREA

New London Ave - Existing - {RTCDEM}

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

Prepared by Joe Casali Engineering, Inc.

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Time span=0.00-28.00 hrs, dt=0.05 hrs, 561 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentW1: Watershed 1

Runoff Area=74,984 sf 3.76% Impervious Runoff Depth=0.21"
Flow Length=606' Tc=30.4 min CN=59 Runoff=0.11 cfs 1,299 cf

SubcatchmentW2: Watershed 2

Runoff Area=141,816 sf 5.35% Impervious Runoff Depth=0.18"
Flow Length=598' Tc=27.6 min CN=58 Runoff=0.16 cfs 2,180 cf

SubcatchmentW3: Watershed 3

Runoff Area=26,588 sf 51.99% Impervious Runoff Depth=1.03"
Tc=6.0 min CN=80 Runoff=0.71 cfs 2,282 cf

Link DP-1: Northeastern Lower Gradient

Inflow=0.11 cfs 1,299 cf
Primary=0.11 cfs 1,299 cf

Link DP-2: Route 295 - Lower Gradient Basin

Inflow=0.16 cfs 2,180 cf
Primary=0.16 cfs 2,180 cf

Link DP-3: Southeastern Lower Gradient

Inflow=0.71 cfs 2,282 cf
Primary=0.71 cfs 2,282 cf

Total Runoff Area = 243,388 sf Runoff Volume = 5,761 cf Average Runoff Depth = 0.28"
90.05% Pervious = 219,160 sf 9.95% Impervious = 24,228 sf

New London Ave - Existing - {RTCDDEM}

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

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Summary for Subcatchment W1: Watershed 1

Runoff = 0.11 cfs @ 12.70 hrs, Volume= 1,299 cf, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
* 2,822	98	Impervious, HSG B
25,198	61	>75% Grass cover, Good, HSG B
46,964	55	Woods, Good, HSG B
74,984	59	Weighted Average
72,162	57	96.24% Pervious Area
2,822	98	3.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.7	100	0.0150	0.07		Sheet Flow, SEG A Woods: Light underbrush n= 0.400 P2= 3.30"
5.9	324	0.0339	0.92		Shallow Concentrated Flow, SEG B Woodland Kv= 5.0 fps
0.8	182	0.0600	3.67		Shallow Concentrated Flow, SEG C Grassed Waterway Kv= 15.0 fps
30.4	606	Total			

New London Ave - Existing - {RTCDDEM}

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

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Summary for Subcatchment W2: Watershed 2

Runoff = 0.16 cfs @ 12.68 hrs, Volume= 2,180 cf, Depth= 0.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
7,584	98	Paved parking, HSG B
5,699	61	>75% Grass cover, Good, HSG B
128,533	55	Woods, Good, HSG B
141,816	58	Weighted Average
134,232	55	94.65% Pervious Area
7,584	98	5.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	100	0.0200	0.08		Sheet Flow, SEG A
					Woods: Light underbrush n= 0.400 P2= 3.30"
6.5	498	0.0660	1.28		Shallow Concentrated Flow, SEG B
					Woodland Kv= 5.0 fps
27.6	598	Total			

New London Ave - Existing - {RTCDEM}

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

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Summary for Subcatchment W3: Watershed 3

Runoff = 0.71 cfs @ 12.10 hrs, Volume= 2,282 cf, Depth= 1.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
13,822	98	Paved parking, HSG B
12,766	61	>75% Grass cover, Good, HSG B
26,588	80	Weighted Average
12,766	61	48.01% Pervious Area
13,822	98	51.99% Impervious Area

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

Summary for Link DP-1: Northeastern Lower Gradient

Inflow Area = 74,984 sf, 3.76% Impervious, Inflow Depth = 0.21" for 1-Year event
Inflow = 0.11 cfs @ 12.70 hrs, Volume= 1,299 cf
Primary = 0.11 cfs @ 12.70 hrs, Volume= 1,299 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-2: Route 295 - Lower Gradient Basin

Inflow Area = 141,816 sf, 5.35% Impervious, Inflow Depth = 0.18" for 1-Year event
Inflow = 0.16 cfs @ 12.68 hrs, Volume= 2,180 cf
Primary = 0.16 cfs @ 12.68 hrs, Volume= 2,180 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-3: Southeastern Lower Gradient

Inflow Area = 26,588 sf, 51.99% Impervious, Inflow Depth = 1.03" for 1-Year event
Inflow = 0.71 cfs @ 12.10 hrs, Volume= 2,282 cf
Primary = 0.71 cfs @ 12.10 hrs, Volume= 2,282 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

New London Ave - Existing - {RTCDEM}

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

Prepared by Joe Casali Engineering, Inc.

Printed 4/6/2023

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Summary for Subcatchment W1: Watershed 1

Runoff = 1.17 cfs @ 12.49 hrs, Volume= 7,361 cf, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
* 2,822	98	Impervious, HSG B
25,198	61	>75% Grass cover, Good, HSG B
46,964	55	Woods, Good, HSG B
74,984	59	Weighted Average
72,162	57	96.24% Pervious Area
2,822	98	3.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.7	100	0.0150	0.07		Sheet Flow, SEG A
					Woods: Light underbrush n= 0.400 P2= 3.30"
5.9	324	0.0339	0.92		Shallow Concentrated Flow, SEG B
					Woodland Kv= 5.0 fps
0.8	182	0.0600	3.67		Shallow Concentrated Flow, SEG C
					Grassed Waterway Kv= 15.0 fps
30.4	606	Total			

Summary for Subcatchment W2: Watershed 2

Runoff = 2.14 cfs @ 12.45 hrs, Volume= 13,168 cf, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
7,584	98	Paved parking, HSG B
5,699	61	>75% Grass cover, Good, HSG B
128,533	55	Woods, Good, HSG B
141,816	58	Weighted Average
134,232	55	94.65% Pervious Area
7,584	98	5.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	100	0.0200	0.08		Sheet Flow, SEG A
					Woods: Light underbrush n= 0.400 P2= 3.30"
6.5	498	0.0660	1.28		Shallow Concentrated Flow, SEG B
					Woodland Kv= 5.0 fps
27.6	598	Total			

Summary for Subcatchment W3: Watershed 3

Runoff = 1.97 cfs @ 12.09 hrs, Volume= 6,217 cf, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
13,822	98	Paved parking, HSG B
12,766	61	>75% Grass cover, Good, HSG B
26,588	80	Weighted Average
12,766	61	48.01% Pervious Area
13,822	98	51.99% Impervious Area

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

Summary for Link DP-1: Northeastern Lower Gradient

Inflow Area = 74,984 sf, 3.76% Impervious, Inflow Depth = 1.18" for 10-Year event
 Inflow = 1.17 cfs @ 12.49 hrs, Volume= 7,361 cf
 Primary = 1.17 cfs @ 12.49 hrs, Volume= 7,361 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-2: Route 295 - Lower Gradient Basin

Inflow Area = 141,816 sf, 5.35% Impervious, Inflow Depth = 1.11" for 10-Year event
 Inflow = 2.14 cfs @ 12.45 hrs, Volume= 13,168 cf
 Primary = 2.14 cfs @ 12.45 hrs, Volume= 13,168 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-3: Southeastern Lower Gradient

Inflow Area = 26,588 sf, 51.99% Impervious, Inflow Depth = 2.81" for 10-Year event
 Inflow = 1.97 cfs @ 12.09 hrs, Volume= 6,217 cf
 Primary = 1.97 cfs @ 12.09 hrs, Volume= 6,217 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

New London Ave - Existing - {RTCDEM}

Type III 24-hr WQV Rainfall=1.20"

Prepared by Joe Casali Engineering, Inc.

Printed 4/6/2023

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Summary for Subcatchment W1: Watershed 1

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

	Area (sf)	CN	Description
*	2,822	98	Impervious, HSG B
	25,198	61	>75% Grass cover, Good, HSG B
	46,964	55	Woods, Good, HSG B
	74,984	59	Weighted Average
	72,162	57	96.24% Pervious Area
	2,822	98	3.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.7	100	0.0150	0.07		Sheet Flow, SEG A
					Woods: Light underbrush n= 0.400 P2= 3.30"
5.9	324	0.0339	0.92		Shallow Concentrated Flow, SEG B
					Woodland Kv= 5.0 fps
0.8	182	0.0600	3.67		Shallow Concentrated Flow, SEG C
					Grassed Waterway Kv= 15.0 fps
30.4	606	Total			

Summary for Subcatchment W2: Watershed 2

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

	Area (sf)	CN	Description
	7,584	98	Paved parking, HSG B
	5,699	61	>75% Grass cover, Good, HSG B
	128,533	55	Woods, Good, HSG B
	141,816	58	Weighted Average
	134,232	55	94.65% Pervious Area
	7,584	98	5.35% Impervious Area

New London Ave - Existing - {RTCDEM}

Type III 24-hr WQV Rainfall=1.20"

Prepared by Joe Casali Engineering, Inc.

Printed 4/6/2023

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.1	100	0.0200	0.08		Sheet Flow, SEG A
					Woods: Light underbrush n= 0.400 P2= 3.30"
6.5	498	0.0660	1.28		Shallow Concentrated Flow, SEG B
					Woodland Kv= 5.0 fps
27.6	598	Total			

Summary for Subcatchment W3: Watershed 3

Runoff = 0.06 cfs @ 12.14 hrs, Volume= 339 cf, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
13,822	98	Paved parking, HSG B
12,766	61	>75% Grass cover, Good, HSG B
26,588	80	Weighted Average
12,766	61	48.01% Pervious Area
13,822	98	51.99% Impervious Area

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

Summary for Link DP-1: Northeastern Lower Gradient

Inflow Area = 74,984 sf, 3.76% Impervious, Inflow Depth = 0.00" for WQV event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-2: Route 295 - Lower Gradient Basin

Inflow Area = 141,816 sf, 5.35% Impervious, Inflow Depth = 0.00" for WQV event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-3: Southeastern Lower Gradient

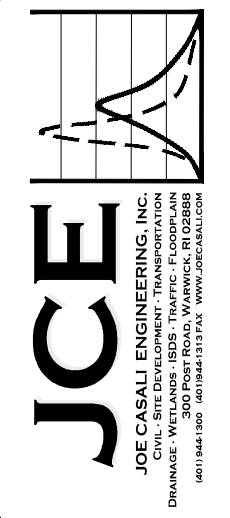
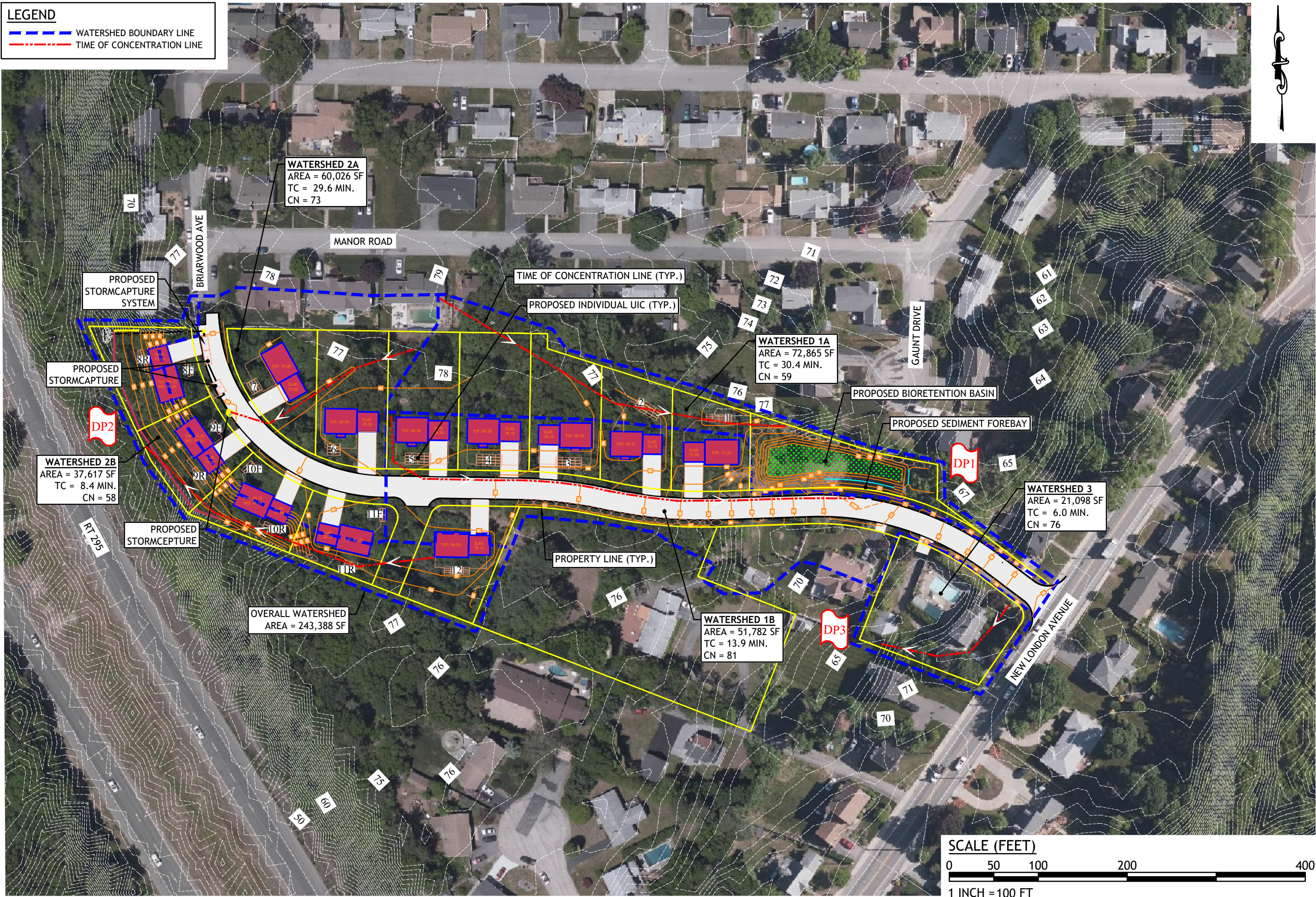
Inflow Area = 26,588 sf, 51.99% Impervious, Inflow Depth = 0.15" for WQV event
 Inflow = 0.06 cfs @ 12.14 hrs, Volume= 339 cf
 Primary = 0.06 cfs @ 12.14 hrs, Volume= 339 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Appendix D

Proposed Conditions Watershed Map

LEGEND
 - - - - - WATERSHED BOUNDARY LINE
 - - - - - TIME OF CONCENTRATION LINE



**A 14-LOT MAJOR SUBDIVISION
 BRIARWOOD ESTATES**
 CRANSTON, RHODE ISLAND
 AP 18/3, LOTS 1023 & 1026

REVISIONS:

