October 30, 2018

Ms. Barbara Barhydt
Development Review Manager
City of Portland
389 Congress Street
Portland, ME 04101
bab@portlandmaine.gov

Re: Level III Site Plan Review Application | Plymouth REIT 56 Milliken Street, Portland, Maine

Dear Barbara:

CES, Inc. (CES) is submitting a Level III Site Plan Review application for a 72,000 square foot warehouse building at 56 Milliken Street off Riverside Industrial Parkway. The owner and applicant is Plymouth REIT with offices at 260 Franklin Street, 7th floor, Boston, Massachusetts. The site is the current home of Paradigm Windows and Advance Pierre. This building will provide additional warehouse space within the City of Portland. The new building and impervious area will add 2.98 acres to the exiting 11.4 acres of impervious area. The site was originally developed in 1966. Approximately 5.7 acres or impervious area (building and site impervious) was constructed prior to 1975. In 1994 a major expansion of the building and site impervious area was permitted by the City of Portland under Delegated Authority of Site Location of Development Act (SLODA). There have been revisions to the SLODA. The latest was in 2013 when the City permitted a new loading dock and 26,700 square feet of impervious area. That revision brought the total site impervious area to 11.4 acres. This proposed development will add 2.98 acres of new impervious. The Maine Department of Environmental Protection (MDEP) has not exerted jurisdiction over this project and is allowing the City of Portland to review this project.

The application is divided into Tabs to match the sections of the Level II and Level III Application Submission Checklist. Each Tab has a separate narrative addressing the respective section of the Land Use Ordinance and Technical Manual requirements. Tab 1 contains the basic project information including this cover letter, checklist, Right, Title and Interest, Zoning Assessment, Waiver Requests, Financial Capability, and Technical Capability. Tab 2 addresses Transportation, Tab 3 is Environmental and Landscape Features, Tab 4 is Environmental and Stormwater, Tab 5 is Public Infrastructure and Safety, Tab 6 is Site Design, and Tab 7 is the Construction Management Plan.

465 South Main Street
PO Box 639
Brewer, Maine 04412
T 207.989.4824
F 207.989.4881

Drawings include the following:

Architectural Plans P-T2.1 and P-T2.2 Code Review plans
Architectural Plans P-A1.1 through A2.1 floor plans and elevations
Cover Sheet
C101 Existing Site Plan
C102 Proposed Site Layout and Grading Plan
C103 Proposed Utility Plan
C104 Site Electrical Plan
C501 through C503 Details
C701 Pre-Development Hydrology Plan
C702 Post Development Hydrology Plan
C801 Construction Management Site Plan
C802 Photometric Plan

We are also including a boundary and ALTA survey by SGC Engineering, LLC.

In Tab 1 we have included the Waiver Table to request a waiver from 15-526 (a) 2 c requiring sidewalks on all frontages. Neither Milliken Street nor Riverside Industrial Parkway have sidewalks along the public right-of-way. The area is industrial and not conducive to pedestrian traffic.

Please contact us if we can provide additional information.

Sincerely,
CES, Inc.

John D. Kuchinski, PE
Senior Project Engineer

JDK/gdr
Enc
cc: Jeff Witherell, Plymouth REIT

Portland, Maine Yes. Life's good here.

Planning & Urban Development Department

LEVEL II and LEVEL III APPLICATION SUBMISSION CHECKLIST

Submit each Tab as one PDF file and bookmark the items as noted below

Please confirm by electronically checking the boxes to the left

Tab 1 – General Application Documents

Checklist	Items to be Provided
Yes NA Plan ✔	PROJECT DESCRIPTION • Cover Letter with detailed project description
Yes NA Plan ✔	COMPLETED CHECKLIST – LEVEL III APPLICATION
Yes NA Plan ✔	RIGHT, TITLE AND INTEREST • Deeds, leases, or purchase and sales agreements
Yes NA Plan ✔	EVIDENCE OF STATE OR FEDERAL APPROVALS, if applicable • Permits or letters of non-jurisdiction, if applicable
Yes NA Plan ✔	ZONING ASSESSMENT • Table listing required and proposed uses and dimensional standards Zoning Assessment Table
Yes NA Plan ✔	EXISTING &/OR PROPOSED EASEMENTS OR COVENANTS, if applicable • Evidence of existing easements and any proposed easements
Yes NA Plan ✔	WAIVER REQUESTS • Written request for waiver describing request and reason. Waiver Table
Yes NA Plan ✔	FINANCIAL CAPABILITY • Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
Yes NA Plan ✔	TECHNICAL CAPABILITY • Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

LEVEL II AND LEVEL III SITE PLAN STANDARDS AND SUBMISSION CHECKLIST

Provide assessment of compliance with standards and include supplemental documentation, as applicable.

Submit each Tab as one PDF file and bookmark the items as noted below

Tab 2 - TRANSPORTATION

Check list	Assess/Provide/Document:
Yes NA Plan ✔	**Transportation Analysis- Traffic Impact (14-526 (a) 1)** • Provisions for pedestrian, bicycle, vehicle, and loading circulation and incremental volume of traffic impacts • Traffic Impact Study (Technical Manual, Section 1) if applicable
Yes NA Plan ✔	**Access and Circulation (14-526 (a) 2 a)** • Access and internal circulation, addressing ADA access • Access and egress impacts on traffic flows • Description and use of drive-up features, if applicable
Yes NA Plan ✔	**Loading and Servicing (14-526 (a) 2 b)** • Loading and servicing needs, route and travel way geometrics for deliveries • Turning templates for delivery vehicles, if applicable
Yes NA Plan ✔	**Sidewalks (14-526 (a) 2 c)** • Sidewalks and condition along street frontages and internal walkways • Engineered details for ADA ramps and public sidewalk details meeting sidewalk materials policy and ADA ramp construction details as applicable (Technical Manual, Section 1)
Yes NA Plan ✔	**Public Transit (14-526 (a) 3), if applicable** • Existing available transit services • Proposed site plan design details, such as easement, pad base, and shelter
Yes NA Plan ✔	**Off-Street Parking: Vehicle & Motorcycle/Scooter) (14-526 (a) 4 a and c)** • Expected parking demand, proposed parking supply, ADA parking, and applicable Zoning Requirements • Address Technical Manual standards (Section 1) for curb cut separation and parking lot layout and locate on site plan
Yes NA Plan ✔	**Bicycle Parking (14-526 (a) 4 b)** • Address bicycle parking requirements and identify locations on-site • Construction details for bike racks (Technical Manual, Section 1)
Yes NA Plan ✔	**Snow Storage (14-526 (a) 4 d)** • Management plan for snow removal and locate snow storage areas on plan
Yes NA Plan ✔	**Traffic Demand Management (TDM) (14-526 (a) 5), if applicable** • Develop TDM with Trip Reduction Targets and Strategies

Tab 3 - ENVIRONMENTAL AND LANDSCAPE FEATURES

Check list	Assess/Provide/Document:
Yes NA Plan ✔	**Preservation of Significant Natural Features (14-526 (b) 1), if applicable** • Trees, plants, habitats listed on State or Federal list of endangered or threatened • High and moderate value waterfowl and wading habitat • Aquifers on Casco Bay Islands • Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) • Proposed preservation areas and protection measures • Documentation from environmental consultants, determinations from applicable state agencies
Yes NA Plan ✔	**Landscaping and Landscape Preservation (14-526 (b) 2 a)** • Preservation of trees and preservation within required zoning setbacks (Technical Manual, Section 4) • Protection measures of existing vegetation during construction • Protection measures within Shoreland Zone, if applicable
Yes NA Plan ✔	**Site Landscaping (14-526 (b) 2 b)** • Screening and buffering of service areas and between non-residential and residential uses • Planting plans with plant schedule and sizes (Technical Manual, Section 4)
Yes NA Plan ✔	**Parking Lot Landscaping (14-526 (b) 2 b ii), if applicable** • Landscaped islands within parking areas (Technical Manual, Section 4)
Yes NA Plan ✔	**Street Trees (14-526 (b) 2 b iii)** • Existing Heritage or Feature Trees on site and measures to preserve • Identify street trees on the plan meeting the site plan and Technical Manual standards (Section 4) or identify alternative measures, if applicable

Tab 4 - ENVIRONMENTAL AND STORMWATER

Check list	Assess/Provide/Document:
Yes NA Plan ✔	**Water Quality, Stormwater Management and Erosion Control (14-526 (b) 3 a)** • Stormwater report in compliance with Section 5 of Technical Manual and DEP Chapter 500 stormwater for basic, general and flooding standards, as applicable • Erosion control plan and measures • Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater, as applicable • Subsurface sanitary sewage disposal and groundwater protection

Tab 5 - PUBLIC INFRASTRUCTURE AND SAFETY

Check list	Assess/Provide/Document:
Yes NA Plan ✔	**Consistency with City Master Plans (14-526 (c) 1)** • Identify consistency with master plans • Proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes NA Plan ✔	**Public Safety and Fire Prevention (14-526 (c))** • Address Crime Prevention through Environmental Design (CPTED) (Technical Manual, Section 3) • Emergency vehicle access • Address consistency with public safety standards (Technical Manual, Section 3) • Submit a code summary referring NFPA 1 and all Fire Department standards (Technical Manual, Section 3) – Fire Checklist
Yes NA Plan ✔	**Availability and Adequacy of Public Utilities (14-526 (c) 3) (Technical Manual, Sections 2 & 9)** • Electrical services, including providing underground services • Identify existing and proposed connections for public utilities and required public utility upgrades • Sewer line connections are required, if there is a main within 200 feet • Proposed solid waste management facilities on-site and management for the site • Written evidence of the ability to serve from utility companies, as applicable

Tab 6 - SITE DESIGN

Check list	Assess/Provide/Document:
Yes NA Plan ✔	**Massing, Ventilations and Wind Impact (14-526 (d) 1)** • Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable • Bulk, location or height impacts on adjoining structures • Identify and locate HVAC equipment and venting away from public spaces and residential properties • Identify screening and manufacturing specifications for noise, if applicable
Yes NA Plan ✔	**Shadows (14-526 (d) 2), if applicable** • Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes NA Plan ✔	**Snow and Ice Loading (14-526 (d) 3)** • Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes NA Plan ✔	**View Corridors (14-526 (d) 4), if applicable** • Protection of designated view corridors (Portland Design Manual, Appendix 1)

Yes NA Plan ☐ ✔ ☐	**Historic Resources (14-526 (d) 5), if applicable** • Identify developments within Historic Districts or affecting Designated Landmarks • Certificate of Appropriateness or other evidence • Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required • Address preservation and documentation of Archaeological Resources
Yes NA Plan ✔ ☐ ☐	**Exterior Lighting (14-526 (d) 6)** • Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12) • Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)
Yes NA Plan ✔ ☐ ☐	**Noise and Vibration (14-526 (d) 7)** • Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements
Yes NA Plan ☐ ☐ ☐	**Signage and Wayfinding (14-526 (d) 8), if applicable** • Signage plan showing the location, dimensions, height and setback of all existing and proposed signs. Signs in Historic Districts are reviewed by Historic Preservation staff • Proposed commercial and directional signage on site
Yes NA Plan ☐ ✔ ☐	**Zone Related Design Standards (14-526 (d) 5)** • Address Historic Preservation Design Review, if applicable • Address any applicable design review standards by zone • Address submission requirements from Design Manual, page 1, addressing neighborhood context • Description of exterior materials, color, finish, and samples
Tab 7 - Construction Management Plan	
Check list	
Yes NA Plan ✔ ☐ ☐	**Construction Management Plan** • Construction Management Document and Plan

Level II and Level III Site Plan Checklist

Please upload the following drawings with the listed details into e-Plan

☐ **RECENT BOUNDARY SURVEY** (stamped by Maine Licensed Surveyor)

Must be in compliance with Technical Manual, Section 13

SITE PLAN(s) (stamped by Maine Licensed Engineer) including:

☑ **Existing Conditions**

- Approximate location of structures on abutting property
- Topography
- Locate water courses
- Delineate wetlands
- Zone lines

☑ **Proposed Site Plan**

- Ground floor area, and grade elevations for all buildings

☑ **Access, Circulation, and Parking**

- Streets and intersections adjacent to site , any proposed geometric modifications
- Location, dimensions and materials of all existing and proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- Location and dimensions of proposed loading areas
- Existing and proposed transit infrastructure with dimensions/ engineering specifications
- Location of vehicle and bicycle parking with dimensions and engineering specifications

☑ **Site Considerations**

- Identify snow storage areas
- Location of fire hydrants
- Location of solid waste management facilities

☑ **UTILITY PLAN** including:

- Existing utilities on site and within public streets
- Location, sizing, and directional flows of all existing and proposed utilities
- Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site
- Electric utility infrastructure

☑ GRADING and DRAINAGE PLAN including:
• Existing grades and drainage • Proposed grades • Proposed stormwater management meeting Technical Manual (Section 5) standards • Location and proposed alteration of a water course • Preservation or alteration of wetlands
☑ EROSION CONTROL
• Must be in compliance with Technical Manual, Section 5
☑ LANDSCAPE PLAN including:
• Existing vegetation to be preserved and preservation measures • Proposed landscaping and buffers • Planting schedule
☐ RECORDING PLAT, if applicable
• IF SUBDIVISION: Must be in compliance with requirements of Section 14-496 (b)
☑ ARCHITECTURAL PLANS & RENDERINGS including:
• Exterior building elevations, color renderings, illustrations of all sides • Location and dimensions of all existing & proposed HVAC & mechanical equipment, all proposed screening • Provide context drawings, if applicable (Design Manual, page 1) • Floor plans

QUITCLAIM DEED WITH COVENANT

KNOW ALL BY THESE PRESENTS, that **Milliken Portland Partners, LLC**, a Massachusetts limited liability company with a mailing address of 40 South Street, Suite 305, Marblehead, MA 01945 (the "Grantor"), for consideration paid, grants to **Plymouth 56 Milliken LLC**, a Delaware limited liability company (the "Grantee"), with a mailing address of 260 Franklin Street, 19th Floor, Boston, MA 02110, with Quitclaim Covenant, the premises in the City of Portland, Cumberland County, State of Maine, described in **Exhibit A** attached hereto and made a part of hereof.

[*Signature Page Follows*]

IN WITNESS WHEREOF, the said Milliken Portland Partners, LLC has caused this instrument to be executed by J. Hilary Rockett, Jr., Manager of JHR Development, LLC, its Manager, hereunto duly authorized this 18TH of November, 2014.

Milliken Portland Partners, LLC, a
Massachusetts limited liability company

By: JHR Development, LLC, its Manager

By:_____
J. Hilary Rockett, Jr., Manager

COMMONWEALTH OF MASSACHUSETTS

Suffolk, ss.

On this 18th day of November, 2014, before me, the undersigned notary public, personally appeared **J. Hilary Rockett, Jr.**, proved to me through satisfactory evidence of identification, which was ☐ photographic identification with signature issued by a federal or state governmental agency, ☑ personal knowledge of the undersigned, ☐ oath or affirmation of a credible witness, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily and for its stated purpose as Manager of JHR Development, LLC, Manager of Milliken Portland Partners, LLC.

Notary Public:
My commission expires:

JULIA M. WHALL
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
July 24, 2020

EXHIBIT A

(56 Milliken Street, Portland, Cumberland County, Maine)

TRACT I:

A certain lot or parcel of land with any buildings thereon situated easterly of Riverside Industrial Parkway and Northerly of Milliken Street in the City of Portland, County of Cumberland and State of Maine, to wit:

BEGINNING on the westerly side of land now or formerly of the Portland Terminal Company at a drill hole in a found stone at the northerly corner at land now or formerly owned by Portland Water District;

Thence, South 55°14'20" West, 71.28 feet along said Water District land to a point;

Thence, North 21°15'40" West, 17.82 feet along said Water District land to a point;

Thence, South 74°52'45" West, 31.62 feet along said Water District land to a point near an iron pipe;

Thence, South 55°51'08" West, 75.26 feet along land now or formerly owned by Milliken Street LLC to a point near a 5/8" rebar;

Thence, North 21°16'37" West, 555.77 feet along land now or formerly owned by Milliken Street LLC to a point near a 5/8" rebar;

Thence, South 68°44'47" West, 114.56 feet to a point near a 5/8" rebar;

Thence, North 14°55'55" West, 14.08 feet along said Milliken Street LLC land, passing over an iron pipe, said pipe being distant 1.2 feet from the terminus of said course, to a point;

Thence, South 75°08'46" West, 328.45 feet along said Milliken Street LLC land to a point;

Thence, South 13°13'08" West, 61.39 feet along said Milliken Street LLC land to a point;

Thence, South 68°44'47" West, 143.78 feet to a point in the easterly line of Milliken Street;

Thence, along easterly line North 56°10'30" West, 92.98 feet to a point;

Thence, North 56°04'53" West, 117.32 feet to a point;

Thence, leaving said easterly line North 34°51'20" East, 213.80 feet to a point;

Thence, North 35°56'16" West, 781.79 feet to a point in the easterly right-of-way of Riverside Industrial Parkway;

Thence, along said easterly right-of-way line North 18°39'48" East, 204.96 feet to a point;

Thence, leaving said easterly right-of-way North 68°40'30" East, 849.45 feet to a point in the westerly sideline of said Portland Terminal Company land;

Thence, along said westerly line along a curve deflecting to the left having a radius of 2,902.78 feet, an arc of 178.13 feet, a chord bearing of South 15°42'18" East, a chord of 178.10 feet to a point;

Thence, along a curve deflecting to the left having a radius of 6,422.46 feet, an arc of 427.82 feet, a chord bearing of South 19°21'10" East, a chord of 427.74 feet to a point;

Thence, South 21°15'40" East, 521.66 feet to a point;

Thence, South 57°03'20" West, 16.85 feet to a point;

Thence, South 21°15'40" East, 619.95 feet to the POINT OF BEGINNING, containing 25.75 acres.

Being the Tract I of the premises conveyed to Grantor by deed of C&S Logistics of Portland LLC, dated as of August 10, 2004 and recorded in the Cumberland County Registry of Deeds in Book 21653, Page 272.

TRACT II:

A certain lot or parcel of land situated Easterly of Riverside Industrial Parkway & Northerly of Milliken Street in the City of Portland, County of Cumberland, Maine to wit:

COMMENCING at a point on the westerly side of land now or formerly of the Portland Terminal Company t the northerly corner of the land now or formerly owned by the Portland Water District;

Thence South 55°14'20" West, 71.28 feet along said Water District Land to a point;

Thence North 21°15'40" West, 17.82 feet along said Water District Land to a point;

Thence South 74°52'45" West, 31.62 feet along said Water District Land to a point near an iron pipe;

Thence South 55°51'08" West, 75.26 feet along land now or formerly owned by Milliken Street LLC to a point near a 5/8" rebar;

Thence North 21°16'37" West, 555.77 feet along said Milliken Street LLC land to a 5/8" rebar;

Thence South 68°44'47" West, 114.56 feet along said Milliken Street LLC land to a point near a 5/8" rebar;

Thence North 14°55'55" West, 14.08 feet along said Milliken Street LLC land, passing over an iron pipe, said pipe being distant 1.2 feet from the terminus of said course, to a point;

Thence South 75°08'46" West, 328.45 feet along said Milliken Street LLC land to a point;

Thence South 13°13'08" West, 61.39 feet along said Milliken Street LLC land to a point;

Thence South 68°44'47" West, 143.78 feet to a point in the easterly line of Milliken Street;

Thence along said easterly line North 56°10'30" West, 92.98 feet to a point;

Thence North 56°04'53" West, 117.32 feet to the true point of beginning;

Thence continuing along the easterly line of Milliken Street North 56°04'53" West, 280.50 feet to a point;

Thence North 63°50'00" West, 258.77 feet to a point at the Intersection of said easterly line and the southern line of land conveyed to ADC Building Fund Inc. by Davis-Greene Co. dated December 18, 1962, recorded in Book 2723, Page 182;

Thence leaving said easterly line along said southern line North 55°47'03" West, 91.92 feet to a point at the intersection of said easterly line and said southern line;

Thence leaving said southern line along said easterly line of Milliken Street along a curve deflecting to the right having a radius of 50.00' and arc of 49.66', a chord bearing of North 06°39'55" East, a chord of 47.64', to a point at the intersection of said easterly line of Milliken Street and the easterly line of Riverside Industrial Parkway;

Thence leaving said easterly line of Milliken Street along said easterly line of Riverside Industrial Parkway along a curve deflecting to the left having a radius of 1171.67', an arc of 336.46, a chord bearing of North 26° 53' 24" East, a chord of 335.31' to a point;

Thence North 18°39'48" East, 147.48 feet to a point;

Thence leaving said easterly line along a line between Tract I and II South 35°56'16" East, 781.79 feet to a point;

Thence South 34°51'20" West, 213.80 feet to the true POINT OF BEGINNING, containing 5.46 acres.

Being Tract II of the premises conveyed to Grantor by deed of C&S Logistics of Portland LLC, dated as of August 10, 2004 and recorded in the Cumberland County Registry of Deeds in Book 21653, Page 272.

Tracts I and II are conveyed SUBJECT TO:

a. Rights and easements granted to Central Maine Power Company and Verizon New England, Inc. in a certain utility easement dated January 21, 2005, recorded in the Cumberland County Registry of Deeds in Book 22575, Page 21.

b. Current zoning restrictions.

ZONING ANALYSIS Relevant Zone(s) I-M

All Projects:

	Required	Proposed
Lot Size	None	31.21 acres
Area Per Dwelling Unit	N/A	N/A
Minimum Street Frontage	60 Ft.	841.49 Ft.
Front Yard Minimum	1 Ft. per Bld Ht	458.9 Ft.
Front Yard Maximum	N/A	N/A
Rear Yard	25 Ft.	47.4 Ft.
Yard Right	25 Ft.	186.8 Ft.
Yard Left	25 Ft.	52 Ft.
Side Street Setback	N/A	N/A
Step Back	N/A	N/A
Maximum Lot Coverage	75 %	
Minimum Lot Coverage	N/A	N/A
Maximum Height	75 Ft.	
Open Space	N/A	N/A
Maximum Impervious Area	N/A	N/A
Pavement Setback	10 Ft.	
Floor Area Ratio	N/A	N/A
Off Street Parking Spaces		
Loading Bays		
Other 1		
Other 2		
Other 3		

Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density			
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			

Standard to be Waived: Cite Ordinance or Technical Manual Standard	Cite Standard Language: Cite specific language of applicable Ordinance or Technical Manual Standard	Waiver Being Sought: Describe waiver being sought. Ex. – We are requesting a two-way parking lot drive aisle width of 20' feet.	Justification for Waiver: Address specific waiver criteria, if applicable, and document reasons for the waiver request.
Technical Standard Section 14-526 (a)(2)(c)	All proposed developments shall provide sidewalks along all frontages in accordance with Sections 14-498 and 14-499 of the City Code, installed to City specifications as described in Section 1 of the Technical Manual.	We are requesting a waiver from the requirement to construct sidewalks on the public frontages.	Neither Milliken Street nor Riverside Industrial Parkway has pedestrian sidewalks, There are not any City sidewalks within 1000 feet or more of the site

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT
PURSUANT TO SECTION 13 OR 15(d) OF
THE SECURITIES EXCHANGE ACT OF 1934

August 8, 2018
Date of Report (Date of earliest event reported)

PLYMOUTH INDUSTRIAL REIT, INC.
(Exact Name of Registrant as Specified in Its Charter)

MARYLAND	001-38106	27-5466153
(State or Other Jurisdiction of Incorporation)	(Commission File Number)	(IRS Employer Identification No.)

260 Franklin Street, 7th Floor
Boston, MA 02110
(Address of Principal Executive Offices) (Zip Code)

(617) 340-3814
(Registrant's Telephone Number, Including Area Code)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (*see* General Instruction A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 2.02 Results of Operations and Financial Condition

On August 8, 2018, Plymouth Industrial REIT, Inc. (the "Company") issued a press release (the "Earnings Release") announcing, among other things, earnings for the quarter ended June 30, 2018. The text of the Earnings Release is included as Exhibit 99.1 to this Current Report.

The Earnings Release is furnished pursuant to Item 2.02 and shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), or subject to the liabilities of that Section. The information in this Current Report shall not be incorporated by reference in any filing under the Securities Act of 1933, as amended (the "Securities Act"), or the Exchange Act, except as shall be expressly set forth by specific reference in such filing.

Item 7.01 Regulation FD Disclosure.

On August 8, 2018, the Company disclosed a supplemental analyst package in connection with its earnings conference call for the quarter ended June 30, 2018 which will take place on August 9, 2018. A copy of the supplemental analyst package is attached hereto as Exhibit 99.2.

The supplemental analyst package is furnished pursuant to Item 7.01 and shall not be deemed "filed" for purposes of Section 18 of the Exchange Act, or subject to the liabilities of that Section. The information in this Current Report shall not be incorporated by reference in any filing under the Securities Act or the Exchange Act, except as shall be expressly set forth by specific reference in such filing.

Item 9.01 Financial Statements and Exhibits.

(d) Exhibits:

Exhibit No.	Description
99.1	Press Release dated August 8, 2018
99.2	Supplemental Analyst Package – Second Quarter 2018

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Company has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

PLYMOUTH INDUSTRIAL REIT, INC.

Date: August 8, 2018

By: */s/ Jeffrey E. Witherell*
Jeffrey E. Witherell
Chief Executive Officer

Contact:
Tripp Sullivan
SCR Partners
(615) 760-1104
TSullivan@scr-ir.com

PLYMOUTH INDUSTRIAL REIT REPORTS SECOND QUARTER RESULTS AND AFFIRMS GUIDANCE

BOSTON, August 8, 2018 – Plymouth Industrial REIT, Inc. (NYSE America: PLYM) (the "Company") today announced its consolidated financial results for the quarter ended June 30, 2018 and other recent developments. A comparison of the reported amounts per share for the second quarter of 2018 to prior-year periods has been affected by an increase in the common stock outstanding resulting from the completion of, and the use of proceeds from, the Company's initial public offering (the "IPO") in June 2017 and its preferred stock offering in October 2017, as discussed below.

Second Quarter and Subsequent Highlights

- Reported results for the second quarter of 2018 reflect a net loss attributable to common stockholders of $7.7 million, or $(2.27) per weighted average common share, including a loss on extinguishment of debt of $3.6 million; net operating income ("NOI") of $8.2 million; Funds from Operations ("FFO") of $2.5 million; FFO attributable to common stockholders and unit holders of $0.39 per weighted average common share and units; and Adjusted FFO ("AFFO") of $0.42 per weighted average common share and units.
- For the second quarter of 2018, declared a regular quarterly cash dividend of $0.375 for the common stock and a regular quarterly cash dividend of $0.46875 per share for the 7.50% Series A Cumulative Redeemable Preferred Stock ("the Preferred Stock").
- On April 9, 2018, the Company acquired two Class B industrial properties totaling 270,000 square feet in the Chicago area for $15.675 million in cash and a projected initial yield of 8.0%.
- From April to July 2018, the Company completed a series of financings totaling $135 million that eliminated variable rate and higher interest rate debt, resulting in 80% of its total debt at fixed rates maturing over the next 5 to 10 years with a weighted average interest rate of 4.13%.
- On July 23, 2018, the Company completed an underwritten registered public offering of 1.1 million shares of common stock that resulted in net proceeds of approximately $16.0 million.

Jeff Witherell, Chairman and Chief Executive Officer of Plymouth Industrial REIT, noted, "Our focus continues to be on improving our portfolio through re-leasing, asset management and acquisitions as well as enhancing our capital structure. We made major strides on all fronts as we had over 857,000 square feet of new and renewal leases commencing this quarter, bringing our occupancy to 93.4%. The reconciliation of the balance sheet was substantial as we completed over $135 million of new financings that locked up 80% of our debt with low, long-term fixed rates and eliminated high interest rate mezzanine debt. The recent overnight follow-on offering also raised $16 million in equity while enabling us to achieve shelf registration eligibility, which should improve our future ability to access capital when the market is appropriately rewarding the embedded value we have created in the portfolio."

Financial Results for the Second Quarter of 2018

The completion of the IPO on June 14, 2017 and a preferred stock offering on October 25, 2017 provided the Company with a meaningfully different capital structure compared to the prior-year period. The Company believes the use of IPO proceeds and related higher share count, makes year-over-year comparisons less meaningful, particularly on a per share basis.

Net loss attributable to common stockholders for the quarter ended June 30, 2018 was $7.7 million, or $(2.27) per weighted average common share outstanding, compared with net loss attributable to common stockholders of $1.2 million, or $(1.26) per weighted average common share, for the same period in 2017. The increase in net loss for the second quarter of 2018 was primarily due to an increase in depreciation and amortization expense of $3.7 million, a Loss on Debt Extinguishment of $3.6 million related to the payoff of the prior mezzanine debt, and, increased general and administrative expense for professional fees related to public company requirements of approximately $160,000.

Consolidated total revenues for the quarter ended June 30, 2018 were $12.0 million, compared with $5.0 million for the same period in 2017.

Net operating income (NOI) for the quarter ended June 30, 2018 was $8.2 million compared with NOI of $3.5 million for the same period in 2017. NOI in the current quarter included a one-time reduction in operating expenses for real estate tax accruals of $520,000.

EBITDA for the quarter ended June 30, 2018 was $6.7 million compared with $2.2 million for the same period in 2017.

FFO for the quarter ended June 30, 2018 was $2.5 million compared with $(583,000) for the same period in 2017, primarily as a result of significantly higher NOI, the adjustment for loss on extinguishment of debt and the increase in weighted average shares following the IPO in June 2017. FFO attributable to common stockholders and unit holders for the quarter ended June 30, 2018 was $1.6 million, or $0.39 per weighted average common share and units, compared with $(583,000), or $(0.63) per weighted average common share, for the same period in 2017. The increase was due to the reasons noted above for FFO, offset by $1.0 million of preferred stock dividends.

AFFO for the quarter ended June 30, 2018 was $1.7 million, or $0.42 per weighted average common share and units, compared with $(399,000), or $(0.43) per weighted average common share, for the same period in 2017, primarily driven by the change in FFO, an increase in deferred finance fees and non-cash interest of $655,000 offset by increased straight line rent and above/below market rent adjustments and recurring capital expenditures and lease commissions of approximately $813,000 incurred in the quarter and the increase in weighted average shares following the IPO in June 2017.

Investment Activity
As of June 30, 2018, the Company had real estate investments comprised of 51 industrial properties totaling 9.5 million square feet with occupancy of 93.4%. On April 9, 2018, the Company completed the acquisition of two single-tenant Class B industrial properties totaling 270,000 square feet in the greater Chicago area for $15.675 million in total consideration. The purchase price is projected to provide an initial yield of 8.0%.

Leasing Activity
Leases commencing during the second quarter totaled an aggregate of 857,000 square feet, of which 812,000 square feet was for leases of at least six months. The leases six months or longer included 147,000 square feet of renewal leases and 665,000 square feet of new leases. The Company will experience an 8.4% increase in rental rates on a cash basis from these leases. The leasing activity for the quarter was heavily influenced by the 527,127-square-foot lease that commenced in April 2018 at the Company's property at 3500 Southwest Boulevard in Columbus, Ohio.

For the six months ended June 30, 2018, leases executed totaled 1,362,000 square feet, of which 1,121,000 square feet was for leases of at least six months. The leases six months or longer included 294,000 square feet of renewal leases and 827,000 square feet of new leases. The Company will experience a 7.7% increase in rental rates, on a cash basis, from all of the leases executed in the first six months of 2018 with a lease term of at least six months.

Capital Markets Activity
On April 30, 2018, the Company closed on a 10-year, $21.5 million mortgage with a fixed interest rate of 3.78% that is secured by seven industrial properties. Proceeds from the new financing were used to pay down outstanding borrowings on the Company's senior secured revolving credit facility.

On May 24, 2018, the Company repaid in full its outstanding mezzanine debt, which was scheduled to mature in October 2023 and had an interest rate of 15.0%, with proceeds from a new $35.7 million senior secured term loan that bears interest at LIBOR plus 700 basis points and matures in August 2021.

On July 10, 2018, the Company closed on a new 10-year $78.0 million loan with a fixed interest rate of 4.35% and secured by 18 Chicago area properties. The proceeds, together with additional working capital, were used to repay in full the Company's $79.8 million variable rate secured term loan that was scheduled to mature in December 2019 and had a floating interest rate of 310 basis points over LIBOR.

On July 23, 2018, the Company closed on an underwritten registered public offering of 1.1 million shares of its common stock, resulting in net proceeds to the Company of approximately $16.2 million.

Quarterly Distributions to Stockholders
On June 1, 2018, the Company's Board of Directors declared a regular quarterly cash dividend of $0.46875 per share for the Company's Preferred Stock for the second quarter of 2018. The dividend was paid on July 2, 2018 to stockholders of record on June 15, 2018.

On June 14, 2018, the Company's Board of Directors declared a regular quarterly cash dividend of $0.375 per share for Company's common stock for the second quarter of 2018. The dividend was payable on July 31, 2018, to stockholders of record on June 29, 2018.

2018 Outlook
The Company affirmed its 2018 guidance for revenues and NOI previously issued on May 3, 2018. The information provided contains estimates based on the Company's anticipated results of operations for 2018. All estimates exclude any potential impact from additional acquisitions:

- Total revenues of $44.8 million to $45.6 million
- Net operating income of $28.9 million to $29.8 million
- General and administrative expenses of $5.0 million to $5.7 million, including non-cash expenses of $0.8 million to $1.0 million
- 5.1 million common shares and operating partnership units outstanding

Earnings Conference Call and Webcast
The Company will host a conference call and live audio webcast, both open for the general public to hear, on Thursday, August 9, 2018 at 10:00 a.m. Eastern Time. The number to call for this interactive teleconference is (412) 717-9587. A replay of the call will be available through August 16, 2018, by dialing (412) 317-0088 and entering the replay access code, 10122697.

The live audio webcast of the Company's quarterly conference call will be available online in the Investor Relations section of the Company's website at www.plymouthreit.com. The online replay will be available approximately one hour after the end of the call and archived for approximately 90 days.

About Plymouth
Plymouth Industrial REIT, Inc. is a vertically integrated and self-managed real estate investment trust focused on the acquisition and operation of single and multi-tenant industrial properties located in secondary and select primary markets across the United States. The Company seeks to acquire properties that provide income and growth that enable the Company to leverage its real estate operating expertise to enhance shareholder value through active asset management, prudent property re-positioning and disciplined capital deployment.

Forward-Looking Statements
This press release includes "forward-looking statements" that are made pursuant to the safe harbor provisions of Section 27A of the Securities Act of 1933 and of Section 21E of the Securities Exchange Act of 1934. The forward-looking statements in this release do not constitute guarantees of future performance. Investors are cautioned that statements in this press release, which are not strictly historical statements, including, without limitation, statements regarding management's plans, objectives and strategies, constitute forward-looking statements. Such forward-looking statements are subject to a number of known and unknown risks and uncertainties that could cause actual results to differ materially from those anticipated by the forward-looking statement, many of which may be beyond our control. Forward-looking statements generally can be identified by the use of forward-looking terminology such as "may," "plan," "seek," "will," "expect," "intend," "estimate," "anticipate," "believe" or "continue" or the negative thereof or variations thereon or similar terminology. Any forward-looking information presented herein is made only as of the date of this press release, and we do not undertake any obligation to update or revise any forward-looking information to reflect changes in assumptions, the occurrence of unanticipated events, or otherwise.

PLYMOUTH INDUSTRIAL REIT, INC.
CONDENSED CONSOLIDATED BALANCE SHEETS
UNAUDITED
(In thousands, except share and per share amounts)

	June 30, 2018	December 31, 2017
Assets		
Real estate properties	$ 320,863	$ 303,402
Less accumulated depreciation	(32,809)	(25,013)
Real estate properties, net	288,054	278,389
Cash	4,311	12,915
Cash held in escrow	6,221	5,074
Restricted cash	1,596	1,174
Deferred lease intangibles, net	25,020	27,619
Other assets	7,430	4,782
Total assets	$ 332,632	$ 329,953
Liabilities, Series A Preferred Stock and Equity		
Liabilities:		
Secured debt, net	251,919	195,431
Mezzanine debt, net	—	29,364
Borrowings under line of credit, net	18,678	20,837
Deferred interest	—	1,357
Accounts payable, accrued expenses and other liabilities	16,864	16,015
Deferred lease intangibles, net	6,657	6,807
Total Liabilities	294,118	269,811
Preferred stock, Series A; $0.01 par value, 100,000,000 shares authorized; 2,040,000 shares issued and outstanding (aggregate liquidation preference of $51,000)	48,868	48,931
Equity (Deficit):		
Common stock, $0.01 par value: 900,000,000 shares authorized; 3,556,043 and 3,819,201 shares issued and outstanding at June 30, 2018 and December 31, 2017, respectively	36	39
Additional paid in capital	114,085	123,270
Accumulated deficit	(129,982)	(119,213)
Total stockholders' equity (deficit)	(15,861)	4,096
Non-controlling interest	5,507	7,115
Total equity (deficit)	(10,354)	11,211
Total liabilities, Series A preferred stock and equity	$ 332,632	$ 329,953

PLYMOUTH INDUSTRIAL REIT, INC.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
UNAUDITED
(In thousands, except share and per share amounts)

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
	2018	2017	2018	2017
Rental revenue	$ 9,019	$ 3,650	$ 17,503	$ 7,295
Tenant recoveries	2,957	1,376	5,903	2,669
Other revenue	71	1	521	1
Total revenues	12,047	5,027	23,927	9,965
Operating expenses:				
Property	3,787	1,517	8,240	2,925
Depreciation and amortization	6,444	2,785	12,986	5,557
General and administrative	1,533	1,209	2,905	1,933
Acquisition costs	—	82	—	82
Total operating expenses	11,764	5,593	24,131	10,497
Operating income/(loss)	283	(566)	(204)	(532)
Other expense:				
Interest expense	(4,216)	(2,802)	(8,202)	(5,743)
Loss on debt extinguishment	(3,601)	—	(3,601)	—
Total other expense	(7,817)	(2,802)	(11,803)	(5,743)
Net loss	$ (7,534)	$ (3,368)	$ (12,007)	$ (6,275)
Net loss attributable to non-controlling interest	$ (829)	$ (2,209)	$ (1,292)	$ (4,674)
Net loss attributable to Plymouth Industrial REIT, Inc.	$ (6,705)	$ (1,159)	$ (10,715)	$ (1,601)
Less: Series A preferred stock dividends	956	—	1912	—
Less: amount allocated to participating securities	46	—	107	—
Net loss attributable to common shareholders	$ (7,707)	$ (1,159)	$ (12,734)	$ (1,601)
Net loss per share attributable to Plymouth Industrial REIT, Inc. common stockholders	$ (2.27)	$ (1.26)	$ (3.61)	$ (2.55)
Weighted-average common shares outstanding basic and diluted	3,400,012	922,885	3,522,959	629,057

Non-GAAP Financial Measures Definitions

Net Operating Income (NOI): We consider net operating income, or NOI, to be an appropriate supplemental measure to net income because it helps both investors and management understand the core operations of our properties. We define NOI as total revenue (including rental revenue, tenant reimbursements, management, leasing and development services revenue and other income) less property-level operating expenses including allocated overhead. NOI excludes depreciation and amortization, general and administrative expenses, impairments, gain/loss on sale of real estate, interest expense, and other non-operating items.

EBITDA: We believe that earnings before interest, taxes, depreciation and amortization, or EBITDA, is helpful to investors as a supplemental measure of our operating performance as a real estate company because it is a direct measure of the actual operating results of our industrial properties. We also use this measure in ratios to compare our performance to that of our industry peers. EBITDA as presented herein is equal to EBITDAre as defined by NAREIT.

Funds From Operations attributable to common stockholders ("FFO"): Funds from operations, or FFO, is a non-GAAP financial measure that is widely recognized as a measure of REIT operating performance. We consider FFO to be an appropriate supplemental measure of our operating performance as it is based on a net income analysis of property portfolio performance that excludes non-cash items such as depreciation. The historical accounting convention used for real estate assets requires straight-line depreciation of buildings and improvements, which implies that the value of real estate assets diminishes predictably over time. Since real estate values rise and fall with market conditions, presentations of operating results for a REIT, using historical accounting for depreciation, could be less informative. We define FFO, consistent with the National Association of Real Estate Investment Trusts, or NAREIT, definition, as net income, computed in accordance with GAAP, excluding: gains (or losses) from sales of property, depreciation and amortization of real estate assets, impairment losses, losses on extinguishment of debt and after adjustments for unconsolidated partnerships and joint ventures. Adjustments for unconsolidated partnerships and joint ventures will be calculated to reflect FFO on the same basis. Other equity REITs may not calculate FFO (in accordance with the NAREIT definition) as we do, and, accordingly, our FFO may not be comparable to such other REITs' FFO. FFO should not be used as a measure of our liquidity, and is not indicative of funds available for our cash needs, including our ability to pay dividends.

Adjusted Funds From Operations attributable to common stockholders ("AFFO"): Adjusted funds from operation, or AFFO, is presented in addition to FFO. AFFO is defined as FFO, excluding certain non-cash operating revenues and expenses, acquisition and transaction related costs for transactions not completed and recurring capitalized expenditures. Recurring capitalized expenditures includes expenditures required to maintain and re-tenant our properties, tenant improvements and leasing commissions. AFFO further adjusts FFO for certain other non-cash items, including the amortization or accretion of above or below market rents included in revenues, straight line rent adjustments, impairment losses, non-cash equity compensation and non-cash interest expense.

