



March 6, 2015

Ms. Helen Donaldson
City of Portland Planning Division
389 Congress Street
Portland, Maine 04101

**RE: Response to City Staff Review Comments
Final Site Plan Application
Hotel Redevelopment
1210 Brighton Avenue
Portland, Maine**

Dear Nell,

We have reviewed the City staff comments provided for the Preliminary Site Plan Application. Please find our responses to the comments below in *italics*.

Traffic Comments Provided by Tom Errico:

WEA met with Tom Errico and Nell Donaldson to discuss the traffic review comments provided by Mr. Errico. At the end of the meeting, WEA understands that the following outstanding items needed to be addressed.

1. Mr. Errico asked that WEA consider alternative options to alleviate his concerns regarding the Denny's parking spaces along the entrance drive.

The plan has been revised to remove 11 spaces in front of the Denny's building along the access drive. The ADA parking spaces have been moved to the southeast corner of the building and 11 additional spaces were added for use by the Denny's customers. The area where the spaces were removed will be curbed and landscaped.

A revised project data sheet is included with this submission to reflect the changes in proposed impervious area.

2. Mr. Errico asked that WEA consider alternative options for the southwest parking bay.

WEA discussed the option of providing parking spaces along the access drive with the Applicant, but the Applicant requests that we keep the southwest parking bay to keep parking spaces separated from the adjacent current and potential future businesses. It should be noted that this parking bay has been reduced from 20 spaces to 12 spaces due to the reconfiguration of the Denny's parking layout.

3. The request for a waiver from the Section 14-526(a)3 has been denied. The planning staff requests that a bus shelter be provided.

WEA attempted to contact METRO to discuss the location of the bus shelter, but METRO has not been responsive. We have shown the bus shelter adjacent to the Denny's portion of the site west of the site entrance.

4. Mr. Errico requested that potential future access to lot A-8 be shown conceptually on the plan.

The conceptual location of the potential future connection to lot A-8 has been added to the plan.

5. Ms. Donaldson requested additional documentation of the need for the proposed number of parking spaces.

The number of proposed parking spaces for the Hotel has been reduced to 107 parking spaces. WEA has studied the parking requirements and in our opinion believes the spaces are required for the following reasons:

- *The parking requirement of the ordinance for the location of this hotel is not practical. The location of the hotel will require patrons to drive. It is much different than a downtown hotel where other parking options may be available. It is anticipated that the patrons of the hotel will come from the nearby Maine Turnpike exit.*
- *The potential brands of the hotel require 1 space per hotel room plus meeting space. We have attached a copy of the specifications for a possible hotel brand.*
- *Parking is required for the staff of the hotel. It is our opinion that the staff parking and meeting space parking will be shared.*

The calculation for the parking is as follows:

- *The hotel will require approximately five to eight staff members present at any given time. Therefore, five parking spaces would be required for staff purposes.*
- *The meeting room capacity is 21 people.*

Parking Demand Summary:

<i>Hotel Guests</i>	<i>86 Spaces</i>
<i>Hotel Meetings:</i>	<i>16 Spaces</i>
<i>Hotel Employees:</i>	<i><u>5 Spaces</u></i>
<i>Total Spaces:</i>	<i>107 Spaces</i>

Having worked with the proposed hotel brand previously, the Applicant understands that if adequate parking spaces are not provided per the brand standards, the hotel chain will not support the project.

6. Has tractor trailer parking been considered?

The applicant does not want to provide tractor trailer parking.

Department of Public Services Comments Provided by Dave Margolis-Pineo

1. It is required that the survey plan be stamped.

A stamped survey plan is included with this submission.

2. The applicant shall supply and easement for the riprap swale areas on City property discharging stormwater across the existing Portland Pipeline easement.

The plan has been revised to indicate that a construction and drainage easement shall be obtained from the City of Portland for the area associated with the riprap swales.

Peer Review Comments Provided by David Senus (Woodard & Curran):

1. A written erosion and sediment control plan and/or detailed erosion and sediment control notes should be prepared and submitted for review.

Detailed erosion and sediment control notes have been added to sheet C4.6 of the plan set.

2. A stormwater outfall proposed on the southern portion of the site (AP#2 on sheet D2.0) discharges to an existing swale within a CMP easement. The Applicant proposes a riprap apron at the pipe outlet, and Walsh Engineering Associates has stated that they will review the condition of the existing pipe outlet and swale when the snow has melted to determine if additional stabilization will be required. We recommend that Site Plan approval include a condition requiring that the Applicant's engineer inspect the stormwater outfall AP#2 on Sheet D2.0 and provide a written description and photographs of this outlet, along with any additional proposed stabilization measures for review and approval by the City.