NO.	DATE	DESCRIPTION
1	4/2023	DEM RTC

DESIGNED BY: SD
 DRAWN BY: SD
 CHECKED BY: JAC
 DATE: FEBRUARY 2023
 PROJECT NO: 21-71

STORMWATER REPORT

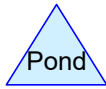
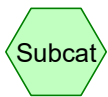
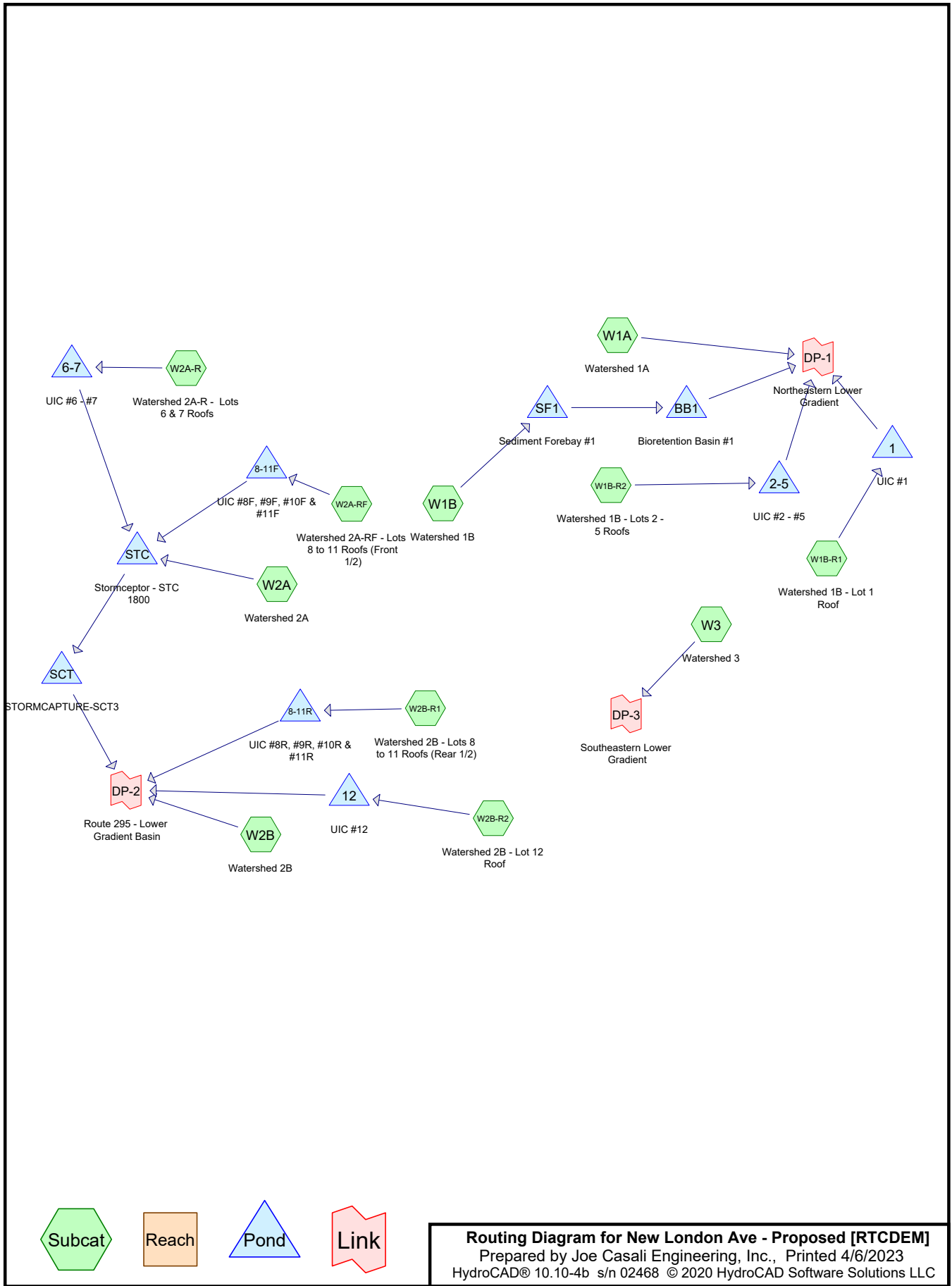
**PROPOSED
 CONDITIONS
 WATERSHED
 MAP**

**SHEET
 1 OF 1**

Q:\21-71 Rudy Procacciantti\Drainage\Watershed Maps\New London Ave [Watershed Map] [RTCD] [DEM].dwg Apr. 06, 2023 11:17am

Appendix E

Proposed Conditions HydroCAD Calculations



Routing Diagram for New London Ave - Proposed [RTCDEM]
 Prepared by Joe Casali Engineering, Inc., Printed 4/6/2023
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New London Ave - Proposed [RTCDEM]

Prepared by Joe Casali Engineering, Inc.

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Page 2

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
126,026	61	>75% Grass cover, Good, HSG B (W1A, W1B, W2A, W2B, W3)
6,490	98	Existing Impervious, HSG B (W2A)
9,783	98	Paved Driveways, HSG B (W1B, W2A)
26,453	98	Paved Roadway, HSG B (W1B, W2A)
9,154	98	Paved parking, HSG B (W1A, W3)
7,960	98	Proposed Roof, HSG B (W1B-R1, W1B-R2)
11,144	98	Proposed Roofs, HSG B (W2A-R, W2A-RF, W2B-R1, W2B-R2)
46,378	55	Woods, Good, HSG B (W1A, W2A, W2B)
243,388	71	TOTAL AREA

New London Ave - Proposed [RTCDEM]

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

Prepared by Joe Casali Engineering, Inc.

Printed 4/6/2023

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Page 3

Time span=0.00-28.00 hrs, dt=0.05 hrs, 561 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentW1A: Watershed 1A Runoff Area=72,865 sf 1.13% Impervious Runoff Depth=0.21"
Flow Length=606' Tc=30.4 min CN=59 Runoff=0.10 cfs 1,262 cf

SubcatchmentW1B: Watershed 1B Runoff Area=43,822 sf 55.16% Impervious Runoff Depth=1.09"
Flow Length=575' Tc=13.9 min CN=81 Runoff=0.97 cfs 3,971 cf

SubcatchmentW1B-R1: Watershed 1B - Runoff Area=1,592 sf 100.00% Impervious Runoff Depth=2.47"
Tc=6.0 min CN=98 Runoff=0.09 cfs 328 cf

SubcatchmentW1B-R2: Watershed 1B - Runoff Area=6,368 sf 100.00% Impervious Runoff Depth=2.47"
Tc=6.0 min CN=98 Runoff=0.37 cfs 1,311 cf

SubcatchmentW2A: Watershed 2A Runoff Area=53,658 sf 34.58% Impervious Runoff Depth=0.68"
Flow Length=238' Tc=29.6 min CN=73 Runoff=0.49 cfs 3,036 cf

SubcatchmentW2A-R: Watershed 2A-R - Runoff Area=3,184 sf 100.00% Impervious Runoff Depth=2.47"
Tc=6.0 min CN=98 Runoff=0.19 cfs 655 cf

SubcatchmentW2A-RF: Watershed 2A-RF Runoff Area=3,184 sf 100.00% Impervious Runoff Depth=2.47"
Tc=6.0 min CN=98 Runoff=0.19 cfs 655 cf

SubcatchmentW2B: Watershed 2B Runoff Area=32,841 sf 0.00% Impervious Runoff Depth=0.18"
Flow Length=365' Tc=8.4 min CN=58 Runoff=0.05 cfs 505 cf

SubcatchmentW2B-R1: Watershed 2B - Runoff Area=3,184 sf 100.00% Impervious Runoff Depth=2.47"
Tc=6.0 min CN=98 Runoff=0.19 cfs 655 cf

SubcatchmentW2B-R2: Watershed 2B - Runoff Area=1,592 sf 100.00% Impervious Runoff Depth=2.47"
Tc=6.0 min CN=98 Runoff=0.09 cfs 328 cf

SubcatchmentW3: Watershed 3 Runoff Area=21,098 sf 39.49% Impervious Runoff Depth=0.82"
Tc=6.0 min CN=76 Runoff=0.43 cfs 1,439 cf

Pond 1: UIC #1 Peak Elev=72.52' Storage=76 cf Inflow=0.09 cfs 328 cf
Discarded=0.02 cfs 328 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 328 cf

Pond 2-5: UIC #2 - #5 Peak Elev=72.37' Storage=227 cf Inflow=0.37 cfs 1,311 cf
Discarded=0.11 cfs 1,311 cf Primary=0.00 cfs 0 cf Outflow=0.11 cfs 1,311 cf

Pond 6-7: UIC #6 - #7 Peak Elev=74.75' Storage=172 cf Inflow=0.19 cfs 655 cf
Discarded=0.03 cfs 655 cf Primary=0.00 cfs 0 cf Outflow=0.03 cfs 655 cf

Pond 8-11F: UIC #8F, #9F, #10F & #11F Peak Elev=72.68' Storage=160 cf Inflow=0.19 cfs 655 cf
Discarded=0.04 cfs 655 cf Primary=0.00 cfs 0 cf Outflow=0.04 cfs 655 cf

Pond 8-11R: UIC #8R, #9R, #10R & #11R Peak Elev=72.48' Storage=127 cf Inflow=0.19 cfs 655 cf
Discarded=0.05 cfs 655 cf Primary=0.00 cfs 0 cf Outflow=0.05 cfs 655 cf

New London Ave - Proposed [RTCDEM]

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

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Pond 12: UIC #12

Peak Elev=72.52' Storage=76 cf Inflow=0.09 cfs 328 cf
Discarded=0.02 cfs 328 cf Primary=0.00 cfs 0 cf Outflow=0.02 cfs 328 cf

Pond BB1: Bioretention Basin #1

Peak Elev=63.72' Storage=886 cf Inflow=0.96 cfs 3,365 cf
Discarded=0.22 cfs 3,368 cf Primary=0.00 cfs 0 cf Outflow=0.22 cfs 3,368 cf

Pond SCT: STORMCAPTURE-SCT3

Peak Elev=72.96' Storage=1,239 cf Inflow=0.49 cfs 2,778 cf
Discarded=0.06 cfs 2,736 cf Primary=0.00 cfs 0 cf Outflow=0.06 cfs 2,736 cf

Pond SF1: Sediment Forebay #1

Peak Elev=66.91' Storage=610 cf Inflow=0.97 cfs 3,971 cf
Outflow=0.96 cfs 3,365 cf

Pond STC: Stormceptor - STC 1800

Peak Elev=73.36' Storage=256 cf Inflow=0.49 cfs 3,036 cf
15.0" Round Culvert n=0.013 L=17.0' S=0.0100 ' Outflow=0.49 cfs 2,778 cf

Link DP-1: Northeastern Lower Gradient

Inflow=0.10 cfs 1,262 cf
Primary=0.10 cfs 1,262 cf

Link DP-2: Route 295 - Lower Gradient Basin

Inflow=0.05 cfs 505 cf
Primary=0.05 cfs 505 cf

Link DP-3: Southeastern Lower Gradient

Inflow=0.43 cfs 1,439 cf
Primary=0.43 cfs 1,439 cf

Total Runoff Area = 243,388 sf Runoff Volume = 14,145 cf Average Runoff Depth = 0.70"
70.84% Pervious = 172,404 sf 29.16% Impervious = 70,984 sf

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W1A: Watershed 1A

Runoff = 0.10 cfs @ 12.70 hrs, Volume= 1,262 cf, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
25,580	55	Woods, Good, HSG B
46,463	61	>75% Grass cover, Good, HSG B
822	98	Paved parking, HSG B
72,865	59	Weighted Average
72,043	59	98.87% Pervious Area
822	98	1.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.7	100	0.0150	0.07		Sheet Flow, SEG A Woods: Light underbrush n= 0.400 P2= 3.30"
5.9	324	0.0339	0.92		Shallow Concentrated Flow, SEG B Woodland Kv= 5.0 fps
0.8	182	0.0600	3.67		Shallow Concentrated Flow, SEG C Grassed Waterway Kv= 15.0 fps
30.4	606	Total			

New London Ave - Proposed [RTCDDEM]

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

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Summary for Subcatchment W1B: Watershed 1B

Runoff = 0.97 cfs @ 12.20 hrs, Volume= 3,971 cf, Depth= 1.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.70"

	Area (sf)	CN	Description
*	19,151	98	Paved Roadway, HSG B
*	5,020	98	Paved Driveways, HSG B
	19,651	61	>75% Grass cover, Good, HSG B
	43,822	81	Weighted Average
	19,651	61	44.84% Pervious Area
	24,171	98	55.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	85	0.0100	0.13		Sheet Flow, SEG A
					Grass: Short n= 0.150 P2= 3.30"
2.7	490	0.0230	3.08		Shallow Concentrated Flow, SEG B
					Paved Kv= 20.3 fps
13.9	575	Total			

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W1B-R1: Watershed 1B - Lot 1 Roof

Runoff = 0.09 cfs @ 12.09 hrs, Volume= 328 cf, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.70"

	Area (sf)	CN	Description
*	1,592	98	Proposed Roof, HSG B
	1,592	98	100.00% Impervious Area

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

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W1B-R2: Watershed 1B - Lots 2 - 5 Roofs

Runoff = 0.37 cfs @ 12.09 hrs, Volume= 1,311 cf, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.70"

	Area (sf)	CN	Description
*	6,368	98	Proposed Roof, HSG B
	6,368	98	100.00% Impervious Area

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

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W2A: Watershed 2A

Runoff = 0.49 cfs @ 12.47 hrs, Volume= 3,036 cf, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
* 7,302	98	Paved Roadway, HSG B
* 4,763	98	Paved Driveways, HSG B
29,320	61	>75% Grass cover, Good, HSG B
5,783	55	Woods, Good, HSG B
* 6,490	98	Existing Impervious, HSG B
53,658	73	Weighted Average
35,103	60	65.42% Pervious Area
18,555	98	34.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9	100	0.0100	0.06		Sheet Flow, SEG A
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.3	85	0.0050	1.06		Shallow Concentrated Flow, SEG B
					Grassed Waterway Kv= 15.0 fps
0.4	53	0.0100	2.03		Shallow Concentrated Flow, SEG C
					Paved Kv= 20.3 fps
29.6	238	Total			

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W2A-R: Watershed 2A-R - Lots 6 & 7 Roofs

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 655 cf, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.70"

	Area (sf)	CN	Description
*	3,184	98	Proposed Roofs, HSG B
	3,184	98	100.00% Impervious Area

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

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W2A-RF: Watershed 2A-RF - Lots 8 to 11 Roofs (Front 1/2)

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 655 cf, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.70"

	Area (sf)	CN	Description
*	3,184	98	Proposed Roofs, HSG B
	3,184	98	100.00% Impervious Area

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

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W2B: Watershed 2B

Runoff = 0.05 cfs @ 12.40 hrs, Volume= 505 cf, Depth= 0.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
17,826	61	>75% Grass cover, Good, HSG B
15,015	55	Woods, Good, HSG B
32,841	58	Weighted Average
32,841	58	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0350	0.22		Sheet Flow, SEG A
					Grass: Short n= 0.150 P2= 3.30"
0.7	265	0.2000	6.71		Shallow Concentrated Flow, SEG B
					Grassed Waterway Kv= 15.0 fps
8.4	365	Total			

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W2B-R1: Watershed 2B - Lots 8 to 11 Roofs (Rear 1/2)

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 655 cf, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.70"

	Area (sf)	CN	Description
*	3,184	98	Proposed Roofs, HSG B
	3,184	98	100.00% Impervious Area

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

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W2B-R2: Watershed 2B - Lot 12 Roof

Runoff = 0.09 cfs @ 12.09 hrs, Volume= 328 cf, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.70"

	Area (sf)	CN	Description
*	1,592	98	Proposed Roofs, HSG B
	1,592	98	100.00% Impervious Area

