G Town 2 LLC Warehouse
Application Materials

Marks Lane
Gardiner, Maine 04345

Prepared by:
Steve Roberge
SJR Engineering Inc.
16 Thurston Drive
Monmouth, Maine 04259

Tel/Fax: 1-207-242-6248

March 11, 2023

Table of Contents

City of Gardiner
Site Plan Review Application

Project Name: G TOWN 2 WAREHOUSE EXPANSION Project Cost: $837,000.00

Date of submission: _____ Received by: _____ Fees: 250.00

A complete written description of the proposed project including all other local, state and federal permits required for the project. SEE ATTACHED APPLICATION PACKAGE

Anticipated beginning/completion dates of construction: SUMMER 2024 / SPRING 2025

1. **General Information:** (6.3.2)

Name of Property Owner: G TOWN 2, LLC
Address: 48 PINE KNOLL ROAD, WINTHROP, ME 04364
Phone/Fax No: ROBIN SPENCER TEL: 207-242-0030

Applicant/Agent Name: STEVE ROBERGE, SJR ENGINEERING INC
Address: 16 THURSTON DRIVE, MONMOUTH, ME 04259
Phone/Fax No 207-242-6248

Design Professional(s)/Contractor(s): ☐ Surveyor ☒ Engineer ☐ Architect ☐ Contractor

Name: STEVE ROBERGE, SJR ENGINEERING INC
Address: 16 THURSTON DRIVE, MONMOUTH, ME 04259
Phone/Fax No 207-242-6248

Name: _____
Address: _____
Phone/Fax No _____

Name: _____
Address: _____
Phone/Fax No _____

Signature: Stephen Roberge (ACTING AS AGENT) Date: 3-12-2024

2. **Property Information:** *(6.3.2)*

* Property Location: 1 MARKS LANE City Tax Map(s) 16 Lot(s) 5
* Deed Ref: Book 14619 Page 46 Zoning District(s): PLANNED DEVELOPMENT
* Copy of the tax map showing the property and surrounding location. ATTACHED WITH PACKAGE
* Verification of the applicant's right, title, and interest in the property. DEED ATTACHED

3. **Development Information:** *(6.3.2.7)*

One or more site maps drawn to scale showing the following:

a.) The existing conditions on the property including: (6.3.2.7.1)

1. The property boundaries; ATTACHED
2. The zoning district and zoning district boundaries if the property is located in more than one zone; ATTACHED
3. The location of required setbacks, buffers and other restrictions: ATTACHED
4. The location of any easements or rights-of-way; NONE
5. The locations of existing structures and other existing improvements on the property including a description of the current use of the property; ATTACHED
6. The locations of existing utilities on and adjacent to the property including sewers, water mains, stormwater facilities, gas mains, and electric and other telecommunication facilities; ATTACHED
7. The location of the nearest source of a fire protection water supply (hydrant, fire pond, etc.) ATTACHED
8. The general topography of the property indicating the general slope of the land and drainage patterns. The CEO and/or Planning Board may require a topographic survey of all or a portion of the property for projects involving the construction of new or expanded structures or site modifications. TOPOGRAPHIC CONTOURS SHOWN
9. The location, type and extent of any natural resources on the property including wetlands, vernal pools, floodplains, waterbodies, significant wildlife habitats, rare or endangered plants or animals, or similar resources; and ATTACHED
10. The location and type of any identified historic or archeological resource on the property. NONE

b.) The proposed development activity for which approval is requested including: *(6.3.2.7.2)*

1. The estimated demand for water supply and sewage disposal together with the proposed location and provisions for water supply and wastewater disposal including evidence of soil suitability if on-site sewage disposal is proposed; HHE 200 FORM PROVIDED IN PACKAGE, WATER SUPPLY IS PER PUBLIC WATER.
2. The direction of proposed surface water drainage across the site and from the site together with the proposed location of all stormwater facilities and evidence of their adequacy; STORMWATER PLAN ATTACHED WITH STORMWATER QUANTITY AND QUALITY REPORT.
3. The location, dimensions, and ground floor elevations of all proposed buildings and structures including expansions or modifications to existing buildings that change the footprint of the building; ATTACHED AND SHOWN ON PLANS

4. The location, dimensions and materials to be used in the construction of drives, parking areas, sidewalks and similar facilities; CONSTRUCTION DETAILS SHOWN ON PLAN, NEW ENHANCED PAVED AREAS SHOWN ON PLAN.
5. The proposed flow of vehicular and pedestrian traffic into and through the property; TRUCK TURNING WHEEL PATH ATTACHED FOR VEHICULAR DESIGN
6. The location and details for any signs proposed to be install or altered; EXISTING SIGN POST TO BE UPGRADED WITH LIST OF TENANTS
7. The location and details for any exterior lighting proposed to be installed or altered; EXTERIOR LIGHTING TO BE WALL PACKS ON BUILDINGS
8. Provisions for landscaping and buffering; and NO LANDSCAPING PROPOSED
9. Any other information necessary to demonstrate compliance with the review criteria or other standards of the Land Use Ordinance.

c.) Evidence that the applicant has or can obtain all required permits necessary for the proposal. *(6.3.2.8)* PROJECT WILL REQUIRE PERMITS FROM DEP (STORMWATER PERMIT, NRPA STREAM SETBACK, WETLAND DISTURBANCE).

Additional Information Required: *(6.3.3)*

Building and structure drawings showing the footprint, height, front, side and rear profiles and all design features necessary to show compliance with this Ordinance;

An estimate of the peak hour and average daily traffic to be generated by the project and evidence that the additional traffic can be safely accommodated on the adjacent streets; WAIVER REQUESTED DUE TO PROJECT LOCATION + SIZE

An erosion and sedimentation control plan; and ATTACHED NARRATIVE AND SHOWN ON PLAN

A stormwater management plan demonstrating how any increased runoff from the site will be handled if the project requires a stormwater permit from the Maine Department of Environmental Protection or if the Planning Board determines that such information is necessary based on the scale of the project and the existing conditions in the vicinity of the project. *(6.3.3.4)* STORMWATER PLAN PROVIDED

Survey Requirements *(6.3.5)*

The Code Enforcement Officer or the Planning Board may require the applicant to submit a survey of the perimeter of the tract, giving complete descriptive data by bearing and distances, made and certified by a Registered Land Surveyor. The survey may be required for the construction of new structures or any construction proposed on a undeveloped parcel or tract of land, whenever the Code Enforcement Officer or the Planning Board finds that a survey is necessary to show compliance with the requirements of this Ordinance due to the size of the lot, location of the lot or the placement of existing or proposed structures on the lot or neighboring properties. LOT IS FROM PREVIOUS SUBDIVISION APPROVAL IN 1994 BY THAYER ENGINEERING

Additional Studies *(6.3.6)*

The Code Enforcement Officer or the Planning Board may require the applicant to perform additional studies or may hire a consultant to review the application or portions thereof. The cost to perform additional studies or hire a consultant shall be borne by the applicant.

4. Review Criteria *(6.5.1)*

An applicant shall demonstrate that the proposed use or uses meet the review criteria listed below for the type of application. The Planning Board shall approve an application unless one or the other of them makes a written finding that one or more of the following criteria have not been met.

6.5.1.1 The application is complete and the review fee has been paid.

THE APPLICATION MATERIALS ARE COMPLETE WITH NUMEROUS STUDIES, CALCULATIONS, AND DESIGN DETAILS. A $250 APPLICATION FEE HAS BEEN PAID.

6.5.1.2 The proposal conforms to all the applicable provisions of this Ordinance.

THE ATTACHED PLANS/NARRATIVES/STUDIES/CALCULATIONS DEMONSTRATES THE PROPOSED IMPROVEMENTS MEETS THE PROVISIONS OF THE ORDINANCE

6.5.1.3 The proposed activity will not result in water pollution, erosion or sedimentation to water bodies.

THE CONTRACTOR WILL BE REQUIRED TO CONSTRUCT THE PROJECT IN SUCH A WAY THAT WILL NOT RESULT IN WATER POLLUTION, OR EROSION/SEDIMENTATION INTO WATER BODIES. PLANS + DETAILS HAVE BEEN PROVIDED TO SUPPORT THIS REQUIREMENT

6.5.1.4 The proposal will provide for the adequate disposal of all wastewater and solid waste.

THERE ARE EXISTING SEPTIC FIELDS AND TRASH RECEPTACLES TO ACCOMODATE THIS PROPOSED EXPANSION. SHOULD FUTURE NEEDS OCCUR, THE OWNER WILL CONTACT CODE ENFORCEMENT TO ENLARGE THE SYSTEM.

6.5.1.5 The proposal will not have an adverse impact upon wildlife habitat, unique natural areas, shoreline access or visual quality, scenic areas and archeological and historic resources.

NO IMPACTS TO WILDLIFE HABITAT, UNIQUE NATURAL AREAS, SHORELINE ACCESS, VISUAL QUALITY, SCENIC AREAS, ARCHEOLOGICAL/HISTORIC RESOURCES ARE ANTICIPATED.

6.5.1.6 The proposal will not have an adverse impact upon waterbodies and wetlands.

APPROXIMATELY 3556 SF OF WETLANDS WILL BE IMPACTED. THE 75' STREAM SETBACK WILL BE REDUCED TO 25'. AN ONSITE MEETING WITH CAM DUFOUR (DEP) WAS CONDUCTED. HE WAS SUPPORTIVE OF BOTH IMPACTS. THE NRPA STREAM/WETLAND IMPACTS HAVE BEEN SUBMITTED TO DEP.

6.5.1.7 The proposal will provide for adequate storm water management.

ADEQUATE STORMWATER MANAGEMENT HAS BEEN PROVIDED THROUGH THE USE OF ROOF DRIP EDGES AND SOIL FILTER BEDS. A STORMWATER PERMIT HAS BEEN SUBMITTED TO DEP.

6.5.1.8 The proposal will conform to all applicable Shoreland Zoning requirements.

THE PARCEL DOES NOT LIE WITHIN THE SHORELAND ZONE.

6.5.1.9 The proposal will conform to all applicable Floodplain Management requirements.

THE PARCEL DOES NOT LIE WITHIN THE 100 YEAR FLOODPLAIN.

6.5.1.10 The proposal will have sufficient water available to meet the needs of the development.

THE BUILDING WILL BE SERVED BY PUBLIC WATER LINE FROM GWD.

6.5.1.11 The proposal will not adversely affect groundwater quality or quantity.

THE GROUNDWATER WILL NOT BE AFFECTED BY QUALITY OR QUANTITY. THE SEPTIC SYSTEM HAS BEEN DESIGNED FOR 38 EMPLOYEES, AND MEETS STATE PLUMBING CODE.

6.5.1.12 The proposal will provide for safe and adequate vehicle and pedestrian circulation in the development.

WE HAVE DESIGNED THE PROJECT FOR SAFE VEHICLE TURNING MOVEMENTS. HANDICAP ACCESS WILL BE PROVIDED TO THE NEW BUILDING

6.5.1.13 The proposal will not result in a reduction of the quality of any municipal service due to an inability to serve the needs of the development.

WE HAVE REQUESTED "NO NEGATIVE IMPACT" MEMOS FROM GARDINER DEPARTMENT HEADS.

6.5.1.14 The applicant has the adequate financial and technical capacity to meet the provisions of this Ordinance.

DEVELOPER HAS ADEQUATE FINANCIAL RESOURCES TO FINANCE THIS PROJECT. HE HAS TECHNICAL CAPACITY AND KNOWLEDGE FROM OTHER DEVELOPMENT PROJECTS. HE HAS RETAINED SITE ENGINEERING TO PROVIDE TECHNICAL ASSISTANCE.

Site Plan Review Criteria *(6.5.2)*
All applications for Site Plan Review shall meet the Review Criteria contained in 6.5.1 and the additional criteria contained in this section.

6.5.2.1. The proposal will be sensitive to the character of the site, neighborhood and the district in which it is located including conformance to any zoning district specific design standards;

THE NEW BUILDING IS DESIGNED FOR WAREHOUSE/STORAGE SIMILAR TO USE OF THE EXISTING BUILDING. NO CHANGES TO LAND USE ARE PROPOSED.

6.5.2.2 The proposal will not have an adverse impact upon neighboring properties;

NO WORK ON NEIGHBORING IS PROPOSED. THE SECOND BUILDING WILL NOT HAVE AN ADVERSE IMPACT TO THE ABUTTERS

6.5.2.3 The proposal contains landscaping, buffering, and screening elements which provide privacy to adjacent land uses in accordance with the appropriate performance standards;

EXISTING VEGETATION/BRUSH WILL REMAIN ALONG THE STREAM, BRUNSWICK AVE, AND MARKS LANE. TREES WILL BE CLEARED ALONG LAND OF HALL FOR CONSTRUCTION OF THE SOIL FILTER POND. NEW LANDSCAPING WILL BE INSTALLED ALONG THE FRONT OF NEW BUILDING. A DUMPSTER ENCLOSURE IS SHOWN ON THE PLAN FENCING (8' TALL) IS PROPOSED ALONG THE HALL SIDELINE AND AROUND THE POND.

6.5.2.4 The building site and roadway design will harmonize with the existing topography and conserve natural surroundings and vegetation to the greatest practical extent such that filling, excavation and earth moving is kept to a minimum;

THE PROPOSED IMPROVEMENTS MINIMIZE EXCAVATION & FILLING OPERATIONS

6.5.2.5 The proposal will reflect the natural capabilities of the site to support the development. Buildings, structures, and other features should be located in the areas of the site most suitable for development. Environmentally sensitive areas including waterbodies, steep slopes, floodplains, wetlands, significant plant and wildlife habitats, scenic areas, aquifers and archeological and historic resources shall be preserved to the maximum extent;

OUR DESIGN INCORPORATES THE IDEAS NOTED ABOVE AND SITE MEET THE DESIRED PHYSICAL NEEDS OF THE SITE. ADDITIONAL PERMITTING WILL BE NECESSARY AT DEP FOR IMPACTS TO WETLANDS AND STREAM SETBACKS.

6.5.2.6 The proposal will provide for a system of pedestrian ways within the site appropriate to the development and the surrounding area. The system will connect building entrances/exits with the parking areas and with existing sidewalks, if they exist or are planned in the vicinity of the project;

NO EXISTING SIDEWALKS OR PROPOSED SIDEWALKS ARE PROPOSED. BLDG OUTLETS ARE DIRECTLY ADJACENT TO PARKING.

6.5.2.7 In urban and built–up areas, buildings will be placed closer to the road in conformance with setback requirements and parking areas shall be located at the side or rear of the building;

THIS AREA IS NOT URBAN OR BUILT-UP. WE HAVE DESIGNED THE BLDG TO MEET THE 50' SETBACK FROM BRUNSWICK AVE.

6.5.2.8 Proposals with multiple buildings will be designed and placed to utilize common parking areas to the greatest practical extent;

WE HAVE TAKEN INTO ACCOUNT EXISTING PARKING WHEN DESIGNING THE NEW PARKING AREA. LARGE TRUCK MOVEMENT AROUND THE EXISTING BLDG IS ESSENTIAL FOR ADEQUATE TURNING MOVEMENTS.

6.5.2.9 Building entrances will be oriented to the public road unless the layout or grouping of the buildings justifies another approach.

BUILDING ENTRANCE FACE (OR ARE VISIBLE) FROM BRUNSWICK AVE. AND MARKS LANE.

6.5.2.10 Exterior building walls greater than 50 feet in length which can be viewed from the public road will be designed with a combination of architectural features with a variety of building materials and shall include landscaping abutting the wall for at least 50% of the length of the wall.

THE BUILDING IS 2 UNITS WITH EACH UNIT 100' LONG. WE HAVE DESIGNED A 4' x 8' BUMPOUT ALONG THE CENTERLINE OF BUILDING IN BOTH THE FRONT & BACK OF BUILDING. WE HAVE ADDED LANDSCAPING BETWEEN THE FRONT OF BUILDING AND PAVEMENT.

6.5.2.11 Building materials will match the character of those commonly found in the City and surrounding area including brick, wood, native stone, tinted/textured concrete block or glass products. Materials such as smooth-faced concrete block or concrete panels and steel panels will only be used as accent features. Materials shall be of low reflectance, subtle, neutral or earth tone colors. High-intensity and bright colors shall be prohibited except when used as trim or accent. Building materials for industrial or commercial buildings located within an approved industrial park or subdivision are not be required to comply with this provision.

BUILDING IS ENTIRELY STEEL & METAL WITH CONCRETE FOUNDATION. FRONT OF BUILDING IS BROKEN UP WITH LOADING DOORS, PEDESTRIAN DOOR, WINDOWS, AND A 4'x8' BUMPOUT. BUILDING IS BLUE WITH CREAM COLORED BUMPOUTS

6.5.2.12 Building entrances and points where the development intersects with the public road and sidewalk will be provided with amenities appropriate for the area such as benches, bike racks, bus stop locations and other similar landscape features.

BUILDING ENTRANCES TO REMAIN "AS-IS", AREA WILL BE PAVED.

6.5.2.13 A proposal which includes drive-through service will be designed to minimize impact on the neighborhood. Drive-through lanes will be fully screened from adjacent residential properties and communication systems will not be audible on adjacent properties.

NA.

6. Waivers (6.3.1)

Waiver of Submission Requirements

The CEO or Planning Board may, for good cause shown and only upon the written request of an applicant specifically stating the reasons therefor, waive any of the application requirements set forth in Sections 6.3.2, 6.3.3 and 6.3.4 provided such waiver will not unduly restrict the review process. The CEO or Planning Board may condition such a waiver on the applicant's compliance with alternative requirements. Good cause may include the CEO or Planning Board's finding that particular submissions are inapplicable, unnecessary, or inappropriate for a complete review. Notwithstanding the waiver of a submission requirement, the CEO or Planning Board may, at any later point in the review process, rescind such waiver if it appears that the submission previously waived is necessary for an adequate review. A request for a submission previously waived shall not affect the pending status of an application.

(1.) WAIVER REQUESTED FOR A TRAFFIC STUDY. THE PROJECT ALREADY HAS A DOUBLE ENTRANCE FROM MARKS LANE. THIS ALLOW ADEQUATE TURNING RADIUS FOR LARGE TRUCK MOVEMENTS. THE ADDITIONAL BUILDING WILL UTILIZE THE SAME MOVEMENTS ON THE PARCEL. TRAFFIC ALONG MARKS LANE IS MINIMAL. TRAFFIC ALONG THIS SECTION OF BRUNSWICK AVENUE DOES NOT APPEAR TO BE AT OR NEAR CAPACITY. WE BELIEVE A TRAFFIC STUDY IS NOT NECESSARY.

Legal Notice
Abutter Notice

Legal Ad Notice

City of Gardiner Planning Board Meeting

Tuesday May 14, 2024 @ 6:00 PM

Gardiner City Hall Council Chambers

A Public Hearing has been scheduled for a Site Plan Review on May 14 at 6:00 PM at the Gardiner City Hall Council Chambers at 6 Church St., Gardiner Maine 04345.

G Town 2 LLC is seeking Site Plan Review approval for a second warehouse storage building on the lot. Proposed improvements include the 15,000-sf building, new pavement, and combined stormwater soil filter/detention ponds. The property is located at 1 Marks Lane and is within the Planned Development District, Tax Map 16, Lot 5.

A copy of the application is available at the Code Enforcement Office during regular business hours. Oral or written comments concerning the application may be presented prior to the meeting to the Code Enforcement Office or at the public hearing.

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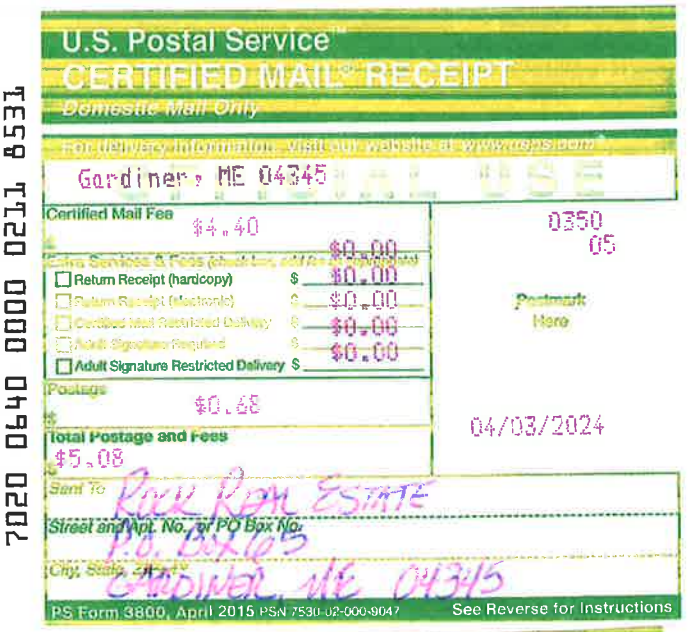

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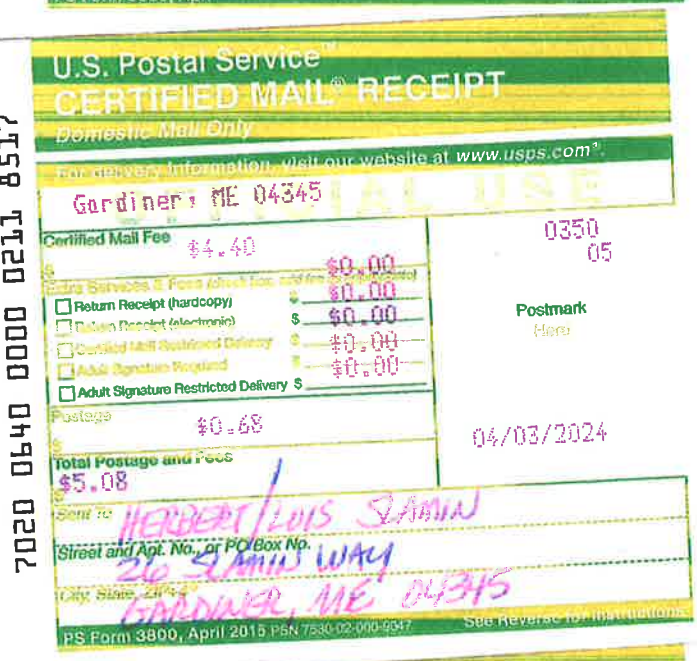

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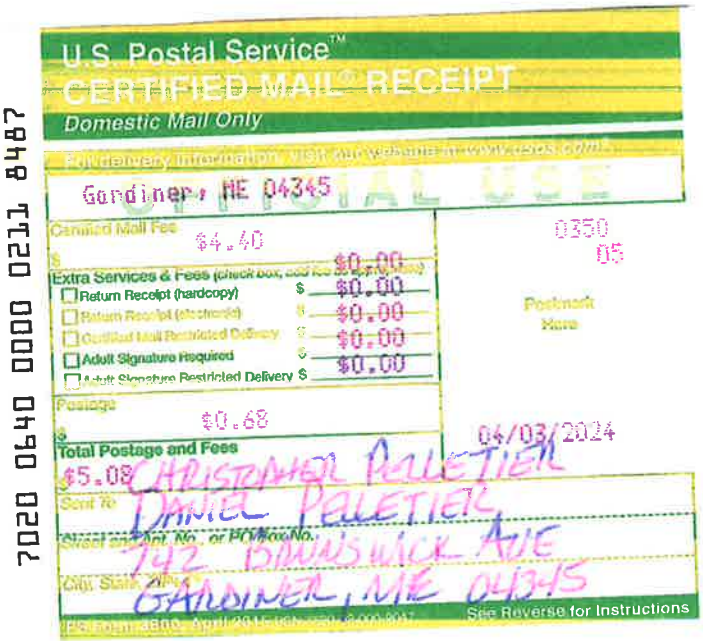

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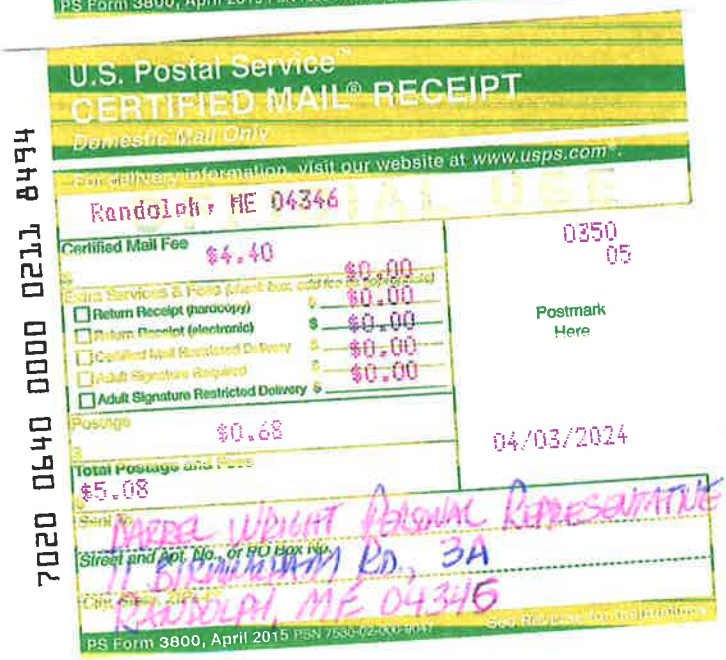

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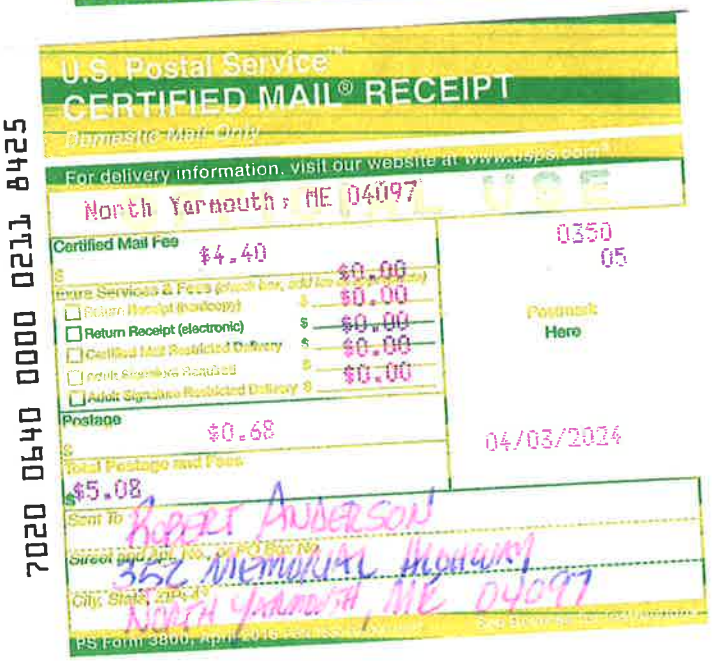
City, State, ZIP+4 BOWDOINHAM, ME 04008
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions
7020 0640 0000 0211 8456



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City, State, ZIP+4 NORTH YARMOUTH, ME 04097
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Adult Signature Restricted Delivery $
Postage $0.68
Total Postage and Fees $5.08
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Postmark Here
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Sent To AARON HALL
Street and Apt. No., or PO Box No. 1047 RIVER AVE
City, State, ZIP+4 GARDINER, ME 04345
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions
7020 0640 0000 0211 8432


DEVELOPMENT
REVIEW PENDING

Project Introduction

March 12, 2024

Gardiner Planning Board
6 Church Street
Gardiner, ME

Re: Site Plan for G Town 2 LLC, Marks Lane, Gardiner

Dear Planning Board Members,

On behalf of G Town 2 LLC, we are pleased to submit this site plan application package to you for Planning Board review and approval. This application pertains to Tax Map 16, Lot 5. The parcel has 2.68 acres of land and lies within the Planned Development zoning district. The original parcel was subdivided by Thayer Engineering in 1994.

An existing warehouse/storage building has been previously constructed on the parcel. The proposed development is to add another single-story building to the site to be used for warehousing/storage needs that will complement the existing warehouse/storage building. Access into the lot is provided from the two existing driveways to Marks Lane. The two driveway connections will be utilized to maneuver a large truck with trailer through the site without any required backing movement.