WEA will assess and document the condition of the outfall location once the snow has melted and will provide design details to the city for any required stabilization measures.

3. The Applicant has noted that they expect to receive a letter from the City of Westbrook acknowledging the ability to serve the project's wastewater, and will forward to the City of Portland upon receipt.

WEA has obtained a preliminary Ability to Serve letter from the City of Westbrook. As discussed with Ms. Donaldson, the City of Westbrook requests a formal interlocal agreement be approved prior to issuance of a building permit. WEA requests that the approved interlocal agreement be provided as a condition of approval.

Landscaping Comments Provided by Jeff Tarling:

1. Plant List Key & landscape plan identification - A list of actual plant types and locations would be a requirement for approval. With the exception of 'Ash' varieties which we strongly discourage due to eminent threat of 'Emerald Ash Borer' decline, the plant types suggestion are acceptable. It is important to have a landscape plan with key that shows the actual tree and plant types to a specific location on the plan.

A plant list has been provided on sheet L1.0 of this submission.

2. Parking lot tree & landscape standards - all parking lot locations would need to meet city standards pertaining to the number of trees / shrubs to vehicle spaces. The top left parking lot does not appear to meet the standard on the Pike side of the lot (3 additional trees suggested) and the main parking lot does not appear to meet the standard along the Brighton Avenue side (and the parking lot along the Maine Turnpike does not show adequate tree spacing, likely 6 more shade trees are needed in this location).

The plan has been revised accordingly.

3. Entrance island near proposed hotel sign shows one tree and six shrubs along with 'plant bed by owner', this area is an important landscape feature or element to help incoming and exiting traffic with wayfinding. Recommendations would be to enhance this area with landscape features that could include adding a slight mound or contour, additional landscape planting to better incorporate the proposed landscape bed with what is shown on the plan.

The plan has been revised to show slight mounds in the landscaped areas on both the east and west sides of the entrance drive. Additional plantings have been provided.

4. Brighton Avenue / Maine Turnpike corner - "Tree Save" / Buffer needed, unknown how much of the existing vegetation will be saved with the installation of the swales in this area. If removed, the area will need more than the proposed three trees to buffer this area. Five to seven evergreens would likely be needed to match the existing vegetated area.

Very limited, if any, tree removal is anticipated in this area. A note has been added to the plan stating that if significant tree removal or damage occurs other than what is shown on the plan, additional plantings shall be required by the City arborist.

Fire Department Comments Provided by Craig Messinger

1. Please add the following Conditions
 - a. Private hydrants shall be maintained clear of snow during the winter months.
 - b. Private hydrants shall be painted as follows:
 - i. Bonnet: Gray
 - ii. Caps: Silver
 - iii. Barrel: Red

Fire hydrant notes have been added to sheet C2.0 indicating the information above.

Stormwater Revisions:

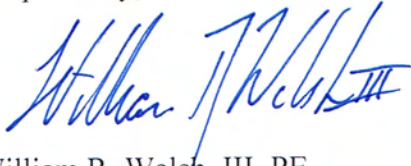
Impervious areas were modified based on the revisions described above. The total proposed impervious area for the site (including the Denny’s lot) is now 101,820 square feet. This results in a net reduction of 16,133 square feet of impervious from the existing condition area across the site. Drainage patterns were slightly modified from the original submission; therefore, revised stormwater calculations are included with this submission. The table below shows that flow rates at each analysis point are maintained at or below predevelopment conditions for the 2, 10, and 25-year storm events. Associated HdrcAD calculations are included with this submission as well.

Peak Flow Rate Comparison Table			
Subcatchment 1	Storm Event		
	2 Year	10 Year	25 Year
Pre Development	3.1	4.8	5.7
Post Development	2.8	4.7	5.6
Subcatchment 2	Storm Event		
	2 Year	10 Year	25 Year
Pre Development	2.8	5.0	6.1
Post Development	2.6	4.8	5.9
Subcatchment 3	Storm Event		
	2 Year	10 Year	25 Year
Pre Development	1.7	2.8	3.4
Post Development	1.1	2.1	2.6
Subcatchment 4	Storm Event		
	2 Year	10 Year	25 Year
Pre Development	0.5	0.8	1.0
Post Development	0.5	0.8	1.0
Subcatchment 5	Storm Event		
	2 Year	10 Year	25 Year
Pre Development	0.5	0.8	1.0
Post Development	0.5	0.8	1.0
All units are in cubic feet per second (csf)			

A revised plan set and supporting information is enclosed. We trust we have provided the necessary information to complete your review and respectfully request that the project be placed on the next available Planning Board agenda.

