



P.O. Box 8816
Portland, ME 04104
Office: 207-221-5746
Fax: 207-221-2822
www.redfernproperties.com

March 30, 2011

City of Portland
Planning Division
Fourth Floor, City Hall
389 Congress Street
Portland, ME 04101

Dear Sir or Madam:

Harborview Development LLC dba Redfern Properties is pleased to submit the attached Level III Preliminary Site Plan Application. The detailed proposal herein contemplates 7 new residential units on an urban infill lot at 121 York Street. As we describe in the application, we believe that the proposal is very consistent with the principles of "smart growth" as outlined in the City's comprehensive plan.

Please do not hesitate to contact me or any of our project consultants (contact information is included in the application) at any time.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jonathan Culley", is written over the typed name.

Jonathan Culley
Redfern Properties LLC
Harborview Development LLC



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PROJECT NAME: Harborview Townhouses

PROPOSED DEVELOPMENT ADDRESS:

121-129 York Street, Portland, ME

PROJECT DESCRIPTION:

Construction of 7 Residential Townhome units

CHART/BLOCK/LOT: 44/A/4 and 5

PRELIMINARY PLAN 03/30/2011 (date)
FINAL PLAN _____ (date)

CONTACT INFORMATION:

Applicant – must be owner, Lessee or Buyer Name: Jonathan Culley Business Name, if applicable: Harborview Development, LLC Address: P.O. Box 8816 City/State: Portland, ME Zip Code: 04104	Applicant Contact Information Work # (207) 221-5746 Home# Cell # (207) 776-9715 Fax# (207)221-2822 e-mail: jonathan@redfernproperties.com
Owner – (if different from Applicant) Name: Applicant Address: City/State : Zip Code:	Owner Contact Information Work # Home# Cell # Fax# e-mail:
Agent/ Representative Name: Applicant Address: City/State : Zip Code:	Agent/Representative Contact information Work # Cell # e-mail:
Billing Information Name: Applicant Address: City/State : Zip Code:	Billing Information Work # Cell # Fax# e-mail:

Engineer Name: Will Savage/Acorn Engineering Address: 154 York St. #2 City/State: Portland, ME Zip Code: 04101	Engineer Contact Information Work # (207)775-2655 Cell # (207)317-1884 Fax# (207)358-7979 wsavage@acornengineering.com e-mail:
Surveyor Name: Robert Greenlaw Address: 134 Portland Ave. Old Orchard Beach, ME City/State: Zip Code:	Surveyor Contact Information Work # Cell # (207)749-9471 Fax# e-mail: bobgreenlaw@myfairpoint.net
Architect Name: Kaplan Thompson Architects Address: 424 Fore St. Portland, ME Zip Code: 04101	Architect Contact Information Work # (207)842-2888 Cell # Fax# (207)842-2828 e-mail: jesse@kaplanthompson.com
Attorney Name: Tom Jewell Address: 477 Congress St., Ste. 1104 Portland, ME City/State: Zip Code:	Attorney Contact Information Work # Cell # Fax# e-mail:

Landscape Architect:

Soren DeNiord work#: (207)400-2450
43 Wellwood Rd.
Portland, ME 04103

APPLICATION SUBMISSION

As of December 1, 2010, all site plans and written application materials must be uploaded to a website for review. At the time of application, instructions for uploading the plans will be provided to the applicant. One paper set of the plans, written materials and application fee must be submitted to the Planning Division Office to start the review process.

Until December 1, 2010, Submissions shall include seven (7) packets with folded plans containing the following materials:


1. **Seven (7) full size site plans** that must be **folded**.
2. Seven (7) copies of all written materials as follows, unless otherwise noted:
 - a. Application form that is completed and signed.
 - b. Cover letter stating the nature of the project.
 - c. All Written Submittals (Sec. 14-525 2. (c), including evidence of right, title and interest.
5. A stamped standard boundary survey prepared by a registered land surveyor at a scale not less than one inch to 100 feet.
6. Plans and maps based upon the boundary survey and containing the information found in the attached sample plan checklist.
7. Copy of the checklist completed for the proposal listing the material contained in the submitted application.
8. One (1) set of plans reduced to 11 x 17.

Refer to the application checklist for a detailed list of submittal requirements.

Portland's development review process and requirements are outlined in the Land Use Code (Chapter 14), which includes the Subdivision Ordinance (Section 14-491) and the Site Plan Ordinance (Section 14-521). Portland's Land Use Code is on the City's web site: www.portlandmaine.gov Copies of the ordinances may be purchased through the Planning Division.

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, if a permit for work described in this application is issued, I certify that the Planning Authority and Code Enforcement's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for a Level III Site Plan review. It is not a permit to begin construction. An approved site plan, a Performance Guarantee, Inspection Fee, Building Permit, and associated fees will be required prior to construction. Other Federal, State or local permits may be required prior to construction, which are the responsibility of the applicant to obtain.

Signature of Applicant:  Jonathan R. Cutley	Date: 3/30/2011
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MAINE REAL ESTATE TAX PAID

WARRANTY DEED
(Maine Statutory Short Form)

KNOW ALL BY THESE PRESENTS, That **HARBORVIEW APTS LLC**, (“Grantor”), of Cumberland Center, Maine, for consideration paid, grants to **HARBORVIEW DEVELOPMENT, LLC**, with a mailing address of P. O. Box 8816, Portland, Maine, 04104, with Warranty Covenants, a certain lot or parcel of land with the brick multi-family residential building thereon, situated on the northerly side of York Street in the City of Portland, County of Cumberland, and State of Maine, and bounded and described as follows:

Beginning at a stone monument marking an angle in said northerly line of York Street, said monument being distant easterly about one hundred sixty-three (163) feet from the easterly side of Park Street; thence westerly by said northerly side of York Street, seventy-five and fifty-three one hundredths (75.53) feet to a point; thence northwesterly on a line parallel with and distance eighteen (18) feet westerly from the most westerly face of the brick block on said lot under description a distance of ninety (90) feet to a point; thence easterly parallel with said northerly side of York Street, seventy-nine and forty-four one hundredths (79.44) feet to a fence and land conveyed by Elias Thomas to Cummings and Brock on August 17, 1866, recorded in the Cumberland County Registry of Deeds in Book 344, Page 431; thence southeasterly by said fence and land formerly of said Cummings and Brock eighty-nine and fifty-two one hundredths (89.52) feet to said northerly side of York Street; thence westerly by said northerly side of York Street three and seventy-three one hundredths (3.73) feet to said stone monument above mentioned and the point of beginning.

Also hereby conveying the following-described lot or parcel of land, located on the northwesterly side of York Street in said City of Portland and County of Cumberland, bounded and described as follows:

Northeasterly by land now or formerly of Mary O’Donnell, Trustees of the Estate of Patrick Keating, M. & S. M. Muller, and Mary A. Bradley; North by land now or formerly of Annie M. Sparrow and on the Southwest by land now or formerly of Katherine M. Deehan and others, Stevens Place, and land now or formerly of L. M. Gerrish and W. H. Stevens and S. E. Brackett; Southeasterly by the line of

York Street; containing fourteen thousand one hundred seventeen (14,117) square feet more or less; said land being sixty (60) feet wide more or less on York Street and being two hundred thirty-five (235) feet more or less deep.

The Premises are conveyed **SUBJECT TO** an easement from Lulu Ferne Nichols to Stephen Benne, III dated March 14, 2002 and recorded in Cumberland County Registry of Deeds in Book 17445, Page 98.


Being a portion of the premises conveyed by Laurence S. Allen, Jr. and Donna F. Allen to Grantor herein by deed dated February 1, 2010, and recorded in the Cumberland County Registry of Deeds, in Book 27577, Page 165.

IN WITNESS WHEREOF, said **HARBORVIEW APTS LLC**, has caused this instrument to be executed by Laurence S. Allen, Jr., its duly authorized Manager, this third day of December, 2010.

Witness:

Harborview Apts LLC, Grantor



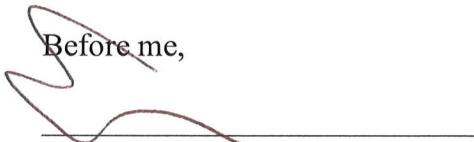
By 
Laurence S. Allen, Jr., its Manager

STATE OF MAINE
COUNTY OF CUMBERLAND, ss.

December 3, 2010

Personally appeared the above-named Laurence S. Allen, Jr., Manager of Harborview Apts LLC, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said Harborview Apts LLC.

Before me,



Notary Public/Attorney at Law

Print:

My Commission Expires:

EVERETT P. INGALLS III
Notary Public, Maine
My Commission Expires 7/5/2014

SEAL

Received
Recorded Register of Deeds
Dec 03, 2010 03:23:53P
Cumberland County
Pamela E. Lovley



HARBORVIEW TOWNHOUSES 127 – 129 YORK ST



APPLICANT:
ARCHITECT:
LANDSCAPE ARCHITECT:
CIVIL ENGINEER:
TRAFFIC ENGINEER:

HARBORVIEW DEVELOPMENT LLC
KAPLAN THOMPSON ARCHITECTS
SOREN DENIORD DESIGN STUDIO
ACORN ENGINEERING
EATON TRAFFIC ENGINEERING

MARCH 28, 2011

424 FORE ST., PORTLAND, ME 04101
P 207-842-2888 F 207-842-2828
WWW.KAPLANTHOMPSON.COM



TO: CITY OF PORTLAND PLANNING AUTHORITY
DATE: MARCH 28, 2011
RE: APPLICATION FOR LEVEL III SITE PLAN REVIEW

Subject: 127 – 129 York St.
Owner Applicant: Harborview Development LLC

Kaplan Thompson Architects has prepared a submission package for a Level III Site Plan Review on behalf of Harborview Development LLC, the current property owner and applicant.

The proposed project is located at 127 – 129 York St (Tax Map 44, Block A, Lots 004 & 005) and currently contains a 12 unit residential structure and gravel parking lot. The project site is located in the Residential Zone (R-6).

The proposed project includes construction of a new building containing seven (7) residential units, totaling 4,160 SF footprint size and a total building area of 12,480 SF. The new building as proposed meets all applicable zoning standards to the best of our understanding, including area, lot coverage and lot setbacks. Utility infrastructure including domestic water service, sanitary sewer service and underground power / telephone / cable, as well as gas, will be extended into the building from York St. The proposed building will be a wood-framed townhouse building which will integrate well into the existing neighborhood of apartments, condominiums and residences of similar construction.

The design of the new building will feature a three-story face towards York St, with a uniform wall height and roof edge and a residential scale, including oriel windows toward the harbor which add variety and visual scale. Materials will include fiber-cement siding with decorative metal accents.

The building will be fully sprinklered, be built to low-energy standards and have high-efficiency heating systems throughout. The building is intended to advance the state of art in sustainable buildings in the Portland area and be built to a high level of LEED certification equivalent.

The site will continue to be accessed off York St, for both pedestrian and vehicular travel. There will be new landscape fencing along York St containing project signage which will hold and improve the existing street edge, while screening parking and trash receptacles from view from York St. Pedestrian access off York St will be available along the edge of the existing building along new landscaped pathways, with bicycle parking accessed off these pathways as well. Parking will meet R-6 standards of one space per dwelling unit.

The existing site is pitched toward York St, and stormwater runoff from the site will remain generally unchanged. Although the percentage of impervious area will increase with the proposed development, we foresee little impact on the site's stormwater regime, given the site's existing conditions. The engineering team will work closely with the Portland Public Works to ensure no negative aspects to the nearby stormwater collection and



conveyance systems. The site will contain less than 20 vehicles at any time, therefore no additional water quality treatment measures are warranted.

Erosion and sediment control measures will be carefully installed and maintained. The project will include a small amount of excavation, and erosion control measures will principally consist of silt fence and temporary stabilization measures to minimize mud and tracking of dirt onto adjacent streets.

The project will include new landscaping along York St. We anticipate there will be minimal change to the York St curb and street conditions. We plan on extending the brick sidewalk and granite curbing as necessary. Additional street trees are planned along York St. We will work closely with the City Arborist on these new street tree plantings and locations.

ZONING ASSESSMENT

1. Property is located in the R-6 Zone
2. Parcel Acreage: 0.49 AC (21,239 SF)

Regulations	<u>Required / Allowed</u>	<u>Provided</u>
Min. Lot Area:	4,500 sf	21,239 sf
Min. Lot Area/Dwelling:	1,000 sf	1,117 sf (21,239 / 19 units)
Min. Lot Width:	50'	60'
Min. Street Frontage:	40'	121.42'
Min. Front Yard Setback:	10' Min.	~130'
Min. Rear Yard Setback:	20' Min.	20'
Min. Side Yard Setbacks:	10' for 1-3 stories	10'
Max. Building Height:	45'	45'
Min. Parking:	1 space/Unit	1 space/unit
Max. Lot Coverage	50% if <20 units	34%
Open Space Ratio:	20% if <20 units	66%
Average Grade:		51.89'

Spot grade for the four corners of the proposed building: +46.87', +46.87', +56.6', +57.2' / 4 = **51.89'**

EASEMENTS OR OTHER BURDENS

Not Applicable

REQUESTS FOR WAIVERS

None at this time.



TRAFFIC ANALYSIS

See accompanying documents.

SIGNIFICANT NATURAL FEATURES

The site contains no unusual natural areas, wildlife or fisheries habitats or archaeological sites, to the best of our knowledge.

CONSISTENCY WITH CITY MASTER PLANS

The City of Portland's Comprehensive Plans lays out the following Policies in order to sustain the City as a healthy urban center in which to live and work. We believe our project helps realize ALL the following Policies, by building a compact, extremely energy efficient, aesthetically compatible and accessible supply of new housing on previously developed land on the Peninsula of Portland.

I. HOUSING: SUSTAINING PORTLAND'S FUTURE – November 18, 2002

Policies

- Encourage growth in Portland that strives for a dynamic balance of the essential elements of the city, such as excellent schools, diverse housing choices, proximity to services and employment, increased public transit usage, expanded economic base, high quality services, and an affordable tax rate.
 - Target Portland to achieve and maintain a 25% share of Cumberland County's population.
 - Integrate Portland's housing and economic development incentives to encourage growth and take advantage of the City's capacity to accommodate more people.
 - Monitor and assess the impacts of growth on the City's infrastructure and adjust policies accordingly.
- Maximize development where public infrastructure and amenities, such as schools, parks, public/alternative transportation, sewer lines, and roads, exist or may be expanded at minimal costs.
- Create new housing to support Portland as an employment center and to achieve an improved balance between jobs and housing.
- Encourage neighborhood business centers throughout the city to reduce dependence on the car and to make neighborhood life without a car more practical.
- Locate and design housing to reduce impacts on environmentally sensitive areas.
- Design housing to use new technologies and materials that reduce costs and increase energy efficiency.

DESIGN STANDARDS

In response to the City of Portland Design Manual, paragraph (i) (points 1-6) :

1) This project is a 7-unit multi-family townhouse structure common to its two-block neighborhood, located and designed so as not to displace the pre-existing, zoning mandated off-street parking or negatively impact stormwater management.



The scale and bulk of the building have been carefully designed to complement and enhance its nearby neighbors. It is a 3-story building with its principal narrow façade facing York Street, with the long, narrow axis along the length of the lot, a common pattern of the neighborhood.

The principal façade has character-defining features common to the neighborhood: flat roof, cornice, bay / oriel windows, and a rhythm and proportion that relates to the neighboring buildings.

The mass of the building is further articulated by shading devices, inset windows, carefully placed rain leaders, bay / oriel windows, and shifting the mass of the building based on unit type (along the long axis). The siding material is a solid panel system, with accents of a contrasting material / color. This is in keeping with its neighbors as well, especially the brick building on the same lot (i.e. no corner boards & a monolithic character)

2/5) The York St street edge is accentuated and maintained by the construction of new large, flanking multi-functional planters that help screen the existing parking lot and garbage collection area, provide a welcoming entrance including signage & lighting, provide additional space for street trees, and tie materially to its neighbors: using masonry, wood and highly durable metal screens.

Visual privacy is provided by elevating the front living units above the adjacent entry and existing parking lot by about 2 feet, and by using fencing that relates materially to the entry planters. Transition spaces are provided by covered entries for each unit as well as level changes and plantings.

Generous open space has been created, even for a dense urban lot, with each new living unit having access to private open space.

3) All private open space areas are to the rear or sides of the building, maintaining the pattern of the neighborhood.

4) All units have generous windows, and sufficient storage.

5) The existing gravel parking lot to be improved with new paving and striping and will be integrated with new walks, fencing and storm water retention strategies. The parking will be better screened and landscaped from adjacent properties and streets.

6) All units will be owner-occupied, and will not be converted to a lodging house.



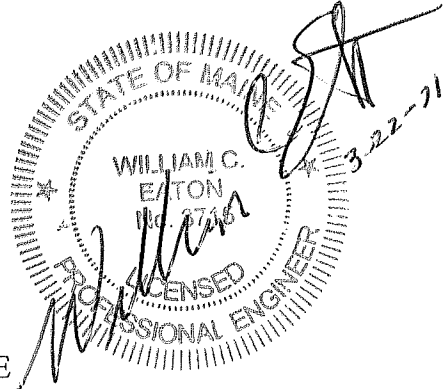
PROJECT DATA

Total Site Area	21,239 SF
Proposed Total Disturbed Area of the Site sq. ft.	~14,000 SF
(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	
• Proposed Total Paved Area	5,550 SF
• Existing Total Impervious Area	8,100 SF
• Proposed Total Impervious Area	14,650 SF
• Proposed Total Impervious Area	
• Proposed Impervious Net Change	6,550 SF
BUILDING AREA	
• Proposed Building Footprint	7,240 SF (4,160 + 3,080)
• Proposed Building Footprint Net change	+4,160 SF
• Existing Total Building Floor Area	11,764 SF
• Proposed Total Building Floor Area	24,244
• Proposed Building Floor Area Net Change	+12,480 SF
• New Building	YES
ZONING	
• Existing	R-6
• Proposed, if applicable	R-6
LAND USE	
• Existing	RESIDENTIAL
• Proposed	RESIDENTIAL
RESIDENTIAL, IF APPLICABLE	
• Proposed Number of Affordable Housing Units	0
• Proposed Number of Residential Units to be Demolished	0
• Existing Number of Residential Units	12
• Proposed Number of Residential Units	19
• Subdivision, Proposed Number of Lots	NA
PARKING SPACES	
• Existing Number of Parking Spaces	12
• Proposed Number of Parking Spaces	19
• Number of Handicapped Parking Spaces	NA
• Proposed Total Parking Spaces	19
BICYCLE PARKING SPACES	
• Existing Number of Bicycle Parking Spaces	0
• Existing Number of Bicycle Parking Spaces	
• Proposed Number of Bicycle Parking Spaces	10
• Total Bicycle Parking Spaces	10
ESTIMATED COST OF PROJECT	



EATON TRAFFIC ENGINEERING
 67 Winter Street Suite 5 • Topsham • Maine • 04086
 Tel 207.725.9805 • Fax 207.373.9400

To: Will Savage, PE, Acorn Engineering
 Fm: William C. Eaton, PE, Eaton Traffic Engineering
 Dt: March 22, 2011
 Re: Trip Generation – 121-129 York Street, Portland, ME



Per your request I have estimated the trip generation associated with the above-noted project. The project will consist of converting 12 existing apartments to condominium units, and constructing a new building which will contain 7 condominium units (total 19 condominium units.) Net new trip generation will be the trip generation associated with 19 condominium units less the existing traffic associated with 12 apartments. Trip generation estimates are based upon data in the publication Trip Generation¹ for land use categories 230 “Condominium/Townhouse”, and 220 “Apartment”. Net trips are summarized in the table below.

Time Period	Condominium (19 Units)	Apartments (12 Units)	Net New Trips
Weekday (Daily)	111	81	30
AM Peak Hour (7-9 AM)	8	6	2
PM Peak Hour (4-6 PM)	10	7	3
AM Peak Hour (Generator)	8	7	1
PM Peak Hour (Generator)	10	8	2
Saturday (Daily)	108	77	31
Saturday (Peak Hour)	9	6	3
Sunday (Daily)	92	70	22
Sunday (Peak Hour)	9	6	3

¹ Institute of Transportation Engineers, 2003

A Traffic Movement Permit is required by the City of Portland if net new trip generation for any peak hour exceeds 100 passenger car equivalents (PCE). The highest net trip generation increase is 3 vehicle trips, thus a Traffic Movement Permit is not required.

I trust the above addresses your needs in this matter. If you have any questions or concerns, please contact me.



P.O. Box 8816
Portland, ME 04104
Office: 207-221-5746
Fax: 207-221-2822
www.redfernproperties.com

April 2, 2011

Dear Neighbor:

Please join us for a neighborhood meeting to discuss our plans to build 7 new townhouse residences located at 121 York Street.

Meeting Location:	Reiche Community Center, 166 Brackett Street
Meeting Date:	Wednesday, April 20
Meeting Time:	7pm

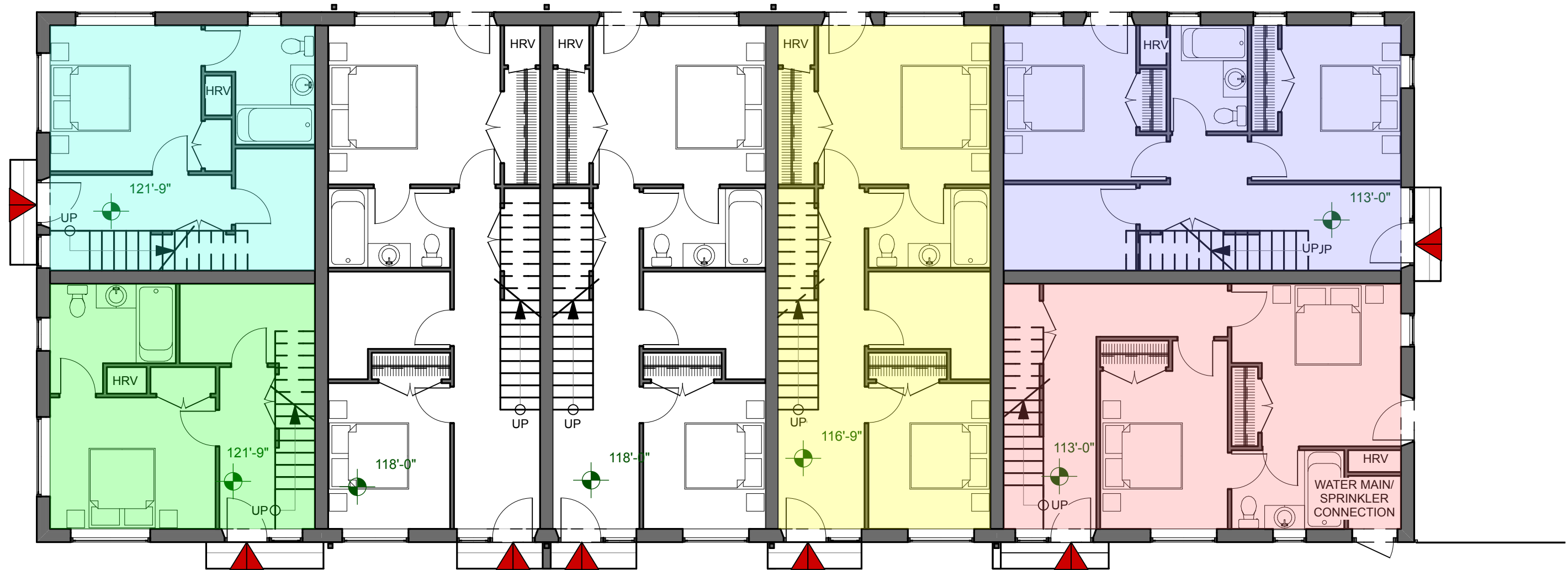
The City Code requires that property owners within 500 feet of the proposed development and residents on an "interested parties list", be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.

If you have any questions, please do not hesitate to call (207-776-9715) or email me (jonathan@redfernproperties.com).