We believe AFFO provides a useful supplemental measure of our operating performance because it provides a consistent comparison of our operating performance across time periods that is comparable for each type of real estate investment and is consistent with management's analysis of the operating performance of our properties. As a result, we believe that the use of AFFO, together with the required GAAP presentations, provide a more complete understanding of our operating performance.

As with FFO, our reported AFFO may not be comparable to other REITs' AFFO, should not be used as a measure of our liquidity, and is not indicative of our funds available for our cash needs, including our ability to pay dividends.

PLYMOUTH INDUSTRIAL REIT, INC.
SUPPLEMENTAL RECONCILIATION OF NON-GAAP DISCLOSURES
UNAUDITED
(In thousands, except share and per share amounts)

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
NOI:	**2018**	**2017**	**2018**	**2017**
Net loss	$ (7,534)	$ (3,368)	$ (12,007)	$ (6,275)
General and administrative	1,533	1,209	2,905	1,933
Acquisition costs	—	82	—	82
Depreciation and amortization	6,444	2,785	12,986	5,557
Interest expense	4,216	2,802	8,202	5,743
Loss on debt extinguishment	3,601	—	3,601	—
Other expense (income)	(71)	(1)	(521)	(1)
NOI	$ 8,189	$ 3,509	$ 15,166	$ 7,039

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
EBITDA:	**2018**	**2017**	**2018**	**2017**
Net loss	$ (7,534)	$ (3,368)	$ (12,007)	$ (6,275)
Depreciation and amortization	6,444	2,785	12,986	5,557
Interest expense	4,216	2,802	8,202	5,743
Loss on debt extinguishment	3,601	—	3,601	—
EBITDA	$ 6,727	$ 2,219	$ 12,782	$ 5,025

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
FFO:	**2018**	**2017**	**2018**	**2017**
Net loss	$ (7,534)	$ (3,368)	$ (12,007)	$ (6,275)
Depreciation and amortization	6,444	2,785	12,986	5,557
Loss on debt extinguishment	3,601	—	3,601	—
FFO:	$ 2,511	$ (583)	$ 4,580	$ (718)
Preferred stock dividends	(956)	—	(1,912)	—
FFO attributable to common stockholders and unit holders	$ 1,555	$ (583)	$ 2,668	$ (718)
Weighted average common shares and units outstanding	3,977	923	4,104	629
FFO attributable to common stockholders and unit holders per share	$ 0.39	$ (0.63)	$ 0.65	$ (1.14)

	For the Three Months Ended June 30,		For the Six Months Ended June 30,	
AFFO:	**2018**	**2017**	**2018**	**2017**
FFO attributable to common stockholders and unit holders	$ 1,555	$ (583)	$ 2,668	$ (718)
Deferred finance fee amortization	466	171	854	765
Non-cash interest expense	560	200	806	200
Acquisition costs	—	82	—	82
Stock compensation	200	35	400	35
Straight line rent	(461)	(32)	(818)	(76)
Above/below market lease rents	(306)	(83)	(717)	(166)
Recurring capital expenditure (1)	(350)	(189)	(1,342)	(232)
AFFO:	$ 1,664	$ (399)	$ 1,851	$ (110)
Weighted average common shares and units outstanding	3,977	923	4,104	629
AFFO per share	$ 0.42	$ (0.43)	$ 0.45	$ (0.17)

(1) Excludes non-recurring capital expenditures of $874 and $13 for the three months ended June 30, 2018 and 2017, respectively, and $1,247 and $13 for the six months ended June 30, 2018 and 2017, respectively.

PLYMOUTH REIT

Second Quarter 2018
Supplemental

Plymouth Industrial REIT, Inc.

Table of Contents

Forward looking statements: This supplemental package contains forward-looking statements within the meaning of the U.S. federal securities laws. We make statements in this supplemental package that are forward-looking statements, which are usually identified by the use of words such as "anticipates," "believes," "estimates," "expects," "intends," "may," "plans" "projects," "seeks," "should," "will," and variations of such words or similar expressions. Our forward-looking statements reflect our current views about our plans, intentions, expectations, strategies and prospects, which are based on the information currently available to us and on assumptions we have made. Although we believe that our plans, intentions, expectations, strategies and prospects as reflected in or suggested by our forward-looking statements are reasonable, we can give no assurance that our plans, intentions, expectations, strategies or prospects will be attained or achieved and you should not place undue reliance on these forward-looking statements. Furthermore, actual results may differ materially from those described in the forward-looking statements and may be affected by a variety of risks and factors. Any forward-looking statement speaks only as of the date on which it is made. New risks and uncertainties arise over time, and it is not possible for us to predict those events or how they may affect us. Except as required by law, we are not obligated to, and do not intend to, update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

Definitions and reconciliations: For definitions of certain terms used throughout this supplemental, including certain non-GAAP financial measures, see the Glossary on pages 17. For reconciliations of the non-GAAP financial measures to the most directly comparable GAAP measures, see pages 9-11.

Plymouth Industrial REIT, Inc.

Management, Board of Directors & Investor Contacts

Corporate

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Executive and Senior Management

Jeffrey E. Witherell
Chief Executive Officer
and Chairman

Pendleton P. White, Jr.
President and Chief Investment
Officer

Daniel C. Wright
Executive Vice President
and Chief Financial Officer

Board of Directors

Martin Barber
Independent Director

Philip S. Cottone
Independent Director

Richard J. DeAgazio
Independent Director

David G. Gaw
Independent Director

Pendleton P. White, Jr.
President and Chief Investment
Officer

Jeffery E. Witherell
Chief Executive Officer
and Chairman

Transfer Agent

Continental Stock Transfer & Trust Company
1 State Street, 30th Floor
New York, New York 10004
212.509.4000

Investor Relations

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Executive Summary

Company overview: Plymouth Industrial REIT, Inc. (NYSE American: PLYM) is a vertically integrated and self-managed real estate investment trust focused on the acquisition and operation of single and multi-tenant industrial properties located in secondary and select primary markets across the United States. The Company seeks to acquire properties that provide income and growth that enable the Company to leverage its real estate operating expertise to enhance shareholder value through active asset management, prudent property re-positioning and disciplined capital deployment.

Unaudited

Select Portfolio Statistics	As of 06/30/18
Number of Properties	51
Square Footage	9,484,117
Occupancy	93.4%
Weighted Average Lease Term Remaining	3.29

Balance Sheet ($ in thousands)	
Cash	$ 12,128
Gross Assets	$ 381,258
Total Debt	$ 276,150
Net Debt (Total Debt less Cash)	$ 264,022
Net Debt / Gross Assets	69.3%

	For the three months ended June 30,	
Operating results ($ in thousands)	**2018**	**2017**
Total revenue	$ 12,047	$ 5,027
Net operating income	$ 8,189	$ 3,509

2018 Capital Activity ($ in thousands)		
Increased secured line of credit agreement with KeyBank National	3/8/2018	$ 45,000
Secured 10 year term loan with Minnesota Insurance	4/30/2018	$ 21,500
Secured term loan with KeyBank	5/23/2018	$ 35,700
Repaid Torchlight Mezzanine Loan	5/24/2018	$ (35,000)
Subsequent Capital Activity:		
Secured 10 year term loan with Aegon	7/10/2018	$ 78,000
Repaid MWG Portfolio Loan	7/10/2018	$ (79,800)
Issued 1,102,464 common shares @ $15.60 per share	7/23/2018	$ 16,253
Paid down KeyBank Term Loan	7/25/2018	$ (4,064)

Transaction Activity Since IPO

Unaudited ($ in thousands) (at 6/30/2018)

Acquisitions

Location	Acquisition Date	# of Properties	Purchase Price (1)	Square Footage	Projected Initial Yield
Elgin/Arlington Heights, IL	4/9/2018	2	$ 15,675	269,999	8.0%
Elgin, IL	12/22/2017	1	4,050	75,000	9.7%
Atlanta. GA	12/21/2017	3	11,425	330,361	8.3%
Multiple	11/30/2017	15	99,750	3,027,987	8.1%
Memphis, TN	9/8/2017	1	3,700	131,904	8.6%
Memphis, TN	8/16/2017	1	7,825	235,000	10.5%
Columbus, OH	8/16/2017	1	3,700	121,440	9.0%
Indianapolis, IN	8/11/2017	2	16,875	606,871	8.5%
Southbend, IN	7/20/2017	5	26,000	667,000	8.5%
Total - Acquisitions		**31**	**$ 189,000**	**5,465,562**	

(1) Represents total consideration paid rather than GAAP cost basis.

Plymouth Industrial REIT, Inc.

Capitalization Analysis

Unaudited (in thousands except for per-share data and percentages)

	Three Months Ended			
	6/30/2018	3/31/2018	12/31/2017	9/30/2017
Common Stock Data				
Weighted-Average Shares Outstanding - Basic	3,400	3,647	3,656	3,636
Weighted-Average Shares Outstanding - Diluted	3,400	3,647	3,656	3,636
High Closing Price	$ 17.91	$ 18.52	$ 18.98	$ 19.00
Low Closing Price	$ 15.09	$ 16.25	$ 17.22	$ 16.50
Average Closing Price	$ 16.99	$ 17.46	$ 18.15	$ 17.90
Closing Price (as of period end)	$ 16.00	$ 17.18	$ 18.48	$ 18.21
Dividends / Share (annualized) (1)	$ 1.50	$ 1.50	$ 1.50	$ 1.50
Dividend Yield (annualized) (2)	9.4%	8.7%	8.1%	8.2%
Common Shares Outstanding (2)	3,556	3,556	3,819	3,813
Market Value of Common Shares (2)	$ 56,896	$ 61,092	$ 70,579	$ 69,433
Total Market Capitalization (2) (3)	$ 333,046	$ 314,217	$ 321,704	$ 243,258

Equity Research Coverage (4)

D.A. Davidson & Co.
Barry Oxford
646.885.5423

National Securities Corporation
John Benda
212.417.8127

Investor Conference Call and Webcast:
The Company will hold a conference call and live audio webcast, both open for the general public to hear, on August 9, 2018 at 10:00 a.m. Eastern Time. The number to call for this interactive teleconference is (412) 717-9587. A replay of the call will be available through August 16, 2018 by dialing (412) 317-0088 and entering the replay access code, 10122697.

(1) Based on annualized dividend declared for the quarter.
(2) Based on closing price and ending shares for the last trading day of the quarter.
(3) Market value of shares plus total debt as of quarter end.
(4) The analysts listed provide research coverage on the Company. Any opinions, estimates or forecasts regarding the Company's performance made by these analysts are theirs alone and do not represent opinions, estimates or forecasts by the Company or its management. The Company does not by reference above imply its endorsement of or concurrence with such information, conclusions or recommendations.

Plymouth Industrial REIT, Inc.

Consolidated Balance Sheets (unaudited)

(in thousands)

	6/30/2018	3/31/2018	12/31/2017 (1)	9/30/2017
Assets:				
Real estate properties:				
Land	$ 63,688	$ 59,799	$ 59,797	$ 25,069
Building and improvements	257,175	244,428	243,605	165,066
Less accumulated depreciation	(32,809)	(28,828)	(25,013)	(22,094)
Total real estate properties, net	**$ 288,054**	**$ 275,399**	**$ 278,389**	**$ 168,041**
Cash and cash equivalents	12,128	13,097	19,163	10,818
Deferred lease intangibles, net	25,020	25,297	27,619	16,446
Other assets	7,430	5,284	4,782	2,286
Total assets	**$ 332,632**	**$ 319,077**	**$ 329,953**	**$ 197,591**
Liabilities:				
Debt, net	$ 270,597	$ 247,753	$ 245,632	$ 169,196
Deferred interest	-	1,575	1,357	765
Accounts payable, accrued expenses and other liabilities	16,864	15,174	16,015	7,476
Deferred lease intangibles, net	6,657	6,261	6,807	1,911
Total liabilities	**$ 294,118**	**$ 270,763**	**$ 269,811**	**$ 179,348**
Preferred Stock - Series A	**$ 48,868**	**$ 48,878**	**$ 48,931**	**$ -**
Equity:				
Common stock	$ 36	$ 36	$ 39	$ 39
Additional paid in capital	114,085	116,183	123,270	125,231
Accumulated deficit	(129,982)	(123,277)	(119,213)	(114,789)
Total Plymouth Industrial REIT, Inc. stockholders' equity	(15,861)	(7,058)	4,096	10,481
Noncontrolling interest	5,507	6,494	7,115	7,762
Total equity	**$ (10,354)**	**$ (564)**	**$ 11,211**	**$ 18,243**
Total liabilities, Series A preferred stock and equity	**$ 332,632**	**$ 319,077**	**$ 329,953**	**$ 197,591**

(1) Audited consolidated financial statements and notes for the year ended December 31, 2017 are available within our 2017 Annual Report on Form 10-K.

Plymouth Industrial REIT, Inc.

Consolidated Statements of Operations - GAAP (unaudited)

(in thousands, except per-share amounts)

	Three Months Ended			
	6/30/2018	3/31/2018	12/31/2017	9/30/2017
Revenues:				
Rental income	$ 9,019	$ 8,483	$ 6,379	$ 4,699
Tenant recoveries	2,957	2,946	2,031	1,743
Other revenue	71	450	1	1
Total revenues	**$ 12,047**	**$ 11,879**	**$ 8,411**	**$ 6,443**
Operating expenses:				
Property related	3,787	4,452	3,122	2,159
Depreciation and amortization	6,444	6,542	4,943	3,499
General and administrative	1,533	1,373	2,031	1,224
Acquisition costs	-	-	17	4
Total operating expenses	**$ 11,764**	**$ 12,367**	**$ 10,113**	**$ 6,886**
Operating income	**$ 283**	**$ (488)**	**$ (1,702)**	**$ (443)**
Other income (expense):				
Gain on disposition of equity investment	-	-	8	223
Interest expense	(4,216)	(3,985)	(3,219)	(2,619)
Loss on debt extinguishment	(3,601)	-	-	-
Total other income (expense)	**$ (7,817)**	**$ (3,985)**	**$ (3,211)**	**$ (2,396)**
Net loss	**$ (7,534)**	**$ (4,473)**	**$ (4,913)**	**$ (2,839)**
Less: Net income attributable to noncontrolling interest	(829)	(463)	(489)	(157)
Net loss attributable to Plymouth Industrial REIT, Inc.	**$ (6,705)**	**$ (4,010)**	**$ (4,424)**	**$ (2,682)**
Less: Series A preferred stock dividends (2)	956	956	723	-
Less: Amount allocated to participating securities	46	61	128	-
Net income (loss) attributable to common stockholders	**$ (7,707)**	**$ (5,027)**	**$ (5,275)**	**$ (2,682)**
Net income (loss) attributable to common stockholders per share - basic and diluted	**$ (2.27)**	**$ (1.38)**	**$ (1.44)**	**$ (0.74)**
Weighted-average shares outstanding - basic	3,400	3,647	3,656	3,636
Weighted-average shares outstanding - diluted	3,400	3,647	3,656	3,636

(1) Audited consolidated financial statements and notes for the year ended December 31, 2017 are available within our 2017 Annual Report on Form 10-K.

(2) Preferred stock dividend for the fourth quarter of 2017 of $0.46875, which was pro-rated to $0.3542 per share to reflect the period commencing October 25, 2017 (original issue date) and ending December 31, 2017, was declared in December 2017 and paid in January 2018.

Plymouth Industrial REIT, Inc.

Same Store Net Operating Income (NOI)

Unaudited (in thousands)

Trailing four quarter same store NOI	Three Months Ended			
	6/30/2018	3/31/2018	12/31/2017	9/30/2017
Same store properties	20	20	20	20
Revenues:				
Rental income	$ 3,423	$ 3,455	$ 3,626	$ 3,644
Tenant recoveries	1,425	1,382	1,334	1,392
Total operating revenues	$ 4,848	$ 4,837	$ 4,960	$ 5,036
Property expenses	$ 1,388	$ 1,815	$ 2,031	$ 1,606
Same store net operating income	**$ 3,460**	**$ 3,022**	**$ 2,929**	**$ 3,430**

Trailing two quarter same store NOI	Three Months Ended	
	6/30/2018	3/31/2018
Same store properties	49	49
Revenues:		
Rental income	$ 8,657	$ 8,483
Tenant recoveries	2,945	2,946
Total operating revenues	$ 11,602	$ 11,429
Property expenses	$ 3,707	$ 4,452
Same store net operating income	**$ 7,895**	**$ 6,977**

Plymouth Industrial REIT, Inc.

NOI

Unaudited (in thousands)

	Three Months Ended			
	6/30/2018	3/31/2018	12/31/2017	9/30/2017
Net loss	**$ (7,534)**	**$ (4,473)**	**$ (4,913)**	**$ (2,839)**
General and administrative	1,533	1,373	2,031	1,224
Acquisition expense	-	-	17	4
Interest expense	4,216	3,985	3,219	2,619
Depreciation and amortization	6,444	6,542	4,943	3,499
Loss on debt extinguishment	3,601	-	-	-
Other income	(71)	(450)	(9)	(224)
Net Operating Income	**$ 8,189**	**$ 6,977**	**$ 5,288**	**$ 4,283**

Plymouth Industrial REIT, Inc.

Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA)

Unaudited (in thousands)

	Three Months Ended			
	6/30/2018	3/31/2018	12/31/2017	9/30/2017
Net loss	**$ (7,534)**	**$ (4,473)**	**$ (4,913)**	**$ (2,839)**
Depreciation and amortization	6,444	6,542	4,943	3,499
Interest expense	4,216	3,985	3,219	2,619
Loss on debt extinguishment	3,601	-	-	-
EBITDA	**$ 6,727**	**$ 6,054**	**$ 3,249**	**$ 3,279**

Plymouth Industrial REIT, Inc.

Funds from Operations (FFO) & Adjusted Funds from Operations (AFFO)

Unaudited (in thousands, except per-share amounts)

	Three Months Ended			
	6/30/2018	3/31/2018	12/31/2017	9/30/2017
Net loss	$ (7,534)	$ (4,473)	$ (4,913)	$ (2,839)
Depreciation and amortization	6,444	6,542	4,943	3,499
Loss on debt extinguishment	3,601	-	-	-
Gain on disposition of equity investment	-	-	(8)	(223)
FFO	$ 2,511	$ 2,069	$ 22	$ 437
Preferred stock dividend	(956)	(956)	(723)	-
FFO attributable to common stockholders and unit holders	$ 1,555	$ 1,113	$ (701)	$ 437
Deferred finance fee amortization	466	387	259	202
Acquisition costs	-	-	17	4
Non-cash interest expense	560	247	900	565
Stock compensation	200	200	192	208
Straight line rent	(461)	(357)	(82)	(32)
Above/below market lease rents	(306)	(411)	(168)	(89)
Recurring capital expenditures (1)	(350)	(992)	(227)	(63)
AFFO	$ 1,664	$ 187	$ 190	$ 1,232
Weighted average common shares and units outstanding	3,977	4,232	4,234	3,913
FFO attributable to common stockholders and unit holders per share	$ 0.39	$ 0.26	$ (0.17)	$ 0.11
AFFO attributable to common stockholders and unit holders per share	$ 0.42	$ 0.04	$ 0.04	$ 0.31

(1) Excludes non-recurring capital expenditures of $874, $373, $819 and $440 for the three months ending June 30, March 31, 2018, December 31, and September 30, 2017, respectively.

Debt Overview

Unaudited ($ in thousands) at 6/30/2018

Debt Instrument - Secured Facility	Maturity	Rate	Rate Type	Properties Encumbered	Balance	% of Total Debt
$45 million line of credit	August-21	4.75%(1)	Floating	9	$ 19,150	6.9%
$120 million AIG Loan	October-23	4.08%	Fixed	20	$ 120,000	43.5%
$79.8 million MWG Loan	November-19	5.08% (2)	Floating	15	$ 79,800	28.9%
$35.7 million KeyBank Term Loan (4)	August-21	9.09% (3)	Floating	-	$ 35,700	12.9%
$21.5 million Minnesota Life Loan	May-28	3.78%	Fixed	6	$ 21,500	7.8%
				50	**$ 276,150**	**100.0%**

Balance Sheet ($ in thousands) at 6/30/2018	
Cash	$ 12,128
Gross Assets (5)	$ 381,258
Total Debt	$ 276,150
Net Debt	$ 264,022

Subsquent Event

On July 10, 2018, we entered into a secured loan agreement with Aegon USA Realty Advisors, as agent for one of its affiliated life insurance companies, or the Aegon Lender, in the original principal amount of $78,000. The Aegon Secured Term Loan bears interest at 4.35% per annum and has a ten-year term, maturing on August 1, 2028. The Aegon Secured Term Loan provides for monthly payments of interest only for the first year of the term and thereafter monthly principal and interest payments based on a 30-year amortization period. The borrowings under the Aegon Secured Term Loan are secured by first lien mortgages on eighteen of the Company's properties. Proceeds from the Aegon Secured Term Loan were used to retire the outstanding borrowings under the MWG Portfolio Secured Loan.

(1) Interest rate paid for the month of June 30, 2018. Borrowings under the Line of Credit Agreement bear interest at either (1) the base rate (determined from the highest of (a) KeyBank's prime rate, (b) the federal funds rate plus 0.50% and (c) the one month LIBOR rate plus 1.0%) or (2) LIBOR, plus, in either case, a spread between 250 and 300 basis points depending on our total leverage ratio.
(2) Interest rate paid for the month of June 30, 2018. Interest for the first year at a rate per annum equal to LIBOR plus 3.10% and for the second year at a rate per annum equal to LIBOR plus 3.35%.
(3) Interest rate for the month of June 30, 2018. Borrowings under the KeyBank Term Loan bear interest at either (1) LIBOR plus 7% or (2) KeyBank's base rate plus 6%.
(4) The KeyBank Term Loan is secured by Plymouth Industrial REIT's equity interest within the Plymouth 20 and each of its property owning subsidiaries.
(5) The carrying amount of total assets plus accumulated depreciation and amortization, as reported in the Company's consolidated financial statements.

Plymouth Industrial REIT, Inc.

Property Overview - Square Feet & Occupancy

Unaudited ($ in thousands) at 6/30/18

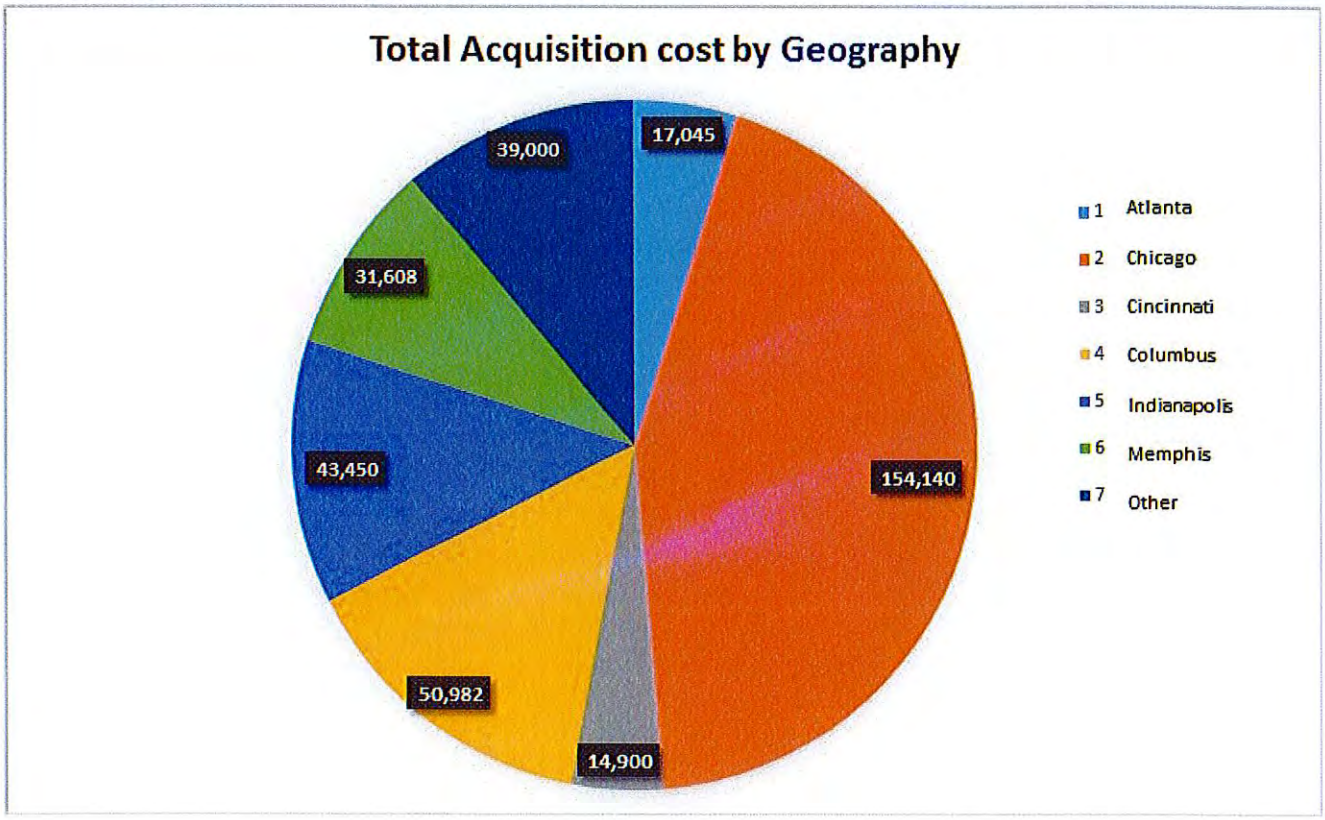
Property	Market	Rentable Square Feet	Leased Square Feet	Occupancy
32 Dart Road	Atlanta	194,800	194,800	100.0%
1665 Dogwood Drive SW	Atlanta	198,000	198,000	100.0%
1715 Dogwood Drive	Atlanta	100,000	100,000	100.0%
11236 Harland Drive	Atlanta	32,361	32,361	100.0%
Subtotal - Atlanta		**525,161**	**525,161**	**100.0%**
11351 W 183rd Street	Chicago	18,768	18,768	100.0%
11601 Central Avenue	Chicago	260,000	260,000	100.0%
13040 South Pulaski Avenue	Chicago	395,466	395,466	100.0%
1355 Holmes Road	Chicago	82,456	82,456	100.0%
13970 West Laurel Drive	Chicago	70,196	70,196	100.0%
1455-1645 Greenleaf Avenue	Chicago	150,000	150,000	100.0%
1600 Fleetwood Drive	Chicago	247,000	247,000	100.0%
1750 South Lincoln Drive	Chicago	499,200	499,200	100.0%
1796 Sherwin Avenue	Chicago	98,879	98,879	100.0%
1875 Holmes Road	Chicago	134,415	134,415	100.0%
189 Seegers Road	Chicago	25,000	25,000	100.0%
2401 Commerce Drive	Chicago	78,574	78,574	100.0%
28160 North Keith Drive	Chicago	77,924	77,924	100.0%
3 West College Drive	Chicago	33,263	33,263	100.0%
3841-3865 Swanson Court	Chicago	99,625	99,625	100.0%
3940 Stern Avenue	Chicago	146,798	146,798	100.0%
440 South McLean	Chicago	74,613	74,613	100.0%
6000 West 73rd Street	Chicago	148,091	148,091	100.0%
6510 West 73rd Street	Chicago	306,552	306,552	100.0%
6558 West 73rd Street	Chicago	301,000	301,000	100.0%
6751 Sayre Avenue	Chicago	242,690	242,690	100.0%
7200 Mason Ave	Chicago	207,345	207,345	100.0%
5110 South 6th Street	Milwaukee	58,500	58,500	100.0%
525 West Marquette Avenue	Milwaukee	112,144	40,000	35.7%
Subtotal - Chicago		**3,868,499**	**3,796,355**	**98.1%**
Mosteller Distribution Center	Cincinnati	358,386	358,386	100.0%
4115 Thunderbird Lane	Cincinnati	70,000	70,000	100.0%
Subtotal - Cincinnati		**428,386**	**428,386**	**100.0%**
3500 Southwest Boulevard	Columbus	527,127	527,127	100.0%
3100 Creekside Parkway	Columbus	340,000	-	0.0%
8288 Green Meadows Dr.	Columbus	300,000	300,000	100.0%
8273 Green Meadows Dr.	Columbus	77,271	77,271	100.0%
7001 American Pkwy	Columbus	54,100	54,100	100.0%
2120 - 2138 New World Drive	Columbus	121,200	121,200	100.0%
Subtotal - Columbus		**1,419,698**	**1,079,698**	**76.1%**
3035 North Shadeland Ave	Indianapolis	562,497	537,497	95.6%
3169 North Shadeland Ave	Indianapolis	44,374	41,960	94.6%
5861 W Cleveland Road	South Bend	62,550	62,550	100.0%
West Brick Road	South Bend	101,450	101,450	100.0%
4491 N Mayflower Road	South Bend	77,000	77,000	100.0%
5855 West Carbonmill Road	South Bend	198,000	198,000	100.0%
4955 Ameritech Drive	South Bend	228,000	228,000	100.0%
Subtotal - Indianapolis/South Bend		**1,273,871**	**1,246,457**	**97.8%**
6005, 6045 & 6075 Shelby Dr.	Memphis	202,303	167,018	82.6%
210 American Dr.	Jackson	638,400	638,400	100.0%
3635 Knight Road	Memphis	131,904	131,904	100.0%
Business Park Drive	Memphis	235,006	128,457	54.7%
Subtotal - Memphis/Jackson		**1,207,613**	**1,065,779**	**88.3%**
7585 Empire Drive	Florence, KY	148,415	148,415	100.0%

56 Milliken Road	Portland, ME	200,625	200,625	100.0%
4 East Stow Road	Marlton, NJ	156,279	134,959	86.4%
1755 Enterprise Parkway	Cleveland, OH	255,570	234,370	91.7%
Subtotal - Others		**760,889**	**718,369**	**94.4%**
Total - All Properties		**9,484,117**	**8,860,205**	**93.4%**

Market Summary

Unaudited (SF and $ in thousands) (at 6/30/2018)

Geography	State	Properties	Total Acquisition Cost (1)	Gross Real Estate Assets (2)	% Gross Real Estate Assets
Atlanta	GA	4	$ 17,045	$ 15,765	4.9%
Chicago	IL, WI	24	154,140	143,179	44.6%
Cincinnati	OH	2	14,900	13,349	4.2%
Columbus	OH	6	50,982	48,427	15.1%
Indianapolis/South Bend	IN	7	43,450	38,358	12.0%
Memphis/Jackson	TN	4	31,608	26,345	8.2%
Other	Various	4	39,000	35,163	11.0%
Total		**51**	**$ 351,125**	**$ 320,586**	**100%**



(1) Total acquisition cost prior to allocations per US GAAP.
(2) The gross book value of real estate assets as of June 30, 2018 excluding $277 in leasehold improvements related to our Corporate office. Gross book value of real estate assets excludes depreciation and the allocation of the acquisition cost towards intangible asset and liabilities required by US GAAP.

Plymouth Industrial REIT, Inc.

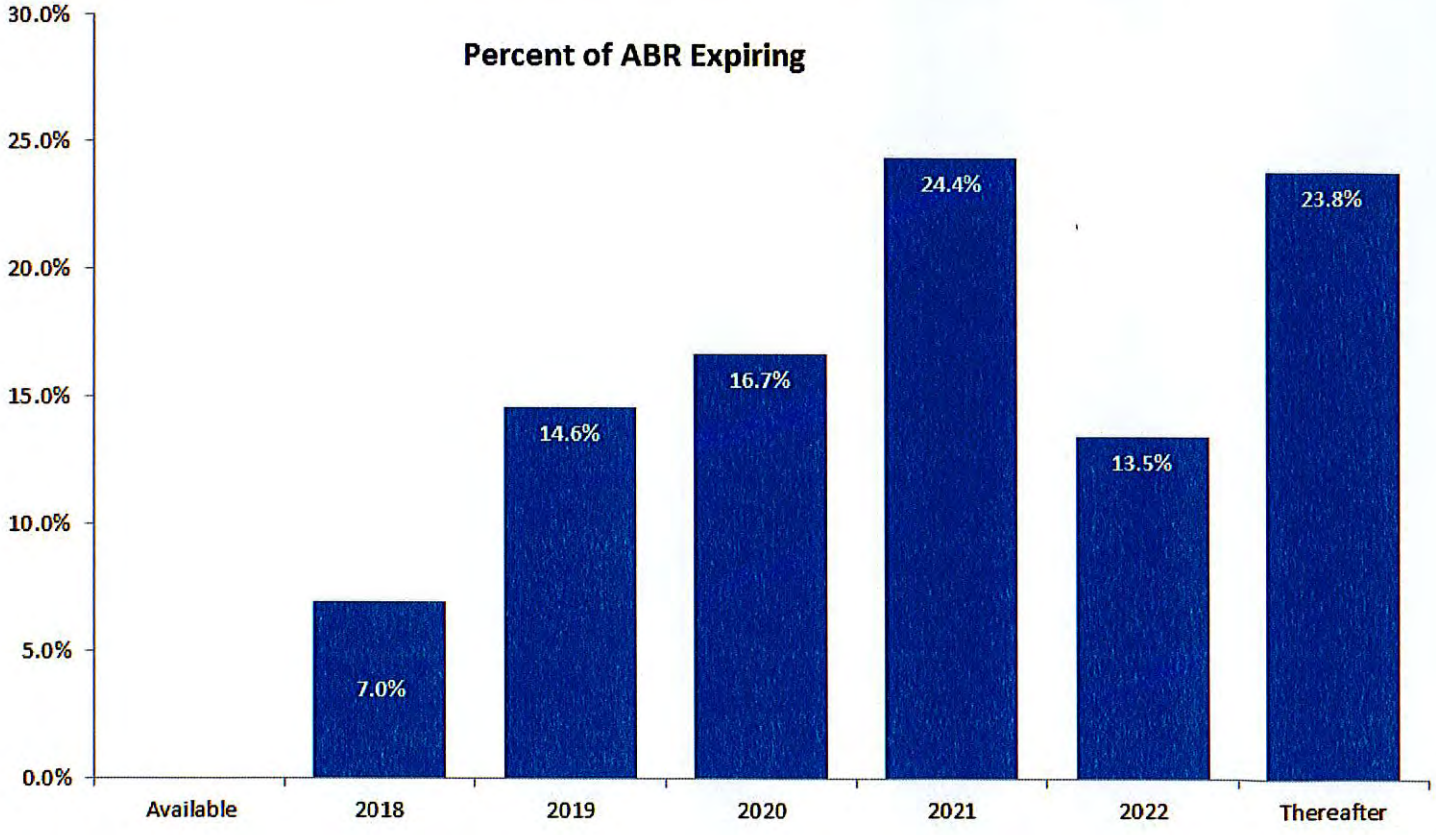
Leasing Activity

Year	Type	Square Footage	Percent	Expiring Rent	New Rent	% Change	Tenant Improvements $/SF/YR	Lease Commissions $/SF/YR
2017	Renewals	234,679	84.1%	$ 4.25	$ 4.51	6.2%	$ 0.07	$ 0.13
	New Leases	44,268	15.9%	$ 2.16	$ 3.00	38.7%	$ 0.41	$ 0.27
	Total	**278,947**	**100.0%**	**$ 3.92**	**$ 4.27**	**9.1%**	**$ 0.13**	**$ 0.15**
Q1 2018	Renewals	146,798	47.5%	$ 4.25	$ 4.30	1.2%	$ -	$ 0.11
	New Leases	162,119	52.5%	$ 3.17	$ 3.99	26.1%	$ 0.09	$ 0.04
	Total	**308,917**	**100.0%**	**$ 3.68**	**$ 4.07**	**10.6%**	**$ 0.05**	**$ 0.07**
Q2 2018	Renewals	146,874	13.1%	$ 4.83	$ 5.00	3.6%	$ 0.14	$ 0.13
	New Leases	664,828	59.3%	$ 3.67	$ 3.92	6.9%	$ 0.42	$ 0.25
	Total	**811,702**	**100.0%**	**$ 3.88**	**$ 4.21**	**8.4%**	**$ 0.37**	**$ 0.23**
2018	Renewals	293,672	26.2%	$ 4.54	$ 4.65	2.4%	$ 0.07	$ 0.11
	New Leases	826,947	73.8%	$ 3.58	$ 3.94	10.0%	$ 0.35	$ 0.21
	Total	**1,120,619**	**100.0%**	**$ 3.83**	**$ 4.13**	**7.7%**	**$ 0.28**	**$ 0.18**
Total	Renewals	528,351	37.8%	$ 4.41	$ 4.59	4.1%	$ 0.07	$ 0.12
	New Leases	871,215	62.2%	$ 3.51	$ 3.89	10.9%	$ 0.36	$ 0.22
	Total	**1,399,566**	**100%**	**$ 3.85**	**$ 4.16**	**8.0%**	**$ 0.25**	**$ 0.18**

Lease Expiration Schedule

Unaudited ($ in thousands) (at 6/30/2018)

Year	Square Footage	Annualized Base Rent (ABR) (1)	% of ABR Expiring (2)
Available	623,911	$ -	-
2018	439,676	2,345	7.0%
2019	1,480,835	4,897	14.6%
2020	1,613,610	5,596	16.7%
2021	2,173,308	8,190	24.4%
2022	963,685	4,510	13.5%
Thereafter	2,189,092	7,996	23.8%
Total	**9,484,117**	**$ 33,534**	**100.0%**



(1) Annualized base rent is calculated as monthly contracted base rent per the terms of such lease, as of June 30, 2018, multiplied by 12. Excludes billboard and antenna revenue and rent abatements.
(2) Calculated as annualized base rent set forth in this table divided by total annualized base rent for the Company Portfolio as of June 30, 2018.

Plymouth Industrial REIT, Inc.

Glossary

Non-GAAP Financial Measures Definitions:

Net Operating Income (NOI) : We consider net operating income, or NOI, to be an appropriate supplemental measure to net income because it helps both investors and management understand the core operations of our properties. We define NOI as total revenue (including rental revenue, tenant reimbursements, management, leasing and development services revenue and other income) less property-level operating expenses including allocated overhead. NOI excludes depreciation and amortization, general and administrative expenses, impairments, gain/loss on sale of real estate, interest expense, and other non-operating items.

EBITDA : We believe that earnings before interest, taxes, depreciation and amortization, or EBITDA, is helpful to investors as a supplemental measure of our operating performance as a real estate company because it is a direct measure of the actual operating results of our industrial properties. We also use this measure in ratios to compare our performance to that of our industry peers. EBITDA as presented herein is equal to EBITDAre as defined by NAREIT.

Funds From Operations attributable to common stockholders ("FFO") : Funds from operations, or FFO, is a non-GAAP financial measure that is widely recognized as a measure of REIT operating performance. We consider FFO to be an appropriate supplemental measure of our operating performance as it is based on a net income analysis of property portfolio performance that excludes non-cash items such as depreciation. The historical accounting convention used for real estate assets requires straight-line depreciation of buildings and improvements, which implies that the value of real estate assets diminishes predictably over time. Since real estate values rise and fall with market conditions, presentations of operating results for a REIT, using historical accounting for depreciation, could be less informative. We define FFO, consistent with the National Association of Real Estate Investment Trusts, or NAREIT, definition, as net income, computed in accordance with GAAP, excluding gains (or losses) from sales of property, depreciation and amortization of real estate assets, impairment losses, loss on extinguishment of debt and after adjustments for unconsolidated partnerships and joint ventures. Adjustments for unconsolidated partnerships and joint ventures will be calculated to reflect FFO on the same basis. Other equity REITs may not calculate FFO (in accordance with the NAREIT definition) as we do, and, accordingly, our FFO may not be comparable to such other REITs' FFO. FFO should not be used as a measure of our liquidity, and is not indicative of funds available for our cash needs, including our ability to pay dividends.

Adjusted Funds From Operations attributable to common stockholders ("AFFO") : Adjusted funds from operation, or AFFO, is presented in addition to FFO. AFFO is defined as FFO, excluding certain non-cash operating revenues and expenses, acquisition and transaction related costs for transactions not completed and recurring capitalized expenditures. Recurring capitalized expenditures includes expenditures required to maintain and re-tenant our properties, tenant improvements and leasing commissions. AFFO further adjusts FFO for certain other non-cash items, including the amortization or accretion of above or below market rents included in revenues, straight line rent adjustments, impairment losses, non-cash equity compensation and non-cash interest expense. We believe AFFO provides a useful supplemental measure of our operating performance because it provides a consistent comparison of our operating performance across time periods that is comparable for each type of real estate investment and is consistent with management's analysis of the operating performance of our properties. As a result, we believe that the use of AFFO, together with the required GAAP presentations, provide a more complete understanding of our operating performance. As with FFO, our reported AFFO may not be comparable to other REITs' AFFO, should not be used as a measure of our liquidity, and is not indicative of our funds available for our cash needs, including our ability to pay dividends.

Other Definitions:

GAAP : U.S generally accepted accounting principles.