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

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W3: Watershed 3

Runoff = 0.43 cfs @ 12.10 hrs, Volume= 1,439 cf, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 1-Year Rainfall=2.70"

Area (sf)	CN	Description
8,332	98	Paved parking, HSG B
12,766	61	>75% Grass cover, Good, HSG B
21,098	76	Weighted Average
12,766	61	60.51% Pervious Area
8,332	98	39.49% Impervious Area

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

New London Ave - Proposed [RTCDEM]

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

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Summary for Pond 1: UIC #1

Inflow Area = 1,592 sf, 100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
 Inflow = 0.09 cfs @ 12.09 hrs, Volume= 328 cf
 Outflow = 0.02 cfs @ 12.49 hrs, Volume= 328 cf, Atten= 78%, Lag= 24.5 min
 Discarded = 0.02 cfs @ 12.49 hrs, Volume= 328 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 72.52' @ 12.49 hrs Surf.Area= 320 sf Storage= 76 cf

Plug-Flow detention time= 20.2 min calculated for 327 cf (100% of inflow)
 Center-of-Mass det. time= 20.2 min (780.3 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	157 cf	10.33'W x 30.95'L x 1.83'H Field A 586 cf Overall - 109 cf Embedded = 477 cf x 33.0% Voids
#2A	72.33'	109 cf	ADS_StormTech SC-160LP +Cap x 16 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 16 Chambers in 4 Rows
		267 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.00'	4.0" Vert. Downspouts Overflow C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.49 hrs HW=72.52' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)
 ↑2=Downspouts Overflow (Controls 0.00 cfs)

Pond 1: UIC #1 - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-160LP+Cap (ADS StormTech®SC-160LP with cap length)

Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf

Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap

4 Chambers/Row x 7.12' Long +0.23' Cap Length x 2 = 28.95' Row Length +12.0" End Stone x 2 = 30.95' Base Length

4 Rows x 25.0" Wide + 12.0" Side Stone x 2 = 10.33' Base Width

4.0" Stone Base + 12.0" Chamber Height + 6.0" Stone Cover = 1.83' Field Height

16 Chambers x 6.8 cf = 109.4 cf Chamber Storage

586.3 cf Field - 109.4 cf Chambers = 476.9 cf Stone x 33.0% Voids = 157.4 cf Stone Storage

Chamber Storage + Stone Storage = 266.8 cf = 0.006 af

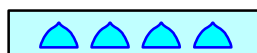
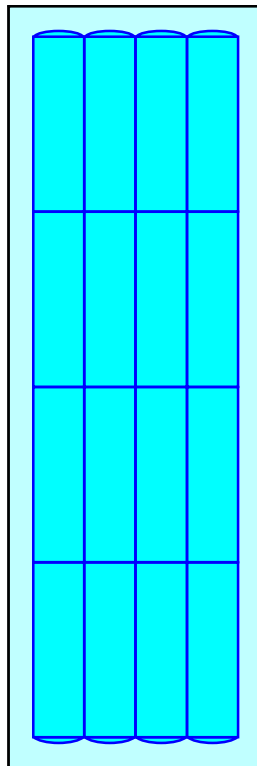
Overall Storage Efficiency = 45.5%

Overall System Size = 30.95' x 10.33' x 1.83'

16 Chambers

21.7 cy Field

17.7 cy Stone



Summary for Pond 2-5: UIC #2 - #5

Inflow Area = 6,368 sf, 100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
 Inflow = 0.37 cfs @ 12.09 hrs, Volume= 1,311 cf
 Outflow = 0.11 cfs @ 12.40 hrs, Volume= 1,311 cf, Atten= 70%, Lag= 19.0 min
 Discarded = 0.11 cfs @ 12.40 hrs, Volume= 1,311 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 72.37' @ 12.40 hrs Surf.Area= 1,880 sf Storage= 227 cf

Plug-Flow detention time= 10.4 min calculated for 1,308 cf (100% of inflow)
 Center-of-Mass det. time= 10.3 min (770.5 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	284 cf	14.83'W x 31.68'L x 2.33'H Field A 1,096 cf Overall - 236 cf Embedded = 861 cf x 33.0% Voids
#2A	72.50'	236 cf	ADS_StormTech SC-310 +Cap x 16 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 16 Chambers in 4 Rows
520 cf x 4.00 = 2,079 cf Total Available Storage			

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.83'	4.0" Vert. Downspouts Overflow X 4.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 12.40 hrs HW=72.37' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)
 ↑2=Downspouts Overflow (Controls 0.00 cfs)

Pond 2-5: UIC #2 - #5 - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-310 +Cap (ADS StormTech®SC-310 with cap length)

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

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

4 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 29.68' Row Length +12.0" End Stone x 2 = 31.68' Base Length

4 Rows x 34.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 14.83' Base Width

6.0" Stone Base + 16.0" Chamber Height + 6.0" Stone Cover = 2.33' Field Height

16 Chambers x 14.7 cf = 235.9 cf Chamber Storage

1,096.5 cf Field - 235.9 cf Chambers = 860.6 cf Stone x 33.0% Voids = 284.0 cf Stone Storage

Chamber Storage + Stone Storage = 519.9 cf = 0.012 af

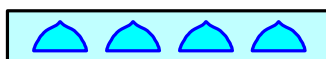
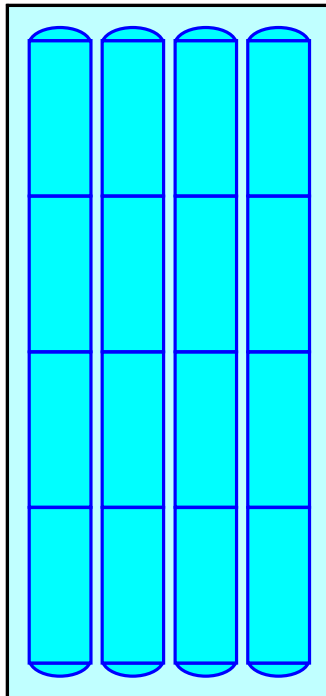
Overall Storage Efficiency = 47.4%

Overall System Size = 31.68' x 14.83' x 2.33'

16 Chambers

40.6 cy Field

31.9 cy Stone



Summary for Pond 6-7: UIC #6 - #7

Inflow Area = 3,184 sf, 100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
 Inflow = 0.19 cfs @ 12.09 hrs, Volume= 655 cf
 Outflow = 0.03 cfs @ 12.53 hrs, Volume= 655 cf, Atten= 82%, Lag= 26.8 min
 Discarded = 0.03 cfs @ 12.53 hrs, Volume= 655 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 74.75' @ 12.53 hrs Surf.Area= 517 sf Storage= 172 cf

Plug-Flow detention time= 29.2 min calculated for 654 cf (100% of inflow)
 Center-of-Mass det. time= 29.2 min (789.3 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	74.00'	160 cf	14.83'W x 17.44'L x 2.33'H Field A 604 cf Overall - 118 cf Embedded = 486 cf x 33.0% Voids
#2A	74.50'	118 cf	ADS_StormTech SC-310 +Cap x 8 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 8 Chambers in 4 Rows
278 cf x 2.00 = 556 cf			Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	74.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	75.35'	4.0" Vert. Downspouts Overflow X 2.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.53 hrs HW=74.75' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=74.00' (Free Discharge)
 ↑2=Downspouts Overflow (Controls 0.00 cfs)

Pond 6-7: UIC #6 - #7 - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-310 +Cap (ADS StormTech®SC-310 with cap length)

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

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

2 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 15.44' Row Length +12.0" End Stone x 2 = 17.44' Base Length

4 Rows x 34.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 14.83' Base Width

6.0" Stone Base + 16.0" Chamber Height + 6.0" Stone Cover = 2.33' Field Height

8 Chambers x 14.7 cf = 117.9 cf Chamber Storage

603.6 cf Field - 117.9 cf Chambers = 485.7 cf Stone x 33.0% Voids = 160.3 cf Stone Storage

Chamber Storage + Stone Storage = 278.2 cf = 0.006 af

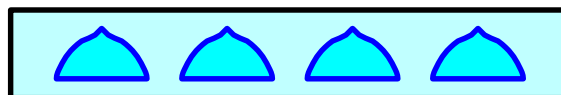
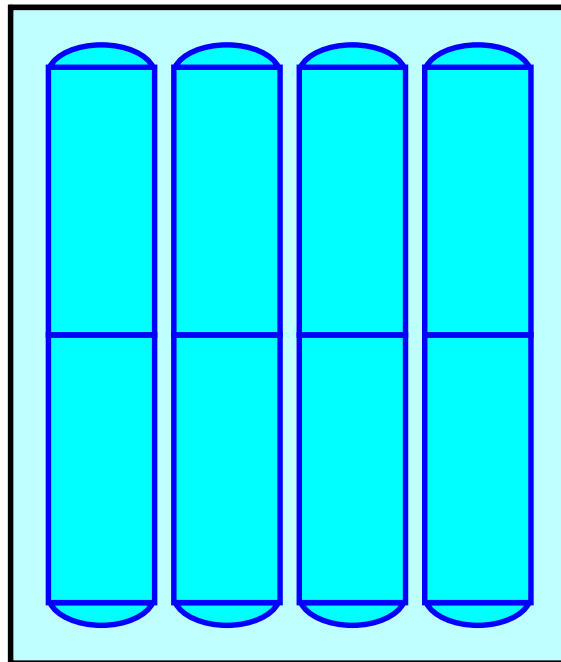
Overall Storage Efficiency = 46.1%

Overall System Size = 17.44' x 14.83' x 2.33'

8 Chambers

22.4 cy Field

18.0 cy Stone



New London Ave - Proposed [RTCDEM]

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

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Summary for Pond 8-11F: UIC #8F, #9F, #10F & #11F

Inflow Area = 3,184 sf, 100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
 Inflow = 0.19 cfs @ 12.09 hrs, Volume= 655 cf
 Outflow = 0.04 cfs @ 12.50 hrs, Volume= 655 cf, Atten= 79%, Lag= 24.8 min
 Discarded = 0.04 cfs @ 12.50 hrs, Volume= 655 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 72.68' @ 12.50 hrs Surf.Area= 570 sf Storage= 160 cf

Plug-Flow detention time= 22.8 min calculated for 654 cf (100% of inflow)
 Center-of-Mass det. time= 22.8 min (782.9 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	90 cf	8.17'W x 17.44'L x 2.33'H Field A 332 cf Overall - 59 cf Embedded = 273 cf x 33.0% Voids
#2A	72.50'	59 cf	ADS_StormTech SC-310 +Cap x 4 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 4 Chambers in 2 Rows
		149 cf	x 4.00 = 597 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.35'	4.0" Vert. Downspout Overflow X 4.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.04 cfs @ 12.50 hrs HW=72.68' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)
 ↑2=Downspout Overflow (Controls 0.00 cfs)

Pond 8-11F: UIC #8F, #9F, #10F & #11F - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-310 +Cap (ADS StormTech®SC-310 with cap length)

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

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

2 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 15.44' Row Length +12.0" End Stone x 2 = 17.44' Base Length

2 Rows x 34.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 8.17' Base Width

6.0" Stone Base + 16.0" Chamber Height + 6.0" Stone Cover = 2.33' Field Height

4 Chambers x 14.7 cf = 59.0 cf Chamber Storage

332.3 cf Field - 59.0 cf Chambers = 273.4 cf Stone x 33.0% Voids = 90.2 cf Stone Storage

Chamber Storage + Stone Storage = 149.2 cf = 0.003 af

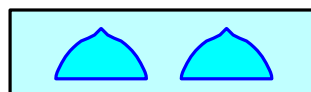
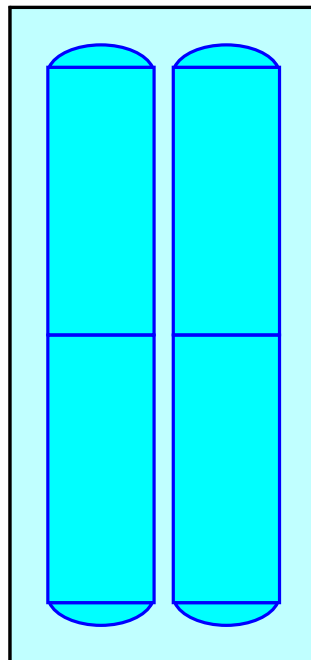
Overall Storage Efficiency = 44.9%

Overall System Size = 17.44' x 8.17' x 2.33'

4 Chambers

12.3 cy Field

10.1 cy Stone



New London Ave - Proposed [RTCDEM]

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

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Summary for Pond 8-11R: UIC #8R, #9R, #10R & #11R

Inflow Area = 3,184 sf, 100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
 Inflow = 0.19 cfs @ 12.09 hrs, Volume= 655 cf
 Outflow = 0.05 cfs @ 12.43 hrs, Volume= 655 cf, Atten= 72%, Lag= 20.6 min
 Discarded = 0.05 cfs @ 12.43 hrs, Volume= 655 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 72.48' @ 12.43 hrs Surf.Area= 802 sf Storage= 127 cf

Plug-Flow detention time= 13.3 min calculated for 654 cf (100% of inflow)
 Center-of-Mass det. time= 12.9 min (773.1 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	125 cf	8.17'W x 24.56'L x 2.33'H Field A 468 cf Overall - 88 cf Embedded = 380 cf x 33.0% Voids
#2A	72.50'	88 cf	ADS_StormTech SC-310 +Cap x 6 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 Chambers in 2 Rows
		214 cf	x 4.00 = 855 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.80'	4.0" Vert. Downspouts Overflow X 4.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.43 hrs HW=72.48' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)
 ↑2=Downspouts Overflow (Controls 0.00 cfs)

New London Ave - Proposed [RTCDEM]

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

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Pond 8-11R: UIC #8R, #9R, #10R & #11R - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-310 +Cap (ADS StormTech®SC-310 with cap length)

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

34.0" Wide + 6.0" Spacing = 40.0" C-C Row Spacing

3 Chambers/Row x 7.12' Long +0.60' Cap Length x 2 = 22.56' Row Length +12.0" End Stone x 2 = 24.56' Base Length

2 Rows x 34.0" Wide + 6.0" Spacing x 1 + 12.0" Side Stone x 2 = 8.17' Base Width

6.0" Stone Base + 16.0" Chamber Height + 6.0" Stone Cover = 2.33' Field Height

6 Chambers x 14.7 cf = 88.5 cf Chamber Storage

468.0 cf Field - 88.5 cf Chambers = 379.6 cf Stone x 33.0% Voids = 125.3 cf Stone Storage

Chamber Storage + Stone Storage = 213.7 cf = 0.005 af

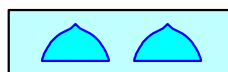
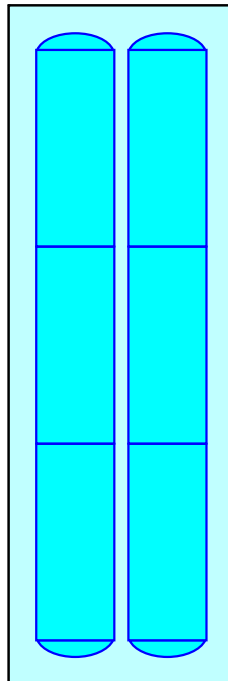
Overall Storage Efficiency = 45.7%

Overall System Size = 24.56' x 8.17' x 2.33'

6 Chambers

17.3 cy Field

14.1 cy Stone



New London Ave - Proposed [RTCDEM]