Please call me at 207-553-9898 should you require any additional information.

Respectfully,

A handwritten signature in blue ink, appearing to read "William R. Walsh, III". The signature is fluid and cursive, with the last name "Walsh" being the most prominent part.

William R. Walsh, III, PE
Walsh Engineering Associates, Inc.

- cc. Kam Patel, Portland Hotels, Inc. (Applicant)
- enc. Revised Plan Set, Rev. 4 (1 full size, 1 reduced size)
Revised Project Data sheet
Hotel Brand Parking Requirements
City of Westbrook Wastewater – Ability to Serve Letter
Revised HydroCAD Stormwater Calculations

PROJECT DATA

The following information is required where applicable, in order to complete the application.

	Lot A-1 (Hotel)	Lot A-9 (Denny's)	Total
Total Area of Site	126,105± s.f.	28,909± s.f.	155,014 s.f.
Proposed Total Disturbed Area of the Site	120,700± s.f.	2,856± s.f.	123,556± s.f.
If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with DEP and a Stormwater Management Permit, Chapter 500, with the City of Portland.			
Impervious Surface Area			
Impervious Area (Total Existing)	93,655± s.f.	24,298± s.f.	117,953± s.f.
Impervious Area (Total Proposed)	79,092± s.f.	22,728± s.f.	101,820± s.f.
Building Ground Floor Area and Total Floor Area			
Building Footprint (Total Existing)	22,160± s.f.	3,665± s.f.	25,825± s.f.
Building Footprint (Total Proposed)	16,202± s.f.	3,665± s.f.	19,867± s.f.
Building Floor Area (Total Existing)	44,320± s.f.	3,500± s.f.	47,820± s.f.
Building Floor Area (Total Proposed)	56,232± s.f.	3,500± s.f.	59,732± s.f.
Zoning			
Existing	B-4		
Proposed, if applicable	No Change		
Land Use			
Existing	Motel	Restaurant	
Proposed	Hotel	No Change	
Residential, If applicable			
Not Applicable			
# of Residential Units (Total Existing)			
# of Residential Units (Total Proposed)			
# of Lots (Total Proposed)			
# of Affordable Housing Units (Total Proposed)			
Proposed Bedroom Mix			
Not Applicable			
# of Efficiency Units (Total Proposed)			
# of One-Bedroom Units (Total Proposed)			
# of Two-Bedroom Units (Total Proposed)			
# of Three-Bedroom Units (Total Proposed)			
Parking Spaces			
# of Parking Spaces (Total Existing)	114	43	157
# of Parking Spaces (Total Proposed)	113	43	156
# of Handicapped Spaces (Total Proposed)	6	4	10
Bicycle Parking Spaces			
# of Bicycle Spaces (Total Existing)	0	0	0
# of Bicycle Spaces (Total Proposed)	6	0	6
Estimated Cost of Project	\$5,300,000±		

- A. A porte cochere is required. Refer to the prototype drawings.
- B. The width of the drive aisle must be at least 24'-0"/7.32 m.
- C. Porte cochere height clearance must not be less than 12'-6"/3.8 m. The Hometown prototype must not be less than 10'-0"/3.05 m.
- D. Not applicable to this Brand
- E. The area under the porte cochere must be a decorative non-slip surface such as brick, stone, tile pavers or stamped concrete. Painted finishes are not permitted. Hand troweled, scored concrete, floated concrete or asphalt is not allowed.
- F. Porte cochere support columns and other features at the building entry that are susceptible to damage by car doors, luggage carts, etc., must be finished with a high-quality, hard-durable material. Exterior insulation and finish system (EIFS), if used in these areas, must be designed to resist impact.
- G. Entrance drive paving must be flush with the sidewalk at hotel entrance to facilitate the movement of luggage carts and for easy access into the hotel.
- H. Not applicable to this Brand
- I. Provide soffit venting to avoid moisture/condensation problems.
- J. Provide decorative or recessed lighting at the porte cochere and any secondary entrances.
- K. Provide GFCI/ELCB protected exterior outlets adjacent to entry porte cochere and primary entrances.
- L. Refer to Section 2514.08 for minimum light level requirements.