The property does not lie within the 100-year floodplain. However, a stream and associated wetland have been located along the eastern sideline of the site. The new building has been setback at least 25' from the stream and will require a DEP NRPA waiver from 75' to 25' for construction within this buffer area. Approximately 3,556 sf of wetland area will be impacted. This will also need additional DEP and ACOE permit approvals. The parcel has access to public water within Marks Lane and existing private sewer disposal located under the existing parking area. The disposal area has been previously designed to accommodate up to 38 employees. (The current use for the existing building has only 7 employees.)

Front building setbacks of 50' from Brunswick Avenue ROW and 25' side/rear building setbacks are called out on the plan. A dumpster area behind the building has been shown for trash handling purposes. Zoning requirements allow for up to 50% maximum lot coverage. This proposed expansion including building/gravel areas is 49.5% lot coverage.

SJR ENGINEERING, INC.
STEVE@SJRENG.COM. 16 THURSTON DRIVE, MONMOUTH, ME. TEL: (207) 242-6248

The existing building is heated using natural gas. The new building will be supplied with the same heating system. There will be new downcast building area lighting along the proposed building. An updated sign (listing of tenants) will be displayed on the existing sign post although the actual sign design hasn't been selected at this time.

We have attached the medium intensity soils plan as depicted on the Kennebec County Soils Map. Erosion control will be necessary during the earthwork excavation and filling at the site for construction of the proposed buildings, driveways, and parking/laydown areas. Silt fences, erosion control berms, erosion control blankets, and hay mulch are shown on the plan and depicted in the construction details. All disturbed areas not covered with driveway pavement, landscaping, or building are to be loamed and seeded with a vegetative grass, and mulched. As construction progresses, different forms of erosion control will be necessary, and should be employed by the Contractor according to DEP's latest edition of "Best Management Practices".

Stormwater flows from the project construction are directed into two soil filter ponds. The pond is created to limit stormwater flows to pre-existing conditions as well as provide water quality treatment. The proposed building roof water will enter into building roof area drip strips that will infiltrate runoff water into the ground.

An immediate construction startup date is planned once approvals for the project have been obtained. We look forward to presenting this project to the Planning Board and answering any questions you may have concerning the design of the project.

Sincerely yours,

Stephen Roberge, PE
SJR Engineering Inc.

Agent Authorization

AGENT OF PROCESS DESIGNATION AND AUTHORIZATION

I, Robin Spencer, 43 Black Point Lane, Manchester, Maine 04351 hereby designate Steve Roberge, PE of SJR Engineering Inc, 16 Thurston Drive, Monmouth, Maine 04259 to serve as our agent of process in connection with Department of Environmental Protection application materials to be prepared for the Marks Lane property in Gardiner, Maine. Mr. Roberge is authorized to take all actions on our behalf necessary for the processing and securing of the requested permitting approvals, including, but not limited to, the execution and delivery of all documents, forms, and the like.

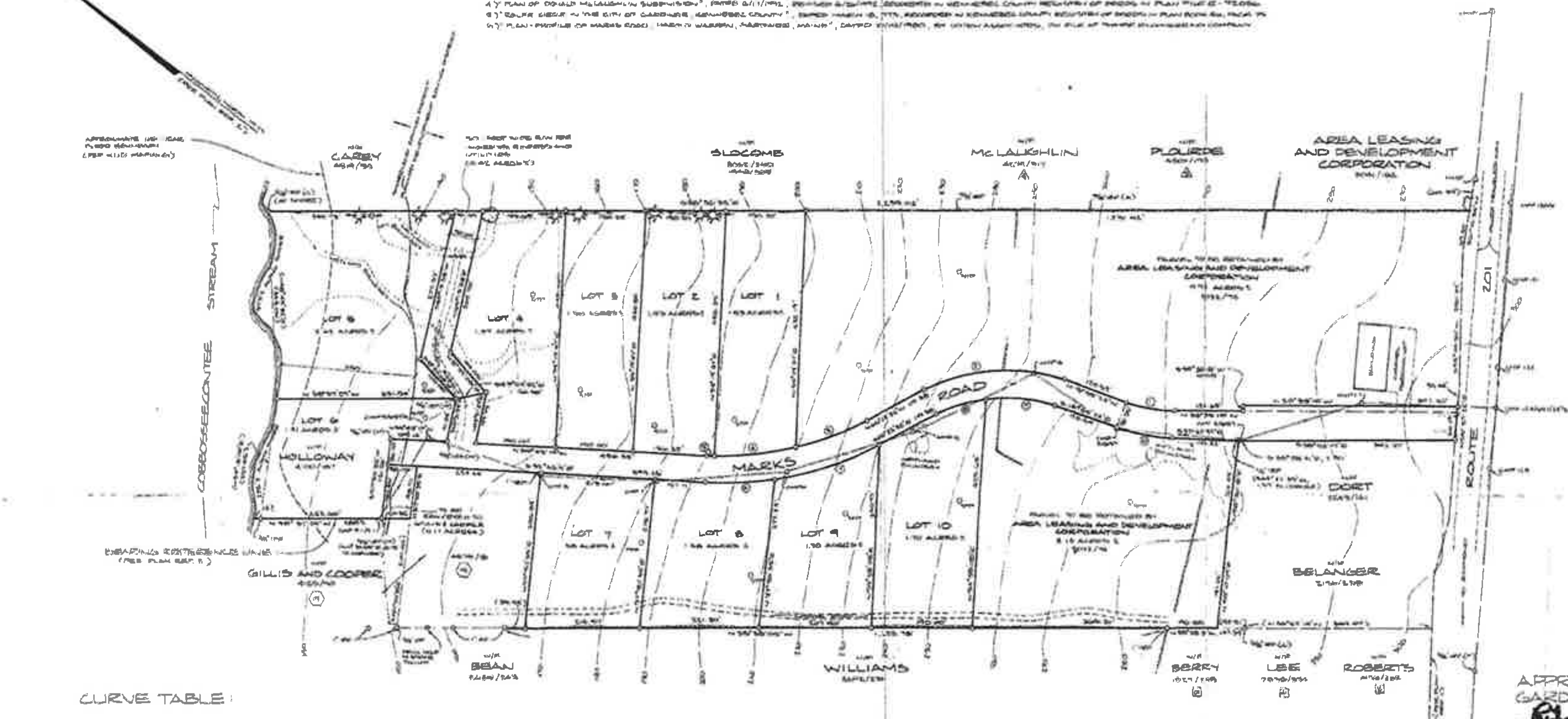
Name:_____ Date:_____

Robin Spencer, Owner of property

Deed

PLAN REFERENCES:

1) [illegible]
2) [illegible]
3) [illegible]
4) [illegible]
5) [illegible]
6) [illegible]



LOCATION MAP

STATE OF MAINE
Kennebec, ss Registry of Deeds
Received .... 199_
at ... H ... M ... M., and Recorded
in Book ......, Page ......
Attest .... Register

APPROVED: CITY OF GARDINER PLANNING BOARD

[signature]	4/21/94
Alfred Nisbet	4/21/94
[signature]	4/21/94
[signature]	4/21/94
[signature]	4/21/94

CURVE TABLE:

CURVE NUMBER	CENTRAL ANGLE	RADIUS	LENGTH	CHORD
1	[illegible]	[illegible]	[illegible]	[illegible]
2	[illegible]	[illegible]	[illegible]	[illegible]
3	[illegible]	[illegible]	[illegible]	[illegible]
4	[illegible]	[illegible]	[illegible]	[illegible]
5	[illegible]	[illegible]	[illegible]	[illegible]
6	[illegible]	[illegible]	[illegible]	[illegible]
7	[illegible]	[illegible]	[illegible]	[illegible]
8	[illegible]	[illegible]	[illegible]	[illegible]
9	[illegible]	[illegible]	[illegible]	[illegible]
10	[illegible]	[illegible]	[illegible]	[illegible]

NOTES:

1) [illegible]
2) [illegible]
3) [illegible]
4) [illegible]
5) [illegible]

LEGEND

[illegible]

LOT 2 [illegible]

ELLIOT B. THAYER
4/21/1994

[illegible]

THAYER ENGINEERING CO.
Land Surveyors Civil Engineers
5 Hasson Street Farmingdale ME 04347

SUBDIVISION PLAN

SUNSET ESTATES

ROUTE 201 & MARKS ROAD
GARDINER, MAINE

Date MARCH 1994		Drwn By [illegible]	Chkd By [illegible]
Scale 1" = 100'	Dwng # 1		Proj # 930960

WARRANTY DEED

DLN: 1002240216012

KNOW ALL PERSONS BY THESE PRESENTS, THAT **Area Leasing and Development Corp., a Maine Corporation** of China, State of Maine, for valuable consideration paid, the receipt and sufficiency whereof is hereby acknowledged, hereby GRANT(S) unto **G Town 2 LLC, a Maine Limited Liability Company,** having a mailing address of 48 Pine Knoll Road, Winthrop, ME 04364, with WARRANTY COVENANTS, as , the land with any buildings thereon, situated in Gardiner, County of Kennebec and State of Maine, described as follows:

PROPERTY DESCRIBED IN "EXHIBIT A"
ATTACHED HERETO AND MADE A PART HEREOF

Meaning and intending to convey a portion of the same premises conveyed to Area Leasing and Development Corporation by virtue of a deed from Harold G. Warren, Jr. dated September 8, 1986 and recorded in the Kennebec County Registry of Deeds in Book 3022, Page 74.

Witness my/our hand(s) and seal(s) this 28th day of October, 2022.

Witness

Area Leasing and Development Corp., a Maine Corporation

BY: _____
Mark Warren
President

State of Maine
County of Kennebec

October 28, 2022

Personally appeared before me the above named **Area Leasing and Development Corp., a Maine Corporation** and acknowledged the foregoing instrument to be his/her/their free act and deed.

THOMAS E. SCHOENING, III
STATE OF MAINE
BAR ID# 005405
ATTORNEY AT LAW

Before me,

_____
Notary Public / Attorney at Law
Printed Name: _____
My Comm. Exp: _____

Thomas E. Schoening III Esq.

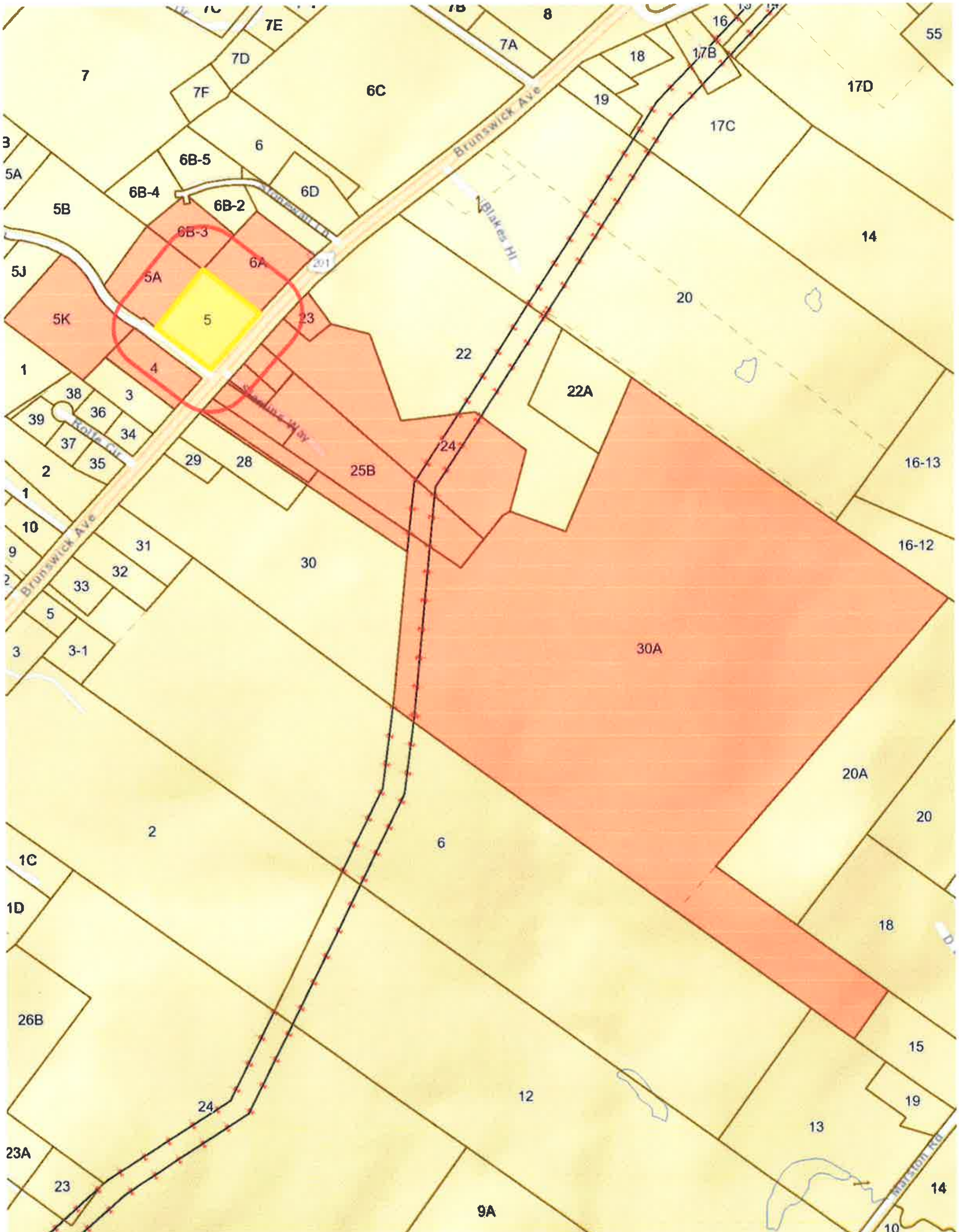
Abutters

(WITHIN 200')

7
6B-5
6
6D
6B-4
6B-2
6B
6B-3
5B
6A
5A
5
23
5K
24
25A
4
25
3
8
36
26
25B
34
27
37
28
29
35
30
2
245'
277'
407.63'
337'
350'
341'
350'
120.59'
120.59'
94.39'
120.65'
106.57'
10.68'
350'
350'
410'
392.70'
201.49'
151.02'
400'
200'
151'
165'
400'
170'
181'
150'
180'
138.8'
205'
179.8'
110'
239'
600'
392'
65'
112'
200'
75'
188'
100'
115'
200'
162'
169'
183'


PARCEL
CITY OF
GARDINER
KENNEBEC CO.
MAINE
N
W
E
S
LEGEND
Lot Block
Private Right of Way
Built-Up Line
Transmission Line ROW
River, Stream or Pond
Railroad
Road
Town Line
Building
Parcel
For Assessment Purposes. Not to be used for conveyances.
Cornerstone
0 100 200 400
Feet
Map 16
Printed: 6/7/2022
Effective Date: 4/1/2022


PARCEL 1
5
5A*
5B
5K*
6A*
6B
6B-2
6B-3*
6B-4
6D
4*
3
2
1
23*
24*
25*
25A*
25B*
26*
27*
28
29
30
30A
38
39
36
37
34
35
STONEWALL LANE
ROLFE CIRCLE
AVENUE
RUNSWICK
1"=200'


Brunswick Ave
Brunswick Ave
Blakes Hl
Rolfe Ct
Marston Rd
201
7
7C
7E
7B
8
7A
7D
7F
6C
18
16
17B
19
55
17D
17C
6
6B-5
6B-4
6D
6B-2
6B-3
5A
5B
5J
5K
6A
5
23
20
22
22A
14
4
3
1
38
36
39
37
34
35
2
29
28
24
25B
16-13
16-12
10
9
31
30
32
33
3-1
30A
20A
20
1C
1D
26B
18
15
19
13
12
9A
23A
23
10
14

200 foot Abutters List Report

Gardiner, ME
March 12, 2024

Subject Property:

Parcel Number:	016005	Mailing Address:	G TOWN 2 LLC
CAMA Number:	016005		48 PINE KNOLL RD
Property Address:	1 MARKS LN		WINTHROP, ME 04364

Abutters:

Parcel Number:	016004	Mailing Address:	ANDERSON ROBERT H
CAMA Number:	016004		352 MEMORIAL HIGHWAY
Property Address:	771 BRUNSWICK AV		NORTH YARMOUTH, ME 04097
Parcel Number:	016005A	Mailing Address:	HALL AARON
CAMA Number:	016005A		1041 RIVER AV
Property Address:	MARKS LN		GARDINER, ME 04345
Parcel Number:	016005K	Mailing Address:	BARROWS CRAIG M BARROWS JEANNE A
CAMA Number:	016005K		24 MARKS LN
Property Address:	24 MARKS LN		GARDINER, ME 04345
Parcel Number:	016006A	Mailing Address:	BOLDUC STEVEN G & IN SUK
CAMA Number:	016006A		440 DINGLEY RD
Property Address:	743 BRUNSWICK AV		BOWDOINHAM, ME 04008
Parcel Number:	016006B003	Mailing Address:	PLOURDE LORNA N
CAMA Number:	016006B003		36 STONEWALL LN
Property Address:	36 STONEWALL LN		GARDINER, ME 04345
Parcel Number:	016023	Mailing Address:	CLOUTIER NORMAN
CAMA Number:	016023		748 BRUNSWICK AV
Property Address:	748 BRUNSWICK AV		GARDINER, ME 04345
Parcel Number:	016024	Mailing Address:	PELLETIER DANIEL J PELLETIER CHRISTOPHER J
CAMA Number:	016024		752 BRUNSWICK AV
Property Address:	752 BRUNSWICK AV		GARDINER, ME 04345
Parcel Number:	016025	Mailing Address:	WRIGHT DARRELL PERSONAL REPRESENTATIVE
CAMA Number:	016025		11 BIRMINGHAM RD 3A
Property Address:	764 BRUNSWICK AV		RANDOLPH, ME 04346
Parcel Number:	016025A	Mailing Address:	FESSENKO YANA
CAMA Number:	016025A		758 BRUNSWICK AV
Property Address:	758 BRUNSWICK AV		GARDINER, ME 04345
Parcel Number:	016025B	Mailing Address:	SLAMIN HERBERT J SLAMIN LOIS C
CAMA Number:	016025B		26 SLAMINS WY
Property Address:	18 SLAMINS WY		GARDINER, ME 04345

200 foot Abutters List Report

Gardiner, ME
March 12, 2024

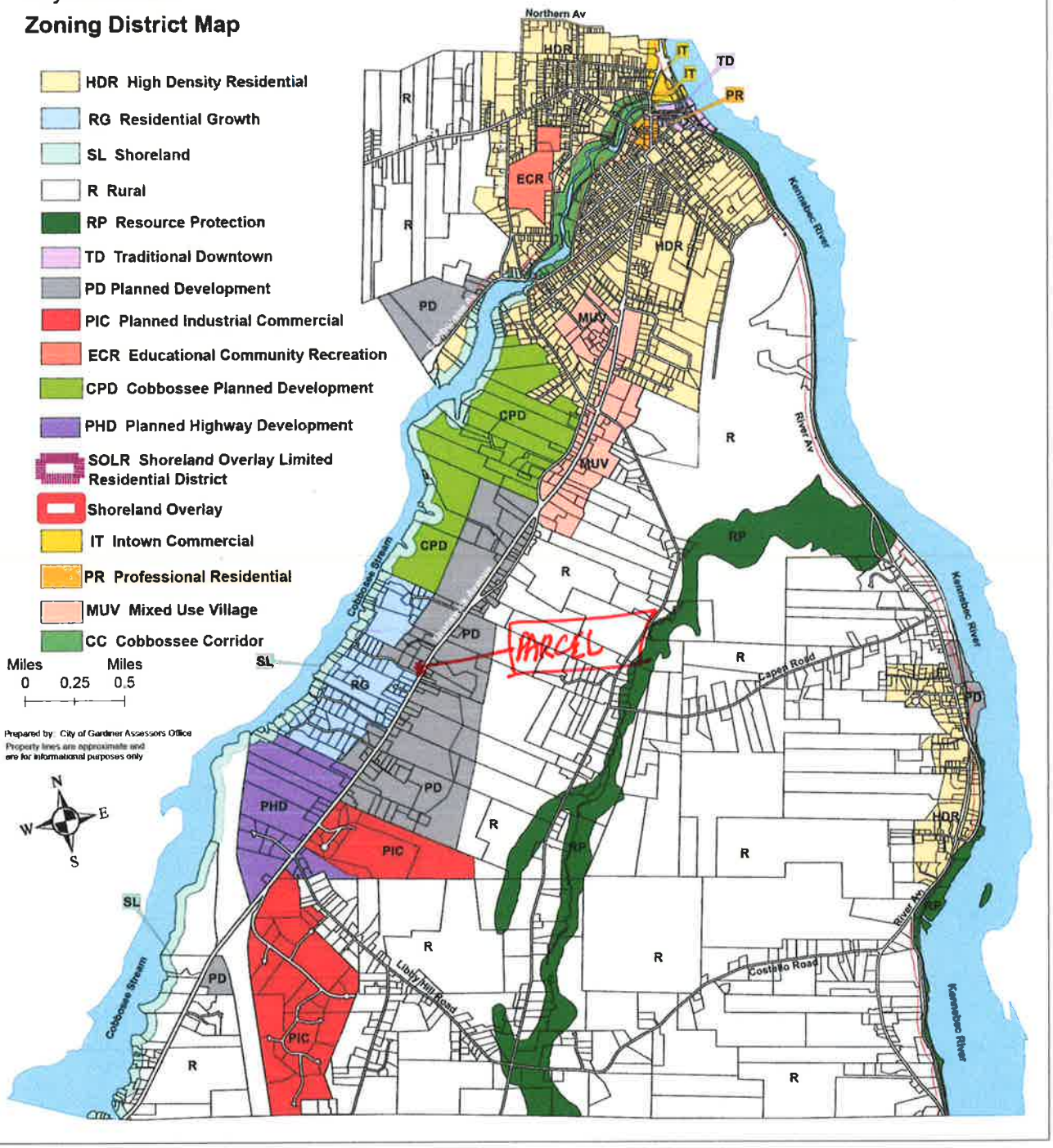
Parcel Number:	016026	Mailing Address:	SLAMIN HERBERT J SLAMIN LOIS C
CAMA Number:	016026		26 SLAMINS WY
Property Address:	5 SLAMINS WY		GARDINER, ME 04345
Parcel Number:	016027	Mailing Address:	HAMLIN ROBERT B
CAMA Number:	016027		772 BRUNSWICK AV
Property Address:	772 BRUNSWICK AV		GARDINER, ME 04345
Parcel Number:	016030A	Mailing Address:	ROCK REAL ESTATE LLC
CAMA Number:	016030A		PO BOX 65
Property Address:	BRUNSWICK AV		GARDINER, ME 04345

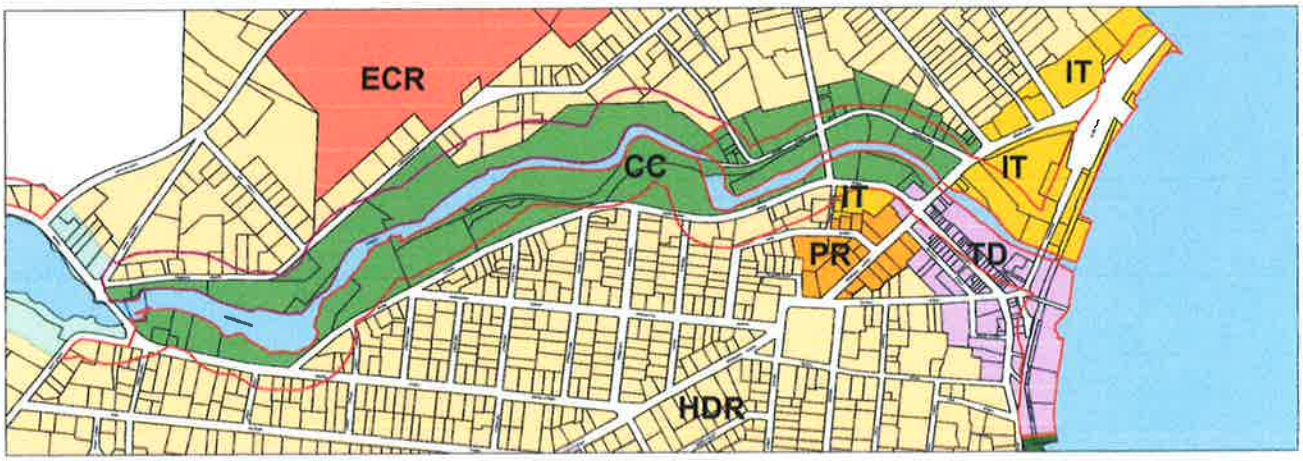
Zoning

Adopted September 4, 2019
Effective October 4, 2019

City of Gardiner

Zoning District Map





Downtown Zoning


Cobbos
MARKS LANE
Brunswick Ave
PD
RG
PARCEL

Existing Site Photos

Project sign and meadow condition (no trees)

Dead end sign and overhead wires

Meadow area, flat roof with lights under overhang

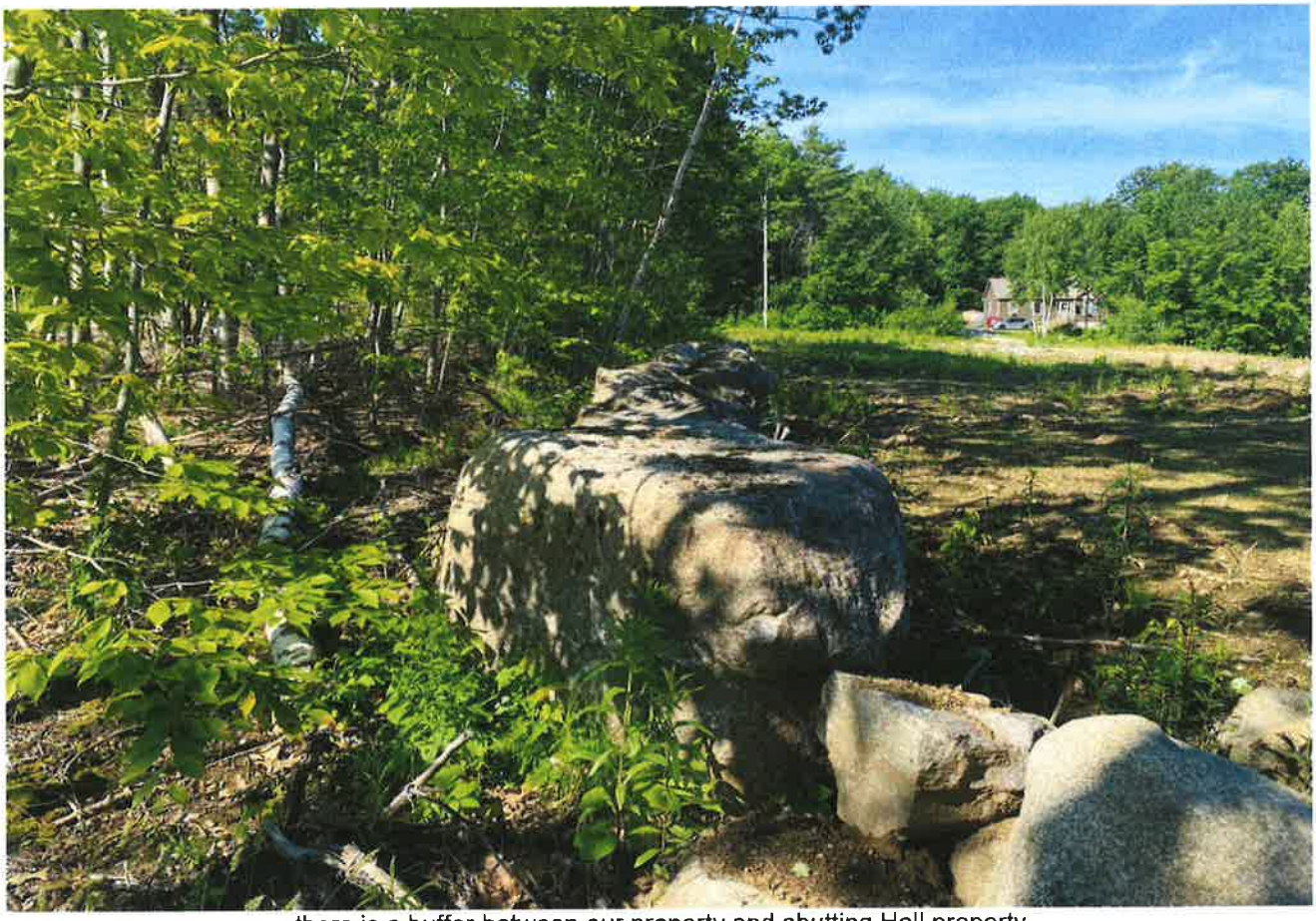
side yard building elevation gas meeter with bollards

rear of building showing 3 loading areas and a drive up the ramp door. Each door has a mandoor.

rock wall along rear of site

Thayer Iron in corner of rock wall

Thayer property cap and iron



there is a buffer between our property and abutting Hall property

Hall parcel has been cleared

View from lower gravel driveway towards Brunswick Avenue

another air conditioning unit on street end of bulidng

Another view of door arrangement

Electrical entrance at corner of building

Septic Disposal
HHE 200 Forms

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Human Services
Division of Health Engineering
(207) 289-3826

PROPERTY ADDRESS

Town Or Plantation	Gardiner
Street Subdivision Lot #	Route 201

PROPERTY OWNERS NAME

AReR Leasing & Development

Last: First:

Applicant Name:	
Mailing Address of Owner/Applicant (If Different)	R#2, Box 594 Augusta, Me. 04330

GARDINER PERMIT # 243 APPLICANTS COPY

Date Permit Issued: 11 13 86 FEE 40 ☐ If Double Fee Charged

Local Plumbing Inspector Signature L.P.I. # 299

THE WORK SPECIFIED IN THIS APPLICATION IS HEREBY AUTHORIZED TO BE INSTALLED IN ACCORDANCE WITH THE RULES. THIS PERMIT EXPIRES AFTER SIX MONTHS FROM DATE ISSUED UNLESS WORK HAS COMMENCED.

