

City of Biddeford
Planning Board
July 06, 2022 6:00 PM
City Hall, Council Chambers & via Zoom

Jul 6, 2022 06:00 PM Eastern Time (US and Canada)
Topic: Planning Board

Please click the link below to join the webinar:
<https://biddeford.zoom.us/j/98280775938?pwd=Mkc2MFFicE83UUhkUU93L0oyYnhmUT09>
Passcode: 330231
Or One tap mobile :
US: +13017158592,,98280775938# or +13126266799,,98280775938#
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Dial(for higher quality, dial a number based on your current location):
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346 248 7799 or +1 669 900 9128
Webinar ID: 982 8077 5938
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Status: In-Person and via Zoom Link, Council Chambers, 6:00 PM

- 1. PLEDGE OF ALLEGIANCE**
- 2. DECLARATION OF QUORUM/VOTING MEMBERS**
- 3. ADJUSTMENTS TO THE AGENDA**
- 4. PLANNER'S BUSINESS**
- 5. CONSENT AGENDA**
 - 5.A. Approval of Meeting Minutes from June 1 & June 15, 2022.
[PB Minutes 060122-DRAFT.pdf](#)
[PB Minutes 061522 Workshop-DRAFT.pdf](#)
- 6. UNFINISHED BUSINESS**
- 7. NEW BUSINESS**
 - 7.A. 2022.12 Final Site Plan & Conditional Use Permit Application for SteelClad Biddeford, LLC to create a Climate Controlled Self Storage Facility on Enterprise Drive (Tax Map 17, Lot 7-2-1) in the I-3 Zone (new lot created from 451 Alfred Street).
Applicant: SteelClad Biddeford, LLC
Agent: Acorn Engineering Inc.
Tax Map/Lot: 17/7-2-1
Zone: Industrial 3 (I-3)
Overlay: None
Defined Land Use: Auto Sales (Parking lot area for overflow parking)
Application Type: Final Site Plan & Conditional Use Permit Application
Public comments will be accepted for this item

[2022.12 SteelClad Storage SP_CUP FOF.pdf](#)
[_1158_Final Site Plan Application_Biddeford Self Storage_.pdf](#)
[2022.12 SteelClad SR.pdf](#)

- 7.B. 2022.29 Determination of the Greatest Practical Extent for Kate O'Brien Nowak and Derek Nowak to replace the foundation and expand a nonconforming structure in the Resource Protection Shoreland Overlay zone at 65 Mile Stretch Road (Tax Map 61, Lot 19-1).

[2022.29 Nowak 65 Mile Stretch GPE DRAFT FOF.pdf](#)
[2022.29 Nowak 65 Mile Stretch GPE SR.pdf](#)
[Application.pdf](#)
[Cover Letter.pdf](#)
[Plans.pdf](#)
[SSW Variance Request.pdf](#)

- 7.C. 2022.27 Conditional Use Permit Request for Gasland Farms LLC to open a Medical Cannabis caregiver retail store at 10-12 Grays Lane (Tax Map 12, Lot 12) in the Industrial 1 zone

Applicant: Nick Boss for Gasland Farms LLC
Agent: Jill Polster, Esq.
Tax Map/Lot: 51-3-1
Zone: Industrial 1 (I-1)

Overlay: N/A
Defined Land Use: Commercial Warehouse
Application Type: Conditional Use Permit
Application Status: Request Final Approval
Public comments will be accepted for this item

[10-12 Grays Lane CUP SR.pdf](#)
[2022.27 10-12 Grays Lane CUP FOF.pdf](#)
[Application.pdf](#)

8. OTHER BUSINESS

9. ADJOURN

The Board reserves the right to halt official business at 9:30 p.m. Items not heard at tonight's meeting shall be rescheduled to the next meeting of the Board. All materials pertaining to items on the agenda are available for public review at the Biddeford Planning Department, second floor, Biddeford City Hall during normal business hours.



CITY OF BIDDEFORD

Planning and Development Department

Greg Tansley, A.I.C.P.
City Planner
205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 282-7119 or (207) 284-9115
Greg.Tansley@biddefordmaine.org

Planning Board Meeting Minutes **DRAFT**

Date: June 1, 2022
Time: 6:00 PM
Location: REMOTE ACCESS MEETING (1MRSA § 403-B permits public proceedings through remote access during the declaration of state of emergency due to COVID-19).

1. Pledge of Allegiance
2. Declaration of Quorum/Voting Members
Quorum Present: Bill Southwick (Chair), Roch Angers, Sean Tarpey (via zoom), and Alexa Plotkin (via zoom)
Staff Present: Hannah Bonine (Asst. Planner), & Nan Whitten
Chair Southwick opened the meeting at 6:00 PM
3. Adjustments to the Agenda
4. Planner's Business
5. Consent Agenda
Approval of Meeting Minutes for 5-18-22 & 5-21-22
MOTIONS: 6:03 PM
Angers-Motion-to Approve Meeting Minutes from 5-18-22 & 5-21-22
Tarpey-Second
Conditions of approval: 5-21-22 remove deed (hand out from neighbors) and Angers did not attend Site Walk
Chair Southwick-Roll Call for Vote-Motion Passed, 3-0 (Angers, Tarpey, & Plotkin)
6. Unfinished Business
7. New Business
 7. A. 2022.19 Review of Conditional Use Permit Application for a home occupation of online sales for Andrew Emerson at 14 Yates Street (Tax Map 59, Lot 9) in the CR Zone. Project location is a residential single family home; applicant indicates there will be no new traffic resulting from this business.
 - Ms. Bonine introduced the project, telling the Board that this was referred to them by the Codes Enforcement Officer, Roby Fecteau.
 - Ms. Bonine then updated the Board with the fact that the applicant had altered his request by removing the firearms sales portion of the application. The applicant will only be selling crafts.
 - Andrew Emmerson spoke on his own behalf reading a prepared statement to the Board and to the public.
 - Speaking from the public:

**Eve McPheeters
Harold Carroll
Peter McPheeters
Bethany Williams
Tim Black
Lucie Fontain
George Talbot
Ciel Caldwell
Cheryl Talbot
Abigail Carroll
David Harberg-President of BPIA
Anne Umphrey
Carol Miller
Preston Miller
David Kippen
Claire-Representing Pierre Vial
Chris Carroll
Jeff Schwartz
Rebecca Marshall
Tony DiBona
David Beanland MD
Anne Llyinsky
Alexander Kippen
Fran MacMaster**

- **Concerns of the public**

**A commercial license of any type in Biddeford Pool will set a precedent
Not fair to those who have chosen to rent space at gift shops
Couriers will create more traffic
This will leave a lasting impact on the neighborhood
The applicant obtaining an FFL permit with any Conditional Use Permit
A lack of transparency of the application
Change the nature of the neighborhood
It will effect the traditions of the neighborhood
It may allow zoning to be expanded in that area
Feels changing the application at the last minute is suspicious
Would like it postponed until after the neighborhood meeting in July where the
neighbors will be polled and the poll will be presented to the Planning Board to
show what the neighbors want.
Irreparable damage this will do to neighborhood
Opening comments were concerning
Major change of use of the property
No place for firearms there is no overseeing or supervision
Afraid for the children of the area with traffic or someone getting ahold of
something they should not
Not fair to the commercial district in a VERY residential area
No conditional use permits in Biddeford Pool at all**

There is no hardship for the applicant just an economic opportunity
Environmental concerns

- Questions of the public/Applicant response
Why is the application not in your wife's name? He originally applied as a joint venture so he put it in his name. Did not reapply when he altered the application. Definition of Crafts-Paintings, wood burnings etc. (his wife has an art degree)
How long has he lived in Biddeford Pool? He built the house in 2017 but has been coming here every summer his entire life.
Will he be reapplying? No, he has heard the community
How does his project benefit the neighborhood? It does not benefit the neighborhood but it is not required to either
- The applicant made additional comments to the Board and public. He stated that there are some stories being told that are half-truths and erroneous. He has been verbally attacked by the neighbors and lied about. He feels disheartened, discouraged and disappointed. The applicant is concerned about the traffic as well, will not be running a retail shop, therefore, will not be adding to the traffic.
- Ms. Bonine read the ordinance surrounding home business occupation permits
- The applicant withdrew his application at 7:28 PM saying he will revamp and resubmit for crafts only.

8. Other Business

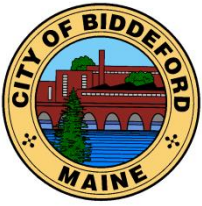
9. Adjourn

Meeting adjourned at 7:32 PM

Planning Board Chair/Vice Chair

Date

These minutes are summary and are not intended to be verbatim. Archived meetings are viewable on the City's website: www.biddefordmaine.org.



CITY OF BIDDEFORD

Planning and Development Department

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Greg.Tansley@biddefordmaine.org

Planning Board Workshop Meeting Minutes (DRAFT)

Date: June 15, 2022
Time: 6:00 PM
Location: Council Chambers & Zoom (1MRSA§ 403-B meeting).

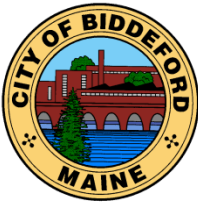
Planning Board Attendees: Chairman Bill Southwick, Roch Angers (via Zoom), Sean Tarpey
City Staff: Matt Grooms (Planner) & Hannah Bonine (Assistant Planner)

- Chair Southwick brought the meeting to order at 6:00 PM
- Planner Grooms updated the Board and Public on the Comp Plan regarding progress and schedule.

Planning Board Chair/Vice Chair

Date

These minutes are summary and are not intended to be verbatim. Archived meetings are viewable on the City's website: www.biddefordmaine.org.



CITY OF BIDDEFORD

Planning and Development Department

205 Main Street
P.O. Box 586
Biddeford, ME 04005
(207) 284-9115

FINDINGS OF FACT AND CONCLUSIONS OF LAW

FINAL SITE PLAN and CONDITIONAL USE PERMIT (CUP)

RE: 2022.12 Final Site Plan and Conditional Use Permit request by SteelClad Biddeford, LLC for a climate controlled self-storage facility at Enterprise Drive (Tax Map 17, Lot 7-2-1) in the I-3 Industrial Zone.

Pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article VII (Conditional Use Permits), Article XI (Site Plan Review), and Article VI (Performance Standards), the Biddeford Planning Board has considered the application of **SteelClad Biddeford, LLC** to operate a self-storage facility at Enterprise Drive. Based on its review, including supportive data, public hearing testimony and related materials contained in the record, the Planning board makes the following Findings of Fact and Conclusions of Law:

FINDINGS OF FACT:

	<u>SUBJECT</u>	<u>INFORMATION</u>
1.	Applicant/Property Owner	Steelclad Biddeford, LLC 25 Penrith Road Portland, ME 04102
2.	Agent/Engineer	Sam Lebel, P.E. Acorn Engineering 65 Hanover Street Portland, ME 04101
3.	Project Location	Enterprise Drive
4.	Map/Lot	Tax Map 17/ Lot 7-2-1
5.	City Approvals Required	Major Site Plan/Conditional Use
6.	Existing Zoning	I-3 Industrial
7.	Overlay Zoning	N/A
8.	Existing Use	A 0.5 acre paved parking lot is utilized by Five Star Auto. Remaining 2.7 acre lot is vacant.
9.	Proposed Use	Self-Storage
10.	Uses in the Vicinity	Mixture of commercial, light industrial and hospital uses
11.	Parcel Size	3.2 acres
12.	Water Supply	Maine Water
13.	Sewerage Disposal	City of Biddeford
14.	Solid Waste Disposal	Private Hauler

15.	Fire Protection	City of Biddeford
16.	Parking Spaces Required	Minimum 5 spaces, w/ 1 additional space/50 bays
17.	Parking Spaces Provided	22 surface spaces
18.	Ownership of Road	West Cole Road is public, though Enterprise Drive will be private
19.	Estimated Site Development Costs	Not provided
20.	Financial Capacity Letter	Letter received from Machias Savings Bank confirming financial capacity.
21.	Waivers Needed/Requested	Applicant has requested a waiver to permit pavement within required side and rear setback areas to facilitate site circulation.
22.	Waivers Granted	N/A
23.	Additional Approvals/Permits Needed	Maine DEP Stormwater Management Review Permit
24.	Fees Paid (LDR Attachment A)	All application fees paid
25.	Planning Board Review History	Preliminary Review – 5/4/2022
26.	Planning Board Review History	July 6, 2022

CONCLUSIONS OF LAW:

1. The proposed use meets specific requirements set forth in this ordinance and would be in compliance with applicable state or federal laws;
2. The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes;
3. The proposed exterior lighting, where allowed, would not create hazards to motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties;
4. The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;
5. The proposed use would not have a significant, detrimental effect on the use and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes;
6. The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion;

7. The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion;
8. The proposed use would not have a significant, detrimental effect on the value of adjacent properties which could be avoided by reasonable modification of the proposal;
9. The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal;
10. The proposed use would be in compliance with Biddeford's Comprehensive Plan;
11. The proposed use would not have an adverse impact on the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal;
12. The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements;
13. Adequate provision has been made for disposal of wastewater or solid waste or for the prevention of ground or surface water contamination;
14. Adequate provision has been made to control erosion or sedimentation;
15. Adequate provision has been made to handle stormwater runoff or other drainage problems on the site; and the proposed development will not unduly burden off-site surface water systems;
16. The proposed water supply would meet the demands of the proposed use for fire protection purposes;
17. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by state law;
18. The proposed use would not have an adverse impact on scenic vistas or on significant wildlife habitat or wetland areas and water bodies which could be avoided by reasonable modification of the proposal;
19. When located in the Shoreland Zone, the proposed use would meet the purposes of Shoreland Zoning as identified in Article XIV, Section 1 (Purposes) of this ordinance.

APPROVAL GRANTED:

Based on the evidence available and the conclusions above, the Biddeford Planning Board approves the Final Site Plan and Conditional Use Permit for the proposed project summarized above, located at Enterprise Drive (Tax Map 17, Lot 7-2-1) in accordance with the submitted application, supporting data, representations made, other related materials on file, and the following Conditions of Approval:

Prior to any ground disturbance, street openings, or the issuance of any permits:

1. The applicant shall provide an updated stormwater maintenance agreement for review and approval by the Department of Public Works.
2. Information on the routing of the 100-year storm event shall be submitted for review by the City Engineer.
3. The drainage plans shall be updated to delineate the various types of ground cover, including grass, brush, fair woods, pavement and gravel.
4. The applicant shall confirm and provide evidence that there are no existing wetlands on the property. In the event that there are wetlands, the applicant shall amend the site plan to identify the location of wetlands and submit for review in accordance with Article XI Site Plan.
5. A traffic control plan to facilitate utility infrastructure improvements within Alfred Street shall be submitted for review and approval by the Department of Public Works.
6. The applicant shall provide a detailed plan outlining mitigation strategies for erosion and stormwater control for the new water service connection from Alfred Street. This shall include a double row of check dams at the inlet end of the existing culvert, and south of the riprap apron at the inlet to the existing 18" via culvert.
7. The sawcut detail provided shall be modified to include the grinding of existing pavement and a shiplap joint.
8. A pre-construction meeting with the contractor needs to be held with the Planning Department to discuss inspection requirements.
9. A Performance Guarantee (acceptable to the Planning Department) shall be submitted to the Planning Department.

Prior to Issuance of a Certificate of Occupancy

10. All Standard Conditions of Approval shall apply.
11. The applicant shall obtain all other pertinent local, state and federal permits, licenses, and insurance such as blasting, building, electrical, plumbing, etc prior to commencing business unless authority issuing said permit allows for such actions.
12. The Planning Department shall conduct a compliance inspection and shall determine that all required site improvements related to the public's health, safety, and welfare have been completed and that the City holds a Performance Guarantee sufficient to cover any remaining site improvements and/or deficiencies.

Planning Board Chairperson

Date

CITY OF BIDDEFORD, MAINE
PLANNING BOARD
P.O. Box 586, 205 Main Street Biddeford, Maine 04005
207-284-9115

APPLICATION FORM

Type of Application:

☐ Shoreland Zoning Permit

☒ Site Plan Review

☐ Extraction

☒ Conditional Use Permit

☐ Subdivision

☐ Private Way

☐ Other: _____

Applicant Information:

Applicant's Name: SteelClad Biddeford, LLC

Applicant's Mailing Address: 25 Penrith Road Portland, ME 04102

Applicant's Telephone: 207-536-3481

What is Applicant's legal interest in the property?

☒ Owner

☐ Potential Buyer with Contract

☐ Lease/Rental Agreement

Owner's Name: See Applicant

Owner's Address: _____

Owner's Telephone: _____

Agent's Name: Acorn Engineering Inc.

Agent's Address: 65 Hanover Street, Portland, ME 04101

Telephone: 207-775-2655

Engineer/Surveyor: See Agent

Engineer/Surveyor's Address: _____

Telephone: _____

Project Location and Lot Information:

Street Address: Enterprise Drive

Tax Map: 17 Lot: 7-2-1

Current Zoning: Industrial 3 (I-3) Shoreland Zoning: N/A

Size of lot: 3.2 ~~3.2~~ acres ☐ s.f. Lot Frontage: 66 feet

Existing Use of Property: The current site consists of a half-acre paved parking lot used for overflow parking and storage vehicles for five star auto. The remaining 2.7 Acres contains primarily vacant land.

Property currently serviced by:

☐ City Road

☒ Private Road

☐ Public Sewer

☐ Septic System

☐ Public Water

☐ Private Well

☐ Public Trash

☐ Private Hauler

Slope Conditions in Area of Construction (if applicable):

☒ Flat (0-3 % slope) ☐ Rolling (3-8% slope) ☐ Hilly (8-15% slope) ☐ Steep (15% + slope)

Are there any wetlands or waterbodies on the site? ☐ Yes ☒ No If yes, attach information

Do you plan to bring fill onto the lot? ☒ Yes ☐ No If yes, attach information

Description of proposed use of property:

Project/Proposed Use Description: The project proposed a three-story Conditioned Self-Storage Facility. The Facility will be accessed through a paved two-way road, providing access to the facility office. The remainder of the facility will be gated in and providing access to tenants and emergency vehicles to enter and provide circulation around the full facility through a paved one-way roadway.

Property to be serviced by:

☐ City Road

☒ Private Road

☒ Public Sewer

☐ Septic System

☒ Public Water

☐ Private Well

☐ Public Trash

☐ Private Hauler

Is this project part of a larger project? ☐ Yes ☒ No

☐ If in a Shoreland Zone:

Percent of residential lot coverage (Max. 20%): _____

Percent of structure expansion (Max. 30%): _____

☐ If Subdivision Review, number of lots proposed: _____

☐ If a Private Way is proposed, number of lots served: _____ 1

☒ **If Site Plan Review, you must provide the following information:**

Total new square feet footprint of structures: _____ 20,090 sq. ft

Total new square feet paving/parking: _____ 22,887 sq. ft

Waiver Requests (attach details):

1. Article XI, Section 5.B.4.f: Structural Layout and Design; Paving, Parking, and Storage Areas. (See Section 13)
2. _____
3. _____
4. _____
5. _____

Attachments:

A. Letters of Approval

- ☒ Fire Department - Contact Chief or Deputy Chief - 282-9986 Letters/correspondence have been sent and approval is pending
- ☒ Ability to Serve for Water Service – Maine Water - 282-1543
- ☒ Ability to Serve for Sewer Service- Engineering Dept (Sewer) - Tom Milligan 284-9118
- ☒ Police Department - E-911 Road Name Designation - Contact Joanne Fisk - 282-5127

B. Letter to Planning Board describing project, waiver requests, proposed improvements, addressing permit requirements, etc.

C. Photographs of site.

D. Architectural renderings/drawings of proposed buildings, as required.

E. Engineered Plans, as required.

Fees (due at time of application):

Refer to “Attachment A Fees and Charges” of the Land Development Regulations for more information. Consult with Planning Staff if you have questions.

Required Signatures:

By signing this application, as the foresaid applicant or authorized agent:

- I certify that I have read and completely understand the application;
- I certify that the information contained in this application and it's attachments are true and correct;
- I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- I understand that copies of this information may be supplied upon request to an interested party.
- I understand that additional funds may be required through the course of review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting this application I am not guaranteed a place on any particular agenda. I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

☒ Project proposed to have 1 acre or more of site disturbance:

-Project may need to apply for a Maine Construction General Permit and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.

Signature of applicant: _____ Sam Lebel, Agent Date: 5/18/22

Signature of owner of property: _____ Sam Lebel, Agent Date: 5/18/22

**IF PLAN APPROVAL IS ANTICIPATED, PROVIDE 2 FULL SIZE MYLARS & 2 FULL SIZE PAPER COPIES FOR BOARD SIGNATURE (AS APPLICABLE).
CHECK WITH PLANNING STAFF FOR CLARIFICATION.**

CHECKLIST FOR ***SITE PLAN*** REQUIREMENTS

YES **NO**

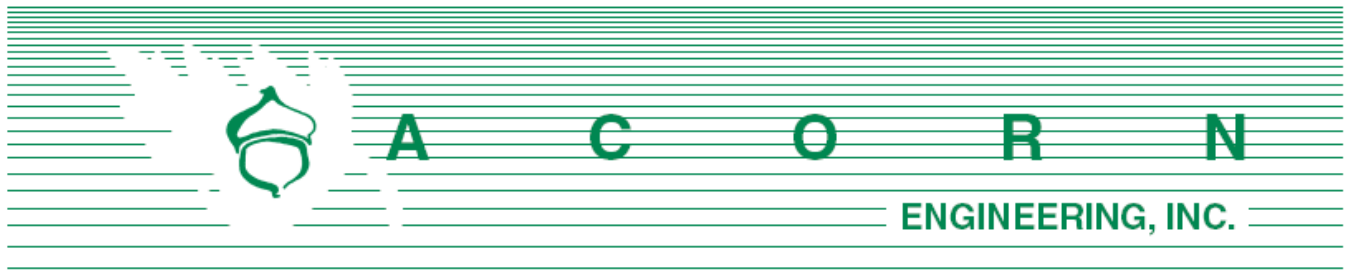
- | | | |
|-------------------------------------|--------------------------|--|
| ☒ | ☐ | Be on sheet size of 24 by 36 inches. |
| ☒ | ☐ | The scale of said plan shall be not less than one inch equals 50 feet and shall be indicated on the plat by use of a bar scale. |
| ☒ | ☐ | The plan shall bear the date, title, north point. |
| ☒ | ☐ | The plan shall contain a location or vicinity sketch (suggested scale one inch equals 800 feet). |
| ☒ | ☐ | The plan shall contain the name and address of the developer and applicant. |
| ☒ | ☐ | All appropriate dimensional requirements. |
| ☒ | ☐ | Existing and proposed easements. |
| ☒ | ☐ | Plan of the site showing existing watercourses and water bodies, seasonal wet areas. |
| ☒ | ☐ | Plan of the site showing soil type and location of test borings. |
| ☒ | ☐ | Location of all existing and proposed utilities. |
| ☒ | ☐ | Topographic contours (every five percent for zero to three percent slope; or every two feet for steeper areas). |
| ☒ | ☐ | Plan should include preservation and supplementation of existing dominant vegetation. |
| ☒ | ☐ | Plan shall indicate which features are to be retained and which are to be removed or altered. |
| ☒ | ☐ | Location of stonewalls, graveyards, fences, stands of trees, and other important unique natural areas and site features, including but not limited to floodplains, deer wintering areas, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, sand and gravel aquifers, and historic and/or archaeological resources, together with description of such features. |
| ☒ | ☐ | Plan view of all buildings with their use, size, location, and first-floor elevation in respect to grade. |
| ☒ | ☐ | Standard elevation view of existing and proposed buildings or structures on-site. |

YES **NO**

- | | | |
|-------------------------------------|--------------------------|---|
| ☒ | ☐ | Outline of any buildings located within 200 feet of such existing or proposed buildings or structures indicating their shape, size, location, heights and volume. |
| ☒ | ☐ | Existing use of abutting properties shall be identified with approximate location of any structures thereon including access roads. |
| ☒ | ☐ | Location, width, curbing, and paving of access ways, egress ways, and streets within the site for both pedestrian and vehicular use. |
| ☒ | ☐ | The location of off-street parking and loading spaces with a layout of the parking indicated. |
| ☒ | ☐ | The size and proposed location of water mains and sanitary sewerage facilities will all necessary engineering data. |
| ☒ | ☐ | The size and location of all other existing and proposed public service connections including, without limitation, gas lines, power lines, telephone lines, and fire alarm connections and locations, indicating whether above or below ground. |
| ☒ | ☐ | The type, nature, and composition of all solid, liquid, and gaseous waste, industrial or otherwise, and the location, type, and design criteria of the storage and disposal facilities dealing with such waste. |
| ☒ | ☐ | A landscape plan and open space areas indicating grade change, vegetation to be preserved, new plantings used to stabilize areas of cut and fill, screening; plus size, location, purpose and type of vegetation. |
| ☒ | ☐ | A drainage plan including location, elevation, layout of catch basins and other surface and subsurface drainage features. |
| ☒ | ☐ | Location, size and design of proposed signs and other advertising or instructional devices. |
| ☒ | ☐ | Existing and proposed contours and finished grade elevations as well as the type, extent, and location of existing and proposed landscaping and open space areas which will be retained. |
| ☒ | ☐ | Location and type of lighting for outdoor facilities. |
| ☒ | ☐ | Lines of existing and proposed abutting streets showing width. |
| ☒ | ☐ | Surveyed property lines showing their bearing and distances and monument locations. |
| ☒ | ☐ | If subdivision is involved, the lines and names of all proposed streets, lanes, ways, or easements intended to be dedicated for public or private use. |

YES **NO**

- | | | |
|-------------------------------------|--------------------------|---|
| ☒ | ☐ | Provide copies of any covenants or restrictions that are intended to cover all or part of the land area to be developed. |
| ☒ | ☐ | Indicate limits of the wetland areas on the property. |
| ☒ | ☐ | Delineate existing zoning boundaries within 1,000 feet of the site. |
| ☒ | ☐ | Stamp and signature of either a Maine licensed land surveyor, professional engineer, or architect responsible for said plan. |
| ☒ | ☐ | Any other exhibits or data deemed necessary by the Planning Board to evaluate the proposed development for site plan review purposes. |



Biddeford Planning Board
Attn: Ms. Hannah Bonine
205 Main Street,
Biddeford, Maine, 04005

May 18, 2022

Subject: Comment Response Letter / Final Site Plan Application
Conditioned Self-Storage; Enterprise Drive, Biddeford, ME

Ms. Bonine:

On behalf of SteelClad Biddeford, LLC., we are pleased to respond to the comments that were received April 28th, 2022 from Staff and May 4th, 2022 from the Board. Per request, as part of this response, we have included seven full sized copies of the civil and architectural plans, as well as seven copies of any application documents that were revised as a result of Staff or Board comments. With this response letter and revised material, the intention is to apply for a final site application and seek a vote from the Planning Board at the next available meeting.

Planning:

Comment: *Gateway Zone. Article V, Section 2.e. identifies the Industrial -3 base zone as a Gateway and major entrance to the City, whereby requiring more consideration by the Planning Board as to the development's design and landscaping and building facades.*

a. The proposed building façade renovation does not appear to use masonry materials as required in the Industrial-3 zone, Section 5.B.4.a.2 of the Article XI Site Plan Review (Part II). Building elevation, renderings and siding information has been submitted. Per the provision, alternative finishes may be permitted if demonstrated to the Planning Board that such façade materials will advance the City's intent for a more attractive gateway.

Response: Per the conceptual site plan review and discussions with the Planning Board, the proposed façade has been deemed appropriate with some minor modifications included as part of this resubmission. Three different options featuring a darker, more muted façade on the northerly wall facing Alfred Street (Route 111) has been provided. The development team is comfortable moving forward with any of the three options depending on Staff and Board preference. Please refer to the architectural plan sets for the proposed renderings.

Comment: *Site Design.*

a. Pavement, per Article XI, Section 5.B.4.f is not permitted in the side and rear property setbacks. If the design cannot conform to this standard the applicant will need to submit a waiver rationale for the Board's consideration.

Response: Please refer to Section 13, Waivers for this request. Pavement in these locations is necessary to provide safe site circulation for pedestrians and emergency vehicles. Given the parcel is a “back lot” and pavement is required to support the building’s program and safety, we feel this waiver is appropriate and necessary.

Comment: *Proposed parking is noted on the plan (C-10) under the Space and Bulk table as being 28 spaces, but it appears only 25 are provided (which is noted on the parking summary table). Please clarify.*

Response: The space and bulk table has been revised showing the correct amount of parking spaces proposed, which is 25.

Comment: *Lot coverage and the associated calculations should be provided on the site plan demonstrating the conformance to the ordinance.*

Response: The revised site plan now provides the lot coverage within the space and bulk table.

Comment: *Landscape Design. To contribute to advancing the property’s conformance to City’s landscaping standards (Art. XI, Sec. 5.B.4.d) as well as to the Gateway Zone (Article V, Sec.2.e) a Landscape Plan should be prepared for review that includes screening views from Alfred Road (Rt. 111).*

Response: The revised Site Plan provides a planting schedule and an increase in proposed plants to aid in screening the development. Given the existing overhead utility lines and existing utility easements on site to Unitil and the Biddeford Sewer District, planting locations and species options are limited due to conflicts with the existing infrastructure.

Comment 5: *Other comments:*

f) There are references to this parcel as including an Enterprise Drive . The Boundary Survey does not appear to depict a private street/road. If there is a formal Right-Of-Way associated with Enterprise Drive, it needs to be depicted on the plan with setbacks. Can the applicant clarify?

Response: Enterprise Drive is an existing gravel private road as shown on the City GIS. As part of the development, we are proposing to enhance the existing conditions and provide paved roadway to service the Storage Facility.

g) Eastern Trail plans for connecting existing trails between Biddeford and Saco have indicated an alternative route through this site. Has there been any discussion with the Eastern Trail and its consultant vhb?

Response: Yes, there has been discussion with a representative from the Eastern Trail and it has been confirmed that they do not plan to extend the trail through any portion of the property. Email/written confirmation can be provided upon request.



City Engineer

Comment: *Where is the drainage from the parcel to the south going? The topo lines are really very light?*

Response: Drainage from the south parcel (the Daycare) is split, partially draining to the subject parcel, West Cole Road, and the railroad.

Comment: *We will certainly need an analysis on the downstream receiving system capacity for the proposed increase of flow for the 25-year storm. We also would like to see 50- and 100-year storm analysis and what impact that would have on that cross culvert going under Route 111 and downstream piping.*

Response: The previously submitted HydroCAD analysis was modeled using a smaller Stormtech Chamber system than what was actually proposed within the engineered plans, and subsequently did not provide the actual available storage. The site has since gone through a more in-depth review using the correct sized Stormtech systems and now provides a maintained or decreased runoff rate draining to the culvert crossing Route 111 (POI #2). In compliance with the City Standard Article VI, Sec. 61.A.3 and 4, the revised stormwater report and HydroCAD analyses now provide comparisons for a 50-yr storm event in addition to the 2, 10, and 25 year storms. This analysis was also rounded to the tenths place for POI #2 instead of the whole number to provide a more in depth comparison. The peak flowrates in all four storm events are being maintained or lowered when looking at the post construction condition. This exceeds the Maine DEP Flooding Standards which would only actually apply if this was a larger, more intensive project triggering three acres of impervious area.

Comment: *We recommend that the sewer connection have a back flow preventer installed.*

Response: The revised utility plan now includes a backflow preventer on the sewer lateral.

Comment: *New MS4 permit requires that sites have low impact development (LID) techniques installed, not sure that the underground storage/sand filter system would meet that requirement? We will run it by our stormwater consultant.*

Response: By mimicking the natural collection, cooling, filtering, and attenuation through the use of a Maine DEP-approved underdrained subsurface sand filters (USSF) and other engineered controls, it's our interpretation that this approach is considered low impact. Given this project lies within an urban impaired stream watershed, this redevelopment will provide a significant benefit in that it will be treating over 100% of the new impervious area. Presently the gravel driveway and paved parking are not being treated, contributing to poor water quality in the watershed. Through the use of the USSF's we are able to provide an improvement in the runoff quality leaving the site. As such, the Maine DEP issued a Stormwater Permit for this project on May 13, 2022.



Engineering Peer Review

A. Stormwater Management

Comment: *Reference should be made to Chapter 34. Article VI. Post-construction Stormwater Discharge Requirements, including maintenance agreement, access easements, recertification requirements and inspector qualifications, etc. The draft maintenance agreement provided should be updated for this specific project. It would be helpful if the stormwater narrative was updated to include a section on how the plan complies with Chapter 34.*

Response: The revised stormwater narrative and maintenance agreement have been updated accordingly.

Comment: *We have attached a copy of the DEP checklist for stormwater applications. This should be reviewed and the requirements addressed, including the documentation requirement for construction phase inspections, storm event triggering post construction inspections, housekeeping requirements on plans, and the submission of a water quality treatment plan.*

Response: The DEP checklist has been reviewed and the appropriate standards have been implemented and are included in the stormwater narrative and inspection and maintenance documents. The permit from the Maine DEP was received on May 13, 2022 and forwarded to the City's Planner, Town Engineer, and Code Enforcement Officer.

Comment: *The stormwater analysis indicates that there will be an increase in the rate of runoff to the system under Route 111. How will this affect the capacity of the system? As suggested by the city engineer, an analysis should be provided.*

Response: Response: The previously submitted HydroCAD analysis was modeled using a smaller Stormtech Chamber system than what was actually proposed within the engineered plans (SC 310 vs SC 740), and subsequently did not provide the actual available storage. The site has since gone through a more in-depth review using the correct sized Stormtech systems and now provides a maintained or decreased runoff rate draining to the culvert crossing Route 111 (POI #2). In compliance with the City Standard Article VI, Sec. 61.A.3 and 4, the revised stormwater report and HydroCAD analyses now provide comparisons for a 50-yr storm event in addition to the 2, 10, and 25 year storms. This analysis was also rounded to the tenths place for POI #2 instead of the whole number to provide a more in depth comparison. The peak flowrates in all four storm events are being maintained or lowered when looking at the post construction condition. This exceeds the Maine DEP Flooding Standards which would only actually apply if this was a larger, more intensive project triggering three acres of impervious area.

Comment: *The city engineer has requested that modelling of the 50 and 100 year storms and any associated impacts be provided.*

Response: Please refer to the previous response.

Comment: *Have any soils investigations been undertaken in the areas of the chamber systems?*

Response: Yes, soil borings and test pits were conducted January 2022 by Summit Geoengineering Services. The logs have been included with the stormwater report.



Comment: *Because the project is located in the direct watershed of Thatcher Brook, an urban impaired stream, it is our understanding the city requires a compensation fee which would be paid to a Compensation Fee Utilization Fund administered by the city for Thatcher Brook.*

Response: The Applicant will pay the required fees once invoiced.

Comment: *The pre-development subcatchments designations differ between the model and the plan.*

Response: This has been reconciled.

Comment: *The drainage plans should include the cover types, differentiating between the various grass covers, brush, fair woods, good woods, pavement and gravel.*

Response: The post development drainage plans, in addition to the stormwater report, now include a clearer representation of the land cover on site. Please note that all proposed re-vegetated land is considered to be in “good” condition in the post development analysis.

Comment: *Contour labels are not legible on the drainage plans.*

Response: The contour labels have been modified and are now clearer.

Comment: *The contours in SC 2.1 appear to reflect a break in grade southerly of the existing paved parking which conflicts with the subcatchment boundary locations shown.*

Response: The 121 contour is closed representing a small depression within SC 2.1. In a larger storm event, overflow of this small basin would drain to POI #2 as shown in the Pre-Development Watershed Map. This has been confirmed with analysis of existing spot grades paired with site visits.

Comment: *The SC 2.1 time of concentration path is inconsistent with SC 2.3.*

Response: This has been reconciled.

Comment: *Are there any wetlands located on the site?*

Response: A wetland delineation was conducted July 9th, 2021, by Sebago Technics confirming there are no wetlands on site. Please refer to the attached letter.

Comment: *Several easements need to be established or modified for utilities and drainage. What is the status of these?*

Response: There are currently three proposed easement areas for utilities, drainage, construction, and maintenance. Easements are currently being coordinated/drafted with the landowners and attorneys.

Comment: *The status of West Cole Road is unclear? Is it city maintained or private?*



Response: It's our understanding that West Cole Road is a public right-of-way.

Comment: *A traffic control plan for the utility work in Alfred street should be provided.*

Response: Traffic control plan will be the responsibility of the contractor and their means and methods. The Applicant and their Contractor are happy to provide this plan as a condition of approval prior to issuance of a street opening permit in Alfred St.

Comment: *Drawing C-10 – Site and Landscape Plan*

- a. Drive radii at West Cole Road should be shown.*
- b. Signage should be called out at accessible parking spaces.*
- c. Saw cut and a butt joint should be shown at West Cole Road and a detail provided.*
- d. A stop sign should be shown at West Cole Road.*

Response: The above suggestions have been implemented into the Site Plan.

Comment: *Drawing C-20 – Utility Plan:*

This plan calls the utility easement to Alfred Street for the proposed water service 30 ft existing and 25 ft proposed, while the survey plan identifies it as 30 ft proposed. This should be clarified.

Response: The previous “30 ft easement” will be modified and is now clearly represented as a proposed 25-ft wide utility easement as part of this development. The easements are currently being drafted by both parties’ attorneys.

Comment: *Are the seven trees to be removed a part of a previously approved site plan?*

Response: We are unaware of the trees being part of a previously approved site plan. Proposed removal of the trees has been discussed and approved by the current property owner who purchased the property over 20 years ago at which point the trees existed.

Comment: *Why are the water lines shown 4 ft from the westerly side of the 30 ft wide easement rather than centered? This leaves little room to work adjacent to the abutting property, and also locates the new water service construction directly under the overhead utilities in Alfred Street.*

Response: The location of the proposed water lines were selected to keep adequate spacing from other utilities, prevent the tapping location from falling on a water main joint, and to provide a straight run from the street to the subject parcel. The plan as proposed is not anticipated to cause concerns from a constructability perspective.

Comment: *Sewer manhole rim and invert elevations should be provided.*

Response: All sewer manhole rim and invert elevations are provided on the revised Utility plan sheet C-20.

Comment: *Proposed gas and existing gas are shown across the site. Is that accurate?*



Response: The proposed gas line on site is not part of our project scope; however, we coordinated with Unitol and their designer. At this point, there are now two existing gas mains, one of which is inactive as the new transmission line was recently constructed. We are in the process of obtaining as-built drawings although it's understood that the line was built per design plans.

Comment: *Temporary erosion and sedimentation control measures should be shown.*

Response: A Construction Management and Erosion and Sedimentation control plan (C-03) has now been provided with appropriate measures shown on the plan, in addition to the narrative and previous callouts for perimeter controls.

Comment: *Since the new water services from Alfred Street will be located in an existing drainage swale which outlets to the city system, a detailed plan for erosion and stormwater control during construction should be provided.*

Response: Inlet protection on drainage manholes and erosion control barriers are proposed downgradient of any construction work. Please refer to the erosion control plan for more information. It is the contractor's responsibility to implement these measures during construction.

Comment: *It appears the intent is to superelevate the access drive. It would be helpful to call this out or provide a typical section.*

Response: A detail for the superelevated driveway is now part of the revised plan set.

Comment 4: Details

- a. *A typical section for the pavement repair in Elm Street should be provided. In accordance with the city standards, we recommend a minimum of 24" of subbase gravel, 4 inches of crushed base gravel, 3 inches of binder, and 2" of surface pavement, or match existing, whichever is greater.*
- b. *Where is the bituminous driveway apron detail applicable?*
- c. *The detail for the chamber systems refers to a plan view for observation port locations. Where is the plan view that shows these locations?*

Response: These items have been reconciled within the revised plans.

We appreciate the review of this beneficial project by the various staff members and peer reviewers, and look forward to presenting this project to the Planning Board for a final vote at the next available meeting. Please do not hesitate to reach out with any questions or comments.

Sincerely,



Sam Lebel, P.E.
Project Manager
Acorn Engineering, Inc.





July 9, 2021
04399

SteelClad Self Storage
Attn: Robert LeBlanc
547 Riverside Street
Portland, ME 04103

Re: Wetland Delineation at 451 Alfred Road

Dear Bill:

A wetland delineation was performed by Lewis and Wasina and reviewed and confirmed by Sebago Technics, Inc. in Spring, 2005. In our report dated July 20, 2005, we recommended reviewing the hydrology of the wetland as it wasn't obvious that wetland hydrology was present as required in the 1987 Wetlands Delineation Manual and 2012 Northeast Regional Supplement published and authored by the U.S. Army Corps of Engineers. This manual requires the positive presence of 3 parameters in order for an area to be considered a "wetland". These parameters include hydric soils, hydrophytic vegetation and wetland hydrology. Wetland hydrology refers to areas that are periodically inundated and where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic conditions.

Three 4-inch diameter perforated pipe monitoring wells with caps were installed under my supervision in October of 2008 on the previously vacant portion of your property. Two of these wells were installed in previously mapped wetlands and one was installed in the upland. These pipes were used to monitor the water table during the typically wetter seasons in the fall of 2008 and the spring of 2009. The closest that the water level came to the ground surface was approximately 18 inches, which occurred on October 28, 2008. These results do not represent hydrology that is conducive for wetlands.

The vegetation has been cut within the study area since the 2005 delineation. The majority of vegetation that has grown back over the past few years since the clearing is not hydrophytic and does not typically grow in wetlands. It was also noted that after excavating the holes for the monitoring wells, the soil that was thought to be of lacustrine origin during the delineation was not the original material. The original soils are consistent with glacial outwash. There was approximately 24 inches of clayey fill in MW-1 and MW-2 and 30 inches in MW-3. It is currently unknown how old the fill material is. Since these hydric soils do not represent the original soil, it can be concluded that the hydric soil component cannot be met.

In conclusion, I believe the area mapped as wetland in 2005 does not meet the definition of a “wetland” as defined in the 1987 Wetlands Delineation Manual and 2012 Northeast Regional Supplement authored and published by the U.S. Army Corps of Engineers because it does not meet the hydrology or hydric soil parameters. If you have any questions regarding this, please contact me.

Sincerely,

SEBAGO TECHNICS, INC.

A handwritten signature in black ink, appearing to read 'Gary M. Fullerton', with a long horizontal flourish extending to the right.

Gary M. Fullerton, CSS, LSE
Director of Natural Resources

Steelclad Biddeford LLC
547 Riverside Street
Portland, ME 04103

February 14, 2022

RE: 451 Alfred Street Land in Biddeford, ME for Self Storage Development

To whom it may concern,

Steelclad Biddeford LLC hereby grants Acorn Engineering the authority to act on our behalf in matters concerning permitting when engaging with Local and State of Maine Authorities. If you have questions regarding this authorization, you can reach me at (207) 776-0913 or via email at robertleblanc1@me.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Robert LeBlanc', with a long horizontal flourish extending to the right.

Robert LeBlanc owner

Steelclad Biddeford LLC

SECTION 2

DECLARATION OF EASEMENTS, CONVENANTS, AND RESTRICTIONS



Section 2: Declaration of Easements, Covenants, and Restrictions

Existing Easements:

The project currently conveys 3 existing easements as outlined below. Please refer to the attached plans for the existing easements across the property.

- 66' wide easement to Central Maine Power (Book: 1228, Page: 407)
- 15' wide easement to Unitil (Book: 1687, Page: 55)
- 20' wide Sewer easement to the City of Biddeford; "The City may enter upon the easement for the purpose of installing, operating, cleaning, repair, and maintenance of the sewers and associated structures...." (Book:14351, Pg: 885)

Proposed Easements:

The proposed easements are as follows

A proposed 25' utility water easement is proposed to run from the existing Day Care facility on lot 17-7-3, through lot 17-7-2-1, and up along lot 17-7-2. This easement will allow the development to receive and connect to the existing 16" water main within Alfred Street.

A drainage easement is proposed on the North edge of the site to connect to an existing culvert on the Five Star property Lot 17-7-2. Please refer to sheet C-20 Utility Plan for Proposed locations.

In tandem with the proposed drainage easements that will be drafted in coordination with the abutting landowner, temporary construction easements will be in place to facilitate earthwork activities.

Please refer to the plans for proposed and existing easement locations. It should be noted that the adjacent landowner owns both Five Star Auto and the Daycare facility and recently sold the subject parcel to the Applicant and has considered and verbally agreed to these easements. Drafts of the language along with exhibits have been developed and are currently in final coordination with landowners. Final easement locations will be shown on the plans and recorded at the registry.



SECTION 4

STORMWATER MANAGMENT REPORT



STORMWATER MANAGEMENT **REPORT**

Prepared For:

**SteelClad Biddeford, LLC.,
25 Penrith Road,
Portland, ME 04103**

Prepared By:

**Acorn Engineering, Inc.
500 Washington Ave.
Portland, Maine 04103**



**March 2022
Rev. May 2022**



INTRODUCTION

Acorn Engineering, Inc. has been retained by SteelClad Biddeford LLC., to provide civil engineering services for the proposed development of Enterprise Drive in Biddeford. The proposed project includes the redevelopment of a vacant lot between West Cole Road and Alfred Street; Map 17, Lot 7-2-1. The lot currently consists of fair to good grassed and wooded land with an existing half-acre gravel road and paved parking lot. The proposed development intends to provide 465 units within the three-story conditioned self-storage facility with a paved parking lot.

The proposed project will include the development of over 20,000 square feet of impervious area within the Thatcher Brook watershed, which is an urban impaired stream. Therefore, the project is required to provide stormwater management features for stormwater quality and quantity which is further defined in this document. The development has been designed in compliance with the Maine Department of Environmental Protection (MDEP) chapter 500, 501, and 502 rules, in addition to the City of Biddeford Stormwater Management standards. A Stormwater Law application has been submitted and approved by the Maine DEP and the acceptance letter has been provided to the City of Biddeford. Supplemental information regarding the stormwater analysis is documented with supporting calculations and reports attached to this narrative.

The current course of action is to provide primary water quality and quantity control through a Best Management Practice (BMP) approved by the Maine Department of Environmental Protection (MDEP). The majority of the pavement on site as well as the entirety of the roof will drain to two underdrained subsurface sand filters. The implemented BMP will provide water quality treatment for no less than 95% of the new impervious area and no less than 80% of the developed area.

EXISTING CONDITIONS

The proposed project site is located on Enterprise Drive between West Cole Road and Alfred Street (RTE. 111) in Biddeford, Maine. A Boundary Survey has been prepared by NORSE Northern Survey Engineering of Brunswick Maine dated August 17th, 2021, and last revised January 31st, 2022.

The subject parcel contains 3.19 acres, consisting of .5 acres of impervious surface consisting of a gravel easement drive aisle and a paved parking lot. The remainder of the lot consists of a vacant vegetated area with ground cover varying from fair to good grassed and wooded land, with an existing vegetated swale that exists along the gravel access drive. The site is generally flat with slopes ranging up to 50% along the abutting stretch Alfred St/State Route 111. As shown on the plans, the development will not alter or impede the steep slopes abutting Alfred St. The topography and ground covers were derived from various site visits in addition to the existing conditions plan by NORSE Engineering.

A wetland delineation was conducted by Sebago Technics July 9th, 2021 and confirmed that there are no wetlands on site. The site is within the Thacher Brook Watershed, which is classified as an urban impaired stream by Maine DEP. The project team is not aware of the presence of any existing significant wildlife habitats on the property.

PROPOSED DEVELOPMENT

The project intends to construct a 3-story conditioned self-storage facility. The facility will be gated in with the office space accessible for guests and tenants. The site will be accessed from Enterprise Drive off West Cole Road. A two-way paved road is proposed to access the Facility office which transitions into a one-way road within the facility gate to provide safe site circulation, in addition to drive up units for first floor tenants and associated parking spaces for those on the second and third floors.

Given that the site is located within the Thacher brook watershed and subject to Stormwater Law permit, the project was designed to treat 95% of impervious area on site as well as over 80% of the developed area through the use of Stormtech Chambers, also referred to as underdrained subsurface sand filter (USSF). These chambers are designed to store, cool, filter, and slowly discharge stormwater at a controlled rate. Runoff on site is directed towards catch basins to capture and direct flow throughout the site to the stormtech chamber system. The facility proposes a gutter and downspouts on the building which are proposed to tie in directly to the catch basin system/ storm network on site.

GENERAL STANDARDS – WATER QUALITY

The proposed project was designed to provide primary water quality and quantity control through the use of two separate Underdrained Subsurface Sand Filters (USSF) which have been designed in accordance with the Maine DEP BMP guidelines and are proposed to treat no less than 95% of the new impervious area and no less than 80% of the new developed area.

The underdrained subsurface sand filters were sized to meet and exceed the requirements set forth within the MDEP Volume III BMPs Technical Design Manual, Chapter 7.3. Filter BMP. The systems have shown to be effective at filtering out and removing a wide range of pollutants from stormwater runoff and were selected and analyzed accordingly to provide a sufficient design.

Impervious Treatment Area

The stormwater runoff shall first flow into the Stormtech Isolator Row which will provide initial treatment of the larger sized pollutants. The stormwater will then flow vertically through the sand filter layer. The treated stormwater will then be collected within perforated pipes and released slowly into the downstream system by an orifice on the end of the 4" underdrain outlet at an attenuated rate.

In an effort to provide the most efficient design, the systems include additional underdrains that shall lay beneath the USSF liner in addition to an overflow pipe network placed within the system for extra precautions and control.

The treatment of the impervious and developed surfaces by the BMPs are as follows:

Table 1 - Impervious Treatment Area Table		
Proposed Total Imp. Area (SF)	Proposed Imp. Area with Treatment (SF)	% Overall New Imp. Area Treated
54,457	52,288	96%

Table 2 – Developed Area Treatment Area Table		
Proposed Total Dev. Area (SF)	Proposed Dev. Area with Treatment (SF)	% Overall New Dev. Area Treated
62,798	52,288	83%

As shown above, the project anticipates meeting the required treatment for total impervious and developed surfaces with the filter BMPs. When compared to the net change in impervious and developed areas, the treatment levels are even higher.

Filter Area Sizing

A calculation for sand filter area is necessary to meet the requirements below the surface of the USSF. As defined in the Volume III: BMPs Technical Design Manual, Chapter 7, the surface area of the filter shall be no less than the sum of 5% of the tributary impervious area and 2% of the tributary vegetated area. The filter area is calculated by the following formula:

$$[(\text{Imp. SF} \times 0.05) + (\text{Veg. SF} \times 0.02)] = \text{Filter Area (SF)}$$

Please refer to Table 3 below for the required area calculations.

Table 3 – Total Filter Surface Area, displays the proposed USSF sizing requirements, actual size and the percentage of required area.

Table 3 – Total Filter Surface Area		
	Required Filter Area (SF)	Actual Filter Area (SF)
USSF 1	1,044	2,125



USSF 2	1,572	2,982
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As shown, the size of the soil filter area will greatly exceed the surface area requirements.

Isolator Row Sizing

The isolator row was sized based upon a letter from Mark Bergeron, Director of the MDEP Bureau of Land Resources, to StormTech dated July 29, 2016. The calculation that Mr. Bergeron references to determine the minimum number of stormwater chambers needed for the isolator row is defined as the one-year peak flow rate divided by the specific flow rate of the chamber. This rate was implemented into the HydroCAD model and divided by the flow rate of the SC-740 chamber (0.2 cfs). Please refer to Table 4 below which provides the isolator row sizing in comparison with the required amount. As seen in the table the isolator row will far exceed the requirements.

Table 4 – Isolator Row Sizing			
	1-Year Peak Flow (cfs)	Required Chambers	Provided Chambers
USSF 1	1.32	7	15
USSF 2	1.56	8	20

Water Quality Volume

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

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

Values from the HydroCAD calculations are attached to this report to demonstrate compliance with this standard.

The treatment volume was confirmed by using the HydroCAD model and the rainfall that produces 18" of ponding within the chambers. The storage volume within the crushed stone and chambers – the two layers above the filter sand – is then added together to calculate the water quality volume.



An orifice is modeled on each of the underdrain outlets from the USSFs. This will provide for further control on the discharge rates from the USSFs. The orifice is intended to be a PVC cap placed on the outfall pipe with the orifice drilled into the cap eccentrically. The PVC cap can be easily inspected, removed or replaced if necessary, as accessed from a manhole. The orifice shall be placed at the end of each underdrain outlet from the USSFs.

As demonstrated in the filter area calculations as well as the hydrocad model, the project anticipates meeting and exceeding the required water quality volume.

FLOODING STANDARD – WATER QUANTITY

The proposed project was modeled using HydroCAD to verify that the post-development conditions do not exceed the pre-development conditions. A 24-hour SCS Type III storm distribution for the 2, 10, 25, 50, and 100-year storm events were used. The corresponding rainfall amounts for these storms are 3.24”, 5.11”, 6.28”, 7.14”, and 8.08” respectively. 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. Please note that the systems were designed to adequately control and treat stormwater from 2, 10, 25, and 50-year storms as part of the City of Biddeford stormwater treatment standards. The 100-yr storm was evaluated as part of a request from the City’s Planning board at the conceptual Site plan meeting held via zoom on May 4th, 2022.

Time of Concentration (Tc)

The times of concentration for subcatchments in both the pre and post conditions were calculated by entering the flow path with the associated ground cover and slopes. HydroCAD then calculated the Tc’s and incorporated the total Tc for each subcatchment into the model. When the calculated Tc was less than six minutes (0.1 hours), a direct entry of six minutes was used as advised by the TR-55 model. Consistent with previous submissions and best practices, the sheet flow length for any Tc path was limited to 100 feet before transitioning to shallow concentrated flow.

Curve Number (CN)

Within the pre-development model, the vegetated areas were considered grass, brush, wood land and combination with good to fair coverage. This determination was made after multiple site visits during various seasons that observed exposed soils with little to no organic duff layer.

The post development landscaped areas were given a good rating for new landscaped or loam/seed areas.

Pre-development Calculations

For the predevelopment analysis the land has been divided into 5 separate sub catchments with three points of interest as shown on the pre-development map. As previously stated, the site consists of a gravel driveway, paved parking, wooded area, and open grass areas with coverage varying from good to fair. Two of the abutting properties have been included as part of the analysis given their direct contribution of runoff the points of interest.

Peak flow rates for the pre-development storm events are as follows:

Table 5 – Pre-Development Peak Stormwater Flows				
Drainage Area	2-Year Storm Event (cfs)	10-Year Storm Event (cfs)	25-Year Storm Event (cfs)	50-Year Storm Event (cfs)
POI #1	1	2	3	3
POI #2	3	8	11	13
POI #3	2	3	4	5

Post-development Calculations

The drainage patterns from the pre and post conditions remain relatively the same, but with the post condition featuring subcatchments that are dedicated for the treatment of runoff generated primarily by roof and pavement via the two USSF systems. Table 6 provides the post development peak flows for a 2, 10, 25, and 50-yr storm events.

Table 6 – Post-Development Peak Stormwater Flows				
Drainage Area	2-Year Storm Event (cfs)	10-Year Storm Event (cfs)	25-Year Storm Event (cfs)	50-Year Storm Event (cfs)
POI #1	1	2	3	3
POI #2	3	7	10	13
POI #3	2	3	4	5

The post-development calculations include changes to the land use, and the compensation provided by the USSF's, and associated engineered orifices. Table 7 provides a comparison of pre-development and post-development condition peak runoff rates for the proposed development and tributary areas.



Table 7 – Comparison of Peak Flows								
Drainage Area	2-Year Storm Event (cfs)		10-Year Storm Event (cfs)		25-Year Storm Event (cfs)		50-Year Storm Event (cfs)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
POI #1	1	1	2	2	3	3	3	3
POI #2	3	3	8	7	11	10	13	13
POI #3	2	2	3	3	4	4	5	5

As shown in Table 6 and 7, the net impact of the post development peak flows will remain at or below the predevelopment levels. A post-development watershed map developed for this project can be viewed in Attachment B, and a copy of the HydroCAD calculations is included within Attachment G of this report.

SOILS

Onsite soil information has been derived from the following resources:

- Soil Conservation Service Medium Intensity Soil Survey for York County
- Summit GeoEngineering Services, Geotechnical Report, dated January 2022

The site is split into two hydrological groups, A and D which were inputted into HydroCAD accordingly. Soil borings and test pits were conducted by Summit GeoEngineering to further assess the conditions on site. In accordance with Maine Best Management Practices (BMP), test pits were conducted where both USSF systems are proposed to be placed. Please refer to the pre and post development maps as well as the attached geotechnical report for more information. The USDA soil report was submitted as part of the previous submission, therefore has not been attached to this application.

CONCLUSION

The proposed development was designed to meet and exceed the requirements implemented by the MDEP under the Stormwater Management Statute (38 M.R.S.A. § 420-D) as well as the City of Biddeford Stormwater standards for being within the Thatcher Brook Watershed and post construction stormwater discharge standards set forth in Chapter 34, Article VI. As demonstrated in this narrative as well as through the HydroCAD analysis, the proposed project as designed is anticipated to improve upon the existing stormwater management by maintaining and decreasing stormwater runoff on site in addition to enhancing the quality of water that will flow back into the City's sewer system. Through the use of the StormTech Chambers significant storage is provided onsite while also treating over 100% of the new impervious area, creating a significant improvement for this tributary that flows to the Thatcher Brook urban impaired stream. Given the nature of the site and development a Stormwater Law application has been submitted and approved by the Maine DEP. Please

review the following attachments for more information on the stormwater analysis in addition to the proposed construction and maintenance plan for the development.

ATTACHMENTS

Attachment A: Pre – Development Watershed Map

Attachment B: Post – Development Watershed Map

Attachment C: Stormwater Maintenance Agreement

Attachment D: Post-Construction Stormwater Inspection & Maintenance Plan

Attachment E: Geotechnical Report

Attachment F: HydroCAD Calculations

1

SUBCATCHMENT NUMBER

[]

SUBCATCHMENT EXTENTS

POI #1

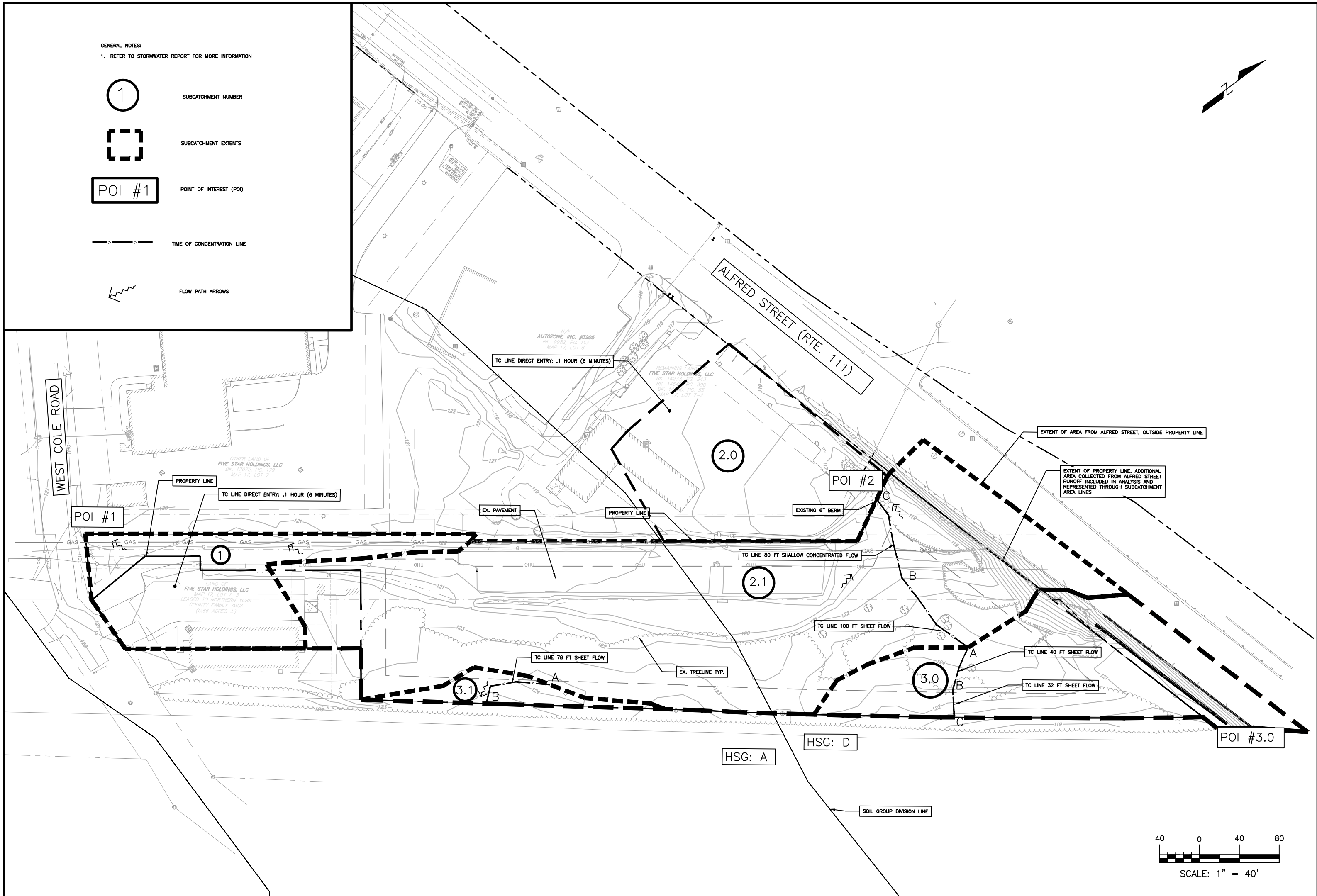
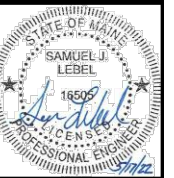
POINT OF INTEREST (POI)