2501.06 Parking

- A. Not applicable to this Brand
- B. Not applicable to this Brand
- C. Not applicable to this Brand
- D. Not applicable to this Brand
- E. Refer to Section 2514.08 for minimum light level requirements.
- F. Surface Parking
 - 1. The parking area must accommodate a minimum of one space for each guestroom. Additional spaces may be required contingent on local code requirements, employee parking requirements, and meeting room needs.
 - 2. Not applicable to this Brand
 - 3. Provide wheelstops where car overhang has the potential of damaging light poles, landscaping or other objects.
 - 4. Parking and drive areas must be concrete (slab or pavers), sealed asphalt or coated macadam.



City of Westbrook
DEPARTMENT OF ENGINEERING & CODE ENFORCEMENT

Eric S. Dudley, P.E.
Director

2 York Street

Westbrook, Maine 04092

(207) 854-0638

Fax: (207) 854-0635

February 25, 2015

Mr. Silas Canavan, PE
Walsh Engineering Associates, Inc
One Karen Drive, Suite 2A
Westbrook, ME 04092

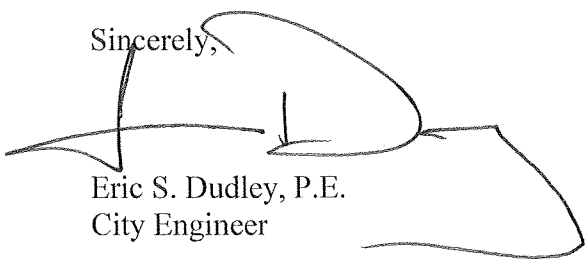
RE: 1210 Brighton Avenue, Portland – Ability-to-Serve Wastewater

Dear Mr. Canavan:

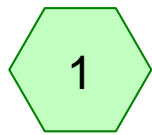
The City of Westbrook understands that the owner of 1210 Brighton Avenue in Portland, Maine is interested in redeveloping the property with a new hotel. The proposed hotel has 49 fewer rooms than the existing facility; therefore, the City of Westbrook has adequate capacity to service the proposed project with sanitary sewer. In researching the project, I have found that the City does not have an interlocal agreement with the City of Portland for wastewater to come from this property into Westbrook. This will need to be resolved prior to the issuance of a building permit for the project.

If you have any questions regarding this matter, please contact me at 854-9105 ext. 1222.

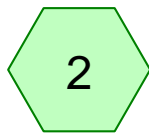
Sincerely,



Eric S. Dudley, P.E.
City Engineer



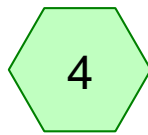
Pre



Pre



Pre



Pre



Pre



Post



Post



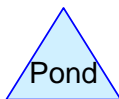
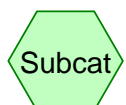
Post



Post



Post



Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.368	39	>75% Grass cover, Good, HSG A (2, 2.0, 3, 3.0, 4, 4.0, 5, 5.0)
1.602	74	>75% Grass cover, Good, HSG C (1, 1.0, 2, 2.0, 3, 3.0, 5.0)
5.044	98	Paved parking, HSG A (1, 1.0, 2, 2.0, 3, 3.0, 4, 4.0, 5, 5.0)
7.015		TOTAL AREA

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

Subcatchment 1: Pre	Runoff Area=47,235 sf 90.65% Impervious Runoff Depth>2.41" Tc=5.0 min CN=96 Runoff=3.05 cfs 0.218 af
Subcatchment 1.0: Post	Runoff Area=48,869 sf 74.64% Impervious Runoff Depth>2.04" Tc=5.0 min CN=92 Runoff=2.80 cfs 0.190 af
Subcatchment 2: Pre	Runoff Area=58,672 sf 60.98% Impervious Runoff Depth>1.63" Tc=5.0 min CN=87 Runoff=2.75 cfs 0.182 af
Subcatchment 2.0: Post	Runoff Area=57,575 sf 57.49% Impervious Runoff Depth>1.55" Tc=5.0 min CN=86 Runoff=2.58 cfs 0.171 af
Subcatchment 3: Pre	Runoff Area=29,333 sf 80.25% Impervious Runoff Depth>2.04" Tc=5.0 min CN=92 Runoff=1.68 cfs 0.114 af
Subcatchment 3.0: Post	Runoff Area=26,738 sf 62.27% Impervious Runoff Depth>1.41" Tc=5.0 min CN=84 Runoff=1.09 cfs 0.072 af
Subcatchment 4: Pre	Runoff Area=8,526 sf 91.51% Impervious Runoff Depth>2.13" Tc=5.0 min CN=93 Runoff=0.51 cfs 0.035 af
Subcatchment 4.0: Post	Runoff Area=9,193 sf 84.54% Impervious Runoff Depth>1.78" Tc=5.0 min CN=89 Runoff=0.47 cfs 0.031 af
Subcatchment 5: Pre	Runoff Area=9,016 sf 88.41% Impervious Runoff Depth>1.95" Tc=5.0 min CN=91 Runoff=0.50 cfs 0.034 af
Subcatchment 5.0: Post	Runoff Area=10,408 sf 75.19% Impervious Runoff Depth>1.48" Tc=5.0 min CN=85 Runoff=0.45 cfs 0.029 af