Gross Assets : the carrying amount of total assets plus accumulated depreciation and amortization, as reported in the Company's consolidated financial statements. For gross assets as of June 30, 2018 and December 31, 2017, the calculation is as follows:

	6/30/2018
Total Assets	$332,632
Add back depreciation expense	32,809
Add back intangible asset amortization	15,817
Gross assets	$381,258

Non-Recurring Capital Expenditures : Non-recurring capital expenditures include capital expenditures of long lived improvements required to upgrade/replace existing systems or items that previously did not exist.

Occupancy : We define occupany as the percentage of total leasable square footage in which either the sooner of lease term commencement or revenue recognition in accordance to GAAP has commenced as of the close of the reporting period.

Recurring Capital Expenditures : Recurring capitalized expenditures includes capital expenditures required to maintain and re-tenant our properties, tenant improvements and leasing commissions.

Same Store Portfolio: Our Same Property Portfolio is a subset of our consolidated portfolio and includes properties that were wholly-owned by us for the entire period presented. The trailing 4 quarters same store portfolio includes properties owned as of April 1, 2017, and still owned by us as of June 30, 2018. Therefore, we excluded from our Same Store Portfolio any properties that were acquired or sold during the period from April 1, 2017 through June 30, 2018. The trailing 2 quarters same store portfolio includes properties owned as of January 1, 2018, and still owned by us as of June 30, 2018. Therefore, we excluded from our Same Store Portfolio any properties that were acquired or sold during the period from January 1, 2018 through June 30, 2018. The Company's computation of same store NOI may not be comparable to other REITs.

Weighted average lease term remaining : The average contractual lease term remaining as of the close of the reporting period (in years) weighted by square footage.

TECHNICAL ABILITY

CES, Inc. has prepared numerous Site Location of Development Applications, Amendments, and Modifications to existing permits. John Kuchinski, P.E. has overseen the preparation of this application. John has been involved in the preparation of many Site Location of Development Applications for various clients.

Some Site Location of Development Act (SLODA) Projects completed by John Kuchinski:

Saccarappa Elementary School, Westbrook, ME 2017
Mildred L. Day School Arundel, Maine 2016
Maine Maritime Academy, American Bureau of Shipping Engineering Center, Castine 2013
Wentworth Intermediate School, Scarborough 2012

JOHN KUCHINSKI
SENIOR PROJECT ENGINEER

CORE EXPERTISE

Site Design

Project Engineer

Commercial/ Residential Land Development

John Kuchinski comes to CES, Inc. with over 30 years' experience in the design of large scale commercial, industrial, and residential land development projects. His responsibilities included the layout of roads, parking lots, site circulation and pedestrian ways in an integrated design. John was instrumental to the design process with obtaining environmental and land use permits. His work with the design team requires effective communication skills and project management expertise. John has worked with site design and the permitting for site development on projects, including grading, stormwater drainage, spill control, utilities, and erosion control. He also has experience with construction phase services.

Professional History
2012 – 2018 | Harriman Associates, Auburn, Maine | Senior Civil Engineer
2005 – 2011 | Amec Foster Wheeler, Portland, Maine | Senior Civil Engineer/Project Manager
2001 – 2005 | BH2M Engineers, Gorham, Maine | Senior Civil Engineer
1998 – 2001 | JK Holmgren Engineering, Inc., Brockton, MA | Project Manager
1997 – 1998 | Gale Associates, Inc., Weymouth, MA | Project Engineer
1989 – 1997 | Town of Yarmouth, Yarmouth, MA | Civil Engineer

Education
BS in Civil Engineering | University of Massachusetts, Dartmouth, MA

Registrations
Professional Engineer License # ME #9759, NH #14498, MA #35862

Affiliations
American Society of Civil Engineers

Project Experience

Westbrook Saccarappa Elementary School | Westbrook, Maine
Designed site improvements for a 50,000 square foot addition to the elementary school including stormwater, grading, utilities and erosion control. Site design provide new play fields and a new parking lot to accommodate the increase in staff. Permitting required a modification of an existing SLODA permit.

Sanford Middle School and Sanford High School | Sanford, Maine
Developed site plans for the conversion of the existing Sanford High School to be a middle school and the Conversion of the Middle School to be an elementary school.

Mildred L. Day School | Arundel, Maine
Developed plans and specifications for site improvements for reconstruction of a portion of the Mildred L. Day School. This included modification to the SLODA permit under the 2015 version of Chapter 500 redevelopment rules. Provided separate bus loop, parent drop off and parking areas.

Kennebunkport Consolidated School | Kennebunkport, Maine
Site design for expansion of the school to include improving stormwater management, site circulation and pedestrian access to the building. An improved parking lot and separate parent drop off.

Wentworth Intermediate School | Scarborough, ME
Senior Civil Engineer for the site design and permitting of a new intermediate school for the Town of Scarborough, Maine. The new school contains 164,000 square feet of floor area. Design included stormwater management, grading, and utilities. This site also included a geothermal well field to provide heating and cooling of the building. Permitting involved a modification the Site Location of Development permit of the Scarborough Municipal Complex and a Natural Resource Protection permit to impact 1.3 acres of wooded wetlands.

Maine Army National Guard Reserve Center | Bangor, Maine
Civil Engineer to design reconstruction of the existing parking lot paving and Drainage. Prepared detailed site plans and bid specifications. Attended pre-bid meeting. Reviewed and processed Contractor submittals and requests for information. Conducted site observations during construction to verify work is in accordance with the design documents. Developed a comprehensive punch list at the completion of construction.

Maine Army National Guard Regional Training Institute | Bangor, Maine
While working for AMEC Foster Wheeler, John designed stormwater, grading utilities and erosion control for site development for a new Regional Training Institute located on Hildreth Road North in Bangor. Other duties included the preparation of bidding plans and specifications, as well as the construction phase oversite.

Maine Army National Guard Training Facility | Auburn, ME
Senior Civil Engineer that prepared the site plan for four proposed controlled humidity buildings for storage. This facility provides long term storage of unit equipment in a controlled atmosphere to reduce degradation of the equipment. Design also included a stormwater management plan and Site Location of Development Law permitting to the Maine DEP for the entire facility.

Presque Isle Community Center | Presque Isle, Maine
Designed site improvements to an existing brownfield site for a new community recreational facility. Stormwater permit and local permitting.

Old County Road | Scarborough, Maine
Reconstruction of Old County Road in Scarborough included full depth reconstruction of the pavement and new stormwater drainage. Design reconfigured the vertical alignment of the road

to facilitate runoff to drainage structures. Consideration given to revising road to accommodate existing driveways. Meeting with the neighbors and getting their feedback.

Maritime Village | Wiscasset, ME
Senior Civil Engineer participated in the civil engineering design of phase one of Maritime Village, a project involving the redevelopment of the decommissioned Mason Station electric power generating facility. The Mason Station was decommissioned and was a Brownfield industrial site. The redevelopment of the property was envisioned to include single family homes, condominiums, shops and restaurants, a 350-slip marina, the Hinckley Boat yard and possible cultural and educational uses. Phase one consisted of 80 single family homes and a 7,120 SF addition to the Mason Station for a Hinckley Boatyard. The first phase also included 52 marina slips.

Topsham Crossing | Topsham, ME
Senior Civil Engineer designer of a 68-lot residential subdivision which included 20 units reserved for affordable housing. This development is the first "Great American Neighborhood" development in Maine that emphasized small lots and dense development while preserving a significant area of land as open space. This project incorporated stormwater Best Management Practices to control stormwater quantity and quality. The design also included sewer collection with some lots requiring low pressure sewer collection system, roadway alignment, utilities and presentation to the local planning board.

Milton CAT Service Facility Expansion | Scarborough, ME
Civil Engineer for the master planning and permitting for this facility expansion, John developed the site layout for building expansion and outside equipment storage, grading, drainage and erosion control. This site was originally designed and permitted by OEST in 1983. A 1987 amendment to the permit greatly expanded the facility. This is yet another expansion to meet Milton CAT's growing business needs.

Mashpee Medical Center | Mashpee, MA
Project Engineer for this design/build project working in conjunction with the general contractor on the project. The civil design included developing plans for the 30,000 SF medical office building. An essential element of this project included the design of a denitrifying onsite waste water treatment and disposal system to reduce the total nitrogen concentration of the wastewater below 10 PPM because it was in a zone of contribution to a public water supply well. Stormwater design included LID techniques including infiltration and bio-retention. Design also included site grading, layout, utilities, stormwater management and design of an on-site treatment and disposal system for the sanitary sewage. Landscaping consisted of plants that did not require irrigation.

New Well Pad and Infield Pipeline Planning, Design, and Permitting Confidential | Client North Central Region, PA
Senior Civil Engineer for the planning, design, and permitting of over 30 new well pad and associated infield gathering lines. The planning process involves an initial field review of potential pad locations and pipeline routes, including an assessment of engineering and environmental limitations and restrictions, and concept level development plans are prepared for further

evaluation and input from client land, geology/geophysics, and operational personnel. Once the concept plan has been refined, preliminary design plans are prepared for final client approval and subsequently developed into final design drawings, including access roads, well locations, production facilities, impoundments, as well as design narratives, and associated permit application packages, including Pennsylvania DEP's ESCGP-1. Most projects involve interagency coordination are fast-tracked such that they are completed within two weeks of confirmation of design.

Southwest Harbor Fire Station | Southwest Harbor, ME
Civil Engineer for the design site improvements for a new 10,000 SF fire station, urban stormwater management, site grading and utility connections for the building, new access road, parking, and utilities.

Town Engineering Review Services | Wells, ME
Civil Engineer responsible for multiple subdivision and site plan reviews for the Town of Wells. He was responsible for reviews of plans for compliance with zoning and subdivision regulations as well as good engineering practice.

Salt/Sand Storage Building | Town of Dayton, ME
Senior Project Engineer for the Town of Dayton on this project. His responsibilities included determining the best type of building to meet the Town's needs, providing engineering services for the site design, hiring sub-consultants for the structural and building design, completing the construction bid documents, providing construction management services, and submitting a reimbursement request to MDOT for a portion of the building costs through the Maine Sand/Salt Storage Building Program.

Solid Waste Management Facility | Town of Yarmouth, MA
As a civil engineer for the Town, Mr. Kuchinski provided a full range of services for the design and construction of a solid waste management facility to accommodate an increased demand of residential solid waste capacity, including a facility for yard waste, composting and commercial/residential construction debris. He served as supervisor of Town staff who provided the general construction services, and prepared and supervised the bidding and awarding of specialty construction items. He also provided overall construction management and budget control for the project.

CES INC

PLYMOUTH INDUSTRIAL REIT, INC.
56 MILLIKEN STREET, PORTLAND

TAB 2 - TRANSPORTATION

Traffic Impact

Traffic impact from the proposed warehouse is minimal. The estimated peak hour AM trip generation from the use is estimated to be 41 and the PM trip generation is estimated to be 44. FAADT of Riverside Industrial Parkway is 2678 north of Milliken Street and it is 2848 south of Milliken Street, and the estimated peak hour AM and PM generation from the project will not have a significant impact to adjacent street traffic and will not cause traffic congestion which would reduce the level of service below the Level "D" as described in the 1985 Highway Capacity Manual.

Crash data for the area was requested and obtained from the Maine Department of Transportation (MaineDOT). Crash data for the last three years was provided by the MaineDOT for the intersections of Forest Avenue and Riverside Industrial Park, Milliken Street and Riverside Industrial Park, and Riverside Street and Riverside Industrial Park. The accident data output has been included with the application.

Access and Circulation

Site circulation is primarily designed for tractor trailer trucks servicing the proposed warehouse building. Cars and trucks will enter from the existing Milliken Street entrance and traverse the site to the new driveway off the existing site circulation. A new driveway is proposed for truck traffic to exit onto Riverside Industrial Parkway. No drive-up features are proposed with this project.

Loading and Servicing

The new warehouse will have four loading docks on the westerly side of the building for full size trucks with trailers. An additional four at-grade loading doors are proposed on the southerly side opposite loading docks on the existing building. These loading doors are designed for single unit box trucks and delivery van type vehicles.

Sidewalks

The project is located off Riverside Industrial Parkway and is not a pedestrian destination. The surrounding streets, including Riverside Industrial Parkway and Milliken Street do not have sidewalks. The applicant is requesting a waiver from providing a sidewalk along the frontage.

Public Transit

Riverside Industrial Parkway is not currently served by Portland Area public transit. The nearest public transportation stop is located at the intersection of Riverside Industrial Parkway and Route 302/Forrest Avenue. This is approximately 0.7 miles away from the site driveway. Riverside Industrial Parkway does not have sidewalks for pedestrian traffic.

Off-Street Parking

The site currently has 188 parking spaces, 49 trailer spaces, and 24 loading bays. Existing use of the site includes Paradigm Windows and Tyson /Advance Pierre. Paradigm Windows has approximately 100 employees. Not all employees drive their own car. Tyson/Advance Pierre has approximately 5 employees. A parking study was performed by CES, Inc. at 10:00 AM on October 3, 2018. The main parking lot utilized a total of 122 out of the 147 spaces available, while the side and rear of the existing building utilized 7 out of the total 13 spaces available. The existing site also provides trailer parking spaces, of which a total of 18 out of the 49 available were being used. Inside the fenced area four passenger vehicles and two truck cabs were utilizing the available 28 parking spaces. The available parking spaces within the fenced area were also being used for storage.

According to the Institute of Transportation Engineers, Parking Generation, 4th Edition, and based on the Land Use: 150 – Warehousing, the average peak parking demand for the proposed 72,000 square foot warehousing with office space is 37 spaces. The project proposes to use 37 spaces of the remaining 41 passenger vehicle parking spaces not currently being utilized. Under section 14-332.2(c), the planning board has the authority to establish the parking requirement for site plans over 50,000 square feet. The parking requirement is determined based on the analysis contained within this application and upon the recommendation of the city transportation engineer. As the proposed use is warehousing and based on the parking study performed, CES, Inc. believes that there is sufficient on-site parking and no additional parking spaces are required.

Bicycle Parking

Southwest of the proposed building, a bike rack for 10 bicycles is proposed. According to the ordinance two bicycle parking spaces are required for every 10 vehicle parking spaces for the first one hundred required parking spaces. For the proposed warehousing project 37 parking spaces are required, so a minimum of seven bicycle parking spaces is required.

Snow Storage

The existing site has lawn areas and open areas that are used for snow storage. Additional areas around the proposed warehouse expansion have been identified on the site plan as snow storage areas.

Transportation Demand Management

The site is located in an industrial area outside the multimodal transportation system for the City and other than the proposed bicycle parking spaces provided, other Transportation Demand Management measures would not be utilized.

Cumberland

TOWN	STA	ROAD-PN	LOCATION	GROUP	AADT12	AADT13	AADT14	AADT15	AADT16	AADT17
PORTLAND	29907	60583-6	PLEASANT AVE W/O SR 100/US 302 (FOREST)	I	-	-	-	-	1950 C	-
PORTLAND	30402	60584-6	PLEASANT ST NE/O SR 77 (HIGH ST)	I	-	-	-	-	1390 C	-
PORTLAND	30406	60584-6	PLEASANT ST SW/O SR 77 (HIGH ST)	I	-	-	-	-	650 C	-
PORTLAND	17107	60584-6	PLEASANT ST W/O YORK ST	I	-	1440 C	-	-	1210 C	-
PORTLAND	21107	60593-5	PORTLAND ST (OW) W/O PREBLE ST	I	-	2540 C	-	-	2320 C	-
PORTLAND	07908	60597-3	PREBLE ST (OW) NW/O CONGRESS ST	I	-	3030 C	-	-	3070 C	-
PORTLAND	13205	60597-3	PREBLE ST (OW) S/O MARGINAL WAY	I	-	-	-	-	3330 C	-
PORTLAND	13208	60818-3	PREBLE ST EXT NW/O MARGINAL WAY	I	-	17480 C	-	-	16730 C	-
PORTLAND	13403	60818-3	PREBLE ST EXT(NB) E/O SR100/US302(FOREST	I	-	6280 C	-	-	5120 C	-
PORTLAND	16101	60599-5	PRESUMPSCOT ST N/O SR 26(WASHINGTON AVE)	I	-	-	-	-	7040 C	-
PORTLAND	11904	60599-5	PRESUMPSCOT ST SE/O SR 9 (OCEAN AVE)	I	-	-	-	-	4400 C	-
PORTLAND	28703	60601-6	PROSPECT ST E/O HIGHLAND ST	I	-	-	-	-	970 C	-
PORTLAND	29203	60601-6	PROSPECT ST E/O SR 9 (STEVENS AVE)	I	-	-	-	-	790 C	-
PORTLAND	02007	60601-6	PROSPECT ST W/O DEERING AVE @ RR XING	I	-	980 C	-	-	990 C	-
PORTLAND	28707	60601-6	PROSPECT ST W/O HIGHLAND ST	I	-	-	-	-	1030 C	-
PORTLAND	11404	60605-6	PYA RD SE/O SR 9 (OCEAN AVE)	I	-	-	-	-	440 C	-
PORTLAND	26902	60606-6	QUEBEC ST NE/O MERRILL ST	I	-	-	-	-	400 C	-
PORTLAND	26906	60606-6	QUEBEC ST SW/O MERRILL ST	I	-	-	-	-	470 C	-
PORTLAND	16302	60612-6	RAY ST NE/O SR 26 (WASHINGTON AVE)	I	-	1720 C	-	-	1750 S	-
PORTLAND	20308	60612-6	RAY ST NW/O PENN AVE	I	-	-	-	-	1200 S	-
PORTLAND	05108	60614-5	READ ST NW/O SR 9 (OCEAN AVE)	I	-	6060 C	-	-	6090 C	-
PORTLAND	04904	60614-5	READ ST SE/O BELL ST @ RR XING	I	-	6200 C	-	-	-	-
PORTLAND	07404	60614-5	READ ST SE/O SR 100/US 302 (FOREST AVE)	I	-	4780 C	-	-	4640 C	-
PORTLAND	20406	60842-6	RIVERSIDE IND'L PKWY SW/O RIVERSIDE ST	I	-	-	-	-	2430 C	-
PORTLAND	12301	60842-6	RIVERSIDE INDUSTRIAL PKWY N/O US 302	I	-	-	-	-	2800 C	-
PORTLAND	19101	60621-2	RIVERSIDE ST N/O LARRABEE RD	I	-	25260 C	-	-	24950 S	-
PORTLAND	10901	60621-2	RIVERSIDE ST N/O RIVERSIDE CT	I	-	24720 C	-	-	-	-
PORTLAND	07601	60621-3	RIVERSIDE ST N/O SR 25B (BRIGHTON AVE)	I	-	11200 C	-	-	11520 C	-
PORTLAND	04401	60621-2	RIVERSIDE ST N/O WARREN AVE	I	-	16780 C	-	-	17350 S	-
PORTLAND	04502	60621-4	RIVERSIDE ST NE/O US 302 (FOREST AVE)	I	-	8130 C	-	-	8300 C	-
PORTLAND	05708	60621-4	RIVERSIDE ST NW/O WASHINGTON AVE	I	-	7010 C	-	-	6890 C	-
PORTLAND	04506	60621-2	RIVERSIDE ST SW/O US 302 (FOREST AVE)	I	-	15440 C	-	-	15940 C	-

Cumberland

TOWN	STA	ROAD-PN	LOCATION	GROUP	AADT12	AADT13	AADT14	AADT15	AADT16	AADT17
PORTLAND	04708	0302X-1	US 302 (FOREST AVE) NW/O SR 100 (ALLEN)	I	-	-	-	-	28910 C	-
PORTLAND	04608	0302X-1	US 302 (FOREST AVE) NW/O WARREN AVE	I	-	19820 C	-	-	18140 C	-
PORTLAND	12308	0302X-1	US 302 (FOREST) NW/O RIVERSIDE IND PKWY	I	-	-	-	-	14820 C	-
PORTLAND	02605	01019-3	VALLEY ST S/O "D" ST	I	-	-	-	-	3440 C	-
PORTLAND	03303	60748-5	VANNAH AVE E/O SR 9/100/US 302(FOREST)	I	-	2700 C	2650 T	-	2630 C	-
PORTLAND	16607	60748-5	VANNAH AVE W/O BAXTER BLVD	I	-	-	-	-	10830 C	-
PORTLAND	13701	60751-6	VAUGHAN ST N/O BRACKETT ST	I	-	4790 C	-	-	-	-
PORTLAND	15201	60751-6	VAUGHAN ST N/O CARROLL ST	I	-	1560 C	-	-	-	-
PORTLAND	15608	60751-6	VAUGHAN ST NW/O SPRING ST	I	-	1790 C	-	-	-	-
PORTLAND	00308	60751-6	VAUGHAN ST NW/O WESTERN PROM	I	-	2550 C	-	-	2510 C	-
PORTLAND	13705	60751-6	VAUGHAN ST S/O BRACKETT ST	I	-	3830 C	-	-	3460 C	-
PORTLAND	31602	00501-5	VERANDA ST (NB) NE/O OLYMPIA ST	I	-	-	-	-	990 T	-
PORTLAND	31606	00501-5	VERANDA ST (NB) SW/O OLYMPIA ST	I	-	-	-	-	1140 T	-
PORTLAND	05302	60753-5	VERANDA ST NE/O SR 26 (WASHINGTON AVE)	I	-	5740 C	-	-	5290 C	-
PORTLAND	22206	60753-5	VERANDA ST SW/O KENSINGTON ST @BR# 5052	I	-	3860 C	-	-	3960 C	-
PORTLAND	12216	1019S-1	VETERANS BR3945(WB) SW/O US 1A(FORE RV)	I	12750 C	12440 C	12052 C	-	11240 C	-
PORTLAND	06305	60763-6	WALDO ST S/O SR 9/22 (CONGRESS ST)	I	-	500 C	-	-	-	-
PORTLAND	09602	60766-6	WALNUT ST NE/O NORTH ST	I	-	-	-	-	680 C	-
PORTLAND	31102	60766-6	WALNUT ST NE/O SR 26 (WASHINGTON ST)	I	-	-	-	-	2270 C	-
PORTLAND	09606	60766-6	WALNUT ST SW/O NORTH ST	I	-	-	-	-	1860 C	-
PORTLAND	04204	00987-6	WALTON ST SE/O SR 100/US 302(FOREST AVE)	I	-	3790 C	-	-	3100 C	-
PORTLAND	04207	00987-6	WALTON ST W/O SR 100/US 302(FOREST AVE)	I	-	3120 C	-	-	2580 C	-
PORTLAND	04403	60767-3	WARREN AVE E/O RIVERSIDE ST	I	-	17290 C	-	-	17360 C	-
PORTLAND	04606	60767-3	WARREN AVE SW/O US 302 (FOREST AVE)	I	-	13130 C	-	-	11390 C	-
PORTLAND	04407	60767-3	WARREN AVE W/O RIVERSIDE ST	I	-	10330 C	-	-	9540 C	-
PORTLAND	07501	60768-6	WARWICK RD N/O SR 25 (BRIGHTON AVE)	I	-	-	-	-	1980 C	-
PORTLAND	09702	60768-6	WARWICK ST NE/O STARLIGHT RD	I	-	-	-	-	600 C	-
PORTLAND	09706	60768-6	WARWICK ST SW/O SUNSET LN	I	-	-	-	-	1510 C	-
PORTLAND	21807	61148-5	WASHINGTON AVE EXT W/O SR 26/100(AUBURN)	I	-	-	-	-	3190 C	-
PORTLAND	05701	60770-5	WASHINGTON AVE N/O RIVERSIDE ST	I	-	4360 C	-	-	4460 C	-
PORTLAND	21708	60770-4	WASHINGTON AVE NW/O SANBORN ST	I	-	5570 C	-	-	5710 C	-
PORTLAND	05705	60770-4	WASHINGTON AVE S/O RIVERSIDE ST	I	-	4480 C	-	-	4740 C	-

MaineDOT Maine Public Crash Query Tool

Set Search Criteria

Set Search Criteria

Now that you have created a query and viewed the map results, simply modify the search criteria again to create a new set of crashes to map.

Step 1: Select a location (i.e. state-wide, city/town, county **OR** a police dept.)

State-Wide City/Town

County Police Dept.

Portland

Step 2: Select single year or multi-year.

Single Year Multi-Year

Step 3: Select Year(s).

2015 2018

Step 4: Select Type of Crash.

All Types of Crash

Step 5: Select what to view.

All Crashes

Fatal Crashes

Injury Crashes

Property Damage Only Crashes

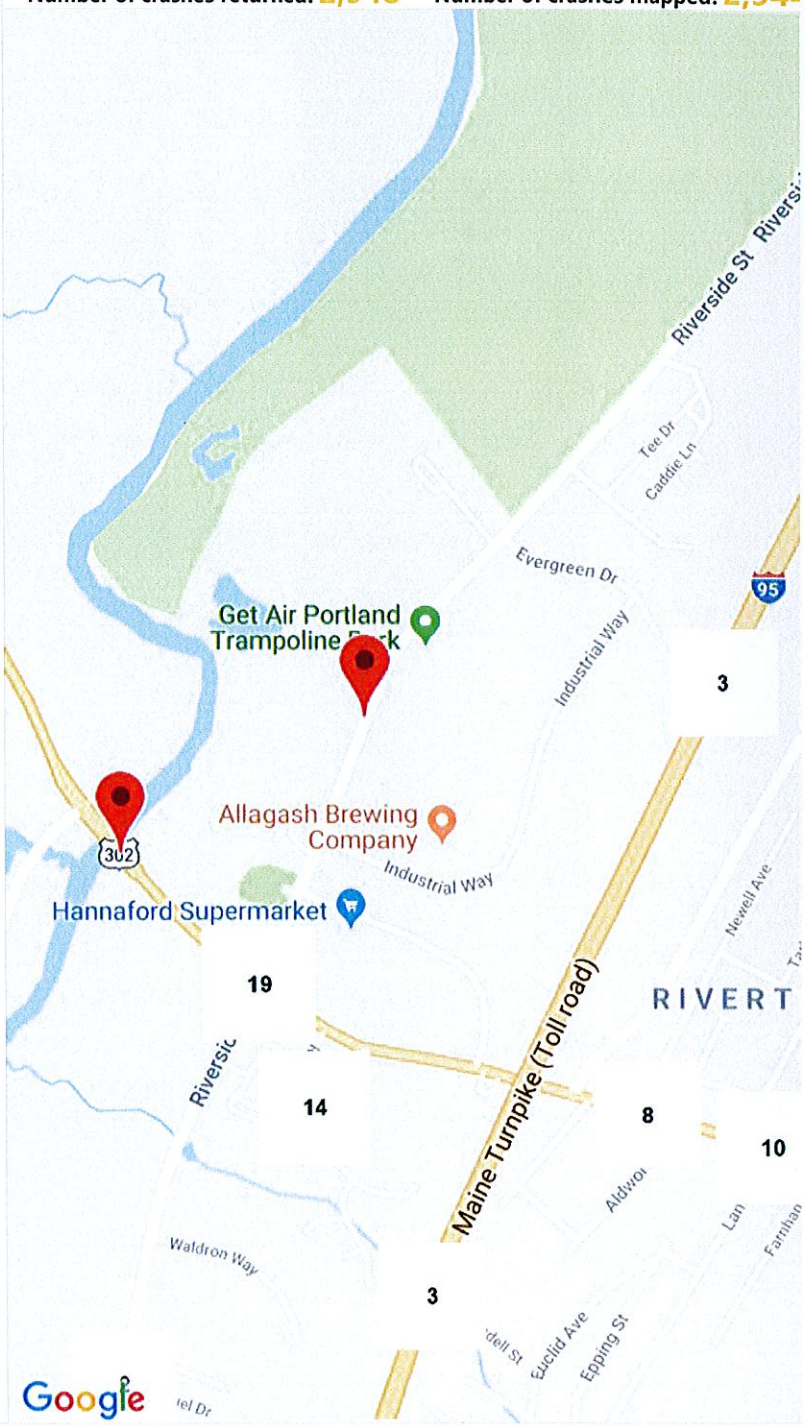
Step 6: Submit Query. Press the button below to submit your query and view results.

Submit Query

Helpful Tips

All/All Types of Crash Crashes - Year: 2015 City or Town: Portland

Number of crashes returned: 2,948 **Number of crashes mapped:** 2,94



From:	Daniel Heffernan
To:	John Kuchinski
Cc:	Jeff Witherell; Sean Thies
Subject:	Fwd: 56 Milliken Street Portland
Date:	Tuesday, August 21, 2018 2:06:52 PM

Hi John - For your parking ratio calculation, I would estimate that there are approximately 105 persons on site during the day.

Paradigm Windows takes up the bulk of the auto parking, which we would guess as +/- 100 people. Not all of them bring a vehicle. For Tyson/Advance Pierre, there are usually 4-5 people at work.

I hope that helps. Feel free to contact me if I can assist.

Dan Heffernan
Vice President - Asset Management

Plymouth Industrial REIT, Inc.
260 Franklin Street
Suite 700
Boston, MA 02110
617-340-6539
dan.heffernan@plymouthREI.com

---------- Forwarded message ----------
From: **Jeff Witherell** <jeff.witherell@plymouthrei.com>
Date: Tue, Aug 21, 2018 at 11:35 AM
Subject: Fwd: 56 Milliken Street Portland
To: Daniel Heffernan <dan.heffernan@plymouthrei.com>

As discussed.

Jeff Witherell, ***CEO***
Plymouth Industrial REIT, Inc.
260 Franklin Street, 7th Floor
Boston, MA 02110
617-340-3826 direct

jeff.witherell@plymouthREI.com

---------- Forwarded message ----------
From: **John Kuchinski** <jkuchinski@ces-maine.com>
Date: Tue, Aug 21, 2018 at 11:26 AM
Subject: 56 Milliken Street Portland
To: "jeff.witherell@plymouthREI.com" <jeff.witherell@plymouthrei.com>
Cc: Sean Thies <sthies@ces-maine.com>

Jeff

As we discussed on the phone, I have had some follow up with the City of Portland. The current proposal would typically require Maine DEP review but there is a waiver process. I am in the process of requesting that the City continue review of the site through their delegated authority.

For the permit application with the City we will need a concept level floor plan and elevations. I understand you are working with Port City Architects on this.

We will also need information on number of employees on per shift for your tenants as park of a parking study. The intention is to demonstrate that the site has adequate parking for the the existing uses and the proposed building.

Thank you,

John

John Kuchinski, P.E. ◆ Senior Project Engineer

P 207.283.9151 | **F** 207.283.9151 | **C** 207.899.5307

CESINC

Engineers ◆ Environmental Scientists ◆ Surveyors

146 Main Street, Suite 300, Saco, ME 04072 | www.ces-maine.com

PLYMOUTH REIT
56 MILLIKEN STREET, PORTLAND, MAINE

TAB 3 - ENVIRONMENTAL AND LANDSCAPE FEATURES NARRATIVE

Preservation of Significant Natural Features
The site does not contain any significant or endangered wildlife or plant species. Letters requesting review were sent to both Maine Department of Inland Fisheries and Wildlife and the Maine Natural Areas Program. We have included the agency response to our request for review.

Maine Natural Areas Program responded to our request for information on significant plant species returned with no mapped species on the site. Inland Fisheries and Wildlife also responded with no known habitats or water fowl areas on the site.

We are enclosing a copy of the Sand and Gravel Aquifer Map for western Portland area. The site does not contain a significant aquifer.

CES, Inc. has performed an on-site wetland evaluation and mapping. The results of that mapping are shown on the site plan. A Tier 1 Natural Resources Protection Act application is being filed with the Maine Department of Environmental Protection for filling of approximately 7,391 square feet of forested wetland.

Landscaping and Landscape Preservation
Site landscaping will include preservation of existing trees and vegetation. Except for the clearing required for the new access driveway, existing trees and vegetation between Riverside Industrial Parkway and the proposed warehouse building will be preserved and maintained. Tree protection measures will be utilized during construction to minimize the possibility of damaging trees beyond the work limit. Approximately 8.5 acres of the site will remain wooded. Site impervious cover will be approximately 46 percent. The preserved wooded areas provide sufficient landscaping for the proposed development.

Site Landscaping
Landscaping is proposed at the main entrance of the building. This is an industrial building in an industrial zone. Abutter to the east is the railroad. Between the railroad and the residential area further to the east is an existing screen of dense native vegetation. Existing vegetation is being maintained in building set back areas to the extent practicable.

We are not proposing any additional passenger car parking (See Tab 2) because the site currently has adequate parking spaces for the existing uses and the proposed warehouse expansion. If parking does become an issue there is adequate space in the existing impervious surface to convert underutilized trailer parking into automobile parking. Most of the existing parking areas have adequate landscaping to with the requirements of Zoning.

We are not proposing any additional street trees because we will preserve and protect existing vegetation along Riverside Industrial Parkway to the extent practicable. Disturbance along Riverside Industrial Parkway will be limited to what is needed for the exit drive way and stormwater treatment systems.

August 21, 2018

Ms. Lisa St. Hilaire, Information Manager
Maine Natural Areas Program
93 State House Station
Augusta, ME 04333-0093
Lisa.St.Hilaire@maine.gov

Re: Plymouth Industrial REIT | 56 Milliken Road | Portland, Maine

Ms. St. Hilaire,

Plymouth Industrial REIT is currently in the process of preparing a Site Location of Development Permit Amendment Application for the construction of a 72,000 square foot building at 56 Milliken Drive in Portland, Maine. The facility is an addition to and existing industrial manufacturing facility at 56 Milliken Road, Portland.

As required for permitting requirements, we are submitting this request to your office to determine if there are any potential impacts to fisheries or wildlife habitats located at the site or in the immediate surroundings. Any response can be forwarded to our office located at 146 Main Street, Saco, ME 04072 or by email at jkuchinski@ces-maine.com.

Thank you for your assistance in this matter.

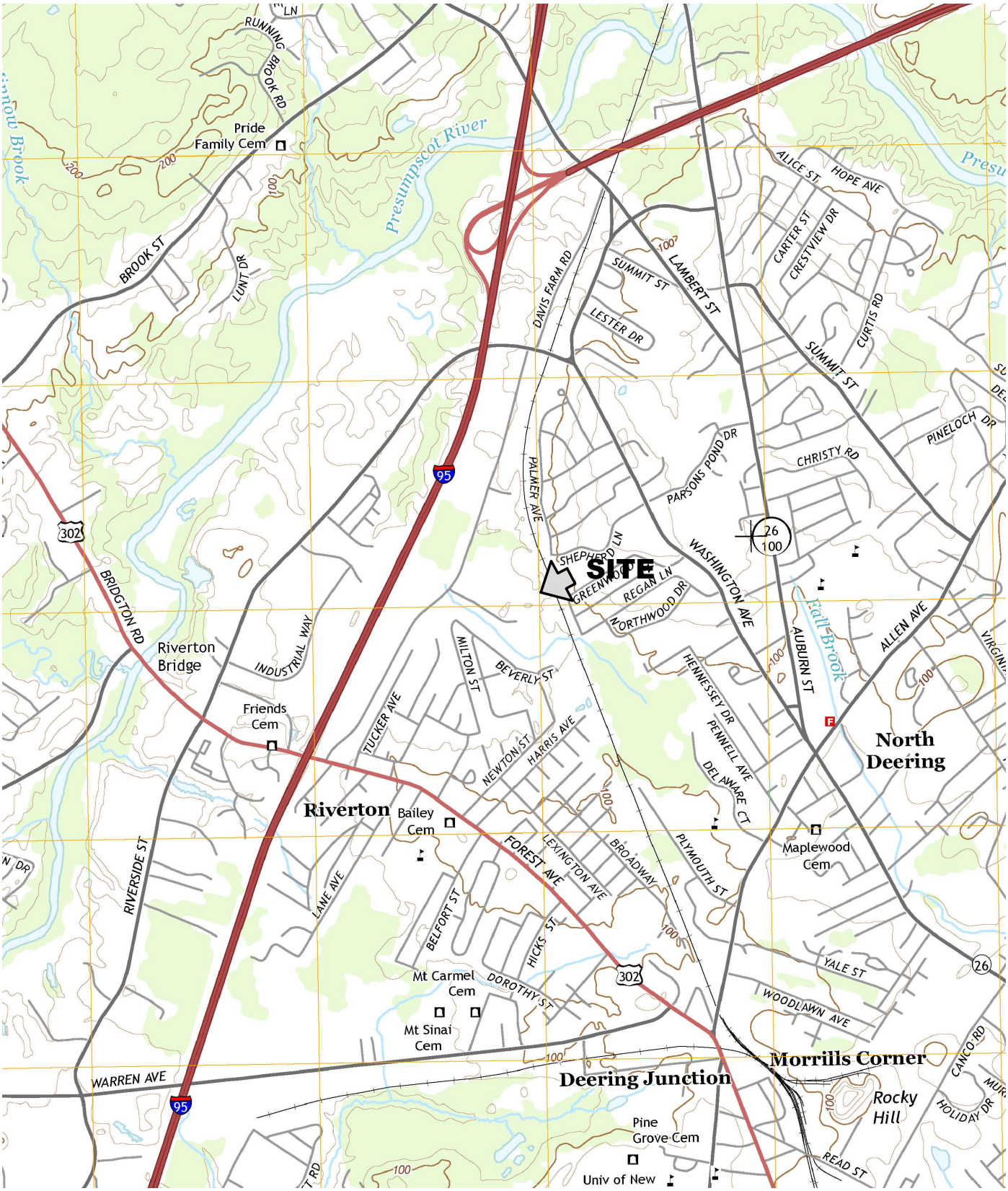
Sincerely,
CES, Inc.

John D. Kuchinski, PE
Senior Project Engineer

JDK/cmc
Encl.

Seven Locations in Maine | www.ces-maine.com

146 Main Street
Suite 300
Saco, Maine 04072
T 207.283.9151
F 207.283.9136



SOURCE:
U.S.G.S. TOPOGRAPHIC QUADRANGLE
PORTLAND WEST
@ 1:24,000

Terrain Navigator,© Maptech 800-627-7236

CES INC

PLYMOUTH INDUSTRIAL REIT, INC.
56 MILLIKEN STREET, PORTLAND, MAINE
LOCATION MAP

2018-07-06
12254.003

STATE OF MAINE
DEPARTMENT OF AGRICULTURE, CONSERVATION & FORESTRY
93 STATE HOUSE STATION
AUGUSTA, MAINE 04333

PAUL R. LEPAGE
GOVERNOR

WALTER E. WHITCOMB
COMMISSIONER

August 21, 2018

John Kuchinski
CES
146 Main Street, Suite 300
Saco, ME 04072

Via email: jkuchinski@ces-maine.com

Re: Rare and exemplary botanical features in proximity to: Job #1254.003, Plymouth Industrial REIT, 56 Milliken Road, Portland, Maine

Dear Mr. Kuchinski:

I have searched the Natural Areas Program's Biological and Conservation Data System files in response to your request received August 21, 2018 for information on the presence of rare or unique botanical features documented from the vicinity of the project in Portland, Maine. Rare and unique botanical features include the habitat of rare, threatened, or endangered plant species and unique or exemplary natural communities. Our review involves examining maps, manual and computerized records, other sources of information such as scientific articles or published references, and the personal knowledge of staff or cooperating experts.

Our official response covers only botanical features. For authoritative information and official response for zoological features you must make a similar request to the Maine Department of Inland Fisheries and Wildlife, 284 State Street, Augusta, Maine 04333.

According to the information currently in our Biological and Conservation Data System files, there are no rare botanical features documented specifically within the project area. Based on the information in our files and the landscape context of this project, there is a low probability that rare or significant botanical features occur at this project location.

This finding is available and appropriate for preparation and review of environmental assessments, but it is not a substitute for on-site surveys. Comprehensive field surveys do not exist for all natural areas in Maine, and in the absence of a specific field investigation, the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site.

The Natural Areas Program is continuously working to achieve a more comprehensive database of exemplary natural features in Maine. We would appreciate the contribution of any information obtained should you decide to do field work. The Natural Areas Program welcomes coordination with individuals or organizations proposing environmental alteration, or conducting environmental assessments. If, however, data provided by the Natural Areas Program are to be published in any form, the Program should be informed at the outset and credited as the source.

MOLLY DOCHERTY, DIRECTOR
MAINE NATURAL AREAS PROGRAM

DEPARTMENT OF Agriculture Conservation & Forestry

PHONE: (207) 287-8044
FAX: (207) 287-8040
WWW.MAINE.GOV/DACF/MNAP

The Natural Areas Program has instituted a fee structure of $75.00 an hour to recover the actual cost of processing your request for information. You will receive an invoice for $150.00 for two hours of our services.

Thank you for using the Natural Areas Program in the environmental review process. Please do not hesitate to contact me if you have further questions about the Natural Areas Program or about rare or unique botanical features on this site.

Sincerely,

Kristen Puryear | Ecologist | Maine Natural Areas Program
207-287-8043 | kristen.puryear@maine.gov

August 21, 2018

Mr. Scott Lindsey
Maine Department of Inland Fisheries and Wildlife
15 Game Farm Road
Gray, ME 04039
Scott.Lindsay@maine.gov

Re: Plymouth Industrial REIT | 56 Milliken Road | Portland, Maine

Dear Mr. Lindsey,

Plymouth Industrial REIT is currently in the process of preparing a Site Location of Development Permit Amendment Application for the construction of a 72,000 square foot building at 56 Milliken Drive in Portland, Maine. The facility is an addition to and existing industrial manufacturing facility at 56 Milliken Road, Portland.