> >

TIME OF CONCENTRATION LINE

~~~~~

FLOW PATH ARROWS

[illegible]

DRAWING NO.

PRE

1. REFER TO STORMWATER REPORT FOR MORE INFORMATION

 SUBCATCHMENT EXTENTS

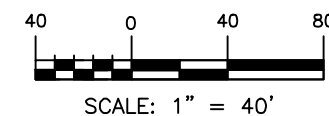
1

POND

TIME OF CONCENTRATION LINE



FLOW PATH ARROWS



PERMIT LEVEL  
NOT ISSUED FOR  
CONSTRUCTION

|                 |         |
|-----------------|---------|
| ISSUED FOR      | BY      |
| SITE PLAN       | DATE    |
| DEP SW LAW      | SSG     |
| FINAL SITE PLAN | 3/17/22 |
|                 | SL      |
|                 | 4/1/22  |
|                 | SL      |
|                 | 5/17/22 |

## POST DEVELOPMENT PLAN

## CONDITIONED SELF-STORAGE

STEELCLAD BIDDEFORD, LLC

STEELCLAD BIDDLEFORD, LLC  
WEST COLE ROAD & ALFRED STREET (ME RTE. 111)

1

INTERNATIONAL JOURNAL OF

CLIENT:

ENGINEERING INC.

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.



0

ACORN ENGINEERING, INC.  
PO BOX 3372, PORTLAND MAINE 04104  
(207) 775-2655

LE: 1158 CIVIL

|    |      |
|----|------|
| N° | 1158 |
|----|------|

|        |         |
|--------|---------|
| SALES: | 10.0000 |
|--------|---------|

SCALE: AS NOTED

DESIGNED BY: SJL

RAWN BY: DN

CHECKED BY: SJL/WHS



DRAWING NO

# POST



## Maintenance Agreement for Stormwater Management Facilities

This Maintenance Agreement is made this day of May 17<sup>th</sup>, 2022 by and between  
SteelClad Biddeford LLC and the City of Biddeford, Maine.

The project name is Conditioned Self-Storage Biddeford.

The location is: Enterprise Drive, Biddeford, Maine.

The project's Tax Map and Lot Numbers are Tax Map Lot 17, 7-2-1

The project is shown on a plan entitled "Site & Landscape Plan" dated 5/17/22

and most recently revised on \_\_\_\_\_, approved by the \_\_\_\_\_ [Municipal  
Permitting Board] on \_\_\_\_\_ and recorded in the \_\_\_\_\_ County Registry of Deeds in Plan  
Book \_\_\_\_\_ Page \_\_\_\_\_ (the "Project").

WHEREAS, the approval of the Project includes Stormwater Management Facilities which  
requires periodic maintenance; and WHEREAS, in consideration of the approval of the Project the City of  
Biddeford requires that periodic maintenance be performed on the Stormwater Management Facilities;  
NOW, THEREFORE, in consideration of the mutual benefits accruing from the approval of the  
Project by the City and the agreement of SteelClad Biddeford LLC to maintain the  
Stormwater Management Facilities, the parties hereby agree as follows:

1. \_\_\_\_\_, for itself, and its successors and assigns, agrees to the following:
  - (a) To inspect, clean, maintain, and repair the Stormwater Management Facilities, which includes, to the extent they exist, parking areas, catch basins, detention basins or ponds, drainage swales, pipes and related structures, at least annually, to prevent the build up and storage of sediment and debris in the system;
  - (b) To repair any deficiencies in the Stormwater Management Facilities noted during the annual inspection;
  - (c) To provide a summary report on the inspection, maintenance, and repair activities performed annually on the Stormwater Management Facilities to the City Enforcement Authority;
  - (d) To allow access by City personnel or the City's designee for inspecting the Stormwater Management Facilities for conformance with these requirements.
  - (e) To create a homeowners' association for the purpose of maintaining the Stormwater Management Facilities.
2. Upon creation of the homeowners' association, the homeowners' association shall become responsible for compliance with the terms of this Agreement.
3. This Agreement shall constitute a covenant running with the land, and \_\_\_\_\_ shall reference this Agreement in all deeds to lots and/or units within the Project.

\_\_\_\_\_  
By: \_\_\_\_\_

Witness Its:  
CITY OF BIDDEFORD

\_\_\_\_\_  
By: \_\_\_\_\_

Witness Its:  
STATE OF MAINE

\_\_\_\_\_, ss. \_\_\_\_\_, 20\_\_

Personally appeared the above-named \_\_\_\_\_,  
the \_\_\_\_\_ of \_\_\_\_\_, and  
acknowledged the foregoing Agreement to be said person's free act and deed in said capacity.  
Before me,

\_\_\_\_\_  
Notary Public/Attorney at Law

Print Name: \_\_\_\_\_

STATE OF MAINE

\_\_\_\_\_, ss. \_\_\_\_\_, 20\_\_

Personally appeared the above-named \_\_\_\_\_,

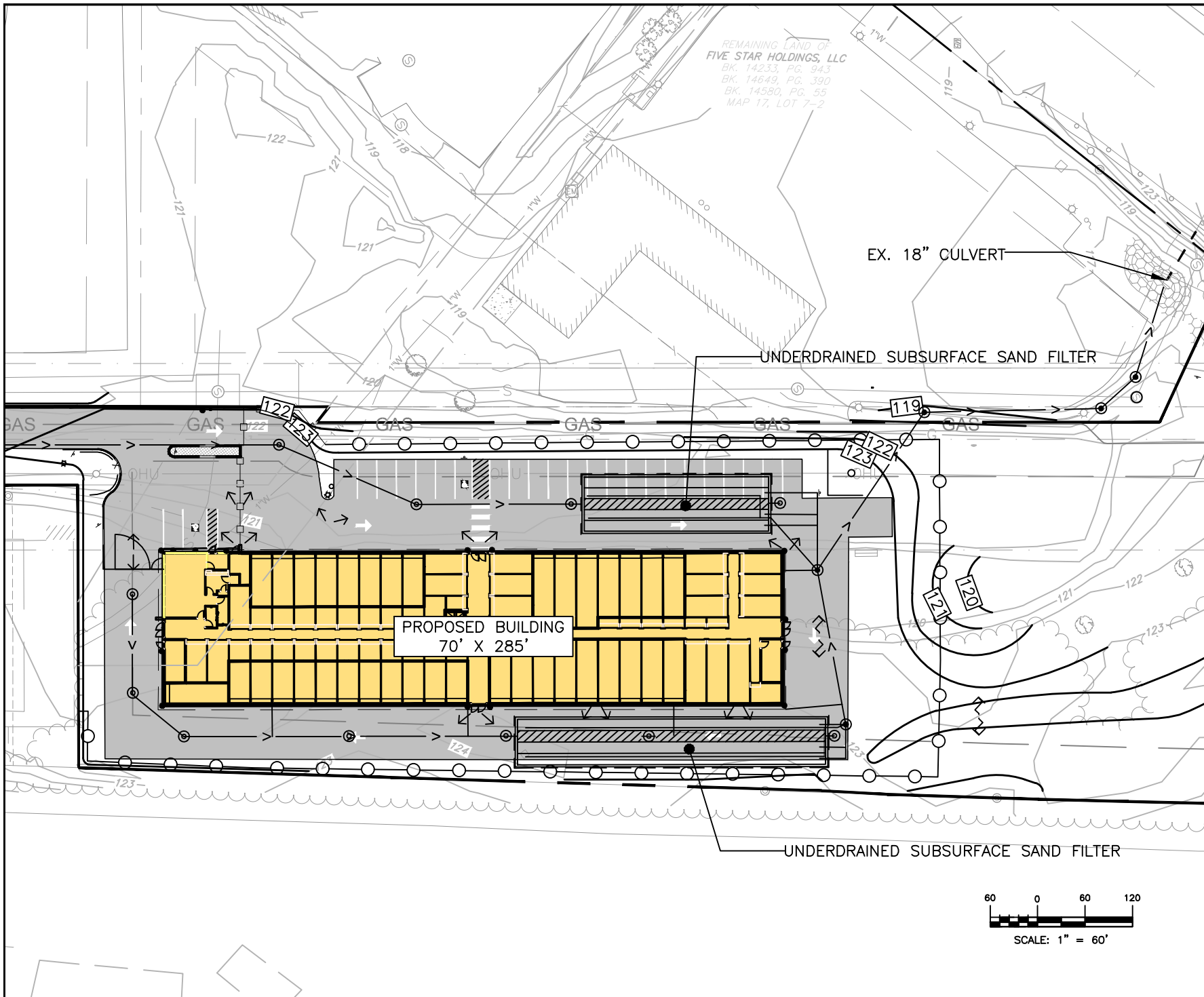
the \_\_\_\_\_ of the City of Biddeford, and acknowledged the foregoing

Agreement to be said his/her free act and deed in said capacity.

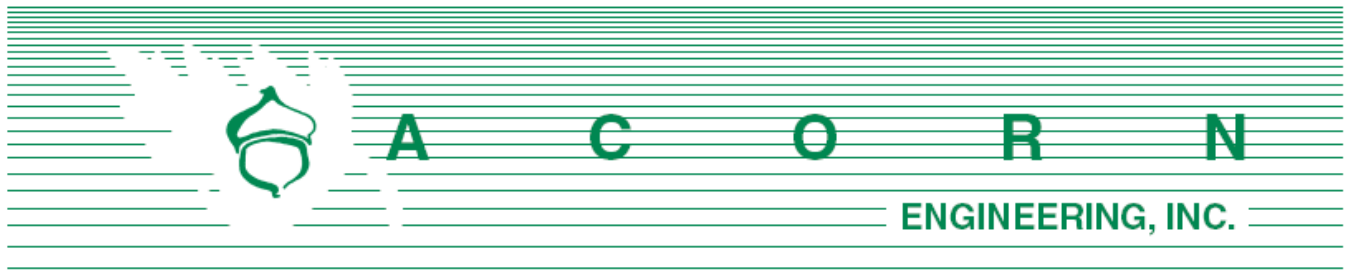
Before me,

\_\_\_\_\_  
Notary Public/Attorney at Law

Print Name: \_\_\_\_\_



|                                                                                                                                                                                                                                                              |  |            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------|
| ISSUED FOR                                                                                                                                                                                                                                                   |  | BY         |
|                                                                                                                                                                                                                                                              |  | DATE       |
| <div> <div> DRAWING NAME:<br/> <b>DRAINAGE EXHIBIT</b> </div> <div> PROJECT NAME:<br/> <b>CONDITIONED SELF STORAGE<br/>BIDDEFORD</b> </div> <div> CLIENT:<br/> <b>STEELCLAD BIDDEFORD LLC.</b> </div> </div>                                                 |  |            |
| <div>  <div> <b>ACORN</b><br/> ENGINEERING, INC.<br/> <small>ACORN ENGINEERING, INC. 500 WASHINGTON AVE.<br/> PORTLAND, MAINE 04103 (207) 775-2655</small> </div> </div> |  |            |
| FILE:                                                                                                                                                                                                                                                        |  | 1158_CIVIL |
| JN:                                                                                                                                                                                                                                                          |  | 1158       |
| SCALE:                                                                                                                                                                                                                                                       |  | AS NOTED   |
| DESIGN BY:                                                                                                                                                                                                                                                   |  | SJL        |
| DRAWN BY:                                                                                                                                                                                                                                                    |  | DNM        |
| CHECKED BY:                                                                                                                                                                                                                                                  |  | SJL/WSH    |
| <p>THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION FROM ACORN ENGINEERING, INC. ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO ACORN ENGINEERING, INC.</p>                                   |  |            |
| DRAWING NO.                                                                                                                                                                                                                                                  |  |            |
| <div>EX.</div>                                                                                                                                                                                                                                               |  |            |



## **POST CONSTRUCTION - STORMWATER INSPECTION & MAINTENANCE PLAN**

**Prepared For:**

**SteelClad Biddeford, LLC.,  
25 Penrith Road,  
Portland, ME 04103**

**Prepared By:**

**Acorn Engineering, Inc.  
500 Washington Ave.  
Portland, Maine 04103**



**April 2022  
Rev. May 2022**

## **RESPONSIBLE PARTY**

The owner, SteelClad Biddeford LLC., and/or their successor shall be responsible for contracting with a qualified stormwater professional to implement the Inspection and Maintenance Plan. The qualified stormwater professional shall maintain a stormwater log (report) summarizing inspections, maintenance, and corrective action taken. The Qualified Stormwater Professional shall annually submit the Stormwater Log to the Department of Public Services prior to June 30<sup>th</sup>.

The following is an example of a qualified stormwater professional that the owner may contract through.

Organization: Acorn Engineering, Inc.  
Attn: Will Savage, PE  
Portland, Maine

Phone: (207) 775-2655

Qualifications:

- Maine Professional Engineering License #11419
- Maine DEP - Certified in Maintenance & Inspection of Stormwater BMP's Cert #14
- Certified Erosion, Sediment and Storm Water Inspector (CESSWI) Cert #0293
- Certified Professional in Erosion and Sediment Control (CPESC) Cert. #4620

The inspection and maintenance criteria are based upon the Maine DEP - Stormwater Management for Maine, Volume III: BMPs Technical Design Manual. Refer to the Grading and Drainage Plan for the location of the BMPs

## **PURPOSE**

This Inspection and Maintenance Plan has been individually tailored to this parcel's stormwater infrastructure, site characteristics, and their respective opportunities and limitations related to reducing the pollutant load on the receiving watershed. The maintenance of a parcel's impervious surfaces and stormwater infrastructure is critical to extending the long-term performance and effectiveness of Best Management Practices (BMPs). The Inspection and Maintenance Plan represents the parcel's minimum activities to meet the permit requirements. The parcel shall still be subject to any applicable Civil Site Plans, Permit Applications, Erosion and Sedimentation Control Plans Reports, Stormwater Management Plans, Inspection and Maintenance Manuals, and all Municipal, State, and Federal rules.

The applicant shall be responsible for retaining post construction and maintenance documents for at least 5 years. The Department of Environmental Protection's 5-year recertification will apply to this permit.

## **OPERATION AND MAINTENANCE ACTIVITY**

### **Underdrained Subsurface Sand Filter:**

The maintenance of the underdrained subsurface sand filter shall be in accordance with the following activities identified below and the Stormwater Drainage System Maintenance Agreement included within Stormwater Report.

- The system should be inspected after every major storm in the first few months to ensure proper function. Thereafter, the filter should be inspected at least once every six months to ensure that it is draining within 24 hours to 36 hours.
- Inspect and maintain the StormTech Isolator Row in accordance with the attached proprietary Operation and Maintenance Plan.

### **Sweeping:**

Annual sweeping of the driveways and parking areas following the snow melt for accumulated winter sand, if necessary. Appropriately dispose of all collected material.

### **Catch Basins:**

Catch basins shall be inspected to confirm that the structure is operating properly.

- Inspect the presence of accumulated sediment or debris any sediment shall be removed. The equipment shall meet the following minimum specifications; power jet and water source for washing down the storm drain, vacuum attachment for catch basin cleaning, and a liquid handling method to dewater the material.
- Sediment shall be removed when accumulation is within 6 inches of the outfall pipe invert. Legally dispose of accumulated sediment and debris from the bottom of the basin, inlet grates, and inflow channels to the basin.
- If the basin outlet is designed with a hood to trap floatable materials (e.g. Snout), check to ensure watertight seal is working.
- Appropriately dispose of all collected material.

### **Landscaped and Vegetated Areas:**

Inspect all landscaped and or vegetated slopes and embankments on an annual basis. Vegetated areas with bare areas or sparse growth (<90% coverage) shall be revegetated. Mulch shall be applied to landscaped areas, as necessary. Dead or decaying landscaping (ground cover, shrubs, trees etc.) shall be replanted in accordance with the contract documents.



**INSPECTION AND MAINTENANCE TABLE**

| <b>Inspection and Maintenance Frequency</b> | <b>Spring or Yearly</b> | <b>Summer</b> | <b>Fall</b> | <b>As Necessary</b> |
|---------------------------------------------|-------------------------|---------------|-------------|---------------------|
| Underdrained subsurface sand filter         | X                       |               | X           | X                   |
| Sweeping                                    | X                       |               |             | X                   |
| Catch Basins                                |                         |               | X           | X                   |
| Landscaped/Vegetated Areas                  |                         | X             |             |                     |



STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

|                                                                                  |                                     |                                     |                                     |                                                                                             |                              |                              |                                 |
|----------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------|------------------------------|------------------------------|---------------------------------|
| CATCH BASIN:                                                                     |                                     |                                     |                                     |                                                                                             |                              |                              |                                 |
| Location:<br>Enterprise Drive, Biddeford, ME                                     |                                     |                                     |                                     | Latitude: 43.479457                                                                         |                              |                              |                                 |
|                                                                                  |                                     |                                     |                                     | Longitude: -70.483999                                                                       |                              |                              |                                 |
|                                                                                  |                                     |                                     |                                     |                                                                                             |                              |                              |                                 |
| Description of Located Point:                                                    |                                     |                                     |                                     | Inspector:                                                                                  |                              |                              |                                 |
|                                                                                  |                                     |                                     |                                     | Date of Inspection:                                                                         |                              |                              |                                 |
|                                                                                  |                                     |                                     |                                     | Weather Conditions:                                                                         |                              |                              |                                 |
| Days since last precipitation                                                    |                                     |                                     |                                     | MEDEP Permit #                                                                              |                              |                              |                                 |
| Quantity of last precipitation (in)                                              |                                     |                                     |                                     | Design Drawings:                                                                            |                              |                              |                                 |
|                                                                                  |                                     |                                     |                                     |                                                                                             |                              |                              |                                 |
| Maintenance Items                                                                | Inspect In Spring                   | Inspect In Fall                     | Inspect As Necessary                |                                                                                             | Maintenance Requested (Date) | Maintenance Completed (Date) | Summary of Maintenance Required |
|                                                                                  |                                     |                                     |                                     |                                                                                             |                              |                              |                                 |
| Catch Basins                                                                     |                                     |                                     |                                     |                                                                                             |                              |                              |                                 |
| Catch basin is working properly and is free of debris and sediment               | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                              |                              |                                 |
| Basin outlet hood (if any) is working properly.                                  | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                              |                              |                                 |
| Inter-basin storm drain is functioning properly and free of sediment and debris. | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                              |                              |                                 |
| Catch basin sediment further than 6" from invert out                             | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                              |                              |                                 |
| No sign of illicit discharge is present                                          | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                              |                              |                                 |
| General                                                                          |                                     |                                     |                                     |                                                                                             |                              |                              |                                 |
| Access to facility is adequate                                                   | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                              |                              |                                 |
| Photographs of most recent site inspection are included                          | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                                                                                             |                              |                              |                                 |
| Additional Comments:                                                             |                                     |                                     |                                     |                                                                                             |                              |                              |                                 |



# STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

|                                                                                                          |                                     |                                     |                                     |                                                                                             |                                     |                                     |                                        |
|----------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|----------------------------------------|
| <b>UNDERDRAINED SUBSURFACE SAND FILTER BMP:</b>                                                          |                                     |                                     |                                     |                                                                                             |                                     |                                     |                                        |
| <b>Location:</b><br><div style="text-align: center;">Enterprise Drive, Biddeford, ME</div>               |                                     |                                     |                                     |                                                                                             | <b>Latitude:</b> 43.479457          |                                     |                                        |
|                                                                                                          |                                     |                                     |                                     |                                                                                             | <b>Longitude:</b> -70.483999        |                                     |                                        |
| <b>Description of Located Point:</b>                                                                     |                                     |                                     |                                     |                                                                                             | <b>Inspector:</b>                   |                                     |                                        |
|                                                                                                          |                                     |                                     |                                     |                                                                                             | <b>Date of Inspection:</b>          |                                     |                                        |
|                                                                                                          |                                     |                                     |                                     |                                                                                             | <b>Weather Conditions:</b>          |                                     |                                        |
|                                                                                                          |                                     |                                     |                                     |                                                                                             |                                     |                                     |                                        |
| <b>Maintenance Items</b>                                                                                 | <b>Inspect In Spring</b>            | <b>Inspect In Fall</b>              | <b>Inspect As Necessary</b>         |                                                                                             | <b>Maintenance Requested (Date)</b> | <b>Maintenance Completed (Date)</b> | <b>Summary of Maintenance Required</b> |
| <b>Underdrained Subsurface Sand Filter, Catch Basins, Storm Drains, etc.</b>                             |                                     |                                     |                                     |                                                                                             |                                     |                                     |                                        |
| Sand filter retains the design volume for a drain down time greater than 24-hours and less than 36-hours | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                                     |                                     |                                        |
| The outlet control structure is in good working condition.                                               | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                                     |                                     |                                        |
| Inlet and pre-treatment measures are free of sediment and floatables accumulation.                       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                                     |                                     |                                        |
| Maintain in accordance with manufacturer's recommendations                                               | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                                     |                                     |                                        |
| Treatment device is working properly and is free of debris and sediment                                  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                                     |                                     |                                        |
| Sediment is less than 3 inches within the isolator row                                                   | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                                     |                                     |                                        |
| Catch basin is working properly and is free of debris and sediment                                       | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                                     |                                     |                                        |
| Basin outlet hood is working properly.                                                                   | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                                     |                                     |                                        |
| The site is clean and swept                                                                              | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                                     |                                     |                                        |
| Inter-basin storm drain is functioning properly and free of sediment and debris.                         | <input checked="" type="checkbox"/> | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                                     |                                     |                                        |

## STORMWATER MAINTENANCE AND INSPECTION AGREEMENT: INSPECTION LOG

| Maintenance Items                                       | Inspect In Spring        | Inspect In Fall                     | Inspect As Necessary     |                                                                                             | Maintenance Requested (Date) | Maintenance Completed (Date) | Summary of Maintenance Required |
|---------------------------------------------------------|--------------------------|-------------------------------------|--------------------------|---------------------------------------------------------------------------------------------|------------------------------|------------------------------|---------------------------------|
| <b>General</b>                                          |                          |                                     |                          |                                                                                             |                              |                              |                                 |
| Access to facility is adequate                          | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> Yes<br><input type="checkbox"/> No<br><input type="checkbox"/> N/A |                              |                              |                                 |
| Photographs of most recent site inspection are included | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |                                                                                             |                              |                              | Photographs are attached.       |
| Additional Comments:                                    |                          |                                     |                          |                                                                                             |                              |                              |                                 |

# ADS StormTech® Installation Guide

## SC-310/SC-740/DC-780



StormTech  
Installation Video

### Required Materials and Equipment List

- Acceptable fill materials per Table 1
- ADS Plus and non-woven geotextile fabrics
- StormTech solid end caps and pre-cored end caps
- StormTech chambers
- StormTech manifolds and fittings

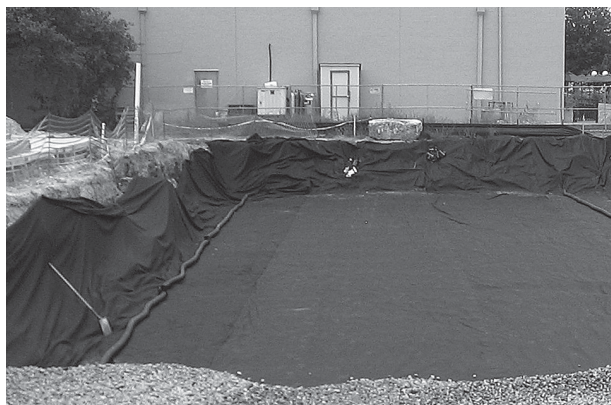
### Important Notes:

- This installation guide provides the minimum requirements for proper installation of chambers. Non-adherence to this guide may result in damage to chambers during installation. Replacement of damaged chambers during or after backfilling is costly and very time consuming. It is recommended that all installers are familiar with this guide, and that the contractor inspects the chambers for distortion, damage and joint integrity as work progresses.
- Use of a dozer to push embedment stone between the rows of chambers may cause damage to chambers and is not an acceptable backfill method. Any chambers damaged by using the “dump and push” method are not covered under the StormTech standard warranty.
- Care should be taken in the handling of chambers and end caps. Avoid dropping, prying or excessive force on chambers during removal from pallet and initial placement.

## Requirements for System Installation



Excavate bed and prepare subgrade per engineer's plans.



Place non-woven geotextile over prepared soils and up excavation walls. Install underdrains if required.



Place clean, crushed, angular stone foundation 6" (150 mm) min. Compact to achieve a flat surface.



## Manifold, Scour Fabric and Chamber Assembly



Install manifolds and lay out ADS Plus fabric at inlet rows (min. 12.5 ft (3.8 m)) at each inlet end cap. Place a continuous piece along entire length of Isolator® Plus Row(s).



Align the first chamber and end cap of each row with inlet pipes. Contractor may choose to postpone stone placement around end chambers and leave ends of rows open for easy inspection of chambers during the backfill process.



Continue installing chambers by overlapping chamber end corrugations. Chamber joints are labeled “Lower Joint – Overlap Here” and “Build this direction – Upper Joint” Be sure that the chamber placement does not exceed the reach of the construction equipment used to place the stone. Maintain minimum 6” (150 mm) spacing between rows.

## Attaching the End Caps

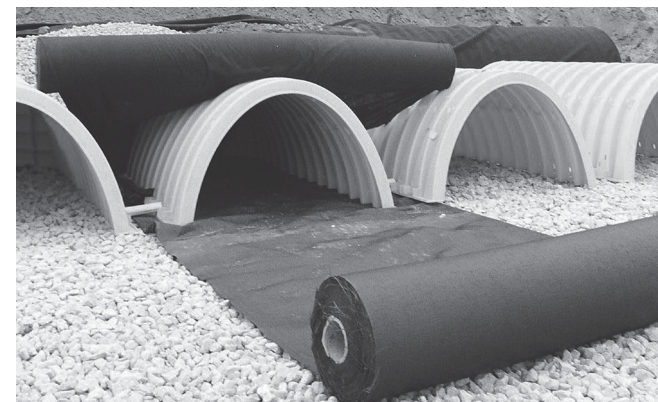


Lift the end of the chamber a few inches off the ground. With the curved face of the end cap facing outward, place the end cap into the chamber's end corrugation.



24” (600 mm) inlets are the maximum size that can fit into a SC-740/DC-780 end cap and must be prefabricated with a 24” (600 mm) pipe stub. SC-310 chambers with a 12” (300 mm) inlet pipe must use a prefabricated end cap with a 12” (300 mm) pipe stub. When used on an Isolator Row Plus, these end caps will contain a welded FLAMP (flared end ramp) that will lay on top of the ADS Plus fabric (shown above)

## Isolator Row Plus



Place a continuous layer of ADS Plus fabric between the foundation stone and the Isolator Row Plus chambers, making sure the fabric lays flat and extends the entire width of the chamber feet. Drape a strip of ADS non-woven geotextile over the row of chambers (not required over DC-780). This is the same type of non-woven geotextile used as a separation layer around the angular stone of the StormTech system.



## Initial Anchoring of Chambers – Embedment Stone

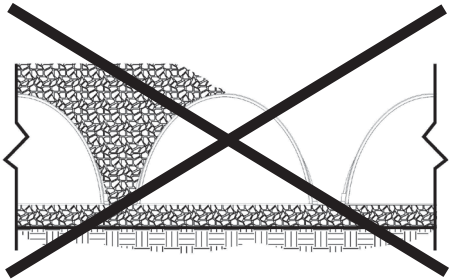


Initial embedment shall be spotted along the centerline of the chamber evenly anchoring the lower portion of the chamber. This is best accomplished with a stone conveyor or excavator reaching along the row.

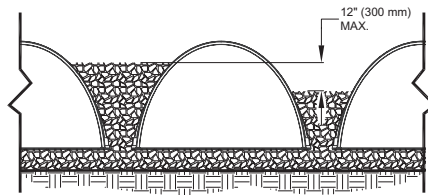


No equipment shall be operated on the bed at this stage of the installation. Excavators must be located off the bed. Dump trucks shall not dump stone directly on to the bed. Dozers or loaders are not allowed on the bed at this time.

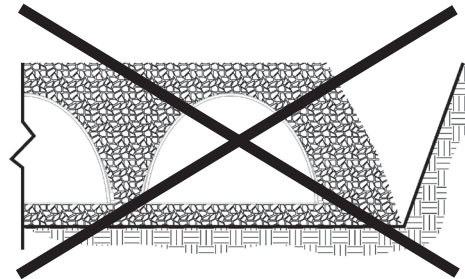
## Backfill of Chambers – Embedment Stone



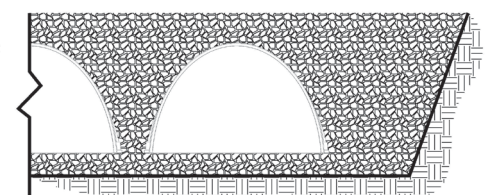
**Uneven Backfill**



**Even Backfill**



**Perimeter Not Backfilled**



**Perimeter Fully Backfilled**

Backfill chambers evenly. Stone column height should never differ by more than 12" (300 mm) between adjacent chamber rows or between chamber rows and perimeter.

Perimeter stone must be brought up evenly with chamber rows. Perimeter must be fully backfilled, with stone extended horizontally to the excavation wall.

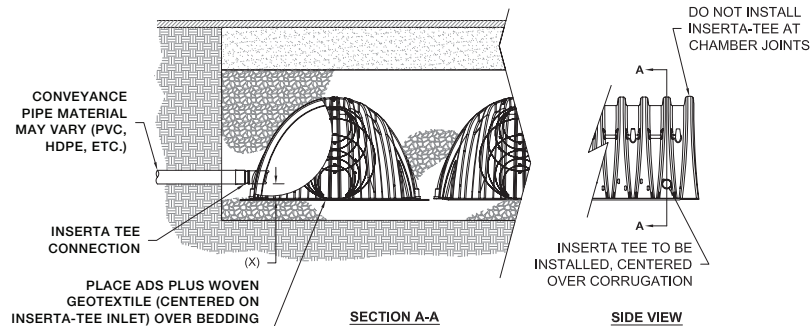
## Backfill - Embedment Stone & Cover Stone



Continue evenly backfilling between rows and around perimeter until embedment stone reaches tops of chambers. Perimeter stone must extend horizontally to the excavation wall for both straight or sloped sidewalls. **Only after chambers have been backfilled to top of chamber and with a minimum 6" (150 mm) of cover stone on top of chambers can small dozers be used over the chambers for backfilling remaining cover stone.**

Small dozers and skid loaders may be used to finish grading stone backfill in accordance with ground pressure limits in Table 2. They must push material parallel to rows only. Never push perpendicular to rows. StormTech recommends that the contractor inspect chambers before placing final backfill. Any chambers damaged by construction shall be removed and replaced.

## Inserta Tee Detail



PLACE ADS PLUS WOVEN GEOTEXTILE (CENTERED ON INSERTA-TEE INLET) OVER BEDDING STONE FOR SCOUR PROTECTION AT SIDE INLET CONNECTIONS. GEOTEXTILE MUST EXTEND 6" (150 mm) PAST CHAMBER FOOT

**NOTE:**  
PART NUMBERS WILL VARY BASED ON INLET PIPE MATERIALS. CONTACT STORMTECH FOR MORE INFORMATION.

| CHAMBER | MAX DIAMETER OF INSERTA TEE | HEIGHT FROM BASE OF CHAMBER (X) |
|---------|-----------------------------|---------------------------------|
| SC-310  | 6" (150 mm)                 | 4" (100 mm)                     |
| SC-740  | 10" (250 mm)                | 4" (100 mm)                     |
| DC-780  | 10" (250 mm)                | 4" (100 mm)                     |

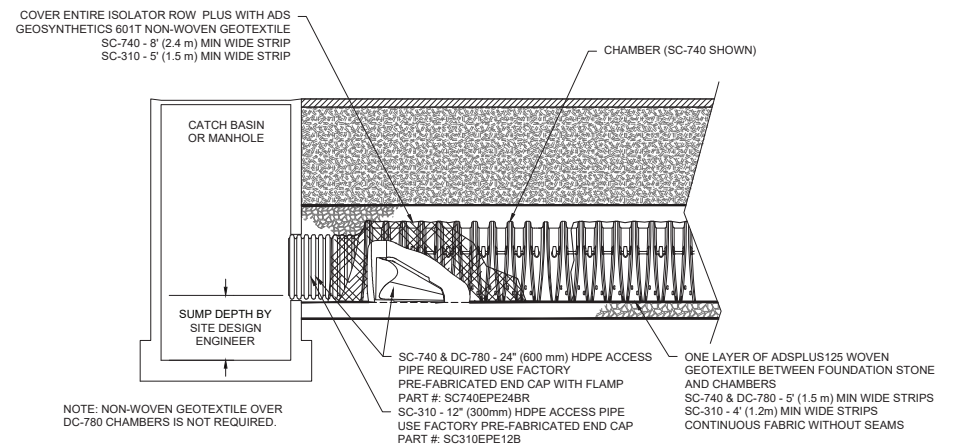
INSERTA TEE FITTINGS AVAILABLE FOR SDR 26, SDR 36, SCH 40 IPS GASKETED & SOLVENT WELD, N-12, HP STORM, C-900 OR DUCTILE IRON.

## Final Backfill of Chambers – Fill Material



Install non-woven geotextile over stone. Geotextile must overlap 24" (600 mm) min. where edges meet. Compact each lift of backfill as specified in the site design engineer's drawings. Roller travel parallel with rows.

## StormTech Isolator Row Plus Detail



**NOTE:** NON-WOVEN GEOTEXTILE OVER DC-780 CHAMBERS IS NOT REQUIRED.



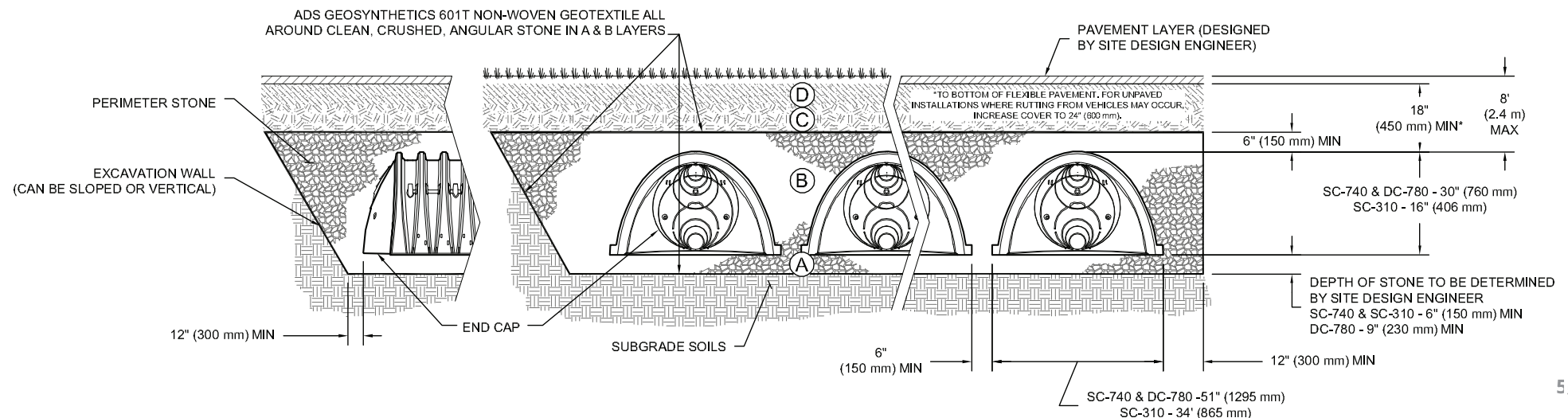
**Table 1- Acceptable Fill Materials**

| Material Location                                                                                                                                                                                                      | Description                                                                                                                                         | AASHTO M43 Designation <sup>1</sup>                                                                             | Compaction/Density Requirement                                                                                                                                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>D Final Fill:</b> Fill Material for layer 'D' starts from the top of the 'C' layer to the bottom of flexible pavement or unpaved finished grade above. Note that the pavement subbase may be part of the 'D' layer. | Any soil/rock materials, native soils or per engineer's plans. Check plans for pavement subgrade requirements.                                      | N/A                                                                                                             | Prepare per site design engineer's plans. Paved installations may have stringent material and preparation requirements.                                                                                                                                                                                                                                                |
| <b>C Initial Fill:</b> Fill Material for layer 'C' starts from the top of the embedment stone ('B' layer) to 18" (450 mm) above the top of the chamber. Note that pavement subbase may be part of the 'C' layer.       | Granular well-graded soil/aggregate mixtures, <35% fines or processed aggregate. Most pavement subbase materials can be used in lieu of this layer. | AASHTO M45 A-1, A-2-4, A-3 or AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10 | Begin compaction after min. 12" (300 mm) of material over the chambers is reached. Compact additional layers in 6" (150 mm) max. lifts to a min. 95% Proctor density for well-graded material and 95% relative density for processed aggregate materials. Roller gross vehicle weight not to exceed 12,000 lbs (53 kN). Dynamic force not to exceed 20,000 lbs (89 kN) |
| <b>B Embedment Stone:</b> Embedment Stone surrounding chambers from the foundation stone to the 'C' layer above.                                                                                                       | Clean, crushed, angular stone                                                                                                                       | AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57                                                               | No compaction required.                                                                                                                                                                                                                                                                                                                                                |
| <b>A Foundation Stone:</b> Foundation Stone below the chambers from the subgrade up to the foot (bottom) of the chamber.                                                                                               | Clean, crushed, angular stone,                                                                                                                      | AASHTO M43 <sup>1</sup> 3, 357, 4, 467, 5, 56, 57                                                               | Place and compact in 6" (150 mm) lifts using two full coverages with a vibratory compactor. <sup>2,3</sup>                                                                                                                                                                                                                                                             |

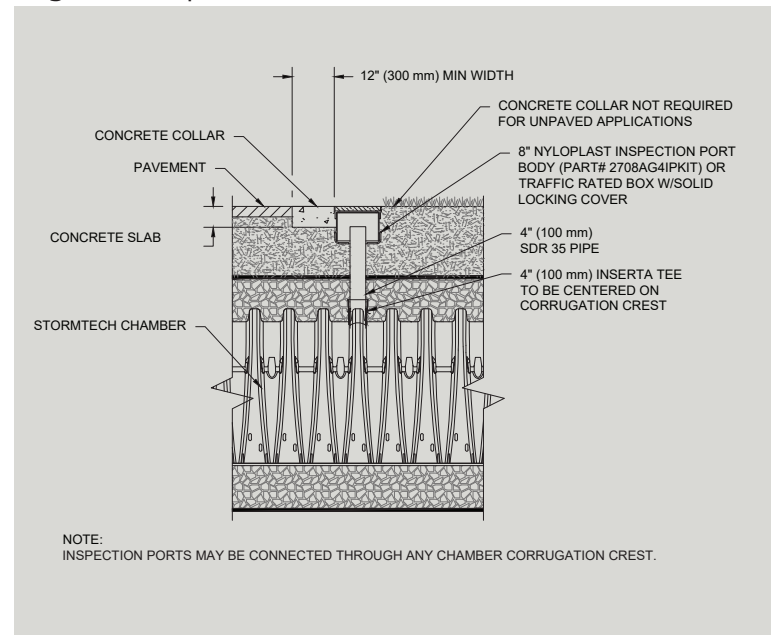
**Please Note:**

1. The listed AASHTO designations are for gradations only. The stone must also be clean, crushed, angular. For example, a specification for #4 stone would state: "clean, crushed, angular no. 4 (AASHTO M43) stone".
2. StormTech compaction requirements are met for 'A' location materials when placed and compacted in 6" (150 mm) (max) lifts using two full coverages with a vibratory compactor.
3. Where infiltration surfaces may be comprised by compaction, for standard installations and standard design load conditions, a flat surface may be achieved by raking or dragging without compaction equipment. For special load designs, contact StormTech for compaction requirements.

**Figure 2 - Fill Material Locations**



**Figure 1- Inspection Port Detail**



## Notes:

1. 36" (900 mm) of stabilized cover materials over the chambers is recommended during the construction phase if general construction activities, such as full dump truck travel and dumping, are to occur over the bed.
2. During paving operations, dump truck axle loads on 18" (450 mm) of cover may be necessary. Precautions should be taken to avoid rutting of the road base layer, to ensure that compaction requirements have been met, and that a minimum of 18" (450 mm) of cover exists over the chambers. Contact StormTech for additional guidance on allowable axle loads during paving.
3. Ground pressure for track dozers is the vehicle operating weight divided by total ground contact area for both tracks. Excavators will exert higher ground pressures based on loaded bucket weight and boom extension.
4. Mini-excavators (< 8,000lbs/3,628 kg) can be used with at least 12" (300 mm) of stone over the chambers and are limited by the maximum ground pressures in Table 2 based on a full bucket at maximum boom extension.
5. Storage of materials such as construction materials, equipment, spoils, etc. should not be located over the StormTech system. The use of equipment over the StormTech system not covered in Table 2 (ex. soil mixing equipment, cranes, etc) is limited. Please contact StormTech for more information.
6. Allowable track loads based on vehicle travel only. Excavators shall not operate on chamber beds until the total backfill reaches 3 feet (900 mm) over the entire bed.

**Table 2 - Maximum Allowable Construction Vehicle Loads<sup>6</sup>**

| Material Location       | Fill Depth over Chambers in. (mm) | Maximum Allowable Wheel Loads     |                                     | Maximum Allowable Track Loads <sup>6</sup>                    |                                                                 | Maximum Allowable Roller Loads                                               |
|-------------------------|-----------------------------------|-----------------------------------|-------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------|
|                         |                                   | Max Axle Load for Trucks lbs (kN) | Max Wheel Load for Loaders lbs (kN) | Track Width in. (mm)                                          | Max Ground Pressure psf (kPa)                                   | Max Drum Weight or Dynamic Force lbs (kN)                                    |
| Ⓐ Final Fill Material   | 36" (900) Compacted               | 32,000 (142)                      | 16,000 (71)                         | 12" (305)<br>18" (457)<br>24" (610)<br>30" (762)<br>36" (914) | 3880 (186)<br>2640 (126)<br>2040 (97)<br>1690 (81)<br>1470 (70) | 38,000 (169)                                                                 |
| Ⓒ Initial Fill Material | 24" (600) Compacted               | 32,000 (142)                      | 16,000 (71)                         | 12" (305)<br>18" (457)<br>24" (610)<br>30" (762)<br>36" (914) | 2690 (128)<br>1880 (90)<br>1490 (71)<br>1280 (61)<br>1150 (55)  | 20,000 (89)                                                                  |
|                         | 24" (600) Loose/Dumped            | 32,000 (142)                      | 16,000 (71)                         | 12" (305)<br>18" (457)<br>24" (610)<br>30" (762)<br>36" (914) | 2390 (114)<br>1700 (81)<br>1370 (65)<br>1190 (57)<br>1080 (51)  | 20,000 (89)<br>Roller gross vehicle weight not to exceed 12,000 lbs. (53 kN) |
|                         | 18" (450)                         | 32,000 (142)                      | 16,000 (71)                         | 12" (305)<br>18" (457)<br>24" (610)<br>30" (762)<br>36" (914) | 2110 (101)<br>1510 (72)<br>1250 (59)<br>1100 (52)<br>1020 (48)  | 20,000 (89)<br>Roller gross vehicle weight not to exceed 12,000 lbs. (53 kN) |
| Ⓑ Embedment Stone       | 12" (300)                         | 16,000 (71)                       | NOT ALLOWED                         | 12" (305)<br>18" (457)<br>24" (610)<br>30" (762)<br>36" (914) | 1540 (74)<br>1190 (57)<br>1010 (48)<br>910 (43)<br>840 (40)     | 20,000 (89)<br>Roller gross vehicle weight not to exceed 12,000 lbs. (53 kN) |
|                         | 6" (150)                          | 8,000 (35)                        | NOT ALLOWED                         | 12" (305)<br>18" (457)<br>24" (610)<br>30" (762)<br>36" (914) | 1070 (51)<br>900 (43)<br>800 (38)<br>760 (36)<br>720 (34)       | NOT ALLOWED                                                                  |

**Table 3 - Placement Methods and Descriptions**

| Material Location       | Placement Methods/ Restrictions                                                                                                                                                      | Wheel Load Restrictions                                                                                      | Track Load Restrictions                                                                                                                                                          | Roller Load Restrictions                                                                                                                     |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                                                                                                                                                      | See Table 2 for Maximum Construction Loads                                                                   |                                                                                                                                                                                  |                                                                                                                                              |
| Ⓐ Final Fill Material   | A variety of placement methods may be used. All construction loads must not exceed the maximum limits in Table 2.                                                                    | 36" (900 mm) minimum cover required for dump trucks to dump over chambers.                                   | Dozers to push parallel to rows until 36" (900mm) compacted cover is reached. <sup>4</sup>                                                                                       | Roller travel parallel to rows only until 36" (900 mm) compacted cover is reached.                                                           |
| Ⓒ Initial Fill Material | Excavator positioned off bed recommended. Small excavator allowed over chambers. Small dozer allowed.                                                                                | Asphalt can be dumped into paver when compacted pavement subbase reaches 18" (450 mm) above top of chambers. | Small LGP track dozers & skid loaders allowed to grade cover stone with at least 6" (150 mm) stone under tracks at all times. Equipment must push parallel to rows at all times. | Use dynamic force of roller only after compacted fill depth reaches 12" (300 mm) over chambers. Roller travel parallel to chamber rows only. |
| Ⓑ Embedment Stone       | No equipment allowed on bare chambers. Use excavator or stone conveyor positioned off bed or on foundation stone to evenly fill around all chambers to at least the top of chambers. | No wheel loads allowed. Material must be placed outside the limits of the chamber bed.                       | No tracked equipment is allowed on chambers until a min. 6" (150 mm) cover stone is in place.                                                                                    | No rollers allowed.                                                                                                                          |
| Ⓐ Foundation Stone      | No StormTech restrictions. Contractor responsible for any conditions or requirements by others relative to subgrade bearing capacity, dewatering or protection of subgrade.          |                                                                                                              |                                                                                                                                                                                  |                                                                                                                                              |



# Isolator<sup>®</sup> Row

## O&M Manual

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# The Isolator<sup>®</sup> Row

## Introduction

An important component of any Stormwater Pollution Prevention Plan is inspection and maintenance. The StormTech Isolator Row is a technique to inexpensively enhance Total Suspended Solids (TSS) and Total Phosphorus (TP) removal with easy access for inspection and maintenance.

## The Isolator Row

The Isolator Row is a row of StormTech chambers, either SC-160, SC-310, SC-310-3, SC-740, DC-780, MC-3500 or MC-7200 models, that is surrounded with filter fabric and connected to a closely located manhole for easy access. The fabric-wrapped chambers provide for sediment settling and filtration as stormwater rises in the Isolator Row and passes through the filter fabric. The open bottom chambers and perforated sidewalls (SC-310, SC-310-3 and SC-740 models) allow stormwater to flow both vertically and horizontally out of the chambers. Sediments are captured in the Isolator Row protecting the adjacent stone and chambers storage areas from sediment accumulation.

ADS geotextile fabric is placed between the stone and the Isolator Row chambers. The woven geotextile provides a media for stormwater filtration, a durable surface for maintenance, prevents scour of the underlying stone and remains intact during high pressure jetting. A non-woven fabric is placed over the chambers to provide a filter media for flows passing through the chamber's sidewall. The non-woven fabric is not required over the SC-160, DC-780, MC-3500 or MC-7200 models as these chambers do not have perforated side walls.

The Isolator Row is designed to capture the “first flush” runoff and offers the versatility to be sized on a volume basis or a flow-rate basis. An upstream manhole provides access to the Isolator Row and includes a high/low concept such that stormwater flow rates or volumes that exceed the capacity of the Isolator Row bypass through a manifold to the other chambers. This is achieved with an elevated bypass manifold or a high-flow weir. This creates a differential between the Isolator Row row of chambers and the manifold to the rest of the system, thus allowing for settlement time in the Isolator Row. After Stormwater flows through the Isolator Row and into the rest of the chamber system it is either exfiltrated into the soils below or passed at a controlled rate through an outlet manifold and outlet control structure.

The Isolator Row may be part of a treatment train system. The treatment train design and pretreatment device selection by the design engineer is often driven by regulatory requirements. Whether pretreatment is used or not, StormTech recommend using the Isolator Row to minimize maintenance requirements and maintenance costs.

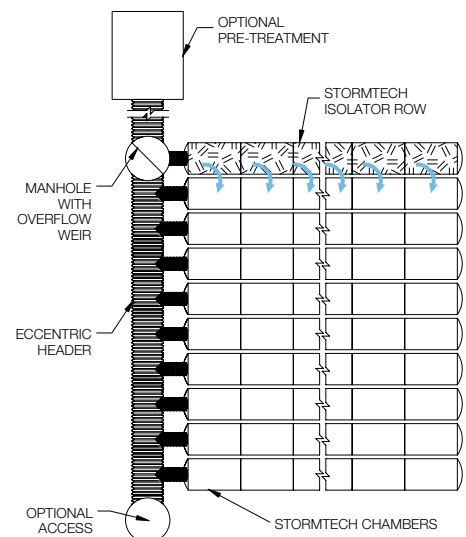
**Note:** See the *StormTech Design Manual* for detailed information on designing inlets for a StormTech system, including the Isolator Row.



**Looking down the Isolator Row from the manhole opening, woven geotextile fabric is shown between the chamber and stone base.**



**StormTech Isolator Row with Overflow Spillway (not to scale)**





# Isolator Row Inspection/Maintenance

## Inspection

The frequency of inspection and maintenance varies by location. A routine inspection schedule needs to be established for each individual location based upon site specific variables. The type of land use (i.e. industrial, commercial, residential), anticipated pollutant load, percent imperviousness, climate, etc. all play a critical role in determining the **actual frequency of inspection and maintenance practices**.

At a minimum, StormTech recommends annual inspections. Initially, the Isolator Row should be inspected every 6 months for the first year of operation. For subsequent years, the inspection should be adjusted based upon previous observation of sediment deposition.

The Isolator Row incorporates a combination of standard manhole(s) and strategically located inspection ports (as needed). The inspection ports allow for easy access to the system from the surface, eliminating the need to perform a confined space entry for inspection purposes.

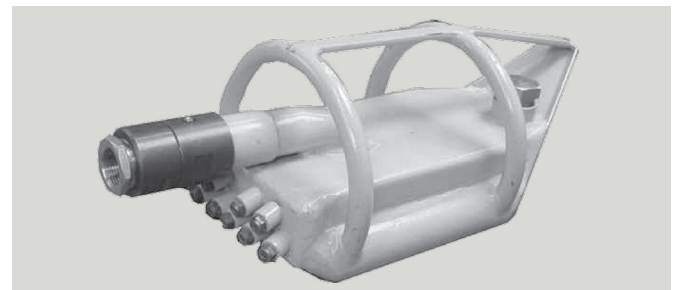
If upon visual inspection it is found that sediment has accumulated, a stadia rod should be inserted to determine the depth of sediment. When the average depth of sediment exceeds 3 inches throughout the length of the Isolator Row, clean-out should be performed.

## Maintenance

The Isolator Row was designed to reduce the cost of periodic maintenance. By “isolating” sediments to just one row, costs are dramatically reduced by eliminating the need to clean out each row of the entire storage bed. If inspection indicates the potential need for maintenance, access is provided

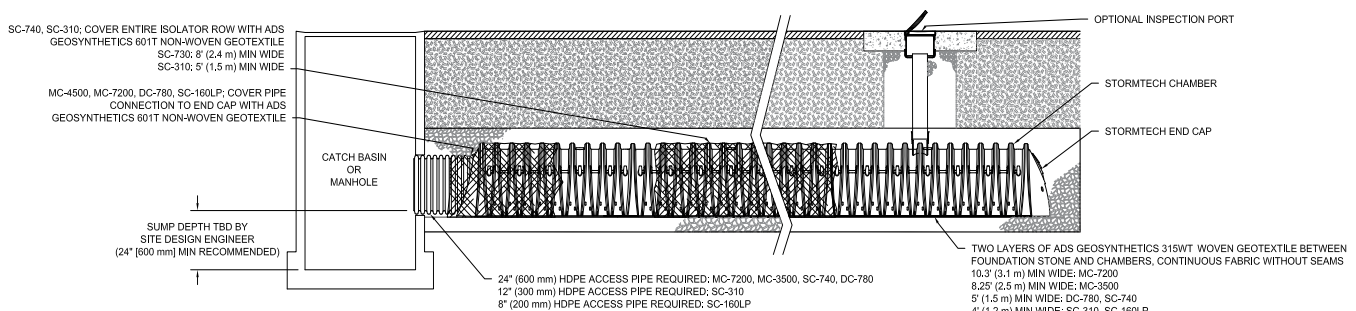
via a manhole(s) located on the end(s) of the row for cleanout. If entry into the manhole is required, please follow local and OSHA rules for a confined space entries.

Maintenance is accomplished with the JetVac process. The JetVac process utilizes a high pressure water nozzle to propel itself down the Isolator Row while scouring and suspending sediments. As the nozzle is retrieved, the captured pollutants are flushed back into the manhole for vacuuming. Most sewer and pipe maintenance companies have vacuum/JetVac combination vehicles. Selection of an appropriate JetVac nozzle will improve maintenance efficiency. Fixed nozzles designed for culverts or large diameter pipe cleaning are preferable. Rear facing jets with an effective spread of at least 45° are best. JetVac reels can vary in length. For ease of maintenance, ADS recommends Isolator Row lengths up to 200' (61 m). **The JetVac process shall only be performed on StormTech Isolator Rows that have AASHTO class 1 woven geotextile (as specified by StormTech) over their angular base stone.**



## StormTech Isolator Row (not to scale)

**Note:** Non-woven fabric is only required over the inlet pipe connection into the end cap for SC-160LP, DC-780, MC-3500 and MC-7200 chamber models and is not required over the entire Isolator Row.



# Isolator Row Step By Step Maintenance Procedures

## Step 1

Inspect Isolator Row for sediment.

- A) Inspection ports (if present)
  - i. Remove lid from floor box frame
  - ii. Remove cap from inspection riser
  - iii. Using a flashlight and stadia rod, measure depth of sediment and record results on maintenance log.
  - iv. If sediment is at or above 3 inch depth, proceed to Step 2. If not, proceed to Step 3.
- B) All Isolator Row
  - i. Remove cover from manhole at upstream end of Isolator Row
  - ii. Using a flashlight, inspect down Isolator Row through outlet pipe
    - 1. Mirrors on poles or cameras may be used to avoid a confined space entry
    - 2. Follow OSHA regulations for confined space entry if entering manhole
  - iii. If sediment is at or above the lower row of sidewall holes (approximately 3 inches), proceed to Step 2. If not, proceed to Step 3.

## Step 2

Clean out Isolator Row using the JetVac process.

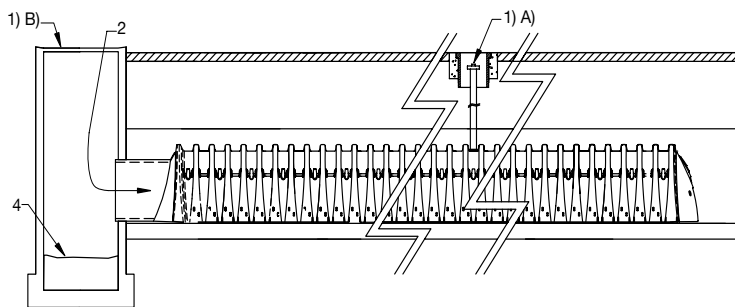
- A) A fixed floor cleaning nozzle with rear facing nozzle spread of 45 inches or more is preferable
- B) Apply multiple passes of JetVac until backflush water is clean
- C) Vacuum manhole sump as required

## Step 3

Replace all caps, lids and covers, record observations and actions.

## Step 4

Inspect & clean catch basins and manholes upstream of the StormTech system.



## Sample Maintenance Log

| Date    | Stadia Rod Readings                     |                                             | Sedi-<br>ment<br>Depth<br>(1)-(2) | Observations/Actions                                                       | Inspector |
|---------|-----------------------------------------|---------------------------------------------|-----------------------------------|----------------------------------------------------------------------------|-----------|
|         | Fixed point<br>to chamber<br>bottom (1) | Fixed point<br>to top of<br>sediment<br>(2) |                                   |                                                                            |           |
| 3/15/11 | 6.3 ft                                  | none                                        |                                   | New installation. Fixed point is CI frame at grade                         | DJM       |
| 9/24/11 |                                         | 6.2                                         | 0.1 ft                            | Some grit felt                                                             | SM        |
| 6/20/13 |                                         | 5.8                                         | 0.5 ft                            | Mucky feel, debris visible in manhole and in Isolator Row, maintenance due | NV        |
| 7/7/13  | 6.3 ft                                  |                                             | 0                                 | System jetted and vacuumed                                                 | DJM       |

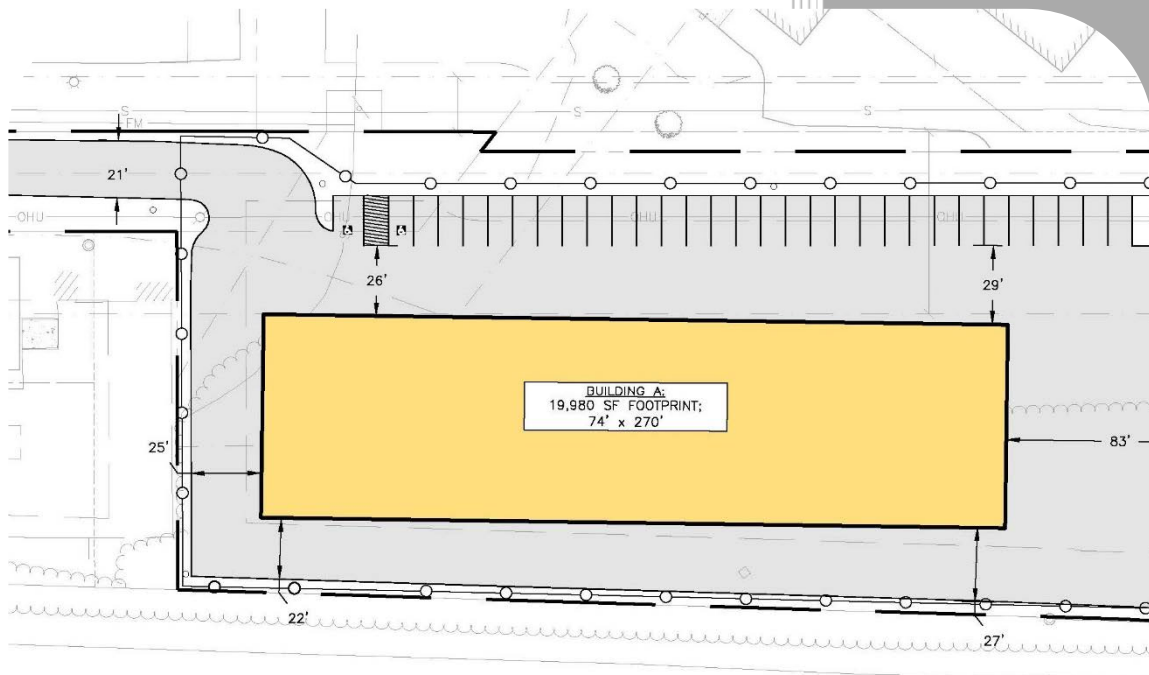
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# Geotechnical Report

*New Self Storage Building  
Enterprise Drive, Biddeford, Maine*



## Client

Steel Clad Biddeford, LLC  
547 Riverside Street  
Portland, Maine 04103

Project #21444  
Date: January 2022

January 3, 2022

SGS #21444

Robert LeBlanc  
Steel Clad Biddeford, LLC  
547 riverside street  
Portland, ME 04103

Reference: Geotechnical Report, New Self Storage Building A  
Enterprise Drive, Biddeford, Maine

Dear Robert;

Summit Geoengineering Services, Inc. (SGS) has completed a geotechnical investigation for the design and construction of a self-storage building at the above referenced site. This report has been prepared for Building A and does not include Building B, to be constructed in a future phase. Our scope of services included reviewing previous explorations performed by R.W. Gillespie, observing a series of test pits at the site, performing evaluations and preparing this geotechnical report providing recommendations for the design and construction of the new building foundation.

Our scope of services for this project did not include an environmental site assessment or further investigation for the presence or absence of hazardous or toxic material on, below, or around the site. Any statements in this report, or on the soil boring logs, regarding odors or unusual and suspicious conditions observed are for information purposes and are not intended to constitute an environmental assessment.

## 1.0 Project and Site Description

The project consists of the construction of a new three story self-storage building, labelled Building A, with a footprint of approximately 20,000 square feet. We anticipate that the building will consist of a conventional frost wall perimeter foundation with interior partition walls supported on thickened slab haunches. We anticipate maximum strip loads on the order of 9 kips per linear foot.

The proposed building site is currently partially grass and brush and partially wooded. A drainage swale is located between the building site and Enterprise Drive. The swale had standing water at the time of our explorations.

Grading plans were not available as of the writing of this report. We anticipate that the slab-on-grade will be at or near the existing ground surface.

## 2.0 Exploration

A series of test pits were excavated at the site by R.W. Gillespie (RWG) in September 2021. These test pits covered the entire site, including the proposed future Building B location. This report includes the Building A test pits observed by RWG. The Building B test pits observed by RWG are not included in this report.

Additional test pits were completed by SGS in December 2021 for design and construction of Building A.

### 2.1 SGS Subsurface Exploration

A total of 6 test pits were observed by RWG within or in the vicinity of the proposed Building A on September 21, 2021. These include TP-1, TP-2, TP-5, TP-6, TP-8 and TP-9. The test pits were excavated to depths of 8 to 9.5 feet below the existing ground surface. The location of these test pits, labelled RWG-TP-X is shown on the Exploration Location Plan in Appendix A. Log of these test pits are included in Appendix B.

### 2.2 SGS Subsurface Exploration

SGS observed the subsurface conditions on December 6, 2021 by excavating five test pits within or adjacent to the proposed Building A with a tracked mini-excavator. The intent of the SGS test pits was to characterize fill soils noted in the RWG test pits. The test pits were excavated down to native soils at depths ranging from 4 to 7 feet below the existing ground surface. These test pits were located by SGS by measuring from existing utility poles. The location of the test pits are shown on the explorations location plan in Appendix A. Logs of the test pits are included in Appendix B.

## 3.0 Subsurface Conditions

### 3.1 Soil

The following subsurface layers were encountered during the explorations:

- Topsoil
- Fill
- Original Topsoil
- Native Deposits



The **Topsoil** was encountered at 3 of the 5 SGS test pits and at 5 of the 6 RWG test pits. The topsoil is generally described as sandy silt with rootlets and organic matter. This soil was friable, loose and humid. The topsoil started at ground surface and extended to depths ranging from 4 inches to 12 inches.

**Fill** was encountered at all of the SGS test pits and interpreted to be present in all the RWG test pits. The fill started immediately beneath the topsoil layer (where present) and extended to depths ranging from 2 feet to 4.5 feet below existing ground surface. The fill is generally described as brown sand with varying amounts of gravel and silt, gray silty clay or silt with clay, or gray silty sand. The fill soil was predominantly mineral soil with little or no debris, organics, or other undesirable materials.

The **Original Topsoil** layer was observed at the following locations:

- TP-SGS-1, 3.5 ft to 4.5 ft
- TP-SGS-5, 2 ft to 3 ft
- RWG-TP-5, 2 ft to 2.5 ft
- RWG-TP-6, 1.5 ft to 2.5 ft
- RWG-TP-8, 0.5 ft to 0.75 ft
- RWG-TP-9, 1.75 ft to 2.25 ft

The original topsoil varies in description from black silt with rootlets and organics, black organic silt with peat, or black organic silt. This layer was 1 foot thick or less.

The **Native Deposits** varied from brown sand with various amounts of silt and lesser amounts of gravel or gray silt and clay with varying amounts of sand and gravel. This soil was generally moist and compact except below the groundwater table where it was saturated and loose.

### 3.2 Bedrock

Bedrock was not encountered at any of the test pit locations.

### 3.3 Groundwater

Groundwater was encountered at all test pits locations at the following depths.

| GROUNDWATER DEPTHS |            |
|--------------------|------------|
| Location           | Depth (ft) |
| TP-SGS-1           | 5          |
| TP-SGS-2           | 6.5        |
| TP-SGS-3           | 6          |
| TP-SGS-4           | None       |
| TP-SGS-5           | 5.5        |
| RWG-TP-1           | 4.5        |
| RWG-TP-2           | 3.5        |
| RWG-TP-8           | 6.5        |
| RWG-TP-5           | 5.5        |
| RWG-TP-6           | 5          |
| RWG-TP-8           | 5.5        |
| RWG-TP-9           | 6          |

The groundwater is generally at or near 5.5 feet below the existing ground surface.

Groundwater levels fluctuate seasonally and the recorded level may be higher or lower than the levels that may be encountered during the construction period. Typically, groundwater levels will be lower in the middle of the summer and winter and higher in the spring and fall.

### 4.0 Geotechnical Evaluation

The soil at the site can be made suitable for support of the building on a conventional spread footing foundation. The key geotechnical challenges are the need to create uniform bearing conditions for the footings given the fill and original topsoil layer. The original topsoil layer will need to be removed where present at the footing subgrade. Proof rolling of the fill and native soil and local ground improvement including geotextile and crushed stone will be required beneath the footings.

SGS should observe the footings subgrade soil conditions prior to the placement of the foundations.

## 5.0 Geotechnical Recommendations

### 5.1 Foundation Design and Construction Recommendations

We recommend that interior and exterior footings for the proposed building be proportioned using an allowable bearing pressure of 2,500 psf. This bearing pressure is based on the following general subgrade preparation measures.

- After excavating the footing trenches, proof-roll (where possible) the footing subgrade by making a minimum of 6 passes using a large vibratory plate compactor. The original topsoil layer should be removed where encountered at the footing subgrade and replaced with the native soil prior to proof rolling. Dewatering to at least 2 feet below the bottom of the footings may be required if the groundwater is at or near the footing subgrade elevation.
- Install a woven geotextile such as Mirafi R5280i or HP370 directly on the proof-rolled soil. The geotextile should extend a minimum of 2-feet beyond all edges of the footings. The geotextile shall not be placed on frozen ground or in standing water.
- Install 12-inch thick layer of  $\frac{3}{4}$ " crushed stone (CS) on the geotextile. The CS should be compacted to lock the particles together.
- Construct footings directly on the CS.

Protection of footing excavation should consist of diverting surface water from excavation trenches and minimizing the time that the subgrade soil is exposed to weather conditions. Areas that become soft and wet shall be over excavated and replaced with  $\frac{3}{4}$ " CS unless otherwise directed by SGS.

The footing subgrade should be observed by SGS prior to placing the geotextile.

### 5.2 Frost Protection

The design air freezing index for the Biddeford area is approximately 1,200 degree F days (10 year, 90% probability). Based on this, a total of 4 feet of frost protection from exterior finished grade should be provided for the exterior footings, measured to the bottom of the exterior footing.

The exterior of all foundation elements exposed to freezing temperatures shall be backfilled with Foundation Backfill (FB). Refer to *6.0 Earthwork Considerations* for gradation and compaction requirements.

### 5.3 Seismic Design

The soil at this site is considered seismic Site Class D ASCE 7-22. Assuming Risk Category II, the following seismic site coefficients should be used:

| SUBGRADE SITE SEISMIC DESIGN COEFFICIENTS - ASCE 7-22 |              |
|-------------------------------------------------------|--------------|
| Seismic Coefficient                                   | Site Class D |
| Short period spectral response ( $S_s$ )              | 0.290        |
| 1 second spectral response ( $S_1$ )                  | 0.063        |
| Maximum short period spectral response ( $S_{MS}$ )   | 0.340        |
| Maximum 1 second spectral response ( $S_{M1}$ )       | 0.130        |
| Design short period spectral response ( $S_{DS}$ )    | 0.220        |
| Design 1 second spectral response ( $S_{D1}$ )        | 0.088        |

### 5.4 Slabs-on-Grade

We recommend that slabs-on-grade be constructed on a minimum of an 8" thick layer of  $\frac{3}{4}$ " Crushed Stone (CS) placed on the proof rolled existing fill or native soil. Proof rolling should consist of making a minimum of 4 passes in each of two perpendicular directions using a vibratory rolled with a minimum operating weight of 10 tons. Fill, if required to raise existing grades on site shall consist of Structural Fill (SF). Refer to *Section 6.0: Earthwork Considerations* for gradation and compaction requirements. The crushed stone should be compacted to lock the particles together.

### 5.5 Groundwater Control

During the test pit excavations, groundwater was observed as high as 3.5 feet below the existing ground surface. Based on this we anticipate that groundwater will rise above the base of the footings.

We recommend that perimeter underdrains be installed around the entire perimeter of the building foundation. Underdrains should consist of rigid perforated 4" diameter ADS or PVC pipe placed adjacent and outside of the existing footings and surrounded by a minimum of 6 inches of  $\frac{3}{4}$  inch CS wrapped in a geotextile such as Mirafi 140N or equivalent. The underdrain should positively outlet to a free draining location either through gravity at a minimum 0.25% slope or via pumping. Where it exits the ground surface, the end should be protected from entry of wildlife with a screening to prevent potential clogging.

## 5.6 Pavement Section Recommendations

New pavement for surface parking and site access is proposed along each of the four sides of the proposed building. The pavement subgrade is anticipated to be the existing fill soil, which may consist of fine grained silty clay deposits. Groundwater is not anticipated to be present with the zone of influence of the pavement surface. The mean annual freezing index for the Portland area is estimated at 900-degree F days (2 year, 50% probability). Based on the existing subgrade soils and mean annual freezing index, the mean annual frost penetration depth for bare ground or asphalt is roughly 36-inches.

SGS recommends a minimum asphalt section thickness of approximately 50% of the mean annual frost penetration for pavement areas, or a total of 18 inches, consisting of the following.

| PAVEMENT SECTION RECOMMENDATIONS |                |                           |
|----------------------------------|----------------|---------------------------|
| Material                         | Thickness (in) | Specifications            |
| Asphalt Surface Course           | 3/4"           | MDOT 403.210 Type 9.5 mm  |
| Asphalt Binder Course            | 2-1/4"         | MDOT 403.27 Type 19 mm    |
| Base Aggregate                   | 3              | MDOT 703.06 Type A (2014) |
| Subbase Aggregate                | 12             | MDOT 703.06 Type D (2014) |

Where fill materials are required to raise existing grades to the bottom of the pavement subbase aggregate, existing cut materials may consist of the onsite soil, classified as Common Borrow (CB) or SF. Refer to *6.0 Earthwork Considerations* for gradation and compaction requirements.

Underdrains beneath paved areas are not required.

The subgrade soil should be proof-rolled prior to placing the subbase aggregate. Soft, wet or other unsuitable or unstable materials should be removed and replaced with CB or SF. Geotextile may be necessary in soft, wet and spongy areas.

## 6.0 Earthwork Considerations

### 6.1 General Guidelines

The soil at this site is classified as Type C in accordance with the OSHA general excavation guidelines for occupied excavations. The maximum permissible excavated slope for excavations deeper than 4 feet is 1.5H:1V.

We anticipate that the soil excavated at the site will be suitable for reuse at the site as CB, but will not meet the gradation requirements for SF, CS or FB as specified in *6.2 Material Specifications*.

We recommend that unsuitable or unstable materials, if present, be removed from beneath interior isolated and exterior continuous footings. Over excavated areas should be replaced with CS. SGS should be notified so that we can make observations of the footing subgrade soil (existing fill and glacial marine) prior to the placement of geotextile and crushed stone.

We recommend that a qualified geotechnical consultant be retained to monitor and test soil materials used during construction and confirm that soil conditions and construction methods are consistent with this report.

## 6.2 Material Specifications

The table below summarizes the gradation requirements for the materials passing the 3-inch sieve size, specified in this report.

| Sieve Size                                  | <sup>2</sup> Crushed Stone (CS) | <sup>3</sup> Foundation Backfill (FB) | <sup>5</sup> Common Borrow (CB)                                                                                                                                                                                                                                                                                |
|---------------------------------------------|---------------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3 Inch                                      | ---                             | 100                                   | Earth suitable for embankment construction. Free from frozen material, perishable rubbish, peat, and other unsuitable material including material currently or previously contaminated by chemical, radiological, or biological agents unless the material is from a DOT project and authorized by DEP for use |
| 1 Inch                                      | 100                             | ---                                   |                                                                                                                                                                                                                                                                                                                |
| ¾ Inch                                      | 90 - 100                        | ---                                   |                                                                                                                                                                                                                                                                                                                |
| ½ Inch                                      | 20 - 55                         | ---                                   |                                                                                                                                                                                                                                                                                                                |
| ⅜ Inch                                      | 0 - 15                          | ---                                   |                                                                                                                                                                                                                                                                                                                |
| ¼ Inch                                      | ---                             | ---                                   |                                                                                                                                                                                                                                                                                                                |
| No. 4                                       | 0 – 5                           | ---                                   |                                                                                                                                                                                                                                                                                                                |
| No. 40                                      | ---                             | 0 – 70                                |                                                                                                                                                                                                                                                                                                                |
| No. 200                                     | ---                             | 0 – 7                                 |                                                                                                                                                                                                                                                                                                                |
| Maximum Particle Size                       | 1"                              | 6"                                    |                                                                                                                                                                                                                                                                                                                |
| <sup>4</sup> Minimum Compaction Requirement | ---                             | 95%                                   | 95%                                                                                                                                                                                                                                                                                                            |

<sup>1</sup>Maine DOT Specification 703.20, Gravel Borrow (2020)

<sup>2</sup> Maine DOT Specification 703.13, Crushed Stone ¾-Inch (2020)

<sup>3</sup>Maine DOT Specification 703.19, Granular Borrow (2020)

<sup>4</sup>Per ASTM D1557

<sup>5</sup>Maine DOT Specification 703.18, Common Borrow (2020)

CS should be placed in 12-inch maximum lifts and compacted with a minimum of 4 passes with a vibratory compactor. FB and CB should be placed in 6 to 12-inch lifts and compacted to a minimum of 95% in accordance with ASTM D1557.

## 7.0 Closure

Recommendations herein are based on professional judgment and generally accepted principles of geotechnical engineering and project information provided by others. Some changes in subsurface conditions from those presented in this report may occur. Should these conditions or the proposed development differ from those described in this report, SGS should be notified so that we can re-evaluate the recommendations.

It is recommended that this report be made available in its entirety to contractors for informational purposes and be incorporated in the construction Contract Documents.

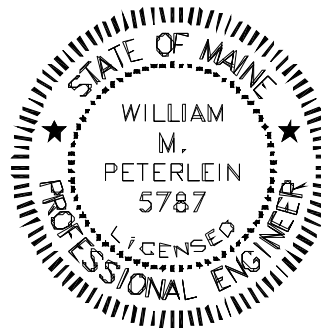
SGS should be contacted so we can observe the footings subgrade soil conditions prior to the placement of the foundations.

We appreciate the opportunity to serve you during this phase of your project. If there are any questions or additional information is required, please do not hesitate to call.

Sincerely yours,  
**Summit Geoengineering Services, Inc.**

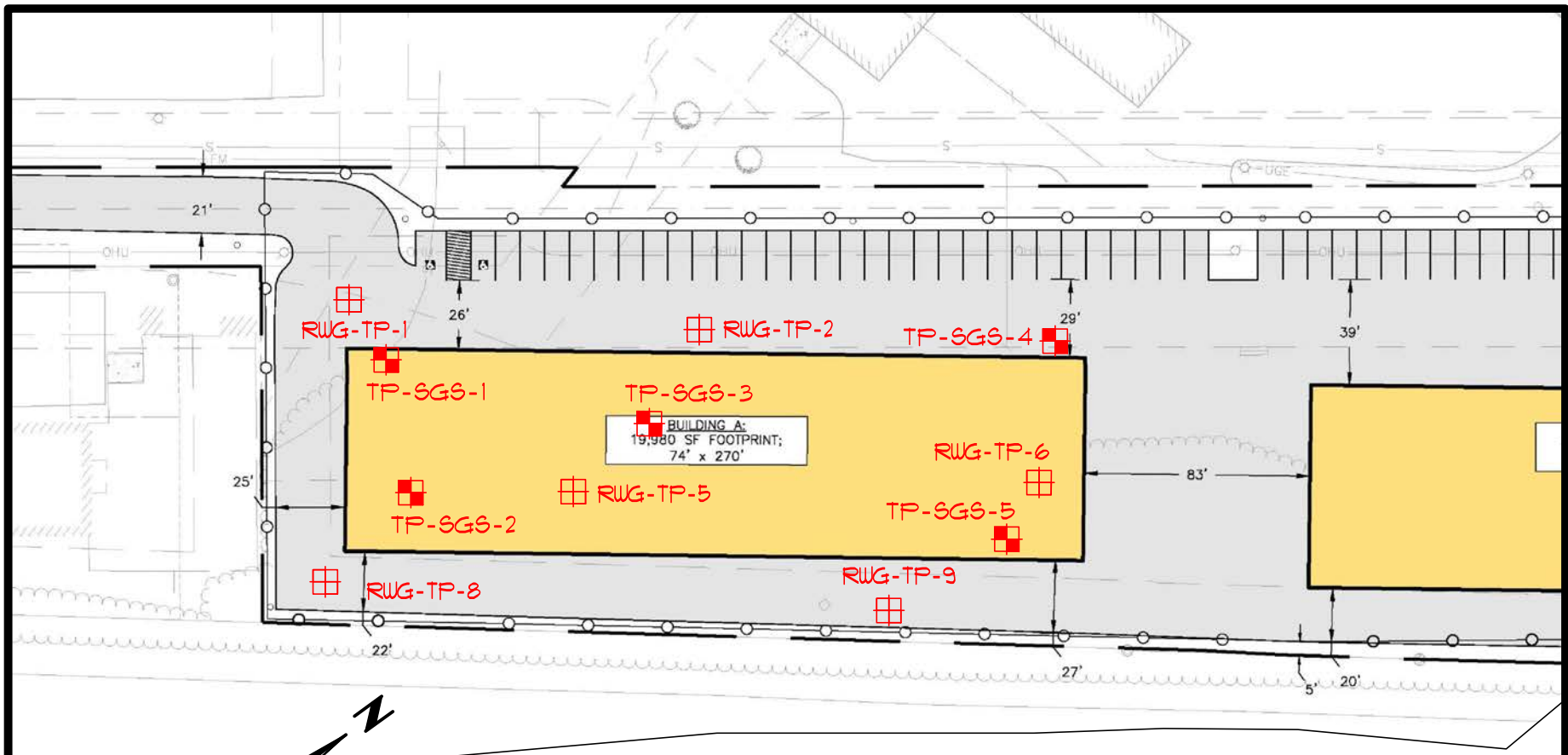


William M. Peterlein, PE  
President and Principal Engineer





## Appendix A: Exploration Location Plan



## LEGEND

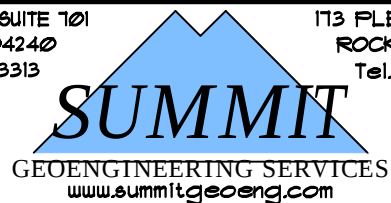
- TP-SGS-1 SUMMIT TEST PIT  
(DECEMBER 6, 2021)
- RWG-TP-1 TEST PIT BY RW. GILLESPIE  
(SEPTEMBER 21, 2021)  
(LOCATION APPROXIMATE)

## PLAN REFERENCE

"SITE PLAN - OPTION 2, STEELCLAD -  
BIDDEFORD", UNDATED PRELIMINARY PLAN,  
PREPARED BY ACORN ENGINEERING, INC.

DATE: DEC. 29, 2021  
JOB: 21444  
FILE: 21444 TP  
DRAWN BY: KRF  
CHECKED BY: WMP  
SCALE: 1" = 60'

145 LISBON ST. - SUITE 101  
LEWISTON, ME 04240  
Tel.: (207) 576-3313



173 PLEASANT STREET  
ROCKLAND, ME 04841  
Tel.: (207) 318-7761

**TEST PIT LOCATION PLAN**  
**NEW SELF STORAGE BUILDING**  
WEST COLE RD. & ALFRED ST. - BIDDEFORD, MAINE  
PREPARED FOR  
**STEELCLAD BIDDEFORD, LLC**

## Appendix B: Exploration Logs

## SGS Exploration Logs

|                                                                                   |                                                                    |                                                                        |                         |                               |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------|-------------------------------|
|  |                                                                    | <b>TEST PIT LOG</b>                                                    |                         | Test Pit # <b>TP-SGS-4</b>    |
|                                                                                   |                                                                    | Project: Self Storage Facility<br>Enterprise Drive<br>Biddeford, Maine |                         | Project #: 21444              |
|                                                                                   |                                                                    |                                                                        |                         | Groundwater:<br>None Observed |
| Contractor: Summit Geoengineering Services, Inc                                   |                                                                    | Ground Surface Elevation:                                              |                         |                               |
| Equipment: Kubota Mini-Excavator                                                  |                                                                    | Reference:                                                             |                         |                               |
| Summit Staff: B. Peterlein, P.E.                                                  |                                                                    | Date: 12/6/2021                                                        | Weather: Sunny          |                               |
| Depth<br>(ft)                                                                     | <b>DESCRIPTION</b>                                                 |                                                                        |                         |                               |
|                                                                                   | <b>ENGINEERING</b>                                                 |                                                                        | <b>GEOLOGIC/GENERAL</b> |                               |
| 1                                                                                 | Gray Clayey SILT, little Gravel, trace Sand, few Cobbles, firm, ML |                                                                        | FILL                    |                               |
| 2                                                                                 |                                                                    |                                                                        |                         |                               |
| 3                                                                                 | Gray Silty CLAY, trace fine Sand, stiff, moist, ML                 |                                                                        | NATIVE                  |                               |
| 4                                                                                 |                                                                    |                                                                        |                         |                               |
| 5                                                                                 | End of Test Pit at 4 ft                                            |                                                                        |                         |                               |
| 6                                                                                 |                                                                    |                                                                        |                         |                               |
| 7                                                                                 |                                                                    |                                                                        |                         |                               |
| 8                                                                                 |                                                                    |                                                                        |                         |                               |
| 9                                                                                 |                                                                    |                                                                        |                         |                               |
| 10                                                                                |                                                                    |                                                                        |                         |                               |
| 11                                                                                |                                                                    |                                                                        |                         |                               |
| 12                                                                                |                                                                    |                                                                        |                         |                               |
| 13                                                                                |                                                                    |                                                                        |                         |                               |
| 14                                                                                |                                                                    |                                                                        |                         |                               |
| 15                                                                                |                                                                    |                                                                        |                         |                               |
| 16                                                                                |                                                                    |                                                                        |                         |                               |
| 17                                                                                |                                                                    |                                                                        |                         |                               |

|                                                                                   |                                                                                      |                                                                        |                        |                                   |
|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------|-----------------------------------|
|  |                                                                                      | <b>TEST PIT LOG</b>                                                    |                        | Test Pit # <b>TP-SGS-5</b>        |
|                                                                                   |                                                                                      | Project: Self Storage Facility<br>Enterprise Drive<br>Biddeford, Maine |                        | Project #: 21444                  |
| Contractor: Summit Geoengineering Services, Inc                                   |                                                                                      | Ground Surface Elevation:                                              |                        | Groundwater:<br>Seepage at 5.5 ft |
| Equipment: Kubota Mini-Excavator                                                  |                                                                                      | Reference:                                                             |                        |                                   |
| Summit Staff: B. Peterlein, P.E.                                                  |                                                                                      | Date: 12/6/2021                                                        | Weather: Sunny         |                                   |
| Depth<br>(ft)                                                                     | DESCRIPTION                                                                          |                                                                        |                        |                                   |
|                                                                                   | ENGINEERING                                                                          |                                                                        | GEOLOGIC/GENERAL       |                                   |
| 1                                                                                 | Gray Sandy SILT, trace rootlets, moist, ML                                           |                                                                        | FILL                   |                                   |
| 2                                                                                 |                                                                                      |                                                                        |                        |                                   |
| 3                                                                                 | Black organic SILT with Peat, moist, ML                                              |                                                                        | ORIGINAL SWAMP TOPSOIL |                                   |
| 4                                                                                 | Gray Silty CLAY, trace fine Sand, stiff, blocky, mottled, compact, CL                |                                                                        | NATIVE                 |                                   |
| 5                                                                                 | Brown SAND, slightly mottled, compact, wet, SP                                       |                                                                        |                        |                                   |
| 6                                                                                 | Groundwater seepage at 5.5 ft                                                        |                                                                        |                        |                                   |
|                                                                                   | End of Test Pit at 6 ft                                                              |                                                                        |                        |                                   |
| 7                                                                                 |  |                                                                        |                        |                                   |
| 8                                                                                 |                                                                                      |                                                                        |                        |                                   |
| 9                                                                                 |                                                                                      |                                                                        |                        |                                   |
| 10                                                                                |                                                                                      |                                                                        |                        |                                   |
| 11                                                                                |                                                                                      |                                                                        |                        |                                   |
| 12                                                                                |                                                                                      |                                                                        |                        |                                   |
| 13                                                                                |                                                                                      |                                                                        |                        |                                   |
| 14                                                                                |                                                                                      |                                                                        |                        |                                   |
| 15                                                                                |                                                                                      |                                                                        |                        |                                   |
| 16                                                                                |                                                                                      |                                                                        |                        |                                   |
| 17                                                                                |                                                                                      |                                                                        |                        |                                   |