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

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Summary for Pond 12: UIC #12

Inflow Area = 1,592 sf, 100.00% Impervious, Inflow Depth = 2.47" for 1-Year event
 Inflow = 0.09 cfs @ 12.09 hrs, Volume= 328 cf
 Outflow = 0.02 cfs @ 12.49 hrs, Volume= 328 cf, Atten= 78%, Lag= 24.5 min
 Discarded = 0.02 cfs @ 12.49 hrs, Volume= 328 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 72.52' @ 12.49 hrs Surf.Area= 320 sf Storage= 76 cf

Plug-Flow detention time= 20.2 min calculated for 327 cf (100% of inflow)
 Center-of-Mass det. time= 20.2 min (780.3 - 760.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	157 cf	10.33'W x 30.95'L x 1.83'H Field A 586 cf Overall - 109 cf Embedded = 477 cf x 33.0% Voids
#2A	72.33'	109 cf	ADS_StormTech SC-160LP +Cap x 16 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 16 Chambers in 4 Rows
		267 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.33'	4.0" Vert. Downspout Overflow C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.49 hrs HW=72.52' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)
 ↑2=Downspout Overflow (Controls 0.00 cfs)

Pond 12: UIC #12 - Chamber Wizard Field A

Chamber Model = ADS_StormTechSC-160LP+Cap (ADS StormTech®SC-160LP with cap length)

Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf

Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap

4 Chambers/Row x 7.12' Long +0.23' Cap Length x 2 = 28.95' Row Length +12.0" End Stone x 2 = 30.95' Base Length

4 Rows x 25.0" Wide + 12.0" Side Stone x 2 = 10.33' Base Width

4.0" Stone Base + 12.0" Chamber Height + 6.0" Stone Cover = 1.83' Field Height

16 Chambers x 6.8 cf = 109.4 cf Chamber Storage

586.3 cf Field - 109.4 cf Chambers = 476.9 cf Stone x 33.0% Voids = 157.4 cf Stone Storage

Chamber Storage + Stone Storage = 266.8 cf = 0.006 af

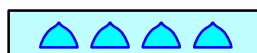
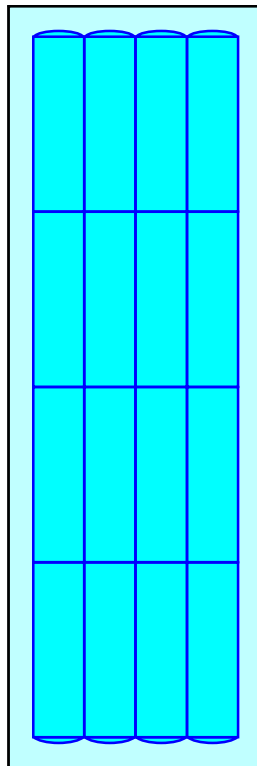
Overall Storage Efficiency = 45.5%

Overall System Size = 30.95' x 10.33' x 1.83'

16 Chambers

21.7 cy Field

17.7 cy Stone



New London Ave - Proposed [RTCDEM]

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

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Summary for Pond BB1: Bioretention Basin #1

Inflow Area = 43,822 sf, 55.16% Impervious, Inflow Depth = 0.92" for 1-Year event
 Inflow = 0.96 cfs @ 12.21 hrs, Volume= 3,365 cf
 Outflow = 0.22 cfs @ 12.79 hrs, Volume= 3,368 cf, Atten= 77%, Lag= 34.9 min
 Discarded = 0.22 cfs @ 12.79 hrs, Volume= 3,368 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 63.72' @ 12.79 hrs Surf.Area= 3,742 sf Storage= 886 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 29.8 min (912.9 - 883.1)

Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	9,214 cf	100 % Voids (Conic) Listed below (Recalc)
#2	63.00'	2,470 cf	Amended Soil (Conic) Listed below (Recalc)
			7,484 cf Overall x 33.0% Voids
		11,684 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
65.00	3,742	0	0	3,742
66.00	4,381	4,057	4,057	4,420
67.00	5,973	5,156	9,214	6,032

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
63.00	3,742	0	0	3,742
65.00	3,742	7,484	7,484	4,176

Device	Routing	Invert	Outlet Devices
#1	Primary	66.65'	17.5' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	63.00'	2.410 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.22 cfs @ 12.79 hrs HW=63.72' (Free Discharge)
 ↳2=Exfiltration (Exfiltration Controls 0.22 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=63.00' (Free Discharge)
 ↳1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

New London Ave - Proposed [RTCDEM]

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

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Summary for Pond SCT: STORMCAPTURE-SCT3

[79] Warning: Submerged Pond STC Primary device # 1 OUTLET by 0.13'

Inflow Area = 60,026 sf, 41.52% Impervious, Inflow Depth = 0.56" for 1-Year event
 Inflow = 0.49 cfs @ 12.47 hrs, Volume= 2,778 cf
 Outflow = 0.06 cfs @ 15.85 hrs, Volume= 2,736 cf, Atten= 88%, Lag= 202.6 min
 Discarded = 0.06 cfs @ 15.85 hrs, Volume= 2,736 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 4
 Peak Elev= 72.96' @ 15.85 hrs Surf.Area= 512 sf Storage= 1,239 cf

Plug-Flow detention time= 271.3 min calculated for 2,731 cf (98% of inflow)
 Center-of-Mass det. time= 263.1 min (1,178.9 - 915.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	69.42'	169 cf	8.00'W x 64.00'L x 4.58'H Field A 2,347 cf Overall - 1,835 cf Embedded = 512 cf x 33.0% Voids
#2A	70.42'	1,266 cf	Oldcastle StormCapture SC1 3'x 4 Inside #1 Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf 1 Rows adjusted for 18.0 cf perimeter wall
		1,435 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	69.42'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.25'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=0.06 cfs @ 15.85 hrs HW=72.96' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.42' (Free Discharge)
 ↑2=Sharp-Crested Rectangular Weir(Controls 0.00 cfs)

New London Ave - Proposed [RTCDEM]

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

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Pond SCT: STORMCAPTURE-SCT3 - Chamber Wizard Field A

Chamber Model = Oldcastle StormCaptureSC1 3' (Oldcastle StormCapture®SC1)

Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf

Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf

1 Rows adjusted for 18.0 cf perimeter wall

4 Chambers/Row x 16.00' Long = 64.00' Row Length

1 Rows x 96.0" Wide = 8.00' Base Width

12.0" Stone Base + 43.0" Chamber Height = 4.58' Field Height

2.0 cf Sidewall x 4 x 2 + 1.0 cf Endwall x 1 x 2 = 18.0 cf Perimeter Wall

4 Chambers x 321.0 cf - 18.0 cf Perimeter wall = 1,266.0 cf Chamber Storage

4 Chambers x 458.7 cf = 1,834.7 cf Displacement

2,346.7 cf Field - 1,834.7 cf Chambers = 512.0 cf Stone x 33.0% Voids = 169.0 cf Stone Storage

Chamber Storage + Stone Storage = 1,435.0 cf = 0.033 af

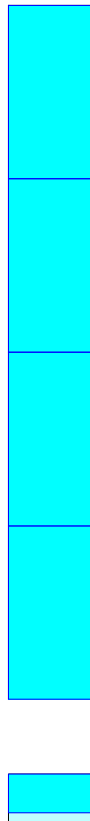
Overall Storage Efficiency = 61.1%

Overall System Size = 64.00' x 8.00' x 4.58'

4 Chambers

86.9 cy Field

19.0 cy Stone



New London Ave - Proposed [RTCDEM]

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

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Summary for Pond SF1: Sediment Forebay #1

Inflow Area = 43,822 sf, 55.16% Impervious, Inflow Depth = 1.09" for 1-Year event
 Inflow = 0.97 cfs @ 12.20 hrs, Volume= 3,971 cf
 Outflow = 0.96 cfs @ 12.21 hrs, Volume= 3,365 cf, Atten= 1%, Lag= 0.3 min
 Primary = 0.96 cfs @ 12.21 hrs, Volume= 3,365 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 5
 Peak Elev= 66.91' @ 12.21 hrs Surf.Area= 966 sf Storage= 610 cf

Plug-Flow detention time= 93.7 min calculated for 3,359 cf (85% of inflow)
 Center-of-Mass det. time= 27.4 min (883.1 - 855.7)

Volume	Invert	Avail.Storage	Storage Description
#1	66.00'	703 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.00	379	0	0
67.00	1,027	703	703

Device	Routing	Invert	Outlet Devices
#1	Primary	66.88'	80.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.94 cfs @ 12.21 hrs HW=66.91' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir**(Weir Controls 0.94 cfs @ 0.45 fps)

New London Ave - Proposed [RTCDEM]

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

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Summary for Pond STC: Stormceptor - STC 1800

[81] Warning: Exceeded Pond 8-11F by 0.69' @ 12.40 hrs

Inflow Area = 60,026 sf, 41.52% Impervious, Inflow Depth = 0.61" for 1-Year event
 Inflow = 0.49 cfs @ 12.47 hrs, Volume= 3,036 cf
 Outflow = 0.49 cfs @ 12.47 hrs, Volume= 2,778 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.49 cfs @ 12.47 hrs, Volume= 2,778 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 73.36' @ 12.47 hrs Surf.Area= 28 sf Storage= 256 cf

Plug-Flow detention time= 58.8 min calculated for 2,778 cf (91% of inflow)
 Center-of-Mass det. time= 16.5 min (915.8 - 899.3)

Volume	Invert	Avail.Storage	Storage Description
#1	64.30'	301 cf	6.00'D x 10.66'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	15.0" Round Culvert L= 17.0' Ke= 0.700 Inlet / Outlet Invert= 73.00' / 72.83' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.49 cfs @ 12.47 hrs HW=73.36' (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.49 cfs @ 2.51 fps)

Summary for Link DP-1: Northeastern Lower Gradient

Inflow Area = 124,647 sf, 26.44% Impervious, Inflow Depth = 0.12" for 1-Year event
Inflow = 0.10 cfs @ 12.70 hrs, Volume= 1,262 cf
Primary = 0.10 cfs @ 12.70 hrs, Volume= 1,262 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-2: Route 295 - Lower Gradient Basin

Inflow Area = 97,643 sf, 30.42% Impervious, Inflow Depth = 0.06" for 1-Year event
Inflow = 0.05 cfs @ 12.40 hrs, Volume= 505 cf
Primary = 0.05 cfs @ 12.40 hrs, Volume= 505 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-3: Southeastern Lower Gradient

Inflow Area = 21,098 sf, 39.49% Impervious, Inflow Depth = 0.82" for 1-Year event
Inflow = 0.43 cfs @ 12.10 hrs, Volume= 1,439 cf
Primary = 0.43 cfs @ 12.10 hrs, Volume= 1,439 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W1A: Watershed 1A

Runoff = 1.13 cfs @ 12.49 hrs, Volume= 7,153 cf, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
25,580	55	Woods, Good, HSG B
46,463	61	>75% Grass cover, Good, HSG B
822	98	Paved parking, HSG B
72,865	59	Weighted Average
72,043	59	98.87% Pervious Area
822	98	1.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.7	100	0.0150	0.07		Sheet Flow, SEG A
					Woods: Light underbrush n= 0.400 P2= 3.30"
5.9	324	0.0339	0.92		Shallow Concentrated Flow, SEG B
					Woodland Kv= 5.0 fps
0.8	182	0.0600	3.67		Shallow Concentrated Flow, SEG C
					Grassed Waterway Kv= 15.0 fps
30.4	606	Total			

Summary for Subcatchment W1B: Watershed 1B

Runoff = 2.64 cfs @ 12.19 hrs, Volume= 10,580 cf, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
* 19,151	98	Paved Roadway, HSG B
* 5,020	98	Paved Driveways, HSG B
19,651	61	>75% Grass cover, Good, HSG B
43,822	81	Weighted Average
19,651	61	44.84% Pervious Area
24,171	98	55.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	85	0.0100	0.13		Sheet Flow, SEG A
					Grass: Short n= 0.150 P2= 3.30"
2.7	490	0.0230	3.08		Shallow Concentrated Flow, SEG B
					Paved Kv= 20.3 fps
13.9	575	Total			

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W1B-R1: Watershed 1B - Lot 1 Roof

Runoff = 0.17 cfs @ 12.09 hrs, Volume= 619 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
* 1,592	98	Proposed Roof, HSG B
1,592	98	100.00% Impervious Area

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

Summary for Subcatchment W1B-R2: Watershed 1B - Lots 2 - 5 Roofs

Runoff = 0.68 cfs @ 12.09 hrs, Volume= 2,475 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
* 6,368	98	Proposed Roof, HSG B
6,368	98	100.00% Impervious Area

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

Summary for Subcatchment W2A: Watershed 2A

Runoff = 1.79 cfs @ 12.43 hrs, Volume= 9,848 cf, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
* 7,302	98	Paved Roadway, HSG B
* 4,763	98	Paved Driveways, HSG B
29,320	61	>75% Grass cover, Good, HSG B
5,783	55	Woods, Good, HSG B
* 6,490	98	Existing Impervious, HSG B
53,658	73	Weighted Average
35,103	60	65.42% Pervious Area
18,555	98	34.58% Impervious Area

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

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9	100	0.0100	0.06		Sheet Flow, SEG A
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.3	85	0.0050	1.06		Shallow Concentrated Flow, SEG B
					Grassed Waterway Kv= 15.0 fps
0.4	53	0.0100	2.03		Shallow Concentrated Flow, SEG C
					Paved Kv= 20.3 fps
29.6	238	Total			

Summary for Subcatchment W2A-R: Watershed 2A-R - Lots 6 & 7 Roofs

Runoff = 0.34 cfs @ 12.09 hrs, Volume= 1,237 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
* 3,184	98	Proposed Roofs, HSG B
3,184	98	100.00% Impervious Area

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

Summary for Subcatchment W2A-RF: Watershed 2A-RF - Lots 8 to 11 Roofs (Front 1/2)

Runoff = 0.34 cfs @ 12.09 hrs, Volume= 1,237 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
* 3,184	98	Proposed Roofs, HSG B
3,184	98	100.00% Impervious Area

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

Summary for Subcatchment W2B: Watershed 2B

Runoff = 0.76 cfs @ 12.14 hrs, Volume= 3,049 cf, Depth= 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

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

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Area (sf)	CN	Description
17,826	61	>75% Grass cover, Good, HSG B
15,015	55	Woods, Good, HSG B
32,841	58	Weighted Average
32,841	58	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0350	0.22		Sheet Flow, SEG A Grass: Short n= 0.150 P2= 3.30"
0.7	265	0.2000	6.71		Shallow Concentrated Flow, SEG B Grassed Waterway Kv= 15.0 fps
8.4	365	Total			

Summary for Subcatchment W2B-R1: Watershed 2B - Lots 8 to 11 Roofs (Rear 1/2)

Runoff = 0.34 cfs @ 12.09 hrs, Volume= 1,237 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
* 3,184	98	Proposed Roofs, HSG B
3,184	98	100.00% Impervious Area

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

Summary for Subcatchment W2B-R2: Watershed 2B - Lot 12 Roof

Runoff = 0.17 cfs @ 12.09 hrs, Volume= 619 cf, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
* 1,592	98	Proposed Roofs, HSG B
1,592	98	100.00% 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 10-Year Rainfall=4.90"

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Summary for Subcatchment W3: Watershed 3