As required for permitting requirements, we are submitting this request to your office to determine if there are any potential impacts to fisheries or wildlife habitats located at the site or in the immediate surroundings. Any response can be forwarded to our office located at 146 Main Street, Saco, ME 04072 or by email at jkuchinski@ces-maine.com.

Thank you for your assistance in this matter.

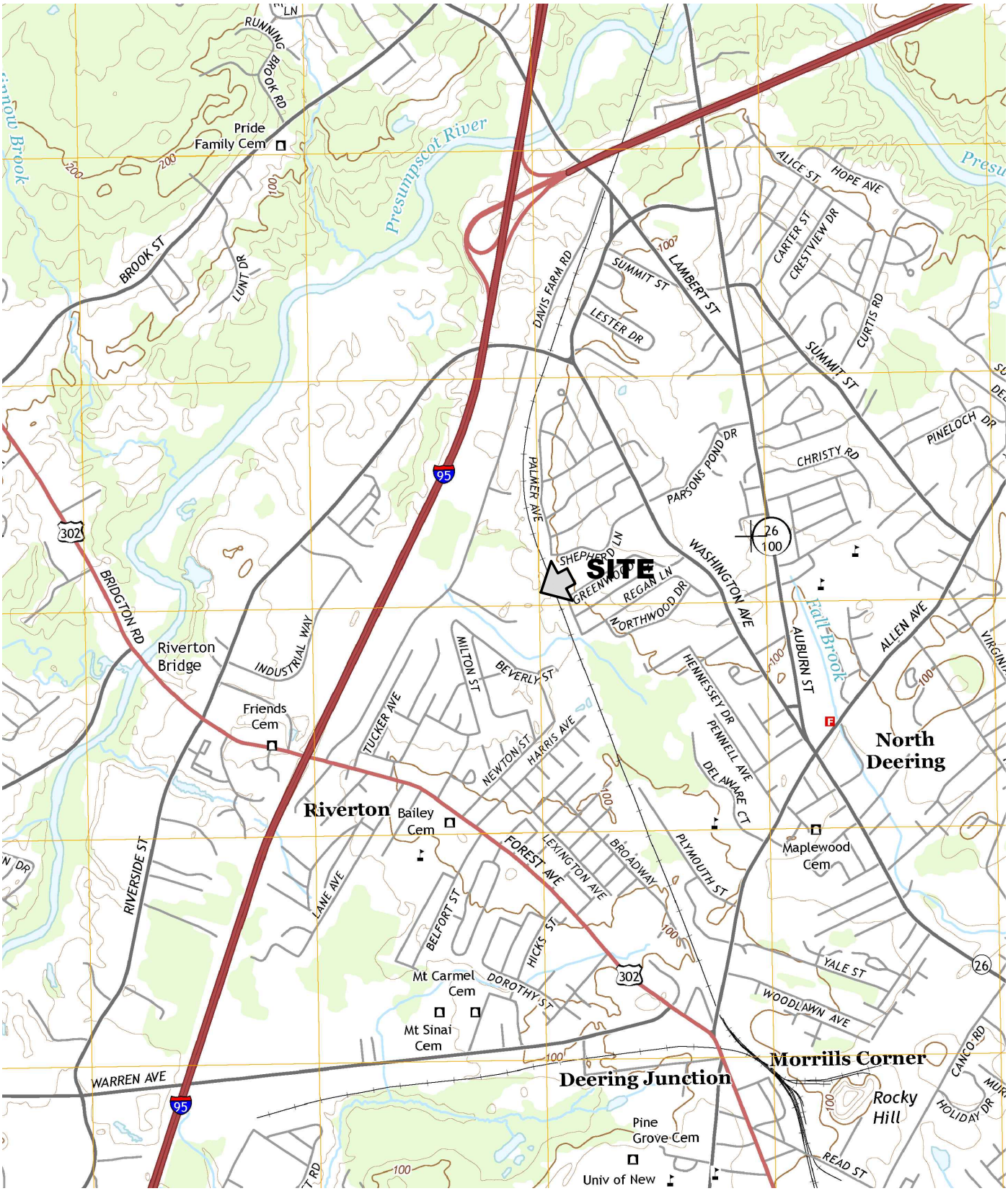
Sincerely,
CES, Inc.

John D. Kuchinski, PE
Senior Project Engineer

JDK/cmc
Encl.

Seven Locations in Maine | www.ces-maine.com

146 Main Street
Suite 300
Saco, Maine 04072
T 207.283.9151
F 207.283.9136



SOURCE:
U.S.G.S. TOPOGRAPHIC QUADRANGLE
PORTLAND WEST
@ 1:24,000

Terrain Navigator,© Maptech 800-627-7236

CES INC

PLYMOUTH INDUSTRIAL REIT, INC.
56 MILLIKEN STREET, PORTLAND, MAINE
LOCATION MAP

2018-07-06
12254.003

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA, ME 04333-0041
TEL: 207-287-8000

PAUL R. LEPAGE
GOVERNOR

CHANDLER E. WOODCOCK
COMMISSIONER

Wildlife Division – Region A
15 Game Farm Rd.
Gray, ME 04039
Phone: (207) – 657-5745
Fax: (207) – 657-2980
Scott.Lindsay@maine.gov

October 4, 2018

John Kuchinski
CES, Inc.
146 Main St., Suite 300
Saco, ME 04072

Dear John,

You have contacted this office requesting information on any known wildlife habitat of management concern occurring at the site of a proposed addition to an existing commercial development located at 56 Milliken Rd. in Portland.

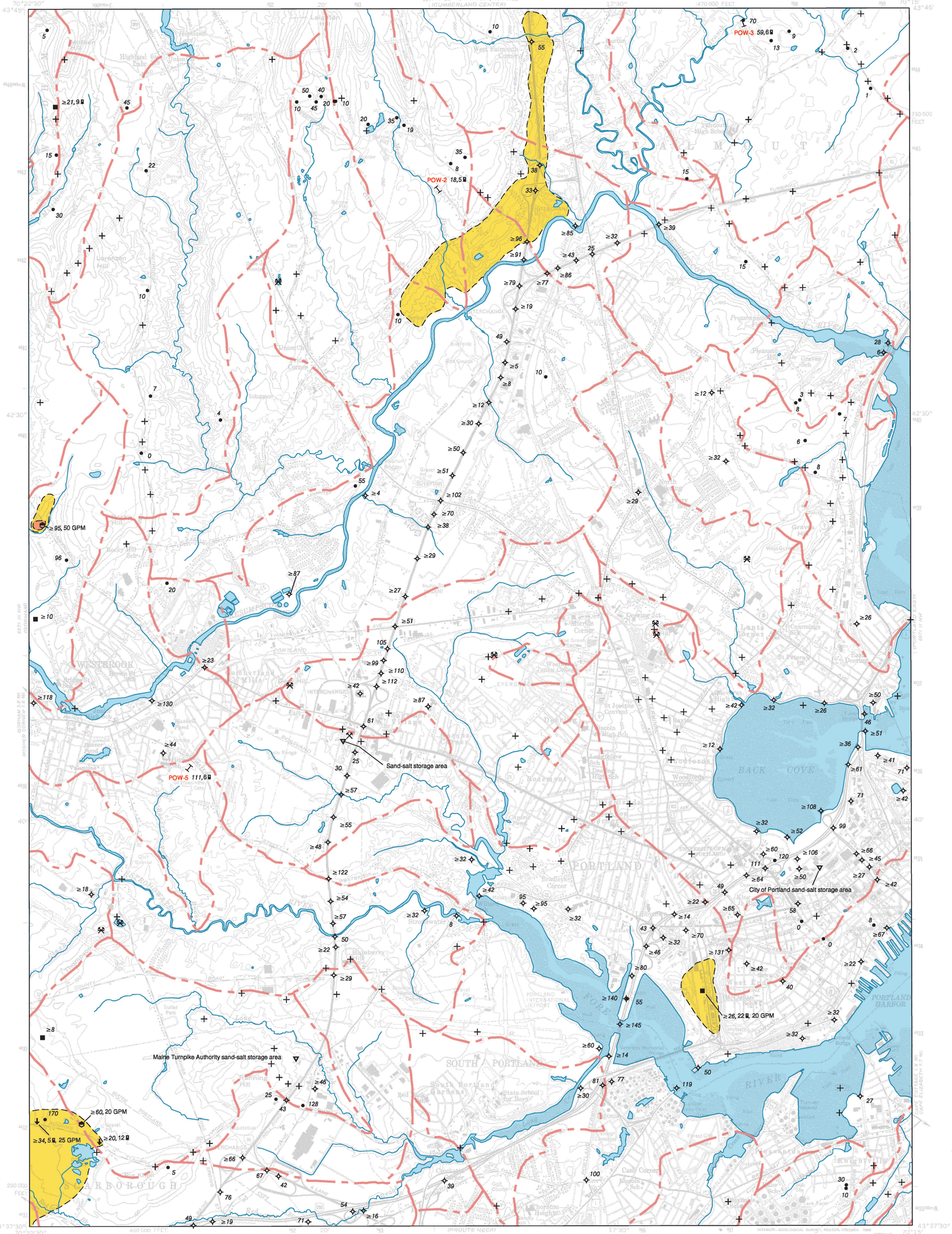
Based upon a review of the most current data available, there are no known essential or significant wildlife habitats, nor any documented occurrences of rare, threatened or endangered species at or adjacent to this property.

Sincerely,

Scott Lindsay

Scott Lindsay
Regional Wildlife Biologist

Significant Sand and Gravel Aquifers



SIGNIFICANT SAND AND GRAVEL AQUIFERS (yields greater than 10 gallons per minute)

Approximate boundary of surficial deposits with significant saturated thickness where potential ground-water yield is moderate to excellent.

Surficial deposits with good to excellent potential ground-water yield; yields generally greater than 50 gallons per minute to a properly constructed well. Deposits consist primarily of glacial sand and gravel, but can include areas of sandy till and alluvium; yield zones are based on subsurface data where available, and may vary from mapped extent in areas where data are unavailable.

Surficial deposits with moderate to good potential ground-water yield; yields generally greater than 10 gallons per minute to a properly constructed well. Deposits consist primarily of glacial sand and gravel, but can include areas of sandy till and alluvium; yields may exceed 50 gallons per minute in deposits hydraulically connected with surface-water bodies, or in extensive deposits where subsurface data are available.

SURFICIAL DEPOSITS WITH LESS FAVORABLE AQUIFER CHARACTERISTICS (yields less than 10 gallons per minute)

Areas with moderate to low or no potential ground-water yield (includes areas underlain by till, marine deposits, colian deposits, alluvium, swamps, thin glacial sand and gravel deposits, or bedrock); yields in surficial deposits generally less than 10 gallons per minute to a properly constructed well.

SEISMIC-LINE INFORMATION

Profiles for 12-channel seismic lines may be viewed at the Maine Geological Survey. Length of 12-channel seismic lines as shown on the map is to scale. All single-channel lines ranged from 80 to 300 feet long and are not shown to scale.

- 53 — Depth to bedrock, in feet below land surface.
- ≥53 — Depth to bedrock exceeds depth shown (based on calculations).
- 12 — Depth to water level, in feet below land surface.
- MAP-7 131, 23 — Twelve-channel seismic line, with depth to bedrock and depth to water shown at the midpoint of the line, in feet below land surface.
- 69, 12 / MAP-E / 72, 12 — Single-channel seismic line, with depth to bedrock and depth to water shown at each end of the line, in feet below land surface. Unless otherwise indicated, data shown above the line-identifier box refers to the northern end of the seismic line.

The 3-letter identifier for a line is an abbreviation for the topographic quadrangle. If the 3-letter identifier for the line is followed by a number (ex: MAP - 7, MAP - 4), the line is a 12-channel line. If the identifier is followed by a letter (ex: MAP - E, MAP- P), the line is a single-channel line. Twelve-channel seismic interpretations by C. D. Neil.

OTHER SOURCES OF INFORMATION

1. Thompson, W. B., 1999, Surficial materials of the Portland West quadrangle, Maine: Maine Geological Survey Open-File Map 99-38.
2. Thompson, W. B., 1997, Surficial geology of the Portland West quadrangle, Maine: Maine Geological Survey, Open-File Map 97-51.
3. Caswell, W. B., 1987, Ground water handbook for the state of Maine, Second Edition: Maine Geological Survey, Bulletin 39, 135 p.
4. Thompson, W. B., 1979, Surficial geology handbook for coastal Maine: Maine Geological Survey, 68 p. (out of print)
5. Kendall, D. L., 1987, Glaciers and granite: A guide to Maine's landscape and geology: Down East Books, Camden, Maine, 240 p.
6. Thompson, W. B., and Borns, H. W., Jr., 1985, Surficial geologic map of Maine: Maine Geological Survey, scale 1:500,000.

GEOLOGIC AND WELL INFORMATION

- 50 — Depth to bedrock, in feet below land surface
- ≥13 — Penetration depth of boring; ≥ symbol refers to minimum depth to bedrock based on boring depth or refusal
- 6 — Depth to water level in feet below land surface (observed in well, spring, test boring, pit, or seismic line)
- Gravel pit (overburden thickness noted in feet, e.g. 5-12')
- Quarry
- 4 GPM — Yield (flow) of well or spring in gallons per minute (GPM)
- Spring, with general direction of flow
- Drilled overburden well
- Dug well
- Observation well (project well if labeled; nonproject well if unlabeled)
- Test boring (project boring if labeled; nonproject boring if unlabeled)
- Driven point
- Test pit
- Drilled bedrock well
- Potential point source of ground-water contamination
- Bedrock outcrop
- Surface-water drainage-basin boundary; surface-water divides generally correspond to ground-water divides. Horizontal direction of ground-water flow generally is away from divides and toward surface-water bodies.

Portland West Quadrangle, Maine

Compiled by
Craig D. Neil
Preliminary aquifer boundaries mapped by:
Daniel B. Locke
Digital cartography by:
Michael E. Foley
Robert G. Marvinney
State Geologist
Cartographic design and editing by:
Robert D. Tucker
Bennett J. Wilson, Jr.

Funding for the preparation of this map was provided in part by the Maine Department of Environmental Protection.

Maine Geological Survey
Address: 22 State House Station, Augusta, Maine 04333
Telephone: 207-287-2801 **E-mail:** mgs@maine.gov
Home page: http://www.maine.gov/doc/nrimc/nrimc.htm

Open-File No. 99-11
1999

WHAT IS AN AQUIFER?

Ground water, as the name implies, is water found below the land surface in the pore spaces between sand grains and in fractures in the bedrock (see diagrams below). An *aquifer* is a water-bearing geologic formation capable of yielding a usable amount of ground water to a well. In Maine there are two types of aquifers; loose soil materials (such as sand, gravel, and other sediments) and fractured bedrock. A sand and gravel deposit is considered a *significant aquifer* when a well in that deposit is capable of being continuously pumped at a rate of 10 gallons per minute (gpm) or more. To sustain a yield of 10 gpm or more, a deposit must be permeable enough for water to flow readily into the well as it is pumped (see section on *porosity* and *permeability* below), and there must be a sufficient depth of water in the well so that it will not be pumped dry.

The diagram below shows a schematic cross section of a sand and gravel aquifer in Maine. The symbols above the diagram correspond to the well symbols shown on the map at left. Information typically shown for these wells includes type of well, depth to bedrock, depth to water, and well yield. The blue line in the diagram is the *water table*. The area below the water table is called the *saturated zone*, where all pore spaces between the sediment particles are filled with water. In order to yield water, a well must extend below the water table into the saturated zone. Notice that the water table corresponds to the water level in most wells and in the stream.

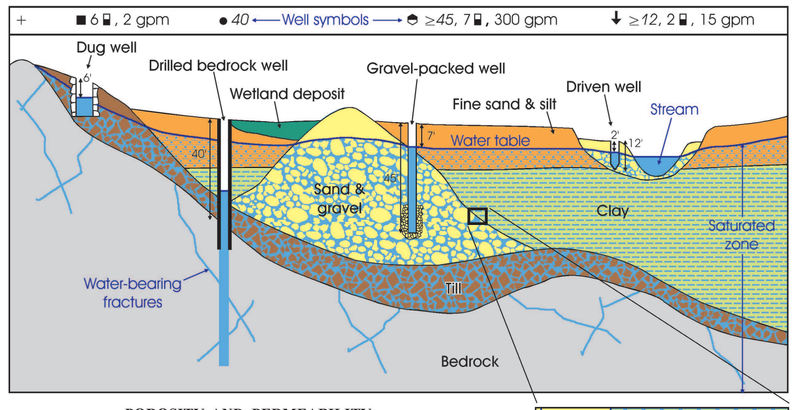
Several types of wells, common in Maine, are shown in the diagram. A *dug well* is a large diameter hole excavated by hand or backhoe. The hole is kept from caving in by installing a lining that may be stone, tile, or cement blocks. The hole must be deep enough to extend below the water table. The shallow dug well in the diagram has a yield of 2 gpm. Although the yield is often low, dug wells generally supply enough ground water for a household because of the large amount of water stored in the well.

A *gravel-packed* well is usually installed into coarse-grained sediment and is drilled with a much larger diameter than the final casing and screen diameter. To increase the yield and pumping efficiency of the well, the space around the well screen is filled with selected gravel that increases the permeability in the immediate vicinity of the well. The gravel-packed well in the diagram has a high yield of 300 gpm. Such high-yielding gravel-packed wells are commonly drilled for municipal or industrial water systems.

A *driven well* or *well point* can be installed into sand and gravel where the water table is within about 20 feet of the ground surface. A 2 to 3 inch diameter pipe, equipped with a well screen at its lower end, is driven into the deposit until the screen is below the water table. This pipe acts as a casing, and water is pumped directly from the aquifer. The driven well in the diagram has a significant yield of 15 gpm. Although the yield is relatively high, driven wells generally only supply a single household because very little water is stored in the well casing.

Wells of any type constructed in the other sediments shown in the diagram (clay or fine sand and silt) would yield some water, but yields would be lower than for wells in coarse-grained sand and gravel deposits.

Another type of well common in Maine is the *drilled bedrock well*. This well is drilled into the underlying rock with steel casing to isolate the well from potential surface-water contamination. In this type of well, water is found when the well hole intersects water-bearing fractures in the bedrock. Notice how the water level in this well is not the same level as the water table. The well casing isolates the bedrock well from the overlying sediments. The water level is controlled by water pressure in the fractures in the bedrock and is not related to the water table in the overlying materials.

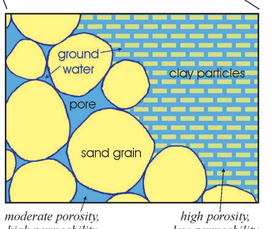


POROSITY AND PERMEABILITY

The diagram at right is an enlarged view of a section of the diagram above. Note that the section shown is below the water table and that ground water completely fills the pore spaces between the sediment grains. In an aquifer, the more pore space there is, the more water the aquifer can hold. This is called the *porosity* of a deposit. *Permeability* refers to the ability of a surficial deposit to transmit water. Permeability depends on the size of the spaces between the sediment grains.

Permeability is related to porosity, but is not the same. Porosity determines the capacity of the material to hold water. Permeability determines its ability to yield water. For example, clay is made of tiny particles with a large amount of pore space between them. However, the pore spaces are so small that they create a resistance to flow which reduces ground water permeability. Sand and gravel may not be as porous as clay, but the pore spaces are larger and better connected and the materials are much more permeable.

Permeability is an important characteristic since it determines whether ground water can actually be drawn into a pumping well.



moderate porosity, high permeability — *high porosity, low permeability*

HOW ARE AQUIFERS MAPPED?

Operating a twelve-channel seismograph, Piscataquis County, Maine.

When mapping sand and gravel aquifers, geologists visit gravel pits, stream banks, road cuts, and other surface exposures to describe materials and identify deposits. This surficial geology mapping is supplemented with seismic-refraction studies and the installation of observation wells and test borings. In addition, much information about an aquifer may already be available from water-company exploration, large construction projects, town well inventories, and other sources. This information, along with aerial photography and previously published maps, allows the geologist to define the boundaries of favorable surficial deposits and estimate how well the deposits will yield water to a well.

The boundaries of favorable surficial deposits do not necessarily coincide with the aquifer boundaries. In some areas, a thin cover of favorable coarse-grained material may overlie fine-grained sediments, till, or bedrock. A well in that material would not be able to sustain a yield of 10 gpm, so the area would not be mapped as an aquifer. In other areas, fine-grained sediments or till may overlie favorable coarse-grained sediments and the subsurface deposit may not be recognized as an aquifer.

Single- and 12-channel seismic-refraction studies are conducted to determine the saturated thickness of a deposit by establishing the depth to water table and bedrock surface. The 12-channel seismic survey has the additional advantage of providing the topography of the buried bedrock surface at a site.

Installing monitoring wells and drilling test borings provide direct information about the aquifer characteristics of a deposit. This work provides information on the depth to water table and bedrock surface, water quality, and how easily the sediment transmits water.

GROUND-WATER FLOW AND CONTAMINATION

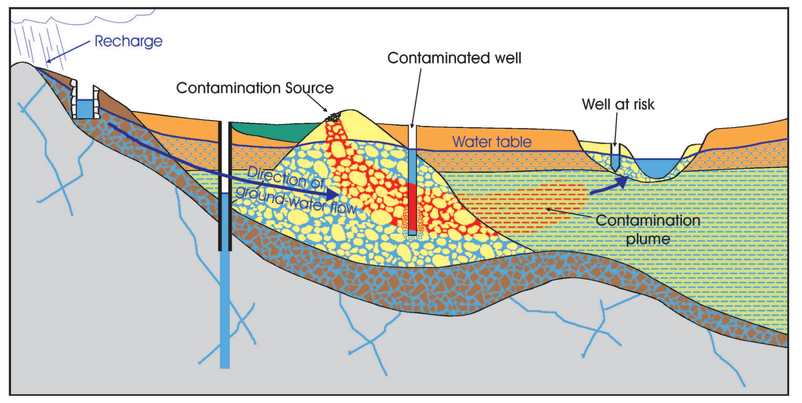
Ground water is replenished or *recharged* by rainwater and melting snow that soak into the soil. This water percolates downward and eventually reaches the water table. When recharge is high during spring snowmelt and fall rains, the amount of ground water increases and the water table rises. When recharge is low during the late summer or when the ground is frozen during the winter, the water table becomes lower.

Notice in the diagram below that ground water is not static; it flows. This concept is very important, especially when ground water becomes contaminated. Once in the ground-water system, contaminants usually travel along the paths followed by ground water and are sometimes able to migrate considerable distances over time.

In the diagram below, a plume of contamination originates at the source in the sand and gravel deposit. This source could be a landfill, a leaking fuel storage tank, or an accidental spill. As the contaminant seeps into the subsurface system and enters the aquifer, it flows with the ground water. In the diagram, the plume contaminated the gravel-packed well as it passed by. The driven well near the stream is not contaminated, but is at risk since the plume is flowing in that direction. The dug well on the hillside, however, is not affected because it is upgradient of the source, hence the contaminated ground water flows away from this well.

Once ground water is contaminated, it is very difficult and expensive to correct. To design a clean-up plan, monitoring wells are installed under the direction of a hydrogeologist or other specialist. These wells define the three-dimensional extent of the affected area. Sometimes it is possible to pump contaminants to the surface using remediation wells within the plume. Often the only solution for a homeowner is to install filtering devices or to abandon the well and find an alternative water supply.

Installing a monitoring well, Washington County, Maine.



HOW TO USE THIS MAP

Types of Information Shown on this Map: The yellow and red colored areas on the map indicate significant aquifers, zones where ground-water yield is estimated to be 10 gpm or greater. The boundaries of the aquifers are drawn by a geologist based, in part, on the well data shown on the map. Areas not mapped as aquifer may be thin or unsaturated sand and gravel deposits, surficial deposits other than sand and gravel, or bedrock.

The well data on the map provide information about the type of well, depth to water table, depth to bedrock, and yield of the wells in the area. This information is useful when making decisions about water supply, a drainage plan, or the need for blasting.

Information from seismic refraction studies also is shown on the map. Seismic studies give detailed information about depth to water table and depth to and shape of the bedrock surface. Geologic cross sections generated from seismic information are shown in associated reports listed in the references below the map at left.

Surface-water drainage-basin boundaries are also shown on the map. Horizontal direction of ground-water flow generally is away from drainage divides and toward surface-water bodies.

Uses of this Map: Sand and gravel aquifer maps are useful in two major categories of decision-making: ground-water supply and ground-water protection. For ground-water supply, these maps are useful in locating areas favorable for developing water supplies for municipal, industrial, or residential use. Information on the map, such as depth to bedrock and well yield, indicate the potential for ground-water production.

Ground-water protection is another important function of these maps. Knowledge of the location and extent of sand and gravel aquifers is critical when siting potential contamination sites such as landfills and salt storage facilities. When used in conjunction with other geologic information, this map can help planners and municipal officials make much more informed decisions to guide industrial growth or residential development.

If ground-water contamination occurs, the general trend of the plume migration can be deduced from these maps by analyzing the drainage basin boundaries and the local surface water bodies.

For further assistance in interpreting this map, contact a geologist at the Maine Geological Survey.

PLYMOUTH REIT
56 MILLIKEN STREET, PORTLAND, MAINE

TAB 4 - ENVIRONMENTAL AND STORMWATER NARRATIVE

A. NARRATIVE

The intent of this Stormwater Management Plan is to comply with the requirements of the City of Portland Stormwater Management Technical Manual and the Maine Department of Environmental Protection (MDEP) Chapter 500 regulations. The MDEP has delegated review authority to the City of Portland, as discussed in the enclosed correspondence between the MDEP and CES, Inc. This project involves the development of approximately five acres for the construction of a 72,000 square foot (SF) warehousing facility. Additional impervious area includes approximately 57,600 SF of new driveway and maneuvering areas and 26,700 SF of existing impervious area to be conveyed to a new stormwater treatment structure. The stormwater management plan proposes treatment for 100% of the impervious area and 100% of the 178,897 SF of developed area in this project.

The Project is located on an existing developed site consisting of Tax Map parcels 334 A014001 and 354A A006. Total site area is approximately 31.21 acres. The site was originally developed in 1966. In 1995 an expansion of the building and expansion of the truck and car parking areas triggered a Site Location of Development Act (SLODA) permit (L-18722-26-B-D). Since 1975 approximately 5.7 acres of impervious area (Structure) was added to the site. The proposed development will add approximately 2.98 acres of impervious area bring the total impervious area since 1975 to 9.29 acres. MDEP has not asserted jurisdiction. Total existing impervious areas is approximately 11.40 acres. The proposed project will bring the total site impervious area to 14.38 acres.

Erosion control measures will be in place prior to the start of any construction. Temporary and permanent measures will be installed in accordance with Section 4C of this application. Upon completion of the construction and stabilization of all disturbed areas, the temporary erosion control measures will be removed.

Development within Urban Impaired Stream Watersheds: The proposed development is within the watershed of urban impaired stream Dole Brook. The compensation fee for the proposed impact to Dole Brook is $42,775, in accordance with Chapter 501.

Basic Erosion and Sedimentation Control Standards for all Development: Information is provided as required in Section 4C – Basic Standard Submission.

Flooding Standard Submission: The following information is provided in accordance with the Flooding Standard Submission, as required by the City of Portland Stormwater Management Technical Manual – Stormwater Management Plans for New Development.

1. Control of Peak Flows: The project is required to meet Flooding Standards in accordance with Chapter 500 requirements. The Pre and Post-Development Hydrology models and narrative are located in Section 4B.

2. Details, Design, and Specifications: The model runoff calculations are performed using a HydroCAD model. Sizing of the required stormwater treatment methods are included in Section 4A.

General Standards Submission: The following Information is provided as required in the General Standard Submission.

1. Narrative: The proposed project will occupy approximately 5 acres of the 31.21-ac site. Most of the remaining land to the East has been developed. The driveway, parking area and vehicular maneuvering areas account for approximately 84,300 SF of new impervious area. The facility's roof system accounts for 72,000 SF of new impervious area. Treatment methods also account for 26,700 SF of existing impervious area, as the current treatment is in the location of the proposed building. Proposed treatment methods include a roof drip edge and three underdrained soil filters adjacent to the proposed impervious areas.

2. Drainage Plans: A plan set is provided as part of Section 4 requirements and Pre- and Post-Development Hydrology Plans are provided in Section 4B under the Stormwater Management Quantity Report portion of this Application. The plan set includes the locations of BMP's used to treat the stormwater from this development, and a site detail sheet is included in Section 4B that provides detail information on the grassed underdrained soil filters.

3. Calculations: Underdrained soil filter sizes were determined in accordance with Chapter 500 and the MDEP Stormwater BMP Technical Design Manual, Volume III.

4. Details, Designs, and Specifications: The project is currently proposing to control runoff quality issues using a roof drip edge and three grassed underdrained soil filters (GUSF).

5. Phosphorus Standards Submission: The proposed development is not in a lake watershed, and is therefore not required to meet the Phosphorus Standards Submission.

SECTION 4A

STORMWATER QUALITY CONTROL NARRATIVE

The proposed Plymouth REIT is being developed for the construction of a warehousing facility in Portland, Maine. The site will be accessed by a 400-foot driveway off of Riverside Industrial Parkway. The approximately 5-acre development will involve the installation of about 129,600 SF of new impervious area. The development also proposes the removal of an existing underdrained soil filter as it interferes with the new building footprint. The filter treated runoff from approximately 26,700 SF of existing impervious area. Stormwater from the area will be conveyed through catch basins to a new underdrained soil filter. As a result of these improvements, the project is required to comply with the City of Portland Stormwater Management Technical Manual – Stormwater Management Plans for New Development. According to Maine DEP Chapter 500 regulations, 95% of proposed impervious surfaces and 80% of the developed area must be treated.

To treat stormwater associated with the proposed development, Plymouth REIT is proposing the construction of a roof drip edge and three grassed underdrained soil filters (GUSF) to meet stormwater quality standards. The GUSFs will be located in the south edge of the facility entrance to maximize the treatment of runoff. The locations of these BMP's are shown on the plan set.

The following tables summarize the impervious and developed area created by the project as well as the treatment structure, area treated, and relationship with the total developed and impervious areas for the project.

PROJECT SITE AREA

PROJECT AREA	IMPERVIOUS AREA	DEVELOPED AREA
New Site Area	129,596 SF	152,197 SF
Existing Site Area	26,700 SF	26,700 SF
TOTAL	156,296 SF	178,897 SF

STORMWATER TREATMENT SYSTEMS

TREATMENT METHOD	SITE AREA TREATED	
	IMPERVIOUS	DEVELOPED
GUSF 1	58,335 SF	69,830 SF
GUSF 2	3,232 SF	7,431 SF
GUSF 3	6,529 SF	13,436 SF
Roof Drip Edge	88,200	88,200
TOTAL	156,296 SF	178,897 SF
PERCENT OF TOTAL AREA TREATED	**100.0 %**	**100.0 %**

A description of the treatment type is as follows:

1. **Grass Underdrained Soil Filter (GUSF):** Three GUSF's have been proposed to treat stormwater runoff from the site. Runoff from paved areas will be conveyed through ditches along proposed pavements to the corresponding GUSF along the driveway. The proposed stormwater quality control devices have been designed according to the standards outlined in the Stormwater Management for Maine, Volume III BMP Manual, January 2006 and revised May 2016. Construction and maintenance will be according to standards outlined in this manual.

   GUSF 1:
   Impervious Area: 58,335 SF
   Landscape Area: 5,244 SF

   Chapter 500 sizing is based on 1" of the impervious area + 0.4" of the landscaped area.

   55,335 SF x 1" = 4,861 CF or Required Storage
   11,495 SF x 0.4" = 383 CF of Required Storage

   5,244 CF of Required Storage @ 18" Deep = 3,496 SF of Filter Area.
   3,900 SF was provided by design.

   GUSF 2:
   Impervious Area: 3,232 SF
   Landscape Area: 4,199 SF

   Chapter 500 sizing is based on 1" of the impervious area + 0.4" of the landscaped area.

   3,232 SF x 1" = 269 CF or Required Storage
   4,199 SF x 0.4" = 140 CF of Required Storage

   409 CF of Required Storage @ 18" Deep = 273 SF of Filter Area.
   370 SF was provided by design.

   GUSF 3:
   Impervious Area: 6,529 SF
   Landscape Area: 6,907 SF

   Chapter 500 sizing is based on 1" of the impervious area + 0.4" of the landscaped area.

   6,529 SF x 1" = 544 CF or Required Storage
   6,907 SF x 0.4" = 230 CF of Required Storage

   774 CF of Required Storage @ 18" Deep = 516 SF of Filter Area.
   620 SF was provided by design.

2. **Roof Drip Edge:** A roof drip edge has been proposed to treat impervious area from Subarea 5. The drip edge has been sized in accordance with the BMP Manual. The stone's porosity of 0.4 will allow enough runoff to be stored to meet the flooding standard, as presented in the HydroCAD model. The proposed stormwater quality control device has been designed according to the standards outlined in the Stormwater Management for Maine, Volume III BMP Manual, January 2006 and revised May 2016. Construction and maintenance will be according to standards outlined in this manual.

   Roof Area: 72,000 SF

   Chapter 500 sizing is based on 1" of the roof area

   72,000 SF x 1" = 6,000 CF of Required Storage
   6,000 CF of Required Storage @ Porosity of 0.4 = 15,000 CF Stone Required
   Drip Edge Stone Volume Provided to Meet Flooding Standard = 28,500 CF

SECTION 4B

STORMWATER MANAGEMENT QUANTITY NARRATIVE

As previously stated, the project is required to meet the flooding standard under Chapter 500 Section 4.E(2)(a). To meet the flooding standard, HydroCAD calculations were performed to compare pre-development and post-development conditions to determine curve numbers and peak runoff flows.

The undeveloped portion of the property is primarily forested with a mix of softwoods and hardwoods. Terrain is relatively flat, but two streams bisect the area, one entirely on the property and the other primarily on the adjacent property to the North. Both streams are located within steep-sided gullies. There is an additional low area near the north end of the property. Soils on the site are classified by the USDA web soil survey as cut and fill material in the existing development and a combination of Type C and D in the undeveloped portion of the property. A majority of the area proposed for development drains to the stream inside the property boundary. The overall runoff from the site drains south to Dole Brook. The post-development hydrology plan was broken into eight subareas encompassing the same footprint as pre-development hydrology plan. Runoff from the rooftop of the proposed warehouse is stored in the voids of a crushed stone drip edge with an underdrain. This stormwater is conveyed through a storm drainage pipe before outletting to the on-site stream. The existing turnaround is currently treated by an underdrained soil filter to be removed upon construction of the warehouse. To replace this treatment method, stormwater is captured by two catch basins and conveyed through piping to GUSF 1. A majority of new pavements will be contained and treated by a combination of the three proposed underdrained soil filter. These structures will outlet controlled and treated stormwater to the adjacent stream.

A summation point was chosen in the same location between pre-development and post-development to compare peak flow runoff for the 2-year, 10-year, and 25-year storm events. The summation point is located to the South of the site. Based on results of the HydroCAD, it is expected that stormwater runoff from the site will be similar or lessened in post-development conditions as in pre-development conditions. The drip edge and GUSFs detain stormwater runoff to allow a controlled flow before exiting the project site. A comparison of each of the watershed areas in both Pre- and Post-Development is organized in the table below.

		2 Year (cfs)	10 Year (cfs)	25 Year (cfs)	25 Year Net Change	25 Year % Change
Summation Point	Pre	45.70	78.68	105.67	**-3.89**	**-3.65**
	Post	42.65	77.47	101.78		

PRE-DEVELOPMENT HYDROCAD RESULTS

POST-DEVELOPMENT HYDROCAD RESULTS

PRE-DEVELOPMENT HYDROLOGY PLAN

POST-DEVELOPMENT HYDROLOGY PLAN

STORMWATER TREATMENT PLAN

DETAIL SHEETS

SECTION 4C

BASIC STANDARDS SUBMISSION

An Erosion and Sedimentation Plan was prepared for Plymouth REIT. The erosion control notes address permanent stabilization measures, seeding, and mulching rates, as well as the timing of installation. Construction and installation details are also provided for the project. Additional descriptions and specifications are provided in Erosion and Sedimentation Control.

An Inspection and Maintenance Plan has been included in this Section. This plan includes a list of measures to be inspected and maintained. It also includes the frequency and responsible parties to implement the plan. A Housekeeping Plan has also been included in this Section. This plan provides controls to address spill prevention and possible contamination of the site.

EROSION AND SEDIMENTATION CONTROL

The proposed construction will require the implementation of temporary and permanent erosion control measures. These measures will be implemented in accordance with the Maine Erosion and Sediment Control Best Management Practices (BMPs) Manual, prior to removal of any on-site vegetation or disturbance of any on-site soil. The general erosion and sediment control specifications and details, as provided within this section, are intended to describe measures to be used by contractors working on the site to maintain compliance with the standards established in the BMPs.

The proposed location and use of erosion control measures on-site are shown on the plan located in Section 4 of this application. There are no known existing erosion control concerns with the site. Implementation of proper erosion control measures will be required by site contractors to confine sediment and debris within the limit of soil disturbance. Proper use and maintenance of erosion control measures provide protection against off-site transport of sediment and discharge of sediment to undisturbed areas of the development.

EROSION AND SEDIMENTATION CONTROL PLAN

1. Pollution Prevention: The proposed project includes the construction of a warehousing facility in Portland, Maine. The facility will be approximately 72,000 square feet (SF), with associated roads and parking lots totaling approximately 84,300 SF. All disturbed areas, with the exception of the building and parking/maneuvering areas, will be stabilized with vegetation or riprap. Proposed down-gradient wooded areas and streams will be protected with the use of silt fence or additional control devices if necessary during construction.

2. Sediment Barriers: Prior to construction, sediment barriers will be installed downgradient of all disturbed areas. Sediment barriers will include silt fence, bark mulch berms, hay bales or additional measures which may become necessary.

Sediment barriers will also be installed adjacent to any significant natural drainage channel, not otherwise protected. All installed sediment barriers will be maintained until disturbed areas are permanently stabilized.

3. Temporary Stabilization: Disturbed areas, which have lost natural vegetation cover, and will not be worked for more than seven days, will be temporarily stabilized. Areas within 75 feet of a wetland or waterbody will be stabilized within 48 hours of the initial disturbance or prior to any significant storm event, whichever comes first.

Temporary stabilization will include mulch or other non-erodible material such as erosion control mesh mats. In some instances, temporary stabilization may include temporary mulch and seeding, based on the time until the area will be worked or permanently stabilized.

4. Removal of Temporary Sediment Control Measures: After permanent stabilization of disturbed areas has been completed, temporary measures, such as silt fence, will be removed within 30 days. Any accumulated sediments will be removed and any disturbed areas permanently stabilized.

5. Permanent Stabilization: Once proposed construction is completed all disturbed areas, not otherwise permanently stabilized, will be permanently stabilized with vegetation, seeding, or permanent mulch.

Vegetation plantings and seeding will include species which are suitable for the light, soil, and moisture conditions of the area. Seeded areas will be protected with temporary mulch or erosion control blankets.

Concentrated flows will not be allowed on newly seeded areas until an adequate catch of vegetation is established. It may be necessary to reseed and mulch again if germination is sparse, plant coverage is spotty, or topsoil erosion is evident. For seeded areas, permanent stabilization means a 90% cover of healthy plants with no evidence of washing or rilling of the topsoil.

Other permanent measures associated with the project include the following:

A. Permanent Mulch: Permanent mulching means total coverage of exposed area with an approved mulch material. Erosion control mix may be used as mulch for permanent stabilization according to the approved application rates and limitations.

B. Permanent Riprap: Permanent riprap means that slopes and ditches stabilized with riprap have an appropriate backing of well-graded gravel or approved geotextile to prevent soil movement from behind the riprap. Properly sized angular stones will be utilized.

C. Permanent Ditches, Channels, and Swales: Permanent stabilization means the channel is stabilized with a 90% cover of healthy vegetation or with a well-graded riprap lining. There must be no evidence of slumping of the channel lining, undercutting of the channel banks, or down-cutting of the channel.

6. Winter Construction: Winter construction is not anticipated at this time. If Winter construction occurs, additional provision will be made to protect disturbed areas from runoff. Winter construction includes the time between November 1 and April 15.

7. Stormwater Channels: Ditches, swales, and open stormwater channels are planned as part of this project. They will be stabilized with either vegetation or rip rap depending on the situation to prevent soil erosion.

8. Roads: The proposed roadways will vary in width, cross section and surface. These roads will be graded to collect water in various proposed BMP's. Some sections of roadway will be super-elevated to send runoff to the desired BMP.

9. Culverts: Culverts utilized in this project will be protected on both ends and the outlet pool to prevent scour.

10. Parking Areas: The proposed project includes parking areas graded to collect runoff in the various proposed BMP's.

11. Additional Requirements: No additional requirements are proposed at this time.

INSPECTION AND MAINTENANCE

The Owner and their Contractor will be responsible for maintenance during construction. The Owner will be responsible for post construction maintenance of the site and the devices that provide treatment for the stormwater from the site.