PAID

Owner/Applicant Statement

I certify that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Local Plumbing Inspector to deny a Permit.

Signature of Owner/Applicant 11/13/86 Date

Caution: Inspection Required

I have inspected the installation authorized above and found it to be in compliance with the Subsurface Wastewater Disposal Rules.

Local Plumbing Inspector Signature Date Approved

THIS APPLICATION IS FOR:

1. ☑ NEW SYSTEM
2. ☐ REPLACEMENT SYSTEM
3. ☐ EXPANDED SYSTEM
4. ☐ SEASONAL CONVERSION
5. ☐ EXPERIMENTAL SYSTEM

THIS APPLICATION REQUIRES:

1. ☑ NO RULE VARIANCE REQUIRED
2. ☐ NEW SYSTEM VARIANCE Attach New System Variance Form
   ☐ REPLACEMENT SYSTEM VARIANCE Attach Replacement System Variance Form
3. ☐ Requiring Local Plumbing Inspector Approval
4. ☐ Requires State and Local Plumbing Inspector Approval

INSTALLATION IS:

COMPLETE SYSTEM

1. ☑ NON-ENGINEERED SYSTEM
2. ☐ PRIMITIVE SYSTEM (Includes Alternative Toilet)
3. ☐ ENGINEERED (+2000 gpd)

INDIVIDUALLY INSTALLED COMPONENTS:

4. ☐ TREATMENT TANK (ONLY)
5. ☐ HOLDING TANK
6. ☐ ALTERNATIVE TOILET (ONLY)
7. ☐ NON-ENGINEERED DISPOSAL AREA (ONLY)
8. ☐ ENGINEERED DISPOSAL AREA (ONLY)
9. ☐ SEPARATED LAUNDRY SYSTEM

IF REPLACEMENT SYSTEM:

YEAR FAILING SYSTEM INSTALLED _____

THE FAILING SYSTEM IS:

1. ☐ BED 3. ☐ TRENCH
2. ☐ CHAMBER 4. ☐ OTHER: _____

DISPOSAL SYSTEM TO SERVE:

1. ☐ SINGLE FAMILY DWELLING
2. ☐ MODULAR OR MOBILE HOME
3. ☐ MULTIPLE FAMILY DWELLING
4. ☑ OTHER Wholesale/Retail SPECIFY SPACE

SIZE OF PROPERTY: 44 Acres ±

ZONING:

TYPE OF WATER SUPPLY: City

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK

1. ☑ SEPTIC: ☐ Regular ☐ Low Profile
2. ☐ AEROBIC H-20

SIZE: 1000 GALS.

WATER CONSERVATION

1. ☐ NONE
2. ☑ LOW VOLUME TOILET
3. ☐ SEPARATED LAUNDRY SYSTEM
4. ☐ ALTERNATIVE TOILET

SPECIFY: _____

PUMPING

1. ☐ NOT REQUIRED
2. ☑ MAY BE REQUIRED (DEPENDING ON TREATMENT TANK LOCATION AND ELEVATION)
3. ☐ REQUIRED

DOSE: _____ GALS.

CRITERIA USED FOR DESIGN FLOW (BEDROOMS, SEATING, EMPLOYEES, WATER RECORDS, ETC.)

38 Employees @ 15 gals each.

SOIL CONDITIONS USED FOR DESIGN PURPOSES

PROFILE	CONDITION
3	C

DEPTH TO LIMITING FACTOR: 16

SIZE RATINGS USED FOR DESIGN PURPOSES

1. ☐ SMALL
2. ☐ MEDIUM
3. ☑ MEDIUM-LARGE
4. ☐ LARGE
5. ☐ EXTRA LARGE

DISPOSAL AREA TYPE/SIZE

1. ☐ BED _____ Sq. Ft.
2. ☑ CHAMBER 960 Sq. Ft.
   ☐ REGULAR ☑ H-20
3. ☐ TRENCH _____ Linear Ft.
4. ☐ OTHER: _____

DESIGN FLOW: 570 (GALLONS/DAY)

SITE EVALUATOR STATEMENT

☐ SITE EVALUATION WAIVED BY LOCAL OPTION)

On 8-15-86 (date) I conducted a site evaluation for this project and certify that the data reported is accurate. The system I propose is in accordance with the Subsurface Wastewater Disposal Rules.

Site Evaluator Signature #51 SE# 8-16-86 Date

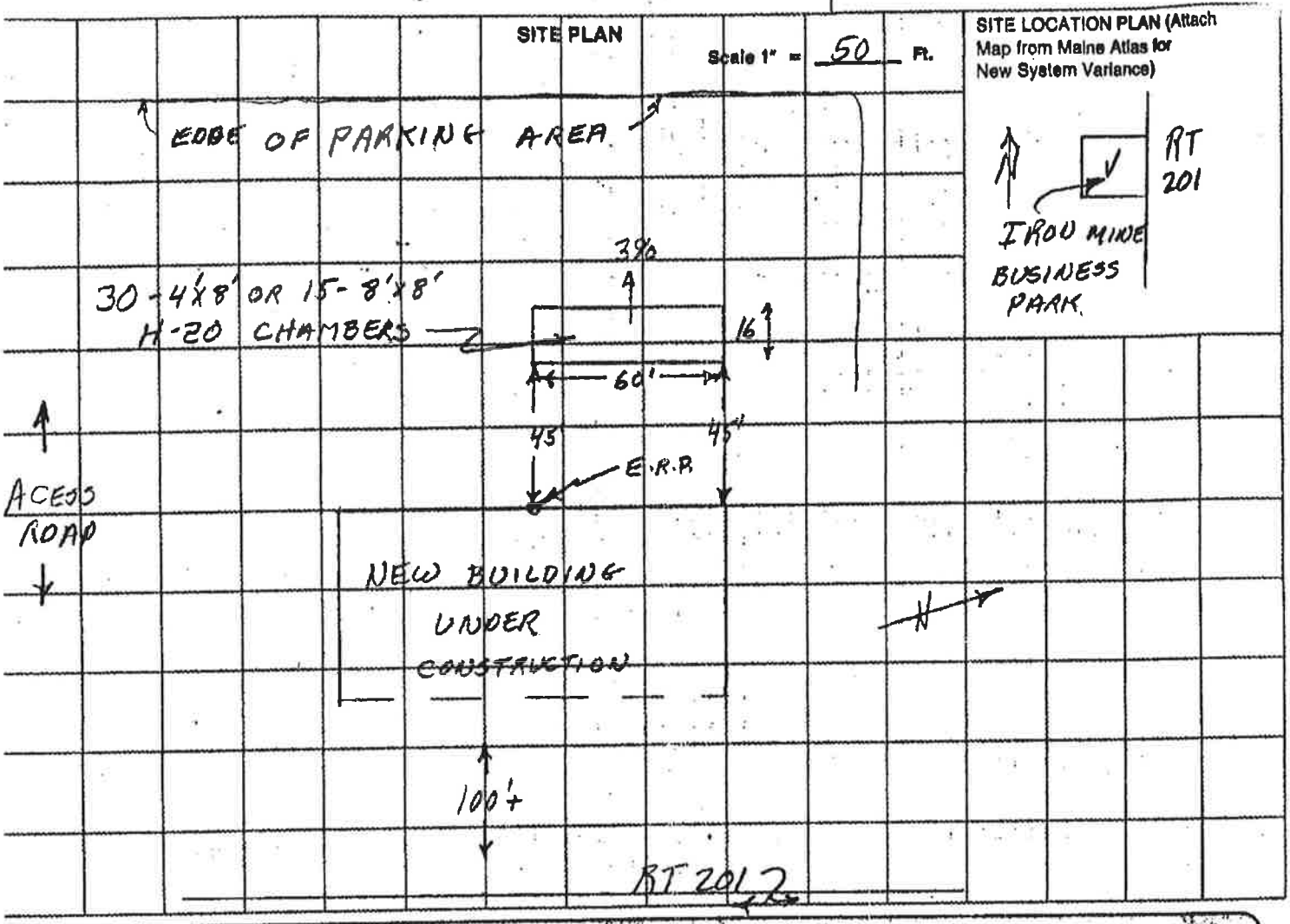
* Local Plumbing Inspectors Signature if a Local Site Evaluation Waiver under a Local Option

SURFACE WASTEWATER DISPOSAL SYSTEM PLANTATION — Division of Health Engineering

Town, City, Plantation | Street, Road, Subdivision | Owners Name

SITE PLAN

Scale 1" = 50 Ft.



SITE LOCATION PLAN (Attach Map from Maine Atlas for New System Variance)

SOIL DESCRIPTION AND CLASSIFICATION (Location of Observation Holes Shown Above)

Observation Hole 1 ☒ Test Pit ☐ Boring

+1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (Inches)

Texture	Consistency	Color	Mottling
S.L.	FRIABLE	B	
G.T.	FIRM	G.B.	

Soil Profile	Classification Condition	Slope	Limiting Factor	
3	C	3 %	16'	☒ Ground Water ☐ Restrictive Layer ☐ Bedrock

Observation Hole _____ ☐ Test Pit ☐ Boring

_____ " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (Inches)

Texture	Consistency	Color	Mottling

Soil Profile	Classification Condition	Slope	Limiting Factor	
		%		☐ Ground Water ☐ Restrictive Layer ☐ Bedrock

Verified [signature] #51 8-16-86

Page 2 of 3

HHE - 200 Rev. 4/83

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Division of Health Engineering

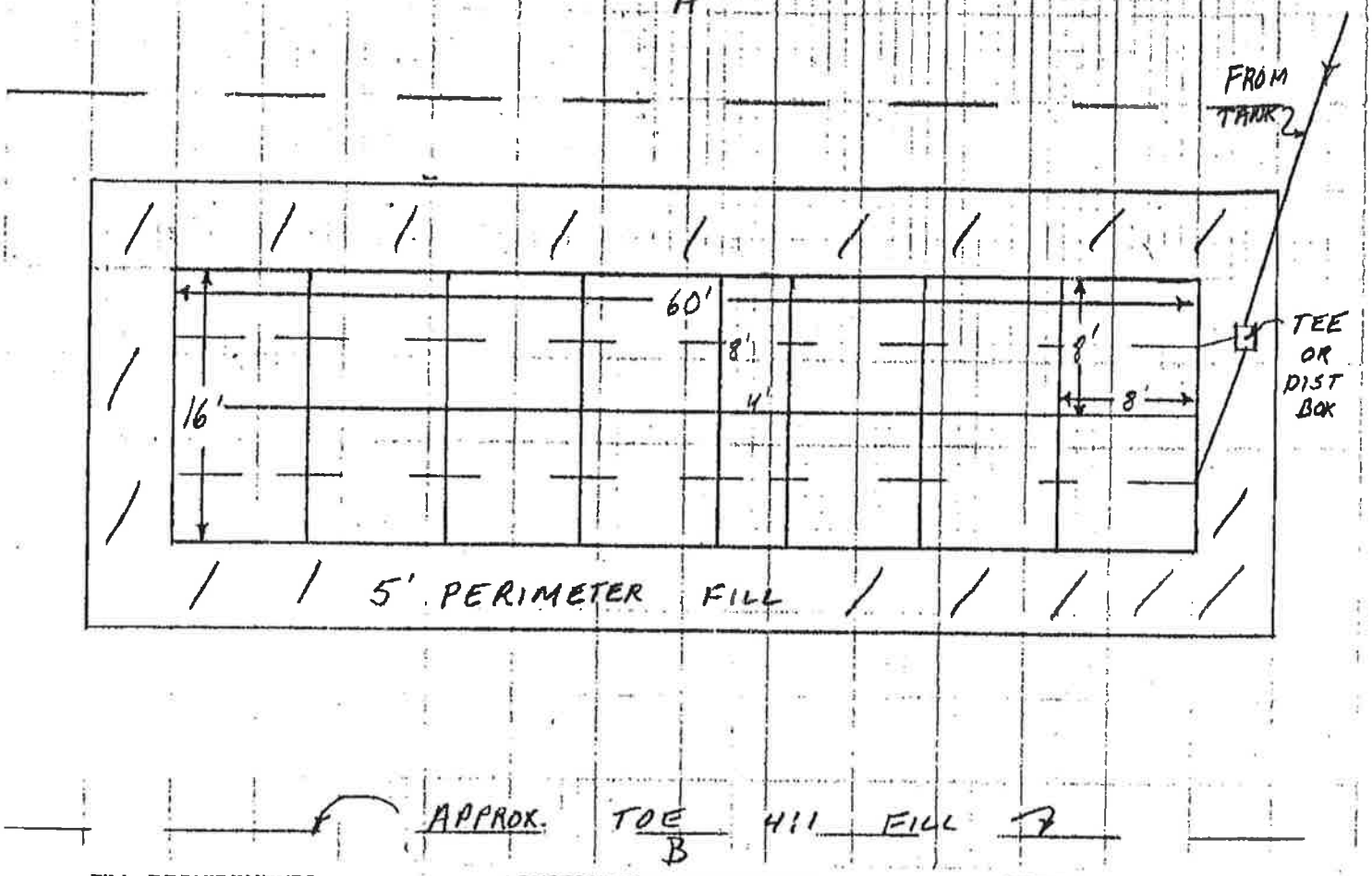
Town, City, Plantation: GARDINER

Street, Road, Subdivision: RT 201

Owners Name: AREA LEASING

SUBSURFACE WASTEWATER DISPOSAL PLAN

Scale 1" = 10 Ft.



FILL REQUIREMENTS

Depth of Fill (Upslope): 21 MIN

Depth of Fill (Downslope): 36 ±"

CONSTRUCTION ELEVATIONS

Reference Elevation is: 0

Bottom of Disposal Area: -26"

Top of Distribution Lines or Chambers: -13"

ELEVATION REFERENCE POINT LOCATION & DESCRIPTION

BUILDING DRAIN INVERT

DISPOSAL AREA CROSS SECTION

Scale:

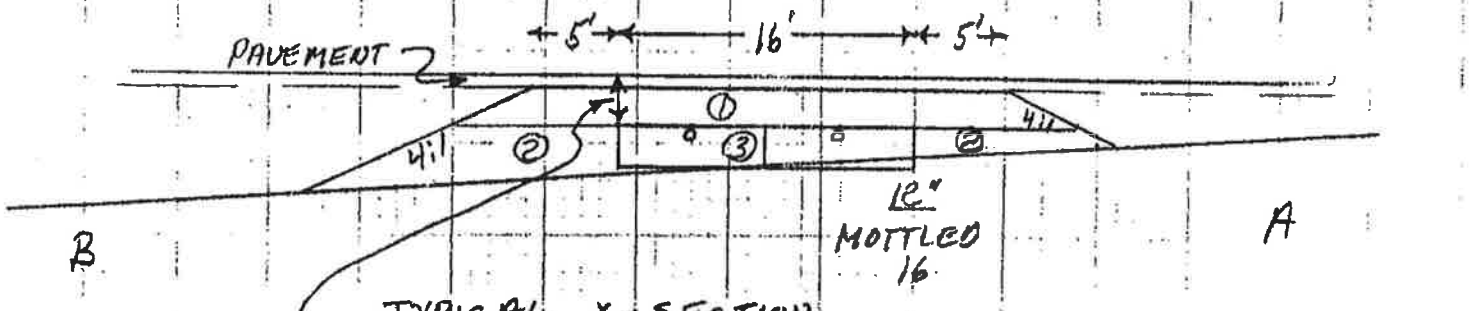
Vertical: 1 Inch = 5 Ft.

Horizontal: 1 Inch = 10 Ft.

① 12" FINE GRAVEL 100% PASSING 1" SIEVE

② SANDY GRAVEL

③ 960 □' H-20 CHAMBERS



TYPICAL X-SECTION

NOTE: TOP OF CHAMBERS MUST BE NO LOWER THAN 16" BELOW TOP OF PAVEMENT

Site Evaluator Signature

51

SE#

9/16/86

Date

HHE-200 Rev. 1/84

Stormwater Quantity/Quality Narrative

August 18, 2023

Robin Spencer
43 Black Point Lane
Manchester, Maine

SJR ENGINEERING, INC.
16 THURSTON DRIVE, MONMOUTH, ME. TEL: (207) 242-6248
STEVE@SJRENG.COM

Re: Stormwater Quantity/Quality Analysis for proposed 1 Marks Lane Warehouse in Gardiner

Dear Robin,

G Town 2, LLC owns a 2.68 acre parcel of land at the intersection of Brunswick Avenue and Marks Lane in Gardiner, Maine. You are proposing to construct a new 200' by 75' (15,000 sf) warehouse building with associated access driveway, parking lot, and stormwater soil filter pond. The building will utilize underground electricity, telecommunications, private septic sewer, and public water. It is anticipated that this projects site infrastructure will be started in 2023 and continue into the 2024 construction season.

The site is identified as Tax Map 16 Lot 5 of the City's Tax Map. The parcel is further defined in Book 3022 Page 74 of the Kennebec County Registry. The parcel lies within the Planned Development Zoning District.

The existing site is currently developed with a 7200-sf building surrounded by a large gravel maneuvering area. The remaining portion of the site has been cut in the area of the proposed construction. Existing conditions have been depicted utilizing GIS photos of the site and Lidar topography. The topography of the proposed developed site is shown at a two-foot contour interval. The slope of the property varies from 1% along the flatter areas to 20% along the banks of the steeper slopes of the property. Wetland area and streams have been delineated by "Flycatcher" and shown on the plans.

Adjacent Areas

Adjacent areas and land uses are similar in nature to that being proposed. Much of the surrounding area is currently cleared for development. Runoff from the property enters into a wetland/stream complex along the northerly sideline of the property.

We have prepared erosion control, Best Management Practices, and maintenance/housekeeping narratives under separate cover. This narrative is to address stormwater quantity/quality flows during (and after) the construction of the project.

Summary Overview

We have designed a soil filter/detention pond to provide water quantity/quality enhancement. The pond will function as a detention pond to limit flows to pre-construction flow rates. Proposed soil filter/detention ponds are necessary to control flows to pre-existing conditions and to treat the stormwater quality within the pond.

Stormwater flows will be attenuated by diverting and capturing stormwater flows from the new construction into the new soil filter/detention pond with a stormwater control outlet being utilized to control runoff water discharges to pre-exiting conditions as well as providing stormwater quality treatment for the developed runoff water. In summary, the proposed stormwater flows will be less than the existing condition. No downstream impacts from stormwater flows are expected with this proposal.

Approximately 49,819 sf of impervious surface (building and pavement surfaces) and 34,586 sf of upslope vegetated area will be diverted to a new soil filter pond.

Stormwater Quantity

We have prepared the plans and details in order to properly evaluate existing and proposed stormwater impacts from the development. Topography of the existing site is shown at a two-foot contour interval which has been obtained by GIS Lidar data. The slope of the property varies from 1% along the flatter areas to 20% along the proposed cut/fill slopes in the developed site.

Soils mapping was taken from Natural Resources Conservation Service "Web Soil Survey" medium intensity mapping. These soils have been overlaid onto the proposed site development plan.

Soils have been identified as:

- Paxton-Charlton very stony fine sandy loam (hydro group "C/D" soil)
- Lyman rock outcrop/Tunbridge Complex (hydro group "D" soil)
- Woodbridge very stony fine sandy loam (hydro group "C/D" soil)

The hydrological group rating is a rating system of the relative permeability of the soil with Group "A" being extremely permeable such as a beach sand, to Group "D" being slow draining such as a wetland area.

I have reviewed the drainage characteristics of the watershed area which includes impervious areas, lawn areas, and woods, as well upslope watershed areas. The analysis requires post construction stormwater flow rates to be approximately equal to or less than the existing stormwater rates.

I have used the SCS TR-20 (HydroCad 10.0 computer model) method of computing stormwater runoff peak flow rates. This method accounts for soil types, existing land uses, topography, vegetative cover, and proposed land use for the parcel to be developed. The proposed conditions were analyzed using data for Kennebec County type III, 24 hour storm distribution (Northeast Regional Climate Center June 2014) with a design frequency of occurrence of 2/10/25/100 years. One day precipitation values of 2.88"/4.19"/5.19"/7.18 have been used for each respective event. All supporting calculations and data are submitted with this report.

The existing and proposed site conditions were analyzed using information taken from existing/proposed topographic plan of the parcel to be developed. Impervious areas, lawns, meadows, and woods areas for each hydrological soil condition were measured within AutoCad in order to calculate a weighted curve number that typifies the drainage condition of the site.

Watershed calculations (pre and post construction)

Please see the attached stormwater plans for both the existing and proposed conditions to help determine location of each watershed and drainage flow path.

Design Point 1 – towards the self storage facility

The stormwater existing/proposed design point 1 is located within a drainage swale along the rear corner of the parcel.

We have calculated the existing flows with the proper soils and hydrological group in order to compare these flows with the proposed flows. Existing flows at this location have been calculated to be 3.10/6.43/9.20/14.93 cfs for the 2/10/25/100 year storm events.

In the proposed development condition, this watershed increases in size due to the proposed development grading and capture of runoff water from Watershed 2 into Soil filter ponds 1A and 1B. We have broken Soil filter Pond 1 into two ponds (1A and 1B) due to 3000 sf sizing restrictions for water quality purposes.

Soil Filter Pond 1A/1B:

The soil filter Pond 1A/1B has been sized to accommodate and store flows for stormwater quantity and quality functions and to control flows to pre-development runoff conditions. Most of the developed site will be captured and diverted to this proposed pond. We have calculated significant increases in flow rates in the developed portion of the project for the 2/10/25/100-year storm events. By constructing the soil filter/detention pond and sizing the inlets to a stormwater control structure, stormwater flows are captured and contained. These increased flows are then stored (detained and treatment provided) within the pond area for short periods of time allowing existing peak flow rates to be maintained (or decreased).

Our analysis indicates that the incoming flow rates to Pond 1 are 2.01/3.42/4.50/6.82 cfs and are reduced to 0.17/1.35/2.65/4.46 cfs for the 2/10/25/100 year storm events at the outlet from soil filter pond A. The soil filter ground elevation is set at elevation 282.0 for the pond. The water elevation within the pond is expected to peak at elevations 283.30/283.58/283.80/284.32 for the 2/10/25/100 year storm events.

When these flows are hydraulically added together (with respect to time) with the uncontrolled watershed area 2, the flows are reduced from the existing condition at Design Point 1.

Stormwater Summary at Design Point 1 (Northeast corner of property)

	2 year storm (cfs)	10 year storm (cfs)	25 year storm (cfs)	100 year storm (cfs)
Existing flows	3.10	6.43	9.20	14.93
Proposed flows	1.37	2.69	3.76	6.66

Pond construction

The soil filter pond will need to be configured with a control manhole structure that has a 15" diameter outlet pipe at invert 279.0. The manhole needs a 24" wide by 6" tall orifice cut into the structure on the pond side at elevation 283.25. The control structure needs a steel panel installed along the center of the structure with a 1-3/8" orifice cut at elevation 279.5 and a 24" wide by 6" tall rectangular orifice at invert elevation 283.25. No water will flow from the pond (except filtered water within the soil filter surface) until the water elevation reaches 283.25. The top of the panel is elevation 284.5. A 20' wide emergency spillway is to be constructed at elevation 284.5. The top of the berm is to be constructed to elevation 286.0. We have checked the spillway design with the control structure plugged (ie all flows through the spillway) and have calculated flows reach elevation 284.61. The top of berm is 12" higher than this water surface.

Design Point 2 – towards the southwestern corner of the parcel

The stormwater existing/proposed Design Point 2 is located within a drainage swale along the Marks Lane sideline of the project.

We have calculated the existing flows with the proper soils and hydrological group in order to compare these flows with the proposed flows. Existing flows at this location have been calculated to be 1.59/2.52/3.23/4.62 cfs for the 2/10/25/100 year storm events. In the proposed condition, these flows have been captured for water quality purposes and diverted to Pond 1B (overflows into Pond 1A).

Water quality - Soil Filter Pond

Soil Filter Pond 1A: We have designed the project to redirect impervious and lawn areas runoff into the soil filter pond. The total area draining to this pond is 63,422 sf. We have calculated 36,754 sf of impervious area and 26,668 sf of the landscaped area of the project would be treated through the proposed soil filter pond.

The soil filter/detention pond is designed to act such that initial and ending runoff flows are captured and infiltrated through the soil filter media within the pond. The higher flows will be bypassed through the pond control manhole structure and dispersed through the level spreader.

Soil filter pond 1A is to be constructed that has a ground elevation at 282.0 (top of ground surface for filtering system). The pond is to be sized such that the surface area meets (or exceeds) 5% of the impervious area plus 2% of the landscape area that drains to the pond. Therefore, we are required to have a minimum of 2,371 sf of surface filter area. We have provided 2,965 sf of available area within contour 282.0.

Soil Filter Pond 1B: We have designed the project to redirect impervious and lawn areas runoff into the soil filter pond. The total area draining to this pond is 20,983 sf. We have measured 13,065 sf of impervious area and 7918 sf of the landscaped area of the project would be treated through the proposed soil filter pond.

Soil filter pond 1B is to be constructed that has a ground elevation at 282.0 (top of ground surface for filtering system). The pond is to be sized such that the surface area meets (or exceeds) 5% of the impervious area plus 2% of the landscape area that drains to the pond. Therefore, we are required to have a minimum of 812 sf of surface filter area. We have provided 862 sf of available area within contour 282.0.

In addition, a minimum treatment volume must be contained such that the required volume contained is less than 18" deep over the surface filter area. The channel protection volume is based on 1" of impervious surface area and .4" of vegetative area entering the pond. Using the same impervious and landscape areas noted above, we are required to have 1,354 cf of pond storage above the soil filter surface area. Our design has provided 1,359 cf of storage area at elevation 283.0 (12" deep).