## RW Gillespie Exploration Logs



RWG&A, Inc. soil descriptions are based on the following criteria. Descriptive terminology is used to denote the grain size and percentage of each component. The soil descriptions are based on visual-manual classification procedures, Standard Penetration Test results, and the results of laboratory testing on selected soil samples, where available. The Unified Soil Classification Group Symbol will be indicated in capital letters.

#### COMPONENT DEFINITIONS BY GRADATION SIEVE LIMITS

| Materials | Definitions                                                                                                                                                                          | Fractions                | Upper                                                    | Lower                                            |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------------------------------------|--------------------------------------------------|
| Boulders  | Material too large to pass through an opening 12 in. square                                                                                                                          |                          |                                                          |                                                  |
| Cobbles   | Material passing through a 12 in. opening and retained on the 3 in. sieve.                                                                                                           |                          |                                                          |                                                  |
| Gravel    | Material passing the 3 in. sieve and retained on 1/4" (No. 4 sieve).                                                                                                                 | Coarse<br>Fine           | 3 in.<br>3/4 in.                                         | 3/4 in.<br>1/4 in.                               |
| Sand      | Material passing the No. 4 sieve and retained on the No. 200 sieve.                                                                                                                  | Coarse<br>Medium<br>Fine | No. 4<br>(1/4")<br>No. 10<br>(1/8")<br>No. 40<br>(1/32") | No. 10<br>(1/8")<br>No. 40<br>(1/32")<br>No. 200 |
| Silt      | Material passing the No. 200 sieve which is usually non-plastic in character and exhibits little or no strength when air dried.                                                      |                          | No. 200                                                  |                                                  |
| Clay      | Material passing the No. 200 sieve which can also be made to exhibit plasticity within a certain range of moisture contents and which exhibits considerable strength when air dried. |                          | No. 200                                                  |                                                  |

#### SOIL DESCRIPTION

##### General

Soils are described as to the Unified Soil Classification Systems Group Symbol, density or consistency, color, grain size distribution and other pertinent properties such as plasticity and dry strength. The RWG&A order of descriptors is as follows:

1. USCS Group Name and Symbol, or Fill
2. Density or Consistency
3. Moisture
4. Grain Size & Constituent percentages
5. Other pertinent descriptors
6. Color

#### DESCRIPTIVE TERMINOLOGY DENOTING COMPONENT PROPORTIONS

| Descriptive Terms                  | Range of Proportions                                                                                   |
|------------------------------------|--------------------------------------------------------------------------------------------------------|
| Noun (major component)             | ≥50%                                                                                                   |
| Adjective (secondary component)    | 20 - 50%                                                                                               |
| Some (third component)             | 25 - 45%                                                                                               |
| Little (second or third component) | 15 - 25%                                                                                               |
| Few (second or third component)    | 5 - 15%                                                                                                |
| Trace                              | 0 - 5%                                                                                                 |
| With                               | Amount of component not determined. Used as a conjunction only. Does not indicate component percentile |

#### OTHER DESCRIPTIVE TERMS

Where appropriate, geological classifications are also used (Glacial Till, etc.)

#### TYPICAL DESCRIPTIONS

SAND WITH SILT (SP-SM): Medium dense, moist, coarse to medium sand, few silt, brown.

FILL: Loose, dry, fine sand, some gravel and silt, with brick and concrete fragments, dark brown.

SILTY CLAY (CL): Very stiff, moist, silty clay, olive-brown.

| DENSITY OR CONSISTENCY OF SOILS                                                                                                                                                                                                                                                                                                             |                                                  |                                |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------------------------|
| COHESIVE SOILS                                                                                                                                                                                                                                                                                                                              |                                                  |                                |
| Consistency of Cohesive Soils                                                                                                                                                                                                                                                                                                               | Standard Penetration Test (Blows Per Foot) (N)   | Undrained Shear Strength (TSF) |
| Very Soft                                                                                                                                                                                                                                                                                                                                   | 0 - 2                                            | Below 0.13 (250 psf)           |
| Soft                                                                                                                                                                                                                                                                                                                                        | 2 - 4                                            | 0.13 to 0.25 (to 500 psf)      |
| Medium                                                                                                                                                                                                                                                                                                                                      | 4 - 8                                            | 0.25 to 0.5 (to 1,000 psf)     |
| Stiff                                                                                                                                                                                                                                                                                                                                       | 8 - 15                                           | 0.5 to 1.0 (to 2,000 psf)      |
| Very Stiff                                                                                                                                                                                                                                                                                                                                  | 15 - 30                                          | 1.0 to 2.0 (to 4,000 psf)      |
| Hard                                                                                                                                                                                                                                                                                                                                        | Over 30                                          | over 2.0 (over 4,000 psf)      |
| Consistency of cohesive soils is based upon field vane shear, torvane, or pocket penetrometer, or laboratory vane shear or Unconsolidated-Undrained Triaxial Compression tests. Consistency of cohesive soils is based upon the Standard Penetration test when no other data is available.                                                  |                                                  |                                |
| COHESIONLESS SOILS                                                                                                                                                                                                                                                                                                                          |                                                  |                                |
| Density of Cohesionless Soils                                                                                                                                                                                                                                                                                                               | Standard Penetration Test (Blows per Foot) (in)  |                                |
| Very Loose                                                                                                                                                                                                                                                                                                                                  | 0 - 4                                            |                                |
| Loose                                                                                                                                                                                                                                                                                                                                       | 4 - 10                                           |                                |
| Medium Dense                                                                                                                                                                                                                                                                                                                                | 10 - 30                                          |                                |
| Dense                                                                                                                                                                                                                                                                                                                                       | 30 - 50                                          |                                |
| Very Dense                                                                                                                                                                                                                                                                                                                                  | over 50                                          |                                |
| PENETRATION RESISTANCE                                                                                                                                                                                                                                                                                                                      |                                                  |                                |
| STANDARD PENETRATION TEST (ASTM D1586) - a 2.0-inch diameter, 1-3/8 inch inside diameter split barrel sample is driven into soil by means of a 140-pound weight falling freely through a vertical distance of 30 inches. The total number of blows required for penetration from 6 to 18 inches is the Standard Penetration Resistance (N). |                                                  |                                |
| COBBLES AND BOULDERS                                                                                                                                                                                                                                                                                                                        |                                                  |                                |
| The percentage of cobbles and boulders is estimated visually where possible.                                                                                                                                                                                                                                                                |                                                  |                                |
| Descriptive Term                                                                                                                                                                                                                                                                                                                            | Estimated Percentage                             |                                |
| Very Few                                                                                                                                                                                                                                                                                                                                    | 0 - 10%                                          |                                |
| Few                                                                                                                                                                                                                                                                                                                                         | 10 - 25%                                         |                                |
| Common                                                                                                                                                                                                                                                                                                                                      | 25 - 40%                                         |                                |
| Numerous                                                                                                                                                                                                                                                                                                                                    | 40 - 50%                                         |                                |
| If the percentage cannot be determined, as in a typical test boring, then use "with" to indicate the presence of cobbles and or boulders ( i.e., gravelly sand with cobbles and boulders)                                                                                                                                                   |                                                  |                                |
| FILLS                                                                                                                                                                                                                                                                                                                                       |                                                  |                                |
| The following terminology is used to denote size range of man-made materials within fill deposits:                                                                                                                                                                                                                                          |                                                  |                                |
| Size Range                                                                                                                                                                                                                                                                                                                                  | Comparative Soil Terms                           |                                |
| <No. 200 Sieve                                                                                                                                                                                                                                                                                                                              | Silt - size                                      |                                |
| No. 200 to 1/4 in.                                                                                                                                                                                                                                                                                                                          | Sand - size                                      |                                |
| 1/4 in. to 3 in.                                                                                                                                                                                                                                                                                                                            | Gravel - size                                    |                                |
| 3 in. to 12 in.                                                                                                                                                                                                                                                                                                                             | Cobble - size                                    |                                |
| >12 in.                                                                                                                                                                                                                                                                                                                                     | Boulder - size                                   |                                |
| SUPPLEMENTAL SOIL DESCRIPTION TERMINOLOGY                                                                                                                                                                                                                                                                                                   |                                                  |                                |
| Term                                                                                                                                                                                                                                                                                                                                        | Example                                          |                                |
| Seam                                                                                                                                                                                                                                                                                                                                        | Typically 1/16 to 1/2 inch thick                 | 1/4 inch sand seams            |
| Layer                                                                                                                                                                                                                                                                                                                                       | Greater than 1/2 inch thick                      | 2-inch sand layers             |
| Occasional                                                                                                                                                                                                                                                                                                                                  | One or less per foot of thickness                |                                |
| Frequent                                                                                                                                                                                                                                                                                                                                    | More than one per foot of thickness              |                                |
| Interbedded                                                                                                                                                                                                                                                                                                                                 | Alternating soil layers of different composition |                                |
| Varved                                                                                                                                                                                                                                                                                                                                      | Alternating thin seams of silt and clay          |                                |
| Mottled                                                                                                                                                                                                                                                                                                                                     | Variations in color                              |                                |



**R.W. Gillespie  
& Associates**

- Geotechnical Engineering
- Environmental Consulting
- Materials Testing Services

## TEST PIT LOG

Test Pit No. TP-5

|                                                                              |                                             |             |            |
|------------------------------------------------------------------------------|---------------------------------------------|-------------|------------|
| PROJECT                                                                      | Proposed One-Story Steel-Clad Storage Units | PROJECT NO. | 1833-001   |
| CLIENT                                                                       | SteelClad Biddeford, LLC                    | DATE        | 09/21/2021 |
| LOCATION                                                                     | Biddeford                                   | ELEV.       |            |
| EXCAVATION METHOD                                                            | Takeuchi TB285 (Labbe Excavating)           | LOGGER      | Tom Snow   |
| EXCAVATION LOCATION                                                          |                                             |             |            |
| DEPTH TO - Water: 5.5'      When checked: During Excavation      Caving: Yes |                                             |             |            |

| DEPTH | SYMBOL | SAMPLE NUMBER | DESCRIPTION                                                                                                       | MOISTURE % | LAB TESTS |
|-------|--------|---------------|-------------------------------------------------------------------------------------------------------------------|------------|-----------|
| 0     |        |               | TOPSOIL AND ORGANIC MATERIAL (6 inches).                                                                          |            |           |
|       |        |               | SILTY SAND (SM); Moist, light brown.                                                                              |            |           |
| 2     |        |               | BLACK ORGANIC SILT (OH);                                                                                          |            |           |
|       |        |               | CLAYEY SILT (ML); Firm, moist, clayey silt, trace fine sand, gray.                                                |            |           |
| 4     |        |               | SAND WITH SILT (SP-SM); Moist, coarse to medium sand, few silt, coarser at top, grading to finer sand with depth. |            |           |
| 6     |        |               | CLAYEY SILT (ML); Firm, moist to wet, clayey silt, gray-brown.                                                    |            |           |
| 8     |        |               |                                                                                                                   |            |           |
| 10    |        |               | Bottom of Exploration at 9'; Hole minor cave in around 5.5' to 6'. Not refusal.                                   |            |           |

Notes:





**R.W. Gillespie  
& Associates**

- Geotechnical Engineering
- Environmental Consulting
- Materials Testing Services

## TEST PIT LOG

### Test Pit No. TP-6

|                      |                                             |             |            |
|----------------------|---------------------------------------------|-------------|------------|
| PROJECT              | Proposed One-Story Steel-Clad Storage Units | PROJECT NO. | 1833-001   |
| CLIENT               | SteelClad Biddeford, LLC                    | DATE        | 09/21/2021 |
| LOCATION             | Biddeford                                   | ELEV.       |            |
| EXCAVATION METHOD    | Takeuchi TB285 (Labbe Excavating)           | LOGGER      | Tom Snow   |
| EXCAVATION LOCATION  |                                             |             |            |
| DEPTH TO - Water: 5' | When checked: During Excavation             | Caving: Yes |            |

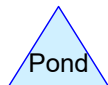
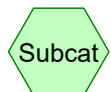
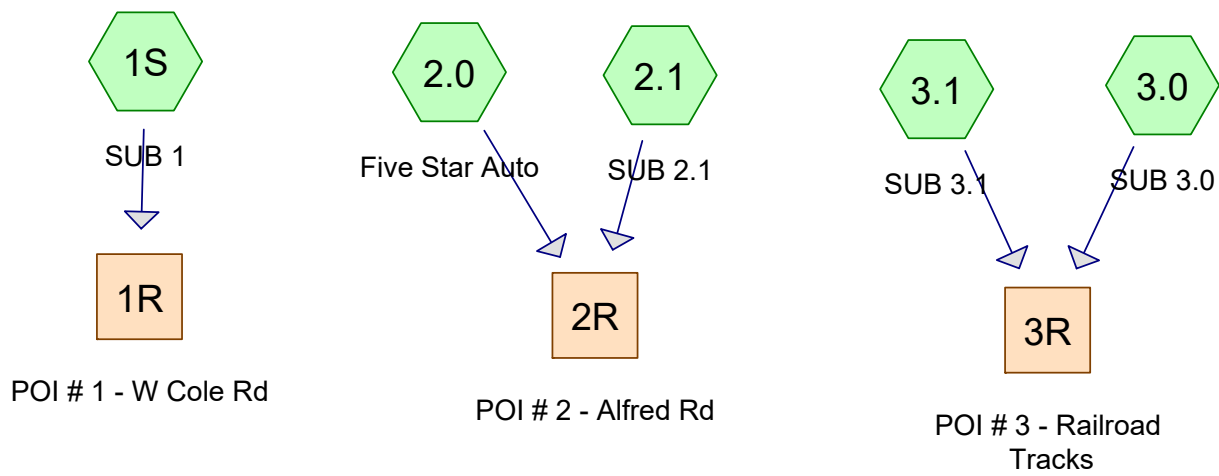
| DEPTH | SYMBOL | SAMPLES | SAMPLE NUMBER | DESCRIPTION                                                                                                         | MOISTURE % | LAB TESTS |
|-------|--------|---------|---------------|---------------------------------------------------------------------------------------------------------------------|------------|-----------|
| 0     |        |         |               | TOPSOIL AND ORGANIC MATERIAL (6 inches).                                                                            |            |           |
|       |        |         |               | SILTY SAND (SM); Moist, silt with sand, brown.                                                                      |            |           |
| 2     |        |         |               | ORGANIC SILT (OL); Moist, organic silt, black.                                                                      |            |           |
|       |        |         |               | CLAYEY SILT WITH SAND (ML); Firm, moist, clayey silt with few to little fine sand, gray.                            |            |           |
| 4     |        |         |               |                                                                                                                     |            |           |
|       |        |         |               | SAND WITH SILT (SP-SM); Moist to wet, coarse to fine sand, few silt, finer going down, light brown to orange-brown. |            |           |
| 6     |        |         |               |                                                                                                                     |            |           |
| 8     |        |         |               | Bottom of Exploration at 8'; Hole caving in whole site wall. Not refusal.                                           |            |           |
| 10    |        |         |               |                                                                                                                     |            |           |

Notes:

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# **PRE DEVELOPMENT HYDROCAD**





**Routing Diagram for Pre HC Biddeford 5.18**  
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## Pre HC Biddeford 5.18

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### Area Listing (all nodes)

| Area<br>(acres) | CN        | Description<br>(subcatchment-numbers)     |
|-----------------|-----------|-------------------------------------------|
| 0.220           | 49        | 50-75% Grass cover, Fair, HSG A (1S)      |
| 0.269           | 84        | 50-75% Grass cover, Fair, HSG D (3.0)     |
| 0.660           | 39        | >75% Grass cover, Good, HSG A (2.0, 2.1)  |
| 0.532           | 80        | >75% Grass cover, Good, HSG D (2.1)       |
| 0.022           | 35        | Brush, Fair, HSG A (1S)                   |
| 0.097           | 96        | GRAVEL (3.0)                              |
| 0.143           | 96        | Gravel (2.1)                              |
| 0.100           | 96        | Gravel roads (1S)                         |
| 0.017           | 91        | Gravel roads, HSG D (2.0)                 |
| 0.161           | 98        | Paved parking, (3.0)                      |
| 0.629           | 98        | Pavement (2.1)                            |
| 0.884           | 98        | Pavement/Roof (1S, 2.0)                   |
| 0.633           | 36        | Woods, Fair, HSG A (2.1, 3.1)             |
| 0.632           | 82        | Woods/grass comb., Fair, HSG D (2.1, 3.0) |
| <b>4.999</b>    | <b>75</b> | <b>TOTAL AREA</b>                         |

## Pre HC Biddeford 5.18

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### Soil Listing (all nodes)

| Area<br>(acres) | Soil<br>Group | Subcatchment<br>Numbers |
|-----------------|---------------|-------------------------|
| 1.535           | HSG A         | 1S, 2.0, 2.1, 3.1       |
| 0.000           | HSG B         |                         |
| 0.000           | HSG C         |                         |
| 1.450           | HSG D         | 2.0, 2.1, 3.0           |
| 2.014           | Other         | 1S, 2.0, 2.1, 3.0       |
| <b>4.999</b>    |               | <b>TOTAL AREA</b>       |



**Pre HC Biddeford 5.18**

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**Ground Covers (all nodes)**

| HSG-A<br>(acres) | HSG-B<br>(acres) | HSG-C<br>(acres) | HSG-D<br>(acres) | Other<br>(acres) | Total<br>(acres) | Ground<br>Cover          | Subcatchment<br>Numbers |
|------------------|------------------|------------------|------------------|------------------|------------------|--------------------------|-------------------------|
| 0.220            | 0.000            | 0.000            | 0.269            | 0.000            | 0.489            | 50-75% Grass cover, Fair | 1S, 3.0                 |
| 0.660            | 0.000            | 0.000            | 0.532            | 0.000            | 1.192            | >75% Grass cover, Good   | 2.0, 2.1                |
| 0.022            | 0.000            | 0.000            | 0.000            | 0.000            | 0.022            | Brush, Fair              | 1S                      |
| 0.000            | 0.000            | 0.000            | 0.000            | 0.097            | 0.097            | GRAVEL                   | 3.0                     |
| 0.000            | 0.000            | 0.000            | 0.000            | 0.143            | 0.143            | Gravel                   | 2.1                     |
| 0.000            | 0.000            | 0.000            | 0.017            | 0.100            | 0.117            | Gravel roads             | 1S, 2.0                 |
| 0.000            | 0.000            | 0.000            | 0.000            | 0.161            | 0.161            | Paved parking,           | 3.0                     |
| 0.000            | 0.000            | 0.000            | 0.000            | 0.629            | 0.629            | Pavement                 | 2.1                     |
| 0.000            | 0.000            | 0.000            | 0.000            | 0.884            | 0.884            | Pavement/Roof            | 1S, 2.0                 |
| 0.633            | 0.000            | 0.000            | 0.000            | 0.000            | 0.633            | Woods, Fair              | 2.1, 3.1                |
| 0.000            | 0.000            | 0.000            | 0.632            | 0.000            | 0.632            | Woods/grass comb., Fair  | 2.1, 3.0                |
| <b>1.535</b>     | <b>0.000</b>     | <b>0.000</b>     | <b>1.450</b>     | <b>2.014</b>     | <b>4.999</b>     | <b>TOTAL AREA</b>        |                         |

**Pre HC Biddeford 5.18**

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*Type III 24-hr 2-yr Rainfall=3.24"*

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

|                                            |                                                                                                                                             |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: SUB 1</b>               | Runoff Area=26,391 sf 43.51% Impervious Runoff Depth>1.20"<br>Tc=6.0 min CN=78 Runoff=0.89 cfs 0.061 af                                     |
| <b>Subcatchment2.0: Five Star Auto</b>     | Runoff Area=34,806 sf 77.58% Impervious Runoff Depth>1.75"<br>Tc=6.0 min CN=86 Runoff=1.72 cfs 0.116 af                                     |
| <b>Subcatchment2.1: SUB 2.1</b>            | Runoff Area=114,324 sf 23.97% Impervious Runoff Depth>0.72"<br>Flow Length=162' Tc=10.9 min CN=69 Runoff=1.82 cfs 0.158 af                  |
| <b>Subcatchment3.0: SUB 3.0</b>            | Runoff Area=37,513 sf 18.71% Impervious Runoff Depth>1.82"<br>Flow Length=72' Tc=10.8 min CN=87 Runoff=1.66 cfs 0.131 af                    |
| <b>Subcatchment3.1: SUB 3.1</b>            | Runoff Area=4,731 sf 0.00% Impervious Runoff Depth=0.00"<br>Flow Length=78' Slope=0.0630 '/' Tc=11.1 min CN=36 Runoff=0.00 cfs 0.000 af     |
| <b>Reach 1R: POI # 1 - W Cole Rd</b>       | Inflow=0.89 cfs 0.061 af<br>Outflow=0.89 cfs 0.061 af                                                                                       |
| <b>Reach 2R: POI # 2 - Alfred Rd</b>       | Inflow=3.21 cfs 0.274 af<br>Outflow=3.21 cfs 0.274 af                                                                                       |
| <b>Reach 3R: POI # 3 - Railroad Tracks</b> | Avg. Flow Depth=0.54' Max Vel=1.22 fps Inflow=1.66 cfs 0.131 af<br>n=0.410 L=1.0' S=0.4000 '/' Capacity=10.72 cfs Outflow=1.66 cfs 0.131 af |

**Total Runoff Area = 4.999 ac Runoff Volume = 0.465 af Average Runoff Depth = 1.12"**  
**66.52% Pervious = 3.326 ac 33.48% Impervious = 1.674 ac**

**Pre HC Biddeford 5.18**

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Type III 24-hr 2- yr Rainfall=3.24"

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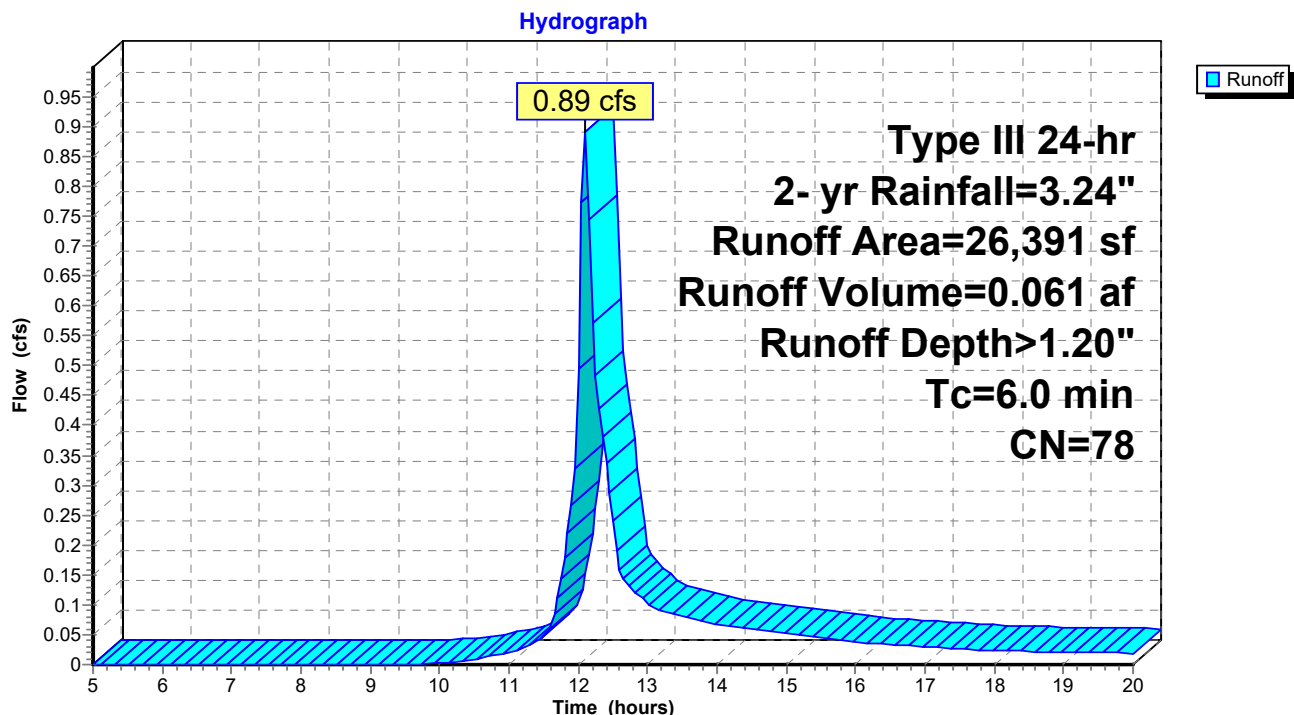
**Summary for Subcatchment 1S: SUB 1**

Runoff = 0.89 cfs @ 12.10 hrs, Volume= 0.061 af, Depth&gt; 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2- yr Rainfall=3.24"

|   | Area (sf) | CN | Description                     |
|---|-----------|----|---------------------------------|
| * | 4,361     | 96 | Gravel roads                    |
|   | 963       | 35 | Brush, Fair, HSG A              |
|   | 9,584     | 49 | 50-75% Grass cover, Fair, HSG A |
| * | 11,483    | 98 | Pavement/Roof                   |
|   | 26,391    | 78 | Weighted Average                |
|   | 14,908    |    | 56.49% Pervious Area            |
|   | 11,483    |    | 43.51% Impervious Area          |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                     |
|-------------|------------------|------------------|----------------------|-------------------|---------------------------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, Direct - 0.1 hour |

**Subcatchment 1S: SUB 1**

**Pre HC Biddeford 5.18**

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Type III 24-hr 2- yr Rainfall=3.24"

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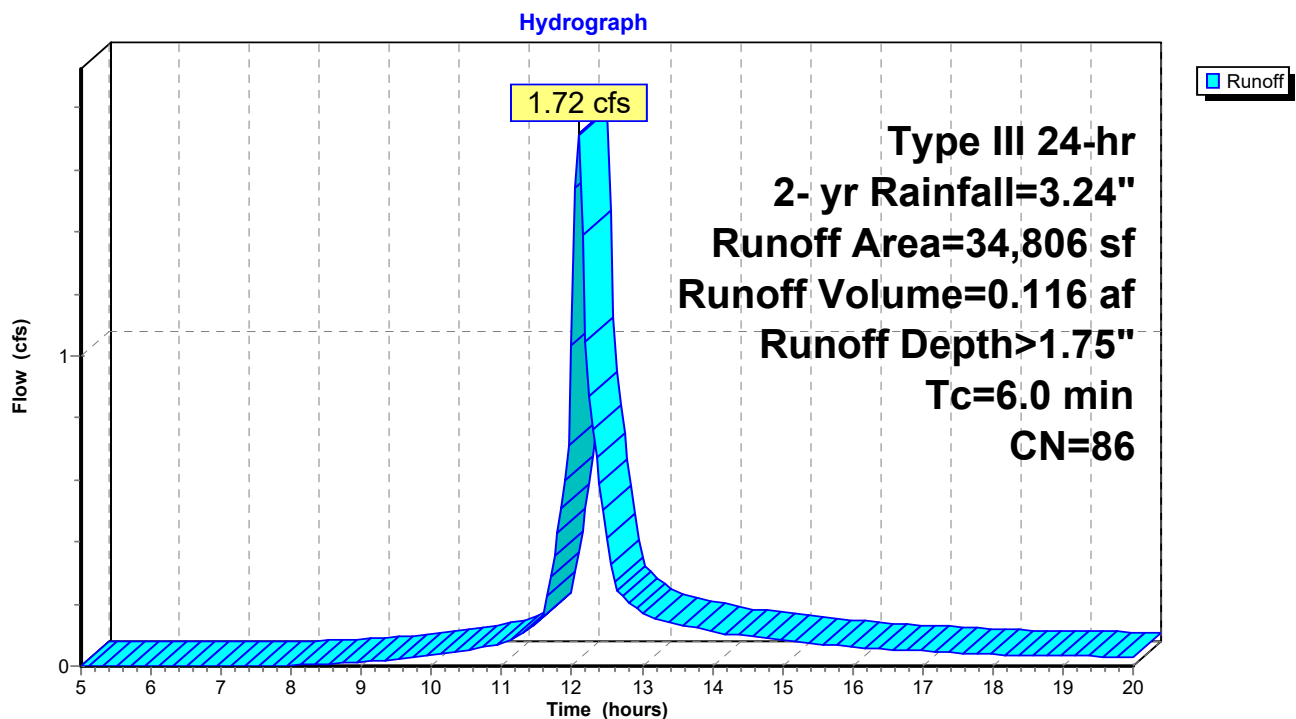
**Summary for Subcatchment 2.0: Five Star Auto**

Runoff = 1.72 cfs @ 12.09 hrs, Volume= 0.116 af, Depth&gt; 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2- yr Rainfall=3.24"

|   | Area (sf) | CN | Description                   |
|---|-----------|----|-------------------------------|
| * | 27,003    | 98 | Pavement/Roof                 |
|   | 7,060     | 39 | >75% Grass cover, Good, HSG A |
|   | 743       | 91 | Gravel roads, HSG D           |
|   | 34,806    | 86 | Weighted Average              |
|   | 7,803     |    | 22.42% Pervious Area          |
|   | 27,003    |    | 77.58% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description          |
|-------------|------------------|------------------|----------------------|-------------------|----------------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, direct |

**Subcatchment 2.0: Five Star Auto**

**Pre HC Biddeford 5.18**

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Type III 24-hr 2- yr Rainfall=3.24"

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**Summary for Subcatchment 2.1: SUB 2.1**

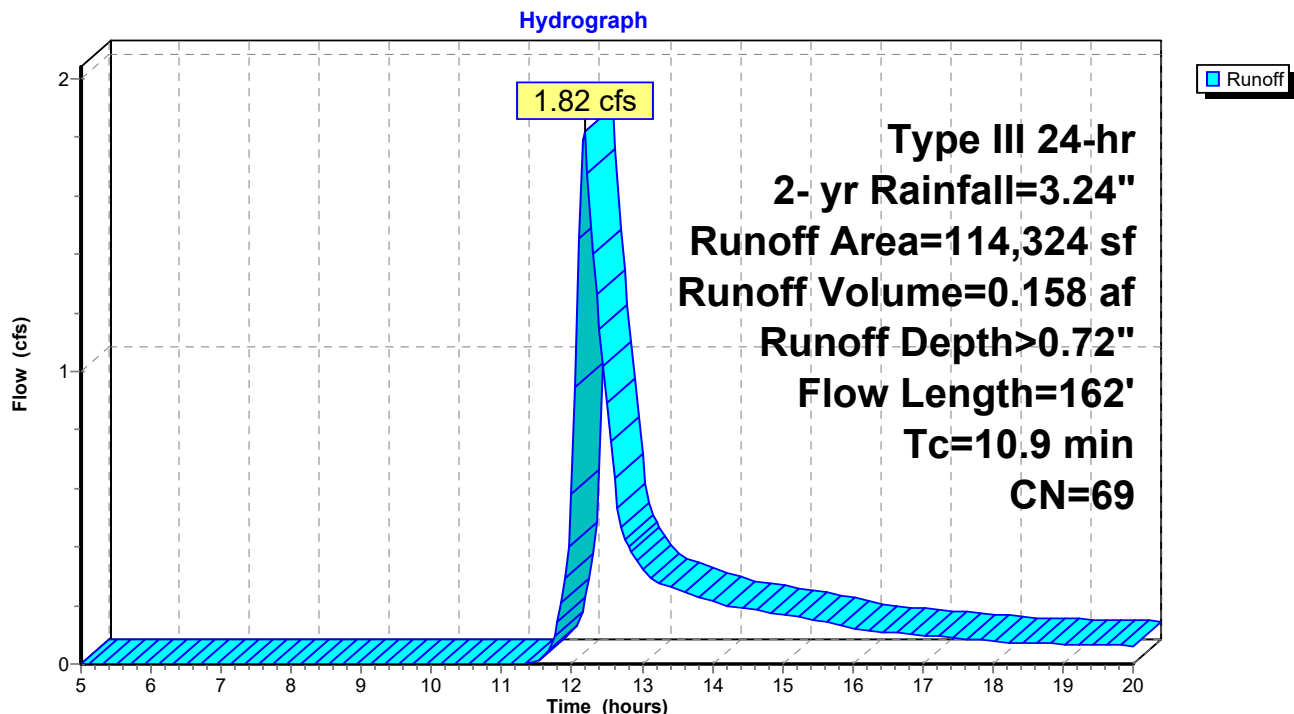
Runoff = 1.82 cfs @ 12.17 hrs, Volume= 0.158 af, Depth&gt; 0.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2- yr Rainfall=3.24"

|   | Area (sf) | CN | Description                    |
|---|-----------|----|--------------------------------|
| * | 6,243     | 96 | Gravel                         |
| * | 27,401    | 98 | Pavement                       |
|   | 12,984    | 82 | Woods/grass comb., Fair, HSG D |
|   | 22,845    | 36 | Woods, Fair, HSG A             |
|   | 21,684    | 39 | >75% Grass cover, Good, HSG A  |
|   | 23,167    | 80 | >75% Grass cover, Good, HSG D  |
|   | 114,324   | 69 | Weighted Average               |
|   | 86,923    |    | 76.03% Pervious Area           |
|   | 27,401    |    | 23.97% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                 |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------|
| 10.2     | 100           | 0.0460        | 0.16              |                | <b>Sheet Flow, A to B</b><br>Grass: Dense n= 0.240 P2= 3.24"                |
| 0.7      | 62            | 0.0510        | 1.58              |                | <b>Shallow Concentrated Flow, B to C</b><br>Short Grass Pasture Kv= 7.0 fps |
| 10.9     | 162           | Total         |                   |                |                                                                             |

**Subcatchment 2.1: SUB 2.1**

**Pre HC Biddeford 5.18**

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Type III 24-hr 2- yr Rainfall=3.24"

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**Summary for Subcatchment 3.0: SUB 3.0**

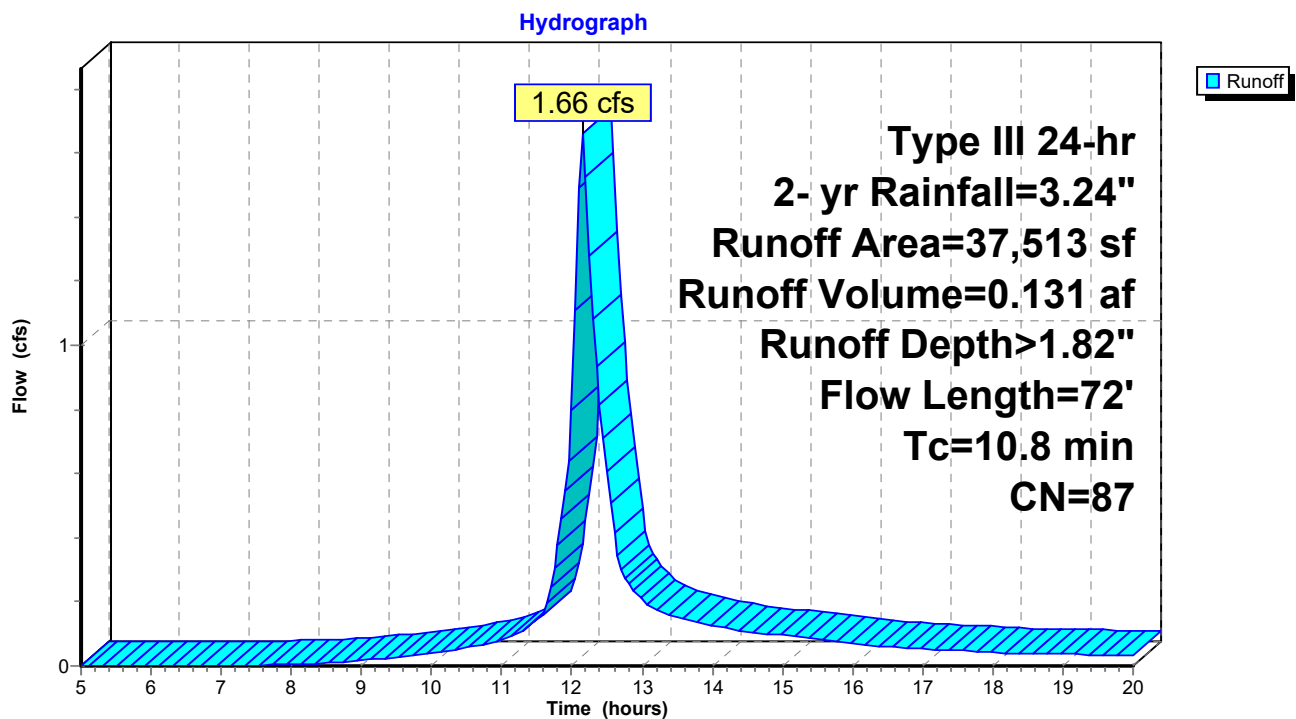
Runoff = 1.66 cfs @ 12.15 hrs, Volume= 0.131 af, Depth&gt; 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2- yr Rainfall=3.24"

| Area (sf) | CN | Description                     |
|-----------|----|---------------------------------|
| 14,540    | 82 | Woods/grass comb., Fair, HSG D  |
| 11,736    | 84 | 50-75% Grass cover, Fair, HSG D |
| * 7,018   | 98 | Paved parking,                  |
| * 4,219   | 96 | GRAVEL                          |
| 37,513    | 87 | Weighted Average                |
| 30,495    |    | 81.29% Pervious Area            |
| 7,018     |    | 18.71% Impervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------|
| 5.6      | 40            | 0.0320        | 0.12              |                | <b>Sheet Flow, A to B</b>                  |
|          |               |               |                   |                | Grass: Dense n= 0.240 P2= 3.24"            |
| 5.2      | 32            | 0.0690        | 0.10              |                | <b>Sheet Flow, B to C</b>                  |
|          |               |               |                   |                | Woods: Light underbrush n= 0.400 P2= 3.24" |
| 10.8     | 72            | Total         |                   |                |                                            |

**Subcatchment 3.0: SUB 3.0**

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Type III 24-hr 2- yr Rainfall=3.24"

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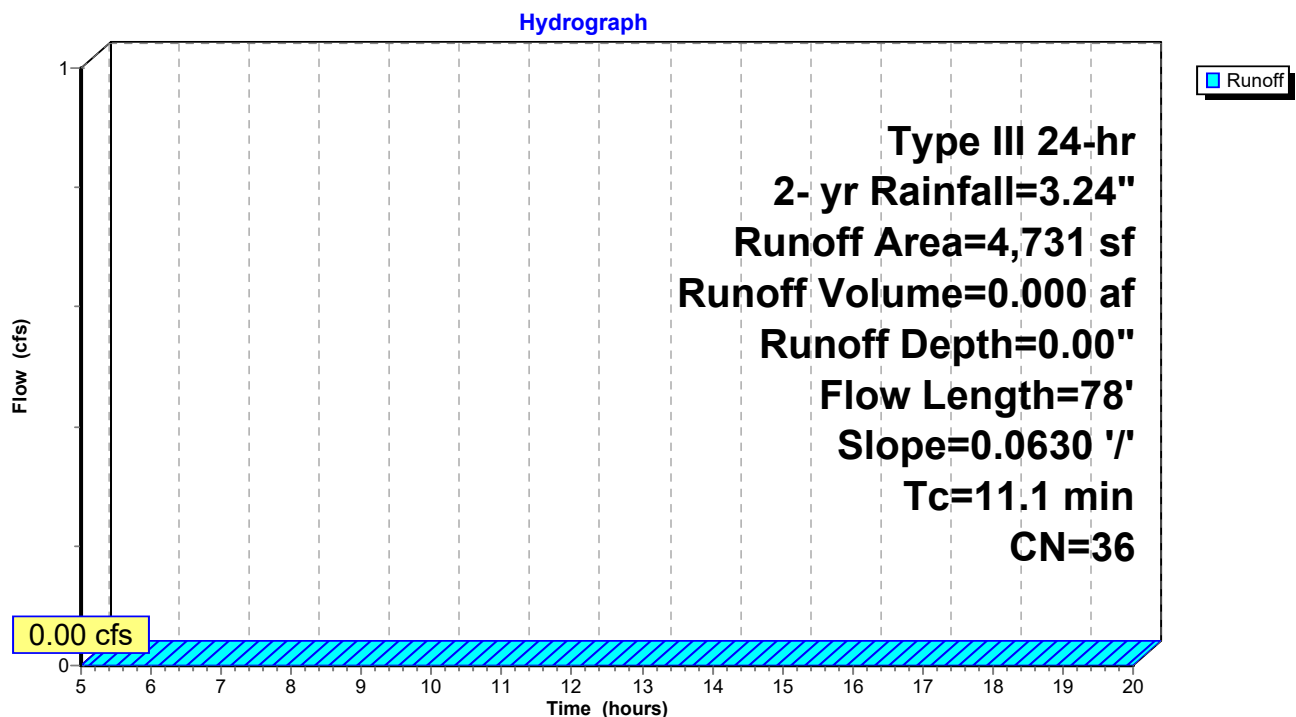
**Summary for Subcatchment 3.1: SUB 3.1**

Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2- yr Rainfall=3.24"

| Area (sf) | CN | Description           |
|-----------|----|-----------------------|
| 4,731     | 36 | Woods, Fair, HSG A    |
| 4,731     |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                      |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------------------|
| 11.1        | 78               | 0.0630           | 0.12                 |                   | <b>Sheet Flow,</b><br>Woods: Light underbrush n= 0.400 P2= 3.24" |

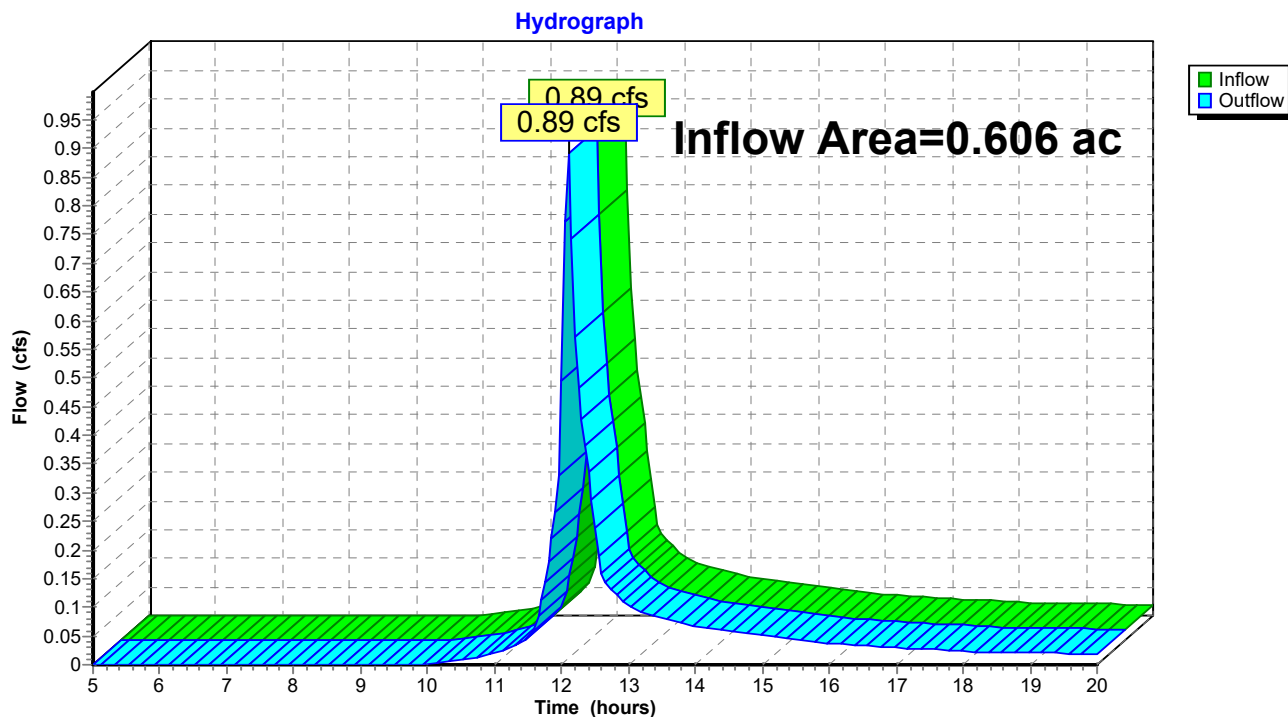
**Subcatchment 3.1: SUB 3.1**



**Summary for Reach 1R: POI # 1 - W Cole Rd**

Inflow Area = 0.606 ac, 43.51% Impervious, Inflow Depth > 1.20" for 2-yr event  
Inflow = 0.89 cfs @ 12.10 hrs, Volume= 0.061 af  
Outflow = 0.89 cfs @ 12.10 hrs, Volume= 0.061 af, Atten= 0%, Lag= 0.0 min

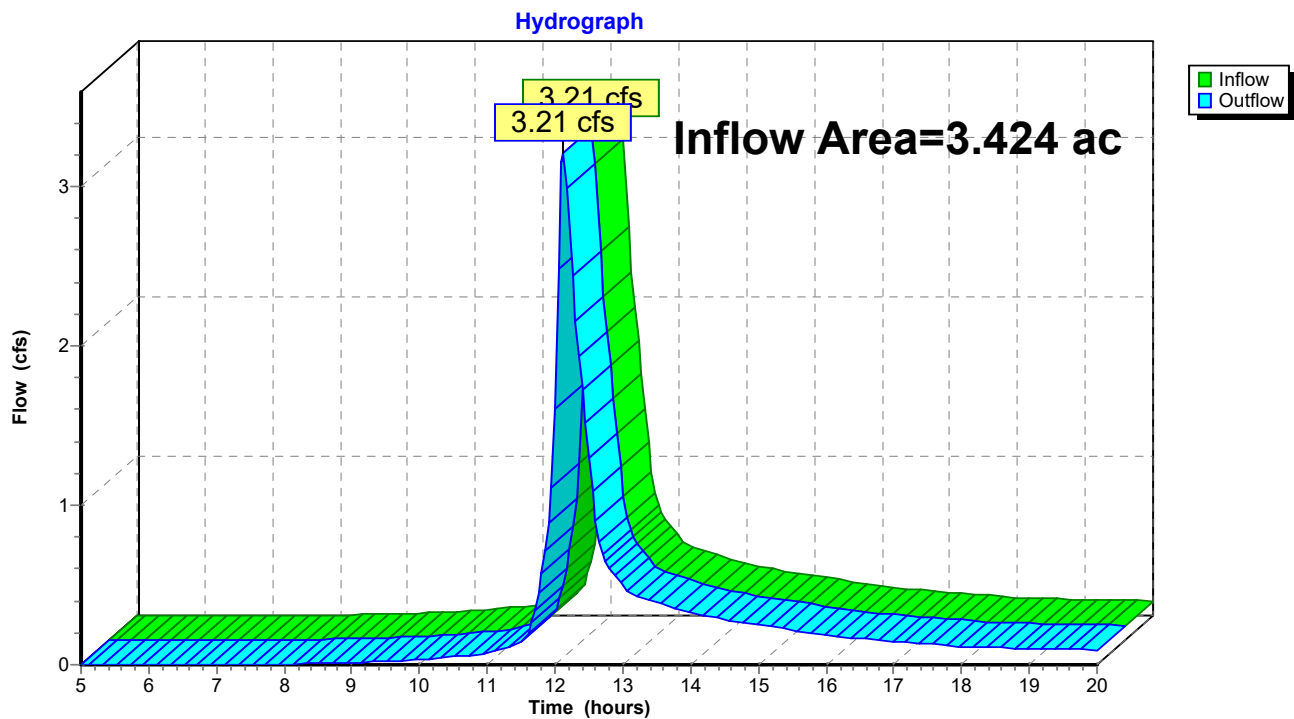
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach 1R: POI # 1 - W Cole Rd**

**Summary for Reach 2R: POI # 2 - Alfred Rd**

Inflow Area = 3.424 ac, 36.48% Impervious, Inflow Depth > 0.96" for 2- yr event  
Inflow = 3.21 cfs @ 12.13 hrs, Volume= 0.274 af  
Outflow = 3.21 cfs @ 12.13 hrs, Volume= 0.274 af, Atten= 0%, Lag= 0.0 min

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

**Reach 2R: POI # 2 - Alfred Rd**

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Type III 24-hr 2-yr Rainfall=3.24"

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### Summary for Reach 3R: POI # 3 - Railroad Tracks

Inflow Area = 0.970 ac, 16.61% Impervious, Inflow Depth > 1.62" for 2-yr event  
Inflow = 1.66 cfs @ 12.15 hrs, Volume= 0.131 af  
Outflow = 1.66 cfs @ 12.15 hrs, Volume= 0.131 af, Atten= 0%, Lag= 0.0 min

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

Max. Velocity= 1.22 fps, Min. Travel Time= 0.0 min

Avg. Velocity= 0.42 fps, Avg. Travel Time= 0.0 min

Peak Storage= 1 cf @ 12.15 hrs

Average Depth at Peak Storage= 0.54'

Bank-Full Depth= 1.50' Flow Area= 5.3 sf, Capacity= 10.72 cfs

2.00' x 1.50' deep channel, n= 0.410

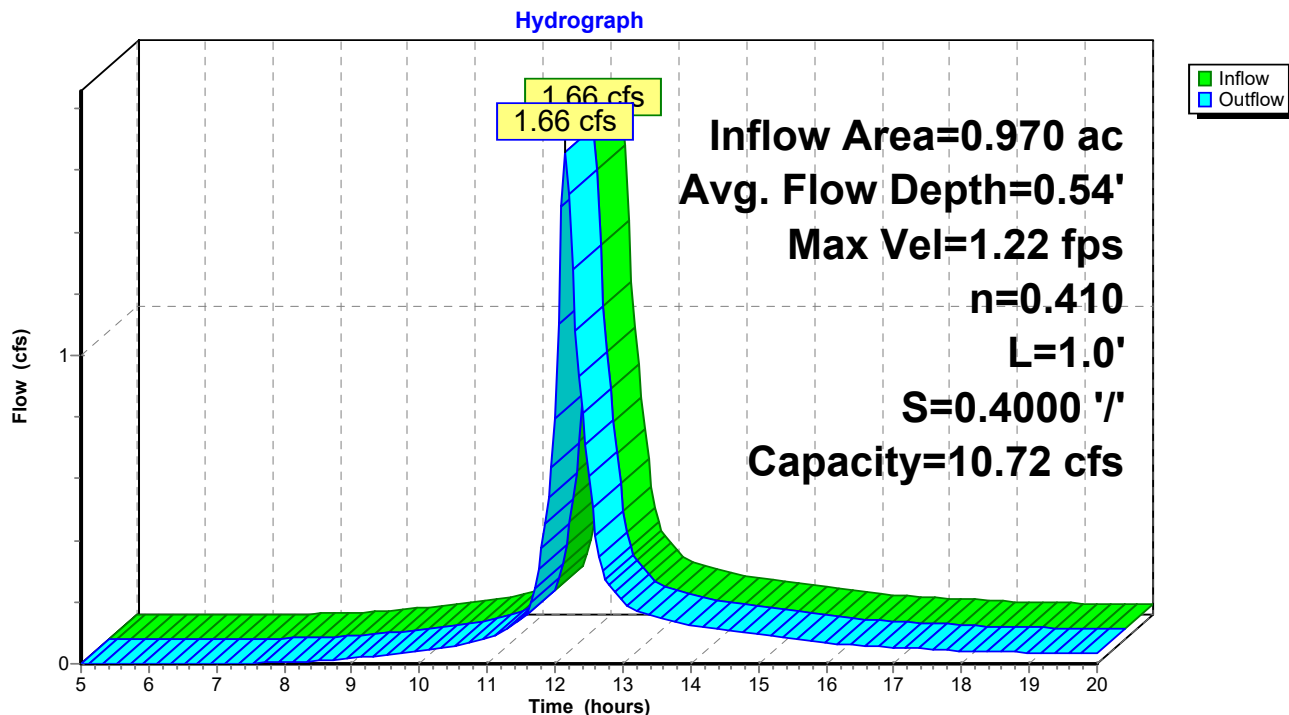
Side Slope Z-value= 1.0 '/' Top Width= 5.00'

Length= 1.0' Slope= 0.4000 '/'

Inlet Invert= 0.00', Outlet Invert= -0.40'



### Reach 3R: POI # 3 - Railroad Tracks



**Pre HC Biddeford 5.18***Type III 24-hr 10-yr Rainfall=5.11"*

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

**Subcatchment1S: SUB 1** Runoff Area=26,391 sf 43.51% Impervious Runoff Depth>2.61"  
 Tc=6.0 min CN=78 Runoff=1.95 cfs 0.132 af

**Subcatchment2.0: Five Star Auto** Runoff Area=34,806 sf 77.58% Impervious Runoff Depth>3.36"  
 Tc=6.0 min CN=86 Runoff=3.22 cfs 0.224 af

**Subcatchment2.1: SUB 2.1** Runoff Area=114,324 sf 23.97% Impervious Runoff Depth>1.87"  
 Flow Length=162' Tc=10.9 min CN=69 Runoff=5.16 cfs 0.409 af

**Subcatchment3.0: SUB 3.0** Runoff Area=37,513 sf 18.71% Impervious Runoff Depth>3.46"  
 Flow Length=72' Tc=10.8 min CN=87 Runoff=3.08 cfs 0.248 af

**Subcatchment3.1: SUB 3.1** Runoff Area=4,731 sf 0.00% Impervious Runoff Depth>0.09"  
 Flow Length=78' Slope=0.0630 '/' Tc=11.1 min CN=36 Runoff=0.00 cfs 0.001 af

**Reach 1R: POI # 1 - W Cole Rd** Inflow=1.95 cfs 0.132 af  
 Outflow=1.95 cfs 0.132 af

**Reach 2R: POI # 2 - Alfred Rd** Inflow=7.80 cfs 0.633 af  
 Outflow=7.80 cfs 0.633 af

**Reach 3R: POI # 3 - Railroad Tracks** Avg. Flow Depth=0.76' Max Vel=1.46 fps Inflow=3.08 cfs 0.249 af  
 n=0.410 L=1.0' S=0.4000 '/' Capacity=10.72 cfs Outflow=3.08 cfs 0.249 af

**Total Runoff Area = 4.999 ac Runoff Volume = 1.014 af Average Runoff Depth = 2.43"**  
**66.52% Pervious = 3.326 ac 33.48% Impervious = 1.674 ac**

**Pre HC Biddeford 5.18**

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Type III 24-hr 10-yr Rainfall=5.11"

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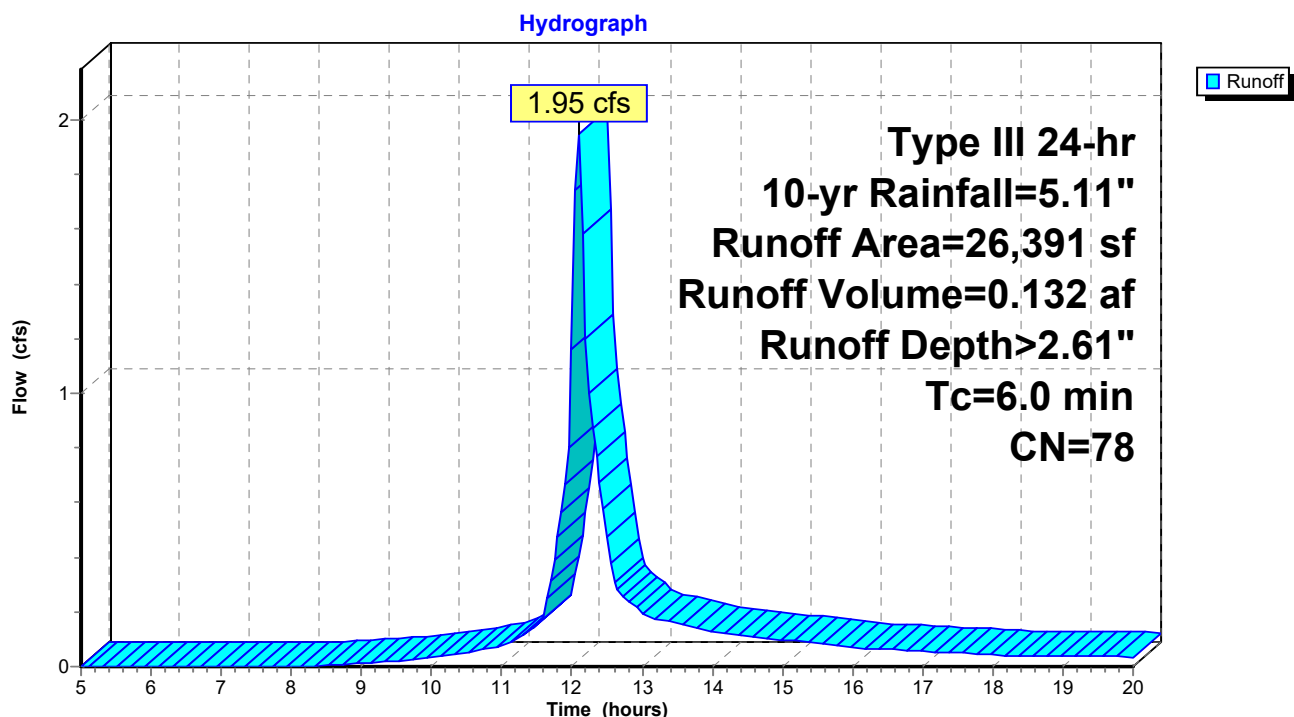
**Summary for Subcatchment 1S: SUB 1**

Runoff = 1.95 cfs @ 12.09 hrs, Volume= 0.132 af, Depth&gt; 2.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.11"

|   | Area (sf) | CN | Description                     |
|---|-----------|----|---------------------------------|
| * | 4,361     | 96 | Gravel roads                    |
|   | 963       | 35 | Brush, Fair, HSG A              |
|   | 9,584     | 49 | 50-75% Grass cover, Fair, HSG A |
| * | 11,483    | 98 | Pavement/Roof                   |
|   | 26,391    | 78 | Weighted Average                |
|   | 14,908    |    | 56.49% Pervious Area            |
|   | 11,483    |    | 43.51% Impervious Area          |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                     |
|-------------|------------------|------------------|----------------------|-------------------|---------------------------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, Direct - 0.1 hour |

**Subcatchment 1S: SUB 1**

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Type III 24-hr 10-yr Rainfall=5.11"

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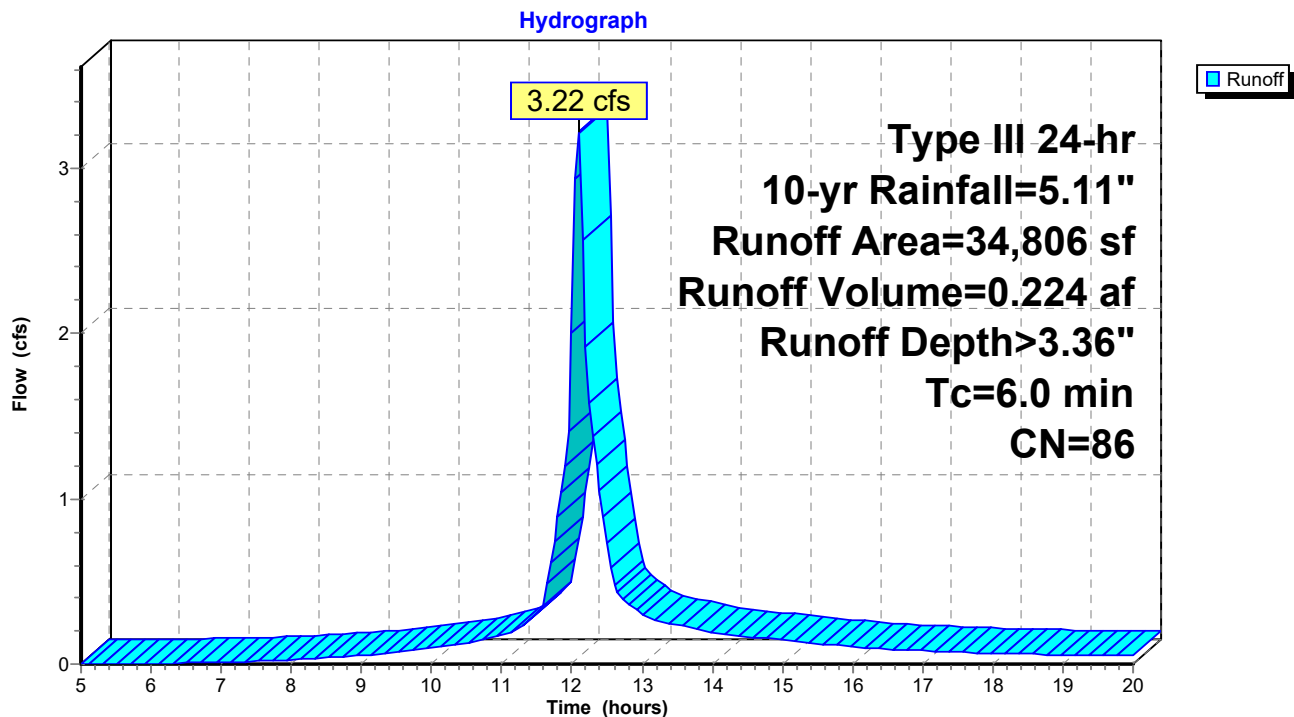
**Summary for Subcatchment 2.0: Five Star Auto**

Runoff = 3.22 cfs @ 12.09 hrs, Volume= 0.224 af, Depth&gt; 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.11"

|   | Area (sf) | CN | Description                   |
|---|-----------|----|-------------------------------|
| * | 27,003    | 98 | Pavement/Roof                 |
|   | 7,060     | 39 | >75% Grass cover, Good, HSG A |
|   | 743       | 91 | Gravel roads, HSG D           |
|   | 34,806    | 86 | Weighted Average              |
|   | 7,803     |    | 22.42% Pervious Area          |
|   | 27,003    |    | 77.58% Impervious Area        |

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

**Subcatchment 2.0: Five Star Auto**

**Pre HC Biddeford 5.18**

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Type III 24-hr 10-yr Rainfall=5.11"

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**Summary for Subcatchment 2.1: SUB 2.1**

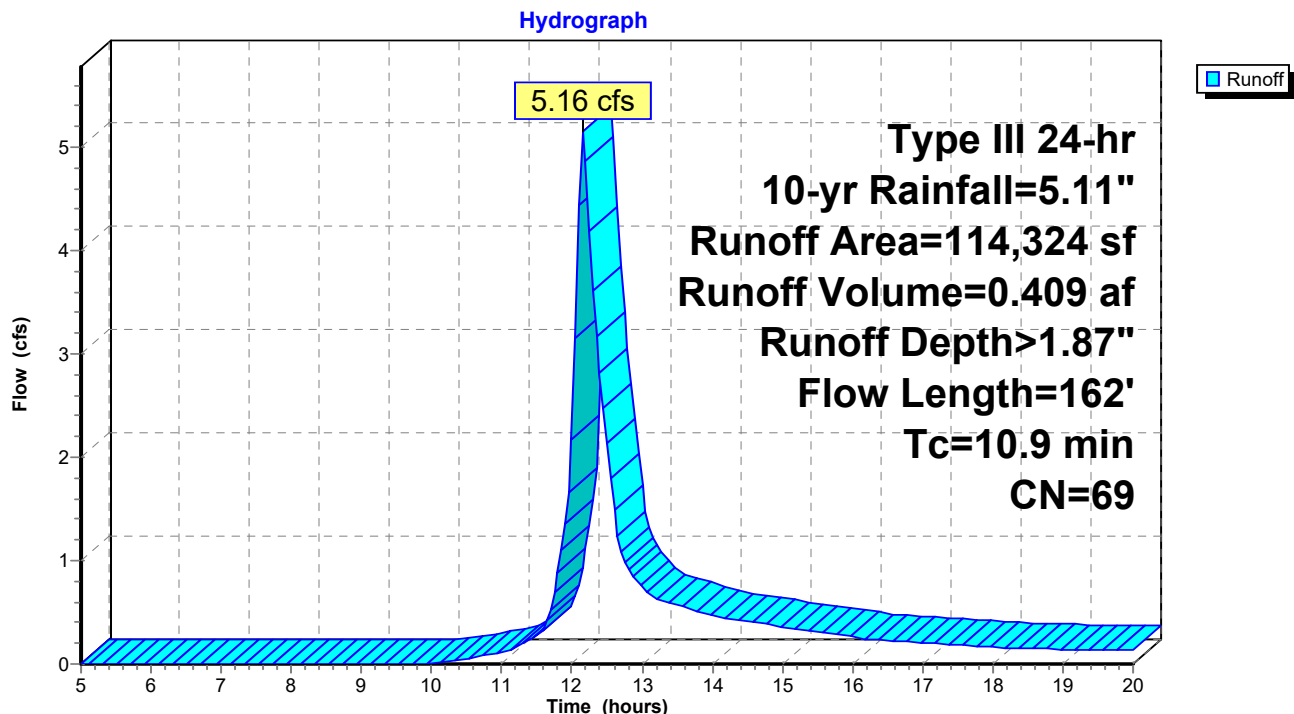
Runoff = 5.16 cfs @ 12.16 hrs, Volume= 0.409 af, Depth&gt; 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.11"

|   | Area (sf) | CN | Description                    |
|---|-----------|----|--------------------------------|
| * | 6,243     | 96 | Gravel                         |
| * | 27,401    | 98 | Pavement                       |
|   | 12,984    | 82 | Woods/grass comb., Fair, HSG D |
|   | 22,845    | 36 | Woods, Fair, HSG A             |
|   | 21,684    | 39 | >75% Grass cover, Good, HSG A  |
|   | 23,167    | 80 | >75% Grass cover, Good, HSG D  |
|   | 114,324   | 69 | Weighted Average               |
|   | 86,923    |    | 76.03% Pervious Area           |
|   | 27,401    |    | 23.97% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                 |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------|
| 10.2     | 100           | 0.0460        | 0.16              |                | <b>Sheet Flow, A to B</b><br>Grass: Dense n= 0.240 P2= 3.24"                |
| 0.7      | 62            | 0.0510        | 1.58              |                | <b>Shallow Concentrated Flow, B to C</b><br>Short Grass Pasture Kv= 7.0 fps |
| 10.9     | 162           | Total         |                   |                |                                                                             |

**Subcatchment 2.1: SUB 2.1**



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Type III 24-hr 10-yr Rainfall=5.11"

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**Summary for Subcatchment 3.0: SUB 3.0**

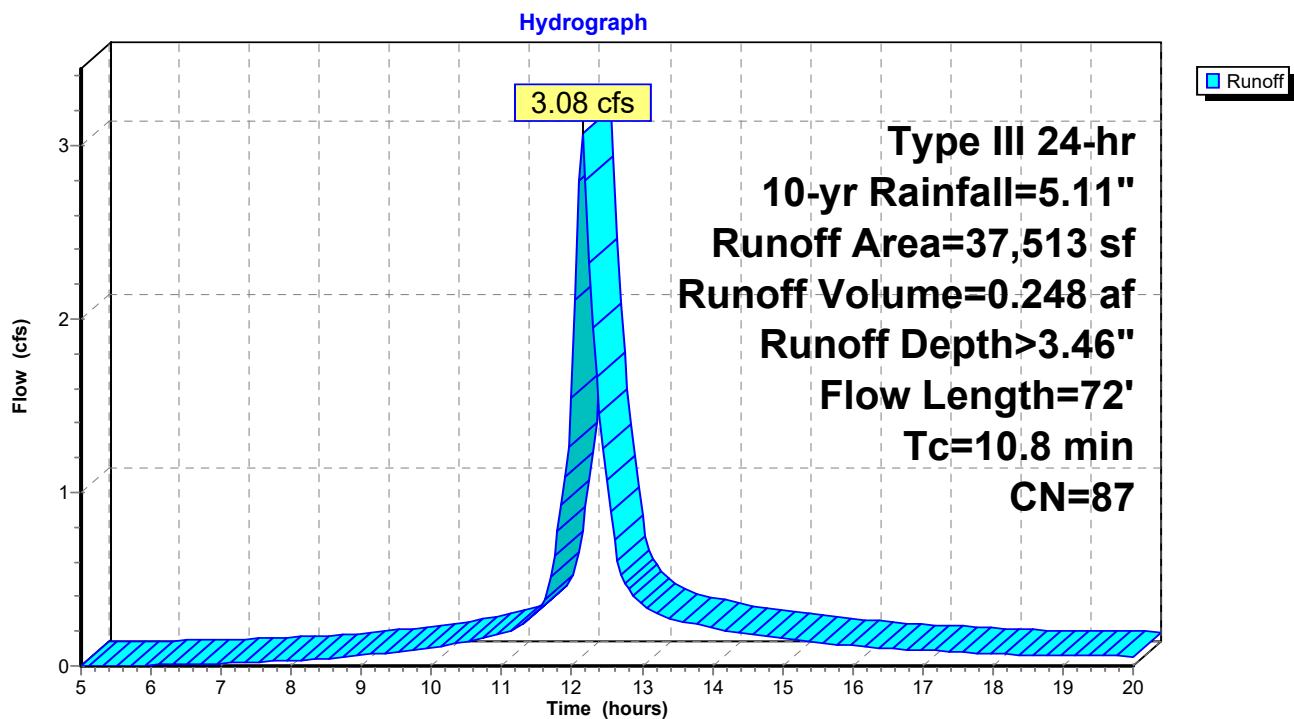
Runoff = 3.08 cfs @ 12.15 hrs, Volume= 0.248 af, Depth&gt; 3.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.11"

| Area (sf) | CN | Description                     |
|-----------|----|---------------------------------|
| 14,540    | 82 | Woods/grass comb., Fair, HSG D  |
| 11,736    | 84 | 50-75% Grass cover, Fair, HSG D |
| * 7,018   | 98 | Paved parking,                  |
| * 4,219   | 96 | GRAVEL                          |
| 37,513    | 87 | Weighted Average                |
| 30,495    |    | 81.29% Pervious Area            |
| 7,018     |    | 18.71% Impervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------|
| 5.6      | 40            | 0.0320        | 0.12              |                | <b>Sheet Flow, A to B</b>                  |
|          |               |               |                   |                | Grass: Dense n= 0.240 P2= 3.24"            |
| 5.2      | 32            | 0.0690        | 0.10              |                | <b>Sheet Flow, B to C</b>                  |
|          |               |               |                   |                | Woods: Light underbrush n= 0.400 P2= 3.24" |
| 10.8     | 72            | Total         |                   |                |                                            |

**Subcatchment 3.0: SUB 3.0**

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**Summary for Subcatchment 3.1: SUB 3.1**

Runoff = 0.00 cfs @ 14.79 hrs, Volume= 0.001 af, Depth&gt; 0.09"

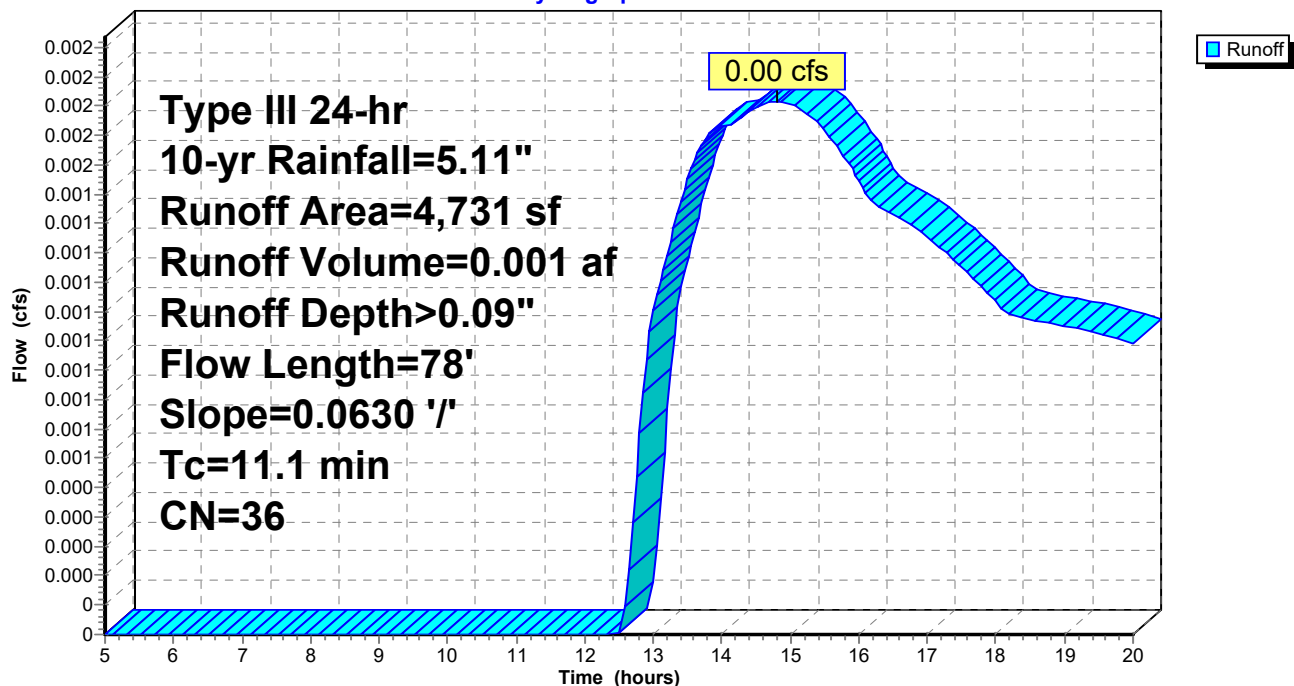
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.11"

| Area (sf) | CN | Description           |
|-----------|----|-----------------------|
| 4,731     | 36 | Woods, Fair, HSG A    |
| 4,731     |    | 100.00% Pervious Area |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                                                      |
|-------------|------------------|------------------|----------------------|-------------------|------------------------------------------------------------------|
| 11.1        | 78               | 0.0630           | 0.12                 |                   | <b>Sheet Flow,</b><br>Woods: Light underbrush n= 0.400 P2= 3.24" |

**Subcatchment 3.1: SUB 3.1**

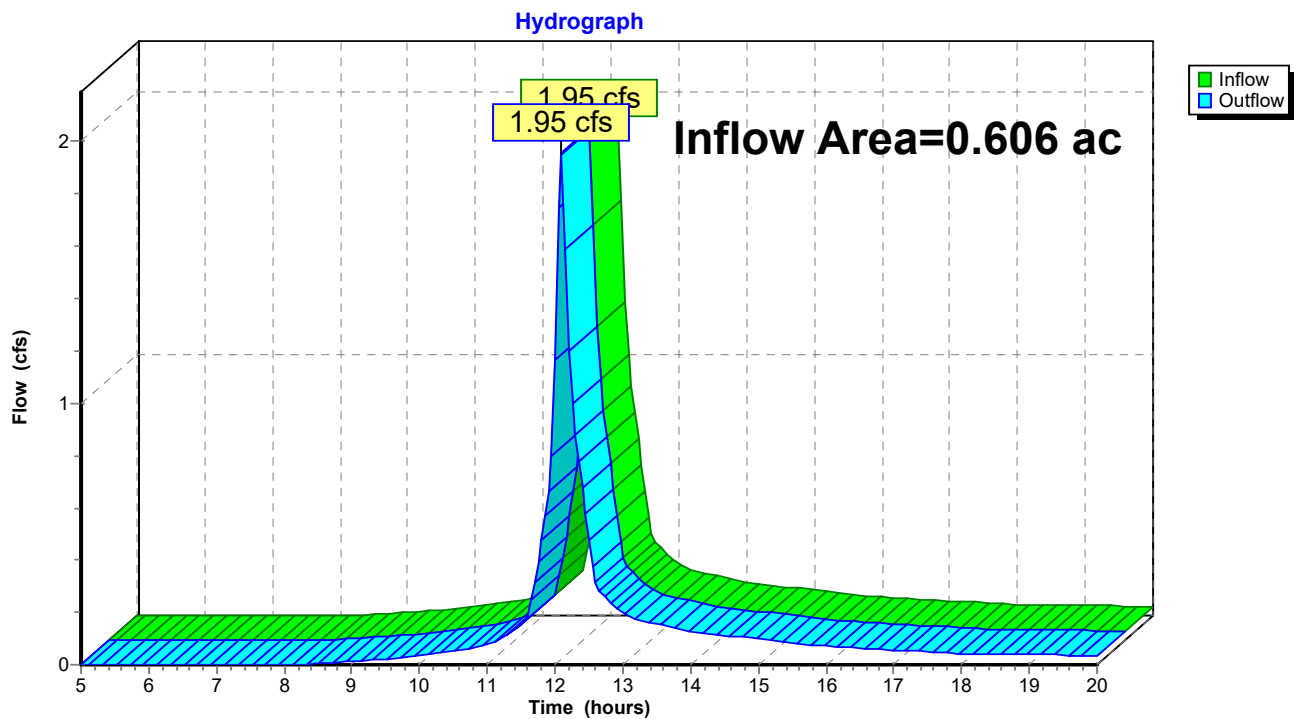
Hydrograph



**Summary for Reach 1R: POI # 1 - W Cole Rd**

Inflow Area = 0.606 ac, 43.51% Impervious, Inflow Depth > 2.61" for 10-yr event  
Inflow = 1.95 cfs @ 12.09 hrs, Volume= 0.132 af  
Outflow = 1.95 cfs @ 12.09 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min

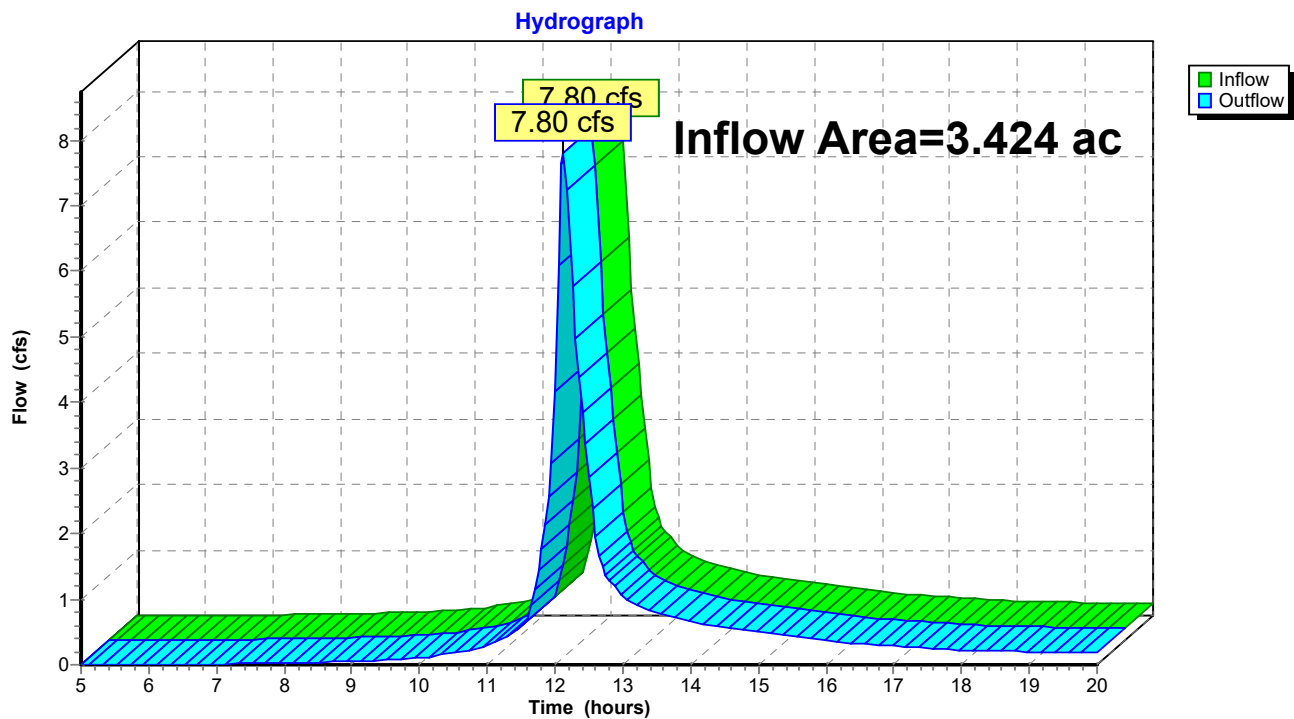
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach 1R: POI # 1 - W Cole Rd**

**Summary for Reach 2R: POI # 2 - Alfred Rd**

Inflow Area = 3.424 ac, 36.48% Impervious, Inflow Depth > 2.22" for 10-yr event  
Inflow = 7.80 cfs @ 12.13 hrs, Volume= 0.633 af  
Outflow = 7.80 cfs @ 12.13 hrs, Volume= 0.633 af, Atten= 0%, Lag= 0.0 min

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

**Reach 2R: POI # 2 - Alfred Rd**

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### Summary for Reach 3R: POI # 3 - Railroad Tracks

Inflow Area = 0.970 ac, 16.61% Impervious, Inflow Depth > 3.08" for 10-yr event  
Inflow = 3.08 cfs @ 12.15 hrs, Volume= 0.249 af  
Outflow = 3.08 cfs @ 12.15 hrs, Volume= 0.249 af, Atten= 0%, Lag= 0.0 min

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

Max. Velocity= 1.46 fps, Min. Travel Time= 0.0 min

Avg. Velocity= 0.49 fps, Avg. Travel Time= 0.0 min

Peak Storage= 2 cf @ 12.15 hrs

Average Depth at Peak Storage= 0.76'

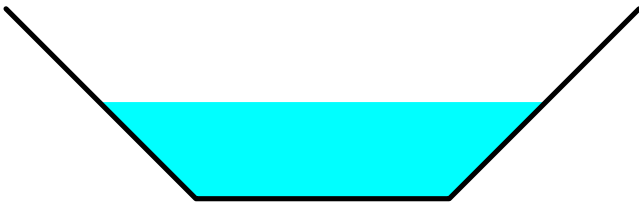
Bank-Full Depth= 1.50' Flow Area= 5.3 sf, Capacity= 10.72 cfs

2.00' x 1.50' deep channel, n= 0.410

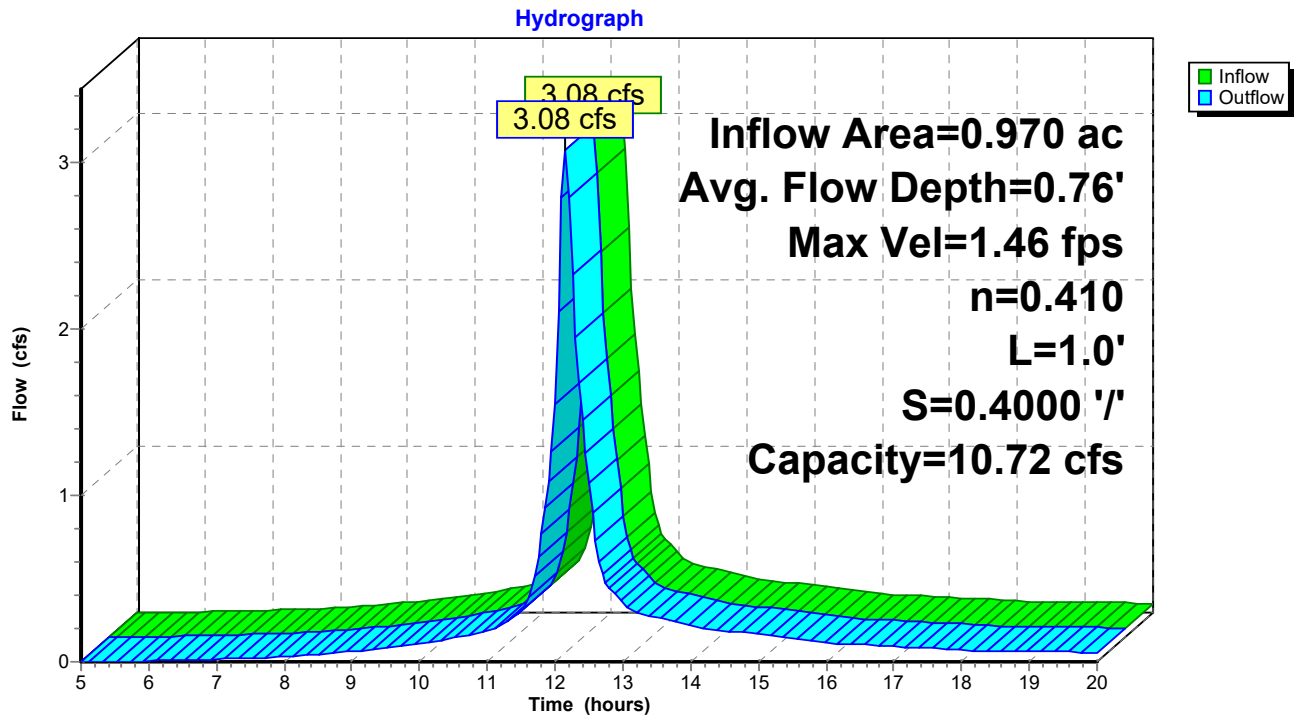
Side Slope Z-value= 1.0 '/' Top Width= 5.00'

Length= 1.0' Slope= 0.4000 '/'

Inlet Invert= 0.00', Outlet Invert= -0.40'



### Reach 3R: POI # 3 - Railroad Tracks



**Pre HC Biddeford 5.18***Type III 24-hr 25-yr Rainfall=6.28"*

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

|                                            |                                                                                                                                             |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: SUB 1</b>               | Runoff Area=26,391 sf 43.51% Impervious Runoff Depth>3.58"<br>Tc=6.0 min CN=78 Runoff=2.66 cfs 0.181 af                                     |
| <b>Subcatchment2.0: Five Star Auto</b>     | Runoff Area=34,806 sf 77.58% Impervious Runoff Depth>4.41"<br>Tc=6.0 min CN=86 Runoff=4.17 cfs 0.294 af                                     |
| <b>Subcatchment2.1: SUB 2.1</b>            | Runoff Area=114,324 sf 23.97% Impervious Runoff Depth>2.71"<br>Flow Length=162' Tc=10.9 min CN=69 Runoff=7.56 cfs 0.593 af                  |
| <b>Subcatchment3.0: SUB 3.0</b>            | Runoff Area=37,513 sf 18.71% Impervious Runoff Depth>4.51"<br>Flow Length=72' Tc=10.8 min CN=87 Runoff=3.97 cfs 0.324 af                    |
| <b>Subcatchment3.1: SUB 3.1</b>            | Runoff Area=4,731 sf 0.00% Impervious Runoff Depth>0.29"<br>Flow Length=78' Slope=0.0630 '/' Tc=11.1 min CN=36 Runoff=0.01 cfs 0.003 af     |
| <b>Reach 1R: POI # 1 - W Cole Rd</b>       | Inflow=2.66 cfs 0.181 af<br>Outflow=2.66 cfs 0.181 af                                                                                       |
| <b>Reach 2R: POI # 2 - Alfred Rd</b>       | Inflow=10.97 cfs 0.887 af<br>Outflow=10.97 cfs 0.887 af                                                                                     |
| <b>Reach 3R: POI # 3 - Railroad Tracks</b> | Avg. Flow Depth=0.88' Max Vel=1.57 fps Inflow=3.97 cfs 0.327 af<br>n=0.410 L=1.0' S=0.4000 '/' Capacity=10.72 cfs Outflow=3.97 cfs 0.327 af |

**Total Runoff Area = 4.999 ac Runoff Volume = 1.394 af Average Runoff Depth = 3.35"**  
**66.52% Pervious = 3.326 ac 33.48% Impervious = 1.674 ac**

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Type III 24-hr 25-yr Rainfall=6.28"

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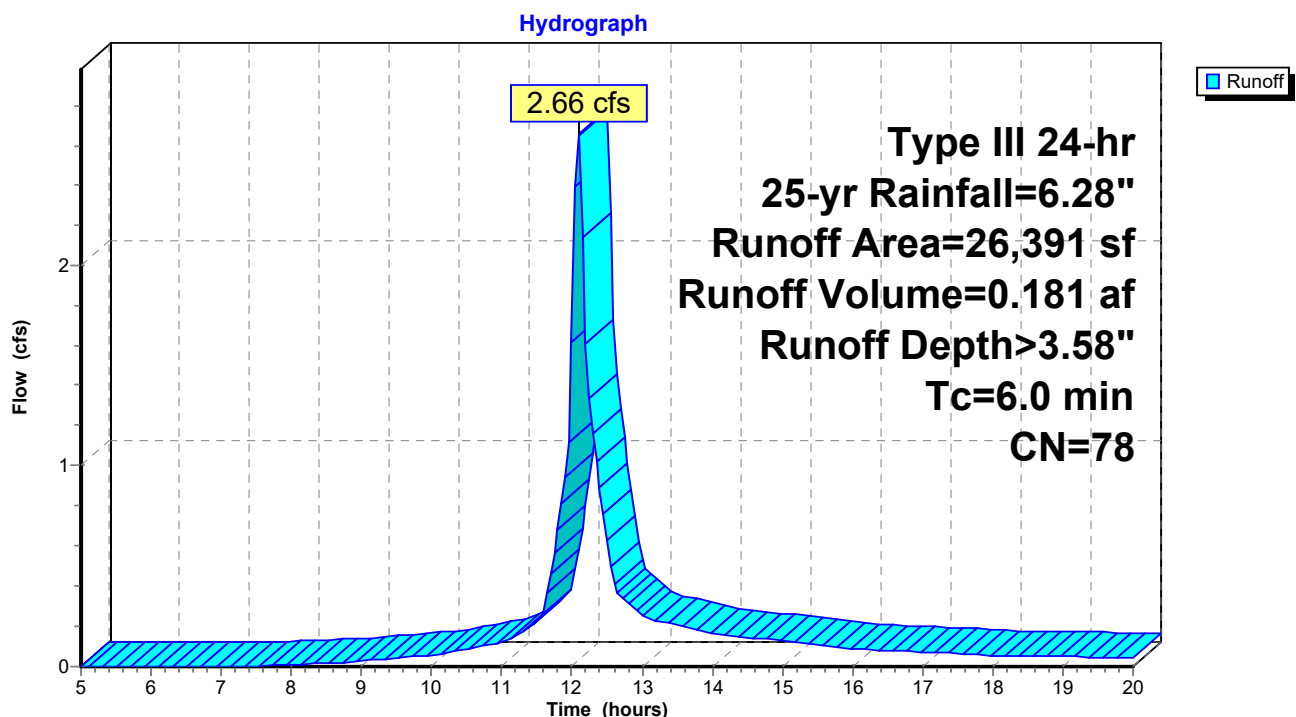
**Summary for Subcatchment 1S: SUB 1**

Runoff = 2.66 cfs @ 12.09 hrs, Volume= 0.181 af, Depth&gt; 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.28"

|   | Area (sf) | CN | Description                     |
|---|-----------|----|---------------------------------|
| * | 4,361     | 96 | Gravel roads                    |
|   | 963       | 35 | Brush, Fair, HSG A              |
|   | 9,584     | 49 | 50-75% Grass cover, Fair, HSG A |
| * | 11,483    | 98 | Pavement/Roof                   |
|   | 26,391    | 78 | Weighted Average                |
|   | 14,908    |    | 56.49% Pervious Area            |
|   | 11,483    |    | 43.51% Impervious Area          |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                     |
|-------------|------------------|------------------|----------------------|-------------------|---------------------------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, Direct - 0.1 hour |

**Subcatchment 1S: SUB 1**



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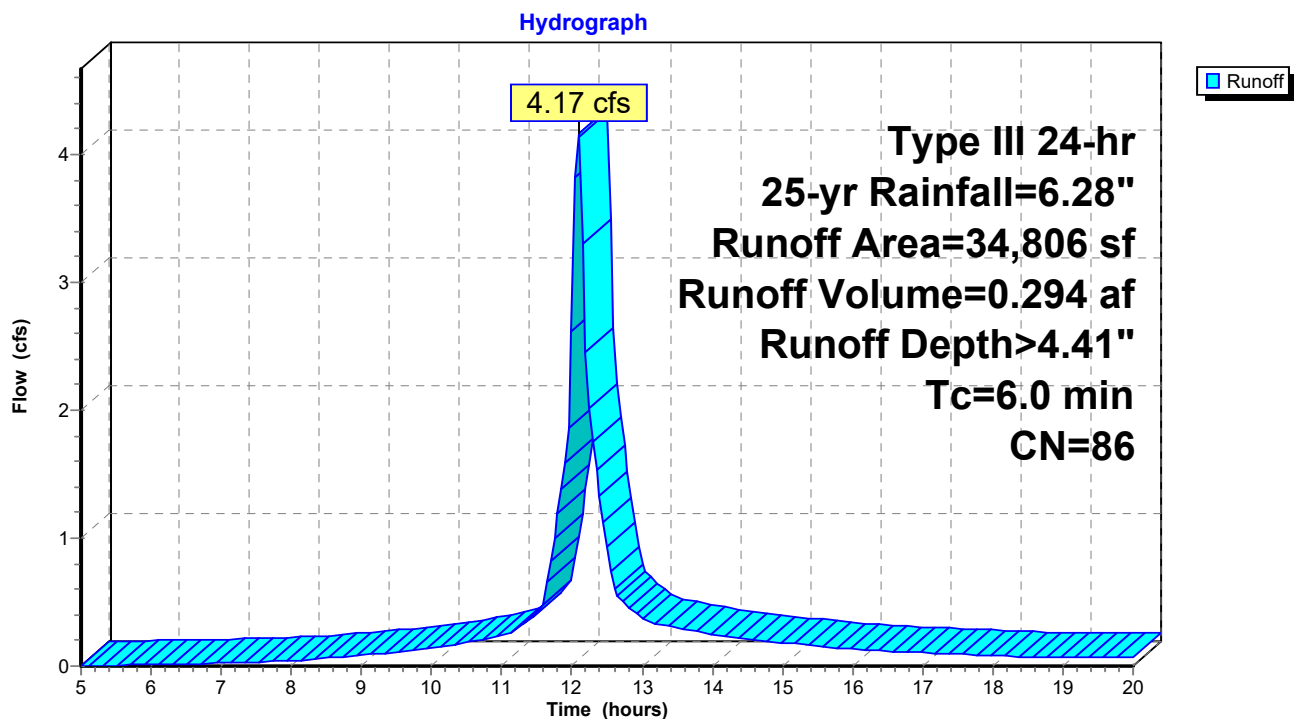
**Summary for Subcatchment 2.0: Five Star Auto**

Runoff = 4.17 cfs @ 12.09 hrs, Volume= 0.294 af, Depth&gt; 4.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.28"

|   | Area (sf) | CN | Description                   |
|---|-----------|----|-------------------------------|
| * | 27,003    | 98 | Pavement/Roof                 |
|   | 7,060     | 39 | >75% Grass cover, Good, HSG A |
|   | 743       | 91 | Gravel roads, HSG D           |
|   | 34,806    | 86 | Weighted Average              |
|   | 7,803     |    | 22.42% Pervious Area          |
|   | 27,003    |    | 77.58% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description          |
|-------------|------------------|------------------|----------------------|-------------------|----------------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, direct |

**Subcatchment 2.0: Five Star Auto**

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**Summary for Subcatchment 2.1: SUB 2.1**

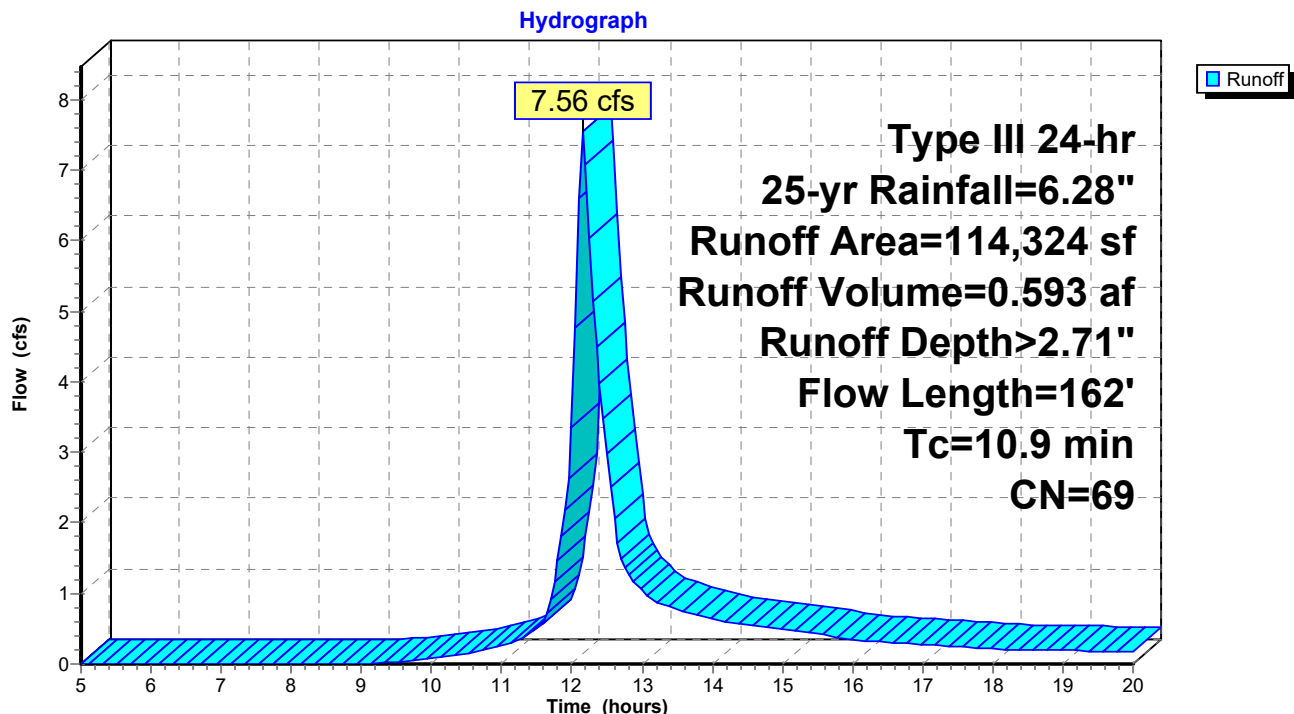
Runoff = 7.56 cfs @ 12.16 hrs, Volume= 0.593 af, Depth&gt; 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.28"

|   | Area (sf) | CN | Description                    |
|---|-----------|----|--------------------------------|
| * | 6,243     | 96 | Gravel                         |
| * | 27,401    | 98 | Pavement                       |
|   | 12,984    | 82 | Woods/grass comb., Fair, HSG D |
|   | 22,845    | 36 | Woods, Fair, HSG A             |
|   | 21,684    | 39 | >75% Grass cover, Good, HSG A  |
|   | 23,167    | 80 | >75% Grass cover, Good, HSG D  |
|   | 114,324   | 69 | Weighted Average               |
|   | 86,923    |    | 76.03% Pervious Area           |
|   | 27,401    |    | 23.97% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                 |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------|
| 10.2     | 100           | 0.0460        | 0.16              |                | <b>Sheet Flow, A to B</b><br>Grass: Dense n= 0.240 P2= 3.24"                |
| 0.7      | 62            | 0.0510        | 1.58              |                | <b>Shallow Concentrated Flow, B to C</b><br>Short Grass Pasture Kv= 7.0 fps |
| 10.9     | 162           | Total         |                   |                |                                                                             |

**Subcatchment 2.1: SUB 2.1**

**Pre HC Biddeford 5.18**

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**Summary for Subcatchment 3.0: SUB 3.0**

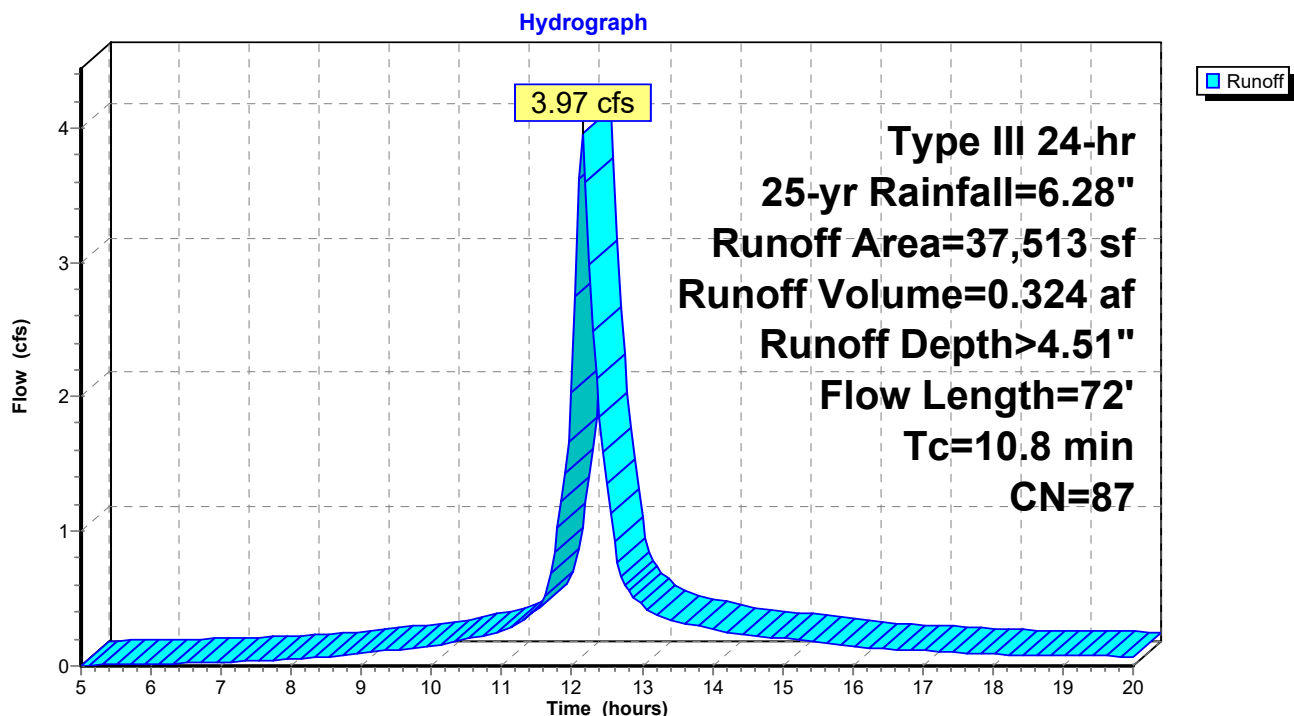
Runoff = 3.97 cfs @ 12.15 hrs, Volume= 0.324 af, Depth&gt; 4.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.28"

| Area (sf) | CN | Description                     |
|-----------|----|---------------------------------|
| 14,540    | 82 | Woods/grass comb., Fair, HSG D  |
| 11,736    | 84 | 50-75% Grass cover, Fair, HSG D |
| * 7,018   | 98 | Paved parking,                  |
| * 4,219   | 96 | GRAVEL                          |
| 37,513    | 87 | Weighted Average                |
| 30,495    |    | 81.29% Pervious Area            |
| 7,018     |    | 18.71% Impervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------|
| 5.6      | 40            | 0.0320        | 0.12              |                | <b>Sheet Flow, A to B</b>                  |
|          |               |               |                   |                | Grass: Dense n= 0.240 P2= 3.24"            |
| 5.2      | 32            | 0.0690        | 0.10              |                | <b>Sheet Flow, B to C</b>                  |
|          |               |               |                   |                | Woods: Light underbrush n= 0.400 P2= 3.24" |
| 10.8     | 72            | Total         |                   |                |                                            |

**Subcatchment 3.0: SUB 3.0**

**Summary for Subcatchment 3.1: SUB 3.1**

Runoff = 0.01 cfs @ 12.48 hrs, Volume= 0.003 af, Depth> 0.29"

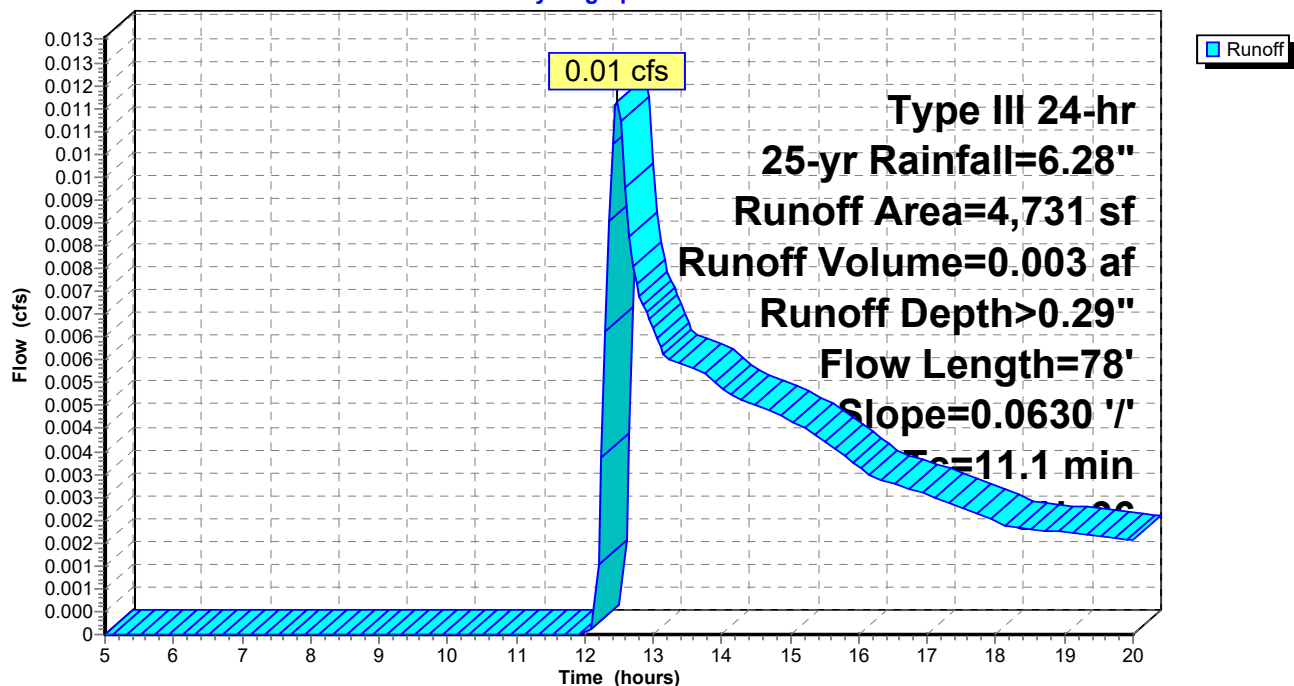
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.28"

| Area (sf) | CN | Description           |
|-----------|----|-----------------------|
| 4,731     | 36 | Woods, Fair, HSG A    |
| 4,731     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------|
| 11.1     | 78            | 0.0630        | 0.12              |                | Sheet Flow,<br>Woods: Light underbrush n= 0.400 P2= 3.24" |

**Subcatchment 3.1: SUB 3.1**

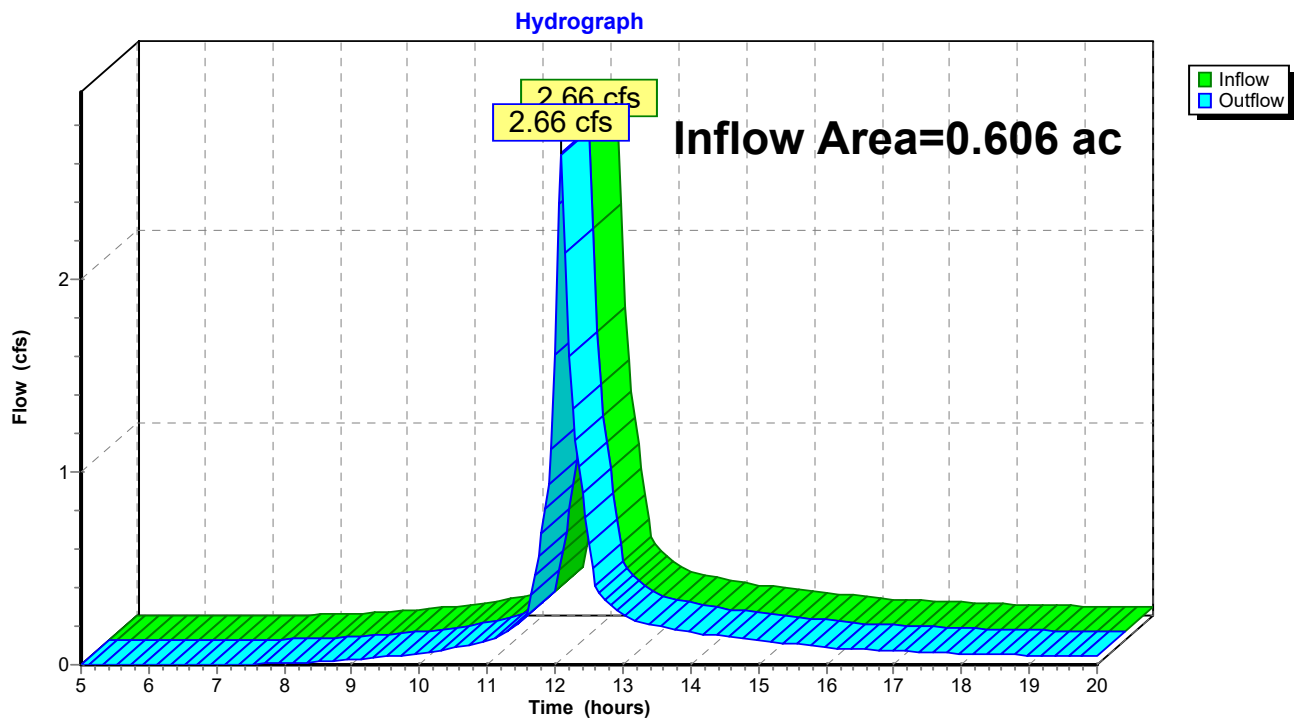
Hydrograph



**Summary for Reach 1R: POI # 1 - W Cole Rd**

Inflow Area = 0.606 ac, 43.51% Impervious, Inflow Depth > 3.58" for 25-yr event  
Inflow = 2.66 cfs @ 12.09 hrs, Volume= 0.181 af  
Outflow = 2.66 cfs @ 12.09 hrs, Volume= 0.181 af, Atten= 0%, Lag= 0.0 min

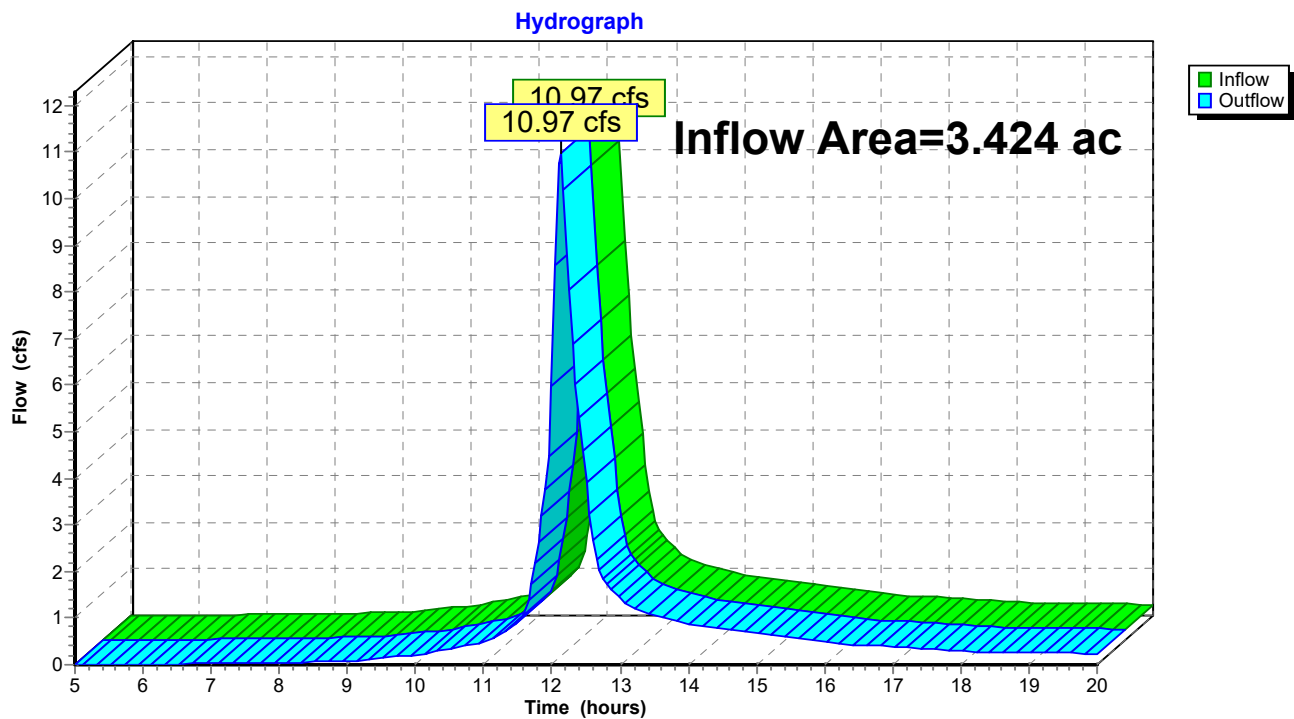
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach 1R: POI # 1 - W Cole Rd**

**Summary for Reach 2R: POI # 2 - Alfred Rd**

Inflow Area = 3.424 ac, 36.48% Impervious, Inflow Depth > 3.11" for 25-yr event  
Inflow = 10.97 cfs @ 12.13 hrs, Volume= 0.887 af  
Outflow = 10.97 cfs @ 12.13 hrs, Volume= 0.887 af, Atten= 0%, Lag= 0.0 min

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

**Reach 2R: POI # 2 - Alfred Rd**

**Summary for Reach 3R: POI # 3 - Railroad Tracks**

Inflow Area = 0.970 ac, 16.61% Impervious, Inflow Depth > 4.04" for 25-yr event  
 Inflow = 3.97 cfs @ 12.15 hrs, Volume= 0.327 af  
 Outflow = 3.97 cfs @ 12.15 hrs, Volume= 0.327 af, Atten= 0%, Lag= 0.0 min

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

Max. Velocity= 1.57 fps, Min. Travel Time= 0.0 min

Avg. Velocity= 0.54 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.15 hrs

Average Depth at Peak Storage= 0.88'

Bank-Full Depth= 1.50' Flow Area= 5.3 sf, Capacity= 10.72 cfs

2.00' x 1.50' deep channel, n= 0.410

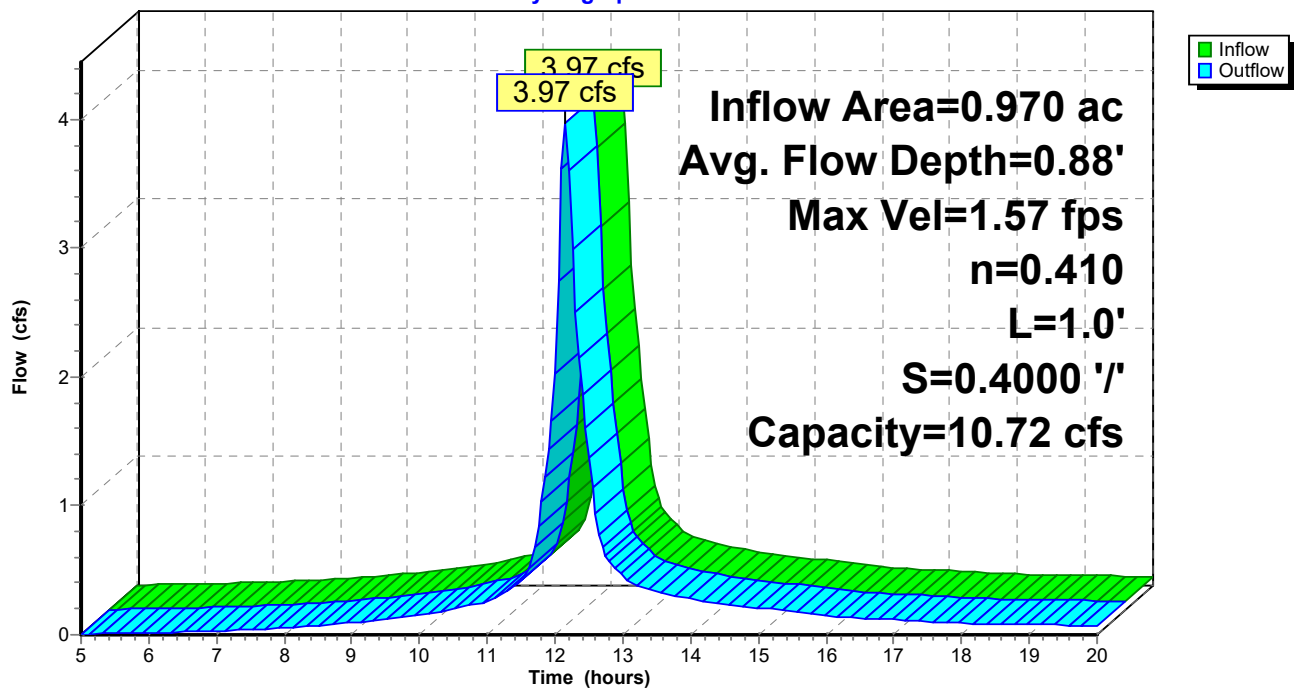
Side Slope Z-value= 1.0 '/' Top Width= 5.00'

Length= 1.0' Slope= 0.4000 '/'

Inlet Invert= 0.00', Outlet Invert= -0.40'

**Reach 3R: POI # 3 - Railroad Tracks**

Hydrograph



**Pre HC Biddeford 5.18**

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*Type III 24-hr 50 yr Rainfall=7.14"*

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

|                                                                                                                                                             |                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: SUB 1</b>                                                                                                                                | Runoff Area=26,391 sf 43.51% Impervious Runoff Depth>4.32"<br>Tc=6.0 min CN=78 Runoff=3.18 cfs 0.218 af                                     |
| <b>Subcatchment2.0: Five Star Auto</b>                                                                                                                      | Runoff Area=34,806 sf 77.58% Impervious Runoff Depth>5.20"<br>Tc=6.0 min CN=86 Runoff=4.87 cfs 0.346 af                                     |
| <b>Subcatchment2.1: SUB 2.1</b>                                                                                                                             | Runoff Area=114,324 sf 23.97% Impervious Runoff Depth>3.37"<br>Flow Length=162' Tc=10.9 min CN=69 Runoff=9.40 cfs 0.736 af                  |
| <b>Subcatchment3.0: SUB 3.0</b>                                                                                                                             | Runoff Area=37,513 sf 18.71% Impervious Runoff Depth>5.30"<br>Flow Length=72' Tc=10.8 min CN=87 Runoff=4.62 cfs 0.380 af                    |
| <b>Subcatchment3.1: SUB 3.1</b>                                                                                                                             | Runoff Area=4,731 sf 0.00% Impervious Runoff Depth>0.51"<br>Flow Length=78' Slope=0.0630 '/' Tc=11.1 min CN=36 Runoff=0.03 cfs 0.005 af     |
| <b>Reach 1R: POI # 1 - W Cole Rd</b>                                                                                                                        | Inflow=3.18 cfs 0.218 af<br>Outflow=3.18 cfs 0.218 af                                                                                       |
| <b>Reach 2R: POI # 2 - Alfred Rd</b>                                                                                                                        | Inflow=13.39 cfs 1.082 af<br>Outflow=13.39 cfs 1.082 af                                                                                     |
| <b>Reach 3R: POI # 3 - Railroad Tracks</b>                                                                                                                  | Avg. Flow Depth=0.96' Max Vel=1.63 fps Inflow=4.63 cfs 0.385 af<br>n=0.410 L=1.0' S=0.4000 '/' Capacity=10.72 cfs Outflow=4.62 cfs 0.385 af |
| <b>Total Runoff Area = 4.999 ac Runoff Volume = 1.685 af Average Runoff Depth = 4.05"</b><br><b>66.52% Pervious = 3.326 ac 33.48% Impervious = 1.674 ac</b> |                                                                                                                                             |



**Pre HC Biddeford 5.18**

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Type III 24-hr 50 yr Rainfall=7.14"

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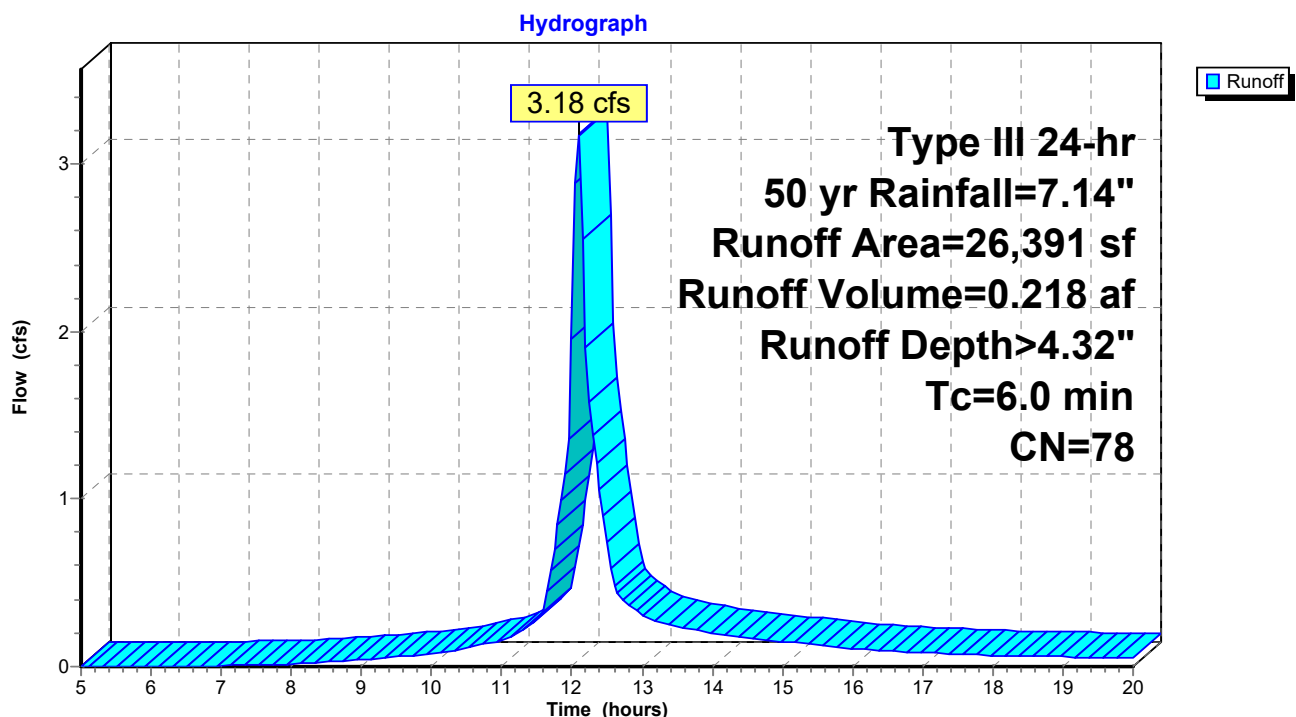
**Summary for Subcatchment 1S: SUB 1**

Runoff = 3.18 cfs @ 12.09 hrs, Volume= 0.218 af, Depth&gt; 4.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 yr Rainfall=7.14"

|   | Area (sf) | CN | Description                     |
|---|-----------|----|---------------------------------|
| * | 4,361     | 96 | Gravel roads                    |
|   | 963       | 35 | Brush, Fair, HSG A              |
|   | 9,584     | 49 | 50-75% Grass cover, Fair, HSG A |
| * | 11,483    | 98 | Pavement/Roof                   |
|   | 26,391    | 78 | Weighted Average                |
|   | 14,908    |    | 56.49% Pervious Area            |
|   | 11,483    |    | 43.51% Impervious Area          |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description                     |
|-------------|------------------|------------------|----------------------|-------------------|---------------------------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, Direct - 0.1 hour |

**Subcatchment 1S: SUB 1**

**Pre HC Biddeford 5.18**

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Type III 24-hr 50 yr Rainfall=7.14"

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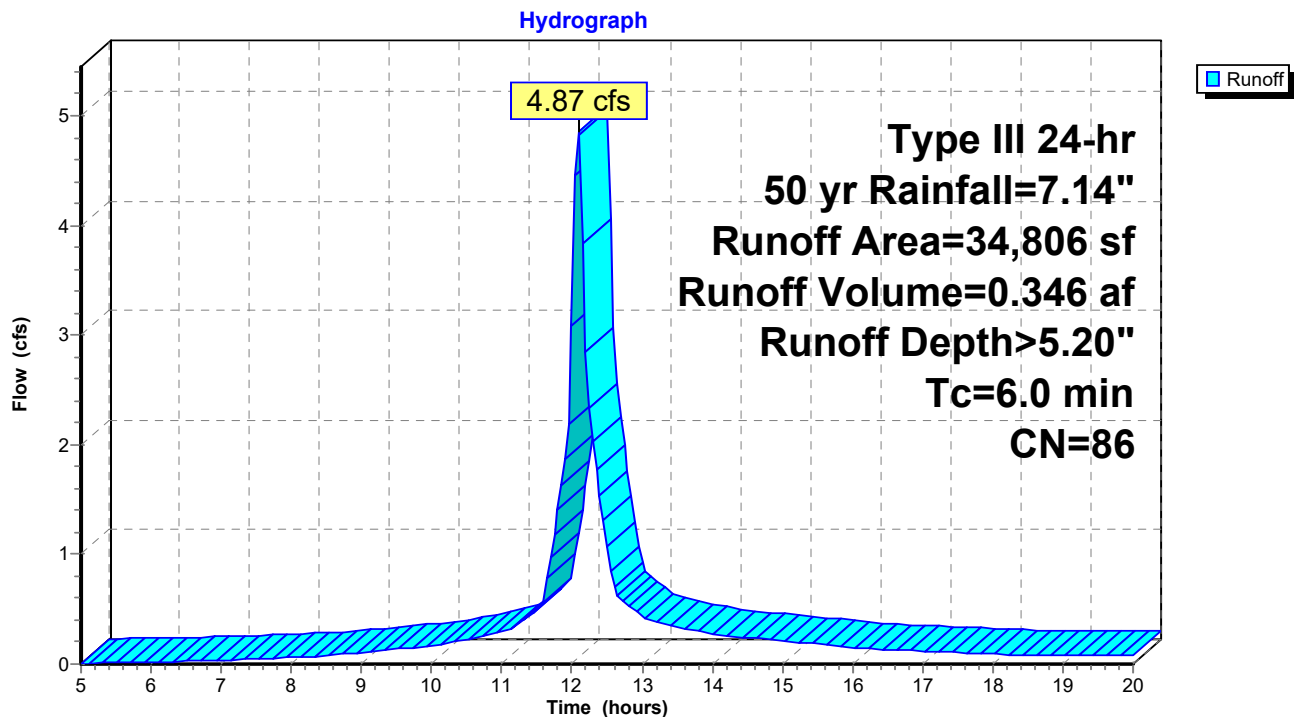
**Summary for Subcatchment 2.0: Five Star Auto**

Runoff = 4.87 cfs @ 12.09 hrs, Volume= 0.346 af, Depth&gt; 5.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 yr Rainfall=7.14"

|   | Area (sf) | CN | Description                   |
|---|-----------|----|-------------------------------|
| * | 27,003    | 98 | Pavement/Roof                 |
|   | 7,060     | 39 | >75% Grass cover, Good, HSG A |
|   | 743       | 91 | Gravel roads, HSG D           |
|   | 34,806    | 86 | Weighted Average              |
|   | 7,803     |    | 22.42% Pervious Area          |
|   | 27,003    |    | 77.58% Impervious Area        |

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

**Subcatchment 2.0: Five Star Auto**

**Pre HC Biddeford 5.18**

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Type III 24-hr 50 yr Rainfall=7.14"

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**Summary for Subcatchment 2.1: SUB 2.1**

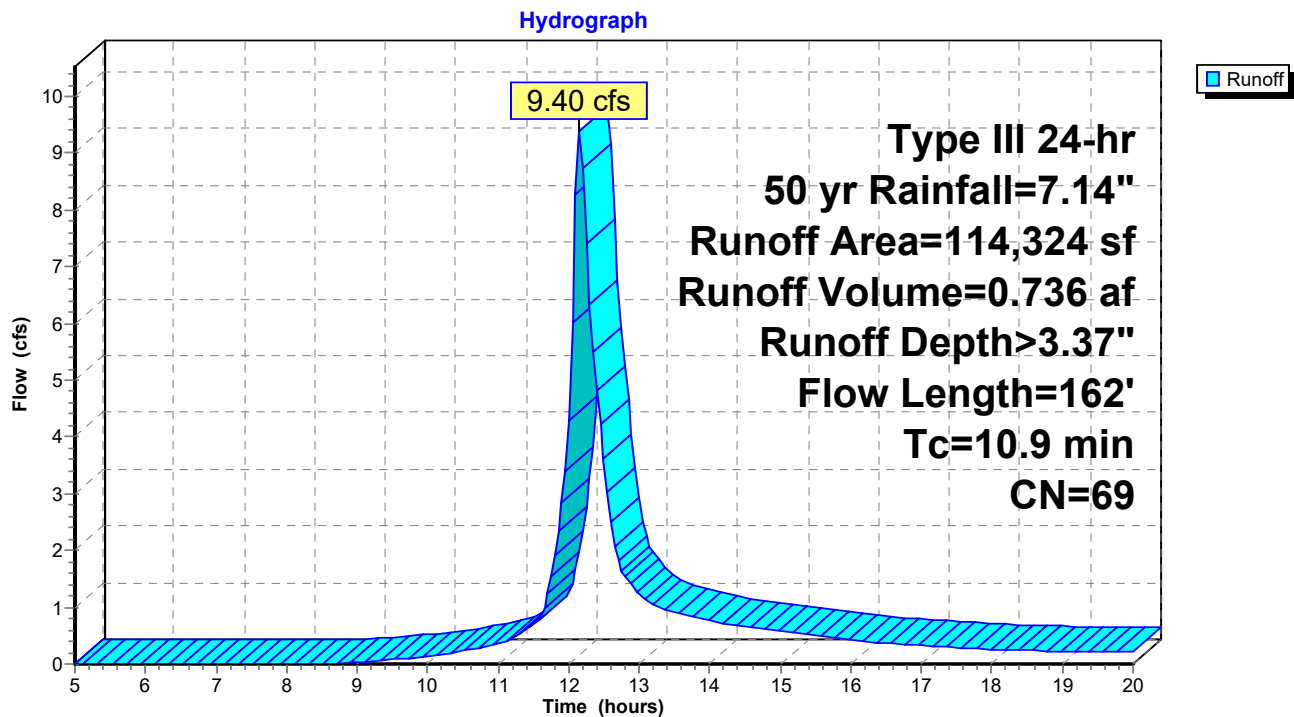
Runoff = 9.40 cfs @ 12.16 hrs, Volume= 0.736 af, Depth&gt; 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 yr Rainfall=7.14"

|   | Area (sf) | CN | Description                    |
|---|-----------|----|--------------------------------|
| * | 6,243     | 96 | Gravel                         |
| * | 27,401    | 98 | Pavement                       |
|   | 12,984    | 82 | Woods/grass comb., Fair, HSG D |
|   | 22,845    | 36 | Woods, Fair, HSG A             |
|   | 21,684    | 39 | >75% Grass cover, Good, HSG A  |
|   | 23,167    | 80 | >75% Grass cover, Good, HSG D  |
|   | 114,324   | 69 | Weighted Average               |
|   | 86,923    |    | 76.03% Pervious Area           |
|   | 27,401    |    | 23.97% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                                                 |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------------------------|
| 10.2     | 100           | 0.0460        | 0.16              |                | <b>Sheet Flow, A to B</b><br>Grass: Dense n= 0.240 P2= 3.24"                |
| 0.7      | 62            | 0.0510        | 1.58              |                | <b>Shallow Concentrated Flow, B to C</b><br>Short Grass Pasture Kv= 7.0 fps |
| 10.9     | 162           | Total         |                   |                |                                                                             |

**Subcatchment 2.1: SUB 2.1**

**Pre HC Biddeford 5.18**

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Type III 24-hr 50 yr Rainfall=7.14"

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**Summary for Subcatchment 3.0: SUB 3.0**

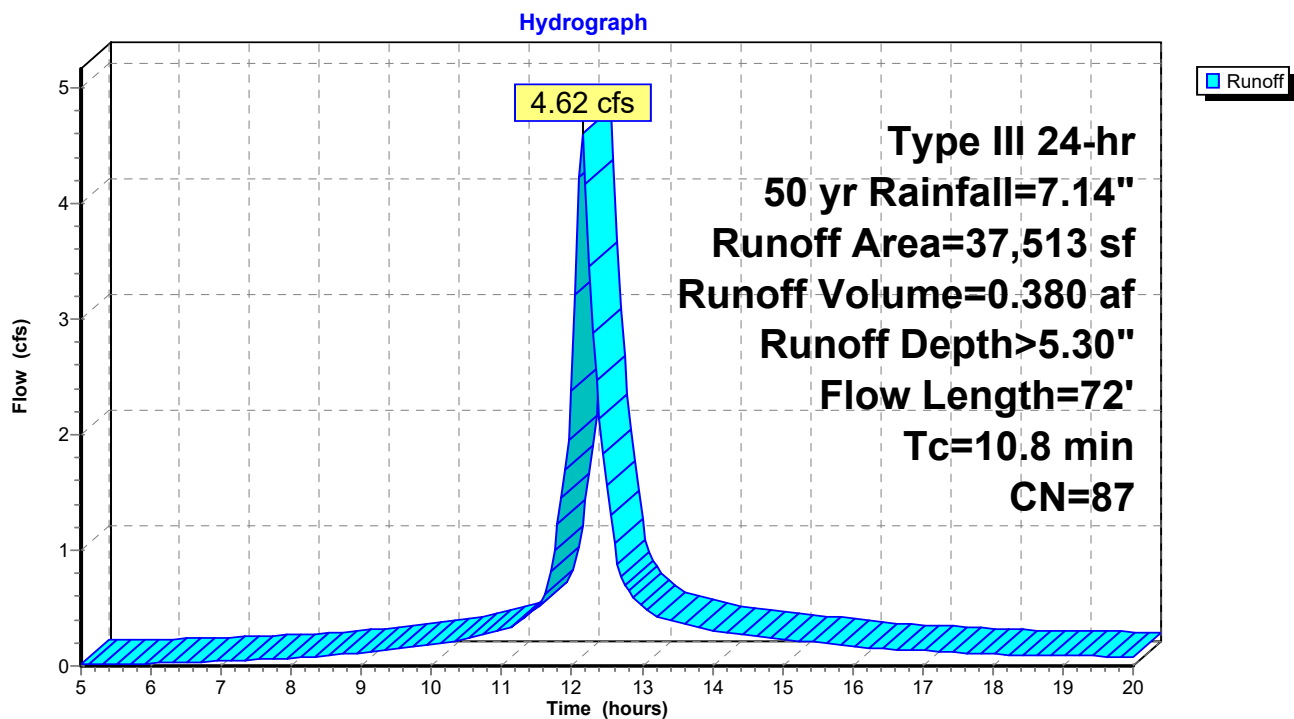
Runoff = 4.62 cfs @ 12.15 hrs, Volume= 0.380 af, Depth&gt; 5.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 yr Rainfall=7.14"

| Area (sf) | CN | Description                     |
|-----------|----|---------------------------------|
| 14,540    | 82 | Woods/grass comb., Fair, HSG D  |
| 11,736    | 84 | 50-75% Grass cover, Fair, HSG D |
| * 7,018   | 98 | Paved parking,                  |
| * 4,219   | 96 | GRAVEL                          |
| 37,513    | 87 | Weighted Average                |
| 30,495    |    | 81.29% Pervious Area            |
| 7,018     |    | 18.71% Impervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------|
| 5.6      | 40            | 0.0320        | 0.12              |                | <b>Sheet Flow, A to B</b>                  |
|          |               |               |                   |                | Grass: Dense n= 0.240 P2= 3.24"            |
| 5.2      | 32            | 0.0690        | 0.10              |                | <b>Sheet Flow, B to C</b>                  |
|          |               |               |                   |                | Woods: Light underbrush n= 0.400 P2= 3.24" |
| 10.8     | 72            | Total         |                   |                |                                            |

**Subcatchment 3.0: SUB 3.0**

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Type III 24-hr 50 yr Rainfall=7.14"

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**Summary for Subcatchment 3.1: SUB 3.1**

Runoff = 0.03 cfs @ 12.40 hrs, Volume= 0.005 af, Depth&gt; 0.51"

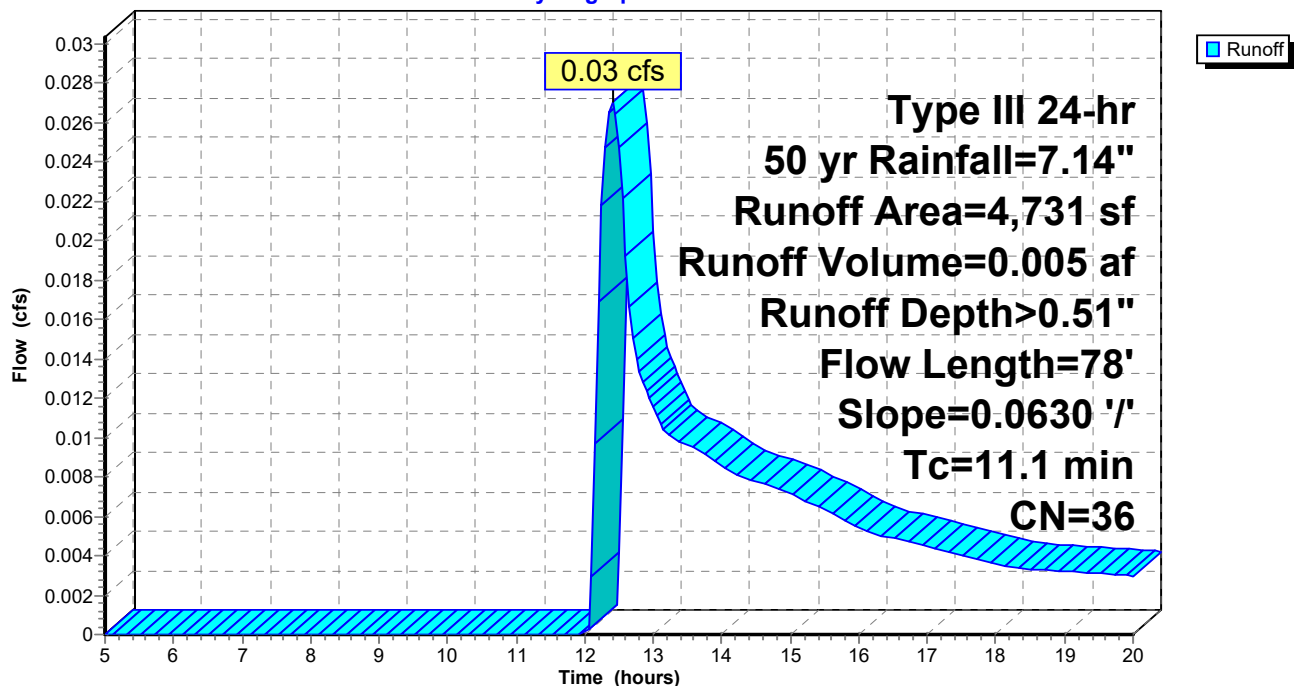
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 yr Rainfall=7.14"

| Area (sf) | CN | Description           |
|-----------|----|-----------------------|
| 4,731     | 36 | Woods, Fair, HSG A    |
| 4,731     |    | 100.00% Pervious Area |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                               |
|----------|---------------|---------------|-------------------|----------------|-----------------------------------------------------------|
| 11.1     | 78            | 0.0630        | 0.12              |                | Sheet Flow,<br>Woods: Light underbrush n= 0.400 P2= 3.24" |

**Subcatchment 3.1: SUB 3.1**

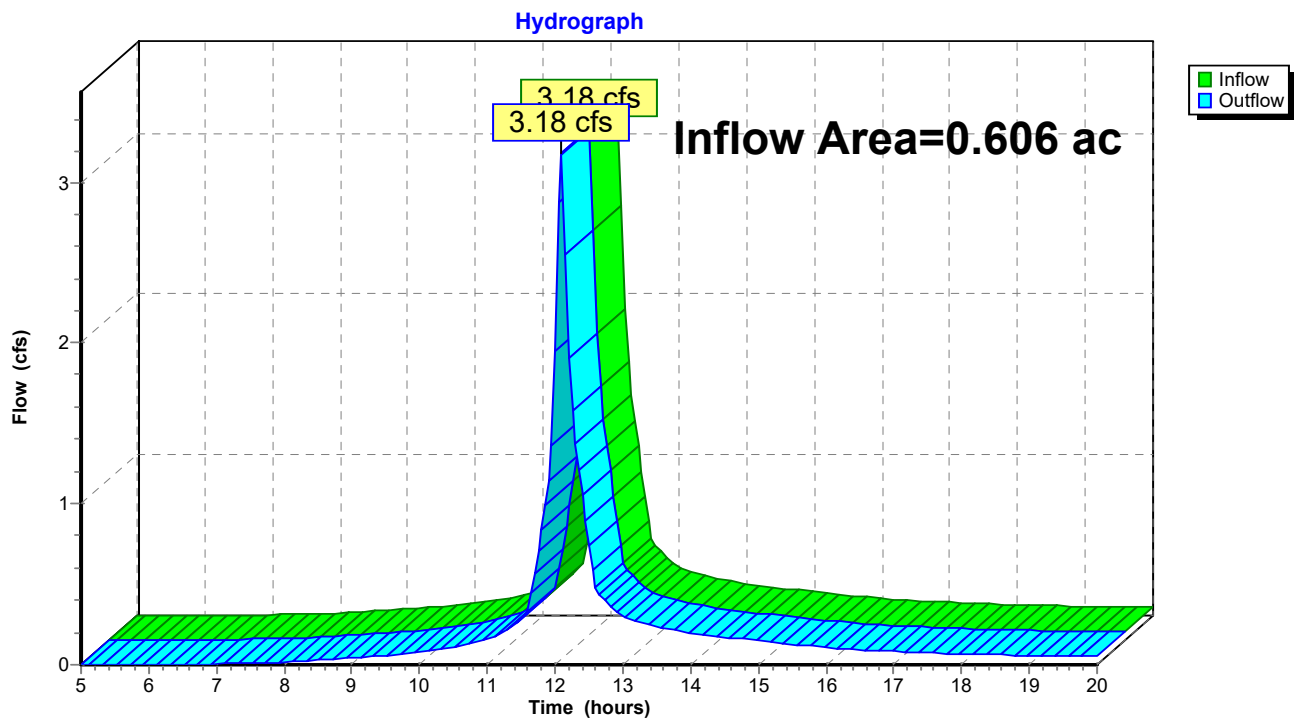
Hydrograph



**Summary for Reach 1R: POI # 1 - W Cole Rd**

Inflow Area = 0.606 ac, 43.51% Impervious, Inflow Depth > 4.32" for 50 yr event  
Inflow = 3.18 cfs @ 12.09 hrs, Volume= 0.218 af  
Outflow = 3.18 cfs @ 12.09 hrs, Volume= 0.218 af, Atten= 0%, Lag= 0.0 min

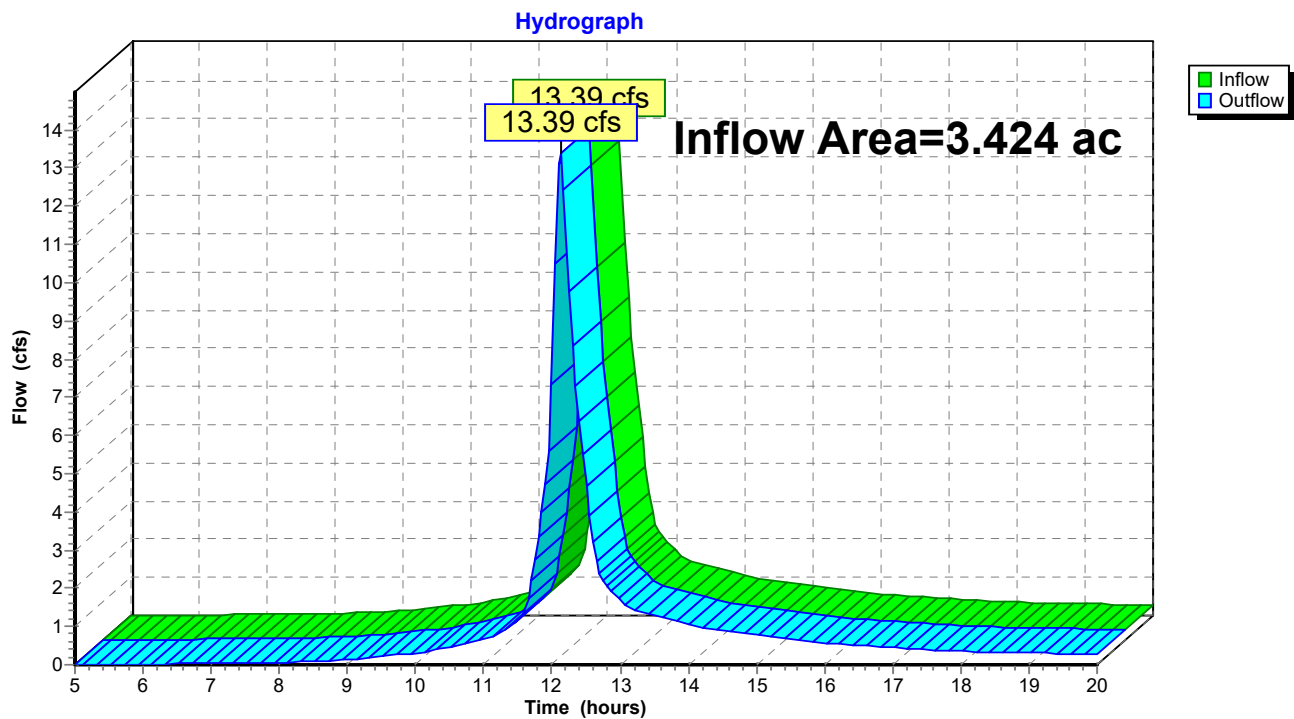
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

**Reach 1R: POI # 1 - W Cole Rd**

**Summary for Reach 2R: POI # 2 - Alfred Rd**

Inflow Area = 3.424 ac, 36.48% Impervious, Inflow Depth > 3.79" for 50 yr event  
Inflow = 13.39 cfs @ 12.13 hrs, Volume= 1.082 af  
Outflow = 13.39 cfs @ 12.13 hrs, Volume= 1.082 af, Atten= 0%, Lag= 0.0 min

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

**Reach 2R: POI # 2 - Alfred Rd**

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Type III 24-hr 50 yr Rainfall=7.14"

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### Summary for Reach 3R: POI # 3 - Railroad Tracks

Inflow Area = 0.970 ac, 16.61% Impervious, Inflow Depth > 4.76" for 50 yr event  
Inflow = 4.63 cfs @ 12.15 hrs, Volume= 0.385 af  
Outflow = 4.62 cfs @ 12.15 hrs, Volume= 0.385 af, Atten= 0%, Lag= 0.0 min

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

Max. Velocity= 1.63 fps, Min. Travel Time= 0.0 min

Avg. Velocity= 0.58 fps, Avg. Travel Time= 0.0 min

Peak Storage= 3 cf @ 12.15 hrs

Average Depth at Peak Storage= 0.96'

Bank-Full Depth= 1.50' Flow Area= 5.3 sf, Capacity= 10.72 cfs

2.00' x 1.50' deep channel, n= 0.410

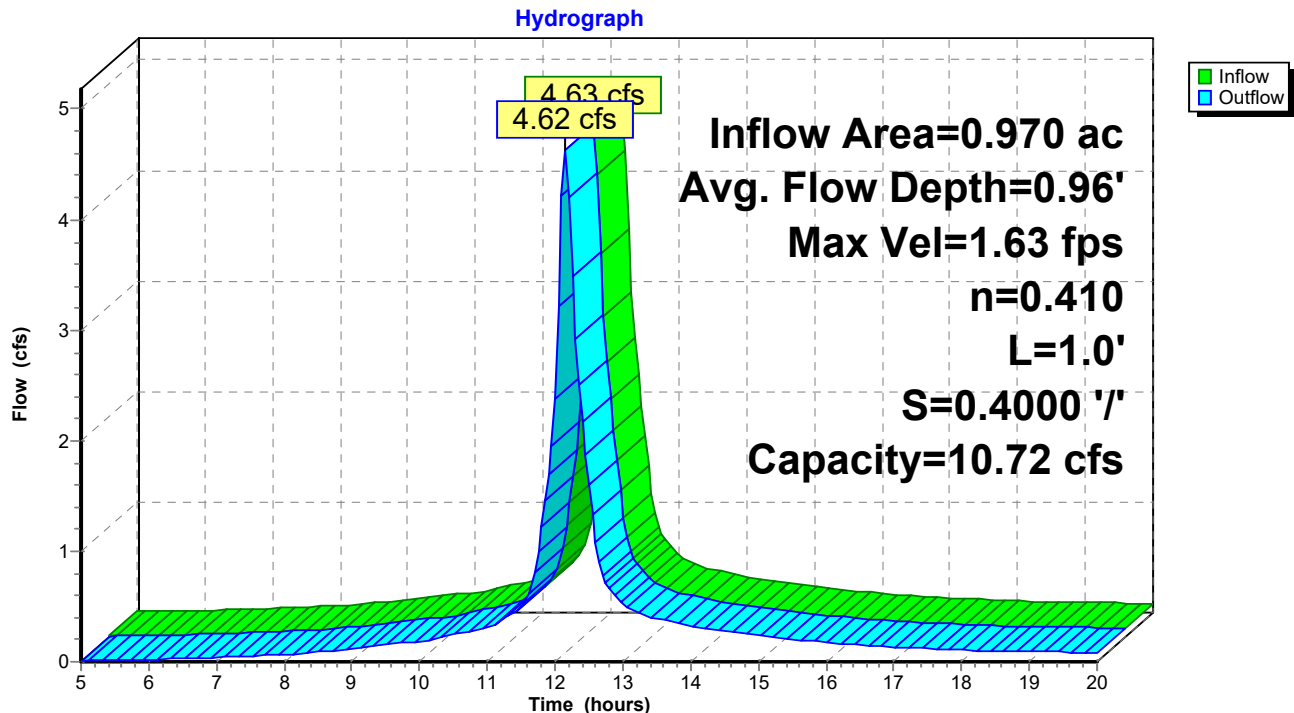
Side Slope Z-value= 1.0 '/' Top Width= 5.00'

Length= 1.0' Slope= 0.4000 '/'

Inlet Invert= 0.00', Outlet Invert= -0.40'



### Reach 3R: POI # 3 - Railroad Tracks

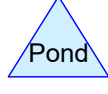
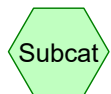
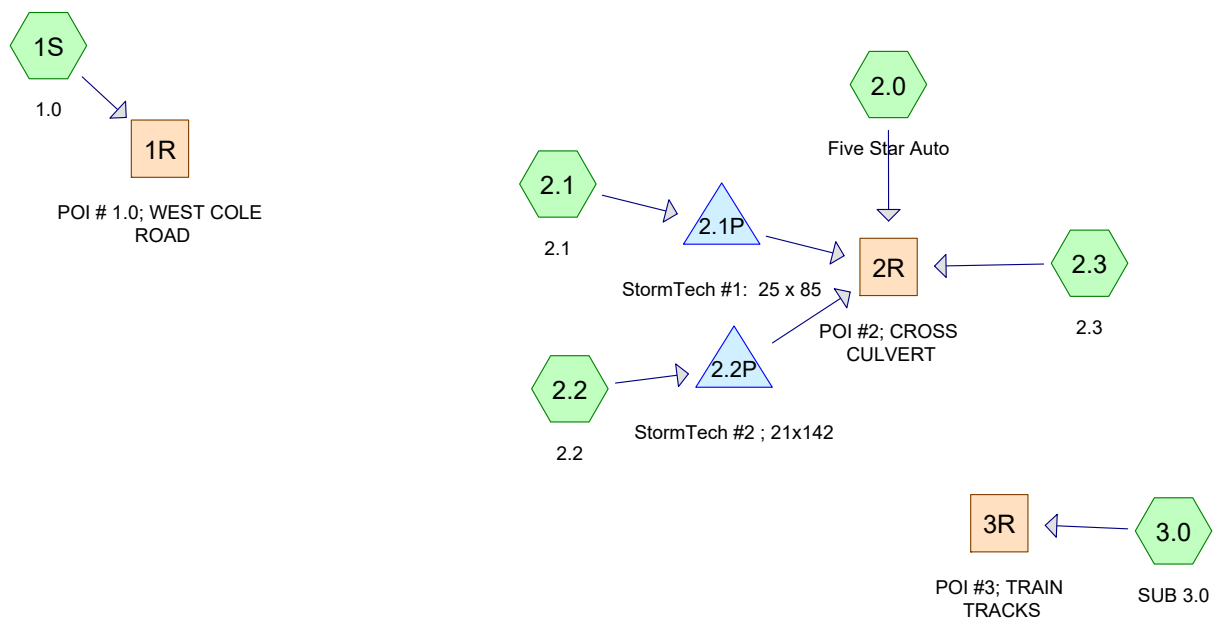




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# POST DEVELOPMENT HYDROCAD





**Routing Diagram for Post HC Biddeford 5.18**  
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## Post HC Biddeford 5.18

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### Area Listing (all nodes)

| Area<br>(acres) | CN        | Description<br>(subcatchment-numbers)         |
|-----------------|-----------|-----------------------------------------------|
| 0.291           | 49        | 50-75% Grass cover, Fair, HSG A (1S, 3.0)     |
| 0.269           | 84        | 50-75% Grass cover, Fair, HSG D (3.0)         |
| 0.070           | 89        | <50% Grass cover, Poor, HSG D (2.3)           |
| 0.387           | 39        | >75% Grass cover, Good, HSG A (2.0, 2.1, 2.3) |
| 0.742           | 80        | >75% Grass cover, Good, HSG D (2.3, 3.0)      |
| 0.097           | 96        | GRAVEL (3.0)                                  |
| 0.017           | 91        | Gravel roads, HSG D (2.0)                     |
| 0.161           | 98        | Paved parking, (3.0)                          |
| 1.200           | 98        | Paved parking, HSG A (2.1, 2.2)               |
| 0.196           | 98        | Pavement (2.3)                                |
| 0.957           | 98        | Pavement/Roof (1S, 2.0)                       |
| 0.004           | 43        | Woods/grass comb., Fair, HSG A (2.3, 3.0)     |
| 0.535           | 82        | Woods/grass comb., Fair, HSG D (2.3, 3.0)     |
| 0.064           | 80        | wood chip/ daycare play area (1S)             |
| <b>4.989</b>    | <b>85</b> | <b>TOTAL AREA</b>                             |

## Post HC Biddeford 5.18

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### Soil Listing (all nodes)

| Area<br>(acres) | Soil<br>Group | Subcatchment<br>Numbers     |
|-----------------|---------------|-----------------------------|
| 1.882           | HSG A         | 1S, 2.0, 2.1, 2.2, 2.3, 3.0 |
| 0.000           | HSG B         |                             |
| 0.000           | HSG C         |                             |
| 1.632           | HSG D         | 2.0, 2.3, 3.0               |
| 1.475           | Other         | 1S, 2.0, 2.3, 3.0           |
| <b>4.989</b>    |               | <b>TOTAL AREA</b>           |

## Post HC Biddeford 5.18

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### Ground Covers (all nodes)

| HSG-A<br>(acres) | HSG-B<br>(acres) | HSG-C<br>(acres) | HSG-D<br>(acres) | Other<br>(acres) | Total<br>(acres) | Ground<br>Cover              | Subcatchment<br>Numbers     |
|------------------|------------------|------------------|------------------|------------------|------------------|------------------------------|-----------------------------|
| 0.291            | 0.000            | 0.000            | 0.269            | 0.000            | 0.560            | 50-75% Grass cover, Fair     | 1S,<br>3.0                  |
| 0.000            | 0.000            | 0.000            | 0.070            | 0.000            | 0.070            | <50% Grass cover, Poor       | 2.3                         |
| 0.387            | 0.000            | 0.000            | 0.742            | 0.000            | 1.129            | >75% Grass cover, Good       | 2.0,<br>2.1,<br>2.3,<br>3.0 |
| 0.000            | 0.000            | 0.000            | 0.000            | 0.097            | 0.097            | GRAVEL                       | 3.0                         |
| 0.000            | 0.000            | 0.000            | 0.017            | 0.000            | 0.017            | Gravel roads                 | 2.0                         |
| 1.200            | 0.000            | 0.000            | 0.000            | 0.000            | 1.200            | Paved parking                | 2.1,<br>2.2                 |
| 0.000            | 0.000            | 0.000            | 0.000            | 0.161            | 0.161            | Paved parking,               | 3.0                         |
| 0.000            | 0.000            | 0.000            | 0.000            | 0.196            | 0.196            | Pavement                     | 2.3                         |
| 0.000            | 0.000            | 0.000            | 0.000            | 0.957            | 0.957            | Pavement/Roof                | 1S,<br>2.0                  |
| 0.004            | 0.000            | 0.000            | 0.535            | 0.000            | 0.538            | Woods/grass comb., Fair      | 2.3,<br>3.0                 |
| 0.000            | 0.000            | 0.000            | 0.000            | 0.064            | 0.064            | wood chip/ daycare play area | 1S                          |
| <b>1.882</b>     | <b>0.000</b>     | <b>0.000</b>     | <b>1.632</b>     | <b>1.475</b>     | <b>4.989</b>     | <b>TOTAL AREA</b>            |                             |

**Post HC Biddeford 5.18**

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**Pipe Listing (all nodes)**

| Line# | Node<br>Number | In-Invert<br>(feet) | Out-Invert<br>(feet) | Length<br>(feet) | Slope<br>(ft/ft) | n     | Diam/Width<br>(inches) | Height<br>(inches) | Inside-Fill<br>(inches) |
|-------|----------------|---------------------|----------------------|------------------|------------------|-------|------------------------|--------------------|-------------------------|
| 1     | 2.1P           | 116.40              | 116.35               | 30.0             | 0.0017           | 0.012 | 18.0                   | 0.0                | 0.0                     |
| 2     | 2.1P           | 120.77              | 120.25               | 5.0              | 0.1040           | 0.012 | 6.0                    | 0.0                | 0.0                     |
| 3     | 2.1P           | 116.55              | 116.45               | 90.0             | 0.0011           | 0.012 | 1.3                    | 0.0                | 0.0                     |
| 4     | 2.2P           | 116.10              | 116.00               | 30.0             | 0.0033           | 0.012 | 18.0                   | 0.0                | 0.0                     |
| 5     | 2.2P           | 120.75              | 120.31               | 5.0              | 0.0880           | 0.012 | 8.0                    | 0.0                | 0.0                     |
| 6     | 2.2P           | 116.40              | 116.35               | 90.0             | 0.0006           | 0.012 | 1.5                    | 0.0                | 0.0                     |

**Post HC Biddeford 5.18**

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*Type III 24-hr 2-yr Rainfall=3.24"*

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

|                                            |                                                                                                                          |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: 1.0</b>                 | Runoff Area=28,782 sf 50.98% Impervious Runoff Depth=1.24"<br>Tc=6.0 min CN=77 Runoff=0.92 cfs 0.068 af                  |
| <b>Subcatchment2.0: Five Star Auto</b>     | Runoff Area=34,806 sf 77.58% Impervious Runoff Depth=1.87"<br>Tc=6.0 min CN=86 Runoff=1.72 cfs 0.125 af                  |
| <b>Subcatchment2.1: 2.1</b>                | Runoff Area=20,967 sf 99.42% Impervious Runoff Depth>2.95"<br>Tc=6.0 min CN=98 Runoff=1.48 cfs 0.118 af                  |
| <b>Subcatchment2.2: 2.2</b>                | Runoff Area=31,442 sf 100.00% Impervious Runoff Depth>2.95"<br>Tc=6.0 min CN=98 Runoff=2.22 cfs 0.178 af                 |
| <b>Subcatchment2.3: 2.3</b>                | Runoff Area=60,379 sf 14.11% Impervious Runoff Depth=1.24"<br>Tc=10.9 min CN=77 Runoff=1.65 cfs 0.143 af                 |
| <b>Subcatchment3.0: SUB 3.0</b>            | Runoff Area=40,947 sf 17.14% Impervious Runoff Depth=1.79"<br>Flow Length=72' Tc=10.8 min CN=85 Runoff=1.67 cfs 0.140 af |
| <b>Reach 1R: POI # 1.0; WEST COLE ROAD</b> | Inflow=0.92 cfs 0.068 af<br>Outflow=0.92 cfs 0.068 af                                                                    |
| <b>Reach 2R: POI #2; CROSS CULVERT</b>     | Inflow=3.21 cfs 0.423 af<br>Outflow=3.21 cfs 0.423 af                                                                    |
| <b>Reach 3R: POI #3; TRAIN TRACKS</b>      | Inflow=1.67 cfs 0.140 af<br>Outflow=1.67 cfs 0.140 af                                                                    |
| <b>Pond 2.1P: StormTech #1: 25 x 85</b>    | Peak Elev=120.39' Storage=4,231 cf Inflow=1.48 cfs 0.118 af<br>Outflow=0.02 cfs 0.061 af                                 |
| <b>Pond 2.2P: StormTech #2 ; 21x142</b>    | Peak Elev=120.71' Storage=6,247 cf Inflow=2.22 cfs 0.178 af<br>Outflow=0.03 cfs 0.095 af                                 |

**Total Runoff Area = 4.989 ac Runoff Volume = 0.772 af Average Runoff Depth = 1.86"**  
**49.61% Pervious = 2.475 ac 50.39% Impervious = 2.514 ac**

**Post HC Biddeford 5.18**

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Type III 24-hr 2- yr Rainfall=3.24"

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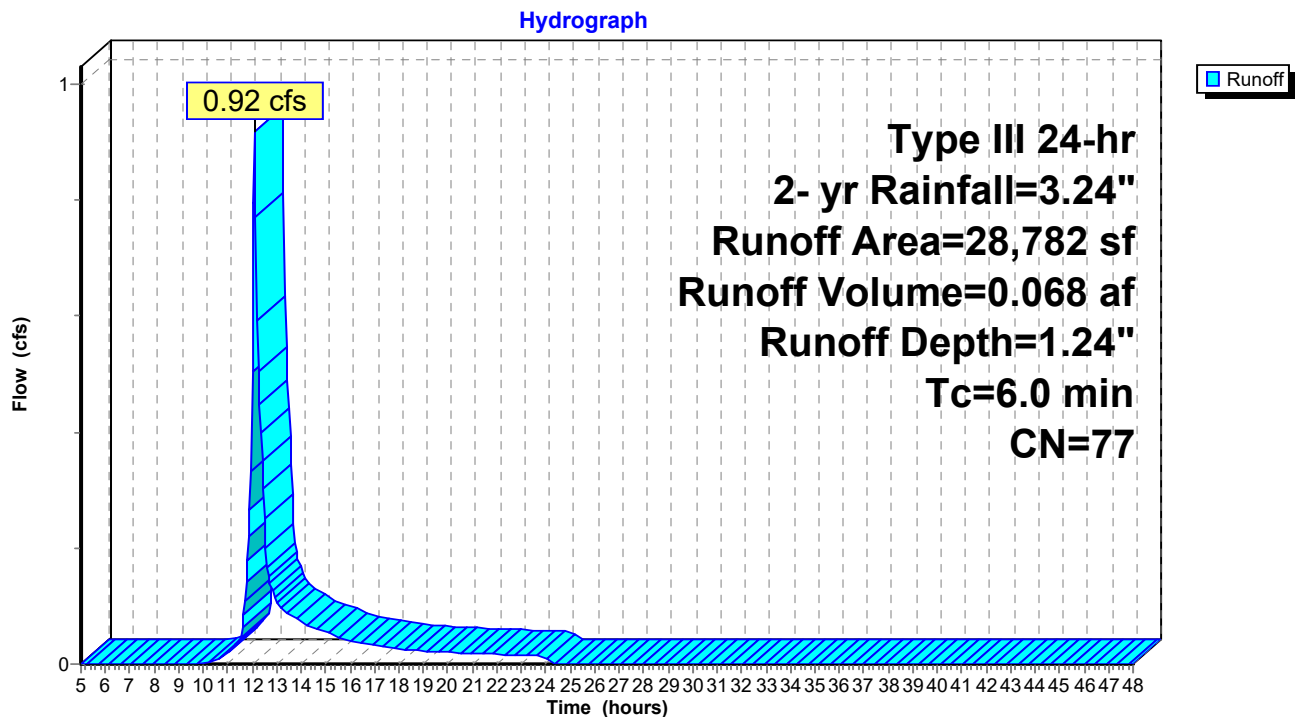
**Summary for Subcatchment 1S: 1.0**

Runoff = 0.92 cfs @ 12.10 hrs, Volume= 0.068 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2- yr Rainfall=3.24"

|   | Area (sf) | CN | Description                     |
|---|-----------|----|---------------------------------|
| * | 14,673    | 98 | Pavement/Roof                   |
|   | 11,306    | 49 | 50-75% Grass cover, Fair, HSG A |
| * | 2,803     | 80 | wood chip/ daycare play area    |
|   | 28,782    | 77 | Weighted Average                |
|   | 14,109    |    | 49.02% Pervious Area            |
|   | 14,673    |    | 50.98% Impervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description            |
|----------|---------------|---------------|-------------------|----------------|------------------------|
| 6.0      |               |               |                   |                | Direct Entry, 0.1 hour |

**Subcatchment 1S: 1.0**



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Type III 24-hr 2- yr Rainfall=3.24"

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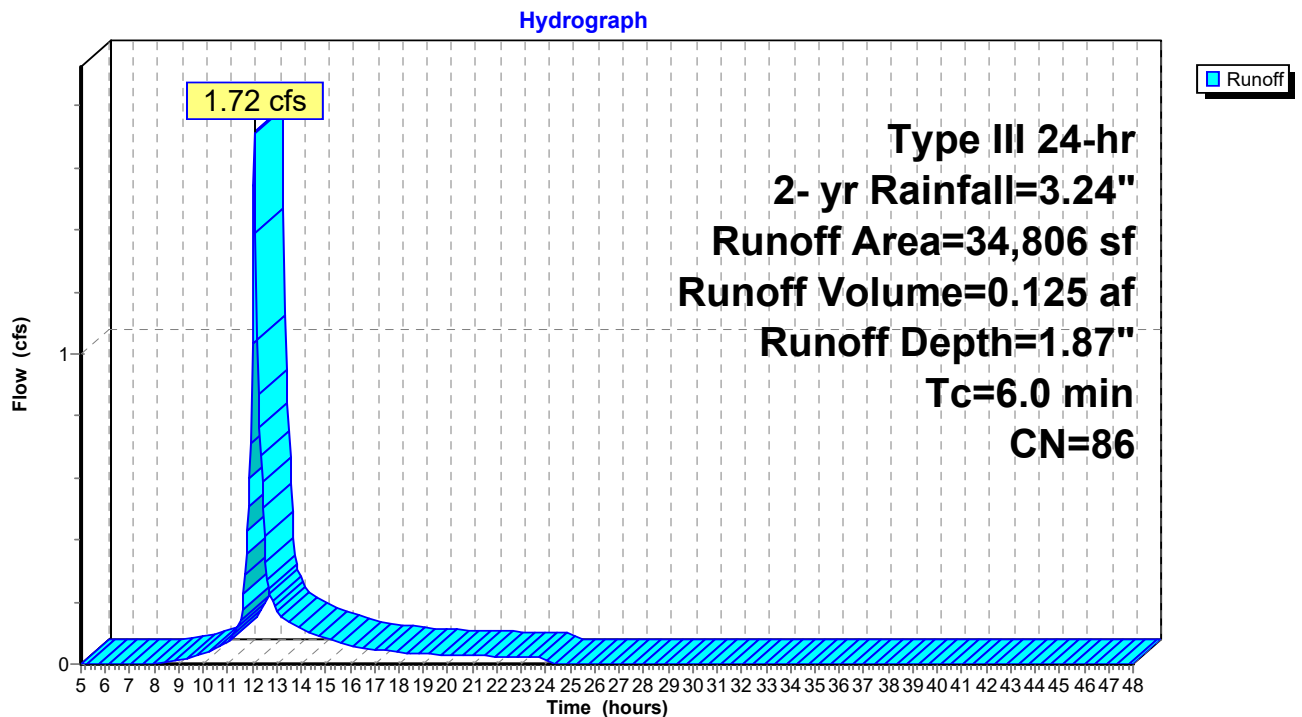
**Summary for Subcatchment 2.0: Five Star Auto**

Runoff = 1.72 cfs @ 12.09 hrs, Volume= 0.125 af, Depth= 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2- yr Rainfall=3.24"

|   | Area (sf) | CN | Description                   |
|---|-----------|----|-------------------------------|
| * | 27,003    | 98 | Pavement/Roof                 |
|   | 7,060     | 39 | >75% Grass cover, Good, HSG A |
|   | 743       | 91 | Gravel roads, HSG D           |
|   | 34,806    | 86 | Weighted Average              |
|   | 7,803     |    | 22.42% Pervious Area          |
|   | 27,003    |    | 77.58% Impervious Area        |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description          |
|-------------|------------------|------------------|----------------------|-------------------|----------------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, direct |

**Subcatchment 2.0: Five Star Auto**

**Post HC Biddeford 5.18**

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Type III 24-hr 2- yr Rainfall=3.24"

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**Summary for Subcatchment 2.1: 2.1**

Runoff = 1.48 cfs @ 12.09 hrs, Volume= 0.118 af, Depth&gt; 2.95"

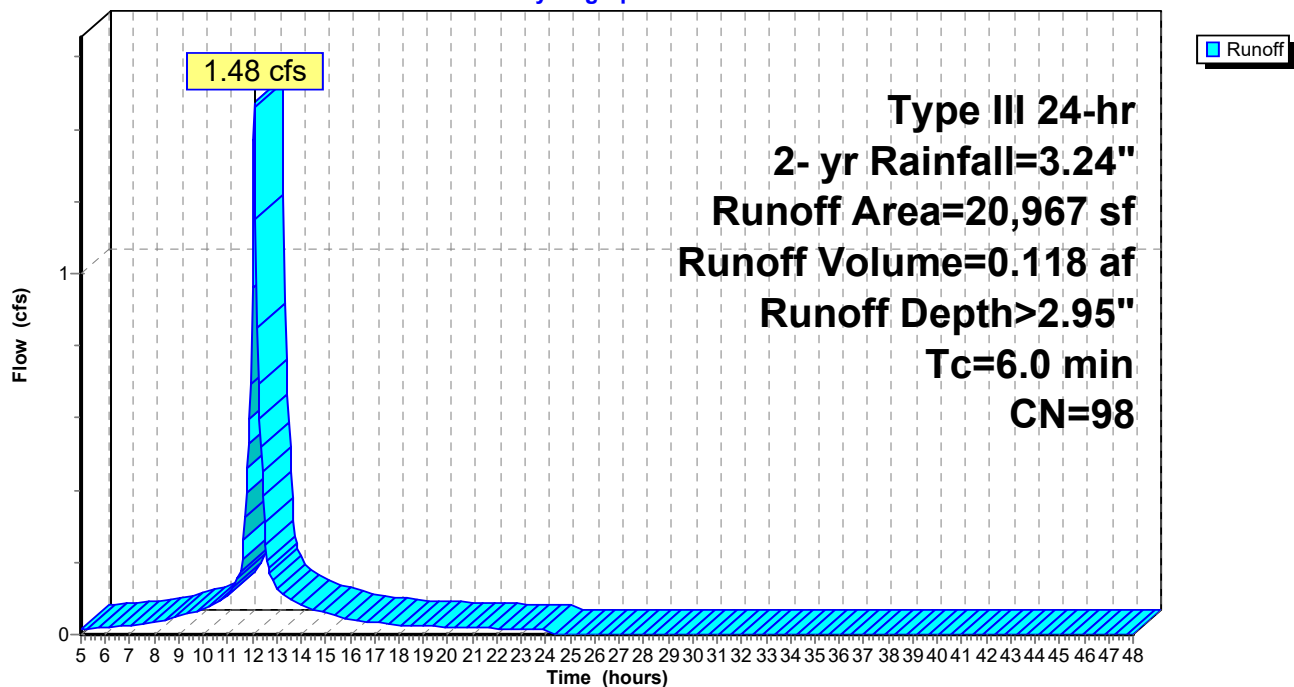
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2- yr Rainfall=3.24"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 20,846    | 98 | Paved parking, HSG A          |
| 121       | 39 | >75% Grass cover, Good, HSG A |
| 20,967    | 98 | Weighted Average              |
| 121       |    | 0.58% Pervious Area           |
| 20,846    |    | 99.42% Impervious Area        |

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

**Subcatchment 2.1: 2.1**

Hydrograph



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Type III 24-hr 2- yr Rainfall=3.24"

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**Summary for Subcatchment 2.2: 2.2**

Runoff = 2.22 cfs @ 12.09 hrs, Volume= 0.178 af, Depth&gt; 2.95"

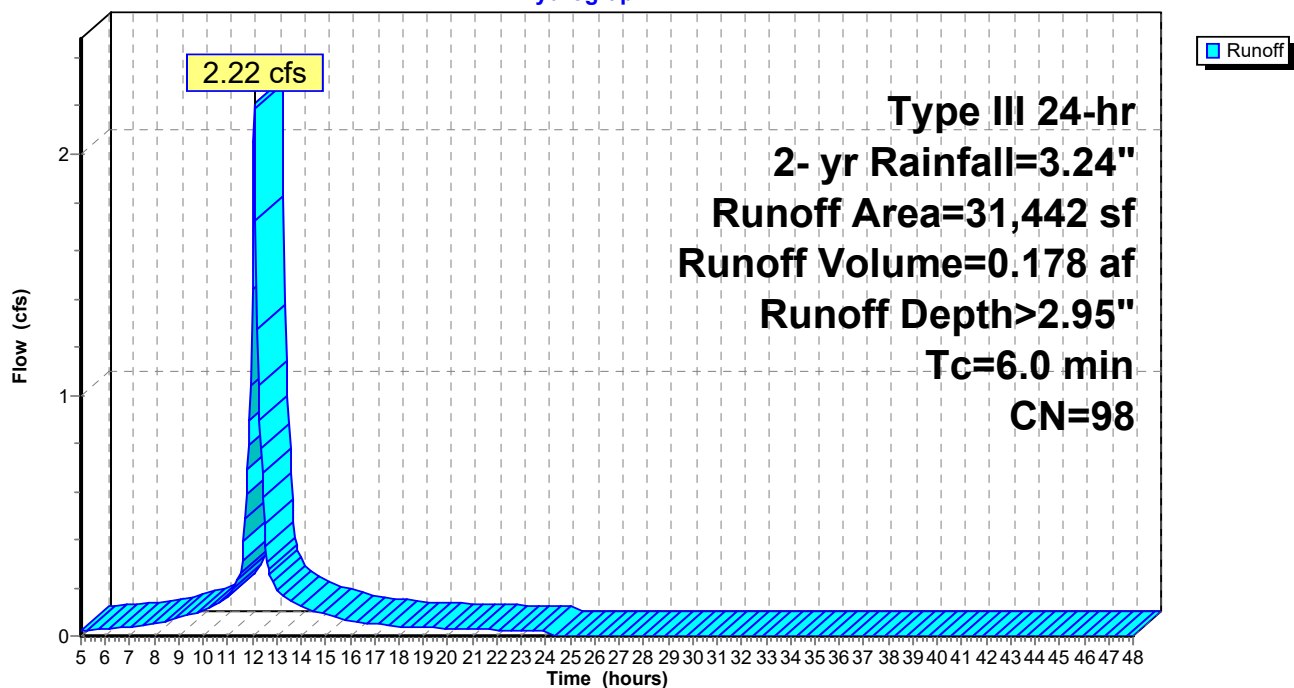
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2- yr Rainfall=3.24"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 31,442    | 98 | Paved parking, HSG A    |
| 31,442    |    | 100.00% Impervious Area |

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

**Subcatchment 2.2: 2.2**

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.24"

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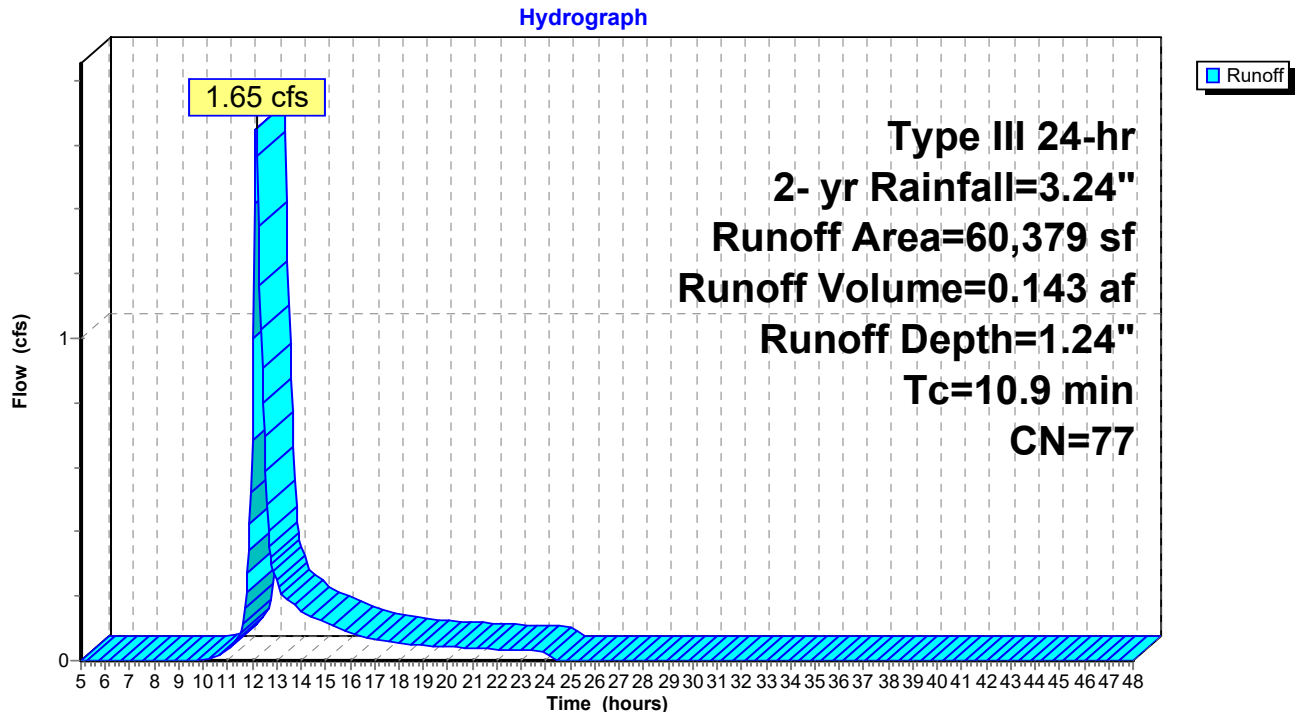
**Summary for Subcatchment 2.3: 2.3**

Runoff = 1.65 cfs @ 12.16 hrs, Volume= 0.143 af, Depth= 1.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-yr Rainfall=3.24"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 7,899     | 82 | Woods/grass comb., Fair, HSG D |
| 31,212    | 80 | >75% Grass cover, Good, HSG D  |
| 9,678     | 39 | >75% Grass cover, Good, HSG A  |
| * 8,521   | 98 | Pavement                       |
| 25        | 43 | Woods/grass comb., Fair, HSG A |
| 3,044     | 89 | <50% Grass cover, Poor, HSG D  |
| 60,379    | 77 | Weighted Average               |
| 51,858    |    | 85.89% Pervious Area           |
| 8,521     |    | 14.11% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description               |
|----------|---------------|---------------|-------------------|----------------|---------------------------|
| 10.9     |               |               |                   |                | Direct Entry, Pre Tc Copy |

**Subcatchment 2.3: 2.3**

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Type III 24-hr 2- yr Rainfall=3.24"

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**Summary for Subcatchment 3.0: SUB 3.0**

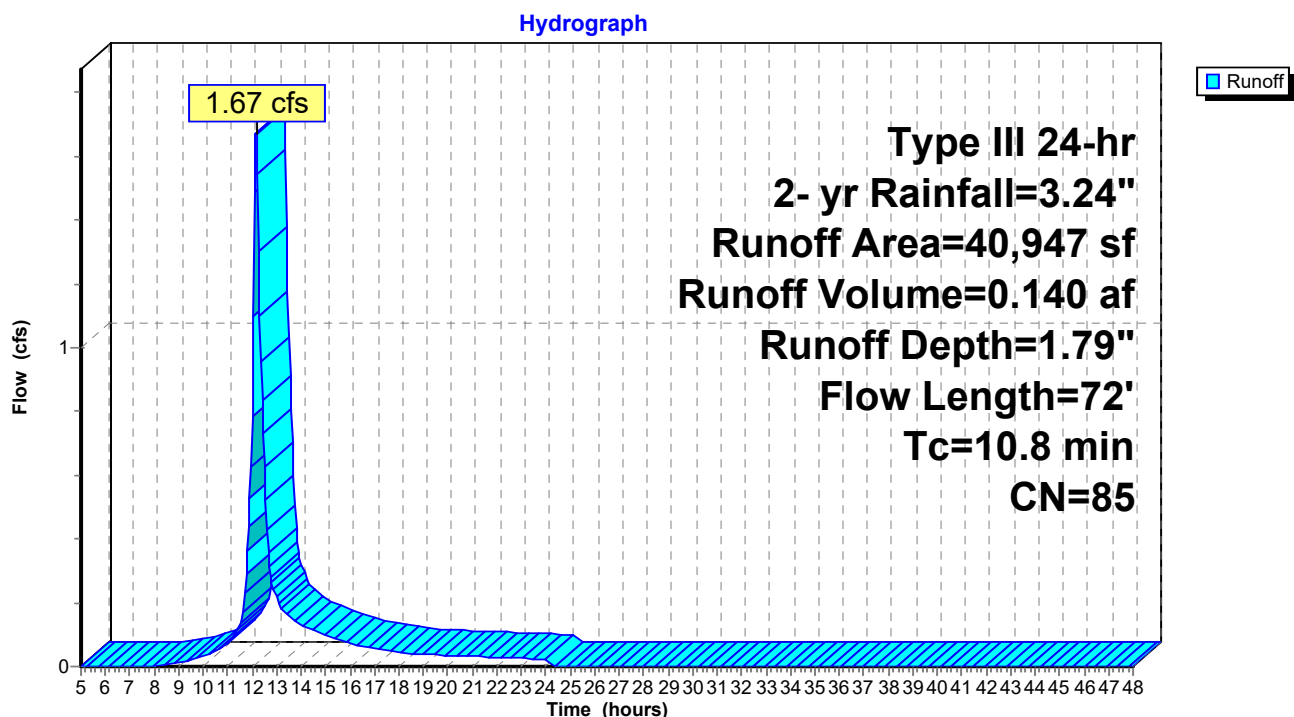
Runoff = 1.67 cfs @ 12.15 hrs, Volume= 0.140 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2- yr Rainfall=3.24"

| Area (sf) | CN | Description                     |
|-----------|----|---------------------------------|
| 15,384    | 82 | Woods/grass comb., Fair, HSG D  |
| 11,736    | 84 | 50-75% Grass cover, Fair, HSG D |
| * 7,018   | 98 | Paved parking,                  |
| * 4,219   | 96 | GRAVEL                          |
| 1,365     | 49 | 50-75% Grass cover, Fair, HSG A |
| 134       | 43 | Woods/grass comb., Fair, HSG A  |
| 1,091     | 80 | >75% Grass cover, Good, HSG D   |
| 40,947    | 85 | Weighted Average                |
| 33,929    |    | 82.86% Pervious Area            |
| 7,018     |    | 17.14% Impervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------|
| 5.6      | 40            | 0.0320        | 0.12              |                | <b>Sheet Flow, A to B</b>                  |
|          |               |               |                   |                | Grass: Dense n= 0.240 P2= 3.24"            |
| 5.2      | 32            | 0.0690        | 0.10              |                | <b>Sheet Flow, B to C</b>                  |
|          |               |               |                   |                | Woods: Light underbrush n= 0.400 P2= 3.24" |
| 10.8     | 72            | Total         |                   |                |                                            |

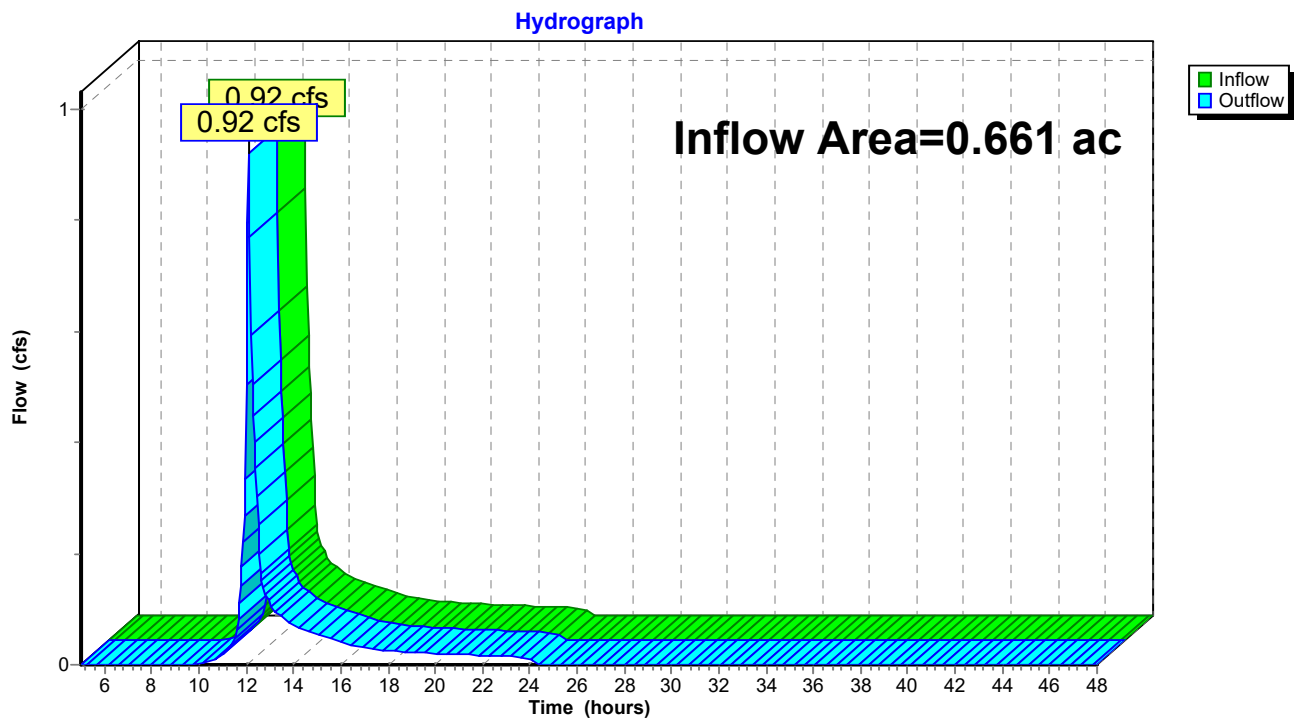
**Subcatchment 3.0: SUB 3.0**

### Summary for Reach 1R: POI # 1.0; WEST COLE ROAD

Inflow Area = 0.661 ac, 50.98% Impervious, Inflow Depth = 1.24" for 2- yr event  
 Inflow = 0.92 cfs @ 12.10 hrs, Volume= 0.068 af  
 Outflow = 0.92 cfs @ 12.10 hrs, Volume= 0.068 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

### Reach 1R: POI # 1.0; WEST COLE ROAD

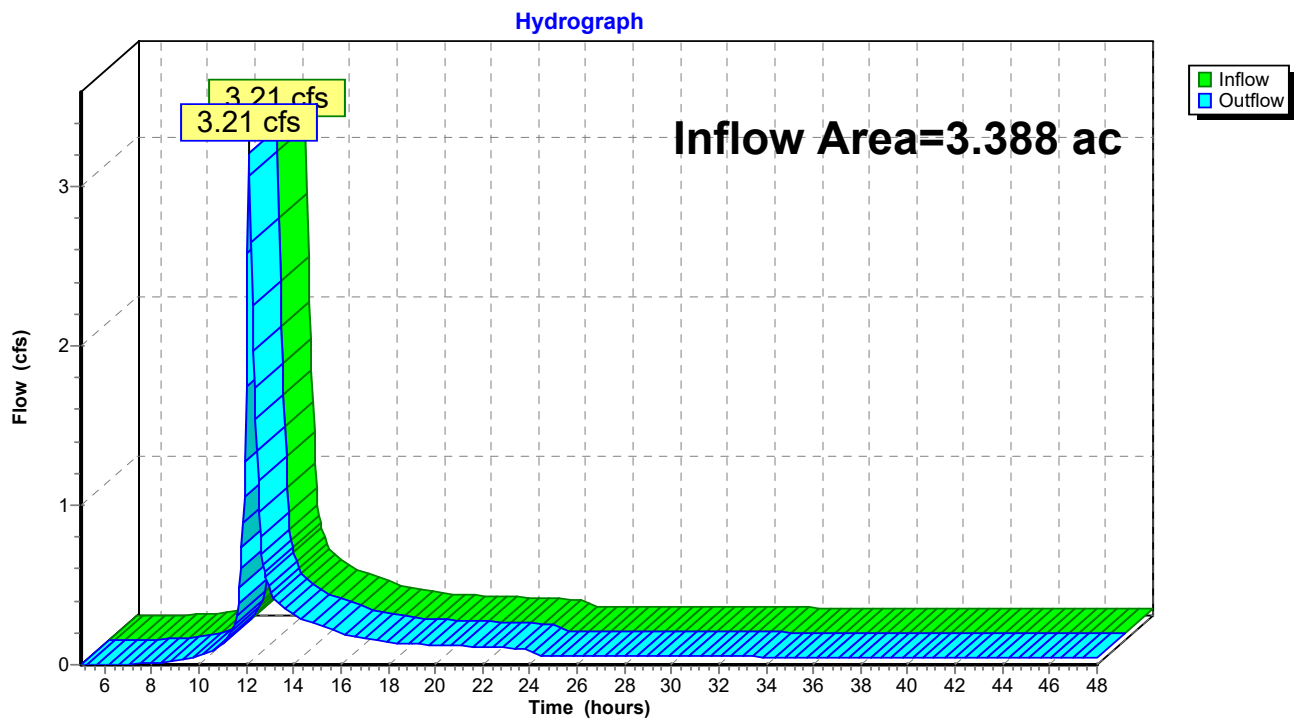


### Summary for Reach 2R: POI #2; CROSS CULVERT

Inflow Area = 3.388 ac, 59.50% Impervious, Inflow Depth > 1.50" for 2-yr event  
 Inflow = 3.21 cfs @ 12.12 hrs, Volume= 0.423 af  
 Outflow = 3.21 cfs @ 12.12 hrs, Volume= 0.423 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

### Reach 2R: POI #2; CROSS CULVERT

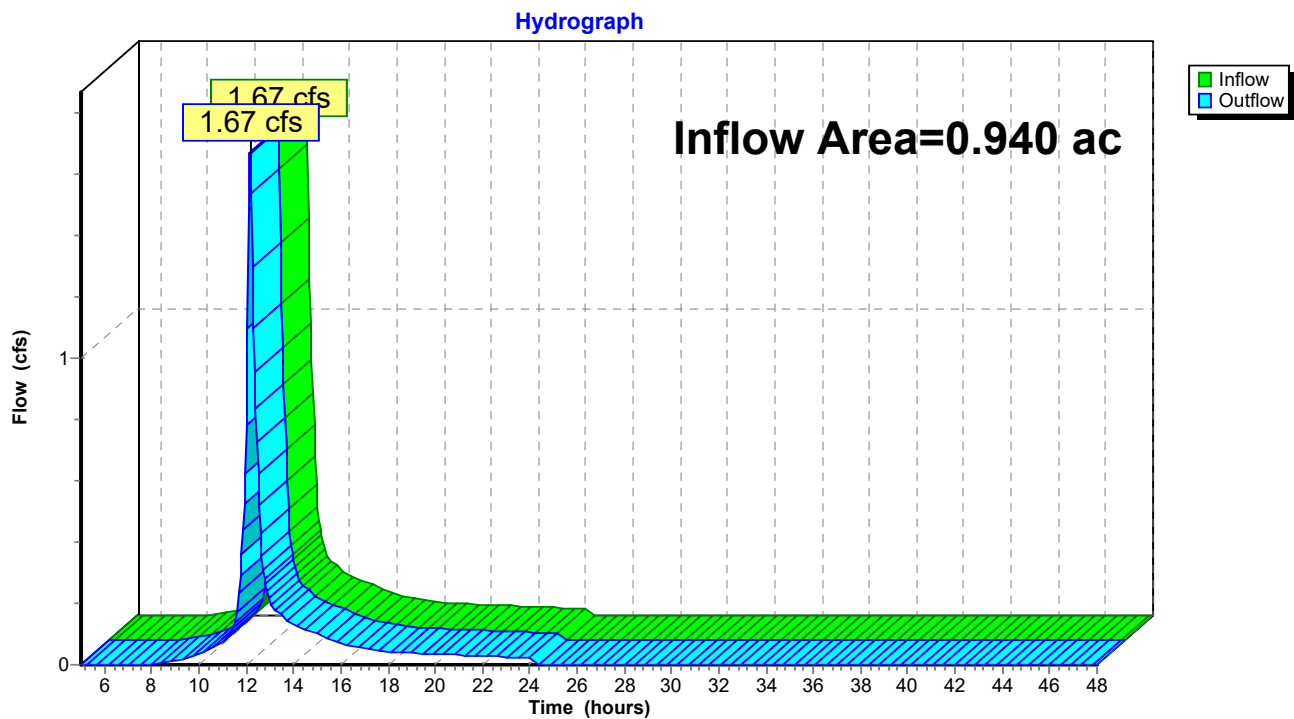


### Summary for Reach 3R: POI #3; TRAIN TRACKS

Inflow Area = 0.940 ac, 17.14% Impervious, Inflow Depth = 1.79" for 2- yr event  
 Inflow = 1.67 cfs @ 12.15 hrs, Volume= 0.140 af  
 Outflow = 1.67 cfs @ 12.15 hrs, Volume= 0.140 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

### Reach 3R: POI #3; TRAIN TRACKS





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**Summary for Pond 2.1P: StormTech #1: 25 x 85**

Inflow Area = 0.481 ac, 99.42% Impervious, Inflow Depth > 2.95" for 2- yr event  
 Inflow = 1.48 cfs @ 12.09 hrs, Volume= 0.118 af  
 Outflow = 0.02 cfs @ 19.91 hrs, Volume= 0.061 af, Atten= 99%, Lag= 469.2 min  
 Primary = 0.02 cfs @ 19.91 hrs, Volume= 0.061 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
 Peak Elev= 120.39' @ 19.91 hrs Surf.Area= 6,823 sf Storage= 4,231 cf  
 Flood Elev= 123.00' Surf.Area= 6,823 sf Storage= 6,367 cf

Plug-Flow detention time= 1,088.1 min calculated for 0.061 af (51% of inflow)  
 Center-of-Mass det. time= 971.6 min ( 1,737.7 - 766.1 )

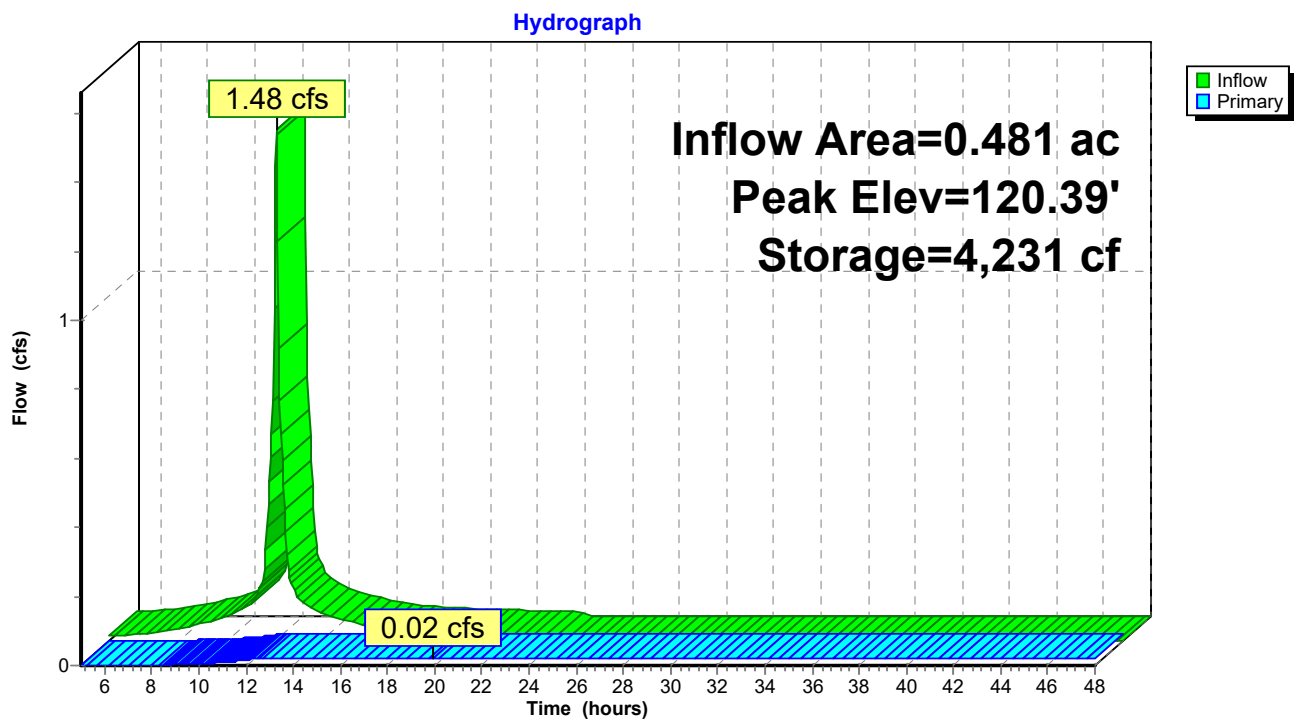
| Volume | Invert  | Avail.Storage | Storage Description                                                                                                                                                                                    |
|--------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | 118.60' | 2,186 cf      | <b>27.00'W x 87.00'L x 3.50'H Stone</b><br>8,222 cf Overall - 2,756 cf Embedded = 5,465 cf x 40.0% Voids                                                                                               |
| #2     | 119.10' | 2,756 cf      | <b>ADS_StormTech SC-740 +Cap x 60 Inside #1</b><br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>60 Chambers in 4 Rows |
| #3     | 117.10' | 638 cf        | <b>25.00'W x 85.00'L x 1.50'H Sand</b><br>3,188 cf Overall x 20.0% Voids                                                                                                                               |
| #4     | 116.25' | 773 cf        | <b>27.00'W x 87.00'L x 0.83'H Crushed Stone</b><br>1,950 cf Overall - 17 cf Embedded = 1,933 cf x 40.0% Voids                                                                                          |
| #5     | 116.50' | 14 cf         | <b>4.0" Round Underdrain Storage x 2 Inside #4</b><br>L= 80.0' S= 0.0010 '/<br>17 cf Overall - 0.2" Wall Thickness = 14 cf                                                                             |
|        |         |               | 6,367 cf Total Available Storage                                                                                                                                                                       |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                                                                       |
|--------|----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 116.40' | <b>18.0" Round 18" SD to DMH-2</b> L= 30.0' Ke= 0.600<br>Inlet / Outlet Invert= 116.40' / 116.35' S= 0.0017 '/ Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf                                                                             |
| #2     | Device 1 | 120.77' | <b>6.0" Round 6" overflows to header X 3.00</b><br>L= 5.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 120.77' / 120.25' S= 0.1040 '/ Cc= 0.600<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf |
| #3     | Device 1 | 116.55' | <b>1.3" Round Underdrains w orifice</b><br>L= 90.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 116.55' / 116.45' S= 0.0011 '/ Cc= 0.600<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.01 sf        |

**Primary OutFlow** Max=0.02 cfs @ 19.91 hrs HW=120.39' (Free Discharge)

- 1=18" SD to DMH-2 (Passes 0.02 cfs of 14.36 cfs potential flow)
- 2=6" overflows to header ( Controls 0.00 cfs)
- 3=Underdrains w orifice (Barrel Controls 0.02 cfs @ 2.26 fps)

**Pond 2.1P: StormTech #1: 25 x 85**



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Type III 24-hr 2- yr Rainfall=3.24"

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**Summary for Pond 2.2P: StormTech #2 ; 21x142**

Inflow Area = 0.722 ac, 100.00% Impervious, Inflow Depth > 2.95" for 2- yr event  
 Inflow = 2.22 cfs @ 12.09 hrs, Volume= 0.178 af  
 Outflow = 0.03 cfs @ 19.70 hrs, Volume= 0.095 af, Atten= 99%, Lag= 457.1 min  
 Primary = 0.03 cfs @ 19.70 hrs, Volume= 0.095 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
 Peak Elev= 120.71' @ 19.70 hrs Surf.Area= 9,606 sf Storage= 6,247 cf  
 Flood Elev= 123.00' Surf.Area= 9,606 sf Storage= 8,821 cf

Plug-Flow detention time= 1,061.8 min calculated for 0.095 af (53% of inflow)  
 Center-of-Mass det. time= 948.3 min ( 1,714.4 - 766.1 )

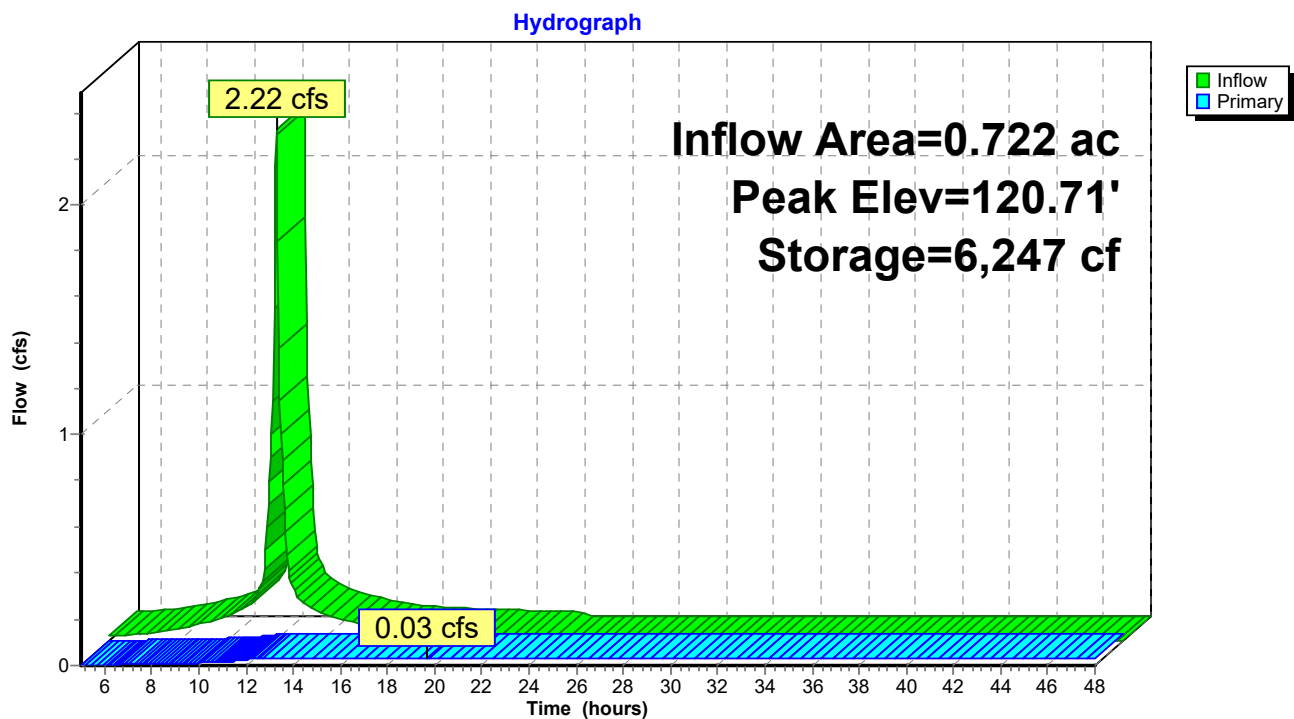
| Volume | Invert  | Avail.Storage | Storage Description                                                                                                                                                                                    |
|--------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | 118.75' | 3,185 cf      | <b>23.00'W x 144.00'L x 3.50'H Stone</b><br>11,592 cf Overall - 3,629 cf Embedded = 7,963 cf x 40.0% Voids                                                                                             |
| #2     | 119.25' | 3,629 cf      | <b>ADS_StormTech SC-740 +Cap x 79 Inside #1</b><br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>79 Chambers in 4 Rows |
| #3     | 117.25' | 895 cf        | <b>21.00'W x 142.00'L x 1.50'H Sand</b><br>4,473 cf Overall x 20.0% Voids                                                                                                                              |
| #4     | 116.40' | 1,088 cf      | <b>23.00'W x 144.00'L x 0.83'H Crushed Stone</b><br>2,749 cf Overall - 30 cf Embedded = 2,719 cf x 40.0% Voids                                                                                         |
| #5     | 116.60' | 24 cf         | <b>4.0" Round Underdrain Storage x 2 Inside #4</b><br>L= 140.0' S= 0.0010 '/'<br>30 cf Overall - 0.2" Wall Thickness = 24 cf                                                                           |
|        |         | 8,821 cf      | Total Available Storage                                                                                                                                                                                |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                                                                          |
|--------|----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 116.10' | <b>18.0" Round 18" SD to DMH-2</b> L= 30.0' Ke= 0.600<br>Inlet / Outlet Invert= 116.10' / 116.00' S= 0.0033 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf                                                                               |
| #2     | Device 1 | 120.75' | <b>8.0" Round 8" overflows into header X 3.00</b><br>L= 5.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 120.75' / 120.31' S= 0.0880 '/' Cc= 0.600<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf |
| #3     | Device 1 | 116.40' | <b>1.5" Round Underdrains w orifice</b><br>L= 90.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 116.40' / 116.35' S= 0.0006 '/' Cc= 0.600<br>n= 0.012, Flow Area= 0.01 sf                                         |

**Primary OutFlow** Max=0.03 cfs @ 19.70 hrs HW=120.71' (Free Discharge)

- 1=18" SD to DMH-2 (Passes 0.03 cfs of 15.68 cfs potential flow)
- 2=8" overflows into header ( Controls 0.00 cfs)
- 3=Underdrains w orifice (Barrel Controls 0.03 cfs @ 2.60 fps)

**Pond 2.2P: StormTech #2 ; 21x142**



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*Type III 24-hr 10-yr Rainfall=5.11"*

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

|                                            |                                                                                                                          |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: 1.0</b>                 | Runoff Area=28,782 sf 50.98% Impervious Runoff Depth=2.72"<br>Tc=6.0 min CN=77 Runoff=2.06 cfs 0.150 af                  |
| <b>Subcatchment2.0: Five Star Auto</b>     | Runoff Area=34,806 sf 77.58% Impervious Runoff Depth=3.57"<br>Tc=6.0 min CN=86 Runoff=3.22 cfs 0.238 af                  |