Runoff = 1.36 cfs @ 12.09 hrs, Volume= 4,313 cf, Depth= 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
8,332	98	Paved parking, HSG B
12,766	61	>75% Grass cover, Good, HSG B
21,098	76	Weighted Average
12,766	61	60.51% Pervious Area
8,332	98	39.49% Impervious Area

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

Summary for Pond 1: UIC #1

Inflow Area = 1,592 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
 Inflow = 0.17 cfs @ 12.09 hrs, Volume= 619 cf
 Outflow = 0.04 cfs @ 12.50 hrs, Volume= 619 cf, Atten= 78%, Lag= 24.7 min
 Discarded = 0.02 cfs @ 12.50 hrs, Volume= 605 cf
 Primary = 0.01 cfs @ 12.50 hrs, Volume= 14 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 73.08' @ 12.50 hrs Surf.Area= 320 sf Storage= 181 cf

Plug-Flow detention time= 48.8 min calculated for 619 cf (100% of inflow)
 Center-of-Mass det. time= 48.8 min (797.2 - 748.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	157 cf	10.33'W x 30.95'L x 1.83'H Field A 586 cf Overall - 109 cf Embedded = 477 cf x 33.0% Voids
#2A	72.33'	109 cf	ADS_StormTech SC-160LP +Cap x 16 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 16 Chambers in 4 Rows
		267 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.00'	4.0" Vert. Downspouts Overflow C= 0.600 Limited to weir flow at low heads

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Discarded OutFlow Max=0.02 cfs @ 12.50 hrs HW=73.08' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.01 cfs @ 12.50 hrs HW=73.08' (Free Discharge)

↑2=Downspouts Overflow (Orifice Controls 0.01 cfs @ 0.94 fps)

Summary for Pond 2-5: UIC #2 - #5

Inflow Area = 6,368 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
 Inflow = 0.68 cfs @ 12.09 hrs, Volume= 2,475 cf
 Outflow = 0.12 cfs @ 12.54 hrs, Volume= 2,475 cf, Atten= 82%, Lag= 27.4 min
 Discarded = 0.12 cfs @ 12.54 hrs, Volume= 2,475 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 72.75' @ 12.54 hrs Surf.Area= 1,880 sf Storage= 647 cf

Plug-Flow detention time= 30.4 min calculated for 2,470 cf (100% of inflow)
 Center-of-Mass det. time= 30.4 min (778.8 - 748.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	284 cf	14.83'W x 31.68'L x 2.33'H Field A 1,096 cf Overall - 236 cf Embedded = 861 cf x 33.0% Voids
#2A	72.50'	236 cf	ADS_StormTech SC-310 +Cap x 16 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 16 Chambers in 4 Rows
		520 cf	x 4.00 = 2,079 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.83'	4.0" Vert. Downspouts Overflow X 4.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.12 cfs @ 12.54 hrs HW=72.75' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)

↑2=Downspouts Overflow (Controls 0.00 cfs)

Summary for Pond 6-7: UIC #6 - #7

Inflow Area = 3,184 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
 Inflow = 0.34 cfs @ 12.09 hrs, Volume= 1,237 cf
 Outflow = 0.08 cfs @ 12.49 hrs, Volume= 1,237 cf, Atten= 77%, Lag= 24.2 min
 Discarded = 0.04 cfs @ 12.49 hrs, Volume= 1,199 cf
 Primary = 0.04 cfs @ 12.49 hrs, Volume= 39 cf

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

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Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 75.44' @ 12.49 hrs Surf.Area= 517 sf Storage= 387 cf

Plug-Flow detention time= 64.7 min calculated for 1,235 cf (100% of inflow)
 Center-of-Mass det. time= 64.6 min (813.0 - 748.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	74.00'	160 cf	14.83'W x 17.44'L x 2.33'H Field A 604 cf Overall - 118 cf Embedded = 486 cf x 33.0% Voids
#2A	74.50'	118 cf	ADS_StormTech SC-310 +Cap x 8 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 8 Chambers in 4 Rows
			278 cf x 2.00 = 556 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	74.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	75.35'	4.0" Vert. Downspouts Overflow X 2.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.04 cfs @ 12.49 hrs HW=75.44' (Free Discharge)
 ↖**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.04 cfs @ 12.49 hrs HW=75.44' (Free Discharge)
 ↖**2=Downspouts Overflow** (Orifice Controls 0.04 cfs @ 1.01 fps)

Summary for Pond 8-11F: UIC #8F, #9F, #10F & #11F

Inflow Area = 3,184 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
 Inflow = 0.34 cfs @ 12.09 hrs, Volume= 1,237 cf
 Outflow = 0.05 cfs @ 12.61 hrs, Volume= 1,237 cf, Atten= 86%, Lag= 31.2 min
 Discarded = 0.05 cfs @ 12.61 hrs, Volume= 1,237 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 73.34' @ 12.61 hrs Surf.Area= 570 sf Storage= 385 cf

Plug-Flow detention time= 55.5 min calculated for 1,237 cf (100% of inflow)
 Center-of-Mass det. time= 55.4 min (803.7 - 748.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	90 cf	8.17'W x 17.44'L x 2.33'H Field A 332 cf Overall - 59 cf Embedded = 273 cf x 33.0% Voids
#2A	72.50'	59 cf	ADS_StormTech SC-310 +Cap x 4 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 4 Chambers in 2 Rows
			149 cf x 4.00 = 597 cf Total Available Storage

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Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.35'	4.0" Vert. Downspout Overflow X 4.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.61 hrs HW=73.34' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)

↑**2=Downspout Overflow** (Controls 0.00 cfs)

Summary for Pond 8-11R: UIC #8R, #9R, #10R & #11R

Inflow Area =	3,184 sf, 100.00% Impervious,	Inflow Depth = 4.66"	for 10-Year event
Inflow =	0.34 cfs @ 12.09 hrs,	Volume=	1,237 cf
Outflow =	0.06 cfs @ 12.55 hrs,	Volume=	1,237 cf, Atten= 83%, Lag= 27.9 min
Discarded =	0.06 cfs @ 12.55 hrs,	Volume=	1,237 cf
Primary =	0.00 cfs @ 0.00 hrs,	Volume=	0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2

Peak Elev= 72.89' @ 12.55 hrs Surf.Area= 802 sf Storage= 339 cf

Plug-Flow detention time= 35.2 min calculated for 1,237 cf (100% of inflow)

Center-of-Mass det. time= 35.0 min (783.4 - 748.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	125 cf	8.17'W x 24.56'L x 2.33'H Field A 468 cf Overall - 88 cf Embedded = 380 cf x 33.0% Voids
#2A	72.50'	88 cf	ADS_StormTech SC-310 +Cap x 6 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 Chambers in 2 Rows
			214 cf x 4.00 = 855 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.80'	4.0" Vert. Downspouts Overflow X 4.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.06 cfs @ 12.55 hrs HW=72.89' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)

↑**2=Downspouts Overflow** (Controls 0.00 cfs)

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Summary for Pond 12: UIC #12

Inflow Area = 1,592 sf, 100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
 Inflow = 0.17 cfs @ 12.09 hrs, Volume= 619 cf
 Outflow = 0.02 cfs @ 12.61 hrs, Volume= 619 cf, Atten= 87%, Lag= 31.7 min
 Discarded = 0.02 cfs @ 12.61 hrs, Volume= 619 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 73.13' @ 12.61 hrs Surf.Area= 320 sf Storage= 189 cf

Plug-Flow detention time= 53.6 min calculated for 619 cf (100% of inflow)
 Center-of-Mass det. time= 53.6 min (801.9 - 748.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	157 cf	10.33'W x 30.95'L x 1.83'H Field A 586 cf Overall - 109 cf Embedded = 477 cf x 33.0% Voids
#2A	72.33'	109 cf	ADS_StormTech SC-160LP +Cap x 16 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 16 Chambers in 4 Rows
		267 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.33'	4.0" Vert. Downspout Overflow C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.61 hrs HW=73.13' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)
 ↑2=Downspout Overflow (Controls 0.00 cfs)

Summary for Pond BB1: Bioretention Basin #1

Inflow Area = 43,822 sf, 55.16% Impervious, Inflow Depth = 2.74" for 10-Year event
 Inflow = 2.63 cfs @ 12.20 hrs, Volume= 9,995 cf
 Outflow = 0.46 cfs @ 12.86 hrs, Volume= 9,984 cf, Atten= 83%, Lag= 39.9 min
 Discarded = 0.46 cfs @ 12.86 hrs, Volume= 9,984 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 65.37' @ 12.86 hrs Surf.Area= 7,714 sf Storage= 3,893 cf

Plug-Flow detention time= 99.7 min calculated for 9,966 cf (100% of inflow)
 Center-of-Mass det. time= 98.8 min (939.6 - 840.7)

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Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	9,214 cf	100 % Voids (Conic) Listed below (Recalc)
#2	63.00'	2,470 cf	Amended Soil (Conic) Listed below (Recalc)
			7,484 cf Overall x 33.0% Voids
		11,684 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
65.00	3,742	0	0	3,742
66.00	4,381	4,057	4,057	4,420
67.00	5,973	5,156	9,214	6,032

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
63.00	3,742	0	0	3,742
65.00	3,742	7,484	7,484	4,176

Device	Routing	Invert	Outlet Devices
#1	Primary	66.65'	17.5' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	63.00'	2.410 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.46 cfs @ 12.86 hrs HW=65.37' (Free Discharge)
 ↑**2=Exfiltration** (Exfiltration Controls 0.46 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=63.00' (Free Discharge)
 ↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SCT: STORMCAPTURE-SCT3

[81] Warning: Exceeded Pond STC by 0.14' @ 20.90 hrs

Inflow Area = 60,026 sf, 41.52% Impervious, Inflow Depth = 1.93" for 10-Year event
 Inflow = 1.81 cfs @ 12.44 hrs, Volume= 9,644 cf
 Outflow = 1.63 cfs @ 12.44 hrs, Volume= 8,791 cf, Atten= 10%, Lag= 0.0 min
 Discarded = 0.06 cfs @ 12.44 hrs, Volume= 3,368 cf
 Primary = 1.57 cfs @ 12.44 hrs, Volume= 5,423 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 4
 Peak Elev= 73.46' @ 12.44 hrs Surf.Area= 512 sf Storage= 1,435 cf

Plug-Flow detention time= 129.2 min calculated for 8,791 cf (91% of inflow)
 Center-of-Mass det. time= 85.2 min (953.4 - 868.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	69.42'	169 cf	8.00'W x 64.00'L x 4.58'H Field A 2,347 cf Overall - 1,835 cf Embedded = 512 cf x 33.0% Voids
#2A	70.42'	1,266 cf	Oldcastle StormCapture SC1 3'x 4 Inside #1 Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf

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1 Rows adjusted for 18.0 cf perimeter wall

1,435 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	69.42'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.25'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=0.06 cfs @ 12.44 hrs HW=73.46' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=1.56 cfs @ 12.44 hrs HW=73.46' (Free Discharge)

↑**2=Sharp-Crested Rectangular Weir** (Weir Controls 1.56 cfs @ 1.50 fps)

Summary for Pond SF1: Sediment Forebay #1

Inflow Area = 43,822 sf, 55.16% Impervious, Inflow Depth = 2.90" for 10-Year event
 Inflow = 2.64 cfs @ 12.19 hrs, Volume= 10,580 cf
 Outflow = 2.63 cfs @ 12.20 hrs, Volume= 9,995 cf, Atten= 0%, Lag= 0.2 min
 Primary = 2.63 cfs @ 12.20 hrs, Volume= 9,995 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 5
 Peak Elev= 66.93' @ 12.20 hrs Surf.Area= 983 sf Storage= 634 cf

Plug-Flow detention time= 43.3 min calculated for 9,995 cf (94% of inflow)
 Center-of-Mass det. time= 13.5 min (840.7 - 827.2)

Volume	Invert	Avail.Storage	Storage Description
#1	66.00'	703 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.00	379	0	0
67.00	1,027	703	703

Device	Routing	Invert	Outlet Devices
#1	Primary	66.88'	80.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.62 cfs @ 12.20 hrs HW=66.93' (Free Discharge)

↑**1=Broad-Crested Rectangular Weir** (Weir Controls 2.62 cfs @ 0.64 fps)

Summary for Pond STC: Stormceptor - STC 1800

[81] Warning: Exceeded Pond 8-11F by 0.69' @ 12.05 hrs

New London Ave - Proposed [RTCDEM]

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

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Inflow Area = 60,026 sf, 41.52% Impervious, Inflow Depth = 1.98" for 10-Year event
Inflow = 1.82 cfs @ 12.44 hrs, Volume= 9,886 cf
Outflow = 1.81 cfs @ 12.44 hrs, Volume= 9,644 cf, Atten= 0%, Lag= 0.1 min
Primary = 1.81 cfs @ 12.44 hrs, Volume= 9,644 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 73.76' @ 12.44 hrs Surf.Area= 28 sf Storage= 268 cf

Plug-Flow detention time= 19.5 min calculated for 9,627 cf (97% of inflow)
Center-of-Mass det. time= 5.7 min (868.2 - 862.5)

Volume	Invert	Avail.Storage	Storage Description
#1	64.30'	301 cf	6.00'D x 10.66'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	15.0" Round Culvert L= 17.0' Ke= 0.700 Inlet / Outlet Invert= 73.00' / 72.83' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.81 cfs @ 12.44 hrs HW=73.76' (Free Discharge)
↑**1=Culvert** (Barrel Controls 1.81 cfs @ 3.30 fps)

Summary for Link DP-1: Northeastern Lower Gradient

Inflow Area = 124,647 sf, 26.44% Impervious, Inflow Depth = 0.69" for 10-Year event
Inflow = 1.15 cfs @ 12.49 hrs, Volume= 7,167 cf
Primary = 1.15 cfs @ 12.49 hrs, Volume= 7,167 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-2: Route 295 - Lower Gradient Basin

Inflow Area = 97,643 sf, 30.42% Impervious, Inflow Depth = 1.04" for 10-Year event
Inflow = 1.97 cfs @ 12.40 hrs, Volume= 8,472 cf
Primary = 1.97 cfs @ 12.40 hrs, Volume= 8,472 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-3: Southeastern Lower Gradient

Inflow Area = 21,098 sf, 39.49% Impervious, Inflow Depth = 2.45" for 10-Year event
Inflow = 1.36 cfs @ 12.09 hrs, Volume= 4,313 cf
Primary = 1.36 cfs @ 12.09 hrs, Volume= 4,313 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W1A: Watershed 1A

Runoff = 4.06 cfs @ 12.44 hrs, Volume= 22,756 cf, Depth= 3.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
25,580	55	Woods, Good, HSG B
46,463	61	>75% Grass cover, Good, HSG B
822	98	Paved parking, HSG B
72,865	59	Weighted Average
72,043	59	98.87% Pervious Area
822	98	1.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.7	100	0.0150	0.07		Sheet Flow, SEG A
					Woods: Light underbrush n= 0.400 P2= 3.30"
5.9	324	0.0339	0.92		Shallow Concentrated Flow, SEG B
					Woodland Kv= 5.0 fps
0.8	182	0.0600	3.67		Shallow Concentrated Flow, SEG C
					Grassed Waterway Kv= 15.0 fps
30.4	606	Total			