A Pre- and Post-Construction Maintenance Plan for the stormwater management system is included in this section. Any questions regarding the design and maintenance of the Stormwater Management and Erosion and Sedimentation Control Systems should be directed to:

John Kuchinski, P.E.
CES, Inc.
146 Main Street, Suite 300
Saco, ME 04072

MAINTENANCE PLAN OF STORMWATER MANAGEMENT SYSTEM

The Maine Department of Environmental Protection's (MDEP) Stormwater Management for Maine: Best Management Practices latest edition and the MDEP's Chapter 500: Stormwater Management were used as guidelines in the development of this Maintenance Plan. General maintenance requirements are listed below.

A. DURING CONSTRUCTION

The general contractor will be responsible for the inspection and maintenance of all stormwater management system components during construction.

Inspection: Inspection of disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site will be performed at least once a week as well as before and after a storm event, and prior to completing permanent stabilization measures. Inspections shall be conducted by a person with knowledge of erosion and stormwater control, including the standards and conditions in the permit.

Maintenance: All erosion control measures will be kept in effective operating condition until areas are permanently stabilized. If BMPs need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation will be completed within 7 calendar days and prior to any rainfall event.

Documentation: A log shall be kept summarizing the inspections and any corrective action taken. A copy of the log is provided at the end of this section, and is titled, Log of Inspections During Construction.

B. POST-CONSTRUCTION

The Owner will be responsible for the inspection and maintenance of all stormwater management system components associated with the proposed project. A list of corrective actions titled Inspection and Maintenance Plan for Stormwater Management Structures (BMPs) is provided at the end of this section.

Inspection and Corrective Action

1. **Vegetated Areas:** Inspections and maintenance of vegetated areas will be performed early in the growing season or after significant rainfall to identify any erosion problems. Areas where erosion is evident will be covered with an appropriate lining, or erosive flows will be diverted to an area able to handle the flows. Any bare areas or areas with sparse growth will be replanted.

2. **Ditches, Swales, and Culverts:** Inspections and maintenance of ditches, culverts, and swales will be performed in the Spring, late Fall, and after rain events greater than 1-inch in depth to remove any obstructions to flow, to remove any accumulated sediments within the structures, and to repair any erosion of channel linings, check dams, inlet protection, or outlet protection. Vegetated ditches and swales must be mowed no more than twice per year and cut no less than 6-inch in height.

3. **Grassed Underdrained Soil Filter (GUSF):** Inspections and maintenance of GUSF's will be performed annually in the spring and late fall to clean the basins of debris, sediment and hydrocarbons. Accumulated sediments within the basin shall be removed and disposed of, and basin media shall be renewed if it fails to drain within 72 hours after a one-inch rainfall event. GUSF's are to be tilled, seeded and mulched if vegetation is sparse. Repair all riprap where underlying filter fabric or gravel is showing or where stones have dislodged.

4. **Roof Drip Edge:** Inspections and maintenance of the roof drip edge will be performed annually in the spring and late fall to clean the basins of debris, sediment and hydrocarbons. Accumulated sediments within the filtration system shall be removed and disposed of, and basin media shall be renewed if it fails to drain within 72 hours after a one-inch rainfall event. Repair all stone where underlying filter fabric or gravel is showing or where stones have dislodged.

C. DOCUMENTATION

A log shall be kept summarizing the inspections, maintenance, and any corrective action taken. A copy of the log is provided at the end of this section, and is titled, BMP Inspection Log

HOUSEKEEPING

1. **Spill Prevention** - During construction, controls will be used to prevent pollutants from being discharged from materials on site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

2. **Groundwater Protection**- During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater will not be stored or handled in areas of the site draining to an infiltration area. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

3. **Fugitive Sediment and Dust** - Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil will not be used for dust control. Water will be used for dust control during construction. Operations during wet months that cause mud to be tracked off the site onto public roads will provide sweeping of the road areas at least once per week and prior to significant storm events.

4. **Debris and Other Materials** - Litter, construction debris, and chemicals exposed to stormwater will be prevented from becoming a pollutant source.

5. **Trench or Foundation De-Watering** - If de-watering is necessary, the collected water will be removed from the ponded area and spread through natural wooded buffers or discharged into a construction sedimentation basin. The water will not be allowed to flow over disturbed areas to the site.

6. **Non Stormwater Discharges** – Identify and prevent contamination by non-stormwater discharges.

7. **Additional Requirements** – Additional requirements may be applied on a site-specific basis.

PLYMOUTH REIT
LOG OF INSPECTIONS DURING CONSTRUCTION

Inspection Date	Inspector (Name and Qualifications)	Major Observations	Work Performed

Notes

1) Major Observations include the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicle access points to the parcel. Major Observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations(s) where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.
2) Work Performed will include a description of the corrective action taken, the date the corrective action was taken, and the name and qualifications of the person taking the corrective actions
3) The log must be made accessible to MDEP staff and a copy must be provided upon request.
4) The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

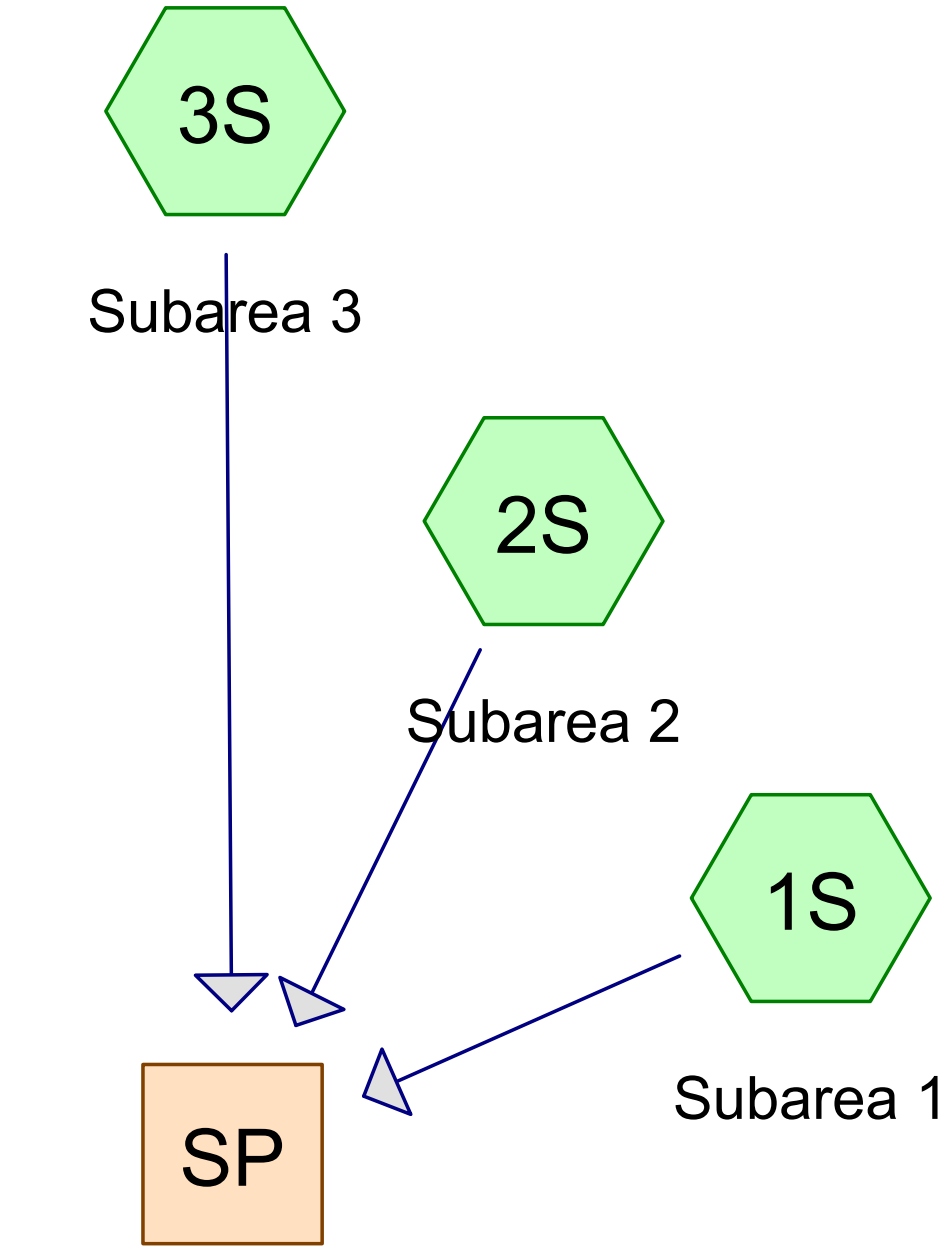
PLYMOUTH REIT
BMP INSPECTION LOG

Date	Inspector (Name and Qualifications)	ID Number	BMP Structure	Work Performed	Comments

Notes

1) If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed after removal.
2) BMP structures shall be numbered sequentially and located on attached site map.
3) The log must be made accessible to MDEP staff and a copy must be provided upon request.
4) The permittee shall retain a copy of the log for a period of at least five years from the completion of permanent stabilization.

INSPECTION AND MAINTENANCE PLAN FOR STORMWATER MANAGEMENT STRUCTURES (BMPS)		
	INSPECTION SCHEDULE	**CORRECTIVE ACTIONS**
VEGETATED AREAS	Annually early spring and after heavy rains	Inspect all slopes and embankments and replant areas of bare soil or with sparse growth
		Armor rill erosion areas with riprap or divert the runoff to a stable area
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Mow vegetation as specified for the area
DITCHES, SWALES AND OPEN STORMWATER CHANNELS	Annually spring and late fall and after heavy rains	Remove obstructions, sediments or debris from ditches, swales and other open channels
		Repair any erosion of the ditch lining
		Mow vegetated ditches
		Remove woody vegetation growing through riprap
		Repair any slumping side slopes
		Repair riprap where underlying filter fabric or gravel is showing or if stones have dislodged
CULVERTS	Spring and late fall and after heavy rains	Remove accumulated sediments and debris at the inlet, outlet, or within the conduit
		Remove any obstruction to flow
		Repair any erosion damage at the culvert's inlet and outlet
CATCHBASINS	Annually in the spring	Remove sediments and debris from the bottom of the basin and inlet grates
		Remove floating debris and oils (using oil absorptive pads) from any trap
ROADWAYS AND PARKING AREAS	Annually in the spring or as needed	Clear and remove accumulated winter sand in parking lots and along roadways
		Sweep pavement to remove sediment
		Grade road shoulders and remove accumulated winter sand
		Grade gravel roads and gravel shoulders
		Clean-out the sediment within water bars or open-top culverts
		Ensure that stormwater runoff is not impeded by false ditches of sediment in the shoulder
RESOURCE AND TREATEMENT BUFFERS	Annually in the spring	Inspect buffers for evidence of erosion, concentrated flow, or encroachment by development
		Manage the buffer's vegetation with the requirements in any deed restrictions
		Repair any sign of erosion within a buffer
		Inspect and repair down-slope of all spreaders and turn-outs for erosion
		Install more level spreaders, or ditch turn-outs if needed for a better distribution of flow
		Clean-out any accumulation of sediment within the spreader bays or turnout pools
		Mow non-wooded buffers no shorter than six inches and less than three times per year
WETPONDS AND DETENTION BASINS	Annually in fall and after heavy rains	Inspect the embankments for settlement, slope erosion, piping, and slumping
		Mow the embankment to control woody vegetation
		Inspect the outlet structure for broken seals, obstructed orifices, and plugged trash racks
		Remove and dispose of sediments and debris within the control structure
		Repair any damage to trash racks or debris guards
		Replace any dislodged stone in riprap spillways
		Remove and dispose of accumulated sediments within the impoundment and forebay
FILTRATION AND INFILTRATION BASINS	Annually in the spring and late fall	Clean the basin of debris, sediment and hydrocarbons
		Provide for the removal and disposal of accumulated sediments within the basin
		Renew the basin media if it fails to drain within 72 hours after a one inch rainfall event
		Till, seed and mulch the basin if vegetation is sparse
		Repair riprap where underlying filter fabric or gravel is showing or where stones have dislodged
PROPRIETARY DEVICES	As specified by manufacturer	Contract with a third-party for inspection and maintenance
		Follow the manufacturer's plan for cleaning of devices
OTHER PRACTICES	As specified for devices	Contact the department for appropriate inspection and maintenance requirements for other drainage control and runoff treatment measures.



Subcat Reach Pond Link

Routing Diagram for 12254.003 Pre-Development
Prepared by CES, Inc., Printed 10/29/2018

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Subarea 1 Runoff Area=665,147 sf 36.39% Impervious Runoff Depth>1.47"
Flow Length=1,215' Tc=11.7 min CN=84 Runoff=35.00 cfs 1.872 af

Subcatchment 2S: Subarea 2 Runoff Area=173,753 sf 100.00% Impervious Runoff Depth>2.65"
Flow Length=785' Slope=0.0100 '/' Tc=3.1 min CN=98 Runoff=18.58 cfs 0.882 af

Subcatchment 3S: Subarea 3 Runoff Area=15,247 sf 100.00% Impervious Runoff Depth>2.65"
Flow Length=385' Slope=0.0100 '/' Tc=2.9 min CN=98 Runoff=1.63 cfs 0.077 af

Reach SP: Summation Point Inflow=45.70 cfs 2.832 af
Outflow=45.70 cfs 2.832 af

Total Runoff Area = 19.609 ac Runoff Volume = 2.832 af Average Runoff Depth = 1.73"
49.53% Pervious = 9.713 ac 50.47% Impervious = 9.896 ac

Summary for Subcatchment 1S: Subarea 1

Runoff = 35.00 cfs @ 12.04 hrs, Volume= 1.872 af, Depth> 1.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (sf)	CN	Description
30,736	78	Meadow, non-grazed, HSG D
111,998	82	Woods/grass comb., Fair, HSG D
11,049	98	Roofs, HSG C
230,999	98	Paved parking, HSG C
123,625	76	Woods/grass comb., Fair, HSG C
156,740	71	Meadow, non-grazed, HSG C
665,147	84	Weighted Average
423,099		63.61% Pervious Area
242,048		36.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0210	1.38		**Sheet Flow, SF 1-1** Smooth surfaces n= 0.011 P2= 3.10"
2.9	520	0.0210	2.94		**Shallow Concentrated Flow, SCF 1-1** Paved Kv= 20.3 fps
7.6	595	0.0350	1.31		**Shallow Concentrated Flow, SCF 1-2** Short Grass Pasture Kv= 7.0 fps
11.7	1,215	Total			

Summary for Subcatchment 2S: Subarea 2

Runoff = 18.58 cfs @ 11.93 hrs, Volume= 0.882 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (sf)	CN	Description
173,753	98	Roofs, HSG C
173,753		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.03		**Sheet Flow, SF 2-1** Smooth surfaces n= 0.011 P2= 3.10"
1.5	685	0.0100	7.73	13.66	**Pipe Channel, PC 2-1** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
3.1	785	Total			

Summary for Subcatchment 3S: Subarea 3

Runoff = 1.63 cfs @ 11.93 hrs, Volume= 0.077 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (sf)	CN	Description
15,247	98	Roofs, HSG C
15,247		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.89		**Sheet Flow, SF 3-1** Smooth surfaces n= 0.011 P2= 3.10"
2.0	335	0.0100	2.84	0.25	**Pipe Channel, PC 3-1** 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.010 PVC, smooth interior
2.9	385	Total			

Summary for Reach SP: Summation Point

Inflow Area = 19.609 ac, 50.47% Impervious, Inflow Depth > 1.73" for 2-yr event
Inflow = 45.70 cfs @ 11.98 hrs, Volume= 2.832 af
Outflow = 45.70 cfs @ 11.98 hrs, Volume= 2.832 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Subarea 1 Runoff Area=665,147 sf 36.39% Impervious Runoff Depth>2.70"
Flow Length=1,215' Tc=11.7 min CN=84 Runoff=62.86 cfs 3.435 af

Subcatchment 2S: Subarea 2 Runoff Area=173,753 sf 100.00% Impervious Runoff Depth>4.01"
Flow Length=785' Slope=0.0100 '/' Tc=3.1 min CN=98 Runoff=27.74 cfs 1.333 af

Subcatchment 3S: Subarea 3 Runoff Area=15,247 sf 100.00% Impervious Runoff Depth>4.01"
Flow Length=385' Slope=0.0100 '/' Tc=2.9 min CN=98 Runoff=2.44 cfs 0.117 af

Reach SP: Summation Point Inflow=78.68 cfs 4.885 af
Outflow=78.68 cfs 4.885 af

Total Runoff Area = 19.609 ac Runoff Volume = 4.885 af Average Runoff Depth = 2.99"
49.53% Pervious = 9.713 ac 50.47% Impervious = 9.896 ac

Summary for Subcatchment 1S: Subarea 1

Runoff = 62.86 cfs @ 12.03 hrs, Volume= 3.435 af, Depth> 2.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.60"

Area (sf)	CN	Description
30,736	78	Meadow, non-grazed, HSG D
111,998	82	Woods/grass comb., Fair, HSG D
11,049	98	Roofs, HSG C
230,999	98	Paved parking, HSG C
123,625	76	Woods/grass comb., Fair, HSG C
156,740	71	Meadow, non-grazed, HSG C
665,147	84	Weighted Average
423,099		63.61% Pervious Area
242,048		36.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0210	1.38		**Sheet Flow, SF 1-1** Smooth surfaces n= 0.011 P2= 3.10"
2.9	520	0.0210	2.94		**Shallow Concentrated Flow, SCF 1-1** Paved Kv= 20.3 fps
7.6	595	0.0350	1.31		**Shallow Concentrated Flow, SCF 1-2** Short Grass Pasture Kv= 7.0 fps
11.7	1,215	Total			

Summary for Subcatchment 2S: Subarea 2

Runoff = 27.74 cfs @ 11.93 hrs, Volume= 1.333 af, Depth> 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.60"

Area (sf)	CN	Description
173,753	98	Roofs, HSG C
173,753		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.03		**Sheet Flow, SF 2-1** Smooth surfaces n= 0.011 P2= 3.10"
1.5	685	0.0100	7.73	13.66	**Pipe Channel, PC 2-1** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
3.1	785	Total			

Summary for Subcatchment 3S: Subarea 3

Runoff = 2.44 cfs @ 11.93 hrs, Volume= 0.117 af, Depth> 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.60"

Area (sf)	CN	Description
15,247	98	Roofs, HSG C
15,247		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.89		**Sheet Flow, SF 3-1** Smooth surfaces n= 0.011 P2= 3.10"
2.0	335	0.0100	2.84	0.25	**Pipe Channel, PC 3-1** 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.010 PVC, smooth interior
2.9	385	Total			

Summary for Reach SP: Summation Point

Inflow Area = 19.609 ac, 50.47% Impervious, Inflow Depth > 2.99" for 10-yr event
Inflow = 78.68 cfs @ 11.98 hrs, Volume= 4.885 af
Outflow = 78.68 cfs @ 11.98 hrs, Volume= 4.885 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Subarea 1 Runoff Area=665,147 sf 36.39% Impervious Runoff Depth>3.74"
Flow Length=1,215' Tc=11.7 min CN=84 Runoff=85.64 cfs 4.759 af

Subcatchment 2S: Subarea 2 Runoff Area=173,753 sf 100.00% Impervious Runoff Depth>5.09"
Flow Length=785' Slope=0.0100 '/' Tc=3.1 min CN=98 Runoff=35.05 cfs 1.692 af

Subcatchment 3S: Subarea 3 Runoff Area=15,247 sf 100.00% Impervious Runoff Depth>5.09"
Flow Length=385' Slope=0.0100 '/' Tc=2.9 min CN=98 Runoff=3.08 cfs 0.148 af

Reach SP: Summation Point Inflow=105.67 cfs 6.599 af
Outflow=105.67 cfs 6.599 af

Total Runoff Area = 19.609 ac Runoff Volume = 6.599 af Average Runoff Depth = 4.04"
49.53% Pervious = 9.713 ac 50.47% Impervious = 9.896 ac

Summary for Subcatchment 1S: Subarea 1

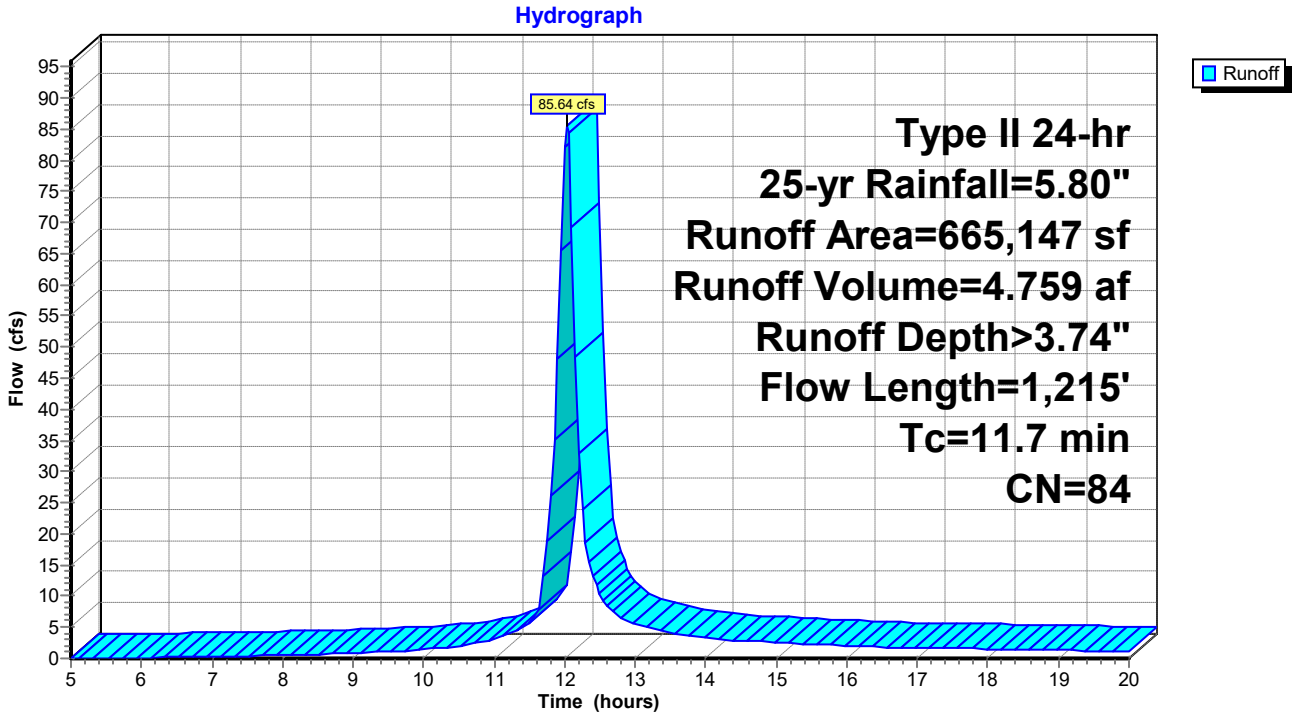
Runoff = 85.64 cfs @ 12.03 hrs, Volume= 4.759 af, Depth> 3.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
30,736	78	Meadow, non-grazed, HSG D
111,998	82	Woods/grass comb., Fair, HSG D
11,049	98	Roofs, HSG C
230,999	98	Paved parking, HSG C
123,625	76	Woods/grass comb., Fair, HSG C
156,740	71	Meadow, non-grazed, HSG C
665,147	84	Weighted Average
423,099		63.61% Pervious Area
242,048		36.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0210	1.38		**Sheet Flow, SF 1-1** Smooth surfaces n= 0.011 P2= 3.10"
2.9	520	0.0210	2.94		**Shallow Concentrated Flow, SCF 1-1** Paved Kv= 20.3 fps
7.6	595	0.0350	1.31		**Shallow Concentrated Flow, SCF 1-2** Short Grass Pasture Kv= 7.0 fps
11.7	1,215	Total			

Subcatchment 1S: Subarea 1



Summary for Subcatchment 2S: Subarea 2

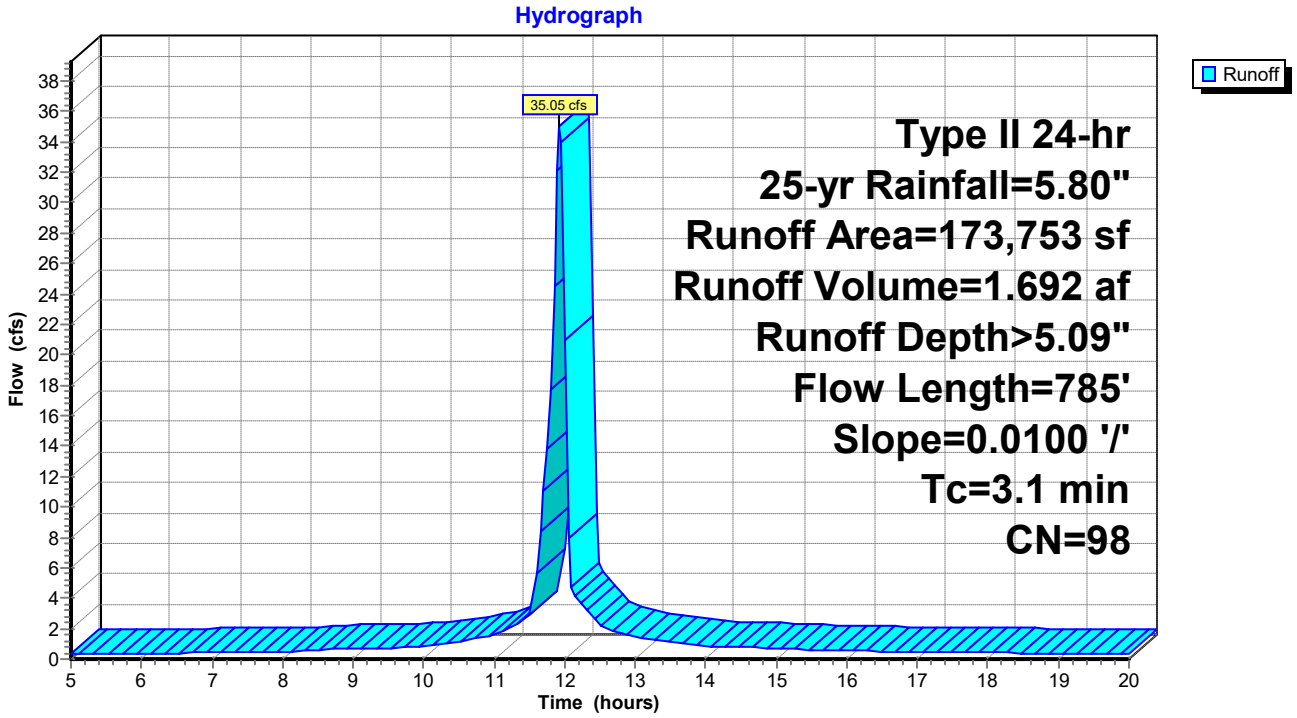
Runoff = 35.05 cfs @ 11.93 hrs, Volume= 1.692 af, Depth> 5.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
173,753	98	Roofs, HSG C
173,753		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.03		**Sheet Flow, SF 2-1** Smooth surfaces n= 0.011 P2= 3.10"
1.5	685	0.0100	7.73	13.66	**Pipe Channel, PC 2-1** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
3.1	785	Total			

Subcatchment 2S: Subarea 2



Summary for Subcatchment 3S: Subarea 3

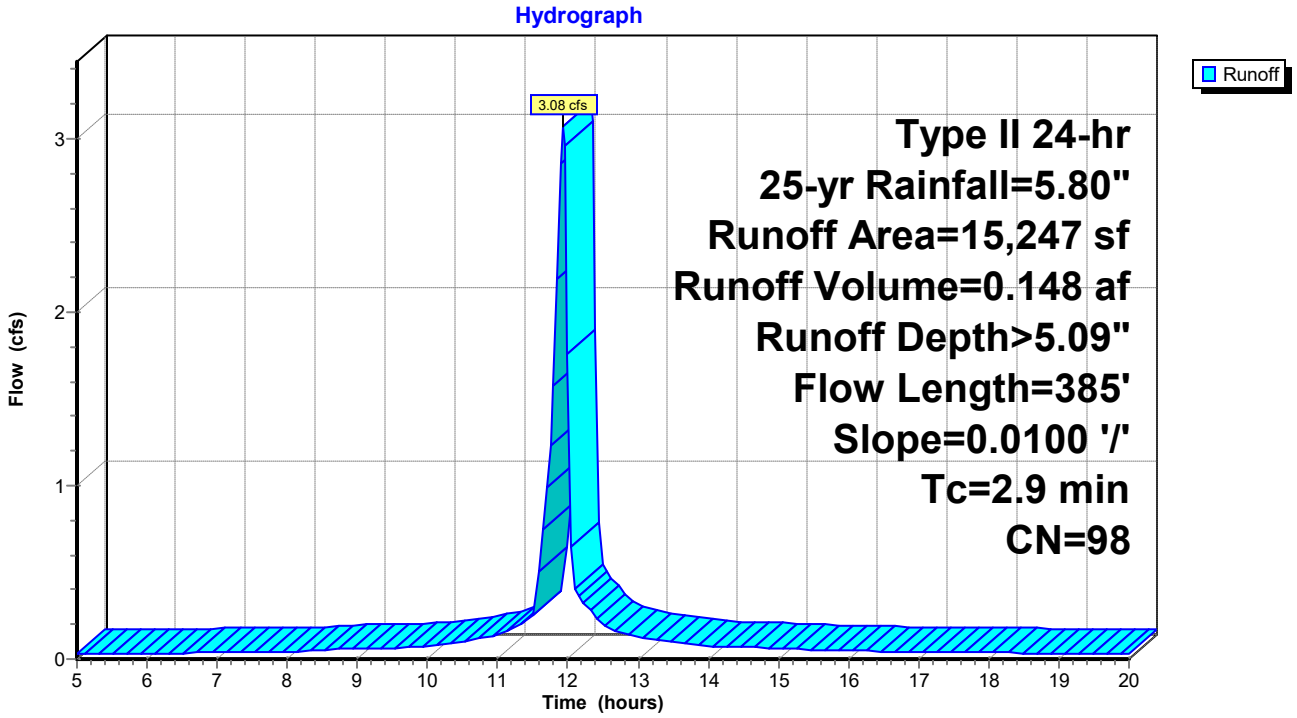
Runoff = 3.08 cfs @ 11.93 hrs, Volume= 0.148 af, Depth> 5.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
15,247	98	Roofs, HSG C
15,247		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.89		**Sheet Flow, SF 3-1** Smooth surfaces n= 0.011 P2= 3.10"
2.0	335	0.0100	2.84	0.25	**Pipe Channel, PC 3-1** 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.010 PVC, smooth interior
2.9	385	Total			

Subcatchment 3S: Subarea 3

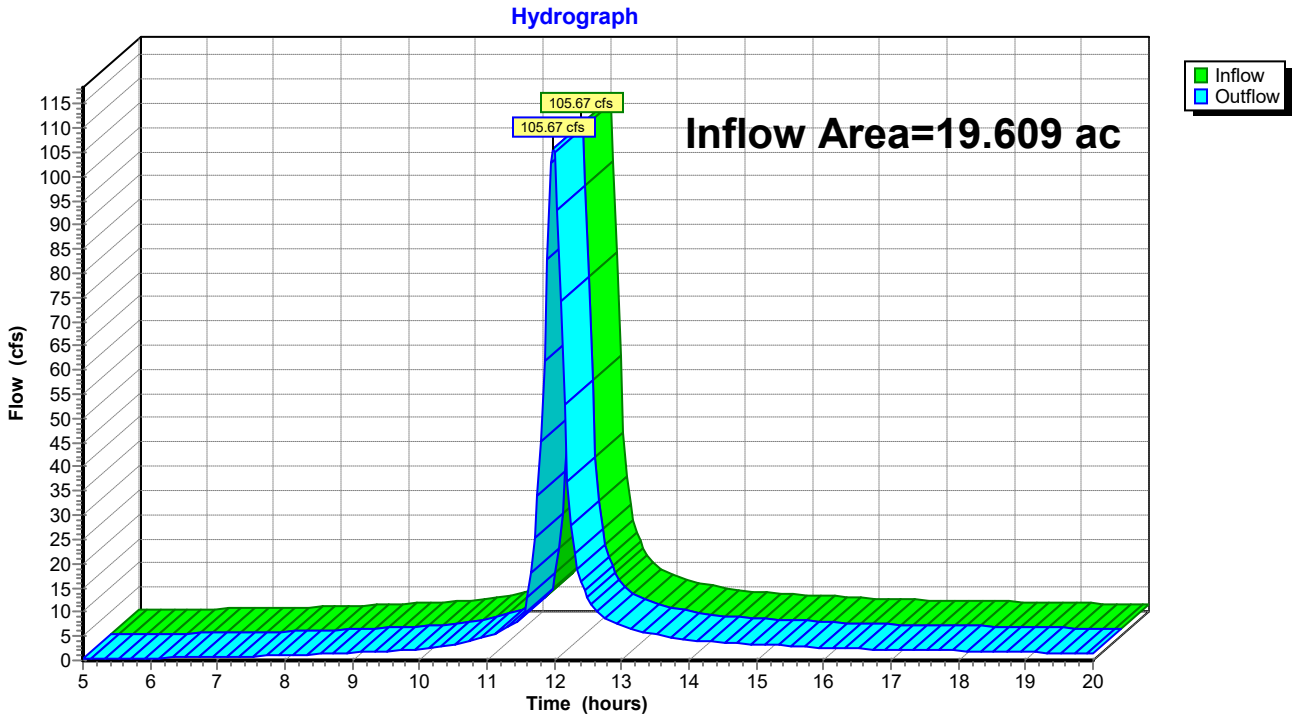


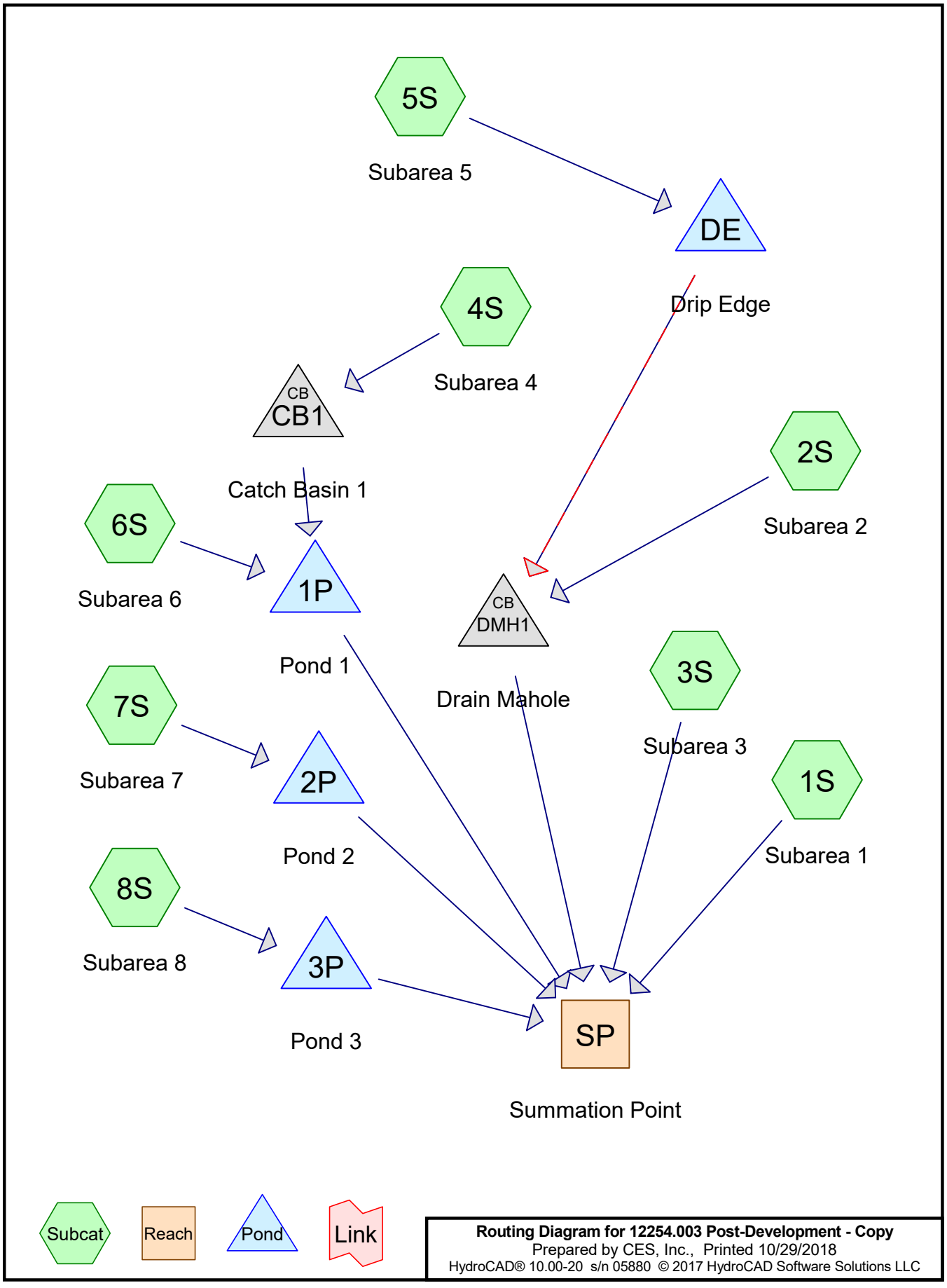
Summary for Reach SP: Summation Point

Inflow Area = 19.609 ac, 50.47% Impervious, Inflow Depth > 4.04" for 25-yr event
Inflow = 105.67 cfs @ 11.98 hrs, Volume= 6.599 af
Outflow = 105.67 cfs @ 11.98 hrs, Volume= 6.599 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP: Summation Point





Routing Diagram for 12254.003 Post-Development - Copy
Prepared by CES, Inc., Printed 10/29/2018

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Subarea 1 Runoff Area=448,435 sf 48.10% Impervious Runoff Depth>1.54"
Flow Length=1,215' Tc=11.7 min CN=85 Runoff=24.65 cfs 1.323 af

Subcatchment 2S: Subarea 2 Runoff Area=173,753 sf 100.00% Impervious Runoff Depth>2.65"
Flow Length=785' Slope=0.0100 '/' Tc=3.1 min CN=98 Runoff=18.58 cfs 0.882 af

Subcatchment 3S: Subarea 3 Runoff Area=15,247 sf 100.00% Impervious Runoff Depth>2.65"
Flow Length=380' Slope=0.0100 '/' Tc=2.8 min CN=98 Runoff=1.63 cfs 0.077 af

Subcatchment 4S: Subarea 4 Runoff Area=44,955 sf 62.82% Impervious Runoff Depth>1.85"
Flow Length=217' Slope=0.0220 '/' Tc=12.3 min CN=89 Runoff=2.85 cfs 0.159 af

Subcatchment 5S: Subarea 5 Runoff Area=93,335 sf 94.50% Impervious Runoff Depth>2.57"
Flow Length=230' Slope=0.0200 '/' Tc=2.2 min CN=97 Runoff=9.72 cfs 0.459 af

Subcatchment 6S: Subarea 6 Runoff Area=45,394 sf 66.29% Impervious Runoff Depth>1.86"
Flow Length=461' Tc=2.9 min CN=89 Runoff=3.88 cfs 0.161 af

Subcatchment 7S: Subarea 7 Runoff Area=10,526 sf 30.70% Impervious Runoff Depth>1.21"
Flow Length=160' Tc=1.8 min CN=80 Runoff=0.62 cfs 0.024 af

Subcatchment 8S: Subarea 8 Runoff Area=22,538 sf 28.97% Impervious Runoff Depth>1.21"
Flow Length=137' Tc=1.4 min CN=80 Runoff=1.34 cfs 0.052 af

Reach SP: Summation Point Inflow=43.03 cfs 2.732 af
Outflow=43.03 cfs 2.732 af

Pond 1P: Pond 1 Peak Elev=67.40' Storage=0.320 af Inflow=5.88 cfs 0.320 af
Outflow=0.00 cfs 0.000 af

Pond 2P: Pond 2 Peak Elev=59.40' Storage=0.024 af Inflow=0.62 cfs 0.024 af
Outflow=0.00 cfs 0.000 af

Pond 3P: Pond 3 Peak Elev=55.40' Storage=0.052 af Inflow=1.34 cfs 0.052 af
Outflow=0.00 cfs 0.000 af

Pond CB1: Catch Basin 1 Peak Elev=76.04' Inflow=2.85 cfs 0.159 af
15.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=2.85 cfs 0.159 af

Pond DE: Drip Edge Peak Elev=78.91' Storage=5,115 cf Inflow=9.72 cfs 0.459 af
15.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=5.29 cfs 0.449 af

Pond DMH1: Drain Mahole Peak Elev=75.80' Inflow=23.43 cfs 1.332 af
24.0" Round Culvert n=0.013 L=150.0' S=0.0033 '/' Outflow=23.43 cfs 1.332 af