Total Runoff Area = 7.015 ac Runoff Volume = 1.077 af Average Runoff Depth = 1.84"
28.09% Pervious = 1.970 ac 71.91% Impervious = 5.044 ac

Summary for Subcatchment 1: Pre

Runoff = 3.05 cfs @ 12.07 hrs, Volume= 0.218 af, Depth> 2.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.00"

Area (sf)	CN	Description
42,820	98	Paved parking, HSG A
4,415	74	>75% Grass cover, Good, HSG C
47,235	96	Weighted Average
4,415		9.35% Pervious Area
42,820		90.65% Impervious Area

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

Summary for Subcatchment 1.0: Post

Runoff = 2.80 cfs @ 12.07 hrs, Volume= 0.190 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.00"

Area (sf)	CN	Description
36,475	98	Paved parking, HSG A
12,394	74	>75% Grass cover, Good, HSG C
48,869	92	Weighted Average
12,394		25.36% Pervious Area
36,475		74.64% Impervious Area

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

Summary for Subcatchment 2: Pre

Runoff = 2.75 cfs @ 12.08 hrs, Volume= 0.182 af, Depth> 1.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.00"

Area (sf)	CN	Description
35,779	98	Paved parking, HSG A
20,252	74	>75% Grass cover, Good, HSG C
2,641	39	>75% Grass cover, Good, HSG A
58,672	87	Weighted Average
22,893		39.02% Pervious Area
35,779		60.98% Impervious Area

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

Summary for Subcatchment 2.0: Post

Runoff = 2.58 cfs @ 12.08 hrs, Volume= 0.171 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.00"

Area (sf)	CN	Description
33,097	98	Paved parking, HSG A
21,465	74	>75% Grass cover, Good, HSG C
3,013	39	>75% Grass cover, Good, HSG A
57,575	86	Weighted Average
24,478		42.51% Pervious Area
33,097		57.49% Impervious Area

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

Summary for Subcatchment 3: Pre

Runoff = 1.68 cfs @ 12.07 hrs, Volume= 0.114 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.00"

Area (sf)	CN	Description
23,541	98	Paved parking, HSG A
4,661	74	>75% Grass cover, Good, HSG C
1,131	39	>75% Grass cover, Good, HSG A
29,333	92	Weighted Average
5,792		19.75% Pervious Area
23,541		80.25% Impervious Area

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

Summary for Subcatchment 3.0: Post

Runoff = 1.09 cfs @ 12.08 hrs, Volume= 0.072 af, Depth> 1.41"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.00"

Area (sf)	CN	Description
16,650	98	Paved parking, HSG A
6,263	74	>75% Grass cover, Good, HSG C
3,825	39	>75% Grass cover, Good, HSG A
26,738	84	Weighted Average
10,088		37.73% Pervious Area
16,650		62.27% Impervious Area

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

Summary for Subcatchment 4: Pre

Runoff = 0.51 cfs @ 12.07 hrs, Volume= 0.035 af, Depth> 2.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.00"

Area (sf)	CN	Description
7,802	98	Paved parking, HSG A
724	39	>75% Grass cover, Good, HSG A
8,526	93	Weighted Average
724		8.49% Pervious Area
7,802		91.51% Impervious Area

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

Summary for Subcatchment 4.0: Post

Runoff = 0.47 cfs @ 12.08 hrs, Volume= 0.031 af, Depth> 1.78"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.00"

Area (sf)	CN	Description
7,772	98	Paved parking, HSG A
1,421	39	>75% Grass cover, Good, HSG A
9,193	89	Weighted Average
1,421		15.46% Pervious Area
7,772		84.54% Impervious Area

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

Summary for Subcatchment 5: Pre

Runoff = 0.50 cfs @ 12.07 hrs, Volume= 0.034 af, Depth> 1.95"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.00"