Summary for Subcatchment W1B: Watershed 1B

Runoff = 5.72 cfs @ 12.19 hrs, Volume= 23,392 cf, Depth= 6.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
* 19,151	98	Paved Roadway, HSG B
* 5,020	98	Paved Driveways, HSG B
19,651	61	>75% Grass cover, Good, HSG B
43,822	81	Weighted Average
19,651	61	44.84% Pervious Area
24,171	98	55.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	85	0.0100	0.13		Sheet Flow, SEG A
					Grass: Short n= 0.150 P2= 3.30"
2.7	490	0.0230	3.08		Shallow Concentrated Flow, SEG B
					Paved Kv= 20.3 fps
13.9	575	Total			

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W1B-R1: Watershed 1B - Lot 1 Roof

Runoff = 0.30 cfs @ 12.09 hrs, Volume= 1,122 cf, Depth= 8.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
* 1,592	98	Proposed Roof, HSG B
1,592	98	100.00% Impervious Area

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

Summary for Subcatchment W1B-R2: Watershed 1B - Lots 2 - 5 Roofs

Runoff = 1.22 cfs @ 12.09 hrs, Volume= 4,489 cf, Depth= 8.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
* 6,368	98	Proposed Roof, HSG B
6,368	98	100.00% Impervious Area

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

Summary for Subcatchment W2A: Watershed 2A

Runoff = 4.45 cfs @ 12.41 hrs, Volume= 24,303 cf, Depth= 5.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
* 7,302	98	Paved Roadway, HSG B
* 4,763	98	Paved Driveways, HSG B
29,320	61	>75% Grass cover, Good, HSG B
5,783	55	Woods, Good, HSG B
* 6,490	98	Existing Impervious, HSG B
53,658	73	Weighted Average
35,103	60	65.42% Pervious Area
18,555	98	34.58% Impervious Area

New London Ave - Proposed [RTCDEM]

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

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9	100	0.0100	0.06		Sheet Flow, SEG A
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.3	85	0.0050	1.06		Shallow Concentrated Flow, SEG B
					Grassed Waterway Kv= 15.0 fps
0.4	53	0.0100	2.03		Shallow Concentrated Flow, SEG C
					Paved Kv= 20.3 fps
29.6	238	Total			

Summary for Subcatchment W2A-R: Watershed 2A-R - Lots 6 & 7 Roofs

Runoff = 0.61 cfs @ 12.09 hrs, Volume= 2,245 cf, Depth= 8.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
* 3,184	98	Proposed Roofs, HSG B
3,184	98	100.00% Impervious Area

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

Summary for Subcatchment W2A-RF: Watershed 2A-RF - Lots 8 to 11 Roofs (Front 1/2)

Runoff = 0.61 cfs @ 12.09 hrs, Volume= 2,245 cf, Depth= 8.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
* 3,184	98	Proposed Roofs, HSG B
3,184	98	100.00% Impervious Area

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

Summary for Subcatchment W2B: Watershed 2B

Runoff = 2.84 cfs @ 12.13 hrs, Volume= 9,930 cf, Depth= 3.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.70"

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

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Area (sf)	CN	Description
17,826	61	>75% Grass cover, Good, HSG B
15,015	55	Woods, Good, HSG B
32,841	58	Weighted Average
32,841	58	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0350	0.22		Sheet Flow, SEG A Grass: Short n= 0.150 P2= 3.30"
0.7	265	0.2000	6.71		Shallow Concentrated Flow, SEG B Grassed Waterway Kv= 15.0 fps
8.4	365	Total			

Summary for Subcatchment W2B-R1: Watershed 2B - Lots 8 to 11 Roofs (Rear 1/2)

Runoff = 0.61 cfs @ 12.09 hrs, Volume= 2,245 cf, Depth= 8.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
* 3,184	98	Proposed Roofs, HSG B
3,184	98	100.00% Impervious Area

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

Summary for Subcatchment W2B-R2: Watershed 2B - Lot 12 Roof

Runoff = 0.30 cfs @ 12.09 hrs, Volume= 1,122 cf, Depth= 8.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
* 1,592	98	Proposed Roofs, HSG B
1,592	98	100.00% Impervious Area

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

New London Ave - Proposed [RTCDEM]

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

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Summary for Subcatchment W3: Watershed 3

Runoff = 3.19 cfs @ 12.09 hrs, Volume= 10,195 cf, Depth= 5.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.70"

Area (sf)	CN	Description
8,332	98	Paved parking, HSG B
12,766	61	>75% Grass cover, Good, HSG B
21,098	76	Weighted Average
12,766	61	60.51% Pervious Area
8,332	98	39.49% Impervious Area

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

Summary for Pond 1: UIC #1

Inflow Area = 1,592 sf, 100.00% Impervious, Inflow Depth = 8.46" for 100-Year event
 Inflow = 0.30 cfs @ 12.09 hrs, Volume= 1,122 cf
 Outflow = 0.24 cfs @ 12.16 hrs, Volume= 1,122 cf, Atten= 21%, Lag= 4.4 min
 Discarded = 0.02 cfs @ 12.16 hrs, Volume= 865 cf
 Primary = 0.22 cfs @ 12.16 hrs, Volume= 257 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 73.43' @ 12.16 hrs Surf.Area= 320 sf Storage= 224 cf

Plug-Flow detention time= 42.2 min calculated for 1,120 cf (100% of inflow)
 Center-of-Mass det. time= 42.1 min (782.3 - 740.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	157 cf	10.33'W x 30.95'L x 1.83'H Field A 586 cf Overall - 109 cf Embedded = 477 cf x 33.0% Voids
#2A	72.33'	109 cf	ADS_StormTech SC-160LP +Cap x 16 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 16 Chambers in 4 Rows
		267 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.00'	4.0" Vert. Downspouts Overflow C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.16 hrs HW=73.42' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.21 cfs @ 12.16 hrs HW=73.42' (Free Discharge)

↑2=Downspouts Overflow (Orifice Controls 0.21 cfs @ 2.42 fps)

Summary for Pond 2-5: UIC #2 - #5

Inflow Area = 6,368 sf, 100.00% Impervious, Inflow Depth = 8.46" for 100-Year event
 Inflow = 1.22 cfs @ 12.09 hrs, Volume= 4,489 cf
 Outflow = 0.14 cfs @ 12.74 hrs, Volume= 4,489 cf, Atten= 89%, Lag= 39.5 min
 Discarded = 0.14 cfs @ 12.74 hrs, Volume= 4,489 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 73.45' @ 12.74 hrs Surf.Area= 1,880 sf Storage= 1,472 cf

Plug-Flow detention time= 75.4 min calculated for 4,481 cf (100% of inflow)
 Center-of-Mass det. time= 75.2 min (815.4 - 740.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	284 cf	14.83'W x 31.68'L x 2.33'H Field A 1,096 cf Overall - 236 cf Embedded = 861 cf x 33.0% Voids
#2A	72.50'	236 cf	ADS_StormTech SC-310 +Cap x 16 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 16 Chambers in 4 Rows
		520 cf	x 4.00 = 2,079 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.83'	4.0" Vert. Downspouts Overflow X 4.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.14 cfs @ 12.74 hrs HW=73.45' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)

↑2=Downspouts Overflow (Controls 0.00 cfs)

Summary for Pond 6-7: UIC #6 - #7

Inflow Area = 3,184 sf, 100.00% Impervious, Inflow Depth = 8.46" for 100-Year event
 Inflow = 0.61 cfs @ 12.09 hrs, Volume= 2,245 cf
 Outflow = 0.50 cfs @ 12.15 hrs, Volume= 2,245 cf, Atten= 18%, Lag= 3.9 min
 Discarded = 0.04 cfs @ 12.15 hrs, Volume= 1,680 cf
 Primary = 0.46 cfs @ 12.15 hrs, Volume= 565 cf

New London Ave - Proposed [RTCDEM]

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

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Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 75.81' @ 12.15 hrs Surf.Area= 517 sf Storage= 468 cf

Plug-Flow detention time= 55.0 min calculated for 2,241 cf (100% of inflow)
 Center-of-Mass det. time= 54.9 min (795.1 - 740.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	74.00'	160 cf	14.83'W x 17.44'L x 2.33'H Field A 604 cf Overall - 118 cf Embedded = 486 cf x 33.0% Voids
#2A	74.50'	118 cf	ADS_StormTech SC-310 +Cap x 8 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 8 Chambers in 4 Rows
			278 cf x 2.00 = 556 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	74.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	75.35'	4.0" Vert. Downspouts Overflow X 2.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.04 cfs @ 12.15 hrs HW=75.81' (Free Discharge)
 ↖1=Exfiltration (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.46 cfs @ 12.15 hrs HW=75.81' (Free Discharge)
 ↖2=Downspouts Overflow (Orifice Controls 0.46 cfs @ 2.62 fps)

Summary for Pond 8-11F: UIC #8F, #9F, #10F & #11F

Inflow Area = 3,184 sf, 100.00% Impervious, Inflow Depth = 8.46" for 100-Year event
 Inflow = 0.61 cfs @ 12.09 hrs, Volume= 2,245 cf
 Outflow = 0.52 cfs @ 12.14 hrs, Volume= 2,244 cf, Atten= 15%, Lag= 3.3 min
 Discarded = 0.05 cfs @ 12.14 hrs, Volume= 1,767 cf
 Primary = 0.47 cfs @ 12.14 hrs, Volume= 477 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 73.60' @ 12.14 hrs Surf.Area= 570 sf Storage= 453 cf

Plug-Flow detention time= 48.7 min calculated for 2,244 cf (100% of inflow)
 Center-of-Mass det. time= 48.4 min (788.6 - 740.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	90 cf	8.17'W x 17.44'L x 2.33'H Field A 332 cf Overall - 59 cf Embedded = 273 cf x 33.0% Voids
#2A	72.50'	59 cf	ADS_StormTech SC-310 +Cap x 4 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 4 Chambers in 2 Rows
			149 cf x 4.00 = 597 cf Total Available Storage

New London Ave - Proposed [RTCDEM]

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

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Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.35'	4.0" Vert. Downspout Overflow X 4.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.14 hrs HW=73.59' (Free Discharge)
 ↑1=**Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.46 cfs @ 12.14 hrs HW=73.59' (Free Discharge)
 ↑2=**Downspout Overflow** (Orifice Controls 0.46 cfs @ 1.68 fps)

Summary for Pond 8-11R: UIC #8R, #9R, #10R & #11R

Inflow Area =	3,184 sf, 100.00% Impervious,	Inflow Depth = 8.46"	for 100-Year event
Inflow =	0.61 cfs @ 12.09 hrs,	Volume=	2,245 cf
Outflow =	0.11 cfs @ 12.53 hrs,	Volume=	2,244 cf, Atten= 81%, Lag= 26.6 min
Discarded =	0.07 cfs @ 12.53 hrs,	Volume=	2,215 cf
Primary =	0.04 cfs @ 12.53 hrs,	Volume=	29 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 73.86' @ 12.53 hrs Surf.Area= 802 sf Storage= 731 cf

Plug-Flow detention time= 73.5 min calculated for 2,240 cf (100% of inflow)
 Center-of-Mass det. time= 73.3 min (813.5 - 740.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	125 cf	8.17'W x 24.56'L x 2.33'H Field A 468 cf Overall - 88 cf Embedded = 380 cf x 33.0% Voids
#2A	72.50'	88 cf	ADS_StormTech SC-310 +Cap x 6 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 Chambers in 2 Rows
214 cf x 4.00 = 855 cf Total Available Storage			

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.80'	4.0" Vert. Downspouts Overflow X 4.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.07 cfs @ 12.53 hrs HW=73.86' (Free Discharge)
 ↑1=**Exfiltration** (Exfiltration Controls 0.07 cfs)

Primary OutFlow Max=0.04 cfs @ 12.53 hrs HW=73.86' (Free Discharge)
 ↑2=**Downspouts Overflow** (Orifice Controls 0.04 cfs @ 0.86 fps)

Summary for Pond 12: UIC #12

Inflow Area = 1,592 sf, 100.00% Impervious, Inflow Depth = 8.46" for 100-Year event
 Inflow = 0.30 cfs @ 12.09 hrs, Volume= 1,122 cf
 Outflow = 0.23 cfs @ 12.17 hrs, Volume= 1,122 cf, Atten= 25%, Lag= 5.2 min
 Discarded = 0.03 cfs @ 12.17 hrs, Volume= 914 cf
 Primary = 0.20 cfs @ 12.17 hrs, Volume= 208 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 73.72' @ 12.17 hrs Surf.Area= 320 sf Storage= 255 cf

Plug-Flow detention time= 53.7 min calculated for 1,120 cf (100% of inflow)
 Center-of-Mass det. time= 53.6 min (793.8 - 740.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	157 cf	10.33'W x 30.95'L x 1.83'H Field A 586 cf Overall - 109 cf Embedded = 477 cf x 33.0% Voids
#2A	72.33'	109 cf	ADS_StormTech SC-160LP +Cap x 16 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56"L with 0.44' Overlap 16 Chambers in 4 Rows
		267 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.33'	4.0" Vert. Downspout Overflow C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.17 hrs HW=73.69' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.19 cfs @ 12.17 hrs HW=73.69' (Free Discharge)
 ↑2=Downspout Overflow (Orifice Controls 0.19 cfs @ 2.12 fps)

Summary for Pond BB1: Bioretention Basin #1

Inflow Area = 43,822 sf, 55.16% Impervious, Inflow Depth = 6.25" for 100-Year event
 Inflow = 5.71 cfs @ 12.19 hrs, Volume= 22,813 cf
 Outflow = 1.32 cfs @ 12.70 hrs, Volume= 22,802 cf, Atten= 77%, Lag= 30.6 min
 Discarded = 0.54 cfs @ 12.70 hrs, Volume= 21,592 cf
 Primary = 0.78 cfs @ 12.70 hrs, Volume= 1,210 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 66.71' @ 12.70 hrs Surf.Area= 9,232 sf Storage= 10,035 cf

Plug-Flow detention time= 183.8 min calculated for 22,802 cf (100% of inflow)
 Center-of-Mass det. time= 183.4 min (997.2 - 813.8)

New London Ave - Proposed [RTCDEM]

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

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Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	9,214 cf	100 % Voids (Conic) Listed below (Recalc)
#2	63.00'	2,470 cf	Amended Soil (Conic) Listed below (Recalc)
			7,484 cf Overall x 33.0% Voids
		11,684 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
65.00	3,742	0	0	3,742
66.00	4,381	4,057	4,057	4,420
67.00	5,973	5,156	9,214	6,032

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
63.00	3,742	0	0	3,742
65.00	3,742	7,484	7,484	4,176

Device	Routing	Invert	Outlet Devices
#1	Primary	66.65'	17.5' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	63.00'	2.410 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.54 cfs @ 12.70 hrs HW=66.71' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.54 cfs)

Primary OutFlow Max=0.76 cfs @ 12.70 hrs HW=66.71' (Free Discharge)
 ↳ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.76 cfs @ 0.70 fps)

Summary for Pond SCT: STORMCAPTURE-SCT3

[81] Warning: Exceeded Pond STC by 0.16' @ 24.45 hrs

Inflow Area = 60,026 sf, 41.52% Impervious, Inflow Depth = 5.02" for 100-Year event
 Inflow = 4.78 cfs @ 12.39 hrs, Volume= 25,099 cf
 Outflow = 4.74 cfs @ 12.39 hrs, Volume= 24,248 cf, Atten= 1%, Lag= 0.0 min
 Discarded = 0.06 cfs @ 12.39 hrs, Volume= 3,803 cf
 Primary = 4.68 cfs @ 12.39 hrs, Volume= 20,445 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 4
 Peak Elev= 73.69' @ 12.39 hrs Surf.Area= 512 sf Storage= 1,435 cf