Total Runoff Area = 19.609 ac Runoff Volume = 3.139 af Average Runoff Depth = 1.92"
34.32% Pervious = 6.730 ac 65.68% Impervious = 12.879 ac

Summary for Subcatchment 1S: Subarea 1

Runoff = 24.65 cfs @ 12.04 hrs, Volume= 1.323 af, Depth> 1.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (sf)	CN	Description
11,049	98	Roofs, HSG C
204,658	98	Paved parking, HSG C
15,335	82	Woods/grass comb., Fair, HSG D
92,772	73	Woods, Fair, HSG C
7,805	78	Meadow, non-grazed, HSG D
116,816	71	Meadow, non-grazed, HSG C
448,435	85	Weighted Average
232,728		51.90% Pervious Area
215,707		48.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0210	1.38		**Sheet Flow, SF 1-1** Smooth surfaces n= 0.011 P2= 3.10"
2.9	520	0.0210	2.94		**Shallow Concentrated Flow, SCF 1-1** Paved Kv= 20.3 fps
7.6	595	0.0350	1.31		**Shallow Concentrated Flow, SCF 1-2** Short Grass Pasture Kv= 7.0 fps
11.7	1,215	Total			

Summary for Subcatchment 2S: Subarea 2

Runoff = 18.58 cfs @ 11.93 hrs, Volume= 0.882 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (sf)	CN	Description
173,753	98	Roofs, HSG C
173,753		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.03		**Sheet Flow, SF 2-1** Smooth surfaces n= 0.011 P2= 3.10"
1.5	685	0.0100	7.73	13.66	**Pipe Channel, PC 2-1** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
3.1	785	Total			

Summary for Subcatchment 3S: Subarea 3

Runoff = 1.63 cfs @ 11.93 hrs, Volume= 0.077 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (sf)	CN	Description
15,247	98	Roofs, HSG C
15,247		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.89		**Sheet Flow, SF 3-1** Smooth surfaces n= 0.011 P2= 3.10"
1.9	330	0.0100	2.84	0.25	**Pipe Channel, PC 3-1** 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.010 PVC, smooth interior
2.8	380	Total			

Summary for Subcatchment 4S: Subarea 4

Runoff = 2.85 cfs @ 12.04 hrs, Volume= 0.159 af, Depth> 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (sf)	CN	Description
23,905	98	Paved parking, HSG C
4,337	98	Paved parking, HSG D
3,033	82	Woods/grass comb., Fair, HSG D
8,788	71	Meadow, non-grazed, HSG C
4,892	78	Meadow, non-grazed, HSG D
44,955	89	Weighted Average
16,713		37.18% Pervious Area
28,242		62.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	65	0.0220	0.11		**Sheet Flow, SF 4-1** Grass: Dense n= 0.240 P2= 3.10"
0.5	35	0.0220	1.14		**Sheet Flow, SF 4-2** Smooth surfaces n= 0.011 P2= 3.10"
1.9	117	0.0220	1.04		**Shallow Concentrated Flow, SCF 4-1** Short Grass Pasture Kv= 7.0 fps
12.3	217	Total			

Summary for Subcatchment 5S: Subarea 5

Runoff = 9.72 cfs @ 11.92 hrs, Volume= 0.459 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (sf)	CN	Description
72,000	98	Roofs, HSG D
16,200	98	Paved parking, HSG D
3,478	79	Woods, Fair, HSG D
1,657	78	Meadow, non-grazed, HSG D
93,335	97	Weighted Average
5,135		5.50% Pervious Area
88,200		94.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.35		**Sheet Flow, SF 5-1** Smooth surfaces n= 0.011 P2= 3.10"
1.0	130	0.0200	2.28		**Shallow Concentrated Flow, SCF 5-1** Unpaved Kv= 16.1 fps
2.2	230	Total			

Summary for Subcatchment 6S: Subarea 6

Runoff = 3.88 cfs @ 11.93 hrs, Volume= 0.161 af, Depth> 1.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (sf)	CN	Description
13,298	98	Paved parking, HSG D
16,795	98	Paved parking, HSG C
708	78	Meadow, non-grazed, HSG D
14,593	71	Meadow, non-grazed, HSG C
45,394	89	Weighted Average
15,301		33.71% Pervious Area
30,093		66.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0400	1.79		**Sheet Flow, SF 6-1** Smooth surfaces n= 0.011 P2= 3.10"
2.0	361	0.0220	3.01		**Shallow Concentrated Flow, SCF 6-1** Paved Kv= 20.3 fps
2.9	461	Total			

Summary for Subcatchment 7S: Subarea 7

Runoff = 0.62 cfs @ 11.92 hrs, Volume= 0.024 af, Depth> 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (sf)	CN	Description
551	76	Woods/grass comb., Fair, HSG C
3,232	98	Paved parking, HSG C
6,743	71	Meadow, non-grazed, HSG C
10,526	80	Weighted Average
7,294		69.30% Pervious Area
3,232		30.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	60	0.0330	1.49		**Sheet Flow, SF 7-1** Smooth surfaces n= 0.011 P2= 3.10"
1.1	100	0.0480	1.53		**Shallow Concentrated Flow, SCF 7-1** Short Grass Pasture Kv= 7.0 fps
1.8	160	Total			

Summary for Subcatchment 8S: Subarea 8

Runoff = 1.34 cfs @ 11.91 hrs, Volume= 0.052 af, Depth> 1.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-yr Rainfall=3.10"

Area (sf)	CN	Description
6,529	98	Paved parking, HSG C
4,143	76	Woods/grass comb., Fair, HSG C
11,866	71	Meadow, non-grazed, HSG C
22,538	80	Weighted Average
16,009		71.03% Pervious Area
6,529		28.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0360	1.71		**Sheet Flow, SF 8-1** Smooth surfaces n= 0.011 P2= 3.10"
0.4	37	0.0530	1.61		**Shallow Concentrated Flow, SCF 8-1** Short Grass Pasture Kv= 7.0 fps
1.4	137	Total			

Summary for Reach SP: Summation Point

Inflow Area = 19.609 ac, 65.68% Impervious, Inflow Depth > 1.67" for 2-yr event
Inflow = 43.03 cfs @ 11.96 hrs, Volume= 2.732 af
Outflow = 43.03 cfs @ 11.96 hrs, Volume= 2.732 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Pond 1

Inflow Area = 2.074 ac, 64.57% Impervious, Inflow Depth > 1.85" for 2-yr event
Inflow = 5.88 cfs @ 11.95 hrs, Volume= 0.320 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 67.40' @ 20.00 hrs Surf.Area= 3,899.039 ac Storage= 0.320 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	67.40'	11,938.500 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
67.40	3,899.000	0.000	0.000
68.00	4,181.000	2,424.000	2,424.000
69.00	4,573.000	4,377.000	6,801.000
70.00	5,702.000	5,137.500	11,938.500

Device	Routing	Invert	Outlet Devices
#1	Primary	68.90'	**10.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=67.40' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: Pond 2

Inflow Area = 0.242 ac, 30.70% Impervious, Inflow Depth > 1.21" for 2-yr event
Inflow = 0.62 cfs @ 11.92 hrs, Volume= 0.024 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 59.40' @ 20.00 hrs Surf.Area= 368.013 ac Storage= 0.024 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	59.40'	1,675.800 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
59.40	368.000	0.000	0.000
60.00	483.000	255.300	255.300
61.00	696.000	589.500	844.800
62.00	966.000	831.000	1,675.800

Device	Routing	Invert	Outlet Devices
#1	Primary	60.90'	**7.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=59.40' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 3P: Pond 3

Inflow Area = 0.517 ac, 28.97% Impervious, Inflow Depth > 1.21" for 2-yr event
Inflow = 1.34 cfs @ 11.91 hrs, Volume= 0.052 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.40' @ 20.00 hrs Surf.Area= 619.010 ac Storage= 0.052 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	55.40'	2,102.100 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
55.40	619.000	0.000	0.000
57.00	803.000	1,137.600	1,137.600
57.50	963.000	441.500	1,579.100
58.00	1,129.000	523.000	2,102.100

Device	Routing	Invert	Outlet Devices
#1	Primary	56.90'	**9.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88
2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=55.40' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond CB1: Catch Basin 1

Inflow Area = 1.032 ac, 62.82% Impervious, Inflow Depth > 1.85" for 2-yr event
Inflow = 2.85 cfs @ 12.04 hrs, Volume= 0.159 af
Outflow = 2.85 cfs @ 12.04 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.0 min
Primary = 2.85 cfs @ 12.04 hrs, Volume= 0.159 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 76.04' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	75.00'	**15.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 75.00' / 74.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.80 cfs @ 12.04 hrs HW=76.03' (Free Discharge)
1=Culvert (Barrel Controls 2.80 cfs @ 3.54 fps)

Summary for Pond DE: Drip Edge

Inflow Area = 2.143 ac, 94.50% Impervious, Inflow Depth > 2.57" for 2-yr event
Inflow = 9.72 cfs @ 11.92 hrs, Volume= 0.459 af
Outflow = 5.29 cfs @ 12.00 hrs, Volume= 0.449 af, Atten= 46%, Lag= 4.9 min
Primary = 5.29 cfs @ 12.00 hrs, Volume= 0.449 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 78.91' @ 12.00 hrs Surf.Area= 6,696 sf Storage= 5,115 cf

Plug-Flow detention time= 31.6 min calculated for 0.449 af (98% of inflow)
Center-of-Mass det. time= 22.2 min (757.6 - 735.4)

Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	10,714 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 26,784 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	6,696	0	0
78.00	6,696	6,696	6,696
79.00	6,696	6,696	13,392
80.00	6,696	6,696	20,088
81.00	6,696	6,696	26,784

Device	Routing	Invert	Outlet Devices
#1	Primary	77.00'	**15.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 77.00' / 76.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.28 cfs @ 12.00 hrs HW=78.91' (Free Discharge)
1=Culvert (Inlet Controls 5.28 cfs @ 4.30 fps)

Summary for Pond DMH1: Drain Mahole

Inflow Area = 6.131 ac, 98.08% Impervious, Inflow Depth > 2.61" for 2-yr event
Inflow = 23.43 cfs @ 11.94 hrs, Volume= 1.332 af
Outflow = 23.43 cfs @ 11.94 hrs, Volume= 1.332 af, Atten= 0%, Lag= 0.0 min
Primary = 23.43 cfs @ 11.94 hrs, Volume= 1.332 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 75.80' @ 11.94 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	71.00'	**24.0" Round Culvert** L= 150.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 71.00' / 70.50' S= 0.0033 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=22.59 cfs @ 11.94 hrs HW=75.58' (Free Discharge)
1=Culvert (Inlet Controls 22.59 cfs @ 7.19 fps)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Subarea 1 Runoff Area=448,435 sf 48.10% Impervious Runoff Depth>2.79"
Flow Length=1,215' Tc=11.7 min CN=85 Runoff=43.58 cfs 2.394 af

Subcatchment 2S: Subarea 2 Runoff Area=173,753 sf 100.00% Impervious Runoff Depth>4.01"
Flow Length=785' Slope=0.0100 '/' Tc=3.1 min CN=98 Runoff=27.74 cfs 1.333 af

Subcatchment 3S: Subarea 3 Runoff Area=15,247 sf 100.00% Impervious Runoff Depth>4.01"
Flow Length=380' Slope=0.0100 '/' Tc=2.8 min CN=98 Runoff=2.44 cfs 0.117 af

Subcatchment 4S: Subarea 4 Runoff Area=44,955 sf 62.82% Impervious Runoff Depth>3.17"
Flow Length=217' Slope=0.0220 '/' Tc=12.3 min CN=89 Runoff=4.75 cfs 0.273 af

Subcatchment 5S: Subarea 5 Runoff Area=93,335 sf 94.50% Impervious Runoff Depth>3.93"
Flow Length=230' Slope=0.0200 '/' Tc=2.2 min CN=97 Runoff=14.62 cfs 0.703 af

Subcatchment 6S: Subarea 6 Runoff Area=45,394 sf 66.29% Impervious Runoff Depth>3.18"
Flow Length=461' Tc=2.9 min CN=89 Runoff=6.39 cfs 0.276 af

Subcatchment 7S: Subarea 7 Runoff Area=10,526 sf 30.70% Impervious Runoff Depth>2.36"
Flow Length=160' Tc=1.8 min CN=80 Runoff=1.17 cfs 0.047 af

Subcatchment 8S: Subarea 8 Runoff Area=22,538 sf 28.97% Impervious Runoff Depth>2.36"
Flow Length=137' Tc=1.4 min CN=80 Runoff=2.55 cfs 0.102 af

Reach SP: Summation Point Inflow=69.80 cfs 4.535 af
Outflow=69.80 cfs 4.535 af

Pond 1P: Pond 1 Peak Elev=67.40' Storage=0.548 af Inflow=9.78 cfs 0.549 af
Outflow=0.00 cfs 0.000 af

Pond 2P: Pond 2 Peak Elev=59.40' Storage=0.047 af Inflow=1.17 cfs 0.047 af
Outflow=0.00 cfs 0.000 af

Pond 3P: Pond 3 Peak Elev=55.40' Storage=0.101 af Inflow=2.55 cfs 0.102 af
Outflow=0.00 cfs 0.000 af

Pond CB1: Catch Basin 1 Peak Elev=76.73' Inflow=4.75 cfs 0.273 af
15.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=4.75 cfs 0.273 af

Pond DE: Drip Edge Peak Elev=79.93' Storage=7,856 cf Inflow=14.62 cfs 0.703 af
15.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=7.09 cfs 0.691 af

Pond DMH1: Drain Mahole Peak Elev=80.14' Inflow=34.21 cfs 2.023 af
24.0" Round Culvert n=0.013 L=150.0' S=0.0033 '/' Outflow=34.21 cfs 2.023 af

Total Runoff Area = 19.609 ac Runoff Volume = 5.244 af Average Runoff Depth = 3.21"
34.32% Pervious = 6.730 ac 65.68% Impervious = 12.879 ac

Summary for Subcatchment 1S: Subarea 1

Runoff = 43.58 cfs @ 12.03 hrs, Volume= 2.394 af, Depth> 2.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.60"

Area (sf)	CN	Description
11,049	98	Roofs, HSG C
204,658	98	Paved parking, HSG C
15,335	82	Woods/grass comb., Fair, HSG D
92,772	73	Woods, Fair, HSG C
7,805	78	Meadow, non-grazed, HSG D
116,816	71	Meadow, non-grazed, HSG C
448,435	85	Weighted Average
232,728		51.90% Pervious Area
215,707		48.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0210	1.38		**Sheet Flow, SF 1-1** Smooth surfaces n= 0.011 P2= 3.10"
2.9	520	0.0210	2.94		**Shallow Concentrated Flow, SCF 1-1** Paved Kv= 20.3 fps
7.6	595	0.0350	1.31		**Shallow Concentrated Flow, SCF 1-2** Short Grass Pasture Kv= 7.0 fps
11.7	1,215	Total			

Summary for Subcatchment 2S: Subarea 2

Runoff = 27.74 cfs @ 11.93 hrs, Volume= 1.333 af, Depth> 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.60"

Area (sf)	CN	Description
173,753	98	Roofs, HSG C
173,753		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.03		**Sheet Flow, SF 2-1** Smooth surfaces n= 0.011 P2= 3.10"
1.5	685	0.0100	7.73	13.66	**Pipe Channel, PC 2-1** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
3.1	785	Total			

Summary for Subcatchment 3S: Subarea 3

Runoff = 2.44 cfs @ 11.93 hrs, Volume= 0.117 af, Depth> 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.60"

Area (sf)	CN	Description
15,247	98	Roofs, HSG C
15,247		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.89		**Sheet Flow, SF 3-1** Smooth surfaces n= 0.011 P2= 3.10"
1.9	330	0.0100	2.84	0.25	**Pipe Channel, PC 3-1** 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.010 PVC, smooth interior
2.8	380	Total			

Summary for Subcatchment 4S: Subarea 4

Runoff = 4.75 cfs @ 12.04 hrs, Volume= 0.273 af, Depth> 3.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.60"

Area (sf)	CN	Description
23,905	98	Paved parking, HSG C
4,337	98	Paved parking, HSG D
3,033	82	Woods/grass comb., Fair, HSG D
8,788	71	Meadow, non-grazed, HSG C
4,892	78	Meadow, non-grazed, HSG D
44,955	89	Weighted Average
16,713		37.18% Pervious Area
28,242		62.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	65	0.0220	0.11		**Sheet Flow, SF 4-1** Grass: Dense n= 0.240 P2= 3.10"
0.5	35	0.0220	1.14		**Sheet Flow, SF 4-2** Smooth surfaces n= 0.011 P2= 3.10"
1.9	117	0.0220	1.04		**Shallow Concentrated Flow, SCF 4-1** Short Grass Pasture Kv= 7.0 fps
12.3	217	Total			

Summary for Subcatchment 5S: Subarea 5

Runoff = 14.62 cfs @ 11.92 hrs, Volume= 0.703 af, Depth> 3.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.60"

Area (sf)	CN	Description
72,000	98	Roofs, HSG D
16,200	98	Paved parking, HSG D
3,478	79	Woods, Fair, HSG D
1,657	78	Meadow, non-grazed, HSG D
93,335	97	Weighted Average
5,135		5.50% Pervious Area
88,200		94.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.35		**Sheet Flow, SF 5-1** Smooth surfaces n= 0.011 P2= 3.10"
1.0	130	0.0200	2.28		**Shallow Concentrated Flow, SCF 5-1** Unpaved Kv= 16.1 fps
2.2	230	Total			

Summary for Subcatchment 6S: Subarea 6

Runoff = 6.39 cfs @ 11.93 hrs, Volume= 0.276 af, Depth> 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.60"

Area (sf)	CN	Description
13,298	98	Paved parking, HSG D
16,795	98	Paved parking, HSG C
708	78	Meadow, non-grazed, HSG D
14,593	71	Meadow, non-grazed, HSG C
45,394	89	Weighted Average
15,301		33.71% Pervious Area
30,093		66.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0400	1.79		**Sheet Flow, SF 6-1** Smooth surfaces n= 0.011 P2= 3.10"
2.0	361	0.0220	3.01		**Shallow Concentrated Flow, SCF 6-1** Paved Kv= 20.3 fps
2.9	461	Total			

Summary for Subcatchment 7S: Subarea 7

Runoff = 1.17 cfs @ 11.92 hrs, Volume= 0.047 af, Depth> 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.60"

Area (sf)	CN	Description
551	76	Woods/grass comb., Fair, HSG C
3,232	98	Paved parking, HSG C
6,743	71	Meadow, non-grazed, HSG C
10,526	80	Weighted Average
7,294		69.30% Pervious Area
3,232		30.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	60	0.0330	1.49		**Sheet Flow, SF 7-1** Smooth surfaces n= 0.011 P2= 3.10"
1.1	100	0.0480	1.53		**Shallow Concentrated Flow, SCF 7-1** Short Grass Pasture Kv= 7.0 fps
1.8	160	Total			

Summary for Subcatchment 8S: Subarea 8

Runoff = 2.55 cfs @ 11.91 hrs, Volume= 0.102 af, Depth> 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-yr Rainfall=4.60"

Area (sf)	CN	Description
6,529	98	Paved parking, HSG C
4,143	76	Woods/grass comb., Fair, HSG C
11,866	71	Meadow, non-grazed, HSG C
22,538	80	Weighted Average
16,009		71.03% Pervious Area
6,529		28.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0360	1.71		**Sheet Flow, SF 8-1** Smooth surfaces n= 0.011 P2= 3.10"
0.4	37	0.0530	1.61		**Shallow Concentrated Flow, SCF 8-1** Short Grass Pasture Kv= 7.0 fps
1.4	137	Total			

Summary for Reach SP: Summation Point

Inflow Area = 19.609 ac, 65.68% Impervious, Inflow Depth > 2.77" for 10-yr event
Inflow = 69.80 cfs @ 11.97 hrs, Volume= 4.535 af
Outflow = 69.80 cfs @ 11.97 hrs, Volume= 4.535 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Pond 1

Inflow Area = 2.074 ac, 64.57% Impervious, Inflow Depth > 3.17" for 10-yr event
Inflow = 9.78 cfs @ 11.95 hrs, Volume= 0.549 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 67.40' @ 20.00 hrs Surf.Area= 3,899.066 ac Storage= 0.548 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	67.40'	11,938.500 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
67.40	3,899.000	0.000	0.000
68.00	4,181.000	2,424.000	2,424.000
69.00	4,573.000	4,377.000	6,801.000
70.00	5,702.000	5,137.500	11,938.500

Device	Routing	Invert	Outlet Devices
#1	Primary	68.90'	**10.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=67.40' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond 2P: Pond 2

Inflow Area = 0.242 ac, 30.70% Impervious, Inflow Depth > 2.36" for 10-yr event
Inflow = 1.17 cfs @ 11.92 hrs, Volume= 0.047 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 59.40' @ 20.00 hrs Surf.Area= 368.025 ac Storage= 0.047 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	59.40'	1,675.800 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
59.40	368.000	0.000	0.000
60.00	483.000	255.300	255.300
61.00	696.000	589.500	844.800
62.00	966.000	831.000	1,675.800

Device	Routing	Invert	Outlet Devices
#1	Primary	60.90'	**7.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=59.40' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 3P: Pond 3

Inflow Area = 0.517 ac, 28.97% Impervious, Inflow Depth > 2.36" for 10-yr event
Inflow = 2.55 cfs @ 11.91 hrs, Volume= 0.102 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.40' @ 20.00 hrs Surf.Area= 619.019 ac Storage= 0.101 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	55.40'	2,102.100 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
55.40	619.000	0.000	0.000
57.00	803.000	1,137.600	1,137.600
57.50	963.000	441.500	1,579.100
58.00	1,129.000	523.000	2,102.100

Device	Routing	Invert	Outlet Devices
#1	Primary	56.90'	**9.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

2.50 3.00 3.50
Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88
2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=55.40' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond CB1: Catch Basin 1

Inflow Area = 1.032 ac, 62.82% Impervious, Inflow Depth > 3.17" for 10-yr event
Inflow = 4.75 cfs @ 12.04 hrs, Volume= 0.273 af
Outflow = 4.75 cfs @ 12.04 hrs, Volume= 0.273 af, Atten= 0%, Lag= 0.0 min
Primary = 4.75 cfs @ 12.04 hrs, Volume= 0.273 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 76.73' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	75.00'	**15.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 75.00' / 74.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.61 cfs @ 12.04 hrs HW=76.68' (Free Discharge)
1=Culvert (Barrel Controls 4.61 cfs @ 3.76 fps)

Summary for Pond DE: Drip Edge

Inflow Area = 2.143 ac, 94.50% Impervious, Inflow Depth > 3.93" for 10-yr event
Inflow = 14.62 cfs @ 11.92 hrs, Volume= 0.703 af
Outflow = 7.09 cfs @ 12.01 hrs, Volume= 0.691 af, Atten= 52%, Lag= 5.4 min
Primary = 7.09 cfs @ 12.01 hrs, Volume= 0.691 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 79.93' @ 12.01 hrs Surf.Area= 6,696 sf Storage= 7,856 cf

Plug-Flow detention time= 27.9 min calculated for 0.690 af (98% of inflow)
Center-of-Mass det. time= 20.1 min (751.0 - 730.9)

Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	10,714 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 26,784 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	6,696	0	0
78.00	6,696	6,696	6,696
79.00	6,696	6,696	13,392
80.00	6,696	6,696	20,088
81.00	6,696	6,696	26,784

Device	Routing	Invert	Outlet Devices
#1	Primary	77.00'	**15.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 77.00' / 76.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=7.06 cfs @ 12.01 hrs HW=79.91' (Free Discharge)
1=Culvert (Inlet Controls 7.06 cfs @ 5.75 fps)

Summary for Pond DMH1: Drain Mahole

Inflow Area = 6.131 ac, 98.08% Impervious, Inflow Depth > 3.96" for 10-yr event
Inflow = 34.21 cfs @ 11.93 hrs, Volume= 2.023 af
Outflow = 34.21 cfs @ 11.93 hrs, Volume= 2.023 af, Atten= 0%, Lag= 0.0 min
Primary = 34.21 cfs @ 11.93 hrs, Volume= 2.023 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 80.14' @ 11.94 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	71.00'	**24.0" Round Culvert** L= 150.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 71.00' / 70.50' S= 0.0033 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=32.92 cfs @ 11.93 hrs HW=79.60' (Free Discharge)
1=Culvert (Inlet Controls 32.92 cfs @ 10.48 fps)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Subarea 1 Runoff Area=448,435 sf 48.10% Impervious Runoff Depth>3.84"
Flow Length=1,215' Tc=11.7 min CN=85 Runoff=58.96 cfs 3.296 af

Subcatchment 2S: Subarea 2 Runoff Area=173,753 sf 100.00% Impervious Runoff Depth>5.09"
Flow Length=785' Slope=0.0100 '/' Tc=3.1 min CN=98 Runoff=35.05 cfs 1.692 af

Subcatchment 3S: Subarea 3 Runoff Area=15,247 sf 100.00% Impervious Runoff Depth>5.09"
Flow Length=380' Slope=0.0100 '/' Tc=2.8 min CN=98 Runoff=3.08 cfs 0.148 af

Subcatchment 4S: Subarea 4 Runoff Area=44,955 sf 62.82% Impervious Runoff Depth>4.25"
Flow Length=217' Slope=0.0220 '/' Tc=12.3 min CN=89 Runoff=6.26 cfs 0.366 af

Subcatchment 5S: Subarea 5 Runoff Area=93,335 sf 94.50% Impervious Runoff Depth>5.02"
Flow Length=230' Slope=0.0200 '/' Tc=2.2 min CN=97 Runoff=18.52 cfs 0.896 af

Subcatchment 6S: Subarea 6 Runoff Area=45,394 sf 66.29% Impervious Runoff Depth>4.26"
Flow Length=461' Tc=2.9 min CN=89 Runoff=8.39 cfs 0.370 af

Subcatchment 7S: Subarea 7 Runoff Area=10,526 sf 30.70% Impervious Runoff Depth>3.35"
Flow Length=160' Tc=1.8 min CN=80 Runoff=1.63 cfs 0.068 af

Subcatchment 8S: Subarea 8 Runoff Area=22,538 sf 28.97% Impervious Runoff Depth>3.35"
Flow Length=137' Tc=1.4 min CN=80 Runoff=3.56 cfs 0.145 af

Reach SP: Summation Point Inflow=91.34 cfs 6.019 af
Outflow=91.34 cfs 6.019 af

Pond 1P: Pond 1 Peak Elev=67.40' Storage=0.735 af Inflow=12.90 cfs 0.736 af
Outflow=0.00 cfs 0.000 af

Pond 2P: Pond 2 Peak Elev=59.40' Storage=0.067 af Inflow=1.63 cfs 0.068 af
Outflow=0.00 cfs 0.000 af

Pond 3P: Pond 3 Peak Elev=55.40' Storage=0.144 af Inflow=3.56 cfs 0.145 af
Outflow=0.00 cfs 0.000 af

Pond CB1: Catch Basin 1 Peak Elev=77.46' Inflow=6.26 cfs 0.366 af
15.0" Round Culvert n=0.013 L=100.0' S=0.0050 '/' Outflow=6.26 cfs 0.366 af

Pond DE: Drip Edge Peak Elev=80.81' Storage=10,212 cf Inflow=18.52 cfs 0.896 af
15.0" Round Culvert n=0.013 L=100.0' S=0.0100 '/' Outflow=8.33 cfs 0.883 af

Pond DMH1: Drain Mahole Peak Elev=84.63' Inflow=42.63 cfs 2.575 af
24.0" Round Culvert n=0.013 L=150.0' S=0.0033 '/' Outflow=42.63 cfs 2.575 af

Total Runoff Area = 19.609 ac Runoff Volume = 6.980 af Average Runoff Depth = 4.27"
34.32% Pervious = 6.730 ac 65.68% Impervious = 12.879 ac

Summary for Subcatchment 1S: Subarea 1

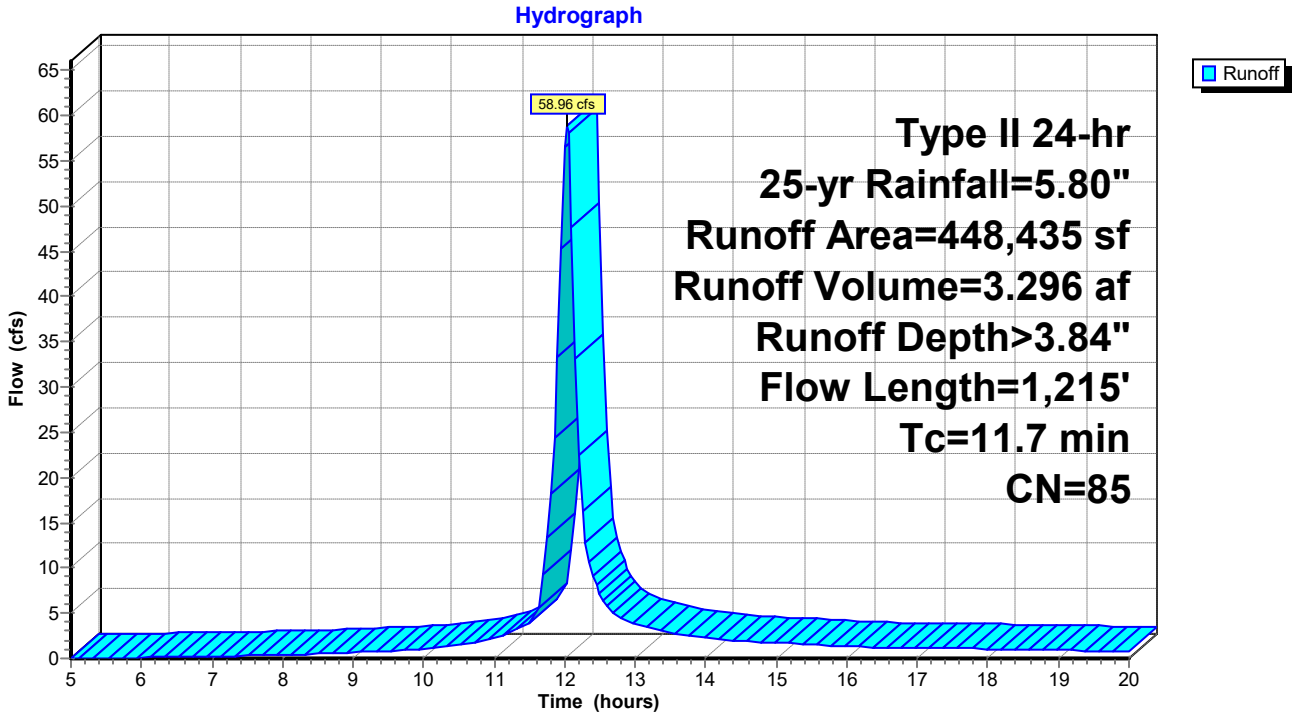
Runoff = 58.96 cfs @ 12.03 hrs, Volume= 3.296 af, Depth> 3.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
11,049	98	Roofs, HSG C
204,658	98	Paved parking, HSG C
15,335	82	Woods/grass comb., Fair, HSG D
92,772	73	Woods, Fair, HSG C
7,805	78	Meadow, non-grazed, HSG D
116,816	71	Meadow, non-grazed, HSG C
448,435	85	Weighted Average
232,728		51.90% Pervious Area
215,707		48.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0210	1.38		**Sheet Flow, SF 1-1** Smooth surfaces n= 0.011 P2= 3.10"
2.9	520	0.0210	2.94		**Shallow Concentrated Flow, SCF 1-1** Paved Kv= 20.3 fps
7.6	595	0.0350	1.31		**Shallow Concentrated Flow, SCF 1-2** Short Grass Pasture Kv= 7.0 fps
11.7	1,215	Total			

Subcatchment 1S: Subarea 1



Summary for Subcatchment 2S: Subarea 2

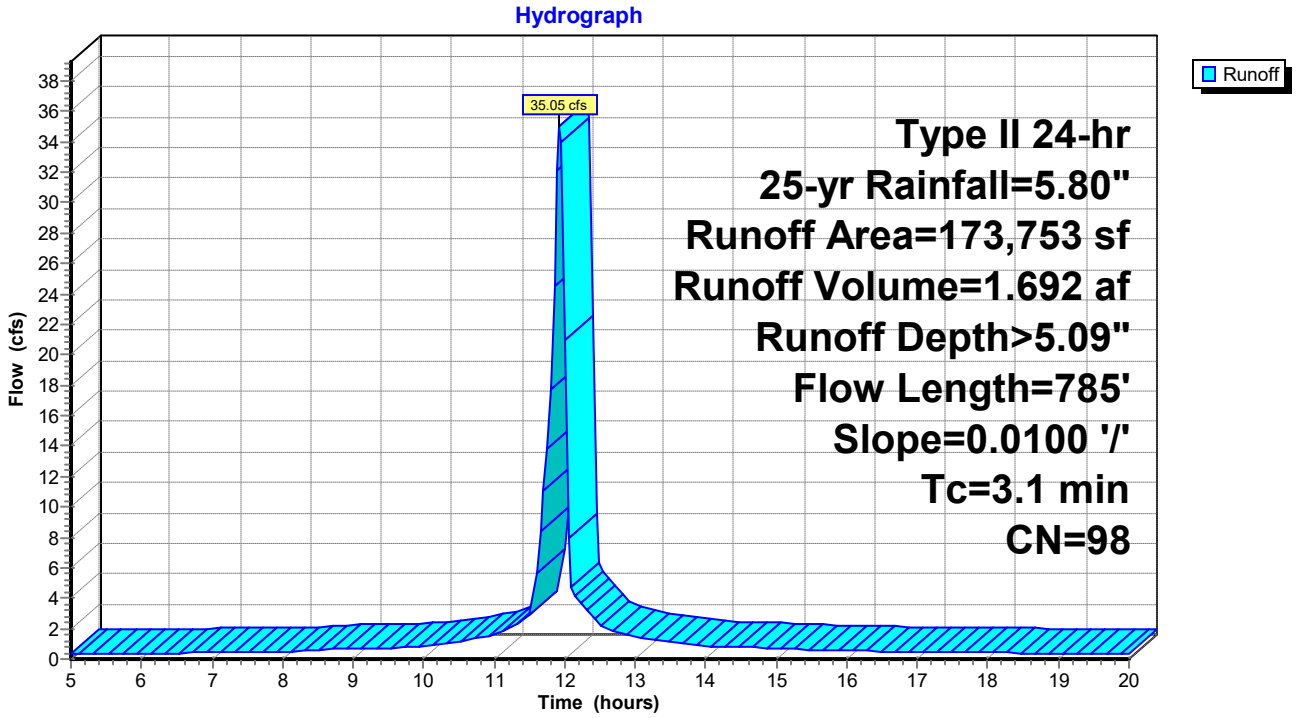
Runoff = 35.05 cfs @ 11.93 hrs, Volume= 1.692 af, Depth> 5.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
173,753	98	Roofs, HSG C
173,753		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.6	100	0.0100	1.03		**Sheet Flow, SF 2-1** Smooth surfaces n= 0.011 P2= 3.10"
1.5	685	0.0100	7.73	13.66	**Pipe Channel, PC 2-1** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.010 PVC, smooth interior
3.1	785	Total			

Subcatchment 2S: Subarea 2



Summary for Subcatchment 3S: Subarea 3

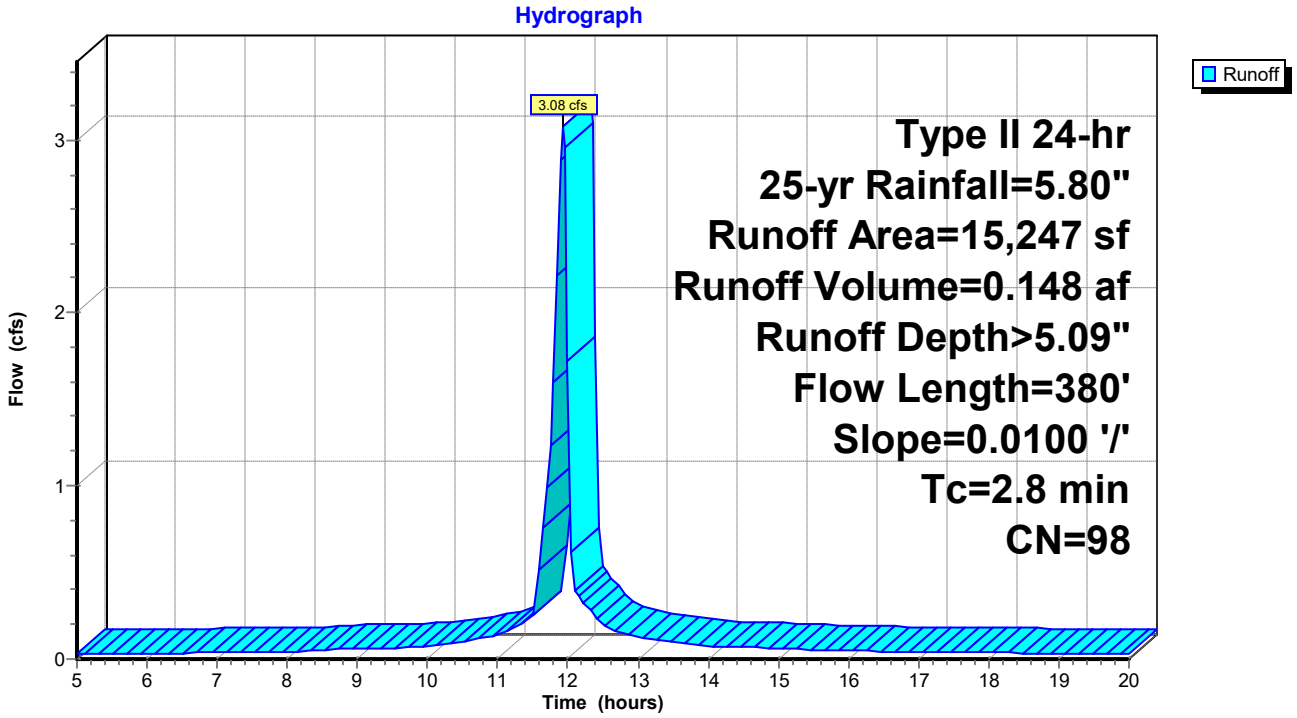
Runoff = 3.08 cfs @ 11.93 hrs, Volume= 0.148 af, Depth> 5.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
15,247	98	Roofs, HSG C
15,247		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	50	0.0100	0.89		**Sheet Flow, SF 3-1** Smooth surfaces n= 0.011 P2= 3.10"
1.9	330	0.0100	2.84	0.25	**Pipe Channel, PC 3-1** 4.0" Round Area= 0.1 sf Perim= 1.0' r= 0.08' n= 0.010 PVC, smooth interior
2.8	380	Total			

Subcatchment 3S: Subarea 3



Summary for Subcatchment 4S: Subarea 4

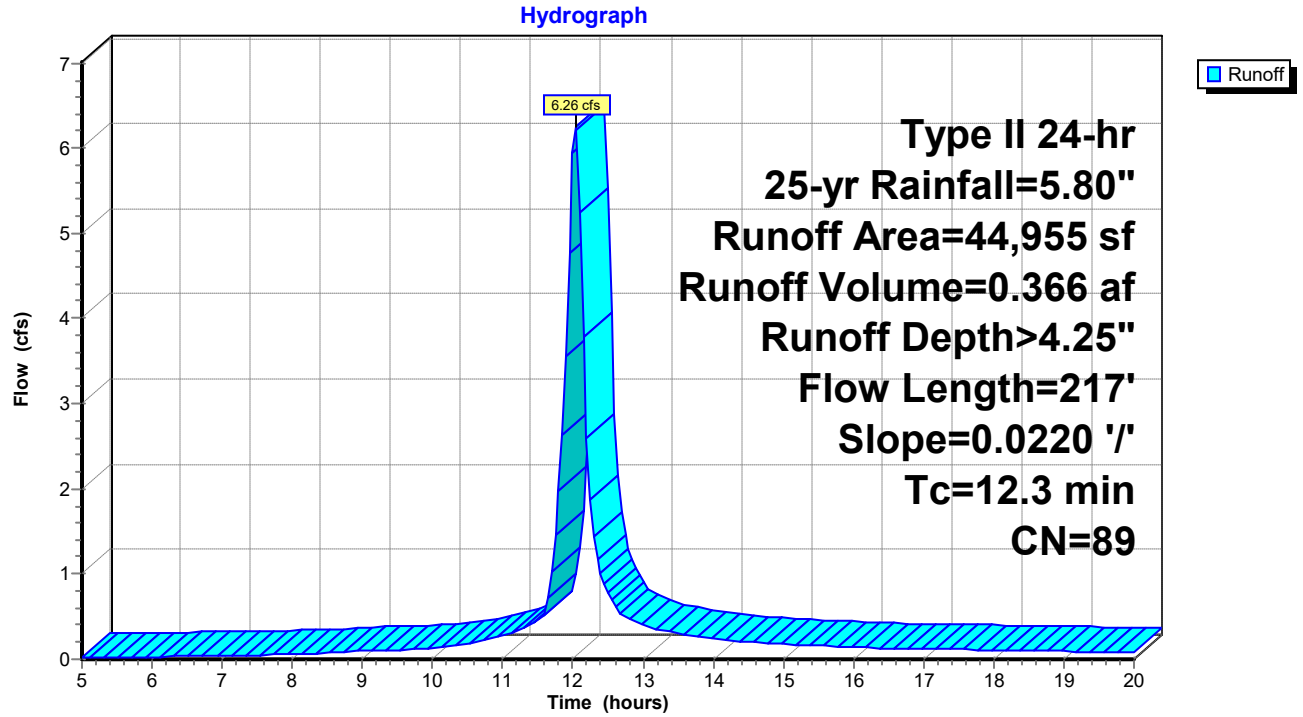
Runoff = 6.26 cfs @ 12.04 hrs, Volume= 0.366 af, Depth> 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
23,905	98	Paved parking, HSG C
4,337	98	Paved parking, HSG D
3,033	82	Woods/grass comb., Fair, HSG D
8,788	71	Meadow, non-grazed, HSG C
4,892	78	Meadow, non-grazed, HSG D
44,955	89	Weighted Average
16,713		37.18% Pervious Area
28,242		62.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.9	65	0.0220	0.11		**Sheet Flow, SF 4-1** Grass: Dense n= 0.240 P2= 3.10"
0.5	35	0.0220	1.14		**Sheet Flow, SF 4-2** Smooth surfaces n= 0.011 P2= 3.10"
1.9	117	0.0220	1.04		**Shallow Concentrated Flow, SCF 4-1** Short Grass Pasture Kv= 7.0 fps
12.3	217	Total			