The volume for both ponds is required to be detained within the soil filter media for a period of time between 24-48 hours. We have utilized the DEP Water Quality regression analysis equation for determining the size of this orifice to be a 1-3/8" orifice (within the steel plate of the control manhole) at elevation 279.5,

The new building will utilize roof drip edges sized for a 25-year storm event. The drip edges have been designed utilizing the same treatment soil filter media as the pond, with storage provided within the void space of the stone backfill material.

The total impervious treated area divided by the total impervious area within the parcel is 64,587/67,805 which is 95.2% treatment. Similarly, the total landscape treated area divided by the total disturbed area is 68,005/74,798 which is 90.9% treatment.

Summary

The proposed development of the parcel can be constructed utilizing a soil filter pond as designed to the berm height and control structure as noted above. Stormwater flow peak flow rates are reduced from the existing condition. Stormwater quality is enhanced by passing the first and last 5,327 cf of water through the soil filter pond media.

Please feel free to contact me if you have any questions concerning the calculations of stormwater from this project. It is important to note that proper erosion control and revegetation of disturbed areas are essential for the proper operation of the stormwater facilities. Maintenance of the yard impervious areas, careful attention to the pavement/seeded interface, and continued maintenance to the pond system must be a top priority in order for the system to function properly. Thank you for involving this firm on your project.

Sincerely yours,

Stephen Roberge

Stephen Roberge, PE
for SJR Engineering Inc.

1 Marks Lane Warehouse
Project Summary

Stormwater Flows at Design Point 1

	2 year	10 year	25 year	100 year
Existing Conditions at Design Point	3.10 cfs	6.43 cfs	9.20 cfs	14.93 cfs
Proposed Conditions at Design Point	1.37 cfs	2.69 cfs	3.76 cfs	6.66 cfs
Soil filter Pond inflow/outflow (cfs)	2.01/0.17	3.42/1.35	4.50/2.65	6.82/4.46
Elevation height of water in pond	283.30	283.58	283.80	284.32

Stormwater Flows at Design Point 2

	2 year	10 year	25 year	100 year
Existing Conditions at Design Point	1.59 cfs	2.52 cfs	3.23 cfs	4.62 cfs
Proposed Conditions at Design Point	None, Watershed diverted to Pond 1			

The soil filter pond is expected to operate as a sediment pond during construction for water quality purposes. No water will flow from the pond until the water elevation reaches elevation 283.25 which is the inlet elevation of the 24" by 6" tall stormwater control manhole orifice. Treatment within the pond is filtered through the soil filter media to underdrain pipes. A steel plate in the center of the control manhole has a 1-3/8" diameter hole at invert 279.50 that controls outflows for water quality purposes. A 24" by 6" tall orifice at elevation 283.25 is to be cut into the steel plate for stormwater quantity control. The stormwater control structure has a 15" diameter outlet that discharges to a 10' long level spreader. A 20' wide rock lined emergency spillway has been provided at elevation 284.5. The soil filter surface is at elevation 282.0. The top of berm elevation is 286.0.

Stormwater Calculations

Existing Condition DP 1

2/10/25 year storm events

Watershed 1

Subcat Reach Pond Link

Routing Diagram for Existing Condition WS1
Prepared by SJR Engineering, Printed 7/31/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.247	71	Meadow, non-grazed, HSG C (WS1)
0.606	78	Meadow, non-grazed, HSG D (WS1)
0.638	98	Unconnected pavement, HSG C (WS1)
0.051	79	Woods, Fair, HSG D (WS1)
0.102	70	Woods, Good, HSG C (WS1)
2.644	**79**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.987	HSG C	WS1
0.657	HSG D	WS1
0.000	Other	
2.644		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	1.247	0.606	0.000	1.853	Meadow, non-grazed	WS1
0.000	0.000	0.638	0.000	0.000	0.638	Unconnected pavement	WS1
0.000	0.000	0.000	0.051	0.000	0.051	Woods, Fair	WS1
0.000	0.000	0.102	0.000	0.000	0.102	Woods, Good	WS1
0.000	**0.000**	**1.987**	**0.657**	**0.000**	**2.644**	**TOTAL AREA**	

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

Subcatchment WS1: Watershed 1 Runoff Area=115,173 sf 24.11% Impervious Runoff Depth>0.84"
Flow Length=655' Tc=4.5 min UI Adjusted CN=76 Runoff=3.10 cfs 0.184 af

Total Runoff Area = 2.644 ac Runoff Volume = 0.184 af Average Runoff Depth = 0.84"
75.89% Pervious = 2.006 ac 24.11% Impervious = 0.638 ac

Summary for Subcatchment WS1: Watershed 1

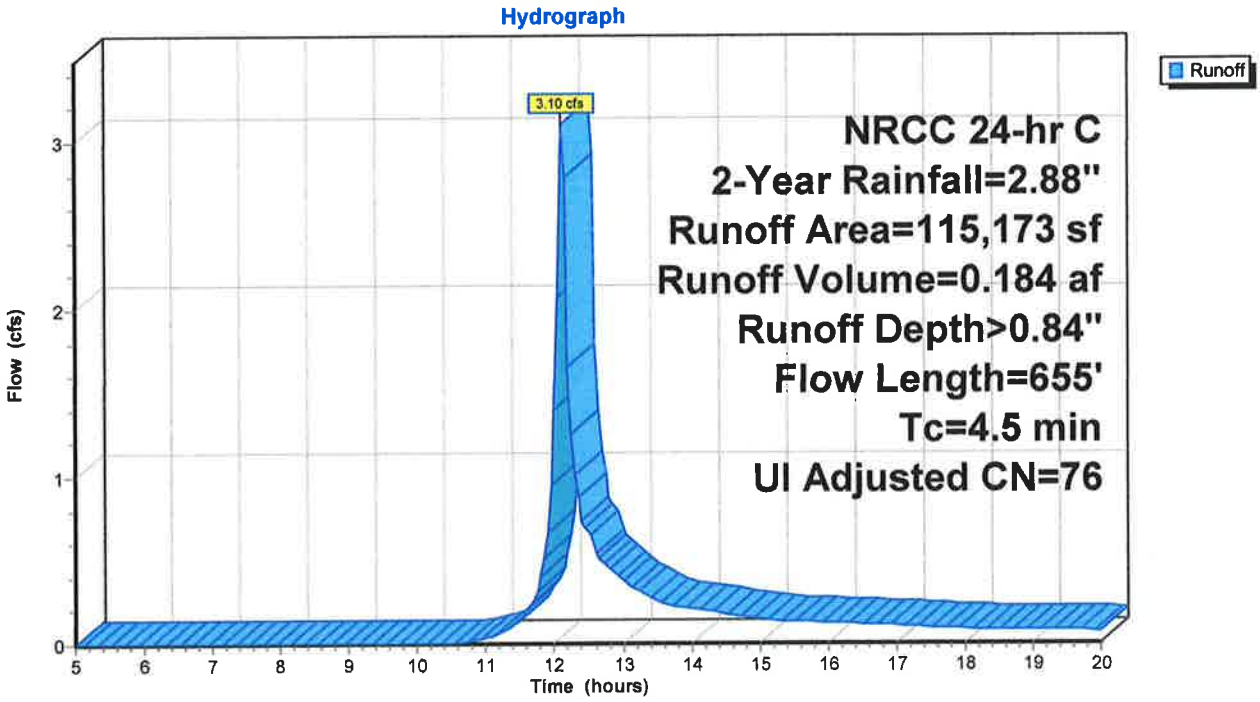
Runoff = 3.10 cfs @ 12.11 hrs, Volume= 0.184 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=2.88"

Area (sf)	CN	Adj	Description
27,772	98		Unconnected pavement, HSG C
54,340	71		Meadow, non-grazed, HSG C
4,446	70		Woods, Good, HSG C
26,385	78		Meadow, non-grazed, HSG D
2,230	79		Woods, Fair, HSG D
115,173	79	76	Weighted Average, UI Adjusted
87,401			75.89% Pervious Area
27,772			24.11% Impervious Area
27,772			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
2.0	160	0.0370	1.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	120	0.0170	2.10		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	140	0.0640	3.79		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	185	0.0540	12.35	321.09	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=2.00' Z= 5.0 '/' Top.W=23.00' n= 0.030 Earth, grassed & winding
4.5	655	Total			

Subcatchment WS1: Watershed 1



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

Subcatchment WS1: Watershed 1 Runoff Area=115,173 sf 24.11% Impervious Runoff Depth>1.71"
Flow Length=655' Tc=4.5 min UI Adjusted CN=76 Runoff=6.43 cfs 0.377 af

Total Runoff Area = 2.644 ac Runoff Volume = 0.377 af Average Runoff Depth = 1.71"
75.89% Pervious = 2.006 ac 24.11% Impervious = 0.638 ac

Summary for Subcatchment WS1: Watershed 1

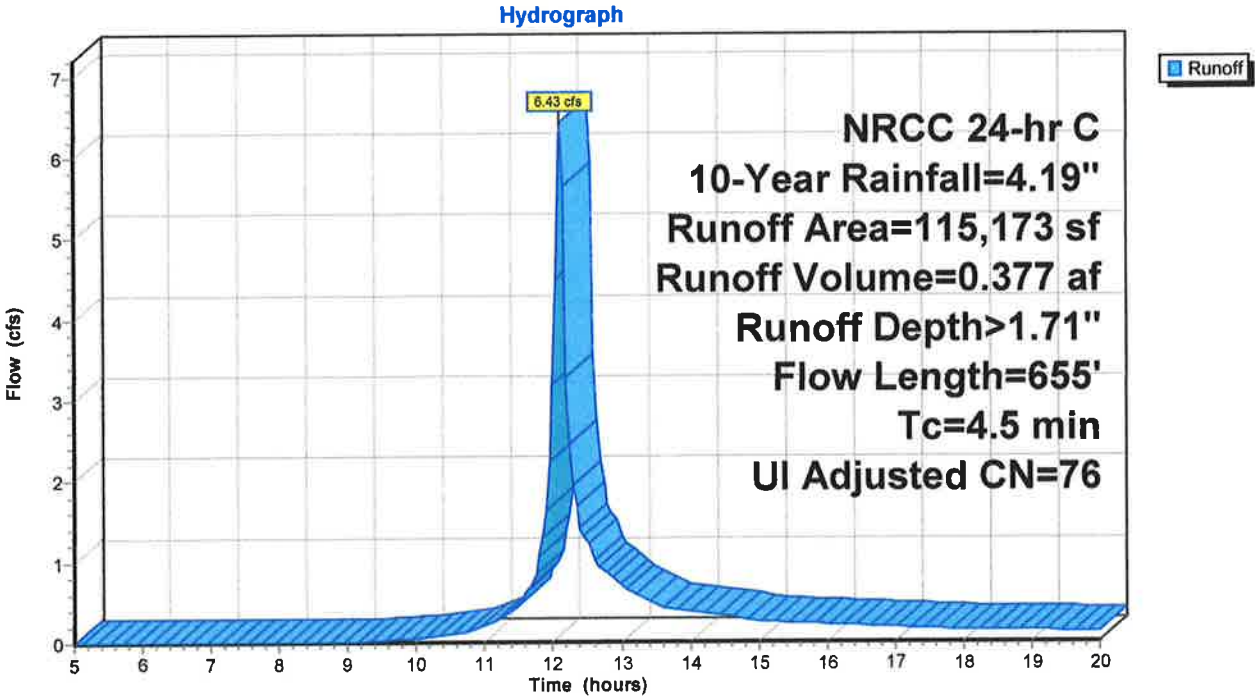
Runoff = 6.43 cfs @ 12.11 hrs, Volume= 0.377 af, Depth> 1.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.19"

Area (sf)	CN	Adj	Description
27,772	98		Unconnected pavement, HSG C
54,340	71		Meadow, non-grazed, HSG C
4,446	70		Woods, Good, HSG C
26,385	78		Meadow, non-grazed, HSG D
2,230	79		Woods, Fair, HSG D
115,173	79	76	Weighted Average, UI Adjusted
87,401			75.89% Pervious Area
27,772			24.11% Impervious Area
27,772			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
2.0	160	0.0370	1.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	120	0.0170	2.10		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	140	0.0640	3.79		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	185	0.0540	12.35	321.09	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=2.00' Z= 5.0 '/' Top.W=23.00' n= 0.030 Earth, grassed & winding
4.5	655	Total			

Subcatchment WS1: Watershed 1



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

Subcatchment WS1: Watershed 1 Runoff Area=115,173 sf 24.11% Impervious Runoff Depth>2.46"
Flow Length=655' Tc=4.5 min UI Adjusted CN=76 Runoff=9.20 cfs 0.543 af

Total Runoff Area = 2.644 ac Runoff Volume = 0.543 af Average Runoff Depth = 2.46"
75.89% Pervious = 2.006 ac 24.11% Impervious = 0.638 ac

Summary for Subcatchment WS1: Watershed 1

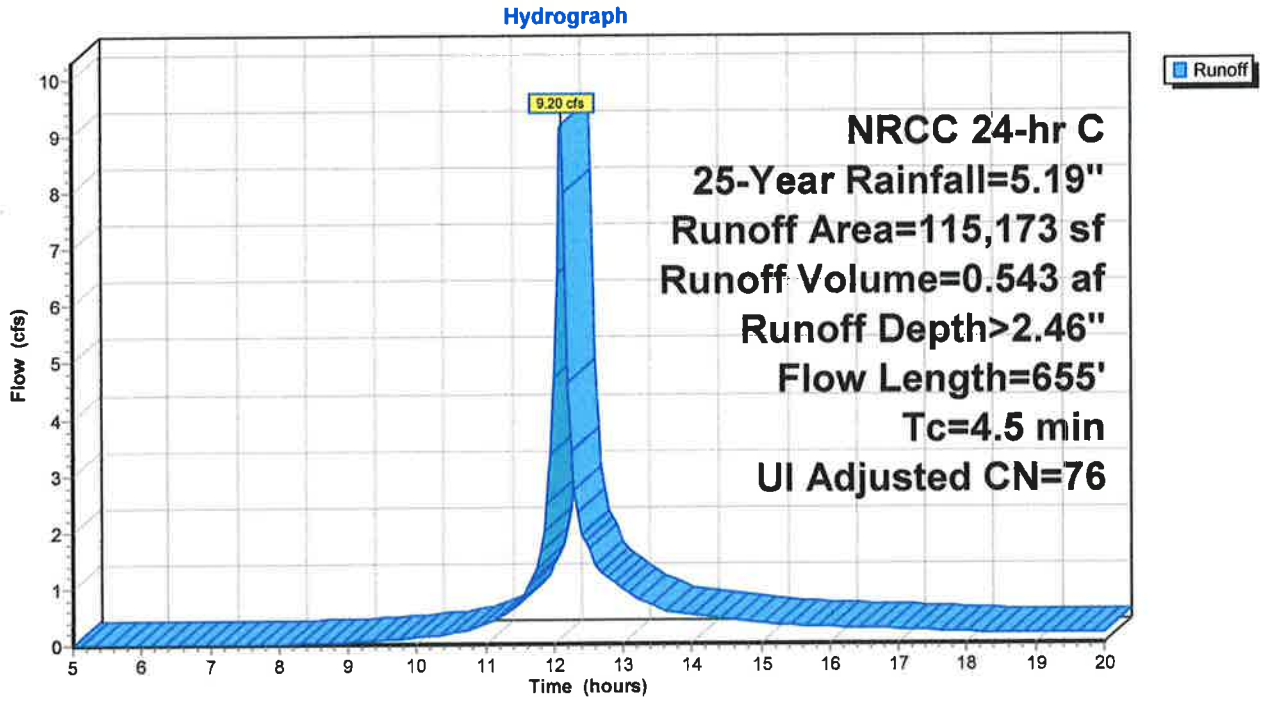
Runoff = 9.20 cfs @ 12.11 hrs, Volume= 0.543 af, Depth> 2.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.19"

Area (sf)	CN	Adj	Description
27,772	98		Unconnected pavement, HSG C
54,340	71		Meadow, non-grazed, HSG C
4,446	70		Woods, Good, HSG C
26,385	78		Meadow, non-grazed, HSG D
2,230	79		Woods, Fair, HSG D
115,173	79	76	Weighted Average, UI Adjusted
87,401			75.89% Pervious Area
27,772			24.11% Impervious Area
27,772			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
2.0	160	0.0370	1.35		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.0	120	0.0170	2.10		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.6	140	0.0640	3.79		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	185	0.0540	12.35	321.09	**Trap/Vee/Rect Channel Flow,** Bot.W=3.00' D=2.00' Z= 5.0 '/' Top.W=23.00' n= 0.030 Earth, grassed & winding
4.5	655	Total			

Subcatchment WS1: Watershed 1



Stormwater Calculations

Existing Condition DP 2

2/10/25 year storm events

Watershed 2

Subcat Reach Pond Link

Routing Diagram for Existing Condition WS2
Prepared by SJR Engineering, Printed 7/31/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.123	71	Meadow, non-grazed, HSG C (WS2)
0.452	98	Unconnected pavement, HSG C (WS2)
0.031	70	Woods, Good, HSG C (WS2)
0.606	**91**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.606	HSG C	WS2
0.000	HSG D	
0.000	Other	
0.606		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.123	0.000	0.000	0.123	Meadow, non-grazed	WS2
0.000	0.000	0.452	0.000	0.000	0.452	Unconnected pavement	WS2
0.000	0.000	0.031	0.000	0.000	0.031	Woods, Good	WS2
0.000	**0.000**	**0.606**	**0.000**	**0.000**	**0.606**	**TOTAL AREA**	

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

Subcatchment WS2: Watershed 2 Runoff Area=26,407 sf 74.51% Impervious Runoff Depth>1.82"
Flow Length=200' Tc=3.2 min CN=91 Runoff=1.59 cfs 0.092 af

Total Runoff Area = 0.606 ac Runoff Volume = 0.092 af Average Runoff Depth = 1.82"
25.49% Pervious = 0.154 ac 74.51% Impervious = 0.452 ac

Summary for Subcatchment WS2: Watershed 2

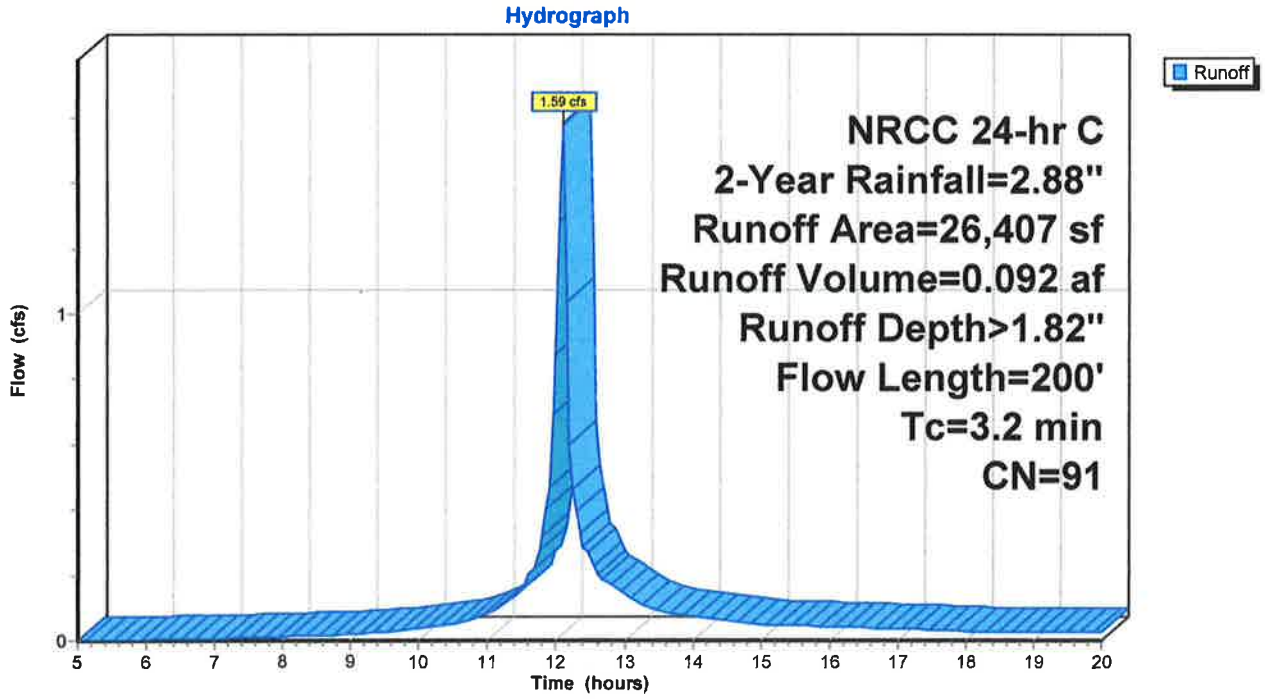
Runoff = 1.59 cfs @ 12.09 hrs, Volume= 0.092 af, Depth> 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=2.88"

Area (sf)	CN	Description
19,677	98	Unconnected pavement, HSG C
5,367	71	Meadow, non-grazed, HSG C
1,363	70	Woods, Good, HSG C
26,407	91	Weighted Average
6,730		25.49% Pervious Area
19,677		74.51% Impervious Area
19,677		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	60	0.0050	0.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
1.1	90	0.0220	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
0.6	50	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.2	200	Total			

Subcatchment WS2: Watershed 2



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

Subcatchment WS2: Watershed 2 Runoff Area=26,407 sf 74.51% Impervious Runoff Depth>2.98"
Flow Length=200' Tc=3.2 min CN=91 Runoff=2.52 cfs 0.150 af

Total Runoff Area = 0.606 ac Runoff Volume = 0.150 af Average Runoff Depth = 2.98"
25.49% Pervious = 0.154 ac 74.51% Impervious = 0.452 ac

Summary for Subcatchment WS2: Watershed 2

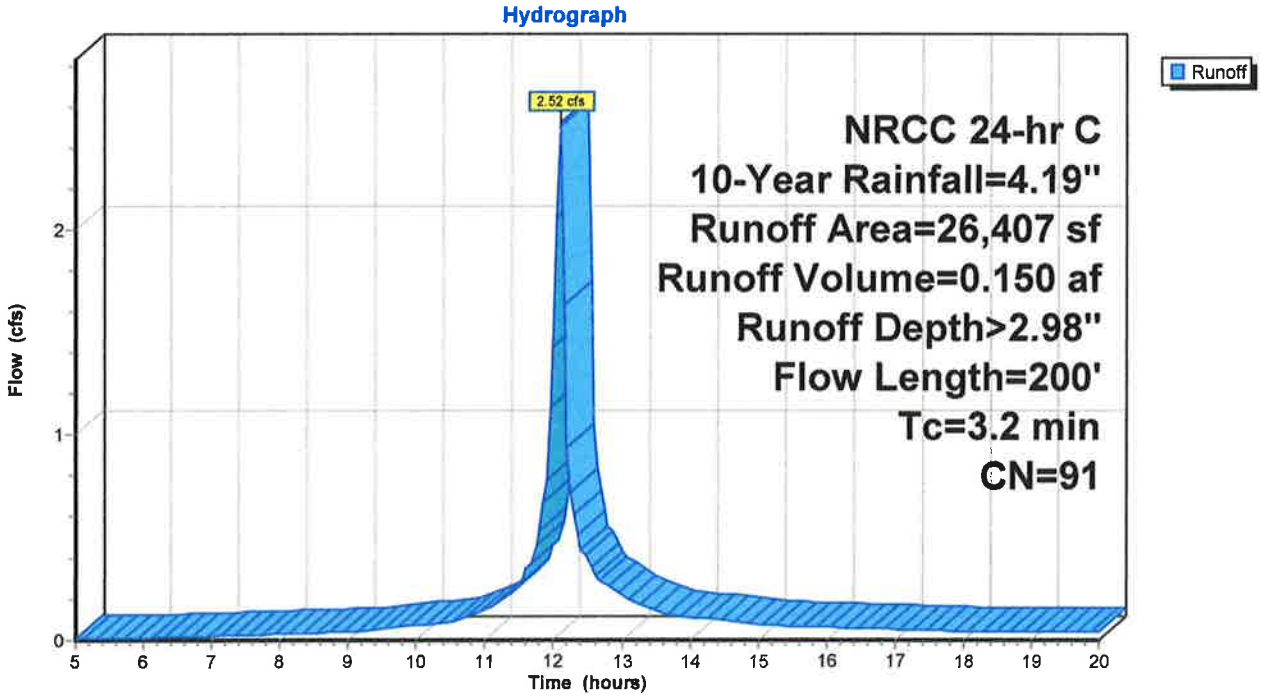
Runoff = 2.52 cfs @ 12.09 hrs, Volume= 0.150 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.19"

Area (sf)	CN	Description
19,677	98	Unconnected pavement, HSG C
5,367	71	Meadow, non-grazed, HSG C
1,363	70	Woods, Good, HSG C
26,407	91	Weighted Average
6,730		25.49% Pervious Area
19,677		74.51% Impervious Area
19,677		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	60	0.0050	0.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
1.1	90	0.0220	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
0.6	50	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.2	200	Total			

Subcatchment WS2: Watershed 2



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

Subcatchment WS2: Watershed 2 Runoff Area=26,407 sf 74.51% Impervious Runoff Depth>3.88"
Flow Length=200' Tc=3.2 min CN=91 Runoff=3.23 cfs 0.196 af

Total Runoff Area = 0.606 ac Runoff Volume = 0.196 af Average Runoff Depth = 3.88"
25.49% Pervious = 0.154 ac 74.51% Impervious = 0.452 ac

Summary for Subcatchment WS2: Watershed 2

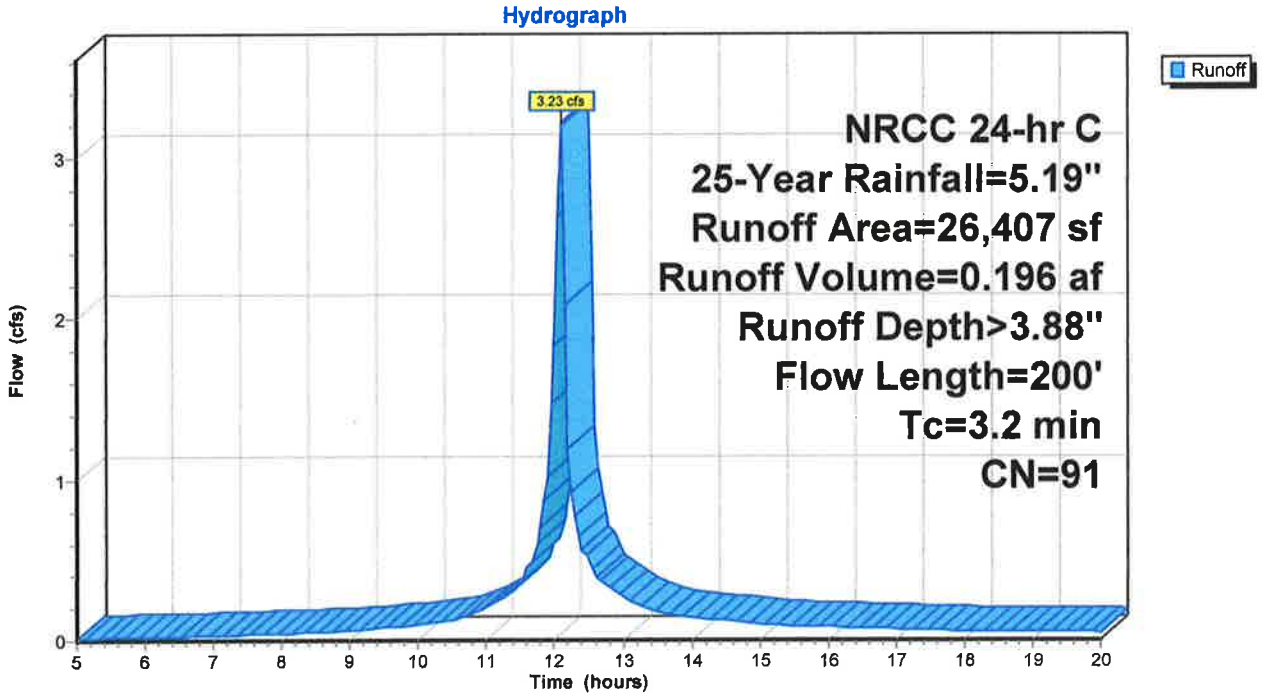
Runoff = 3.23 cfs @ 12.09 hrs, Volume= 0.196 af, Depth> 3.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.19"