| <b>Subcatchment2.1: 2.1</b>                | Runoff Area=20,967 sf 99.42% Impervious Runoff Depth>4.74"<br>Tc=6.0 min CN=98 Runoff=2.35 cfs 0.190 af                  |
| <b>Subcatchment2.2: 2.2</b>                | Runoff Area=31,442 sf 100.00% Impervious Runoff Depth>4.74"<br>Tc=6.0 min CN=98 Runoff=3.52 cfs 0.285 af                 |
| <b>Subcatchment2.3: 2.3</b>                | Runoff Area=60,379 sf 14.11% Impervious Runoff Depth=2.72"<br>Tc=10.9 min CN=77 Runoff=3.72 cfs 0.314 af                 |
| <b>Subcatchment3.0: SUB 3.0</b>            | Runoff Area=40,947 sf 17.14% Impervious Runoff Depth=3.47"<br>Flow Length=72' Tc=10.8 min CN=85 Runoff=3.20 cfs 0.272 af |
| <b>Reach 1R: POI # 1.0; WEST COLE ROAD</b> | Inflow=2.06 cfs 0.150 af<br>Outflow=2.06 cfs 0.150 af                                                                    |
| <b>Reach 2R: POI #2; CROSS CULVERT</b>     | Inflow=6.62 cfs 0.869 af<br>Outflow=6.62 cfs 0.869 af                                                                    |
| <b>Reach 3R: POI #3; TRAIN TRACKS</b>      | Inflow=3.20 cfs 0.272 af<br>Outflow=3.20 cfs 0.272 af                                                                    |
| <b>Pond 2.1P: StormTech #1: 25 x 85</b>    | Peak Elev=121.04' Storage=5,240 cf Inflow=2.35 cfs 0.190 af<br>Outflow=0.33 cfs 0.119 af                                 |
| <b>Pond 2.2P: StormTech #2 ; 21x142</b>    | Peak Elev=121.18' Storage=7,227 cf Inflow=3.52 cfs 0.285 af<br>Outflow=0.88 cfs 0.198 af                                 |

**Total Runoff Area = 4.989 ac Runoff Volume = 1.448 af Average Runoff Depth = 3.48"**  
**49.61% Pervious = 2.475 ac 50.39% Impervious = 2.514 ac**

**Post HC Biddeford 5.18**

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Type III 24-hr 10-yr Rainfall=5.11"

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**Summary for Subcatchment 1S: 1.0**

Runoff = 2.06 cfs @ 12.09 hrs, Volume= 0.150 af, Depth= 2.72"

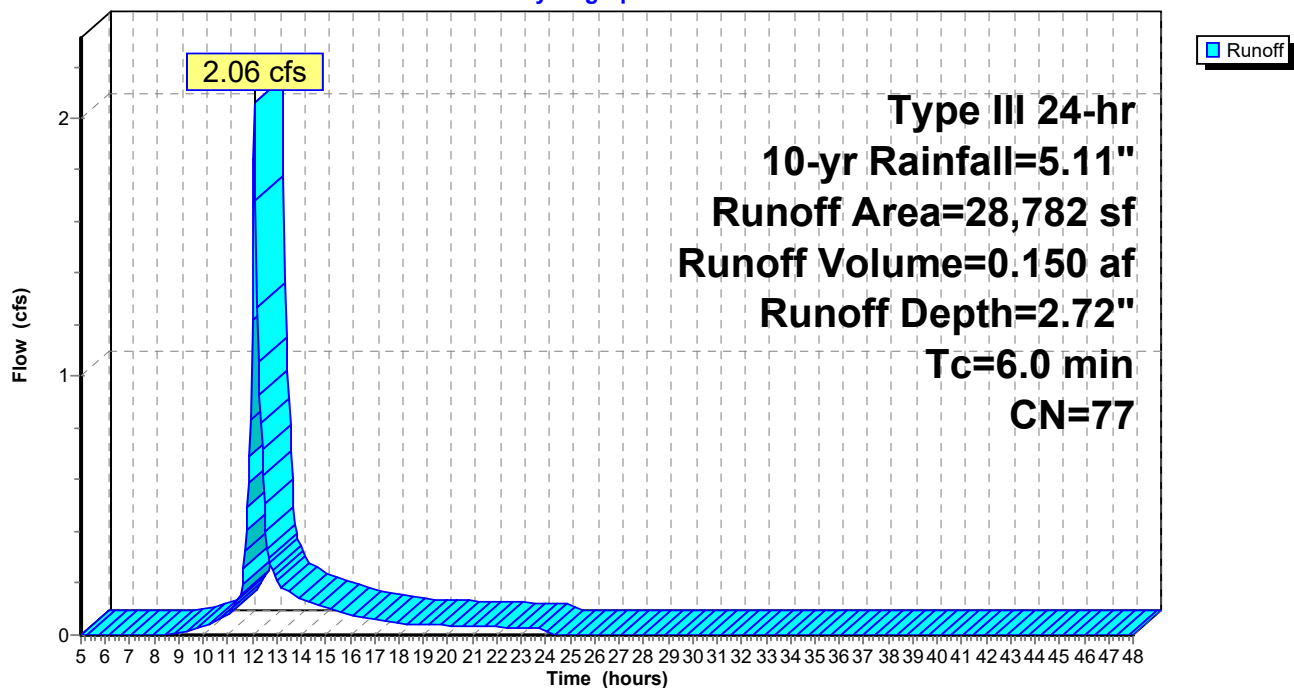
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.11"

|   | Area (sf) | CN | Description                     |
|---|-----------|----|---------------------------------|
| * | 14,673    | 98 | Pavement/Roof                   |
|   | 11,306    | 49 | 50-75% Grass cover, Fair, HSG A |
| * | 2,803     | 80 | wood chip/ daycare play area    |
|   | 28,782    | 77 | Weighted Average                |
|   | 14,109    |    | 49.02% Pervious Area            |
|   | 14,673    |    | 50.98% Impervious Area          |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description            |
|-------------|------------------|------------------|----------------------|-------------------|------------------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, 0.1 hour |

**Subcatchment 1S: 1.0**

Hydrograph



**Post HC Biddeford 5.18**

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Type III 24-hr 10-yr Rainfall=5.11"

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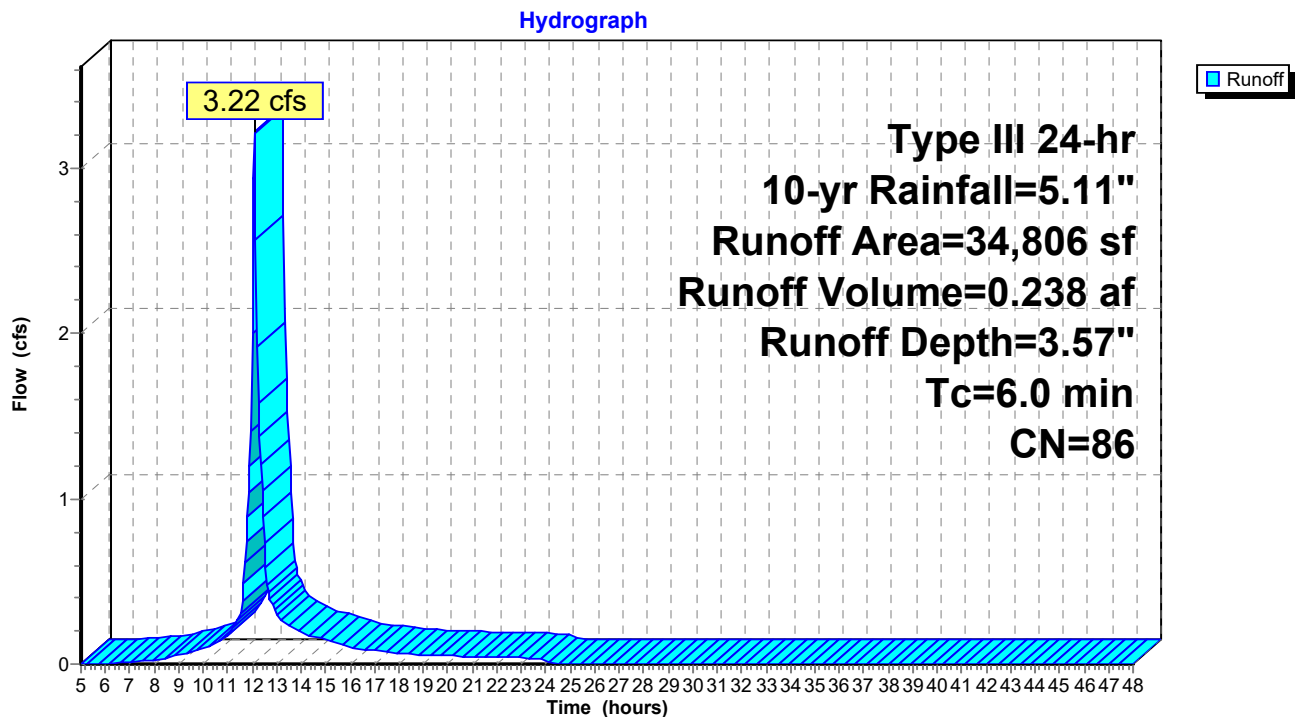
**Summary for Subcatchment 2.0: Five Star Auto**

Runoff = 3.22 cfs @ 12.09 hrs, Volume= 0.238 af, Depth= 3.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.11"

|   | Area (sf) | CN | Description                   |
|---|-----------|----|-------------------------------|
| * | 27,003    | 98 | Pavement/Roof                 |
|   | 7,060     | 39 | >75% Grass cover, Good, HSG A |
|   | 743       | 91 | Gravel roads, HSG D           |
|   | 34,806    | 86 | Weighted Average              |
|   | 7,803     |    | 22.42% Pervious Area          |
|   | 27,003    |    | 77.58% Impervious Area        |

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

**Subcatchment 2.0: Five Star Auto**

### Summary for Subcatchment 2.1: 2.1

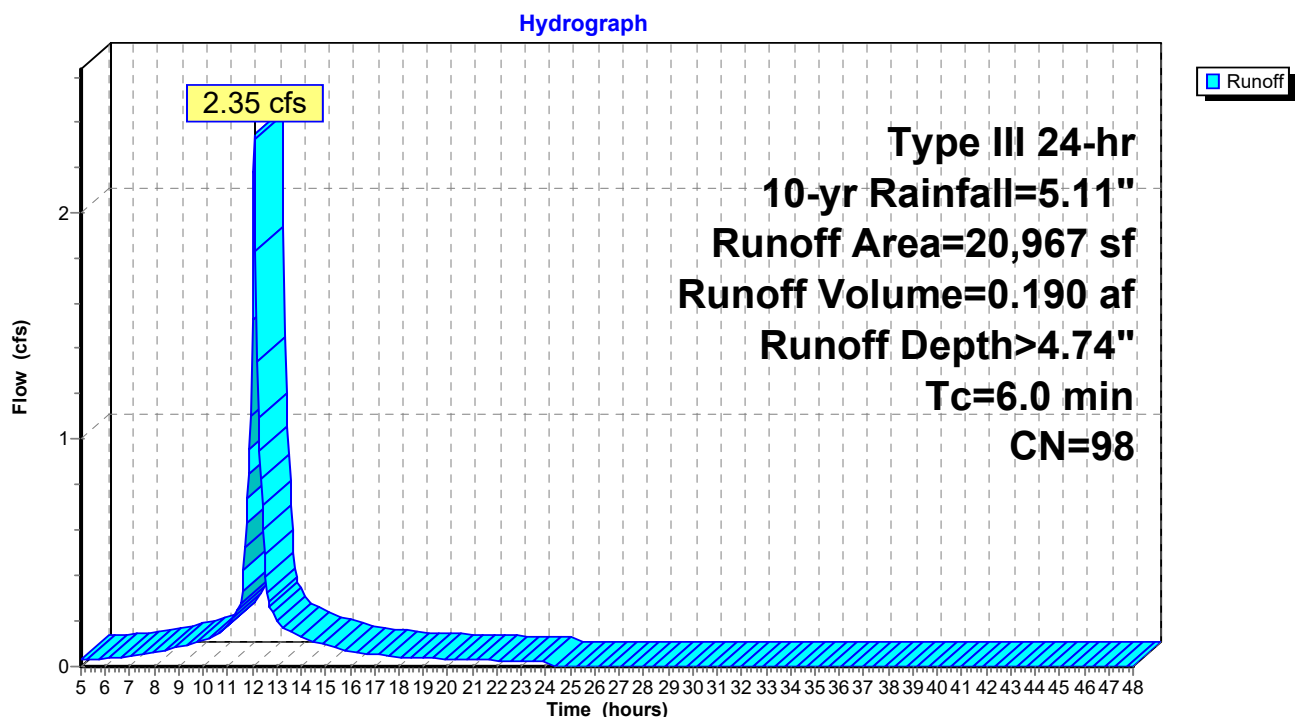
Runoff = 2.35 cfs @ 12.09 hrs, Volume= 0.190 af, Depth> 4.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.11"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 20,846    | 98 | Paved parking, HSG A          |
| 121       | 39 | >75% Grass cover, Good, HSG A |
| 20,967    | 98 | Weighted Average              |
| 121       |    | 0.58% Pervious Area           |
| 20,846    |    | 99.42% Impervious Area        |

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

### Subcatchment 2.1: 2.1





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Type III 24-hr 10-yr Rainfall=5.11"

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## Summary for Subcatchment 2.2: 2.2

Runoff = 3.52 cfs @ 12.09 hrs, Volume= 0.285 af, Depth> 4.74"

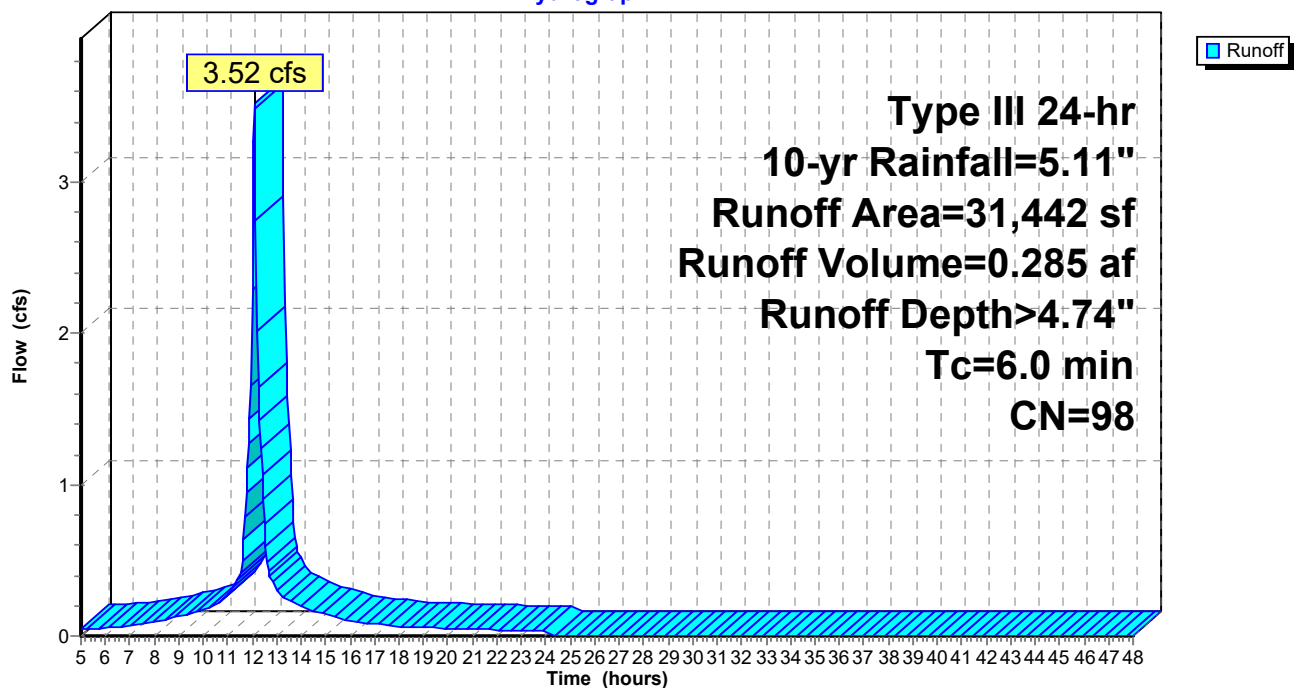
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.11"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 31,442    | 98 | Paved parking, HSG A    |
| 31,442    |    | 100.00% Impervious Area |

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

## Subcatchment 2.2: 2.2

Hydrograph



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Type III 24-hr 10-yr Rainfall=5.11"

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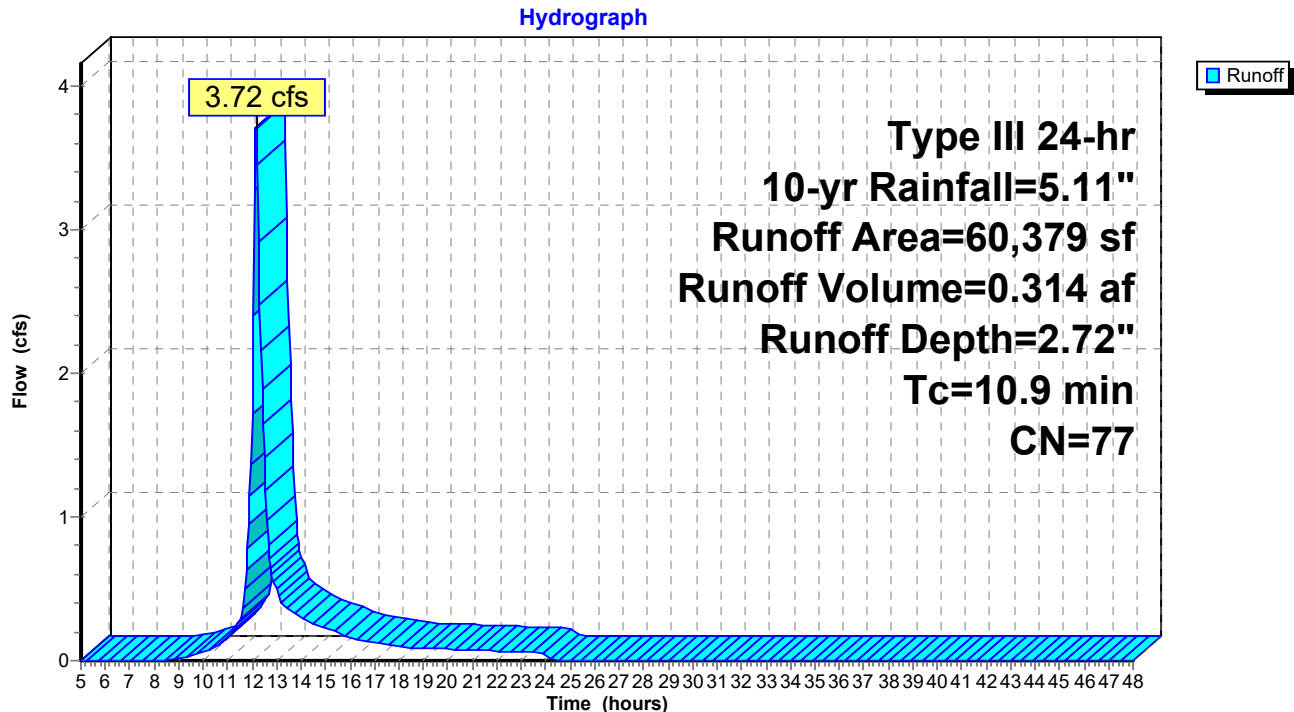
**Summary for Subcatchment 2.3: 2.3**

Runoff = 3.72 cfs @ 12.16 hrs, Volume= 0.314 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.11"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 7,899     | 82 | Woods/grass comb., Fair, HSG D |
| 31,212    | 80 | >75% Grass cover, Good, HSG D  |
| 9,678     | 39 | >75% Grass cover, Good, HSG A  |
| * 8,521   | 98 | Pavement                       |
| 25        | 43 | Woods/grass comb., Fair, HSG A |
| 3,044     | 89 | <50% Grass cover, Poor, HSG D  |
| 60,379    | 77 | Weighted Average               |
| 51,858    |    | 85.89% Pervious Area           |
| 8,521     |    | 14.11% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description               |
|----------|---------------|---------------|-------------------|----------------|---------------------------|
| 10.9     |               |               |                   |                | Direct Entry, Pre Tc Copy |

**Subcatchment 2.3: 2.3**

**Post HC Biddeford 5.18**

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Type III 24-hr 10-yr Rainfall=5.11"

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**Summary for Subcatchment 3.0: SUB 3.0**

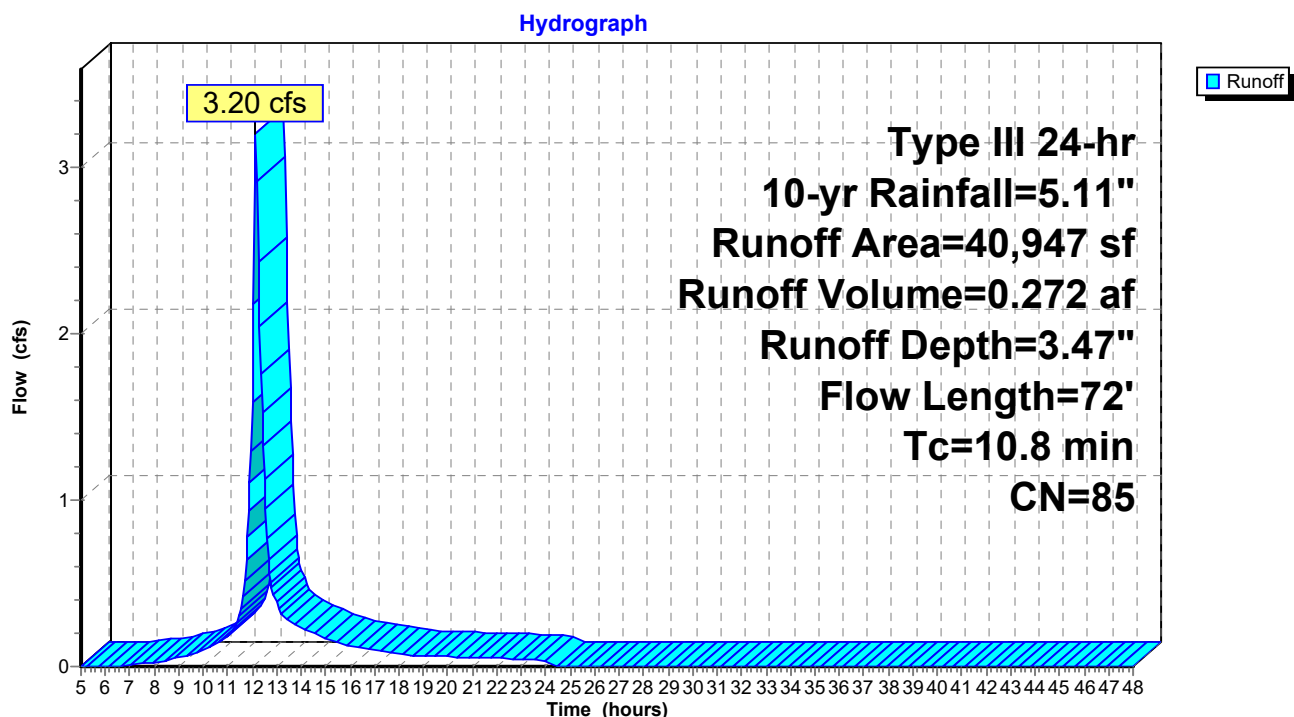
Runoff = 3.20 cfs @ 12.15 hrs, Volume= 0.272 af, Depth= 3.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-yr Rainfall=5.11"

| Area (sf) | CN | Description                     |
|-----------|----|---------------------------------|
| 15,384    | 82 | Woods/grass comb., Fair, HSG D  |
| 11,736    | 84 | 50-75% Grass cover, Fair, HSG D |
| * 7,018   | 98 | Paved parking,                  |
| * 4,219   | 96 | GRAVEL                          |
| 1,365     | 49 | 50-75% Grass cover, Fair, HSG A |
| 134       | 43 | Woods/grass comb., Fair, HSG A  |
| 1,091     | 80 | >75% Grass cover, Good, HSG D   |
| 40,947    | 85 | Weighted Average                |
| 33,929    |    | 82.86% Pervious Area            |
| 7,018     |    | 17.14% Impervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------|
| 5.6      | 40            | 0.0320        | 0.12              |                | <b>Sheet Flow, A to B</b>                  |
|          |               |               |                   |                | Grass: Dense n= 0.240 P2= 3.24"            |
| 5.2      | 32            | 0.0690        | 0.10              |                | <b>Sheet Flow, B to C</b>                  |
|          |               |               |                   |                | Woods: Light underbrush n= 0.400 P2= 3.24" |
| 10.8     | 72            | Total         |                   |                |                                            |

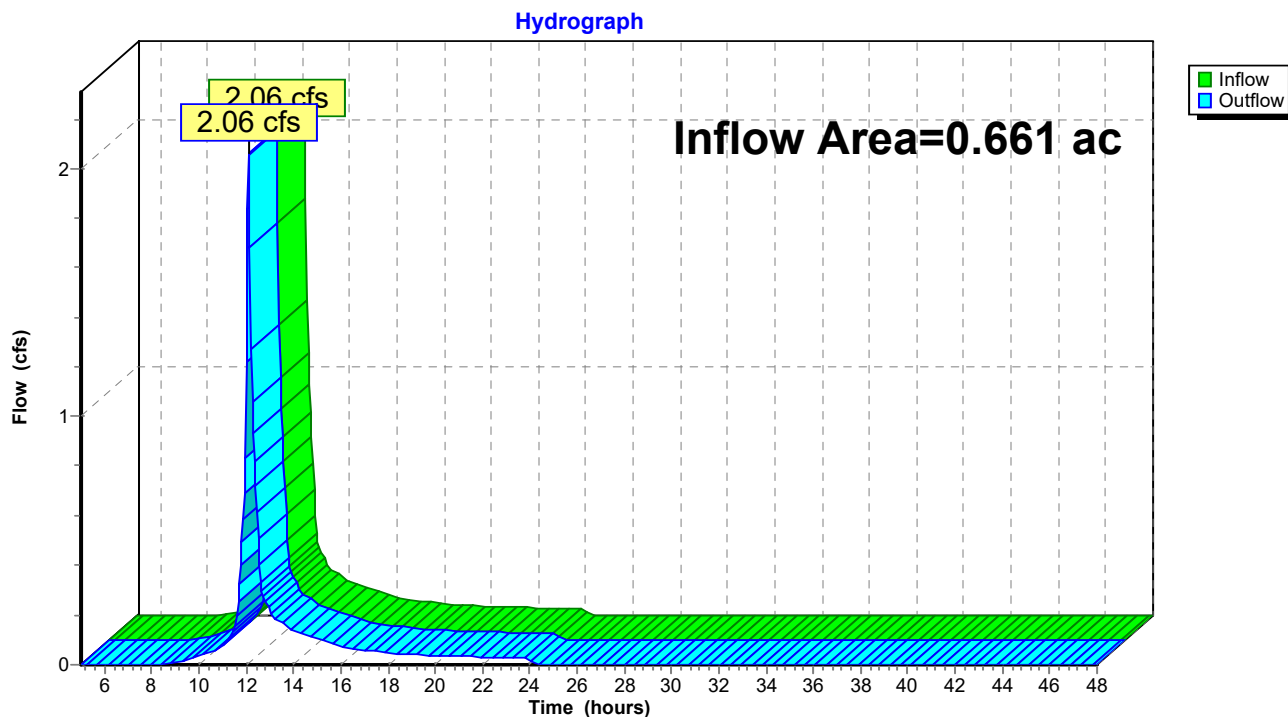
**Subcatchment 3.0: SUB 3.0**

### Summary for Reach 1R: POI # 1.0; WEST COLE ROAD

Inflow Area = 0.661 ac, 50.98% Impervious, Inflow Depth = 2.72" for 10-yr event  
 Inflow = 2.06 cfs @ 12.09 hrs, Volume= 0.150 af  
 Outflow = 2.06 cfs @ 12.09 hrs, Volume= 0.150 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

### Reach 1R: POI # 1.0; WEST COLE ROAD

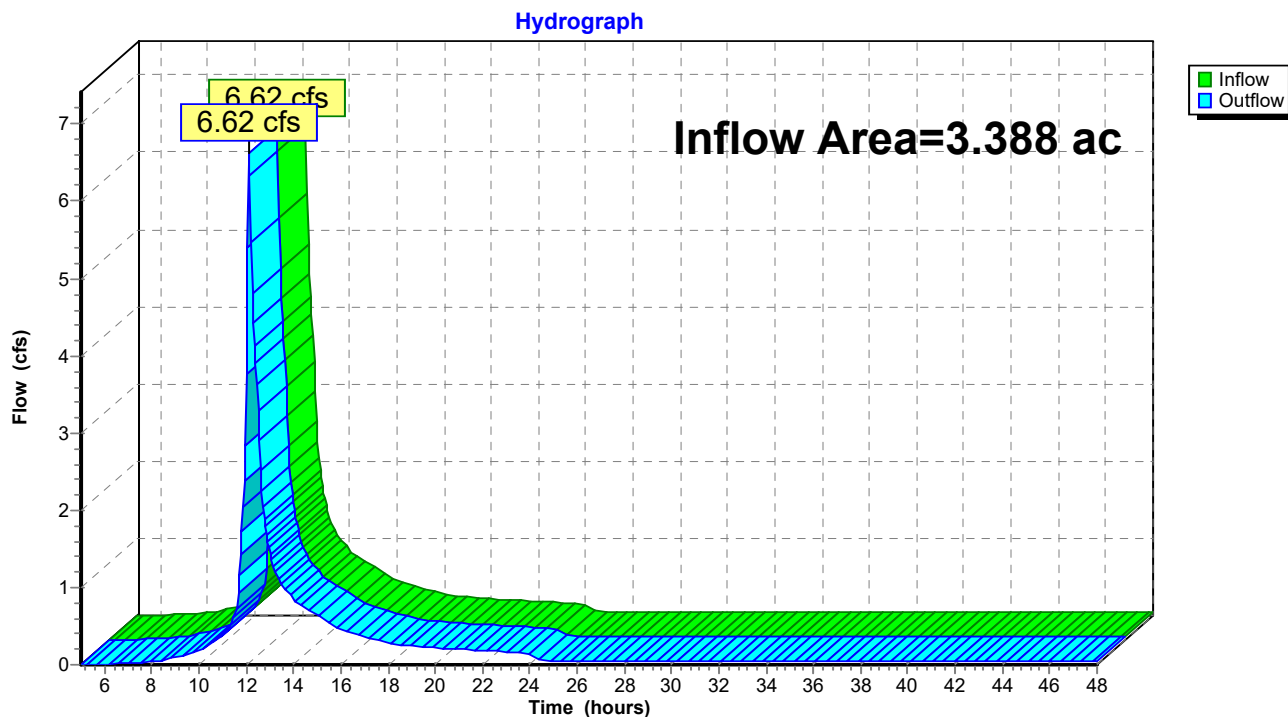


### Summary for Reach 2R: POI #2; CROSS CULVERT

Inflow Area = 3.388 ac, 59.50% Impervious, Inflow Depth > 3.08" for 10-yr event  
 Inflow = 6.62 cfs @ 12.12 hrs, Volume= 0.869 af  
 Outflow = 6.62 cfs @ 12.12 hrs, Volume= 0.869 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

### Reach 2R: POI #2; CROSS CULVERT

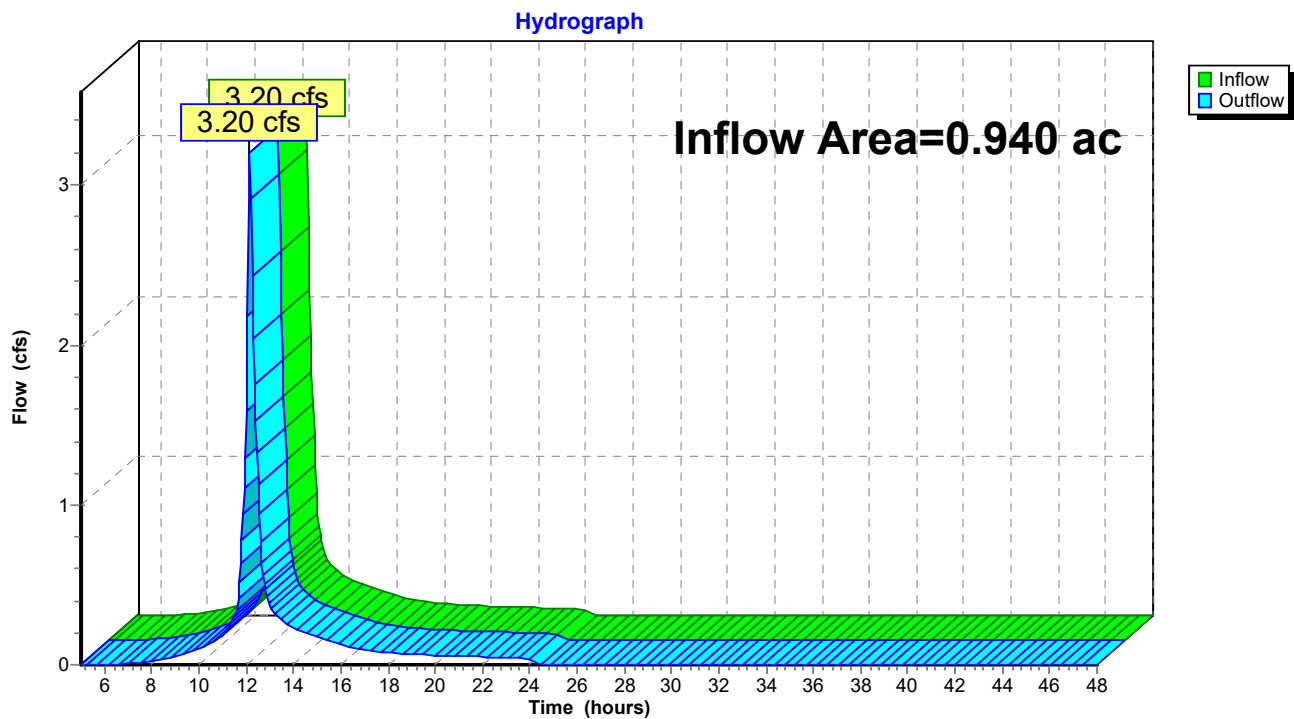


### Summary for Reach 3R: POI #3; TRAIN TRACKS

Inflow Area = 0.940 ac, 17.14% Impervious, Inflow Depth = 3.47" for 10-yr event  
 Inflow = 3.20 cfs @ 12.15 hrs, Volume= 0.272 af  
 Outflow = 3.20 cfs @ 12.15 hrs, Volume= 0.272 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

### Reach 3R: POI #3; TRAIN TRACKS



**Summary for Pond 2.1P: StormTech #1: 25 x 85**

Inflow Area = 0.481 ac, 99.42% Impervious, Inflow Depth > 4.74" for 10-yr event  
 Inflow = 2.35 cfs @ 12.09 hrs, Volume= 0.190 af  
 Outflow = 0.33 cfs @ 12.61 hrs, Volume= 0.119 af, Atten= 86%, Lag= 31.4 min  
 Primary = 0.33 cfs @ 12.61 hrs, Volume= 0.119 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
 Peak Elev= 121.04' @ 12.61 hrs Surf.Area= 6,823 sf Storage= 5,240 cf  
 Flood Elev= 123.00' Surf.Area= 6,823 sf Storage= 6,367 cf

Plug-Flow detention time= 681.4 min calculated for 0.119 af (63% of inflow)  
 Center-of-Mass det. time= 579.9 min ( 1,342.2 - 762.4 )

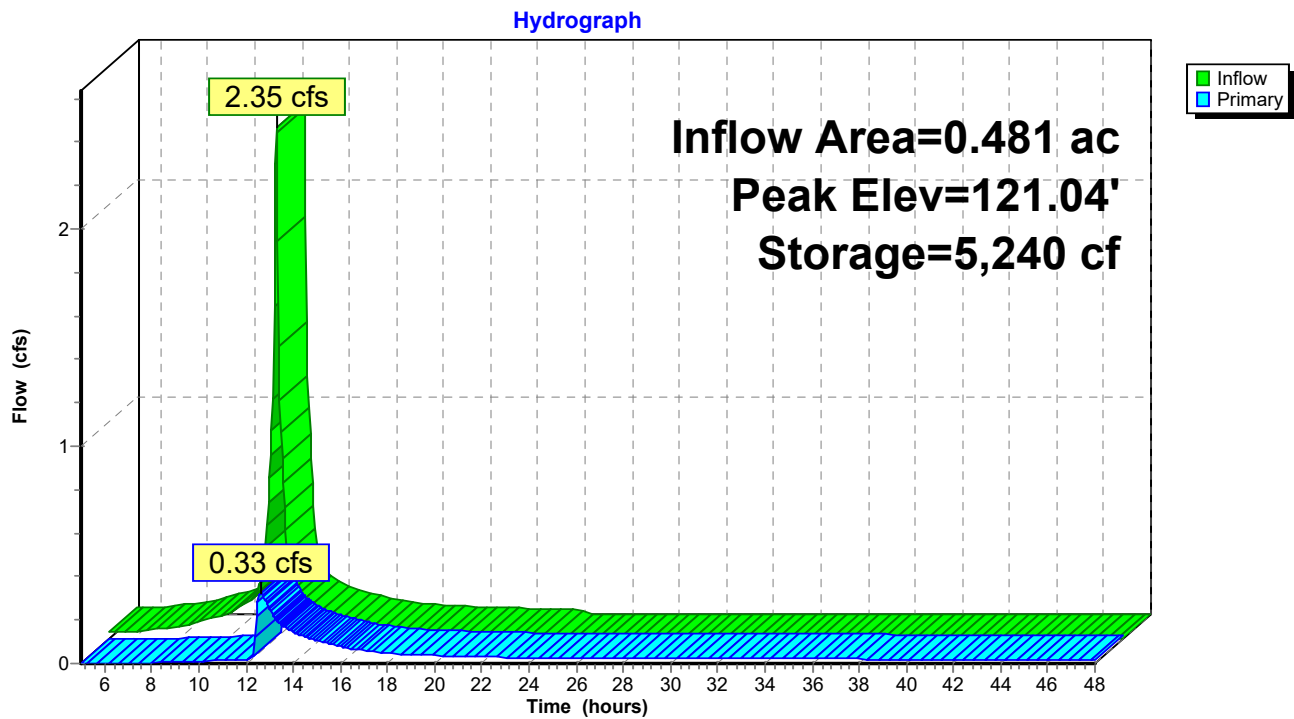
| Volume | Invert  | Avail.Storage | Storage Description                                                                                                                                                                                    |
|--------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | 118.60' | 2,186 cf      | <b>27.00'W x 87.00'L x 3.50'H Stone</b><br>8,222 cf Overall - 2,756 cf Embedded = 5,465 cf x 40.0% Voids                                                                                               |
| #2     | 119.10' | 2,756 cf      | <b>ADS_StormTech SC-740 +Cap x 60 Inside #1</b><br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>60 Chambers in 4 Rows |
| #3     | 117.10' | 638 cf        | <b>25.00'W x 85.00'L x 1.50'H Sand</b><br>3,188 cf Overall x 20.0% Voids                                                                                                                               |
| #4     | 116.25' | 773 cf        | <b>27.00'W x 87.00'L x 0.83'H Crushed Stone</b><br>1,950 cf Overall - 17 cf Embedded = 1,933 cf x 40.0% Voids                                                                                          |
| #5     | 116.50' | 14 cf         | <b>4.0" Round Underdrain Storage x 2 Inside #4</b><br>L= 80.0' S= 0.0010 '/<br>17 cf Overall - 0.2" Wall Thickness = 14 cf                                                                             |
|        |         |               | 6,367 cf Total Available Storage                                                                                                                                                                       |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                                                                       |
|--------|----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 116.40' | <b>18.0" Round 18" SD to DMH-2</b> L= 30.0' Ke= 0.600<br>Inlet / Outlet Invert= 116.40' / 116.35' S= 0.0017 '/ Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf                                                                             |
| #2     | Device 1 | 120.77' | <b>6.0" Round 6" overflows to header X 3.00</b><br>L= 5.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 120.77' / 120.25' S= 0.1040 '/ Cc= 0.600<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf |
| #3     | Device 1 | 116.55' | <b>1.3" Round Underdrains w orifice</b><br>L= 90.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 116.55' / 116.45' S= 0.0011 '/ Cc= 0.600<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.01 sf        |

**Primary OutFlow** Max=0.32 cfs @ 12.61 hrs HW=121.04' (Free Discharge)

- 1=18" SD to DMH-2 (Passes 0.32 cfs of 15.73 cfs potential flow)
- 2=6" overflows to header (Inlet Controls 0.30 cfs @ 0.93 fps)
- 3=Underdrains w orifice (Barrel Controls 0.02 cfs @ 2.44 fps)

Pond 2.1P: StormTech #1: 25 x 85





**Summary for Pond 2.2P: StormTech #2 ; 21x142**

Inflow Area = 0.722 ac, 100.00% Impervious, Inflow Depth > 4.74" for 10-yr event  
 Inflow = 3.52 cfs @ 12.09 hrs, Volume= 0.285 af  
 Outflow = 0.88 cfs @ 12.46 hrs, Volume= 0.198 af, Atten= 75%, Lag= 22.6 min  
 Primary = 0.88 cfs @ 12.46 hrs, Volume= 0.198 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
 Peak Elev= 121.18' @ 12.46 hrs Surf.Area= 9,606 sf Storage= 7,227 cf  
 Flood Elev= 123.00' Surf.Area= 9,606 sf Storage= 8,821 cf

Plug-Flow detention time= 600.8 min calculated for 0.198 af (69% of inflow)  
 Center-of-Mass det. time= 510.0 min ( 1,272.4 - 762.4 )

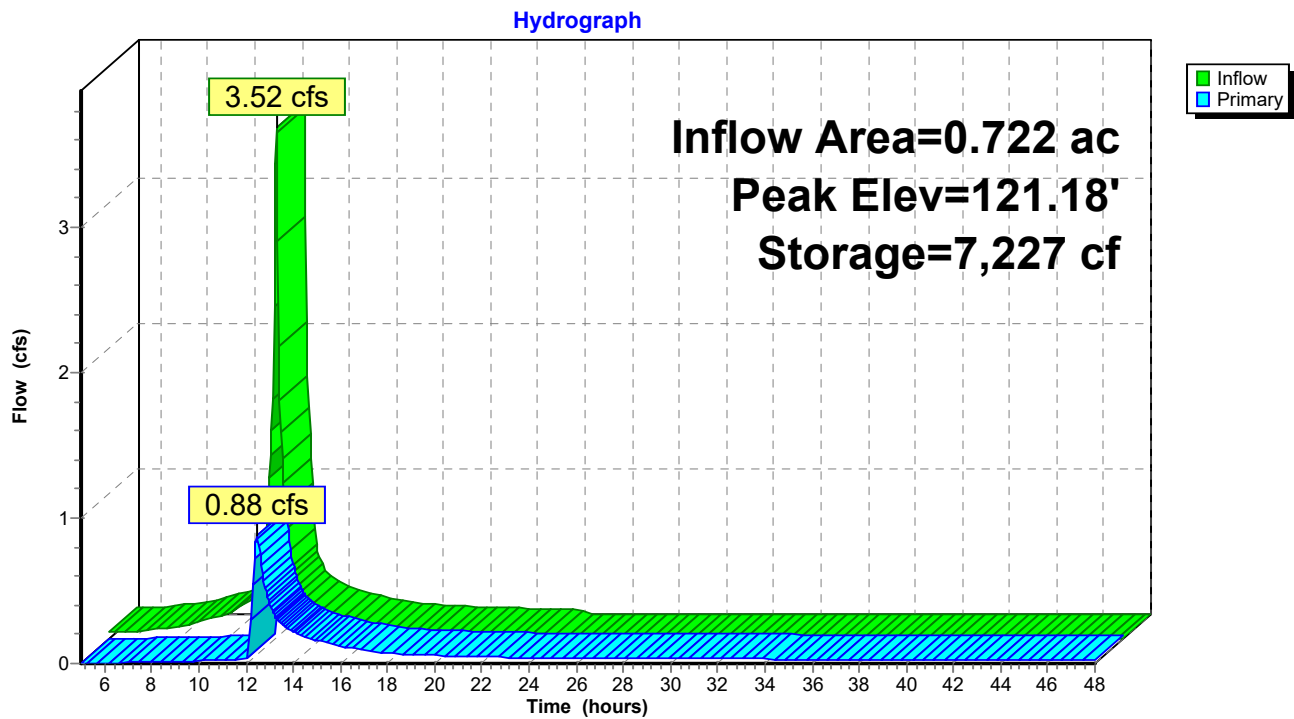
| Volume | Invert  | Avail.Storage | Storage Description                                                                                                                                                                                    |
|--------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | 118.75' | 3,185 cf      | <b>23.00'W x 144.00'L x 3.50'H Stone</b><br>11,592 cf Overall - 3,629 cf Embedded = 7,963 cf x 40.0% Voids                                                                                             |
| #2     | 119.25' | 3,629 cf      | <b>ADS_StormTech SC-740 +Cap x 79 Inside #1</b><br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>79 Chambers in 4 Rows |
| #3     | 117.25' | 895 cf        | <b>21.00'W x 142.00'L x 1.50'H Sand</b><br>4,473 cf Overall x 20.0% Voids                                                                                                                              |
| #4     | 116.40' | 1,088 cf      | <b>23.00'W x 144.00'L x 0.83'H Crushed Stone</b><br>2,749 cf Overall - 30 cf Embedded = 2,719 cf x 40.0% Voids                                                                                         |
| #5     | 116.60' | 24 cf         | <b>4.0" Round Underdrain Storage x 2 Inside #4</b><br>L= 140.0' S= 0.0010 '/'<br>30 cf Overall - 0.2" Wall Thickness = 24 cf                                                                           |
|        |         | 8,821 cf      | Total Available Storage                                                                                                                                                                                |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                                                                         |
|--------|----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 116.10' | <b>18.0" Round 18" SD to DMH-2</b> L= 30.0' Ke= 0.600<br>Inlet / Outlet Invert= 116.10' / 116.00' S= 0.0033 '/ Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf                                                                               |
| #2     | Device 1 | 120.75' | <b>8.0" Round 8" overflows into header X 3.00</b><br>L= 5.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 120.75' / 120.31' S= 0.0880 '/ Cc= 0.600<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf |
| #3     | Device 1 | 116.40' | <b>1.5" Round Underdrains w orifice</b><br>L= 90.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 116.40' / 116.35' S= 0.0006 '/ Cc= 0.600<br>n= 0.012, Flow Area= 0.01 sf                                         |

**Primary OutFlow** Max=0.87 cfs @ 12.46 hrs HW=121.18' (Free Discharge)

- 1=18" SD to DMH-2 (Passes 0.87 cfs of 16.60 cfs potential flow)
- 2=8" overflows into header (Inlet Controls 0.84 cfs @ 1.17 fps)
- 3=Underdrains w orifice (Barrel Controls 0.03 cfs @ 2.74 fps)

**Pond 2.2P: StormTech #2 ; 21x142**



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*Type III 24-hr 25-yr Rainfall=6.28"*

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

|                                            |                                                                                                                          |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: 1.0</b>                 | Runoff Area=28,782 sf 50.98% Impervious Runoff Depth=3.72"<br>Tc=6.0 min CN=77 Runoff=2.82 cfs 0.205 af                  |
| <b>Subcatchment2.0: Five Star Auto</b>     | Runoff Area=34,806 sf 77.58% Impervious Runoff Depth>4.68"<br>Tc=6.0 min CN=86 Runoff=4.17 cfs 0.311 af                  |
| <b>Subcatchment2.1: 2.1</b>                | Runoff Area=20,967 sf 99.42% Impervious Runoff Depth>5.86"<br>Tc=6.0 min CN=98 Runoff=2.89 cfs 0.235 af                  |
| <b>Subcatchment2.2: 2.2</b>                | Runoff Area=31,442 sf 100.00% Impervious Runoff Depth>5.86"<br>Tc=6.0 min CN=98 Runoff=4.34 cfs 0.352 af                 |
| <b>Subcatchment2.3: 2.3</b>                | Runoff Area=60,379 sf 14.11% Impervious Runoff Depth=3.72"<br>Tc=10.9 min CN=77 Runoff=5.10 cfs 0.430 af                 |
| <b>Subcatchment3.0: SUB 3.0</b>            | Runoff Area=40,947 sf 17.14% Impervious Runoff Depth=4.57"<br>Flow Length=72' Tc=10.8 min CN=85 Runoff=4.17 cfs 0.358 af |
| <b>Reach 1R: POI # 1.0; WEST COLE ROAD</b> | Inflow=2.82 cfs 0.205 af<br>Outflow=2.82 cfs 0.205 af                                                                    |
| <b>Reach 2R: POI #2; CROSS CULVERT</b>     | Inflow=9.76 cfs 1.170 af<br>Outflow=9.76 cfs 1.170 af                                                                    |
| <b>Reach 3R: POI #3; TRAIN TRACKS</b>      | Inflow=4.17 cfs 0.358 af<br>Outflow=4.17 cfs 0.358 af                                                                    |
| <b>Pond 2.1P: StormTech #1: 25 x 85</b>    | Peak Elev=121.37' Storage=5,665 cf Inflow=2.89 cfs 0.235 af<br>Outflow=0.91 cfs 0.163 af                                 |
| <b>Pond 2.2P: StormTech #2 ; 21x142</b>    | Peak Elev=121.51' Storage=7,823 cf Inflow=4.34 cfs 0.352 af<br>Outflow=1.78 cfs 0.265 af                                 |

**Total Runoff Area = 4.989 ac Runoff Volume = 1.892 af Average Runoff Depth = 4.55"**  
**49.61% Pervious = 2.475 ac 50.39% Impervious = 2.514 ac**

**Post HC Biddeford 5.18**

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Type III 24-hr 25-yr Rainfall=6.28"

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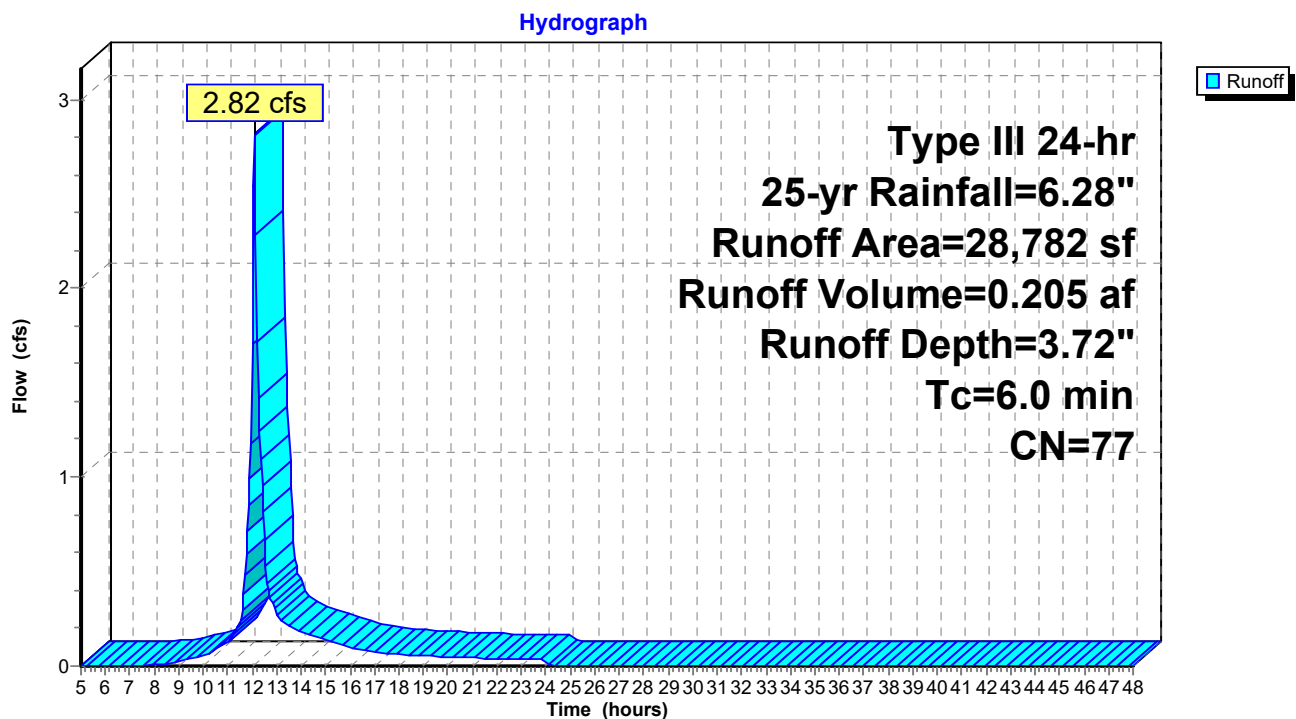
**Summary for Subcatchment 1S: 1.0**

Runoff = 2.82 cfs @ 12.09 hrs, Volume= 0.205 af, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.28"

|   | Area (sf) | CN | Description                     |
|---|-----------|----|---------------------------------|
| * | 14,673    | 98 | Pavement/Roof                   |
|   | 11,306    | 49 | 50-75% Grass cover, Fair, HSG A |
| * | 2,803     | 80 | wood chip/ daycare play area    |
|   | 28,782    | 77 | Weighted Average                |
|   | 14,109    |    | 49.02% Pervious Area            |
|   | 14,673    |    | 50.98% Impervious Area          |

| Tc<br>(min) | Length<br>(feet) | Slope<br>(ft/ft) | Velocity<br>(ft/sec) | Capacity<br>(cfs) | Description            |
|-------------|------------------|------------------|----------------------|-------------------|------------------------|
| 6.0         |                  |                  |                      |                   | Direct Entry, 0.1 hour |

**Subcatchment 1S: 1.0**

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Type III 24-hr 25-yr Rainfall=6.28"

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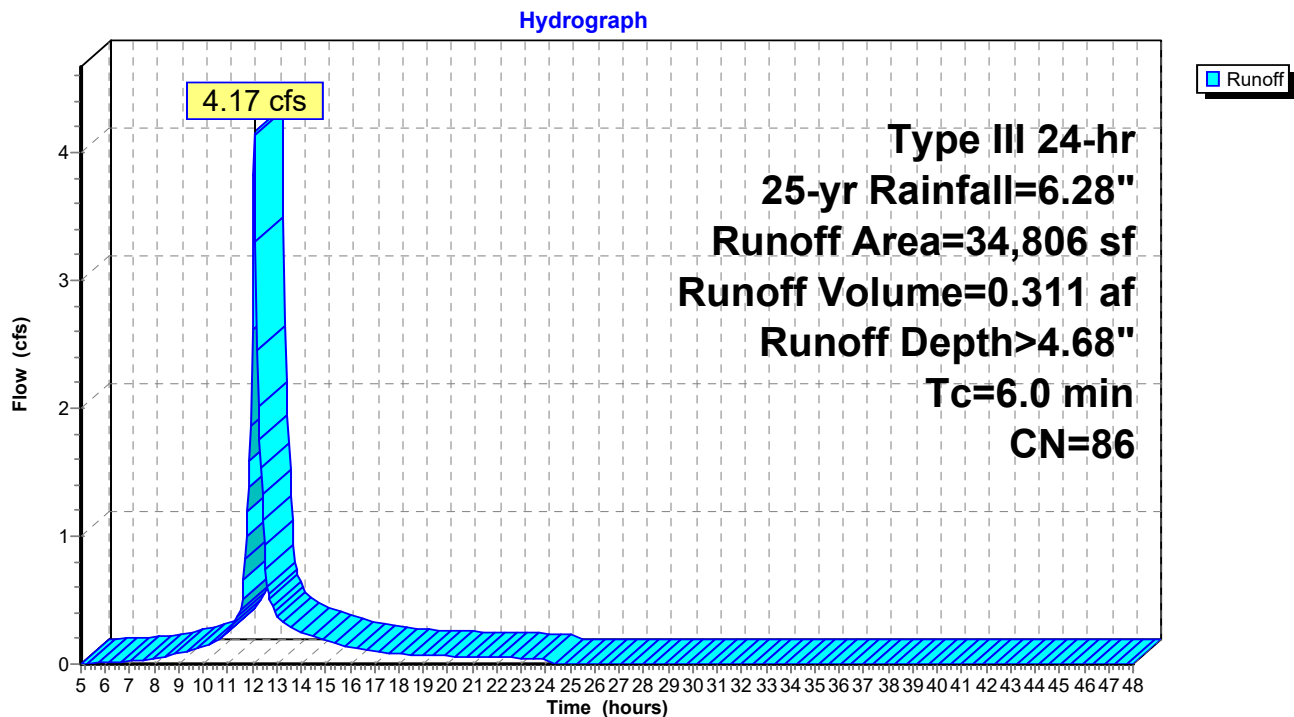
**Summary for Subcatchment 2.0: Five Star Auto**

Runoff = 4.17 cfs @ 12.09 hrs, Volume= 0.311 af, Depth&gt; 4.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.28"

|   | Area (sf) | CN | Description                   |
|---|-----------|----|-------------------------------|
| * | 27,003    | 98 | Pavement/Roof                 |
|   | 7,060     | 39 | >75% Grass cover, Good, HSG A |
|   | 743       | 91 | Gravel roads, HSG D           |
|   | 34,806    | 86 | Weighted Average              |
|   | 7,803     |    | 22.42% Pervious Area          |
|   | 27,003    |    | 77.58% Impervious Area        |

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

**Subcatchment 2.0: Five Star Auto**

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Type III 24-hr 25-yr Rainfall=6.28"

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**Summary for Subcatchment 2.1: 2.1**

Runoff = 2.89 cfs @ 12.09 hrs, Volume= 0.235 af, Depth&gt; 5.86"

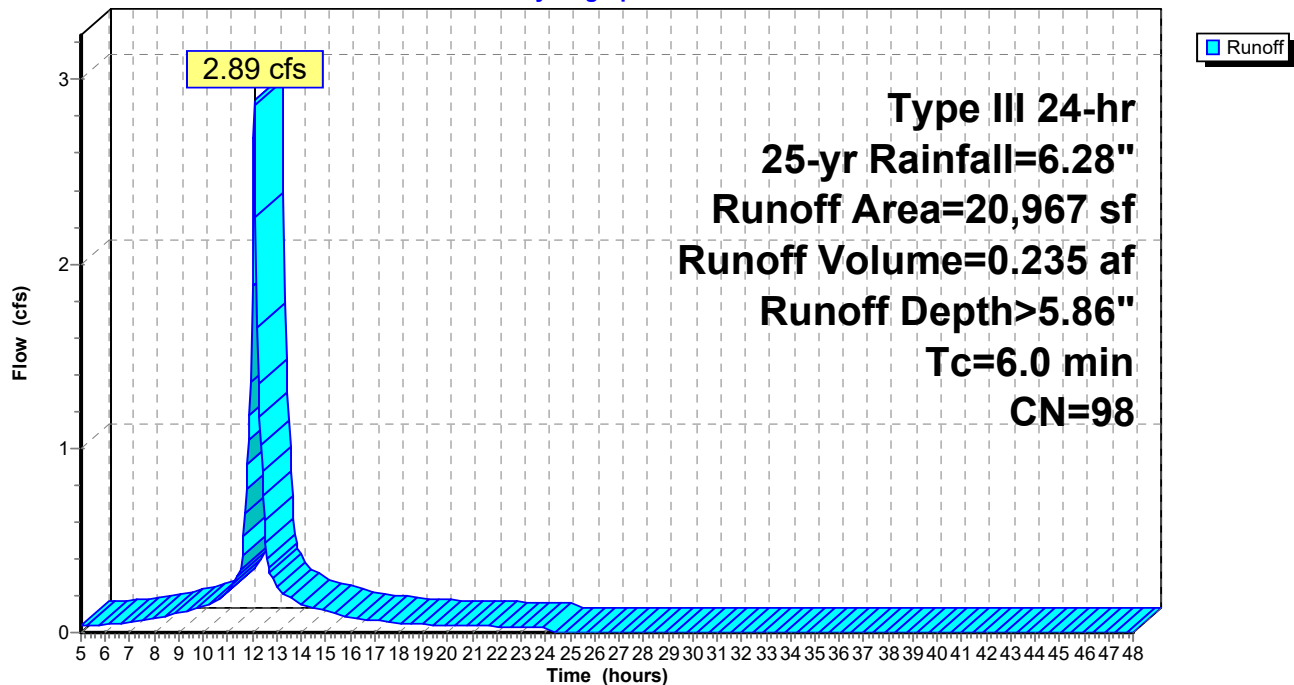
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.28"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 20,846    | 98 | Paved parking, HSG A          |
| 121       | 39 | >75% Grass cover, Good, HSG A |
| 20,967    | 98 | Weighted Average              |
| 121       |    | 0.58% Pervious Area           |
| 20,846    |    | 99.42% Impervious Area        |

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

**Subcatchment 2.1: 2.1**

Hydrograph



### Summary for Subcatchment 2.2: 2.2

Runoff = 4.34 cfs @ 12.09 hrs, Volume= 0.352 af, Depth> 5.86"

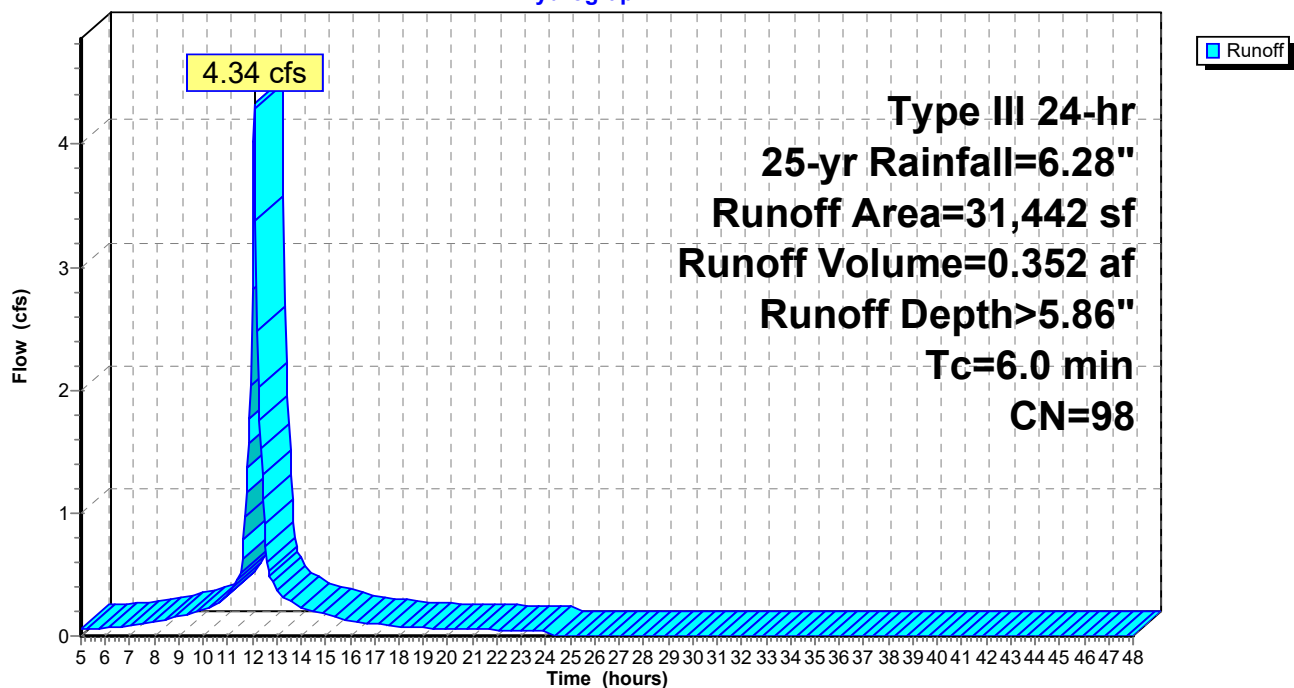
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.28"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 31,442    | 98 | Paved parking, HSG A    |
| 31,442    |    | 100.00% Impervious Area |

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

### Subcatchment 2.2: 2.2

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.28"

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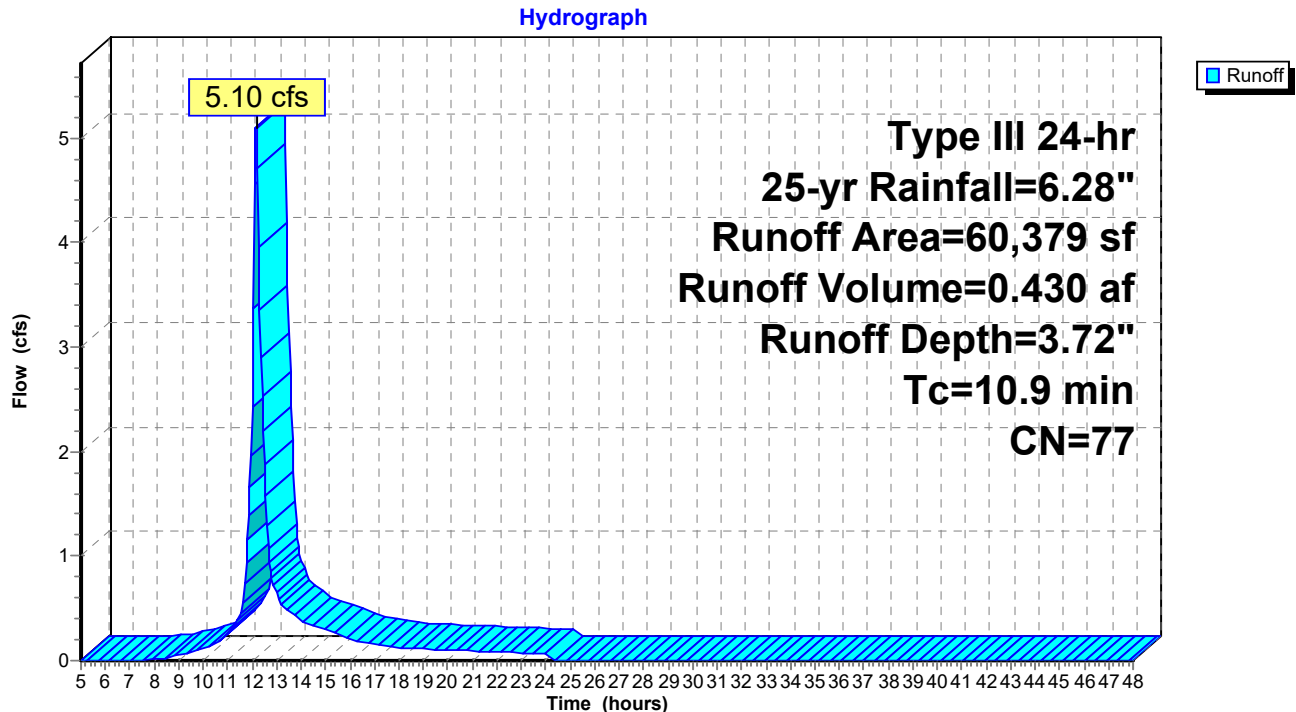
**Summary for Subcatchment 2.3: 2.3**

Runoff = 5.10 cfs @ 12.15 hrs, Volume= 0.430 af, Depth= 3.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.28"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 7,899     | 82 | Woods/grass comb., Fair, HSG D |
| 31,212    | 80 | >75% Grass cover, Good, HSG D  |
| 9,678     | 39 | >75% Grass cover, Good, HSG A  |
| * 8,521   | 98 | Pavement                       |
| 25        | 43 | Woods/grass comb., Fair, HSG A |
| 3,044     | 89 | <50% Grass cover, Poor, HSG D  |
| 60,379    | 77 | Weighted Average               |
| 51,858    |    | 85.89% Pervious Area           |
| 8,521     |    | 14.11% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description               |
|----------|---------------|---------------|-------------------|----------------|---------------------------|
| 10.9     |               |               |                   |                | Direct Entry, Pre Tc Copy |

**Subcatchment 2.3: 2.3**



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Type III 24-hr 25-yr Rainfall=6.28"

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**Summary for Subcatchment 3.0: SUB 3.0**

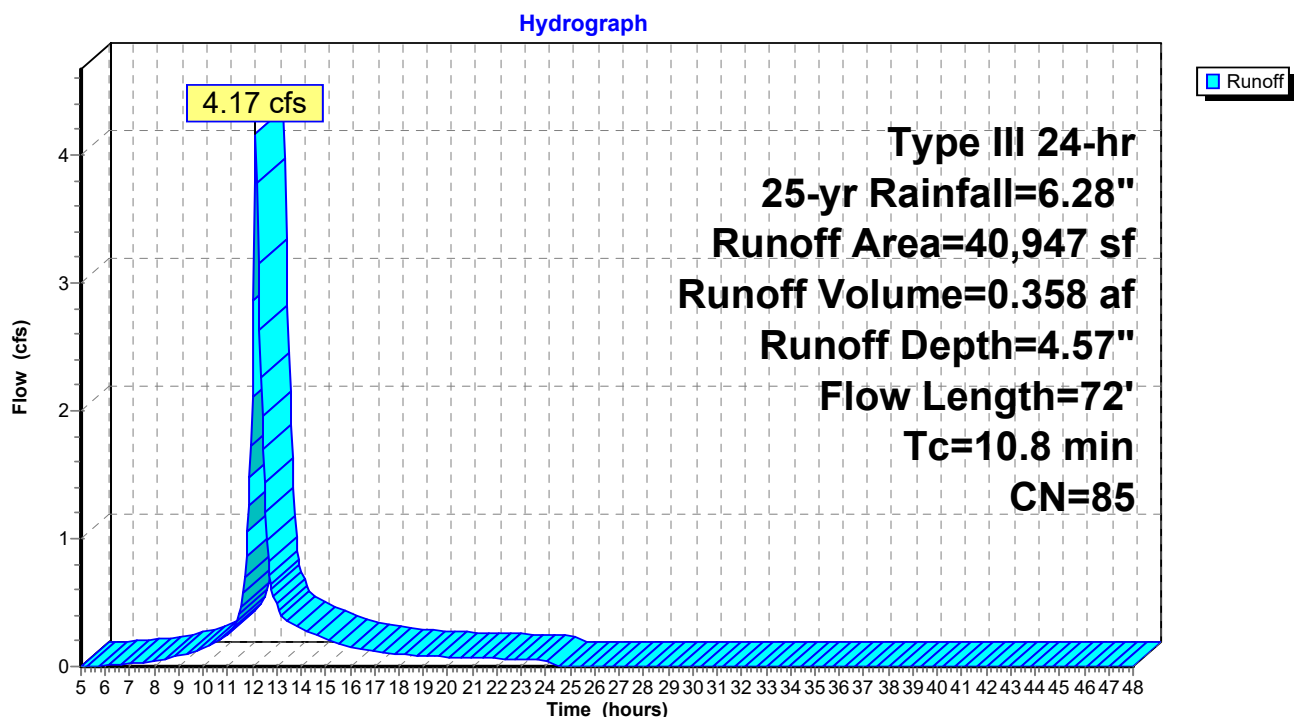
Runoff = 4.17 cfs @ 12.15 hrs, Volume= 0.358 af, Depth= 4.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-yr Rainfall=6.28"

| Area (sf) | CN | Description                     |
|-----------|----|---------------------------------|
| 15,384    | 82 | Woods/grass comb., Fair, HSG D  |
| 11,736    | 84 | 50-75% Grass cover, Fair, HSG D |
| * 7,018   | 98 | Paved parking,                  |
| * 4,219   | 96 | GRAVEL                          |
| 1,365     | 49 | 50-75% Grass cover, Fair, HSG A |
| 134       | 43 | Woods/grass comb., Fair, HSG A  |
| 1,091     | 80 | >75% Grass cover, Good, HSG D   |
| 40,947    | 85 | Weighted Average                |
| 33,929    |    | 82.86% Pervious Area            |
| 7,018     |    | 17.14% Impervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------|
| 5.6      | 40            | 0.0320        | 0.12              |                | <b>Sheet Flow, A to B</b>                  |
|          |               |               |                   |                | Grass: Dense n= 0.240 P2= 3.24"            |
| 5.2      | 32            | 0.0690        | 0.10              |                | <b>Sheet Flow, B to C</b>                  |
|          |               |               |                   |                | Woods: Light underbrush n= 0.400 P2= 3.24" |
| 10.8     | 72            | Total         |                   |                |                                            |

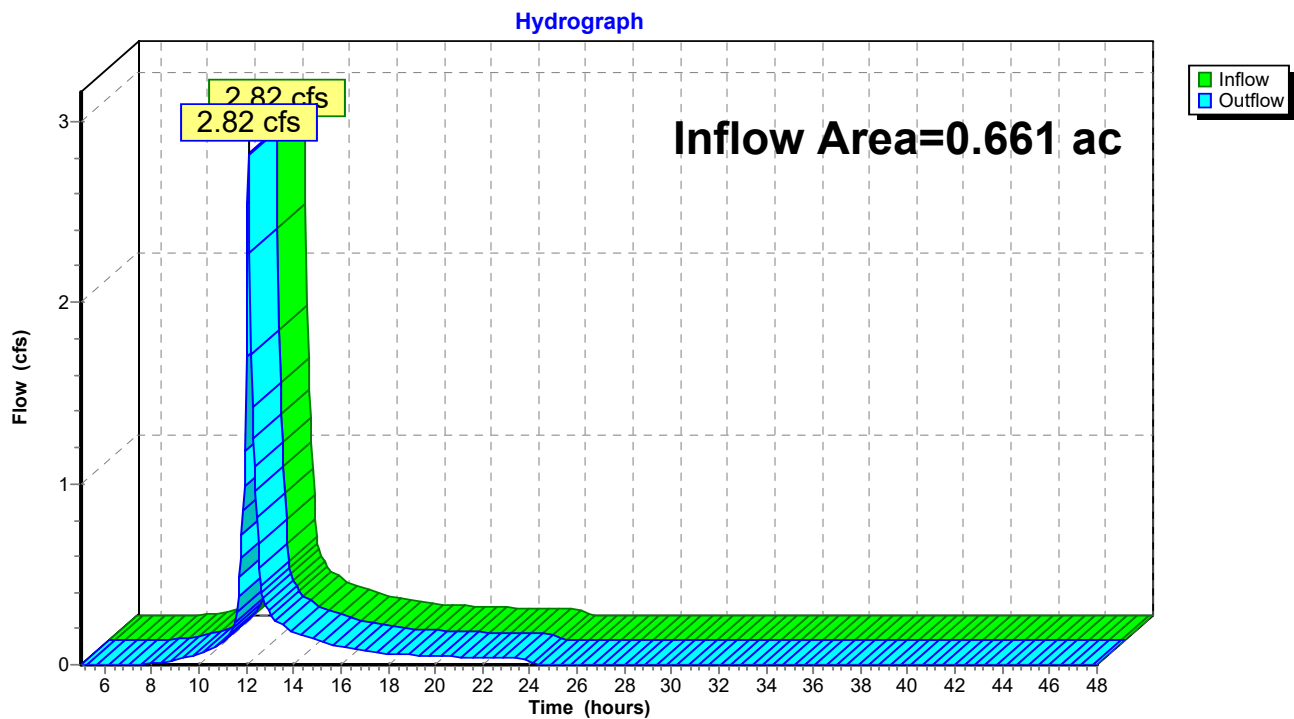
**Subcatchment 3.0: SUB 3.0**

### Summary for Reach 1R: POI # 1.0; WEST COLE ROAD

Inflow Area = 0.661 ac, 50.98% Impervious, Inflow Depth = 3.72" for 25-yr event  
 Inflow = 2.82 cfs @ 12.09 hrs, Volume= 0.205 af  
 Outflow = 2.82 cfs @ 12.09 hrs, Volume= 0.205 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

### Reach 1R: POI # 1.0; WEST COLE ROAD

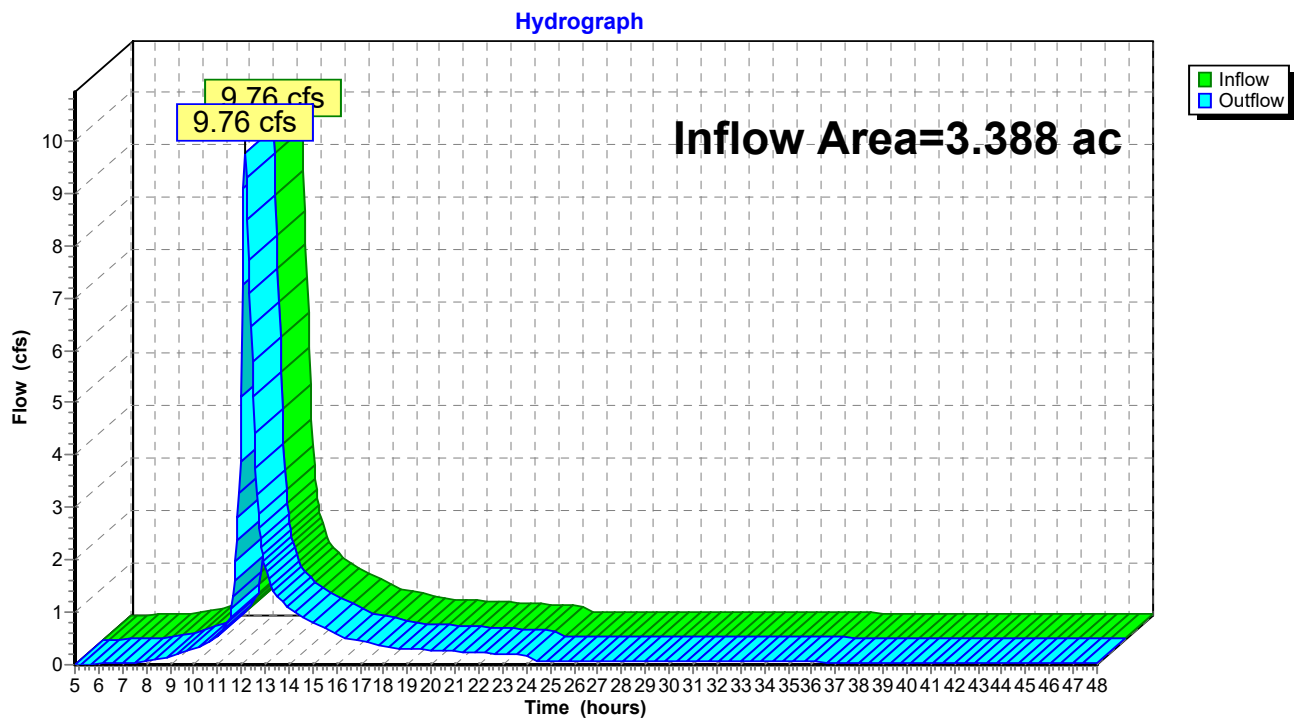


### Summary for Reach 2R: POI #2; CROSS CULVERT

Inflow Area = 3.388 ac, 59.50% Impervious, Inflow Depth > 4.14" for 25-yr event  
 Inflow = 9.76 cfs @ 12.15 hrs, Volume= 1.170 af  
 Outflow = 9.76 cfs @ 12.15 hrs, Volume= 1.170 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

### Reach 2R: POI #2; CROSS CULVERT

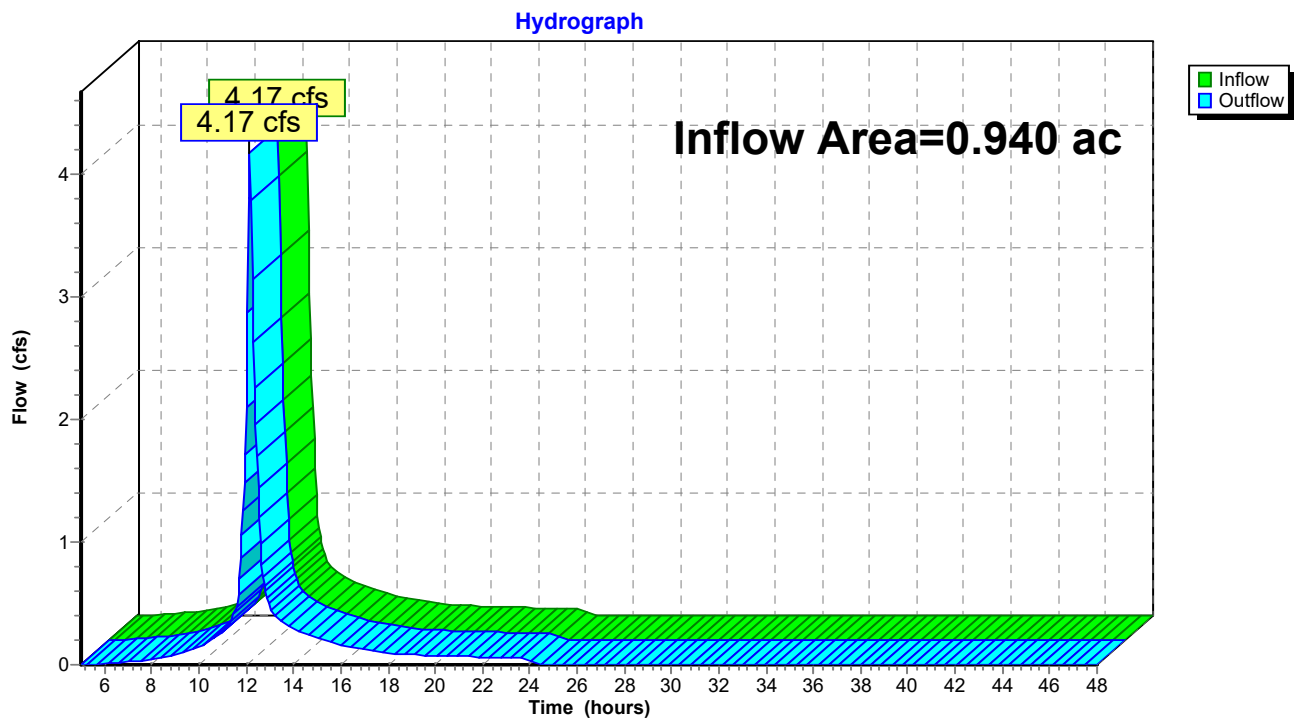


### Summary for Reach 3R: POI #3; TRAIN TRACKS

Inflow Area = 0.940 ac, 17.14% Impervious, Inflow Depth = 4.57" for 25-yr event  
 Inflow = 4.17 cfs @ 12.15 hrs, Volume= 0.358 af  
 Outflow = 4.17 cfs @ 12.15 hrs, Volume= 0.358 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

### Reach 3R: POI #3; TRAIN TRACKS



**Summary for Pond 2.1P: StormTech #1: 25 x 85**

Inflow Area = 0.481 ac, 99.42% Impervious, Inflow Depth > 5.86" for 25-yr event  
 Inflow = 2.89 cfs @ 12.09 hrs, Volume= 0.235 af  
 Outflow = 0.91 cfs @ 12.39 hrs, Volume= 0.163 af, Atten= 69%, Lag= 18.4 min  
 Primary = 0.91 cfs @ 12.39 hrs, Volume= 0.163 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
 Peak Elev= 121.37' @ 12.39 hrs Surf.Area= 6,823 sf Storage= 5,665 cf  
 Flood Elev= 123.00' Surf.Area= 6,823 sf Storage= 6,367 cf

Plug-Flow detention time= 528.8 min calculated for 0.163 af (69% of inflow)  
 Center-of-Mass det. time= 438.1 min ( 1,199.3 - 761.3 )

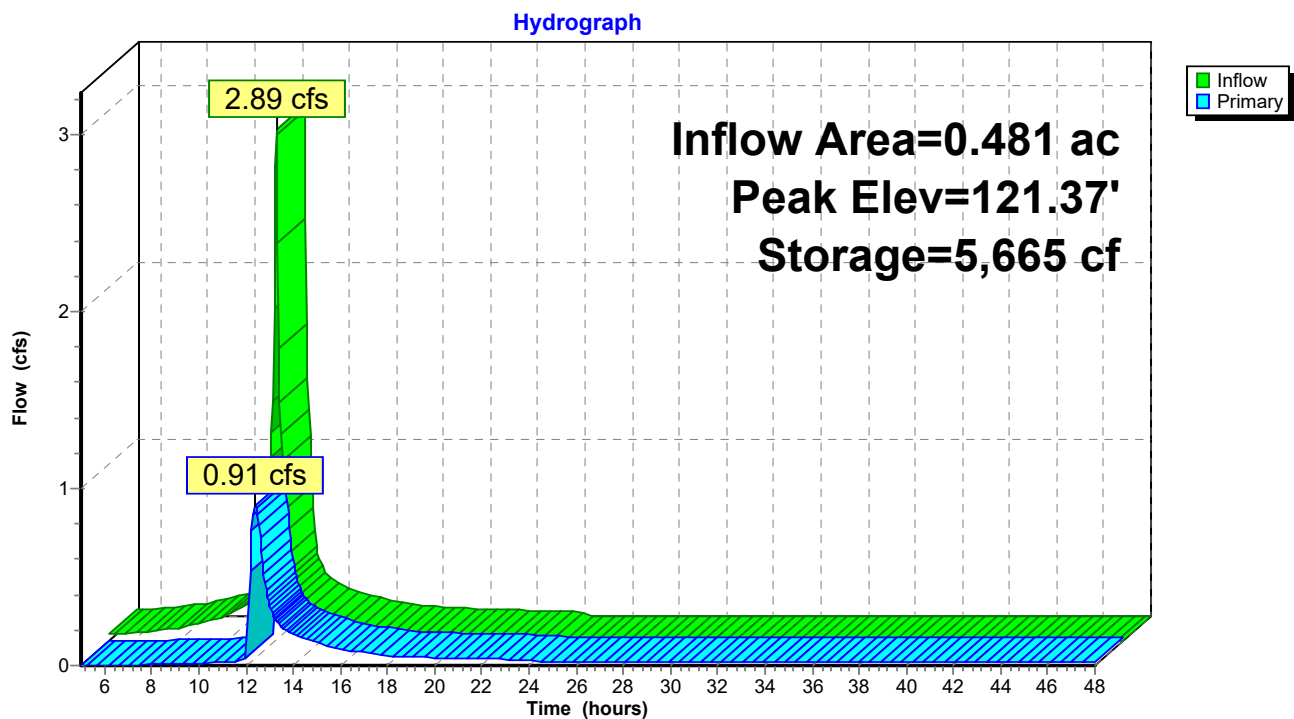
| Volume | Invert  | Avail.Storage | Storage Description                                                                                                                                                                                    |
|--------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | 118.60' | 2,186 cf      | <b>27.00'W x 87.00'L x 3.50'H Stone</b><br>8,222 cf Overall - 2,756 cf Embedded = 5,465 cf x 40.0% Voids                                                                                               |
| #2     | 119.10' | 2,756 cf      | <b>ADS_StormTech SC-740 +Cap x 60 Inside #1</b><br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>60 Chambers in 4 Rows |
| #3     | 117.10' | 638 cf        | <b>25.00'W x 85.00'L x 1.50'H Sand</b><br>3,188 cf Overall x 20.0% Voids                                                                                                                               |
| #4     | 116.25' | 773 cf        | <b>27.00'W x 87.00'L x 0.83'H Crushed Stone</b><br>1,950 cf Overall - 17 cf Embedded = 1,933 cf x 40.0% Voids                                                                                          |
| #5     | 116.50' | 14 cf         | <b>4.0" Round Underdrain Storage x 2 Inside #4</b><br>L= 80.0' S= 0.0010 '/<br>17 cf Overall - 0.2" Wall Thickness = 14 cf                                                                             |
|        |         | 6,367 cf      | Total Available Storage                                                                                                                                                                                |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                                                                       |
|--------|----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 116.40' | <b>18.0" Round 18" SD to DMH-2</b> L= 30.0' Ke= 0.600<br>Inlet / Outlet Invert= 116.40' / 116.35' S= 0.0017 '/ Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf                                                                             |
| #2     | Device 1 | 120.77' | <b>6.0" Round 6" overflows to header X 3.00</b><br>L= 5.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 120.77' / 120.25' S= 0.1040 '/ Cc= 0.600<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf |
| #3     | Device 1 | 116.55' | <b>1.3" Round Underdrains w orifice</b><br>L= 90.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 116.55' / 116.45' S= 0.0011 '/ Cc= 0.600<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.01 sf        |

**Primary OutFlow** Max=0.91 cfs @ 12.39 hrs HW=121.37' (Free Discharge)

- 1=18" SD to DMH-2 (Passes 0.91 cfs of 16.38 cfs potential flow)
- 2=6" overflows to header (Inlet Controls 0.88 cfs @ 1.50 fps)
- 3=Underdrains w orifice (Barrel Controls 0.02 cfs @ 2.53 fps)

**Pond 2.1P: StormTech #1: 25 x 85**



**Summary for Pond 2.2P: StormTech #2 ; 21x142**

Inflow Area = 0.722 ac, 100.00% Impervious, Inflow Depth > 5.86" for 25-yr event  
 Inflow = 4.34 cfs @ 12.09 hrs, Volume= 0.352 af  
 Outflow = 1.78 cfs @ 12.30 hrs, Volume= 0.265 af, Atten= 59%, Lag= 12.8 min  
 Primary = 1.78 cfs @ 12.30 hrs, Volume= 0.265 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
 Peak Elev= 121.51' @ 12.30 hrs Surf.Area= 9,606 sf Storage= 7,823 cf  
 Flood Elev= 123.00' Surf.Area= 9,606 sf Storage= 8,821 cf

Plug-Flow detention time= 479.9 min calculated for 0.265 af (75% of inflow)  
 Center-of-Mass det. time= 395.6 min ( 1,156.8 - 761.3 )

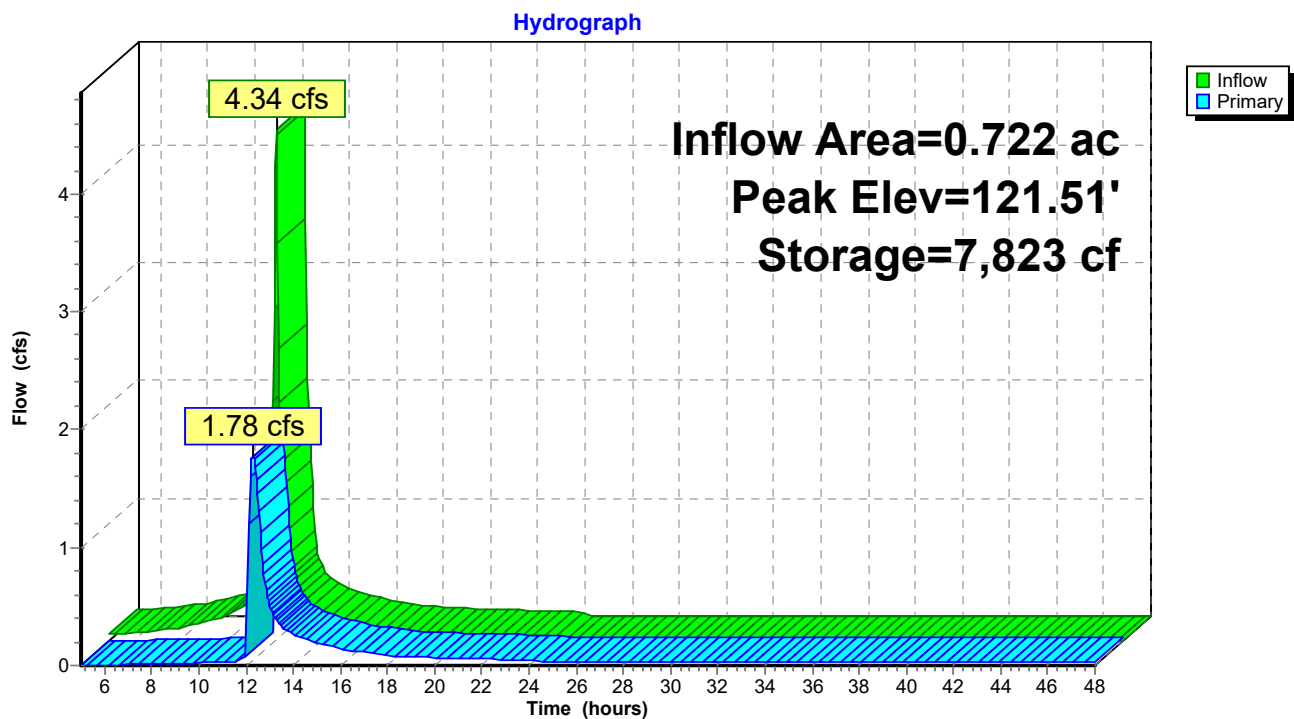
| Volume | Invert  | Avail.Storage | Storage Description                                                                                                                                                                                    |
|--------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | 118.75' | 3,185 cf      | <b>23.00'W x 144.00'L x 3.50'H Stone</b><br>11,592 cf Overall - 3,629 cf Embedded = 7,963 cf x 40.0% Voids                                                                                             |
| #2     | 119.25' | 3,629 cf      | <b>ADS_StormTech SC-740 +Cap x 79 Inside #1</b><br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>79 Chambers in 4 Rows |
| #3     | 117.25' | 895 cf        | <b>21.00'W x 142.00'L x 1.50'H Sand</b><br>4,473 cf Overall x 20.0% Voids                                                                                                                              |
| #4     | 116.40' | 1,088 cf      | <b>23.00'W x 144.00'L x 0.83'H Crushed Stone</b><br>2,749 cf Overall - 30 cf Embedded = 2,719 cf x 40.0% Voids                                                                                         |
| #5     | 116.60' | 24 cf         | <b>4.0" Round Underdrain Storage x 2 Inside #4</b><br>L= 140.0' S= 0.0010 '/'<br>30 cf Overall - 0.2" Wall Thickness = 24 cf                                                                           |
|        |         | 8,821 cf      | Total Available Storage                                                                                                                                                                                |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                                                                         |
|--------|----------|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 116.10' | <b>18.0" Round 18" SD to DMH-2</b> L= 30.0' Ke= 0.600<br>Inlet / Outlet Invert= 116.10' / 116.00' S= 0.0033 '/ Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf                                                                               |
| #2     | Device 1 | 120.75' | <b>8.0" Round 8" overflows into header X 3.00</b><br>L= 5.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 120.75' / 120.31' S= 0.0880 '/ Cc= 0.600<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf |
| #3     | Device 1 | 116.40' | <b>1.5" Round Underdrains w orifice</b><br>L= 90.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 116.40' / 116.35' S= 0.0006 '/ Cc= 0.600<br>n= 0.012, Flow Area= 0.01 sf                                         |

**Primary OutFlow** Max=1.78 cfs @ 12.30 hrs HW=121.51' (Free Discharge)

- 1=18" SD to DMH-2 (Passes 1.78 cfs of 17.23 cfs potential flow)
- 2=8" overflows into header (Inlet Controls 1.74 cfs @ 1.66 fps)
- 3=Underdrains w orifice (Barrel Controls 0.03 cfs @ 2.83 fps)

**Pond 2.2P: StormTech #2 ; 21x142**





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*Type III 24-hr 50 yr Rainfall=7.14"*

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Time span=5.00-48.00 hrs, dt=0.05 hrs, 861 points  
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN  
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

|                                            |                                                                                                                          |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| <b>Subcatchment1S: 1.0</b>                 | Runoff Area=28,782 sf 50.98% Impervious Runoff Depth=4.49"<br>Tc=6.0 min CN=77 Runoff=3.39 cfs 0.247 af                  |
| <b>Subcatchment2.0: Five Star Auto</b>     | Runoff Area=34,806 sf 77.58% Impervious Runoff Depth>5.50"<br>Tc=6.0 min CN=86 Runoff=4.87 cfs 0.366 af                  |
| <b>Subcatchment2.1: 2.1</b>                | Runoff Area=20,967 sf 99.42% Impervious Runoff Depth>6.68"<br>Tc=6.0 min CN=98 Runoff=3.29 cfs 0.268 af                  |
| <b>Subcatchment2.2: 2.2</b>                | Runoff Area=31,442 sf 100.00% Impervious Runoff Depth>6.68"<br>Tc=6.0 min CN=98 Runoff=4.94 cfs 0.402 af                 |
| <b>Subcatchment2.3: 2.3</b>                | Runoff Area=60,379 sf 14.11% Impervious Runoff Depth=4.49"<br>Tc=10.9 min CN=77 Runoff=6.13 cfs 0.519 af                 |
| <b>Subcatchment3.0: SUB 3.0</b>            | Runoff Area=40,947 sf 17.14% Impervious Runoff Depth>5.39"<br>Flow Length=72' Tc=10.8 min CN=85 Runoff=4.88 cfs 0.422 af |
| <b>Reach 1R: POI # 1.0; WEST COLE ROAD</b> | Inflow=3.39 cfs 0.247 af<br>Outflow=3.39 cfs 0.247 af                                                                    |
| <b>Reach 2R: POI #2; CROSS CULVERT</b>     | Inflow=13.07 cfs 1.395 af<br>Outflow=13.07 cfs 1.395 af                                                                  |
| <b>Reach 3R: POI #3; TRAIN TRACKS</b>      | Inflow=4.88 cfs 0.422 af<br>Outflow=4.88 cfs 0.422 af                                                                    |
| <b>Pond 2.1P: StormTech #1: 25 x 85</b>    | Peak Elev=121.73' Storage=6,021 cf Inflow=3.29 cfs 0.268 af<br>Outflow=1.28 cfs 0.196 af                                 |
| <b>Pond 2.2P: StormTech #2 ; 21x142</b>    | Peak Elev=121.89' Storage=8,345 cf Inflow=4.94 cfs 0.402 af<br>Outflow=2.42 cfs 0.314 af                                 |

**Total Runoff Area = 4.989 ac Runoff Volume = 2.224 af Average Runoff Depth = 5.35"**  
**49.61% Pervious = 2.475 ac 50.39% Impervious = 2.514 ac**

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Type III 24-hr 50 yr Rainfall=7.14"

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**Summary for Subcatchment 1S: 1.0**

Runoff = 3.39 cfs @ 12.09 hrs, Volume= 0.247 af, Depth= 4.49"

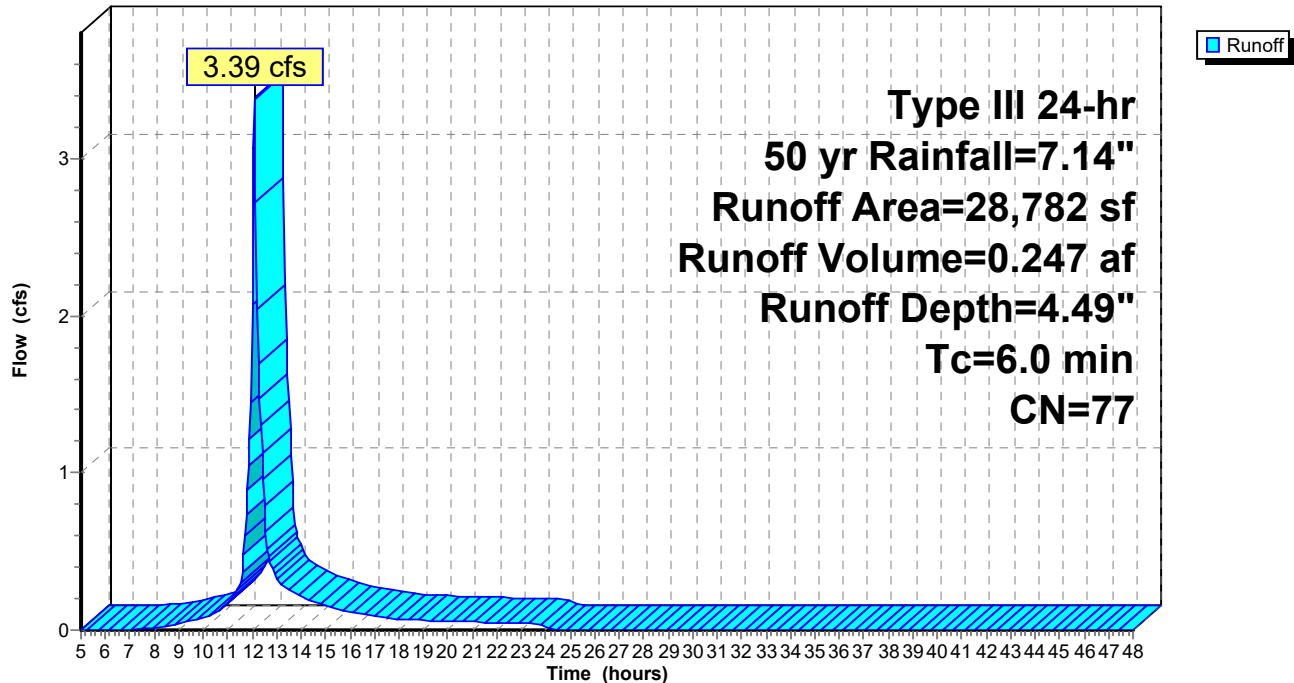
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 yr Rainfall=7.14"

|   | Area (sf) | CN | Description                     |
|---|-----------|----|---------------------------------|
| * | 14,673    | 98 | Pavement/Roof                   |
|   | 11,306    | 49 | 50-75% Grass cover, Fair, HSG A |
| * | 2,803     | 80 | wood chip/ daycare play area    |
|   | 28,782    | 77 | Weighted Average                |
|   | 14,109    |    | 49.02% Pervious Area            |
|   | 14,673    |    | 50.98% Impervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description            |
|----------|---------------|---------------|-------------------|----------------|------------------------|
| 6.0      |               |               |                   |                | Direct Entry, 0.1 hour |

**Subcatchment 1S: 1.0**

Hydrograph



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Type III 24-hr 50 yr Rainfall=7.14"

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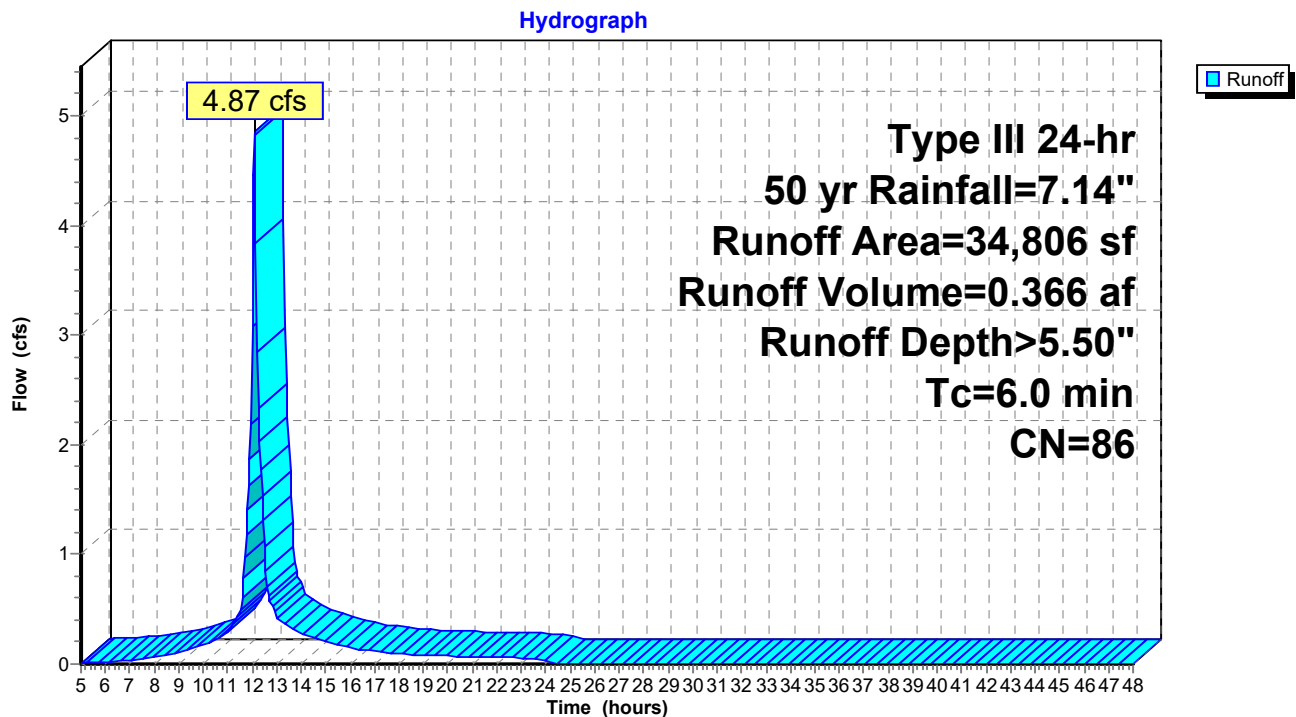
**Summary for Subcatchment 2.0: Five Star Auto**

Runoff = 4.87 cfs @ 12.09 hrs, Volume= 0.366 af, Depth&gt; 5.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 yr Rainfall=7.14"

|   | Area (sf) | CN | Description                   |
|---|-----------|----|-------------------------------|
| * | 27,003    | 98 | Pavement/Roof                 |
|   | 7,060     | 39 | >75% Grass cover, Good, HSG A |
|   | 743       | 91 | Gravel roads, HSG D           |
|   | 34,806    | 86 | Weighted Average              |
|   | 7,803     |    | 22.42% Pervious Area          |
|   | 27,003    |    | 77.58% Impervious Area        |

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

**Subcatchment 2.0: Five Star Auto**

### Summary for Subcatchment 2.1: 2.1

Runoff = 3.29 cfs @ 12.09 hrs, Volume= 0.268 af, Depth> 6.68"

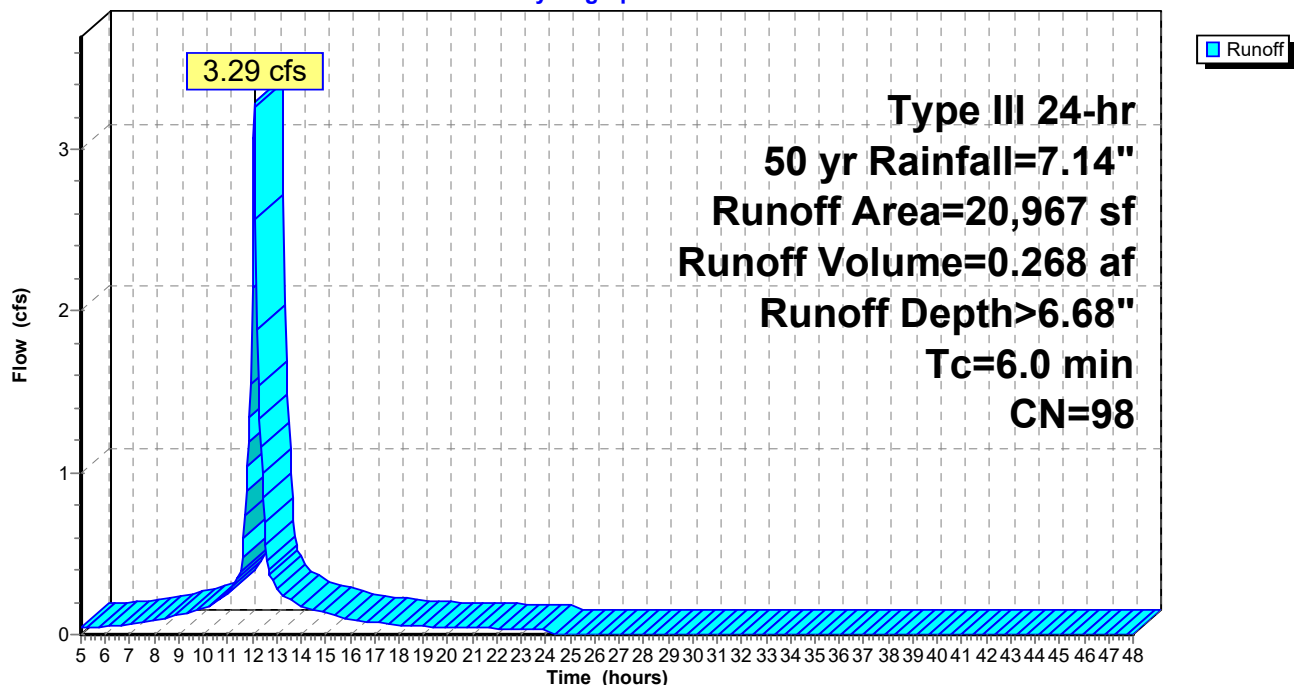
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 yr Rainfall=7.14"

| Area (sf) | CN | Description                   |
|-----------|----|-------------------------------|
| 20,846    | 98 | Paved parking, HSG A          |
| 121       | 39 | >75% Grass cover, Good, HSG A |
| 20,967    | 98 | Weighted Average              |
| 121       |    | 0.58% Pervious Area           |
| 20,846    |    | 99.42% Impervious Area        |

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

### Subcatchment 2.1: 2.1

Hydrograph



### Summary for Subcatchment 2.2: 2.2

Runoff = 4.94 cfs @ 12.09 hrs, Volume= 0.402 af, Depth> 6.68"

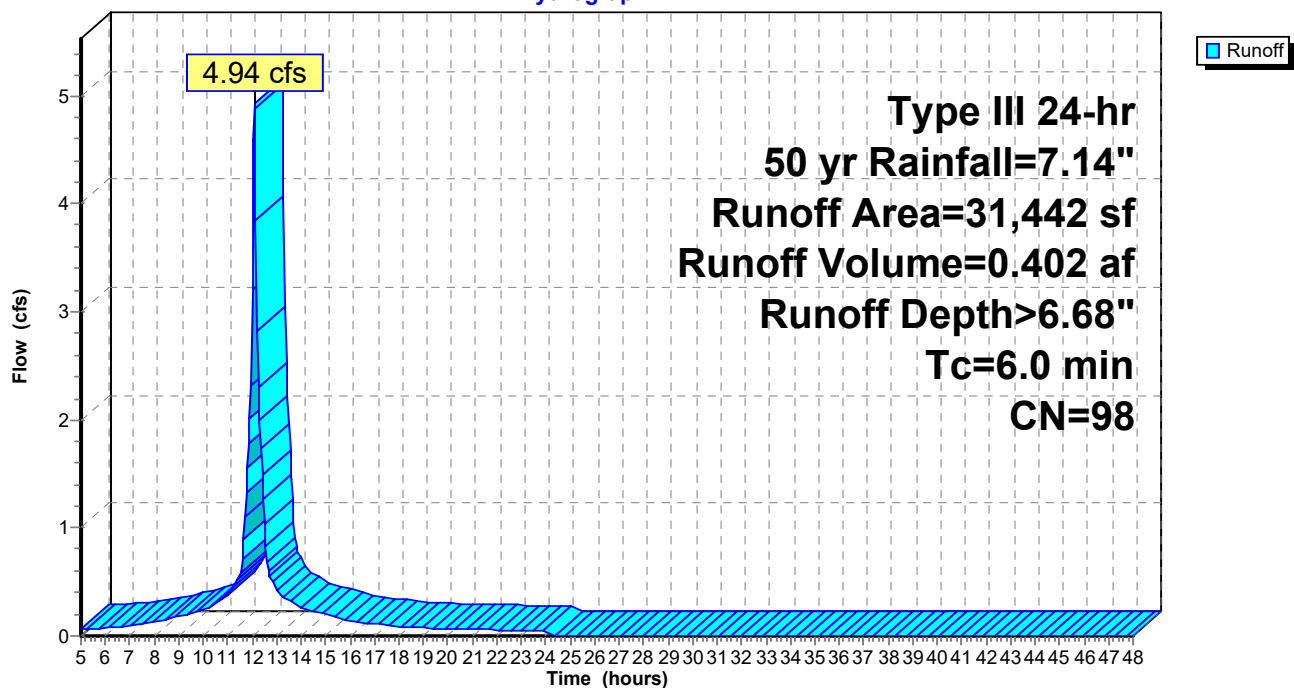
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 yr Rainfall=7.14"

| Area (sf) | CN | Description             |
|-----------|----|-------------------------|
| 31,442    | 98 | Paved parking, HSG A    |
| 31,442    |    | 100.00% Impervious Area |

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

### Subcatchment 2.2: 2.2

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Type III 24-hr 50 yr Rainfall=7.14"

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**Summary for Subcatchment 2.3: 2.3**

Runoff = 6.13 cfs @ 12.15 hrs, Volume= 0.519 af, Depth= 4.49"

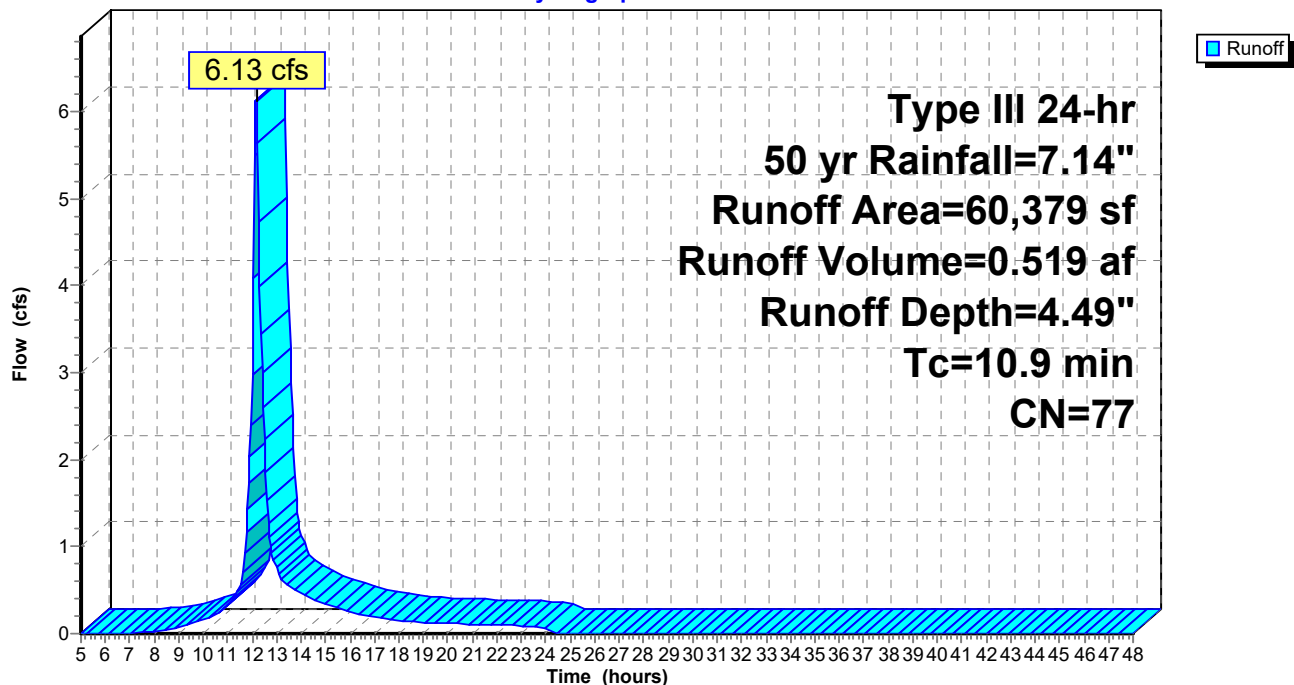
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 yr Rainfall=7.14"

| Area (sf) | CN | Description                    |
|-----------|----|--------------------------------|
| 7,899     | 82 | Woods/grass comb., Fair, HSG D |
| 31,212    | 80 | >75% Grass cover, Good, HSG D  |
| 9,678     | 39 | >75% Grass cover, Good, HSG A  |
| * 8,521   | 98 | Pavement                       |
| 25        | 43 | Woods/grass comb., Fair, HSG A |
| 3,044     | 89 | <50% Grass cover, Poor, HSG D  |
| 60,379    | 77 | Weighted Average               |
| 51,858    |    | 85.89% Pervious Area           |
| 8,521     |    | 14.11% Impervious Area         |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description               |
|----------|---------------|---------------|-------------------|----------------|---------------------------|
| 10.9     |               |               |                   |                | Direct Entry, Pre Tc Copy |

**Subcatchment 2.3: 2.3**

Hydrograph



**Post HC Biddeford 5.18**

Prepared by HP

HydroCAD® 10.00-24 s/n 00620 © 2018 HydroCAD Software Solutions LLC

Type III 24-hr 50 yr Rainfall=7.14"

Printed 5/18/2022

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**Summary for Subcatchment 3.0: SUB 3.0**

Runoff = 4.88 cfs @ 12.15 hrs, Volume= 0.422 af, Depth&gt; 5.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
Type III 24-hr 50 yr Rainfall=7.14"

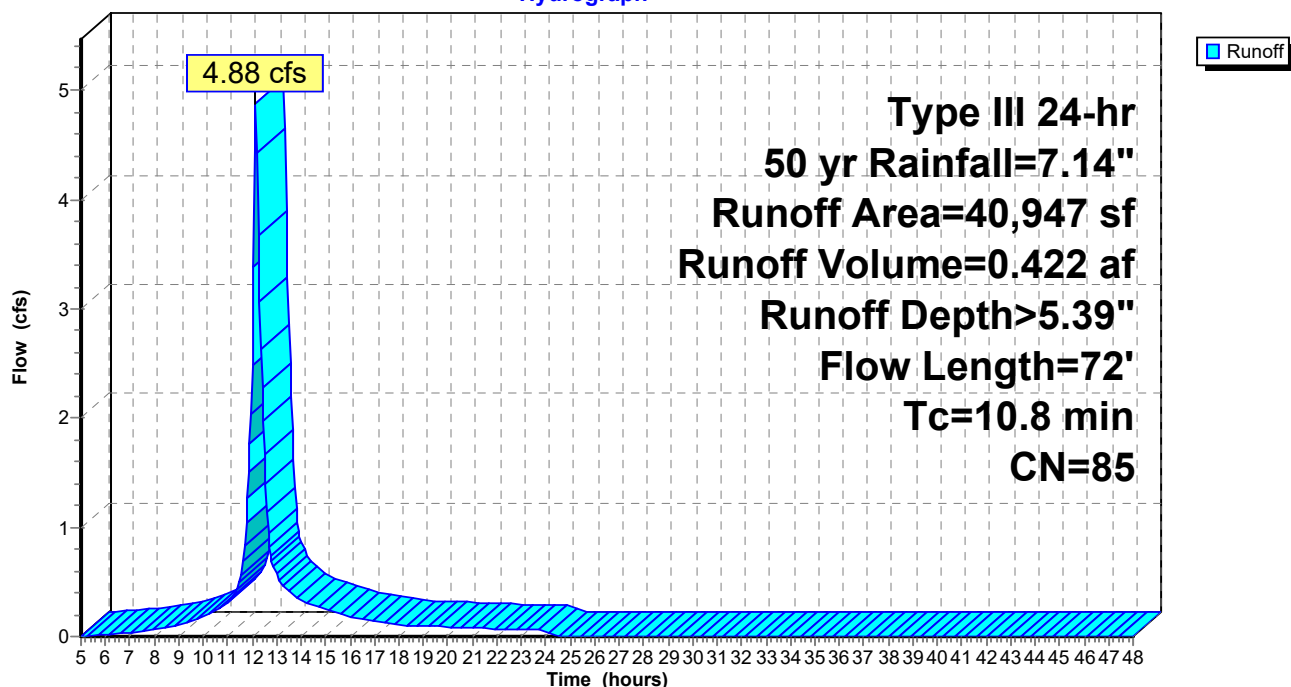
| Area (sf) | CN | Description                     |
|-----------|----|---------------------------------|
| 15,384    | 82 | Woods/grass comb., Fair, HSG D  |
| 11,736    | 84 | 50-75% Grass cover, Fair, HSG D |
| * 7,018   | 98 | Paved parking,                  |
| * 4,219   | 96 | GRAVEL                          |
| 1,365     | 49 | 50-75% Grass cover, Fair, HSG A |
| 134       | 43 | Woods/grass comb., Fair, HSG A  |
| 1,091     | 80 | >75% Grass cover, Good, HSG D   |
| 40,947    | 85 | Weighted Average                |
| 33,929    |    | 82.86% Pervious Area            |
| 7,018     |    | 17.14% Impervious Area          |

| Tc (min) | Length (feet) | Slope (ft/ft) | Velocity (ft/sec) | Capacity (cfs) | Description                                |
|----------|---------------|---------------|-------------------|----------------|--------------------------------------------|
| 5.6      | 40            | 0.0320        | 0.12              |                | <b>Sheet Flow, A to B</b>                  |
|          |               |               |                   |                | Grass: Dense n= 0.240 P2= 3.24"            |
| 5.2      | 32            | 0.0690        | 0.10              |                | <b>Sheet Flow, B to C</b>                  |
|          |               |               |                   |                | Woods: Light underbrush n= 0.400 P2= 3.24" |
| 10.8     | 72            | Total         |                   |                |                                            |

**Subcatchment 3.0: SUB 3.0**

Hydrograph

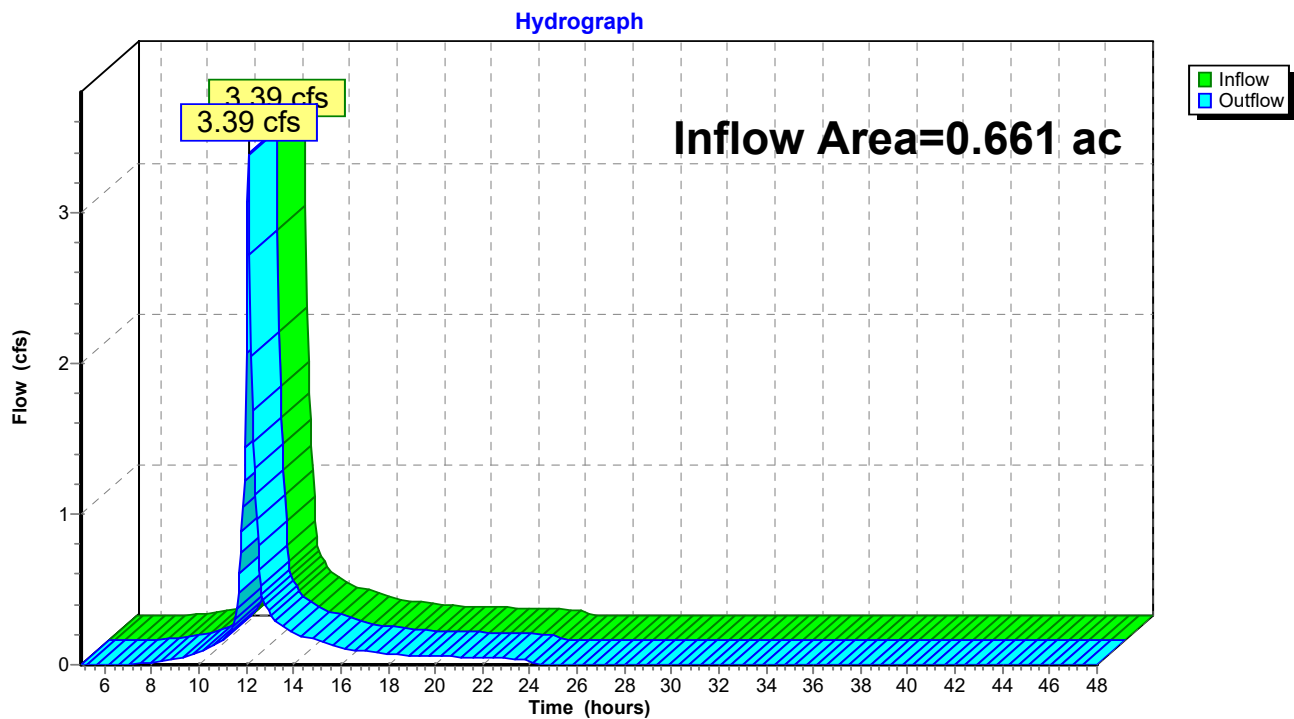


### Summary for Reach 1R: POI # 1.0; WEST COLE ROAD

Inflow Area = 0.661 ac, 50.98% Impervious, Inflow Depth = 4.49" for 50 yr event  
 Inflow = 3.39 cfs @ 12.09 hrs, Volume= 0.247 af  
 Outflow = 3.39 cfs @ 12.09 hrs, Volume= 0.247 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

### Reach 1R: POI # 1.0; WEST COLE ROAD



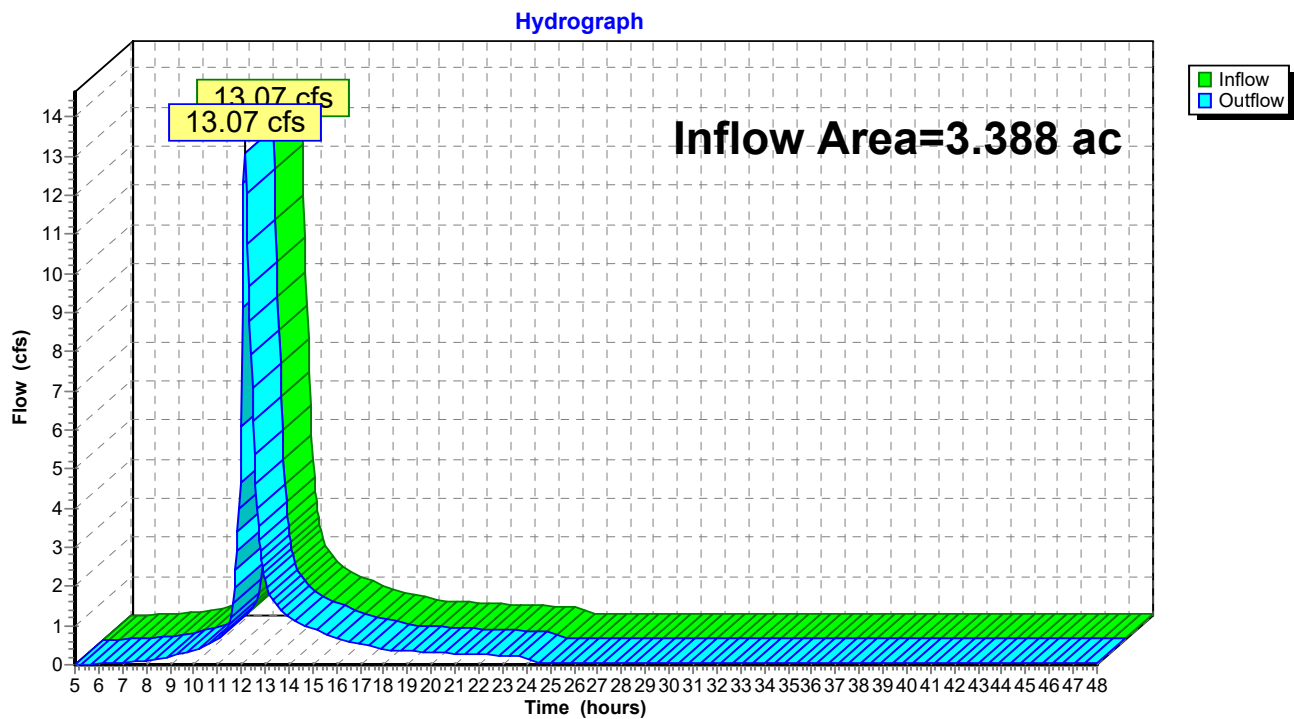


### Summary for Reach 2R: POI #2; CROSS CULVERT

Inflow Area = 3.388 ac, 59.50% Impervious, Inflow Depth > 4.94" for 50 yr event  
 Inflow = 13.07 cfs @ 12.15 hrs, Volume= 1.395 af  
 Outflow = 13.07 cfs @ 12.15 hrs, Volume= 1.395 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

### Reach 2R: POI #2; CROSS CULVERT

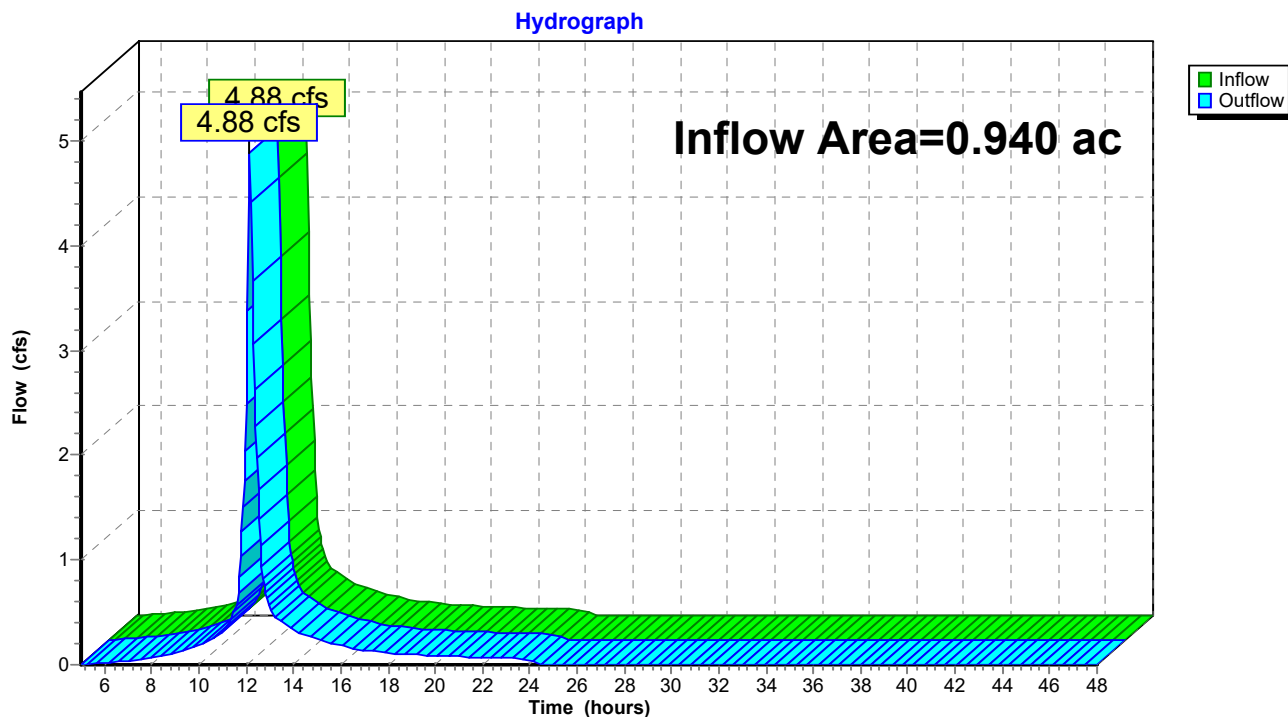


### Summary for Reach 3R: POI #3; TRAIN TRACKS

Inflow Area = 0.940 ac, 17.14% Impervious, Inflow Depth > 5.39" for 50 yr event  
 Inflow = 4.88 cfs @ 12.15 hrs, Volume= 0.422 af  
 Outflow = 4.88 cfs @ 12.15 hrs, Volume= 0.422 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs

### Reach 3R: POI #3; TRAIN TRACKS



**Summary for Pond 2.1P: StormTech #1: 25 x 85**

Inflow Area = 0.481 ac, 99.42% Impervious, Inflow Depth > 6.68" for 50 yr event  
 Inflow = 3.29 cfs @ 12.09 hrs, Volume= 0.268 af  
 Outflow = 1.28 cfs @ 12.32 hrs, Volume= 0.196 af, Atten= 61%, Lag= 13.8 min  
 Primary = 1.28 cfs @ 12.32 hrs, Volume= 0.196 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
 Peak Elev= 121.73' @ 12.32 hrs Surf.Area= 6,823 sf Storage= 6,021 cf  
 Flood Elev= 123.00' Surf.Area= 6,823 sf Storage= 6,367 cf

Plug-Flow detention time= 461.7 min calculated for 0.196 af (73% of inflow)  
 Center-of-Mass det. time= 374.4 min ( 1,135.1 - 760.7 )

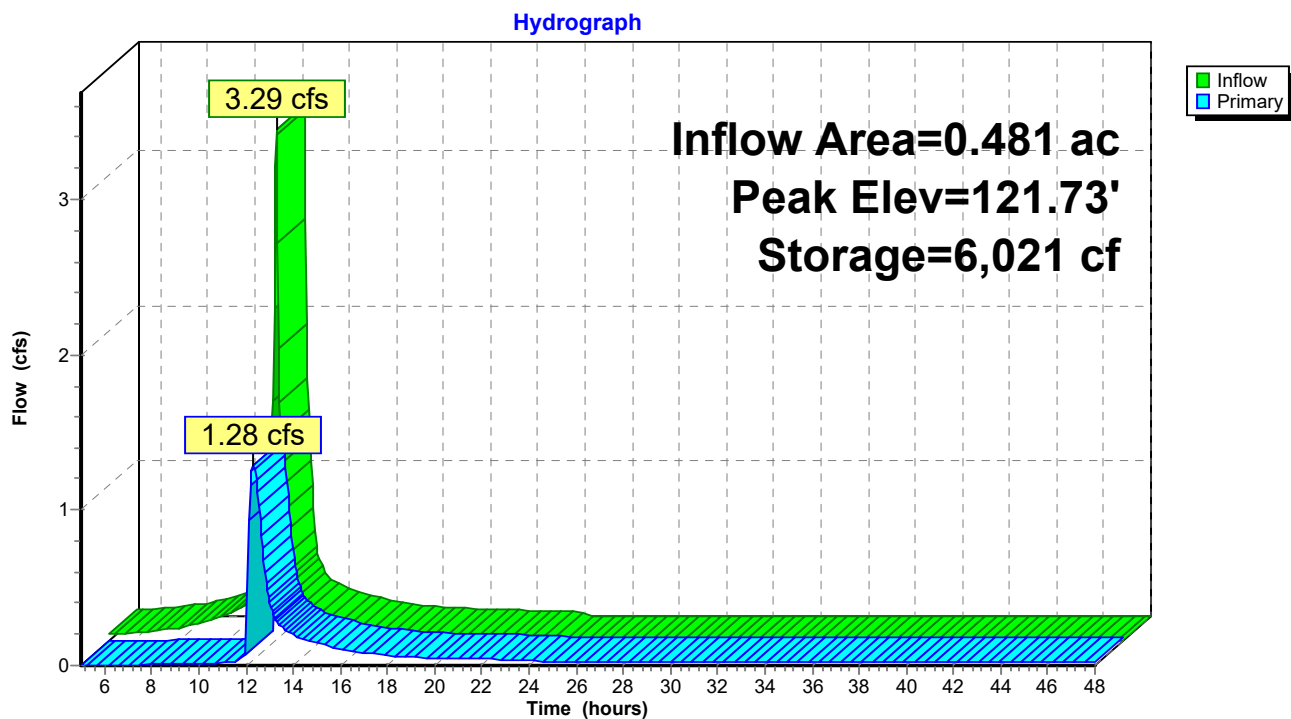
| Volume | Invert  | Avail.Storage | Storage Description                                                                                                                                                                                    |
|--------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | 118.60' | 2,186 cf      | <b>27.00'W x 87.00'L x 3.50'H Stone</b><br>8,222 cf Overall - 2,756 cf Embedded = 5,465 cf x 40.0% Voids                                                                                               |
| #2     | 119.10' | 2,756 cf      | <b>ADS_StormTech SC-740 +Cap x 60 Inside #1</b><br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>60 Chambers in 4 Rows |
| #3     | 117.10' | 638 cf        | <b>25.00'W x 85.00'L x 1.50'H Sand</b><br>3,188 cf Overall x 20.0% Voids                                                                                                                               |
| #4     | 116.25' | 773 cf        | <b>27.00'W x 87.00'L x 0.83'H Crushed Stone</b><br>1,950 cf Overall - 17 cf Embedded = 1,933 cf x 40.0% Voids                                                                                          |
| #5     | 116.50' | 14 cf         | <b>4.0" Round Underdrain Storage x 2 Inside #4</b><br>L= 80.0' S= 0.0010 '/<br>17 cf Overall - 0.2" Wall Thickness = 14 cf                                                                             |
|        |         | 6,367 cf      | Total Available Storage                                                                                                                                                                                |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                                                                       |
|--------|----------|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 116.40' | <b>18.0" Round 18" SD to DMH-2</b> L= 30.0' Ke= 0.600<br>Inlet / Outlet Invert= 116.40' / 116.35' S= 0.0017 '/ Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf                                                                             |
| #2     | Device 1 | 120.77' | <b>6.0" Round 6" overflows to header X 3.00</b><br>L= 5.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 120.77' / 120.25' S= 0.1040 '/ Cc= 0.600<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.20 sf |
| #3     | Device 1 | 116.55' | <b>1.3" Round Underdrains w orifice</b><br>L= 90.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 116.55' / 116.45' S= 0.0011 '/ Cc= 0.600<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.01 sf        |

**Primary OutFlow** Max=1.28 cfs @ 12.32 hrs HW=121.73' (Free Discharge)

- 1=18" SD to DMH-2 (Passes 1.28 cfs of 17.07 cfs potential flow)
- 2=6" overflows to header (Inlet Controls 1.26 cfs @ 2.13 fps)
- 3=Underdrains w orifice (Barrel Controls 0.02 cfs @ 2.62 fps)

Pond 2.1P: StormTech #1: 25 x 85



**Summary for Pond 2.2P: StormTech #2 ; 21x142**

Inflow Area = 0.722 ac, 100.00% Impervious, Inflow Depth > 6.68" for 50 yr event  
 Inflow = 4.94 cfs @ 12.09 hrs, Volume= 0.402 af  
 Outflow = 2.42 cfs @ 12.24 hrs, Volume= 0.314 af, Atten= 51%, Lag= 9.5 min  
 Primary = 2.42 cfs @ 12.24 hrs, Volume= 0.314 af

Routing by Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs  
 Peak Elev= 121.89' @ 12.24 hrs Surf.Area= 9,606 sf Storage= 8,345 cf  
 Flood Elev= 123.00' Surf.Area= 9,606 sf Storage= 8,821 cf

Plug-Flow detention time= 421.3 min calculated for 0.314 af (78% of inflow)  
 Center-of-Mass det. time= 342.2 min ( 1,102.9 - 760.7 )

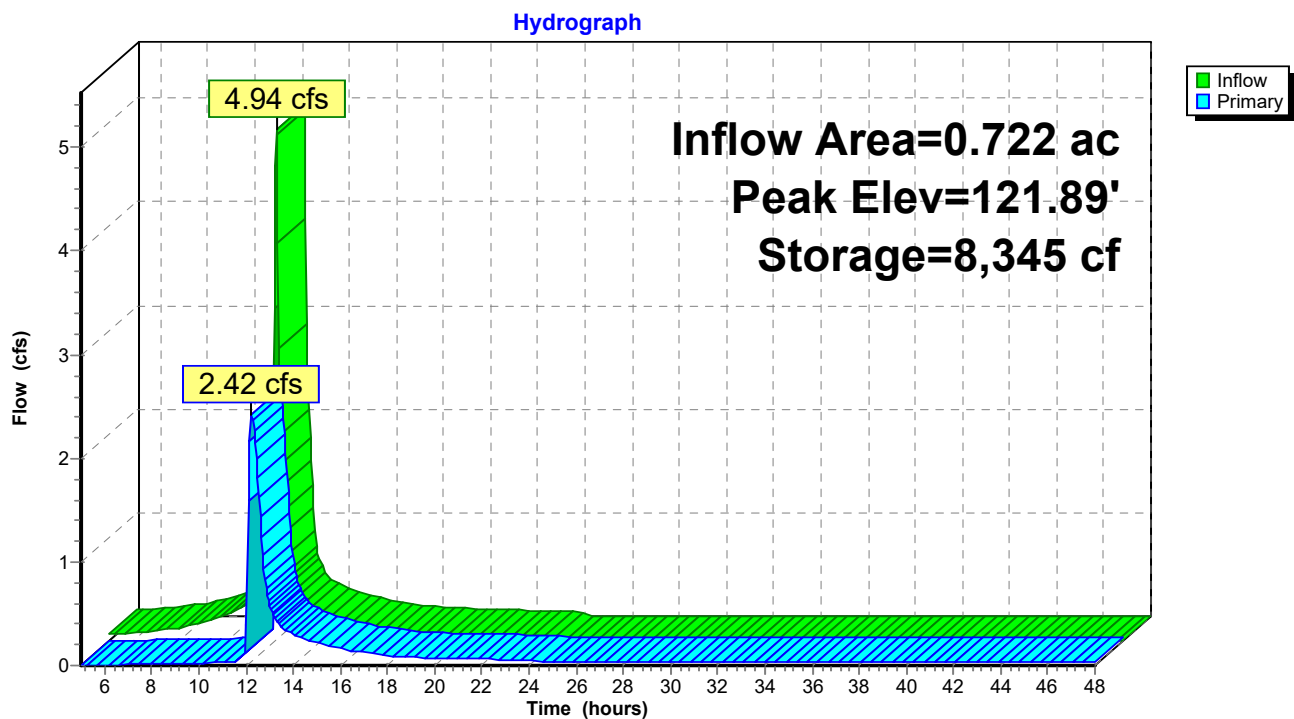
| Volume | Invert  | Avail.Storage | Storage Description                                                                                                                                                                                    |
|--------|---------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | 118.75' | 3,185 cf      | <b>23.00'W x 144.00'L x 3.50'H Stone</b><br>11,592 cf Overall - 3,629 cf Embedded = 7,963 cf x 40.0% Voids                                                                                             |
| #2     | 119.25' | 3,629 cf      | <b>ADS_StormTech SC-740 +Cap x 79 Inside #1</b><br>Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf<br>Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap<br>79 Chambers in 4 Rows |
| #3     | 117.25' | 895 cf        | <b>21.00'W x 142.00'L x 1.50'H Sand</b><br>4,473 cf Overall x 20.0% Voids                                                                                                                              |
| #4     | 116.40' | 1,088 cf      | <b>23.00'W x 144.00'L x 0.83'H Crushed Stone</b><br>2,749 cf Overall - 30 cf Embedded = 2,719 cf x 40.0% Voids                                                                                         |
| #5     | 116.60' | 24 cf         | <b>4.0" Round Underdrain Storage x 2 Inside #4</b><br>L= 140.0' S= 0.0010 '/'<br>30 cf Overall - 0.2" Wall Thickness = 24 cf                                                                           |
|        |         | 8,821 cf      | Total Available Storage                                                                                                                                                                                |

| Device | Routing  | Invert  | Outlet Devices                                                                                                                                                                                                                          |
|--------|----------|---------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| #1     | Primary  | 116.10' | <b>18.0" Round 18" SD to DMH-2</b> L= 30.0' Ke= 0.600<br>Inlet / Outlet Invert= 116.10' / 116.00' S= 0.0033 '/' Cc= 0.900<br>n= 0.012, Flow Area= 1.77 sf                                                                               |
| #2     | Device 1 | 120.75' | <b>8.0" Round 8" overflows into header X 3.00</b><br>L= 5.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 120.75' / 120.31' S= 0.0880 '/' Cc= 0.600<br>n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.35 sf |
| #3     | Device 1 | 116.40' | <b>1.5" Round Underdrains w orifice</b><br>L= 90.0' CMP, projecting, no headwall, Ke= 0.900<br>Inlet / Outlet Invert= 116.40' / 116.35' S= 0.0006 '/' Cc= 0.600<br>n= 0.012, Flow Area= 0.01 sf                                         |

**Primary OutFlow** Max=2.42 cfs @ 12.24 hrs HW=121.89' (Free Discharge)

- 1=18" SD to DMH-2 (Passes 2.42 cfs of 17.90 cfs potential flow)
- 2=8" overflows into header (Inlet Controls 2.38 cfs @ 2.27 fps)
- 3=Underdrains w orifice (Barrel Controls 0.04 cfs @ 2.94 fps)

**Pond 2.2P: StormTech #2 ; 21x142**



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# SECTION 6

## TRAFFIC OVERVIEW



## **Section 6: Traffic Overview**

The proposed development is located at Enterprise Drive in Biddeford and features a three-story conditioned self-storage facility providing 465 storage units. The facility will be partially gated and provides 23 parking spaces for tenants within the gate, and three parking spaces to allow guests to access the facility office. The development will provide a paved two-way access road from West Cole Road to the facilities office and a formal one-way paved drive aisle within the gate for travel surrounding the facility. The preliminary trip generation for the proposed project has been estimated using the Institute of Transportation Engineers (ITE) “Trip Generation” 10<sup>th</sup> Edition publication. The land use utilized in the calculation is Mini-Warehouse (LUC 151) to estimate the trip generation and is defined as *“A mini-warehouse is a building in which a number of storage units or vaults are rented for the storage of goods. They are typically referred to as “self-storage” facilities. Each unit is physically separated from other units, and access is usually provided through an overhead door or other common access point.”*

In accordance with the City’s Land Development Regulations, Performance Standards for off-street parking and loading, Parking space requirements, the project parking demand requires 1 space for every 50 units of self-storage resulting in a total of 9.3 spaces required (1 space/50 units x 465 self-storage units). The project proposes to construct surface parking with 26 parking spaces to serve the development.

### **Trip Generation**

Trip generation is based upon tables presented in the tenth edition of the Institute of Transportation’s Engineers “TRIP GENERATION” manual. The following trip rates represent the weighted average number of vehicle trips entering or existing a development site. The following rates were applied to calculate the Peak Hour Trip Generation provided in Table 1. Please note that the peak trip generation is highlighted.

#### **Land-Use #151: Mini-Warehouse**

|                                  |                              |
|----------------------------------|------------------------------|
| Weekday AM Peak Hour (Street)    | = 0.10 trips/100 Sq. Ft GFA  |
| Weekday PM Peak Hour (Street)    | = 0.17 trips/100 Sq. Ft GFA  |
| Weekday AM Peak Hour (Generator) | = 0. 20 trips/100 Sq. Ft GFA |
| Weekday PM Peak Hour (Generator) | = 0.20 trips/100 Sq. Ft GFA  |
| Saturday Peak Hour (Generator)   | = 0.31 trips/100 Sq. Ft GFA  |
| Sunday Peak Hour (Generator)     | = 0.16 trips/100 Sq. Ft GFA  |

The average trip generation rates are based on the gross floor area of the building, based on the architectural plans prepared for this submission the gross floor area used for the calculation was 44,290 SF. Table 1 below provides a summary of the trip generation for the development. As the project is not expected to generate over 100 peak hour trips, a Traffic Movement Permit (TMP)





from the Maine Department of Transportation (MDOT) is not required.

| <b>Table 1 – Peak Hour Trip Generation</b> |                                  |
|--------------------------------------------|----------------------------------|
|                                            | <b>Peak Hour Trip Generation</b> |
| AM Peak Hour (Street)                      | 4 trips                          |
| PM Peak Hour (Street)                      | 8 trips                          |
| AM Peak Hour (Generator)                   | 9 trips                          |
| PM Peak Hour (Generator)                   | 9 trips                          |
| Saturday Peak Hour (Generator)             | 14 trips                         |
| Sunday Peak Hour (Generator)               | 7 trips                          |

As seen, the project represents a low-impact development from a traffic generation perspective.



## **Section 7: Utilities Summary**

The project proposes to utilize existing infrastructure in the area and provides utility upgrades for various utility lines. Summaries of each utility are as follows:

### *Water:*

There is an existing 16" main within Alfred Street. The proposed development proposes a 16" by 8" tapping sleeve and gate valve from the existing main to provide an 8" sprinkler service for the development. A 2" service saddle is proposed to tap of the existing 16" line within Alfred Street to provide a domestic line to the proposed building. A gate valve and box are proposed on both water lines within the R.O.W. of Alfred Street along the property line. These lines will run through a proposed 25' Utility easement and connect to the proposed facility. The project will also reroute an existing 1" water line that feeds the Daycare. It should be noted that the adjacent landowner owns both Five Star Auto and the Daycare facility and recently sold the subject parcel to the Applicant and has considered and verbally agreed to these easements which will be formally drafted as the project progresses. An 8" by 6" swivel tee is proposed to tap off the 8" line and include a 6" line with gate valve to a proposed fire hydrant on site.

### *Sewer:*

There is an existing 4" sewer line that runs through the property connecting from the abutting Daycare facility. This line is proposed to be relocated as part of this development. The line will remain a 4" sewer line and be directed through two manholes within the property. It is proposed to route a 4" sewer line from the proposed building to the second manhole on the property. This manhole will intercept both 4" sewer lines and provide a 6" line to connect to the existing SMH #3 within the City's sewer easement which facilitates the existing 10" sewer main.

### *Stormwater:*

It is proposed to add a series of catch basins and drainage manholes throughout the development to collect stormwater. These catch basins will be connected through a storm drain network which will be routed to two underdrained subsurface sand filter BMP's providing cooling, attenuation, and treatment. These chambers will then be routed through various manholes and daylight into an existing riprap channel and cross culvert through a proposed drainage easement. The project has received a Stormwater Law permit from the Maine DEP

### *Electric/Cable/Telephone:*

The existing overhead electric transmission lines on site are to remain untouched. It is proposed to provide a pipe brace guy on the existing single-phase pole within West Cole Road to provide an adequate entrance to the site. Guardrails with steel posts are proposed to be placed 10 feet from the existing utility poles on site as shown in the plan set. It is proposed to extend the overhead 3-phase power line across Alfred Rd to a newly proposed utility pole with a guy wire within the development. A pole mount transformer and riser to underground conduit is proposed to connect to the proposed utility pole to provide an underground services to the proposed development. These electric and telecom conduits will then be routed to a



junction box or manhole and continued to be routed to the building.

*Natural Gas:*

There is currently no natural gas connection proposed as part of this project. There is an existing 15' Gas Easement that runs throughout the site. This easement contains an existing 6" gas main that runs throughout the site. It is our understanding that a new proposed 8" gas main is currently be installed within the 15' easement and run through the site. The approximate location of these is provided on the Utility Plan, Sheet C-20 and ongoing coordination continues with Unitil and their design engineer.

In addition to the summaries above, Ability to serve letters from Maine Water and the Sewer District are attached.





May 17<sup>th</sup>, 2022

Sam Lebel, P.E.  
Acorn Engineering Inc.  
PO Box 3372  
Portland, ME 04104

Re: Ability to Serve – West Cole Road and Alfred St – Proposed Storage Unit Development

Greetings,

The Maine Water Company (MWC) has received your request for an Ability to Serve Determination on behalf of your client, Steelclad Biddeford LLC, for the property located at a parcel to be split from 451 Alfred Street, Biddeford, Maine for the above referenced project. The request indicates a plan to build a 3-story, 20,000 SF conditioned self-storage facility. The estimated domestic usage has been presented as 24 gallons per day (gpm) based on 2 employees. The fire demand information is not yet available. The static pressure in the area is approximately 55-60 psi. Based on the criteria, MWC does have sufficient capacity in the area from the existing 16-inch cast iron main on Alfred St to serve this project. An alternate option for water would include a main extension from the existing main on W Cole Road. Upon an approved main extension at this area, there would also be sufficient capacity from that location by extending the 8-inch main on West Cole Road to the proposed entrance at Enterprise Drive. Additional infrastructure improvements may be required at the expense of the developer to meet the overall needs of this project.

Conditions of Service

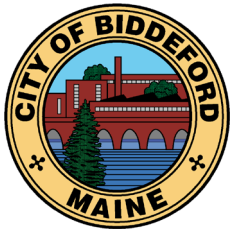
- Domestic and fire services must each be individually tapped from the existing 16-inch cast iron main on Alfred St.
- A meter pit will be required to house the meter at the expense of the developer. This will be a pre-built ¾" meter pit. MWC will provide specifications on the meter pit.
- Additional plan approval, paperwork and fees associated with service for this project will require further coordination with MWC.
- The meter pit will be privately owned by the property owner and maintained as clean, dry and accessible at the expense of the owner.
- The alternate option to extend main down West Cole Road may be less impactful and should be reconsidered as the main will be on the side of the road and getting across Alfred Street will be costly. Either option will be acceptable for water service with additional plan approval.

Should a request for service or completion of the project not be executed within one year of the date of this letter, MWC reserves the right to reevaluate its ability to serve this project.

All work must be completed in accordance with MWC Terms and Conditions as well as material specifications. All appropriate paperwork must be completed and deposit paid prior to the start of construction. Please forward all design plan revisions as the project develops to prevent construction delays. Water service will be provided in accordance with Maine Public Utility Commission rules. If you have any additional questions, please do not hesitate to contact our office at 1-800-287-1643 or by email at [Marcus.Knipp@mainewater.com](mailto:Marcus.Knipp@mainewater.com). We look forward to working with you throughout design and construction.

Sincerely,  
The Maine Water Company

Marcus Knipp, E.I.T.  
Engineer



# *City of Biddeford, Maine*

## City of Biddeford

Public Works Department / Engineering Division/Wastewater Administration Division  
P.O. Box 586 • 205 Main Street, Suite 301  
Biddeford, ME 04005  
Phone: (207) 284-9118 • Fax: (207) 571-0662

### **Letter of Wastewater Treatment Plant Capacity to Serve Alfred Street Self Storage 451 Alfred Street**

Sam Labelle PE  
Acorn Engineering, Inc.  
P O Box 3372  
Portland, Maine 04104

May 3, 2022

Brief description of project: **Alfred Street Self Storage, 451 Alfred Street  
Biddeford, Maine-** Estimated flows: **24 gpd.**

### **Determination**

The applicant is proposing a self-storage building at 451 Alfred Street. The office will have 2 employees and have an estimated flow of 24 gpd. There will be no public restrooms and no other wastewater producing activities.

The City of Biddeford Wastewater Department has reviewed the request to serve the above described project. It has been determined that at this time, once the flow reaches the treatment facility, the City has sufficient capacity at the City's Wastewater Treatment Facilities to treat flows from the above described project. It is estimated that 24 gpd of flow will be added from the project. Changes to the project from that presented to this department may require a new review of the request for ability to serve. This determination will be effective for a period of one year from the date above.

Upon approval of the Planning Board the applicant must make application for sewer service. Flow amounts for the project will be determined at the time application is made and may or may not be the amount stated above. The applicant will be required to pay all fees based on the flow amount calculated at the time application is made and prior to the issuance of any building permits and/or the issuance of a certificate of occupancy.

This Capacity to Serve Letter is intended only to indicate that the City of Biddeford Wastewater Treatment Facilities has the ability to handle and treat the flow from the above stated project once it is

*205 Main Street, Biddeford, ME 04005    P: 207.284.9313    F: 207.571.0678    [www.biddefordmaine.org](http://www.biddefordmaine.org)*

*The City of Biddeford is an equal opportunity provider. To file a complaint, write to  
Human Resource Director, 205 Main Street Biddeford, ME 04005, or call (207) 286-0593.*

received at the treatment facility. Design Plans must be submitted to the City for review and comment. The Planning Department, Engineering Department or other persons from the Wastewater Department may require further studies, calculations or documentation to determine any actions that may need to be taken to address any impacts/capacity issues this project may have on the City's sewer collection and conveyance system(s) or its components.

Thomas Milligan, PE  
City Engineer  
City of Biddeford Engineering Department  
[Tom.milligan@biddefordmaine.org](mailto:Tom.milligan@biddefordmaine.org)  
207-284-9118

CC: Jeff Demers, Public Works/Wastewater Director  
Roby Fecteau, Code Enforcement  
Hannah Bonnie, City Planner  
Alex Buechner, Superintendent  
Craig Chekan, Deputy City Engineer  
E&R Development, applicant

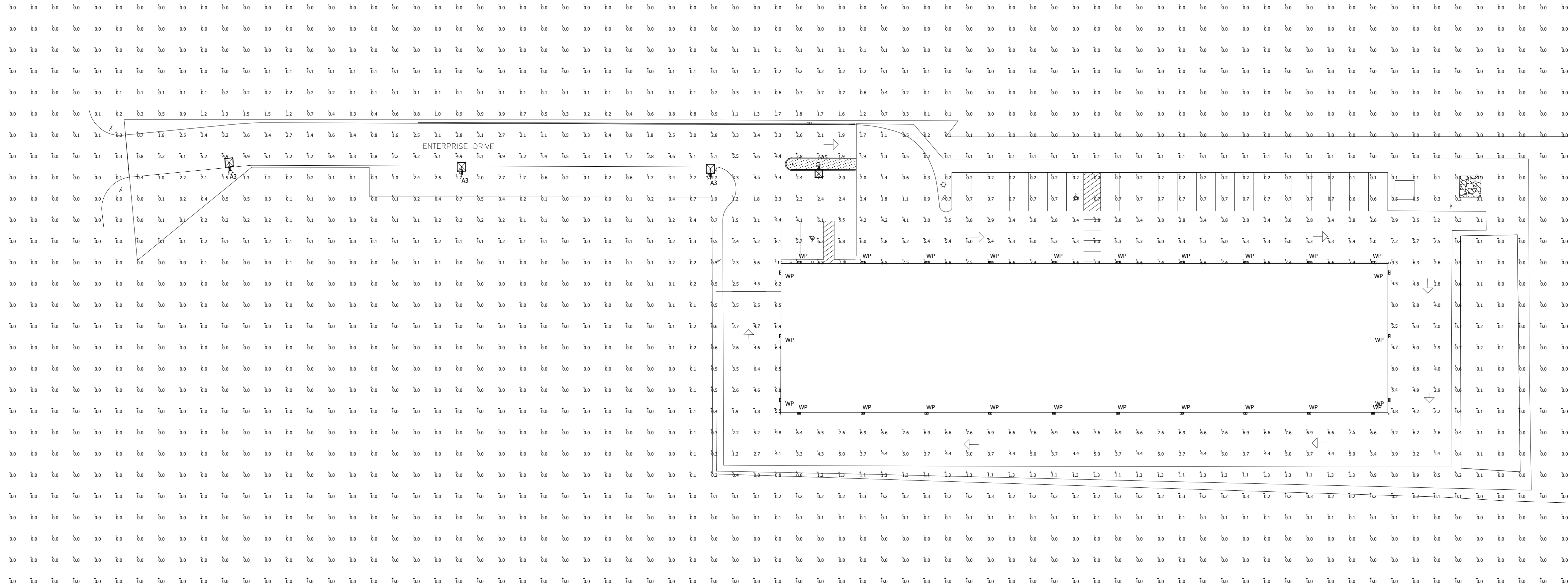
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# SECTION 9

## LIGHTING

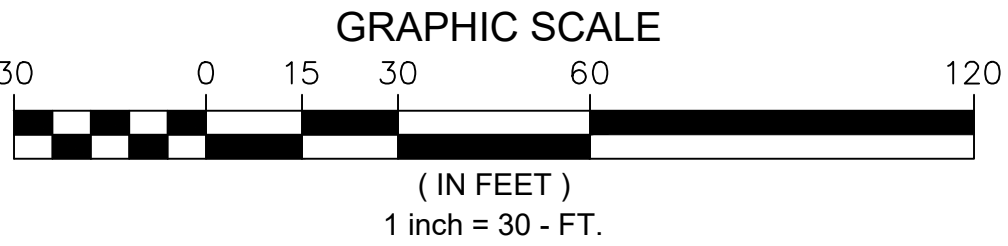






| Luminaire Schedule |     |       |                 |       |             |            |                         |
|--------------------|-----|-------|-----------------|-------|-------------|------------|-------------------------|
| Symbol             | Qty | Label | Mounting Height | LLF   | Lum. Lumens | Lum. Watts | Description             |
|                    | 3   | A3    | 15' - 0" AFG    | 0.900 | 9512        | 70         | RAR1-160L-70-4K7-3-U    |
|                    | 1   | A5    | 15' - 0" AFG    | 0.900 | 9562        | 70         | RAR-1-160L-70-4K7-5QW-U |
|                    | 26  | WP    | 15' - 0" AFG    | 0.900 | 5704        | 45         | RWL1-48L-45-4K7-4W-U    |

| Calculation Summary |             |       |      |      |     |         |         |
|---------------------|-------------|-------|------|------|-----|---------|---------|
| Label               | CalcType    | Units | Avg  | Max  | Min | Avg/Min | Max/Min |
| Overall Area        | Illuminance | Fc    | 0.79 | 11.1 | 0.0 | N.A.    | N.A.    |
| Paved Area          | Illuminance | Fc    | 3.81 | 11.1 | 0.1 | 38.10   | 111.00  |



1. THIS LIGHTING DESIGN IS BASED ON LIMITED INFORMATION SUPPLIED BY OTHERS TO HUBBELL LIGHTING. SITE DETAILS PROVIDED HEREON ARE REPRODUCED ONLY AS A VISUALIZATION AID. FIELD DEVIATIONS MAY SIGNIFICANTLY AFFECT PREDICTED PERFORMANCE. PRIOR TO INSTALLATION, CRITICAL SITE INFORMATION (POLE LOCATIONS, ORIENTATION, MOUNTING HEIGHT, ETC.) SHOULD BE COORDINATED WITH THE CONTRACTOR AND/OR SPECIFIER RESPONSIBLE FOR THE PROJECT.

2. LUMINAIRE DATA IS TESTED TO INDUSTRY STANDARDS UNDER LABORATORY CONDITIONS. OPERATING VOLTAGE AND NORMAL MANUFACTURING TOLERANCES OF LAMP, BALLAST, AND LUMINAIRE MAY AFFECT FIELD RESULTS.

3. CONFORMANCE TO FACILITY CODE AND OTHER LOCAL REQUIREMENTS IS THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.

TITLE:

SELF STORAGE  
BIDDEFORD, ME  
SITE PHOTOMETRIC PLAN

REVISED FROM DRAWING NUMBER(S):

|  |  |
|--|--|
|  |  |
|  |  |
|  |  |

Hubbell Lighting, Inc.  
701 MILLENNIUM BLVD.  
GREENVILLE, SC 29607

DN BY:  
DHK

REV BY:

QUOTE:  
N/A

DATE:  
03/18/22

DATE:

DRAWING / DESIGN NO:  
2229412

CHK BY:  
N/A

SCALE:  
AS NOTED





**Date: Mar 23, 2022**

Swaney Lighting  
PO Box 1597  
Scarborough ME 04070  
Phone: (207) 883-7100  
Fax: (207) 885-9606

Job Name  
**SELF STORAGE - BIDDEFORD**  
SLA22-51646  
BIDDEFORD ME

Bid Date  
Mar 23, 2022

Submittal Date  
Mar 23, 2022





# Transmittal

Swaney Lighting

PO Box 1597

Scarborough ME 04070

Phone: (207) 883-7100

From: Therese "TC" Freeman X-103

Project SELF STORAGE - BIDDEFORD

Quote# SLA22-51646

Location BIDDEFORD ME

Contact:

ATTACHED WE ARE SENDING YOU 1 COPY OF THE FOLLOWING ITEM:

- |                                   |                                                |        |
|-----------------------------------|------------------------------------------------|--------|
| <input type="checkbox"/> Drawings | <input type="checkbox"/> Specifications        | Other: |
| <input type="checkbox"/> Prints   | <input type="checkbox"/> Information           |        |
| <input type="checkbox"/> Plans    | <input checked="" type="checkbox"/> Submittals |        |

THESE ARE TRANSMITTED FOR:

- |                                                    |                                                   |                                 |
|----------------------------------------------------|---------------------------------------------------|---------------------------------|
| <input checked="" type="checkbox"/> Prior Approval | <input type="checkbox"/> Resubmittal for Approval | <input type="checkbox"/> Record |
| <input type="checkbox"/> Approval                  | <input type="checkbox"/> Corrections              | Bids due on:                    |
| <input type="checkbox"/> Approval as Submitted     | <input type="checkbox"/> Your Use                 | Other:                          |
| <input type="checkbox"/> Approval as Noted         | <input type="checkbox"/> Review and Comment       |                                 |

| Type | MFG                                             | Part                                             |
|------|-------------------------------------------------|--------------------------------------------------|
| A3   | Hubbell Outdoor                                 | <a href="#">RAR1-160L-70-4K7-3-UNV-ASQ-DBT</a>   |
| A3   | Hubbell Outdoor                                 | <a href="#">SSSH14-40A-1-B3-DBT</a>              |
|      | <b>Item Note:</b> 14FT POLE ON 1FT EXPOSED BASE |                                                  |
| A5   | Hubbell Outdoor                                 | <a href="#">RAR1-160L-70-4K7-5QW-UNV-ASQ-DBT</a> |
| A5   | Hubbell Outdoor                                 | <a href="#">SSSH14-40A-1-B3-DBT</a>              |
|      | <b>Item Note:</b> 14FT POLE ON 1FT EXPOSED BASE |                                                  |
| WP   | Hubbell Outdoor                                 | <a href="#">RWL1-48L-45-4K7-4W-UNV-DBT</a>       |





DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_  
 TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_  
 CATALOG #: \_\_\_\_\_

# RATIO Series

AREA/SITE LIGHTER

## FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as retail, commercial and campus parking lots
- Featuring Micro Strike Optics which maximizes target zone illumination with minimal losses at the house-side, reducing light trespass issues
- Visual comfort standard
- Compact and lightweight design with low EPA
- 3G rated for high vibration applications including bridges and overpasses
- Control options including photo control, occupancy sensing, NX Distributed Intelligence™ and 7-Pin with networked controls
- Best in class surge protection available



## RELATED PRODUCTS

θ [Airo](#) θ [Cimarron LED](#) θ [Ratio Family](#)



## CONTROL TECHNOLOGY



## SPECIFICATIONS

### CONSTRUCTION

- Rectilinear form mimics the traditional shoebox form factor keeping a similar but updated style and appearance, ideal for retrofit applications
- Die-cast housing with hidden vertical heat fins that are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with powder coat paint finish

### OPTICS

- Entire optical aperture illuminates to create a larger luminous surface area resulting in a low glare appearance without sacrificing optical performance
- 80, 160, 320 or 480 midpower LEDs
- 3000K, 4000K or 5000K (70 CRI) CCT
- Zero uplight at 0 degrees of tilt
- Field rotatable optics

### INSTALLATION

- Standard square arm mount, compatible with B3 drill pattern
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option or accessory for square and round poles.
- Knuckle arm fitter option available for 2-3/8" OD tenon. Max tilt of 60 degrees with 4 degree adjustable increments. (Restrictions apply for 7-pin options)

### ELECTRICAL

- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz

### ELECTRICAL (CONTINUED)

- Ambient operating temperature -40°C to 40°C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised

### CONTROLS

- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0-10 V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard
- SiteSync™ wireless control system is available via 7-pin See ordering information and details at: [www.hubbellighting.com/sitesync](http://www.hubbellighting.com/sitesync)
- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor via 7-pin

### CERTIFICATIONS

- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Please refer to the DLC website for specific product qualifications at [www.designlights.org](http://www.designlights.org)
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40°C ambient temperatures
- 3G rated for ANSI C136.31 high vibration applications
- Fixture is IP66 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/23/2020. See [Buy American Solutions](http://Buy American Solutions)

### WARRANTY

- 5 year limited warranty
- See [HLI Standard Warranty](#) for additional information

| KEY DATA                       |                    |
|--------------------------------|--------------------|
| Lumen Range                    | 3,000–48,000       |
| Wattage Range                  | 25–340             |
| Efficacy Range (LPW)           | 118–155            |
| Fixture Projected Life (Hours) | L70>60K            |
| Weights lbs. (kg)              | 13.5–24 (6.1–10.9) |

|                                                                                 |                                              |                                                          |                           |
|---------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------------------|---------------------------|
| Submitted by Swaney Lighting                                                    | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>RAR1-160L-70-4K7-3-UNV-ASQ-DBT | <b>Type:</b><br><b>A3</b> |
|  |                                              | <b>Notes:</b>                                            | SLA22-51646               |



|            |           |
|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

## RATIO SERIES

AREA/SITE LIGHTER

### ORDERING GUIDE

Example: RAR1-80L-25-3K7-2-UNV-ASQ-BL-NXWE-BC

CATALOG #

### ORDERING INFORMATION

| Series                        | # LEDs - Wattage                     | CCT/CRI                  | Distribution          | Optics Rotation              | Voltage                       |
|-------------------------------|--------------------------------------|--------------------------|-----------------------|------------------------------|-------------------------------|
| <b>RAR1</b> Ratio Area Size 1 | <b>80L-25</b> 25W - 3,000 Lumens     | <b>3K7</b> 3000K, 70 CRI | <b>2</b> IES TYPE II  | <b>Blank for no rotation</b> | <b>UNV</b> Universal 120-277V |
|                               | <b>80L-39</b> 39W - 5,200 Lumens     | <b>4K7</b> 4000K, 70 CRI | <b>3</b> IES TYPE III | L Optic rotation left        | <b>120</b> 120V               |
|                               | <b>80L-50</b> 50W - 6,000 Lumens     | <b>5K7</b> 5000K, 70 CRI | <b>4W</b> IES TYPE IV | R Optic rotation right       | <b>208</b> 208V               |
|                               | <b>160L-70</b> 70W - 9,000 Lumens    |                          | <b>5QW</b> IES TYPE V |                              | <b>240</b> 240V               |
|                               | <b>160L-100</b> 100W - 12,000 Lumens |                          |                       |                              | <b>277</b> 277V               |
|                               | <b>160L-115</b> 115W - 15,000 Lumens |                          |                       |                              | <b>347</b> 347V               |
| <b>RAR2</b> Ratio Area Size 2 | <b>160L-135</b> 135W - 18,000 Lumens |                          |                       |                              | <b>480</b> 480V               |
|                               | <b>320L-110</b> 110W - 15,000 Lumens |                          |                       |                              |                               |
|                               | <b>320L-140</b> 140W - 18,000 Lumens |                          |                       |                              |                               |
|                               | <b>320L-165</b> 165W - 21,000 Lumens |                          |                       |                              |                               |
|                               | <b>480L-185</b> 185W - 24,000 Lumens |                          |                       |                              |                               |
|                               | <b>480L-210</b> 210W - 27,000 Lumens |                          |                       |                              |                               |
|                               | <b>480L-240</b> 240W - 30,000 Lumens |                          |                       |                              |                               |
|                               | <b>480L-255</b> 255W - 36,000 Lumens |                          |                       |                              |                               |
|                               | <b>480L-295</b> 295W - 42,000 Lumens |                          |                       |                              |                               |
|                               | <b>480L-340</b> 340W - 48,000 Lumens |                          |                       |                              |                               |

| Mounting                                                     | Color                                 | Control Options Network                                                                                                | Options                                             |
|--------------------------------------------------------------|---------------------------------------|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| <b>ASQ</b> Arm mount for square pole/flat surface            | <b>BLT</b> Black Matte Textured       | <b>NXWE</b> NX Wireless Enabled (module + radio)                                                                       | <b>BC</b> Backlight control                         |
| <b>ASQU</b> Universal arm mount for square pole/flat surface | <b>BLS</b> Black Gloss Smooth         | <b>NXSPW_F</b> NX Wireless, PIR Occ. Sensor, Daylight Harvesting <sup>4</sup>                                          | <b>F</b> Fusing (must specify voltage)              |
| <b>Mounting Round Poles</b>                                  | <b>DBT</b> Dark Bronze Matte Textured | <b>NXSP_F</b> NX, PIR Occ. Sensor, Daylight Harvesting <sup>4</sup>                                                    | <b>TB</b> Terminal block                            |
| <b>A_</b> Arm mount for round pole <sup>1</sup>              | <b>DBS</b> Dark Brone Gloss Smooth    | <b>Control Options Other</b>                                                                                           | <b>2PF</b> 2 power feed with 2 drivers <sup>2</sup> |
| <b>A_U</b> Universal arm mount for round pole <sup>1</sup>   | <b>GTT</b> Graphite Matte Textured    | <b>SCP-40F</b> Programmable occupancy sensor <sup>3</sup>                                                              |                                                     |
| <b>Mounting Other</b>                                        | <b>LGS</b> Light Grey Gloss Smooth    | <b>7PR</b> 7-Pin twist lock receptacle                                                                                 |                                                     |
| <b>WB</b> Wall bracket                                       | <b>PSS</b> Platinum Silver Smooth     | <b>7PR-SC</b> 7-Pin receptacle with shorting cap                                                                       |                                                     |
| <b>MAF</b> Mast arm fitter for 2-3/8" OD horizontal arm      | <b>WHT</b> White Matte Textured       | <b>7PR-MD40F</b> Low voltage sensor for 7PR                                                                            |                                                     |
| <b>K</b> Knuckle                                             | <b>WHS</b> White Gloss Smooth         | <b>7PR-TL</b> 7-Pin PCR with photocontrol                                                                              |                                                     |
|                                                              | <b>Color Option</b>                   | <b>Sensors</b>                                                                                                         |                                                     |
|                                                              | <b>CC</b> Custom Color                | <b>BTS_F</b> Bluetooth Programmable, PIR Occupancy/Daylight Sensor, 360° lens <sup>4</sup>                             |                                                     |
|                                                              |                                       | <b>BTSO_F</b> Bluetooth Programmable, PIR Occupancy/Daylight Sensor, 360° lens, up to 12' mounting height <sup>5</sup> |                                                     |

- Notes:
- 1 Replace ".\_" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole
  - 2 Not available with 25, 50, 255, 295 & 340W configurations
  - 3 At least one SCPREMOTE required to program SCP motion sensor
  - 4 Replace ".\_" with "14" for up to 14' mounting height, "40F" for 15-40' mounting height
  - 5 Replace ".\_" with "12" for up to 12' mounting height

### STOCK ORDERING INFORMATION

| Catalog Number | Lumens | Wattage | LED Count | CCT/CRI     | Voltage  | Distribution | Mounting   | Finish |
|----------------|--------|---------|-----------|-------------|----------|--------------|------------|--------|
| RAR1-100-4K-3  | 12,000 | 100W    | 160L      | 4000K/70CRI | 120-277V | Type 3       | Square Arm | Bronze |
| RAR1-100-4K-4W | 12,000 | 100W    | 160L      | 4000K/70CRI | 120-277V | Type 4W      | Square Arm | Bronze |
| RAR1-135-4K-3  | 18,000 | 135W    | 160L      | 4000K/70CRI | 120-277V | Type 3       | Square Arm | Bronze |
| RAR1-135-4K-4W | 18,000 | 135W    | 160L      | 4000K/70CRI | 120-277V | Type 4W      | Square Arm | Bronze |
| RAR2-165-4K-3  | 21,000 | 165W    | 320L      | 4000K/70CRI | 120-277V | Type 3       | Square Arm | Bronze |
| RAR2-165-4K-4W | 21,000 | 165W    | 320L      | 4000K/70CRI | 120-277V | Type 4W      | Square Arm | Bronze |

|                                                                                  |                                              |                                                          |                           |
|----------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------------------|---------------------------|
| Submitted by Swaney Lighting                                                     | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>RAR1-160L-70-4K7-3-UNV-ASQ-DBT | <b>Type:</b><br><b>A3</b> |
|  |                                              | <b>Notes:</b>                                            | SLA22-51646               |



## RATIO SERIES

AREA/SITE LIGHTER

|            |           |
|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

### OPTIONS AND ACCESSORIES - STOCK (ORDERED SEPARATELY)

| Catalog Number                     | Description                                                                             |
|------------------------------------|-----------------------------------------------------------------------------------------|
| <input type="checkbox"/> RARRPA3DB | Round pole adapter 3.5" to 4.13" for ASQ arm, 3.5" to 4.13" OD pole, dark bronze finish |
| <input type="checkbox"/> RARA3UDB  | Universal mount for square pole or round pole 3.5" to 4.13", dark bronze finish         |
| <input type="checkbox"/> RARBC80L  | Ratio blacklight control 80L                                                            |
| <input type="checkbox"/> RARBC160L | Ratio blacklight control 160L                                                           |
| <input type="checkbox"/> RARBC320L | Ratio blacklight control 320L                                                           |
| <input type="checkbox"/> RARBC480L | Ratio blacklight control 480L                                                           |

### ACCESSORIES AND REPLACEMENT PARTS - MADE TO ORDER

| Catalog Number                        | Description                                                                                                                              |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> RAR-ASQU-XX  | Universal arm mount for square pole/flat surface <sup>2</sup>                                                                            |
| <input type="checkbox"/> RAR-A_U-XX   | Universal arm mount for round poles <sup>1,2</sup>                                                                                       |
| <input type="checkbox"/> RAR-RPA_-XX  | Round pole adapter <sup>1,2</sup>                                                                                                        |
| <input type="checkbox"/> SETAVP-XX    | 4" square pole top tenon adapter, 2 3/8" OD slipfitter <sup>2</sup>                                                                      |
| <input type="checkbox"/> RETAVP-XX    | 4" round pole top tenon adapter, 2 3/8" OD slipfitter for max. Four fixtures (90o); order 4" round pole adapters separately <sup>2</sup> |
| <input type="checkbox"/> BIRD-SPIKE-3 | Ratio size 1 bird deterrent/spikes                                                                                                       |
| <input type="checkbox"/> BIRD-SPIKE-4 | Ratio size 2 bird deterrent/spikes                                                                                                       |
| <input type="checkbox"/> RARWB-XX     | Wall bracket - use with Mast Arm Fitter or Knuckle <sup>2</sup>                                                                          |

- 1 Replace "-" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole  
2 Replace "XX" with desired color/paint finish

### CONTROLS

| Control Options                |                                                                |
|--------------------------------|----------------------------------------------------------------|
| <b>Standalone</b>              |                                                                |
| SW7PR                          | SiteSync™ on fixture module via 7PR                            |
| SWUSB                          | SiteSync™ Software on USB                                      |
| SWTAB                          | SiteSync™ Windows Tablet                                       |
| SWBRG                          | SiteSync™ Wireless Bridge Node                                 |
| SWFC                           | SiteSync™ Field Commission Serve                               |
| SCPREMOTE                      | Order at least one per project location to program and control |
| <b>Networked – Wireless</b>    |                                                                |
| WIR-RME-L                      | wiSCAPE External Fixture Module <sup>1,2</sup>                 |
| <b>NX Networked – Wireless</b> |                                                                |
| NXOFM-1R1D-UNV                 | NX Wireless, Daylight Harvesting, BLE, 7 pin twisted lock      |

- Notes:  
1 Works with external networked photosensor  
2 wiSCAPE Gateway required for system programming

|                                                                                 |                                              |                                                          |                           |
|---------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------------------|---------------------------|
| Submitted by Swaney Lighting                                                    |                                              | <b>Catalog Number:</b><br>RAR1-160L-70-4K7-3-UNV-ASQ-DBT | <b>Type:</b><br><b>A3</b> |
|  | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Notes:</b>                                            |                           |
|                                                                                 |                                              | SLA22-51646                                              |                           |



|            |           |
|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

## RATIO SERIES

AREA/SITE LIGHTER

### PERFORMANCE DATA

| Description                        | Nominal Wattage | System Watts | Dist. Type | 5K (5000K NOMINAL 70 CRI) |     |   |   |   | 4K (4000K NOMINAL 70 CRI) |     |   |   |   | 3K (3000K NOMINAL 80 CRI) |     |   |   |   |
|------------------------------------|-----------------|--------------|------------|---------------------------|-----|---|---|---|---------------------------|-----|---|---|---|---------------------------|-----|---|---|---|
|                                    |                 |              |            | Lumens                    | LPW | B | U | G | Lumens                    | LPW | B | U | G | Lumens                    | LPW | B | U | G |
| RAR1                               | 25              | 25.4         | 2          | 3438                      | 135 | 1 | 0 | 1 | 3445                      | 136 | 1 | 0 | 1 | 3240                      | 128 | 1 | 0 | 1 |
|                                    |                 |              | 3          | 3460                      | 136 | 1 | 0 | 1 | 3467                      | 136 | 1 | 0 | 1 | 3260                      | 128 | 1 | 0 | 1 |
|                                    |                 |              | 4W         | 3406                      | 134 | 1 | 0 | 1 | 3412                      | 134 | 1 | 0 | 1 | 3209                      | 126 | 1 | 0 | 1 |
|                                    |                 |              | 5QW        | 3483                      | 137 | 2 | 0 | 1 | 3490                      | 137 | 2 | 0 | 1 | 3282                      | 129 | 2 | 0 | 1 |
|                                    | 39              | 39           | 2          | 5263                      | 139 | 1 | 0 | 2 | 5273                      | 139 | 1 | 0 | 2 | 4960                      | 131 | 1 | 0 | 2 |
|                                    |                 |              | 3          | 5297                      | 139 | 1 | 0 | 2 | 5308                      | 140 | 1 | 0 | 2 | 4991                      | 131 | 1 | 0 | 2 |
|                                    |                 |              | 4W         | 5200                      | 137 | 1 | 0 | 2 | 5210                      | 137 | 1 | 0 | 2 | 4900                      | 129 | 1 | 0 | 2 |
|                                    |                 |              | 5QW        | 5333                      | 140 | 3 | 0 | 1 | 5344                      | 141 | 3 | 0 | 1 | 5025                      | 132 | 3 | 0 | 1 |
|                                    | 50              | 49.8         | 2          | 6310                      | 127 | 1 | 0 | 2 | 6323                      | 127 | 1 | 0 | 2 | 5946                      | 120 | 1 | 0 | 2 |
|                                    |                 |              | 3          | 6349                      | 128 | 1 | 0 | 2 | 6362                      | 128 | 1 | 0 | 2 | 5983                      | 120 | 1 | 0 | 2 |
|                                    |                 |              | 4W         | 6233                      | 125 | 1 | 0 | 2 | 6245                      | 126 | 1 | 0 | 2 | 5873                      | 118 | 1 | 0 | 2 |
|                                    |                 |              | 5QW        | 6392                      | 129 | 3 | 0 | 1 | 6405                      | 129 | 3 | 0 | 1 | 6023                      | 121 | 3 | 0 | 1 |
|                                    | 70              | 68.4         | 2          | 9486                      | 139 | 1 | 0 | 2 | 9505                      | 139 | 1 | 0 | 2 | 8938                      | 131 | 1 | 0 | 2 |
|                                    |                 |              | 3          | 9544                      | 140 | 1 | 0 | 2 | 9563                      | 140 | 1 | 0 | 2 | 8993                      | 131 | 1 | 0 | 2 |
|                                    |                 |              | 4W         | 9395                      | 137 | 1 | 0 | 2 | 9414                      | 138 | 1 | 0 | 2 | 8853                      | 129 | 1 | 0 | 2 |
|                                    |                 |              | 5QW        | 9608                      | 140 | 4 | 0 | 2 | 9628                      | 141 | 4 | 0 | 2 | 9054                      | 132 | 4 | 0 | 2 |
|                                    | 100             | 90.0         | 2          | 11976                     | 133 | 2 | 0 | 2 | 12000                     | 133 | 2 | 0 | 2 | 11285                     | 125 | 2 | 0 | 2 |
|                                    |                 |              | 3          | 12050                     | 134 | 2 | 0 | 2 | 12074                     | 134 | 2 | 0 | 2 | 11354                     | 126 | 2 | 0 | 2 |
|                                    |                 |              | 4W         | 11861                     | 132 | 2 | 0 | 2 | 11885                     | 132 | 2 | 0 | 2 | 11177                     | 124 | 2 | 0 | 2 |
|                                    |                 |              | 5QW        | 12131                     | 135 | 4 | 0 | 2 | 12155                     | 135 | 4 | 0 | 2 | 11431                     | 127 | 4 | 0 | 2 |
|                                    | 115             | 109.7        | 2          | 15572                     | 142 | 2 | 0 | 2 | 15494                     | 141 | 2 | 0 | 2 | 14871                     | 136 | 2 | 0 | 2 |
|                                    |                 |              | 3          | 15833                     | 144 | 2 | 0 | 2 | 15754                     | 144 | 2 | 0 | 2 | 15121                     | 138 | 2 | 0 | 2 |
|                                    |                 |              | 4W         | 15281                     | 139 | 2 | 0 | 3 | 15205                     | 139 | 2 | 0 | 3 | 14623                     | 133 | 2 | 0 | 3 |
|                                    |                 |              | 5QW        | 15732                     | 143 | 4 | 0 | 2 | 15653                     | 143 | 4 | 0 | 2 | 15024                     | 137 | 4 | 0 | 2 |
|                                    | 135             | 133.3        | 2          | 17971                     | 135 | 3 | 0 | 3 | 17881                     | 134 | 3 | 0 | 3 | 17163                     | 129 | 3 | 0 | 3 |
|                                    |                 |              | 3          | 18272                     | 137 | 2 | 0 | 2 | 18181                     | 136 | 2 | 0 | 2 | 17450                     | 131 | 2 | 0 | 2 |
|                                    |                 |              | 4W         | 17635                     | 132 | 2 | 0 | 3 | 17547                     | 132 | 2 | 0 | 3 | 16876                     | 127 | 2 | 0 | 3 |
|                                    |                 |              | 5QW        | 18156                     | 136 | 4 | 0 | 2 | 18065                     | 136 | 4 | 0 | 2 | 17339                     | 130 | 4 | 0 | 2 |
| RAR2 Performance Data on next page |                 |              |            |                           |     |   |   |   |                           |     |   |   |   |                           |     |   |   |   |

\* Lumen values are from photometric test performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.





DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_

CATALOG #: \_\_\_\_\_

## RATIO SERIES

AREA/SITE LIGHTER

### PERFORMANCE DATA

| Description | Nominal Wattage | System Watts | Dist. Type | 5K (5000K NOMINAL 70 CRI) |     |   |   |   | 4K (4000K NOMINAL 70 CRI) |     |   |   |   | 3K (3000K NOMINAL 80 CRI) |     |   |   |   |
|-------------|-----------------|--------------|------------|---------------------------|-----|---|---|---|---------------------------|-----|---|---|---|---------------------------|-----|---|---|---|
|             |                 |              |            | Lumens                    | LPW | B | U | G | Lumens                    | LPW | B | U | G | Lumens                    | LPW | B | U | G |
| RAR2        | 110             | 100.3        | 2          | 15326                     | 153 | 2 | 0 | 3 | 15357                     | 153 | 2 | 0 | 3 | 14442                     | 144 | 2 | 0 | 3 |
|             |                 |              | 3          | 15421                     | 154 | 2 | 0 | 3 | 15452                     | 154 | 2 | 0 | 3 | 14531                     | 145 | 2 | 0 | 3 |
|             |                 |              | 4W         | 15180                     | 151 | 2 | 0 | 2 | 15210                     | 152 | 2 | 0 | 2 | 14304                     | 143 | 2 | 0 | 2 |
|             |                 |              | 5QW        | 15525                     | 155 | 4 | 0 | 2 | 15556                     | 155 | 4 | 0 | 2 | 14629                     | 146 | 4 | 0 | 2 |
|             | 140             | 133.2        | 2          | 19395                     | 146 | 2 | 0 | 3 | 19434                     | 146 | 2 | 0 | 3 | 18276                     | 137 | 2 | 0 | 3 |
|             |                 |              | 3          | 19515                     | 147 | 2 | 0 | 3 | 19554                     | 147 | 2 | 0 | 3 | 18389                     | 138 | 2 | 0 | 3 |
|             |                 |              | 4W         | 19210                     | 144 | 2 | 0 | 3 | 19248                     | 145 | 2 | 0 | 3 | 18101                     | 136 | 2 | 0 | 3 |
|             |                 |              | 5QW        | 19647                     | 148 | 5 | 0 | 3 | 19686                     | 148 | 5 | 0 | 3 | 18513                     | 139 | 5 | 0 | 3 |
|             | 165             | 153.6        | 2          | 21651                     | 141 | 3 | 0 | 3 | 21695                     | 141 | 3 | 0 | 3 | 20402                     | 133 | 3 | 0 | 3 |
|             |                 |              | 3          | 21785                     | 142 | 3 | 0 | 3 | 21828                     | 142 | 3 | 0 | 3 | 20527                     | 134 | 3 | 0 | 3 |
|             |                 |              | 4W         | 21444                     | 140 | 3 | 0 | 3 | 21487                     | 140 | 3 | 0 | 3 | 20206                     | 132 | 3 | 0 | 3 |