Area (sf)	CN	Description
7,971	98	Paved parking, HSG A
1,045	39	>75% Grass cover, Good, HSG A
9,016	91	Weighted Average
1,045		11.59% Pervious Area
7,971		88.41% Impervious Area

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

Summary for Subcatchment 5.0: Post

Runoff = 0.45 cfs @ 12.08 hrs, Volume= 0.029 af, Depth> 1.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-year Rainfall=3.00"

Area (sf)	CN	Description
7,826	98	Paved parking, HSG A
341	74	>75% Grass cover, Good, HSG C
2,241	39	>75% Grass cover, Good, HSG A
10,408	85	Weighted Average
2,582		24.81% Pervious Area
7,826		75.19% Impervious Area

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

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

Subcatchment 1: Pre	Runoff Area=47,235 sf 90.65% Impervious Runoff Depth>3.89" Tc=5.0 min CN=96 Runoff=4.81 cfs 0.351 af
Subcatchment 1.0: Post	Runoff Area=48,869 sf 74.64% Impervious Runoff Depth>3.50" Tc=5.0 min CN=92 Runoff=4.67 cfs 0.327 af
Subcatchment 2: Pre	Runoff Area=58,672 sf 60.98% Impervious Runoff Depth>3.01" Tc=5.0 min CN=87 Runoff=5.00 cfs 0.337 af
Subcatchment 2.0: Post	Runoff Area=57,575 sf 57.49% Impervious Runoff Depth>2.91" Tc=5.0 min CN=86 Runoff=4.77 cfs 0.321 af
Subcatchment 3: Pre	Runoff Area=29,333 sf 80.25% Impervious Runoff Depth>3.50" Tc=5.0 min CN=92 Runoff=2.80 cfs 0.196 af
Subcatchment 3.0: Post	Runoff Area=26,738 sf 62.27% Impervious Runoff Depth>2.73" Tc=5.0 min CN=84 Runoff=2.08 cfs 0.139 af
Subcatchment 4: Pre	Runoff Area=8,526 sf 91.51% Impervious Runoff Depth>3.60" Tc=5.0 min CN=93 Runoff=0.83 cfs 0.059 af
Subcatchment 4.0: Post	Runoff Area=9,193 sf 84.54% Impervious Runoff Depth>3.20" Tc=5.0 min CN=89 Runoff=0.82 cfs 0.056 af
Subcatchment 5: Pre	Runoff Area=9,016 sf 88.41% Impervious Runoff Depth>3.40" Tc=5.0 min CN=91 Runoff=0.84 cfs 0.059 af
Subcatchment 5.0: Post	Runoff Area=10,408 sf 75.19% Impervious Runoff Depth>2.82" Tc=5.0 min CN=85 Runoff=0.84 cfs 0.056 af

Total Runoff Area = 7.015 ac Runoff Volume = 1.901 af Average Runoff Depth = 3.25"
28.09% Pervious = 1.970 ac 71.91% Impervious = 5.044 ac

Summary for Subcatchment 1: Pre

Runoff = 4.81 cfs @ 12.07 hrs, Volume= 0.351 af, Depth> 3.89"

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

Area (sf)	CN	Description
42,820	98	Paved parking, HSG A
4,415	74	>75% Grass cover, Good, HSG C
47,235	96	Weighted Average
4,415		9.35% Pervious Area
42,820		90.65% Impervious Area

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

Summary for Subcatchment 1.0: Post

Runoff = 4.67 cfs @ 12.07 hrs, Volume= 0.327 af, Depth> 3.50"

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

Area (sf)	CN	Description
36,475	98	Paved parking, HSG A
12,394	74	>75% Grass cover, Good, HSG C
48,869	92	Weighted Average
12,394		25.36% Pervious Area
36,475		74.64% Impervious Area

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

Summary for Subcatchment 2: Pre

Runoff = 5.00 cfs @ 12.07 hrs, Volume= 0.337 af, Depth> 3.01"

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

Area (sf)	CN	Description
35,779	98	Paved parking, HSG A
20,252	74	>75% Grass cover, Good, HSG C
2,641	39	>75% Grass cover, Good, HSG A
58,672	87	Weighted Average
22,893		39.02% Pervious Area
35,779		60.98% Impervious Area

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

Summary for Subcatchment 2.0: Post

Runoff = 4.77 cfs @ 12.07 hrs, Volume= 0.321 af, Depth> 2.91"