Subcatchment 4S: Subarea 4



Summary for Subcatchment 5S: Subarea 5

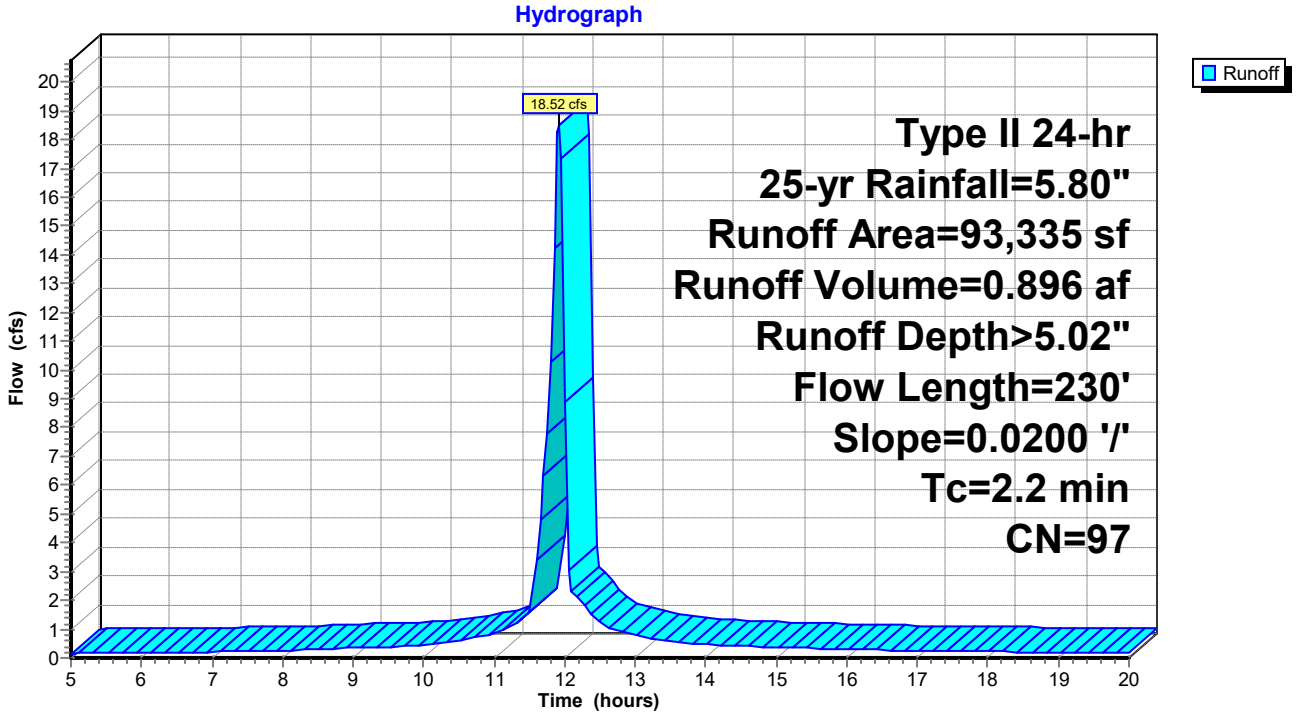
Runoff = 18.52 cfs @ 11.92 hrs, Volume= 0.896 af, Depth> 5.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
72,000	98	Roofs, HSG D
16,200	98	Paved parking, HSG D
3,478	79	Woods, Fair, HSG D
1,657	78	Meadow, non-grazed, HSG D
93,335	97	Weighted Average
5,135		5.50% Pervious Area
88,200		94.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0200	1.35		**Sheet Flow, SF 5-1** Smooth surfaces n= 0.011 P2= 3.10"
1.0	130	0.0200	2.28		**Shallow Concentrated Flow, SCF 5-1** Unpaved Kv= 16.1 fps
2.2	230	Total			

Subcatchment 5S: Subarea 5



Summary for Subcatchment 6S: Subarea 6

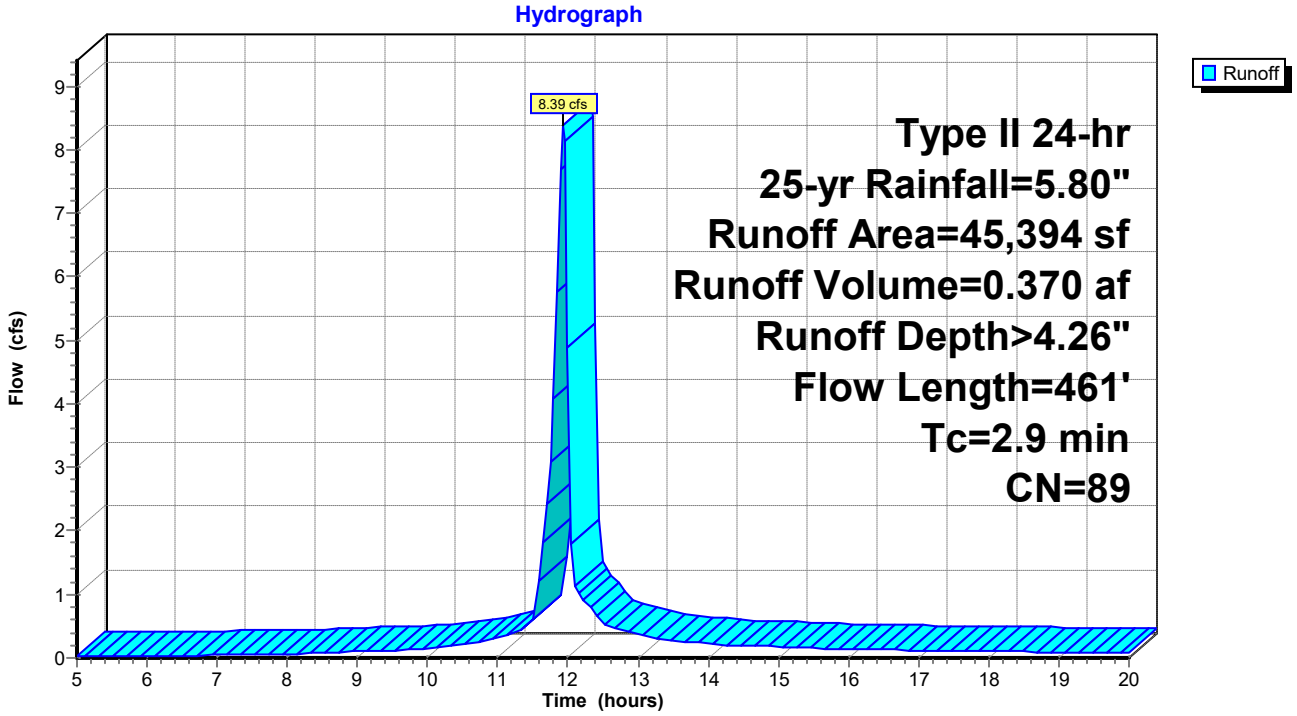
Runoff = 8.39 cfs @ 11.93 hrs, Volume= 0.370 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
13,298	98	Paved parking, HSG D
16,795	98	Paved parking, HSG C
708	78	Meadow, non-grazed, HSG D
14,593	71	Meadow, non-grazed, HSG C
45,394	89	Weighted Average
15,301		33.71% Pervious Area
30,093		66.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0400	1.79		**Sheet Flow, SF 6-1** Smooth surfaces n= 0.011 P2= 3.10"
2.0	361	0.0220	3.01		**Shallow Concentrated Flow, SCF 6-1** Paved Kv= 20.3 fps
2.9	461	Total			

Subcatchment 6S: Subarea 6



Summary for Subcatchment 7S: Subarea 7

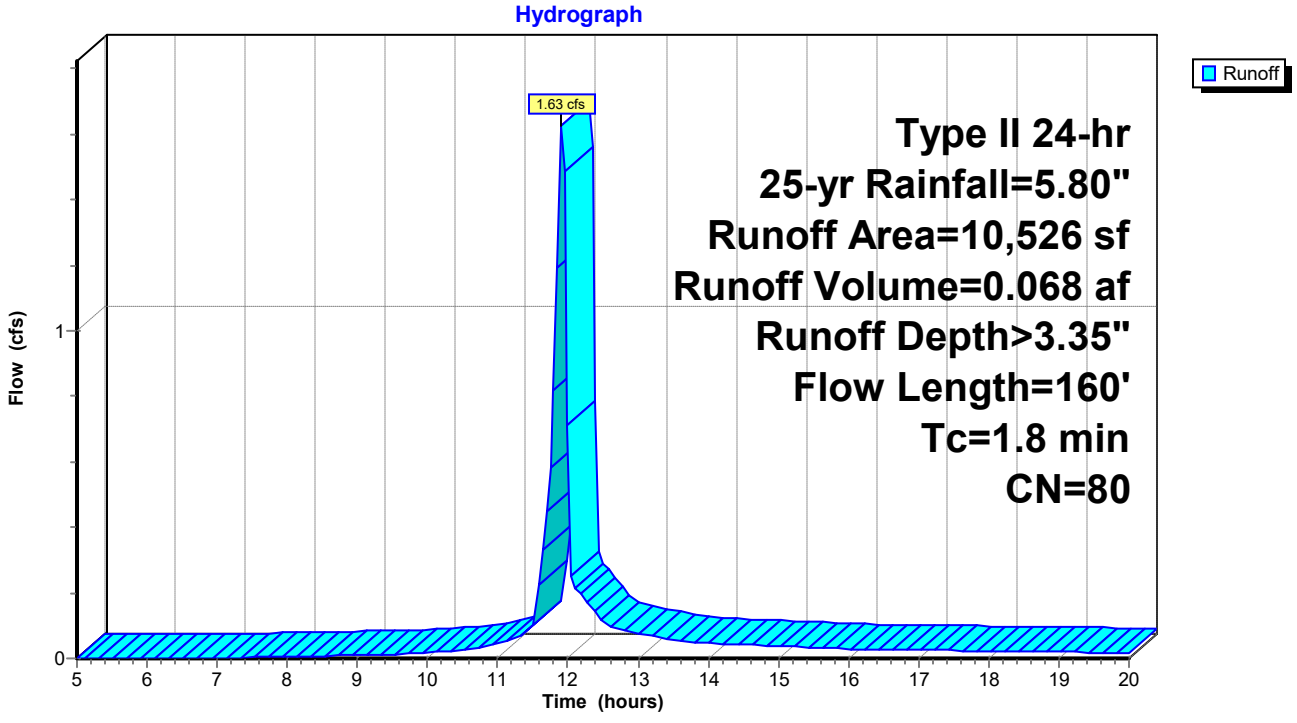
Runoff = 1.63 cfs @ 11.91 hrs, Volume= 0.068 af, Depth> 3.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
551	76	Woods/grass comb., Fair, HSG C
3,232	98	Paved parking, HSG C
6,743	71	Meadow, non-grazed, HSG C
10,526	80	Weighted Average
7,294		69.30% Pervious Area
3,232		30.70% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	60	0.0330	1.49		**Sheet Flow, SF 7-1** Smooth surfaces n= 0.011 P2= 3.10"
1.1	100	0.0480	1.53		**Shallow Concentrated Flow, SCF 7-1** Short Grass Pasture Kv= 7.0 fps
1.8	160	Total			

Subcatchment 7S: Subarea 7



Summary for Subcatchment 8S: Subarea 8

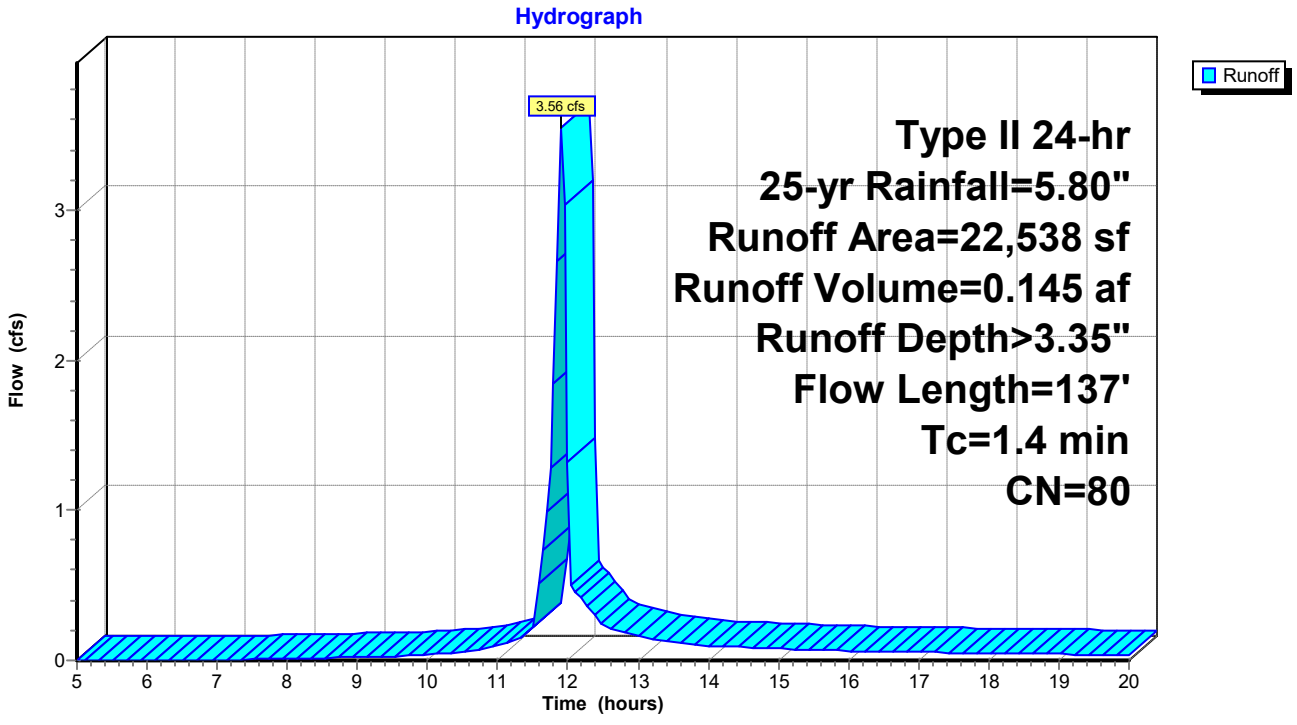
Runoff = 3.56 cfs @ 11.91 hrs, Volume= 0.145 af, Depth> 3.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
6,529	98	Paved parking, HSG C
4,143	76	Woods/grass comb., Fair, HSG C
11,866	71	Meadow, non-grazed, HSG C
22,538	80	Weighted Average
16,009		71.03% Pervious Area
6,529		28.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.0	100	0.0360	1.71		**Sheet Flow, SF 8-1** Smooth surfaces n= 0.011 P2= 3.10"
0.4	37	0.0530	1.61		**Shallow Concentrated Flow, SCF 8-1** Short Grass Pasture Kv= 7.0 fps
1.4	137	Total			

Subcatchment 8S: Subarea 8

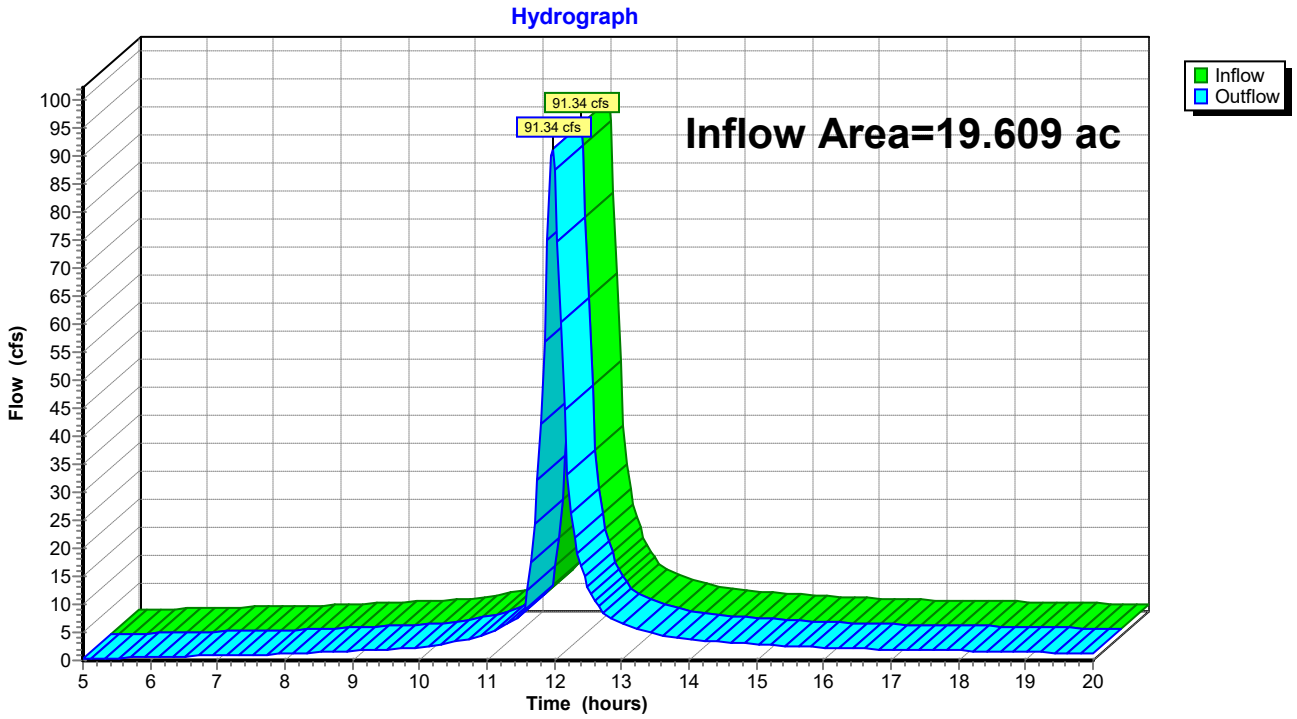


Summary for Reach SP: Summation Point

Inflow Area = 19.609 ac, 65.68% Impervious, Inflow Depth > 3.68" for 25-yr event
Inflow = 91.34 cfs @ 11.97 hrs, Volume= 6.019 af
Outflow = 91.34 cfs @ 11.97 hrs, Volume= 6.019 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach SP: Summation Point



Summary for Pond 1P: Pond 1

Inflow Area = 2.074 ac, 64.57% Impervious, Inflow Depth > 4.26" for 25-yr event
Inflow = 12.90 cfs @ 11.95 hrs, Volume= 0.736 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 67.40' @ 20.00 hrs Surf.Area= 3,899.089 ac Storage= 0.735 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

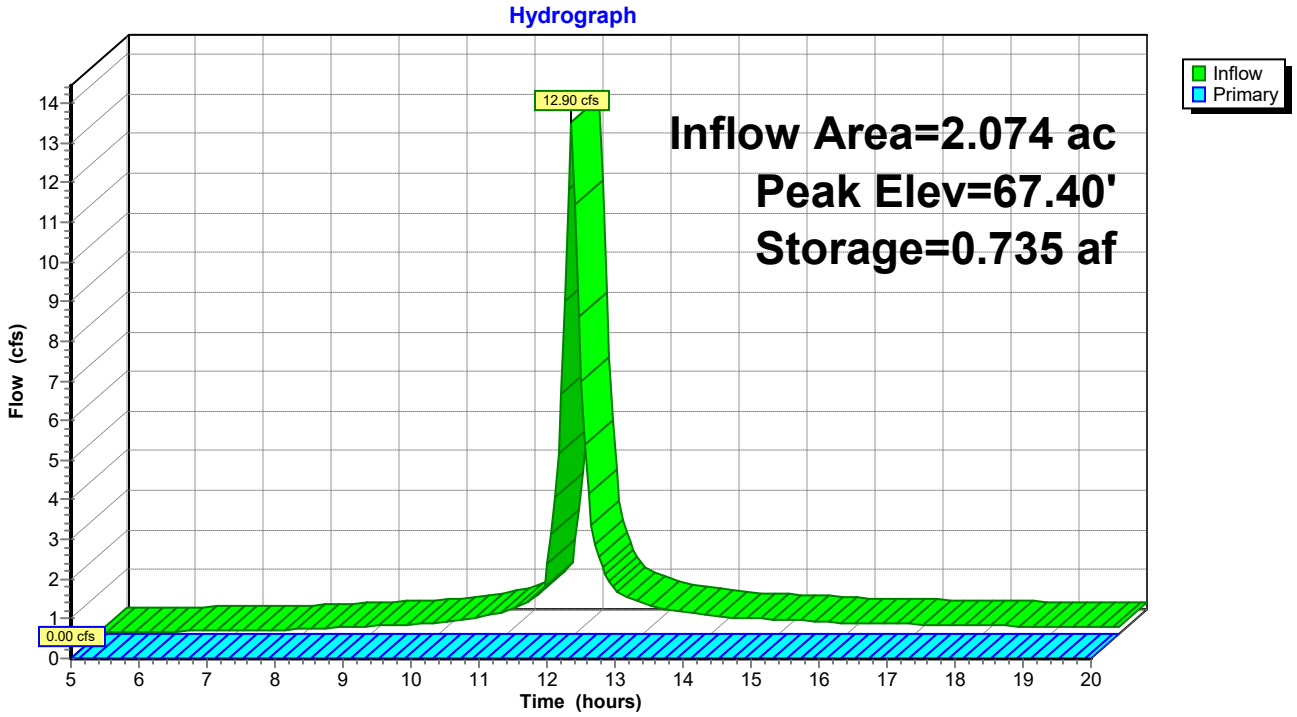
Volume	Invert	Avail.Storage	Storage Description
#1	67.40'	11,938.500 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
67.40	3,899.000	0.000	0.000
68.00	4,181.000	2,424.000	2,424.000
69.00	4,573.000	4,377.000	6,801.000
70.00	5,702.000	5,137.500	11,938.500

Device	Routing	Invert	Outlet Devices
#1	Primary	68.90'	**10.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=67.40' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Pond 1



Summary for Pond 2P: Pond 2

Inflow Area = 0.242 ac, 30.70% Impervious, Inflow Depth > 3.35" for 25-yr event
Inflow = 1.63 cfs @ 11.91 hrs, Volume= 0.068 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 59.40' @ 20.00 hrs Surf.Area= 368.035 ac Storage= 0.067 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

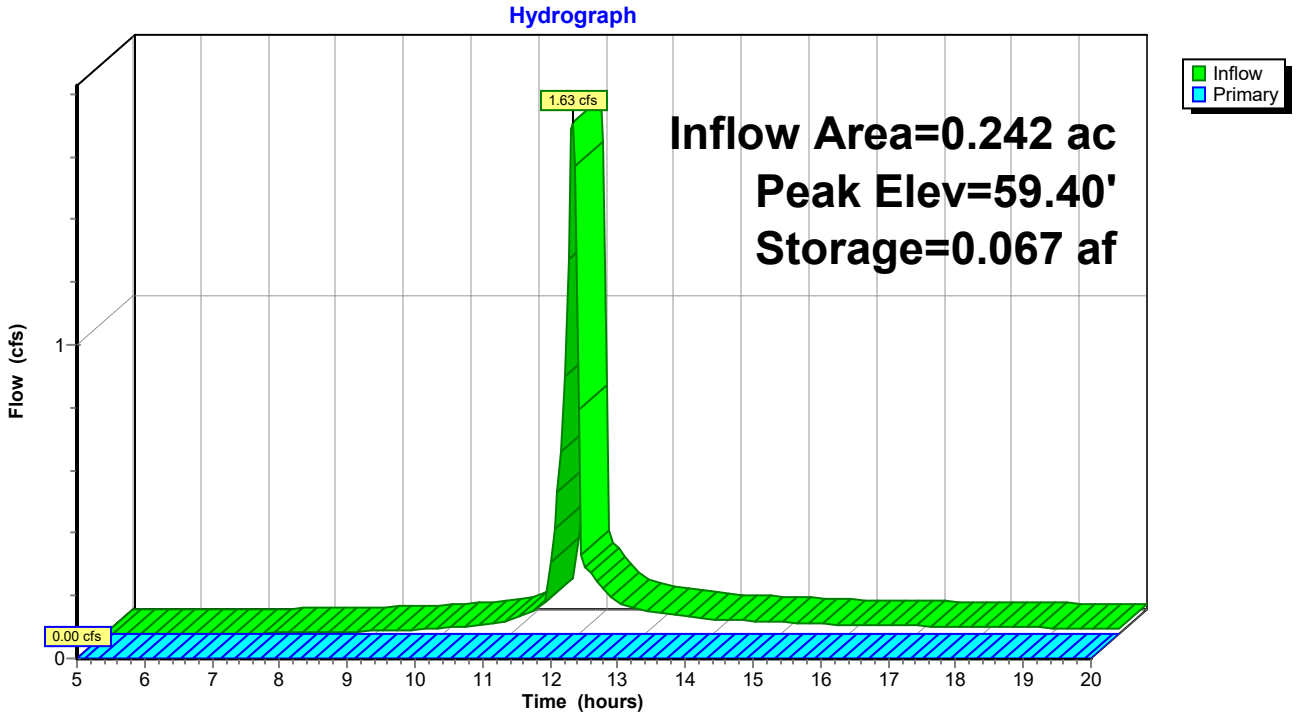
Volume	Invert	Avail.Storage	Storage Description
#1	59.40'	1,675.800 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
59.40	368.000	0.000	0.000
60.00	483.000	255.300	255.300
61.00	696.000	589.500	844.800
62.00	966.000	831.000	1,675.800

Device	Routing	Invert	Outlet Devices
#1	Primary	60.90'	**7.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=59.40' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: Pond 2



Summary for Pond 3P: Pond 3

Inflow Area = 0.517 ac, 28.97% Impervious, Inflow Depth > 3.35" for 25-yr event
Inflow = 3.56 cfs @ 11.91 hrs, Volume= 0.145 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.40' @ 20.00 hrs Surf.Area= 619.027 ac Storage= 0.144 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

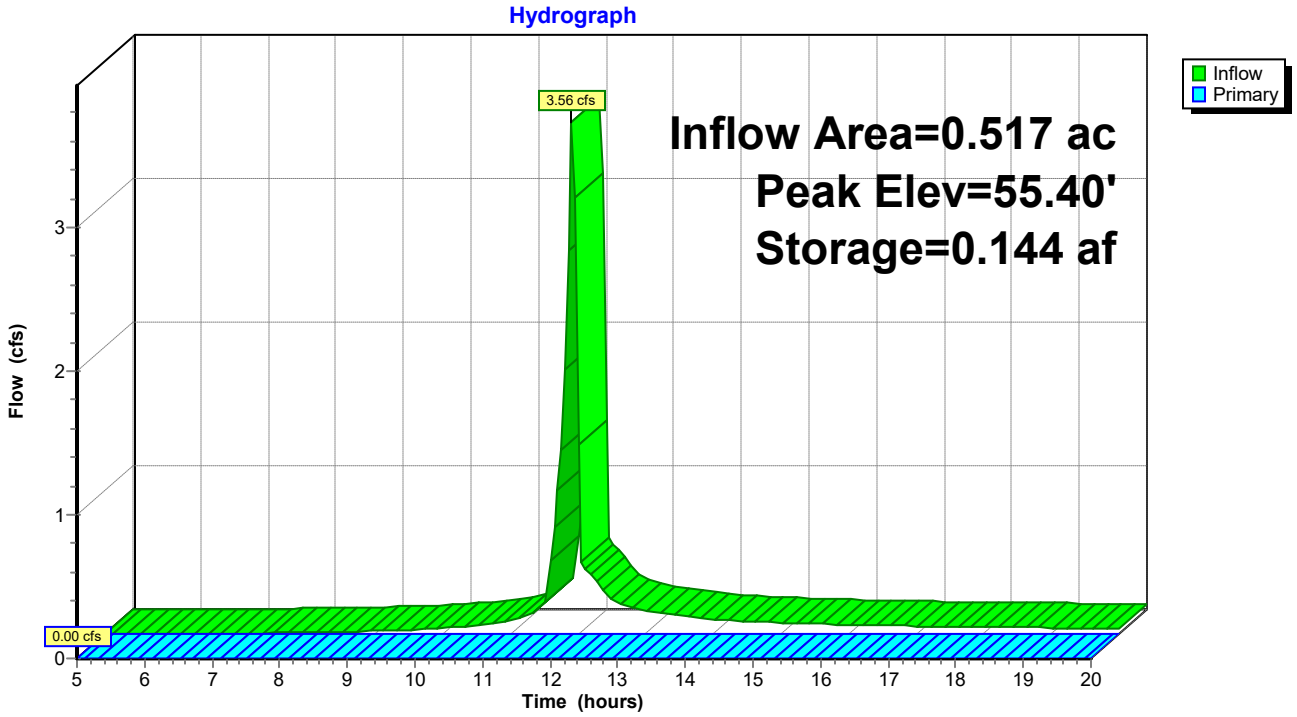
Volume	Invert	Avail.Storage	Storage Description
#1	55.40'	2,102.100 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
55.40	619.000	0.000	0.000
57.00	803.000	1,137.600	1,137.600
57.50	963.000	441.500	1,579.100
58.00	1,129.000	523.000	2,102.100

Device	Routing	Invert	Outlet Devices
#1	Primary	56.90'	**9.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=55.40' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: Pond 3



Summary for Pond CB1: Catch Basin 1

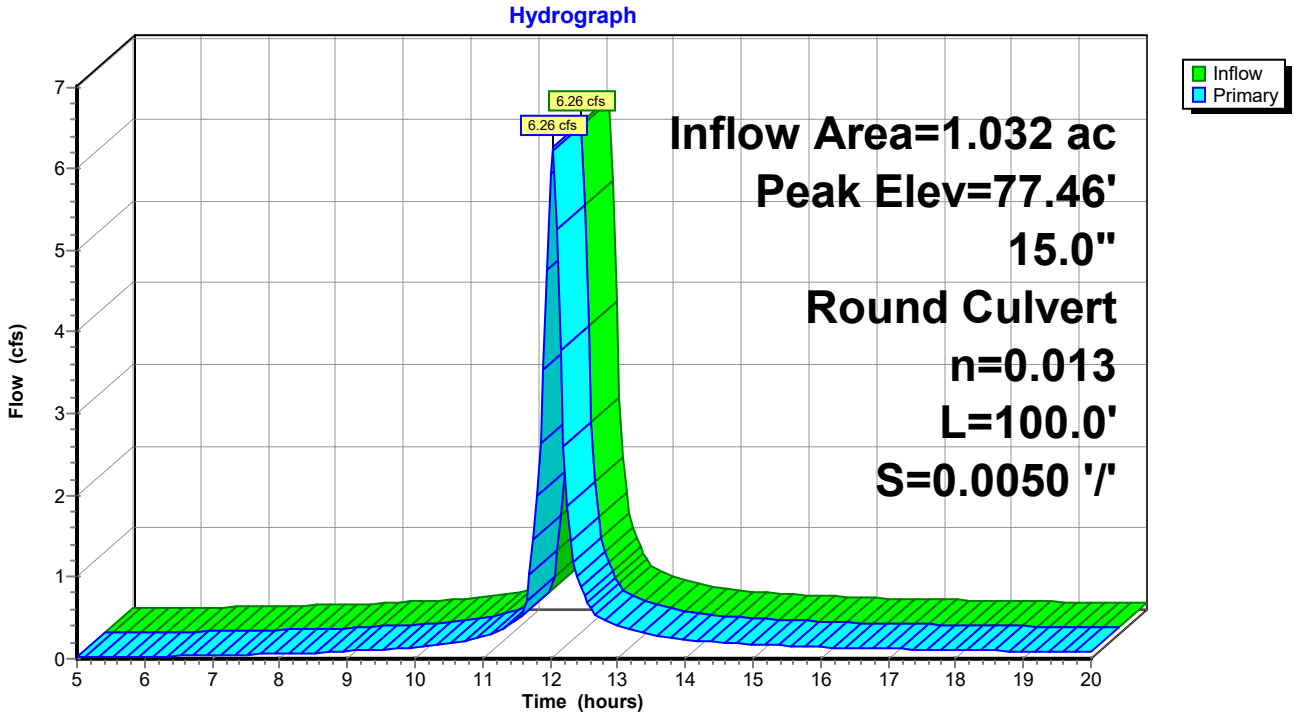
Inflow Area = 1.032 ac, 62.82% Impervious, Inflow Depth > 4.25" for 25-yr event
Inflow = 6.26 cfs @ 12.04 hrs, Volume= 0.366 af
Outflow = 6.26 cfs @ 12.04 hrs, Volume= 0.366 af, Atten= 0%, Lag= 0.0 min
Primary = 6.26 cfs @ 12.04 hrs, Volume= 0.366 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 77.46' @ 12.04 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	75.00'	**15.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 75.00' / 74.50' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.14 cfs @ 12.04 hrs HW=77.39' (Free Discharge)
1=Culvert (Barrel Controls 6.14 cfs @ 5.00 fps)

Pond CB1: Catch Basin 1



Summary for Pond DE: Drip Edge

Inflow Area = 2.143 ac, 94.50% Impervious, Inflow Depth > 5.02" for 25-yr event
Inflow = 18.52 cfs @ 11.92 hrs, Volume= 0.896 af
Outflow = 8.33 cfs @ 12.01 hrs, Volume= 0.883 af, Atten= 55%, Lag= 5.6 min
Primary = 8.33 cfs @ 12.01 hrs, Volume= 0.883 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 80.81' @ 12.01 hrs Surf.Area= 6,696 sf Storage= 10,212 cf

Plug-Flow detention time= 26.3 min calculated for 0.883 af (98% of inflow)
Center-of-Mass det. time= 19.4 min (748.4 - 729.0)

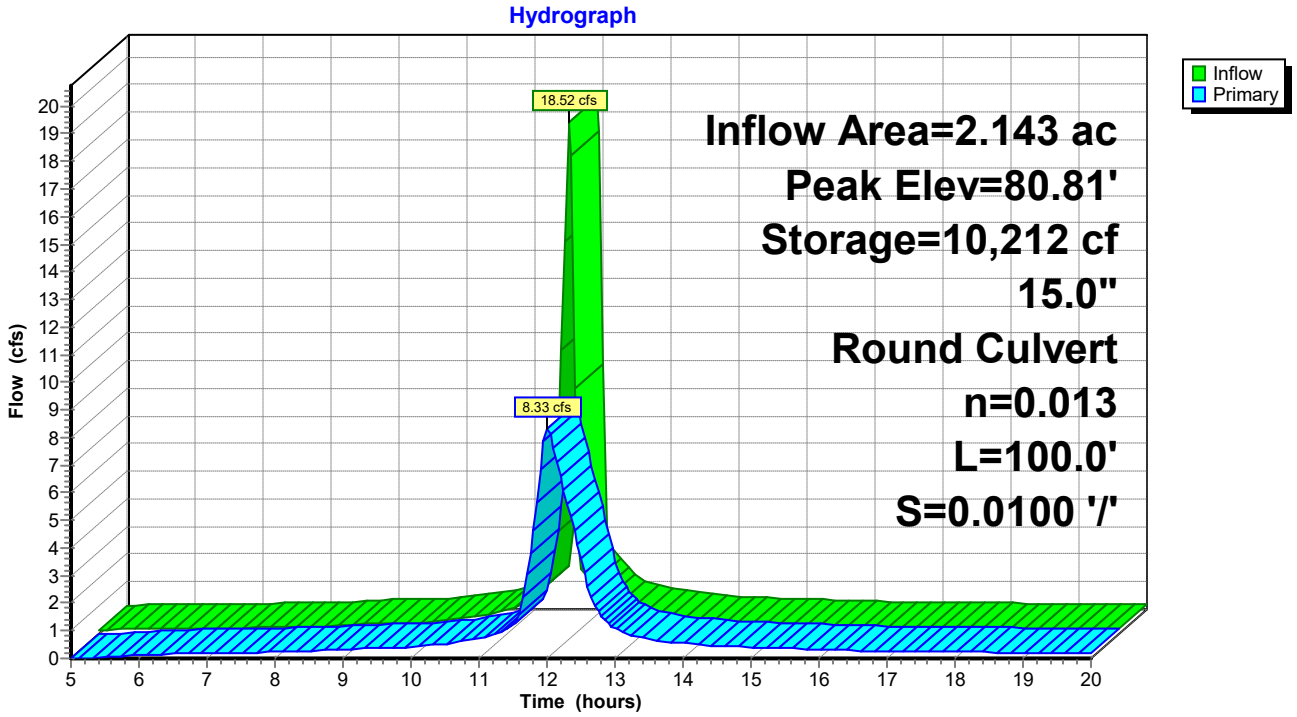
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	10,714 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) 26,784 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	6,696	0	0
78.00	6,696	6,696	6,696
79.00	6,696	6,696	13,392
80.00	6,696	6,696	20,088
81.00	6,696	6,696	26,784

Device	Routing	Invert	Outlet Devices
#1	Primary	77.00'	**15.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 77.00' / 76.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.28 cfs @ 12.01 hrs HW=80.77' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 8.28 cfs @ 6.75 fps)

Pond DE: Drip Edge



Summary for Pond DMH1: Drain Mahole

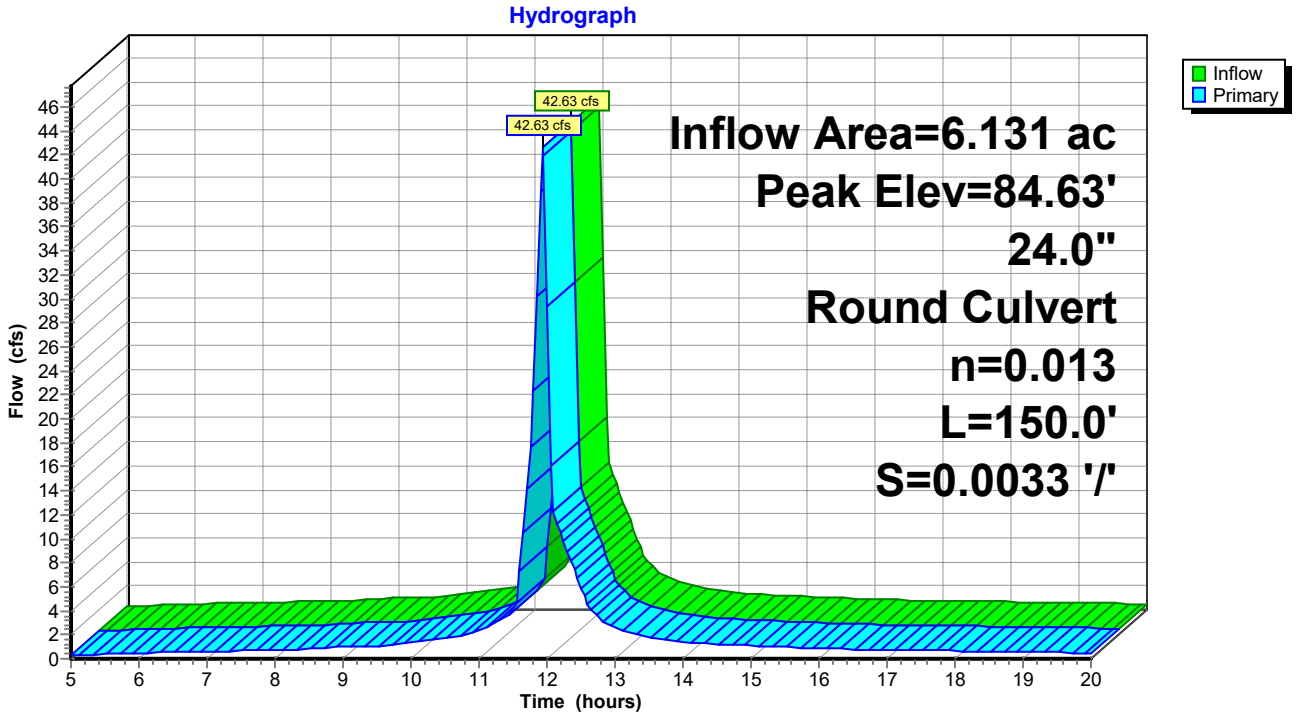
Inflow Area = 6.131 ac, 98.08% Impervious, Inflow Depth > 5.04" for 25-yr event
Inflow = 42.63 cfs @ 11.93 hrs, Volume= 2.575 af
Outflow = 42.63 cfs @ 11.93 hrs, Volume= 2.575 af, Atten= 0%, Lag= 0.0 min
Primary = 42.63 cfs @ 11.93 hrs, Volume= 2.575 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 84.63' @ 11.94 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	71.00'	**24.0" Round Culvert** L= 150.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 71.00' / 70.50' S= 0.0033 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=40.99 cfs @ 11.93 hrs HW=83.78' (Free Discharge)
1=Culvert (Inlet Controls 40.99 cfs @ 13.05 fps)

Pond DMH1: Drain Mahole



From: Sirois, Alison
To: John Kuchinski
Cc: Sean Thies; Barbara Barhydt
Subject: RE: 56 Milliken Street, Portland
Date: Wednesday, August 22, 2018 9:56:21 AM

Hello John

Based on the information provided and acknowledgement from the City of Portland, the Department is waiving state jurisdiction and delegating review to the City of Portland as the municipality pursuant to §489-A. Municipal review of development (1-A) (B). The City is required to submit a copy of the project to the Department under delegated review and if there are any questions the Department will work with the City to discuss it.