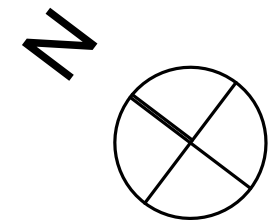
Sincerely,



Jonathan Culley
Redfern Properties LLC
Harborview Development LLC



1 First Floor




KAPLAN THOMPSON
ARCHITECTS
 424 FORE ST., PORTLAND, ME 04101
 207-842-2888 FAX:842-2828

PROJECT:
HARBORVIEW DEVELOPMENT LLC
 DBA REDFERN HOMES LLC
 121 YORK STREET
 PORTLAND, ME

DRAWING: FIRST FLOOR PLAN

SCALE:

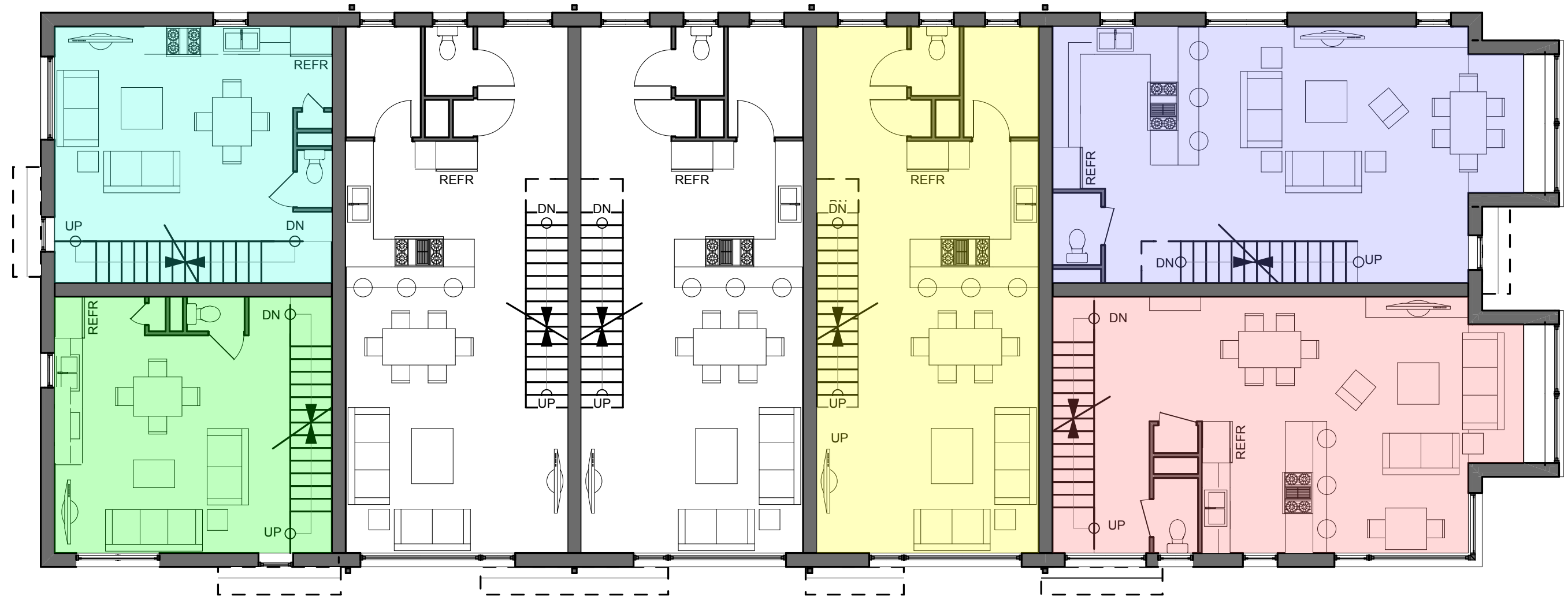
DRAWN BY: JB

DATE: MARCH 30, 2011

REVISED:

PRELIMINARY SITE PLAN

A-1.1



1 Second Floor

KAPLAN THOMPSON
ARCHITECTS
424 FORE ST., PORTLAND, ME 04101
207-842-2888 FAX:842-2828

PROJECT:
HARBORVIEW DEVELOPMENT LLC
DBA REDFERN HOMES LLC
121 YORK STREET
PORTLAND, ME

DRAWING: SECOND FLOOR PLAN

SCALE:

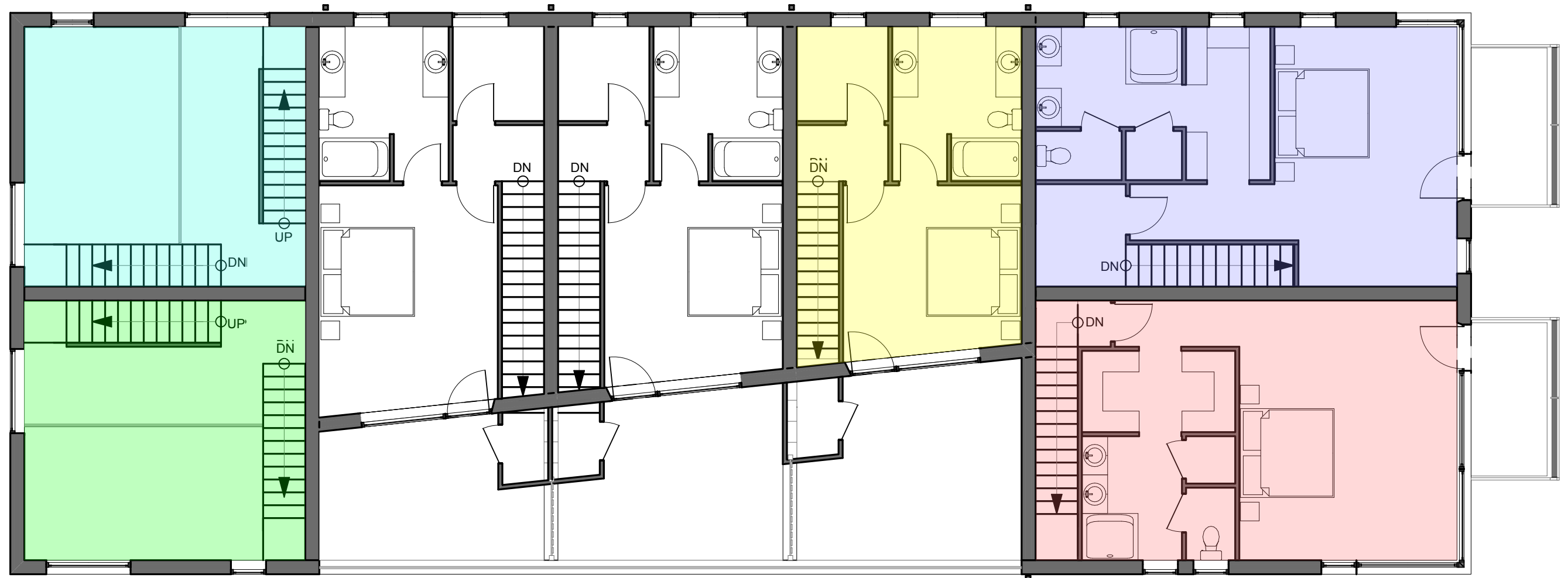
DATE: MARCH 30, 2011

DRAWN BY: JB

REVISED:

PRELIMINARY SITE PLAN

A-1.2



1 Mezzanine/Third Floor

KAPLAN THOMPSON
ARCHITECTS
424 FORE ST., PORTLAND, ME 04101
207-842-2888 FAX:842-2828

PROJECT:
HARBORVIEW DEVELOPMENT LLC
DBA REDFERN HOMES LLC
121 YORK STREET
PORTLAND, ME

DRAWING: MEZZANINE/THIRD FLOOR

SCALE:

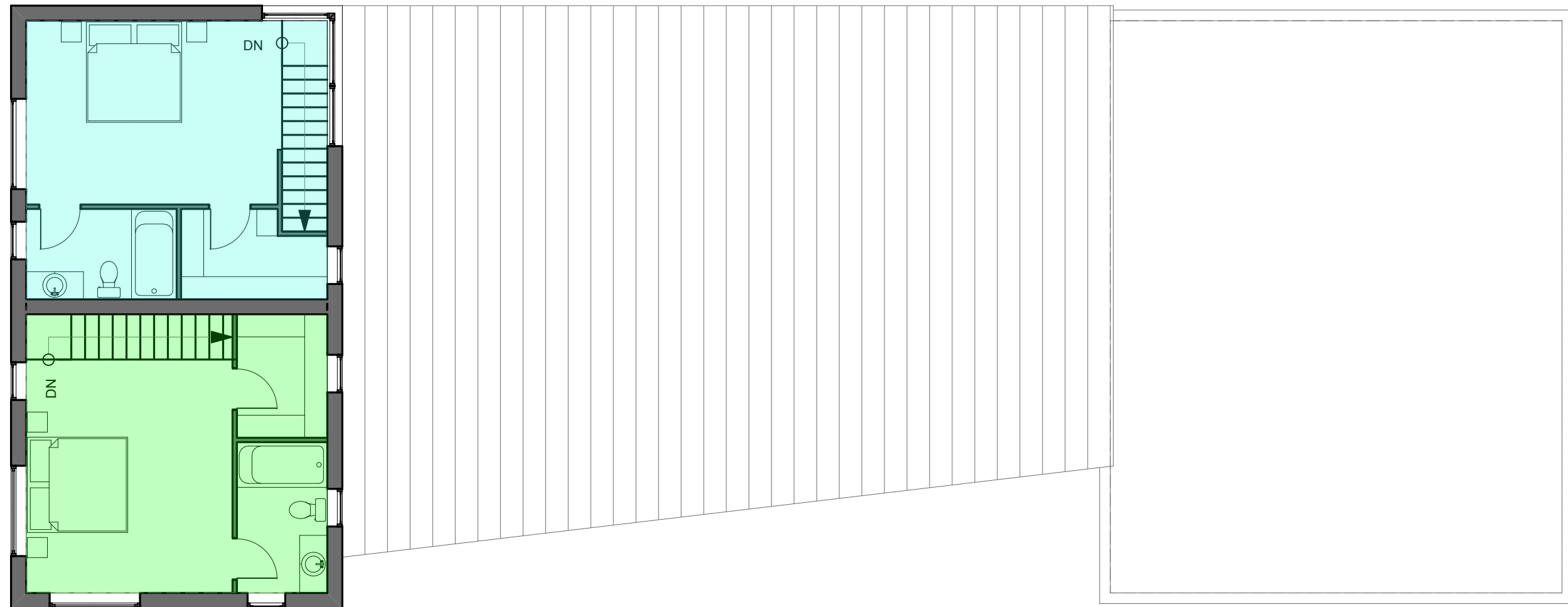
DATE: MARCH 30, 2011

DRAWN BY: JB

REVISED:

PRELIMINARY SITE PLAN

A-1.3



1 Third Floor

KAPLAN THOMPSON
ARCHITECTS
424 FORE ST., PORTLAND, ME 04101
207-842-2888 FAX:842-2828

PROJECT:
HARBORVIEW DEVELOPMENT LLC
DBA REDFERN HOMES LLC
121 YORK STREET
PORTLAND, ME

DRAWING: THIRD FLOOR

SCALE:

DATE: MARCH 30, 2011

DRAWN BY: JB

REVISED:

PRELIMINARY SITE PLAN

A-1.4



1 **SOUTHWEST ELEVATION**


KAPLAN THOMPSON
 ARCHITECTS
 424 FORE ST., PORTLAND, ME 04101
 207-842-2888 FAX:842-2828

PROJECT:
HARBORVIEW DEVELOPMENT LLC
 DBA REDFERN HOMES LLC
 121 YORK STREET
 PORTLAND, ME

DRAWING: SOUTHWEST ELEVATION

SCALE:

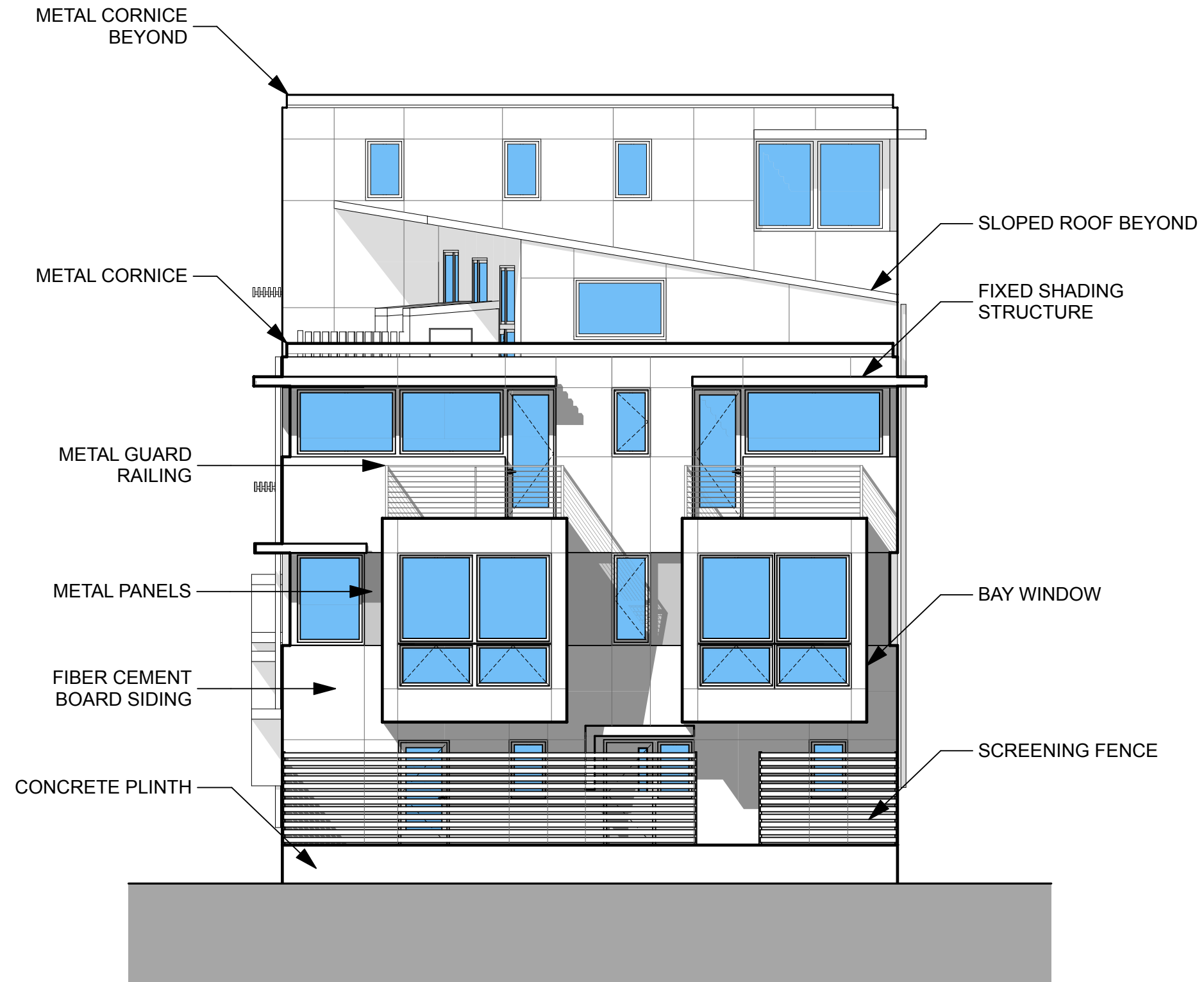
DATE: MARCH 30, 2011

DRAWN BY: JB

REVISED:

PRELIMINARY SITE PLAN

A-2.1



1 LONG SECTION


KAPLAN THOMPSON
ARCHITECTS
 424 FORE ST., PORTLAND, ME 04101
 207-842-2888 FAX:842-2828

PROJECT:
HARBORVIEW DEVELOPMENT LLC
 DBA REDFERN HOMES LLC
 121 YORK STREET
 PORTLAND, ME

DRAWING: SOUTHEAST ELEVATION

PRELIMINARY SITE PLAN

SCALE:

DRAWN BY: JB

DATE: MARCH 30, 2011

REVISED:

A-2.2



121 YORK ST.
PORTLAND, MAINE

PRELIMINARY SITE PLAN REVIEW: RENDERED VIEW FROM YORK STREET
DATE: MARCH 24, 2011


KAPLAN THOMPSON
ARCHITECTS


soren deniord **design studio**

SITE LOCATION MAP:



SOURCE: MAPQUEST.COM

MACNETIC NORTH 2005



GENERAL NOTES:

1. RECORD OWNER OF PARCEL: HARBORVIEW APARTMENTS LLC BOOK 27577 PAGE 165 AS RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS (C.C.R.D.). OWNER'S ADDRESS: P.O. BOX 8816 PORTLAND, MAINE 04104
2. BEARINGS ARE BASED UPON TWO CITY OF PORTLAND GRANITE MONUMENTS ONE OF WHICH IS SHOWN HEREON.
T124-27-1281 NORTH 298095.4958 EAST 2928500.9167 ELEVATION=31.89 BEING THE INSIDE CORNER OF A GRANITE M MONUMENT LOCATED AT THE NORTHWESTERLY STREET CORNER OF YORK AND HIGH STREETS.
T124-27-1278 NORTH 298674.0750 EAST 2927703.3650 IS THE INSIDE CORNER OF A GRANITE M MONUMENT LOCATED AT THE SOUTHWESTERLY STREET CORNER OF HIGH AND PLEASANTS STREETS. AN AZIMUTH AND DISTANCE FROM T124-27-1281 IS SHOWN HEREON.
- MAINE STATE PLANE COORDINATES ARE SHOWN HEREON AS REFERENCE TO THE CITY OF PORTLAND COORDINATE SYSTEM.
3. AREA OF SUBJECT PARCELS: LOT 044-A-004= 14,117 SQ. FT., LOT 044-A-005=7122 SQUARE FEET. TOTAL AREA OF PARCEL=21239 SQ. FT.
4. REFERENCE IS MADE TO THE FOLLOWING PLANS:
a.) CITY OF PORTLAND TAX MAP 44, SUBJECT LOTS SHOWN AS BLOCK A. LOTS 004 AND 005.
5. THERE WERE APPARENT EASEMENTS OR RESTRICTIONS BURDENING OR BENEFITING SUBJECT PROPERTY AT THE TIME OF THIS SURVEY:
a.) A SEWER EASEMENT BENEFITING THE PARCEL IDENTIFIED AS BELONGING TO BETHANY R. CARY AS DESCRIBED IN DEED BOOK 22276, PAGE 211.
6. THE EXISTING STRUCTURE WAS BUILT IN 1900 WHICH WAS PRIOR TO THE ADOPTION OF ZONING ORDINANCES WHICH WERE ENACTED IN 1957.

ZONING:

R-6 RESIDENTIAL ZONE:
MINIMUM LOT SIZE: 4500 SQUARE FEET
MINIMUM STREET FRONTAGE: 40 FEET
FRONT YARD SETBACK: 10 FEET
REAR YARD SETBACK: 20 FEET
SIDE YARD SETBACK: 10 FEET
MINIMUM LOT WIDTH: 50 FEET
MAXIMUM HEIGHT: 45 FEET

FLOOD NOTE:

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE C OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051 13B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

LEGEND:

- | | | |
|--------|------------------------------------|--|
| CRS ⊙ | Capped 5/8" Rebar Set With # 2303. | (50.00') Distance from reference Plan or deed. |
| IPF ○ | Iron Pipe Found | N/F Now Or Formerly |
| MONF □ | Monument Found | 12345/99 Deed Book/Page of Local Registry |
| — 34 — | Contour Line | — Edge of traveled way |
| — | Abutter Line | —OHU— Overhead Utility |
| — | Property Line | ⊙ Utility Pole |
| — | Street Line | Z Indicates Ownership in Common |
| — | Setback Line | ⊕ Catch Basin with Throat at Curb |
| — | Old Lot Line | ⊙ Sewer Manhole |
| ⊙ | Willow Tree 24" Diameter | |
| ⊙ | Street Tree Maple 3" Diameter | |

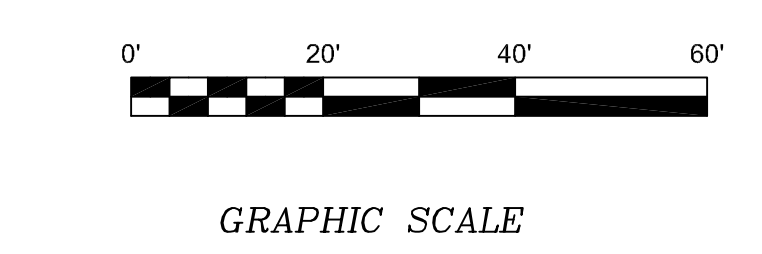
BOUNDARY SURVEY/SITE PLAN
AT 127-129 YORK STREET, PORTLAND, MAINE

FOR: HARBORVIEW DEVELOPMENT LLC

REVISIONS:

REVISION 03-26-2011: ROTATED SURVEY TO CITY OF PORTLAND DATUM.
REVISION 03-11-2011: ADDED UTILITIES, COORDINATES AND TREES
REVISION 02-13-2011: REVISED CONTOURS
REVISION 02-11-2011: ADDED CONTOURS
LOCATION: 127-129 YORK STREET PORTLAND, MAINE

STATE OF MAINE, CUMBERLAND SS
REGISTRY OF DEEDS
RECEIVED . 2011
AT : H .M. AND RECORDED IN
PLAN BOOK PAGE



RTG
STATE OF MAINE
ROBERT T. GREENLAW
#2303
PROFESSIONAL LAND SURVEYOR

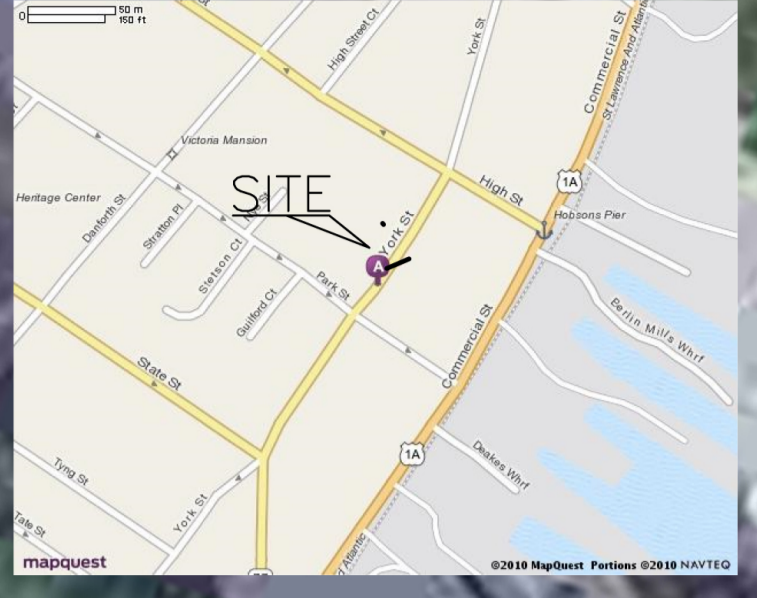
CERTIFICATE:

I HEREBY CERTIFY THAT THIS SURVEY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS' STANDARDS OF PRACTICE AS ADOPTED APRIL 01, 2001 WITH THE FOLLOWING EXCEPTIONS:
a) NO WRITTEN REPORT
b) NO NEW DESCRIPTION
ROBERT T. GREENLAW P.L.S., #2303
DATE: MARCH 126, 2011

PREPARED BY:
OCEAN PARK
LAND SURVEYING LLC
134 PORTLAND AVE
OLD ORCHARD BEACH MAINE
BOBGREENLAW@MYFAIRPOINT.NET
207-749-9471

DRAWN BY: RTG
CHECKED BY: MMB
SCALE: 1" = 20'
DATE OF SURVEY: 10/20/2010
JOB NUMBER: 121 YORK ST
SHEET: 1 OF 1
DRAWER: 2005 NO: 002

SITE LOCATION MAP:



SOURCE: MAPQUEST.COM

MAGNETIC NORTH 2005



GENERAL NOTES:

1. RECORD OWNER OF PARCEL: HARBORVIEW APARTMENTS LLC BOOK 27577 PAGE 165 AS RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS (C.C.R.D.). OWNER'S ADDRESS: P.O. BOX 8816 PORTLAND, MAINE 04104
2. BEARINGS ARE BASED UPON A MAGNETIC OBSERVATION TAKEN AT THE TIME OF THIS SURVEY, UTILIZING THE FOLLOWING EQUIPMENT:
LIETZ SOKKISHA SET 4 TOTAL STATION, LIETZ SDR 33 DATA COLLECTOR, HAND-HELD MAGNETIC COMPASS. MAINE STATE PLANE COORDINATES ARE SHOWN HEREON AS REFERENCE TO THE CITY OF PORTLAND COORDINATE SYSTEM.
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LEGEND:

CRS ⊙	Capped 5/8" Rebar Set With # 2303.	(50.00') Distance from reference Plan or deed.
IPF ○	Iron Pipe Found	N/F Now Or Formerly
MONF □	Monument Found	12345/99 Deed Book/Page of Local Registry
— 34 —	Contour Line	— — — Edge of traveled way
— — —	Abutter Line	—OHU— Overhead Utility
— — —	Property Line	—○— Utility Pole
— — —	Street Line	—Z— Indicates Ownership in Common
— — —	Setback Line	⊕ Catch Basin with Throat at Curb
— · — · —	Old Lot Line	⊙ Sewer Manhole
⊙	Willow Tree 24" Diameter	
⊙	Street Tree Maple 3" Diameter	

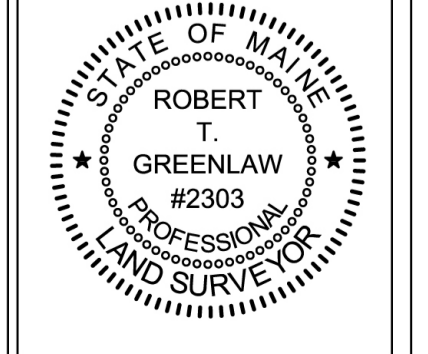
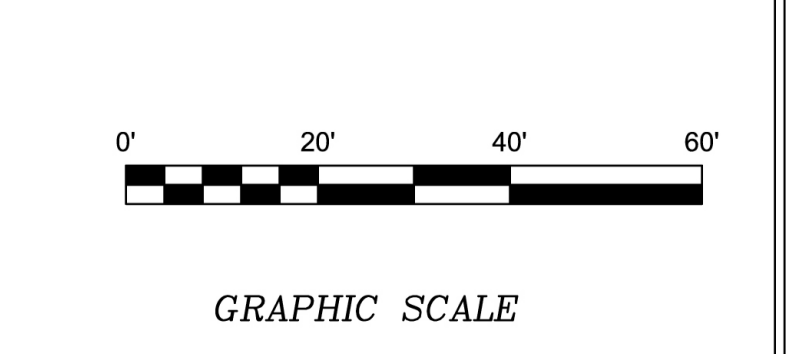
BOUNDARY SURVEY/SITE PLAN
 AT 127-129 YORK STREET, PORTLAND, MAINE
 FOR: HARBORVIEW DEVELOPMENT LLC

REVISIONS:

REVISION 03-11-2011: ADDED UTILITIES, COORDINATES AND TREES
REVISION 02-13-2011: REVISED CONTOURS
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LOCATION: 127-129 YORK STREET PORTLAND, MAINE

STATE OF MAINE, CUMBERLANDSS
 REGISTRY OF DEEDS

RECEIVED 2010
 AT : H M. AND RECORDED IN
 PLAN BOOK PAGE



CERTIFICATE:

I HEREBY CERTIFY THAT THIS SURVEY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS' STANDARDS OF PRACTICE AS ADOPTED APRIL 01, 2001 WITH THE FOLLOWING EXCEPTIONS:

a) NO WRITTEN REPORT
 b) NO NEW DESCRIPTION

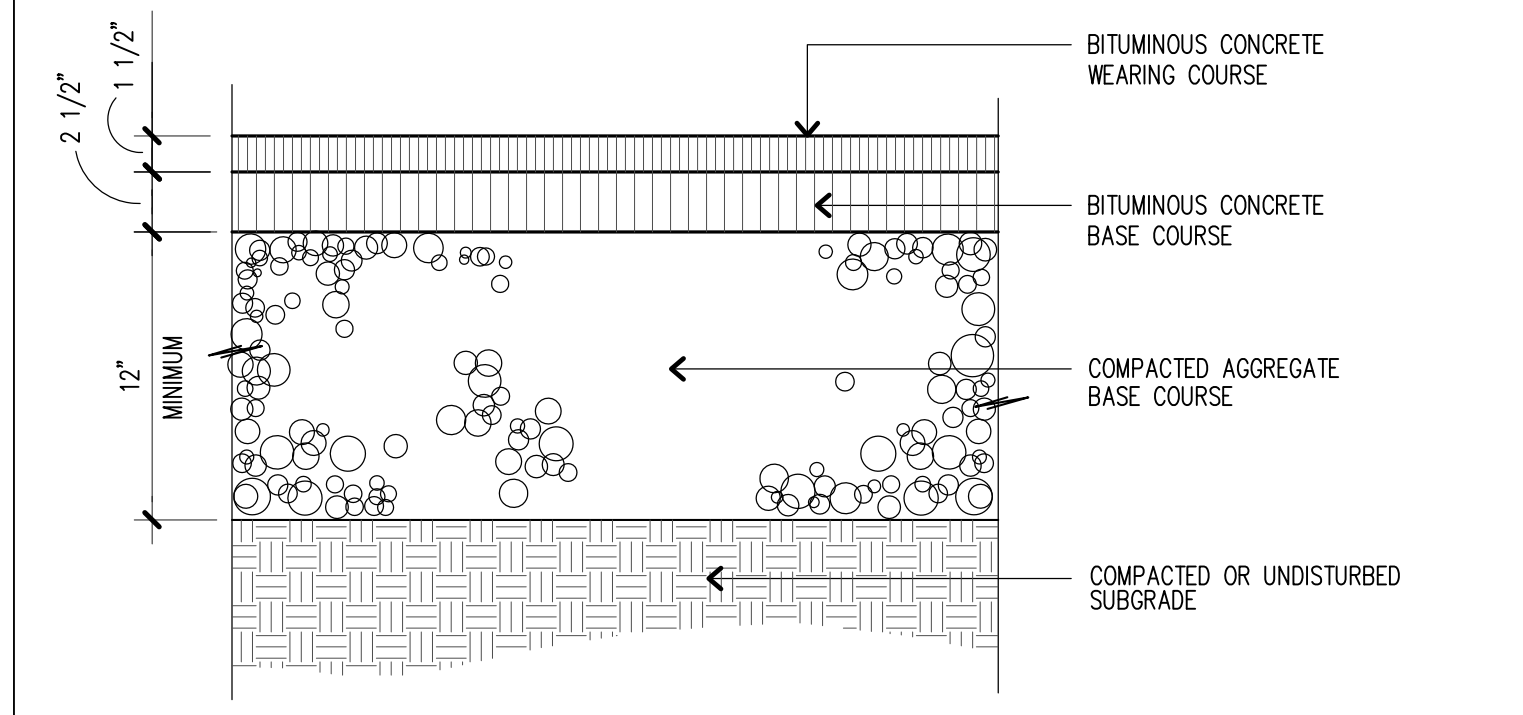
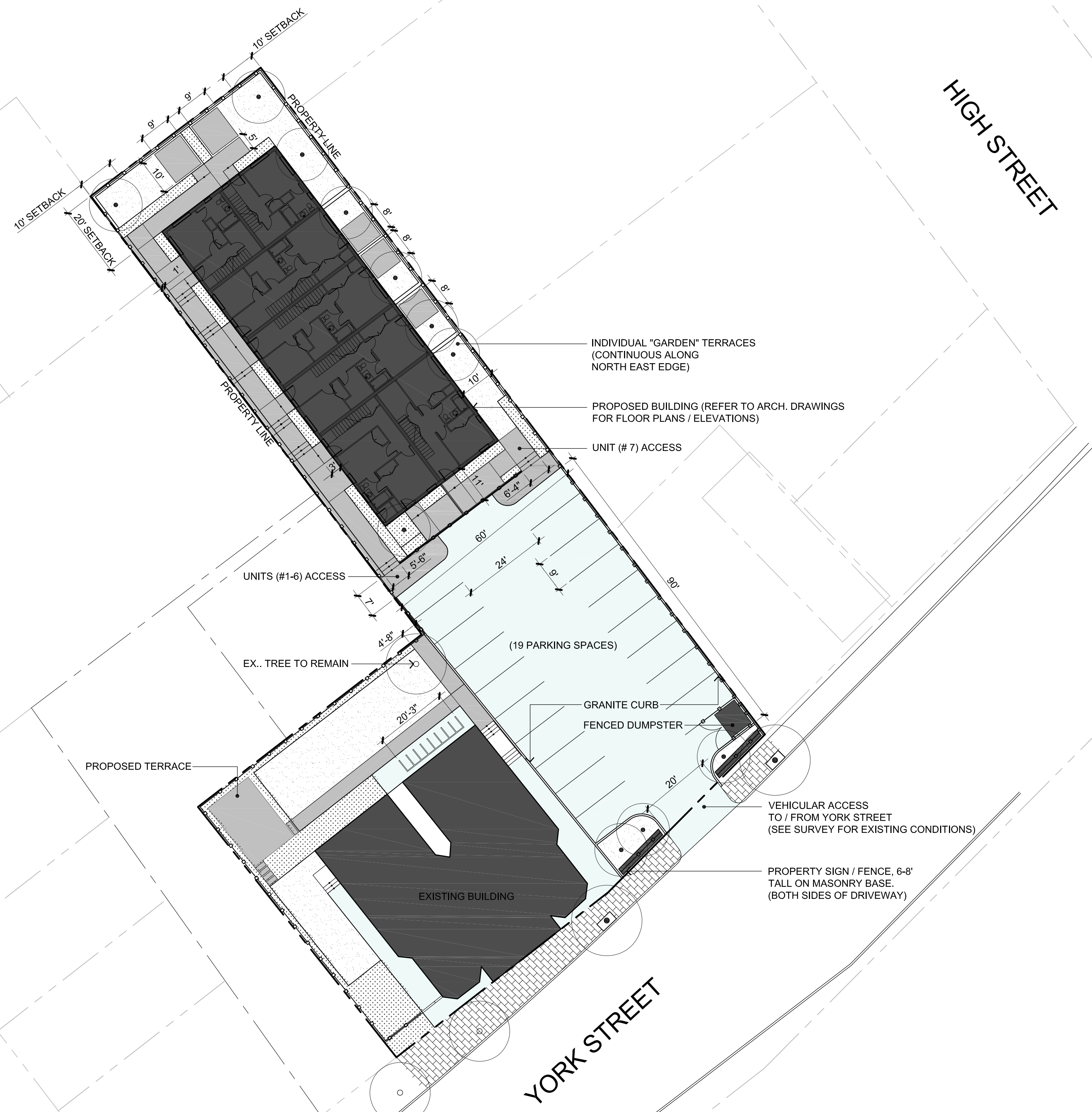
ROBERT T. GREENLAW P.L.S., #2303
 DATE: MARCH 11, 2011

PREPARED BY:
OCEAN PARK
 LAND SURVEYING LLC

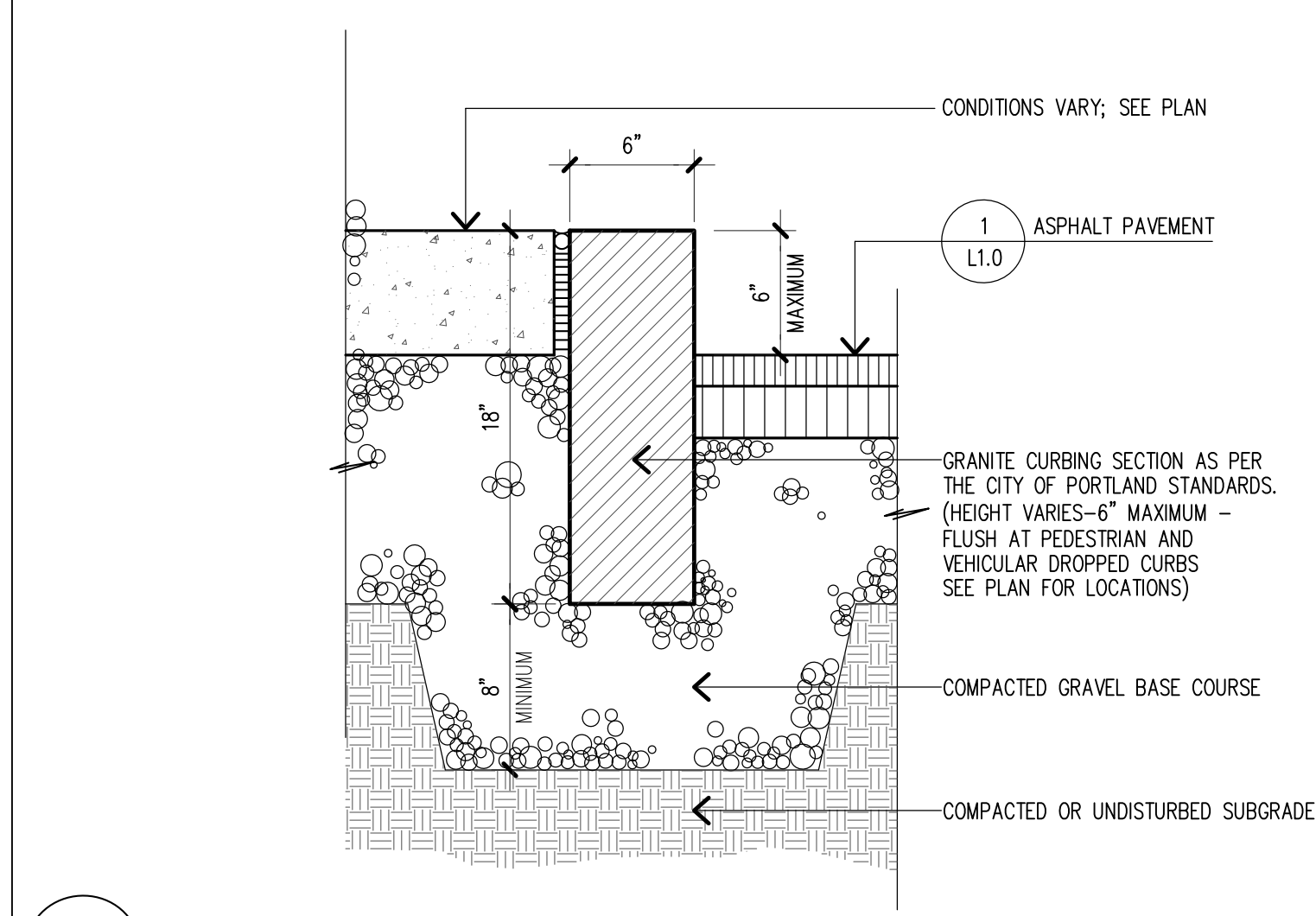
134 PORTLAND AVE
 OLD ORCHARD BEACH MAINE
 BOBGREENLAW@MYFAIRPOINT.NET
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DRAWN BY: RTG
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 SCALE: 1" = 20'
 DATE OF SURVEY: 10/20/2010
 JOB NUMBER: 121 YORK ST
 SHEET: 1 OF 1
 DRAWER: 2005 NO: 002

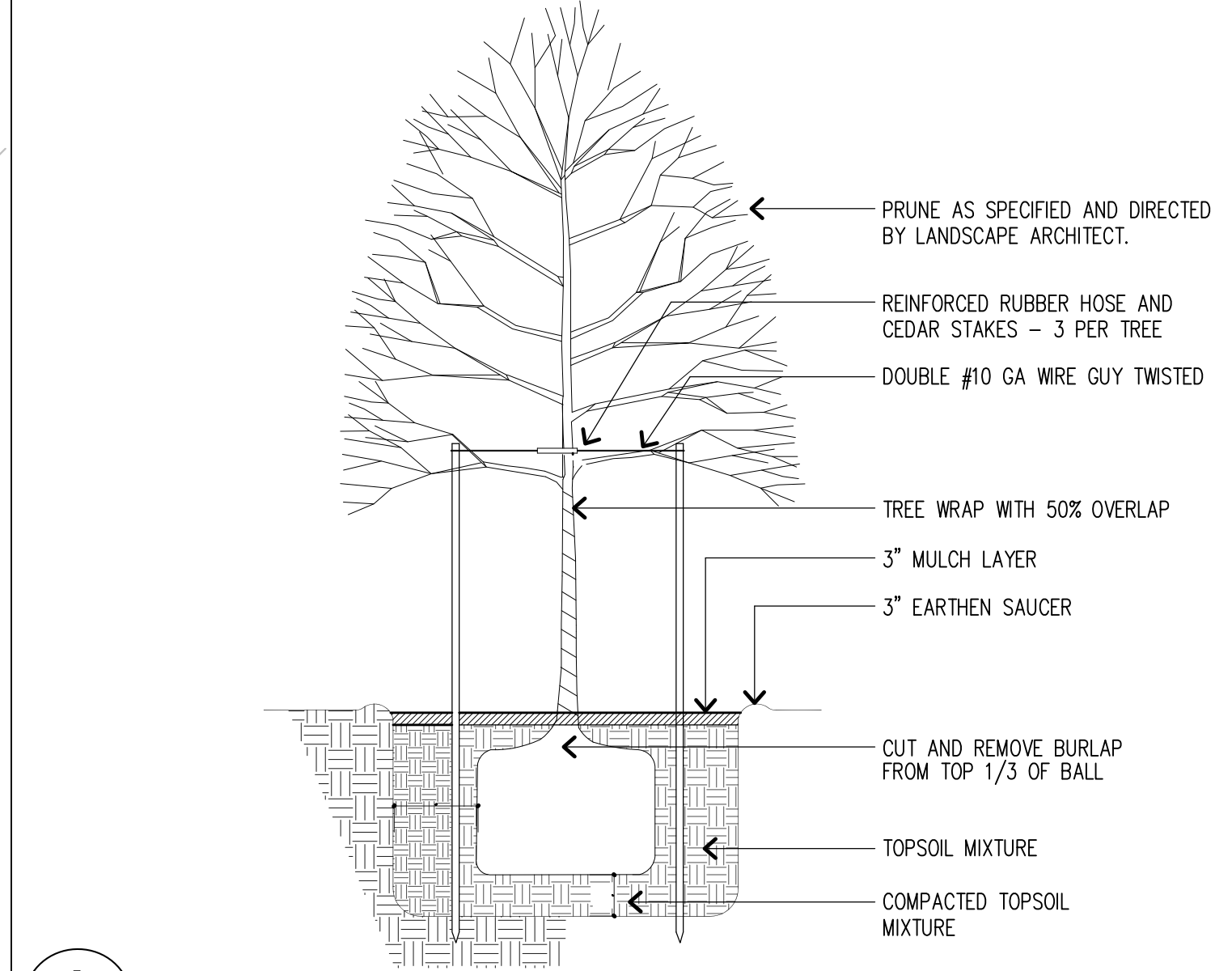
NOTE:
SEE CIVIL DRAWINGS FOR
GRADING AND STORMWATER
MANAGEMENT.



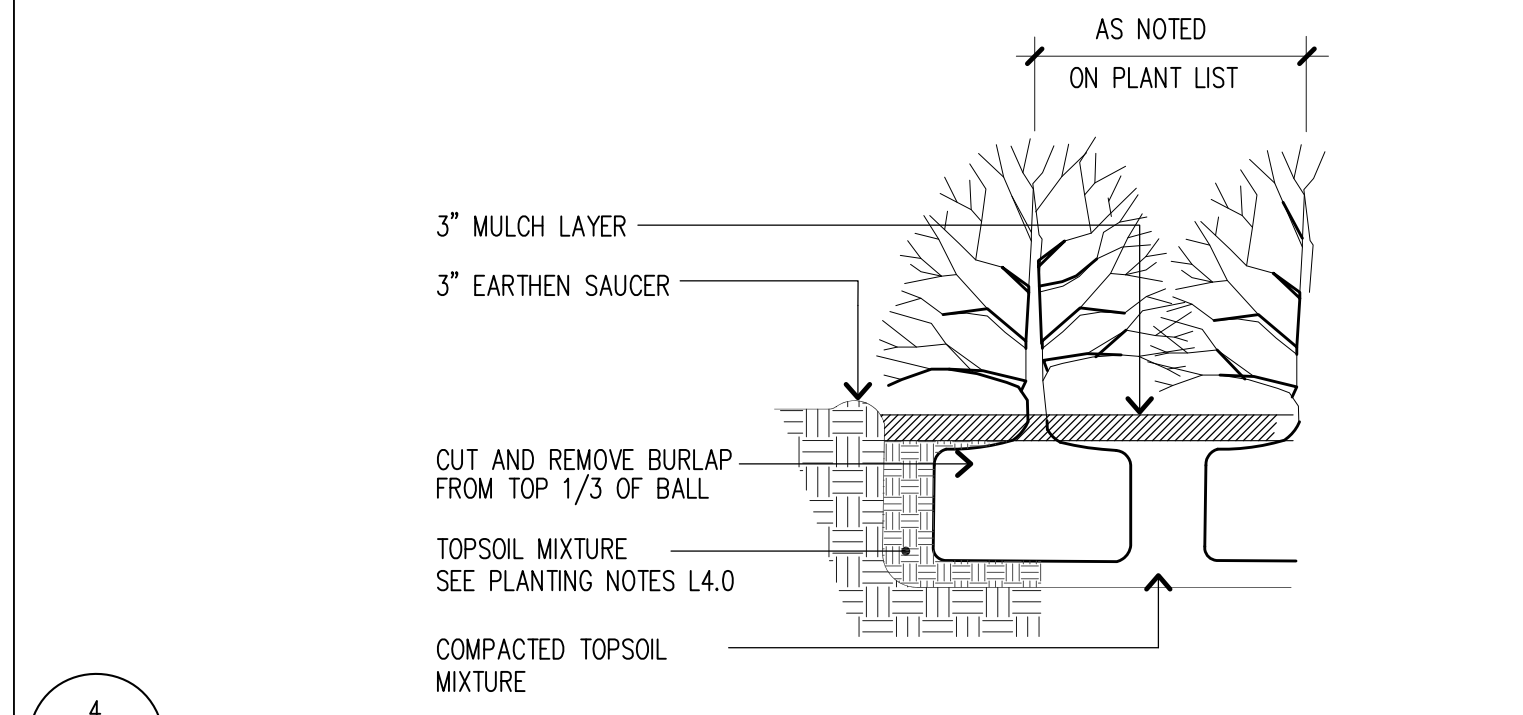
1 BITUMINOUS PAVING
SCALE: 1-1/2" = 1'-0"



2 GRANITE CURBING
SCALE: 1-1/2" = 1'-0"



3 TREE PLANTING DETAIL
SCALE: 3/4" = 1'-0"



4 SHRUB PLANTING DETAIL
SCALE: 3/4" = 1'-0"

SYMBOLS LEGEND

- EXISTING TREE
- PROPOSED AMELANCHIER SP. (1.75" CAL.)
- PROPOSED Acer rubrum (2.5" CAL.)
- CONCRETE PAVING
- EXISTING BRICK PAVING
- ASPHALT PAVING
- PERMEABLE PLANTED SURFACE
- PROPOSED PLANTER CONTAINING NATIVE SHRUBS AND GROUNDCOVER (LIST TBD)
- PROPOSED STEPS
- 6' TALL WOOD FENCE
- BICYCLE PARKING (10 SPACES)

PLANTING NOTES

1. Planting contractor shall visit site prior to submitting bid to become completely familiar with site conditions.
2. No planting will be installed until all grading and construction has been completed in immediate area.
3. Contractor to verify all utilities on property and to protect all utilities during excavation for plants.
4. If there is a discrepancy between the number of plants shown on the plan and the number of plants shown in plant list, the number of plants shown on plan will take precedence.
5. All container material to be grown in container a minimum of 6 months.
6. All material shall comply with the latest edition of the American Standard for Nursery Stock, American Association of Nurseryman.
7. Contractor shall repair all damage to property from planting operations at no cost to the owner.
8. Contractor shall guarantee new plant material through one calendar year from time of provisional acceptance.
9. The Landscape Architect will tag all plants at the nursery and inspect them after delivery to the site. All plant materials shall be inspected by the Landscape Architect on site prior to installation.
10. All proposed plants shall be located carefully as shown on the plans and the placements shall be approved by Landscape Architect before the plants are installed.
11. All disturbed areas not to be paved or planted shall be loamed and seeded as shown. The seed mix specifications are as follows: LESCO Fine Fescue Links Blend of 35% hard fescue, 35% creeping red fescue, 20% chewings fescue and 10% sheep fescue. Add 5% Little Bluestem and 5% Northeast Wildflower seed mixture by weight to the Links Blend.
12. Staking and guying shall be determined by the Landscape Architect on a tree by tree basis. For pricing purposes, provide a per tree unit cost for staking and guying. If staking and guying is required, remove tree wrap, stakes, and guy wires at end of first growing season.
13. For tree planting in lawn areas, any disturbed lawn shall be loamed and seeded as necessary.
14. Landscape Architect to flag trees to be protected on site.

PROJECT:
121 YORK ST.
PORTLAND, MAINE

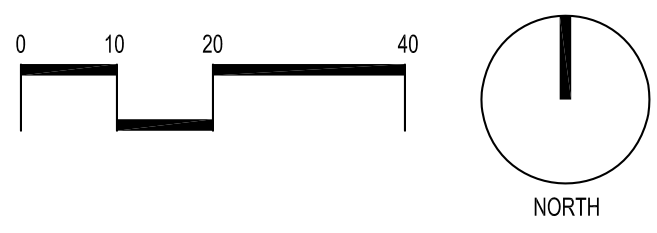
CLIENT:
HARBOR VIEW DEVELOPMENT LLC.
DBA, RED FERN PROPERTIES

date: MARCH 24, 2011
revisions:
scale: As Noted
drawn: sd
checked:

TITLE:
PRELIMINARY SITE PLAN
(NOT FOR CONSTRUCTION)

SHEET:
L1.0

SOREN DENIORD DESIGN STUDIO
43 WELLWOOD RD.
PORTLAND, ME 04103
1-207-400-2450
soren@sorendenior.com





PROJECT:
121 YORK ST.
PORTLAND, MAINE

CLIENT:
HARBOR VIEW DEVELOPMENT LLC.
DBA, RED FERN PROPERTIES

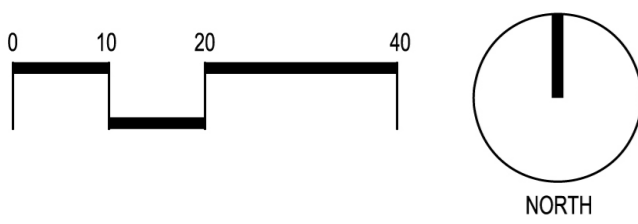
date: MARCH 24, 2011
revisions:
scale: As Noted
drawn: sd
checked:

TITLE:
ILLUSTRATIVE SITE PLAN
(NOT FOR CONSTRUCTION)

SHEET:
L2.0

SOREN DENIORD DESIGN STUDIO
43 WELLWOOD RD.
PORTLAND, ME 04103
t: 207.400.2450
soren@sorendeniord.com

sd



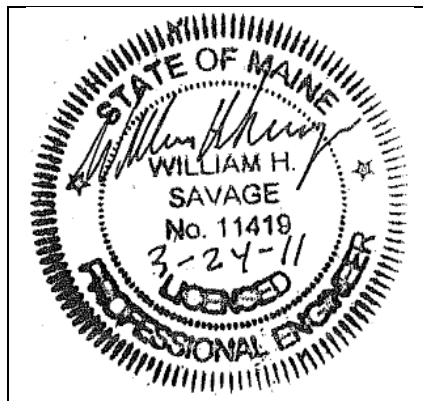
PRELIMINARY EROSION & SEDIMENTATION CONTROL REPORT

Prepared For:

**Harborview Development, LLC
P.O. Box 8816
Portland, Maine 04104**

Prepared By:

**Acorn Engineering, Inc.
154 York Street, Suite 2
Portland, Maine 04101**



March 2011

1.0 Introduction

Acorn Engineering, Inc. has been retained by Harborview Development, LLC to provide civil engineering services for the proposed development. The subject property is located at 121-129 York Street or Portland Tax Chart 044, Block A, Lots 4 & 5. This narrative meets the standards required in the Maine DEP’s Erosion & Sediment Control BMP’s Manual dated March 2003.

The following Erosion and Sedimentation Control Report was developed in accordance with the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management Appendix A and B (1).

2.0 Existing Conditions

The development site is comprised of two separate parcels described as Lot 4 and 5 per the City Chart, Block and Lot numbers. Lot 4 consists of 14,117 square feet (0.32 acre) and Lot 5 consists of 7,112 square feet (0.16 acre) of land area. On Lot 5 there is an existing three story brick apartment building. Lot 4 contains an existing gravel parking lot which has historically served the tenants of the adjacent apartment building. An existing conditions plan has been prepared by Ocean Park Land Surveying, LLC of Old Orchard Beach, Maine.

Currently the site drains towards York Street before entering the municipal storm drainage system. Lot 5 is covered with approximately 50% of the site being the existing building and 50% lawn. Drainage from the existing building roof sheet flows off the drip edge. Lot 4 is covered with approximately 30% of the site being the existing gravel parking field and 70% being a combination of poor quality grass/brush intermingled with old construction debris. The majority of the slopes on the two properties range between 7% to 11% and slopes easterly towards York Street.

Soils on the site were based upon the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. The area of the development is mapped with soils as shown in the table below. The susceptibility of soils to erosion are indicated on a relative “K” scale of values over a range of 0.02 to 0.69. Higher “K” values indicate more erodible soils. The following table lists the “K” values for the soils onsite:

Table 2 - “K” Value		
Type	Subsurface	Substratum
Hinckley Gravelly Sandy Loam	0.17	0.17

The soil “K” values listed above show the onsite soils have low susceptibility to erosion.

2.1 Existing Erosion Problems

The condition of the existing gravel parking field is in relatively marginal condition most likely due to the fact that that over time the stormwater from the upper lot flowing over the moderate slopes in combination with the vehicular traffic during storm events have lead to the fine particles being washed away into York Street. The proposed redevelopment shall address this existing erosion and sedimentation control issue.

2.2 Critical Areas

Critical areas that would require special attention during construction would be the areas of construction adjacent to landowners, the proposed underdrained subsurface sand filter BMP, and adjacent to the municipal storm drainage system.

2.3 Protected Natural Resource

The developer is not aware the presence of any existing significant natural features located on the site as listed in Section 14-526 (b) 1. of the Land Use Code.

2.4 Previous Construction Activity (5 years)

Acorn Engineering, Inc. is not aware of any construction related activities or timber harvesting within the project limits within the past 5 years.

2.5 Timber Harvesting

Acorn Engineering, Inc. is not aware of any significant timber harvesting within the past five years. Acorn Engineering, Inc. does not anticipate substantial timber harvesting as a result of this project.

3.0 Erosion Control Measures and Site Stabilization

As part of the site development, the following temporary and permanent erosion and sedimentation control devices shall be implemented. Devices shall be installed as described in this report or within the plan set. See the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices for further reference.

3.1 Temporary Erosion Control Measures

The following temporary erosion and sedimentation control measures are planned for the project's construction period.

3.1.1 Crushed stone stabilized construction entrances shall be placed at all access points to the project site where there are disturbed areas. The following specifications shall be followed at a minimum:

- Stone size shall be 2-3 inches, or reclaimed or recycled concrete equivalent.