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

Area (sf)	CN	Description
33,097	98	Paved parking, HSG A
21,465	74	>75% Grass cover, Good, HSG C
3,013	39	>75% Grass cover, Good, HSG A
57,575	86	Weighted Average
24,478		42.51% Pervious Area
33,097		57.49% Impervious Area

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

Summary for Subcatchment 3: Pre

Runoff = 2.80 cfs @ 12.07 hrs, Volume= 0.196 af, Depth> 3.50"

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

Area (sf)	CN	Description
23,541	98	Paved parking, HSG A
4,661	74	>75% Grass cover, Good, HSG C
1,131	39	>75% Grass cover, Good, HSG A
29,333	92	Weighted Average
5,792		19.75% Pervious Area
23,541		80.25% Impervious Area

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

Summary for Subcatchment 3.0: Post

Runoff = 2.08 cfs @ 12.08 hrs, Volume= 0.139 af, Depth> 2.73"

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

Area (sf)	CN	Description
16,650	98	Paved parking, HSG A
6,263	74	>75% Grass cover, Good, HSG C
3,825	39	>75% Grass cover, Good, HSG A
26,738	84	Weighted Average
10,088		37.73% Pervious Area
16,650		62.27% Impervious Area

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

Summary for Subcatchment 4: Pre

Runoff = 0.83 cfs @ 12.07 hrs, Volume= 0.059 af, Depth> 3.60"

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

Area (sf)	CN	Description
7,802	98	Paved parking, HSG A
724	39	>75% Grass cover, Good, HSG A
8,526	93	Weighted Average
724		8.49% Pervious Area
7,802		91.51% Impervious Area

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

Summary for Subcatchment 4.0: Post

Runoff = 0.82 cfs @ 12.07 hrs, Volume= 0.056 af, Depth> 3.20"

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

Area (sf)	CN	Description
7,772	98	Paved parking, HSG A
1,421	39	>75% Grass cover, Good, HSG A
9,193	89	Weighted Average
1,421		15.46% Pervious Area
7,772		84.54% Impervious Area

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

Summary for Subcatchment 5: Pre

Runoff = 0.84 cfs @ 12.07 hrs, Volume= 0.059 af, Depth> 3.40"

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

Area (sf)	CN	Description
7,971	98	Paved parking, HSG A
1,045	39	>75% Grass cover, Good, HSG A
9,016	91	Weighted Average
1,045		11.59% Pervious Area
7,971		88.41% Impervious Area

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

Summary for Subcatchment 5.0: Post

Runoff = 0.84 cfs @ 12.07 hrs, Volume= 0.056 af, Depth> 2.82"

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

Area (sf)	CN	Description
7,826	98	Paved parking, HSG A
341	74	>75% Grass cover, Good, HSG C
2,241	39	>75% Grass cover, Good, HSG A
10,408	85	Weighted Average
2,582		24.81% Pervious Area
7,826		75.19% Impervious Area

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

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

Subcatchment 1: Pre	Runoff Area=47,235 sf 90.65% Impervious Runoff Depth>4.62" Tc=5.0 min CN=96 Runoff=5.69 cfs 0.418 af
Subcatchment 1.0: Post	Runoff Area=48,869 sf 74.64% Impervious Runoff Depth>4.23" Tc=5.0 min CN=92 Runoff=5.60 cfs 0.396 af
Subcatchment 2: Pre	Runoff Area=58,672 sf 60.98% Impervious Runoff Depth>3.72" Tc=5.0 min CN=87 Runoff=6.13 cfs 0.418 af
Subcatchment 2.0: Post	Runoff Area=57,575 sf 57.49% Impervious Runoff Depth>3.62" Tc=5.0 min CN=86 Runoff=5.88 cfs 0.399 af
Subcatchment 3: Pre	Runoff Area=29,333 sf 80.25% Impervious Runoff Depth>4.23" Tc=5.0 min CN=92 Runoff=3.36 cfs 0.238 af
Subcatchment 3.0: Post	Runoff Area=26,738 sf 62.27% Impervious Runoff Depth>3.42" Tc=5.0 min CN=84 Runoff=2.61 cfs 0.175 af
Subcatchment 4: Pre	Runoff Area=8,526 sf 91.51% Impervious Runoff Depth>4.33" Tc=5.0 min CN=93 Runoff=0.99 cfs 0.071 af
Subcatchment 4.0: Post	Runoff Area=9,193 sf 84.54% Impervious Runoff Depth>3.93" Tc=5.0 min CN=89 Runoff=1.00 cfs 0.069 af
Subcatchment 5: Pre	Runoff Area=9,016 sf 88.41% Impervious Runoff Depth>4.13" Tc=5.0 min CN=91 Runoff=1.02 cfs 0.071 af
Subcatchment 5.0: Post	Runoff Area=10,408 sf 75.19% Impervious Runoff Depth>3.52" Tc=5.0 min CN=85 Runoff=1.04 cfs 0.070 af