|             |                 |              | 5QW        | 21932                     | 143 | 5 | 0 | 3 | 21976                     | 143 | 5 | 0 | 3 | 20666                     | 135 | 5 | 0 | 3 |
|             | 185             | 174.5        | 2          | 26046                     | 149 | 3 | 0 | 3 | 26098                     | 150 | 3 | 0 | 3 | 24543                     | 141 | 3 | 0 | 3 |
|             |                 |              | 3          | 26207                     | 150 | 3 | 0 | 3 | 26259                     | 150 | 3 | 0 | 3 | 24694                     | 142 | 3 | 0 | 3 |
|             |                 |              | 4W         | 25797                     | 148 | 3 | 0 | 4 | 25849                     | 148 | 3 | 0 | 4 | 24308                     | 139 | 3 | 0 | 4 |
|             |                 |              | 5QW        | 26384                     | 151 | 5 | 0 | 3 | 26437                     | 152 | 5 | 0 | 3 | 24861                     | 143 | 5 | 0 | 3 |
|             | 210             | 198.2        | 2          | 28848                     | 145 | 3 | 0 | 4 | 28906                     | 146 | 3 | 0 | 4 | 27184                     | 137 | 3 | 0 | 4 |
|             |                 |              | 3          | 29027                     | 146 | 3 | 0 | 4 | 29085                     | 147 | 3 | 0 | 4 | 27351                     | 138 | 3 | 0 | 4 |
|             |                 |              | 4W         | 28572                     | 144 | 3 | 0 | 4 | 28630                     | 144 | 3 | 0 | 4 | 26924                     | 136 | 3 | 0 | 4 |
|             |                 |              | 5QW        | 29222                     | 147 | 5 | 0 | 4 | 29281                     | 148 | 5 | 0 | 4 | 27536                     | 139 | 5 | 0 | 4 |
|             | 240             | 226.9        | 2          | 32087                     | 141 | 3 | 0 | 4 | 32151                     | 142 | 3 | 0 | 4 | 30235                     | 133 | 3 | 0 | 4 |
|             |                 |              | 3          | 32285                     | 142 | 3 | 0 | 4 | 32350                     | 143 | 3 | 0 | 4 | 30422                     | 134 | 3 | 0 | 4 |
|             |                 |              | 4W         | 31780                     | 140 | 3 | 0 | 4 | 31844                     | 140 | 3 | 0 | 4 | 29946                     | 132 | 3 | 0 | 4 |
|             |                 |              | 5QW        | 32503                     | 143 | 5 | 0 | 4 | 32568                     | 144 | 5 | 0 | 4 | 30627                     | 135 | 5 | 0 | 4 |
|             | 255             | 257.0        | 2          | 37040                     | 144 | 3 | 0 | 4 | 36854                     | 143 | 3 | 0 | 4 | 35373                     | 138 | 3 | 0 | 4 |
|             |                 |              | 3          | 37660                     | 147 | 3 | 0 | 4 | 37472                     | 146 | 3 | 0 | 4 | 35966                     | 140 | 3 | 0 | 4 |
|             |                 |              | 4W         | 36347                     | 141 | 3 | 0 | 5 | 36166                     | 140 | 3 | 0 | 5 | 34782                     | 135 | 3 | 0 | 5 |
|             |                 |              | 5QW        | 37420                     | 146 | 5 | 0 | 4 | 37233                     | 145 | 5 | 0 | 4 | 35736                     | 139 | 5 | 0 | 4 |
|             | 295             | 294.0        | 2          | 41733                     | 142 | 3 | 0 | 4 | 41524                     | 141 | 3 | 0 | 4 | 39855                     | 136 | 3 | 0 | 4 |
|             |                 |              | 3          | 42432                     | 144 | 3 | 0 | 4 | 42220                     | 144 | 3 | 0 | 4 | 40523                     | 138 | 3 | 0 | 4 |
|             |                 |              | 4W         | 40953                     | 139 | 3 | 0 | 5 | 40748                     | 139 | 3 | 0 | 5 | 39190                     | 133 | 3 | 0 | 5 |
|             |                 |              | 5QW        | 42162                     | 143 | 5 | 0 | 4 | 41951                     | 143 | 5 | 0 | 4 | 40264                     | 137 | 5 | 0 | 4 |
|             | 340             | 347.1        | 2          | 48392                     | 139 | 4 | 0 | 5 | 48150                     | 139 | 4 | 0 | 5 | 46215                     | 133 | 4 | 0 | 5 |
|             |                 |              | 3          | 49203                     | 142 | 3 | 0 | 4 | 48957                     | 141 | 3 | 0 | 4 | 46989                     | 135 | 3 | 0 | 4 |
|             |                 |              | 4W         | 47488                     | 137 | 4 | 0 | 5 | 47261                     | 136 | 4 | 0 | 5 | 45443                     | 131 | 4 | 0 | 5 |
|             |                 |              | 5QW        | 48889                     | 141 | 5 | 0 | 5 | 48645                     | 140 | 5 | 0 | 5 | 46689                     | 135 | 5 | 0 | 5 |

\* Lumen values are from photometric test performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.


**Job Name:**  
 SELF STORAGE - BIDDEFORD

**Catalog Number:**  
 RAR1-160L-70-4K7-3-UNV-ASQ-DBT

Notes:

**Type:****A3**

SLA22-51646



DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_

CATALOG #: \_\_\_\_\_

## RATIO SERIES

AREA/SITE LIGHTER

### ELECTRICAL DATA

| # OF LEDS | Nominal Wattage | Input Voltage | Oper. Current (Amps) | System Power (Watts) |
|-----------|-----------------|---------------|----------------------|----------------------|
| RAR1      | 25              | 120           | 0.21                 | 25.4                 |
|           |                 | 208           | 0.12                 |                      |
|           |                 | 240           | 0.11                 |                      |
|           |                 | 277           | 0.09                 |                      |
|           | 39              | 120           | 0.32                 | 38.0                 |
|           |                 | 208           | 0.18                 |                      |
|           |                 | 240           | 0.16                 |                      |
|           |                 | 277           | 0.14                 |                      |
|           | 50              | 120           | 0.42                 | 49.8                 |
|           |                 | 208           | 0.24                 |                      |
|           |                 | 240           | 0.21                 |                      |
|           |                 | 277           | 0.18                 |                      |
|           | 70              | 120           | 0.57                 | 68.4                 |
|           |                 | 208           | 0.33                 |                      |
|           |                 | 240           | 0.29                 |                      |
|           |                 | 277           | 0.25                 |                      |
|           | 100             | 120           | 0.75                 | 90.0                 |
|           |                 | 208           | 0.43                 |                      |
|           |                 | 240           | 0.38                 |                      |
|           |                 | 277           | 0.32                 |                      |
|           | 115             | 120           | 0.91                 | 109.7                |
|           |                 | 208           | 0.53                 |                      |
|           |                 | 240           | 0.46                 |                      |
|           |                 | 277           | 0.40                 |                      |
|           | 135             | 120           | 1.11                 | 133.3                |
|           |                 | 208           | 0.64                 |                      |
|           |                 | 240           | 0.56                 |                      |
|           |                 | 277           | 0.48                 |                      |

| # OF LEDS | Nominal Wattage | Input Voltage | Oper. Current (Amps) | System Power (Watts) |
|-----------|-----------------|---------------|----------------------|----------------------|
| RAR2      | 110             | 120           | 0.84                 | 100.3                |
|           |                 | 208           | 0.48                 |                      |
|           |                 | 240           | 0.42                 |                      |
|           |                 | 277           | 0.36                 |                      |
|           | 140             | 120           | 1.11                 | 133.2                |
|           |                 | 208           | 0.64                 |                      |
|           |                 | 240           | 0.56                 |                      |
|           |                 | 277           | 0.48                 |                      |
|           | 165             | 120           | 1.28                 | 153.6                |
|           |                 | 208           | 0.74                 |                      |
|           |                 | 240           | 0.64                 |                      |
|           |                 | 277           | 0.55                 |                      |
|           | 185             | 120           | 1.45                 | 174.5                |
|           |                 | 208           | 0.84                 |                      |
|           |                 | 240           | 0.73                 |                      |
|           |                 | 277           | 0.63                 |                      |
|           | 210             | 120           | 1.65                 | 198.3                |
|           |                 | 208           | 0.95                 |                      |
|           |                 | 240           | 0.83                 |                      |
|           |                 | 277           | 0.72                 |                      |
|           | 240             | 120           | 1.89                 | 226.9                |
|           |                 | 208           | 1.09                 |                      |
|           |                 | 240           | 0.95                 |                      |
|           |                 | 277           | 0.82                 |                      |
|           | 255             | 120           | 2.14                 | 257.0                |
|           |                 | 208           | 1.24                 |                      |
|           |                 | 240           | 1.07                 |                      |
|           |                 | 277           | 0.93                 |                      |
|           | 295             | 120           | 2.45                 | 294.0                |
|           |                 | 208           | 1.41                 |                      |
|           |                 | 240           | 1.23                 |                      |
|           |                 | 277           | 1.06                 |                      |
|           | 340             | 120           | 2.89                 | 347.1                |
|           |                 | 208           | 1.67                 |                      |
|           |                 | 240           | 1.45                 |                      |
|           |                 | 277           | 1.25                 |                      |

### LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

| Ambient Temperature | Lumen Multiplier |
|---------------------|------------------|
| 0° C                | 1.03             |
| 10° C               | 1.01             |
| 20° C               | 1.00             |
| 25° C               | 1.00             |
| 30° C               | 0.99             |
| 40° C               | 0.98             |
| 50° C               | 0.97             |

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

### PROJECTED LUMEN MAINTENANCE

| Ambient Temperature | OPERATING HOURS |        |                     |        |         |             |
|---------------------|-----------------|--------|---------------------|--------|---------|-------------|
|                     | 0               | 25,000 | TM-21-11 L90 36,000 | 50,000 | 100,000 | L70 (Hours) |
| 25°C / 77°F         | 1.00            | 0.97   | 0.95                | 0.93   | 0.86    | 238,000     |
| 40°C / 104°F        | 0.99            | 0.96   | 0.95                | 0.93   | 0.85    | 225,000     |



## RATIO SERIES

AREA/SITE LIGHTER

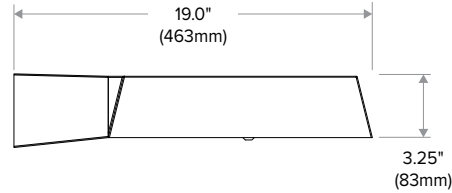
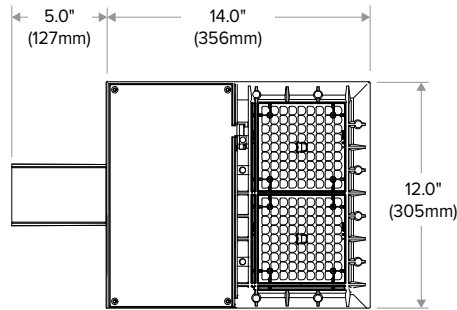
DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_

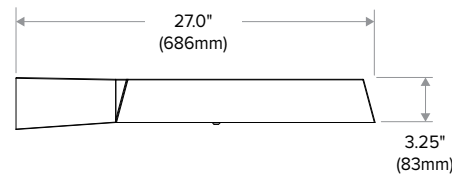
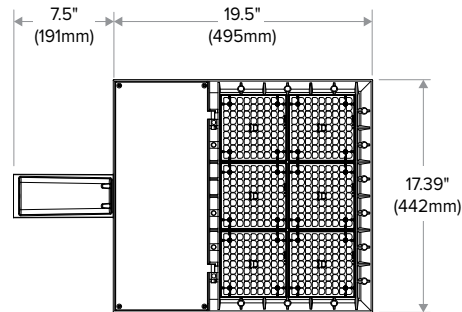
CATALOG #: \_\_\_\_\_

### DIMENSIONS

RAR1

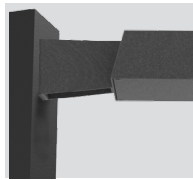


RAR2

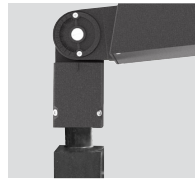


### ADDITIONAL INFORMATION

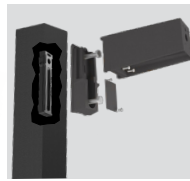
#### MOUNTING



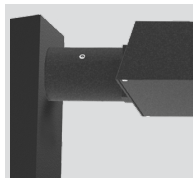
**Arm Mount** – Fixture ships with integral arm for ease of installation. Compatible with Hubbell Outdoor B3 drill pattern.



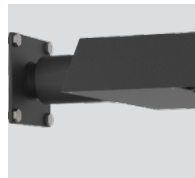
**Knuckle** – Knuckle mount 15° aiming angle increments for precise aiming and control, fits 2-3/8" tenons or pipes.



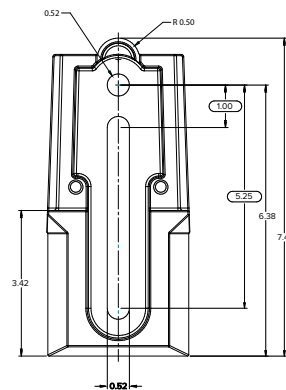
**Universal Mounting** – Universal mounting block for ease of installation. Compatible with drill patterns from 2.5" to 4.5"



**MAF** – Fits 2-3/8" OD arms Roadway applications.



**Wall Mount** – Wall mount bracket designed for building mount applications.

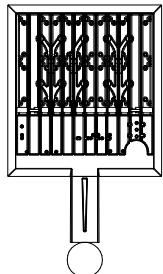




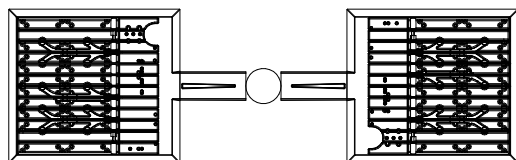
## RATIO SERIES

AREA/SITE LIGHTER

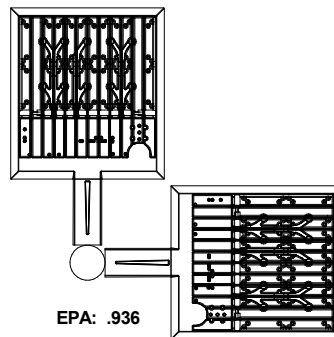
### EPA



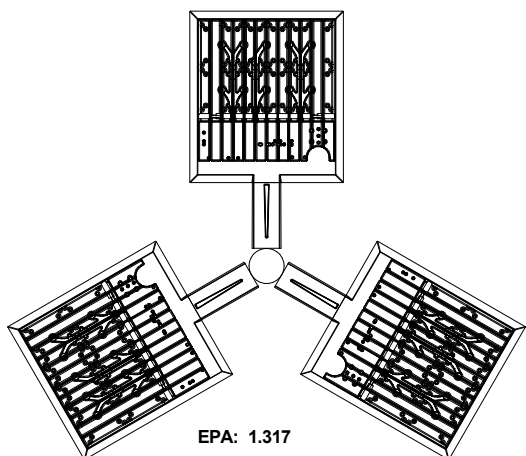
EPA: .607



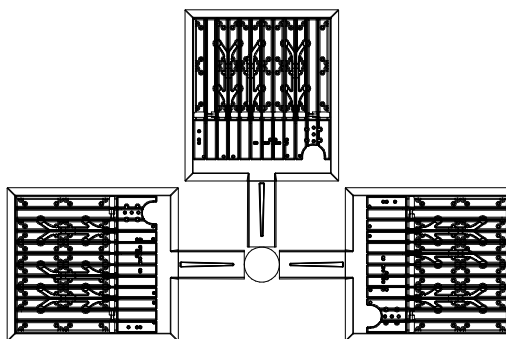
EPA: 1.214



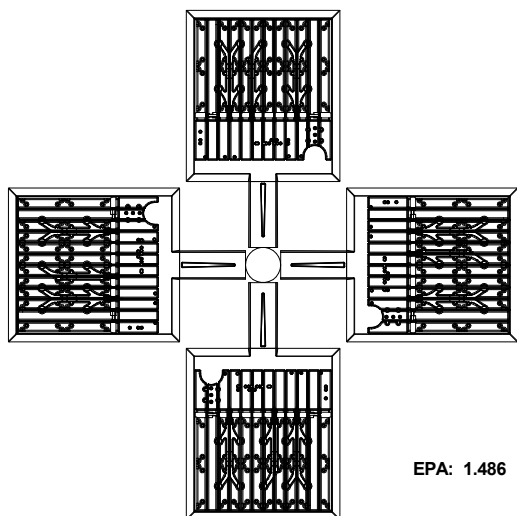
EPA: .936



EPA: 1.317



EPA: 1.486



EPA: 1.486



## RATIO SERIES

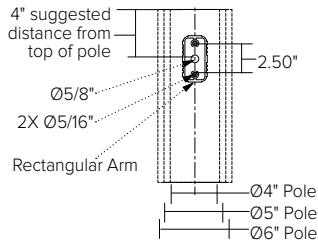
AREA/SITE LIGHTER

DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_  
 TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_  
 CATALOG #: \_\_\_\_\_

### ADDITIONAL INFORMATION (CONT'D)

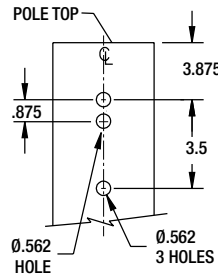
#### ARM MOUNT (ASQ)

Compatible with Pole drill pattern B3



#### UNIVERSAL MOUNTING (ASQU)

Compatible with pole drill pattern S2



#### SITESYNC 7-PIN MODULE



SW7PR



- SiteSync features in a new form
- Available as an accessory for new construction or retrofit applications (with existing 7-Pin receptacle)

#### PROGRAMMED CONTROLS

##### ADD-AutoDim Timer Based Options

- Light delay options from 1-9 hours after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1-9 hours after the light has been dimmed previously.

EX: ADD-6-5-R6

| ADD Control Options | Configurations Choices | Example Choice Picked |
|---------------------|------------------------|-----------------------|
| Auto-Dim Options    | 1-9 Hours              | 6                     |
| Auto-Dim Brightness | 0-9% Brightness        | 5                     |
| Auto-Dim Return     | Delay 0-9 Hours        | R6                    |

##### ADT-AutoDim Time of Day Based Option

- Light delay options from 1AM-9PM after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1AM-9PM after the light has been dimmed previously.

EX: ADT-6-5-R6

| ADD Control Options | Configurations Choices | Example Choice Picked |
|---------------------|------------------------|-----------------------|
| Auto-Dim Options    | 12-3 AM and 6-11 PM    | 6                     |
| Auto-Dim Brightness | 0-9% Brightness        | 5                     |
| Auto-Dim Return     | 12-6 AM and 9-11P      | R6                    |



DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_

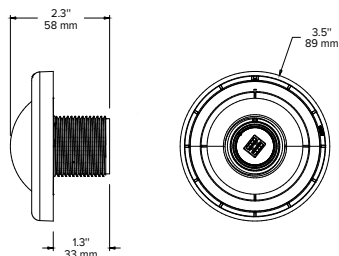
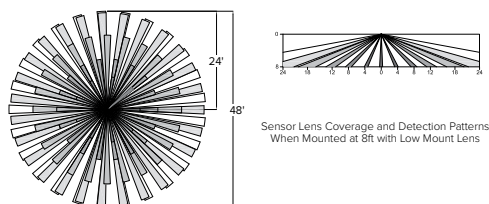
CATALOG #: \_\_\_\_\_

## RATIO SERIES

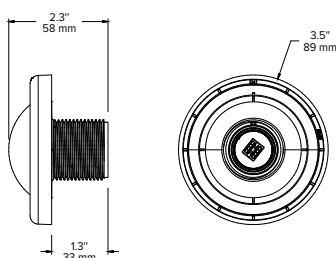
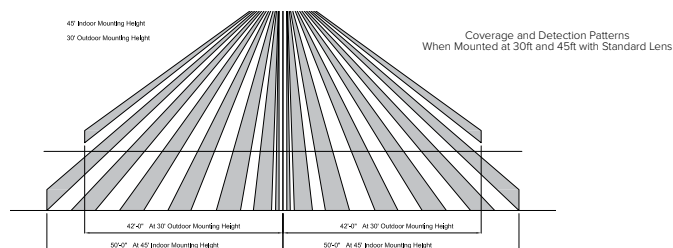
AREA/SITE LIGHTER

### ADDITIONAL INFORMATION (CONT'D)

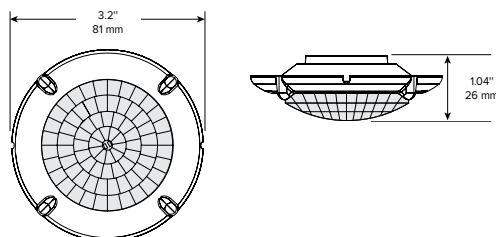
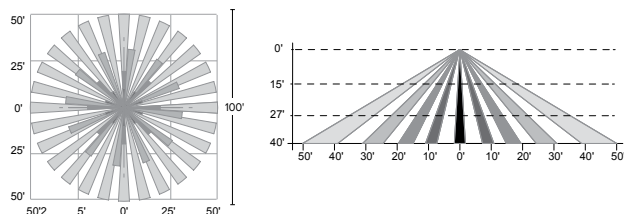
#### NXSP-14F



#### NXSP-30F



#### SCP-40F



#### RAR1 EPA

| RAR-1                                    |                                          |
|------------------------------------------|------------------------------------------|
| EPA at 0°                                | EPA at 30°                               |
| .45ft. <sup>2</sup><br>.13m <sup>2</sup> | .56ft. <sup>2</sup><br>.17m <sup>2</sup> |

#### RAR2 EPA

| RAR-2                                    |                                           |
|------------------------------------------|-------------------------------------------|
| EPA at 0°                                | EPA at 30°                                |
| .55ft. <sup>2</sup><br>.17m <sup>2</sup> | 1.48ft. <sup>2</sup><br>.45m <sup>2</sup> |

#### SHIPPING

| Catalog Number | G.W(kg)/CTN | Carton Dimensions |                 |                  |
|----------------|-------------|-------------------|-----------------|------------------|
|                |             | Length Inch (cm)  | Width Inch (cm) | Height Inch (cm) |
| RAR1           | 15 (6.8)    | 20.75 (52.7)      | 15.125 (38.4)   | 6.9375 (17.6)    |
| RAR2           | 19 (8.6)    | 25 (63.5)         | 15.125 (38.4)   | 6.9375 (17.6)    |



## RATIO SERIES

AREA/SITE LIGHTER

DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

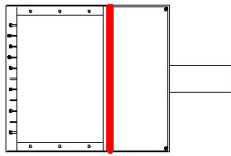
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CATALOG #: \_\_\_\_\_

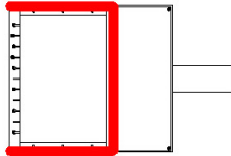
### ADDITIONAL INFORMATION (CONT'D)

#### RATIO HOUSE SIDE SHIELD

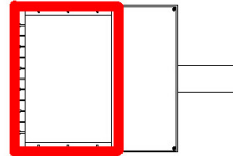
RARx HSS-90-B-xx



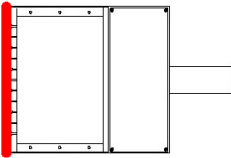
RARx HSS-270-BSS-xx



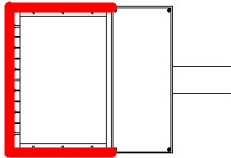
RARx HSS-360-xx



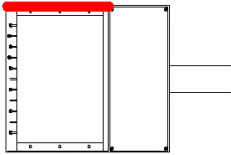
RARx HSS-90-F-xx



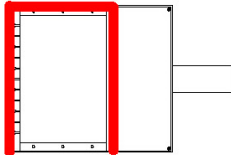
RARx HSS-270-FSS-xx



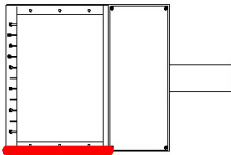
RARx HSS-90-S-xx



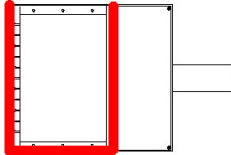
RARx HSS-270-FSB-xx



RARx HSS-90-S-xx



RARx HSS-270-FSB-xx



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|                                                                                 |                                              |                                              |                              |
|---------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------|------------------------------|
| Submitted by Swaney Lighting                                                    |                                              | <b>Catalog Number:</b>                       | <b>Type:</b>                 |
|  | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | RAR1-160L-70-4K7-3-UNV-ASQ-DBT<br><br>Notes: | <b>A3</b><br><br>SLA22-51646 |

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|                                                                                  |                                              |                                               |                           |
|----------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------|---------------------------|
| Submitted by Swaney Lighting                                                     | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>SSSH14-40A-1-B3-DBT | <b>Type:</b><br><b>A3</b> |
|  |                                              | Notes: 14FT POLE ON 1FT EXPOSED BASE          | SLA22-51646               |



DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_  
 TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_  
 CATALOG #: \_\_\_\_\_

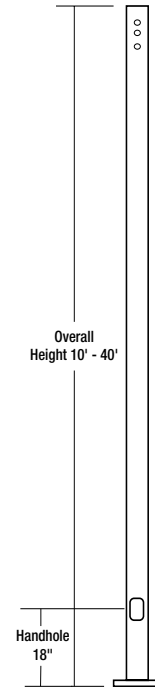
RESET

## APPLICATIONS

Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

## CONSTRUCTION

- Shaft: One-piece straight steel with square cross section, flat sides and minimum 0.23" radius on all corners; Minimum yield of 46,000 psi (ASTM-A500, Grade B); Longitudinal weld seam to appear flush with shaft side wall; Steel base plate with axial bolt circle slots welded to pole shaft having minimum yield of 36,000 psi (ASTM A36)
- base cover: Two-piece square aluminum base cover included standard
- pole cap: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- hand hole: Rectangular 3x5 steel hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- anchor bolts: Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling
- Anchor bolt part numbers:  
 3/4 x 30 x 3 — TAB-30-M38  
 1 x 36 x 4 — TAB-36-M38

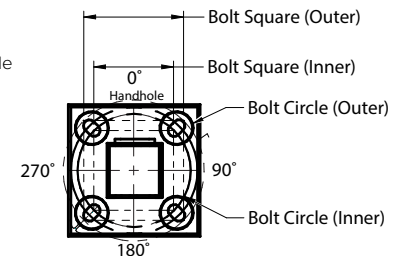


## FINISH

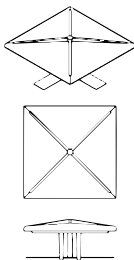
- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint prime applied over "white metal" steel substrate cleaned via mechanical shot blast method
- Decorative finish coat available in multiple standard colors; Custom colors available; RAL number preferable

## WAREHOUSE 'STOCKED' POLES:

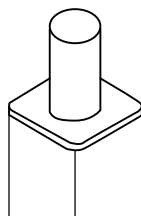
- SSSH-20-40-STK and SSSH-25-40-STK
- The above catalog numbers use a combination of the S2 and B3 drill pattern



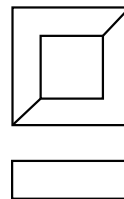
### POLE CAP



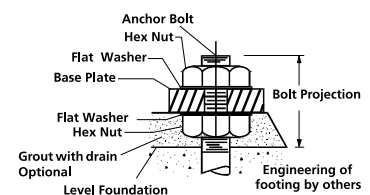
### TENON



### BASE COVER



### BASE DETAIL



|                              |                                              |                                               |                           |
|------------------------------|----------------------------------------------|-----------------------------------------------|---------------------------|
| Submitted by Swaney Lighting | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>SSSH14-40A-1-B3-DBT | <b>Type:</b><br><b>A3</b> |
|                              |                                              | <b>Notes:</b> 14FT POLE ON 1FT EXPOSED BASE   | SLA22-51646               |



|            |           |
|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

RESET

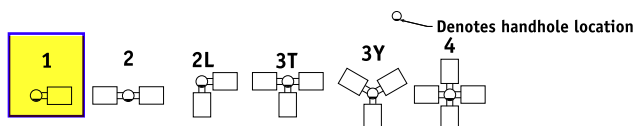
## ORDERING GUIDE

Example: SSS-H-25-40-A/B/C-2L-S2-DBT-UL

CATALOG #

| Series                                                  | Height                                         | Shaft                                         | Thickness                                    | Mounting                                                                                                                                                                                                                                                                                                                                                                    | Finish                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Options                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------|------------------------------------------------|-----------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SSS-H</b> Square Straight Steel Pole Hubbell Outdoor | Reference page 2 Ordering matrix<br><b>14'</b> | Reference page 2 Ordering matrix<br><b>40</b> | Reference page 3 Ordering matrix<br><b>A</b> | <b>1</b> Single arm mount<br><b>2</b> Two fixtures at 180°<br><b>2L</b> Two fixtures at 90°<br><b>3T</b> Three fixtures at 90°<br><b>4</b> Four fixtures at 90°<br><b>TA</b> Tenon (2.38" OD x 4" Tall)<br><b>TB</b> Tenon (2.88" OD x 4" Tall)<br><b>TC</b> Tenon (3.5" OD x 6" Tall)<br><b>TR'</b> Removable Tenon (2.38" x 4")<br><b>OT</b> Open Top (includes pole cap) | <b>BLT</b> Black Matte Textured<br><b>BLS</b> Black Gloss Smooth<br><b>DBT</b> Dark Bronze Matte Textured<br><b>DBS</b> Dark Bronze Gloss Smooth<br><b>GTT</b> Graphite Matte Textured<br><b>LGS</b> Light Grey Gloss Smooth<br><b>PSS</b> Platinum Silver Smooth<br><b>WHT</b> White Matte Textured<br><b>WHS</b> White Gloss Smooth<br><b>VGT</b> Verde Green Textured<br><br><b>Color Option</b><br><br><b>CC</b> Custom Colors<br><br><b>Drill Pattern</b><br><br><b>B3</b> 2 bolt (2-1/2" spacing), Ratio<br><b>S2</b> 2 bolt (3-1/2" spacing) | <b>GFI<sup>2</sup></b> 20 Amp GFCI Receptacle and Cover<br><b>EHH<sup>2</sup></b> Extra Handhole<br><b>C05<sup>2</sup></b> .5" Coupling<br><b>C07<sup>2</sup></b> .75" Coupling<br><b>C20<sup>2</sup></b> 2" Coupling<br><b>MPB<sup>2</sup></b> Mid-pole Luminaire Bracket<br><b>VM2</b> 2nd mode vibration damper<br><b>LAB</b> Less Anchor Bolts<br><b>UL</b> UL Certified |

## MOUNTING ORIENTATION



### Notes:

- Removable tenon used in conjunction with side arm mounting.
- First specify desired arm
- Specify option location using logic found on page 1 (Option Orientation)
- VM1 recommended on poles 20' and taller with EPA of less than 1.

## ACCESSORIES- ORDER SEPARATELY

| CATALOG NUMBER         | DESCRIPTION               |
|------------------------|---------------------------|
| <b>VM1<sup>3</sup></b> | 1st mode vibration damper |
| <b>VM2SXX*</b>         | 2nd mode vibration damper |

\* XX = 08 for 8'; 12 for 12'; 15 for 16'; 20 for 20'; and 24' for 24'

|                                                                                  |                                              |                                               |                           |
|----------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------|---------------------------|
| Submitted by Swaney Lighting                                                     | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>SSSH14-40A-1-B3-DBT | <b>Type:</b><br><b>A3</b> |
|  |                                              | <b>Notes:</b> 14FT POLE ON 1FT EXPOSED BASE   | SLA22-51646               |



|            |           |
|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

RESET

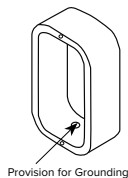
## ORDERING GUIDE (CONTINUED)

| Catalog Number             | Height    |            | Nominal Shaft Dimensions | Wall Thickness | Bolt Circle (suggested) | Bolt Circle (range) | Bolt Square (range) | Base Plate Square | Anchor bolt size   | Bolt Projection | Pole weight |
|----------------------------|-----------|------------|--------------------------|----------------|-------------------------|---------------------|---------------------|-------------------|--------------------|-----------------|-------------|
|                            | Feet      | Meters     |                          |                |                         |                     |                     |                   |                    |                 |             |
| SSS-H-10-40-A-XX-XX        | 10        | 3.0        | 4" square                | 0.125"         | 9"                      | 8"-10"              | 5.66"-7.07"         | 9"                | 3/4"x30"x3"        | 3.5             | 77          |
| SSS-H-12-40-A-XX-XX        | 12        | 3.7        | 4" square                | 0.125"         | 9"                      | 8"-10"              | 5.66"-7.07"         | 9"                | 3/4"x30"x3"        | 3.5             | 90          |
| <b>SSS-H-14-40-A-XX-XX</b> | <b>14</b> | <b>4.3</b> | <b>4" square</b>         | <b>0.125"</b>  | <b>9"</b>               | <b>8"-10"</b>       | <b>5.66"-7.07"</b>  | <b>9"</b>         | <b>3/4"x30"x3"</b> | <b>3.5</b>      | <b>103</b>  |
| SSS-H-16-40-A-XX-XX        | 16        | 4.9        | 4" square                | 0.125"         | 9"                      | 8"-10"              | 5.66"-7.07"         | 9"                | 3/4"x30"x3"        | 3.5             | 116         |
| SSS-H-18-40-A-XX-XX        | 18        | 5.5        | 4" square                | 0.125"         | 9"                      | 8"-10"              | 5.66"-7.07"         | 9"                | 3/4"x30"x3"        | 3.5             | 129         |
| SSS-H-20-40-A-XX-XX        | 20        | 6.1        | 4" square                | 0.125"         | 9"                      | 8"-10"              | 5.66"-7.07"         | 9"                | 3/4"x30"x3"        | 3.5             | 142         |
| SSS-H-25-40-A-XX-XX        | 25        | 7.6        | 4" square                | 0.125"         | 9"                      | 8"-10"              | 5.66"-7.07"         | 9"                | 3/4"x30"x3"        | 3.5             | 175         |
| SSS-H-14-40-B-XX-XX        | 14        | 4.3        | 4" square                | .188"          | 11"                     | 10"-12"             | 7.07"-8.48"         | 10.50"            | 3/4"x30"x3"        | 3.5             | 152         |
| SSS-H-16-40-B-XX-XX        | 16        | 4.9        | 4" square                | .188"          | 11"                     | 10"-12"             | 7.07"-8.48"         | 10.50"            | 3/4"x30"x3"        | 3.5             | 171         |
| SSS-H-18-40-B-XX-XX        | 18        | 5.5        | 4" square                | .188"          | 11"                     | 10"-12"             | 7.07"-8.48"         | 10.50"            | 3/4"x30"x3"        | 3.5             | 190         |
| SSS-H-20-40-B-XX-XX        | 20        | 6.1        | 4" square                | .188"          | 11"                     | 10"-12"             | 7.07"-8.48"         | 10.50"            | 3/4"x30"x3"        | 3.5             | 209         |
| SSS-H-25-40-B-XX-XX        | 25        | 7.6        | 4" square                | .188"          | 11"                     | 10"-12"             | 7.07"-8.48"         | 10.50"            | 3/4"x30"x3"        | 3.5             | 257         |
| SSS-H-30-40-B-XX-XX        | 30        | 9.1        | 4" square                | .188"          | 11"                     | 10"-12"             | 7.07"-8.48"         | 10.50"            | 3/4"x30"x3"        | 3.5             | 304         |
| SSS-H-16-50-B-XX-XX        | 16        | 4.9        | 5" square                | .188"          | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 219         |
| SSS-H-18-50-B-XX-XX        | 18        | 5.5        | 5" square                | .188"          | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 243         |
| SSS-H-20-50-B-XX-XX        | 20        | 6.1        | 5" square                | .188"          | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 267         |
| SSS-H-25-50-B-XX-XX        | 25        | 7.6        | 5" square                | .188"          | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 327         |
| SSS-H-30-50-B-XX-XX        | 30        | 9.1        | 5" square                | .188"          | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 387         |
| SSS-H-25-50-C-XX-XX        | 25        | 7.6        | 5" square                | .25"           | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 427         |
| SSS-H-30-50-C-XX-XX        | 30        | 9.1        | 5" square                | .25"           | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 507         |
| SSS-H-20-60-B-XX-XX        | 20        | 6.1        | 6" square                | .188"          | 12"                     | 11.00"-13.25"       | 7.81"-9.37"         | 12.25"            | 1"x36"x4"          | 5.0             | 329         |
| SSS-H-25-60-B-XX-XX        | 25        | 7.6        | 6" square                | .188"          | 12"                     | 11.00"-13.25"       | 7.81"-9.37"         | 12.25"            | 1"x36"x4"          | 5.0             | 404         |
| SSS-H-30-60-B-XX-XX        | 30        | 9.1        | 6" square                | .188"          | 12"                     | 11.00"-13.25"       | 7.81"-9.37"         | 12.25"            | 1"x36"x4"          | 5.0             | 479         |
| SSS-H-35-60-B-XX-XX        | 35        | 10.7       | 6" square                | .188"          | 12"                     | 11.00"-13.25"       | 7.81"-9.37"         | 12.25"            | 1"x36"x4"          | 5.0             | 554         |
| SSS-H-40-60-B-XX-XX        | 40        | 12.2       | 6" square                | .188"          | 12"                     | 11.00"-13.25"       | 7.81"-9.37"         | 12.25"            | 1"x36"x4"          | 5.0             | 629         |

### Notes:

1 Factory supplied template must be used when setting anchor bolts. Hubbell Lighting will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.

### EHH EXTRA HANDHOLE

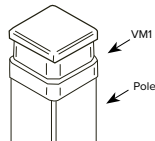


Provision for Grounding

### C05 - C07 - C20 - COUPLING



### VM1 - VIBRATION DAMPER 1ST MODE



Field Installed Pole Top damper designed to reduce pole top deflection or sway. VM1 is recommended for pole systems 20' and taller with a total EPA of 1.0 or less.

### VM2 - VIBRATION DAMPER 2ND MODE



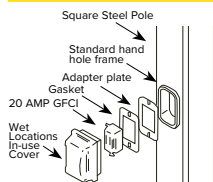
Factory installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

### VM2SXX - VIBRATION DAMPER 2ND MODE

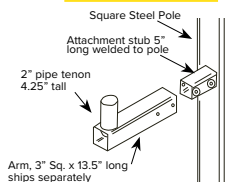


Field installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

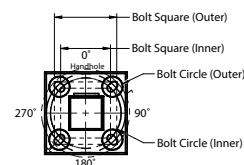
### GFI - 20 AMP GFCI RECEPTACLE & COVER



### MPB - MID POLE BRACKET



### OPTION ORIENTATION



Follow the logic below when ordering location specific options. For each option, include its orientation (in degrees) and its height (in feet). Example: Option C07 should be ordered as: SSS-H-20-40-A-TA-DBT-C07-0-15 (5' coupling on the handhole/arm side of pole, 15 feet up from the pole base) 1' spacing required between option. Consult factory for other configurations.





**Job Name:**  
SELF STORAGE - BIDDEFORD

**Catalog Number:**  
SSSH14-40A-1-B3-DBT

Notes: 14FT POLE ON 1FT EXPOSED BASE

**Type:**

**A3**

SLA22-51646



**HUBBELL**  
Outdoor Lighting

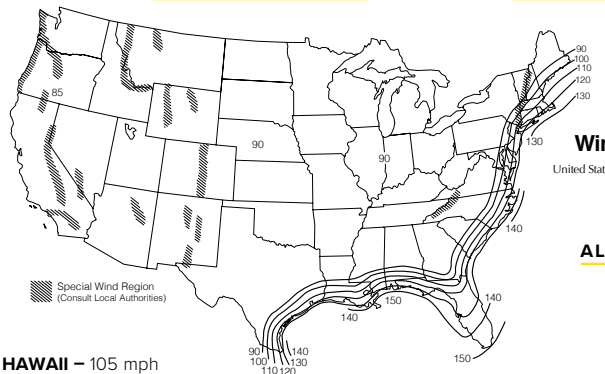
DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

RESET

**ASCE7-05 WIND MAP**



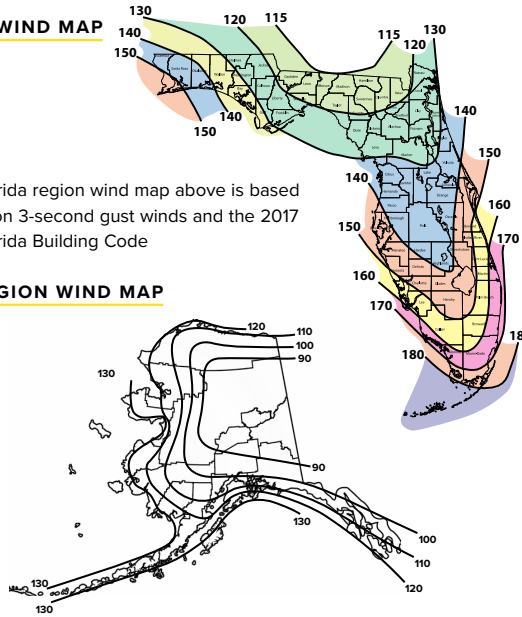
HAWAII - 105 mph

PUERTO RICO - 145 mph

**FLORIDA REGION WIND MAP**

- Florida region wind map above is based upon 3-second gust winds and the 2017 Florida Building Code

**ALASKA REGION WIND MAP**



**ASCE 7-05 wind map EPA Load Rating - 3 second gust wind speeds (Use for all locations except Florida)**

| Catalog Number | 85   | 90   | 100  | 105  | 110  | 120  | 130  | 140  | 145  | 150  |
|----------------|------|------|------|------|------|------|------|------|------|------|
| SSS-H-10-40-A  | 25.0 | 25.0 | 25.0 | 22.8 | 20.6 | 17.0 | 14.2 | 11.9 | 11.0 | 10.1 |
| SSS-H-12-40-A  | 25.0 | 25.0 | 20.0 | 18.0 | 16.1 | 13.2 | 10.8 | 8.9  | 8.1  | 7.4  |
| SSS-H-14-40-A  | 23.1 | 20.4 | 16.1 | 14.3 | 12.8 | 10.2 | 8.2  | 6.6  | 5.9  | 5.3  |
| SSS-H-16-40-A  | 19.0 | 16.7 | 13.0 | 11.5 | 10.1 | 7.9  | 6.2  | 4.7  | 4.1  | 3.6  |
| SSS-H-18-40-A  | 15.6 | 13.6 | 10.0 | 9.0  | 7.8  | 5.9  | 4.4  | 3.1  | 2.6  | 2.1  |
| SSS-H-20-40-A  | 12.7 | 10.9 | 7.9  | 6.9  | 5.9  | 4.2  | 2.8  | 1.7  | 1.3  | 0.9  |
| SSS-H-25-40-A  | 7.3  | 5.9  | 3.8  | 2.9  | 2.1  | 0.8  | NR   | NR   | NR   | NR   |
| SSS-H-14-40-B  | 25.0 | 25.0 | 23.3 | 20.8 | 18.6 | 15.1 | 12.3 | 10.2 | 9.2  | 8.4  |
| SSS-H-16-40-B  | 25.0 | 24.9 | 19.4 | 17.3 | 15.4 | 12.3 | 9.9  | 8.0  | 7.2  | 6.4  |
| SSS-H-18-40-B  | 24.0 | 20.8 | 16.1 | 14.2 | 12.5 | 9.8  | 7.7  | 6.1  | 5.3  | 4.7  |
| SSS-H-20-40-B  | 20.2 | 17.5 | 13.2 | 11.6 | 10.1 | 7.7  | 5.9  | 4.4  | 3.8  | 3.2  |
| SSS-H-25-40-B  | 12.8 | 11.0 | 7.9  | 6.7  | 5.5  | 3.7  | 2.3  | 1.2  | 0.7  | NR   |
| SSS-H-30-40-B  | 8.0  | 6.6  | 4.1  | 3.1  | 2.2  | 0.8  | NR   | NR   | NR   | NR   |
| SSS-H-16-50-B  | 25.0 | 25.0 | 25.0 | 25.0 | 24.8 | 20.1 | 16.5 | 13.6 | 12.3 | 11.2 |
| SSS-H-18-50-B  | 25.0 | 25.0 | 25.0 | 22.9 | 20.4 | 16.4 | 13.2 | 10.7 | 9.6  | 8.6  |
| SSS-H-20-50-B  | 25.0 | 25.0 | 21.3 | 18.9 | 16.7 | 13.2 | 10.4 | 8.1  | 7.2  | 6.3  |
| SSS-H-25-50-B  | 20.7 | 17.8 | 13.3 | 11.5 | 9.8  | 7.2  | 5.0  | 3.3  | 2.6  | 1.9  |
| SSS-H-30-50-B  | 13.5 | 11.3 | 7.7  | 6.2  | 4.9  | 2.8  | 1.1  | NR   | NR   | NR   |
| SSS-H-25-50-C  | 25.0 | 25.0 | 19.4 | 17.1 | 15.1 | 11.7 | 9.0  | 6.9  | 6.0  | 5.1  |
| SSS-H-30-50-C  | 20.1 | 17.3 | 12.7 | 10.9 | 9.3  | 6.6  | 4.5  | 2.8  | 2.1  | 1.4  |
| SSS-H-20-60-B  | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 20.2 | 16.1 | 12.9 | 11.5 | 10.3 |
| SSS-H-25-60-B  | 25.0 | 25.0 | 20.6 | 18.0 | 15.6 | 11.8 | 8.7  | 6.2  | 5.2  | 4.2  |
| SSS-H-30-60-B  | 21.4 | 18.1 | 12.9 | 10.7 | 8.8  | 5.7  | 3.3  | 1.3  | NR   | NR   |
| SSS-H-35-60-B  | 14.0 | 11.3 | 6.9  | 5.2  | 3.6  | 1.0  | NR   | NR   | NR   | NR   |
| SSS-H-40-60-B  | 8.1  | 5.8  | 2.2  | NR   | NR   | NR   | NR   | NR   | NR   | NR   |

**Florida Building Code 2017 EPA Load Rating - 3 second gust wind speeds (Use for Florida only)**

| Catalog Number | 115  | 120  | 130  | 140  | 150  | 160  | 170  | 180  |
|----------------|------|------|------|------|------|------|------|------|
| SSS-H-10-40-A  | 25.0 | 25.0 | 25.0 | 25.0 | 21.4 | 18.4 | 15.9 | 13.9 |
| SSS-H-12-40-A  | 25.0 | 25.0 | 23.6 | 19.8 | 16.7 | 14.2 | 12.1 | 10.4 |
| SSS-H-14-40-A  | 25.0 | 23.1 | 19.0 | 15.7 | 13.1 | 10.9 | 9.1  | 7.6  |
| SSS-H-16-40-A  | 20.8 | 18.7 | 15.2 | 12.3 | 10.1 | 8.2  | 6.7  | 5.4  |
| SSS-H-18-40-A  | 16.8 | 15.0 | 11.9 | 9.4  | 7.5  | 5.9  | 4.5  | 3.4  |
| SSS-H-20-40-A  | 13.6 | 11.9 | 9.2  | 7.1  | 5.3  | 3.9  | 2.7  | 1.7  |
| SSS-H-25-40-A  | 7.4  | 6.2  | 4.1  | 2.5  | 1.1  | NR   | NR   | NR   |
| SSS-H-14-40-B  | 25.0 | 23.6 | 19.4 | 16.1 | 13.4 | 11.2 | 9.4  | 7.8  |
| SSS-H-16-40-B  | 21.4 | 19.2 | 15.6 | 12.7 | 10.4 | 8.5  | 6.9  | 5.6  |
| SSS-H-18-40-B  | 17.2 | 15.4 | 12.2 | 9.7  | 7.7  | 6.1  | 4.7  | 3.6  |
| SSS-H-20-40-B  | 13.9 | 12.3 | 9.5  | 7.3  | 5.5  | 4.1  | 2.9  | 1.9  |
| SSS-H-25-40-B  | 7.7  | 6.4  | 4.3  | 2.6  | 1.3  | NR   | NR   | NR   |
| SSS-H-30-40-B  | 3.2  | 2.1  | NR   | NR   | NR   | NR   | NR   | NR   |
| SSS-H-16-50-B  | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 21.4 | 18.2 | 15.5 |
| SSS-H-18-50-B  | 25.0 | 25.0 | 25.0 | 24.4 | 20.4 | 17.0 | 14.2 | 11.9 |
| SSS-H-20-50-B  | 25.0 | 25.0 | 24.4 | 19.9 | 16.3 | 13.4 | 11.0 | 8.9  |
| SSS-H-25-50-B  | 21.8 | 19.3 | 15.0 | 11.5 | 8.8  | 6.5  | 4.7  | 3.1  |
| SSS-H-30-50-B  | 13.7 | 11.7 | 8.2  | 5.5  | 3.3  | 1.5  | NR   | NR   |
| SSS-H-25-50-C  | 21.8 | 19.3 | 15.0 | 11.5 | 8.8  | 6.5  | 4.7  | 3.1  |
| SSS-H-30-50-C  | 13.7 | 11.7 | 8.2  | 5.5  | 3.3  | 1.5  | NR   | NR   |
| SSS-H-20-60-B  | 25.0 | 25.0 | 25.0 | 21.9 | 17.8 | 14.5 | 11.7 | 9.4  |
| SSS-H-25-60-B  | 23.8 | 20.9 | 16.1 | 12.3 | 9.2  | 6.6  | 4.5  | 2.8  |
| SSS-H-30-60-B  | 14.6 | 12.3 | 8.4  | 5.3  | 2.8  | 0.8  | NR   | NR   |
| SSS-H-35-60-B  | 7.5  | 5.6  | 2.4  | NR   | NR   | NR   | NR   | NR   |
| SSS-H-40-60-B  | 1.8  | NR   | NR   | NR   | NR   | NR   | NR   | NR   |



**HUBBELL**  
Outdoor Lighting



**Job Name:**  
SELF STORAGE - BIDDEFORD

**Catalog Number:**  
SSSH14-40A-1-B3-DBT

Notes: 14FT POLE ON 1FT EXPOSED BASE

Type:

# A3

SLA22-51646



**HUBBELL**  
Outdoor Lighting

DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

|       |          |
|-------|----------|
| TYPE: | PROJECT: |
|-------|----------|

CATALOG #:

**RESET**

**Notes:**

- 2 Allowable EPA, to determine max pole loading weight, multiply allowable EPA by 30 lbs.
- 2 The tables for allowable pole EPA are based on the ASCE 7-05 Wind Map or the Florida Region Wind Map for the 2010 Florida Building Code. The Wind Maps are intended only as a general guide and cannot be used in conjunction with other maps. Always consult local authorities to determine maximum wind velocities, gusting and unique wind conditions for each specific application
- 3 Allowable pole EPA for jobsite wind conditions must be equal to or greater than the total EPA for fixtures, arms, and accessories to be assembled to the pole. Responsibility lies with the specifier for correct pole selection. Installation of poles without luminaires or attachment of any unauthorized accessories to poles is discouraged and shall void the manufacturer's warranty
- 4 Wind speeds and listed EPAs are for ground mounted installations. Poles mounted on structures (such as bridges and buildings) must consider vibration and coefficient of height factors beyond this general guide; Consult local and federal standards
- 5 Wind Induced Vibration brought on by steady, unidirectional winds and other unpredictable aerodynamic forces are not included in wind velocity ratings. Consult Hubble Lighting's Pole Vibration Application Guide for environmental risk factors and design considerations: [https://hubblelcdn.com/ohwassets/HIL/outdoor/resources/literature/files/Pole\\_Wind\\_Induced\\_Flyer\\_HILO0022.pdf](https://hubblelcdn.com/ohwassets/HIL/outdoor/resources/literature/files/Pole_Wind_Induced_Flyer_HILO0022.pdf)
- 6 Extreme Wind Events like, Hurricanes, Typhoons, Cyclones, or Tornadoes may expose poles to flying debris, wind shear or other detrimental effects not included in wind velocity ratings

**Due to our continued efforts to improve our products, product specifications are subject to change without notice.**



|                                                                                 |                                              |                                                                 |                              |
|---------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------|------------------------------|
| Submitted by Swaney Lighting                                                    |                                              | <b>Catalog Number:</b>                                          | <b>Type:</b>                 |
|  | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | SSSH14-40A-1-B3-DBT<br><br>Notes: 14FT POLE ON 1FT EXPOSED BASE | <b>A3</b><br><br>SLA22-51646 |

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DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_  
TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_  
CATALOG #: \_\_\_\_\_

# RATIO Series

AREA/SITE LIGHTER

## FEATURES

- Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as retail, commercial and campus parking lots
- Featuring Micro Strike Optics which maximizes target zone illumination with minimal losses at the house-side, reducing light trespass issues
- Visual comfort standard
- Compact and lightweight design with low EPA
- 3G rated for high vibration applications including bridges and overpasses
- Control options including photo control, occupancy sensing, NX Distributed Intelligence™ and 7-Pin with networked controls
- Best in class surge protection available



## RELATED PRODUCTS

θ [Airo](#) θ [Cimarron LED](#) θ [Ratio Family](#)



## CONTROL TECHNOLOGY



## SPECIFICATIONS

### CONSTRUCTION

- Rectilinear form mimics the traditional shoebox form factor keeping a similar but updated style and appearance, ideal for retrofit applications
- Die-cast housing with hidden vertical heat fins that are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with powder coat paint finish

### OPTICS

- Entire optical aperture illuminates to create a larger luminous surface area resulting in a low glare appearance without sacrificing optical performance
- 80, 160, 320 or 480 midpower LEDs
- 3000K, 4000K or 5000K (70 CRI) CCT
- Zero uplight at 0 degrees of tilt
- Field rotatable optics

### INSTALLATION

- Standard square arm mount, compatible with B3 drill pattern
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option or accessory for square and round poles.
- Knuckle arm fitter option available for 2-3/8" OD tenon. Max tilt of 60 degrees with 4 degree adjustable increments. (Restrictions apply for 7-pin options)

### ELECTRICAL

- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz

### ELECTRICAL (CONTINUED)

- Ambient operating temperature -40°C to 40°C
- Drivers have greater than 90% power factor and less than 20% THD
- LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised

### CONTROLS

- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0-10 V Dimming Drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than the 6" standard
- SiteSync™ wireless control system is available via 7-pin See ordering information and details at: [www.hubbellighting.com/sitesync](http://www.hubbellighting.com/sitesync)
- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor via 7-pin

### CERTIFICATIONS

- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Please refer to the DLC website for specific product qualifications at [www.designlights.org](http://www.designlights.org)
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40°C ambient temperatures
- 3G rated for ANSI C136.31 high vibration applications
- Fixture is IP66 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/23/2020. See [Buy American Solutions](http://Buy American Solutions)

### WARRANTY

- 5 year limited warranty
- See [HLI Standard Warranty](#) for additional information

| KEY DATA                       |                    |
|--------------------------------|--------------------|
| Lumen Range                    | 3,000–48,000       |
| Wattage Range                  | 25–340             |
| Efficacy Range (LPW)           | 118–155            |
| Fixture Projected Life (Hours) | L70>60K            |
| Weights lbs. (kg)              | 13.5–24 (6.1–10.9) |

|                              |                                              |                                                                      |                                          |
|------------------------------|----------------------------------------------|----------------------------------------------------------------------|------------------------------------------|
| Submitted by Swaney Lighting | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>RAR1-160L-70-4K7-5QW-UNV-ASQ-DBT<br>Notes: | <b>Type:</b><br><b>A5</b><br>SLA22-51646 |
|------------------------------|----------------------------------------------|----------------------------------------------------------------------|------------------------------------------|



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|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

## RATIO SERIES

AREA/SITE LIGHTER

### ORDERING GUIDE

Example: RAR1-80L-25-3K7-2-UNV-ASQ-BL-NXWE-BC

CATALOG #

### ORDERING INFORMATION

| Series                        | # LEDs - Wattage                                                                                                                                                                                                                                                                                                                                                     | CCT/CRI                                                                          | Distribution                                                                                    | Optics Rotation                                                                               | Voltage                                                                                                                                         |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>RAR1</b> Ratio Area Size 1 | <b>80L-25</b> 25W - 3,000 Lumens<br><b>80L-39</b> 39W - 5,200 Lumens<br><b>80L-50</b> 50W - 6,000 Lumens<br><b>160L-70</b> 70W - 9,000 Lumens<br><b>160L-100</b> 100W - 12,000 Lumens<br><b>160L-115</b> 115W - 15,000 Lumens<br><b>160L-135</b> 135W - 18,000 Lumens                                                                                                | <b>3K7</b> 3000K, 70 CRI<br><b>4K7</b> 4000K, 70 CRI<br><b>5K7</b> 5000K, 70 CRI | <b>2</b> IES TYPE II<br><b>3</b> IES TYPE III<br><b>4W</b> IES TYPE IV<br><b>5QW</b> IES TYPE V | <b>Blank for no rotation</b><br><b>L</b> Optic rotation left<br><b>R</b> Optic rotation right | <b>UNV</b> Universal 120-277V<br><b>120</b> 120V<br><b>208</b> 208V<br><b>240</b> 240V<br><b>277</b> 277V<br><b>347</b> 347V<br><b>480</b> 480V |
| <b>RAR2</b> Ratio Area Size 2 | <b>320L-110</b> 110W - 15,000 Lumens<br><b>320L-140</b> 140W - 18,000 Lumens<br><b>320L-165</b> 165W - 21,000 Lumens<br><b>480L-185</b> 185W - 24,000 Lumens<br><b>480L-210</b> 210W - 27,000 Lumens<br><b>480L-240</b> 240W - 30,000 Lumens<br><b>480L-255</b> 255W - 36,000 Lumens<br><b>480L-295</b> 295W - 42,000 Lumens<br><b>480L-340</b> 340W - 48,000 Lumens |                                                                                  |                                                                                                 |                                                                                               |                                                                                                                                                 |

| Mounting                                                                                                                                                                                                                                                                                                                                                                                            | Color                                                                                                                                                                                                                                                                                                                                                                                                                    | Control Options Network                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Options                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ASQ</b> Arm mount for square pole/flat surface<br><b>ASQU</b> Universal arm mount for square pole/flat surface<br><b>Mounting Round Poles</b><br><b>A_</b> Arm mount for round pole <sup>1</sup><br><b>A_U</b> Universal arm mount for round pole <sup>1</sup><br><b>Mounting Other</b><br><b>WB</b> Wall bracket<br><b>MAF</b> Mast arm fitter for 2-3/8" OD horizontal arm<br><b>K</b> Knuckle | <b>BLT</b> Black Matte Textured<br><b>BLS</b> Black Gloss Smooth<br><b>DBT</b> Dark Bronze Matte Textured<br><b>DBS</b> Dark Brone Gloss Smooth<br><b>GTT</b> Graphite Matte Textured<br><b>LGS</b> Light Grey Gloss Smooth<br><b>PSS</b> Platinum Silver Smooth<br><b>WHT</b> White Matte Textured<br><b>WHS</b> White Gloss Smooth<br><b>VGt</b> Verde Green Textured<br><b>Color Option</b><br><b>CC</b> Custom Color | <b>NXWE</b> NX Wireless Enabled (module + radio)<br><b>NXSPW_F</b> NX Wireless, PIR Occ. Sensor, Daylight Harvesting <sup>4</sup><br><b>NXSP_F</b> NX, PIR Occ. Sensor, Daylight Harvesting <sup>4</sup><br><b>Control Options Other</b><br><b>SCP-40F</b> Programmable occupancy sensor <sup>3</sup><br><b>7PR</b> 7-Pin twist lock receptacle<br><b>7PR-SC</b> 7-Pin receptacle with shorting cap<br><b>7PR-MD40F</b> Low voltage sensor for 7PR<br><b>7PR-TL</b> 7-Pin PCR with photocontrol<br><b>Sensors</b><br><b>BTS_F</b> Bluetooth Programmable, PIR Occupancy/Daylight Sensor, 360° lens <sup>4</sup><br><b>BTSO_F</b> Bluetooth Programmable, PIR Occupancy/Daylight Sensor, 360° lens, up to 12' mounting height <sup>5</sup> | <b>BC</b> Backlight control<br><b>F</b> Fusing (must specify voltage)<br><b>TB</b> Terminal block<br><b>2PF</b> 2 power feed with 2 drivers <sup>2</sup><br><br>Notes:<br>1 Replace "._" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole<br>2 Not available with 25, 50, 255, 295 & 340W configurations<br>3 At least one SCPREMOTE required to program SCP motion sensor<br>4 Replace "._" with "14" for up to 14' mounting height, "40F" for 15-40' mounting height<br>5 Replace "._" with "12" for up to 12' mounting height |

### STOCK ORDERING INFORMATION

| Catalog Number | Lumens | Wattage | LED Count | CCT/CRI     | Voltage  | Distribution | Mounting   | Finish |
|----------------|--------|---------|-----------|-------------|----------|--------------|------------|--------|
| RAR1-100-4K-3  | 12,000 | 100W    | 160L      | 4000K/70CRI | 120-277V | Type 3       | Square Arm | Bronze |
| RAR1-100-4K-4W | 12,000 | 100W    | 160L      | 4000K/70CRI | 120-277V | Type 4W      | Square Arm | Bronze |
| RAR1-135-4K-3  | 18,000 | 135W    | 160L      | 4000K/70CRI | 120-277V | Type 3       | Square Arm | Bronze |
| RAR1-135-4K-4W | 18,000 | 135W    | 160L      | 4000K/70CRI | 120-277V | Type 4W      | Square Arm | Bronze |
| RAR2-165-4K-3  | 21,000 | 165W    | 320L      | 4000K/70CRI | 120-277V | Type 3       | Square Arm | Bronze |
| RAR2-165-4K-4W | 21,000 | 165W    | 320L      | 4000K/70CRI | 120-277V | Type 4W      | Square Arm | Bronze |



|                              |                                              |                                                                      |                                          |
|------------------------------|----------------------------------------------|----------------------------------------------------------------------|------------------------------------------|
| Submitted by Swaney Lighting | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>RAR1-160L-70-4K7-5QW-UNV-ASQ-DBT<br>Notes: | <b>Type:</b><br><b>A5</b><br>SLA22-51646 |
|------------------------------|----------------------------------------------|----------------------------------------------------------------------|------------------------------------------|



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| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

## RATIO SERIES

AREA/SITE LIGHTER

### OPTIONS AND ACCESSORIES - STOCK (ORDERED SEPARATELY)

| Catalog Number                     | Description                                                                             |
|------------------------------------|-----------------------------------------------------------------------------------------|
| <input type="checkbox"/> RARRPA3DB | Round pole adapter 3.5" to 4.13" for ASQ arm, 3.5" to 4.13" OD pole, dark bronze finish |
| <input type="checkbox"/> RARA3UDB  | Universal mount for square pole or round pole 3.5" to 4.13", dark bronze finish         |
| <input type="checkbox"/> RARBC80L  | Ratio blacklight control 80L                                                            |
| <input type="checkbox"/> RARBC160L | Ratio blacklight control 160L                                                           |
| <input type="checkbox"/> RARBC320L | Ratio blacklight control 320L                                                           |
| <input type="checkbox"/> RARBC480L | Ratio blacklight control 480L                                                           |

### ACCESSORIES AND REPLACEMENT PARTS - MADE TO ORDER

| Catalog Number                        | Description                                                                                                                              |
|---------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> RAR-ASQU-XX  | Universal arm mount for square pole/flat surface <sup>2</sup>                                                                            |
| <input type="checkbox"/> RAR-A_U-XX   | Universal arm mount for round poles <sup>1,2</sup>                                                                                       |
| <input type="checkbox"/> RAR-RPA_-XX  | Round pole adapter <sup>1,2</sup>                                                                                                        |
| <input type="checkbox"/> SETAVP-XX    | 4" square pole top tenon adapter, 2 3/8" OD slipfitter <sup>2</sup>                                                                      |
| <input type="checkbox"/> RETAVP-XX    | 4" round pole top tenon adapter, 2 3/8" OD slipfitter for max. Four fixtures (90o); order 4" round pole adapters separately <sup>2</sup> |
| <input type="checkbox"/> BIRD-SPIKE-3 | Ratio size 1 bird deterrent/spikes                                                                                                       |
| <input type="checkbox"/> BIRD-SPIKE-4 | Ratio size 2 bird deterrent/spikes                                                                                                       |
| <input type="checkbox"/> RARWB-XX     | Wall bracket - use with Mast Arm Fitter or Knuckle <sup>2</sup>                                                                          |

- 1 Replace "-" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole  
2 Replace "XX" with desired color/paint finish

### CONTROLS

| Control Options                |                                                                |
|--------------------------------|----------------------------------------------------------------|
| <b>Standalone</b>              |                                                                |
| SW7PR                          | SiteSync™ on fixture module via 7PR                            |
| SWUSB                          | SiteSync™ Software on USB                                      |
| SWTAB                          | SiteSync™ Windows Tablet                                       |
| SWBRG                          | SiteSync™ Wireless Bridge Node                                 |
| SWFC                           | SiteSync™ Field Commission Serve                               |
| SCPREMOTE                      | Order at least one per project location to program and control |
| <b>Networked – Wireless</b>    |                                                                |
| WIR-RME-L                      | wiSCAPE External Fixture Module <sup>1,2</sup>                 |
| <b>NX Networked – Wireless</b> |                                                                |
| NXOFM-1R1D-UNV                 | NX Wireless, Daylight Harvesting, BLE, 7 pin twisted lock      |

- Notes:  
1 Works with external networked photosensor  
2 wiSCAPE Gateway required for system programming

|                              |                                              |                                                                             |                                          |
|------------------------------|----------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------|
| Submitted by Swaney Lighting | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>RAR1-160L-70-4K7-5QW-UNV-ASQ-DBT<br><b>Notes:</b> | <b>Type:</b><br><b>A5</b><br>SLA22-51646 |
|------------------------------|----------------------------------------------|-----------------------------------------------------------------------------|------------------------------------------|



|            |           |
|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

## RATIO SERIES

AREA/SITE LIGHTER

### PERFORMANCE DATA

| Description                        | Nominal Wattage | System Watts | Dist. Type | 5K (5000K NOMINAL 70 CRI) |     |   |   |   | 4K (4000K NOMINAL 70 CRI) |     |   |   |   | 3K (3000K NOMINAL 80 CRI) |     |   |   |   |
|------------------------------------|-----------------|--------------|------------|---------------------------|-----|---|---|---|---------------------------|-----|---|---|---|---------------------------|-----|---|---|---|
|                                    |                 |              |            | Lumens                    | LPW | B | U | G | Lumens                    | LPW | B | U | G | Lumens                    | LPW | B | U | G |
| RAR1                               | 25              | 25.4         | 2          | 3438                      | 135 | 1 | 0 | 1 | 3445                      | 136 | 1 | 0 | 1 | 3240                      | 128 | 1 | 0 | 1 |
|                                    |                 |              | 3          | 3460                      | 136 | 1 | 0 | 1 | 3467                      | 136 | 1 | 0 | 1 | 3260                      | 128 | 1 | 0 | 1 |
|                                    |                 |              | 4W         | 3406                      | 134 | 1 | 0 | 1 | 3412                      | 134 | 1 | 0 | 1 | 3209                      | 126 | 1 | 0 | 1 |
|                                    |                 |              | 5QW        | 3483                      | 137 | 2 | 0 | 1 | 3490                      | 137 | 2 | 0 | 1 | 3282                      | 129 | 2 | 0 | 1 |
|                                    | 39              | 39           | 2          | 5263                      | 139 | 1 | 0 | 2 | 5273                      | 139 | 1 | 0 | 2 | 4960                      | 131 | 1 | 0 | 2 |
|                                    |                 |              | 3          | 5297                      | 139 | 1 | 0 | 2 | 5308                      | 140 | 1 | 0 | 2 | 4991                      | 131 | 1 | 0 | 2 |
|                                    |                 |              | 4W         | 5200                      | 137 | 1 | 0 | 2 | 5210                      | 137 | 1 | 0 | 2 | 4900                      | 129 | 1 | 0 | 2 |
|                                    |                 |              | 5QW        | 5333                      | 140 | 3 | 0 | 1 | 5344                      | 141 | 3 | 0 | 1 | 5025                      | 132 | 3 | 0 | 1 |
|                                    | 50              | 49.8         | 2          | 6310                      | 127 | 1 | 0 | 2 | 6323                      | 127 | 1 | 0 | 2 | 5946                      | 120 | 1 | 0 | 2 |
|                                    |                 |              | 3          | 6349                      | 128 | 1 | 0 | 2 | 6362                      | 128 | 1 | 0 | 2 | 5983                      | 120 | 1 | 0 | 2 |
|                                    |                 |              | 4W         | 6233                      | 125 | 1 | 0 | 2 | 6245                      | 126 | 1 | 0 | 2 | 5873                      | 118 | 1 | 0 | 2 |
|                                    |                 |              | 5QW        | 6392                      | 129 | 3 | 0 | 1 | 6405                      | 129 | 3 | 0 | 1 | 6023                      | 121 | 3 | 0 | 1 |
|                                    | 70              | 68.4         | 2          | 9486                      | 139 | 1 | 0 | 2 | 9505                      | 139 | 1 | 0 | 2 | 8938                      | 131 | 1 | 0 | 2 |
|                                    |                 |              | 3          | 9544                      | 140 | 1 | 0 | 2 | 9563                      | 140 | 1 | 0 | 2 | 8993                      | 131 | 1 | 0 | 2 |
|                                    |                 |              | 4W         | 9395                      | 137 | 1 | 0 | 2 | 9414                      | 138 | 1 | 0 | 2 | 8853                      | 129 | 1 | 0 | 2 |
|                                    |                 |              | 5QW        | 9608                      | 140 | 4 | 0 | 2 | 9628                      | 141 | 4 | 0 | 2 | 9054                      | 132 | 4 | 0 | 2 |
|                                    | 100             | 90.0         | 2          | 11976                     | 133 | 2 | 0 | 2 | 12000                     | 133 | 2 | 0 | 2 | 11285                     | 125 | 2 | 0 | 2 |
|                                    |                 |              | 3          | 12050                     | 134 | 2 | 0 | 2 | 12074                     | 134 | 2 | 0 | 2 | 11354                     | 126 | 2 | 0 | 2 |
|                                    |                 |              | 4W         | 11861                     | 132 | 2 | 0 | 2 | 11885                     | 132 | 2 | 0 | 2 | 11177                     | 124 | 2 | 0 | 2 |
|                                    |                 |              | 5QW        | 12131                     | 135 | 4 | 0 | 2 | 12155                     | 135 | 4 | 0 | 2 | 11431                     | 127 | 4 | 0 | 2 |
|                                    | 115             | 109.7        | 2          | 15572                     | 142 | 2 | 0 | 2 | 15494                     | 141 | 2 | 0 | 2 | 14871                     | 136 | 2 | 0 | 2 |
|                                    |                 |              | 3          | 15833                     | 144 | 2 | 0 | 2 | 15754                     | 144 | 2 | 0 | 2 | 15121                     | 138 | 2 | 0 | 2 |
|                                    |                 |              | 4W         | 15281                     | 139 | 2 | 0 | 3 | 15205                     | 139 | 2 | 0 | 3 | 14623                     | 133 | 2 | 0 | 3 |
|                                    |                 |              | 5QW        | 15732                     | 143 | 4 | 0 | 2 | 15653                     | 143 | 4 | 0 | 2 | 15024                     | 137 | 4 | 0 | 2 |
|                                    | 135             | 133.3        | 2          | 17971                     | 135 | 3 | 0 | 3 | 17881                     | 134 | 3 | 0 | 3 | 17163                     | 129 | 3 | 0 | 3 |
|                                    |                 |              | 3          | 18272                     | 137 | 2 | 0 | 2 | 18181                     | 136 | 2 | 0 | 2 | 17450                     | 131 | 2 | 0 | 2 |
|                                    |                 |              | 4W         | 17635                     | 132 | 2 | 0 | 3 | 17547                     | 132 | 2 | 0 | 3 | 16876                     | 127 | 2 | 0 | 3 |
|                                    |                 |              | 5QW        | 18156                     | 136 | 4 | 0 | 2 | 18065                     | 136 | 4 | 0 | 2 | 17339                     | 130 | 4 | 0 | 2 |
| RAR2 Performance Data on next page |                 |              |            |                           |     |   |   |   |                           |     |   |   |   |                           |     |   |   |   |

\* Lumen values are from photometric test performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.



DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_

CATALOG #: \_\_\_\_\_

## RATIO SERIES

AREA/SITE LIGHTER

### PERFORMANCE DATA

| Description | Nominal Wattage | System Watts | Dist. Type | 5K (5000K NOMINAL 70 CRI) |     |   |   |   | 4K (4000K NOMINAL 70 CRI) |     |   |   |   | 3K (3000K NOMINAL 80 CRI) |     |   |   |   |
|-------------|-----------------|--------------|------------|---------------------------|-----|---|---|---|---------------------------|-----|---|---|---|---------------------------|-----|---|---|---|
|             |                 |              |            | Lumens                    | LPW | B | U | G | Lumens                    | LPW | B | U | G | Lumens                    | LPW | B | U | G |
| RAR2        | 110             | 100.3        | 2          | 15326                     | 153 | 2 | 0 | 3 | 15357                     | 153 | 2 | 0 | 3 | 14442                     | 144 | 2 | 0 | 3 |
|             |                 |              | 3          | 15421                     | 154 | 2 | 0 | 3 | 15452                     | 154 | 2 | 0 | 3 | 14531                     | 145 | 2 | 0 | 3 |
|             |                 |              | 4W         | 15180                     | 151 | 2 | 0 | 2 | 15210                     | 152 | 2 | 0 | 2 | 14304                     | 143 | 2 | 0 | 2 |
|             |                 |              | 5QW        | 15525                     | 155 | 4 | 0 | 2 | 15556                     | 155 | 4 | 0 | 2 | 14629                     | 146 | 4 | 0 | 2 |
|             | 140             | 133.2        | 2          | 19395                     | 146 | 2 | 0 | 3 | 19434                     | 146 | 2 | 0 | 3 | 18276                     | 137 | 2 | 0 | 3 |
|             |                 |              | 3          | 19515                     | 147 | 2 | 0 | 3 | 19554                     | 147 | 2 | 0 | 3 | 18389                     | 138 | 2 | 0 | 3 |
|             |                 |              | 4W         | 19210                     | 144 | 2 | 0 | 3 | 19248                     | 145 | 2 | 0 | 3 | 18101                     | 136 | 2 | 0 | 3 |
|             |                 |              | 5QW        | 19647                     | 148 | 5 | 0 | 3 | 19686                     | 148 | 5 | 0 | 3 | 18513                     | 139 | 5 | 0 | 3 |
|             | 165             | 153.6        | 2          | 21651                     | 141 | 3 | 0 | 3 | 21695                     | 141 | 3 | 0 | 3 | 20402                     | 133 | 3 | 0 | 3 |
|             |                 |              | 3          | 21785                     | 142 | 3 | 0 | 3 | 21828                     | 142 | 3 | 0 | 3 | 20527                     | 134 | 3 | 0 | 3 |
|             |                 |              | 4W         | 21444                     | 140 | 3 | 0 | 3 | 21487                     | 140 | 3 | 0 | 3 | 20206                     | 132 | 3 | 0 | 3 |
|             |                 |              | 5QW        | 21932                     | 143 | 5 | 0 | 3 | 21976                     | 143 | 5 | 0 | 3 | 20666                     | 135 | 5 | 0 | 3 |
|             | 185             | 174.5        | 2          | 26046                     | 149 | 3 | 0 | 3 | 26098                     | 150 | 3 | 0 | 3 | 24543                     | 141 | 3 | 0 | 3 |
|             |                 |              | 3          | 26207                     | 150 | 3 | 0 | 3 | 26259                     | 150 | 3 | 0 | 3 | 24694                     | 142 | 3 | 0 | 3 |
|             |                 |              | 4W         | 25797                     | 148 | 3 | 0 | 4 | 25849                     | 148 | 3 | 0 | 4 | 24308                     | 139 | 3 | 0 | 4 |
|             |                 |              | 5QW        | 26384                     | 151 | 5 | 0 | 3 | 26437                     | 152 | 5 | 0 | 3 | 24861                     | 143 | 5 | 0 | 3 |
|             | 210             | 198.2        | 2          | 28848                     | 145 | 3 | 0 | 4 | 28906                     | 146 | 3 | 0 | 4 | 27184                     | 137 | 3 | 0 | 4 |
|             |                 |              | 3          | 29027                     | 146 | 3 | 0 | 4 | 29085                     | 147 | 3 | 0 | 4 | 27351                     | 138 | 3 | 0 | 4 |
|             |                 |              | 4W         | 28572                     | 144 | 3 | 0 | 4 | 28630                     | 144 | 3 | 0 | 4 | 26924                     | 136 | 3 | 0 | 4 |
|             |                 |              | 5QW        | 29222                     | 147 | 5 | 0 | 4 | 29281                     | 148 | 5 | 0 | 4 | 27536                     | 139 | 5 | 0 | 4 |
|             | 240             | 226.9        | 2          | 32087                     | 141 | 3 | 0 | 4 | 32151                     | 142 | 3 | 0 | 4 | 30235                     | 133 | 3 | 0 | 4 |
|             |                 |              | 3          | 32285                     | 142 | 3 | 0 | 4 | 32350                     | 143 | 3 | 0 | 4 | 30422                     | 134 | 3 | 0 | 4 |
|             |                 |              | 4W         | 31780                     | 140 | 3 | 0 | 4 | 31844                     | 140 | 3 | 0 | 4 | 29946                     | 132 | 3 | 0 | 4 |
|             |                 |              | 5QW        | 32503                     | 143 | 5 | 0 | 4 | 32568                     | 144 | 5 | 0 | 4 | 30627                     | 135 | 5 | 0 | 4 |
|             | 255             | 257.0        | 2          | 37040                     | 144 | 3 | 0 | 4 | 36854                     | 143 | 3 | 0 | 4 | 35373                     | 138 | 3 | 0 | 4 |
|             |                 |              | 3          | 37660                     | 147 | 3 | 0 | 4 | 37472                     | 146 | 3 | 0 | 4 | 35966                     | 140 | 3 | 0 | 4 |
|             |                 |              | 4W         | 36347                     | 141 | 3 | 0 | 5 | 36166                     | 140 | 3 | 0 | 5 | 34782                     | 135 | 3 | 0 | 5 |
|             |                 |              | 5QW        | 37420                     | 146 | 5 | 0 | 4 | 37233                     | 145 | 5 | 0 | 4 | 35736                     | 139 | 5 | 0 | 4 |
|             | 295             | 294.0        | 2          | 41733                     | 142 | 3 | 0 | 4 | 41524                     | 141 | 3 | 0 | 4 | 39855                     | 136 | 3 | 0 | 4 |
|             |                 |              | 3          | 42432                     | 144 | 3 | 0 | 4 | 42220                     | 144 | 3 | 0 | 4 | 40523                     | 138 | 3 | 0 | 4 |
|             |                 |              | 4W         | 40953                     | 139 | 3 | 0 | 5 | 40748                     | 139 | 3 | 0 | 5 | 39190                     | 133 | 3 | 0 | 5 |
|             |                 |              | 5QW        | 42162                     | 143 | 5 | 0 | 4 | 41951                     | 143 | 5 | 0 | 4 | 40264                     | 137 | 5 | 0 | 4 |
|             | 340             | 347.1        | 2          | 48392                     | 139 | 4 | 0 | 5 | 48150                     | 139 | 4 | 0 | 5 | 46215                     | 133 | 4 | 0 | 5 |
|             |                 |              | 3          | 49203                     | 142 | 3 | 0 | 4 | 48957                     | 141 | 3 | 0 | 4 | 46989                     | 135 | 3 | 0 | 4 |
|             |                 |              | 4W         | 47488                     | 137 | 4 | 0 | 5 | 47261                     | 136 | 4 | 0 | 5 | 45443                     | 131 | 4 | 0 | 5 |
|             |                 |              | 5QW        | 48889                     | 141 | 5 | 0 | 5 | 48645                     | 140 | 5 | 0 | 5 | 46689                     | 135 | 5 | 0 | 5 |

\* Lumen values are from photometric test performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.

|                                                                                                                              |  |                                                            |                           |
|------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------|---------------------------|
| Submitted by Swaney Lighting                                                                                                 |  | <b>Catalog Number:</b><br>RAR1-160L-70-4K7-5QW-UNV-ASQ-DBT | <b>Type:</b><br><b>A5</b> |
|  <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD |  | <b>Notes:</b><br>                                          |                           |
|                                                                                                                              |  | SLA22-51646                                                |                           |



## RATIO SERIES

AREA/SITE LIGHTER

|            |           |
|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

### ELECTRICAL DATA

| # OF LEDS | Nominal Wattage | Input Voltage | Oper. Current (Amps) | System Power (Watts) |
|-----------|-----------------|---------------|----------------------|----------------------|
| RAR1      | 25              | 120           | 0.21                 | 25.4                 |
|           |                 | 208           | 0.12                 |                      |
|           |                 | 240           | 0.11                 |                      |
|           |                 | 277           | 0.09                 |                      |
|           | 39              | 120           | 0.32                 | 38.0                 |
|           |                 | 208           | 0.18                 |                      |
|           |                 | 240           | 0.16                 |                      |
|           |                 | 277           | 0.14                 |                      |
|           | 50              | 120           | 0.42                 | 49.8                 |
|           |                 | 208           | 0.24                 |                      |
|           |                 | 240           | 0.21                 |                      |
|           |                 | 277           | 0.18                 |                      |
|           | 70              | 120           | 0.57                 | 68.4                 |
|           |                 | 208           | 0.33                 |                      |
|           |                 | 240           | 0.29                 |                      |
|           |                 | 277           | 0.25                 |                      |
|           | 100             | 120           | 0.75                 | 90.0                 |
|           |                 | 208           | 0.43                 |                      |
|           |                 | 240           | 0.38                 |                      |
|           |                 | 277           | 0.32                 |                      |
|           | 115             | 120           | 0.91                 | 109.7                |
|           |                 | 208           | 0.53                 |                      |
|           |                 | 240           | 0.46                 |                      |
|           |                 | 277           | 0.40                 |                      |
|           | 135             | 120           | 1.11                 | 133.3                |
|           |                 | 208           | 0.64                 |                      |
|           |                 | 240           | 0.56                 |                      |
|           |                 | 277           | 0.48                 |                      |

| # OF LEDS | Nominal Wattage | Input Voltage | Oper. Current (Amps) | System Power (Watts) |
|-----------|-----------------|---------------|----------------------|----------------------|
| RAR2      | 110             | 120           | 0.84                 | 100.3                |
|           |                 | 208           | 0.48                 |                      |
|           |                 | 240           | 0.42                 |                      |
|           |                 | 277           | 0.36                 |                      |
|           | 140             | 120           | 1.11                 | 133.2                |
|           |                 | 208           | 0.64                 |                      |
|           |                 | 240           | 0.56                 |                      |
|           |                 | 277           | 0.48                 |                      |
|           | 165             | 120           | 1.28                 | 153.6                |
|           |                 | 208           | 0.74                 |                      |
|           |                 | 240           | 0.64                 |                      |
|           |                 | 277           | 0.55                 |                      |
|           | 185             | 120           | 1.45                 | 174.5                |
|           |                 | 208           | 0.84                 |                      |
|           |                 | 240           | 0.73                 |                      |
|           |                 | 277           | 0.63                 |                      |
|           | 210             | 120           | 1.65                 | 198.3                |
|           |                 | 208           | 0.95                 |                      |
|           |                 | 240           | 0.83                 |                      |
|           |                 | 277           | 0.72                 |                      |
|           | 240             | 120           | 1.89                 | 226.9                |
|           |                 | 208           | 1.09                 |                      |
|           |                 | 240           | 0.95                 |                      |
|           |                 | 277           | 0.82                 |                      |
|           | 255             | 120           | 2.14                 | 257.0                |
|           |                 | 208           | 1.24                 |                      |
|           |                 | 240           | 1.07                 |                      |
|           |                 | 277           | 0.93                 |                      |
|           | 295             | 120           | 2.45                 | 294.0                |
|           |                 | 208           | 1.41                 |                      |
|           |                 | 240           | 1.23                 |                      |
|           |                 | 277           | 1.06                 |                      |
|           | 340             | 120           | 2.89                 | 347.1                |
|           |                 | 208           | 1.67                 |                      |
|           |                 | 240           | 1.45                 |                      |
|           |                 | 277           | 1.25                 |                      |

### LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

| Ambient Temperature | Lumen Multiplier |
|---------------------|------------------|
| 0° C                | 1.03             |
| 10° C               | 1.01             |
| 20° C               | 1.00             |
| 25° C               | 1.00             |
| 30° C               | 0.99             |
| 40° C               | 0.98             |
| 50° C               | 0.97             |

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

### PROJECTED LUMEN MAINTENANCE

| Ambient Temperature | OPERATING HOURS |        |                     |        |         |             |
|---------------------|-----------------|--------|---------------------|--------|---------|-------------|
|                     | 0               | 25,000 | TM-21-11 L90 36,000 | 50,000 | 100,000 | L70 (Hours) |
| 25°C / 77°F         | 1.00            | 0.97   | 0.95                | 0.93   | 0.86    | 238,000     |
| 40°C / 104°F        | 0.99            | 0.96   | 0.95                | 0.93   | 0.85    | 225,000     |



## RATIO SERIES

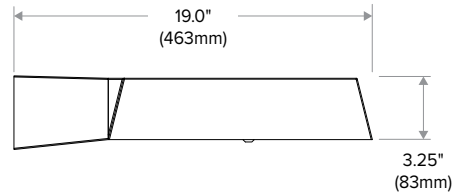
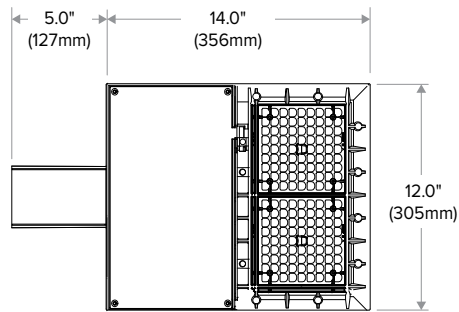
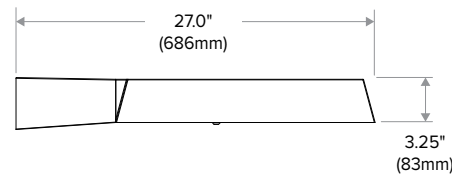
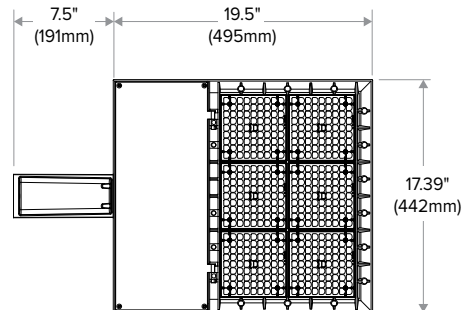
AREA/SITE LIGHTER

DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_

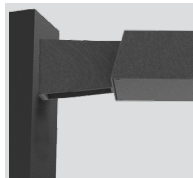
CATALOG #: \_\_\_\_\_

### DIMENSIONS

**RAR1**

**RAR2**


### ADDITIONAL INFORMATION

#### MOUNTING



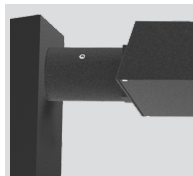
**Arm Mount** – Fixture ships with integral arm for ease of installation. Compatible with Hubbell Outdoor B3 drill pattern.



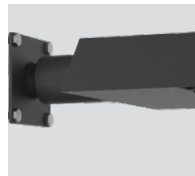
**Knuckle** – Knuckle mount 15° aiming angle increments for precise aiming and control, fits 2-3/8" tenons or pipes.



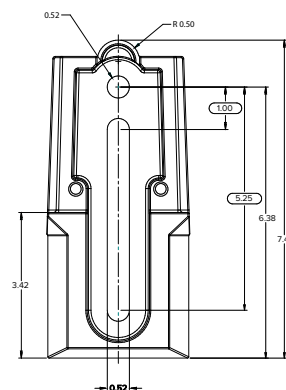
**Universal Mounting** – Universal mounting block for ease of installation. Compatible with drill patterns from 2.5" to 4.5"



**MAF** – Fits 2-3/8" OD arms Roadway applications.



**Wall Mount** – Wall mount bracket designed for building mount applications.

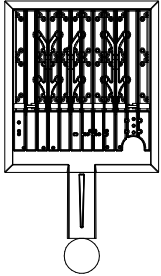




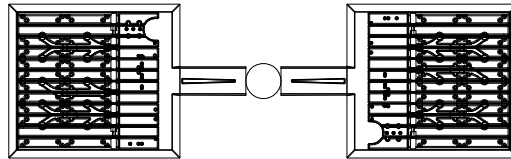
## RATIO SERIES

AREA/SITE LIGHTER

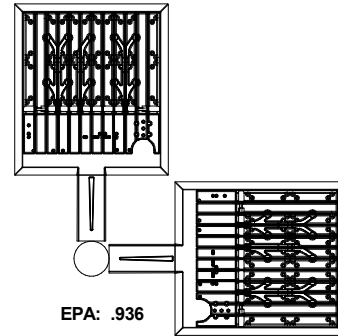
### EPA



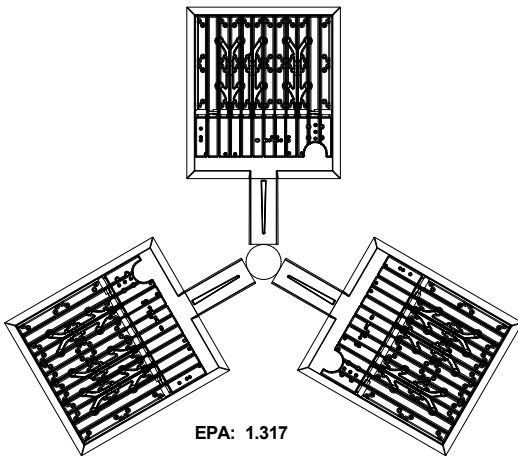
EPA: .607



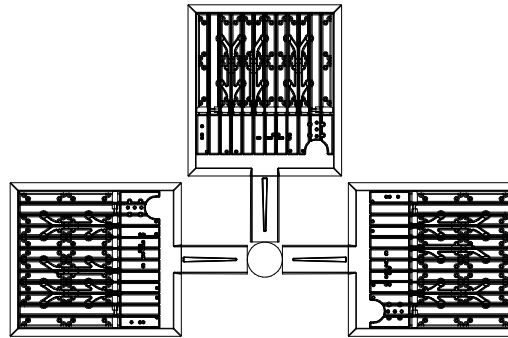
EPA: 1.214



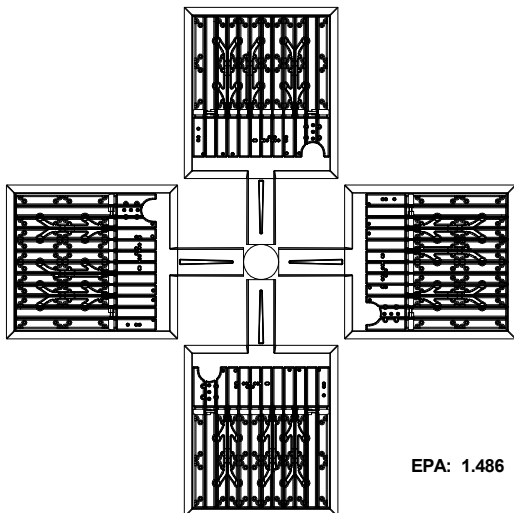
EPA: .936



EPA: 1.317



EPA: 1.486



EPA: 1.486



## RATIO SERIES

AREA/SITE LIGHTER

DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

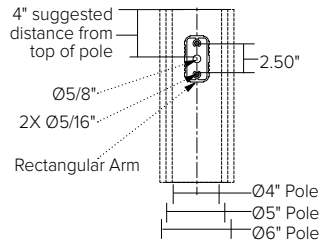
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CATALOG #: \_\_\_\_\_

### ADDITIONAL INFORMATION (CONT'D)

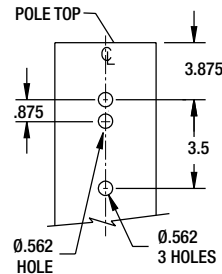
#### ARM MOUNT (ASQ)

Compatible with Pole drill pattern B3



#### UNIVERSAL MOUNTING (ASQU)

Compatible with pole drill pattern S2



#### SITESYNC 7-PIN MODULE



SW7PR



- SiteSync features in a new form
- Available as an accessory for new construction or retrofit applications (with existing 7-Pin receptacle)

#### PROGRAMMED CONTROLS

##### ADD-AutoDim Timer Based Options

- Light delay options from 1-9 hours after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1-9 hours after the light has been dimmed previously.

EX: ADD-6-5-R6

| ADD Control Options | Configurations Choices | Example Choice Picked |
|---------------------|------------------------|-----------------------|
| Auto-Dim Options    | 1-9 Hours              | 6                     |
| Auto-Dim Brightness | 0-9% Brightness        | 5                     |
| Auto-Dim Return     | Delay 0-9 Hours        | R6                    |

##### ADT-AutoDim Time of Day Based Option

- Light delay options from 1AM-9PM after the light is turned on to dim the light by 10-100%. To return the luminaire to its original light level there are dim return options from 1AM-9PM after the light has been dimmed previously.

EX: ADT-6-5-R6

| ADD Control Options | Configurations Choices | Example Choice Picked |
|---------------------|------------------------|-----------------------|
| Auto-Dim Options    | 12-3 AM and 6-11 PM    | 6                     |
| Auto-Dim Brightness | 0-9% Brightness        | 5                     |
| Auto-Dim Return     | 12-6 AM and 9-11P      | R6                    |



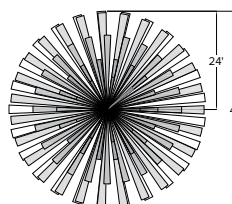
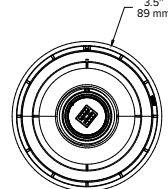
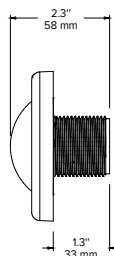
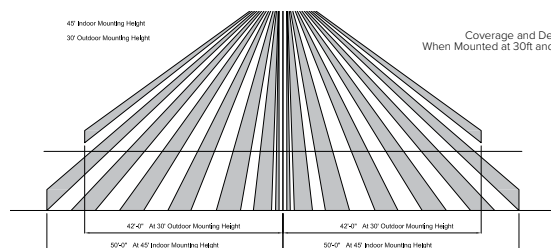
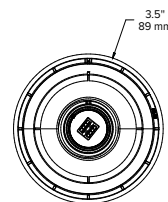
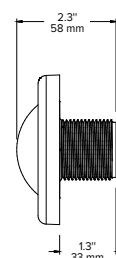
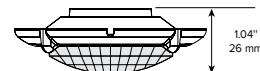
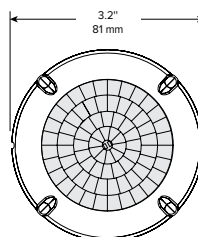
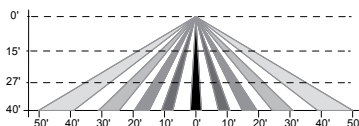
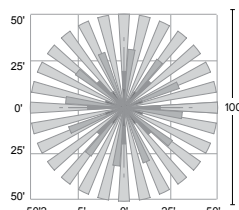
DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_

CATALOG #: \_\_\_\_\_

**RATIO SERIES**

AREA/SITE LIGHTER

**ADDITIONAL INFORMATION (CONT'D)****NXSP-14F**Sensor Lens Coverage and Detection Patterns  
When Mounted at 8ft with Low Mount Lens**NXSP-30F**Coverage and Detection Patterns  
When Mounted at 30ft and 45ft with Standard Lens**SCP-40F****RAR1 EPA**

| RAR-1                                    |                                          |
|------------------------------------------|------------------------------------------|
| EPA at 0°                                | EPA at 30°                               |
| .45ft. <sup>2</sup><br>.13m <sup>2</sup> | .56ft. <sup>2</sup><br>.17m <sup>2</sup> |

**RAR2 EPA**

| RAR-2                                    |                                           |
|------------------------------------------|-------------------------------------------|
| EPA at 0°                                | EPA at 30°                                |
| .55ft. <sup>2</sup><br>.17m <sup>2</sup> | 1.48ft. <sup>2</sup><br>.45m <sup>2</sup> |

**SHIPPING**

| Catalog Number | G.W(kg)/CTN | Carton Dimensions |                 |                  |
|----------------|-------------|-------------------|-----------------|------------------|
|                |             | Length Inch (cm)  | Width Inch (cm) | Height Inch (cm) |
| RAR1           | 15 (6.8)    | 20.75 (52.7)      | 15.125 (38.4)   | 6.9375 (17.6)    |
| RAR2           | 19 (8.6)    | 25 (63.5)         | 15.125 (38.4)   | 6.9375 (17.6)    |





## RATIO SERIES

AREA/SITE LIGHTER

DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

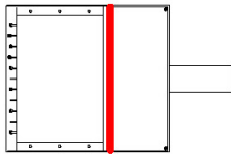
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CATALOG #: \_\_\_\_\_

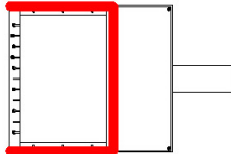
### ADDITIONAL INFORMATION (CONT'D)

#### RATIO HOUSE SIDE SHIELD

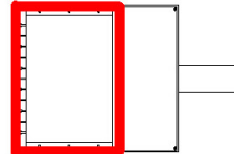
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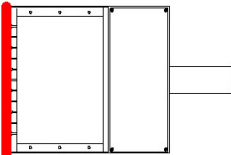
RARx HSS-270-BSS-xx



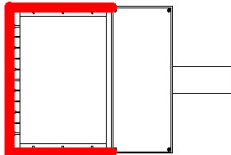
RARx HSS-360-xx



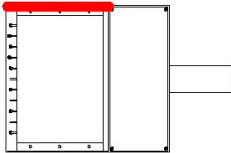
RARx HSS-90-F-xx



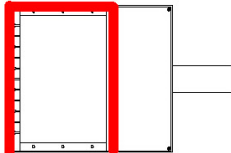
RARx HSS-270-FSS-xx



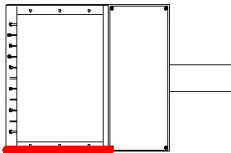
RARx HSS-90-S-xx



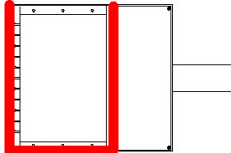
RARx HSS-270-FSB-xx



RARx HSS-90-S-xx



RARx HSS-270-FSB-xx



### USE OF TRADEMARKS AND TRADE NAMES

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|                                                                                 |                                              |                                                                      |                                              |
|---------------------------------------------------------------------------------|----------------------------------------------|----------------------------------------------------------------------|----------------------------------------------|
| Submitted by Swaney Lighting                                                    |                                              | <b>Catalog Number:</b><br>RAR1-160L-70-4K7-5QW-UNV-ASQ-DBT<br>Notes: | <b>Type:</b><br><b>A5</b><br><br>SLA22-51646 |
|  | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD |                                                                      |                                              |

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|                                                                                  |                                              |                                               |                           |
|----------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------|---------------------------|
| Submitted by Swaney Lighting                                                     | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>SSSH14-40A-1-B3-DBT | <b>Type:</b><br><b>A5</b> |
|  |                                              | Notes: 14FT POLE ON 1FT EXPOSED BASE          | SLA22-51646               |



DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_  
 TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_  
 CATALOG #: \_\_\_\_\_

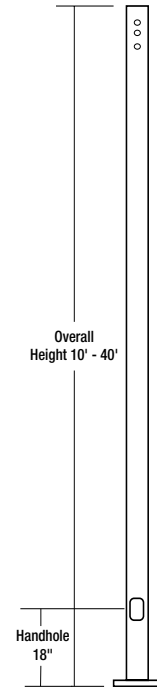
RESET

## APPLICATIONS

Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

## CONSTRUCTION

- Shaft: One-piece straight steel with square cross section, flat sides and minimum 0.23" radius on all corners; Minimum yield of 46,000 psi (ASTM-A500, Grade B); Longitudinal weld seam to appear flush with shaft side wall; Steel base plate with axial bolt circle slots welded to pole shaft having minimum yield of 36,000 psi (ASTM A36)
- base cover: Two-piece square aluminum base cover included standard
- pole cap: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- hand hole: Rectangular 3x5 steel hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- anchor bolts: Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling
- Anchor bolt part numbers:  
 3/4 x 30 x 3 — TAB-30-M38  
 1 x 36 x 4 — TAB-36-M38

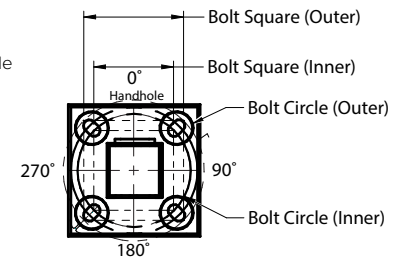


## FINISH

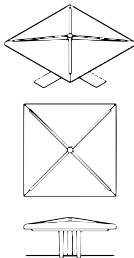
- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint prime applied over "white metal" steel substrate cleaned via mechanical shot blast method
- Decorative finish coat available in multiple standard colors; Custom colors available; RAL number preferable

## WAREHOUSE 'STOCKED' POLES:

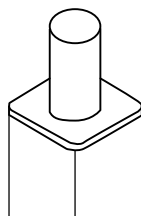
- SSSH-20-40-STK and SSSH-25-40-STK
- The above catalog numbers use a combination of the S2 and B3 drill pattern



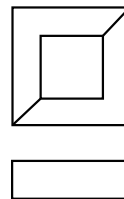
### POLE CAP



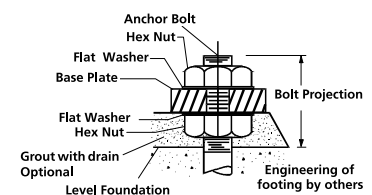
### TENON



### BASE COVER



### BASE DETAIL



|                              |                                              |                                               |                           |
|------------------------------|----------------------------------------------|-----------------------------------------------|---------------------------|
| Submitted by Swaney Lighting | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>SSSH14-40A-1-B3-DBT | <b>Type:</b><br><b>A5</b> |
|                              |                                              | <b>Notes:</b> 14FT POLE ON 1FT EXPOSED BASE   | SLA22-51646               |



|            |           |
|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

RESET

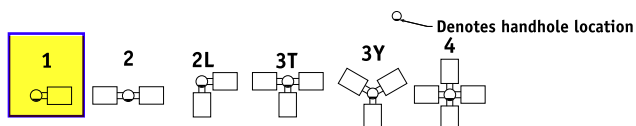
## ORDERING GUIDE

Example: SSS-H-25-40-A/B/C-2L-S2-DBT-UL

CATALOG #

| Series                                                  | Height                                         | Shaft                                         | Thickness                                    | Mounting                                                                                                                                                                                                                                                                                                                                                                    | Finish                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Options                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------|------------------------------------------------|-----------------------------------------------|----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>SSS-H</b> Square Straight Steel Pole Hubbell Outdoor | Reference page 2 Ordering matrix<br><b>14'</b> | Reference page 2 Ordering matrix<br><b>40</b> | Reference page 3 Ordering matrix<br><b>A</b> | <b>1</b> Single arm mount<br><b>2</b> Two fixtures at 180°<br><b>2L</b> Two fixtures at 90°<br><b>3T</b> Three fixtures at 90°<br><b>4</b> Four fixtures at 90°<br><b>TA</b> Tenon (2.38" OD x 4" Tall)<br><b>TB</b> Tenon (2.88" OD x 4" Tall)<br><b>TC</b> Tenon (3.5" OD x 6" Tall)<br><b>TR'</b> Removable Tenon (2.38" x 4")<br><b>OT</b> Open Top (includes pole cap) | <b>BLT</b> Black Matte Textured<br><b>BLS</b> Black Gloss Smooth<br><b>DBT</b> Dark Bronze Matte Textured<br><b>DBS</b> Dark Bronze Gloss Smooth<br><b>GTT</b> Graphite Matte Textured<br><b>LGS</b> Light Grey Gloss Smooth<br><b>PSS</b> Platinum Silver Smooth<br><b>WHT</b> White Matte Textured<br><b>WHS</b> White Gloss Smooth<br><b>VGT</b> Verde Green Textured<br><br><b>Color Option</b><br><br><b>CC</b> Custom Colors<br><br><b>Drill Pattern</b><br><br><b>B3</b> 2 bolt (2-1/2" spacing), Ratio<br><b>S2</b> 2 bolt (3-1/2" spacing) | <b>GFI<sup>2</sup></b> 20 Amp GFCI Receptacle and Cover<br><b>EHH<sup>2</sup></b> Extra Handhole<br><b>C05<sup>2</sup></b> .5" Coupling<br><b>C07<sup>2</sup></b> .75" Coupling<br><b>C20<sup>2</sup></b> 2" Coupling<br><b>MPB<sup>2</sup></b> Mid-pole Luminaire Bracket<br><b>VM2</b> 2nd mode vibration damper<br><b>LAB</b> Less Anchor Bolts<br><b>UL</b> UL Certified |

## MOUNTING ORIENTATION



### Notes:

- Removable tenon used in conjunction with side arm mounting.
- First specify desired arm
- Specify option location using logic found on page 1 (Option Orientation)
- VM1 recommended on poles 20' and taller with EPA of less than 1.

## ACCESSORIES- ORDER SEPARATELY

| CATALOG NUMBER   | DESCRIPTION               |
|------------------|---------------------------|
| VM1 <sup>3</sup> | 1st mode vibration damper |
| VM2SXX*          | 2nd mode vibration damper |

\* XX = 08 for 8'; 12 for 12'; 15 for 16'; 20 for 20'; and 24' for 24'

|                                                                                  |                                              |                                               |                           |
|----------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------|---------------------------|
| Submitted by Swaney Lighting                                                     | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>SSSH14-40A-1-B3-DBT | <b>Type:</b><br><b>A5</b> |
|  |                                              | <b>Notes:</b> 14FT POLE ON 1FT EXPOSED BASE   | SLA22-51646               |



|            |           |
|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

RESET

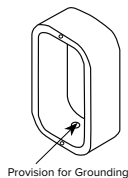
## ORDERING GUIDE (CONTINUED)

| Catalog Number             | Height    |            | Nominal Shaft Dimensions | Wall Thickness | Bolt Circle (suggested) | Bolt Circle (range) | Bolt Square (range) | Base Plate Square | Anchor bolt size   | Bolt Projection | Pole weight |
|----------------------------|-----------|------------|--------------------------|----------------|-------------------------|---------------------|---------------------|-------------------|--------------------|-----------------|-------------|
|                            | Feet      | Meters     |                          |                |                         |                     |                     |                   |                    |                 |             |
| SSS-H-10-40-A-XX-XX        | 10        | 3.0        | 4" square                | 0.125"         | 9"                      | 8"-10"              | 5.66"-7.07"         | 9"                | 3/4"x30"x3"        | 3.5             | 77          |
| SSS-H-12-40-A-XX-XX        | 12        | 3.7        | 4" square                | 0.125"         | 9"                      | 8"-10"              | 5.66"-7.07"         | 9"                | 3/4"x30"x3"        | 3.5             | 90          |
| <b>SSS-H-14-40-A-XX-XX</b> | <b>14</b> | <b>4.3</b> | <b>4" square</b>         | <b>0.125"</b>  | <b>9"</b>               | <b>8"-10"</b>       | <b>5.66"-7.07"</b>  | <b>9"</b>         | <b>3/4"x30"x3"</b> | <b>3.5</b>      | <b>103</b>  |
| SSS-H-16-40-A-XX-XX        | 16        | 4.9        | 4" square                | 0.125"         | 9"                      | 8"-10"              | 5.66"-7.07"         | 9"                | 3/4"x30"x3"        | 3.5             | 116         |
| SSS-H-18-40-A-XX-XX        | 18        | 5.5        | 4" square                | 0.125"         | 9"                      | 8"-10"              | 5.66"-7.07"         | 9"                | 3/4"x30"x3"        | 3.5             | 129         |