- The thickness of the entrance shall be no less than 6 inches.
 - The entrance shall not be less than 10 feet wide, however not less than the full width of points where ingress or egress occurs. The length shall not be less than 50 feet in length.
 - Geotextile fabric (woven or non woven) shall be placed over the entire entrance area. Piping for surface water drainage shall be provided under the entrance; however a mountable berm with 5:1 slopes shall be permitted.
 - The entrance/exit shall be maintained to the extent that it will prevent the tracking of sediment onto public road ways.
- 3.1.2 Siltation fence shall be installed downstream of any disturbed areas to trap runoff borne sediments until permanent stabilization is achieved. The silt fence shall be installed per the details provided in the plan set and inspected before and immediately after each rainfall and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence line. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence, the barrier shall be replaced with a stone check dam.
- 3.1.3 Hay mulch including hydro seeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and November 1st on slopes of less than 15 percent shall be covered by fabric netting and anchored with staples in accordance with the manufacturer's recommendation. Mulch placed between November 1st and April 15th on slopes equal to or steeper than 8 percent and equal to or flatter than 2:1 shall use mats or fabric netting and anchored with staples in accordance with the manufacturer's recommendation.
- 3.1.4 All slopes greater than 3:1 shall be stabilized with Double Net Erosion Control Blanket Bionet SC150BN by North American Green or Approved Equal, or Erosion Control Mix Slope Protection as detailed within the plans.
- 3.1.5 All surrounding roads shall be swept to control mud and dust as necessary. Add additional stone to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.
- 3.1.6 During clearing and grubbing operations stone check dams shall be installed at any areas of concentrated flow. The tributary area to a ditch or swale shall not exceed 10 acres in size. The maximum height of the check dam shall not exceed 2 feet. The center of the check dam shall be 6 inches below the outer edges of the dam. The contractor shall mulch the side slopes and install stone check dams for all newly excavated ditchlines within 24 hours of their creation.
- 3.1.7 Silt fence stake spacing shall not exceed 6 feet unless the fence is supported with 14 gauge wire in which case the maximum spacing shall not exceed 10 feet. The silt fence shall be "toed" into the ground.
- 3.1.8 Stormdrain inlet protection shall be provided through the use of any of the following: hay bale drop inlet structures, silt fence drop inlet sediment filter, gravel and wire mesh drop inlet sediment filter, or curb inlet sediment filter. Barriers shall be inspected after every rainfall event and

repaired as necessary. Sediments shall be removed when accumulation has reached ½ the design height.

- 3.1.9 Dust control shall be accomplished by the use of any of the following: water, calcium chloride, stone, or an approved MDEP product. Dust control shall be applied as needed to accomplish dust control.
- 3.1.10 Temporary loam, seed, and mulching shall be used in areas where no other erosion control measure is used. Application rates for seeding are provided at the end of this report.
- 3.1.11 Stockpiles shall be stabilized within 7 days of formation unless a scheduled rain event occurs prior to the 7 day window, in which case the stockpile shall be stabilized. Methods of stabilization shall be mulch, erosion control mix, or erosion control blankets/mats. Silt fence or a wood waste compost filter berm shall be placed downhill of any soil stockpile location. Please see the Erosion & Sedimentation Control & Grading Plan for designated soil stockpile locations.
- 3.1.12 For disturbance between November 1 and April 15, please refer to winter stabilization plan in this report and the Maine Erosion and Sediment Control BMP manual for further information.

3.2 Permanent Erosion Control Measures

The following permanent erosion control measures are intended for post disturbance areas of the project.

- 3.2.1 All disturbed areas during construction, not subject to other proposed conditions, shall be loamed, limed, fertilized, seeded, and mulched. Erosion control blankets or mats shall be placed over the mulch in areas noted in paragraph 4.1 of this report.
- 3.2.2 All stormdrain outlets shall have riprap aprons or stabilized swales as depicted on the plans. The riprap aprons or stabilized aprons shall be constructed within 48 hours of the construction of the stormdrain outlet.
- 3.2.3 All stormwater devices shall be installed and stabilized prior receiving stormwater.
- 3.2.4 Refer to the Maine Erosion and Sediment Control BMP manual for additional information.

4.0 Erosion and Sedimentation Control Plan

- 4.1 Erosion and Sedimentation Control Plans are included in the plan set.

5.0 Details and Specifications

- 5.1 Erosion Control Details and Specification are included in the plan set.

6.0 Stabilization Plan for Winter Construction

Winter Construction consists of earthwork disturbance between the dates of November 1 and April 15. If a construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15 then the site shall be protected

with over-winter stabilization. Any area not stabilized with pavement, vegetation, mulching, erosion control mix, erosion control mats, riprap or gravel base on a road shall be considered open.

The contractor shall limit the work area to areas that work will occur in the following 15 days and so that it can be mulched one day prior to a snow event. The contractor shall stabilize work areas prior to opening additional work areas to minimize areas without erosion control measures.

The following measures shall be implemented during winter construction periods:

6.1 Sediment Barriers

During frozen conditions, sediment barriers may consist of erosion control mix berms or any other recognized sediment barriers as frozen soil prevents the proper installation of hay bales or silt fences.

6.2 Mulching

All areas shall be considered to be denuded until seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Erosion control mix must be applied with a minimum 4 inch thickness. Mulch shall not be spread on top of snow. The snow will be removed down to a one-inch depth or less prior to application. After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched or adequately anchored so that ground surface is not visible through the mulch. Between the dates of November 1 and April 15, all mulch shall be anchored by either mulch netting, asphalt emulsion chemical, tracking or wood cellulose fiber. The cover will be considered sufficient when the ground surface is not visible through the mulch. After November 1st, mulch and anchoring of all exposed soil shall occur at the end of each final grading workday.

6.3 Soil Stockpiling

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or with a four-inch layer of erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

6.4 Seeding

Between the dates of October 15th and April 1st, loam or seed shall not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has not been loamed, final grading with a uniform surface, then

the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be placed prior to the placement of mulch or erosion control blankets. If dormant seeding is used for the site, all disturbed areas shall receive 4' of loam and seed at an application rate of 5lbs/1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

6.5 Over winter stabilization of disturbed soils

By September 15th, all disturbed soils on areas having a slope less than 15% shall be seeded and mulched. If the disturbed areas are not stabilized by this date, then one of the following actions shall be taken to stabilize the soil for late fall and winter:

- Stabilize the soil with temporary vegetation – By October 1st, seed the disturbed soil with winter rye at a seeding rate of 3lbs per 1,000 s.f., lightly mulch the seeded soil with hay or straw at 75 lbs per 1,000 s.f., and anchor the mulch with plastic netting. Monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1st, then mulch the area for over-winter protection.
- Stabilize the soil with sod – Stabilize the disturbed soil with properly installed sod by October 1st. Proper installation includes pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.
- Stabilize the soil with mulch – By November 15th, mulch the disturbed soil by spreading hay or straw at a rate of at least 150 lbs per 1,000 s.f. on the area so that no soil is visible through the mulch. Immediately after applying the mulch, anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

6.6 Over winter stabilization of disturbed slopes

All stone-covered slopes shall be constructed and stabilized by November 15th. All slopes to be vegetated shall be seeded and mulched by September 1st. A slope is considered a grade greater than 15%. If a slope to be vegetated is not stabilized by September 1st, then one of the following action shall be taken to stabilize the slope for late fall and winter:

- Stabilize the soil with temporary vegetation and erosion control mats – By October 1st the disturbed slope shall be seeded with winter rye at a seeding rate

of 3 lbs per 1,000 s.f. and then install erosion control mats or anchored mulch over the seeding. If the rye fails to grow at least three inches or fails to cover at least 75% of the slope by November 1st, then the contractor shall cover the slope with a layer of erosion control mix or with stone riprap.

- Stabilize the soil with sod – The disturbed slope shall be stabilized with properly installed sod by October 1st. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor shall not use late-season sod installation to stabilize slopes having a grade greater than 3H:1V or having groundwater seeps on the slope face.
- Stabilize the soil with erosion control mix – Erosion control mix shall be properly installed by November 15th. The contractor shall not use erosion control mix to stabilize slopes having grades greater than 2H:1V or having groundwater seeps on the slope face.
- Stabilize the soil with stone riprap – Place a layer of stone riprap on the slope by November 15th. A registered professional engineer shall be hired to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

7.0 Inspection and Maintenance

A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct periodic visual inspections of installed erosion control measures. The frequency of inspection shall occur at least once a week, prior to completing permanent stabilization measures, as well as before and after a “storm event”. A “storm event” shall consist 0.5 inches of rain within a 24 hour period. The following Erosion and Sediment Control - Best Management Practices (BMP’s) shall inspected in the manner as described.

Sediment Barriers: Hay bale barriers, silt fences and filter berms shall be inspected and repaired for the following, if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam. Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly. Sediment deposits should be removed when deposits reach approximately one-half the height of the barrier. Filter berms should be reshaped as needed. Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared and seeded.

Stabilized Stone Construction Entrances The exit shall be maintained in a condition that will prevent tracking of sediment onto public rights-of-way. When the control pad becomes ineffective, the stone shall be removed along with the

collected soil material and redistributed on site in a stable manner. The entrance should then be reconstructed. The contractor shall sweep or wash pavement at exits, which have experienced mud-tracking on to the pavement or traveled way. When washing is required, it shall be done on an area stabilized with aggregate, which drains into an approved sediment trapping device. All sediment shall be prevented from entering storm drains, ditches, or waterways.

Mulched Areas All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets must be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope. Inspections shall take place until grasses are firmly established (95% soil surface covered with grass). Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

Dust Control When temporary dust control measures are used, repetitive treatment shall be applied as needed to accomplish control.

The contractor shall be responsible for inspection, documentation, and maintenance during construction.

Inspections provided by:

Firm: Acorn Engineering, Inc.
Contact: Will Savage, PE
Telephone: (207) 775-2655

8.0 Implementation Schedule

The following implementation schedule is intended to maximize the effectiveness of the above described erosion control measures. Contractors should be cautious of over exposing disturbed areas to limit the amount of stabilization area.

1. Install a stabilized construction entrance in all locations where construction traffic will enter and exit the site. Particularly, at intersections with public rights of way.
2. Install perimeter silt fence or wood waste berm.
3. Install all other erosion control devices as necessary throughout the remainder of this schedule
4. Commence clearing and grubbing operations
5. Commence earthwork operations
6. Commence installation of drainage infrastructure
7. Commence installation of utility infrastructure
8. Continue earthwork and grading to subgrade as necessary for construction
9. Complete installation of drainage and utility infrastructure
10. Complete remaining earthwork operations
11. Install sub-base and base gravels in roadway

12. In coordination with the sub-base and base gravel complete the installation of the underdrained subsurface sand filter BMP. It is of the utmost importance that once the construction is begun on the USSF that is be continued until complete. Runoff shall be temporarily diverted around the work area until stabilization is complete.
13. Install base course paving
14. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
15. Install surface course paving
16. Once the site is stabilized and 90% catch of vegetation has been obtained, remove all temporary erosion control measures.
17. Touch up loam and seed.

The above implementation schedule should be generally followed by the site contractor. However, the contractor may construct several items simultaneously. A contractor shall submit to the owner a schedule of the completion of the work. If the contractor is to commence the construction of more than one item above, they shall limit the amount of exposed are to those areas in which work is expected to be undertaken during the preceding 30 days.

The contractor shall revegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event. The contractor shall incorporate planned inlets and drainage systems as early as possible into the construction phase. Ditches shall be lined or vegetated as soon as their installation is complete.

9.0 Conclusion

The above erosion control narrative is intended to minimize the development impact by implementing temporary and permanent erosion control measures. The contractor shall also refer to the Maine Erosion and Sediment Control BMP manual for additional information.

10.0 Attachments

- Temporary Seeding Plan
- Permanent Seeding Plan

TEMPORARY SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P₂O₅-K₂O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of temporary seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.	Recommended Seeding Dates
Winter Rye	2.57	Aug-15 to Oct-1
Oats	1.84	Apr-1 to Jul-1 Aug-15 to Sep-15
Annual Ryegrass	0.92	Apr-1 to Jul-1
Sudangrass	0.92	May-15 to Aug-15
Perennial	0.92	Aug-15 to Sep-15

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to temporary seeding and mulching.

PERMANENT SEEDING PLAN

Site Preparation

The seeded areas shall be feasibly graded out to provide the use of equipment for seedbed preparation, seeding, mulch application, and mulch anchoring. If necessary, the site may require additional temporary erosion control measures outlined in the Erosion Control report.

Seedbed Preparation

Fertilizer shall be applied to the site at a rate of 13.8 pounds per 1,000 square feet. The composition of the fertilizer shall be 10-10-10 (N-P₂O₅-K₂O) or equivalent.

Limestone shall be applied to the site at a rate of 138 pounds per 1,000 square feet.

Seeding

The composition and amount of permanent seed applied to a site shall be determined by the following table:

Seed	Pounds / 1,000 S.F.
Kentucky Bluegrass	0.46
Creeping Red Fescue	0.46
Perennial Ryegrass	0.11
Total	1.03

Mulching

Mulch shall be applied at a rate of 70 lbs – 90 lbs per 1,000 square feet. The mulch shall be installed at a depth of 4 inches. The seeded area shall be mulched immediately after seed is applied. Mulching during the winter season shall be double the normal amount.

Recommendations

Permanent seeding is recommended to be completed in the spring. Later summer seeding is allowed if completed prior to September 1st. If seeding cannot be accomplished during the periods recommended for permanent seeding, then the contractor shall perform temporary seeding per the temporary seeding plan.

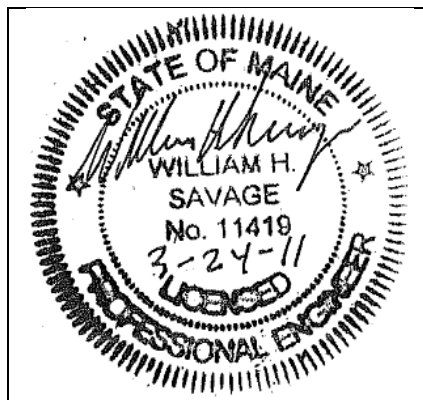
Conclusion

Please refer to the Maine Erosion and Sediment Control BMP manual for additional information pertaining to permanent seeding and mulching.

PRELIMINARY STORMWATER REPORT

Prepared For:
Harborview Development, LLC
P.O. Box 8816
Portland, Maine 04104

Prepared By:
Acorn Engineering, Inc.
154 York Street, Suite 2
Portland, Maine 04101



March 2011

PROJECT SITE

On behalf of Harborview Development, LLC Acorn Engineering is pleased to submit the following summary of our stormwater analysis and findings for the proposed development. The subject property is located at 121-129 York Street or Portland Tax Chart 044, Block A, Lots 4 & 5.

The proposed project anticipates less than one acre of disturbed and less than one acre of impervious area within a watershed not classified as an Urban Impaired Stream. A project of this size does not require a Maine Construction General Permit (MCGP) or a Stormwater Permit from the Maine Department of Environmental Protection. However a Tier-III Site Plan must be in compliance with the City of Portland's MS4 permit obligations. The City has elected to meet their permit obligations by applying the more restrictive Basic, General, and Flooding Standard as defined by the Maine DEP Chapter 500 Stormwater Management Rules. Simply stated the development shall address the post development effects on both the quantity and quality of the stormwater runoff.

The following Stormwater Report was developed in accordance with the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards and Maine DEP Chapter 500 Stormwater Management.

EXISTING CONDITIONS

The development site is comprised of two separate parcels described as Lot 4 and 5 per the City Chart, Block and Lot numbers. Lot 4 consists of 14,117 square feet (0.32 acre) and Lot 5 consists of 7,112 square feet (0.16 acre) of land area. On Lot 5 there is an existing three story brick apartment building. Lot 4 contains an existing gravel parking lot which has historically served the tenants of the adjacent apartment building. An existing conditions plan has been prepared by Ocean Park Land Surveying, LLC of Old Orchard Beach, Maine.

Currently the site drains towards York Street before entering the municipal storm drainage system. Lot 5 is covered with approximately 50% of the site being the existing building and 50% lawn. Drainage from the existing building roof sheet flows off the drip edge. Lot 4 is covered with approximately 30% of the site being the existing gravel parking field and 70% being a combination of poor quality grass/brush intermingled with old construction debris. The majority of the slopes on the two properties range between 7% to 11% and slopes easterly towards York Street. The condition of the existing gravel parking field is in relatively marginal condition most likely due to the fact that that over time the stormwater from the upper lot flowing over the moderate slopes in combination with the vehicular traffic during storm events have lead to the fine particles being washed away into York Street. The proposed redevelopment shall address this existing erosion and sedimentation control issue.

The developer is not aware the presence of any existing significant natural features located on the site as listed in Section 14-526 (b) 1. of the Land Use Code.

PROPOSED DEVELOPMENT

The proposed project anticipates the conversion of the existing 12-unit brick building on Lot 5 from apartments into condominium units and the infill development of a new 4,000 sf building providing an additional 7 condominium units on Lot 4. On Lot 5 there will be minimal changes to the existing site with the exception of an outdoor patio. On Lot 4 the building shall be surrounded with extensive landscaping treatments and architectural elements. The existing gravel parking lot shall be redeveloped to serve the development. The parking lot will be regraded and permanently stabilized with pavement. The project anticipates incorporating the Maine DEP approved underdrained subsurface sand filter (USSF) BMP to meet the General and Flooding Standard.

SOILS

Soils on the site were based upon the Soil Conservation Service Medium Intensity Soil Survey for Cumberland County. The area of the development is mapped with soils as shown in the table below. For clarity, a soils map has been attached to this report in Attachment C. The susceptibility of soils to erosion are indicated on a relative “K” scale of values over a range of 0.02 to 0.69. Higher “K” values indicate more erodible soils. The following table lists the “K” values for the soils onsite:

Table 2 - “K” Value		
Type	Subsurface	Substratum
Hinckley Gravelly Sandy Loam	0.17	0.17

The soil “K” values listed above show the onsite soils have low susceptibility to erosion.

GENERAL STANDARDS - WATER QUALITY

The underdrained subsurface sand filter BMP (USSF) was sized to meet the requirements set forth within the MDEP Volume III: BMP’s Technical Design Manual Section 7.3. The development shall provide water quality treatment for no less than 95% of the new impervious area and 80% of the developed area. The project shall redevelop the existing impervious area comprised of the gravel parking into the proposed asphalt parking lot. The treatment of the impervious surface is as follows:

- Existing Impervious = 8,100 sf
- Proposed Impervious = 14,650 sf
- Net Impervious = 6,550 sf
- Required Treatment @ 95% = 6,223 sf

- Proposed Treatment = 9,300 sf

As shown above the project anticipates meeting and exceeding the required treatment for new impervious surfaces through the use of the underdrained subsurface sand filter BMP.

Additionally the StormTech Isolator Row shall be sized to accommodate 0.2 cfs for each SC-740 based upon the one year peak flow rate.

In accordance with the Volume III: BMPs Technical Design Manual, a treatment volume of 1.0 inches times the tributary impervious area plus 0.4 inches times the tributary disturbed area is required to be treated by the USSF. The treatment volume is calculated by the following formula:

$$\left(\frac{\text{Imp. SF} \times 1.0''}{12''/1'} \right) + \left(\frac{\text{Veg. SF} \times 0.4''}{12''/1'} \right) = \text{Treatment Volume (CF)}$$

Once the treatment volume is known an artificial rainfall event is created within HydroCAD, to mimic a storm event which equals the treatment volume. Additionally a water quality outlet is modeled to provide the required minimum 24-hour release time. The outlet for the water quality volume is then set above the peak elevation determined for the “treatment volume rainfall event”.

FLOODING STANDARD – WATER QUANTITY

The proposed developments shall be modeled with HydroCAD to verify that the post-development does not exceed the pre-development conditions. A 24-hour SCS Type III storm distribution for the 2, 10, and 25 – year storm events were used. The corresponding rainfall amounts for these storms are 3.00”, 4.70”, and 5.50” respectively. Based on a Soil Conservation Service Medium Intensity Soil Survey for Cumberland County, modeling assumptions included primarily hydrologic soil groups (HSG) A.

Due to the numerous variables, and inherent inaccuracies with the modeling program used to calculate stormwater runoff it is custom at Acorn Engineering, Inc. to round to the nearest whole number. However due to the small size of the project the stormwater runoff shall be rounded to the nearest tenth of a cubic feet per second (cfs). Given the relatively small watershed areas and urban setting a 5 minute time of concentration was applied to each subcatchment for both the pre and post-development conditions.

Pre-development Calculations

The pre-development condition was modeled as one subcatchment with one point of interest (POI#1) located at the approximate location of the existing driveway apron adjacent to York Street. A Pre-development Watershed Map developed for this project can be viewed in Attachment A, and a copy of the HydroCAD calculations is included within Attachment D, or this report. Peak flow rates for the storm events are as follows:

Table 1 – Pre-Development Stormwater Flows			
Drainage Area	2 – Year Storm Event (cfs)	10 – Year Storm Event (cfs)	25 – Year Storm Event (cfs)
POI #1	0.2	0.8	1.1

Post-development Calculations:

The one predevelopment subcatchment was broken into three separate subcatchments for the post-development condition.

- Subcatchment 1 – This is the only subcatchment not tributary to the USSF. Outside of the redeveloped parking lot there is relatively little change in land use.
- Subcatchment 2 – Characterized as the subcatchment comprised of the redeveloped parking lot tributary to the USSF.
- Subcatchment 3 – Stormwater from proposed building, walkways, and landscaped areas shall be directed through the foundation drain to the USSF. The relatively flat under drain along the building southern exposure was modeled as a pond verify the size of the under drain and to account for the limited detention characteristics.

Subcatchments 2 and 3 were over detained within the USSF to compensate for any increased stormwater flows from Subcatchment 1. The stormwater design as currently envisioned promotes infiltration into the surrounding soil through the use of perforated pipes and the USSF BMP. A conservative exfiltration rate of 2.41 in./hr. applied to only the surface area was used when modeling Pond 1 and 2.

The post development calculations include changes to the land use, and the proposed detention facility. The following table represents comparison of predevelopment and post-development condition peak runoff rates at point of interest 1 (POI #1) at the approximate location of the existing driveway apron adjacent to York Street.

Table 2 – Comparison of Peak Flows						
Drainage Area	2 – Year Storm Event (cfs)		10 – Year Storm Event (cfs)		100 – Year Storm Event (cfs)	
	Pre	Post	Pre	Post	Pre	Post
POI #1	.2	.2	0.8	.6	1.1	0.8

As shown within Table 2 the post development peak flows shall remain at or below the predevelopment levels. A Post-development Watershed Map developed for this project can be viewed in Attachment A, and a copy of the HydroCAD calculations is included within Attachment D, of this report.

Conclusion

The proposed development was designed to meet the requirements implemented by the MDEP under the Stormwater Management Statute (38 M.R.S.A. § 420-D) as well as the City of Portland Technical Manual – Section 5 – Portland Stormwater Management Standards. As a result the design of the proposed development and stormwater system does not anticipate to create erosion, drainage or runoff problems either in the development or with respect to adjoining properties.