Area (sf)	CN	Description
19,677	98	Unconnected pavement, HSG C
5,367	71	Meadow, non-grazed, HSG C
1,363	70	Woods, Good, HSG C
26,407	91	Weighted Average
6,730		25.49% Pervious Area
19,677		74.51% Impervious Area
19,677		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	60	0.0050	0.68		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
1.1	90	0.0220	1.33		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
0.6	50	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.2	200	Total			

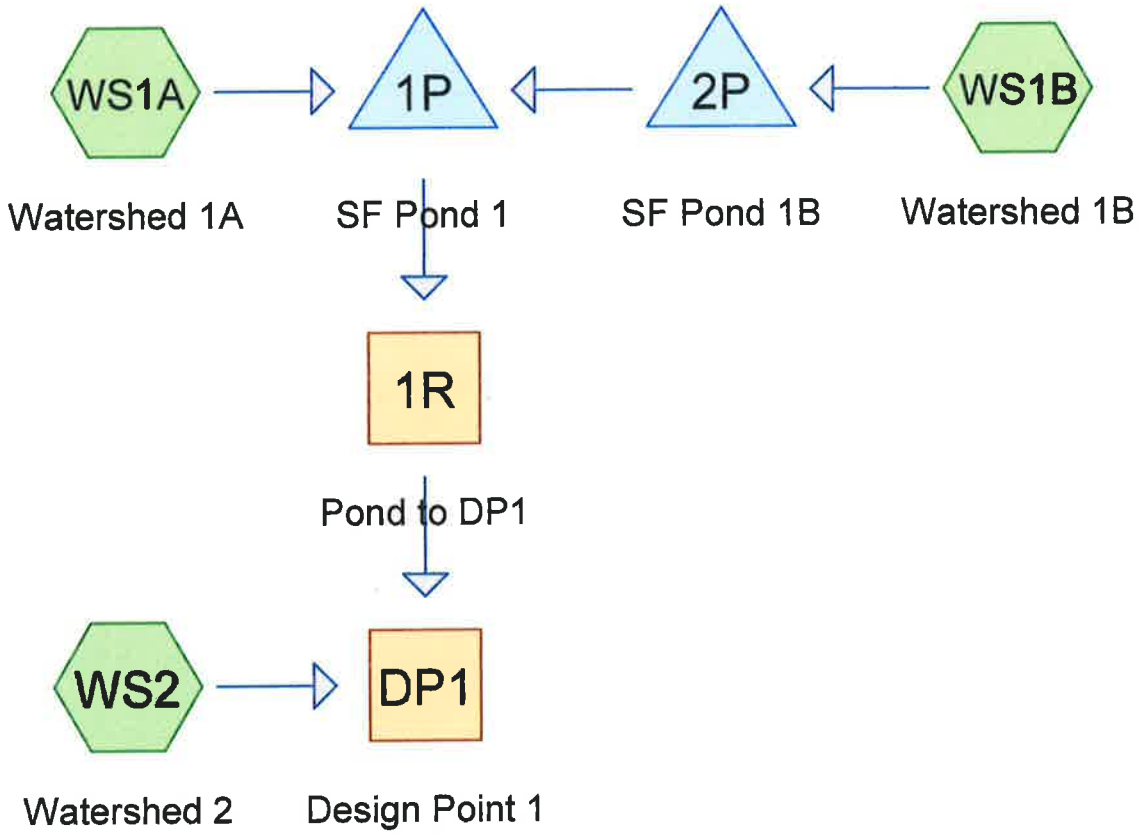
Subcatchment WS2: Watershed 2



Stormwater Calculations

Proposed Condition Design Point 1

2/10/25 year storm events



Subcat Reach Pond Link

Routing Diagram for Proposed WS1
Prepared by SJR Engineering, Printed 7/31/2023

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.111	74	>75% Grass cover, Good, HSG C (WS1A, WS1B)
0.013	80	>75% Grass cover, Good, HSG D (WS2)
0.944	71	Meadow, non-grazed, HSG C (WS1A, WS1B, WS2)
0.548	78	Meadow, non-grazed, HSG D (WS1A, WS2)
1.214	98	Unconnected pavement, HSG C (WS1A, WS1B, WS2)
0.003	98	Unconnected pavement, HSG D (WS1A)
0.038	77	Woods, Good, HSG D (WS2)
2.873	**84**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
2.270	HSG C	WS1A, WS1B, WS2
0.603	HSG D	WS1A, WS2
0.000	Other	
2.873		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.111	0.013	0.000	0.124	>75% Grass cover, Good	WS1A, WS1B, WS2
0.000	0.000	0.944	0.548	0.000	1.493	Meadow, non-grazed	WS1A, WS1B, WS2
0.000	0.000	1.214	0.003	0.000	1.218	Unconnected pavement	WS1A, WS1B, WS2
0.000	0.000	0.000	0.038	0.000	0.038	Woods, Good	WS2
0.000	**0.000**	**2.270**	**0.603**	**0.000**	**2.873**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1P	279.00	276.00	30.0	0.1000	0.012	0.0	15.0	0.0	

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

Subcatchment WS1A: Watershed 1A Runoff Area=63,422 sf 57.95% Impervious Runoff Depth>1.49"
Flow Length=520' Tc=17.8 min CN=87 Runoff=2.01 cfs 0.181 af

Subcatchment WS1B: Watershed 1B Runoff Area=20,983 sf 62.26% Impervious Runoff Depth>1.55"
Flow Length=415' Tc=41.6 min CN=88 Runoff=0.45 cfs 0.062 af

Subcatchment WS2: Watershed 2 Runoff Area=40,726 sf 7.90% Impervious Runoff Depth>0.89"
Tc=0.0 min CN=77 Runoff=1.29 cfs 0.069 af

Reach 1R: Pond to DP1 Avg. Flow Depth=0.10' Max Vel=0.43 fps Inflow=0.17 cfs 0.091 af
n=0.130 L=100.0' S=0.0400 '/' Capacity=109.66 cfs Outflow=0.17 cfs 0.090 af

Reach DP1: Design Point 1 Inflow=1.37 cfs 0.159 af
Outflow=1.37 cfs 0.159 af

Pond 1P: SF Pond 1 Peak Elev=283.30' Storage=4,515 cf Inflow=2.01 cfs 0.188 af
Outflow=0.17 cfs 0.091 af

Pond 2P: SF Pond 1B Peak Elev=283.51' Storage=2,431 cf Inflow=0.45 cfs 0.062 af
Outflow=0.03 cfs 0.007 af

Total Runoff Area = 2.873 ac Runoff Volume = 0.313 af Average Runoff Depth = 1.31"
57.61% Pervious = 1.655 ac 42.39% Impervious = 1.218 ac

Summary for Subcatchment WS1A: Watershed 1A

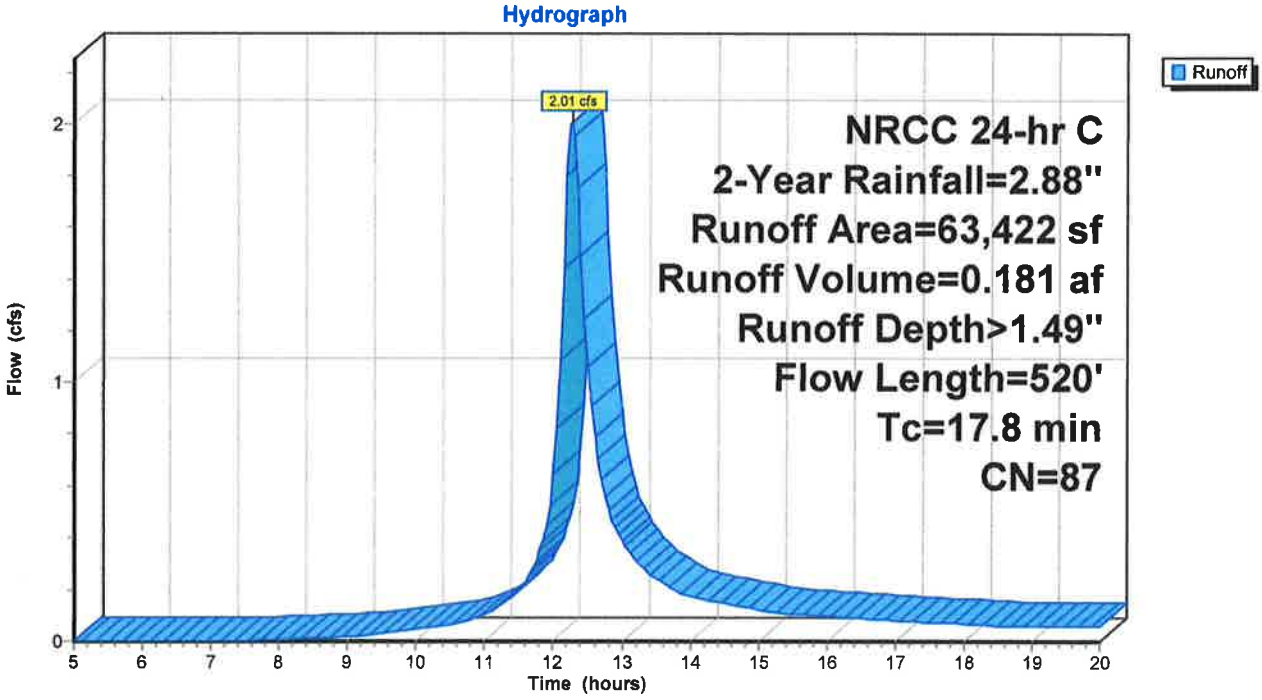
Runoff = 2.01 cfs @ 12.27 hrs, Volume= 0.181 af, Depth> 1.49"
Routed to Pond 1P : SF Pond 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=2.88"

Area (sf)	CN	Description
36,608	98	Unconnected pavement, HSG C
3,580	74	>75% Grass cover, Good, HSG C
22,214	71	Meadow, non-grazed, HSG C
146	98	Unconnected pavement, HSG D
874	78	Meadow, non-grazed, HSG D
63,422	87	Weighted Average
26,668		42.05% Pervious Area
36,754		57.95% Impervious Area
36,754		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
1.4	120	0.0420	1.43		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	150	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	120	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
13.4	80	0.0050	0.10		**Sheet Flow,** Range n= 0.130 P2= 2.88"
17.8	520	Total			

Subcatchment WS1A: Watershed 1A



Summary for Subcatchment WS1B: Watershed 1B

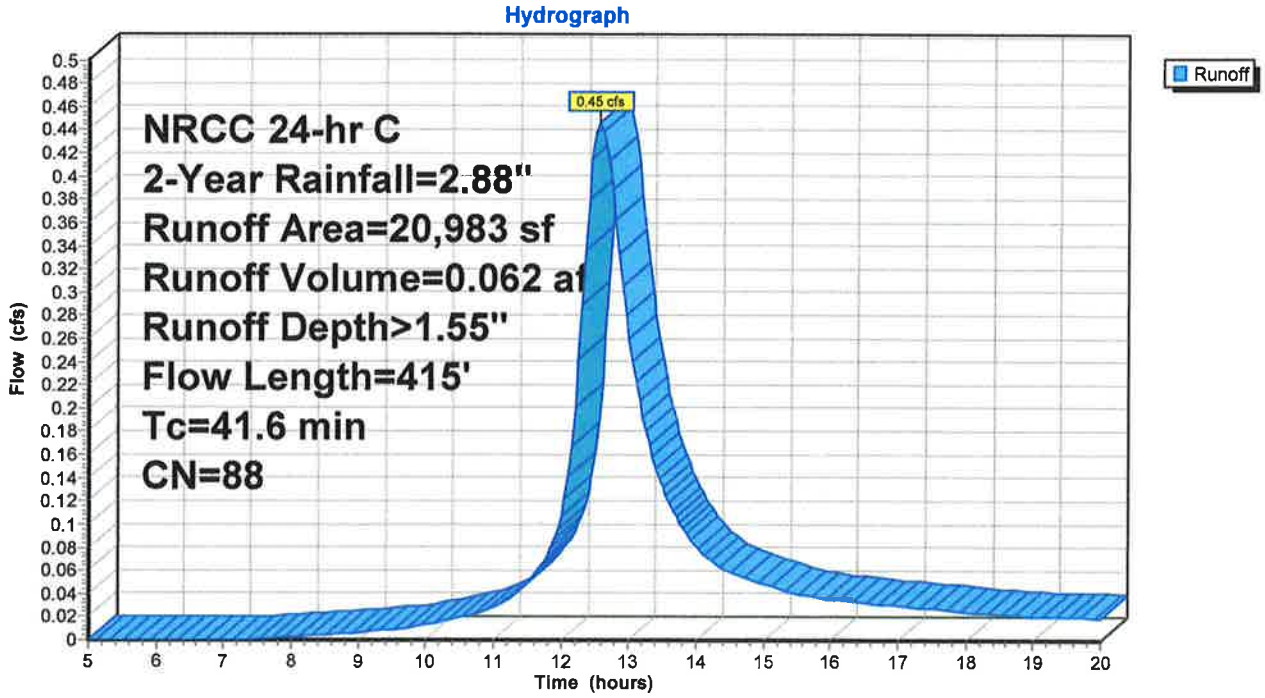
Runoff = 0.45 cfs @ 12.57 hrs, Volume= 0.062 af, Depth> 1.55"
Routed to Pond 2P : SF Pond 1B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=2.88"

Area (sf)	CN	Description
13,065	98	Unconnected pavement, HSG C
1,265	74	>75% Grass cover, Good, HSG C
6,653	71	Meadow, non-grazed, HSG C
20,983	88	Weighted Average
7,918		37.74% Pervious Area
13,065		62.26% Impervious Area
13,065		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	100	0.0300	0.21		**Sheet Flow,** Range n= 0.130 P2= 2.88"
0.4	65	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
33.4	250	0.0050	0.12		**Sheet Flow,** Range n= 0.130 P2= 2.88"
41.6	415	Total			

Subcatchment WS1B: Watershed 1B



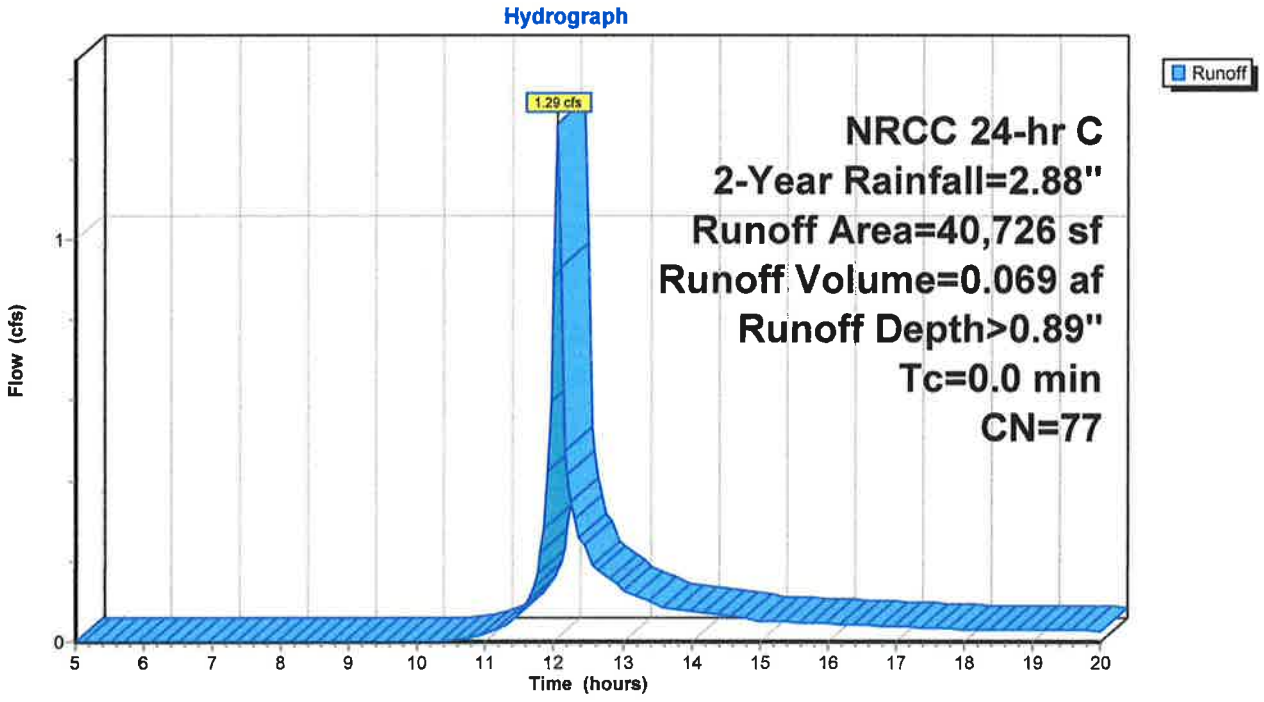
Summary for Subcatchment WS2: Watershed 2

Runoff = 1.29 cfs @ 12.05 hrs, Volume= 0.069 af, Depth> 0.89"
Routed to Reach DP1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 2-Year Rainfall=2.88"

Area (sf)	CN	Description
3,218	98	Unconnected pavement, HSG C
12,267	71	Meadow, non-grazed, HSG C
567	80	>75% Grass cover, Good, HSG D
23,008	78	Meadow, non-grazed, HSG D
1,666	77	Woods, Good, HSG D
40,726	77	Weighted Average
37,508		92.10% Pervious Area
3,218		7.90% Impervious Area
3,218		100.00% Unconnected

Subcatchment WS2: Watershed 2



Summary for Reach 1R: Pond to DP1

Inflow Area = 1.938 ac, 59.02% Impervious, Inflow Depth > 0.57" for 2-Year event
Inflow = 0.17 cfs @ 14.04 hrs, Volume= 0.091 af
Outflow = 0.17 cfs @ 14.15 hrs, Volume= 0.090 af, Atten= 0%, Lag= 6.8 min
Routed to Reach DP1 : Design Point 1

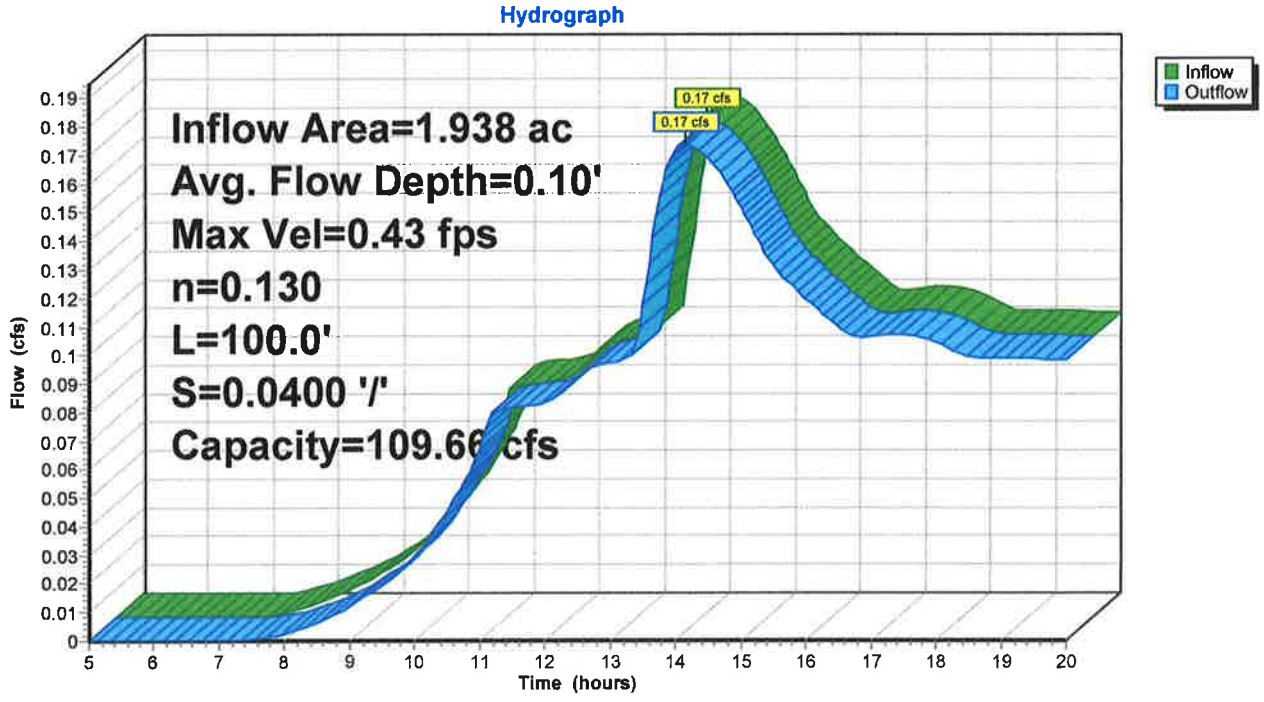
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.43 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 0.32 fps, Avg. Travel Time= 5.2 min

Peak Storage= 41 cf @ 14.09 hrs
Average Depth at Peak Storage= 0.10' , Surface Width= 5.03'
Bank-Full Depth= 2.00' Flow Area= 46.0 sf, Capacity= 109.66 cfs

3.00' x 2.00' deep channel, n= 0.130 Sheet flow over Range
Side Slope Z-value= 10.0 '/' Top Width= 43.00'
Length= 100.0' Slope= 0.0400 '/'
Inlet Invert= 0.00', Outlet Invert= -4.00'

‡

Reach 1R: Pond to DP1

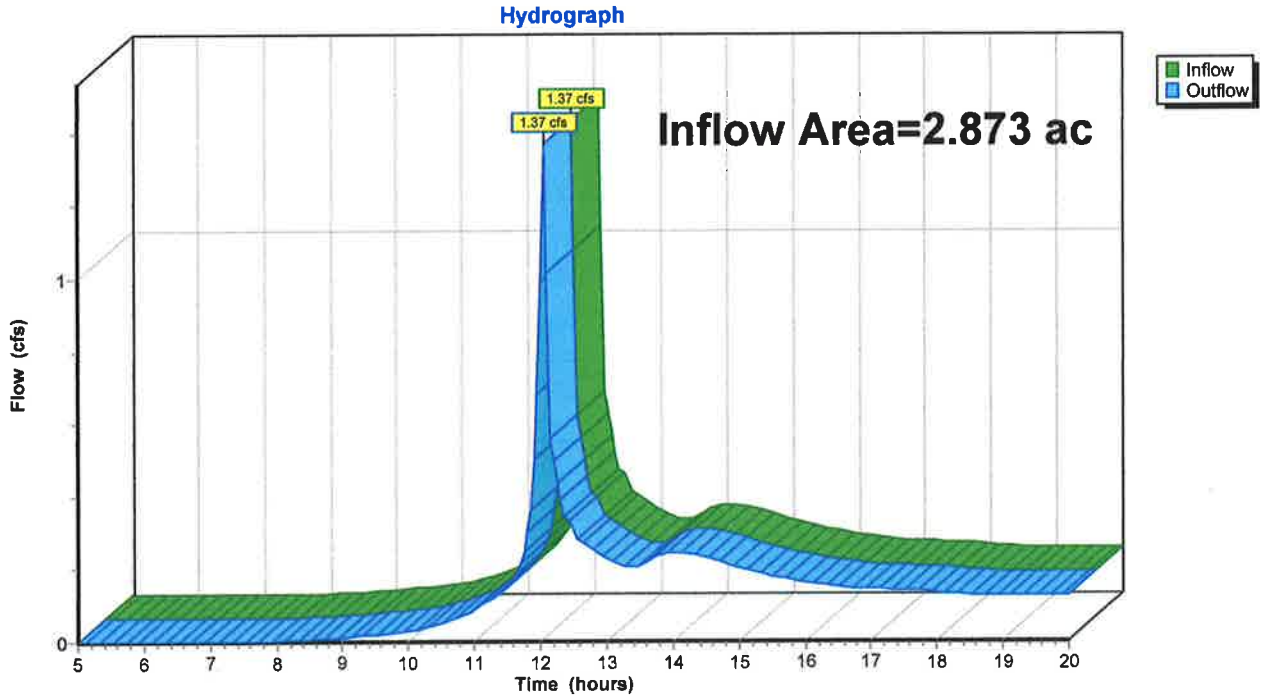


Summary for Reach DP1: Design Point 1

Inflow Area = 2.873 ac, 42.39% Impervious, Inflow Depth > 0.67" for 2-Year event
Inflow = 1.37 cfs @ 12.05 hrs, Volume= 0.159 af
Outflow = 1.37 cfs @ 12.05 hrs, Volume= 0.159 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 DP1: Design Point 1



Summary for Pond 1P: SF Pond 1

Inflow Area = 1.938 ac, 59.02% Impervious, Inflow Depth > 1.16" for 2-Year event
Inflow = 2.01 cfs @ 12.27 hrs, Volume= 0.188 af
Outflow = 0.17 cfs @ 14.04 hrs, Volume= 0.091 af, Atten= 91%, Lag= 106.5 min
Primary = 0.17 cfs @ 14.04 hrs, Volume= 0.091 af
Routed to Reach 1R : Pond to DP1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 283.30' @ 14.04 hrs Surf.Area= 3,985 sf Storage= 4,515 cf

Plug-Flow detention time= 189.9 min calculated for 0.091 af (48% of inflow)
Center-of-Mass det. time= 95.3 min (904.4 - 809.1)

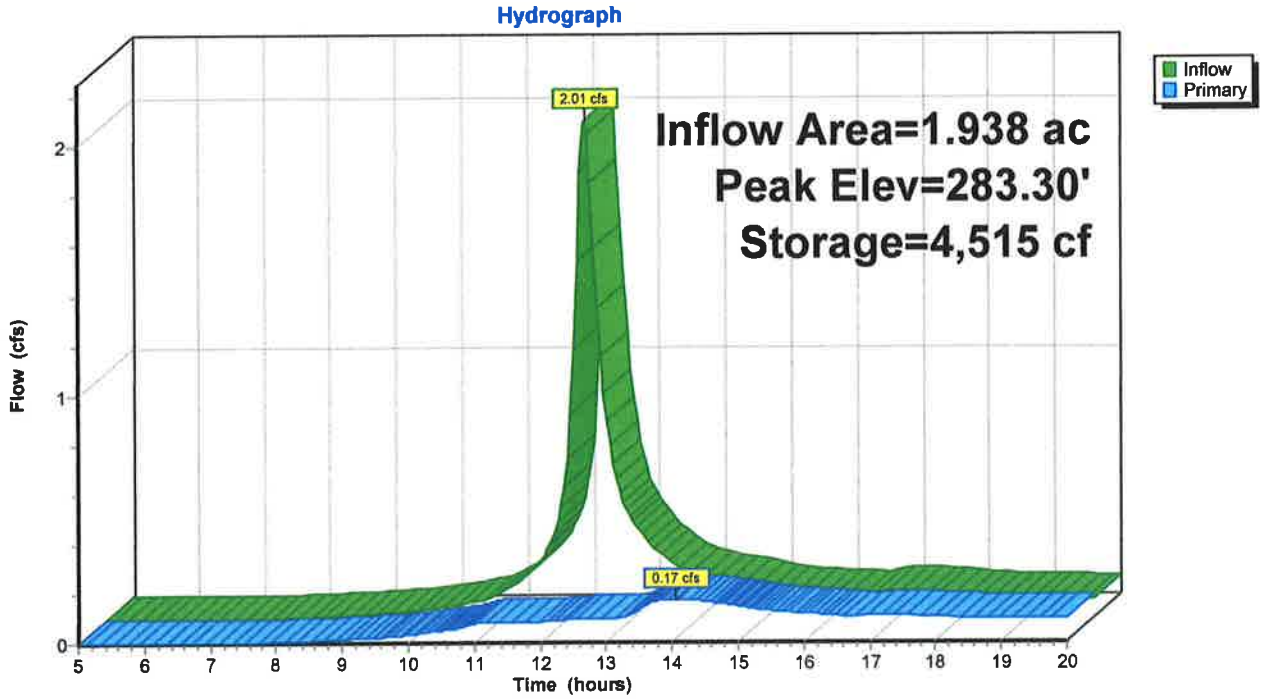
Volume	Invert	Avail.Storage	Storage Description
#1	282.00'	23,550 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
282.00	2,965	0	0
284.00	4,535	7,500	7,500
286.00	11,515	16,050	23,550