| SSS-H-20-40-A-XX-XX        | 20        | 6.1        | 4" square                | 0.125"         | 9"                      | 8"-10"              | 5.66"-7.07"         | 9"                | 3/4"x30"x3"        | 3.5             | 142         |
| SSS-H-25-40-A-XX-XX        | 25        | 7.6        | 4" square                | 0.125"         | 9"                      | 8"-10"              | 5.66"-7.07"         | 9"                | 3/4"x30"x3"        | 3.5             | 175         |
| SSS-H-14-40-B-XX-XX        | 14        | 4.3        | 4" square                | .188"          | 11"                     | 10"-12"             | 7.07"-8.48"         | 10.50"            | 3/4"x30"x3"        | 3.5             | 152         |
| SSS-H-16-40-B-XX-XX        | 16        | 4.9        | 4" square                | .188"          | 11"                     | 10"-12"             | 7.07"-8.48"         | 10.50"            | 3/4"x30"x3"        | 3.5             | 171         |
| SSS-H-18-40-B-XX-XX        | 18        | 5.5        | 4" square                | .188"          | 11"                     | 10"-12"             | 7.07"-8.48"         | 10.50"            | 3/4"x30"x3"        | 3.5             | 190         |
| SSS-H-20-40-B-XX-XX        | 20        | 6.1        | 4" square                | .188"          | 11"                     | 10"-12"             | 7.07"-8.48"         | 10.50"            | 3/4"x30"x3"        | 3.5             | 209         |
| SSS-H-25-40-B-XX-XX        | 25        | 7.6        | 4" square                | .188"          | 11"                     | 10"-12"             | 7.07"-8.48"         | 10.50"            | 3/4"x30"x3"        | 3.5             | 257         |
| SSS-H-30-40-B-XX-XX        | 30        | 9.1        | 4" square                | .188"          | 11"                     | 10"-12"             | 7.07"-8.48"         | 10.50"            | 3/4"x30"x3"        | 3.5             | 304         |
| SSS-H-16-50-B-XX-XX        | 16        | 4.9        | 5" square                | .188"          | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 219         |
| SSS-H-18-50-B-XX-XX        | 18        | 5.5        | 5" square                | .188"          | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 243         |
| SSS-H-20-50-B-XX-XX        | 20        | 6.1        | 5" square                | .188"          | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 267         |
| SSS-H-25-50-B-XX-XX        | 25        | 7.6        | 5" square                | .188"          | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 327         |
| SSS-H-30-50-B-XX-XX        | 30        | 9.1        | 5" square                | .188"          | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 387         |
| SSS-H-25-50-C-XX-XX        | 25        | 7.6        | 5" square                | .25"           | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 427         |
| SSS-H-30-50-C-XX-XX        | 30        | 9.1        | 5" square                | .25"           | 11"                     | 10.25"-13.25"       | 7.25"-9.37"         | 11.50"            | 1"x36"x4"          | 4.5             | 507         |
| SSS-H-20-60-B-XX-XX        | 20        | 6.1        | 6" square                | .188"          | 12"                     | 11.00"-13.25"       | 7.81"-9.37"         | 12.25"            | 1"x36"x4"          | 5.0             | 329         |
| SSS-H-25-60-B-XX-XX        | 25        | 7.6        | 6" square                | .188"          | 12"                     | 11.00"-13.25"       | 7.81"-9.37"         | 12.25"            | 1"x36"x4"          | 5.0             | 404         |
| SSS-H-30-60-B-XX-XX        | 30        | 9.1        | 6" square                | .188"          | 12"                     | 11.00"-13.25"       | 7.81"-9.37"         | 12.25"            | 1"x36"x4"          | 5.0             | 479         |
| SSS-H-35-60-B-XX-XX        | 35        | 10.7       | 6" square                | .188"          | 12"                     | 11.00"-13.25"       | 7.81"-9.37"         | 12.25"            | 1"x36"x4"          | 5.0             | 554         |
| SSS-H-40-60-B-XX-XX        | 40        | 12.2       | 6" square                | .188"          | 12"                     | 11.00"-13.25"       | 7.81"-9.37"         | 12.25"            | 1"x36"x4"          | 5.0             | 629         |

### Notes:

1 Factory supplied template must be used when setting anchor bolts. Hubbell Lighting will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.

### EHH EXTRA HANDHOLE

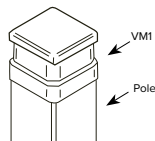


Provision for Grounding

### C05 - C07 - C20 - COUPLING



### VM1 - VIBRATION DAMPER 1ST MODE



Field Installed Pole Top damper designed to reduce pole top deflection or sway. VM1 is recommended for pole systems 20' and taller with a total EPA of 1.0 or less.

### VM2 - VIBRATION DAMPER 2ND MODE



Factory installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

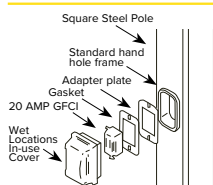
### VM2SXX - VIBRATION DAMPER 2ND MODE



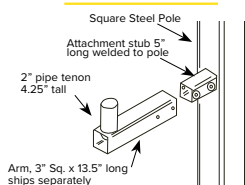
Field installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

VM2S08 - 8'  
VM2S12 - 12'  
VM2S16 - 16'  
VM2S20 - 20'  
VM2S24 - 24'

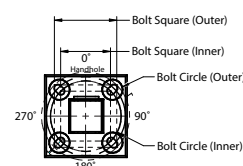
### GFI - 20 AMP GFCI RECEPTACLE & COVER



### MPB - MID POLE BRACKET



### OPTION ORIENTATION



Follow the logic below when ordering location specific options. For each option, include its orientation (in degrees) and its height (in feet). Example: Option C07 should be ordered as: SSS-H-20-40-A-TA-DBT-C07-0-15 (5' coupling on the handhole/arm side of pole, 15 feet up from the pole base) 1' spacing required between option. Consult factory for other configurations.





**Job Name:**  
SELF STORAGE - BIDDEFORD

**Catalog Number:**  
SSSH14-40A-1-B3-DBT

Notes: 14FT POLE ON 1FT EXPOSED BASE

**Type:**

**A5**

SLA22-51646



**HUBBELL**  
Outdoor Lighting

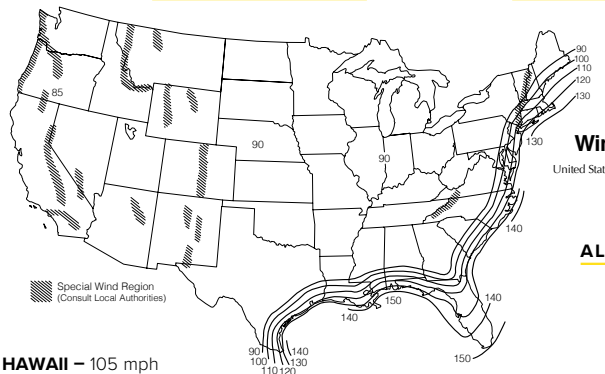
DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

RESET

**ASCE7-05 WIND MAP**



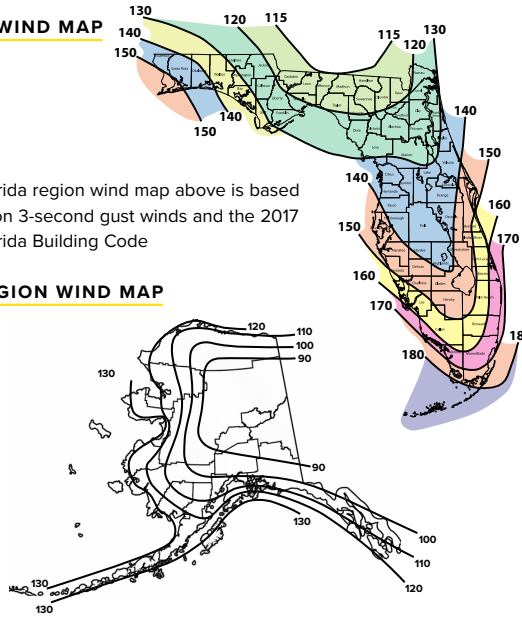
HAWAII - 105 mph

PUERTO RICO - 145 mph

**FLORIDA REGION WIND MAP**

- Florida region wind map above is based upon 3-second gust winds and the 2017 Florida Building Code

**ALASKA REGION WIND MAP**



**ASCE 7-05 wind map EPA Load Rating - 3 second gust wind speeds (Use for all locations except Florida)**

| Catalog Number | 85   | 90   | 100  | 105  | 110  | 120  | 130  | 140  | 145  | 150  |
|----------------|------|------|------|------|------|------|------|------|------|------|
| SSS-H-10-40-A  | 25.0 | 25.0 | 25.0 | 22.8 | 20.6 | 17.0 | 14.2 | 11.9 | 11.0 | 10.1 |
| SSS-H-12-40-A  | 25.0 | 25.0 | 20.0 | 18.0 | 16.1 | 13.2 | 10.8 | 8.9  | 8.1  | 7.4  |
| SSS-H-14-40-A  | 23.1 | 20.4 | 16.1 | 14.3 | 12.8 | 10.2 | 8.2  | 6.6  | 5.9  | 5.3  |
| SSS-H-16-40-A  | 19.0 | 16.7 | 13.0 | 11.5 | 10.1 | 7.9  | 6.2  | 4.7  | 4.1  | 3.6  |
| SSS-H-18-40-A  | 15.6 | 13.6 | 10.0 | 9.0  | 7.8  | 5.9  | 4.4  | 3.1  | 2.6  | 2.1  |
| SSS-H-20-40-A  | 12.7 | 10.9 | 7.9  | 6.9  | 5.9  | 4.2  | 2.8  | 1.7  | 1.3  | 0.9  |
| SSS-H-25-40-A  | 7.3  | 5.9  | 3.8  | 2.9  | 2.1  | 0.8  | NR   | NR   | NR   | NR   |
| SSS-H-14-40-B  | 25.0 | 25.0 | 23.3 | 20.8 | 18.6 | 15.1 | 12.3 | 10.2 | 9.2  | 8.4  |
| SSS-H-16-40-B  | 25.0 | 24.9 | 19.4 | 17.3 | 15.4 | 12.3 | 9.9  | 8.0  | 7.2  | 6.4  |
| SSS-H-18-40-B  | 24.0 | 20.8 | 16.1 | 14.2 | 12.5 | 9.8  | 7.7  | 6.1  | 5.3  | 4.7  |
| SSS-H-20-40-B  | 20.2 | 17.5 | 13.2 | 11.6 | 10.1 | 7.7  | 5.9  | 4.4  | 3.8  | 3.2  |
| SSS-H-25-40-B  | 12.8 | 11.0 | 7.9  | 6.7  | 5.5  | 3.7  | 2.3  | 1.2  | 0.7  | NR   |
| SSS-H-30-40-B  | 8.0  | 6.6  | 4.1  | 3.1  | 2.2  | 0.8  | NR   | NR   | NR   | NR   |
| SSS-H-16-50-B  | 25.0 | 25.0 | 25.0 | 25.0 | 24.8 | 20.1 | 16.5 | 13.6 | 12.3 | 11.2 |
| SSS-H-18-50-B  | 25.0 | 25.0 | 25.0 | 22.9 | 20.4 | 16.4 | 13.2 | 10.7 | 9.6  | 8.6  |
| SSS-H-20-50-B  | 25.0 | 25.0 | 21.3 | 18.9 | 16.7 | 13.2 | 10.4 | 8.1  | 7.2  | 6.3  |
| SSS-H-25-50-B  | 20.7 | 17.8 | 13.3 | 11.5 | 9.8  | 7.2  | 5.0  | 3.3  | 2.6  | 1.9  |
| SSS-H-30-50-B  | 13.5 | 11.3 | 7.7  | 6.2  | 4.9  | 2.8  | 1.1  | NR   | NR   | NR   |
| SSS-H-25-50-C  | 25.0 | 25.0 | 19.4 | 17.1 | 15.1 | 11.7 | 9.0  | 6.9  | 6.0  | 5.1  |
| SSS-H-30-50-C  | 20.1 | 17.3 | 12.7 | 10.9 | 9.3  | 6.6  | 4.5  | 2.8  | 2.1  | 1.4  |
| SSS-H-20-60-B  | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 20.2 | 16.1 | 12.9 | 11.5 | 10.3 |
| SSS-H-25-60-B  | 25.0 | 25.0 | 20.6 | 18.0 | 15.6 | 11.8 | 8.7  | 6.2  | 5.2  | 4.2  |
| SSS-H-30-60-B  | 21.4 | 18.1 | 12.9 | 10.7 | 8.8  | 5.7  | 3.3  | 1.3  | NR   | NR   |
| SSS-H-35-60-B  | 14.0 | 11.3 | 6.9  | 5.2  | 3.6  | 1.0  | NR   | NR   | NR   | NR   |
| SSS-H-40-60-B  | 8.1  | 5.8  | 2.2  | NR   | NR   | NR   | NR   | NR   | NR   | NR   |

**Florida Building Code 2017 EPA Load Rating - 3 second gust wind speeds (Use for Florida only)**

| Catalog Number | 115  | 120  | 130  | 140  | 150  | 160  | 170  | 180  |
|----------------|------|------|------|------|------|------|------|------|
| SSS-H-10-40-A  | 25.0 | 25.0 | 25.0 | 25.0 | 21.4 | 18.4 | 15.9 | 13.9 |
| SSS-H-12-40-A  | 25.0 | 25.0 | 23.6 | 19.8 | 16.7 | 14.2 | 12.1 | 10.4 |
| SSS-H-14-40-A  | 25.0 | 23.1 | 19.0 | 15.7 | 13.1 | 10.9 | 9.1  | 7.6  |
| SSS-H-16-40-A  | 20.8 | 18.7 | 15.2 | 12.3 | 10.1 | 8.2  | 6.7  | 5.4  |
| SSS-H-18-40-A  | 16.8 | 15.0 | 11.9 | 9.4  | 7.5  | 5.9  | 4.5  | 3.4  |
| SSS-H-20-40-A  | 13.6 | 11.9 | 9.2  | 7.1  | 5.3  | 3.9  | 2.7  | 1.7  |
| SSS-H-25-40-A  | 7.4  | 6.2  | 4.1  | 2.5  | 1.1  | NR   | NR   | NR   |
| SSS-H-14-40-B  | 25.0 | 23.6 | 19.4 | 16.1 | 13.4 | 11.2 | 9.4  | 7.8  |
| SSS-H-16-40-B  | 21.4 | 19.2 | 15.6 | 12.7 | 10.4 | 8.5  | 6.9  | 5.6  |
| SSS-H-18-40-B  | 17.2 | 15.4 | 12.2 | 9.7  | 7.7  | 6.1  | 4.7  | 3.6  |
| SSS-H-20-40-B  | 13.9 | 12.3 | 9.5  | 7.3  | 5.5  | 4.1  | 2.9  | 1.9  |
| SSS-H-25-40-B  | 7.7  | 6.4  | 4.3  | 2.6  | 1.3  | NR   | NR   | NR   |
| SSS-H-30-40-B  | 3.2  | 2.1  | NR   | NR   | NR   | NR   | NR   | NR   |
| SSS-H-16-50-B  | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 21.4 | 18.2 | 15.5 |
| SSS-H-18-50-B  | 25.0 | 25.0 | 25.0 | 24.4 | 20.4 | 17.0 | 14.2 | 11.9 |
| SSS-H-20-50-B  | 25.0 | 25.0 | 24.4 | 19.9 | 16.3 | 13.4 | 11.0 | 8.9  |
| SSS-H-25-50-B  | 21.8 | 19.3 | 15.0 | 11.5 | 8.8  | 6.5  | 4.7  | 3.1  |
| SSS-H-30-50-B  | 13.7 | 11.7 | 8.2  | 5.5  | 3.3  | 1.5  | NR   | NR   |
| SSS-H-25-50-C  | 21.8 | 19.3 | 15.0 | 11.5 | 8.8  | 6.5  | 4.7  | 3.1  |
| SSS-H-30-50-C  | 13.7 | 11.7 | 8.2  | 5.5  | 3.3  | 1.5  | NR   | NR   |
| SSS-H-20-60-B  | 25.0 | 25.0 | 25.0 | 21.9 | 17.8 | 14.5 | 11.7 | 9.4  |
| SSS-H-25-60-B  | 23.8 | 20.9 | 16.1 | 12.3 | 9.2  | 6.6  | 4.5  | 2.8  |
| SSS-H-30-60-B  | 14.6 | 12.3 | 8.4  | 5.3  | 2.8  | 0.8  | NR   | NR   |
| SSS-H-35-60-B  | 7.5  | 5.6  | 2.4  | NR   | NR   | NR   | NR   | NR   |
| SSS-H-40-60-B  | 1.8  | NR   | NR   | NR   | NR   | NR   | NR   | NR   |



**HUBBELL**  
Outdoor Lighting

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                       |                                        |                 |
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| Submitted by Swaney Lighting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                       | Catalog Number:<br>SSSH14-40A-1-B3-DBT | Type:<br><br>A5 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Job Name:<br>SELF STORAGE - BIDDEFORD | Notes: 14FT POLE ON 1FT EXPOSED BASE   |                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                       | SLA22-51646                            |                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                       | DATE: _____ LOCATION: _____            |                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                       | TYPE: _____ PROJECT: _____             |                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                       | CATALOG #: _____                       |                 |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                       | RESET                                  |                 |
| <p><b>Notes:</b></p> <p>1 Allowable EPA, to determine max pole loading weight, multiply allowable EPA by 30 lbs.</p> <p>2 The tables for allowable pole EPA are based on the ASCE 7-05 Wind Map or the Florida Region Wind Map for the 2010 Florida Building Code. The Wind Maps are intended only as a general guide and cannot be used in conjunction with other maps. Always consult local authorities to determine maximum wind velocities, gusting and unique wind conditions for each specific application</p> <p>3 Allowable pole EPA for jobsite wind conditions must be equal to or greater than the total EPA for fixtures, arms, and accessories to be assembled to the pole. Responsibility lies with the specifier for correct pole selection. Installation of poles without luminaires or attachment of any unauthorized accessories to poles is discouraged and shall void the manufacturer's warranty</p> <p>4 Wind speeds and listed EPAs are for ground mounted installations. Poles mounted on structures (such as bridges and buildings) must consider vibration and coefficient of height factors beyond this general guide; Consult local and federal standards</p> <p>5 Wind Induced Vibration brought on by steady, unidirectional winds and other unpredictable aerodynamic forces are not included in wind velocity ratings. Consult Hubbell Lighting's Pole Vibration Application Guide for environmental risk factors and design considerations. <a href="https://hubbellcdn.com/ohwassets/HLI/outdoor/resources/literature/files/Pole_Wind_Induced_Flyer_HLOI0022.pdf">https://hubbellcdn.com/ohwassets/HLI/outdoor/resources/literature/files/Pole_Wind_Induced_Flyer_HLOI0022.pdf</a></p> <p>6 Extreme Wind Events like, Hurricanes, Typhoons, Cyclones, or Tornadoes may expose poles to flying debris, wind shear or other detrimental effects not included in wind velocity ratings</p> <p><b>Due to our continued efforts to improve our products, product specifications are subject to change without notice.</b></p> |                                       |                                        |                 |
| <div><div>Page 5/5 Rev. 11/18/21<br/>SSS H Poles spec sheet 2022</div><div>© 2022 HUBBELL OUTDOOR LIGHTING, All Rights Reserved • For more information visit our website: www.hubbelloutdoor.com • Printed in USA ss s-H poles-JAN 01/2022</div><div> HUBBELL Outdoor Lighting</div><div>234</div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                       |                                        |                 |

Submitted On: Mar 23, 2022

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|---------------------------------------------------------------------------------|----------------------------------------------|-----------------------------------------------------------------|------------------------------|
| Submitted by Swaney Lighting                                                    |                                              | <b>Catalog Number:</b>                                          | <b>Type:</b>                 |
|  | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | SSSH14-40A-1-B3-DBT<br><br>Notes: 14FT POLE ON 1FT EXPOSED BASE | <b>A5</b><br><br>SLA22-51646 |

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DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_  
 TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_  
 CATALOG #: \_\_\_\_\_

# RATIO Wall

RWL1/RWL2 LED WALLPACK

## FEATURES

- Low profile LED wall luminaire with a variety of IES distributions for lighting applications such as retail, commercial and industrial building mount
- Featuring Micro Strike Optics which maximizes target zone illumination with minimal losses at the house-side, reducing light trespass issues
- Visual comfort standard
- Control options including photo control, occupancy sensing, NX Distributed Intelligence™, Wiscap and 7-Pin with networked controls
- Battery Backup options available for emergency code compliance
- Quick-mount adapter allows easy installation/maintenance
- 347V and 480V versions for industrial applications and Canada
- Stock versions available in 3500lm and 5500lm configurations at 4000K



## CONTROL TECHNOLOGY



## SPECIFICATIONS

### CONSTRUCTION

- Die-cast housing with hidden vertical heat fins that are optimal for heat dissipation while keeping a clean smooth outer surface
- Corrosion resistant, die-cast aluminum housing with powder coat paint finish
- Powder paint finish provides durability in outdoor environments. Tested to meet 1000 hour salt spray rating.

### OPTICS

- Entire optical aperture illuminates to create a larger luminous surface area resulting in a low glare appearance without sacrificing optical performance
- 48 or 160 midpower LEDs
- 3000K, 4000K or 5000K (70 CRI/80 CRI) CCT
- Zero uplight distributions
- LED optics provide IES type II, III and IV distributions. Type II only available in RWL2 configurations.

### INSTALLATION

- Quick-mount adapter provides easy installation to wall or to recessed junction boxes (4" square junction box)
- Designed for direct j-box mount.
- Integral back box contains 1/2" conduit hubs
- Integral back box standard with Dual Driver, Dual Power Feed, NX, Wiscap and battery versions (battery versions for RWL1 only)

### ELECTRICAL

- 120V-277V universal voltage 50/60Hz 0-10V dimming drivers
- 347V and 480V dimmable driver option for all wattages above 35W.

### ELECTRICAL (CONTINUED)

- Ambient operating temperature -40°C to 40°C
- Drivers have greater than .90 power factor and less than 20% Total Harmonic Distortion
- Driver RoHS and IP66
- Field replaceable surge protection device provides 20kA protection meeting ANSI/IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised
- Dimming drivers are standard and dimming leads are extended out of the luminaire unless control options require connection to the dimming leads. Must specify if wiring leads are to be greater than 6" standard.

### CONTROLS

- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- Button photocontrol is suitable for 120-277V operation
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor
- Integral Battery Backup provides emergency lighting for the required 90 minute path of egress
- Battery Backup suitable for operating temperatures -25°C to 40°C

## RELATED PRODUCTS

[Ratio Family](#) [Ratio Area](#) [Ratio Flood](#)

### CONTROLS (CONTINUED)

- Dual Driver and Dual Power Feed options creates product configuration with 2 internal drivers for code compliance
- Please consult brand or sales representative when combining control and electrical options as some combinations may not operate as anticipated depending on your application.

### CERTIFICATIONS

- Listed to UL1598 and CSAC22.2#250.0-24 for wet locations
- IP65 rated housing
- This product qualifies as a "designated country construction material" per FAR 52.225-11 Buy American-Construction Materials under Trade Agreements effective 04/23/2020. See Buy American Solutions
- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Please refer to the DLC website for specific product qualifications at [www.designlights.org](http://www.designlights.org)

### WARRANTY

- 5 year limited warranty
- See [HLI Standard Warranty](#) for additional information

| KEY DATA                       |                    |
|--------------------------------|--------------------|
| Lumen Range                    | 1,300–18,800       |
| Wattage Range                  | 10–155             |
| Efficacy Range (LPW)           | 119–148            |
| Fixture Projected Life (Hours) | L70>60K            |
| Weights lbs. (kg)              | 6.5/16.5 (2.9/7.5) |

|                                                                                 |                                              |                                                      |                           |
|---------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------|---------------------------|
| Submitted by Swaney Lighting                                                    | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>RWL1-48L-45-4K7-4W-UNV-DBT | <b>Type:</b><br><b>WP</b> |
|  |                                              | <b>Notes:</b>                                        | SLA22-51646               |



|            |           |
|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

## RATIO WALL

RWL1/RWL2 LED WALLPACK

### ORDERING GUIDE

Example: RWL1-48L-10-3K7-2-UNV-BLS-E

CATALOG #

### ORDERING INFORMATION

| Series            | # LEDs - Wattage                 | CCT/CRI           | Distribution               | Voltage      | Color                          |
|-------------------|----------------------------------|-------------------|----------------------------|--------------|--------------------------------|
| RWL1 Ratio Wall 1 | 48L-10 1,000 Lumens <sup>4</sup> | 3K7 3000K, 70 CRI | 2 IES TYPE II <sup>1</sup> | UNV 120-277V | BLT Black Matte Textured       |
|                   | 48L-15 2,000 Lumens <sup>4</sup> | 4K7 4000K, 70 CRI | 3 IES TYPE III             | 120 120V     | BLS Black Gloss Smooth         |
|                   | 48L-20 2,500 Lumens <sup>4</sup> | 5K7 5000K, 70 CRI | 4W IES TYPE IV             | 208 208V     | DBT Dark Bronze Matte Textured |
|                   | 48L-25 3,500 Lumens <sup>4</sup> |                   |                            | 240 240V     | DBS Dark Bronze Gloss Smooth   |
|                   | 48L-35 4,500 Lumens              |                   |                            | 277 277V     | GTT Graphite Matte Textured    |
| RWL2 Ratio Wall 2 | 48L-45 5,500 Lumens              |                   |                            | 347 347V     | LGS Light Grey Gloss Smooth    |
|                   | 160L-45 6,500 Lumens             |                   |                            | 480 480V     | LGT Light Grey Matte Textured  |
|                   | 160L-50 7,500 Lumens             |                   |                            |              | PSS Platinum Silver Smooth     |
|                   | 160L-65 9,500 Lumens             |                   |                            |              | WHT White Matte Textured       |
|                   | 160L-80 11,000 Lumens            |                   |                            |              | WHS White Gloss Smooth         |
|                   | 160L-95 13,000 Lumens            |                   |                            |              | VGT Verde Green Textured       |
|                   | 160L-115 15,000 Lumens           |                   |                            |              | Color Option                   |
|                   | 160L-135 17,500 Lumens           |                   |                            |              | CC Custom Color                |
|                   | 160L-155 19,500 Lumens           |                   |                            |              |                                |
|                   |                                  |                   |                            |              |                                |

| Control Options Network |                                                                    |
|-------------------------|--------------------------------------------------------------------|
| NXWE                    | NX Wireless Enabled (module + radio) <sup>4,7</sup>                |
| NXSPW_F                 | NX Wireless, PIR Occ. Sensor, Daylight Harvesting <sup>4,5,7</sup> |
| NXSP_F                  | NX, PIR Occ. Sensor, Daylight Harvesting <sup>4,5,7</sup>          |
| WIR                     | Wireless Controls, wISCAPE™ <sup>2,6</sup>                         |
| Stand Alone Sensors     |                                                                    |
| SCP-8F                  | Remote control programmable line voltage sensor <sup>3,4</sup>     |
| SCP-20F                 | Remote control programmable line voltage sensor <sup>3,4</sup>     |
| Control Options         |                                                                    |
| 7PR_                    | 7-Pin Receptacle <sup>6</sup>                                      |

| Options |                                                   |
|---------|---------------------------------------------------|
| F       | Fusing <sup>3</sup>                               |
| E       | Emergency Battery Backup <sup>7,8,9</sup>         |
| EH      | Emergency Battery w/ Heater Option <sup>7,8</sup> |
| 2DR     | Dual Driver <sup>4,6</sup>                        |
| 2PF     | Dual Power Feed <sup>4,6</sup>                    |
| PC      | Button Photocontrol <sup>8</sup>                  |

- Notes:
- Only available with RWL2
  - wISCAPE Gateway required for system programming
  - Specific voltage selection is required
  - Not available with 347/480V
  - Replace "L" with "14" for up to 14' mounting height, "40" for up to 40' mounting height
  - This item is located in the integral backbox which will be automatically added onto the fixture if chosen.
  - This item is located in the integral backbox for RWL1 configurations only.
  - Option only available at 120 or 277V

### STOCK ORDERING INFORMATION

| Catalog Number    | Lumens | Wattage | LED Count | CCT/CRI     | Voltage  | Distribution | Finish               |
|-------------------|--------|---------|-----------|-------------|----------|--------------|----------------------|
| RWL1-48L-25-4K-3  | 3500lm | 25      | 48L       | 4000K/70CRI | 120-277V | Type III     | Dark Bronze Textured |
| RWL1-48L-25-4K-4W | 3500lm | 25      | 48L       | 4000K/70CRI | 120-277V | Type IV Wide | Dark Bronze Textured |
| RWL1-48L-45-4K-3  | 5500lm | 45      | 48L       | 4000K/70CRI | 120-277V | Type III     | Dark Bronze Textured |
| RWL1-48L-45-4K-4W | 5500lm | 45      | 48L       | 4000K/70CRI | 120-277V | Type IV Wide | Dark Bronze Textured |

### CONTROLS

| Control Options |                                                                |
|-----------------|----------------------------------------------------------------|
| Standalone      |                                                                |
| SCPREMOTE       | Order at least one per project location to program and control |

### ACCESSORIES AND REPLACEMENT PARTS - MADE TO ORDER

| Catalog Number                     | Description                              |
|------------------------------------|------------------------------------------|
| <input type="checkbox"/> WP-BB-XXX | Accessory for conduit entry <sup>1</sup> |

- Notes:
- replace "xxx" with color option

|                                                                                  |                                              |                                                      |                           |
|----------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------|---------------------------|
| Submitted by Swaney Lighting                                                     |                                              | <b>Catalog Number:</b><br>RWL1-48L-45-4K7-4W-UNV-DBT | <b>Type:</b><br><b>WP</b> |
|  | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Notes:</b>                                        | SLA22-51646               |



|            |           |
|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

## RATIO WALL

RWL1/RWL2 LED WALLPACK

### PERFORMANCE DATA

| Description | Nominal Wattage | System Watts | Dist. Type | 5K (5000K NOMINAL 70 CRI) |     |   |   |   | 4K (4000K NOMINAL 70 CRI) |     |   |   |   | 3K (3000K NOMINAL 70 CRI) |     |   |   |   |
|-------------|-----------------|--------------|------------|---------------------------|-----|---|---|---|---------------------------|-----|---|---|---|---------------------------|-----|---|---|---|
|             |                 |              |            | Lumens                    | LPW | B | U | G | Lumens                    | LPW | B | U | G | Lumens                    | LPW | B | U | G |
| RWL1        | 10              | 10.1         | 3          | 1362                      | 135 | 0 | 0 | 1 | 1355                      | 134 | 0 | 0 | 1 | 1303                      | 129 | 0 | 0 | 1 |
|             |                 |              | 4W         | 1343                      | 133 | 0 | 0 | 1 | 1336                      | 132 | 0 | 0 | 1 | 1285                      | 127 | 0 | 0 | 1 |
|             | 15              | 14.5         | 3          | 1972                      | 136 | 1 | 0 | 1 | 1962                      | 135 | 1 | 0 | 1 | 1887                      | 130 | 1 | 0 | 1 |
|             |                 |              | 4W         | 1945                      | 134 | 0 | 0 | 1 | 1935                      | 133 | 0 | 0 | 1 | 1861                      | 128 | 0 | 0 | 1 |
|             | 20              | 19.9         | 3          | 2722                      | 137 | 1 | 0 | 1 | 2709                      | 136 | 1 | 0 | 1 | 2605                      | 131 | 1 | 0 | 1 |
|             |                 |              | 4W         | 2685                      | 135 | 1 | 0 | 1 | 2672                      | 134 | 1 | 0 | 1 | 2569                      | 129 | 1 | 0 | 1 |
|             | 25              | 28.0         | 3          | 3749                      | 134 | 1 | 0 | 1 | 3732                      | 133 | 1 | 0 | 1 | 3588                      | 128 | 1 | 0 | 1 |
|             |                 |              | 4W         | 3698                      | 132 | 1 | 0 | 1 | 3680                      | 131 | 1 | 0 | 1 | 3538                      | 126 | 1 | 0 | 1 |
|             | 35              | 36.9         | 3          | 4751                      | 129 | 1 | 0 | 2 | 4728                      | 128 | 1 | 0 | 2 | 4546                      | 123 | 1 | 0 | 1 |
|             |                 |              | 4W         | 4685                      | 127 | 1 | 0 | 2 | 4663                      | 126 | 1 | 0 | 2 | 4483                      | 121 | 1 | 0 | 2 |
|             | 45              | 46.5         | 3          | 5812                      | 125 | 1 | 0 | 2 | 5784                      | 124 | 1 | 0 | 2 | 5562                      | 120 | 1 | 0 | 2 |
|             |                 |              | 4W         | 5731                      | 123 | 1 | 0 | 2 | 5704                      | 123 | 1 | 0 | 2 | 5485                      | 118 | 1 | 0 | 2 |
| RWL2        | 45              | 46.1         | 2          | 6701                      | 145 | 1 | 0 | 2 | 6668                      | 145 | 1 | 0 | 2 | 6412                      | 139 | 1 | 0 | 2 |
|             |                 |              | 3          | 6812                      | 148 | 1 | 0 | 2 | 6780                      | 147 | 1 | 0 | 2 | 6519                      | 141 | 1 | 0 | 2 |
|             |                 |              | 4W         | 6678                      | 145 | 1 | 0 | 2 | 6646                      | 144 | 1 | 0 | 2 | 6390                      | 139 | 1 | 0 | 2 |
|             | 50              | 54.0         | 2          | 7747                      | 143 | 1 | 0 | 2 | 7710                      | 143 | 1 | 0 | 2 | 7413                      | 137 | 1 | 0 | 2 |
|             |                 |              | 3          | 7876                      | 146 | 1 | 0 | 2 | 7838                      | 145 | 1 | 0 | 2 | 7537                      | 140 | 1 | 0 | 2 |
|             |                 |              | 4W         | 7720                      | 143 | 1 | 0 | 2 | 7683                      | 142 | 1 | 0 | 2 | 7388                      | 137 | 1 | 0 | 2 |
|             | 65              | 67.2         | 2          | 9539                      | 142 | 1 | 0 | 2 | 9494                      | 141 | 1 | 0 | 2 | 9129                      | 136 | 1 | 0 | 2 |
|             |                 |              | 3          | 9699                      | 144 | 2 | 0 | 2 | 9652                      | 144 | 2 | 0 | 2 | 9281                      | 138 | 2 | 0 | 2 |
|             |                 |              | 4W         | 9507                      | 141 | 2 | 0 | 2 | 9461                      | 141 | 2 | 0 | 2 | 9097                      | 135 | 2 | 0 | 2 |
|             | 80              | 80.8         | 2          | 11228                     | 139 | 2 | 0 | 2 | 11174                     | 138 | 2 | 0 | 2 | 10745                     | 133 | 2 | 0 | 2 |
|             |                 |              | 3          | 11416                     | 141 | 2 | 0 | 2 | 11361                     | 141 | 2 | 0 | 2 | 10924                     | 135 | 2 | 0 | 2 |
|             |                 |              | 4W         | 11190                     | 138 | 2 | 0 | 2 | 11136                     | 138 | 2 | 0 | 2 | 10708                     | 133 | 2 | 0 | 2 |
|             | 95              | 93.2         | 2          | 13148                     | 141 | 2 | 0 | 2 | 13085                     | 140 | 2 | 0 | 2 | 12582                     | 135 | 2 | 0 | 2 |
|             |                 |              | 3          | 13368                     | 143 | 2 | 0 | 2 | 13304                     | 143 | 2 | 0 | 2 | 12792                     | 137 | 2 | 0 | 2 |
|             |                 |              | 4W         | 13103                     | 141 | 2 | 0 | 2 | 13040                     | 140 | 2 | 0 | 2 | 12539                     | 135 | 2 | 0 | 2 |
|             | 115             | 109.8        | 2          | 15102                     | 138 | 2 | 0 | 3 | 15030                     | 137 | 2 | 0 | 3 | 14452                     | 132 | 2 | 0 | 3 |
|             |                 |              | 3          | 15354                     | 140 | 2 | 0 | 3 | 15281                     | 139 | 2 | 0 | 3 | 14693                     | 134 | 2 | 0 | 3 |
|             |                 |              | 4W         | 15050                     | 137 | 2 | 0 | 3 | 14978                     | 136 | 2 | 0 | 3 | 14402                     | 131 | 2 | 0 | 3 |
|             | 135             | 137.1        | 2          | 17533                     | 128 | 2 | 0 | 3 | 17449                     | 127 | 2 | 0 | 3 | 16778                     | 122 | 2 | 0 | 3 |
|             |                 |              | 3          | 17826                     | 130 | 2 | 0 | 3 | 17740                     | 129 | 2 | 0 | 3 | 17058                     | 124 | 2 | 0 | 3 |
|             |                 |              | 4W         | 17473                     | 127 | 2 | 0 | 3 | 17389                     | 127 | 2 | 0 | 3 | 16720                     | 122 | 2 | 0 | 3 |
|             | 155             | 156.8        | 2          | 19495                     | 124 | 2 | 0 | 3 | 19402                     | 124 | 2 | 0 | 3 | 18656                     | 119 | 2 | 0 | 3 |
|             |                 |              | 3          | 19821                     | 126 | 2 | 0 | 3 | 19726                     | 126 | 2 | 0 | 3 | 18967                     | 121 | 2 | 0 | 3 |
|             |                 |              | 4W         | 19542                     | 125 | 2 | 0 | 3 | 19448                     | 124 | 2 | 0 | 3 | 18700                     | 119 | 2 | 0 | 3 |

|                              |                                              |                                                      |                           |
|------------------------------|----------------------------------------------|------------------------------------------------------|---------------------------|
| Submitted by Swaney Lighting | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | <b>Catalog Number:</b><br>RWL1-48L-45-4K7-4W-UNV-DBT | <b>Type:</b><br><b>WP</b> |
|                              |                                              | <b>Notes:</b>                                        | SLA22-51646               |



## RATIO WALL

RWL1/RWL2 LED WALLPACK

|            |           |
|------------|-----------|
| DATE:      | LOCATION: |
| TYPE:      | PROJECT:  |
| CATALOG #: |           |

### LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

| Ambient Temperature |       | Lumen Multiplier |
|---------------------|-------|------------------|
| 0°C                 | 32°F  | 1.03             |
| 10°C                | 50°F  | 1.01             |
| 20°C                | 68°F  | 1.00             |
| 25°C                | 77°F  | 1.00             |
| 30°C                | 86°F  | 0.99             |
| 40°C                | 104°F | 0.98             |
| 50°C                | 122°F | 0.97             |

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

### PROJECTED LUMEN MAINTENANCE

| Ambient Temperature | OPERATING HOURS |        |                        |        |         |             |
|---------------------|-----------------|--------|------------------------|--------|---------|-------------|
|                     | 0               | 25,000 | TM-21-11<br>L90 36,000 | 50,000 | 100,000 | L70 (Hours) |
| 25°C / 77°F         | 1.00            | 0.97   | 0.96                   | 0.95   | 0.91    | 408,000     |
| 40°C / 104°F        | 0.99            | 0.96   | 0.95                   | 0.94   | 0.89    | 356,000     |

### ELECTRICAL DATA

| # OF LEDS | Nominal Wattage | Input Voltage | Oper. Current (Amps) | System Power (Watts) |
|-----------|-----------------|---------------|----------------------|----------------------|
| RWL1      | 10              | 120           | 0.08                 | 10.1                 |
|           |                 | 208           | 0.05                 |                      |
|           |                 | 240           | 0.04                 |                      |
|           |                 | 277           | 0.04                 |                      |
|           |                 | 347           | 0.03                 |                      |
|           |                 | 480           | 0.02                 |                      |
|           | 15              | 120           | 0.12                 | 14.5                 |
|           |                 | 208           | 0.07                 |                      |
|           |                 | 240           | 0.06                 |                      |
|           |                 | 277           | 0.05                 |                      |
|           |                 | 347           | 0.04                 |                      |
|           |                 | 480           | 0.03                 |                      |
|           | 20              | 120           | 0.17                 | 19.9                 |
|           |                 | 208           | 0.10                 |                      |
|           |                 | 240           | 0.08                 |                      |
|           |                 | 277           | 0.07                 |                      |
|           |                 | 347           | 0.06                 |                      |
|           |                 | 480           | 0.04                 |                      |
|           | 25              | 120           | 0.23                 | 28.0                 |
|           |                 | 208           | 0.13                 |                      |
|           |                 | 240           | 0.12                 |                      |
|           |                 | 277           | 0.10                 |                      |
|           |                 | 347           | 0.08                 |                      |
|           |                 | 480           | 0.06                 |                      |
|           | 35              | 120           | 0.31                 | 36.9                 |
|           |                 | 208           | 0.18                 |                      |
|           |                 | 240           | 0.15                 |                      |
|           |                 | 277           | 0.13                 |                      |
|           |                 | 347           | 0.11                 |                      |
|           |                 | 480           | 0.08                 |                      |
|           | 45              | 120           | 0.39                 | 46.5                 |
|           |                 | 208           | 0.22                 |                      |
|           |                 | 240           | 0.19                 |                      |
|           |                 | 277           | 0.17                 |                      |
|           |                 | 347           | 0.13                 |                      |
|           |                 | 480           | 0.10                 |                      |

| # OF LEDS | Nominal Wattage | Input Voltage | Oper. Current (Amps) | System Power (Watts) |
|-----------|-----------------|---------------|----------------------|----------------------|
| RWL2      | 45              | 120           | 0.38                 | 46.1                 |
|           |                 | 208           | 0.22                 |                      |
|           |                 | 240           | 0.19                 |                      |
|           |                 | 277           | 0.17                 |                      |
|           |                 | 347           | 0.13                 |                      |
|           |                 | 480           | 0.10                 |                      |
|           | 50              | 120           | 0.45                 | 54.0                 |
|           |                 | 208           | 0.26                 |                      |
|           |                 | 240           | 0.23                 |                      |
|           |                 | 277           | 0.19                 |                      |
|           |                 | 347           | 0.16                 |                      |
|           |                 | 480           | 0.11                 |                      |
|           | 65              | 120           | 0.56                 | 67.2                 |
|           |                 | 208           | 0.32                 |                      |
|           |                 | 240           | 0.28                 |                      |
|           |                 | 277           | 0.24                 |                      |
|           |                 | 347           | 0.19                 |                      |
|           |                 | 480           | 0.14                 |                      |
|           | 80              | 120           | 0.67                 | 80.8                 |
|           |                 | 208           | 0.39                 |                      |
|           |                 | 240           | 0.34                 |                      |
|           |                 | 277           | 0.29                 |                      |
|           |                 | 347           | 0.23                 |                      |
|           |                 | 480           | 0.17                 |                      |
|           | 95              | 120           | 0.78                 | 93.2                 |
|           |                 | 208           | 0.45                 |                      |
|           |                 | 240           | 0.39                 |                      |
|           |                 | 277           | 0.34                 |                      |
|           |                 | 347           | 0.27                 |                      |
|           |                 | 480           | 0.19                 |                      |
|           | 115             | 120           | 0.92                 | 109.8                |
|           |                 | 208           | 0.53                 |                      |
|           |                 | 240           | 0.46                 |                      |
|           |                 | 277           | 0.40                 |                      |
|           |                 | 347           | 0.32                 |                      |
|           |                 | 480           | 0.23                 |                      |
|           | 135             | 120           | 1.14                 | 137.1                |
|           |                 | 208           | 0.66                 |                      |
|           |                 | 240           | 0.57                 |                      |
|           |                 | 277           | 0.49                 |                      |
|           |                 | 347           | 0.40                 |                      |
|           |                 | 480           | 0.29                 |                      |
|           | 155             | 120           | 1.31                 | 156.8                |
|           |                 | 208           | 0.75                 |                      |
|           |                 | 240           | 0.65                 |                      |
|           |                 | 277           | 0.57                 |                      |
|           |                 | 347           | 0.45                 |                      |
|           |                 | 480           | 0.33                 |                      |



# RATIO WALL

RWL1/RWL2 LED WALLPACK

DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

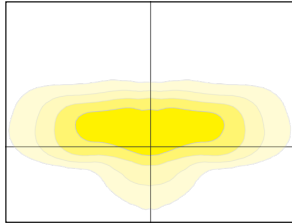
TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_

CATALOG #: \_\_\_\_\_

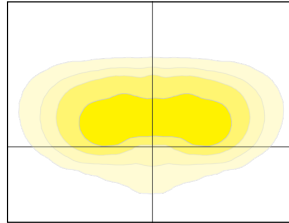
## PHOTOMETRY

Mounting Height: 30ft

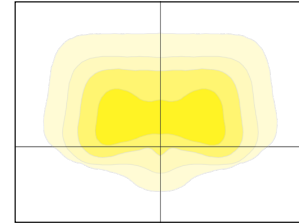
Type II



Type III

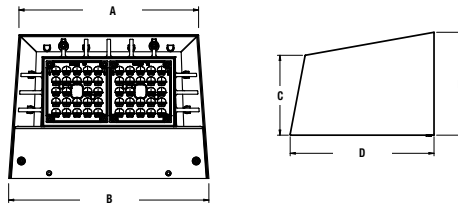


Type VI



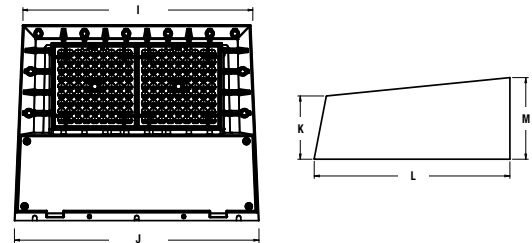
## DIMENSIONS

RWL1

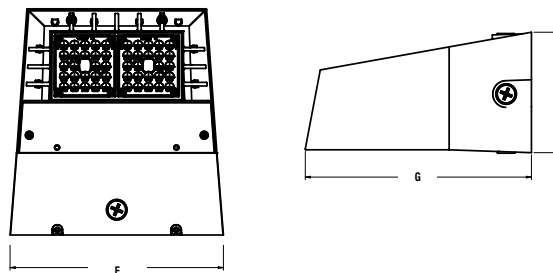


| A     | B     | C    | D     | E     | Weight             |
|-------|-------|------|-------|-------|--------------------|
| 8.7"  | 9.7"  | 3.9" | 7.0"  | 5.0"  | 6.5 lbs (2.95 kgs) |
| 221mm | 246mm | 99mm | 178mm | 127mm |                    |

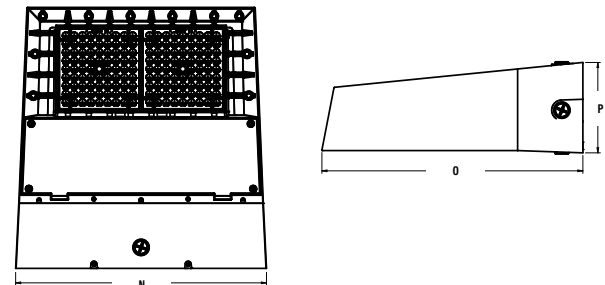
RWL2



| I     | J     | K    | L     | M     | Weight              |
|-------|-------|------|-------|-------|---------------------|
| 14.0" | 15.0" | 3.9" | 12.0" | 5.0"  | 16.5 lbs (7.48 kgs) |
| 356mm | 381mm | 99mm | 305mm | 127mm |                     |

RWL1 with  
Integral Back Box

| F     | G     | H     |
|-------|-------|-------|
| 10.4" | 11.0" | 5.9"  |
| 264mm | 279mm | 150mm |

RWL2 with  
Integral Back Box

| N     | O     | P     |
|-------|-------|-------|
| 15.4" | 16.0" | 5.5"  |
| 391mm | 406mm | 140mm |



## RATIO WALL

RWL1/RWL2 LED WALLPACK

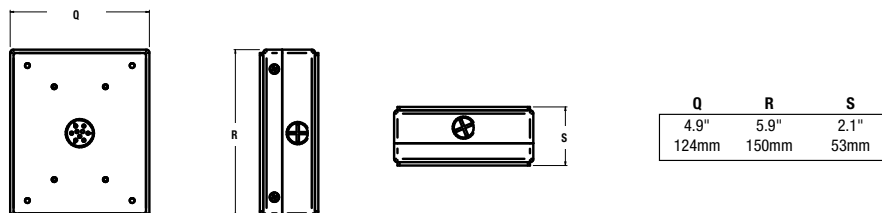
DATE: \_\_\_\_\_ LOCATION: \_\_\_\_\_

TYPE: \_\_\_\_\_ PROJECT: \_\_\_\_\_

CATALOG #: \_\_\_\_\_

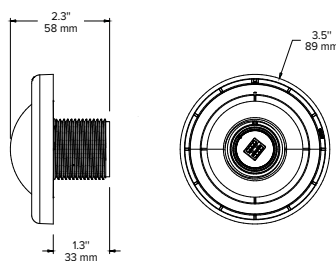
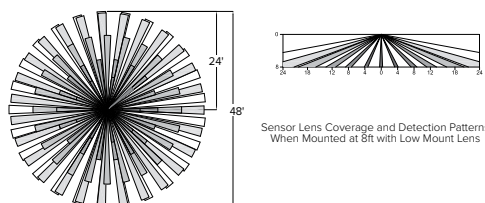
### DIMENSIONS (CONTINUED)

#### Back Box Accessory

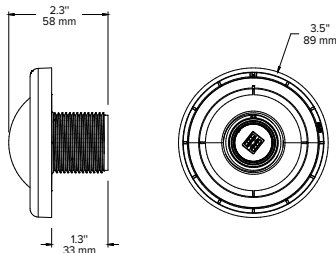
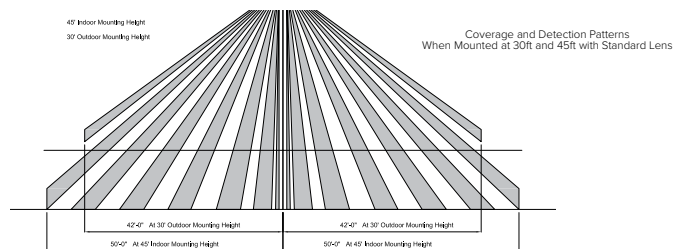


### ADDITIONAL INFORMATION

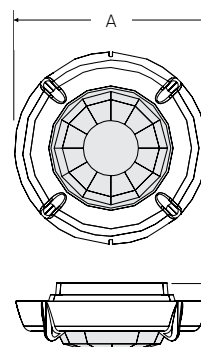
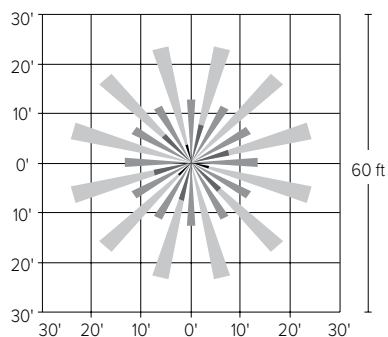
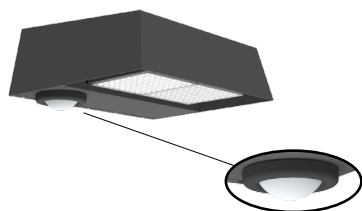
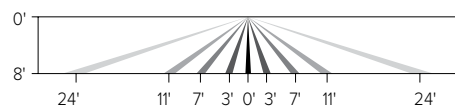
#### NXSP-14F



#### NXSP-40F



#### SCP-8F



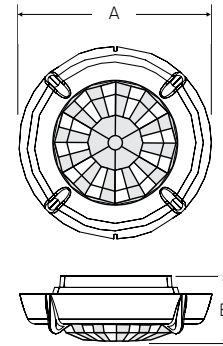
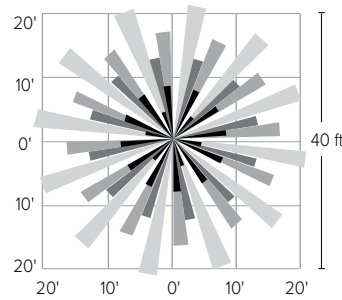
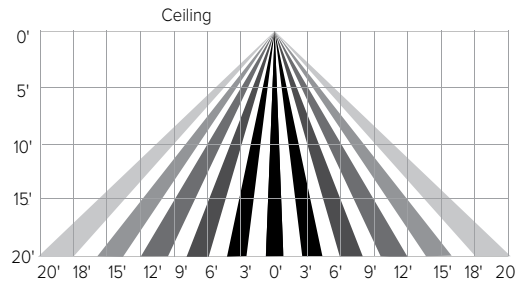
| A           | B          |
|-------------|------------|
| 2.3" (59mm) | .8" (20mm) |



## RATIO WALL

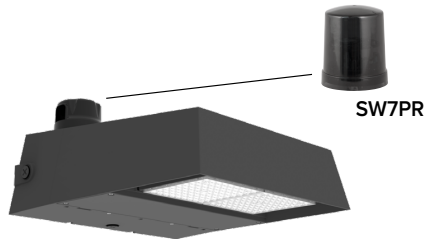
RWL1/RWL2 LED WALLPACK

### SCP-20F



| A              | B             |
|----------------|---------------|
| 2.3"<br>(59mm) | .8"<br>(20mm) |

### SITESYNC 7-PIN MODULE



- SiteSync features in a new form
- Available as an accessory for new construction or retrofit applications (with existing 7-Pin receptacle)

|                                                                                 |                                              |                                          |                              |
|---------------------------------------------------------------------------------|----------------------------------------------|------------------------------------------|------------------------------|
| Submitted by Swaney Lighting                                                    |                                              | <b>Catalog Number:</b>                   | <b>Type:</b>                 |
|  | <b>Job Name:</b><br>SELF STORAGE - BIDDEFORD | RWL1-48L-45-4K7-4W-UNV-DBT<br><br>Notes: | <b>WP</b><br><br>SLA22-51646 |

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# SECTION 13

## WAIVERS



## WAIVER REQUEST

Article XI, Section 5.B.4.f: Structural Layout and design. Paving, parking, and storage areas.

1. *No paving, parking, or storage shall be permitted within the required setback of any side or rear property line;*
2. *No, paving, parking, or storage (except for entrances/ exits) shall be permitted within 25 feet of any front property line. These unpaved nonparking or nonstorage areas shall be maintained as landscaped areas or open spaces.*

Given the unique access requires involved with self-storage, pavement in these side yard and rear yard locations is necessary to provide safe site circulation for pedestrians and emergency vehicles. Given the parcel is a “back lot” and pavement is required to support the building’s program and safety, we feel this waiver is appropriate and necessary. Implementation of this approach will not cause a nuisance to neighbors given the abutting transportation and commercial uses.

## CONDITIONAL USES

### *VII Attachment 1*

#### **City of Biddeford**

#### **Conditional Use Review Sheet [Amended 2-2-2010 by Ord. No. 2009.98]**

1. Applications for conditional use permits must meet the standards specified in Article VI of this ordinance as well as the standards of subdivision (Chapter 66 of the Biddeford Code of Ordinances), or site review (Article XI, of this ordinance). In addition, because of the unique nature and particular concern that the general public may have relating to a conditional use in a particular zone, the Planning Board shall consider each of the applications in light of the guidelines presented below.
2. The Planning Board shall approve, approve with conditions, or deny all applications for a conditional use permit. The applicant shall have the burden of proving that his or her application is in compliance with the requirements of this ordinance and that none of the conditions listed below would result from the approval of the conditional use permit. Failure of the applicant to submit required information shall constitute a basis for denial without a review of the remainder of the application. After the submission of a complete application and a review of the required submissions, the Planning Board shall approve the application or approve with conditions if the application meets the following standards:

| <b>Standards for Conditional Use Permit</b>                                                                                                                                                                                                                                   | <b>Yes</b> | <b>No</b> | <b>N/A</b> | <b>Remark</b> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-----------|------------|---------------|
| A. The proposed use meets specified requirements set forth in compliance with state or federal laws;                                                                                                                                                                          | ✓          |           |            |               |
| B. The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes;                                          | ✓          |           |            |               |
| C. The proposed exterior lighting, where allowed, would not create hazards to motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties; | ✓          |           |            |               |
| D. The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;                                                                                                        | ✓          |           |            |               |
| E. The proposed use would not have a significant detrimental effect on the use                                                                                                                                                                                                | ✓          |           |            |               |

BIDDEFORD CODE

| Standards for Conditional Use Permit                                                                                                                                                                                                                                                                                             | Yes | No | N/A | Remark |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|-----|--------|
| and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes;                                                                                                                                                                                   |     |    |     |        |
| F. The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion;                                                                                                     | ✓   |    |     |        |
| G. The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion (example: decrease existing level of service); | ✓   |    |     |        |
| H. The proposed use would not have a significant, detrimental effect on the value of adjacent properties which could be avoided by reasonable modification of the proposal;                                                                                                                                                      | ✓   |    |     |        |
| I. The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal;                                                                                                                                  | ✓   |    |     |        |
| J. The proposed use would be in compliance with Biddeford's Comprehensive Plan;                                                                                                                                                                                                                                                  | ✓   |    |     |        |
| K. The proposed use would not have an adverse impact on the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal;                                                              | ✓   |    |     |        |
| L. The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements;                                                                                                                                                         | ✓   |    |     |        |
| M. Adequate provision has been made for disposal of wastewater or solid waste or                                                                                                                                                                                                                                                 | ✓   |    |     |        |

## CONDITIONAL USES

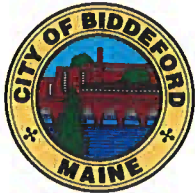
| Standards for Conditional Use Permit                                                                                                                                                                       | Yes | No | N/A | Remark |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|----|-----|--------|
| for the prevention of ground or surface water contamination;                                                                                                                                               |     |    |     |        |
| N. Adequate provision has been made to control erosion or sedimentation;                                                                                                                                   | ✓   |    |     |        |
| O. Adequate provision has been made to handle stormwater runoff or other drainage problem on the site; and the proposed development will not unduly burden off-site surface water system;                  | ✓   |    |     |        |
| P. The proposed water supply would meet the demands of the proposed use for fire protection purposes;                                                                                                      | ✓   |    |     |        |
| Q. Adequate provision has been made for the transport, storage, and disposal of hazardous substances and materials as defined by state law;                                                                | ✓   |    |     |        |
| R. The proposed use would not have an adverse impact on scenic vistas or significant wildlife habitat or wetland areas and water bodies which could be avoided by reasonable modification of the proposal; | ✓   |    |     |        |
| S. When located in the Shoreland Zone, the proposed use would meet the purposes of Shoreland Zoning as identified in Article XIV, Section 1 (Purposes) of this Ordinance.                                  |     |    | ✓   |        |

The Planning Board may attach such conditions in addition to those required elsewhere in this ordinance, that would mitigate any adverse effects on adjoining or neighboring properties which might otherwise result from the proposed use. These conditions may include but are not limited to, specifications for:

- a. Type of vegetation for landscaping;
- b. Increased setbacks and yards;
- c. Specified sewage disposal and water supply facilities;
- d. Landscaping and planting screens;
- e. Periods of operation;

## BIDDEFORD CODE

- f. Operational controls;
- g. Professional inspection and maintenance;
- h. Sureties;
- i. Deed restrictions;
- j. Locations of piers, docks, parking and signs;
- k. Type of construction; or
- l. Any other conditions, restrictions, or safeguards that would uphold the spirit and intent of this ordinance or further review by the Biddeford Planning Board.



## CITY OF BIDDEFORD

### Planning and Development Department

Matthew Grooms, AICP  
City Planner  
205 Main Street  
P.O. Box 586  
Biddeford, ME 04005  
(207) 284-9115

[Matthew.Grooms@biddefordmaine.org](mailto:Matthew.Grooms@biddefordmaine.org)

#### PLANNING BOARD REPORT

*Matthew Grooms*

TO: Chair Southwick and the Biddeford Planning Board

FROM: Matthew Grooms, AICP, City Planner

DATE: June 30, 2022

**RE: 2022.12 Final Site Plan Review for SteelClad Biddeford, LLC to create a climate controlled self-storage facility on Enterprise Drive (Tax Map 17, Lot 7-2-1) in the I-3 zone.**

MEETING DATE: Wednesday, July 6, 2022 at 6:00 pm

#### I. INTRODUCTION

The proposal before the Planning Board is for a new, three-story, 60,000 square foot temperature controlled self-storage facility, along with 22 off-street parking spaces, new fencing, and other site improvements to facilitate access into and out of the site. The property totals 3.2 acres, spanning between Alfred Street to the north and West Cole Road to the south, and immediately abuts Maine DOT rail right-of-way to the east. The project is anticipated to result in 1.86 acres of disturbed area, 1.60 acres of developed area, and 1.16 acres of new impervious surface and triggers Maine DEP Stormwater Management Law Permit review. This permit was approved by DEP on May 22, 2022. The property is further encumbered by a CMP Easement and other utility and access easements.

This application was first presented to the Board at their May 4<sup>th</sup> meeting as a sketch plan, and referred back to the Board for final review. Of particular note, the Board requested that the applicant address all outstanding staff review comments, and provide building renderings from the Alfred Street perspective, and explore opportunities to expand the Eastern Trail. Full discussion of the updated submittal is provided below.

#### II. SCOPE OF REVIEW

The proposed development is before the Planning Board as required by Article XI Site Plan Review of the City's Land Development Regulations. Per Section 4.B.II.D, any changes of use affecting 10,000 square feet or more of floor area is subject to Major Site Plan Review. Further, the proposed self-storage use, is identified as a conditional use within the I-3 Industrial Zone, and is therefore subject to the Article VII, Section 6 Conditional Use standards.

### III. PROJECT INFORMATION

|     | <u>SUBJECT</u>                      | <u>INFORMATION</u>                                                                                                              |
|-----|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| 1.  | Applicant/Property Owner            | Steelclad Biddeford, LLC<br>25 Penrith Road<br>Portland, ME 04102                                                               |
| 2.  | Agent/Engineer                      | Sam Lebel, P.E.<br>Acorn Engineering<br>65 Hanover Street<br>Portland, ME 04101                                                 |
| 3.  | Project Location                    | Enterprise Drive                                                                                                                |
| 4.  | Map/Lot                             | Tax Map 17/ Lot 7-2-1                                                                                                           |
| 5.  | City Approvals Required             | Major Site Plan/Conditional Use                                                                                                 |
| 6.  | Existing Zoning                     | I-3 Industrial                                                                                                                  |
| 7.  | Overlay Zoning                      | N/A                                                                                                                             |
| 8.  | Existing Use                        | A 0.5 acre paved parking lot is utilized by Five Star Auto. Remaining 2.7 acre lot is vacant.                                   |
| 9.  | Proposed Use                        | Self-Storage                                                                                                                    |
| 10. | Uses in the Vicinity                | Mixture of commercial, light industrial and hospital uses                                                                       |
| 11. | Parcel Size                         | 3.2 acres                                                                                                                       |
| 12. | Water Supply                        | Maine Water                                                                                                                     |
| 13. | Sewerage Disposal                   | City of Biddeford                                                                                                               |
| 14. | Solid Waste Disposal                | Private Hauler                                                                                                                  |
| 15. | Fire Protection                     | City of Biddeford                                                                                                               |
| 16. | Parking Spaces Required             | Minimum 5 spaces, w/ 1 additional space/50 bays                                                                                 |
| 17. | Parking Spaces Provided             | 22 surface spaces                                                                                                               |
| 18. | Ownership of Road                   | West Cole Road is public, though Enterprise Drive will be private                                                               |
| 19. | Estimated Site Development Costs    | Not provided                                                                                                                    |
| 20. | Financial Capacity Letter           | Letter received from Machias Savings Bank confirming financial capacity.                                                        |
| 21. | Waivers Needed/Requested            | Applicant has requested a waiver to permit pavement within required side and rear setback areas to facilitate site circulation. |
| 22. | Waivers Granted                     | N/A                                                                                                                             |
| 23. | Additional Approvals/Permits Needed | Maine DEP Stormwater Management Review Permit                                                                                   |
| 24. | Fees Paid (LDR Attachment A)        | All application fees paid                                                                                                       |
| 25. | Planning Board Review History       | Preliminary Review – 5/4/2022                                                                                                   |

### IV. STAFF REVIEW

The proposed development is subject to the following areas of review.

#### A. Zoning:



The property is zoned I-3 Industrial, with the proposed use, self-storage, being permitted as a conditional use within the zone. The project is therefore subject to the general conditional use standards listed under Article VII, Section 6. Further, the I-3 zone is considered a 'gateway' into the City, and subject to enhanced site and building design standards.

**B. Review standards:**

Site Plan and Conditional Use Permit Review

**C. Waivers:**

The following waivers have been requested/identified as necessary for the project to proceed.

1. Article XI, Section 5.B.4.f. This standard states, *"No paving, parking, or storage shall be permitted within the required setback of any side or rear property line"*.

Rationale: The applicant notes that the property is a rear lot, and that circulation around the building is required for emergency vehicle access.

Staff Recommendation: Staff recommends that the Board approve this waiver based upon the lot configuration, surrounding context, and requirement for emergency vehicle access.

**D. Staff Review Comments**

The following comments represent the clarification and/or update of review comments presented to the Planning Board at their May 4<sup>th</sup> meeting to consider the preliminary plan for Steelclad Storage. The scope and overall design of the project remains unchanged from the prior version presented, with any updates intended to address either staff or Board comments.

1. Gateway Zone: Article V, Section 2.3. identifies the I-3 zone as a gateway and major entrance to the City, whereby requiring more consideration by the Planning board as to the development's design and landscaping and building facades.

Based upon this requirement, staff and the Board requested additional information regarding site landscaping and building design, particularly along the Alfred Street frontage. The frontage along Alfred Street coincides with a 66' foot CMP easement, which features some existing vegetation. The plans depict no improvements or additional vegetation being planted immediately along that frontage. In response to Board comments, the building's northerly elevation has been provided with three separate alternatives for the Board's selection. Staff finds that the updated elevations and site treatment meet the intent of this standard.

2. Site Design
  - i. Pavement Setback Requirements: Article XI, Section 5.B.4.f states that pavement is not permitted within the side and rear property setbacks. The applicant has submitted a formal waiver request of this requirement as described above, which is supported by staff.
  - ii. Proposed Parking: The parking table on the site plan (Sheet C-10) previously identified 28 parking spaces, although only 25 spaces were provided. The table has since been updated.
  - iii. Lot Coverage: Space and bulk table has been updated to include lot coverage calculations.

3. Landscape Design: In support of both the gateway and site landscaping requirements of the site plan ordinance, staff had previously requested that additional buffer plantings be planted along the Alfred Street frontage to help screen the development from public view. Given the proposed setback from the street, and the concentration of utility infrastructure and easements, staff are supportive of the landscaping plan as presented, with limited new vegetation along the Alfred Street frontage.
4. Engineering Peer Review
  - i. The proposed stormwater maintenance agreement includes references which are not related to this project, in particular, references to a homeowner's association. The agreement shall be revised to accurately reflect the project. This has been drafted as a condition of approval.
  - ii. The City Engineer has requested that information on the routing of the 100-year storm event, which has not been provided. This information shall be provided as a condition of approval.
  - iii. The drainage plans should include the cover types, differentiating between the various grass covers, brush, fair woods, pavement and gravel. These conditions should be delineated on the drainage plans.
  - iv. The applicant shall confirm that there are no existing wetlands located on the site.
  - v. A traffic control plan shall be developed by the contractor selected for this project, and approved by the Department of Public Works prior to the start of construction.
  - vi. Since the new water services from Alfred Street will be located in an existing drainage swale which outlets to the City system, a detailed plan for erosion and storm water control during construction should be provided. A double row of check dams should be called for at the inlet end of the existing culvert, and southerly of the riprap apron at the inlet to the existing 18" via culvert.
  - vii. Details: The detail for the chamber systems refers to a plan view for observation port locations. Where is the plan view that shows these locations? This has not been addressed. The reference is made to a plan, but it is not clear which plan. The applicant shall clarify.
  - viii. Details: The sawcut detail provided should be modified to include grinding of existing pavement and a shiplap joint.
5. Other Comments:
  - i. Eastern Trail plans for connecting existing trails between Biddeford and Saco have indicated an alternative route through this site. In response to this inquiry, the applicant has contacted the Eastern trails trail coordinator, and determined that the trail will not cross the subject property.

## **V. STAFF RECOMMENDATIONS**

- A. Waiver:** Staff are of the opinion that due to the geometry of the site, characteristics of the property as a 'rear lot', and requirement for emergency vehicle access, that the waiver request for pavement within side or rear setbacks in appropriate.

If the applicant has addressed the outstanding items to the satisfaction of the Board, and Board approves the project, Staff recommend doing so with the following conditions of approval attached:

**B. Draft Conditions of Approval**

**Prior to any ground disturbance, street openings, or the issuance of any permits:**

- i. The applicant shall provide an updated stormwater maintenance agreement for review and approval by the Department of Public Works.
- ii. Information on the routing of the 100-year storm event shall be submitted for review by the City Engineer.
- iii. The drainage plans shall be updated to delineate the various types of ground cover, including grass, brush, fair woods, pavement and gravel.
- iv. The applicant shall confirm and provide evidence that there are no existing wetlands on the property. In the event that there are wetlands, the applicant shall amend the site plan to identify the location of wetlands and submit for review in accordance with Article XI Site Plan.
- v. A traffic control plan to facilitate utility infrastructure improvements within Alfred Street shall be submitted for review and approval by the Department of Public Works.
- vi. The applicant shall provide a detailed plan outlining mitigation strategies for erosion and stormwater control for the new water service connection from Alfred Street. This shall include a double row of check dams at the inlet end of the existing culvert, and south of the riprap apron at the inlet to the existing 18" via culvert.
- vii. The sawcut detail provided shall be modified to include the grinding of existing pavement and a shiplap joint.
- viii. A pre-construction meeting with the contractor needs to be held with the Planning and Engineering Departments to discuss inspection requirements.
- ix. A Performance Guarantee (acceptable to the Planning Department) shall be submitted to the Planning Department.

**Prior to Issuance of a Certificate of Occupancy**

- x. All Standard Conditions of Approval shall apply.
- xi. The applicant shall obtain all other pertinent local, state and federal permits, licenses, and insurance such as blasting, building, electrical, plumbing, etc prior to commencing business unless authority issuing said permit allows for such actions.
- xii. The Planning Department shall conduct a compliance inspection and shall determine that all required site improvements related to the public's health, safety, and welfare have been completed and that the City holds a Performance Guarantee sufficient to cover any remaining site improvements and/or deficiencies.

**VI. NEXT STEPS/SUGGESTED BOARD ACTIONS**

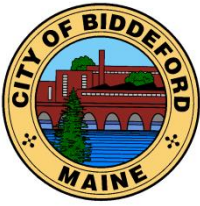
- A. Consider granting the waiver and the final Site Plan/Conditional Use Permit based on the conditions outlined above.

**VII. SAMPLE MOTIONS**

- A. Motion to grant the waiver to Article XI, Section 5.B.4.f. – to permit pavement within the required side and rear property setbacks.
- B. Motion to approve the Final Site Plan for Steelclad Biddeford, LLC for a new three-level self-storage facility (Tax Map 17, Lot 7-2-1) in the I-3 zone and approve the Findings of Fact based on the conditions recommended by Staff in its report dated June 30, 2022.
- C. Motion to approve the conditional use permit for the use self-storage within the I-3 zone.
- D. Motion to deny the project based upon the following reasons:
  - i. \_\_\_\_\_
  - ii. \_\_\_\_\_

VIII. ATTACHMENTS

- A. Application Package dated May 18, 2022
- B. Supporting Materials
- C. Draft Findings of Fact and Conclusions of Law



# CITY OF BIDDEFORD

## Planning and Development Department

205 Main Street  
P.O. Box 586  
Biddeford, ME 04005  
(207) 284-9115

### **FINDINGS OF FACT AND CONCLUSIONS OF LAW**

#### *Determination of the Required Setback to the Greatest Practical Extent*

Pursuant to the provisions of the City of Biddeford Land Development Regulations, Article XIV, Shoreland Zoning, the Biddeford Planning Board has considered the application of Kate O'Brien Nowak and Derek Nowak, including supportive data, public hearing testimony and related materials contained in the record. Based on Public Comment and Staff's review and recommendation, the Planning Board makes the following Findings of Fact and Conclusions of Law:

#### 1. FINDINGS OF FACT

|     | <u>SUBJECT</u>             | <u>INFORMATION</u>                                                                                   |
|-----|----------------------------|------------------------------------------------------------------------------------------------------|
| 1.  | Applicant / Property Owner | Kate O'Brien Nowak and Derek Nowak<br>3333 Hunter Blvd S.<br>Seattle, WA 98144                       |
| 2.  | Agent                      | Christopher Garland – Calen Johnson Studio<br>110 Exchange Street, Third Floor<br>Portland, ME 04101 |
| 3.  | Engineer/Surveyor          | Northern Survey Engineering / Colliers<br>41 Church Road<br>Brunswick, ME 04101                      |
| 4.  | Project Location           | 65 Mile Stretch Road                                                                                 |
| 5.  | Map/Lot                    | Map 61, Lot 19-1                                                                                     |
| 6.  | City Approvals Required    | Greatest Practical Extent (GPE) determination                                                        |
| 7.  | Existing Zoning            | Coastal Residential (CR)                                                                             |
| 8.  | Overlay Zoning             | Resource Protection                                                                                  |
| 9.  | Existing Use               | Single-family residential                                                                            |
| 10. | Proposed Use               | Single-family residential                                                                            |
| 11. | Uses in the Vicinity       | Single-family residential                                                                            |
| 12. | Parcel Size                | 1.4 acres                                                                                            |
| 13. | Water Supply               | Public water                                                                                         |
| 14. | Sewerage Disposal          | Private septic                                                                                       |
| 15. | Solid Waste Disposal       | Public trash                                                                                         |
| 16. | Fire Protection            | City of Biddeford                                                                                    |
| 17. | Ownership of Road          | Public road                                                                                          |
| 18. | Waivers Needed/Requested   | None                                                                                                 |
| 19. | Waivers Granted            | None                                                                                                 |

|     |                               |               |
|-----|-------------------------------|---------------|
| 20. | Fees Paid (LDR Attachment A)  | All fees paid |
| 21. | Planning Board Review History | July 6, 2022  |

## 2. CONCLUSIONS OF LAW

The Planning Board has determined that based on the following factors, as outlined in Article XIV (Shoreland Zoning), Section 12.C.2. (Land Use Standards) of the Land Development Regulations, the plan for Kathleen O'Brien Nowak and Derek Nowak approved by the Planning Board on July 6, 2022 and signed by the City Planner demonstrates the limits of the Greatest Practical Extent setback from the resource:

- a. The size of the lot limits the ability to locate further from the resource;
- b. The slope of the land limits the ability to locate further from the resource;
- c. The potential for soil erosion limits the ability to locate further from the resource;
- d. The location of other structures on the property and on adjacent properties limits the ability to locate further from the resource;
- e. The location of the septic system and other on-site soils suitable for septic systems limits the ability to locate further from the resource; and
- f. The type and amount of vegetation to be removed to accomplish the relocation limits the ability to locate further from the resource.

## 4. DETERMINATION

Based on the evidence available and the conclusions above, the Biddeford Planning Board grants the determination of the Greatest Practical Extent for the proposed project summarized above, located at 65 Mile Stretch Road (Tax Map 61, Lot 19-1), in accordance with the submitted application, supporting data, representations made, other related materials on file, and the following Conditions of Approval:

### **Conditions of Approval:**

1. **The new building shall be no closer than 3.4 feet from the Highest Annual Tide (HAT) line of Biddeford Pool, as denoted on the approved plan.**
2. **Trees removed in order to relocate a structure must be replanted with at least one native tree, three feet in height, for every tree removed. If more than five trees are planted, no one species of tree shall make up more than 50% of the number of trees planted. Replaced trees must be planted no further from the water or wetland than the trees that were removed. Other woody and herbaceous vegetation and ground cover that are removed or destroyed in order to relocate a structure must be reestablished. An area at least the same size as the area where vegetation and/or ground cover was disturbed, damaged, or removed must be reestablished within the setback area. The vegetation and/or ground cover must consist of similar native vegetation and/or ground cover that was disturbed, destroyed or removed.**
3. **Where feasible, when a structure is relocated on a parcel, the original location of the structure shall be replanted with vegetation which may consist of grasses, shrubs, trees, or a combination thereof.**
4. **Obtain required permits from Maine DEP and the Biddeford Code Enforcement.**

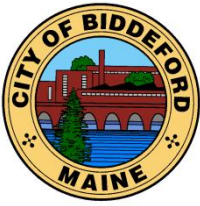
5. This determination of Greatest Practical Extent shall expire one year from the date of approval if a substantial start is not made in construction. If a substantial start is made within one year of the issuance of the determination, the applicant shall have one additional year to complete the project, at which time any building permits shall expire.

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Planning Board Chairman

---

Date



# CITY OF BIDDEFORD

## Planning and Development Department

Hannah Bonine  
Assistant City Planner  
205 Main Street  
P.O. Box 586  
Biddeford, ME 04005  
(207) 284-9115  
[Hannah.Bonine@biddefordmaine.org](mailto:Hannah.Bonine@biddefordmaine.org)

### PLANNING BOARD REPORT

TO: Chair Southwick and the Biddeford Planning Board

FROM: Hannah Bonine, Assistant City Planner

DATE: June 28, 2022

**RE: 2022.29 Determination of the Greatest Practical Extent for Kate O'Brien Nowak and Derek Nowak to replace the foundation and expand a nonconforming structure in the Resource Protection Shoreland Overlay zone at 65 Mile Stretch Road (Tax Map 61, Lot 19-1).**

MEETING DATE: Wednesday, July 6, 2022 at 6:00 pm

#### 1. INTRODUCTION

The project site is located within the Resource Protection overlay (RP) of the Shoreland Zone and the Coastal Residential (CR) base zone. The site is bordered by Biddeford Pool to the Northwest, and the Atlantic Ocean to the Southeast, on the opposite side of Mile Stretch Road. For the case of this Shoreland Zoning Greatest Practical Extent determination, Biddeford Pool is the protected resource. The existing structure is located 3.4 feet from the HAT of Biddeford Pool.

Portions of the property are located within the Back Dune and the A2 Flood Zone, and a portion of the structure is within the Erosion Hazard Area, as shown on the attached plans. The existing structure is currently not within the boundary of the A2 Flood Zone. The applicant is proposing to renovate the existing single-family residence on the property, including a <150 square foot addition and raising the structure on piers. The new foundation will meet Maine DEP requirements to allow for the movement of sand and water. A new septic system will also be installed to replace the existing cesspool.

#### 2. PROJECT INFORMATION

|    | <u>SUBJECT</u>             | <u>INFORMATION</u>                                                                                   |
|----|----------------------------|------------------------------------------------------------------------------------------------------|
| 1. | Applicant / Property Owner | Kate O'Brien Nowak and Derek Nowak<br>3333 Hunter Blvd S.<br>Seattle, WA 98144                       |
| 2. | Agent                      | Christopher Garland – Calen Johnson Studio<br>110 Exchange Street, Third Floor<br>Portland, ME 04101 |
| 3. | Engineer/Surveyor          | Northern Survey Engineering / Colliers<br>41 Church Road                                             |



|     |                               |                                               |
|-----|-------------------------------|-----------------------------------------------|
|     |                               | Brunswick, ME 04101                           |
| 4.  | Project Location              | 65 Mile Stretch Road                          |
| 5.  | Map/Lot                       | Map 61, Lot 19-1                              |
| 6.  | City Approvals Required       | Greatest Practical Extent (GPE) determination |
| 7.  | Existing Zoning               | Coastal Residential (CR)                      |
| 8.  | Overlay Zoning                | Resource Protection                           |
| 9.  | Existing Use                  | Single-family residential                     |
| 10. | Proposed Use                  | Single-family residential                     |
| 11. | Uses in the Vicinity          | Single-family residential                     |
| 12. | Parcel Size                   | 1.4 acres                                     |
| 13. | Water Supply                  | Public water                                  |
| 14. | Sewerage Disposal             | Private septic                                |
| 15. | Solid Waste Disposal          | Public trash                                  |
| 16. | Fire Protection               | City of Biddeford                             |
| 17. | Ownership of Road             | Public road                                   |
| 18. | Waivers Needed/Requested      | None                                          |
| 19. | Waivers Granted               | None                                          |
| 20. | Fees Paid (LDR Attachment A)  | All fees paid                                 |
| 21. | Planning Board Review History | July 6, 2022                                  |

### 3. COMPLIANCE WITH CITY ORDINANCES

The existing home is a legally existing nonconforming structure due to the following factors:

#### 1. **Lot Coverage**

- a. Required: 20%
- b. Existing: 24%

#### 2. **Street frontage**

- a. Required: 150'
- b. Existing: 129.11'

#### 3. **Shoreland frontage**

- a. Required: 150'
- b. Existing: 140'

#### 4. **Setback from Highest Annual Tide (HAT) of Biddeford Pool**

- a. Required: 75'
- b. Existing: 3.4'

#### 5. **Side yard setback**

- a. Required: 25'
- b. Existing: 11.7'

As such, the structure is subject to the provisions set in the Biddeford Shoreland Zoning Ordinance, *Article XIV, Section 12.C.1 Expansions and 12.C.2 Foundations*.

**12.C.1.a** - *Expansion of any portion of a structure within 25 feet of the normal high-water line of a water body, tributary stream, or upland edge of a wetland is prohibited, even if the expansion will not increase nonconformity with the water body, tributary stream or wetland setback requirement.*

**Satisfied.** The portion of the structure being expanded is located greater than 25 feet from the normal high-water line.

**12.C.1.c.i** - *For structures located less than 75 feet but greater than 25 feet from the normal high-water line of a water body, tributary stream, or the upland edge of a wetland the maximum height of any structure may not be made greater than 20 feet or the height of the existing structure, whichever is greater.*

**Satisfied.** The height of the structure will not exceed the existing height (35 feet).

**12.C.1.c.ii** - *In addition to the limitations in Subparagraph i, for structures that are legally nonconforming due to their location within the Resource Protection District, the maximum combined total footprint for all structures may not be expanded to a size greater than 1,500 square feet or 30% larger than the footprint that existed at the time the Resource Protection District was established on the lot, whichever is greater.*

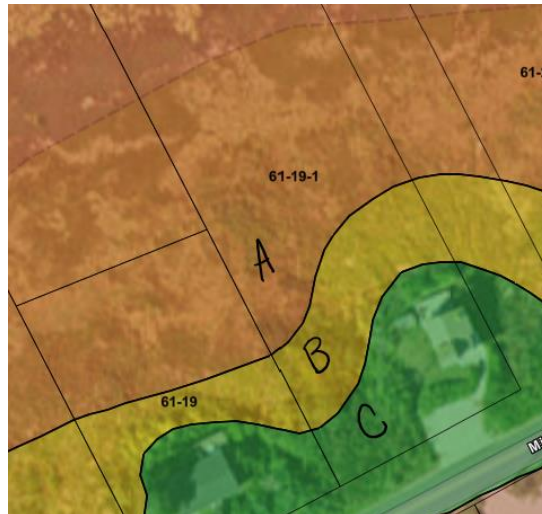
**Satisfied.** The proposed expansion will increase the footprint by 115 sqft, which does not exceed the allowed size.

**12.C.2** - *Foundations. Whenever a new, enlarged, or replacement foundation is constructed under a nonconforming structure, the structure and new foundation must be placed such that the setback requirement is met to the greatest practical extent as determined by the Planning Board, basing its decision on the criteria specified in Section 12C3 (Relocation) below.*

**Satisfied.** The applicant is proposing a replacement foundation, placing the existing structure on approximately 3 foot piers. See below for justification for GPE.

**12.C.3** - *In determining whether the building relocation meets the setback to the greatest practical extent, the Planning Board shall consider the size of the lot, the slope of the land, the potential for soil erosion, the location of other structures on the property and on adjacent properties, the location of the septic system and other on-site soils suitable for septic systems, and the type and amount of vegetation to be removed to accomplish the relocation.*

The applicant is proposing to maintain the same location for the structure. While there will be a new foundation to raise the building on piers, the majority of the structure will remain the same. Relocating the structure would be much more intensive. Maintaining the same structure location will minimize soil and vegetation disturbance and create the least amount of impact across the site overall. Additionally, it allows the new septic system to be located as far from the protected resource as possible, and will not compromise the structural integrity of the existing cesspool that is to be abandoned. The map below shows the flood zones. Zone A (orange) is high risk, Zone B (yellow) is moderate risk, and Zone C (green) is low risk. The house is currently located in the area shown in green, at the lowest risk of flooding, compared to other areas on the property.



#### 4. WAIVER REQUESTS

None

#### 5. OUTSTANDING ITEMS TO BE ADDRESSED PRIOR TO APPROVAL

The final plan should include the following revision:

- a. Add plan note that reads: *Purpose of this Plan: This plan depicts the expansion and reconstruction of a non-conforming structure to meet the shoreland setback requirement to the greatest practical extent, pursuant to Article XIV Shoreland Zoning Ordinance, Section 12.C.2 of the City of Biddeford's Land Development Regulations. The new building shall be no closer than 3.4 feet from the Highest Annual Tide (HAT) of Biddeford Pool.*
- b. Add signature block: Matthew Grooms, City Planner, duly authorized to sign on behalf of the Biddeford Planning Board.

#### 6. STAFF RECOMMENDATIONS

If the Board approves the project, Staff recommends doing so with the following Conditions of Approval attached:

1. **The new building shall be no closer than 3.4 feet from the Highest Annual Tide (HAT) line of Biddeford Pool, as denoted on the approved plan.**
2. **Trees removed in order to relocate a structure must be replanted with at least one native tree, three feet in height, for every tree removed. If more than five trees are planted, no one species of tree shall make up more than 50% of the number of trees planted. Replaced trees must be planted no further from the water or wetland than the trees that were removed. Other woody and herbaceous vegetation and ground cover that are removed or destroyed in order to relocate a structure must be reestablished. An area at least the same size as the area where**

vegetation and/or ground cover was disturbed, damaged, or removed must be reestablished within the setback area. The vegetation and/or ground cover must consist of similar native vegetation and/or ground cover that was disturbed, destroyed or removed.

3. Where feasible, when a structure is relocated on a parcel, the original location of the structure shall be replanted with vegetation which may consist of grasses, shrubs, trees, or a combination thereof.
4. Obtain required permits from Maine DEP and the Biddeford Code Enforcement.
5. This determination of Greatest Practical Extent shall expire one year from the date of approval if a substantial start is not made in construction. If a substantial start is made within one year of the issuance of the determination, the applicant shall have one additional year to complete the project, at which time any building permits shall expire.

## 7. ATTACHMENTS

1. Application
2. Cover Letter
3. Plans
4. Subsurface Wastewater Disposal System Variance Request

**CITY OF BIDDEFORD, MAINE**  
**PLANNING BOARD**  
**P.O. Box 586, 205 Main Street Biddeford, Maine 04005**  
**207-284-9115**

**APPLICATION FORM**

**Type of Application:**

☐ Shoreland Zoning Permit☐ Site Plan Review☐ Extraction☐ Conditional Use Permit☐ Subdivision☐ Private Way☒ Other: **Greatest Practical Extent**

**Applicant Information:**

Applicant's Name: Kate O'Brien Nowak and Derek Nowak

Applicant's Mailing Address: 3333 Hunter Blvd S, Seattle WA 98144

Applicant's Telephone: 917.887.6829

What is Applicant's legal interest in the property?

☒ Owner    ☐ Potential Buyer with Contract    ☐ Lease/Rental Agreement

Owner's Name: Kate O'Brien Nowak and Derek Nowak

Owner's Address: 3333 Hunter Blvd S, Seattle WA 98144

Owner's Telephone: 917.887.6829

Agent's Name: Christopher Garland, AIA - Caleb Johnson Studio

Agent's Address: 110 Exchange St, Third Floor, Portland ME 04101

Telephone: 207.956.0953

Engineer/Surveyor: Northern Survey Engineering / Colliers

Engineer/Surveyor's Address: 41 Church Road, Brunswick ME 04101

Telephone: 207.440.3487

**Project Location and Lot Information:**

Street Address: 65 Mile Stretch Road

Tax Map: 61 Lot: 19-1

Current Zoning: CR Shoreland Zoning: RP

Size of lot: 1.4 ☒ acres ☐ s.f. Lot Frontage: 129.11'

Existing Use of Property: Single family residential

Property currently serviced by:

|                                                  |                                                   |
|--------------------------------------------------|---------------------------------------------------|
| <input checked="" type="checkbox"/> City Road    | <input type="checkbox"/> Private Road             |
| <input type="checkbox"/> Public Sewer            | <input checked="" type="checkbox"/> Septic System |
| <input checked="" type="checkbox"/> Public Water | <input type="checkbox"/> Private Well             |
| <input checked="" type="checkbox"/> Public Trash | <input type="checkbox"/> Private Hauler           |

Slope Conditions in Area of Construction (if applicable):

☒ Flat (0-3 % slope) ☐ Rolling (3-8% slope) ☐ Hilly (8-15% slope) ☐ Steep (15% + slope)

Are there any wetlands or waterbodies on the site? ☒ Yes ☐ No If yes, attach information

Do you plan to bring fill onto the lot? ☒ Yes ☐ No If yes, attach information

\*\*\*property abuts Biddeford Pool, reference Existing Conditions Survey.

**Description of proposed use of property:**

\*\*\*no fill anticipated aside from what would be required for new septic system, see attached HHE-200.

Project/Proposed Use Description: \*\*\* SEE ATTACHED PROJECT DESCRIPTION \*\*\*

Property to be serviced by:

|                                                  |                                                   |
|--------------------------------------------------|---------------------------------------------------|
| <input checked="" type="checkbox"/> City Road    | <input type="checkbox"/> Private Road             |
| <input type="checkbox"/> Public Sewer            | <input checked="" type="checkbox"/> Septic System |
| <input checked="" type="checkbox"/> Public Water | <input type="checkbox"/> Private Well             |
| <input checked="" type="checkbox"/> Public Trash | <input type="checkbox"/> Private Hauler           |

Is this project part of a larger project? ☐ Yes ☒ No

**■ If in a Shoreland Zone:**Percent of residential lot coverage (Max. 20%): Current is ~24%, final will be less than or equal to current.Percent of structure expansion (Max. 30%): TBD, <30%☐ If Subdivision Review, number of lots proposed: N/A☐ If a Private Way is proposed, number of lots served: N/A☐ **If Site Plan Review, you must provide the following information:**Total new square feet footprint of structures: N/ATotal new square feet paving/parking: N/A

## Waiver Requests (attach details):

1. N/A
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Attachments:**A. Letters of Approval **N/A**

- ☐ Fire Department - Contact Chief or Deputy Chief - 282-9986
- ☐ Ability to Serve for Water Service – Maine Water - 282-1543
- ☐ Ability to Serve for Sewer Service- Engineering Dept (Sewer) - Tom Milligan 284-9118
- ☐ Police Department - E-911 Road Name Designation - Contact Joanne Fisk - 282-5127

✓ B. Letter to Planning Board describing project, waiver requests, proposed improvements, addressing permit requirements, etc.

C. Photographs of site.

D. Architectural renderings/drawings of proposed buildings, as required.

E. Engineered Plans, as required. **SEE LINES F AND G BELOW**

✓ F. SITE SURVEY

✓ G. SUBSURFACE WASTEWATER DISPOSAL SYSTEM PROPOSAL (HHE-200)

**Fees (due at time of application):**

Refer to "Attachment A Fees and Charges" of the Land Development Regulations for more information. Consult with Planning Staff if you have questions.

**Required Signatures:**

By signing this application, as the foresaid applicant or authorized agent:

- I certify that I have read and completely understand the application;
- I certify that the information contained in this application and it's attachments are true and correct;
- I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- I understand that copies of this information may be supplied upon request to an interested party.