Attachments

Attachment A: Pre Development Watershed Map

Attachment B: Post Development Watershed Map

Attachment C: Soils Map

Attachment D: HydroCAD Calculations

Attachment E: Operation and Maintenance Plan - Not Included with Prelim. Application

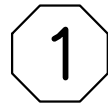
Attachment A

Predevelopment Watershed Map

NOTES:

1. GIVEN THE RELATIVELY SMALL WATERSHED AREAS AND URBAN SETTING A TIME OF CONCENTRATION OF 5 MINUTES WAS USED.

LEGEND

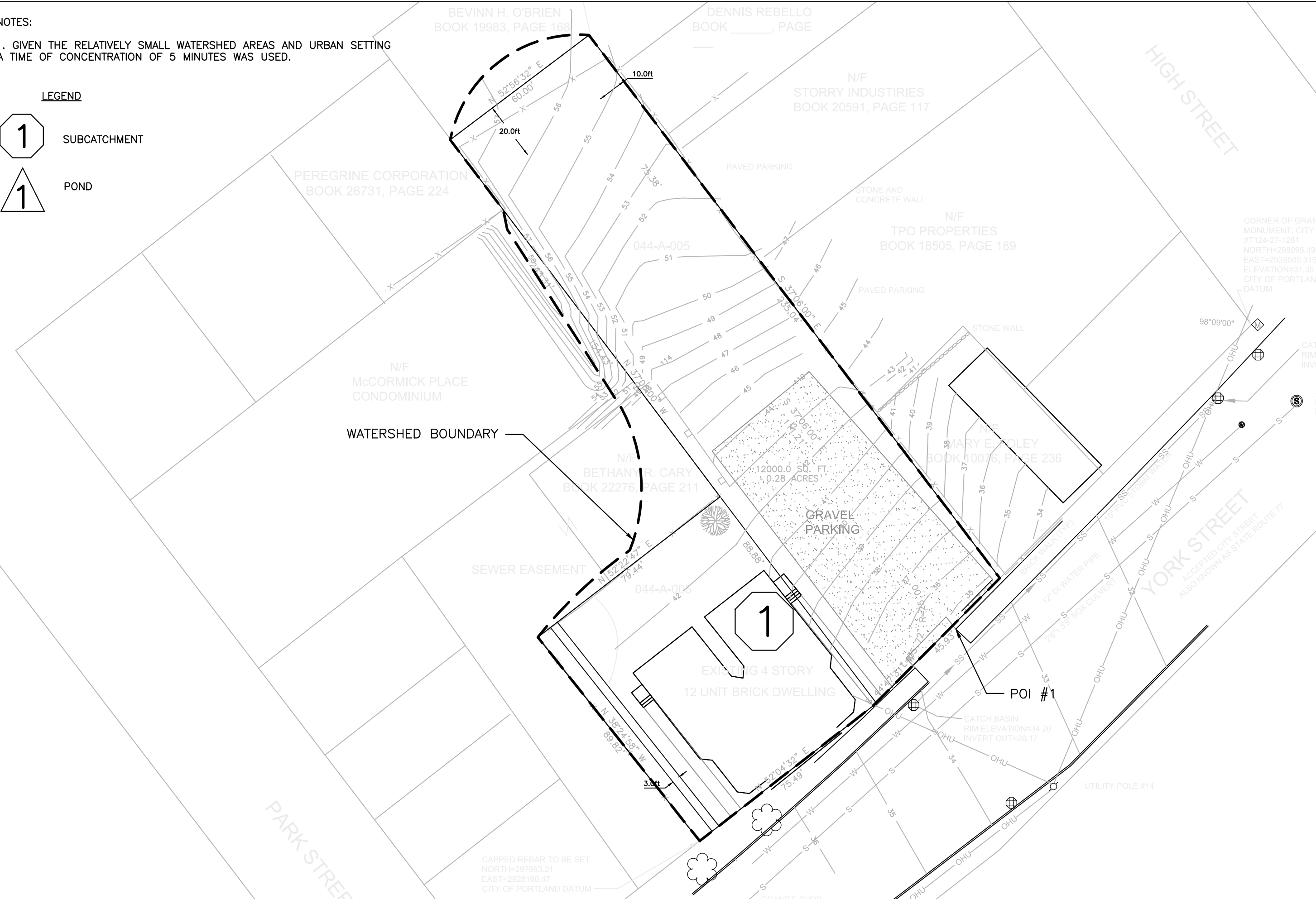


SUBCATCHMENT



POND

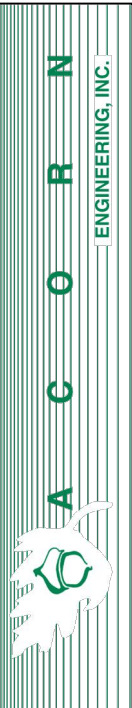
WATERSHED BOUNDARY



TITLE: PRE-DEVELOPMENT WATERSHED
 PROJECT NAME: HARBORVIEW DEVELOPMENT, LLC
 ISSUED FOR: PERMITTING

JOB #: 1035
 DATE: 3-24-11
 DWN BY: WHS
 SCALE: 1"=30'
 SHEET #:

1



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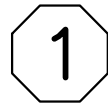
Attachment B

Post Development Watershed Map

NOTES:

1. GIVEN THE RELATIVELY SMALL WATERSHED AREAS AND URBAN SETTING A TIME OF CONCENTRATION OF 5 MINUTES WAS USED.

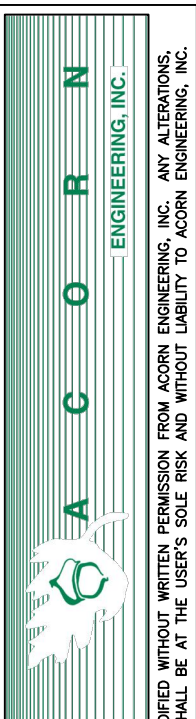
LEGEND



SUBCATCHMENT



POND



<p>TITLE: POST-DEVELOPMENT WATERSHED</p>	
<p>PROJECT NAME: HARBORVIEW DEVELOPMENT, LLC</p>	
<p>ISSUED FOR: PERMITTING</p>	
JOB #:	1035
DATE:	3-24-11
DWN BY:	WHS
SCALE:	1"=30'
SHEET #:	2

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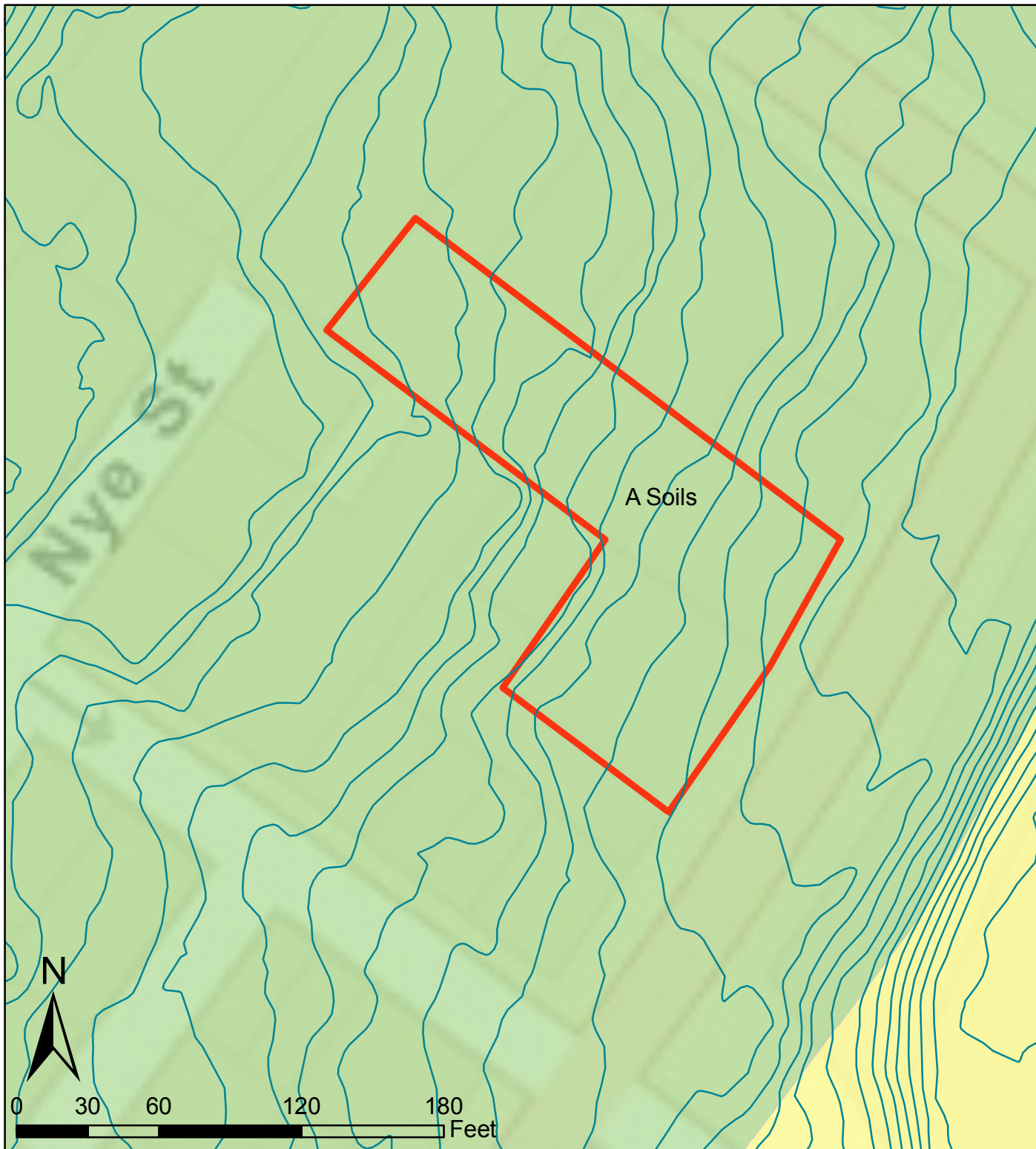
Attachment C

Soils Map

ATTACHMENT C

SOIL CLASSIFICATION

MAP



Legend

- contours_2ft
- Property Line

CUMBERLAND SOILS

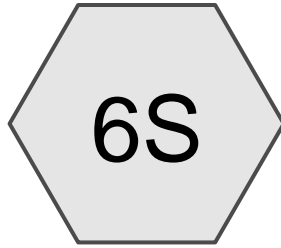
- Water

Soil Groups

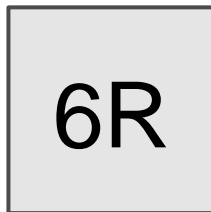
- A
- B
- C
- C/D
- D

Attachment D

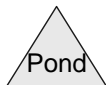
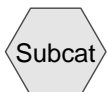
HydroCAD Calculation



EXISTING



POI#1



PRE-DEVELOPMENT

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.183	48	Brush, Poor, HSG A (6S)
0.119	49	50-75% Grass cover, Fair, HSG A (6S)
0.106	84	Gravel Parking Area, HSG A (6S)
0.071	98	Building (6S)
0.010	98	Walkways (6S)
0.487		TOTAL AREA

PRE-DEVELOPMENT

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
0.407	HSG A	6S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.080	Other	6S
0.487		TOTAL AREA

PRE-DEVELOPMENT

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Type III 24-hr 2-year Rainfall=3.00"

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Page 4

Time span=1.00-30.00 hrs, dt=0.02 hrs, 1451 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 6S: EXISTING

Runoff Area=21,229 sf 16.49% Impervious Runoff Depth=0.47"

Tc=5.0 min CN=64 Runoff=0.19 cfs 0.019 af

Reach 6R: POI#1

Inflow=0.19 cfs 0.019 af

Outflow=0.19 cfs 0.019 af

Total Runoff Area = 0.487 ac Runoff Volume = 0.019 af Average Runoff Depth = 0.47"
83.51% Pervious = 0.407 ac 16.49% Impervious = 0.080 ac

PRE-DEVELOPMENT

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Type III 24-hr 2-year Rainfall=3.00"

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Page 5

Summary for Subcatchment 6S: EXISTING

Runoff = 0.19 cfs @ 12.10 hrs, Volume= 0.019 af, Depth= 0.47"

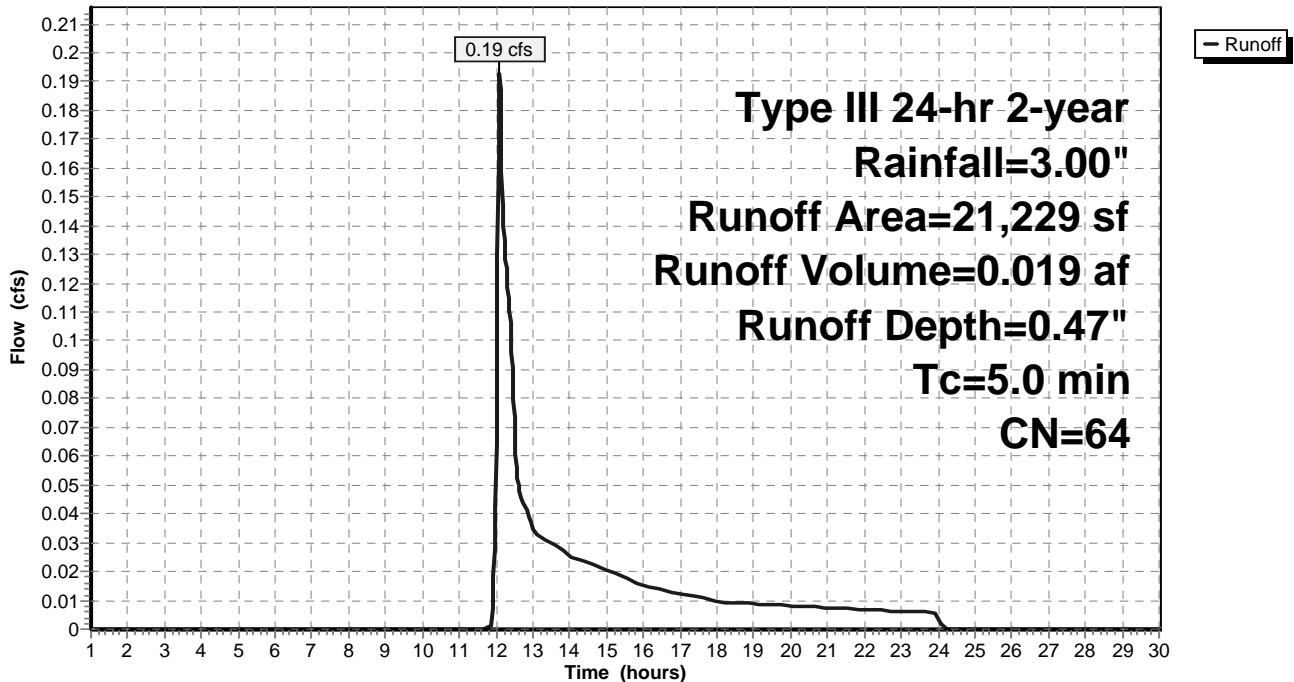
Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
 Type III 24-hr 2-year Rainfall=3.00"

Area (sf)	CN	Description
* 4,600	84	Gravel Parking Area, HSG A
* 420	98	Walkways
* 3,080	98	Building
5,171	49	50-75% Grass cover, Fair, HSG A
7,958	48	Brush, Poor, HSG A
21,229	64	Weighted Average
17,729		Pervious Area
3,500		Impervious Area

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

Subcatchment 6S: EXISTING

Hydrograph



PRE-DEVELOPMENT

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Type III 24-hr 2-year Rainfall=3.00"

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Page 6

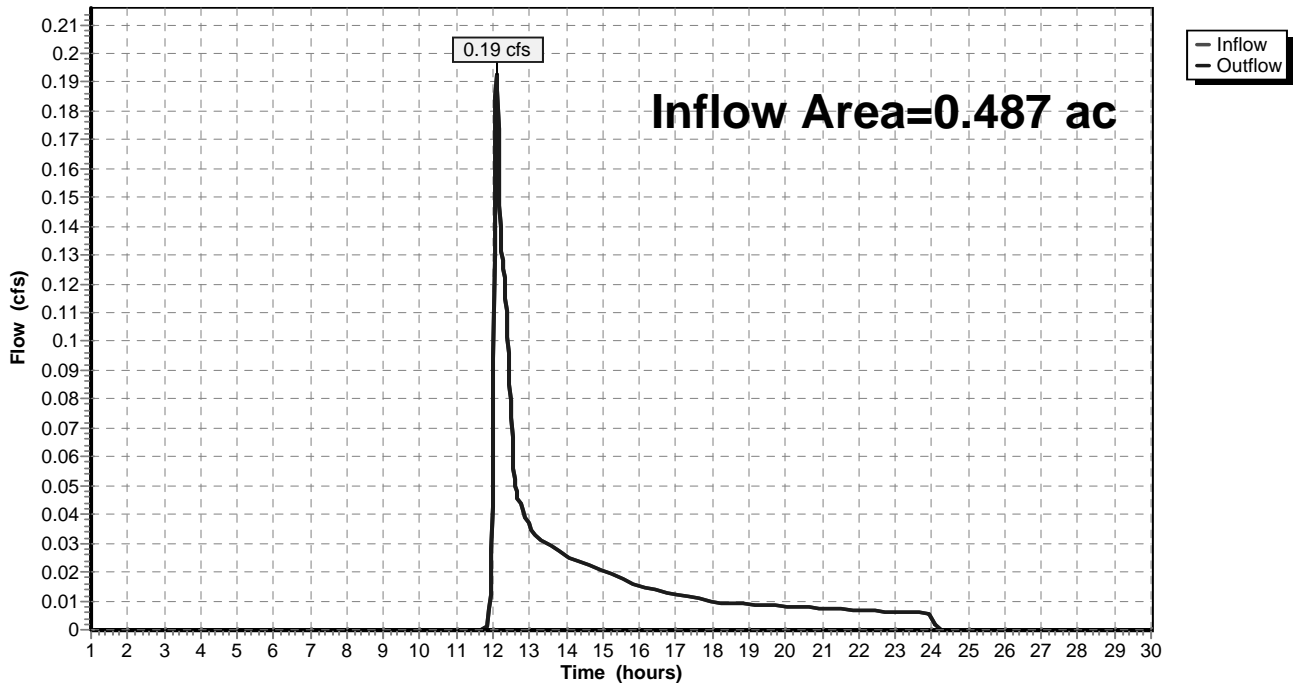
Summary for Reach 6R: POI#1

Inflow Area = 0.487 ac, 16.49% Impervious, Inflow Depth = 0.47" for 2-year event
Inflow = 0.19 cfs @ 12.10 hrs, Volume= 0.019 af
Outflow = 0.19 cfs @ 12.10 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs

Reach 6R: POI#1

Hydrograph



PRE-DEVELOPMENT

Type III 24-hr 10-year Rainfall=4.70"

Prepared by Acorn Engineering, Inc.

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Page 7

Time span=1.00-30.00 hrs, dt=0.02 hrs, 1451 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 6S: EXISTING

Runoff Area=21,229 sf 16.49% Impervious Runoff Depth=1.39"

Tc=5.0 min CN=64 Runoff=0.76 cfs 0.056 af

Reach 6R: POI#1

Inflow=0.76 cfs 0.056 af

Outflow=0.76 cfs 0.056 af

Total Runoff Area = 0.487 ac Runoff Volume = 0.056 af Average Runoff Depth = 1.39"
83.51% Pervious = 0.407 ac 16.49% Impervious = 0.080 ac

PRE-DEVELOPMENT

Prepared by Acorn Engineering, Inc.

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Type III 24-hr 10-year Rainfall=4.70"

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Summary for Subcatchment 6S: EXISTING

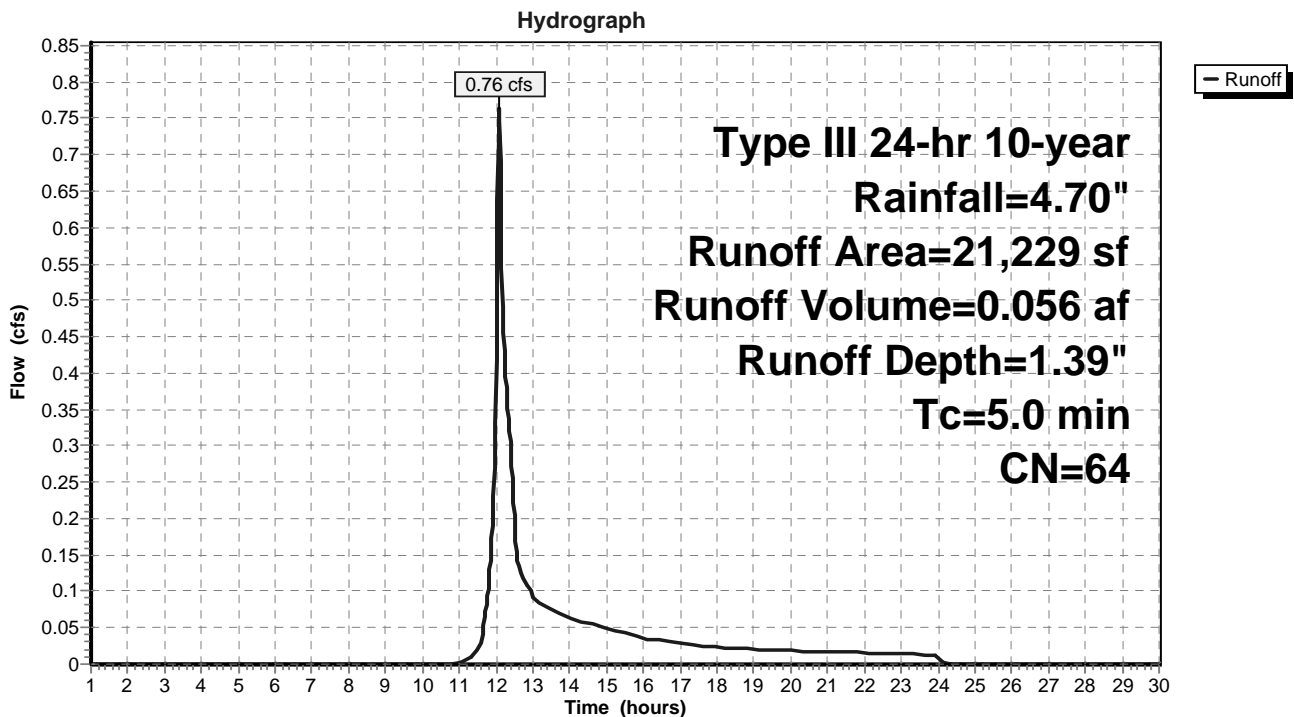
Runoff = 0.76 cfs @ 12.08 hrs, Volume= 0.056 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
 Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
* 4,600	84	Gravel Parking Area, HSG A
* 420	98	Walkways
* 3,080	98	Building
5,171	49	50-75% Grass cover, Fair, HSG A
7,958	48	Brush, Poor, HSG A
21,229	64	Weighted Average
17,729		Pervious Area
3,500		Impervious Area

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

Subcatchment 6S: EXISTING



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Type III 24-hr 10-year Rainfall=4.70"

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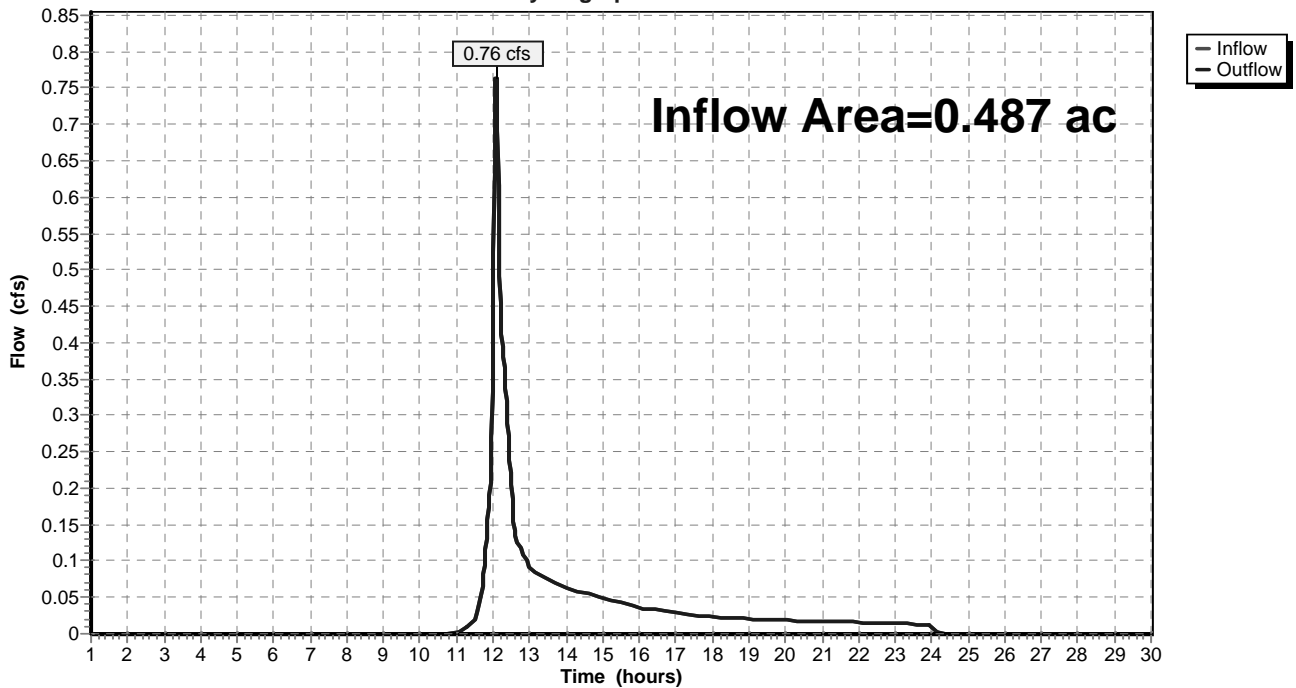
Summary for Reach 6R: POI#1

Inflow Area = 0.487 ac, 16.49% Impervious, Inflow Depth = 1.39" for 10-year event
Inflow = 0.76 cfs @ 12.08 hrs, Volume= 0.056 af
Outflow = 0.76 cfs @ 12.08 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs

Reach 6R: POI#1

Hydrograph



PRE-DEVELOPMENT

Type III 24-hr 25-year Rainfall=5.50"

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Time span=1.00-30.00 hrs, dt=0.02 hrs, 1451 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 6S: EXISTING

Runoff Area=21,229 sf 16.49% Impervious Runoff Depth=1.91"

Tc=5.0 min CN=64 Runoff=1.09 cfs 0.078 af

Reach 6R: POI#1

Inflow=1.09 cfs 0.078 af

Outflow=1.09 cfs 0.078 af

Total Runoff Area = 0.487 ac Runoff Volume = 0.078 af Average Runoff Depth = 1.91"
83.51% Pervious = 0.407 ac 16.49% Impervious = 0.080 ac

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Type III 24-hr 25-year Rainfall=5.50"

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Summary for Subcatchment 6S: EXISTING

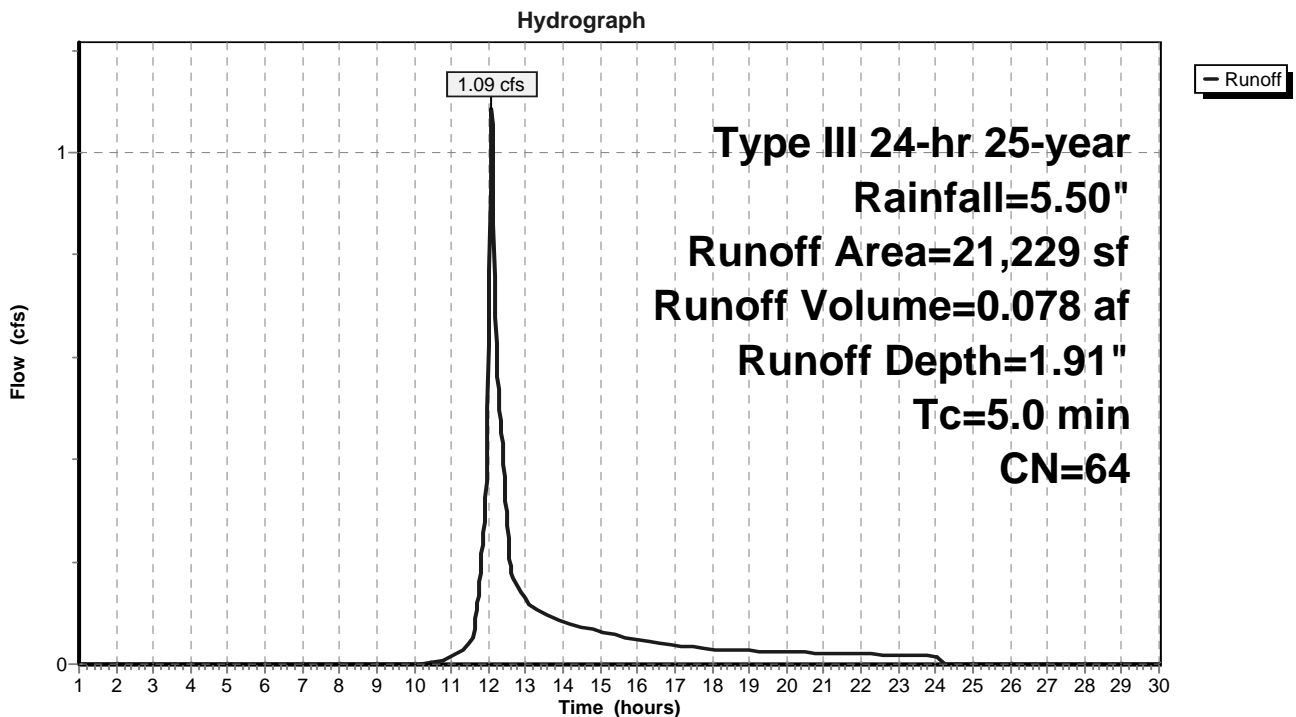
Runoff = 1.09 cfs @ 12.08 hrs, Volume= 0.078 af, Depth= 1.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
* 4,600	84	Gravel Parking Area, HSG A
* 420	98	Walkways
* 3,080	98	Building
5,171	49	50-75% Grass cover, Fair, HSG A
7,958	48	Brush, Poor, HSG A
21,229	64	Weighted Average
17,729		Pervious Area
3,500		Impervious Area