Device	Routing	Invert	Outlet Devices
#1	Primary	279.00'	**15.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 279.00' / 276.00' S= 0.1000 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	279.50'	**1.4" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	283.25'	**24.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	284.50'	**20.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.17 cfs @ 14.04 hrs HW=283.30' (Free Discharge)
- **1=Culvert** (Passes 0.17 cfs of 11.33 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 0.10 cfs @ 9.31 fps)
  - **3=Orifice/Grate** (Orifice Controls 0.07 cfs @ 0.71 fps)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: SF Pond 1



Summary for Pond 2P: SF Pond 1B

Inflow Area = 0.482 ac, 62.26% Impervious, Inflow Depth > 1.55" for 2-Year event
Inflow = 0.45 cfs @ 12.57 hrs, Volume= 0.062 af
Outflow = 0.03 cfs @ 17.22 hrs, Volume= 0.007 af, Atten= 94%, Lag= 279.4 min
Primary = 0.03 cfs @ 17.22 hrs, Volume= 0.007 af
Routed to Pond 1P : SF Pond 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 283.51' @ 17.22 hrs Surf.Area= 2,362 sf Storage= 2,431 cf

Plug-Flow detention time= 441.6 min calculated for 0.007 af (11% of inflow)
Center-of-Mass det. time= 280.3 min (1,093.6 - 813.4)

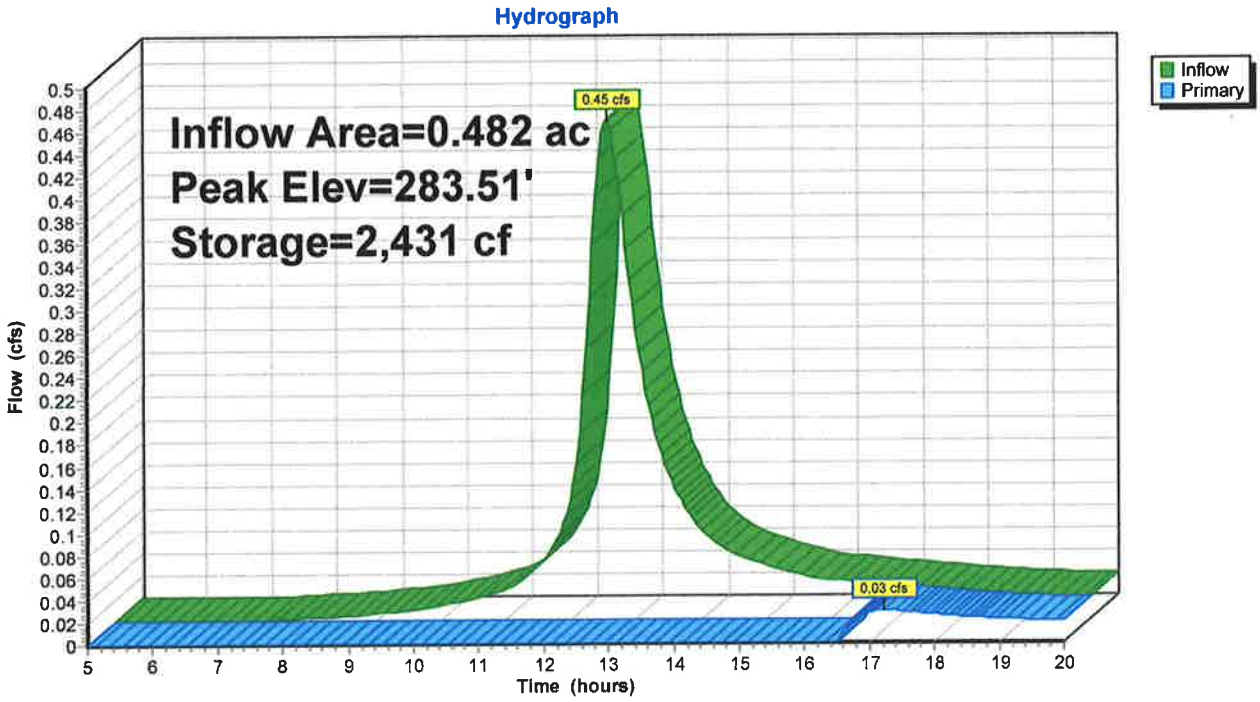
Volume	Invert	Avail.Storage	Storage Description
#1	282.00'	3,712 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
282.00	862	0	0
284.00	2,850	3,712	3,712

Device	Routing	Invert	Outlet Devices
#1	Primary	283.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.02 cfs @ 17.22 hrs HW=283.51' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.02 cfs @ 0.22 fps)

Pond 2P: SF Pond 1B



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

Subcatchment WS1A: Watershed 1A Runoff Area=63,422 sf 57.95% Impervious Runoff Depth>2.59"
Flow Length=520' Tc=17.8 min CN=87 Runoff=3.42 cfs 0.315 af

Subcatchment WS1B: Watershed 1B Runoff Area=20,983 sf 62.26% Impervious Runoff Depth>2.66"
Flow Length=415' Tc=41.6 min CN=88 Runoff=0.75 cfs 0.107 af

Subcatchment WS2: Watershed 2 Runoff Area=40,726 sf 7.90% Impervious Runoff Depth>1.79"
Tc=0.0 min CN=77 Runoff=2.60 cfs 0.139 af

Reach 1R: Pond to DP1 Avg. Flow Depth=0.29' Max Vel=0.77 fps Inflow=1.35 cfs 0.264 af
n=0.130 L=100.0' S=0.0400 '/' Capacity=109.66 cfs Outflow=1.34 cfs 0.263 af

Reach DP1: Design Point 1 Inflow=2.69 cfs 0.402 af
Outflow=2.69 cfs 0.402 af

Pond 1P: SF Pond 1 Peak Elev=283.58' Storage=5,685 cf Inflow=3.42 cfs 0.366 af
Outflow=1.35 cfs 0.264 af

Pond 2P: SF Pond 1B Peak Elev=283.56' Storage=2,564 cf Inflow=0.75 cfs 0.107 af
Outflow=0.39 cfs 0.051 af

Total Runoff Area = 2.873 ac Runoff Volume = 0.561 af Average Runoff Depth = 2.34"
57.61% Pervious = 1.655 ac 42.39% Impervious = 1.218 ac

Summary for Subcatchment WS1A: Watershed 1A

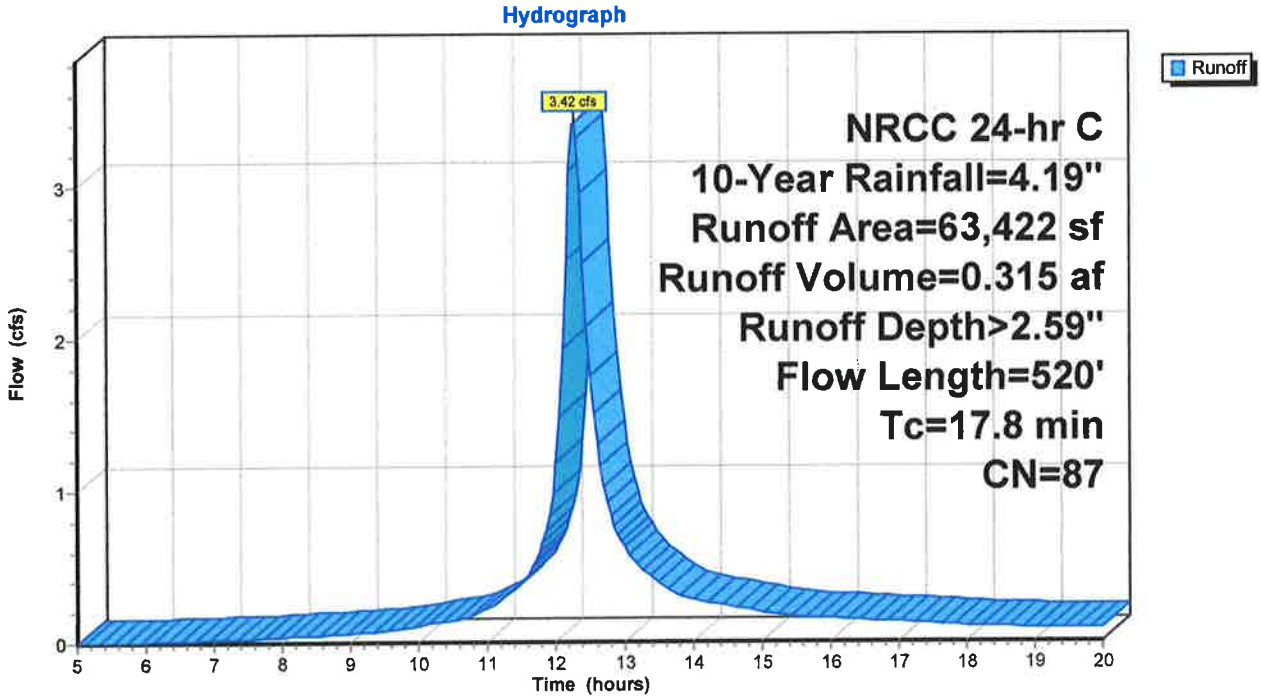
Runoff = 3.42 cfs @ 12.26 hrs, Volume= 0.315 af, Depth> 2.59"
Routed to Pond 1P : SF Pond 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.19"

Area (sf)	CN	Description
36,608	98	Unconnected pavement, HSG C
3,580	74	>75% Grass cover, Good, HSG C
22,214	71	Meadow, non-grazed, HSG C
146	98	Unconnected pavement, HSG D
874	78	Meadow, non-grazed, HSG D
63,422	87	Weighted Average
26,668		42.05% Pervious Area
36,754		57.95% Impervious Area
36,754		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
1.4	120	0.0420	1.43		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	150	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	120	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
13.4	80	0.0050	0.10		**Sheet Flow,** Range n= 0.130 P2= 2.88"
17.8	520	Total			

Subcatchment WS1A: Watershed 1A



Summary for Subcatchment WS1B: Watershed 1B

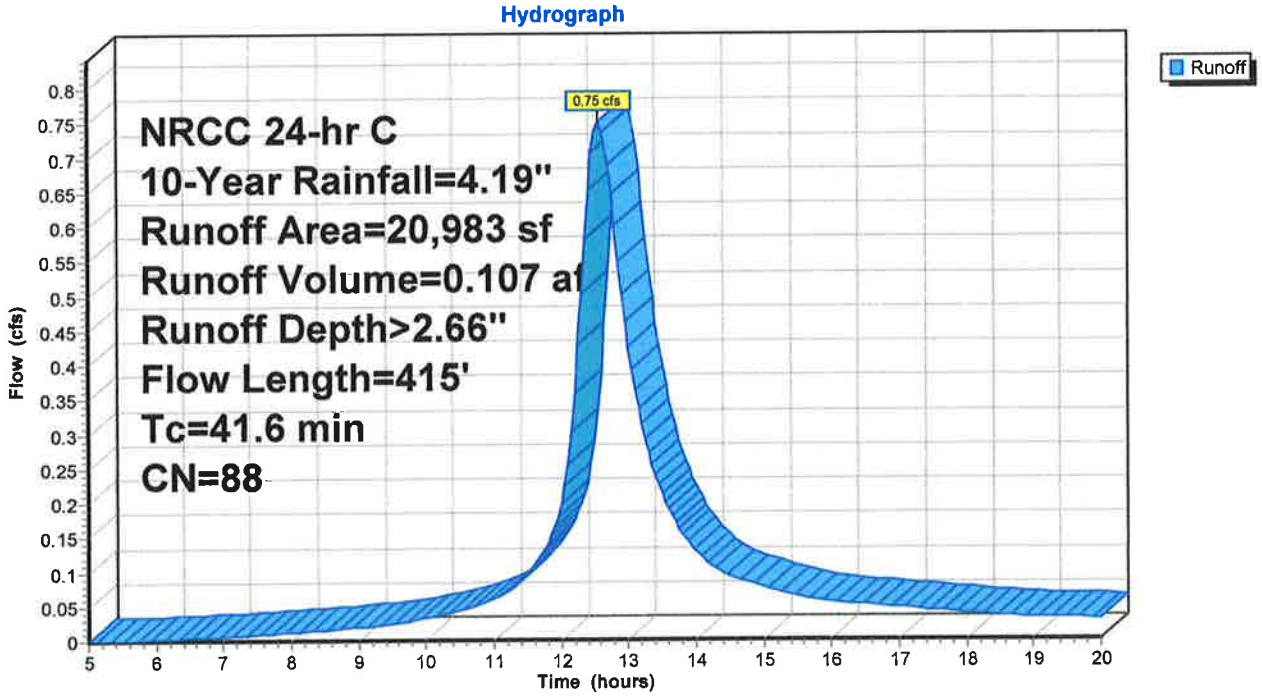
Runoff = 0.75 cfs @ 12.56 hrs, Volume= 0.107 af, Depth> 2.66"
Routed to Pond 2P : SF Pond 1B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.19"

Area (sf)	CN	Description
13,065	98	Unconnected pavement, HSG C
1,265	74	>75% Grass cover, Good, HSG C
6,653	71	Meadow, non-grazed, HSG C
20,983	88	Weighted Average
7,918		37.74% Pervious Area
13,065		62.26% Impervious Area
13,065		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	100	0.0300	0.21		**Sheet Flow,** Range n= 0.130 P2= 2.88"
0.4	65	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
33.4	250	0.0050	0.12		**Sheet Flow,** Range n= 0.130 P2= 2.88"
41.6	415	Total			

Subcatchment WS1B: Watershed 1B



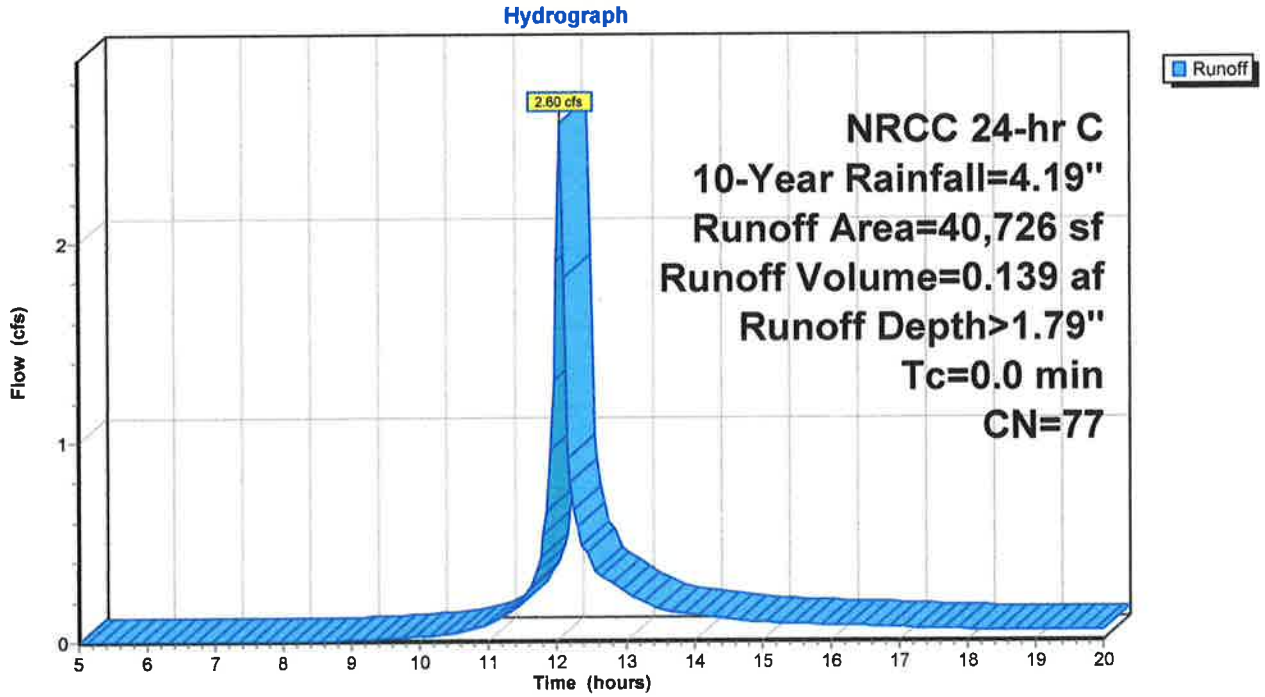
Summary for Subcatchment WS2: Watershed 2

Runoff = 2.60 cfs @ 12.05 hrs, Volume= 0.139 af, Depth> 1.79"
Routed to Reach DP1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 10-Year Rainfall=4.19"

Area (sf)	CN	Description
3,218	98	Unconnected pavement, HSG C
12,267	71	Meadow, non-grazed, HSG C
567	80	>75% Grass cover, Good, HSG D
23,008	78	Meadow, non-grazed, HSG D
1,666	77	Woods, Good, HSG D
40,726	77	Weighted Average
37,508		92.10% Pervious Area
3,218		7.90% Impervious Area
3,218		100.00% Unconnected

Subcatchment WS2: Watershed 2



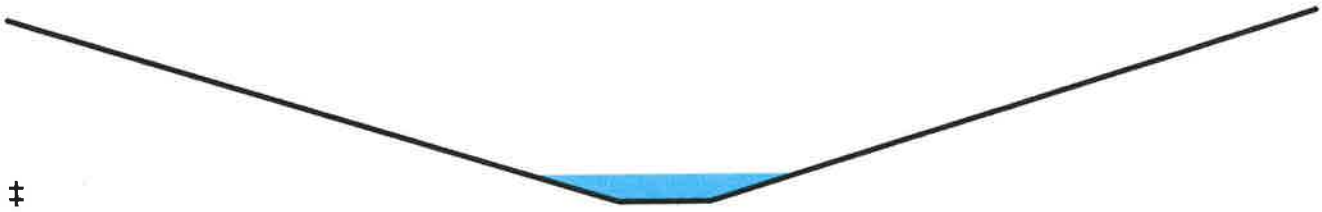
Summary for Reach 1R: Pond to DP1

Inflow Area = 1.938 ac, 59.02% Impervious, Inflow Depth > 1.64" for 10-Year event
Inflow = 1.35 cfs @ 12.59 hrs, Volume= 0.264 af
Outflow = 1.34 cfs @ 12.66 hrs, Volume= 0.263 af, Atten= 1%, Lag= 4.1 min
Routed to Reach DP1 : Design Point 1

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.77 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 0.39 fps, Avg. Travel Time= 4.3 min

Peak Storage= 174 cf @ 12.62 hrs
Average Depth at Peak Storage= 0.29' , Surface Width= 8.87'
Bank-Full Depth= 2.00' Flow Area= 46.0 sf, Capacity= 109.66 cfs

3.00' x 2.00' deep channel, n= 0.130 Sheet flow over Range
Side Slope Z-value= 10.0 '/' Top Width= 43.00'
Length= 100.0' Slope= 0.0400 '/'
Inlet Invert= 0.00', Outlet Invert= -4.00'



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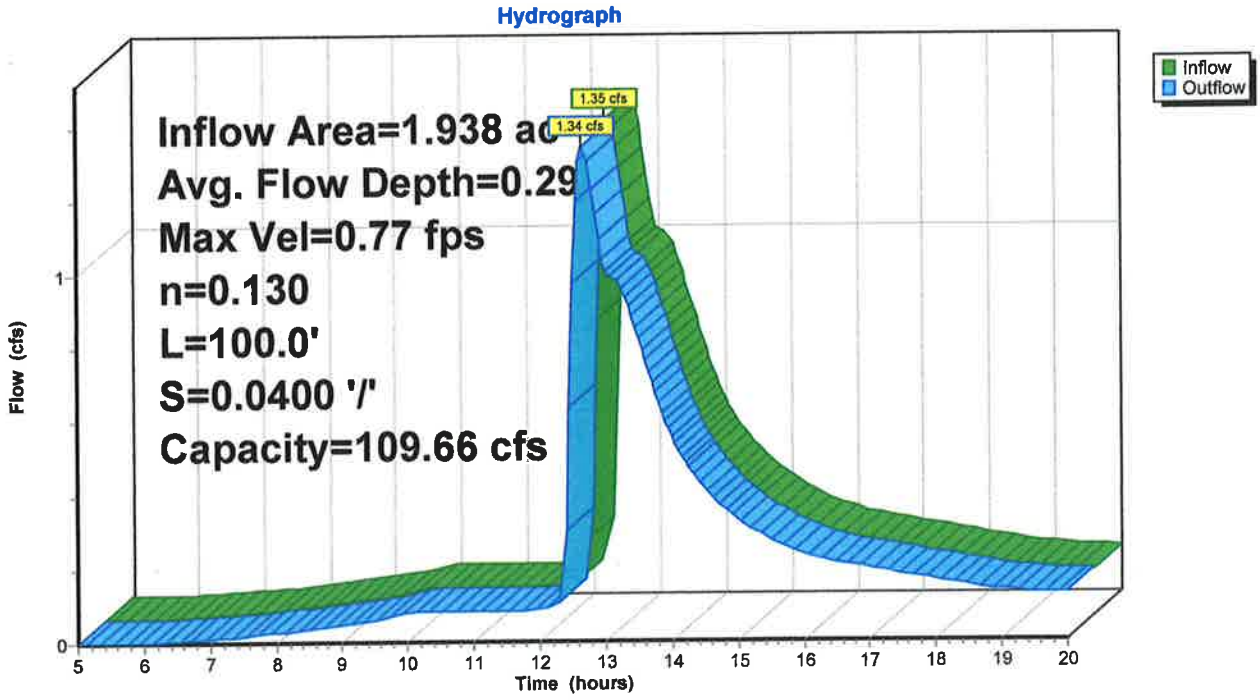
Reach 1R: Pond to DP1

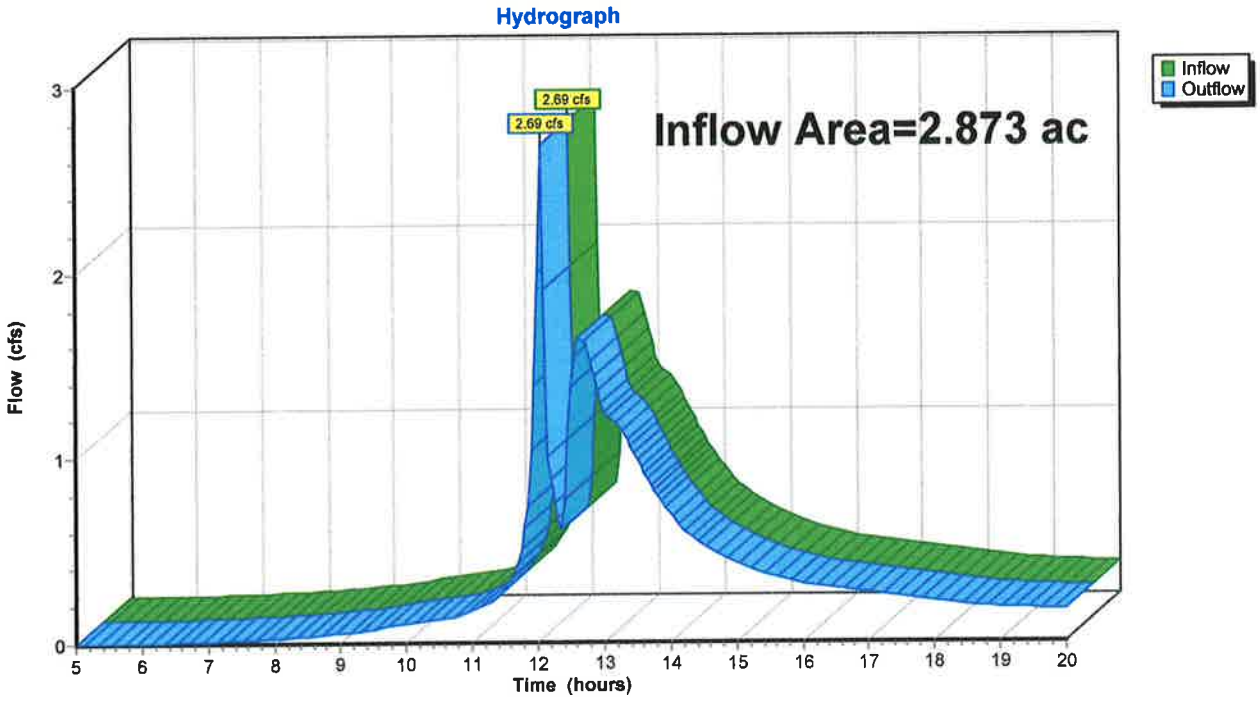


Summary for Reach DP1: Design Point 1

Inflow Area = 2.873 ac, 42.39% Impervious, Inflow Depth > 1.68" for 10-Year event
Inflow = 2.69 cfs @ 12.05 hrs, Volume= 0.402 af
Outflow = 2.69 cfs @ 12.05 hrs, Volume= 0.402 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 DP1: Design Point 1



Summary for Pond 1P: SF Pond 1

Inflow Area = 1.938 ac, 59.02% Impervious, Inflow Depth > 2.26" for 10-Year event
Inflow = 3.42 cfs @ 12.26 hrs, Volume= 0.366 af
Outflow = 1.35 cfs @ 12.59 hrs, Volume= 0.264 af, Atten= 60%, Lag= 19.8 min
Primary = 1.35 cfs @ 12.59 hrs, Volume= 0.264 af
Routed to Reach 1R : Pond to DP1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 283.58' @ 12.59 hrs Surf.Area= 4,209 sf Storage= 5,685 cf

Plug-Flow detention time= 116.3 min calculated for 0.263 af (72% of inflow)
Center-of-Mass det. time= 48.4 min (848.8 - 800.4)

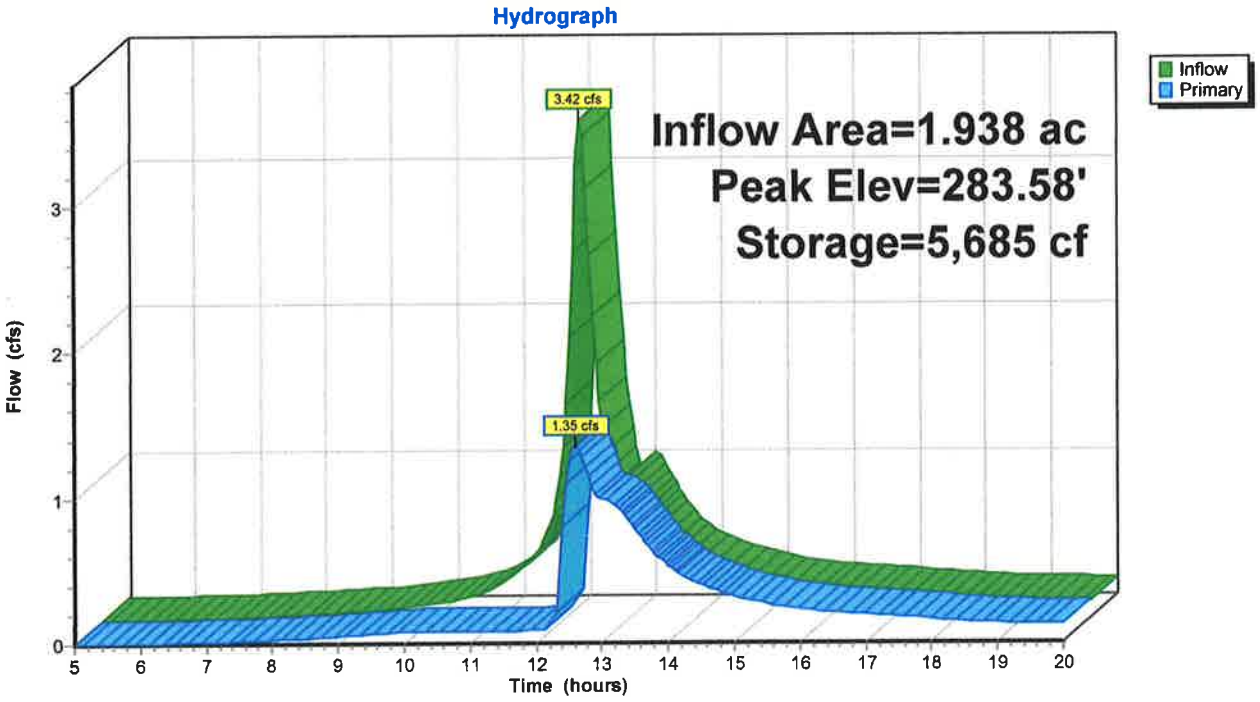
Volume	Invert	Avail.Storage	Storage Description
#1	282.00'	23,550 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
282.00	2,965	0	0
284.00	4,535	7,500	7,500
286.00	11,515	16,050	23,550