Total Runoff Area = 7.015 ac Runoff Volume = 2.324 af Average Runoff Depth = 3.98"
28.09% Pervious = 1.970 ac 71.91% Impervious = 5.044 ac

Summary for Subcatchment 1: Pre

Runoff = 5.69 cfs @ 12.07 hrs, Volume= 0.418 af, Depth> 4.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
42,820	98	Paved parking, HSG A
4,415	74	>75% Grass cover, Good, HSG C
47,235	96	Weighted Average
4,415		9.35% Pervious Area
42,820		90.65% Impervious Area

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

Summary for Subcatchment 1.0: Post

Runoff = 5.60 cfs @ 12.07 hrs, Volume= 0.396 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
36,475	98	Paved parking, HSG A
12,394	74	>75% Grass cover, Good, HSG C
48,869	92	Weighted Average
12,394		25.36% Pervious Area
36,475		74.64% Impervious Area

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

Summary for Subcatchment 2: Pre

Runoff = 6.13 cfs @ 12.07 hrs, Volume= 0.418 af, Depth> 3.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
35,779	98	Paved parking, HSG A
20,252	74	>75% Grass cover, Good, HSG C
2,641	39	>75% Grass cover, Good, HSG A
58,672	87	Weighted Average
22,893		39.02% Pervious Area
35,779		60.98% Impervious Area

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

Summary for Subcatchment 2.0: Post

Runoff = 5.88 cfs @ 12.07 hrs, Volume= 0.399 af, Depth> 3.62"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
33,097	98	Paved parking, HSG A
21,465	74	>75% Grass cover, Good, HSG C
3,013	39	>75% Grass cover, Good, HSG A
57,575	86	Weighted Average
24,478		42.51% Pervious Area
33,097		57.49% Impervious Area

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

Summary for Subcatchment 3: Pre

Runoff = 3.36 cfs @ 12.07 hrs, Volume= 0.238 af, Depth> 4.23"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
23,541	98	Paved parking, HSG A
4,661	74	>75% Grass cover, Good, HSG C
1,131	39	>75% Grass cover, Good, HSG A
29,333	92	Weighted Average
5,792		19.75% Pervious Area
23,541		80.25% Impervious Area

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

Summary for Subcatchment 3.0: Post

Runoff = 2.61 cfs @ 12.07 hrs, Volume= 0.175 af, Depth> 3.42"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
16,650	98	Paved parking, HSG A
6,263	74	>75% Grass cover, Good, HSG C
3,825	39	>75% Grass cover, Good, HSG A
26,738	84	Weighted Average
10,088		37.73% Pervious Area
16,650		62.27% Impervious Area

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

Summary for Subcatchment 4: Pre

Runoff = 0.99 cfs @ 12.07 hrs, Volume= 0.071 af, Depth> 4.33"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
7,802	98	Paved parking, HSG A
724	39	>75% Grass cover, Good, HSG A
8,526	93	Weighted Average
724		8.49% Pervious Area
7,802		91.51% Impervious Area

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

Summary for Subcatchment 4.0: Post

Runoff = 1.00 cfs @ 12.07 hrs, Volume= 0.069 af, Depth> 3.93"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
7,772	98	Paved parking, HSG A
1,421	39	>75% Grass cover, Good, HSG A
9,193	89	Weighted Average
1,421		15.46% Pervious Area
7,772		84.54% Impervious Area

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

Summary for Subcatchment 5: Pre

Runoff = 1.02 cfs @ 12.07 hrs, Volume= 0.071 af, Depth> 4.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
7,971	98	Paved parking, HSG A
1,045	39	>75% Grass cover, Good, HSG A
9,016	91	Weighted Average
1,045		11.59% Pervious Area
7,971		88.41% Impervious Area

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

Summary for Subcatchment 5.0: Post

Runoff = 1.04 cfs @ 12.07 hrs, Volume= 0.070 af, Depth> 3.52"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
7,826	98	Paved parking, HSG A
341	74	>75% Grass cover, Good, HSG C
2,241	39	>75% Grass cover, Good, HSG A
10,408	85	Weighted Average
2,582		24.81% Pervious Area
7,826		75.19% Impervious Area

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