Plug-Flow detention time= 50.9 min calculated for 24,205 cf (96% of inflow)
 Center-of-Mass det. time= 32.0 min (868.2 - 836.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	69.42'	169 cf	8.00'W x 64.00'L x 4.58'H Field A 2,347 cf Overall - 1,835 cf Embedded = 512 cf x 33.0% Voids
#2A	70.42'	1,266 cf	Oldcastle StormCapture SC1 3'x 4 Inside #1 Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf

New London Ave - Proposed [RTCDEM]

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

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1 Rows adjusted for 18.0 cf perimeter wall

1,435 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	69.42'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.25'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=0.06 cfs @ 12.39 hrs HW=73.69' (Free Discharge)

↑1=**Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=4.66 cfs @ 12.39 hrs HW=73.69' (Free Discharge)

↑2=**Sharp-Crested Rectangular Weir** (Weir Controls 4.66 cfs @ 2.17 fps)

Summary for Pond SF1: Sediment Forebay #1

Inflow Area = 43,822 sf, 55.16% Impervious, Inflow Depth = 6.41" for 100-Year event
 Inflow = 5.72 cfs @ 12.19 hrs, Volume= 23,392 cf
 Outflow = 5.71 cfs @ 12.19 hrs, Volume= 22,813 cf, Atten= 0%, Lag= 0.2 min
 Primary = 5.71 cfs @ 12.19 hrs, Volume= 22,813 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 5

Peak Elev= 66.97' @ 12.19 hrs Surf.Area= 1,005 sf Storage= 669 cf

Plug-Flow detention time= 23.8 min calculated for 22,813 cf (98% of inflow)

Center-of-Mass det. time= 9.0 min (813.8 - 804.8)

Volume	Invert	Avail.Storage	Storage Description
#1	66.00'	703 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.00	379	0	0
67.00	1,027	703	703

Device	Routing	Invert	Outlet Devices
#1	Primary	66.88'	80.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.65 cfs @ 12.19 hrs HW=66.97' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Weir Controls 5.65 cfs @ 0.82 fps)

Summary for Pond STC: Stormceptor - STC 1800

[81] Warning: Exceeded Pond 8-11F by 1.00' @ 12.40 hrs

New London Ave - Proposed [RTCDEM]

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

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Inflow Area = 60,026 sf, 41.52% Impervious, Inflow Depth = 5.07" for 100-Year event
Inflow = 4.78 cfs @ 12.39 hrs, Volume= 25,344 cf
Outflow = 4.78 cfs @ 12.39 hrs, Volume= 25,099 cf, Atten= 0%, Lag= 0.1 min
Primary = 4.78 cfs @ 12.39 hrs, Volume= 25,099 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 74.48' @ 12.39 hrs Surf.Area= 28 sf Storage= 288 cf

Plug-Flow detention time= 9.4 min calculated for 25,099 cf (99% of inflow)
Center-of-Mass det. time= 3.4 min (836.2 - 832.8)

Volume	Invert	Avail.Storage	Storage Description
#1	64.30'	301 cf	6.00'D x 10.66'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	15.0" Round Culvert L= 17.0' Ke= 0.700 Inlet / Outlet Invert= 73.00' / 72.83' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.77 cfs @ 12.39 hrs HW=74.48' (Free Discharge)
↑**1=Culvert** (Barrel Controls 4.77 cfs @ 4.15 fps)

Summary for Link DP-1: Northeastern Lower Gradient

Inflow Area = 124,647 sf, 26.44% Impervious, Inflow Depth = 2.33" for 100-Year event
Inflow = 4.14 cfs @ 12.43 hrs, Volume= 24,223 cf
Primary = 4.14 cfs @ 12.43 hrs, Volume= 24,223 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-2: Route 295 - Lower Gradient Basin

Inflow Area = 97,643 sf, 30.42% Impervious, Inflow Depth = 3.76" for 100-Year event
Inflow = 6.28 cfs @ 12.15 hrs, Volume= 30,613 cf
Primary = 6.28 cfs @ 12.15 hrs, Volume= 30,613 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-3: Southeastern Lower Gradient

Inflow Area = 21,098 sf, 39.49% Impervious, Inflow Depth = 5.80" for 100-Year event
Inflow = 3.19 cfs @ 12.09 hrs, Volume= 10,195 cf
Primary = 3.19 cfs @ 12.09 hrs, Volume= 10,195 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Appendix F

Water Quality Calculations

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	5.80	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		0.00	acres
Site Size = (TSA)-(JW1-JW2)-CL	SS=	5.80	acres

Step 3 - Redevelopment Applicability

Total Impervious Area (pre-construction)	TIA=	0.63	acres
% Impervious (if ≥40% - redevelopment standard 3.2.6 applies)		0.11	

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	RI0006017R-02
Waterbody Name from GIS Map Server	Meshanticut Brook
Name the sub-watersheds (design-points) contributing to this Waterbody ID	DP-1, DP-3
Is this Waterbody Impaired/TMDL for any Phosphorus, Metals or Bacteria?	NO
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	0.63	acres
Total Disturbed Existing Impervious (DI)	0.21	acres
Total Post-Construction Impervious to this Waterbody ID	0.74	acres
Net Increased Impervious (NII)	0.11	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	6	#

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	0.32	0.32
No Impairment or TMDL - Redevelopment		
Only Phosphorus, Metals or Bacteria Impairment - New Development		
Only Phosphorus, Metals or Bacteria Impairment - Redevelopment		
Nitrogen Impairment - New Development		
Nitrogen Impairment - Redevelopment		

REQUIRED STORMWATER TREATMENT AREA **0.3** acres

* Enter the name of the STP (both type and label) which has been designed to treat this particular Rev or Rea.

Version: 4/2015

Project Name Briarwood Estates

Date Feb. 2023

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	5.80	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		0.00	acres
Site Size = (TSA)-(JW1-JW2)-CL	SS=	5.80	acres

Step 3 - Redevelopment Applicability

Total Impervious Area (pre-construction)	TIA=	0.63	acres
% Impervious (if ≥40% - redevelopment standard 3.2.6 applies)		0.11	

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	RI0006017R-02
Waterbody Name from GIS Map Server	tributary to Meshanticut Brook
Name the sub-watersheds (design-points) contributing to this Waterbody ID	DP-2
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	0.00	acres
Total Disturbed Existing Impervious (DI)	0.00	acres
Total Post-Construction Impervious to this Waterbody ID	0.48	acres
Net Increased Impervious (NII)	0.48	acres

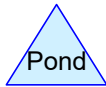
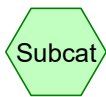
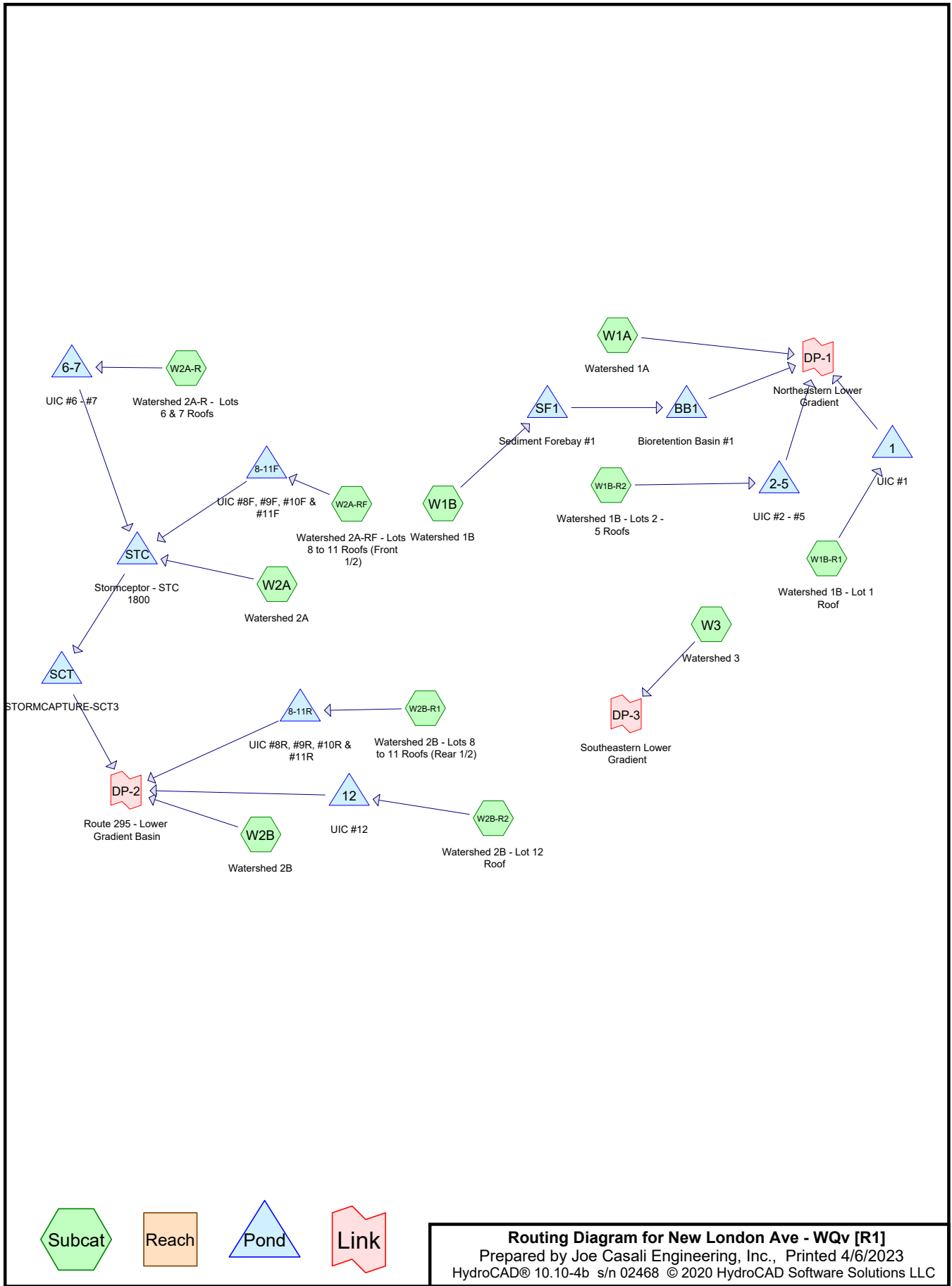
Step 6 - Infiltration and BMP information - Note: Increasing infiltration will likely decrease stormwater treatment area for Metals, Bacteria and Phosphorus

I am proposing to infiltrate this percentage WQv to this WBID	100%	%
I am proposing this number of BMP's	8	#

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	0.48	0.48
Only Phosphorus, Metals or Bacteria Impairment - Redevelopment		
Nitrogen Impairment - New Development		
Nitrogen Impairment - Redevelopment		
REQUIRED STORMWATER TREATMENT AREA	0.5	acres

* Enter the name of the STP (both type and label) which has been designed to treat this particular Rev or Rea.



Routing Diagram for New London Ave - WQv [R1]
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New London Ave - WQv [R1]

Type III 24-hr WQV Rainfall=1.20"

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Summary for Subcatchment W1A: Watershed 1A

Runoff = 0.01 cfs @ 12.40 hrs, Volume= 68 cf, Depth= 0.01"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
25,580	55	Woods, Good, HSG B
46,463	61	>75% Grass cover, Good, HSG B
822	98	Paved parking, HSG B
72,865	59	Weighted Average
72,043	59	98.87% Pervious Area
822	98	1.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.7	100	0.0150	0.07		Sheet Flow, SEG A
					Woods: Light underbrush n= 0.400 P2= 3.30"
5.9	324	0.0339	0.92		Shallow Concentrated Flow, SEG B
					Woodland Kv= 5.0 fps
0.8	182	0.0600	3.67		Shallow Concentrated Flow, SEG C
					Grassed Waterway Kv= 15.0 fps
30.4	606	Total			

Summary for Subcatchment W1B: Watershed 1B

Runoff = 0.47 cfs @ 12.19 hrs, Volume= 1,985 cf, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
* 19,151	98	Paved Roadway, HSG B
* 5,020	98	Paved Driveways, HSG B
19,651	61	>75% Grass cover, Good, HSG B
43,822	81	Weighted Average
19,651	61	44.84% Pervious Area
24,171	98	55.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	85	0.0100	0.13		Sheet Flow, SEG A
					Grass: Short n= 0.150 P2= 3.30"
2.7	490	0.0230	3.08		Shallow Concentrated Flow, SEG B
					Paved Kv= 20.3 fps
13.9	575	Total			

New London Ave - WQv [R1]

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Type III 24-hr WQV Rainfall=1.20"

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Summary for Subcatchment W1B-R1: Watershed 1B - Lot 1 Roof

Runoff = 0.04 cfs @ 12.09 hrs, Volume= 131 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
* 1,592	98	Proposed Roof, HSG B
1,592	98	100.00% Impervious Area

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

Summary for Subcatchment W1B-R2: Watershed 1B - Lots 2 - 5 Roofs

Runoff = 0.16 cfs @ 12.09 hrs, Volume= 523 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
* 6,368	98	Proposed Roof, HSG B
6,368	98	100.00% Impervious Area

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

Summary for Subcatchment W2A: Watershed 2A

Runoff = 0.27 cfs @ 12.39 hrs, Volume= 1,524 cf, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
* 7,302	98	Paved Roadway, HSG B
* 4,763	98	Paved Driveways, HSG B
29,320	61	>75% Grass cover, Good, HSG B
5,783	55	Woods, Good, HSG B
* 6,490	98	Existing Impervious, HSG B
53,658	73	Weighted Average
35,103	60	65.42% Pervious Area
18,555	98	34.58% Impervious Area

New London Ave - WQv [R1]

Type III 24-hr WQV Rainfall=1.20"

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Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
27.9	100	0.0100	0.06		Sheet Flow, SEG A
					Woods: Light underbrush n= 0.400 P2= 3.30"
1.3	85	0.0050	1.06		Shallow Concentrated Flow, SEG B
					Grassed Waterway Kv= 15.0 fps
0.4	53	0.0100	2.03		Shallow Concentrated Flow, SEG C
					Paved Kv= 20.3 fps
29.6	238	Total			

Summary for Subcatchment W2A-R: Watershed 2A-R - Lots 6 & 7 Roofs

Runoff = 0.08 cfs @ 12.09 hrs, Volume= 262 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
* 3,184	98	Proposed Roofs, HSG B
3,184	98	100.00% Impervious Area

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

Summary for Subcatchment W2A-RF: Watershed 2A-RF - Lots 8 to 11 Roofs (Front 1/2)

Runoff = 0.08 cfs @ 12.09 hrs, Volume= 262 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
* 3,184	98	Proposed Roofs, HSG B
3,184	98	100.00% Impervious Area

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

Summary for Subcatchment W2B: Watershed 2B

[45] Hint: Runoff=Zero

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

New London Ave - WQv [R1]

Type III 24-hr WQV Rainfall=1.20"