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

Subcatchment 6S: EXISTING



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Type III 24-hr 25-year Rainfall=5.50"

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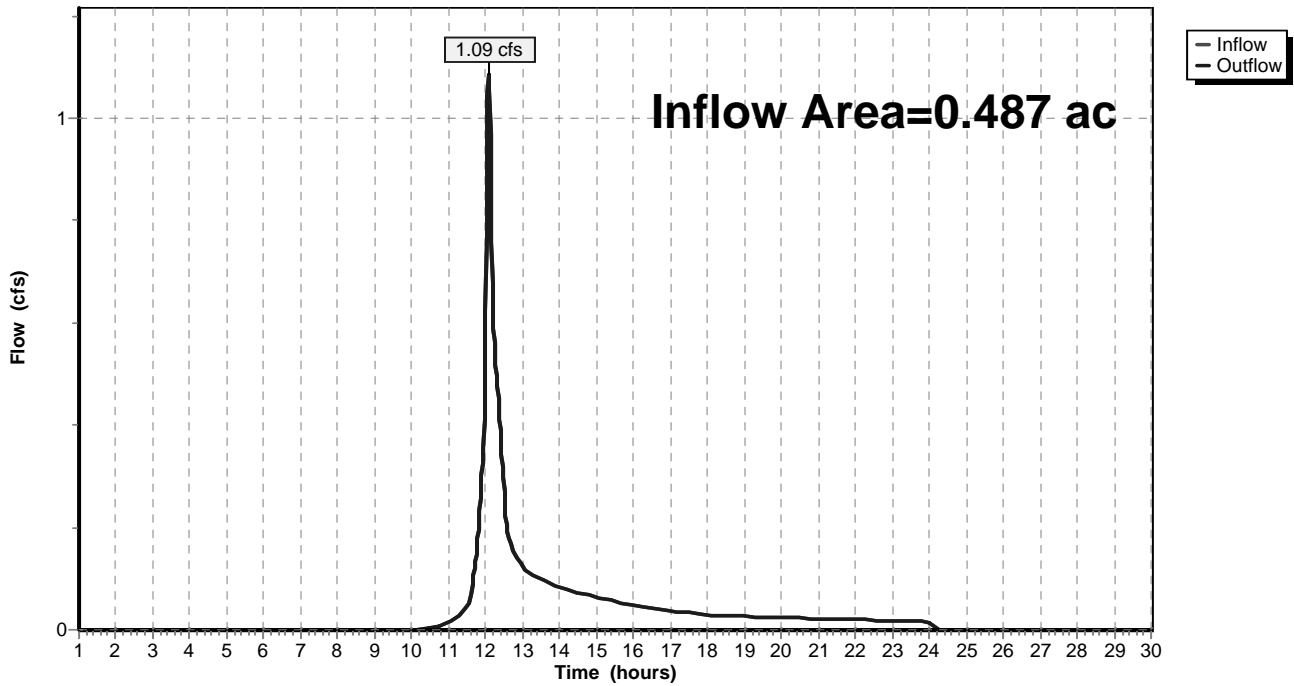
Summary for Reach 6R: POI#1

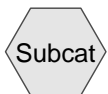
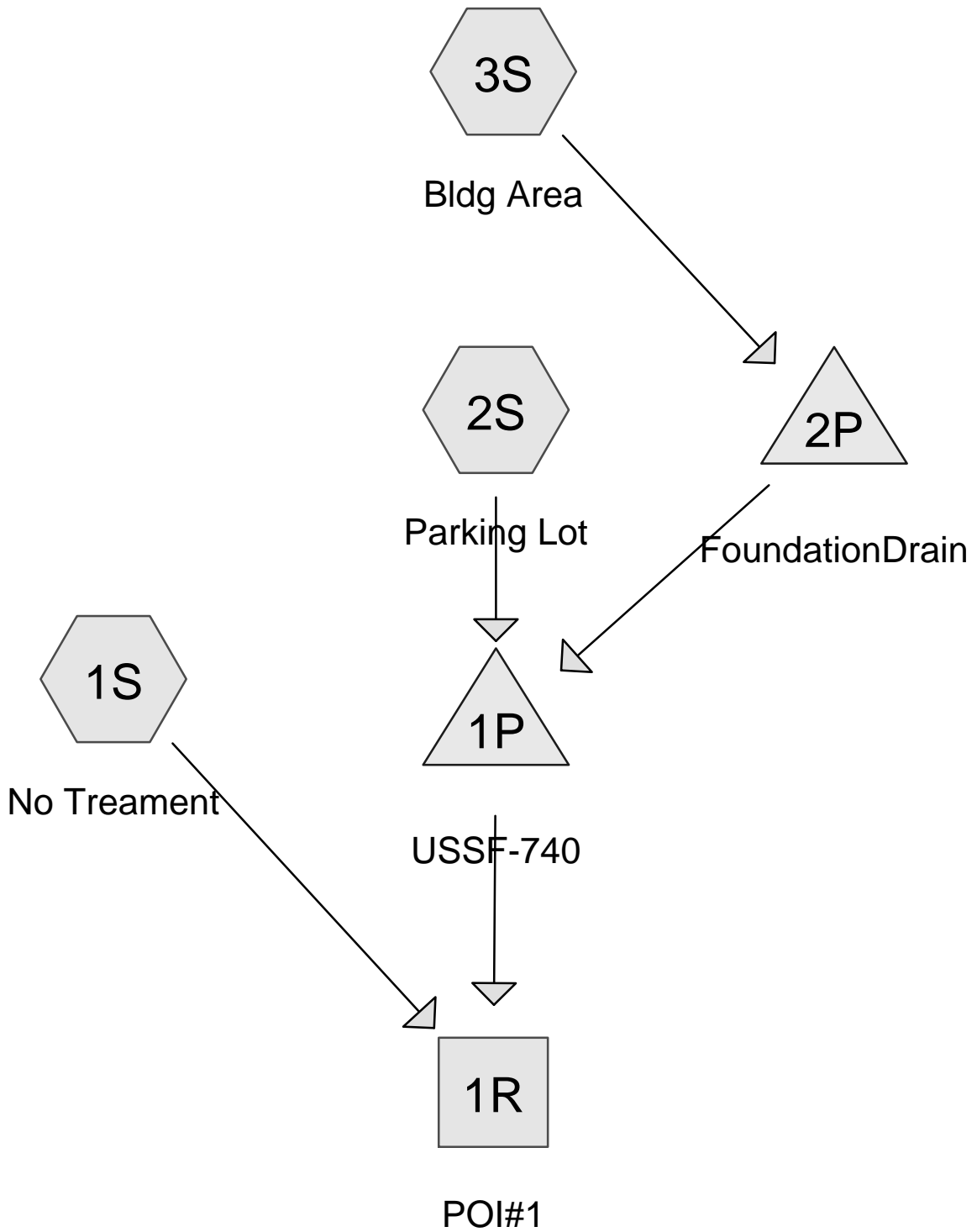
Inflow Area = 0.487 ac, 16.49% Impervious, Inflow Depth = 1.91" for 25-year event
Inflow = 1.09 cfs @ 12.08 hrs, Volume= 0.078 af
Outflow = 1.09 cfs @ 12.08 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs

Reach 6R: POI#1

Hydrograph

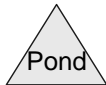




Subcat



Reach



Pond



Link

Drainage Diagram for POST-DEVELOPMENT
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POST-DEVELOPMENT

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.143	39	>75% Grass cover, Good, HSG A (1S,3S)
0.008	39	Planters (3S)
0.165	98	Building (1S,3S)
0.034	98	Concrete Sidewalk (3S)
0.085	98	Parking (2S)
0.043	98	Parking Lot (1S)
0.010	98	Walkways (1S)
0.487		TOTAL AREA

POST-DEVELOPMENT

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Soil Listing (all nodes)

Area (acres)	Soil Goup	Subcatchment Numbers
0.143	HSG A	1S, 3S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.345	Other	1S, 2S, 3S
0.487		TOTAL AREA

POST-DEVELOPMENT

Type III 24-hr 2-year Rainfall=3.00"

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Time span=1.00-30.00 hrs, dt=0.02 hrs, 1451 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: No Treatment

Runoff Area=9,309 sf 57.49% Impervious Runoff Depth=0.86"
Tc=5.0 min CN=73 Runoff=0.20 cfs 0.015 af

Subcatchment 2S: Parking Lot

Runoff Area=3,700 sf 100.00% Impervious Runoff Depth=2.77"
Tc=5.0 min CN=98 Runoff=0.25 cfs 0.020 af

Subcatchment 3S: Bldg Area

Runoff Area=8,220 sf 68.15% Impervious Runoff Depth=1.19"
Tc=5.0 min CN=79 Runoff=0.27 cfs 0.019 af

Reach 1R: POI#1

Inflow=0.24 cfs 0.022 af
Outflow=0.24 cfs 0.022 af

Pond 1P: USSF-740

Peak Elev=32.11' Storage=404 cf Inflow=0.51 cfs 0.033 af
Discarded=0.08 cfs 0.026 af Primary=0.08 cfs 0.007 af Outflow=0.17 cfs 0.033 af

Pond 2P: FoundationDrain

Peak Elev=42.94' Storage=0.001 af Inflow=0.27 cfs 0.019 af
Discarded=0.00 cfs 0.006 af Primary=0.26 cfs 0.013 af Outflow=0.27 cfs 0.019 af

Total Runoff Area = 0.487 ac Runoff Volume = 0.054 af Average Runoff Depth = 1.32"
30.97% Pervious = 0.151 ac 69.03% Impervious = 0.336 ac

POST-DEVELOPMENT

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Type III 24-hr 2-year Rainfall=3.00"

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Summary for Subcatchment 1S: No Treatment

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.015 af, Depth= 0.86"

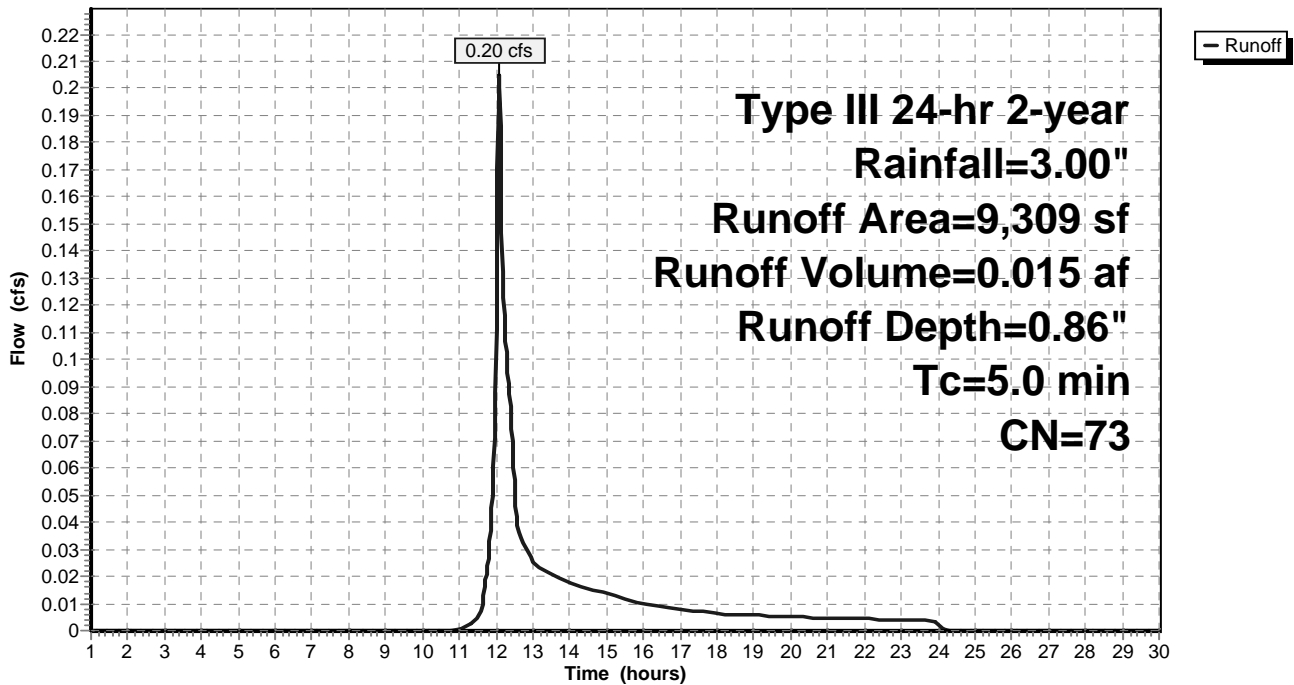
Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (sf)	CN	Description
*	420	98	Walkways
*	3,080	98	Building
*	1,852	98	Parking Lot
	3,957	39	>75% Grass cover, Good, HSG A
	9,309	73	Weighted Average
	3,957		Pervious Area
	5,352		Impervious Area

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

Subcatchment 1S: No Treatment

Hydrograph



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Type III 24-hr 2-year Rainfall=3.00"

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Summary for Subcatchment 2S: Parking Lot

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.020 af, Depth= 2.77"

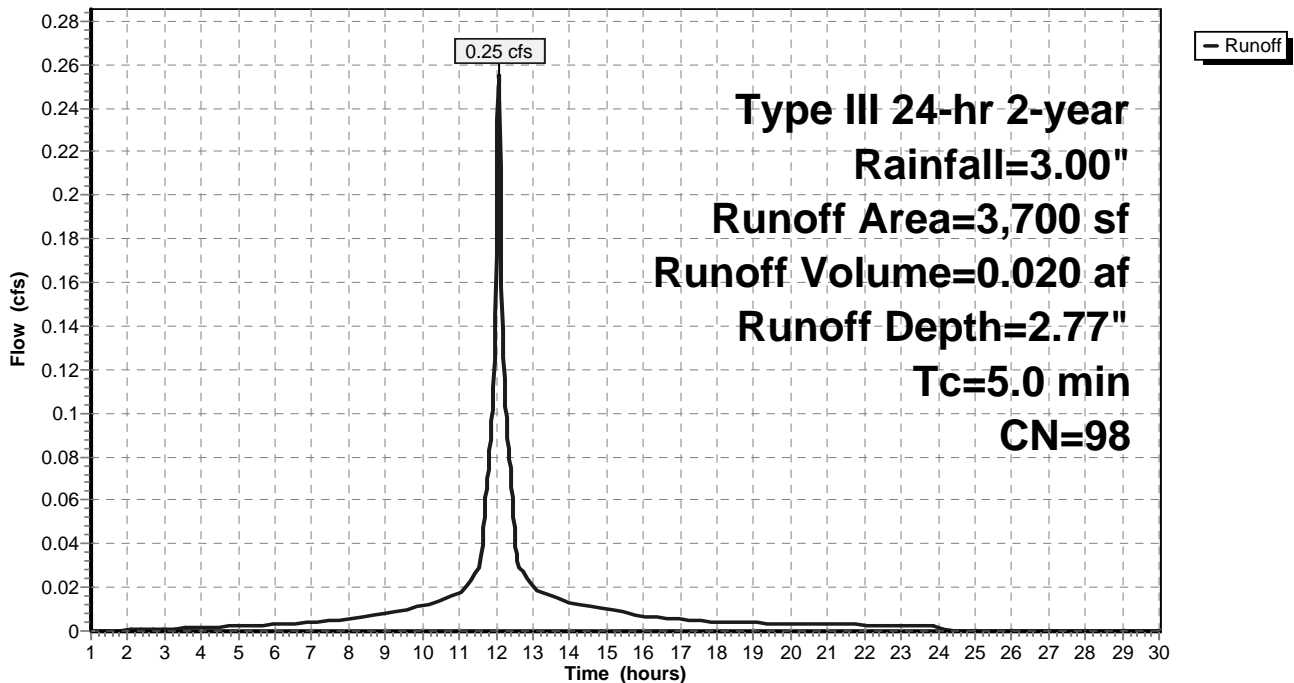
Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-year Rainfall=3.00"

Area (sf)	CN	Description
* 3,700	98	Parking
3,700		Impervious Area

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

Subcatchment 2S: Parking Lot

Hydrograph



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Type III 24-hr 2-year Rainfall=3.00"

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Summary for Subcatchment 3S: Bldg Area

Runoff = 0.27 cfs @ 12.08 hrs, Volume= 0.019 af, Depth= 1.19"

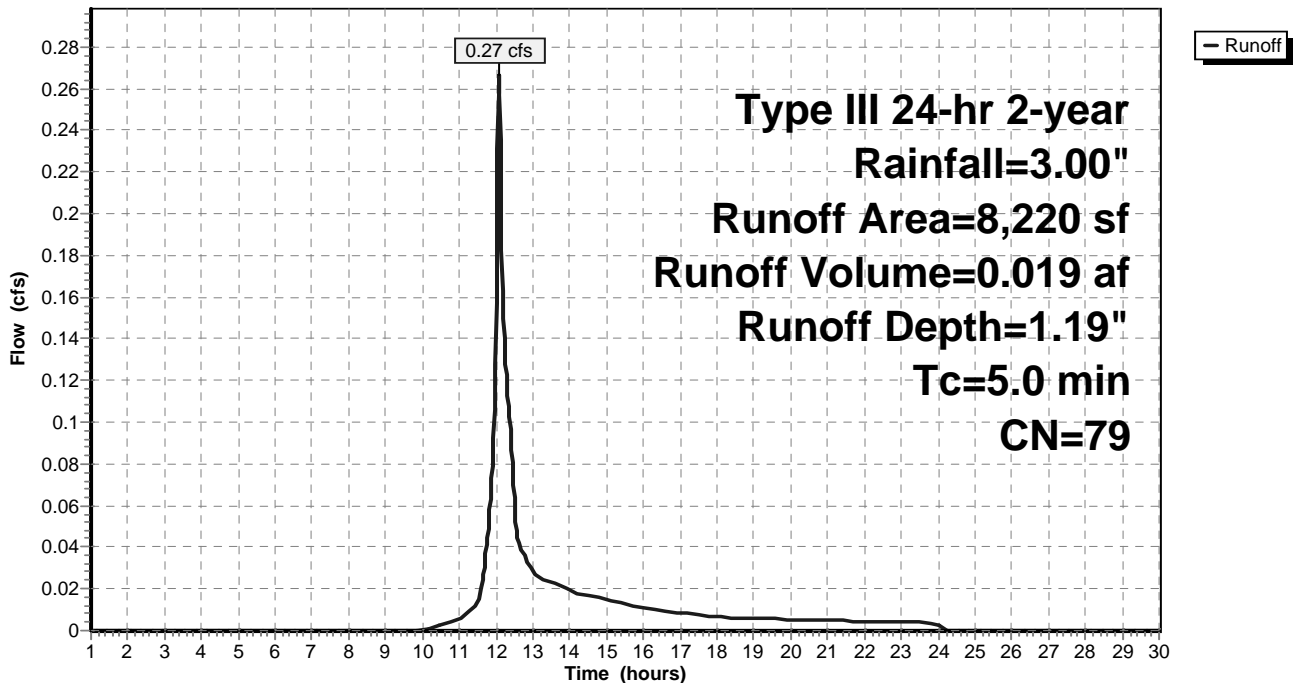
Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-year Rainfall=3.00"

	Area (sf)	CN	Description
*	4,117	98	Building
*	1,485	98	Concrete Sidewalk
*	363	39	Planters
	2,255	39	>75% Grass cover, Good, HSG A
	8,220	79	Weighted Average
	2,618		Pervious Area
	5,602		Impervious Area

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

Subcatchment 3S: Bldg Area

Hydrograph



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Type III 24-hr 2-year Rainfall=3.00"

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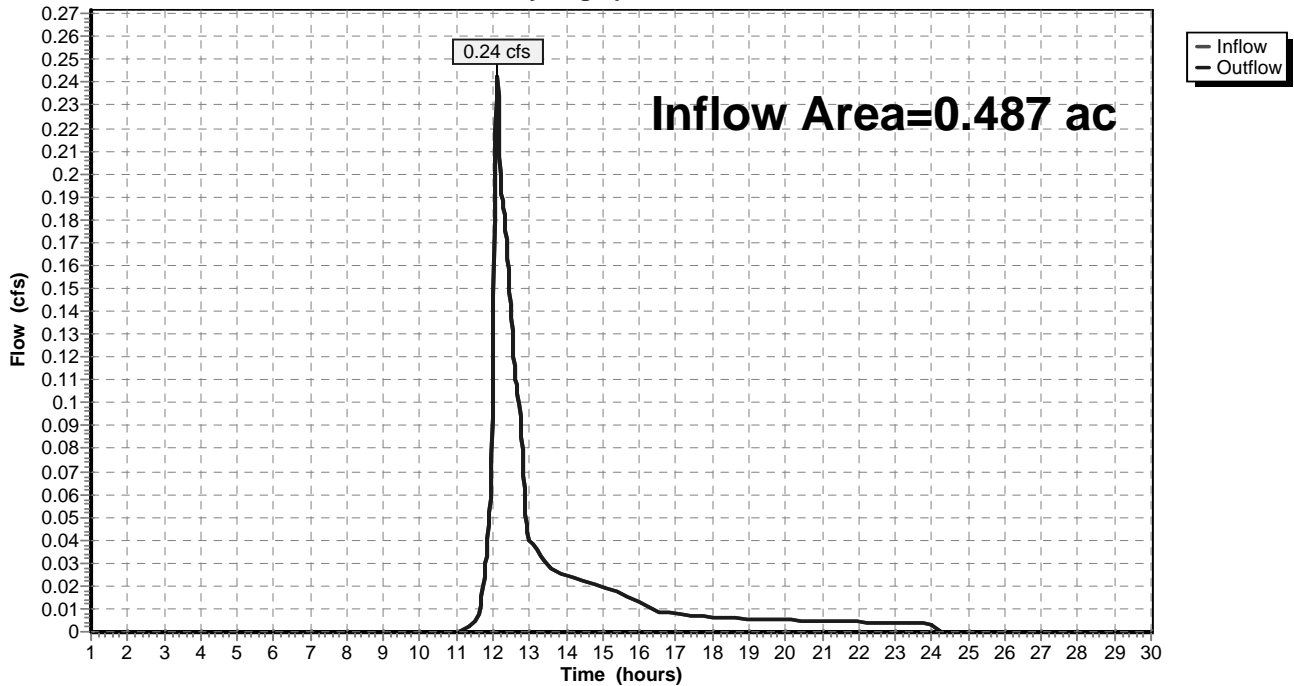
Summary for Reach 1R: POI#1

Inflow Area = 0.487 ac, 69.03% Impervious, Inflow Depth = 0.54" for 2-year event
Inflow = 0.24 cfs @ 12.12 hrs, Volume= 0.022 af
Outflow = 0.24 cfs @ 12.12 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs

Reach 1R: POI#1

Hydrograph



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Type III 24-hr 2-year Rainfall=3.00"

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Summary for Pond 1P: USSF-740

Inflow Area = 0.274 ac, 78.04% Impervious, Inflow Depth = 1.43" for 2-year event
 Inflow = 0.51 cfs @ 12.08 hrs, Volume= 0.033 af
 Outflow = 0.17 cfs @ 12.39 hrs, Volume= 0.033 af, Atten= 67%, Lag= 18.3 min
 Discarded = 0.08 cfs @ 12.14 hrs, Volume= 0.026 af
 Primary = 0.08 cfs @ 12.39 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 32.11' @ 12.39 hrs Surf.Area= 1,474 sf Storage= 404 cf

Plug-Flow detention time= 40.4 min calculated for 0.032 af (100% of inflow)
 Center-of-Mass det. time= 40.4 min (808.1 - 767.7)

Volume	Invert	Avail.Storage	Storage Description
#1	31.92'	39 cf	4.00'D x 3.08'H Vertical Cone/Cylinder
#2	31.42'	462 cf	16.24'W x 30.00'L x 3.50'H Crushed Stone 1,705 cf Overall - 551 cf Embedded = 1,154 cf x 40.0% Voids
#3	31.92'	551 cf	44.6"W x 30.0"H x 7.12'L StormTech SC-740x 12 Inside #2
#4	29.92'	37 cf	16.24'W x 30.00'L x 1.50'H Sand 731 cf Overall x 5.0% Voids
#5	28.92'	195 cf	16.24'W x 30.00'L x 1.00'H Prismatic 487 cf Overall x 40.0% Voids
		1,283 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	29.00'	12.0" Vert. 12" Outlet to the York St C= 0.600
#2	Device 1	29.25'	0.6" Vert. Water Quality Outlet C= 0.600
#3	Device 1	31.60'	2.0" Vert. Quantity Outlet C= 0.600
#4	Discarded	28.92'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.08 cfs @ 12.14 hrs HW=31.93' (Free Discharge)
 ↳4=Exfiltration (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.08 cfs @ 12.39 hrs HW=32.11' (Free Discharge)
 ↳1=12" Outlet to the York St (Passes 0.08 cfs of 6.11 cfs potential flow)
 ↳2=Water Quality Outlet (Orifice Controls 0.02 cfs @ 8.10 fps)
 ↳3=Quantity Outlet (Orifice Controls 0.07 cfs @ 3.14 fps)