- I understand that additional funds may be required through the course of review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting this application I am not guaranteed a place on any particular agenda. I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

☐ Project proposed to have 1 acre or more of site disturbance:

**-Project may need to apply for a Maine Construction General Permit and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.**

**Signature of applicant:**

DocuSigned by:  
*Derek Nawak*  
F967FBC26B3545E...

DocuSigned by:  
*Kate Nowak*  
DA283B39276349E...

Date: 6/9/2022 6/13/2022

**Signature of owner of property:**

DocuSigned by:  
*Derek Nawak*  
F967FBC26B3545E...

DocuSigned by:  
*Kate Nowak*  
DA283B39276349E...

Date: 6/9/2022 6/13/2022

**IF PLAN APPROVAL IS ANTICIPATED, PROVIDE 2 FULL SIZE MYLARS & 2 FULL SIZE PAPER COPIES FOR BOARD SIGNATURE (AS APPLICABLE).  
CHECK WITH PLANNING STAFF FOR CLARIFICATION.**



Greatest Practical Extent Application - Project Description  
6/13/22

65 Mile Stretch, Biddeford ME 04005

This project proposed the renovation of the existing structure located at 65 Mile Stretch Road, an, appoximatey 150 SF addition and replacement subsurface wastewater disposal system. The anticipated cost of the renovation and addition is expected to exceed 50% of assessed value of structure, which triggers a requirement for a replacement foundation to satisfy Maine DEP regulations for sand and water movement, due to the structure's location in the Erosion Hazard Area. The replacement foundation thus triggers the need for the Greatest Practical Extent application. This project seeks to keep the house in it's current location while elevating it to meet DEP standards for Sand and Water movement in order to minimize soil, utility, vegetation and resource disturbance on site. The addition would occur to the west of the existing structure, beyond 25'-0" from the H.A.T. The site is bound by privately the Biddeford Pool to the north, a Right-of-Way and City of Biddeford owned lot to the east, Mile Stretch Road to the south, and a privately owned lot to the west.

**65 Mile Stretch Road, Greatest Practical Extent Application**

Project Address: 65 Mile Stretch Road, Biddeford, ME 04005  
Map 61 Lot 19-1

Dear Members of the Planning Board

As agents for Kate and Derek Nowak, we are presenting 65 Mile Stretch Road for a Greatest Practical Extent Application.

The property is zoned within the Resource Protection (RP) overlay of the Shoreland Zone within the Coastal Residential Zoning (CR). The entirety of the property exists within the RP Overlay. The property is non-conforming due to lot coverage (maximum allowed of 20% versus actual of 24%), minimum street frontage (150'-0" required vs actual of 129.11') and minimum shoreland frontage (150' required vs actual of 140'). The house itself is not conforming due to the setbacks from Highest Annual Tide (minimum required of 75'-0" in the RP overlay versus actual of 3.4' +/-) and side yard setback to the east (minimum of 25'-0" vs actual of 11.7' at the minimum).

The entirety of the property exists within the Back Dune, with a portion of the site and structure falling within the Erosion Hazard Area. The property also falls within the A2 Flood Zone (area of 100-year flood).

Our client's goal is to renovate the house and add a small addition. Erosion Hazard Guidelines from Maine Department of Environmental Protection dictate that if improvements made to the house exceed 50% of the assessed value of the structure, then the structure is to be raised on piers to satisfy requirements for sand and water movement. As piers would be considered a "Replacement Foundation", the project is being presented to the Planning Board for Greatest Practical Extent. Placement on piers per DEP guidelines for Erosion Hazard Zones would also satisfy requirements for the A2 Flood Zone. Our clients goal is to keep the building in its current location, while raising it on piers to meet DPE requirements for sand and water movement. Keeping the house in it's current location would minimize soil, vegetation, utility and resource disturbance to the site as well as keep the building further away from neighbors to the west. A new subsurface wastewater disposal system is proposed as a part of this project, which will replace the existing, cess-pool system. The new system is proposed to be relocated on site to the west of the house due to limited feasible areas on site and to move it as far from the resource as possible. Please reference the included Subsurface Wastewater Disposal System Application.

The property is bound by Mile Stretch Road to the south, a privately owned lot to the west and a R.O.W to the east. Local code determines a 25-foot front and side- yard setbacks. Our client does not propose encroaching further into the side setback than the existing building currently does (11.7' from property line), nor does our client propose encroaching on the front setback. To the north, the property is constrained by the High Water mark (7.4' contour NAVD88) from The Pool. To the east, the property is constrained by the High Water mark (see above) from The Pool. The House is 3.4' at its minimum from this High Water mark; see attached survey for reference. Our client does not propose building beyond this 3.4' mark. While the site is currently non-conforming due to lot coverage; our client does not propose increasing the lot coverage non-conformity. The existing wastewater disposal system (while not noted on the enclosed survey by Northern Survey Engineering ) is located to the West of the house, between the 11'-0 and 11.2' contour marks. The existing system is a cess pool system and is proposed to be replaced as a part of this development. The

# CALEB JOHNSON

## STUDIO

replacement will conform to all state and local regulations. Included in this Application is a Subsurface Wastewater Disposal System Application for the replacement system.

As the structure will require a new foundation, the structure is required to conform to all city and Maine regulations to the greatest practical extent. The attached survey indicates the existing conditions. The City of Biddeford restricts the expansion of a structure's total footprint of all structures within RP Zone within 100'-0" of the H.A.T. to 1,000 sq ft OR 30% larger than the footprint that existed at the time the district was established, whichever is larger. The height for structures within the RP Zone, located less than 75'-0" but greater than 25'-0" is restricted to 20'-0" or the height of the existing structure, whichever is greater. As the building will be raised and placed on piers, a portion of the roof will be removed so that the building does not become taller than what it currently is, as dictated by the Shoreland Ordinance. Building height is measured as the vertical distance between the mean original grade at the downhill side and the highest point of the structure not including chimneys.

Please let me know if you have any questions.

Sincerely,

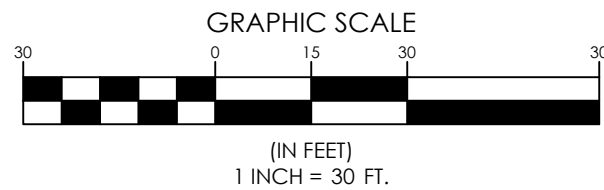
Christopher Garland, AIA on behalf of Caleb Johnson Studio  
207.956.0983  
chris@calebjohnsonstudio.com



RECORDING DATA

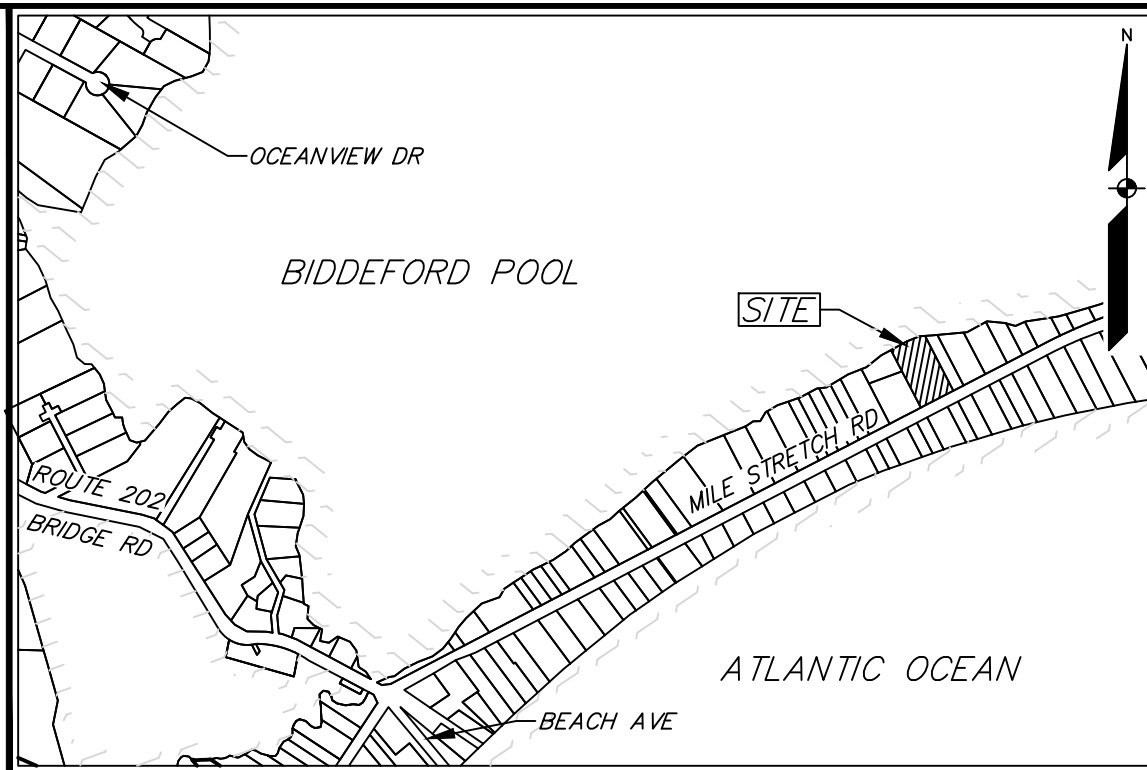
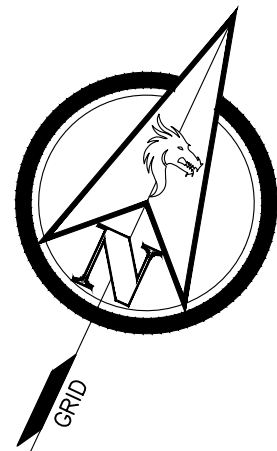
STATE OF MAINE  
YORK COUNTY REGISTRY OF DEEDS  
RECEIVED \_\_\_\_\_  
AT \_\_\_\_\_ h \_\_\_\_\_ m \_\_\_\_\_ M. RECORDED IN \_\_\_\_\_  
FILE NUMBER \_\_\_\_\_  
ATTEST \_\_\_\_\_ REGISTRAR

FOR REGISTRY USE ONLY



LEGEND

- PROPERTY LINE
- ABUTTER LINE
- RIGHT-OF-WAY LINE
- EASEMENT
- BUILDING
- DECK/STEPS
- EDGE PAVEMENT
- EDGE CONCRETE
- PAVEMENT PAINT
- EDGE GRAVEL
- TREELINE
- STOCKADE FENCE
- MAINE GIS SAND DUNE BOUNDARIES
- MAINE GIS SAND DUNE EROSION HAZARD AREA
- N/F NOW OR FORMERLY
- A.G. ABOVE GRADE
- B.G. BELOW GRADE
- IRON PIPE/ROD FOUND
- SURVEY CONTROL



LOCATION MAP

N.T.S.

GENERAL NOTES:

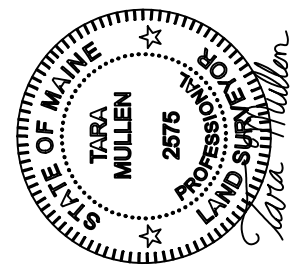
- THE RECORD OWNERS OF THE PARCEL ARE KATHLEEN O'BRIEN NOWAK & DEREK J. NOWAK BY DEED DATED APRIL 18, 2021 AND RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN BOOK 18777, PAGE 513, AND IS SHOWN AS LOT 19-1 ON THE CITY OF BIDDEFORD TAX MAP 61.
- TOTAL AREA OF PARCEL IS APPROXIMATELY 60,000 SF ± (1.4) ACRES ±.
- BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UPON AN ON-THE-GROUND SURVEY COMPLETED BY NORTHERN SURVEY ENGINEERING, LLC IN JANUARYS, 2022.
- BOOK AND PAGE REFERENCES SHOWN HEREON ARE IN REFERENCE TO THE YORK COUNTY REGISTRY OF DEEDS (Y.C.R.D.).
- PLAN REFERENCES:
  - "PLAN OF LAND OF HEIRS OF LAURA ALLISON, IN FLETCHERS NECK, BIDDEFORD, MAINE" BY DESROBERTS ENGINEERING COOPERATION DATED MARCH, 21 1969. RECORDED IN PLAN BOOK 48, PAGE 45.
  - "PLAN OF LOTS ON FLETCHERS NECK, BIDDEFORD, MAINE, NORTH ANDOVER COLONY" BY HORACE HALE SMITH, ENGINEER, DATED OCTOBER 1916. UNRECORDED, ON FILE AT DOW & COULOMBE, INC.
  - "PLAN OF LAND OF JOAN BROWN, BIDDEFORD, MAINE" BY DESROBERTS ENGINEERING CORP, DATED JANUARY 18, 1974, PLAN NO. 8273-1-03. UNRECORDED, ON FILE AT OAK POINT ASSOCIATES.
  - "PLAN OF LAND OF JOAN BROWN, BIDDEFORD, MAINE" BY DESROBERTS ENGINEERING COOPERATION, DATED JANUARY 21, 1974, PLAN NO. 8273-1-02. UNRECORDED, ON FILE AT OAK POINT ASSOCIATES.
  - "UNITED STATES DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, RACHEL CARSON NATIONAL WILDLIFE REFUGE, BIDDEFORD POOL DIVISION, UNITED STATES (TRACT 813) BY MICHAEL J. HAYDEN, PLS 2384, REGIONAL LAND SURVEYOR, DATED JANUARY 31, 2018. UNRECORDED, ON FILE AT U.S. FISH AND WILDLIFE SERVICE.
  - "UNITED STATES DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, RACHEL CARSON NATIONAL WILDLIFE REFUGE, BIDDEFORD POOL DIVISION, JOSEPHINE KILBRIDGE TRACKS (810-1)" BY CHARLES D. MARCHESE, PLS NO 2009, DATED APRIL 15, 1994.
  - "UNITED STATES DEPARTMENT OF THE INTERIOR, FISH AND WILDLIFE SERVICE, RACHEL CARSON NATIONAL WILDLIFE REFUGE, BIDDEFORD POOL DIVISION, CITY OF BIDDEFORD TRACKS (8821, A) MICHAEL J. HAYDEN, PLS 2384, REGIONAL LAND SURVEYOR, DATED AUGUST 3, 2018. UNRECORDED, ON FILE AT U.S. FISH AND WILDLIFE SERVICE.
  - "CRESCENT BEACH PLAN OF CARRIE M JONES, BIDDEFORD, MAINE" BY LIBBY & DOW, ENGRS, DATED JULY 5, 1929. RECORDED IN PLAN BOOK 11, PAGE 29.
- BEARINGS SHOWN HEREON ARE IN REFERENCE TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802-NAD83.
- BOUNDARY NOTES:
  - ABUTTING PROPERTY IS SHOWN AS SEPARATE TAX MAP LOTS (MAP 61, LOT 19 & MAP 99, LOT 99-99. PLAN REF. D AND RECORD CONVEYANCES BOOK 2216, PAGE 36 & BOOK 8156, PAGE 63 INDICATE OWNERSHIP EXTENDS TO THE WATERS OF BIDDEFORD POOL. DETERMINATION OWNERSHIP OF THE ABUTTING PARCELS IS BEYOND THE SCOPE OF THE SURVEY.
  - 65 MILE STRETCH ROAD - SHOWN ON PLAN REF. B AS "POOL ROAD" WITH NO LABELED WIDTH, THE ROAD SCALES TO APPROXIMATELY 33 FT WIDE. PLAN REFS A & D SHOW A WIDTH THAT ALSO SCALES TO APPROXIMATELY 33 FEET WIDE. THIS WIDTH CORRESPONDS WITH MONUMENTS FOUND IN THE FIELD. RECORDS FROM THE CITY OF BIDDEFORD STATE THAT MILE STRETCH ROAD WAS PUBLICLY ACCEPTED AS "BEACH STREET" BY THE CITY OF BIDDEFORD ON APRIL 26, 1880 LISTING A WIDTH OF 3 RODS (BOOK 1, PAGE 175-177). A DOCUMENT PROVIDED BY THE CITY ENTITLED "BEACH STREET AT POOL LOCATION" STATES "THE DESCRIBED CENTERLINE OF SAID STREET TO BE 33 FEET WIDE IN EACH AND EVERY PART". PLAN REF. H SHOWS THE WIDTH AS 49.5 RODS. THE WIDTH OF MILE STRETCH ROAD CAN NOT BE DETERMINED FROM THE AVAILABLE INFORMATION. BEACH ROAD WAS RENAMED TO MILE STRETCH ROAD ON NOVEMBER 20, 1979 BY THE CITY COUNCIL OF BIDDEFORD. THE FRONT SETBACK IS SHOWN USING A THREE ROD WIDTH.
  - 5' ACCESS EASEMENT TO OCEAN; LOCUS PARCEL IS CONVEYED TOGETHER WITH A 5' WIDE EASEMENT IN COMMON WITH OTHERS CREATED BY JOAN BROWN RUNNING ALONG THE SOUTHWEST SIDELINE OF THE PARCEL FROM THE ROAD TO THE OCEAN CONVEYED TO PAUL BENOT ON DECEMBER 30, 1975 (SEE BOOK 2324, PAGE 277). SEE DEED FOR MAP 61, LOT 17-1 FROM CHRISTEN BENOT TO EDITH PAULA MCNABB DATED AUGUST 21, 2015 (BOOK 17084, PAGE 72). LOCATION OF THE 5' EASEMENT IS BEYOND THE SCOPE OF THIS SURVEY.
  - RIGHT OF WAY: PROPERTY IS ABUTTED BY A RIGHT OF WAY AS SHOWN ON PLAN REF. A & B. FEE TITLE WAS CONVEYED TO HANS CHRISTENSEN ON SEPTEMBER 18, 1900 BEING DESCRIBED AS "A PASSAGE WAY RUNNING THREE RODS WIDE (49.5') LEADING FROM SAID ROAD (ROAD LEADING TO BIDDEFORD POOL) TO THE BODY OF WATER KNOWN AS THE POOL TO BE HEREAFTER LOCATED BY SAID JEREMIAH B. BUNKER" SEE BOOK 506, PAGE 371. FEE TITLE APPEARS TO HAVE PASSED TO THE HEIRS OF HANS CHRISTENSEN (SEE PROBATE, BOOK 885, PAGE 59). NO FURTHER REFERENCE TO THE RIGHT OF WAY WAS FOUND. RIGHT OF USE WAS CONVEYED TO JENNIE & HARRY WATTS (SEE BOOK 569, PAGE 31 AND BOOK 569, PAGE 33 BOTH DATED OCTOBER 29, 1907). RIGHTS OF OTHERS MAY EXIST.

SURVEYORS CERTIFICATION:

THIS SURVEY WAS PERFORMED UNDER MY DIRECT SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT WAS DONE IN ACCORDANCE WITH CHAPTER 90, PART 1 (PROFESSIONAL STANDARDS OF PRACTICE) AND PART 2 (TECHNICAL STANDARDS OF PRACTICE) OF THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS.

Tara Mullen  
TARA M. MULLEN, MAINE PLS 2575

3/14/22  
DATE



| REV# | BY  | DATE    | STATUS                                                  |
|------|-----|---------|---------------------------------------------------------|
| 1    | TMM | 3/14/22 | ADDED GIS SAND DUNE LAYERS AND 3.4' FROM H.A.T. SETBACK |

THIS PLAN SHALL NOT BE MODIFIED WITHOUT WRITTEN PERMISSION  
ANY ALTERATIONS, AUTHORIZED OR OTHERWISE, SHALL BE AT THE USER'S SOLE RISK.



207.440.2487  
41 CHURCH ROAD, BETHLEHEM, MAINE 04011  
www.northsurveyengineering.com

RECORD OWNER:  
KATHLEEN O'BRIEN NOWAK  
& DEREK J. NOWAK  
BOOK 18777, PAGE 513

BOUNDARY SURVEY  
OF:  
LAND OF NOWAK & O'BRIEN NOWAK  
65 MILE STRETCH ROAD  
BIDDEFORD, MAINE 04005  
FOR:  
CALEB JOHNSON STUDIO  
110 EXCHANGE STREET  
PORTLAND, MAINE 04101

| DRAWN       | CHECKED  |
|-------------|----------|
| TMM         | SPP      |
| PROJECT NO. | DATE     |
| 21008025    | 2/14/22  |
| SHEET SIZE  | SCALE    |
| 24" X 36"   | 1" = 30' |

SHEET 1 OF 2



RECORDING DATA

STATE OF MAINE  
YORK COUNTY REGISTRY OF DEEDS  
RECEIVED  
AT \_\_\_\_\_ h \_\_\_\_\_ m \_\_\_\_\_ M. RECORDED IN  
FILE NUMBER \_\_\_\_\_  
ATTEST \_\_\_\_\_ REGISTRAR

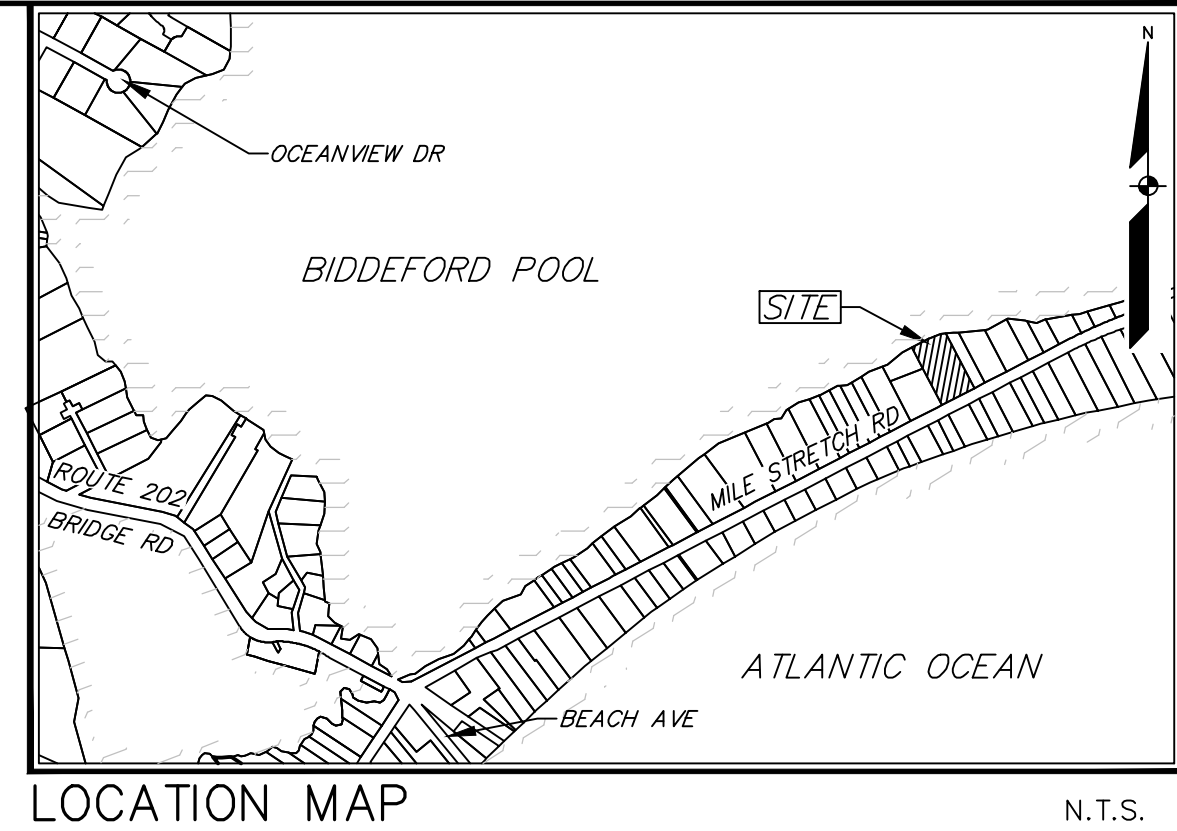
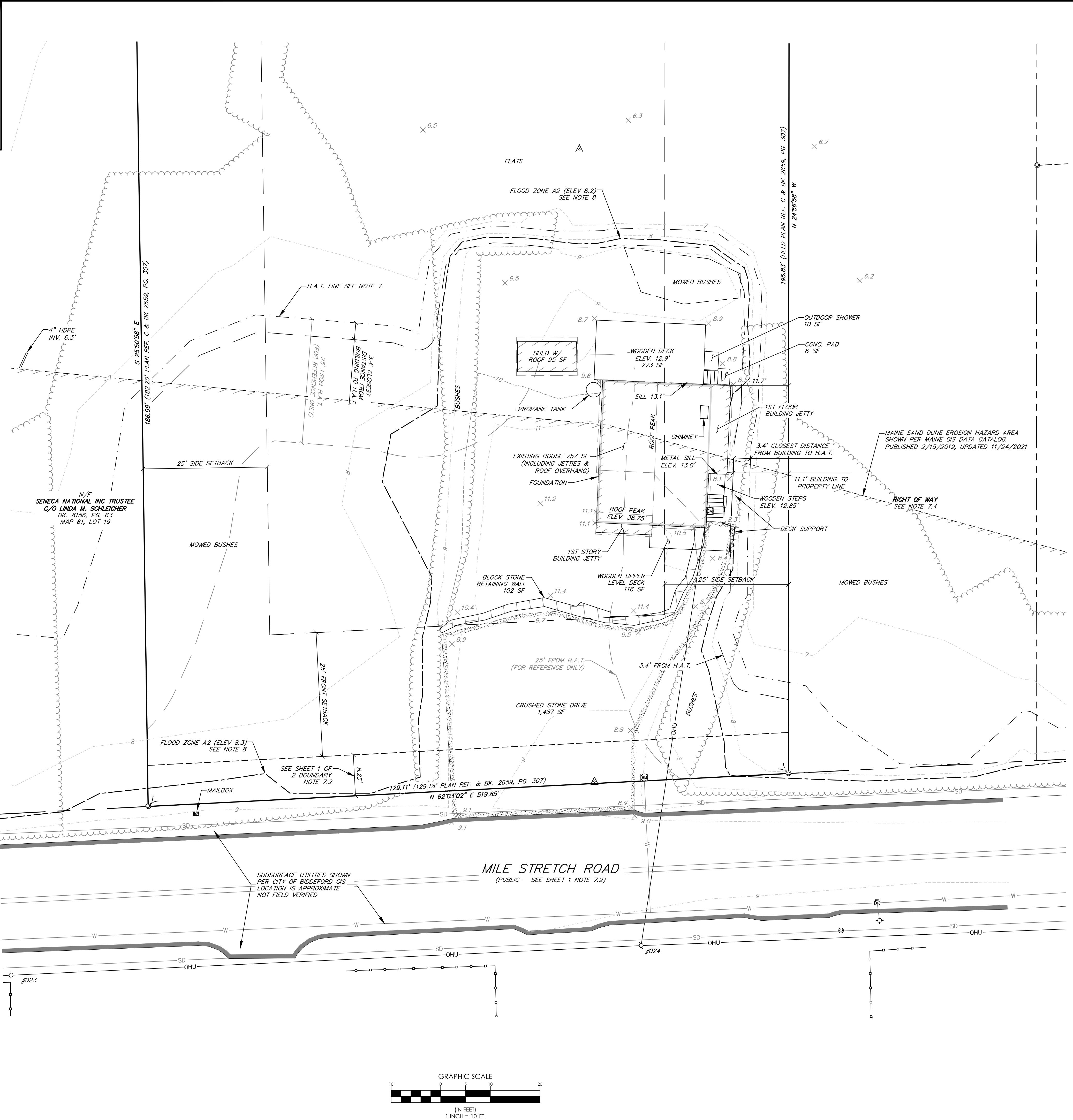
FOR REGISTRY USE ONLY

IMPERVIOUS SURFACES:

|                 |          |
|-----------------|----------|
| UPPER DECK      | 116      |
| DECK            | 273      |
| SHED W/ROOF     | 95       |
| HOUSE           | 757      |
| CONCRETE PAD    | 6        |
| OUTDOOR SHOWER  | 10       |
| STONE DRIVE     | 1487     |
| STONE RET. WALL | 102      |
| TOTAL AREA      | 2,846 SF |

LEGEND

|     |                                         |
|-----|-----------------------------------------|
| --- | PROPERTY LINE                           |
| --- | ABUTTER LINE                            |
| --- | RIGHT-OF-WAY LINE                       |
| --- | SETBACK                                 |
| --- | FLOODPLAIN                              |
| --- | H.A.T. LINE                             |
| --- | BUILDING                                |
| --- | DECK/STEPS                              |
| --- | FOUNDATION                              |
| --- | OVERHANG                                |
| --- | EDGE PAVEMENT                           |
| --- | EDGE CONCRETE                           |
| --- | PAVEMENT PAINT                          |
| --- | EDGE GRAVEL                             |
| --- | TREELINE                                |
| --- | CONTOURS                                |
| --- | SPOT GRADE                              |
| --- | STOCKADE FENCE                          |
| --- | STONE WALL                              |
| --- | OHU - OVERHEAD UTILITY                  |
| --- | W - WATER (PER CITY GIS)                |
| --- | SD - STORM DRAIN (PER CITY GIS)         |
| --- | MAINE GIS SAND DUNE EROSION HAZARD AREA |
| N/F | NOW OR FORMERLY                         |
| ⊙   | IRON PIPE/ROD FOUND                     |
| △   | SURVEY CONTROL                          |
| +   | TP-1 TEST PIT                           |
| ⊗   | WATER GATE VALVE                        |
| ⊕   | WATER SHUT OFF                          |
| ⊙   | HYDRANT                                 |
| ⊙   | WATER MANHOLE                           |
| ⊙   | ELECTRIC METER                          |
| ⊙   | UTILITY POLE                            |
| ⊙   | GUY WIRE                                |



GENERAL NOTES:

- THE RECORD OWNERS OF THE PARCEL ARE KATHLEEN O'BRIEN NOWAK & DEREK J. NOWAK BY DEED DATED APRIL 18, 2021 AND RECORDED AT THE YORK COUNTY REGISTRY OF DEEDS IN BOOK 18777, PAGE 513, AND IS SHOWN AS LOT 19-1 ON THE CITY OF BIDDEFORD TAX MAP 61.
- THE PROPERTY IS LOCATED IN THE COASTAL RESIDENTIAL (CR) ZONE, RESOURCE PROTECTION (RP) OVERLAY & PARTIALLY WITHIN THE EROSION HAZARD AREA & BACK DUNE (MAINE GEOLOGICAL SURVEY). LAND USE REGULATIONS ARE AS FOLLOWS:  
COASTAL RESIDENTIAL (CR):  
MINIMUM LOT SIZE: VARIES PER SOIL PROFILE (ARTICLE V, TABLE C)  
MINIMUM STREET FRONTAGE: 150 FT  
MINIMUM FRONT YARD: MAJOR R.O.W. 40 FT, MINOR R.O.W. 25 FT  
MINIMUM SIDE & REAR YARD: 25 FT\*\*  
MAXIMUM BUILDING HEIGHT: 35 FT/THREE STORIES  
RESOURCE PROTECTION (RP) OVERLAY:  
THERE IS LESS THAN 75 FT BETWEEN THE H.A.T. LINE AND THE ROAD, THE ENTIRE PARCEL IS ENCOMPASSED IN THE RESOURCE PROTECTION OVERLAY. SEE BIDDEFORD SHORELAND ZONING ORDINANCE, SECTION 12 REGARDING EXPANSION OF NON-CONFORMING PROPERTIES.  
MINIMUM LOT SIZE: 30,000 SF (SHORELAND ZONE, TIDAL)  
MINIMUM SHORELAND FRONTAGE: 150 FT  
MAXIMUM BUILDING HEIGHT: 15 FT OR EXISTING (SECTION 12C1b)\*\*\*  
MAXIMUM NON-VEGETATED COVERAGE: 20% (20% OF 60,000 SF = 12,000 SF)  
\*SEE ORDINANCE FOR MORE PARTICULAR INFORMATION. INFORMATION MUST BE VERIFIED WITH THE APPLICABLE REGULATORY PRIOR TO CONSTRUCTION AND SETBACKS DEPICTED ARE FOR INFORMATIONAL PURPOSES ONLY.  
\*\*VARIANCES MAY BE GRANTED UNDER CERTAIN CONDITIONS THAT RESULT IN "A SITUATION WHERE THE SETBACK SHALL BE NO LESS THAN: FRONT YARD 40 FT, SIDE YARD 10 FT." ARTICLE V ESTABLISHMENT OF ZONES, TABLE C NOTES.  
\*\*\*MAXIMUM HEIGHT MAY MOVE TO ANOTHER SECTION OF 12C1 WITH A WETLAND DELINEATION.
- TOTAL AREA OF PARCEL IS APPROXIMATELY 60,000 SF ± (1.4) ACRES ±. AREA ABOVE H.A.T. LINE IS APPROXIMATELY 12,775 SF ±.
- TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UPON AN ON-THE-GROUND SURVEY COMPLETED BY NORTHERN SURVEY ENGINEERING, LLC IN JANUARYS, 2022. SEE SHEET 1 FOR BOUNDARY INFORMATION.
- BEARINGS SHOWN HEREON ARE IN REFERENCE TO GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802-NAD83. ELEVATIONS DEPICTED HEREON ARE IN REFERENCE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), BASED GPS OBSERVATIONS.
- UTILITY INFORMATION DEPICTED HEREON IS COMPILED USING PHYSICAL SURFACE EVIDENCE LOCATED IN THE FIELD IN CONJUNCTION WITH ANY RECORD INFORMATION AVAILABLE AT THE TIME OF THIS SURVEY (SUE LEVEL C), AND MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS AND/OR DESIGNERS NEED TO CONTACT DIG-SAFE SYSTEMS, INC. (1-888-DIG-SAFE) AND FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION AND/OR EXCAVATION.
- HIGHEST ANNUAL TIDE (H.A.T.) IS SHOWN PER THE NATIONAL OCEAN SERVICES (N.O.S.) ELEVATION FOR BIDDEFORD OF 7.4 FEET (NAVD88) AS STATED IN THE CITY OF BIDDEFORD, MAINE, YORK COUNTY, COMMUNITY-PANEL NUMBER 230145.0006.B, HAVING AN EFFECTIVE DATE OF MAY 15, 1984. THE LOCUS FALLS WITHIN AN AREAS IDENTIFIED AS:  
- ZONE C: AREA OF MINIMAL FLOODING  
- ZONE A2: AREAS OF 100-YEAR FLOOD (ELEV. 9 NGVD29, ELEV. 8.3 FT NAVD88),  
- ZONE B: AREAS BETWEEN LIMITS OF 100-YEAR FLOOD AND 500-YEAR FLOOD SEE FIRM PANEL FOR FULL DESCRIPTION.
- THE NEAREST STATION PUBLISHED IN 2018 BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, IN THE VICINITY OF THE SURVEYED PROPERTY IS CAMP ELLIS, SACO RIVER, STATION ID: 8418606 WITH AN ELEVATION 6.6 FEET NAVD88.
- THE LOCUS PROPERTY AS DEPICTED HEREON DOES FALL WITHIN A SPECIAL FLOOD HAZARD AREA AS DELINEATED ON THE FLOOD INSURANCE RATE MAP FOR THE CITY OF BIDDEFORD, MAINE, YORK COUNTY, COMMUNITY-PANEL NUMBER 230145.0006.B, HAVING AN EFFECTIVE DATE OF MAY 15, 1984. THE LOCUS FALLS WITHIN AN AREAS IDENTIFIED AS:  
- ZONE C: AREA OF MINIMAL FLOODING  
- ZONE A2: AREAS OF 100-YEAR FLOOD (ELEV. 9 NGVD29, ELEV. 8.3 FT NAVD88),  
- ZONE B: AREAS BETWEEN LIMITS OF 100-YEAR FLOOD AND 500-YEAR FLOOD SEE FIRM PANEL FOR FULL DESCRIPTION.

SURVEYORS CERTIFICATION:

THIS SURVEY WAS PERFORMED UNDER MY DIRECT SUPERVISION AND TO THE BEST OF MY KNOWLEDGE AND BELIEF, IT WAS DONE IN ACCORDANCE WITH CHAPTER 90, PART 1 (PROFESSIONAL STANDARDS OF PRACTICE) AND PART 2 (TECHNICAL STANDARDS OF PRACTICE) OF THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS.

Tara Mullen

3/29/22

TARA M. MULLEN, MAINE PLS 2575

DATE

TOPOGRAPHIC SURVEY

OF:  
LAND OF NOWAK & O'BRIEN NOWAK  
65 MILE STRETCH ROAD  
BIDDEFORD, MAINE 04005

FOR:  
CALEB JOHNSON STUDIO  
110 EXCHANGE STREET  
PORTLAND, MAINE 04101

RECORD OWNER:  
KATHLEEN O'BRIEN NOWAK  
DEREK J. NOWAK  
BOOK 18777, PAGE 513

RECORD BY: DATE: STATUS:  
THIS PLAN SHALL NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT WRITTEN PERMISSION FROM THE SURVEYOR. ANY ALTERATIONS, UNAUTHORIZED BY OTHERS, SHALL BE AT THE USER'S SOLE RISK.

|   |     |         |                                                         |
|---|-----|---------|---------------------------------------------------------|
| 1 | TMM | 3/14/22 | ADDED GIS SAND DUNE LAYERS AND 3.4' FROM H.A.T. SETBACK |
| 2 | TMM | 3/29/22 | REVISED LOT COVERAGE TO INCLUDE ROOF OVERHANGS          |

REVI BY: DATE: STATUS:  
THIS PLAN SHALL NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT WRITTEN PERMISSION FROM THE SURVEYOR. ANY ALTERATIONS, UNAUTHORIZED BY OTHERS, SHALL BE AT THE USER'S SOLE RISK.

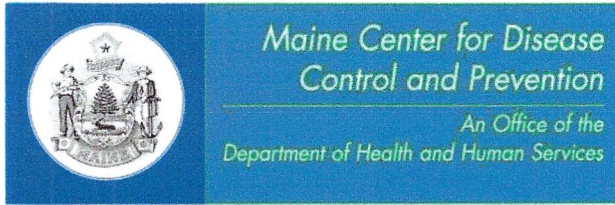
NORSE

NORTHERN SURVEY ENGINEERING & DESIGN  
NORSE has joined Collins Engineering & Design

207.440.3487  
41 CHURCH ROAD, BRUNSWICK, MAINE 04001  
www.northernsurveyengineering.com

SHEET 2 OF 2





Department of Health and Human Services  
Maine Center for Disease Control and Prevention  
286 Water Street  
# 11 State House Station  
Augusta, Maine 04333-0011  
Tel: (207) 287-5672  
Fax: (207) 287-4172; TTY: 1-800-606-0215

## SUBSURFACE WASTEWATER DISPOSAL SYSTEM VARIANCE REQUEST

This form must accompany an application (HHE-200 Form) for any subsurface wastewater disposal system which requires a variance to provisions of the Subsurface Wastewater Disposal Rules. The Local Plumbing Inspector must not issue a permit for the installation of a subsurface wastewater disposal system requiring a variance from the Department of Health and Human Services until approval has been received from the Department.

### GENERAL INFORMATION

Town of Biddeford

Property Owner's Name: N/F Nowak Tel. No.: \_\_\_\_\_

System's Location: 65 Mile Stretch Road

Property Owner's Address: c/o Chris Garland, Caleb Johnson Studio, 110 Exchange St, Portland, ME Zip Code: 04101

e-mail address: \_\_\_\_\_

The subsurface wastewater disposal system design for the subject property requires a ☒ replacement system variance ☐ first time system variance to the Subsurface Wastewater Disposal Rules. This variance requires ☒ local approval ☐ local and state approval.

### SPECIFIC VARIANCE REQUESTED (To be filled in by Site Evaluator. Use additional sheets if needed.)

### SECTION OF RULE

1. See Sheet Attached
2. \_\_\_\_\_
3. \_\_\_\_\_

8  
\_\_\_\_\_  
\_\_\_\_\_

### SITE EVALUATOR

When a property is found to be unsuitable for subsurface wastewater disposal by a licensed Site Evaluator, the Evaluator shall so inform the property owner. If the property owner, after exploring all other alternatives, wishes to request a variance to the Rules, and the Evaluator in his professional opinion feels the variance request is justified and the site limitations can be overcome, he shall document the soil and site conditions on the Application. The Evaluator shall list the specific variances necessary plus describe below the proposed system design and function. The Evaluator shall further describe how the specific site limitations are to be overcome, and provide any other support documentation as required prior to consideration by the Department. Attach a separate sheet if necessary.

I, Brady Frick, S.E., certify that a variance to the Rules is necessary since a system cannot be installed which will completely satisfy all the Rule requirements. In my judgment, the proposed system design on the attached Application is the best alternative available; enhances the potential of the site for subsurface wastewater disposal; and that the system should function properly.

Brady Frick  
SIGNATURE OF SITE EVALUATOR

6/6/22  
DATE

### PROPERTY OWNER

I, \_\_\_\_\_, am the ☐ owner ☐ agent for the owner of the subject property. I understand that the installation on the Application is not in total compliance with the Rules. Should the proposed system malfunction, I release all concerned provided they have performed their duties in a reasonable and proper manner, and I will promptly notify the Local Plumbing Inspector and make any corrections required by the Rules. By signing the variance request form, I acknowledge permission for representatives of the Department to enter onto the property to perform such duties as may be necessary to evaluate the variance request.

☐ SIGNATURE OF OWNER  
☐ AGENT FOR THE OWNER

\_\_\_\_\_  
DATE

**LOCAL PLUMBING INSPECTOR - Approval at local level**

The local plumbing inspector shall review all variance requests prior to rendering a decision.

I, \_\_\_\_\_, the undersigned, have visited the above property and find that the variance request submitted by the applicant does not conform with certain provisions of the wastewater disposal rules. The variance request submitted by the applicant is the best alternative for a subsurface wastewater disposal system on this property. The proposed system ( ☐ does ☐ does not) conflict with any provisions controlling subsurface wastewater disposal in the shoreland zone. Therefore, I ( ☐ do ☐ do not) approve the requested variance. I ( ☐ will ☐ will not) issue a permit for the system's installation as proposed by the application.

\_\_\_\_\_  
LPI Signature

\_\_\_\_\_  
Date

**LOCAL PLUMBING INSPECTOR - Referral to the Department**

The local plumbing inspector shall review all variance requests prior to forwarding to the Division of Environmental Health.

I, \_\_\_\_\_, the undersigned, have visited the above property and find that the variance request submitted by the applicant does not conform with certain provisions of the wastewater disposal rules. The variance request submitted by the applicant is the best alternative for a subsurface wastewater disposal system on this property. The proposed system ( ☐ does ☐ does not) conflict with any provisions controlling subsurface wastewater disposal in the shoreland zone. Therefore, I ( ☐ do ☐ do not) recommend the issuance of a permit for the system's installation as proposed by the application.

\_\_\_\_\_  
LPI Signature

\_\_\_\_\_  
Date

**FOR USE BY THE DEPARTMENT ONLY**

The Department has reviewed the variance(s) and ( ☐ does ☐ does not) give its approval. Any additional requirements, recommendations, or reasons for the Variance denial, are given in the attached letter.

\_\_\_\_\_  
SIGNATURE OF THE DEPARTMENT

\_\_\_\_\_  
DATE

Notes: 1. Variances for soil conditions may be approved at the local level as long as the total point assessment is at least the minimum allowed. (See Section 7.B.4 of the Subsurface Wastewater Disposal Rules for Municipal Review.)

2. Variances for other than soil conditions or soil conditions beyond the limit of the LPI's authority are to be submitted to the Department for review. (See Section 7.B.3 for Department Review.) The LPI's signature is required on these variance requests prior to sending them to the Department.

**SOIL, SITE AND ENGINEERING FACTORS FOR FIRST TIME SYSTEM VARIANCE ASSESSMENT  
WITH LIMITING SOIL DRAINAGE CONDITIONS (SEE TABLES 7C THROUGH 7M).**

|                                        | CHARACTERISTIC | POINT ASSESSMENT |
|----------------------------------------|----------------|------------------|
| Soil Profile                           |                |                  |
| Depth to Groundwater/Restrictive Layer |                |                  |
| Terrain                                |                |                  |
| Size of Property                       |                |                  |
| Waterbody Setback                      |                |                  |
| Water Supply                           |                |                  |
| Type of Development                    |                |                  |
| Disposal Area Adjustment               |                |                  |
| Vertical Separation Distance           |                |                  |
| Additional Treatment                   |                |                  |
| TOTAL POINT ASSESSMENT:                |                |                  |

Minimum Points (Check One): ☐ Outside Shoreland Zone-50 ☐ Inside Shoreland Zone-65 ☐ Subdivision-65



**DISPOSAL SYSTEM VARIANCE REQUEST ATTACHMENT****Table 8A****Setback Distances for Replacement System, Limits of LPI Authority**

| VARIANCE CATEGORY                                                                                                                                       | LIMIT OF LPI'S APPROVAL AUTHORITY   |                         |                         |                                                    |                        |                        | VARIANCE REQUESTED TO: |              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|-------------------------|-------------------------|----------------------------------------------------|------------------------|------------------------|------------------------|--------------|
| SOILS                                                                                                                                                   |                                     |                         |                         |                                                    |                        |                        |                        |              |
| Soil Profile                                                                                                                                            | Ground Water Table                  |                         |                         |                                                    |                        |                        | inches                 |              |
| Soil Condition                                                                                                                                          | Restrictive Layer                   |                         |                         |                                                    |                        |                        | inches                 |              |
| from HHE-200                                                                                                                                            | Bedrock                             |                         |                         |                                                    |                        |                        | inches                 |              |
| Site Features vs. disposal system components of various sizes                                                                                           | Disposal Fields (total design flow) |                         |                         | Septic Tanks and Holding Tanks (total design flow) |                        |                        | Disposal Fields        | Septic Tanks |
|                                                                                                                                                         | Less than 1000 gpd                  | 1000 to 2000 gpd        | Over 2000 gpd           | Less than 1000 gpd                                 | 1000 to 2000 gpd       | Over 2000 gpd          | To                     | To           |
| Wells with water usage of 2000 or more gpd or public water supply wells                                                                                 | 300 ft                              | 300 ft                  | 300 ft                  | 150 ft                                             | 150 ft                 | 150 ft                 |                        |              |
| Potable Supply Well                                                                                                                                     | 100 down to 60 ft                   | 200 down to 100 ft      | 300 down to 150 ft      | 50 down to 25 ft [a]                               | 100 down to 50 ft [a]  | 100 down to 50 ft      |                        |              |
| Water supply line                                                                                                                                       | 10 ft                               | 20 ft                   | 25 ft                   | 10 ft                                              | 10 ft                  | 10 ft                  |                        |              |
| Water course, major [c]                                                                                                                                 | 100 down to 50 ft                   | 200 down to 120 ft      | 300 down to 180 ft      | 100 down to 25 ft [a]                              | 100 down to 50 ft      | 100 down to 50 ft      | 50.5'                  | 25' min      |
| Water course, minor [c]                                                                                                                                 | 50 down to 25 ft                    | 100 down to 50 ft       | 150 down to 75 ft       | 50 down to 25 ft                                   | 50 down to 25 ft       | 50 down to 25 ft       |                        |              |
| Drainage ditches                                                                                                                                        | 25 down to 12 ft                    | 50 down to 25 ft        | 75 down to 35 ft        | 25 down to 12 ft                                   | 25 down to 12 ft       | 25 down to 12 ft       |                        |              |
| Slopes greater than 3:1                                                                                                                                 | 10 ft                               | 18 ft                   | 25 ft                   | N/A                                                | N/A                    | N/A                    |                        |              |
| No full basement [e.g. slab, columns, posts]                                                                                                            | 15 down to 7 ft                     | 30 down to 15 ft        | 40 down to 20 ft        | 8 down to 5 ft                                     | 14 down to 7 ft        | 20 down to 10 ft       |                        |              |
| Full basement [below grade foundation, frost wall]                                                                                                      | 20 down to 10 ft                    | 30 down to 15 ft        | 40 down to 20 ft        | 8 down to 5 ft                                     | 14 down to 7 ft        | 20 down to 10 ft       |                        |              |
| Property lines                                                                                                                                          | 10 down to 5 ft [b]                 | 18 down to 9 ft [b]     | 20 down to 10 ft [b]    | 10 down to 4 ft [b]                                | 15 down to 7 ft [b]    | 20 down to 10 ft [b]   |                        |              |
| Burial sites or graveyards boundaries, measured from the down toe of the fill extension                                                                 | 25 ft                               | 25 ft                   | 25 ft                   | 25 ft                                              | 25 ft                  | 25 ft                  |                        |              |
| Stormwater infiltration systems                                                                                                                         | 100 down to 60 feet                 | 200 down to 120 feet    | 300 down to 180 feet    | 100 down to 50 feet                                | 100 down to 50 feet    | 100 down to 50 feet    |                        |              |
| Wetponds, retention ponds, and detention basins (excavated below grade); Soil filters underdrained swales, underdrained outlets, and similar structures | 50 down to 25 feet [d]              | 100 down to 50 feet [d] | 150 down to 75 feet [d] | 50 down to 25 feet [d]                             | 50 down to 25 feet [d] | 50 down to 25 feet [d] |                        |              |
| Stormwater detention basins (basin bottom at, or above, predevelopment grade)                                                                           | 25 down to 12 feet                  | 50 down to 25 feet [d]  | 75 down to 35 feet [d]  | 25 down to 12 feet                                 | 25 down to 12 feet     | 25 down to 12 feet     |                        |              |
| <b>OTHER</b>                                                                                                                                            |                                     |                         |                         |                                                    |                        |                        |                        |              |
| 1. _____                                                                                                                                                |                                     |                         |                         |                                                    |                        |                        |                        |              |
| 2. _____                                                                                                                                                |                                     |                         |                         |                                                    |                        |                        |                        |              |
| 3. _____                                                                                                                                                |                                     |                         |                         |                                                    |                        |                        |                        |              |

**Notes:**

[a] This distance may be reduced to 25 feet, if the septic or holding tank is tested in the LPI's presence and shown to be watertight pursuant to water tightness standards found in Section 6(H)(8) or of monolithic construction.

[b] Additional setbacks may be needed to prevent fill material extensions from encroaching onto abutting property.

[c] All ground disturbance or clearing of woody vegetation necessary for the installation of a subsurface wastewater disposal system that occurs within 100 feet of the normal high water mark of a major or minor water body/course must comply with these Rules pertaining to work adjacent to or within wetlands and water bodies (for more details, see Section 12).

[d] The reduced setback distance may be further reduced down to 12 feet if the stormwater structure has an impervious liner and the fill extensions do not encroach onto the stormwater structure.



# SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services  
Div of Environmental Health, 11 SHS  
(207) 287-2070 FAX (207) 287-4172

| PROPERTY LOCATION                                                                                                                                                                                                  |                                                                                        | >>CAUTION: LPI APPROVAL REQUIRED<<                                                                                                                                                                                                                                                                  |                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| City, Town, or Plantation                                                                                                                                                                                          | BIDDEFORD                                                                              | Town/City _____                                                                                                                                                                                                                                                                                     | Permit # _____                         |
| Street or Road                                                                                                                                                                                                     | 65 MILE STRETCH ROAD                                                                   | Date Permit Issued ___/___/___                                                                                                                                                                                                                                                                      | Fee \$ _____ Double Fee Charged [ ]    |
| Subdivision, Lot #                                                                                                                                                                                                 |                                                                                        | L.P.I.# _____                                                                                                                                                                                                                                                                                       |                                        |
| OWNER/APPLICANT INFORMATION                                                                                                                                                                                        |                                                                                        | Local Plumbing Inspector Signature _____                                                                                                                                                                                                                                                            |                                        |
| Name (last, first, MI)                                                                                                                                                                                             | N/F NOWAK                                                                              | Fee \$ _____ State Fee _____                                                                                                                                                                                                                                                                        | Fee \$ _____ Locally Adopted Fee _____ |
|                                                                                                                                                                                                                    | <input checked="" type="checkbox"/> Owner<br><input type="checkbox"/> Applicant        | Copy: [ ] Owner [ ] Town [ ] State                                                                                                                                                                                                                                                                  |                                        |
| Mailing Address of Applicant                                                                                                                                                                                       | CALEB JOHNSON STUDIO<br>c/o CHRIS GARLAND<br>110 EXCHANGE STREET<br>PORTLAND, ME 04101 | The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules. |                                        |
| Daytime Tel. #                                                                                                                                                                                                     | 956-0983                                                                               |                                                                                                                                                                                                                                                                                                     |                                        |
| Municipal Tax Map # <u>61</u> Lot # <u>19-1</u>                                                                                                                                                                    |                                                                                        |                                                                                                                                                                                                                                                                                                     |                                        |
| OWNER OR APPLICANT STATEMENT                                                                                                                                                                                       |                                                                                        | CAUTION: INSPECTION REQUIRED                                                                                                                                                                                                                                                                        |                                        |
| I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a permit. |                                                                                        | I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.                                                                                                                                                      |                                        |
|                                                                                                                                                                                                                    |                                                                                        |                                                                                                                                                                                                                                                                                                     |                                        |
| Signature of Owner/Applicant _____ Date _____                                                                                                                                                                      |                                                                                        | Local Plumbing Inspector Signature _____ (1st) Date Approved _____                                                                                                                                                                                                                                  |                                        |
| Date _____                                                                                                                                                                                                         |                                                                                        | (2nd) Date Approved _____                                                                                                                                                                                                                                                                           |                                        |

## PERMIT INFORMATION

| TYPE OF APPLICATION                                                                                                                                                                                                                                                                                                                                                                                                                    | THIS APPLICATION REQUIRES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DISPOSAL SYSTEM COMPONENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> 1. First Time System<br><input checked="" type="checkbox"/> 2. Replacement System<br>Type Replaced: UNKNOWN<br>Year Installed: UNKNOWN<br><input checked="" type="checkbox"/> 3. Expanded System<br><input checked="" type="checkbox"/> a. <25% Expansion<br><input type="checkbox"/> b. >25% Expansion<br><input type="checkbox"/> 4. Experimental System<br><input type="checkbox"/> 5. Seasonal Conversion | <input type="checkbox"/> 1.No Rule Variance<br><input type="checkbox"/> 2.First Time System Variance<br><input type="checkbox"/> a. Local Plumbing Inspector Approval<br><input type="checkbox"/> b. State & Local Plumbing Inspector Approval<br><input checked="" type="checkbox"/> 3.Replacement System Variance<br><input checked="" type="checkbox"/> a. Local Plumbing Inspector Approval<br><input type="checkbox"/> b. State & Local Plumbing Inspector Approval<br><input type="checkbox"/> 4.Minimum Lot Size Variance<br><input type="checkbox"/> 5.Seasonal Conversion Permit | <input checked="" type="checkbox"/> 1. Complete Non-Engineered System<br><input type="checkbox"/> 2. Primitive System(graywater & alt toilet)<br><input type="checkbox"/> 3. Alternative Toilet, specify: _____<br><input type="checkbox"/> 4. Non-Engineered Treatment Tank (only)<br><input type="checkbox"/> 5. Holding Tank, _____ gallons<br><input type="checkbox"/> 6. Non-Engineered Disposal Field (only)<br><input type="checkbox"/> 7. Separated Laundry System<br><input type="checkbox"/> 8. Complete Engineered System(2000gpd+)<br><input type="checkbox"/> 9. Engineered Treatment Tank (only)<br><input type="checkbox"/> 10. Engineered Disposal Field (only)<br><input checked="" type="checkbox"/> 11. Pre-treatment, specify: SINGLAIR GREEN OR EQUIVALENT<br><input type="checkbox"/> 12. Miscellaneous components |
| SIZE OF PROPERTY                                                                                                                                                                                                                                                                                                                                                                                                                       | DISPOSAL SYSTEM TO SERVE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | TYPE OF WATER SUPPLY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 1.15 +/- <input type="checkbox"/> SQ. FT.<br><input checked="" type="checkbox"/> ACRES                                                                                                                                                                                                                                                                                                                                                 | <input checked="" type="checkbox"/> 1. Single Family Dwelling Unit, No. of Bedrooms: <u>4</u><br><input type="checkbox"/> 2. Multiple Family Dwelling, No of Units: _____<br><input type="checkbox"/> 3. Other: _____ (specify)<br>Current Use <input type="checkbox"/> Seasonal <input checked="" type="checkbox"/> Year Round <input type="checkbox"/> Undeveloped                                                                                                                                                                                                                      | <input type="checkbox"/> 1. Drilled Well <input type="checkbox"/> 2. Dug Well <input type="checkbox"/> 3. Private<br><input checked="" type="checkbox"/> 4. Public <input type="checkbox"/> 5. Other: _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| SHORELAND ZONING                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

## DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

| TREATMENT TANK                                                                                                                                                                                                                                                                                    | DISPOSAL FIELD TYPE & SIZE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | GARBAGE DISPOSAL UNIT                                                                                                                                                                                                                                                                                                                                                       | DESIGN FLOW                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NOT APPLICABLE WITH SINGLAIR<br><input type="checkbox"/> 1. Concrete<br><input type="checkbox"/> a. Regular<br><input type="checkbox"/> b. Low Profile<br><input type="checkbox"/> 2. Plastic<br><input type="checkbox"/> 3. Other: _____<br>CAPACITY: _____ GAL.<br>NOT APPLICABLE WITH SINGLAIR | <input type="checkbox"/> 1. Stone Bed <input type="checkbox"/> 2. Stone Trench<br><input checked="" type="checkbox"/> 3. Proprietary Device<br><input checked="" type="checkbox"/> a. Cluster array <input type="checkbox"/> c.Linear<br><input type="checkbox"/> b. Regular <input checked="" type="checkbox"/> d. H-20 loaded<br><input type="checkbox"/> 4. Other: _____<br>SIZE: <u>576</u> <input checked="" type="checkbox"/> sq. ft. <input type="checkbox"/> lin. ft.<br>9 H-20 RATED CONCRETE CHAMBER UNITS | <input checked="" type="checkbox"/> 1. No <input type="checkbox"/> 2. Yes <input type="checkbox"/> 3. Maybe<br>If Yes or Maybe, specify one below:<br><input type="checkbox"/> a. Multi-compartment tank<br><input type="checkbox"/> b. _____ tanks in series<br><input type="checkbox"/> c. Increase in tank capacity<br><input type="checkbox"/> d. Filter on tank outlet | 360 gallons per day<br>BASED ON:<br><input checked="" type="checkbox"/> 1. Table 4A (dwelling unit(s))<br><input type="checkbox"/> 2. Table 4C (other facilities)<br>SHOW CALCULATIONS for other facilities<br>EXISTING 3 BEDROOMS<br>PROPOSED EXPANSION TO 4 BEDROOMS AT 90 GALLONS PER DAY EACH<br>50% REDUCTION WITH ADVANCED TREATMENT<br><input type="checkbox"/> 3. Section 4G (meter readings)<br>ATTACH WATER-METER DATA |
| SOIL DATA & DESIGN CLASS                                                                                                                                                                                                                                                                          | DISPOSAL FIELD SIZING                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | EFFLUENT/EJECTOR PUMP                                                                                                                                                                                                                                                                                                                                                       | LATITUDE AND LONGITUDE                                                                                                                                                                                                                                                                                                                                                                                                           |
| PROFILE CONDITION<br><u>11 / C</u><br>at Observation Hole # <u>TP 1</u><br>Depth <u>15</u> "<br>of Most Limiting Soil Factor                                                                                                                                                                      | <input checked="" type="checkbox"/> 1. Medium - 2.6 sq.ft./gpd<br><input type="checkbox"/> 2. Medium-Large - 3.3 sq.ft./gpd<br><input type="checkbox"/> 3. Large - 4.1 sq.ft./gpd<br><input type="checkbox"/> 4. Extra-Large - 5.0 sq.ft./gpd                                                                                                                                                                                                                                                                        | <input type="checkbox"/> 1. Not required<br><input checked="" type="checkbox"/> 2. May be required<br><input type="checkbox"/> 3. Required<br>Specify only for engineered systems:<br>SEE NOTE ON PAGE 3<br>DOSE: _____ gallons                                                                                                                                             | at center of disposal area<br>Lat. <u>N43</u> d <u>26</u> m <u>25.00</u> s<br>Lon. <u>W70</u> d <u>21</u> m <u>38.43</u> s<br>If g.p.s., state margin of error _____                                                                                                                                                                                                                                                             |

## SITE EVALUATOR STATEMENT

I certify that on 6-3-22 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the Subsurface Wastewater Disposal Rules (10-144A CMR 241)

|                                               |                                    |                                        |
|-----------------------------------------------|------------------------------------|----------------------------------------|
| Site Evaluator Signature<br>                  | 352<br>SE #                        | Date<br><u>6/6/22</u>                  |
| BRADY A. FRICK<br>Site Evaluator Name Printed | (207) 839-5563<br>Telephone Number | INFO@ALBERTFRICK.COM<br>E-mail Address |

ALBERT FRICK ASSOCIATES - 731 FOSS ROAD, LIMERICK, MAINE 04048 - (207) 839-5563

Note: Changes to or deviations from the design should be confirmed with the Site Evaluator

# SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health and Human Services  
Division of Environmental Health  
(207) 287-2070 FAX (207) 287-4172

|                                                                                                                                                                                                                                                                    |                                                         |                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|--------------------------------------------------------------------|
| Town, City, Plantation<br><b>BIDDEFORD</b>                                                                                                                                                                                                                         | Street, Road Subdivision<br><b>65 MILE STRETCH ROAD</b> | Owner's Name<br><b>N/F NOWAK</b>                                   |
| **ALBERT FRICK ASSOCIATES ARE NOT SURVEYORS**<br>PROPERTY INFORMATION APPROXIMATED PER SURVEY<br>PLAN BY NORSE ENGINEERS DATED 2-14-22,<br>TOWN TAX MAP AND AERIAL PHOTOGRAPH<br>VERIFY PROPERTY LINES TO ASSURE ACCURATE<br>LOCATION PRIOR TO SYSTEM INSTALLATION | SITE PLAN<br>Scale 1" = <u>50</u> Ft.<br>or as shown    | SITE LOCATION PLAN<br>(Attach Map from Maine<br>Atlas Recommended) |

| SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)                                                                                          |            |             |              |                                                                                                                                                               |                                           |         |             |       |          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|---------|-------------|-------|----------|
| Observation Hole <u>TP 1</u> <input checked="" type="checkbox"/> Test Pit <input type="checkbox"/> Boring<br>" Depth of Organic Horizon Above Mineral Soil               |            |             |              | Observation Hole <u>          </u> <input type="checkbox"/> Test Pit <input type="checkbox"/> Boring<br>" Depth of Organic Horizon Above Mineral Soil         |                                           |         |             |       |          |
| DEPTH BELOW MINERAL SOIL SURFACE (inches)                                                                                                                                | Texture    | Consistency | Color        | Mottling                                                                                                                                                      | DEPTH BELOW MINERAL SOIL SURFACE (inches) | Texture | Consistency | Color | Mottling |
| 0                                                                                                                                                                        | LOAMY SAND |             | DARK BROWN   |                                                                                                                                                               | 0                                         |         |             |       |          |
| 10                                                                                                                                                                       | SAND       | FRIABLE     | YELLOW BROWN |                                                                                                                                                               | 10                                        |         |             |       |          |
| 20                                                                                                                                                                       |            |             | PALE BROWN   | FEW, FAINT                                                                                                                                                    | 20                                        |         |             |       |          |
| 30                                                                                                                                                                       |            |             |              |                                                                                                                                                               | 30                                        |         |             |       |          |
| 40                                                                                                                                                                       |            |             |              |                                                                                                                                                               | 40                                        |         |             |       |          |
| 50                                                                                                                                                                       |            |             |              |                                                                                                                                                               | 50                                        |         |             |       |          |
| Soil Classification<br>Profile <u>11</u> Condition <u>C</u> Slope <u>0-3</u> % Limiting Factor <u>15</u>                                                                 |            |             |              | Soil Classification<br>Profile <u>          </u> Condition <u>          </u> Slope <u>          </u> % Limiting Factor <u>          </u>                      |                                           |         |             |       |          |
| <input checked="" type="checkbox"/> Ground Water<br><input type="checkbox"/> Restrictive Layer<br><input type="checkbox"/> Bedrock<br><input type="checkbox"/> Pit Depth |            |             |              | <input type="checkbox"/> Ground Water<br><input type="checkbox"/> Restrictive Layer<br><input type="checkbox"/> Bedrock<br><input type="checkbox"/> Pit Depth |                                           |         |             |       |          |

Site Evaluator Signature

352  
SE \*

Date

Page 2 of 3  
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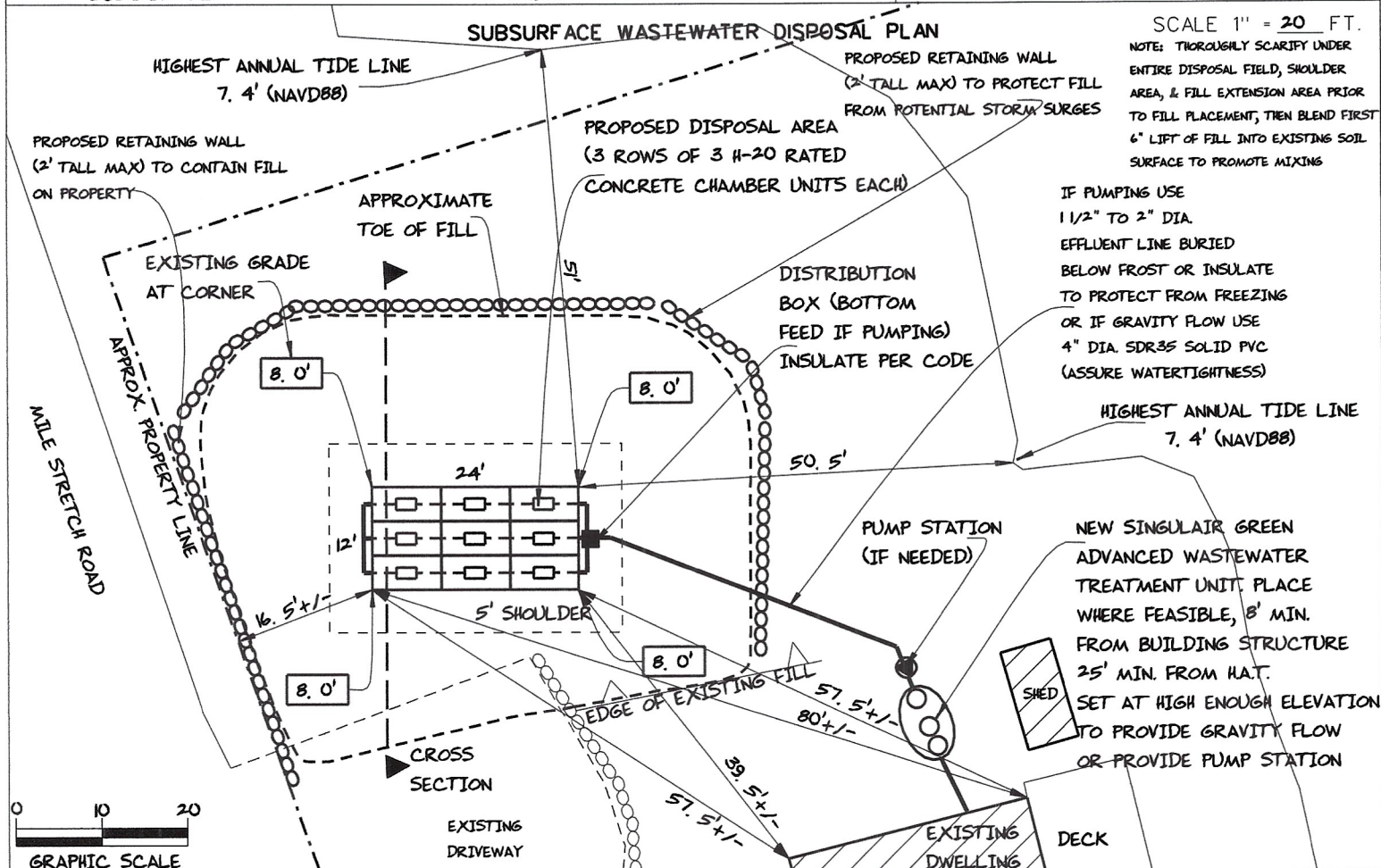
# SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health and Human Services  
Division of Environmental Health  
(207) 287-2070 FAX (207) 287-4172

Town, City, Plantation  
**BIDDEFORD**

Street, Road, Subdivision  
**65 MILE STRETCH ROAD**

Owner's Name  
**N/F NOWAK**



SCALE 1" = 20 FT.  
NOTE: THOROUGHLY SCARIFY UNDER ENTIRE DISPOSAL FIELD, SHOULDER AREA, & FILL EXTENSION AREA PRIOR TO FILL PLACEMENT, THEN BLEND FIRST 6" LIFT OF FILL INTO EXISTING SOIL SURFACE TO PROMOTE MIXING

IF PUMPING USE 1 1/2" TO 2" DIA. EFFLUENT LINE BURIED BELOW FROST OR INSULATE TO PROTECT FROM FREEZING OR IF GRAVITY FLOW USE 4" DIA. SDR35 SOLID PVC (ASSURE WATERTIGHTNESS)

HIGHEST ANNUAL TIDE LINE 7.4' (NAVD88)

## FILL REQUIREMENTS

Depth of Fill (Upslope) : 45"  
Depth of Fill (Downslope) : 45"  
DEPTHS AT CROSS-SECTION (shown below)

## CONSTRUCTION ELEVATIONS

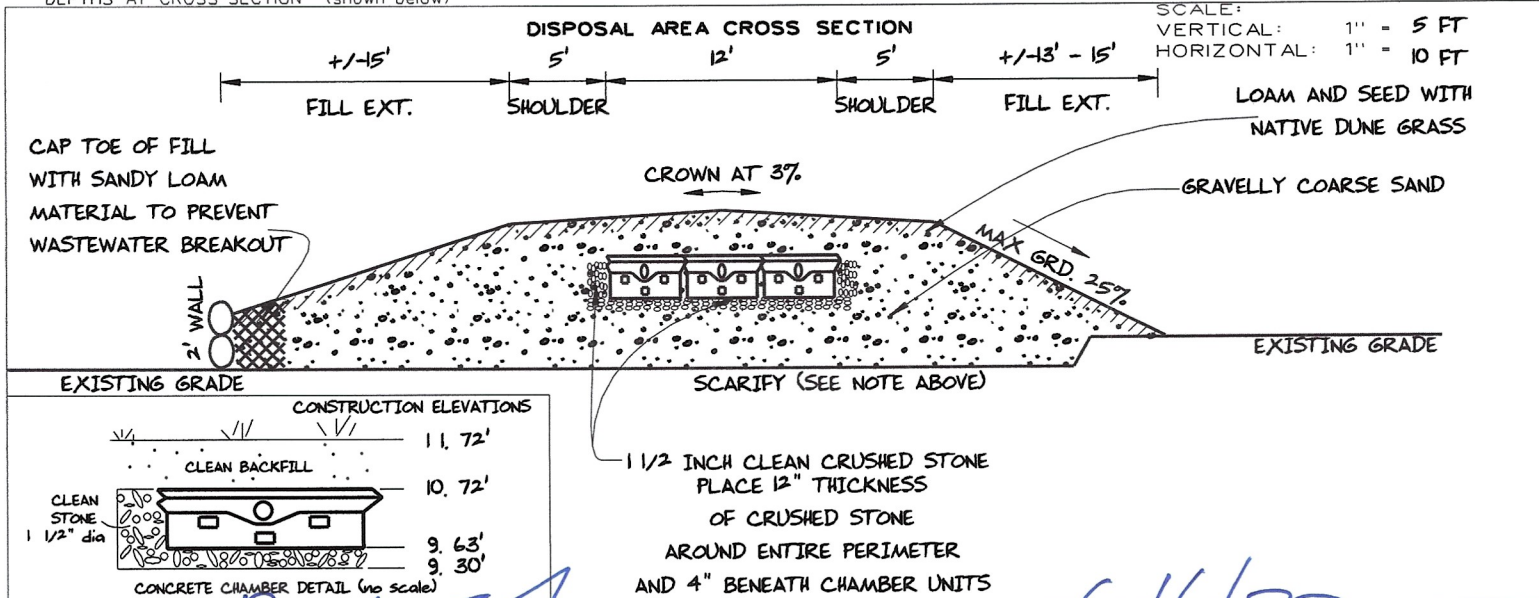
Finished Grade Elevation  
Top of Distribution Pipe or Proprietary Device  
Bottom of Disposal Area

SEE  
DETAIL  
BELOW

## ELEVATION REFERENCE POINT

Location & Description  
ELEVATIONS PER SURVEY PLAN  
Reference Elevation is: 0.0" or -----

SCALE:  
VERTICAL: 1" = 5 FT  
HORIZONTAL: 1" = 10 FT



Site Evaluator Signature

352  
SE \*

Date

Page 3 of 3  
HHE-200 Rev. 02/11





Albert Frick Associates, Inc.  
Soil Scientists & Site Evaluators  
731 Foss Road Limerick, Maine 04048  
(207) 839-5563

BIDDEFORD

65 MILE STRETCH ROAD

N/F NOWAK

TOWN

LOCATION

APPLICANT'S NAME

1) The Plumbing and Subsurface Wastewater Disposal Rules adopted by the State of Maine, Division of Health and Human Services pursuant to 22 M.R.S.A. § 42 (the "Rules") are incorporated herein by reference and made a part of this application and shall be consulted by the owner/applicant, the system installer and/or building contractor for further construction details and material specifications. The system Installer should contact Albert Frick Associates, Inc. 839-5563, if there are any questions concerning materials, procedures or designs. The system installer and/or building contractor installing the system shall be solely responsible for compliance with the Rules and with all state and municipal laws and ordinances pertaining to the permitting, inspection and construction of subsurface wastewater disposal systems.

2) This application is intended to represent facts pertinent to the Rules only. It shall be the responsibility of the owner/applicant, system Installer and/or building contractor to determine compliance with and to obtain permits under all applicable local, state and/or federal laws and regulations (including, without limitation, Natural Resources Protection Act, wetland regulations, zoning ordinances, subdivision regulations, Site Location of Development Act and Minimum Lot Size law) before installing this system or considering the property on which the system is to be installed a "buildable" lot. It is recommended that a wetland scientist be consulted regarding wetland regulations. Prior to the commencement of construction/installation, the local plumbing inspector or Code Enforcement Officer shall inform the owner/applicant and Albert Frick Associates, Inc. of any local ordinances which are more restrictive than the Rules in order that the design may be amended. All designs are subject to review by local, state and/or federal authorities. Albert Frick Associates, Inc.'s liability shall be limited to revisions required by regulatory agencies pursuant to laws or regulations in effect at the time of preparation of this application.

3) All information shown on this application relating to property lines, well locations, subsurface structures and underground facilities (such as utility lines, drains, septic systems, water lines, etc.) are based upon information provided by the owner/applicant and has been relied upon by Albert Frick Associates, Inc. in preparing this application. The owner/applicant shall review this application prior to the start of construction and confirm this information. Well locations on abutting properties but not readily visible above grade should be confirmed by the owner/applicant prior to system installation to assure minimum setbacks.

4) Installation of a garbage (grinder) disposal is not recommended. If one is installed, an additional 1000 gallon septic tank or a septic tank filter shall be connected in series to the proposed septic tank. Risers and covers should be installed over the septic tank outlet per the "Rules" to allow for easy maintenance of filter.

5) The septic tank should be pumped within two years of installation and subsequently as recommended by the pump service, but in no event should the septic tank be pumped less often than every three years.

The system user shall avoid introducing kitchen grease or fats into this system. Chemicals such as septic tank cleaners and/or chlorine or water treatment backwash and controlled or hazardous substances shall not be disposed of in this system. Additives such as yeast or enzymes are discouraged, since they have not been proven to extend system life.

6) All septic tanks, pump stations and additional treatment tanks shall be installed to prevent ground water and surface water infiltration. Risers and covers should be properly installed to provide access while preventing surface water intrusion to within 6" of a finished ground surface.

Vehicular traffic over disposal system is prohibited unless specifically designed with H-20 rated components.

BIDDEFORD

65 MILE STRETCH ROAD

N/F NOWAK

TOWN

LOCATION

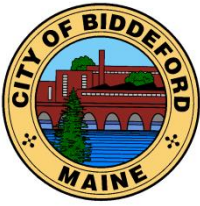
APPLICANT'S NAME

- 7) The actual waste water flow or number of bedrooms shall not exceed the design criteria indicated on this application without a re-evaluation of the system as proposed
- 8) The general minimum setbacks between a well (public or private) and septic system serving a single family residence is 100-300 feet, unless the local municipality has a more stringent requirement. A well installed by an abutter within the minimum setback distances prior to the issuance of a permit for the proposed disposal system may void this design.
- 9) When a gravity system is proposed: BEFORE CONSTRUCTION/INSTALLATION BEGINS, the system installer or building contractor shall review the elevations of all points given in this application and the elevation of the existing and/or proposed building drain and septic tank inverts for compatibility to minimum pitch requirements. In gravity systems, the invert of the septic tank(s) outlet(s) should be at least 4 inches above the invert of the distribution box outlet at the disposal area.
- 10) When an effluent pump is required: Pump stations should be sized per manufacturer's specifications to meet lift requirements and friction loss. Provisions shall be made to make certain that surface and ground water does not enter the septic tank or pump station, by sealing/grouting all seams and connections, and by placement of a riser and lid at or above grade. An alarm device warning of a pump failure shall be installed. Also, when pumping is required of a chamber system, install a 'T' connection in the distribution box and place 3 inches of stone or a splash plate in the first chamber. Insulate gravity pipes, pump lines and the distribution box as necessary to prevent freezing.
- 11) On all systems, remove the vegetation, organic duff and old fill material from under the disposal area and any fill extension. Additional fill beyond indicated on plan may be necessary to replace organic matter. On sites where the proposed system is to be installed in natural soil, scarify the bottom and sides of the excavated disposal area with a rake. Do not use wheeled equipment on the scarified soil surface. For systems installed in fill, scarify the native soil by roto-tilling or scarifying with teeth of backhoe to a depth of at least 8 inches over the entire disposal and fill extension area to prevent glazing and to promote fill bonding. Place fill in loose layers no deeper than 8 inches and compact before placing more fill (this ensures that voids and loose pockets are eliminated to minimize the chance of leakage or differential settling). Do not use wheeled equipment on the scarified soil area until after 12 inches of fill is in place. Keep equipment off proprietary devices. Divert the surface water away from the disposal area by ditching or shallow landscape swales.
- 12) Unless noted otherwise, fill shall be gravelly coarse sand, which contains no more than 5% fines (silt and clay). Crushed stone shall be clean and free of any rock dust from the crushing process.
- 13) Do not install systems on loamy, silty, or clayey soils during wet periods since soil smearing/glazing may seal off the soil interface.
- 14) Seed all filled and disturbed surfaces with perennial grass seed, with 4" min. soil or soil amendment mix suitable for growing, then mulch with hay or equivalent material to prevent erosion. Alternatively, bark or permanent landscape mulch may be used to cover system. Woody trees or shrubs are not permitted on the disposal area or fill extensions.
- 15) If an advanced wastewater treatment unit is part of the design, the system shall be operated and maintained per manufacturer's specifications.



**Albert Frick Associates, Inc.**  
 Soil Scientists & Site Evaluators  
 731 Fox Road Limerick, Maine 04048  
 (207) 839-5563





# CITY OF BIDDEFORD

## Planning and Development Department

Hannah Bonine  
Assistant City Planner  
205 Main Street  
P.O. Box 586  
Biddeford, ME 04005  
(207) 284-9115  
[Hannah.Bonine@biddefordmaine.org](mailto:Hannah.Bonine@biddefordmaine.org)

### PLANNING BOARD REPORT

TO: Chair Southwick and the Biddeford Planning Board

FROM: Hannah Bonine, Assistant City Planner

DATE: June 28, 2022

*Hannah Bonine*

**RE: 2022.27 Conditional Use Permit request by Gasland Farm, LLC s for a Medical Marijuana Caregiver retail store at 10-12 Grays Lane (Tax Map 12, Lot 12) in the I-1 Industrial Zone.**

MEETING DATE: Wednesday, July 6, 2022 at 6:00 pm

#### 1. INTRODUCTION

Gasland Farms is seeking a Conditional Use Permit to operate a Medical Marijuana Caregiver Retail store at 10-12 Grays Lane. The property is located partially in the B-2 zone, and partially in the I-1 zone (see map). Since the structure, and hence the proposed retail location, is located within the boundary of the I-1 zone, the proposed use is permitted. As with all zones where the City allows marijuana uses, this proposal requires a Conditional Use approval.

The only exterior improvements that have been proposed are landscaping and striping parking spaces. All other improvements will be internal, including odor mitigation, security, restroom facilities, and outfitting the retail space.



## 2. PROJECT INFORMATION

|     | <u>SUBJECT</u>                      | <u>INFORMATION</u>                                                        |
|-----|-------------------------------------|---------------------------------------------------------------------------|
| 1.  | Applicant                           | Gasland Farms, LLC<br>c/o Nick Boss                                       |
| 2.  | Property Owner                      | Nichols Holdings, LLC<br>70 Pool Street<br>Biddeford, ME 04005            |
| 3.  | Agent                               | Jill G. Polster, Esq.<br>P.O. Box 5404<br>Portland, ME 04101              |
| 4.  | Engineer/Surveyor                   | Kennebunk River Architects<br>1662 Post Road, Suite B6<br>Wells, ME 04090 |
| 5.  | Project Location                    | 10-12 Grays Lane                                                          |
| 6.  | Map/Lot                             | Map 12, Lot 12                                                            |
| 7.  | City Approvals Required             | Conditional Use Permit                                                    |
| 8.  | Existing Zoning                     | I-1 and B-2                                                               |
| 9.  | Overlay Zoning                      | None                                                                      |
| 10. | Existing Use                        | Vacant                                                                    |
| 11. | Proposed Use                        | Medical Marijuana Caregiver Retail                                        |
| 12. | Uses in the Vicinity                | Business, Industrial                                                      |
| 13. | Parcel Size                         | 3.87 acres                                                                |
| 14. | Water Supply                        | Public Water                                                              |
| 15. | Sewerage Disposal                   | Private Septic                                                            |
| 16. | Solid Waste Disposal                | Public Trash                                                              |
| 17. | Fire Protection                     | City of Biddeford                                                         |
| 18. | Parking Spaces Required             | 4                                                                         |
| 19. | Parking Spaces Provided             | 4+                                                                        |
| 20. | Ownership of Road                   | Public                                                                    |
| 21. | Waivers Needed/Requested            | Full Site Plan Review                                                     |
| 22. | Waivers Granted                     | Full Site Plan Review                                                     |
| 23. | Additional Approvals/Permits Needed | None                                                                      |
| 24. | Fees Paid (LDR Attachment A)        | All fees paid                                                             |
| 25. | Planning Board Review History       | July 6, 2022                                                              |

## 3. COMPLIANCE WITH CITY ORDINANCES

Medical marijuana caregiver stores are a conditional use in the I-1 zone.

To receive approval from the Planning Board, the applicant must establish compliance with the Conditional Use Standards (Article VII, Section 6), Performance Standards (Article VI, Section 77), and Site Plan Review (Article XI).

The applicant has submitted an Odor Mitigation plan and a Business Plan, which includes operational and safety procedures, intended employee training, waste disposal, and a plan of the building which indicates entrances, security cameras, and other odor control measures.

The parking provided on-site is adequate per city ordinances. 4 parking spaces will be required, including one van accessible space. All parking must be paved and striped.

4. WAIVER REQUESTS

Full Site Plan Review

5. OUTSTANDING ITEMS TO BE ADDRESSED PRIOR TO APPROVAL

None

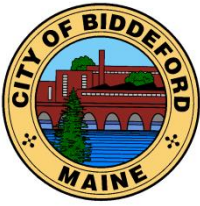
6. STAFF RECOMMENDATIONS

- A. Recommend the Planning Board grant the waiver request for a full site plan review given the scope and scale of the proposal – a retail store with no site improvements.
- B. If the applicant has addressed the outstanding items to the satisfaction of the Planning Board, and Planning Board approves the project, Staff recommend doing so with the following Conditions of Approval attached:
  - 1. **Improvements to the parking area, including striping paved parking spaces (3 spaces and 1 van accessible space), must be completed prior to the issuance of any occupancy permits. A compliance inspection needs to occur by Code Enforcement to verify the parking lot is properly striped and that the accessible parking space has been striped/marked properly. The ADA van accessible space should be immediately adjacent to the front doorway to left so passengers access on the right of the vehicle. ADA van accessible spaces must be 8' minimum width with an 8' minimum width striped access aisle to the right.**
  - 2. **Standard Conditions of Approval apply.**
  - 3. **The applicant shall obtain all other pertinent local, state and federal permits/licenses/insurance such as building, electrical, plumbing, etc., prior to commencing business.**
  - 4. **The applicant shall comply with Land Development Regulations, Article VI (Performance Standards), Section 77 (Marijuana establishments) including, but not limited to, the odor of marijuana shall not be detectable off-premises, meaning not-detectable on any property that is not under control of the establishment.**

7. ATTACHMENTS

- 1. Application Package





## CITY OF BIDDEFORD

### Planning and Development Department

205 Main Street  
P.O. Box 586  
Biddeford, ME 04005  
(207) 284-9115

### **FINDINGS OF FACT AND CONCLUSIONS OF LAW**

#### CONDITIONAL USE PERMIT (CUP)

**RE: 2022.27 Conditional Use Permit request by Gasland Farms, LLC for a Medical Marijuana Caregiver retail store at 10-12 Grays Lane (Tax Map 12, Lot 12) in the I-1 Industrial Zone.**

Pursuant to the provisions of the City of Biddeford Code of Ordinances Land Development Regulations, Article VII (Conditional Use Permits), Article XI (Site Plan Review), and Article VI (Performance Standards), the Biddeford Planning Board has considered the application of **Gasland Farms, LLC** to operate a Medical Marijuana Caregiver store at 10-12 Grays Lane. Based on its review, including supportive data, public hearing testimony and related materials contained in the record, the Planning board makes the following Findings of Fact and Conclusions of Law:

#### **FINDINGS OF FACT:**

|     | <u>SUBJECT</u>          | <u>INFORMATION</u>                                                        |
|-----|-------------------------|---------------------------------------------------------------------------|
| 1.  | Applicant               | Gasland Farms, LLC<br>c/o Nick Boss                                       |
| 2.  | Property Owner          | Nichols Holdings, LLC<br>70 Pool Street<br>Biddeford, ME 04005            |
| 3.  | Agent                   | Jill G. Polster, Esq.<br>P.O. Box 5404<br>Portland, ME 04101              |
| 4.  | Engineer/Surveyor       | Kennebunk River Architects<br>1662 Post Road, Suite B6<br>Wells, ME 04090 |
| 5.  | Project Location        | 10-12 Grays Lane                                                          |
| 6.  | Map/Lot                 | Map 12, Lot 12                                                            |
| 7.  | City Approvals Required | Conditional Use Permit                                                    |
| 8.  | Existing Zoning         | I-1 and B-2                                                               |
| 9.  | Overlay Zoning          | None                                                                      |
| 10. | Existing Use            | Vacant                                                                    |
| 11. | Proposed Use            | Medical Marijuana Caregiver Retail                                        |
| 12. | Uses in the Vicinity    | Business, Industrial                                                      |
| 13. | Parcel Size             | 3.87 acres                                                                |

|     |                                     |                       |
|-----|-------------------------------------|-----------------------|
| 14. | Water Supply                        | Public Water          |
| 15. | Sewerage Disposal                   | Private Septic        |
| 16. | Solid Waste Disposal                | Public Trash          |
| 17. | Fire Protection                     | City of Biddeford     |
| 18. | Parking Spaces Required             | 4                     |
| 19. | Parking Spaces Provided             | 4+                    |
| 20. | Ownership of Road                   | Public                |
| 21. | Waivers Needed/Requested            | Full Site Plan Review |
| 22. | Waivers Granted                     | Full Site Plan Review |
| 23. | Additional Approvals/Permits Needed | None                  |
| 24. | Fees Paid (LDR Attachment A)        | All fees paid         |
| 25. | Planning Board Review History       | July 6, 2022          |

### **CONCLUSIONS OF LAW:**

1. The proposed use meets specific requirements set forth in this ordinance and would be in compliance with applicable state or federal laws;
2. The proposed use would not create fire safety hazards by providing adequate access to the site, or to the buildings on the site, for emergency vehicles and would not create hazards through the storage of chemicals and wastes;
3. The proposed exterior lighting, where allowed, would not create hazards to motorists traveling on adjacent public streets or is adequate for the safety of occupants or users of the site or would not damage the value and diminish the usability of adjacent properties;
4. The provisions for buffers and on-site landscaping provide adequate protection to neighboring properties from detrimental or unsightly features of the development;
5. The proposed use would not have a significant, detrimental effect on the use and peaceful enjoyment of abutting property as the result of noise, vibrations, fumes, odor, dust, glare, hours of operation, or other causes;
6. The provisions for vehicular loading and unloading and parking and for vehicular and pedestrian circulation on the site and onto adjacent public streets would not create hazards to public safety or traffic congestion;
7. The proposed use would generate a volume of traffic that can reasonably be accommodated by the existing road network, or would not create unreasonable traffic hazards or would not exacerbate an existing traffic hazard, or would not create unreasonable traffic congestion;

8. The proposed use would not have a significant, detrimental effect on the value of adjacent properties which could be avoided by reasonable modification of the proposal;
9. The proposed use would not have an adverse impact on the privacy of the residents of the immediate area (within 500 feet) which could be avoided by reasonable modification of the proposal;
10. The proposed use would be in compliance with Biddeford's Comprehensive Plan;
11. The proposed use would not have an adverse impact on the immediate neighborhood or the community relative to architectural design, scale, bulk and building height, identity and historical character, or visual integrity, which could be avoided by reasonable modification of the proposal;
12. The design of the site would not result in significant flood hazards or flood damage or would be in conformance with applicable flood hazard protection requirements;
13. Adequate provision has been made for disposal of wastewater or solid waste or for the prevention of ground or surface water contamination;
14. Adequate provision has been made to control erosion or sedimentation;
15. Adequate provision has been made to handle stormwater runoff or other drainage problems on the site; and the proposed development will not unduly burden off-site surface water systems;
16. The proposed water supply would meet the demands of the proposed use for fire protection purposes;
17. Adequate provision has been made for the transportation, storage, and disposal of hazardous substances and materials as defined by state law;
18. The proposed use would not have an adverse impact on scenic vistas or on significant wildlife habitat or wetland areas and water bodies which could be avoided by reasonable modification of the proposal;
19. When located in the Shoreland Zone, the proposed use would meet the purposes of Shoreland Zoning as identified in Article XIV, Section 1 (Purposes) of this ordinance.

**APPROVAL GRANTED:**

Based on the evidence available and the conclusions above, the Biddeford Planning Board approves the Conditional Use Permit for the proposed project summarized above, located at 10-12 Grays Lane (Tax Map 12, Lot 12) in accordance with the submitted application,

supporting data, representations made, other related materials on file, and the following Conditions of Approval:

1. Improvements to the parking area, including striping paved parking spaces (3 spaces and 1 van accessible space), must be completed prior to the issuance of any occupancy permits. A compliance inspection needs to occur by Code Enforcement to verify the parking lot is properly striped and that the accessible parking space has been striped/marked properly. The ADA van accessible space should be immediately adjacent to the front doorway to left so passengers access on the right of the vehicle. ADA van accessible spaces must be 8' minimum width with an 8' minimum width striped access aisle to the right.
2. Standard Conditions of Approval apply.
3. The applicant shall obtain all other pertinent local, state and federal permits/licenses/insurance such as building, electrical, plumbing, etc., prior to commencing business.
4. The applicant shall comply with Land Development Regulations, Article VI (Performance Standards), Section 77 (Marijuana establishments) including, but not limited to, the odor of marijuana shall not be detectable off-premises, meaning not-detectable on any property that is not under control of the establishment.

---

Planning Board Chairperson

---

Date

**CITY OF BIDDEFORD, MAINE**  
**PLANNING BOARD**  
**P.O. Box 586, 205 Main Street Biddeford, Maine 04005**  
**207-284-9115**

**APPLICATION FORM**

**Type of Application:**

- |                                                            |                                           |                                      |
|------------------------------------------------------------|-------------------------------------------|--------------------------------------|
| <input type="checkbox"/> Shoreland Zoning Permit           | <input type="checkbox"/> Site Plan Review | <input type="checkbox"/> Extraction  |
| <input checked="" type="checkbox"/> Conditional Use Permit | <input type="checkbox"/> Subdivision      | <input type="checkbox"/> Private Way |
| <input type="checkbox"/> Other: _____                      |                                           |                                      |

**Applicant Information:**

Applicant's Name: Nick Boss for Gasland Farms LLC

Applicant's Mailing Address: \_\_\_\_\_

Applicant's Telephone: 978-399-3771

What is Applicant's legal interest in the property?

- ☐ Owner    ☐ Potential Buyer with Contract    ☒ Lease/Rental Agreement

Owner's Name: Nichols Holdings LLC

Owner's Address: 70 Pool Street, Biddeford, ME 04005

Owner's Telephone: 978-399-3771 Matt Laudani

Agent's Name: Jill G. Polster, Esq.

Agent's Address: P.O. Box 5404, Portland, ME 04101

Telephone: 207-387-3192

Engineer/Surveyor: Kennebunk River Architects

Engineer/Surveyor's Address: 1662 Post Road, Suite B6, Wells, ME 04090

Telephone: 207-216-9850

**Project Location and Lot Information:**

Street Address: 10-12 Grays Lane

Tax Map: 12 Lot: 12

Current Zoning: I-1 and B-2, only the portion in I-1 is being used. Shoreland Zoning: \_\_\_\_\_

Size of lot: 3.87 ☒ acres ☐ s.f. Lot Frontage: 409 feet

Existing Use of Property: Unoccupied

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Property currently serviced by:

|                                                  |                                                   |
|--------------------------------------------------|---------------------------------------------------|
| <input checked="" type="checkbox"/> City Road    | <input type="checkbox"/> Private Road             |
| <input type="checkbox"/> Public Sewer            | <input checked="" type="checkbox"/> Septic System |
| <input checked="" type="checkbox"/> Public Water | <input type="checkbox"/> Private Well             |
| <input checked="" type="checkbox"/> Public Trash | <input type="checkbox"/> Private Hauler           |

Slope Conditions in Area of Construction (if applicable):

☐ Flat (0-3 % slope) ☐ Rolling (3-8% slope) ☐ Hilly (8-15% slope) ☐ Steep (15% + slope)

Are there any wetlands or waterbodies on the site? ☐ Yes ☐ No If yes, attach information

Do you plan to bring fill onto the lot? ☐ Yes ☐ No If yes, attach information

**Description of proposed use of property:**

Project/Proposed Use Description: Medical Cannabis Caregiver Retail Store

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Property to be serviced by:

|                                                  |                                                   |
|--------------------------------------------------|---------------------------------------------------|
| <input checked="" type="checkbox"/> City Road    | <input type="checkbox"/> Private Road             |
| <input type="checkbox"/> Public Sewer            | <input checked="" type="checkbox"/> Septic System |
| <input checked="" type="checkbox"/> Public Water | <input type="checkbox"/> Private Well             |
| <input checked="" type="checkbox"/> Public Trash | <input type="checkbox"/> Private Hauler           |

Is this project part of a larger project? ☐ Yes ☒ No

☐ If in a Shoreland Zone:

Percent of residential lot coverage (Max. 20%): \_\_\_\_\_

Percent of structure expansion (Max. 30%): \_\_\_\_\_

☐ If Subdivision Review, number of lots proposed: \_\_\_\_\_

☐ If a Private Way is proposed, number of lots served: \_\_\_\_\_

☐ **If Site Plan Review, you must provide the following information:**

Total new square feet footprint of structures: \_\_\_\_\_

Total new square feet paving/parking: \_\_\_\_\_

Waiver Requests (attach details):

1. Letter of approval from Engineering Dept. re: Sewer is on a septic tank. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

**Attachments:**

A. Letters of Approval

- ☒ Fire Department - Contact Chief or Deputy Chief - 282-9986
- ☒ Ability to Serve for Water Service – Maine Water - 282-1543
- ☐ Ability to Serve for Sewer Service- Engineering Dept (Sewer) - Tom Milligan 284-9118
- ☒ Police Department - E-911 Road Name Designation - Contact Joanne Fisk - 282-5127

B. Letter to Planning Board describing project, waiver requests, proposed improvements, addressing permit requirements, etc.

C. Photographs of site.

D. Architectural renderings/drawings of proposed buildings, as required.

E. Engineered Plans, as required.

**Fees (due at time of application):**

Refer to “Attachment A Fees and Charges” of the Land Development Regulations for more information. Consult with Planning Staff if you have questions.

**Required Signatures:**

By signing this application, as the foresaid applicant or authorized agent:

- I certify that I have read and completely understand the application;
- I certify that the information contained in this application and it's attachments are true and correct;
- I understand that all information provided on this form and all other documents submitted as part of my proposal is a matter of public record;
- I understand that copies of this information may be supplied upon request to an interested party.
- I understand that additional funds may be required through the course of review for special studies, legal review costs, and/or engineering review.
- I understand that by submitting this application I am not guaranteed a place on any particular agenda. I further understand that the City Planner will place me on an agenda for review when the application is deemed substantially complete.

☐ Project proposed to have 1 acre or more of site disturbance:

**-Project may need to apply for a Maine Construction General Permit and shall comply with the requirements of DEP Chapter 500 Stormwater Regulations, as they apply.**

**Signature of applicant:**



ID VF6HRvLXXHNdn09vXPEN9VMs

Date: June 8, 2022

**Signature of owner of property:**



ID RnwHqCAFLyckh3zXKyMG18bf

Date: June 8, 2022