Device	Routing	Invert	Outlet Devices
#1	Primary	279.00'	**15.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 279.00' / 276.00' S= 0.1000 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	279.50'	**1.4" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	283.25'	**24.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	284.50'	**20.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.35 cfs @ 12.59 hrs HW=283.58' (Free Discharge)
- **1=Culvert** (Passes 1.35 cfs of 11.76 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 0.10 cfs @ 9.66 fps)
  - **3=Orifice/Grate** (Orifice Controls 1.24 cfs @ 1.86 fps)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: SF Pond 1



Summary for Pond 2P: SF Pond 1B

Inflow Area = 0.482 ac, 62.26% Impervious, Inflow Depth > 2.66" for 10-Year event
Inflow = 0.75 cfs @ 12.56 hrs, Volume= 0.107 af
Outflow = 0.39 cfs @ 13.07 hrs, Volume= 0.051 af, Atten= 49%, Lag= 30.6 min
Primary = 0.39 cfs @ 13.07 hrs, Volume= 0.051 af
Routed to Pond 1P : SF Pond 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 283.56' @ 13.07 hrs Surf.Area= 2,417 sf Storage= 2,564 cf

Plug-Flow detention time= 187.1 min calculated for 0.051 af (48% of inflow)
Center-of-Mass det. time= 97.7 min (897.6 - 799.9)

Volume	Invert	Avail.Storage	Storage Description
#1	282.00'	3,712 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

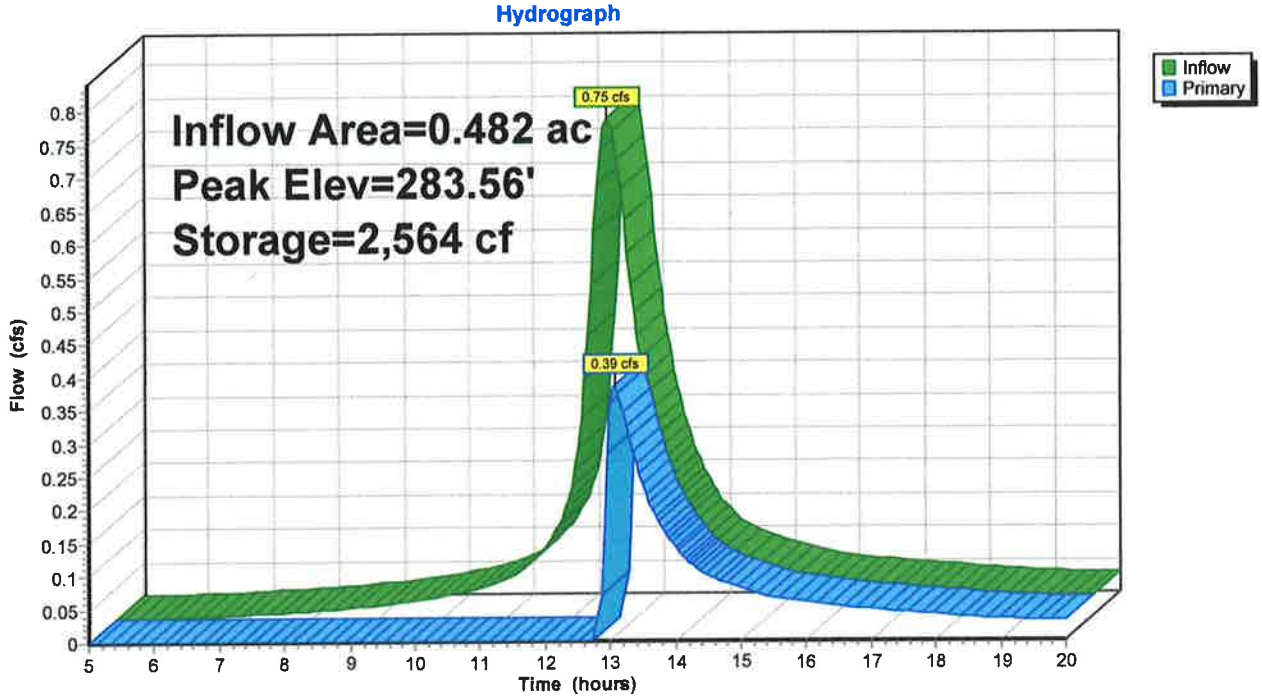
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
282.00	862	0	0
284.00	2,850	3,712	3,712

Device	Routing	Invert	Outlet Devices
#1	Primary	283.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.38 cfs @ 13.07 hrs HW=283.56' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.38 cfs @ 0.60 fps)

Pond 2P: SF Pond 1B

Hydrograph



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

Subcatchment WS1A: Watershed 1A Runoff Area=63,422 sf 57.95% Impervious Runoff Depth>3.47"
Flow Length=520' Tc=17.8 min CN=87 Runoff=4.50 cfs 0.421 af

Subcatchment WS1B: Watershed 1B Runoff Area=20,983 sf 62.26% Impervious Runoff Depth>3.54"
Flow Length=415' Tc=41.6 min CN=88 Runoff=0.99 cfs 0.142 af

Subcatchment WS2: Watershed 2 Runoff Area=40,726 sf 7.90% Impervious Runoff Depth>2.55"
Tc=0.0 min CN=77 Runoff=3.67 cfs 0.199 af

Reach 1R: Pond to DP1 Avg. Flow Depth=0.40' Max Vel=0.92 fps Inflow=2.65 cfs 0.404 af
n=0.130 L=100.0' S=0.0400 '/' Capacity=109.66 cfs Outflow=2.63 cfs 0.403 af

Reach DP1: Design Point 1 Inflow=3.76 cfs 0.602 af
Outflow=3.76 cfs 0.602 af

Pond 1P: SF Pond 1 Peak Elev=283.80' Storage=6,604 cf Inflow=4.50 cfs 0.507 af
Outflow=2.65 cfs 0.404 af

Pond 2P: SF Pond 1B Peak Elev=283.61' Storage=2,670 cf Inflow=0.99 cfs 0.142 af
Outflow=0.84 cfs 0.086 af

Total Runoff Area = 2.873 ac Runoff Volume = 0.762 af Average Runoff Depth = 3.18"
57.61% Pervious = 1.655 ac 42.39% Impervious = 1.218 ac

Summary for Subcatchment WS1A: Watershed 1A

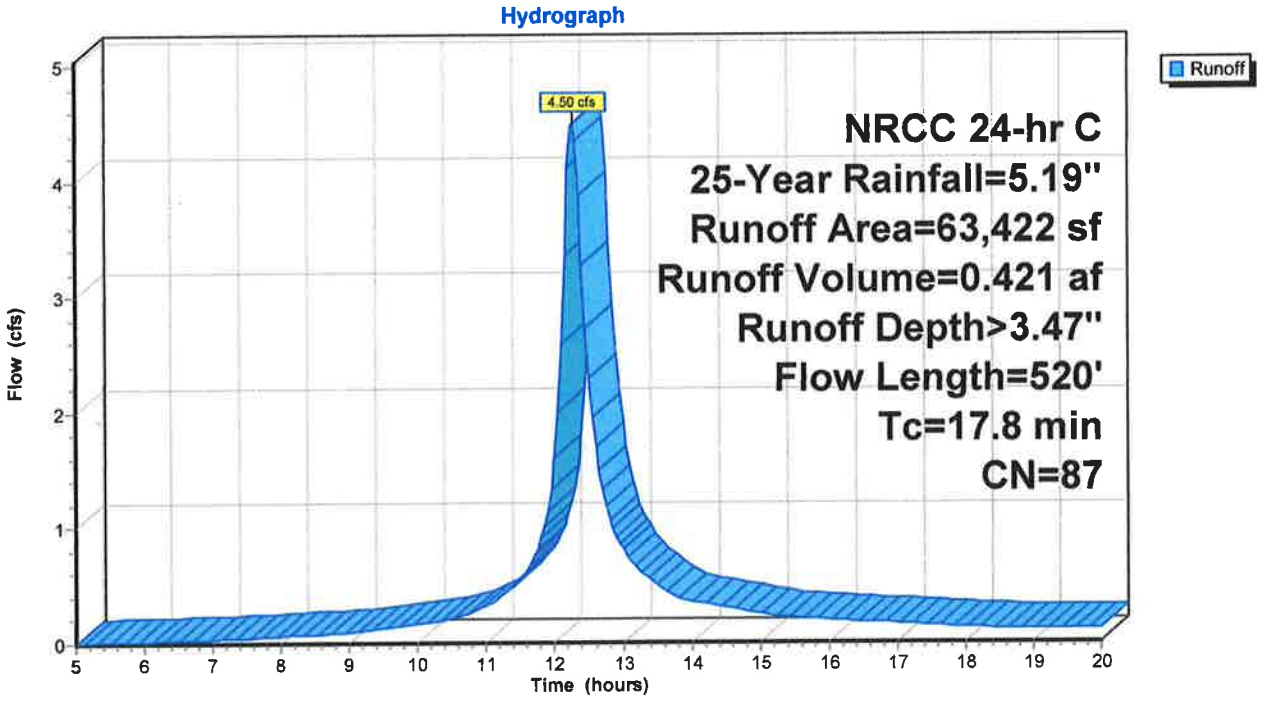
Runoff = 4.50 cfs @ 12.26 hrs, Volume= 0.421 af, Depth> 3.47"
Routed to Pond 1P : SF Pond 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.19"

Area (sf)	CN	Description
36,608	98	Unconnected pavement, HSG C
3,580	74	>75% Grass cover, Good, HSG C
22,214	71	Meadow, non-grazed, HSG C
146	98	Unconnected pavement, HSG D
874	78	Meadow, non-grazed, HSG D
63,422	87	Weighted Average
26,668		42.05% Pervious Area
36,754		57.95% Impervious Area
36,754		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
1.4	120	0.0420	1.43		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	150	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	120	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
13.4	80	0.0050	0.10		**Sheet Flow,** Range n= 0.130 P2= 2.88"
17.8	520	Total			

Subcatchment WS1A: Watershed 1A



Summary for Subcatchment WS1B: Watershed 1B

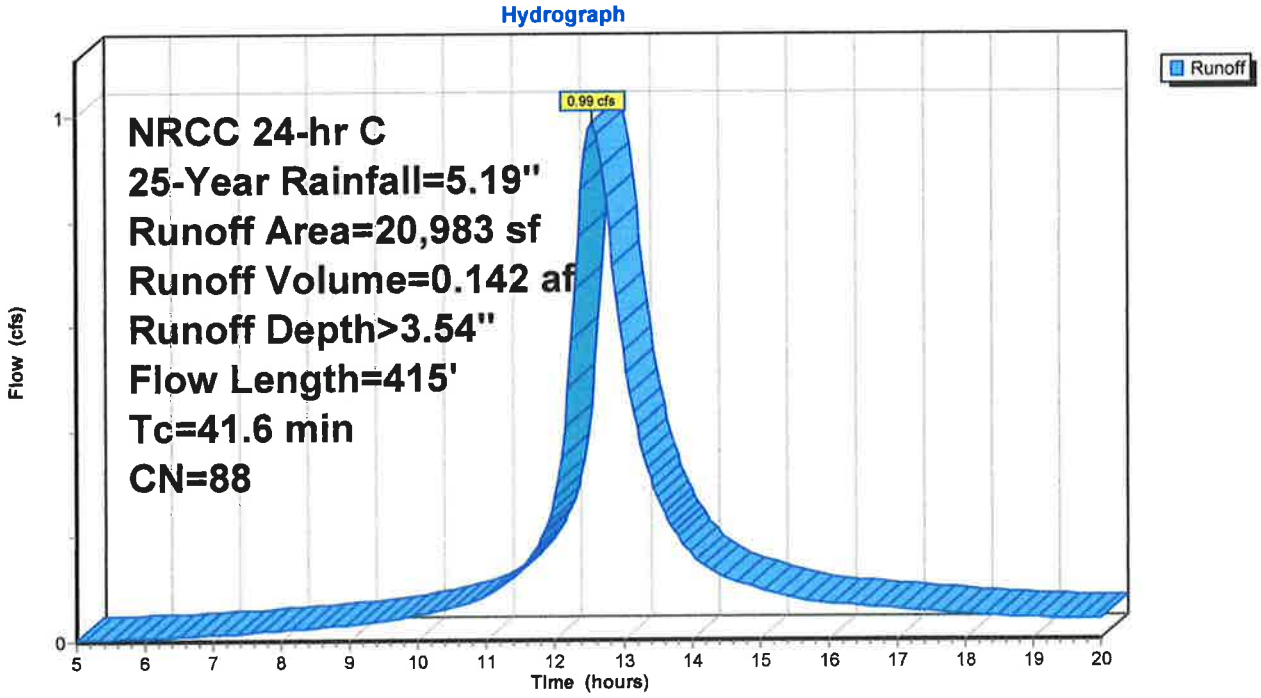
Runoff = 0.99 cfs @ 12.56 hrs, Volume= 0.142 af, Depth> 3.54"
Routed to Pond 2P : SF Pond 1B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.19"

Area (sf)	CN	Description
13,065	98	Unconnected pavement, HSG C
1,265	74	>75% Grass cover, Good, HSG C
6,653	71	Meadow, non-grazed, HSG C
20,983	88	Weighted Average
7,918		37.74% Pervious Area
13,065		62.26% Impervious Area
13,065		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	100	0.0300	0.21		**Sheet Flow,** Range n= 0.130 P2= 2.88"
0.4	65	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
33.4	250	0.0050	0.12		**Sheet Flow,** Range n= 0.130 P2= 2.88"
41.6	415	Total			

Subcatchment WS1B: Watershed 1B



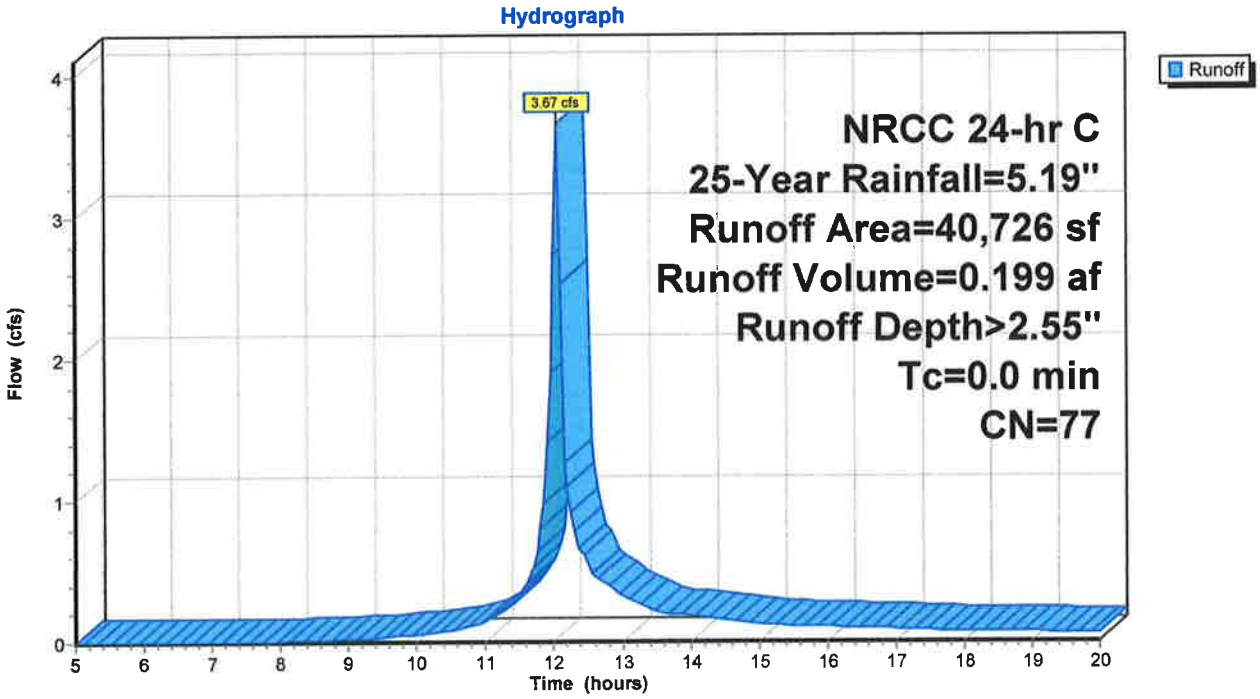
Summary for Subcatchment WS2: Watershed 2

Runoff = 3.67 cfs @ 12.05 hrs, Volume= 0.199 af, Depth> 2.55"
Routed to Reach DP1 : Design Point 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.19"

Area (sf)	CN	Description
3,218	98	Unconnected pavement, HSG C
12,267	71	Meadow, non-grazed, HSG C
567	80	>75% Grass cover, Good, HSG D
23,008	78	Meadow, non-grazed, HSG D
1,666	77	Woods, Good, HSG D
40,726	77	Weighted Average
37,508		92.10% Pervious Area
3,218		7.90% Impervious Area
3,218		100.00% Unconnected

Subcatchment WS2: Watershed 2



Summary for Reach 1R: Pond to DP1

Inflow Area = 1.938 ac, 59.02% Impervious, Inflow Depth > 2.50" for 25-Year event
Inflow = 2.65 cfs @ 12.46 hrs, Volume= 0.404 af
Outflow = 2.63 cfs @ 12.52 hrs, Volume= 0.403 af, Atten= 1%, Lag= 3.4 min
Routed to Reach DP1 : Design Point 1

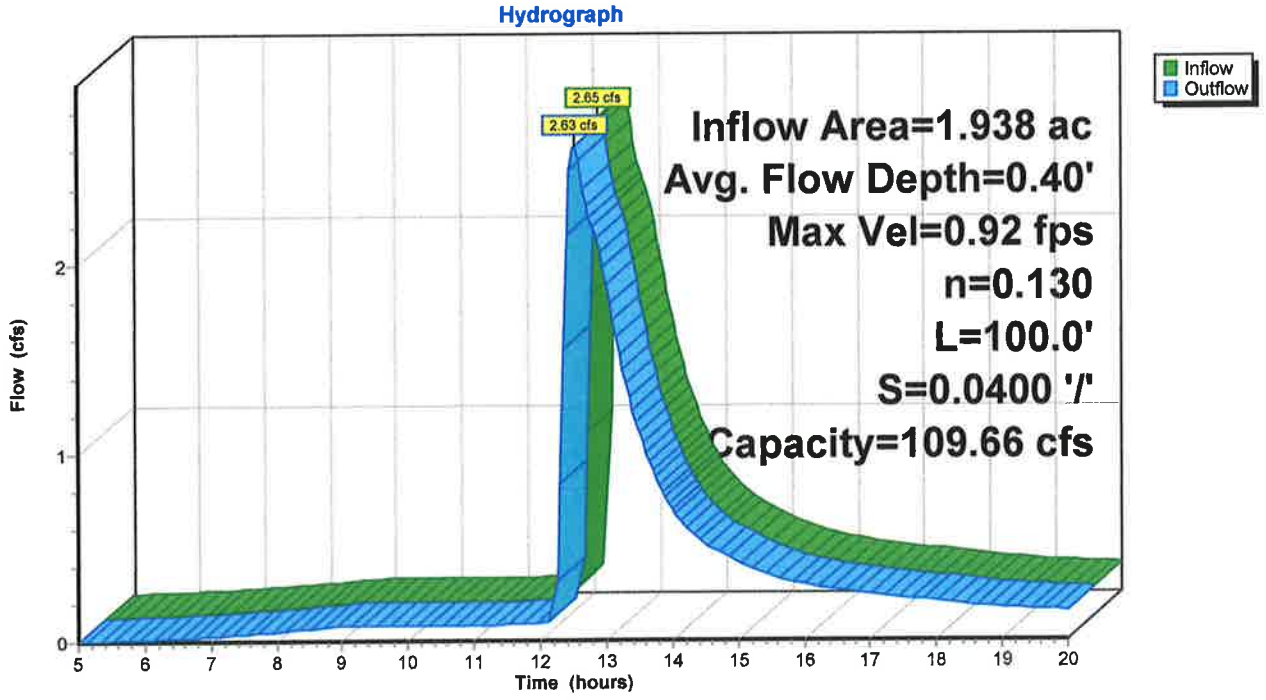
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.92 fps, Min. Travel Time= 1.8 min
Avg. Velocity = 0.43 fps, Avg. Travel Time= 3.9 min

Peak Storage= 285 cf @ 12.49 hrs
Average Depth at Peak Storage= 0.40' , Surface Width= 11.10'
Bank-Full Depth= 2.00' Flow Area= 46.0 sf, Capacity= 109.66 cfs

3.00' x 2.00' deep channel, n= 0.130 Sheet flow over Range
Side Slope Z-value= 10.0 '/' Top Width= 43.00'
Length= 100.0' Slope= 0.0400 '/'
Inlet Invert= 0.00', Outlet Invert= -4.00'

‡

Reach 1R: Pond to DP1

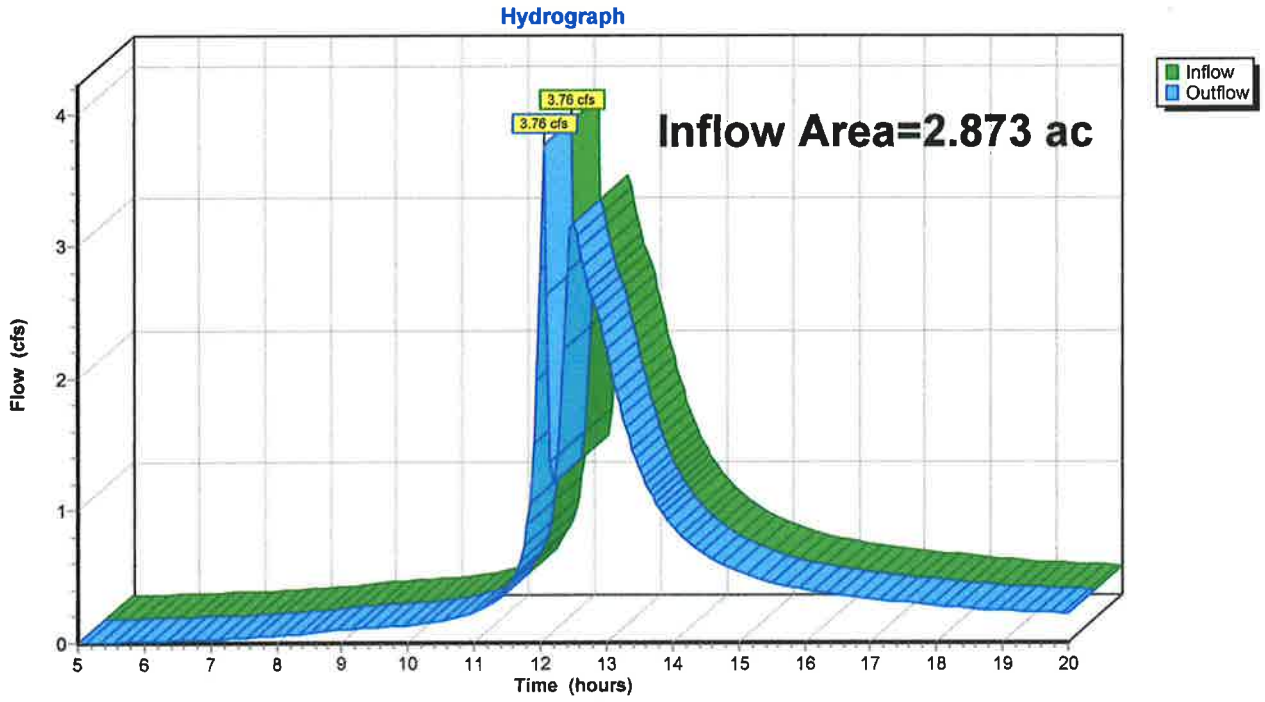


Summary for Reach DP1: Design Point 1

Inflow Area = 2.873 ac, 42.39% Impervious, Inflow Depth > 2.51" for 25-Year event
Inflow = 3.76 cfs @ 12.05 hrs, Volume= 0.602 af
Outflow = 3.76 cfs @ 12.05 hrs, Volume= 0.602 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 DP1: Design Point 1



Summary for Pond 1P: SF Pond 1

Inflow Area = 1.938 ac, 59.02% Impervious, Inflow Depth > 3.14" for 25-Year event
Inflow = 4.50 cfs @ 12.26 hrs, Volume= 0.507 af
Outflow = 2.65 cfs @ 12.46 hrs, Volume= 0.404 af, Atten= 41%, Lag= 12.0 min
Primary = 2.65 cfs @ 12.46 hrs, Volume= 0.404 af
Routed to Reach 1R : Pond to DP1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 283.80' @ 12.46 hrs Surf.Area= 4,377 sf Storage= 6,604 cf

Plug-Flow detention time= 93.8 min calculated for 0.404 af (80% of inflow)
Center-of-Mass det. time= 38.0 min (830.2 - 792.1)

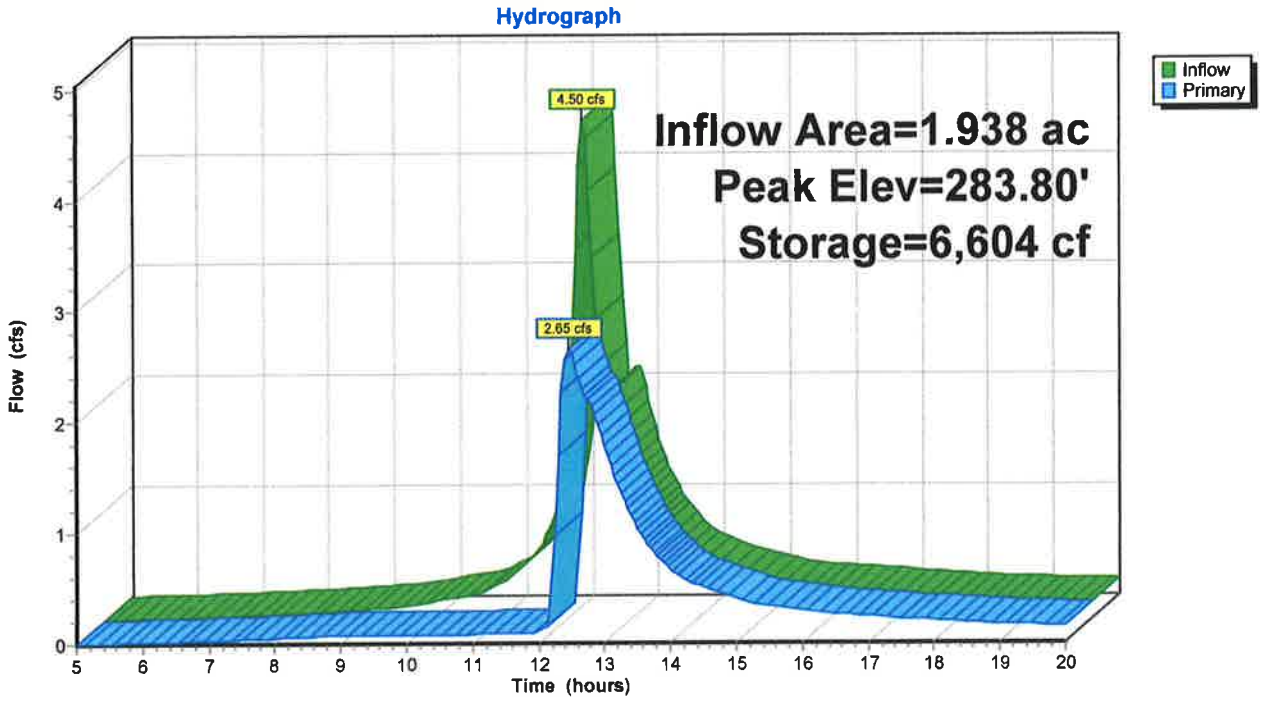
Volume	Invert	Avail.Storage	Storage Description
#1	282.00'	23,550 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
282.00	2,965	0	0
284.00	4,535	7,500	7,500
286.00	11,515	16,050	23,550