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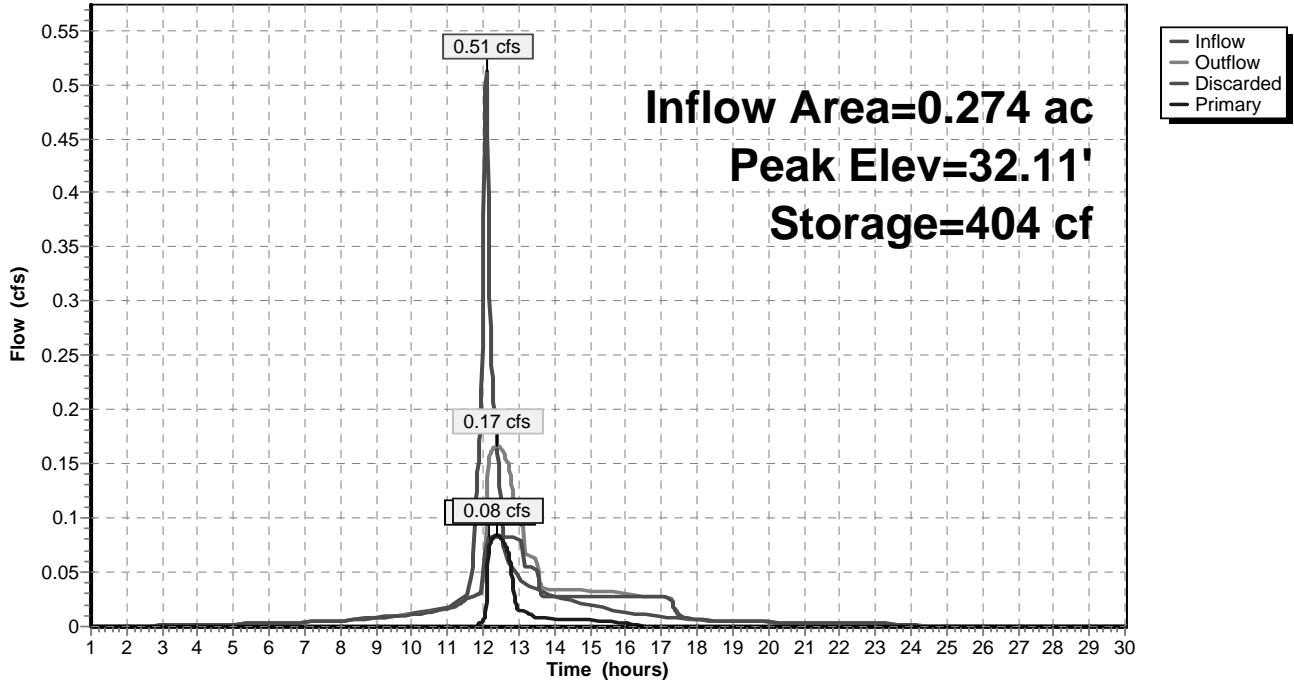
Type III 24-hr 2-year Rainfall=3.00"

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Pond 1P: USSF-740

Hydrograph



POST-DEVELOPMENT

Type III 24-hr 2-year Rainfall=3.00"

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Summary for Pond 2P: FoundationDrain

Inflow Area = 0.189 ac, 68.15% Impervious, Inflow Depth = 1.19" for 2-year event
 Inflow = 0.27 cfs @ 12.08 hrs, Volume= 0.019 af
 Outflow = 0.27 cfs @ 12.09 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.00 cfs @ 10.94 hrs, Volume= 0.006 af
 Primary = 0.26 cfs @ 12.09 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 42.94' @ 12.09 hrs Surf.Area= 0.002 ac Storage= 0.001 af

Plug-Flow detention time= 22.7 min calculated for 0.019 af (100% of inflow)
 Center-of-Mass det. time= 22.7 min (871.2 - 848.5)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	0.002 af	2.00'W x 43.00'L x 2.00'H Prismatic 0.004 af Overall - 0.000 af Embedded = 0.004 af x 40.0% Voids
#2	42.67'	0.000 af	6.0"D x 43.00'L Horizontal Cylinder S= 0.0050 '/'Inside #1
		0.002 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	42.67'	6.0" x 85.0' long Culvert RCP, rounded edge headwall, Ke= 0.100 Outlet Invert= 34.50' S= 0.0961 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior
#2	Discarded	42.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 10.94 hrs HW=42.02' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.26 cfs @ 12.09 hrs HW=42.94' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.26 cfs @ 2.41 fps)

POST-DEVELOPMENT

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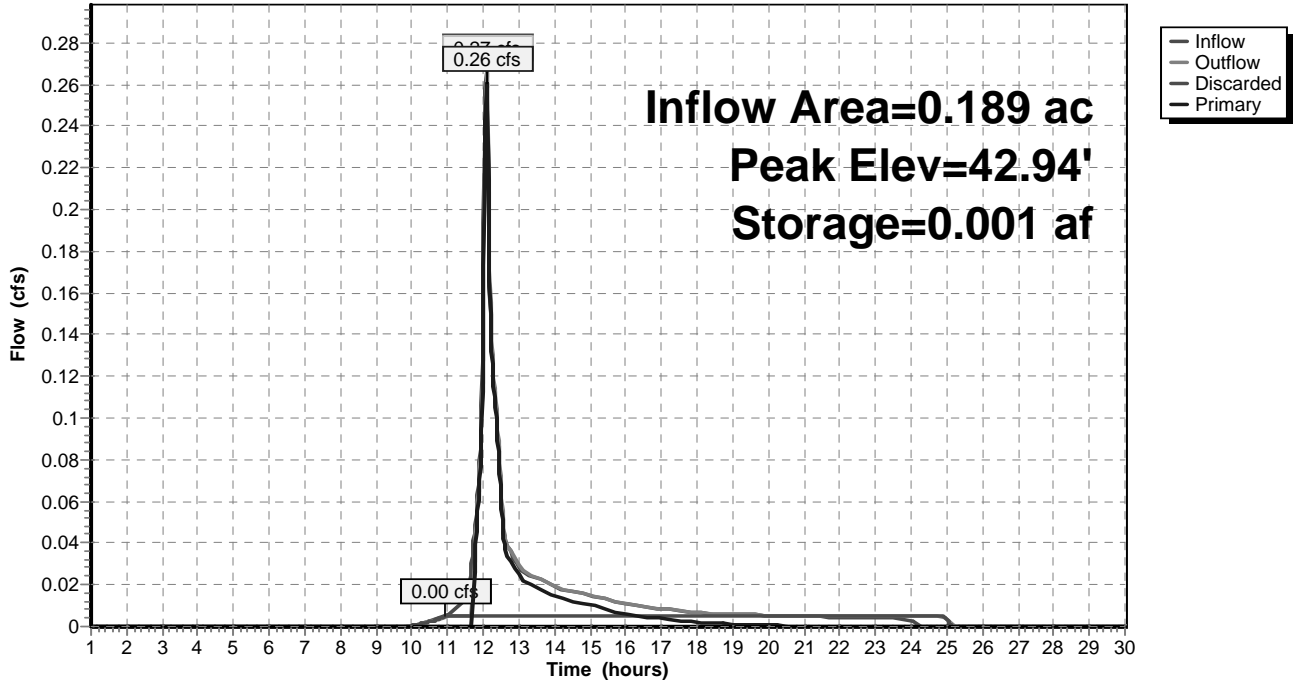
Type III 24-hr 2-year Rainfall=3.00"

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Pond 2P: FoundationDrain

Hydrograph



POST-DEVELOPMENT

Type III 24-hr 10-year Rainfall=4.70"

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Time span=1.00-30.00 hrs, dt=0.02 hrs, 1451 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: No Treatment

Runoff Area=9,309 sf 57.49% Impervious Runoff Depth=2.05"
Tc=5.0 min CN=73 Runoff=0.53 cfs 0.036 af

Subcatchment 2S: Parking Lot

Runoff Area=3,700 sf 100.00% Impervious Runoff Depth>4.46"
Tc=5.0 min CN=98 Runoff=0.40 cfs 0.032 af

Subcatchment 3S: Bldg Area

Runoff Area=8,220 sf 68.15% Impervious Runoff Depth=2.55"
Tc=5.0 min CN=79 Runoff=0.58 cfs 0.040 af

Reach 1R: POI#1

Inflow=0.64 cfs 0.060 af
Outflow=0.64 cfs 0.060 af

Pond 1P: USSF-740

Peak Elev=33.50' Storage=921 cf Inflow=0.97 cfs 0.065 af
Discarded=0.08 cfs 0.042 af Primary=0.16 cfs 0.023 af Outflow=0.24 cfs 0.065 af

Pond 2P: FoundationDrain

Peak Elev=43.12' Storage=0.001 af Inflow=0.58 cfs 0.040 af
Discarded=0.00 cfs 0.007 af Primary=0.57 cfs 0.033 af Outflow=0.58 cfs 0.040 af

Total Runoff Area = 0.487 ac Runoff Volume = 0.108 af Average Runoff Depth = 2.66"
30.97% Pervious = 0.151 ac 69.03% Impervious = 0.336 ac

POST-DEVELOPMENT

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Type III 24-hr 10-year Rainfall=4.70"

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Summary for Subcatchment 1S: No Treatment

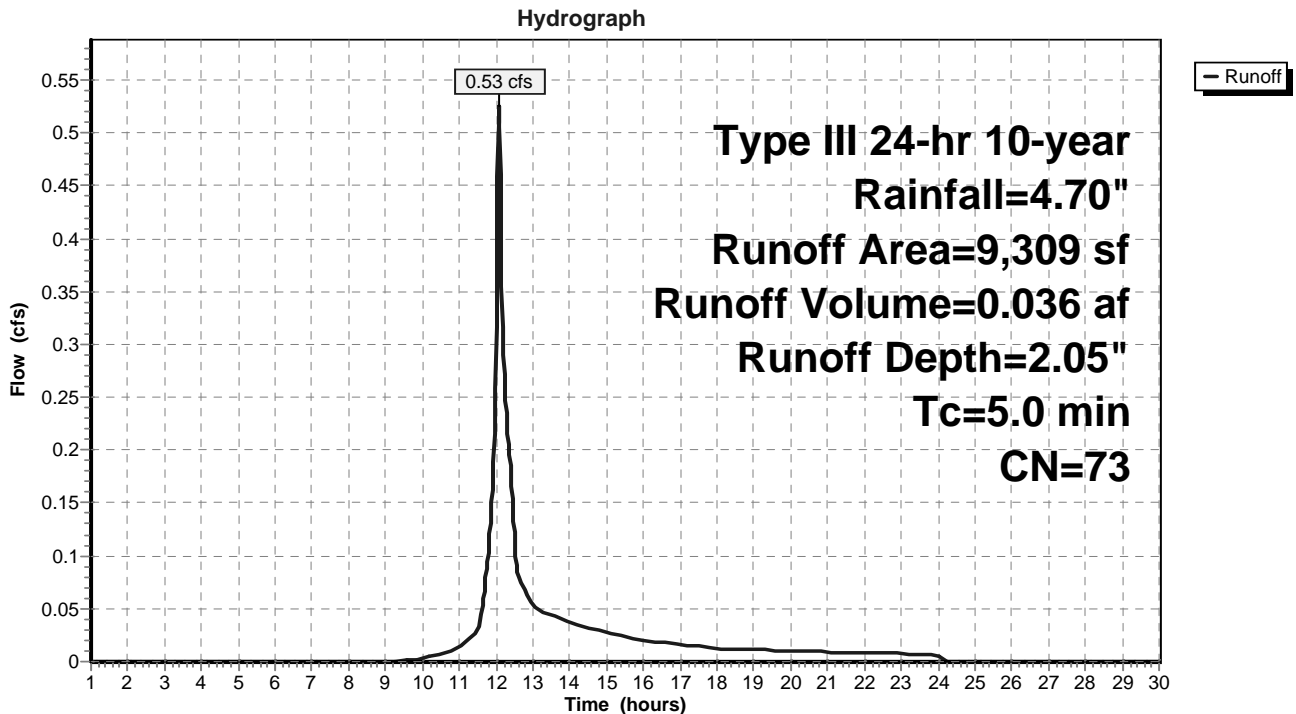
Runoff = 0.53 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
* 420	98	Walkways
* 3,080	98	Building
* 1,852	98	Parking Lot
3,957	39	>75% Grass cover, Good, HSG A
9,309	73	Weighted Average
3,957		Pervious Area
5,352		Impervious Area

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

Subcatchment 1S: No Treatment



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Type III 24-hr 10-year Rainfall=4.70"

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Summary for Subcatchment 2S: Parking Lot

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 0.032 af, Depth> 4.46"

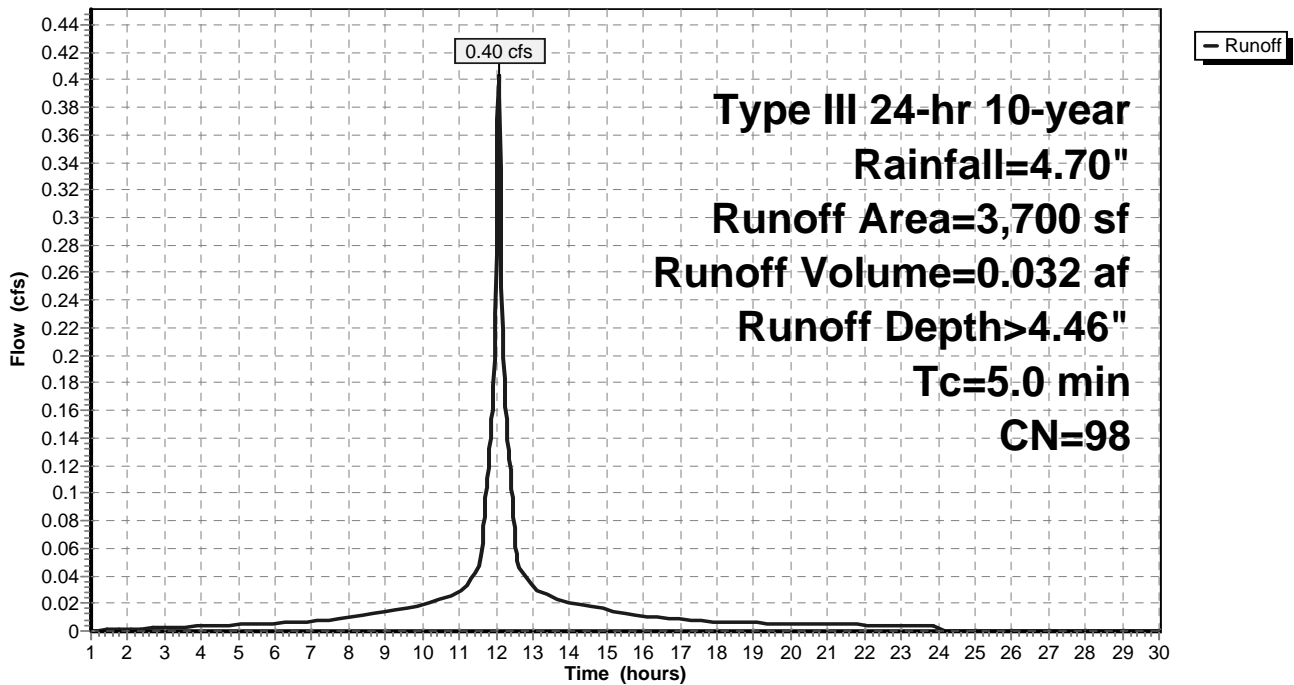
Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
 Type III 24-hr 10-year Rainfall=4.70"

Area (sf)	CN	Description
* 3,700	98	Parking
3,700		Impervious Area

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

Subcatchment 2S: Parking Lot

Hydrograph



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Type III 24-hr 10-year Rainfall=4.70"

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Summary for Subcatchment 3S: Bldg Area

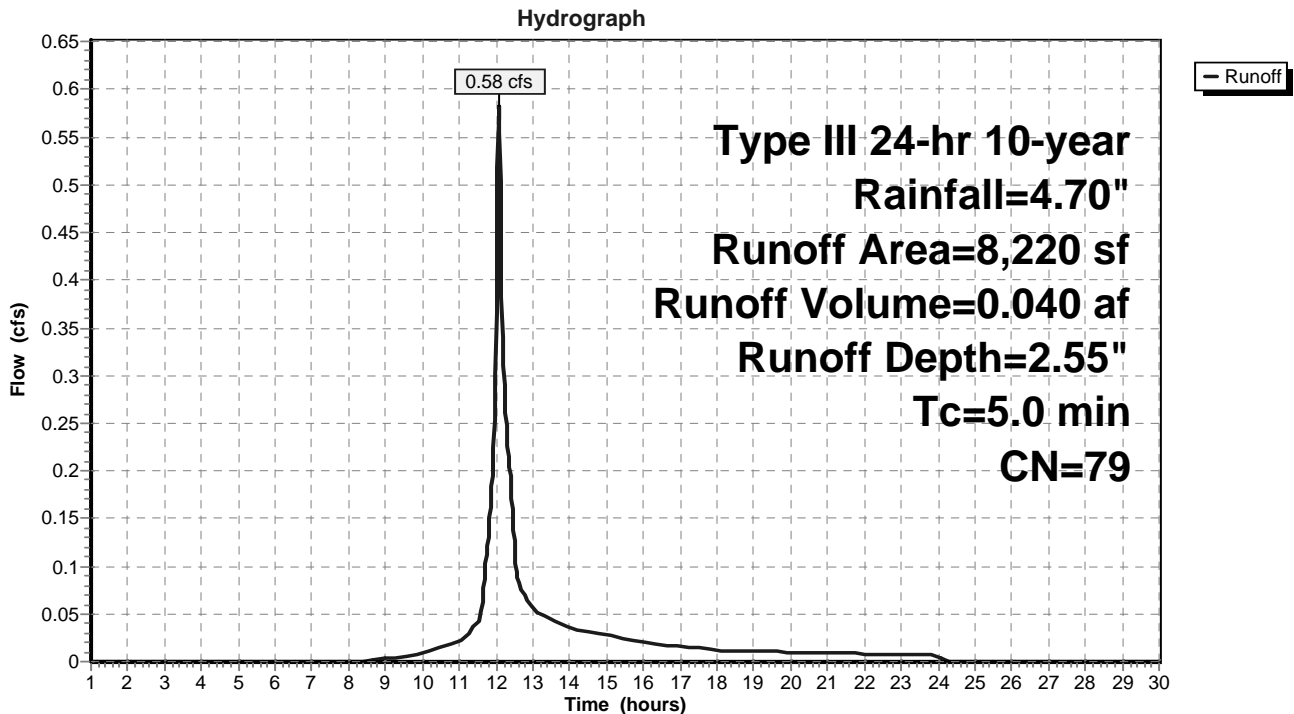
Runoff = 0.58 cfs @ 12.08 hrs, Volume= 0.040 af, Depth= 2.55"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-year Rainfall=4.70"

	Area (sf)	CN	Description
*	4,117	98	Building
*	1,485	98	Concrete Sidewalk
*	363	39	Planters
	2,255	39	>75% Grass cover, Good, HSG A
	8,220	79	Weighted Average
	2,618		Pervious Area
	5,602		Impervious Area

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

Subcatchment 3S: Bldg Area



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Type III 24-hr 10-year Rainfall=4.70"

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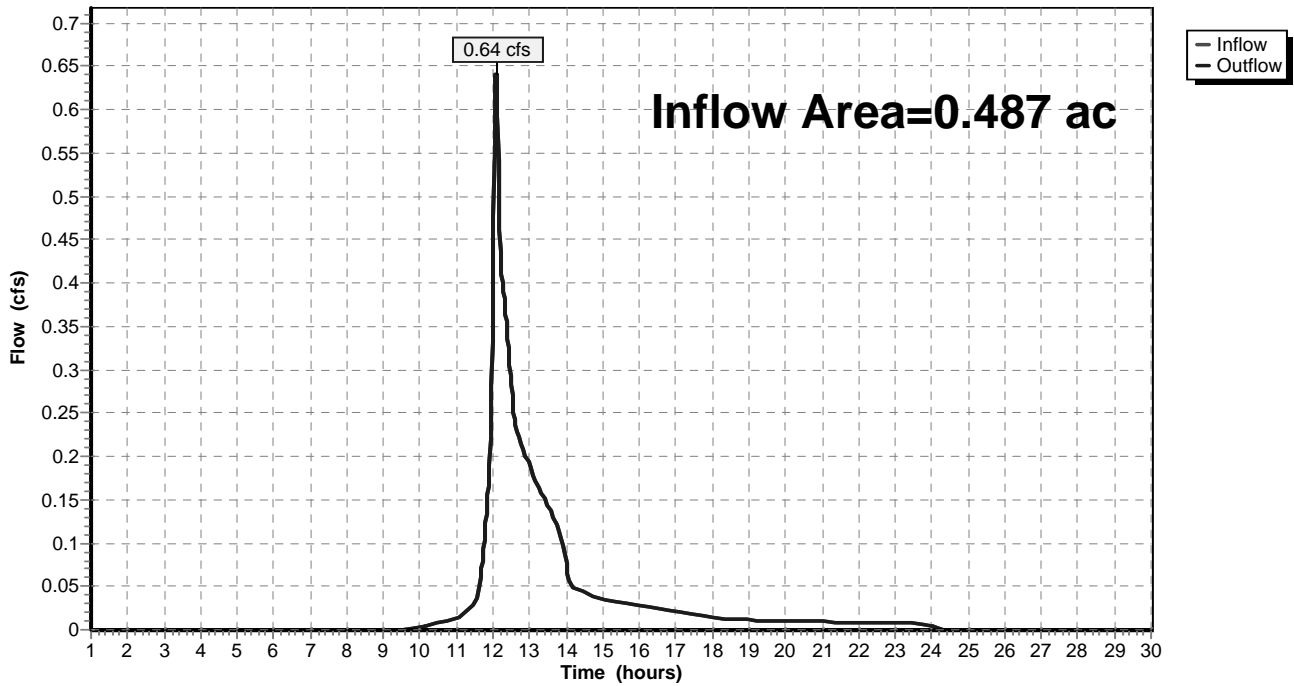
Summary for Reach 1R: POI#1

Inflow Area = 0.487 ac, 69.03% Impervious, Inflow Depth = 1.48" for 10-year event
Inflow = 0.64 cfs @ 12.08 hrs, Volume= 0.060 af
Outflow = 0.64 cfs @ 12.08 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs

Reach 1R: POI#1

Hydrograph



POST-DEVELOPMENT

Type III 24-hr 10-year Rainfall=4.70"

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Summary for Pond 1P: USSF-740

Inflow Area = 0.274 ac, 78.04% Impervious, Inflow Depth > 2.85" for 10-year event
 Inflow = 0.97 cfs @ 12.08 hrs, Volume= 0.065 af
 Outflow = 0.24 cfs @ 12.45 hrs, Volume= 0.065 af, Atten= 75%, Lag= 22.6 min
 Discarded = 0.08 cfs @ 11.96 hrs, Volume= 0.042 af
 Primary = 0.16 cfs @ 12.45 hrs, Volume= 0.023 af

Routing by Stor-Ind method, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 33.50' @ 12.45 hrs Surf.Area= 1,474 sf Storage= 921 cf

Plug-Flow detention time= 47.1 min calculated for 0.065 af (100% of inflow)
 Center-of-Mass det. time= 47.0 min (822.7 - 775.7)

Volume	Invert	Avail.Storage	Storage Description
#1	31.92'	39 cf	4.00'D x 3.08'H Vertical Cone/Cylinder
#2	31.42'	462 cf	16.24'W x 30.00'L x 3.50'H Crushed Stone 1,705 cf Overall - 551 cf Embedded = 1,154 cf x 40.0% Voids
#3	31.92'	551 cf	44.6"W x 30.0"H x 7.12'L StormTech SC-740x 12 Inside #2
#4	29.92'	37 cf	16.24'W x 30.00'L x 1.50'H Sand 731 cf Overall x 5.0% Voids
#5	28.92'	195 cf	16.24'W x 30.00'L x 1.00'H Prismatic 487 cf Overall x 40.0% Voids
		1,283 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	29.00'	12.0" Vert. 12" Outlet to the York St C= 0.600
#2	Device 1	29.25'	0.6" Vert. Water Quality Outlet C= 0.600
#3	Device 1	31.60'	2.0" Vert. Quantity Outlet C= 0.600
#4	Discarded	28.92'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.08 cfs @ 11.96 hrs HW=31.94' (Free Discharge)
 ↳4=Exfiltration (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.16 cfs @ 12.45 hrs HW=33.50' (Free Discharge)
 ↳1=12" Outlet to the York St (Passes 0.16 cfs of 7.56 cfs potential flow)
 ↳2=Water Quality Outlet (Orifice Controls 0.02 cfs @ 9.90 fps)
 ↳3=Quantity Outlet (Orifice Controls 0.14 cfs @ 6.49 fps)

POST-DEVELOPMENT

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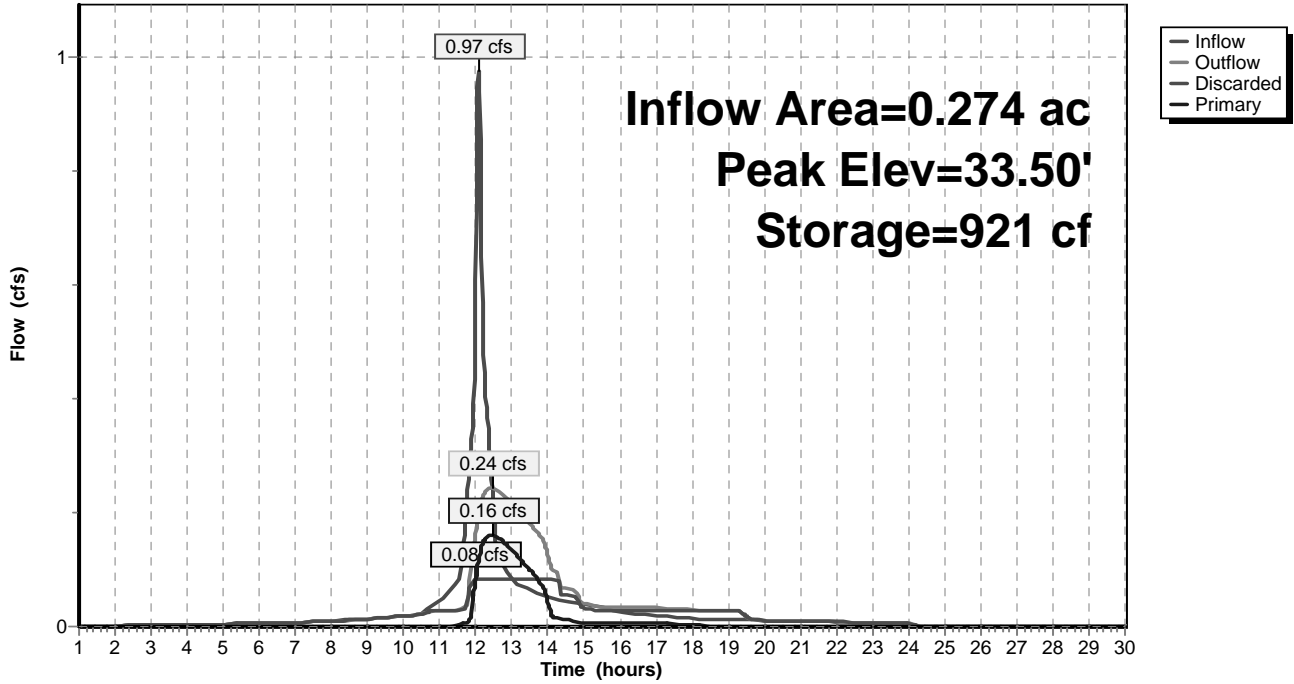
Type III 24-hr 10-year Rainfall=4.70"

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Pond 1P: USSF-740

Hydrograph



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Type III 24-hr 10-year Rainfall=4.70"

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Summary for Pond 2P: FoundationDrain