Alison Sirois
Regional Licensing and Compliance Manager, Southern Maine
Bureau of Land Resources, Maine Department of Environmental Protection
Phone (207)699-7028 Office (207)822-6300
www.maine.gov/dep

From: John Kuchinski [mailto:jkuchinski@ces-maine.com]
Sent: Monday, August 20, 2018 7:05 AM
To: Sirois, Alison <Alison.Sirois@maine.gov>
Cc: Sean Thies <sthies@ces-maine.com>; Barbara Barhydt <bab@portlandmaine.gov>
Subject: RE: 56 Milliken Street, Portland

Alison

As a follow up to our phone conversation on Friday the following is the summary of the development history at 56 Milliken St:
The original structure and site was constructed in 1966. By 1975 the site contained approximately 5.7 acres of impervious area. In 1993 the City of Portland issued a SLODA permit for expansion of the building and parking. There have been several small amendments until the last permit issued by the City of Portland in 2013. The total impervious area on the site is currently 11.4 acres. The amount of "structure" under Site Law is approximately 5.7 acres. Our proposal will add approximately 2.8 acres of "Structure" to bring the total area to 8.5 acres.

We are requesting that DEP grant a waiver of the 7 acre threshold to allow the City of Portland to continue to review and permit the site.

John Kuchinski, P.E. ◆ Senior Project Engineer
P 207.283.9151 | **F** 207.283.9151 | **C** 207.899.5307 | www.ces-maine.com

---

From: Sirois, Alison <Alison.Sirois@maine.gov>

Sent: Monday, August 6, 2018 4:22 PM
To: John Kuchinski <jkuchinski@ces-maine.com>
Cc: Sean Thies <sthies@ces-maine.com>; Barbara Barhydt <bab@portlandmaine.gov>
Subject: RE: 56 Milliken Street, Portland

Hi John,

Does the proposed project with the combination of previous projects for this location, exceed 7 acres of structure? If it does, the Department generally takes jurisdiction over that review but can waive it under certain circumstances. Let me know if you have any further questions.

Alison Sirois
Regional Licensing and Compliance Manager, Southern Maine
Bureau of Land Resources, Maine Department of Environmental Protection
Phone (207)699-7028 Office (207)822-6300
www.maine.gov/dep

From: John Kuchinski [mailto:jkuchinski@ces-maine.com]
Sent: Monday, July 30, 2018 9:55 AM
To: Sirois, Alison <Alison.Sirois@maine.gov>
Cc: Sean Thies <sthies@ces-maine.com>; Barbara Barhydt <bab@portlandmaine.gov>
Subject: 56 Milliken Street, Portland

Allison

I met with the City staff last week on this project. It is a new 72,000 square foot warehouse/industrial building at 56 Milliken Street. I has a SLODA permit from the City and several modifications to the SLODA under delegated review authority. Will this proposal continue to be permitted by the City of Portland under delegated review?

Thank you,

John Kuchinski, P.E. ◆ Senior Project Engineer
P 207.283.9151 | **F** 207.283.9151 | **C** 207.899.5307

CES INC
Engineers ◆ Environmental Scientists ◆ Surveyors
146 Main Street, Suite 300, Saco, ME 04072 | www.ces-maine.com

PLYMOUTH REIT
56 MILLIKEN STREET, PORTLAND, MAINE

TAB 5 - PUBLIC INFRASTRUCTURE AND SAFETY NARRATIVE

Consistency with City Master Plans

The proposed warehouse expansion at 56 Milliken Street is consistent with current City of Portland Master Plans. This development supports economic expansion in an outlying area close to major transportation corridors. The building is an infill development in existing Industrial zoned land with adequate provision for water and wastewater. A warehouse expansion will have minimal traffic impact.

All existing easements are shown on the site survey by SGC. No new easements are proposed.

Public Safety and Fire Prevention

The proposed warehouse building has fire access on all four sides of the building more than 90-percent of the exterior building walls accessible to fire fighting apparatus. In addition, the building will have a sprinkler system. A code study is included on the architectural plans including building construction type and egress.

The site has adequate water supply mains and fire hydrants to aid in firefighting activities. Existing hydrants are located throughout the site. A new hydrant is proposed near the front entrance of the warehouse.

Site lighting is proposed as shown on the photometric plan. Cut sheets of LED fixtures are attached.

Adequacy of Public Utilities

Underground electric service will be provided to the new warehouse from Riverside Industrial Parkway as shown on the site plan.

Sanitary sewer connection is proposed at an existing sanitary manhole located at the Milliken Street entrance to the site. An application for capacity to serve was submitted to the City of Portland Public Works via email. A copy of the application is attached.

An Ability to Serve letter has been received from Portland Water District and is attached.
Solid waste will be disposed in an on-site dumpster. Another dumpster will be for recycled materials.

CITY OF PORTLAND WASTEWATER CAPACITY APPLICATION

Portland Dept. of Public Works -
Water Resources
55 Portland Street,
Portland, Maine 04101-2991

Date: 10/2/2018

Bradley Roland, P.E.
Water Resources Division
Department of Public Works
55 Portland Street
Portland, ME 04103

1. Please, Submit Utility, Site, and Locus Plans.

Site Address: 56 Milliken Street

Chart Block Lot Number: 334 A014001

Proposed Use: Warehouse
Previous Use: _____
Existing Sanitary Flows: 7,100 GPD
Existing Process Flows: _____ GPD
Description and location of City sewer that is to receive the proposed building sewer lateral.

Connection to sanitary sewer in Milliken St

Site Category		
	Commercial *(see part 4 below)*	X
	Industrial *(complete part 5 below)*	
	Governmental	
	Residential	
	Other *(specify)*	

Clearly, indicate the proposed connections, on the submitted plans.

2. Please, Submit Contact Information.

City Planner's Name: Barbara Barhydt Phone: _____
Owner/Developer Name: Plymouth Industrial REIT
Owner/Developer Address: 260 Franklin St., 7th Floor, Boston, MA 02110
Phone: 617 340-3826 Fax: _____ E-mail: jeff.witherell@plymouthrei.com
Engineering Consultant Name: CES, Inc., John Kuchinski
Engineering Consultant Address: 146 Main Street, Saco ME 04072
Phone: 207 283-9151 Fax: _____ E-mail: jkuchinski@ces-maine.com

Note: Consultants and Developers should allow +/- 15 days, for capacity status, prior to Planning Board Review.

3. Please, Submit Domestic Wastewater Design Flow Calculations.

Estimated Domestic Wastewater Flow Generated: 100 GPD
Peaking Factor/ Peak Times: 20 gpm
Specify the source of design guidelines: *(i.e. "Handbook of Subsurface Wastewater Disposal in Maine," "Plumbers and Pipe Fitters Calculation Manual," Portland Water District Records, Other (specify)*

_____

Note: Please submit calculations showing the derivation of your design flows, either on the following page, in the space provided, or attached, as a separate sheet.

4. Please, Submit External Grease Interceptor Calculations.

Total Drainage Fixture Unit (DFU) Values: N/A

Size of External Grease Interceptor: N/A

Retention Time:

Peaking Factor/ Peak Times:

Note: In determining your restaurant process water flows, and the size of your external grease interceptor, please use The Uniform Plumbing Code. Note: In determining the retention time, sixty (60) minutes is the minimum retention time. Note: Please submit detailed calculations showing the derivation of your restaurant process water design flows, and please submit detailed calculations showing the derivation of the size of your external grease interceptor, either in the space provided below, or attached, as a separate sheet.

5. Please, Submit Industrial Process Wastewater Flow Calculations

Estimated Industrial Process Wastewater Flows Generated: 0 GPD

Do you currently hold Federal or State discharge permits? Yes ____ No X

Is the process wastewater termed categorical under CFR 40? Yes ____ No X

OSHA Standard Industrial Code (SIC): *(http://www.osha.gov/oshstats/sicser.html)*

Peaking Factor/Peak Process Times:

Note: On the submitted plans, please show where the building's domestic sanitary sewer laterals, as well as the building's industrial-commercial process wastewater sewer laterals exits the facility. Also, show where these building sewer laterals enter the city's sewer. Finally, show the location of the wet wells, control manholes, or other access points; and, the locations of filters, strainers, or grease traps.

Note: Please submit detailed calculations showing the derivation of your design flows, either in the space provided, or attached, as a separate sheet.

Domestic use for office in the warehouse. see attached PWD fixture calculation worksheet.

Portland Water District

FROM SEBAGO LAKE TO CASCO BAY

October 5, 2018

John Kuchinski
CES Inc.
465 Main Street
Brewer, ME 04412

Re: 56 Milliken Street, PO
Ability to Serve with PWD Water

Dear Mr. Kuchinski:

The Portland Water District has received your request for an Ability to Serve Determination for the noted site submitted on August 23, 2018. Based on the information provided per Progress Print plans dated October 5, 2018, we can confirm that the District will be able to serve the proposed project as further described in this letter. **Please note that this letter constitutes approval of the water system as currently designed. Any changes affecting the approved water system will require further review and approval by PWD.**

Conditions of Service

The following conditions of service apply:

- A new 6-inch fire service and 1-inch domestic service may be installed from the water main in Riverside Industrial Parkway. The service should enter through the properties frontage on Riverside Industrial Parkway at least 10-feet from any side property lines.

- The Portland Water District does not have record of any other existing infrastructure in public roads and recommends a survey and test pitting be performed by the development team prior to construction. Any conflicts that arise during construction are at the risk of the developer and may result in job shutdown until new plans are submitted by the developer and reviewed and approved by PWD.

- An approved backflow prevention device must be installed on each service line directly after the meter or a the service entrance for the fire sprinkler system prior to service activation. Please refer to the PWD website for more information on cross-connection control policies.

Prior to construction, the owner or contractor will need to make an appointment to complete a service application form and pay all necessary fees. The appointment shall be requested through MEANS@pwd.org or by calling 207-774-5961 ext. 3199. Please allow (3) business days to process the service application paperwork. PWD will guide the applicant through the new development process during the appointment.

Existing Site Service

According to District records, the project site does not currently have existing water service.

Water System Characteristics

According to District records, there is an 16-inch diameter cement lined cast iron water main in Riverside Industrial Parkway and a public fire hydrant located approximately 800 feet from the site. The most recent static pressure reading was 82 psi on June 18, 2018.

Public Fire Protection

The installation of new public hydrants to be accepted into the District water system will most likely not be required. It is your responsibility to contact the Portland Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project. Based on the high water pressure in this area, we recommend that you consider the installation of pressure reducing devices that comply with state plumbing codes.

Private Fire Protection Water Needs

You have indicated that this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service. Please share these results with your sprinkler system designer so that they can design the fire protection system to best fit the noted conditions. If the data is out of date or insufficient for their needs, please contact MEANS to request a hydrant flow test and we will work with you to get more complete data.

Should you disagree with this determination, you may request a review by the District's Internal Review Team. Your request for review must be in writing and state the reason for your disagreement with the determination. The request must be sent to MEANS@PWD.org or mailed to 225 Douglass Street, Portland Maine, 04104 c/o MEANS. The Internal Review Team will undertake review as requested within 2 weeks of receipt of a request for review.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District

Robert A. Bartels, P.E.
Senior Project Engineer

PLYMOUTH REIT
56 MILLIKEN STREET, PORTLAND, MAINE

Tab 6 - SITE DESIGN NARRATIVE

Massing, Ventilation, and Wind Impact
The proposed building height is less than 30 feet along most of the front (westerly) and less than 25 feet in the rear. The exposed height at the loading docks is less than 35 feet. The roof slopes from front to rear. There is an entrance canopy on the front. The height of the building will not result in health or safety problems or cause a reduction in ventilation to abutting structures. The building will not cause a change in the wind climate that will result in unsafe wind conditions for users of the site or adjacent public spaces.

The bulk, location, and height of the proposed building will not result any substantial diminution in value or utility of neighboring structures.

All heating, ventilation or air conditioning mechanical equipment will be designed to prevent direct exhaust into public spaces.

Shadows
The building height will not cause significant shadows on any public open space.

Snow and Ice Loading
The building roof is sloped from front to back. A stormwater roof drip line filter is designed along the rear wall of the proposed building. In winter time, snow and ice will accumulate in the stormwater Best Management Practice and not accumulate on adjacent properties or public ways.

View Corridors
No public views will be impacted by the proposed building.

Historic Resources
The site is not a historic site. The existing warehouse building was constructed in 1966. We have also contacted the Maine Historic Preservation Commission regarding this site and have received a letter from them indicating that there are no known historic resources on this site.

Exterior Lighting
The site design includes a photometric plan with light intensities. All light fixtures will be LED with full cut off fixtures. Light limits comply with the City of Portland Technical Manual.

Noise and Vibration
The proposed use is warehousing. Noise and vibration will be minimal. The building is also located away from the public road and will be screened by native vegetation. The only appreciable noise will be truck traffic to and from the site.

Mechanical equipment will either be roof top units or ground units that are screened from public view. Mechanical equipment will comply with state and federal requirements.

Signage and Wayfinding

The site plan shows signage for the new driveway to include “DO NOT ENTER” facing the Riverside Industrial Parkway and “STOP” for traffic exiting the site. Any business sign will be located on Milliken Road and will comply with applicable City of Portland sign codes.

August 21, 2018

Mr. Kirk Mohney, Director
Maine Historic Preservation Commission
55 Capitol Street
Augusta, ME 04333-0065

Re: Plymouth Industrial REIT | 56 Milliken Road | Portland, Maine

Dear Mr. Mohney,

Plymouth Industrial REIT is currently in the process of preparing a Site Location of Development Permit Amendment Application for the construction of a 72,000 square foot building at 56 Milliken Drive in Portland, Maine. The facility is an addition to and existing industrial manufacturing facility at 56 Milliken Road, Portland.

As required for permitting requirements, we are submitting this request to your office to determine if there are any potential impacts to fisheries or wildlife habitats located at the site or in the immediate surroundings. Any response can be forwarded to our office located at 146 Main Street, Saco, ME 04072 or by email at jkuchinski@ces-maine.com.

Thank you for your assistance in this matter.

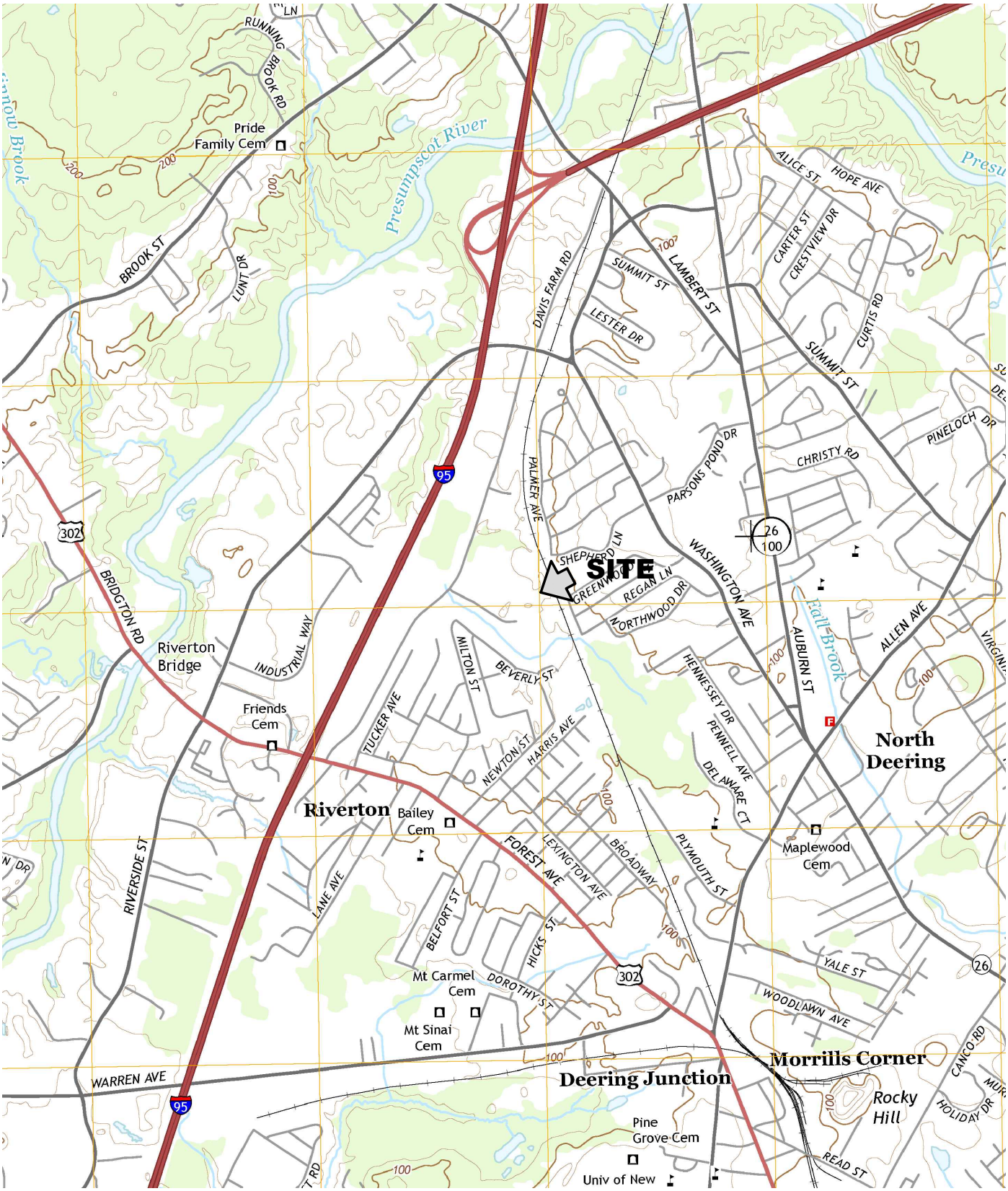
Sincerely,
CES, Inc.

John D. Kuchinski, PE
Senior Project Engineer

JDK/cmc
Encl.

Seven Locations in Maine | www.ces-maine.com

146 Main Street
Suite 300
Saco, Maine 04072
T 207.283.9151
F 207.283.9136



SOURCE:
U.S.G.S. TOPOGRAPHIC QUADRANGLE
PORTLAND WEST
@ 1:24,000

Terrain Navigator,© Maptech 800-627-7236

CES INC

PLYMOUTH INDUSTRIAL REIT, INC.
56 MILLIKEN STREET, PORTLAND, MAINE
LOCATION MAP

2018-07-06
12254.003

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

PAUL R. LEPAGE
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

August 29, 2018

Mr. John D. Kuchinski
CES Inc
146 Main St, Suite 300
Saco, ME 04072

Project: MHPC #1141-18 Plymouth Industrial Reit; 56 Milliken Rd
Construction of a 72,000 Sq Ft Building

Town: Portland, ME

Dear Mr. Kuchinski:

In response to your recent request, I have reviewed the information received August 23, 2018 to initiate consultation on the above referenced project in accordance with the requirements of the Maine Department of Environmental Protection.

Based on the information submitted, I have concluded that there will be no historic properties (archaeological or architectural) affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act.

Please contact Megan Rideout at (207) 287-2992 or megan.m.rideout@maine.gov if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney

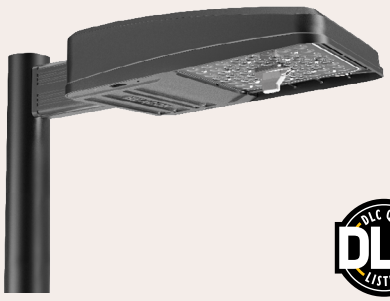
Kirk F. Mohney
State Historic Preservation Officer

PHONE: (207) 287-2132 FAX: (207) 287-2335

VP-S OPTICS STRIKE

Viper (Small)

TYPE A
12254.003
PLYMOUTH REIT - 56 MILLIKEN ST



FEATURES

- The Beacon Viper luminaire is available in two sizes with a wide choice of different LED wattage configurations and optical distributions designed to replace HID lighting up to 1000W MH or HPS and with 4 different mounting options for application in a wide variety of new and existing installations.
- Each Viper luminaire is supplied with an one piece optical cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel.
- A thermal circuit, LIFESHIELD™, shall protect the luminaire from excessive temperature by interfacing with the 0-10V dimmable drivers to reduce drive current as necessary.
- Aluminum thermal clad board with 0.062" thick aluminum base layer, thermally conductive dielectric layer, 0.0014" thick copper circuit layer circuit layer designed with copper pours to minimize thermal impedance across dielectric.

ORDERING INFORMATION

VPS	48L-110	4K7	4		UNV	A	DBT	7PR-TL	
SERIES	LED ENGINE	CCT/CRI	ROTATION		VOLTAGE		COLOR		OPTIONS

SERIES
- **VPS** Viper

LED ENGINE
- **24L-55** 55W, LED array
- **36L-65** 65W, LED array
- **36L-80** 80W, LED array
- **48L-110** 110W, LED array
- **60L-136** 136W, LED array

CCT/CRI
- **3K7** 3000K, 70 CRI
- **4K7** 4000K, 70 CRI
- **5K7** 5000K, 70 CRI

ROTATION
- Leave blank for no rotation
- **L**[5] Optic rotation left
- **R**[5] Optic rotation right

VOLTAGE
- **UNV** 120-277V
- **120** 120V
- **208** 208V
- **240** 240V
- **277** 277V
- **347** 347V
- **480** 480V

COLOR
- **DBT** Dark Bronze Textured
- **BMT** Black Matte Textured
- **PS** Platinum Silver Smooth
- **WHT** White Textured
- **CC** Custom Color (RAL#)

OPTIONS
- **F** Fusing
- **BSP** Bird Spikes
- **BC** Backlight control (limited to Type 4W only)

DISTRIBUTION
- **FR** Type 1/Front Row
- **2** Type 2
- **3** Type 3
- **4** Type 4
- **4W** Type 4 Wide
- **5QM** Type 5QM
- **5R** Type 5R (rectangular)
- **5W** Type 5W (round wide)

MOUNTING
- **A** Rectangular Arm (formerly RA)
- **MAF** Mast Arm Fitter (formerly SF2)
- **K** Knuckle (formerly PK2) limit to 45° tilt
- **WB** Wall Bracket
- **ADSQ** Universal Arm for square pole
- **AD34** Universal Arm for 2.4"-4.1" round pole
- **AD45** Universal Arm for 4.2" to 5.3" round pole
- **AD56** Universal Arm for 5.5" to 6.5" round pole

CONTROL OPTIONS
- **7PR** 7-Pin Receptacle only (shorting cap, photo control, or wireless control provided by others)
- **7PR-SC** 7-Pin Receptacle w/Shorting Cap
- **7PR-TL** 7-Pin Receptacle w/Twist Lock photo control
- **SCP/_F**[1,2,6] Programmable Occupancy Sensor w/ daylight control (120-277 volts only)
- **GENI-XX**[3] ENERGENI
- **SWF**[1] SiteSync Field Commission
- **SWFM**[1,2] SiteSync Field Commission w/ Sensor
- **SWP**[1,4] SiteSync Pre-Commission
- **SWPM**[1,2,4] SiteSync Pre-Comm w/ Sensor

HOUSE SIDE SHIELD ACCESSORIES
- **HSS/VP-S/90-FB/XXX** 90° shield front or back
- **HSS/VP-S/90-LR/XXX** 90° shield left or right
- **HSS/VP-S/180-FB/XXX** 180° shield front or back
- **HSS/VP-S/180-LR/XXX** 180° shield left or right
- **HSS/VP-S/270-FB/XXX** 270° shield front or back
- **HSS/VP-S/270-LR/XXX** 270° shield left or right
- **HSS/VP-S/360/XXX** Full shield

(Replace XXX with notation for desired finish color)
(Refer to page 5 for shield images)

Accessories and Services (Ordered Separately)

Catalog Number	Description
SWUSB*	SiteSync interface software loaded on USB flash drive for use with owner supplied PC (Windows based only). Includes SiteSync license, software and USB radio bridge node.
SWTAB*	Windows tablet and SiteSync interface software. Includes tablet with preloaded software, SiteSync license and USB radio bridge node.
SWBRG+	SiteSync USB radio bridge node only. Order if a replacement is required or if an extra bridge node is requested.

* When ordering SiteSync at least one of these two interface options must be ordered per project.
\+ If needed, an additional Bridge Node can be ordered.

[1] Not available with other wireless control or sensor options
[2] Specify mounting height; 8=8' or less, 40=9' to 40'
[3] Specify routine setting code (example GENI-04). See ENERGENI brochure and instructions for setting table and options. Not available with sensor or SiteSync options.
[4] Specify group and zone at time of order. See www.hubbelllighting.com/sitesync for further details. Order at least one SiteSync interface Accessory SWUSB or SWTAB. Each option contains SiteSync License, GUI, and Bridge Node
[5] Only available with 1A, 2, 3, 4, 4W and 5R distributions
[6] Order at least one SCP-REMOTE per project location to program and control

DesignLights Consortium qualified. Consult DLC website for more details: http://www.designlights.org/QPL

Visit www.beaconproducts.com for up-to-date availability information

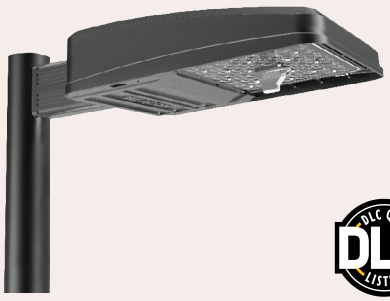
BEACON design . performance . technology

VP-S STRIKE OPTICS

Viper (Small)

TYPE B
12254.003
PLYMOUTH REIT - 56 MILLIKEN ST

SITE/ROADWAY



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- **AD56** Universal Arm for 5.5" to 6.5" round pole

CONTROL OPTIONS
- **7PR** 7-Pin Receptacle only (shorting cap, photo control, or wireless control provided by others)
- **7PR-SC** 7-Pin Receptacle w/Shorting Cap
- **7PR-TL** 7-Pin Receptacle w/Twist Lock photo control
- **SCP/_F**[1,2,6] Programmable Occupancy Sensor w/ daylight control (120-277 volts only)
- **GENI-XX**[3] ENERGENI
- **SWF**[1] SiteSync Field Commission
- **SWFM**[1,2] SiteSync Field Commission w/ Sensor
- **SWP**[1,4] SiteSync Pre-Commission
- **SWPM**[1,2,4] SiteSync Pre-Comm w/ Sensor

HOUSE SIDE SHIELD ACCESSORIES
- **HSS/VP-S/90-FB/XXX** 90° shield front or back
- **HSS/VP-S/90-LR/XXX** 90° shield left or right
- **HSS/VP-S/180-FB/XXX** 180° shield front or back
- **HSS/VP-S/180-LR/XXX** 180° shield left or right
- **HSS/VP-S/270-FB/XXX** 270° shield front or back
- **HSS/VP-S/270-LR/XXX** 270° shield left or right
- **HSS/VP-S/360/XXX** Full shield

(Replace XXX with notation for desired finish color)
(Refer to page 5 for shield images)

Accessories and Services (Ordered Separately)

Catalog Number	Description
SWUSB*	SiteSync interface software loaded on USB flash drive for use with owner supplied PC (Windows based only). Includes SiteSync license, software and USB radio bridge node.
SWTAB*	Windows tablet and SiteSync interface software. Includes tablet with preloaded software, SiteSync license and USB radio bridge node.
SWBRG+	SiteSync USB radio bridge node only. Order if a replacement is required or if an extra bridge node is requested.

* When ordering SiteSync at least one of these two interface options must be ordered per project.
\+ If needed, an additional Bridge Node can be ordered.

[1] Not available with other wireless control or sensor options
[2] Specify mounting height; 8=8' or less, 40=9' to 40'
[3] Specify routine setting code (example GENI-04). See ENERGENI brochure and instructions for setting table and options. Not available with sensor or SiteSync options.
[4] Specify group and zone at time of order. See www.hubbelllighting.com/sitesync for further details. Order at least one SiteSync interface Accessory SWUSB or SWTAB. Each option contains SiteSync License, GUI, and Bridge Node
[5] Only available with 1A, 2, 3, 4, 4W and 5R distributions
[6] Order at least one SCP-REMOTE per project location to program and control

DesignLights Consortium qualified. Consult DLC website for more details: http://www.designlights.org/QPL

Visit www.beaconproducts.com for up-to-date availability information

BEACON design . performance . technology

LNC4

Large LED Wallpack – Zero Uplight

Largest in the Litepak product family, the LNC4 is designed for perimeter illumination for safety, security and identity. Replaces up to 400w HID luminaires one-for-one replacement covering existing installation footprint. No uplight and lower glare lenses offer neighbor friendly lighting at typical mounting heights of 15-25'. Units have protective polyester powder coat finish for long lasting appearance. Ideal for schools, factories, hospitals, warehouses and retail applications. Energy efficient LEDs provide 70%+ energy savings with little to no maintenance when compared to traditional light sources.

Die-cast aluminum housing protects components and provides an architectural appearance. Casting thermally conducts LED heat to optimize performance and long life.

- 120-277, 347 and 480 voltage, 50/60Hz, 0-10V dimming driver
- Electronic driver
- Surge protection – 10KA
- 3000K, 4000K and 5000K CCT nominal with 70 CRI
- 36 and 44 LED configurations available
- Zero uplight distributions using individual acrylic LED optics provide IES type II, III and IV distributions
- Features long-life with L96 of 25,000 hours (Projected per IESNA TM-21-11)
- Optional frosted acrylic diffuser for reduced glare or inverted up mounting
- DesignLights Consortium® (DLC) qualified. Please refer to the DLC website for specific product qualifications at www.designlights.org

*3000K and warmer CCTs only

STOCK ORDERING INFORMATION

Catalog Number	Description	Distribution	Wattage	Lumens	LPW	Voltage	# of Drivers @ Drive Current	Wgt lbs. (Kg)	PKG. CODE
LNC4-36L-4K	36 LED Configuration, 4000K, Dark Bronze	Type IV	124.6	10,754	86.3	120-277	2 @ 1050mA	27.0 (12.2)	FCC
LNC4-44L-4K	44 LED Configuration, 4000K, Dark Bronze		152.6	13,477	88.3			27.0 (12.2)	FCC
LNC4-44L-5K	44 LED Configuration, 5000K, Dark Bronze		152.1	13,342	87.7			27.0 (12.2)	FCC
LNC4-44L-4K-7PR	44 LED Configuration, 4000K, Dark Bronze, 7 Pin		152.6	13,477	88.3			27.0 (12.2)	FCC
LNC4-44L-4K-SCP	44 LED Config., 4000K, Dark Bronze, Occ. Sensor		152.6	13,477	88.3			27.0 (12.2)	FCC

MADE-TO-ORDER ORDERING INFORMATION - CONFIGURABLE (SEE SPEC SHEET FOR PERFORMANCE INFORMATION AND DETAILS)

LNC4 - 44L - 4K - 1050 - 4 - U - DB - PCU - CS

FAMILY
- LNC4 Large Litepak Wallpack

NUMBER OF LEDS
- 36L 36LED
- 44L 44LED

CCT
- 3K 3000K
- 4K 4000K
- 5K 5000K

DRIVE CURRENT
- 035 350mA
- 065 650mA
- 1050 1050mA

IES DISTRIBUTION
- 2 Type II
- 3 Type III
- 4 Type IV

VOLTAGE
- U 120V-277V
- 1 120V[1]
- 2 208V[1]
- 3 240V[1]
- 4 277V[1]
- 5 480V[1]
- F 347V[1]

FINISH
- DB Bronze
- BL Black
- WH White
- GR Gray
- PS Platinum
- FG Forest Green
- RD Red
- CC Custom Color

CONTROL OPTIONS
- PCU Universal Button PC
- 7PR[5] NEMA 7-Pin twistlock receptacle
- SCP[3,4] Programmable occupancy sensor
- SWP[1,7] SiteSync wireless pre-commisioned
- SWPM[1,4,7,8] SiteSync wireless pre-commisioned w/ occupancy sensor

SPEC SCP/SCO & SWPM MOUNT HEIGHT
- -8F Up to 8ft mount height
- -20F Up to 20ft mount height

OPTIONS
- F[1] Fusing (must specify voltage per footnote)
- CS Frosted acrylic diffuser
- CSU[2] Frosted acrylic diffuser required for inverted fixture installations (Factory install only)
- E[1,6] Integral battery backup rated for 0°C.
- EH[1,6] Integral battery backup with heater rated for -30°C.

[1] Must specify voltage (battery backup 120 or 277V only, SiteSync 120, 277 or 347V only)
[2] Factory install only. Not available with SCP or SWPM sensor/control options
[3] Must order minimum of one remote control to program dimming settings, 0-10V fully adjustable dimming with automatic daylight calibration and different time delay settings, 120-277V only.
[4] PC option not applicable, included in sensor. Must specify sensor height (8F = up to 8ft, 20F = up to 20ft)
[5] Accepts standard 3, 5, and 7-Pin ANSI controls (by others). Not available with PCU, SWP or SWPM control options
[6] 36L-650mA version only. Not available with SWP or SWPM control options.
[7] Must specify group and zone information at time or order. See www.hubbelllighting.com/products/sitesync for further details.
[8] Specify time delay; dimming level and mounting height

CATALOG NUMBER	DESCRIPTION
LNC4-CS	Frosted acrylic diffuser reduces surface brightness and glare with a roughly 20% lumen reduction
SCP-REMOTE2*	Remote control for SCP option. Order at least one per project to program and control
SWUSB**	SiteSync interface software loaded on USB flash drive for use with owner supplied PC (Windows based only). Includes SiteSync license, software and USB radio bridge node.
SWTAB**	Windows tablet and SiteSync interface software. Includes tablet with preloaded software, SiteSync license and USB radio bridge node.
SWBRG+	SiteSync USB radio bridge node only. Order if a replacement is required or if an extra bridge node is requested.

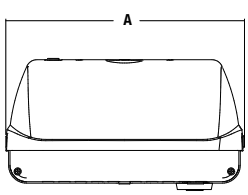
* Must order minimum of one remote control to program dimming settings, 0-10V fully adjustable dimming with automatic daylight calibration and different time delay settings, 120V or 277V only
** When ordering SiteSync at least one of these two interface options must be ordered per project.
+ If needed, an additional Bridge Node can be ordered.

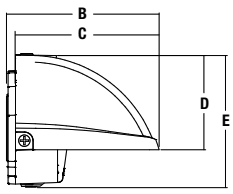

WITHOUT DIFFUSER


WITH DIFFUSER

DIMENSIONS

A	B	C	D	E	Weight
17.2"	10.5"	9.9"	6.5"	8.9"	27 lbs.
436 mm	266 mm	251 mm	165 mm	226 mm	12.3 kg





HUBBELL Outdoor Lighting

PLYMOUTH REIT
56 MILLIKEN STREET, PORTLAND, MAINE

TAB 7 - CONSTRUCTION MANAGEMENT PLAN NARRATIVE

Construction Management Principles

This Construction Management Plan depicts the overall planning, coordination and control of construction activities related to the new 72,000 square foot warehouse facility and related site construction located at 56 Milliken Street in Portland, Maine. The goal of this Construction Management Plan is to support a safe construction site and protect public safety. Impacts of the proposed construction activities shall be minimized in their duration and magnitude to the surrounding area.

Development Review of Construction Management Plan

This Construction Management Plan shall be reviewed and approved by the City of Portland Planning Authority and the Portland Department of Public Works.

Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits

Prior to the start of construction, the contractor and the applicant shall provide the City of Portland performance guarantees as stated in the Planning Authority approval and shall meet the requirements of Section 15-530, Development Review Fees and Post Approval Requirements and Section 14-532, General Requirements and Enforcement of Portland's Land Use Code.

A preconstruction meeting shall be coordinated by the contractor with the City of Portland staff to review this Construction Management Plan, approval requirements and to establish communication contacts for the contractor and the owner.

Contractor shall obtain a Street Opening Permit from the City of Portland prior to the start of any construction in Riverside Industrial Parkway or Milliken Street.

Blasting is not anticipated for this site and building construction. If ledge is encountered during construction and blasting is necessary, then the contractor shall prepare a blasting plan in accordance with the City of Portland Technical Manual and applicable State and Federal regulations.

Contractor shall employ the best practices, as applicable, of Chapter 33 Safeguards during Construction, from the 2009 International Building Code.

Construction Schedule

Contractor shall submit a construction schedule to the City of Portland at the preconstruction meeting. Hours of construction shall occur in Monday through Friday between 7:00 am and 7:00 pm. If a construction activity is required to be conducted outside these hours, then the contractor shall notify the City and provide a written explanation of the activity and state the reasons for work

outside the allowable window. The contractor shall receive written approval from the City prior to construction activities outside the allowable window. Exception shall be made for an emergency activity necessary by an unforeseen event.

Contractor to submit a Fire Safety Program at the preconstruction meeting. The Fire Safety Program shall include:

- Good Housekeeping
- On-site security
- Installation of new fire protection systems as construction progresses
- Preservation of existing systems during demolition
- Organization and training of an on-site fire brigade
- Development of a pre-fire plan with the local fire department
- Rapid communication
- Protection of existing structures and equipment from exposure fires resulting from construction, alteration, and demolition operations

Contractor shall provide temporary lighting where necessary. Temporary lighting shall be full cut-off fixtures.

Security and Public Safety

Refer to the Construction Management Site Plan for temporary construction fencing to separate pedestrian and vehicle circulation form the construction site.

Construction Permitting and Traffic Control

Construction Activity in Public Streets: Construction activity in the public right-of- way is controlled by Chapter 25 Article VII of the City Code of Ordinances. Required licenses and permits, restrictions on activity, and fees & area are outlined in that Chapter. Rules and Regulations for Excavation Activity are available through the Street Opening Clerk at the Department of Public Works. At no time can construction activity including delivery vehicles close or block streets or affect public safety access without prior notice and approval of the Department of Public Works.

Construction traffic shall be restricted to the new access driveway during construction. Contractor to maintain adequate access during construction for emergency vehicles to the site.

Site Management Controls

Contractor to implement Site Management Controls as outlined below:

1. Regular trash and debris removal at the end of each work day. Contractor shall not allow construction debris to migrate from the site into neighboring sites or onto public ways.
2. Contractor shall maintain a construction entrance/exist for all construction vehicles and shall provide street sweeping on adjacent public ways.
3. Dust controls- The construction shall comply with Portland's requirements under Section 25-129 on Noise, dust and debris
4. Noise: The construction shall comply with Portland's requirements under Section 17- 18 of the City Code and Section 25-129 on Noise, dust and debris.
5. Rodent Control will be provided, if applicable, by a professional exterminator and consistent with Chapter 22 of the City Code.

6. Snow Removal: Pursuant to Section 25-173 Contractors to ensure a safe means of travel within the work zone.

Erosion Control and Preservation of Trees

Contractor shall install all erosion and sedimentation controls as depicted on the approved erosion and sedimentation control plan prior to the pre-construction meeting for inspection by the City. The contractor shall regularly inspect the control measures, no less than weekly and after significant storm events, and maintain any installed temporary or permanent stormwater management systems in working order. The contractor shall document all inspection activities and corrective actions and be prepared to provide these documents for inspection by the City, Maine Department of Environmental Protection or the U.S. Environmental Protection Agency upon request.

Contractor shall maintain all tree and landscaping preservation measures as depicted on the site plan within the area of construction.

The storage of materials shall not be located under/near trees.

Construction Staging Area

Construction staging shall be the area in front of the proposed building as shown on the Construction Management Site Plan. All construction deliveries shall be by the new access drive from Riverside Industrial Parkway. Contractor shall Identify any offsite staging, storage or delivery truck holding areas at the preconstruction meeting.

Parking During Construction

Parking of construction vehicles and construction employee shall be located on site as shown on the Construction Management Site Plan.

Special Measures as Necessary

No special measures are foreseen at this time.