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Area (sf)	CN	Description
17,826	61	>75% Grass cover, Good, HSG B
15,015	55	Woods, Good, HSG B
32,841	58	Weighted Average
32,841	58	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.7	100	0.0350	0.22		Sheet Flow, SEG A Grass: Short n= 0.150 P2= 3.30"
0.7	265	0.2000	6.71		Shallow Concentrated Flow, SEG B Grassed Waterway Kv= 15.0 fps
8.4	365	Total			

Summary for Subcatchment W2B-R1: Watershed 2B - Lots 8 to 11 Roofs (Rear 1/2)

Runoff = 0.08 cfs @ 12.09 hrs, Volume= 262 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
* 3,184	98	Proposed Roofs, HSG B
3,184	98	100.00% Impervious Area

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

Summary for Subcatchment W2B-R2: Watershed 2B - Lot 12 Roof

Runoff = 0.04 cfs @ 12.09 hrs, Volume= 131 cf, Depth= 0.99"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
* 1,592	98	Proposed Roofs, HSG B
1,592	98	100.00% 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 WQV Rainfall=1.20"

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Summary for Subcatchment W3: Watershed 3

Runoff = 0.20 cfs @ 12.09 hrs, Volume= 684 cf, Depth= 0.39"

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
Type III 24-hr WQV Rainfall=1.20"

Area (sf)	CN	Description
8,332	98	Paved parking, HSG B
12,766	61	>75% Grass cover, Good, HSG B
21,098	76	Weighted Average
12,766	61	60.51% Pervious Area
8,332	98	39.49% Impervious Area

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

Summary for Pond 1: UIC #1

Inflow Area = 1,592 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQV event
 Inflow = 0.04 cfs @ 12.09 hrs, Volume= 131 cf
 Outflow = 0.02 cfs @ 12.26 hrs, Volume= 131 cf, Atten= 53%, Lag= 10.3 min
 Discarded = 0.02 cfs @ 12.26 hrs, Volume= 131 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 72.12' @ 12.26 hrs Surf.Area= 320 sf Storage= 13 cf

Plug-Flow detention time= 4.0 min calculated for 131 cf (100% of inflow)
 Center-of-Mass det. time= 4.0 min (786.0 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	157 cf	10.33'W x 30.95'L x 1.83'H Field A 586 cf Overall - 109 cf Embedded = 477 cf x 33.0% Voids
#2A	72.33'	109 cf	ADS_StormTech SC-160LP +Cap x 16 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 16 Chambers in 4 Rows
		267 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.00'	4.0" Vert. Downspouts Overflow C= 0.600 Limited to weir flow at low heads

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Type III 24-hr WQV Rainfall=1.20"

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Discarded OutFlow Max=0.02 cfs @ 12.26 hrs HW=72.12' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)

↑2=Downspouts Overflow (Controls 0.00 cfs)

Summary for Pond 2-5: UIC #2 - #5

Inflow Area = 6,368 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQV event
 Inflow = 0.16 cfs @ 12.09 hrs, Volume= 523 cf
 Outflow = 0.11 cfs @ 12.18 hrs, Volume= 523 cf, Atten= 32%, Lag= 5.4 min
 Discarded = 0.11 cfs @ 12.18 hrs, Volume= 523 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 72.05' @ 12.18 hrs Surf.Area= 1,880 sf Storage= 31 cf

Plug-Flow detention time= 2.6 min calculated for 522 cf (100% of inflow)
 Center-of-Mass det. time= 2.6 min (784.6 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	284 cf	14.83'W x 31.68'L x 2.33'H Field A 1,096 cf Overall - 236 cf Embedded = 861 cf x 33.0% Voids
#2A	72.50'	236 cf	ADS_StormTech SC-310 +Cap x 16 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 16 Chambers in 4 Rows
		520 cf	x 4.00 = 2,079 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.83'	4.0" Vert. Downspouts Overflow X 4.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.11 cfs @ 12.18 hrs HW=72.05' (Free Discharge)

↑1=Exfiltration (Exfiltration Controls 0.11 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)

↑2=Downspouts Overflow (Controls 0.00 cfs)

Summary for Pond 6-7: UIC #6 - #7

Inflow Area = 3,184 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQV event
 Inflow = 0.08 cfs @ 12.09 hrs, Volume= 262 cf
 Outflow = 0.03 cfs @ 12.32 hrs, Volume= 262 cf, Atten= 61%, Lag= 14.1 min
 Discarded = 0.03 cfs @ 12.32 hrs, Volume= 262 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

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Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 74.21' @ 12.32 hrs Surf.Area= 517 sf Storage= 35 cf

Plug-Flow detention time= 6.4 min calculated for 261 cf (100% of inflow)
 Center-of-Mass det. time= 6.4 min (788.4 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	74.00'	160 cf	14.83'W x 17.44'L x 2.33'H Field A 604 cf Overall - 118 cf Embedded = 486 cf x 33.0% Voids
#2A	74.50'	118 cf	ADS_StormTech SC-310 +Cap x 8 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 8 Chambers in 4 Rows
278 cf			x 2.00 = 556 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	74.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	75.35'	4.0" Vert. Downspouts Overflow X 2.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.32 hrs HW=74.21' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=74.00' (Free Discharge)
 ↑2=Downspouts Overflow (Controls 0.00 cfs)

Summary for Pond 8-11F: UIC #8F, #9F, #10F & #11F

Inflow Area = 3,184 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQV event
 Inflow = 0.08 cfs @ 12.09 hrs, Volume= 262 cf
 Outflow = 0.03 cfs @ 12.29 hrs, Volume= 262 cf, Atten= 57%, Lag= 11.9 min
 Discarded = 0.03 cfs @ 12.29 hrs, Volume= 262 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 72.16' @ 12.29 hrs Surf.Area= 570 sf Storage= 31 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 5.2 min (787.2 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	90 cf	8.17'W x 17.44'L x 2.33'H Field A 332 cf Overall - 59 cf Embedded = 273 cf x 33.0% Voids
#2A	72.50'	59 cf	ADS_StormTech SC-310 +Cap x 4 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 4 Chambers in 2 Rows
149 cf			x 4.00 = 597 cf Total Available Storage

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Type III 24-hr WQV Rainfall=1.20"

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Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.35'	4.0" Vert. Downspout Overflow X 4.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.03 cfs @ 12.29 hrs HW=72.16' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)

↑**2=Downspout Overflow** (Controls 0.00 cfs)

Summary for Pond 8-11R: UIC #8R, #9R, #10R & #11R

Inflow Area =	3,184 sf, 100.00% Impervious,	Inflow Depth = 0.99"	for WQV event
Inflow =	0.08 cfs @ 12.09 hrs,	Volume=	262 cf
Outflow =	0.05 cfs @ 12.21 hrs,	Volume=	262 cf, Atten= 41%, Lag= 7.1 min
Discarded =	0.05 cfs @ 12.21 hrs,	Volume=	262 cf
Primary =	0.00 cfs @ 0.00 hrs,	Volume=	0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2

Peak Elev= 72.07' @ 12.21 hrs Surf.Area= 802 sf Storage= 20 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 3.1 min (785.1 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	125 cf	8.17'W x 24.56'L x 2.33'H Field A 468 cf Overall - 88 cf Embedded = 380 cf x 33.0% Voids
#2A	72.50'	88 cf	ADS_StormTech SC-310 +Cap x 6 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 Chambers in 2 Rows
			214 cf x 4.00 = 855 cf Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.80'	4.0" Vert. Downspouts Overflow X 4.00 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.05 cfs @ 12.21 hrs HW=72.07' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)

↑**2=Downspouts Overflow** (Controls 0.00 cfs)

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Type III 24-hr WQV Rainfall=1.20"

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Summary for Pond 12: UIC #12

Inflow Area = 1,592 sf, 100.00% Impervious, Inflow Depth = 0.99" for WQV event
 Inflow = 0.04 cfs @ 12.09 hrs, Volume= 131 cf
 Outflow = 0.02 cfs @ 12.26 hrs, Volume= 131 cf, Atten= 53%, Lag= 10.3 min
 Discarded = 0.02 cfs @ 12.26 hrs, Volume= 131 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs
 Peak Elev= 72.12' @ 12.26 hrs Surf.Area= 320 sf Storage= 13 cf

Plug-Flow detention time= 4.0 min calculated for 131 cf (100% of inflow)
 Center-of-Mass det. time= 4.0 min (786.0 - 782.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	72.00'	157 cf	10.33'W x 30.95'L x 1.83'H Field A 586 cf Overall - 109 cf Embedded = 477 cf x 33.0% Voids
#2A	72.33'	109 cf	ADS_StormTech SC-160LP +Cap x 16 Inside #1 Effective Size= 18.0"W x 12.0"H => 0.96 sf x 7.12'L = 6.8 cf Overall Size= 25.0"W x 12.0"H x 7.56'L with 0.44' Overlap 16 Chambers in 4 Rows
		267 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	72.00'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.33'	4.0" Vert. Downspout Overflow C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.02 cfs @ 12.26 hrs HW=72.12' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.02 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=72.00' (Free Discharge)
 ↑2=Downspout Overflow (Controls 0.00 cfs)

Summary for Pond BB1: Bioretention Basin #1

Inflow Area = 43,822 sf, 55.16% Impervious, Inflow Depth = 0.38" for WQV event
 Inflow = 0.47 cfs @ 12.19 hrs, Volume= 1,404 cf
 Outflow = 0.21 cfs @ 12.50 hrs, Volume= 1,404 cf, Atten= 55%, Lag= 18.4 min
 Discarded = 0.21 cfs @ 12.50 hrs, Volume= 1,404 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 63.21' @ 12.50 hrs Surf.Area= 3,742 sf Storage= 254 cf

Plug-Flow detention time= 9.1 min calculated for 1,404 cf (100% of inflow)
 Center-of-Mass det. time= 9.0 min (863.6 - 854.6)

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Volume	Invert	Avail.Storage	Storage Description
#1	65.00'	9,214 cf	100 % Voids (Conic) Listed below (Recalc)
#2	63.00'	2,470 cf	Amended Soil (Conic) Listed below (Recalc)
			7,484 cf Overall x 33.0% Voids
		11,684 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
65.00	3,742	0	0	3,742
66.00	4,381	4,057	4,057	4,420
67.00	5,973	5,156	9,214	6,032

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
63.00	3,742	0	0	3,742
65.00	3,742	7,484	7,484	4,176

Device	Routing	Invert	Outlet Devices
#1	Primary	66.65'	17.5' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#2	Discarded	63.00'	2.410 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.21 cfs @ 12.50 hrs HW=63.21' (Free Discharge)
 ↑**2=Exfiltration** (Exfiltration Controls 0.21 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=63.00' (Free Discharge)
 ↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond SCT: STORMCAPTURE-SCT3

Inflow Area = 60,026 sf, 41.52% Impervious, Inflow Depth = 0.26" for WQV event
 Inflow = 0.27 cfs @ 12.40 hrs, Volume= 1,279 cf
 Outflow = 0.04 cfs @ 13.41 hrs, Volume= 1,279 cf, Atten= 83%, Lag= 60.8 min
 Discarded = 0.04 cfs @ 13.41 hrs, Volume= 1,279 cf
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 4
 Peak Elev= 71.38' @ 13.41 hrs Surf.Area= 512 sf Storage= 573 cf

Plug-Flow detention time= 127.4 min calculated for 1,279 cf (100% of inflow)
 Center-of-Mass det. time= 127.2 min (974.0 - 846.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	69.42'	169 cf	8.00'W x 64.00'L x 4.58'H Field A 2,347 cf Overall - 1,835 cf Embedded = 512 cf x 33.0% Voids
#2A	70.42'	1,266 cf	Oldcastle StormCapture SC1 3'x 4 Inside #1 Inside= 84.0"W x 36.0"H => 20.06 sf x 16.00'L = 321.0 cf Outside= 96.0"W x 43.0"H => 28.67 sf x 16.00'L = 458.7 cf 1 Rows adjusted for 18.0 cf perimeter wall
		1,435 cf	Total Available Storage

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Type III 24-hr WQV Rainfall=1.20"

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Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	69.42'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	73.25'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=0.04 cfs @ 13.41 hrs HW=71.38' (Free Discharge)

↳1=**Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=69.42' (Free Discharge)

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

Summary for Pond SF1: Sediment Forebay #1

Inflow Area = 43,822 sf, 55.16% Impervious, Inflow Depth = 0.54" for WQV event
 Inflow = 0.47 cfs @ 12.19 hrs, Volume= 1,985 cf
 Outflow = 0.47 cfs @ 12.19 hrs, Volume= 1,404 cf, Atten= 1%, Lag= 0.4 min
 Primary = 0.47 cfs @ 12.19 hrs, Volume= 1,404 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 5
 Peak Elev= 66.90' @ 12.19 hrs Surf.Area= 960 sf Storage= 600 cf

Plug-Flow detention time= 155.0 min calculated for 1,401 cf (71% of inflow)
 Center-of-Mass det. time= 65.2 min (854.6 - 789.3)

Volume	Invert	Avail.Storage	Storage Description
#1	66.00'	703 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
66.00	379	0	0
67.00	1,027	703	703

Device	Routing	Invert	Outlet Devices
#1	Primary	66.88'	80.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.45 cfs @ 12.19 hrs HW=66.90' (Free Discharge)

↳1=**Broad-Crested Rectangular Weir**(Weir Controls 0.45 cfs @ 0.35 fps)

Summary for Pond STC: Stormceptor - STC 1800

Inflow Area = 60,026 sf, 41.52% Impervious, Inflow Depth = 0.30" for WQV event
 Inflow = 0.27 cfs @ 12.39 hrs, Volume= 1,524 cf
 Outflow = 0.27 cfs @ 12.40 hrs, Volume= 1,279 cf, Atten= 0%, Lag= 0.2 min
 Primary = 0.27 cfs @ 12.40 hrs, Volume= 1,279 cf

Routing by Stor-Ind method, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs / 2

New London Ave - WQv [R1]

Type III 24-hr WQV Rainfall=1.20"

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Peak Elev= 73.26' @ 12.40 hrs Surf.Area= 28 sf Storage= 253 cf

Plug-Flow detention time= 109.1 min calculated for 1,279 cf (84% of inflow)
Center-of-Mass det. time= 42.8 min (846.7 - 803.9)

Volume	Invert	Avail.Storage	Storage Description
#1	64.30'	301 cf	6.00'D x 10.66'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	73.00'	15.0" Round Culvert L= 17.0' Ke= 0.700 Inlet / Outlet Invert= 73.00' / 72.83' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=0.27 cfs @ 12.40 hrs HW=73.26' (Free Discharge)
↑**1=Culvert** (Barrel Controls 0.27 cfs @ 2.20 fps)

Summary for Link DP-1: Northeastern Lower Gradient

Inflow Area = 124,647 sf, 26.44% Impervious, Inflow Depth = 0.01" for WQV event
Inflow = 0.01 cfs @ 12.40 hrs, Volume= 68 cf
Primary = 0.01 cfs @ 12.40 hrs, Volume= 68 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-2: Route 295 - Lower Gradient Basin

Inflow Area = 97,643 sf, 30.42% Impervious, Inflow Depth = 0.00" for WQV event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs

Summary for Link DP-3: Southeastern Lower Gradient

Inflow Area = 21,098 sf, 39.49% Impervious, Inflow Depth = 0.39" for WQV event
Inflow = 0.20 cfs @ 12.09 hrs, Volume= 684 cf
Primary = 0.20 cfs @ 12.09 hrs, Volume= 684 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-28.00 hrs, dt= 0.05 hrs