Inflow Area = 0.189 ac, 68.15% Impervious, Inflow Depth = 2.55" for 10-year event
 Inflow = 0.58 cfs @ 12.08 hrs, Volume= 0.040 af
 Outflow = 0.58 cfs @ 12.08 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.5 min
 Discarded = 0.00 cfs @ 9.36 hrs, Volume= 0.007 af
 Primary = 0.57 cfs @ 12.08 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 43.12' @ 12.08 hrs Surf.Area= 0.002 ac Storage= 0.001 af

Plug-Flow detention time= 12.6 min calculated for 0.040 af (100% of inflow)
 Center-of-Mass det. time= 12.7 min (839.0 - 826.3)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	0.002 af	2.00'W x 43.00'L x 2.00'H Prismatic 0.004 af Overall - 0.000 af Embedded = 0.004 af x 40.0% Voids
#2	42.67'	0.000 af	6.0"D x 43.00'L Horizontal Cylinder S= 0.0050 '/'Inside #1
		0.002 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	42.67'	6.0" x 85.0' long Culvert RCP, rounded edge headwall, Ke= 0.100 Outlet Invert= 34.50' S= 0.0961 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior
#2	Discarded	42.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 9.36 hrs HW=42.02' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.57 cfs @ 12.08 hrs HW=43.12' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 0.57 cfs @ 3.10 fps)

POST-DEVELOPMENT

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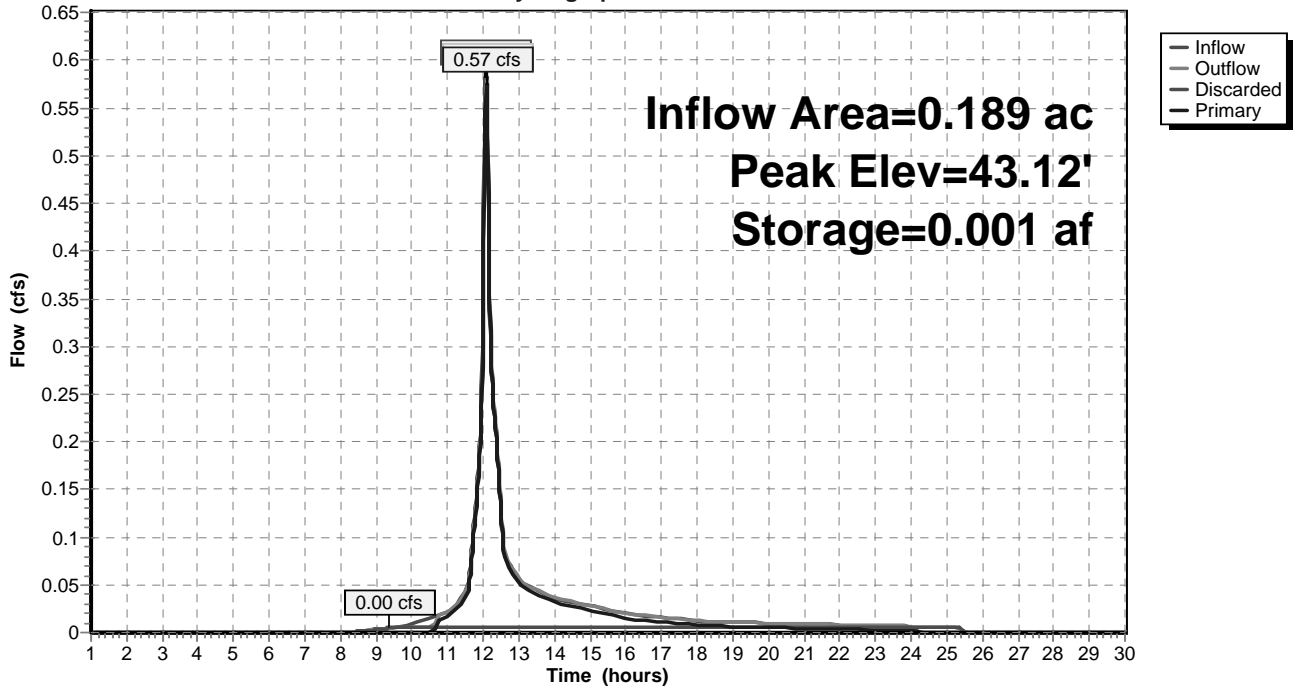
Type III 24-hr 10-year Rainfall=4.70"

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Pond 2P: FoundationDrain

Hydrograph



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Type III 24-hr 25-year Rainfall=5.50"

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Time span=1.00-30.00 hrs, dt=0.02 hrs, 1451 points

Runoff by SCS TR-20 method, UH=SCS

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: No Treatment

Runoff Area=9,309 sf 57.49% Impervious Runoff Depth=2.68"
Tc=5.0 min CN=73 Runoff=0.69 cfs 0.048 af

Subcatchment 2S: Parking Lot

Runoff Area=3,700 sf 100.00% Impervious Runoff Depth>5.26"
Tc=5.0 min CN=98 Runoff=0.47 cfs 0.037 af

Subcatchment 3S: Bldg Area

Runoff Area=8,220 sf 68.15% Impervious Runoff Depth=3.24"
Tc=5.0 min CN=79 Runoff=0.74 cfs 0.051 af

Reach 1R: POI#1

Inflow=0.83 cfs 0.081 af
Outflow=0.83 cfs 0.081 af

Pond 1P: USSF-740

Peak Elev=34.50' Storage=1,195 cf Inflow=1.20 cfs 0.081 af
Discarded=0.08 cfs 0.048 af Primary=0.20 cfs 0.033 af Outflow=0.28 cfs 0.081 af

Pond 2P: FoundationDrain

Peak Elev=43.24' Storage=0.001 af Inflow=0.74 cfs 0.051 af
Discarded=0.00 cfs 0.007 af Primary=0.73 cfs 0.044 af Outflow=0.73 cfs 0.051 af

Total Runoff Area = 0.487 ac Runoff Volume = 0.136 af Average Runoff Depth = 3.35"
30.97% Pervious = 0.151 ac 69.03% Impervious = 0.336 ac

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Type III 24-hr 25-year Rainfall=5.50"

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Summary for Subcatchment 1S: No Treatment

Runoff = 0.69 cfs @ 12.08 hrs, Volume= 0.048 af, Depth= 2.68"

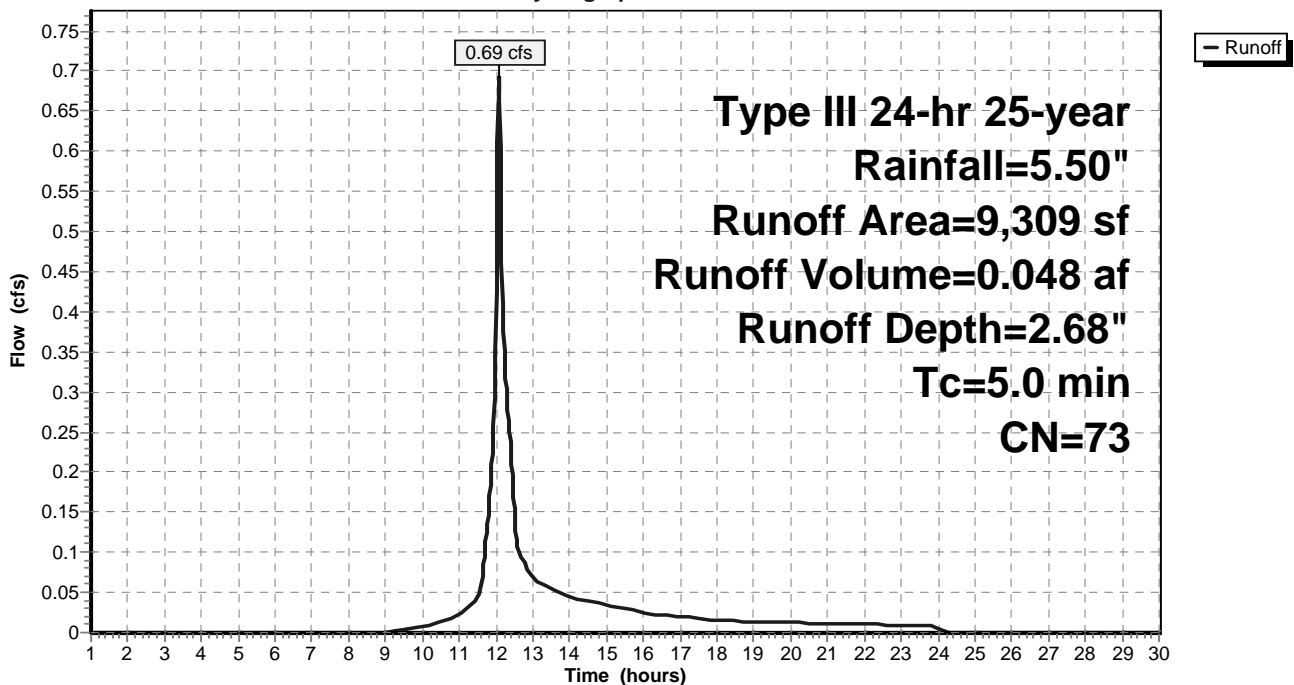
Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
* 420	98	Walkways
* 3,080	98	Building
* 1,852	98	Parking Lot
3,957	39	>75% Grass cover, Good, HSG A
9,309	73	Weighted Average
3,957		Pervious Area
5,352		Impervious Area

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

Subcatchment 1S: No Treatment

Hydrograph



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Type III 24-hr 25-year Rainfall=5.50"

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Summary for Subcatchment 2S: Parking Lot

Runoff = 0.47 cfs @ 12.07 hrs, Volume= 0.037 af, Depth> 5.26"

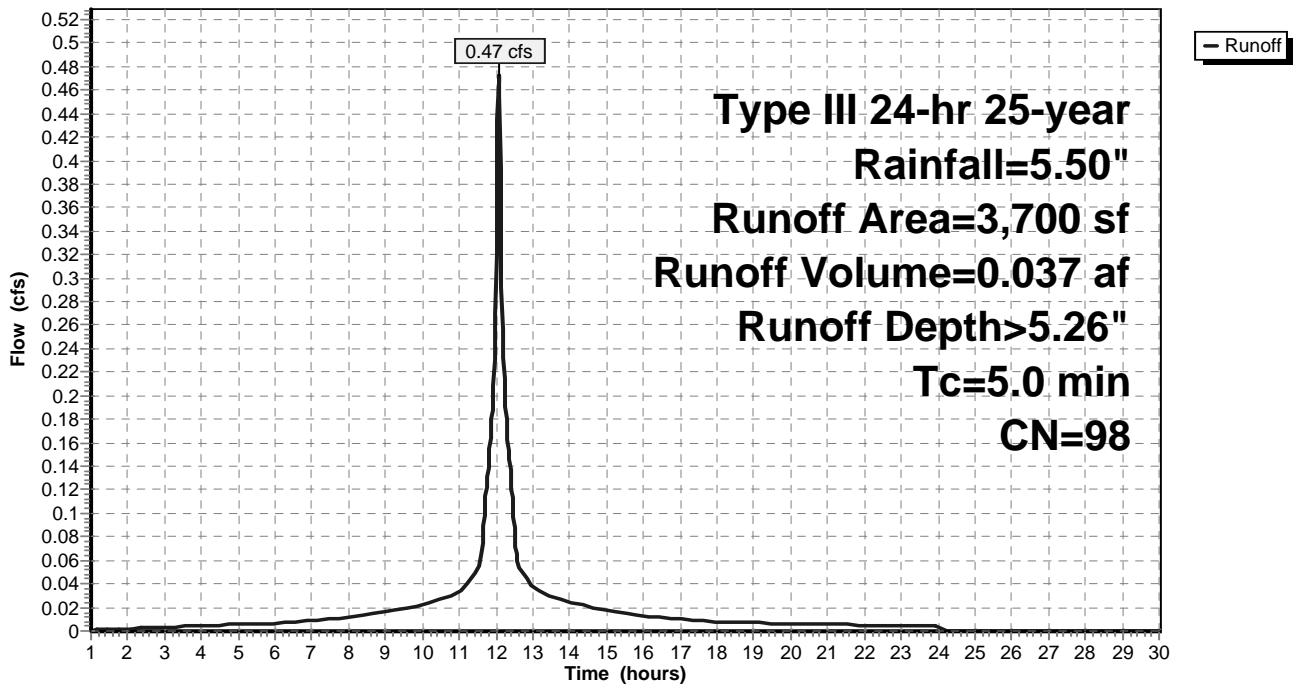
Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-year Rainfall=5.50"

Area (sf)	CN	Description
* 3,700	98	Parking
3,700		Impervious Area

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

Subcatchment 2S: Parking Lot

Hydrograph



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Type III 24-hr 25-year Rainfall=5.50"

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Summary for Subcatchment 3S: Bldg Area

Runoff = 0.74 cfs @ 12.08 hrs, Volume= 0.051 af, Depth= 3.24"

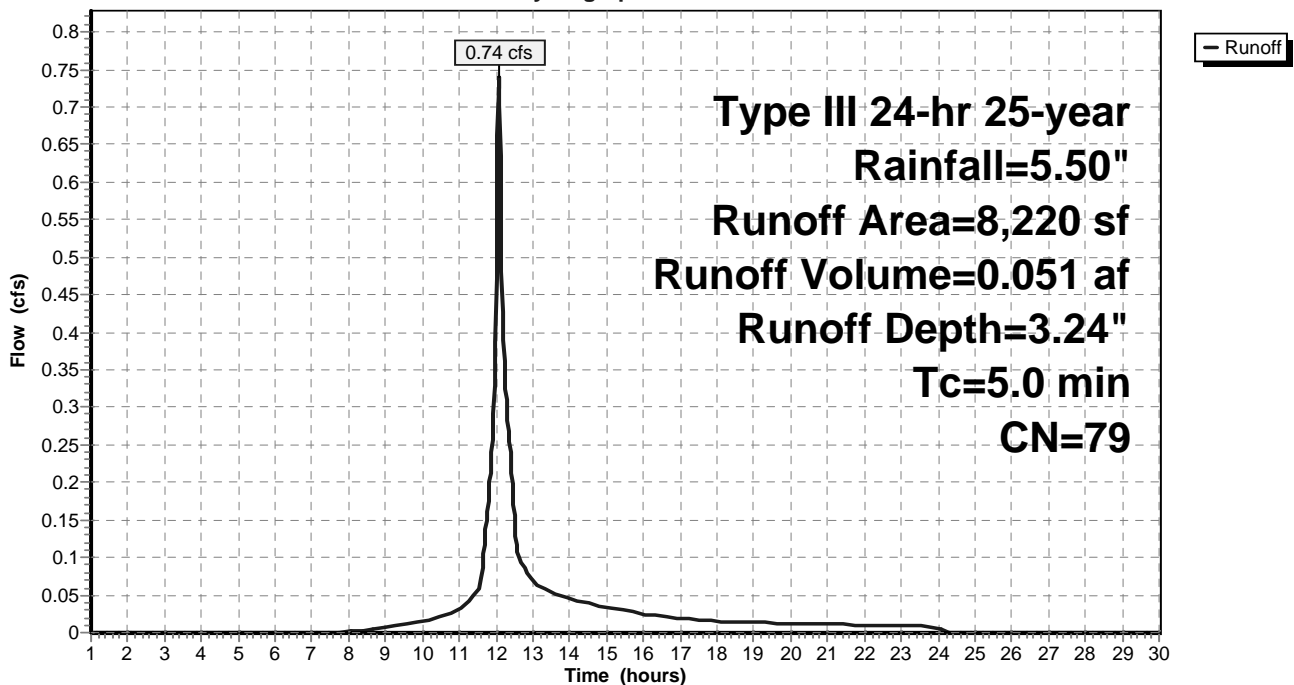
Runoff by SCS TR-20 method, UH=SCS, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-year Rainfall=5.50"

	Area (sf)	CN	Description
*	4,117	98	Building
*	1,485	98	Concrete Sidewalk
*	363	39	Planters
	2,255	39	>75% Grass cover, Good, HSG A
	8,220	79	Weighted Average
	2,618		Pervious Area
	5,602		Impervious Area

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

Subcatchment 3S: Bldg Area

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Type III 24-hr 25-year Rainfall=5.50"

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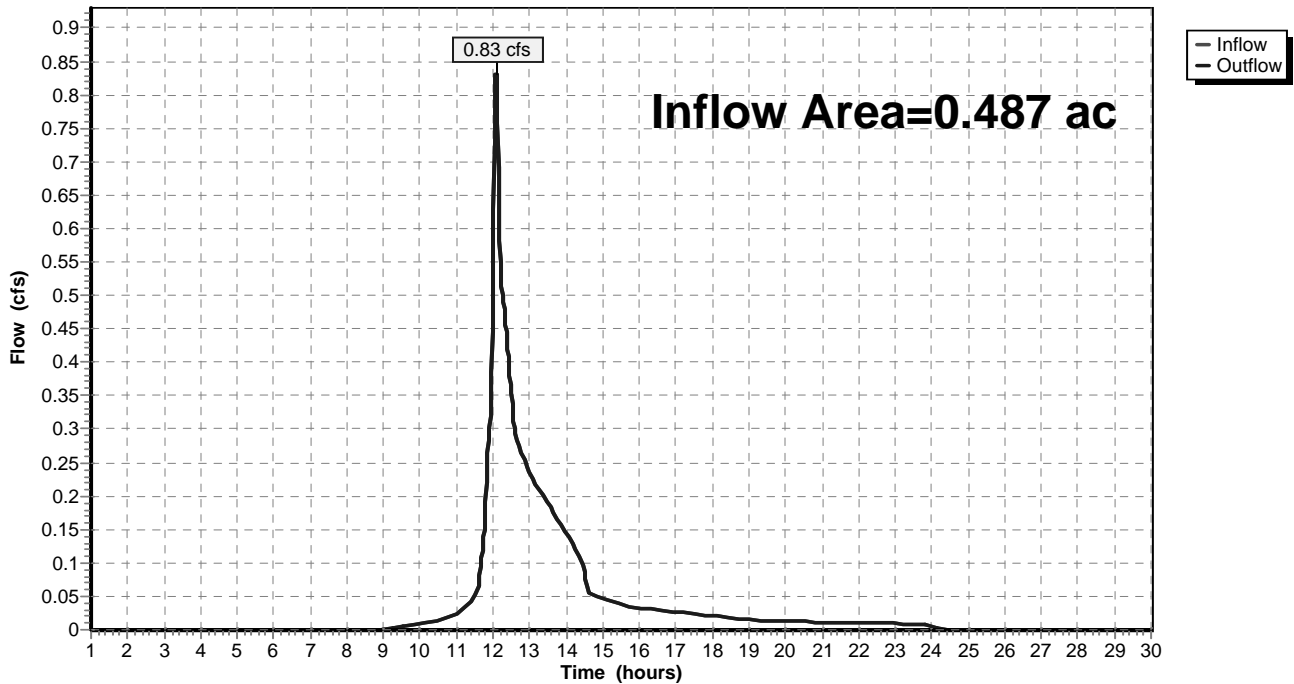
Summary for Reach 1R: POI#1

Inflow Area = 0.487 ac, 69.03% Impervious, Inflow Depth = 2.00" for 25-year event
Inflow = 0.83 cfs @ 12.08 hrs, Volume= 0.081 af
Outflow = 0.83 cfs @ 12.08 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs

Reach 1R: POI#1

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Type III 24-hr 25-year Rainfall=5.50"

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Summary for Pond 1P: USSF-740

Inflow Area = 0.274 ac, 78.04% Impervious, Inflow Depth > 3.57" for 25-year event
 Inflow = 1.20 cfs @ 12.08 hrs, Volume= 0.081 af
 Outflow = 0.28 cfs @ 12.47 hrs, Volume= 0.081 af, Atten= 77%, Lag= 23.4 min
 Discarded = 0.08 cfs @ 11.86 hrs, Volume= 0.048 af
 Primary = 0.20 cfs @ 12.47 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 34.50' @ 12.47 hrs Surf.Area= 1,474 sf Storage= 1,195 cf

Plug-Flow detention time= 51.3 min calculated for 0.081 af (100% of inflow)
 Center-of-Mass det. time= 51.2 min (827.4 - 776.2)

Volume	Invert	Avail.Storage	Storage Description
#1	31.92'	39 cf	4.00'D x 3.08'H Vertical Cone/Cylinder
#2	31.42'	462 cf	16.24'W x 30.00'L x 3.50'H Crushed Stone 1,705 cf Overall - 551 cf Embedded = 1,154 cf x 40.0% Voids
#3	31.92'	551 cf	44.6"W x 30.0"H x 7.12'L StormTech SC-740x 12 Inside #2
#4	29.92'	37 cf	16.24'W x 30.00'L x 1.50'H Sand 731 cf Overall x 5.0% Voids
#5	28.92'	195 cf	16.24'W x 30.00'L x 1.00'H Prismatic 487 cf Overall x 40.0% Voids
		1,283 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	29.00'	12.0" Vert. 12" Outlet to the York St C= 0.600
#2	Device 1	29.25'	0.6" Vert. Water Quality Outlet C= 0.600
#3	Device 1	31.60'	2.0" Vert. Quantity Outlet C= 0.600
#4	Discarded	28.92'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.08 cfs @ 11.86 hrs HW=31.94' (Free Discharge)
 ↳4=Exfiltration (Exfiltration Controls 0.08 cfs)

Primary OutFlow Max=0.20 cfs @ 12.47 hrs HW=34.50' (Free Discharge)
 ↳1=12" Outlet to the York St (Passes 0.20 cfs of 8.45 cfs potential flow)
 ↳2=Water Quality Outlet (Orifice Controls 0.02 cfs @ 11.00 fps)
 ↳3=Quantity Outlet (Orifice Controls 0.18 cfs @ 8.08 fps)

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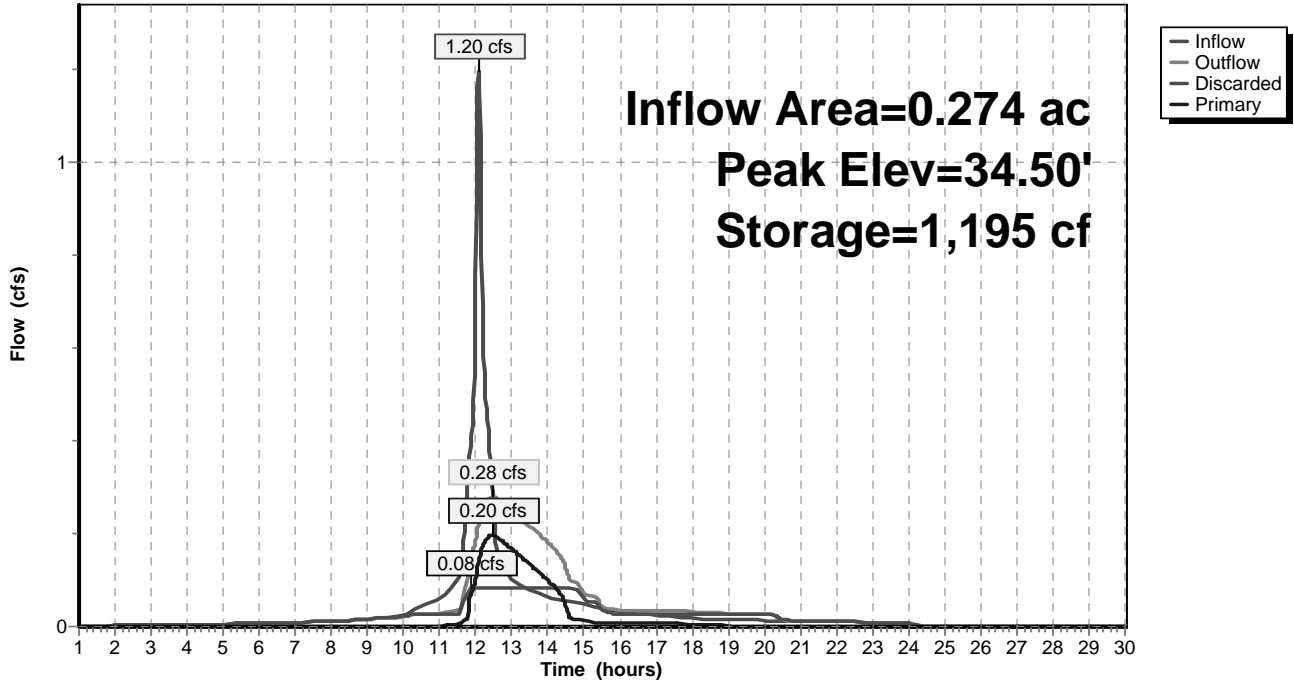
Type III 24-hr 25-year Rainfall=5.50"

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Pond 1P: USSF-740

Hydrograph



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Type III 24-hr 25-year Rainfall=5.50"

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Summary for Pond 2P: FoundationDrain

Inflow Area = 0.189 ac, 68.15% Impervious, Inflow Depth = 3.24" for 25-year event
 Inflow = 0.74 cfs @ 12.08 hrs, Volume= 0.051 af
 Outflow = 0.73 cfs @ 12.09 hrs, Volume= 0.051 af, Atten= 1%, Lag= 0.6 min
 Discarded = 0.00 cfs @ 8.78 hrs, Volume= 0.007 af
 Primary = 0.73 cfs @ 12.09 hrs, Volume= 0.044 af

Routing by Stor-Ind method, Time Span= 1.00-30.00 hrs, dt= 0.02 hrs
 Peak Elev= 43.24' @ 12.09 hrs Surf.Area= 0.002 ac Storage= 0.001 af

Plug-Flow detention time= 10.5 min calculated for 0.051 af (100% of inflow)
 Center-of-Mass det. time= 10.5 min (829.9 - 819.4)

Volume	Invert	Avail.Storage	Storage Description
#1	42.00'	0.002 af	2.00'W x 43.00'L x 2.00'H Prismatic 0.004 af Overall - 0.000 af Embedded = 0.004 af x 40.0% Voids
#2	42.67'	0.000 af	6.0"D x 43.00'L Horizontal Cylinder S= 0.0050 '/'Inside #1
		0.002 af	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	42.67'	6.0" x 85.0' long Culvert RCP, rounded edge headwall, Ke= 0.100 Outlet Invert= 34.50' S= 0.0961 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior
#2	Discarded	42.00'	2.410 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 8.78 hrs HW=42.02' (Free Discharge)
 ↳2=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.72 cfs @ 12.09 hrs HW=43.24' (Free Discharge)
 ↳1=Culvert (Inlet Controls 0.72 cfs @ 3.69 fps)

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Type III 24-hr 25-year Rainfall=5.50"

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Pond 2P: FoundationDrain

Hydrograph