**IF PLAN APPROVAL IS ANTICIPATED, PROVIDE 2 FULL SIZE MYLARS & 2 FULL SIZE PAPER COPIES FOR BOARD SIGNATURE (AS APPLICABLE).  
CHECK WITH PLANNING STAFF FOR CLARIFICATION.**



## CHECKLIST FOR *SITE PLAN* REQUIREMENTS

### YES    NO

- |                                     |                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Be on sheet size of 24 by 36 inches.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | The scale of said plan shall be not less than one inch equals 50 feet and shall be indicated on the plat by use of a bar scale.                                                                                                                                                                                                                                                                                                                                        |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | The plan shall bear the date, title, north point.                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | The plan shall contain a location or vicinity sketch (suggested scale one inch equals 800 feet).                                                                                                                                                                                                                                                                                                                                                                       |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | The plan shall contain the name and address of the developer and applicant.                                                                                                                                                                                                                                                                                                                                                                                            |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | All appropriate dimensional requirements.                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Existing and proposed easements.                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Plan of the site showing existing watercourses and water bodies, seasonal wet areas.                                                                                                                                                                                                                                                                                                                                                                                   |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Plan of the site showing soil type and location of test borings.                                                                                                                                                                                                                                                                                                                                                                                                       |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Location of all existing and proposed utilities.                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Topographic contours (every five percent for zero to three percent slope; or every two feet for steeper areas).                                                                                                                                                                                                                                                                                                                                                        |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Plan should include preservation and supplementation of existing dominant vegetation.                                                                                                                                                                                                                                                                                                                                                                                  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Plan shall indicate which features are to be retained and which are to be removed or altered.                                                                                                                                                                                                                                                                                                                                                                          |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Location of stonewalls, graveyards, fences, stands of trees, and other important unique natural areas and site features, including but not limited to floodplains, deer wintering areas, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, sand and gravel aquifers, and historic and/or archaeological resources, together with description of such features. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Plan view of all buildings with their use, size, location, and first-floor elevation in respect to grade.                                                                                                                                                                                                                                                                                                                                                              |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Standard elevation view of existing and proposed buildings or structures on-site.                                                                                                                                                                                                                                                                                                                                                                                      |

**YES   NO**

- |                                     |                                     |                                                                                                                                                                                                                                                 |
|-------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Outline of any buildings located within 200 feet of such existing or proposed buildings or structures indicating their shape, size, location, heights and volume.                                                                               |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Existing use of abutting properties shall be identified with approximate location of any structures thereon including access roads.                                                                                                             |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Location, width, curbing, and paving of access ways, egress ways, and streets within the site for both pedestrian and vehicular use.                                                                                                            |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | The location of off-street parking and loading spaces with a layout of the parking indicated.                                                                                                                                                   |
| <input type="checkbox"/>            | <input type="checkbox"/>            | The size and proposed location of water mains and sanitary sewerage facilities will all necessary engineering data.                                                                                                                             |
| <input type="checkbox"/>            | <input type="checkbox"/>            | The size and location of all other existing and proposed public service connections including, without limitation, gas lines, power lines, telephone lines, and fire alarm connections and locations, indicating whether above or below ground. |
| <input type="checkbox"/>            | <input type="checkbox"/>            | The type, nature, and composition of all solid, liquid, and gaseous waste, industrial or otherwise, and the location, type, and design criteria of the storage and disposal facilities dealing with such waste.                                 |
| <input type="checkbox"/>            | <input type="checkbox"/>            | A landscape plan and open space areas indicating grade change, vegetation to be preserved, new plantings used to stabilize areas of cut and fill, screening; plus size, location, purpose and type of vegetation.                               |
| <input type="checkbox"/>            | <input type="checkbox"/>            | A drainage plan including location, elevation, layout of catch basins and other surface and subsurface drainage features.                                                                                                                       |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Location, size and design of proposed signs and other advertising or instructional devices.                                                                                                                                                     |
| <input type="checkbox"/>            | <input type="checkbox"/>            | Existing and proposed contours and finished grade elevations as well as the type, extent, and location of existing and proposed landscaping and open space areas which will be retained.                                                        |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Location and type of lighting for outdoor facilities.                                                                                                                                                                                           |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Lines of existing and proposed abutting streets showing width.                                                                                                                                                                                  |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Surveyed property lines showing their bearing and distances and monument locations.                                                                                                                                                             |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | If subdivision is involved, the lines and names of all proposed streets, lanes, ways, or easements intended to be dedicated for public or private use.                                                                                          |

**YES**   **NO**

- |                                     |                                     |                                                                                                                                       |
|-------------------------------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Provide copies of any covenants or restrictions that are intended to cover all or part of the land area to be developed.              |
| <input type="checkbox"/>            | <input checked="" type="checkbox"/> | Indicate limits of the wetland areas on the property.                                                                                 |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Delineate existing zoning boundaries within 1,000 feet of the site.                                                                   |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Stamp and signature of either a Maine licensed land surveyor, professional engineer, or architect responsible for said plan.          |
| <input checked="" type="checkbox"/> | <input type="checkbox"/>            | Any other exhibits or data deemed necessary by the Planning Board to evaluate the proposed development for site plan review purposes. |

USA  
**Maine**  
Secretary of State  
Matthew Dunlap

**DRIVER'S LICENSE**

4d DL NO. **3865365**  
4b EXPIRES **04/02/2025** 3 DOB **04/02/1989**

1 **BOSS**  
2 **NICHOLAS O**  
8 **70 POOL ST APT 3**  
**BIDDEFORD, ME 04005**

4a ISSUED **03/16/2020** 15 GENDER **M**  
16 HEIGHT **6'-00"** 17 WEIGHT **180 lb** 18 EYES **BLU** 19 HAIR **BRO**

9 CLASS **C** 9a END **NONE**  
12 REST **NONE**  
5 DD **00000000000000000000087087221**

*Matthew Dunlap*

**DONOR**

 **Maine Medical Use** **Date Issued: 04/09/2022**  
**Of Marijuana** **Expires: 04/08/2023**

**Individual Caregiver**  
**NICHOLAS O. BOSS**  
**DOB: 04/02/1989**  
**No Retail Location Provided**

**Registration #: CGR26673** **Control # : 421169**  
**Authorization for mature plants grown under 500**  
**square foot canopy/60 immature**



June 7<sup>th</sup>, 2022

Nichols Holdings LLC  
Matthew T. Laudani  
70 Pool Street  
Biddeford, ME 04005

Re: Ability to Serve – 12 Grays Lane – Biddeford – Dispensary Storefront Renovation

Greetings,

The Maine Water Company (MWC) has received your request for an Ability to Serve Determination for the property located at 12 Grays Lane, Biddeford, Maine for the above referenced project. The request indicates a plan to redevelop the existing commercial space, into a Storefront dispensary. Maine Water understands that this establishment will have one bathroom and two employees. The static pressure in the area is approximately **35-40 psi**. Any domestic water usage is considered negligible. Based on the criteria, MWC does have sufficient capacity in the area from the existing 8-inch cast iron main on Grays Lane to serve this project. Additional infrastructure improvements may be required at the expense of the developer to meet the overall needs of this project.

#### Conditions of Service

- It is our understanding that the existing service lines are adequately sized and will not be changed.
- Notify Maine Water of any changes to the existing service line connections.
- A residential backflow device will be required on the internal plumbing as a change of use if there is not one already installed.

Should a request for service not be executed within one year of the date of this letter, MWC reserves the right to reevaluate its ability to serve this project.

All work must be completed in accordance with MWC Terms and Conditions as well as material specifications. All appropriate paperwork must be completed and deposit paid prior to the start of construction. Please forward all design plan revisions as the project develops to prevent construction delays. Water service will be provided in accordance with Maine Public Utility Commission rules. If you have any additional questions, please do not hesitate to contact our office at 1-800-287-1643 or by email at [Marcus.Knipp@mainewater.com](mailto:Marcus.Knipp@mainewater.com). We look forward to working with you throughout design and construction.

Sincerely,  
The Maine Water Company

A handwritten signature in black ink, appearing to read "M. Knipp".

Marcus Knipp, E.I.T.  
Engineer



Jill Polster &lt;jgpolster@gmail.com&gt;

**Fwd: 12 grays lane property**

1 message

**nick boss** <nckkboss@gmail.com>  
To: Jill Polster <jill@cohenlawmaine.com>

Tue, Jun 7, 2022 at 4:46 PM

----- Forwarded message -----

From: **Gagne, Scott** <[Scott.Gagne@biddefordmaine.org](mailto:Scott.Gagne@biddefordmaine.org)>  
Date: Tue, Jun 7, 2022 at 3:54 PM  
Subject: RE: 12 grays lane property  
To: nick boss <[nckkboss@gmail.com](mailto:nckkboss@gmail.com)>

The Biddeford Fire Department has the ability to serve the address location of [12 Grays Lane](#). Please let me know if you need any further information. Thank you.

[Biddeford Fire Department](#)

**From:** nick boss <[nckkboss@gmail.com](mailto:nckkboss@gmail.com)>  
**Sent:** Tuesday, June 7, 2022 3:32 PM  
**To:** Gagne, Scott <[Scott.Gagne@Biddefordmaine.org](mailto:Scott.Gagne@Biddefordmaine.org)>  
**Subject:** 12 grays lane property

Hello Chief Gagne,

My name is Nicholas Boss I'm a registered medical cannabis caregiver and I own the property at [12 Grays lane](#), in Biddeford. We are currently going through the process of getting approved for a medical cannabis store at this location. And I am in need of a letter of from the fire department okaying the location for the Biddeford planning board approval. I was told to send you an email by the woman in reception. If you need anything further from me just please let me know.



Dear City of Biddeford Planning Board,

Enclosed you will find our site plan application and supporting materials for a conditional use permit for a medical marijuana retail storefront at 12 Grays Lane, Biddeford Maine.

Materials included are:

- Introduction to Gasland Farms
- Odor Mitigation Plan
- Architectural rendering of proposed renovation
- Signage Plan
- Photos of the Property

Thank you for your time. We look forward to meeting with the planning board to present these documents in person

Sincerely,

Nick Boss CGR26673

Owner, Gasland Farms

Matt Laudani

Owner, Gasland Farms

Megan Manger

Owner, Gasland Farms

## Outline

- 1) Executive Summary
- 2) Market analysis
- 3) Retail Design
- 4) Organization and Management
- 5) Products
- 6) Marketing
- 7) Revenue and Tax analysis
- 8) About the owners

## Executive Summary

Gasland Farms, LLC is seeking to open a Medical Marijuana Caregiver storefront at 12 Grays Lane, Biddeford, Maine that is located in the I-1 Industrial Zone. The company has secured a 5-year lease for a 1,000 sq ft Caregiver storefront. With the back 6,000 sq ft of the building to be leased to a separate entity (non-cannabis). Gasland Farms intends to retail exclusive and third-party cannabis flower, extracts and edibles (all compliant with state standards in packaging, labeling etc.)

Our employees will be trained and have the proper qualifications to recommend alternative products to patients seeking relief.

Gasland Farms is planning to be open in the windows of 9 am – 7 pm 7 days a week.

## Market Analysis

The Medical cannabis space is an ever-evolving market that will transform as adult use licensing becomes more prevalent. While adult use will attract tourists and new users that will eventually become the primary source of sales in Maine. Medical Cannabis will be a niche market that continues to form long term relationships with local Maine patients and services quality alternative medicine at affordable rates.

## Retail Design

Our retail Design will convey a professional welcoming atmosphere. All products that contain THC will be stored behind sales counters and will only be available for patients with valid medical cards. All products will be stored in our vault after hours. All state and local regulations regarding caregiver storefronts will be strictly followed.

## Organization and management

Gasland Farms will provide approximately 6 full time jobs in Biddeford (with potential to add more depending on sales volume.) With pay scales ranging from \$16/hour to \$60,000 per year.

The following jobs will be filled:



General Manager \$60,000/year

Assistant General Manager \$45,000/year

2 budtenders (sales associates/shift leads) \$20/hour

2 budtender assistants \$16/hour

### Roles and Responsibilities

The responsibilities of each position within the are detailed below.

#### General Manager

The Gm position will be responsible for providing exemplary patient customer service while keeping on track with revenue goals, staff training and meeting requirements of all state and local guidelines regarding compliance. They will also be responsible for inventory ordering and tracking to meet sales goals and keep product flow regulated.

#### Assistant General Manager

The assistant general manager will be responsible for assisting to manage the day to day tasks including managing personnel, forming patient relationships, inventory control and the flow of all work related to the operational side of the storefront while adhering to all local and state guidelines.

#### Budtender

The Budtender will have knowledge of all products in the store and be qualified to make recommendations to patients. They will do this while following all state and local guidelines regarding medical cannabis sales.

#### Assistant Budtender

The Budtender Assistant is an entry level associate position that serves as an assistant to the Budtender. Budtender Assistants will acquire excellent knowledge of cannabis products and will be given a clear path and timeline to promotion to a Budtender position.

## Products

The primary source of products will be Gasland farms medical cannabis flower and extracts. We will also sell third party cannabis flower, extracts and edibles from licensed Maine caregivers who adhere to local and state guidelines. We will also be offering branded material such as merchandise/ souvenir apparel. All packaging and labeling guidelines will be adhered to in line with local and state ordinances.

## Marketing

Gasland Farms will offer high quality medical cannabis products and deliver excellent patient service, which will result in repeat local business from patients seeking alternative therapies to traditional medicine.

All marketing and advertising will be in strict compliance with state law. Gasland Farms will adopt the following sales and marketing strategies:

Advertise in community-based magazines and other media as allowed by state law • Social media marketing

Word of mouth

Advertise on industry marketing sites

Attend industry community events and trade shows

Adopt and communicate a local social responsibility plan

**Revenue & Tax Analysis** The projected sales for the retail storefront are approximately \$3,000 per day / \$1,100,000 per year. This revenue number will support approximately 6 local full time jobs and an annual payroll of \$250,000.

Maine sales tax (5.5%) will be approximately \$55,000 per year.

## About the Company

Gasland Farms LLC is a medical marijuana company licensed in the state of Maine. We were established in 2019 and have a state-of-the-art cultivation facility located in Limerick Maine. We use cutting edge cultivation practices to create exclusive strains and high-quality cannabis at affordable prices for qualifying patients in the Maine Medical marijuana program. We are looking to bring those same values and attention to detail that has made our cultivation such a success into the world of retail at our Grays Lane Property. We are homeowners and parents in the town of Biddeford, and we are looking forward to contributing to the further progression and revitalization of the town that we call home.

# Odor Mitigation Plan

## Specific Odor-Emitting Activities

Gasland Farms will be a medical marijuana caregiver storefront located at 12 Grays Lane in Biddeford.

Gasland Farms will sell marijuana and marijuana products produced by state licensed medical cultivation and product manufacturing facilities as well as non-marijuana goods, such as apparel, to qualified patients 18 years of age or older. Gasland Farms will display pre-packaged marijuana and marijuana products in glass display cases within the retail store. All inventory not displayed in display cases will be stored within the limited access, secure vault on the premises. All marijuana and marijuana products on premises will be packaged in accordance with state law.

## ODOR MITIGATION PRACTICES

Gasland Farms will use the below procedural and engineer controls to mitigate odor.

### 1. Procedural Activities

The following procedural activities will mitigate odors associated with marijuana and marijuana product:

- Gasland Farms will only display and/or store marijuana or marijuana product that has been packaged in accordance with state law.
- Marijuana and marijuana products that are not displayed for sale will be stored in a vault (an enclosed area located within the limited access area of the premises).
- Display cases displaying marijuana and marijuana products shall be fully enclosed and shall be shut all times with the exception of an employee accessing marijuana or a marijuana product for a patient.
- Premises doors and windows shall be shut at all times.

### Engineering Controls

Each air intake on the retail premise shall be installed with a carbon filter

and inline fan. This technology is the accepted and available industry specific best control technologies designed to effectively mitigate odors

within the retail environment.

#### A. System Design

Gasland Farms will utilize the VivoSun 6 Inch 440 CFM Inline Fan, 6 Inch Carbon Filter at key points inside the building to mitigate odors associated with storage and display of marijuana and marijuana products.

In addition, Gasland Farms will place Ona Gel within the vault area, where there will be high concentration of packaged product. Ona Gel is a widely accepted odor neutralizer in the cannabis industry.

#### B. Maintenance Plan

The Manager is responsible for checking the Carbon Filter and Inline Fan(s) once a month. The Manager shall be responsible for changing filters every 9 months, or more frequently if necessary. The Manager shall record the purchases of replacement filters, the date of performed maintenance, notification and response to equipment malfunctions on an odor control maintenance forms. Completed odor control maintenance forms shall be maintained in accordance with Gasland Farms record storage and retention policy.

All staff shall be trained on the importance of:

- keeping the vault and display case doors closed;
- ensuring doors and windows are closed;
- ensuring exhaust and filtration systems are running as required;
- reporting concerns about the functioning of odor mitigation controls to the Manager.
- This training shall be part of each employee's initial training and annual refresher training. The date of all trainings and the staff who participated in the training shall be recorded by the staff person conducting the training. Training records shall be maintained in accordance with Gasland Farms record storage and retention policy.

#### Complaint Response and Tracking

Gasland Farms will designate the General Manager as the contact for receiving odor-related complaints. The General Manager will complete a complaint report. Complaint reports shall be maintained in accordance with Gasland Farms record storage and retention policy. The Chief Executive Officer shall respond to all odor-related complaints within 24 hours of receipt of the complaint. The general Manager and other appropriate management shall consider amendments to Gasland Farms Ventilation and Filtration Plan and that processes are sufficient to mitigate odors from all odor sources.

## Visual Representation of Odor Mitigation Equipment

VivoSun 6 Inch 440 CFM Inline Fan, 6 Inch Carbon Filter



Ona gel



## SIGNAGE

- We will use the existing sign structure located at the property as depicted in the attached photographs.
- The sign will be four feet by eight feet.
- The sign will depict the name of our business – “Gasland Farms” and our gas pump logo.



## Landscaping

We will be adding a floral bed in the area around the sign and will complete a thorough cleanup of existing landscaping prior to opening the retail store.









**KRA****KENNEBUNK RIVER ARCHITECTS**

WWW.KENNEBUNKRIVERARCHITECTS.COM

1662 Post Road Suite B6  
Wells, Maine 04090  
207-216-4850



DRAWN  
MMS

CHECKED

DATE  
6-16-22

PROJECT NO.

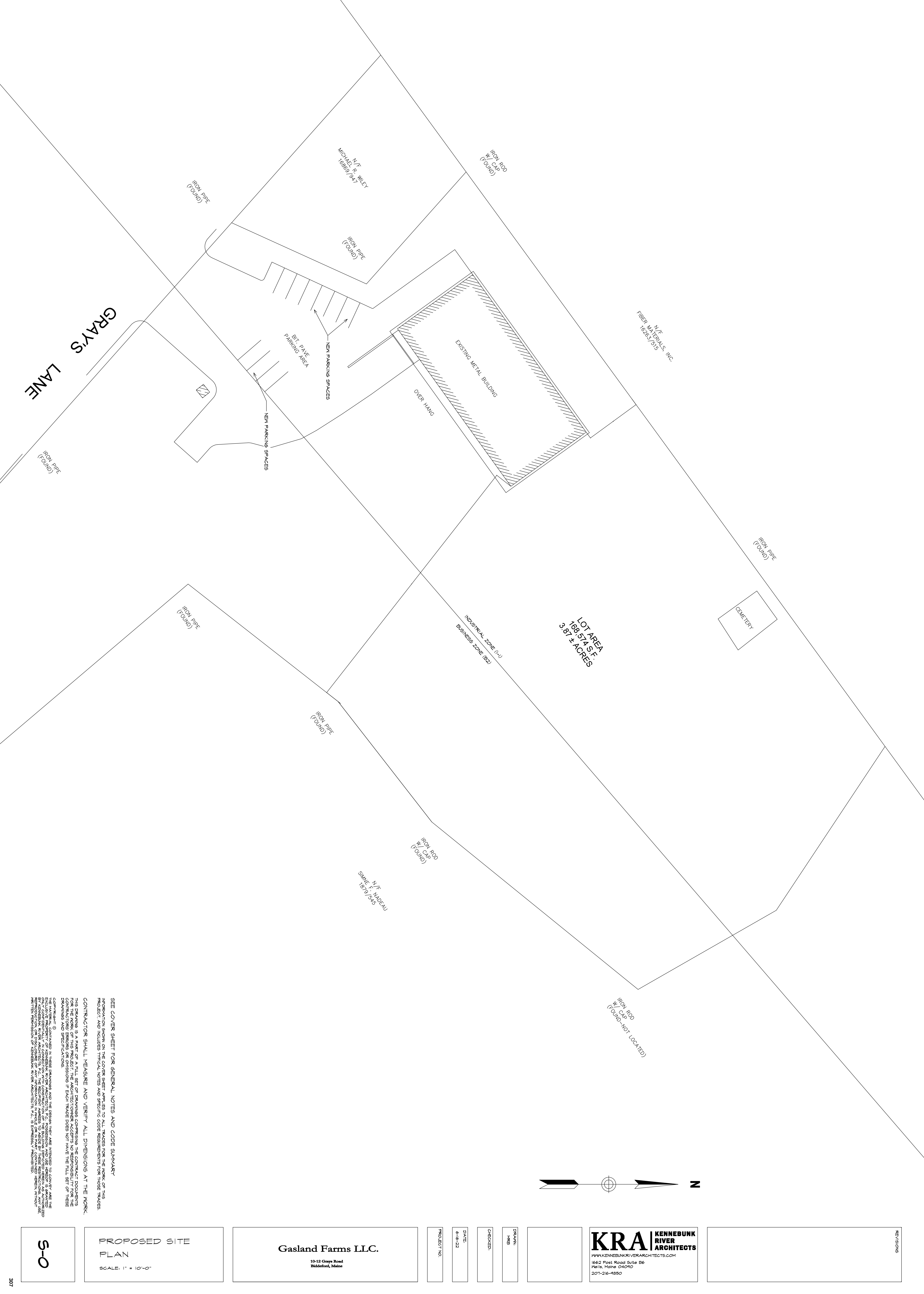
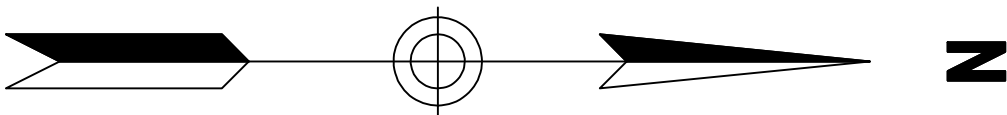
Gasland Farms LLC.

10-12 Grays Road  
Bridgford, Maine

PROPOSED SITE  
PLAN

SCALE: 1" = 10'-0"

S-0



SEE COVER SHEET FOR GENERAL NOTES AND CODE SUMMARY

INFORMATION SHOWN ON THE COVER SHEET APPLIES TO ALL TRADES FOR THE WORK OF THIS PROJECT, AND INCLUDES TYPICAL NOTES AND SPECIFIC CODE REQUIREMENTS FOR TRADE NOTES.

CONTRACTOR SHALL MEASURE AND VERIFY ALL DIMENSIONS AT THE WORK.

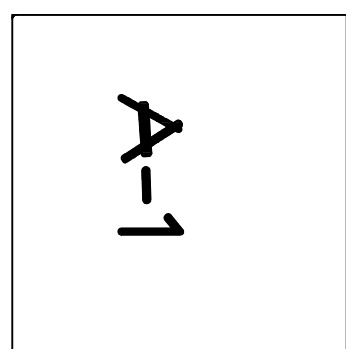
THIS DRAWING IS A PART OF A FULL SET OF DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR THE WORK OF THIS PROJECT. THE ARCHITECT/OWNER ACCEPTS NO RESPONSIBILITY FOR THE CONTRACTOR'S ERRORS OR OMISSIONS IF EACH TRADE DOES NOT HAVE THE FULL SET OF THESE DRAWINGS AND SPECIFICATIONS.

THE ARCHITECT/OWNER AND THE DESIGN TEAM ARE INTENDING TO COVER ARE THE EXCLUSIVE PROPERTY OF KENNEBUNK RIVER ARCHITECTS, P.C. PERMISSION AND USE HEREON IS GRANTED BY KENNEBUNK RIVER ARCHITECTS, P.C. TO THE DESIGN TEAM TO ADHERE BY THESE DIRECTIONS AND USE FOR THE WORK OF THIS PROJECT. THE ARCHITECT/OWNER ACCEPTS NO RESPONSIBILITY FOR THE CONTRACTOR'S ERRORS OR OMISSIONS IF EACH TRADE DOES NOT HAVE THE FULL SET OF THESE DRAWINGS AND SPECIFICATIONS.

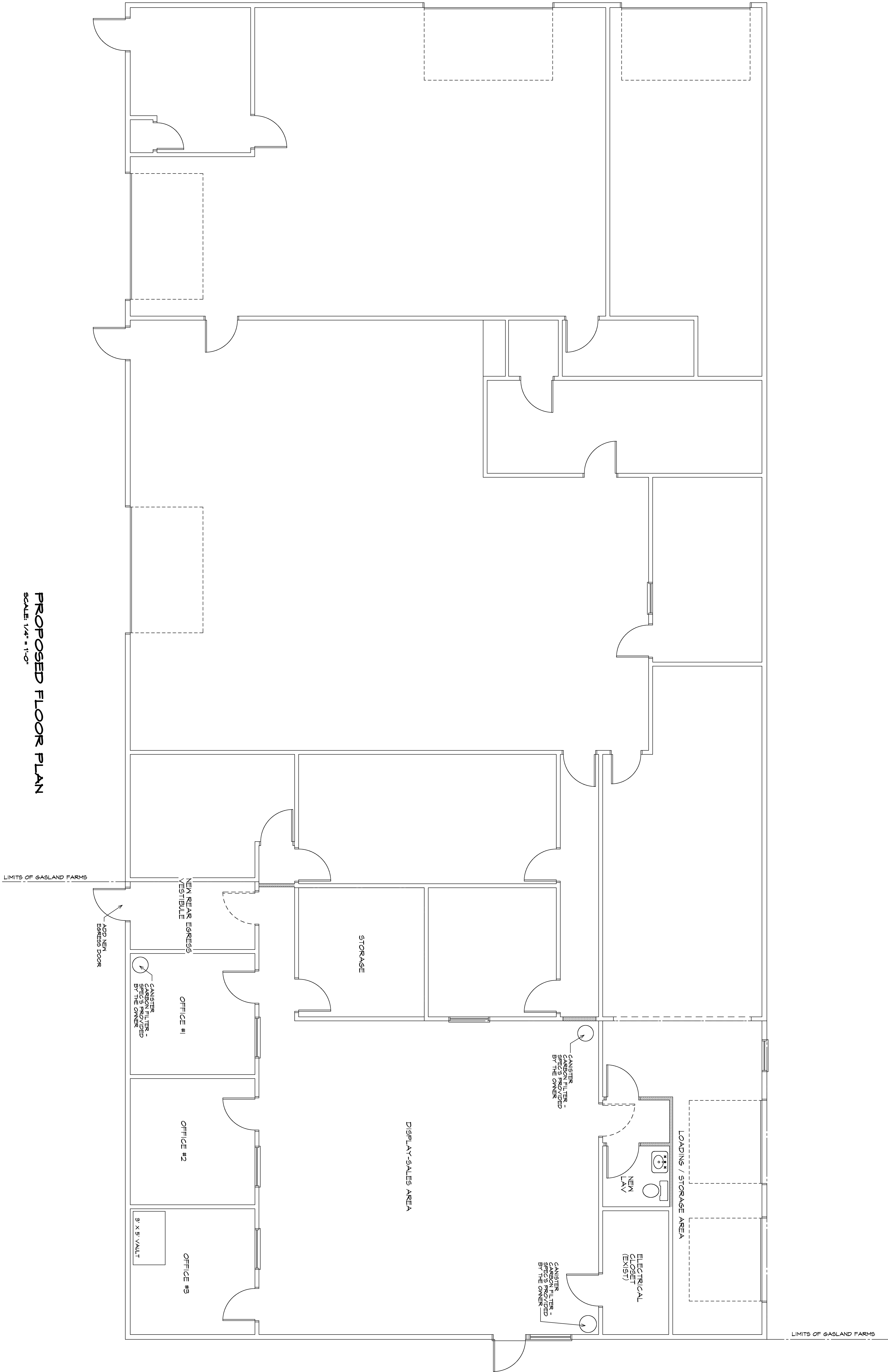
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EXISTING FLOOR  
PLAN  
SCALE: 1/4" = 1'-0"







CONTRACTOR SHALL MEASURE AND VERIFY ALL DIMENSIONS AT THE WORK. THIS DRAWING IS A PART OF A FULL SET OF DRAWINGS COVERING THE CONTRACT DOCUMENTS FOR THE WORK. THIS PROJECT, THE ARCHITECT/OWNER AGREES NO RESPONSIBILITY FOR THE ACCURACY OF THE DIMENSIONS SHOWN HEREIN. THE ARCHITECT/OWNER SHALL BE RESPONSIBLE FOR THE DIMENSIONS AND SPECIFICATIONS. THE MATERIALS SHOWN IN THESE DRAWINGS AND THE DESIGN THEY ARE INTENDED TO CONVEY ARE THE PROPERTY OF KRA. ANY REUSE OR MODIFICATION OF THE DESIGN OR MATERIALS WITHOUT THE WRITTEN PERMISSION OF KRA IS PROHIBITED. ANY INFORMATION IN WHOLE OR IN PART CONTAINED HEREIN WITHOUT THE WRITTEN PERMISSION OF KRA IS PROHIBITED. ANY INFORMATION IN WHOLE OR IN PART CONTAINED HEREIN WITHOUT THE WRITTEN PERMISSION OF KRA IS PROHIBITED.















**CONFIDENTIAL**

**NOT FOR PUBLIC VIEW**



Camera



Glass Break Sensor



Motion Detector

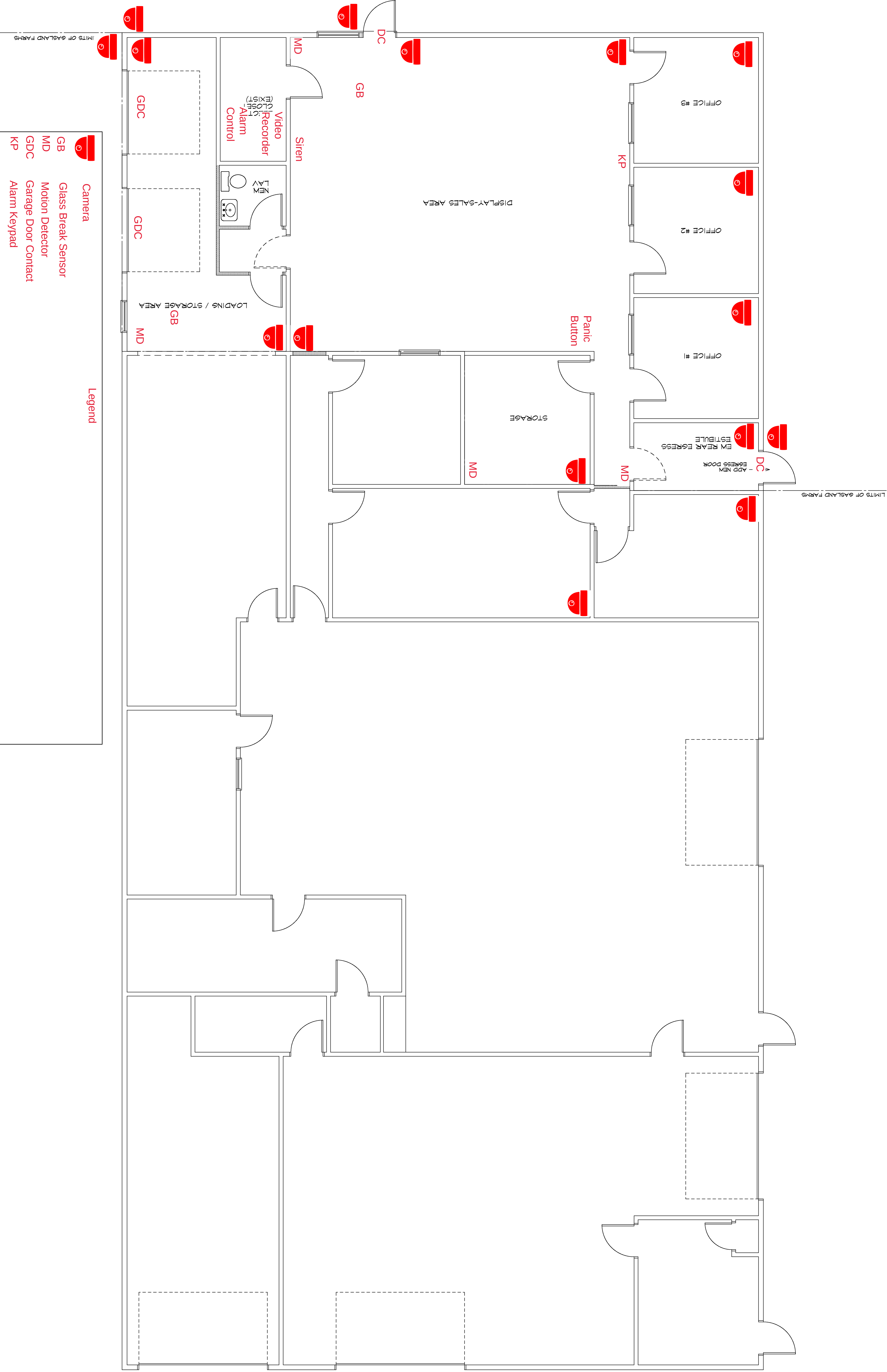


Garage Door Contact



Alarm Keypad

Legend



PROPOSED FLOOR PLAN

SCALE: 1/4" = 1'-0"

**NNN COMMERCIAL LEASE**  
**12 GRAYS LANE**  
**BIDDEFORD, MAINE 04005**

THIS LEASE is made and entered into as of the 1st day of January, 2022, by and between the parties identified as “Landlord” and “Tenant” below.

FOR VALUABLE CONSIDERATION, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

1. Lease Summary. The summary contained in this Section (referred to throughout this Lease as the “Lease Summary”) sets forth certain provisions of this Lease. The Lease Summary is an integral part of this Lease.

LANDLORD: Nichols Holdings, LLC  
(referred to herein as the “Landlord”)

LANDLORD’S MAILING ADDRESS: 70 Pool Stret  
Biddeford, Maine 04005

TENANT: Gasland Farms LLC

TENANT’S MAILING ADDRESS: 12 Grays Lane  
Biddeford, Maine 04005

PROPERTY LOCATION: 10-12 Grays Lane, Biddeford, Maine 04005 (the “Property;” the building on the Property is referred to as the “Building”).

DESCRIPTION OF PREMISES: Approximately 1000 square feet, as depicted in Exhibit A attached hereto and made a part hereof (referred to herein as the “Leased Premises”).

PERMITTED USE: Medical Cannabis Caregiver Retail Store

LEASE TERM: Five (5) Years

LEASE COMMENCEMENT: January 1, 2022

RENT COMMENCEMENT: December 31, 2027

BASE RENT: Tenant shall pay to Landlord base rent set forth as follows:



|        |                   |                      |
|--------|-------------------|----------------------|
| YEAR 1 | \$3000.00 monthly | \$36,000.00 annually |
| YEAR 2 | \$3000.00 monthly | \$36,000.00 annually |
| YEAR 3 | \$3000.00 monthly | \$36,000.00 annually |
| YEAR 4 | \$3000.00 monthly | \$36,000.00 annually |
| YEAR 5 | \$3000.00 monthly | \$36,000.00 annually |

**ADDITIONAL RENT:** Tenant shall be responsible for all building expenses including paying the full amount of its utility expenses for the leased premises. Utilities include electricity, phone/internet and security system.

**RENEWAL OPTION:** Tenant to be provided with ONE (1), Five (5) year renewal option. Tenant to provide Landlord no less than three (3) months advance written notice prior to expiration of lease term of its intention to renew. The renewal option(s) would be under the same terms and conditions as the initial term, except for the rental rate which would be at fair market rent but not less than prior year's rent.

**SECURITY DEPOSIT:** \$3,000.00 security deposit due upon execution of the Lease to be held by Landlord for the duration of the Lease term and for any subsequent renewal Lease terms.

**LANDLORD'S WORK:** Landlord shall deliver the space AS IS.

**TENANT'S WORK:** Any and all modifications to the leased premises by Tenant will be submitted to Landlord for its approval prior to commencement of work. Tenant agrees that all work be approved by Landlord prior to commencement of work and such work would be performed in a good and workmanlike manner in compliance with all applicable state and municipal building codes and ordinances.

**SIGNAGE & IMPROVEMENTS:** Signage to be in accordance with State law and local ordinances. Signage to be at Tenant's sole cost and expense. Design and location of signage would be subject to Landlord's written approval prior to installation, which approval would not be unreasonably withheld or delayed.

2. Leased Premises and Common Areas.

(a) Leased Premises. Landlord hereby leases the Leased Premises to Tenant, and Tenant hereby rents the Leased Premises from Landlord, upon the terms and provisions of this Lease (including the Lease Summary), and which Leased Premises are designated on Exhibit A which is attached hereto and incorporated herein, together with the right to use, together with the right to the nonexclusive use, in common with others entitled to use the same, of the Common Areas of the Property (as the same as hereinafter defined), as provided herein as may be designated by the Landlord from time to time, all as more fully set forth in and subject to the terms and conditions of this Lease.

(b) Common Areas. The terms "Common Areas" and "Common Area" are defined for all purposes of this Lease as that part of the Property intended for the common use and/or benefit of all tenants, including among other facilities, all common access ways, roof, exterior walls, structural building components, utility lines, landscaping, curbs, sidewalks, utility, utility rooms, lighting and utility facilities, but excluding interior spaces in the Building and other exterior loading docks not forming a part of the Leased Premises (now or hereafter existing) designed or used for separate rental, as the same may exist from time to time, excluding streets and alleys maintained by a public authority; all parking areas shall also be included in the Common Areas for purposes of maintenance and repair thereof, but no right to use of parking areas in the Lease Summary shall exist by virtue of inclusion of any parking areas in the Common Areas. Landlord reserves the right to change from time to time the dimensions and location of the Common Areas and the Building as well as the dimensions, identity and type of any other building in the Property, other than the Leased Premises, and to construct improvements and buildings in the Common Areas, provided however that reasonable access to the Leased Premises are maintained and that any such work does not materially affect the usability of the Leased Premises.

(c) Use of Common Areas. Tenant, its employees, vendors, invitees, and customers, and, when duly authorized pursuant to the provisions of this Lease, its subtenants, licensees and concessionaires, shall have the right to use the Common Areas as constituted from time to time, which rights shall be nonexclusive in common with Landlord, other tenants in the Property and other persons permitted by Landlord to use the same, except to any extent such space is designated as being exclusive to Tenant. Such use shall be and shall be subject to such reasonable rules and regulations of general application as Landlord may from time to time prescribe. Tenant shall not take any action which would interfere with the rights of other persons to use the Common Areas. Landlord may temporarily close any part of the Common Areas for such periods of times as may be necessary to make repairs or alterations or to prevent the public from obtaining prescriptive rights, provided the same shall not interfere with reasonable access to, or usability of, the Leased Premises. Landlord shall be responsible for the operation, management, and maintenance of the Common Areas, the manner of maintenance and the expenditures therefore to be in the reasonable discretion of Landlord.

(d) Parking. Tenant has exclusive rights to all available parking at the rear of the building. Parking is provided at the risk of the Tenant and its employees, agents and invitees. Upon request, Tenant shall furnish to Landlord a complete list of license numbers of all automobiles

operated by Tenant, its employees, subtenants, licensees or concessionaires. If any automobile or other vehicle owned by Tenant or any of its employees, subtenants, licensees or invitees or any of their respective employees shall at any time be improperly parked in any part of the Property other than those designated by Landlord, Landlord shall be and is hereby authorized to cause such automobile or other vehicle, which is improperly parked to be removed, either within or beyond the Property. Tenant agrees to indemnify Landlord, its employees, and agents and holds each of them harmless from any and all claims of whatsoever nature, which may arise by reason of such removal, unless arising out of or in connection with the negligence or intentional acts of the Landlord, its employees, agents or contractors.

3. Term of Lease.

(a) The term of this Lease (the "Lease Term") shall be as shown in the Lease Summary and shall commence on the Commencement Date as set forth in the Lease Summary.

(b) Landlord shall permit Tenant to enter onto the Leased Premises for purposes of Tenant's installation of improvements and personal property upon the Commencement Date unless an earlier date is agreed to in writing by the parties.

(c) At the expiration of the term hereof, Tenant shall surrender the Leased Premises in the same condition as the Leased Promises were in upon delivery of possession thereto under this Lease, reasonable wear and tear excepted, and shall surrender all keys for the Leased Premises to Lessor at the place then fixed for the payment of rent, and with the Tenant's goods, inventory, improvements and alternations being disposed of in accordance with Section 10 below. Tenant shall remove all its trade fixtures and shall repair any damage to the Leased Premises caused thereby and leave the Leased Premises in 'broom clean" condition. Tenant's obligation to observe and perform this covenant shall survive the expiration or the termination of the term of this Lease Agreement, or any extension or renewal thereof.

4. Payments of Base Rent and Additional Rent.

(a) Tenant hereby agrees and covenants to pay to Landlord the Base Rent set forth in the Lease Summary ("Base Rent"), payable in equal monthly installments referenced in the Lease Summary in advance on the first day of each month during the Lease Term. The Base Rent shall be pro-rated for portions of the calendar month at the beginning and end of the Lease Term and be paid to Landlord as provided in the Lease Summary or at such other place as Landlord shall designate in writing to Tenant in the manner provided herein. Base Rent and Additional Rent due hereunder shall be paid promptly without notice or demand and without setoff or deduction of any kind, subject only to abatement as expressly provided herein.

(b) If any payment of Base Rent, Additional Rent or other sum due hereunder is not received by Landlord by the fifth (5th) day after such payment is due, then the Tenant shall also pay to the Landlord on demand a late payment service charge to cover Landlord's administrative and overhead expenses of processing late payments equal to the greater of \$50.00 or six percent (6.0%) of such unpaid sum; in addition the amount of such rent or other sum due hereunder shall bear interest at an annual rate of eighteen percent (18%) (or the highest rate permitted under the laws of Maine, if less) from the date when originally due until paid, all unless Tenant demonstrates

the delay was due to the U.S. Postal Service's mishandling of mail properly and timely sent. The rights afforded to Landlord pursuant to this Section shall be in addition to and not in lieu of any other rights and remedies Landlord may have under this Lease.

(c) No payment by Tenant or receipt by Landlord of any lesser amount than the amount stipulated to be paid hereunder shall be deemed other than on account of the earliest stipulated Base Rent or additional rent charges; nor shall any endorsement or statement on any check or letter be deemed an accord and satisfaction, and Landlord may accept any check or payment without prejudice to Landlord's right to recover the balance due or to pursue any other remedy available to Landlord. Any payment by Tenant or acceptance by Landlord of an amount less than that due under the terms hereof will be treated as a payment on account, regardless of any endorsement appearing on any such check or any statement made by Tenant to the contrary.

(d) Tenant shall also pay to Landlord as additional rent those items described in the "ADDITIONAL RENT" section on page 2 of this document. Provided, however, that Common Area Charges shall not include the following specific items:

- i. the cost of Landlord's Work,
- ii. capital repairs or replacements to the foundation, structure, roof, exterior windows or major mechanical, electrical or plumbing systems of the Building, and except for any work necessary due to the negligence or fault of Tenant; for purposes of this Lease, "capital repairs or replacements" are those items which are treated as capital items for tax purposes,
- iii. enforcement costs against any other tenant of the Building,
- iv. brokerage fees, advertising, tenant fit-up costs for other tenants or professional fees associated with the vacancy or leasing of any space other than the Leased Premises within the Building.

Landlord shall provide Tenant with an accounting of actual ADDITIONAL RENT items within sixty (60) days of the end of each Lease Year, and Tenant shall pay any shortfall or be credited with any overpayment with the next installment of Base Rent and Additional Rent.

5. Taxes.

Tenant shall also punctually pay and discharge all taxes assessed which are or may during the term of this Lease be charged, laid, levied or imposed upon or become a lien upon any personal property of Tenant attached to or used in connection with Tenant's business conducted on the Leased Premises, provided however that Tenant's liability shall not extend to personal property taxes assessed against the property of others.

6. Exterior and Common Area Maintenance.

Landlord shall maintain and repair the Common Areas of the Property and the exterior and structural elements of the Building, including, without limitation, the roof, excepting however any damage thereto caused by any act or the negligence of Tenant, its employees, invitees, agents, customers, licensees, or contractors (which damage Tenant shall be liable for) and except for those expenses to be paid directly by Tenant in accordance with the Lease Summary. This Section is not intended to address to damage by fire or other insured risk to the Leased Premises, provision for which is hereinafter made. Tenant shall promptly report in writing to the Landlord any defective condition known to Tenant which the Landlord is required to repair. Tenant accepts the Common Areas in their existing condition and agrees that no representation, statement or warranty, express or implied, has been made by or on behalf of Landlord as to such condition, or as to the use that may be made of such Common Areas except for Landlord's work.

7. Utilities.

See "ADDITIONAL RENT" on p. 2 above. For utilities separately provided to the Leased Premises, Tenant shall make arrangements for, and pay when due, all charges for the same including electricity, gas, telephone and any other services used on or about or supplied to the Leased Premises and shall indemnify Landlord against any liability on such account. Landlord shall not be liable for any failure of heat, water supply or electric current or of any service by any utility; or injury to persons (including death) or damage to property resulting from steam, gas, electricity, water, rain or snow which may flow or leak from any part of the Leased Premises or from any pipes, appliances or plumbing works, on the street or subsurface, or from any other place; or for interference with light or other easements, however caused. To the extent it is established that Tenant's use of the Leased Premises consumes a disproportionate amount of utilities that are included in Common Area Charges, Tenant shall be responsible for paying such amount.

8. Tenant's Maintenance and Governmental Compliance.

(a) Tenant shall be responsible for the maintenance of the Leased Premises in neat and clean and maintain in good order, condition and repair including but not limited to the interior walls, doors, windows, plate glass, fixtures; floors; overhead doors, loading dock, and all wiring, electrical systems, building appliances, fixtures, furnace, plumbing, heating, air conditioning and ventilation systems, pipes, wires conduits, mains and equipment. Tenant further agrees that the Leased Premises shall be kept in a clean, sanitary and safe condition in accordance with the laws of the United States of America, the State of Maine and municipal ordinances, and in accordance with all directions, rules, regulations of the health officer, fire marshal, code enforcement officer, and other proper officers of the governmental agencies having jurisdiction over the Leased Premises, in good repair and clean condition at all times during the term of this Lease. Tenant shall be responsible for providing vermin and rodent control on a regular basis if needed.

(b) Tenant shall take good care of the Leased Premises and keep the same free from waste and damage at all times. Tenant shall keep the Leased Premises and sidewalks, service-ways and loading areas adjacent to the Leased Premises neat, clean and free from dirt or rubbish at all times and shall store all trash and garbage within the Leased Premises, arranging for the regular pick-up of such trash and garbage at Tenant's expense. Removal of garbage and trash shall be made

only in the manner and areas prescribed by Landlord. Tenant shall arrange for the regular pick up of trash and refuse at Tenant's expense, unless Landlord provides other refuse service as a component of the Common Area Charges, in which case Tenant shall use such other refuse service and pay the cost of such service as specified by Landlord. Tenant shall not operate an incinerator or burn trash or garbage within the Building. Tenant shall comply with all applicable laws, ordinances, and governmental regulations affecting the Building, including those relating to Hazardous Waste or Substance (hereinafter defined) now in force or that may be hereafter enacted or promulgated. Tenant shall be authorized to maintain a dumpster directly outside its suite.

(c) If the Leased Premises are now, or at any time during the term of this Lease become, a "Public Accommodation" under the Americans with Disabilities Act of 1990 or if modifications or renovations to the Premises are required under the Maine Human Rights Act, Tenant shall, at its sole expense, be responsible for (i) compliance with any obligations there under including any interior or exterior improvements to the Leased Premises or Common Areas, and (ii) making modifications in its policies, practices and procedures in connection with the operating of Tenant's business.

(d) Tenant shall procure at its sole expense all governmental permits and licenses required for the transaction of its business in the Leased Premises, and for compliance with any laws, rules, regulations and ordinances governing its activities on the Leased Premises investigation of all zoning and land use requirements and restrictions. Landlord and the broker make no representations or warranties regarding the suitability of the Leased Premises for Tenants' proposed use.

(e) Tenant shall at all times during the term of this Lease maintain a valid Adult Use cultivation License and the required Town of Hollis license pursuant to 28-B M.R.S.A. Marijuana Legalization Act (Adult Use) as well as a Town of Hollis Ordinance not yet enacted as of the date of the signing of this Lease, and failure to do so shall be a default under this Agreement.

#### 9. Tenant's Use of Leased Premises.

(a) It is understood and agreed by Tenant that the Leased Premises shall be used and occupied by Tenant only for the purposes identified in the Lease Summary and for no other use whatsoever without the prior written consent of Landlord, which consent shall not be unreasonably withheld or delayed, provided that in any event no such use shall violate the terms of other leases in the Property. Tenant shall at all times during the term of this Lease operate its business in strict compliance with the applicable provisions of the Marijuana Legalization Act, 28-B M.R.S.A. and the rules and regulations promulgated by the Office of Marijuana Policy. Tenant's operations shall not in any way interfere with any other tenant's operations in the Building.

(i) Tenant shall at all times during the term of this Lease operate in strict compliance with the Marijuana Legalization Act (28-B M.R.S. § 101 *et seq.* (2018)) and shall maintain its license as provided in the Acts and operate its business in accordance with the Acts. Tenant will promptly deliver to Landlord any notice of final judgment it receives from any governmental agency or law enforcement agency relating to its operations at the Premises

that affects Tenant's ability to continue to operate. At Landlord's request (such request not to be made more than twice in any calendar year), Tenant shall deliver a written certificate certifying that its use and occupancy of the Premises is in compliance with all provisions of this Lease and of the Acts and any regulations relating thereto or promulgated in connection therewith.

- (ii) Without limiting any other provision of this Lease, Tenant shall comply with all municipal and county ordinances and state and federal statutes, rules and regulations now or hereafter in force, which are or shall become applicable to its use and occupancy of the Premises hereunder, to the extent that they are consistent with the Acts or govern matters not directly contemplated by the Acts. In the event of a conflict between the Acts and any federal laws, Tenant may rely upon the Acts subject to the other provisions of this Article.
- (iii) Notwithstanding anything in this Lease to the contrary, either Landlord or Tenant shall have the right upon five (5) days prior written notice to the other or, if sooner, upon the effective date of any court order, to terminate this Lease in the event of (a) the seizure by any federal governmental or law enforcement authority seeking forfeiture of the Premises or the contents thereof, whether or not the court proceeding has actually commenced, based on a change in federal enforcement policy with respect to State-law compliant medical and recreational marijuana cultivation facilities; or (b) any change to the Acts or local law that makes Tenant's use of the Premises as a marijuana establishment illegal under State law.
- (iv) Landlord shall have the right, to reasonably request that Tenant provide to Landlord any regulatory documentation that Tenant has provided to the State of Maine in connection with Tenant's compliance obligations with the Acts.
- (v) Notwithstanding anything in this Lease to the contrary, Tenant shall have the right upon six (6) months prior written notice to Landlord to terminate this Lease in the event Tenant's license, permit or approval to operate at the Premises for the Permitted Use is revoked due to a change to the Acts, local law or any other applicable law. In the event of such a termination during the initial seven (5) year term of this Lease, Tenant will pay to Landlord the pro rata portion, based on the termination date, of any brokerage fees paid by Landlord.

(b) Tenant further agrees that: (i) No auction, fire, "going-out-of-business", liquidation, or bankruptcy sales may be conducted within or at the Leased Premises without the prior written consent of Landlord; (ii) All trash, refuse, and the like, shall be kept in covered fire resistant containers which shall not be allowed by Tenant to overflow or cause an unsightly condition and which containers shall be located in such areas as are reasonably designated by Landlord from time to time, with Tenant being responsible for obtaining its own trash removal service; (iii) Tenant shall not perform any act or carry on any practice which damages the Leased Premises, or causes

or emits any offensive odors or loud noise or vibrations which disturbs other occupants of the Landlord's property (including, but without limitation, such conditions which may result from the use of loudspeakers or musical instruments), or cause a nuisance or menace to or otherwise disturb any abutter or other tenants in the Building; and (iv) Tenant shall not use any portion of the Common Areas for display or storage.

(c) Tenant covenants and agrees that, with respect to any hazardous, toxic or special wastes, materials or substances including without limitation asbestos, waste oil and petroleum products, other than normal office products and substances such as copier and printer toner, and the like (the "Hazardous Materials") which Tenant, its agent or employees, may use, handle, store or generate in the conduct of its business at the Leased Premises, Tenant: (i) will comply with all applicable laws, ordinances and regulations which relate to the treatment, storage, transportation and handling of the Hazardous Materials; (ii) will in no event permit or cause any disposal of Hazardous Materials in or on the Leased Premises and in particular will not deposit any Hazardous Materials in or on the floor or in any drainage system or in the trash containers which are customarily used for the disposal of solid waste; (iii) shall, with respect to any off-site disposal, shipment, storage, recycling or transportation of any Hazardous Materials, properly package the Hazardous Materials and shall cause to be executed and duly filed with the appropriate agencies all necessary forms and documentation, and Tenant shall retain all records required by all federal, state or local laws; (iv) will at all reasonable times permit Landlord or its agent or employees (upon notice to and accompanied by Tenant and without materially interfering with Tenant's business) to enter the Leased Premises to inspect the same for compliance with the terms of this Section and will further provide upon thirty (30) days' notice from Landlord copies of all records which Tenant may be obligated to obtain and keep in accordance with the terms of this Section; (v) will at its expense, upon termination of this Lease, remove all Hazardous Materials introduced by Tenant from the Leased Premises and comply with applicable Maine and federal law applicable to Tenant as the same may be amended from time to time; and (vi) further agrees to deliver the Leased Premises to Landlord at the termination of this Lease free of all pollutants, contaminants, special wastes, underground storage tanks, asbestos and waste oil petroleum and any other hazardous, pathological, radioactive, dangerous or toxic substances, materials or wastes introduced by Tenant. The terms used in this paragraph shall include, without limitation, all substances, materials, etc., designated by such terms under any laws, ordinances or regulations, whether federal, state or local. Tenant further agrees to (a) hold harmless and (b) indemnify Landlord for and against any and all claims, loss, injury, harm, costs, damages and expenses, including reasonable attorney's fees, which may arise in the event that Tenant breaches any of the provisions contained in this Section except if and to the extent the result of or occurring in connection with, any negligence, act or omission of Landlord, its agents, contractors or employees.

(d) Tenant shall not be responsible for nor shall Tenant indemnify and hold Landlord harmless from Hazardous Materials, if any, present on the Leased Premises prior to the Commencement Date unless deposited or resulting from the activities of Tenant or its agents and invitees; otherwise Landlord shall be responsible for the remediation and/or removal of such pre-existing Hazardous Materials as may be required in order to comply with applicable laws, ordinances or regulations, whether federal, state or local. Tenant agrees to notify Landlord in the event that it discovers the presence of such Hazardous Materials.



(d) Tenant shall not injure or deface, or commit waste with respect to the Leased Premises nor occupy or use the Leased Premises, or permit or suffer any part thereof to be occupied or used, for any unlawful or illegal business, use or purpose, nor for any business, use or purpose deemed to be disreputable or extra-hazardous, nor in such manner as to constitute a nuisance of any kind, nor for any purpose nor in any manner in violation of any present laws, rules, requirements, orders, directives, ordinances or regulations of any governmental or lawful authority including insurance underwriters. Tenant shall, promptly upon the discovery of any such unlawful illegal, disreputable or extra-hazardous use, take, at its own cost and expense, all commercially reasonable necessary steps, legal and equitable, to attempt to compel the discontinuance of such use and to oust and remove the subtenants, occupants or other persons operating under Tenant guilty of such unlawful, illegal, disreputable or extra-hazardous use, except to any extent that the same may be due to or occurring in any connection with the negligence, act or omission of Landlord, its agents, contractors or employees.

(e) Tenant shall be solely responsible for securing the Leased Premises from unauthorized entry.

10. Tenant Renovations, Improvements and Signage.

(a) Subject to the provisions of this Section, with the written consent of Landlord, which shall not be unreasonably withheld, Tenant may make interior nonstructural improvements, additions and alterations to the Leased Premises as may be necessary or expedient for its purposes. Tenant shall perform Tenant's Work. Tenant agrees that all such improvements, additions and alterations shall be completed in a good and workmanlike manner in accordance with the requirements of all municipal or other governmental departments or agencies having jurisdiction over the subject matter thereof. Tenant shall promptly repair all damage to the Leased Premises, or the Building occasioned by all such improvements, additions or alterations. All alterations, additions or improvements to the Leased Premises shall be governed by the following terms:

(i) All such improvements are to be of a quality at least equal to the original construction work;

(ii) Prior to the commencement of work on any such alteration, addition or improvement, Tenant shall procure, at its own cost and expense, all necessary permits and approvals. Tenant's plans and specifications covering the same will have been submitted to and approved by (i) Landlord (such approval not to be unreasonably withheld, conditioned or delayed, provided that it shall be deemed reasonable for the Landlord to refuse consent to any such proposed work if such work would injure the safety of the Building, or diminish its value to a material extent) and (ii) all municipal or other governmental departments or agencies having jurisdiction over the subject matter thereof, it being understood that Landlord will not unreasonably refuse to join in any application to any such governmental agency to obtain such approval with respect to any reasonable alteration, addition or improvement;

(iii) In carrying out all such alterations, additions and improvements, Tenant

shall comply with the standards, guidelines and specifications imposed by all municipal or other governmental departments and agencies having jurisdiction over the same, including without limitation, all building codes;

(iv) Prior to the commencement of work on any such alteration, addition or improvements, Tenant shall have procured and delivered to Landlord the policy (or a certificate) of Builder's Risk insurance hereinafter referred to or additional fire and extended coverage insurance as required herein, whichever is applicable;

(v) All work shall be completed promptly and in a good and workmanlike manner and shall be performed in such a manner that no mechanics, materialmen or other similar liens shall attach to Tenant's leasehold estate which are caused by Tenant or its agents and contractors, and in no event shall Tenant permit, or be authorized to permit, any such liens or other claims to be asserted against Landlord or Landlord's rights, estate and interest with respect to the Leased Premises; and at the completion of all work Tenant shall obtain waivers of mechanics and material liens from all persons performing work on or furnishing material to the Leased Premises on behalf of Tenant;

(vi) All permanent alterations, installations, additions or improvements, such as partition walls, doors and electrical cabling, made by Tenant to the Leased Premises shall remain upon and be surrendered with the Leased Premises and become the property of Landlord at the expiration or termination of this Lease or the termination of Tenant's right to possession of the Leased Premises, subject however to the Tenant's right to remove its trade fixtures and the types of items referred to in paragraph 3(c) above if any, all of which shall remain the property of the Tenant if removed, otherwise shall automatically become the property of the Landlord. Landlord may require that Tenant remove any such items that were not approved by Landlord hereunder, and in such event Tenant, at its sole cost and within ten (10) days following written notice from Landlord requiring such removal, shall remove all such unconsented to improvements from the Leased Premises, and shall repair any damage caused by such removal. Any such property which may be removed by Tenant pursuant to the preceding sentence and which is not so removed within said ten (10) day period may upon notice to Tenant and ten (10) days to cure be removed from the Leased Premises by Landlord and stored for the account of Tenant; and if Tenant fails to reclaim such property within thirty (30) days following said notice by Landlord, then such property will be deemed to have been abandoned by Tenant, and may be appropriated, sold, destroyed or otherwise disposed of by Landlord without further notice to Tenant and without obligation to further account therefore. If within such 30-day period or prior to disposal by Landlord Tenant desires to reclaim such property, Tenant shall pay to Landlord the reasonable out-of-pocket costs incurred by Landlord in removing, storing, or otherwise dealing with any such property. Tenant shall also be responsible to pay to Landlord any costs of selling, destroying or otherwise disposing of any property required to be removed by Tenant under the terms of this Lease which is not so removed, to the extent that such costs exceed the amount realized by Landlord from the sale or other reasonable disposition of the same.

(vii) Tenant shall not install any exterior lighting, decorations, paintings, awning, canopies or the like; or erect or install any signs, banners, window or door lettering, placards,

decorations or advertising media of any type that can be viewed from the exterior of the Leased Premises or the Building except as otherwise permitted herein. All items shall conform in all respects when installed to the requirements of all applicable laws, codes and ordinances and to the sign criteria established by Landlord for the Leased Premises from time to time in the exercise of its reasonable discretion, and shall be subject to the prior written approval of Landlord, which shall not be unreasonably withheld, delayed or conditioned as to items within the Leased Premises and signs installed in designated signage areas, as to construction, method of attachment, size, shape, height, lighting, color and general appearance.

(viii) If Tenant is permitted to install signs, as set forth in the Lease Summary, all such signs shall be kept in good condition and in proper operating order at all times. Upon the expiration or earlier termination of this Lease, Tenant shall remove its signs and restore the surface to which the signs were attached to its original condition at Tenants expense. In the event Tenant fails to remove the signs within 10 days from expiration or earlier termination of this Lease, Landlord shall deal with the signs in accordance with the provisions of this Lease relating to other trade fixtures not removed by Tenant.

11. Mechanic's Liens.

In the event of the filing of any notice of a builders, supplier's or mechanic's lien on the Leased Premises arising out of any activities performed by or on behalf of Tenant, Tenant shall immediately either (i) pay the amount of the lien or (ii) institute proceedings to contest the validity of the lien claimed and to discharge the same by the posting of bond or otherwise no later than within 30 days of demand by Landlord. Tenant shall indemnify and hold Landlord against any such claim or lien and all costs of such proceedings including without limitation reasonable attorney's fees. Any such amounts due to Landlord shall be paid as Additional Rent. This provision shall not be interpreted as meaning that the Tenant has any authority or power to permit any lien of any nature or description to attach to or be placed upon the Landlord's title or interest in the Leased Premises, or any portion thereof.

12. Assignment - Subleasing.

Tenant shall not assign this Lease or sublet (which term, without limitation, shall include the granting of concessions, licenses, and the like) the whole or any part of the Leased Premises without in each instance having first received the express written consent of Landlord, which consent shall not be unreasonably withheld or delayed. Notwithstanding any such assignment or subletting, Tenant shall remain fully responsible for compliance with all the terms and conditions of this Lease on the Tenant's part to be performed. Consent by Landlord to one assignment or sublease shall not impair or waive this provision insofar as subsequent assignments or subleases are concerned, and all later assignments and subleases (except as hereinabove stated) shall likewise be made only on the prior written consent of Landlord (not to be unreasonably withheld or delayed) to the extent such consent is required hereunder as aforesaid.

13. Liability/Waiver of Subrogation

Landlord shall not be liable for any damage or losses to Tenant or any injury or damage to the Leased Premises or the property of Tenant or to any property of any third person, firm, association, or corporation on or about the Leased Premises or to any property of Tenant except to the extent that such injury or damage is caused by the negligence or willful misconduct of Landlord, its agents, contractors or employees. Tenant shall, defend (with counsel reasonably acceptable to Landlord), indemnify and hold Landlord harmless from and against any and all such liability and damages, costs and expenses, including reasonable attorneys' fees, and from and against any and all suits, claims and demands of any kind or nature whatsoever, by and on behalf of any person, firm, association or corporation arising out of or based upon any incident, occurrence, injury or damage which happens on the Leased Premises Tenant except for injury or damage to the extent caused, in whole or in part, by the negligence or willful misconduct of Landlord, its agents, contractors or employees. Notwithstanding the foregoing or any other provision of this Lease, Tenant hereby releases Landlord from any and all liability or responsibility to the other or anyone claiming through or under them by way of subrogation or otherwise for any loss or damage to property to the extent actually covered by such party's own insurance then in force, even if any such fire or other casualty occurrence shall have been caused by the fault or negligence of the other party or anyone for whom such party may be responsible. Tenant farther agrees to provide such endorsements for said insurance policies required hereunder agreeing to the waiver of subrogation as required herein, if reasonably available. Without limiting the generality of the forgoing, Tenant shall indemnify, defend and hold harmless the Landlord from and against (i) all violations of the Act by Tenant or its employees or agents, (ii) any civil or criminal prosecution of Landlord solely by reason of Landlord's entering into the Lease with Tenant, and (iii) any causes of action or claims by other tenants against Landlord arising solely from Tenant's use of the Leased Premises.

#### 14. Landlord's Insurance

In the event of loss to the Building, Tenant shall cooperate with Landlord and any in connection with the proceeding and collection of insurance claims, and shall execute and deliver to Landlord such proofs of loss, releases and other instruments as may be necessary to settle any such claims and obtain the proceeds thereof, and in the event Tenant fails or neglects to so cooperate or to execute and deliver any such instrument, Landlord may, as the agent or attorney in fact of Tenant, execute and deliver any such instrument, and Tenant hereby nominates and appoints Landlord the proper and legal attorney in fact of Tenant for such purpose, hereby ratifying all that Landlord may lawfully do as such attorney in fact.

#### 15. Tenant's Insurance

(a) Tenant shall, from initial date of its entry on the Leased Premises, even if such date precedes the Commencement Date, and throughout the term hereof procure and carry at its own expense comprehensive general liability insurance on the Leased Premises with an insurance company authorized to do business in Maine. Such insurance will be carried in the name of and for the benefit of Tenant and shall name Landlord and Landlord's management company as an additional insured with at least 10 days written notice of cancellation; will be written on an

"occurrence" basis; and shall provide coverage of at least Two Million Dollars (\$2,000,000). Tenant shall furnish to Landlord a certificate of such insurance evidencing its compliance with the requirements under this Lease and that Landlord has been added as an additional insured.

(b) During any period or periods of construction by Tenant on the Leased Premises, the construction of which is of a type to which Builder's Risk Insurance is applicable, Tenant shall obtain and maintain in effect standard Builder's Risk Insurance written on a completed value basis, including extended coverage, and utilizing a maximum value at date of completion not less than the aggregate contract price or prices for the construction of such facilities. Such insurance shall be obtained from an insurance company authorized to do business in Maine, and Tenant shall furnish to Landlord a certificate of such insurance which shall provide that the insurance indicated therein shall not be canceled without at least ten (10) days written notice to Landlord. If such construction by Tenant is of a type to which Builder's Risk Insurance is not applicable, Tenant shall provide the necessary additional coverage under the policies referred to herein.

(c) Tenant shall procure and continue in force during the term hereof, all-risk insurance, which contains fire and extended coverage on a full value, repair or replacement basis upon Tenant's inventory, property, machinery, equipment and appurtenances located on or in the Leased Premises. All such policies must be taken in responsible companies authorized to do business in Maine. Tenant shall furnish to Landlord a certificate of such insurance which shall provide that the insurance indicated therein shall not be canceled without at least ten (10) days written notice to Landlord and shall waive any rights of subrogation against Landlord and Landlord's management company.

#### 16. Destruction or Damage

(a) In the event that the Leased Premises is totally destroyed by fire or other casualty insured against, or is so damaged that repairs and restoration cannot be accomplished within a period of one hundred twenty (120) days from the date of such destruction or damage, then upon notice from Landlord or Tenant to the other party within 30 days of the date of such loss, the term of this Lease will then terminate without further act of either party hereto, and each party shall be relieved of any further obligation to the other, and except that Tenant shall be liable for and shall promptly pay Landlord any Rent then in arrears or Landlord shall promptly rebate to Tenant the pro rata portion of any Rent paid in advance. In the event that the Leased Premises are so damaged that repairs and restoration can be accomplished within a period of one hundred twenty (120) days from the date of such destruction or damage, this Lease will continue in effect in accordance with its terms; such repairs and restoration will, unless otherwise agreed by Landlord and Tenant, be performed as closely as practicable to the original specifications (utilizing therefore the proceeds of the insurance applicable thereto without any apportionment thereof for damages to the leasehold interest created by this Lease), and until such repairs and restoration have been accomplished, a portion of the rent will abate equal to the proportion of the Leased Premises rendered unusable by the damage. Landlord's obligation to restore, replace or rebuild such facilities will not exceed in amount the sum of the insurance proceeds paid to it with which settlement was made. In the event the Leased Premises may be repaired and/or restored within the aforementioned one hundred twenty (120) day period, but the cost of such repair or restoration exceeds the

available insurance proceeds, at Landlord's discretion, this Lease may be terminated in which event the rights and duties of the parties shall be governed by the first sentence of this Section. Tenant shall execute and deliver to Landlord all instruments and documents necessary to evidence the fact that the right to such insurance proceeds is vested in Landlord.

(b) It is understood and agreed that Tenant assumes all risk of damage to its own property arising from any cause including, without limitation, loss by theft or otherwise.

#### 17. Eminent Domain.

(a) If the Property is lawfully condemned or taken by any public authority either in its entirety or in such proportion that it is no longer suitable for the intended use by Tenant, then this Lease will automatically terminate without further act of either party hereto on the date when possession of the Property is taken by such public authority, and each party hereto will be relieved of any further obligation to the other except that Tenant shall be liable for and shall promptly pay to Landlord any rent or other payments due hereunder then in arrears or Landlord shall promptly rebate to Tenant any rent or other such payments paid in advance.

(b) In the event the proportion of the Property so condemned or taken is such that the Leased Premises is still suitable for its intended use by Tenant, this Lease will continue in effect in accordance with its terms and a portion of the rent and other payments due hereunder will abate equal to the proportion of the rental value to Tenant of the property so condemned or taken. The award for the property so condemned or taken will be payable solely to Landlord without apportionment to Tenant, except that Tenant shall be entitled to a separate award, if any, for moving expenses and damages to any improvements installed by Tenant at its expense and such other amounts which Tenant may recover without impairing or reducing Landlord's recovery.

#### 18. Landlord's Access

Upon notice to, and at all times accompanied by Tenant, or authorized employee of Tenant with an OMP individual identification card, without materially interfering with Tenant's business, Landlord may at all reasonable times during the term of this Lease enter to inspect the Leased Premises and/or may show the Leased Premises to prospective purchasers. At any time Landlord shall have the right to display on the exterior of the Leased Premises (but not so as to unreasonably obstruct the view thereof or access thereto) the customary "For Rent" or "For Sale" signs and during such period Landlord may show the Leased Premises and all parts thereof to prospective tenants or buyers between the hours of 9:00 A.M. and 9:00 P.M. on any business day upon notice to Tenant and without materially interfering with Tenant's business.

Landlord also reserves the right after notice of intention to so enter (except that in the event of an emergency, no notice shall be required) to enter the Leased Premises at any time upon notice to Tenant and without materially interfering with Tenant's business, and from time to time at reasonable times except in the case of emergency, to perform Landlord's Work, to make such repairs, additions, or alterations as it may deem reasonably necessary for the safety improvement, or preservation thereof, or of the Building. All of such work and entry to be performed in such manner as will minimize the interference with and disruption of Tenant's business to the extent

reasonably possible. Landlord acknowledges that any work performed by Landlord must be performed by contractors age 21+. Landlord and contractors cannot at any time be unaccompanied in the leased premises in restricted access areas. If Tenant shall have vacated or deserted the Leased Premises or, in the event of an emergency, or if in any other instance after Landlord has given notice of Landlord's intention to enter and Tenant shall not be present during normal business hours to permit an entry into the Leased Premises, then in any such event, Landlord or its agents or employees may enter the same.

#### 19. Default and Remedies.

(a) In the event that (a) any installment of Base Rent, Additional Rent or any other amount to be paid by Tenant is not paid within ten (10) days after written notice to Tenant that such was not received when the same is due and payable, or (b) Tenant defaults in the performance or observance of any other covenant or condition in this Lease and such default remains unremedied for thirty (30) days after written notice thereof has been given or sent to Tenant by Landlord, or (c) any warranty or representation made by Tenant herein proves to be false or misleading, or (d) Tenant makes an assignment for the benefit of creditors, is generally not paying its debts as such debts become due, a custodian is appointed or takes possession of its assets not discharged or dismissed within 90 days, commences any bankruptcy or reorganization proceeding against or by Tenant as a debtor or against any substantial part of Tenant's property, dissolution or liquidation law or statute of any jurisdiction whether now or hereafter in effect not discharged or dismissed within 90 days, or there is commenced against Tenant any such proceeding which remains undismissed for a period of ninety (90) days, or any order approving the petition in any such proceeding is entered, or Tenant by any act indicates its consent to, or acquiescence in, any such proceeding or the appointment of any receiver or trustee for Tenant or any substantial part of its property, or suffers any such receivership or trusteeship to continue undischarged for a period of ninety (90) days, or any party holding a security interest in any of Tenant's fixtures or personal property of any material nature that are located on the Leased Premises institutes or gives notice of foreclosure against any such property not discharged or dismissed within 90 days, or (e) Tenant shall have assigned or sublet the Leased Premises without the prior written consent of Landlord, or (f) the dissolution of any corporate or limited liability Tenant or the termination of any partnership Tenant in violation of the terms hereof, then Landlord shall be entitled to all remedies available to Landlord at law and equity, including without limitation, the remedy of forcible entry and detainer, and Landlord lawfully may at any time thereafter enter into and upon the Leased Premises or any part thereof in the name of the whole and repossess the same as of its former estate, provided however that unless Tenant shall have vacated the Premises Landlord shall first obtain an order from a court of competent jurisdiction authorizing such re-entry and repossession notwithstanding any other provision of this lease, and expel Tenant and those claiming through or under it and remove it or their effects and without prejudice to any remedies which might otherwise be used for arrears of rent or preceding breach of covenant, and upon entry as aforesaid, this Lease shall terminate; and Tenant covenants and agrees, notwithstanding any entry or reentry by Landlord, by summary proceedings, termination, or otherwise, that Tenant shall, as of the date of such termination, immediately be liable for and pay to Landlord the entire unpaid rental and all other balances due under this Lease for the remainder of the term less the value of the premises for the balance of the term, discounted to present value at the then Wall Street Journal Prime Rate (the

"Accelerated Rent"). Tenant shall also remain and continue liable to Landlord in an amount equal to all reasonable costs associated with the default of Tenant and the termination of the Lease, excluding, however, Landlord's attorneys' fees incurred in enforcing the provisions of this Lease against Tenant.

(b) In the event of termination of this Lease for the default of Tenant, pursuant to the provisions of the preceding paragraph, Landlord will have the right from time to time to re-let the Leased Premises upon such terms as it deems fit. Nothing herein contained will be deemed to require Landlord to await the date on which this Lease, or the term hereof, would have expired had there been no default by Tenant, or no such termination or cancellation. Except as expressly set forth herein, Landlord's rights and remedies under this Lease are distinct, separate and cumulative remedies, and no one of them, whether or not exercised by Landlord, will be deemed to be in exclusion of any of the others herein provided. Nothing contained in this Section will limit or prejudice the right of Landlord to prove and obtain, in proceedings involving the bankruptcy or insolvency of, or a composition with creditors by Tenant, the maximum allowed by any statute or rule of law at the time in effect. Notwithstanding any other provision of this Lease, Landlord shall, in the event of termination of this lease or of Tenant's rights hereunder, have the obligation to mitigate its damages pursuant to the provisions of Maine statute if applicable and other applicable law. If Tenant has paid the Accelerated Rent to Landlord, then all net amounts received by Landlord in mitigation of its damages (i.e., as rent or other charges received from any reletting of the Leased Premises) shall be paid over by Landlord to Tenant within 30 days after the same are received by Landlord (up to but not in excess of the total amount of Accelerated Rent actually paid by Tenant), which "net amounts" received in mitigation shall be computed by taking the gross amounts received by Landlord as mitigation of its damages, and subtracting there from all reasonable costs of obtaining such mitigation, including without limitation brokerage commissions, costs of refitting the Leased Premises and the like.

(c) Landlord shall in no event be in default in the performance of any of its obligations hereunder unless and until Landlord shall have failed to perform such obligations within thirty (30) days or such additional time as is reasonably required to correct any such default after written notice by Tenant to Landlord properly specifying wherein Landlord has failed to perform any such obligation.

(d) Without limiting the generality of the foregoing, any violation by Tenant of the Act, any failure of Tenant to maintain its status as a registered Primary Caregiver under the Act, any criminal or civil prosecution of Tenant for any reason, or any announcement or other evidence that Primary Caregivers shall be prosecuted under Federal law notwithstanding the enactment of the Act shall entitle Landlord to terminate this Lease in writing immediately.

## 20. Mortgage Notice Requirement

Landlord agrees to notify Tenant of any mortgage or lien placed upon the building within ten (10) days of said mortgage or lien being finalized.

## 21. Covenant of Quiet Enjoyment.



Tenant, subject to the terms and provisions of this Lease on payment of the rent and observing, keeping and performing all of the terms and provisions of this Lease on its part to be observed, kept and performed, shall lawfully, peaceably and quietly have, hold, occupy and enjoy the Leased Premises during the term without hindrance or ejection by Landlord or by any persons claiming under Landlord.

22. Notices.

Whenever by the terms of this Lease notice, demand, or other communication shall or may be given either to Landlord or to Tenant, the same shall be in writing and shall be sent by certified mail, postage prepaid or by reputable national overnight courier service addressed as set forth in the Lease Summary.

23. Warranties and Representations

(a) Tenant warrants and represents to Landlord that Tenant's entering into this Lease does not violate any other contracts, agreements, leases or any other arrangements of any nature whatsoever that Tenant has with any third parties. Landlord warrants and represents to Tenant that Landlord's entering into this Lease does not violate any other contracts, agreements, leases or any other arrangements of any nature whatsoever that Landlord has with any third parties.

(b) Tenant represents that it is (i) is a limited liability company organized, validly existing under the laws of the State of Maine, (ii) this Lease has been duly authorized by all requisite action and is not in contravention of any law or organizational documents and (iii) this Lease has been duly executed by a duly authorized representative of Tenant.

(c) Landlord represents and warrants to Tenant that Landlord (i) is a limited liability company duly organized, validly existing under the laws of the State of Maine, (ii) this Lease has been duly authorized by all requisite action and is not in contravention of any law or organizational documents and (iii) this Lease has been duly executed by a duly authorized officer of Landlord.

24. Real Estate Broker.

Tenant warrants and represents to Landlord that it has not dealt with any broker, finder or similar person concerning the leasing of the leased premises. Landlord warrants and represents to Tenant that it has not dealt with any broker.

25. Holdover.

If Tenant remains in possession of the Leased Premises after the expiration of the term of this Lease, such possession shall be as a month-to-month tenant. During such month to-month tenancy, the provisions of this Lease, except for base rent, shall be applicable; base rent shall be increased to one and one-half (1-1/2) times the then current base rent for the period just preceding such termination. Landlord or Tenant may terminate any such month-to month tenancy by giving

the other party thirty (30) days prior written notice.

26. Force Majeure - Landlord's Liability - Right to Sell:

(a) In any case where either party hereto is required to do any act (except for any payment of money), the time for the performance thereof shall be extended by a period equal to any delay caused by or resulting from act of God, war, civil commotion, riot, fire or other casualty, labor difficulties, shortages of energy, labor, materials or equipment, government action or regulations, delays caused by the other party, or other causes beyond such party's reasonable control, whether such time be designated by a fixed date, a fixed time or a "reasonable time." The party claiming a justifiable delay shall promptly notify the other party of the cause of the delay and shall use diligence to eliminate the cause of the delay, and shall complete the unfulfilled task promptly when the cause of the delay has been eliminated.

(b) Landlord shall have the right to sell, assign, transfer, mortgage or otherwise alienate its interest in the Property and the Leased Premises, or any portion thereof subject to the terms of this Lease. Upon such sale, assignment, transfer or alienation, the new owner shall be deemed to have succeeded to all of Landlord's rights and obligations hereunder including any liability for Security Deposits, and upon notice of same to Tenant, Tenant shall be bound to the new owner to the same extent as it was bound to Landlord subject to the terms and provisions hereof, provided, that Tenant shall pay directly to the old owner all payments due to Landlord hereunder prior to Tenant's receipt of such notice. At the time when such notice is given to Tenant, Landlord hereunder shall be entirely freed and relieved of any further obligation or responsibility under this Lease for obligations thereafter arising.

27. Remedies Cumulative; Nonwaiver.

No remedy herein or otherwise conferred upon or reserved to a party shall be considered exclusive of any other remedy, but the same shall be distinct, separate and cumulative and shall be in addition to every other remedy given hereunder, or now or hereafter existing at law or in equity; and every power and remedy given to a party by this Lease may be exercised from time to time as often as the occasion may arise or as may be deemed expedient. No delay or omission of a party to exercise any right or power arising from any default on the part of the other party shall impair any such right or power, or shall be construed to be a waiver of any such default, or an acquiescence therein. The acceptance of partial rent by Landlord with knowledge of a default by Tenant hereunder shall not constitute a waiver of such default, except insofar as payment of such rent constitutes a cure for such default.

28. Miscellaneous.

(a) Waiver. Failure on the part of a party to complain of any action or non-action on the part of the other party, no matter how long the same may continue, shall never be deemed to be a waiver by a party of any of its rights hereunder. Further, no waiver at any time of any of the provisions hereof by a party shall be construed as a waiver of any of the other provisions hereof, and a waiver at any time of any of the provisions hereof shall not be construed as a waiver at any

subsequent time of the same provisions. The consent or approval of Landlord to or of any action by the other party requiring Landlord's consent or approval shall not be deemed to waive or render unnecessary Landlord's consent or approval to or of any subsequent similar act by the other party. No payment by Tenant, or acceptance by Landlord, of a lesser amount than shall be due from Tenant to Landlord shall be treated otherwise than as a payment on account. The acceptance by Landlord of a check for a lesser amount with an endorsement or statement thereon, or upon any letter accompanying such check, that such lesser amount is payment in full, shall be given no effect, and Landlord may accept such check without prejudice to any other rights or remedies which Landlord may have against Tenant.

(b) Merger. This Lease contains the entire agreement of the parties and supersedes all prior agreements and understandings, whether oral or written, and shall not be amended or modified except in writing signed by both parties. No representations, inducements, promises or agreements between the parties not embodied herein or therein shall be of any force or effect.

(c) Invalidity. If any term of or provision of this Lease or application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Lease, or the application of such term or provision to persons or circumstances other than those, as to which it is held invalid or unenforceable, shall not be affected thereby, and each term and provision of this lease shall be valid and be enforced to the fullest extent permitted by law.

(d) Governing Law. This Lease shall be governed exclusively by the provisions hereof and by the laws of the State of Maine.

(e) Recording of Lease. Tenant agrees not to record this Lease, but each party hereto agrees, on request of the other, to execute a mutually agreeable Memorandum of Lease in recordable form. In no event shall such memorandum set forth the rental or other charges payable by Tenant under this Lease and any such memorandum shall expressly state that it is executed pursuant to the provisions contained in this Lease, and is not intended to vary the terms and conditions hereof.

(f) Section Headings. The headings throughout this instrument are for convenience and reference only, and the words contained therein shall in no way be held to explain, modify, amplify, or aid in the interpretation, construction, or meaning of the provisions of this Lease.

(g) Use of Pronoun. The word "Tenant" shall be deemed and taken to mean each and every person or party mentioned as a Tenant herein, be the same one or more; and if there shall be more than one Tenant, any notice required or permitted by the terms of this Lease may be given by or to any one thereof, and shall have the same force and effect as if given by or to all thereof. The use of the neuter singular pronoun to refer to Landlord or Tenant shall be deemed a proper reference even though Landlord or Tenant may be an individual, a partnership, a corporation, corporation, trust or a group of two or more individuals or corporation. The necessary grammatical changes required to make the provisions of this Lease apply in the plural number where there is more than one Landlord or Tenant and to either corporations, associations, partnerships, or individuals, males or females, shall in all instances be assumed as though in each case fully expressed.

(h) Additional Rights. Notwithstanding any other provision of this Lease to the contrary, it is the intention and agreement of the parties that each party shall in all events and circumstances be responsible to pay for its own attorneys' and paralegals' fees, costs and disbursements and court costs incurred or paid in any connection with this Lease or the tenancy created hereunder, whether any such amounts be incurred in relation to the negotiation, execution, interpretation, or enforcement of this Lease, or matters related thereto or hereto.

(i) Landlord's Liability. Anything in this Lease to the contrary notwithstanding it is agreed that Landlord shall not be personally liable under this Agreement in any way whatsoever to Tenant, and Tenant shall be entitled to make claim for any liability it is alleged to have suffered, only against Landlord's interest in the Property. Furthermore, if Landlord, or such individual or on the part of the stockholders of such corporation or the members of such partnership or joint venture or the beneficiaries of such trust with respect to any of the terms, covenants and conditions of this Lease, and Tenant shall look solely to the equity of Landlord, or of such successor in interest, in the estate of Landlord in the Property for the satisfaction of each and every remedy of Tenant in the event of any breach by Landlord, or by such successor in interest, of any of the terms, covenants and conditions of this Lease to be performed by Landlord, such exculpation of personal liability (beyond any interest in the Property) to be absolute and without any exception whatsoever but which shall not limit action by Tenant for specific performance or injunction or other remedies not seeking a money judgment. Nothing in this paragraph shall prevent Tenant from seeking a judgment from Landlord (or from any successor of Landlord) where such judgment may be recovered from insurance sanded by Landlord, or by such successor.

(j) Whenever in this Lease provision is made for the doing of any act by any party, it is understood and agreed that said act shall be done by such party at its own cost and expense, unless a contrary intent is expressed.

(k) Waiver of Jury Trial. Notwithstanding anything in this Lease to the contrary, each party, for itself, and its heirs, successors, and assigns hereby knowingly, willingly, and voluntarily waives any and all rights such party may have to a trial by jury related to the provisions of this Lease.

TENANT(S):

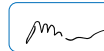


ID vvFcQYApWe2SDcnR9MPd2KcD

Nicholas Boss, Caregiver/Owner  
Gasland Farms LLC

Date: 6/7/2022

LANDLORD:



ID SQPbEdYKDK5XZzQseKyrjNUY

Matt Laudani, Managing Member  
Nichols Holdings LLC

Date: 6/7/2022

## eSignature Details

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**Signer ID:** VF6HRvLXXHNdno9vXPEN9VMs  
**Signed by:** Nick Boss  
**Sent to email:** nckkboss@gmail.com  
**IP Address:** 172.58.222.188  
**Signed at:** Jun 8 2022, 11:13 am EDT

**Signer ID:** RnwHqCAFLyckh3zXKyMG18bf  
**Signed by:** Matt Laudani  
**Sent to email:** mattl9677@gmail.com  
**IP Address:** 174.192.14.192  
**Signed at:** Jun 8 2022, 11:28 am EDT