Device	Routing	Invert	Outlet Devices
#1	Primary	279.00'	**15.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 279.00' / 276.00' S= 0.1000 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Device 1	279.50'	**1.4" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	283.25'	**24.0" W x 6.0" H Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	284.50'	**20.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.64 cfs @ 12.46 hrs HW=283.80' (Free Discharge)
- **1=Culvert** (Passes 2.64 cfs of 12.07 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 0.11 cfs @ 9.91 fps)
  - **3=Orifice/Grate** (Orifice Controls 2.53 cfs @ 2.53 fps)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: SF Pond 1



Summary for Pond 2P: SF Pond 1B

Inflow Area = 0.482 ac, 62.26% Impervious, Inflow Depth > 3.54" for 25-Year event
Inflow = 0.99 cfs @ 12.56 hrs, Volume= 0.142 af
Outflow = 0.84 cfs @ 12.77 hrs, Volume= 0.086 af, Atten= 15%, Lag= 12.6 min
Primary = 0.84 cfs @ 12.77 hrs, Volume= 0.086 af
Routed to Pond 1P : SF Pond 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 283.61' @ 12.77 hrs Surf.Area= 2,460 sf Storage= 2,670 cf

Plug-Flow detention time= 148.2 min calculated for 0.086 af (60% of inflow)
Center-of-Mass det. time= 72.5 min (865.1 - 792.7)

Volume	Invert	Avail.Storage	Storage Description
#1	282.00'	3,712 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

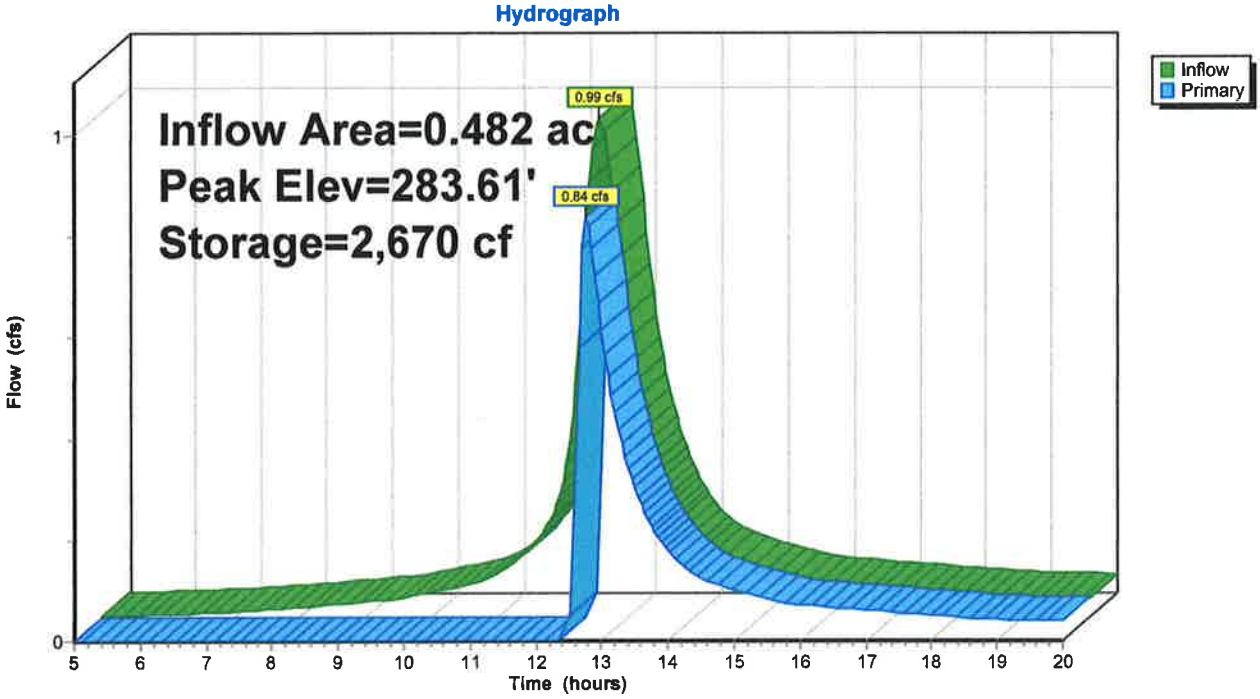
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
282.00	862	0	0
284.00	2,850	3,712	3,712

Device	Routing	Invert	Outlet Devices
#1	Primary	283.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

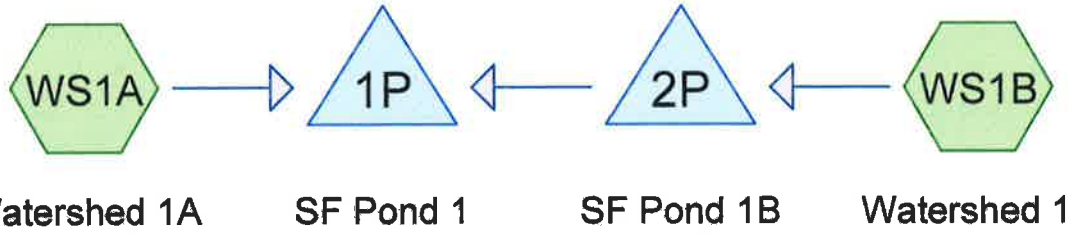
Primary OutFlow Max=0.83 cfs @ 12.77 hrs HW=283.61' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.83 cfs @ 0.77 fps)

Pond 2P: SF Pond 1B

Hydrograph



Emergency Spillway Design



Subcat Reach Pond Link

Routing Diagram for Emergency Spillway Design
Prepared by SJR Engineering, Printed 7/31/2023

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.111	74	>75% Grass cover, Good, HSG C (WS1A, WS1B)
0.663	71	Meadow, non-grazed, HSG C (WS1A, WS1B)
0.020	78	Meadow, non-grazed, HSG D (WS1A)
1.140	98	Unconnected pavement, HSG C (WS1A, WS1B)
0.003	98	Unconnected pavement, HSG D (WS1A)
1.938	**87**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
1.914	HSG C	WS1A, WS1B
0.023	HSG D	WS1A
0.000	Other	
1.938		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.111	0.000	0.000	0.111	>75% Grass cover, Good	WS1A, WS1B
0.000	0.000	0.663	0.020	0.000	0.683	Meadow, non-grazed	WS1A, WS1B
0.000	0.000	1.140	0.003	0.000	1.144	Unconnected pavement	WS1A, WS1B
0.000	**0.000**	**1.914**	**0.023**	**0.000**	**1.938**	**TOTAL AREA**	

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

Subcatchment WS1A: Watershed 1A Runoff Area=63,422 sf 57.95% Impervious Runoff Depth>3.47"
Flow Length=520' Tc=17.8 min CN=87 Runoff=4.50 cfs 0.421 af

Subcatchment WS1B: Watershed 1B Runoff Area=20,983 sf 62.26% Impervious Runoff Depth>3.54"
Flow Length=415' Tc=41.6 min CN=88 Runoff=0.99 cfs 0.142 af

Pond 1P: SF Pond 1 Peak Elev=284.61' Storage=10,912 cf Inflow=4.50 cfs 0.507 af
Outflow=1.96 cfs 0.270 af

Pond 2P: SF Pond 1B Peak Elev=283.61' Storage=2,670 cf Inflow=0.99 cfs 0.142 af
Outflow=0.84 cfs 0.086 af

Total Runoff Area = 1.938 ac Runoff Volume = 0.563 af Average Runoff Depth = 3.49"
40.98% Pervious = 0.794 ac 59.02% Impervious = 1.144 ac

Summary for Subcatchment WS1A: Watershed 1A

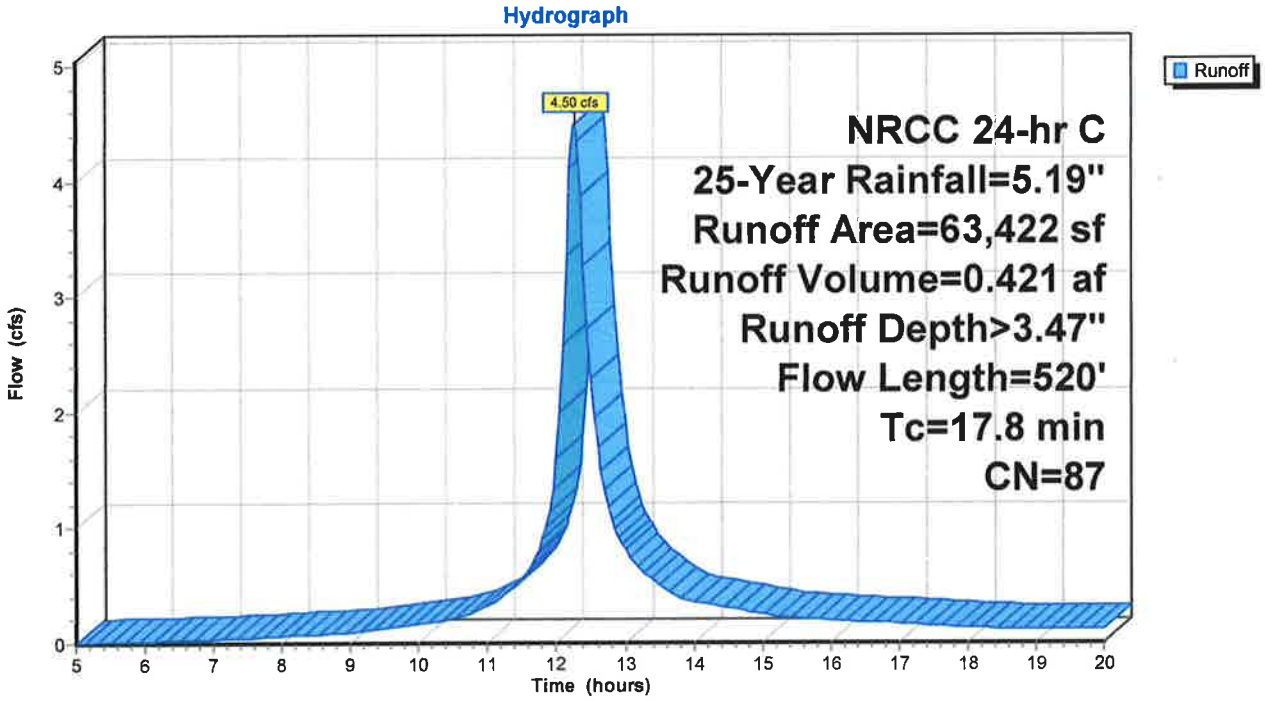
Runoff = 4.50 cfs @ 12.26 hrs, Volume= 0.421 af, Depth> 3.47"
Routed to Pond 1P : SF Pond 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.19"

Area (sf)	CN	Description
36,608	98	Unconnected pavement, HSG C
3,580	74	>75% Grass cover, Good, HSG C
22,214	71	Meadow, non-grazed, HSG C
146	98	Unconnected pavement, HSG D
874	78	Meadow, non-grazed, HSG D
63,422	87	Weighted Average
26,668		42.05% Pervious Area
36,754		57.95% Impervious Area
36,754		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.7	50	0.0200	1.14		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 2.88"
1.4	120	0.0420	1.43		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.1	150	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
1.2	120	0.0100	1.61		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
13.4	80	0.0050	0.10		**Sheet Flow,** Range n= 0.130 P2= 2.88"
17.8	520	Total			

Subcatchment WS1A: Watershed 1A



Summary for Subcatchment WS1B: Watershed 1B

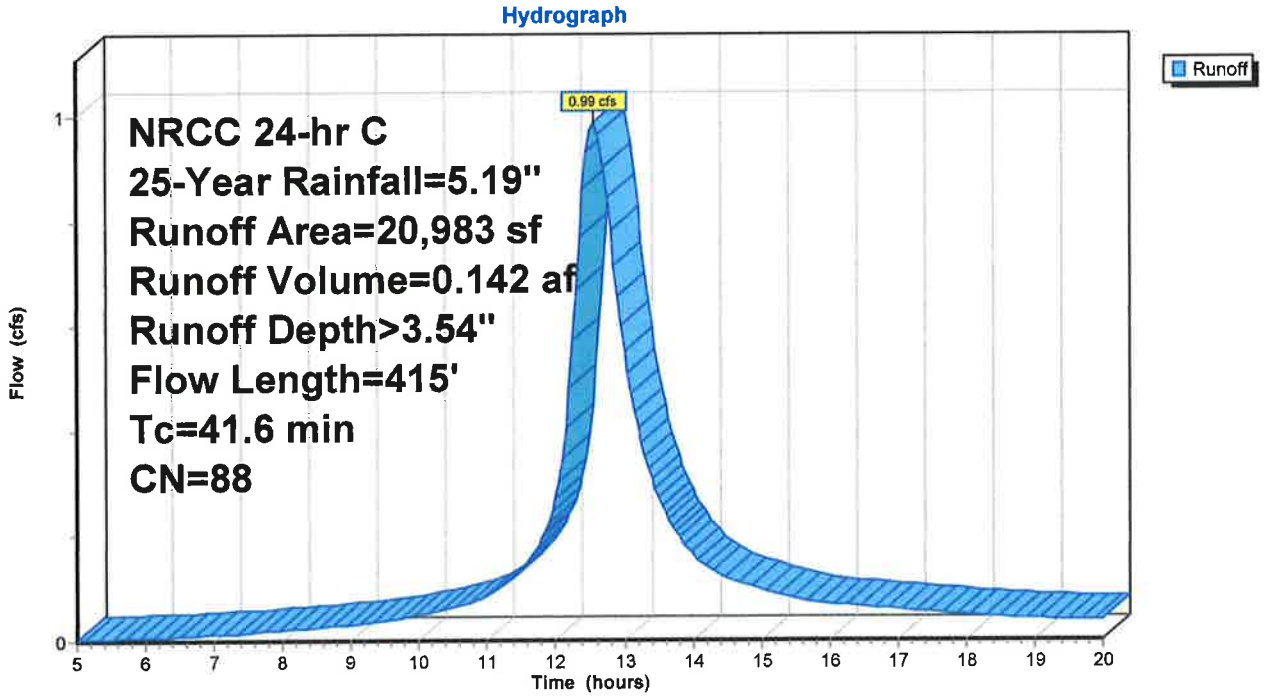
Runoff = 0.99 cfs @ 12.56 hrs, Volume= 0.142 af, Depth> 3.54"
Routed to Pond 2P : SF Pond 1B

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NRCC 24-hr C 25-Year Rainfall=5.19"

Area (sf)	CN	Description
13,065	98	Unconnected pavement, HSG C
1,265	74	>75% Grass cover, Good, HSG C
6,653	71	Meadow, non-grazed, HSG C
20,983	88	Weighted Average
7,918		37.74% Pervious Area
13,065		62.26% Impervious Area
13,065		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.8	100	0.0300	0.21		**Sheet Flow,** Range n= 0.130 P2= 2.88"
0.4	65	0.0300	2.79		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
33.4	250	0.0050	0.12		**Sheet Flow,** Range n= 0.130 P2= 2.88"
41.6	415	Total			

Subcatchment WS1B: Watershed 1B



Summary for Pond 1P: SF Pond 1

Inflow Area = 1.938 ac, 59.02% Impervious, Inflow Depth > 3.14" for 25-Year event
Inflow = 4.50 cfs @ 12.26 hrs, Volume= 0.507 af
Outflow = 1.96 cfs @ 12.78 hrs, Volume= 0.270 af, Atten= 57%, Lag= 31.0 min
Primary = 1.96 cfs @ 12.78 hrs, Volume= 0.270 af
Routed to nonexistent node 1R

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 284.61' @ 12.78 hrs Surf.Area= 6,662 sf Storage= 10,912 cf

Plug-Flow detention time= 177.3 min calculated for 0.269 af (53% of inflow)
Center-of-Mass det. time= 89.0 min (881.1 - 792.1)

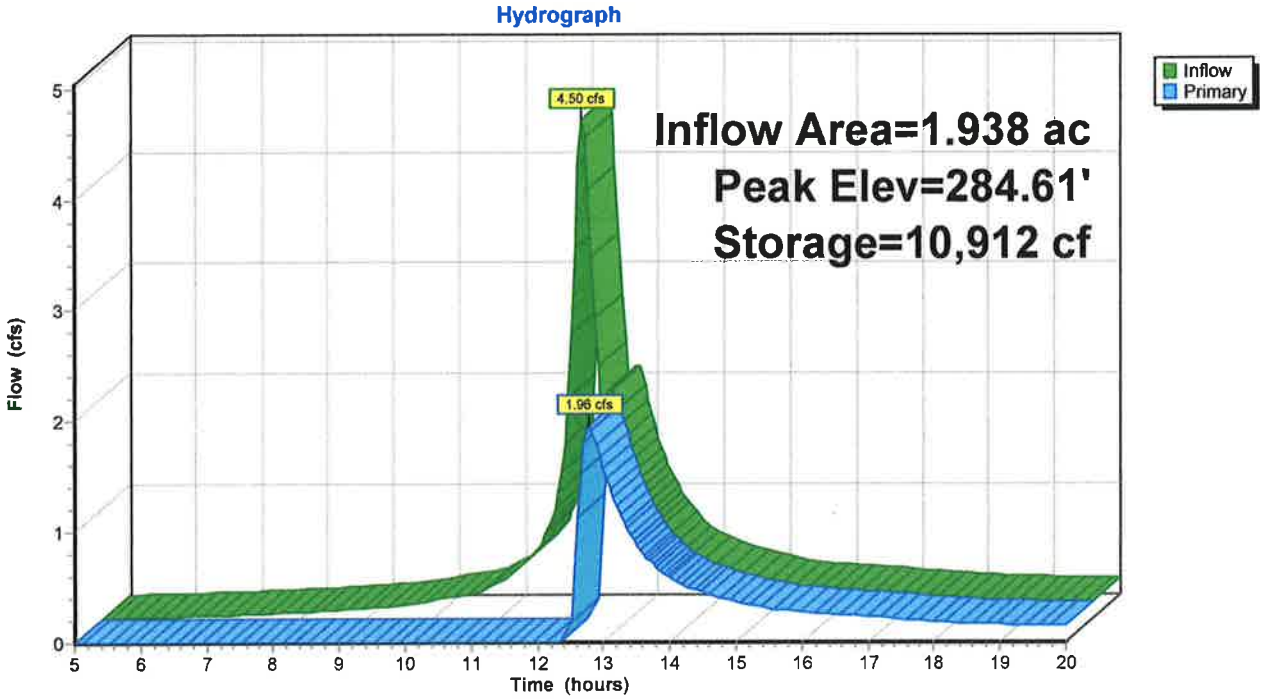
Volume	Invert	Avail.Storage	Storage Description
#1	282.00'	23,550 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
282.00	2,965	0	0
284.00	4,535	7,500	7,500
286.00	11,515	16,050	23,550

Device	Routing	Invert	Outlet Devices
#1	Primary	284.50'	**20.0' long x 15.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.93 cfs @ 12.78 hrs HW=284.61' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 1.93 cfs @ 0.89 fps)

Pond 1P: SF Pond 1



Summary for Pond 2P: SF Pond 1B

Inflow Area = 0.482 ac, 62.26% Impervious, Inflow Depth > 3.54" for 25-Year event
Inflow = 0.99 cfs @ 12.56 hrs, Volume= 0.142 af
Outflow = 0.84 cfs @ 12.77 hrs, Volume= 0.086 af, Atten= 15%, Lag= 12.6 min
Primary = 0.84 cfs @ 12.77 hrs, Volume= 0.086 af
Routed to Pond 1P : SF Pond 1

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 283.61' @ 12.77 hrs Surf.Area= 2,460 sf Storage= 2,670 cf

Plug-Flow detention time= 148.2 min calculated for 0.086 af (60% of inflow)
Center-of-Mass det. time= 72.5 min (865.1 - 792.7)

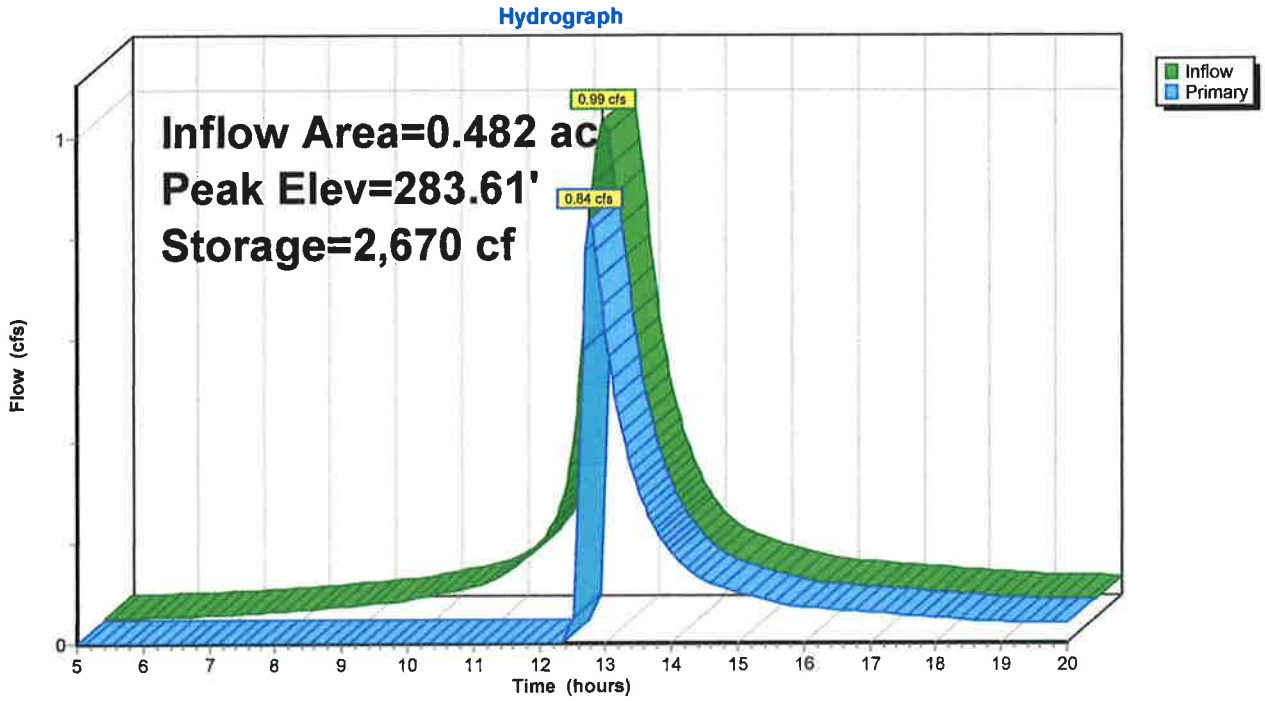
Volume	Invert	Avail.Storage	Storage Description
#1	282.00'	3,712 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
282.00	862	0	0
284.00	2,850	3,712	3,712

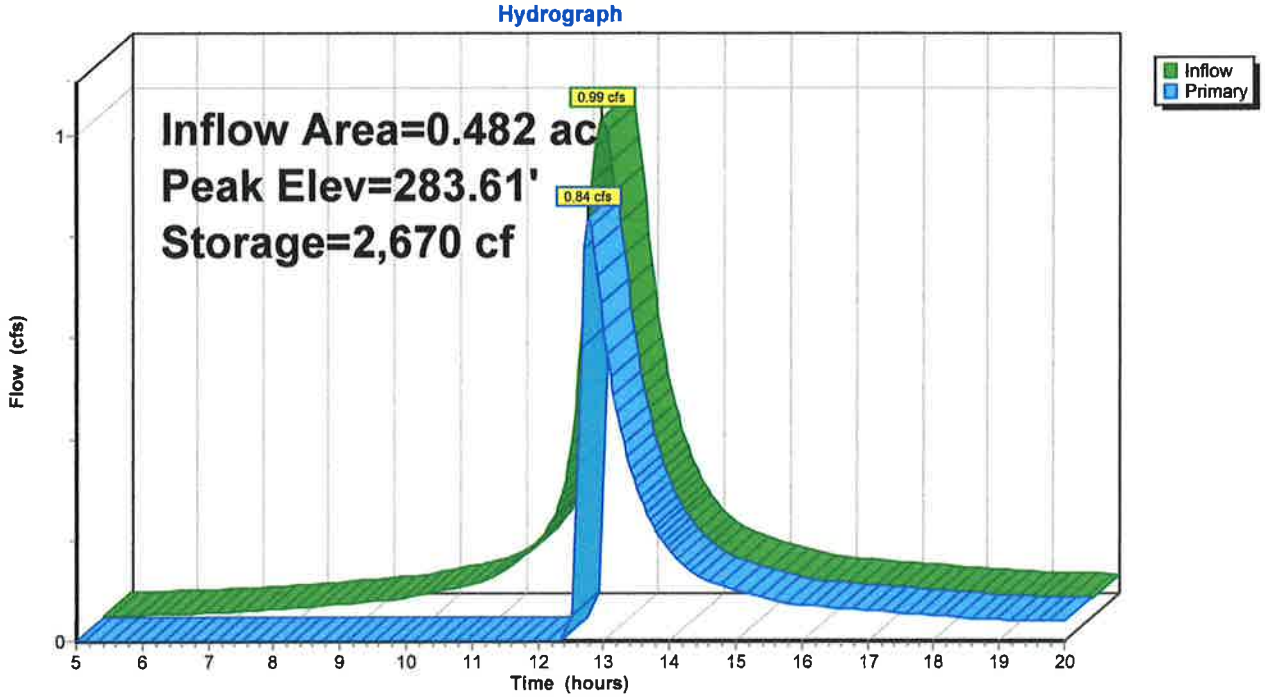
Device	Routing	Invert	Outlet Devices
#1	Primary	283.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.83 cfs @ 12.77 hrs HW=283.61' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.83 cfs @ 0.77 fps)

Pond 2P: SF Pond 1B



Pond 2P: SF Pond 1B



Stormwater Quality Narrative

Project: SPENCER MARKS LANE Date: _____ Sheet: 1 of 2

ENGINEERING BACKUP SHEET

SJR ENGINEERING
16 Thurston Drive
Monmouth, Maine 04259
Tel: (207) 242-6248

Subject: POND DESIGN

Job #: _____

SOIL FILTER DESIGN

WATERSHED 1A

TOTAL TREATED = 63422 SF
36754 SF
IMPERVIOUS = 26668 SF
LAWN =

① REQUIRED SIZING SURFACE

36754 (.05) + 26668 (.02) = 2371 SF REQUIRED
2965 SF PROVIDED EL 282.0 OK

② REQUIRED TREATMENT VOLUME

36754 (1"/12) + 26668 (.4"/12) = REQUIRED VOLUME

3063 + 889 = 3952 CF REQUIRED
3968 CF PROVIDED @ EL 283.16 OK

③ ORIFICE SIZING (DEP REGRESSION EQUATION) ADD PONDS 1A + 1B TOGETHER

FILTER AREA: $0.035 (2965 + 862)^{0.4599} = 1.55"$ OK

QUALITY VOL: $0.0137 (3968 + 1359)^{0.5372} = 1.38$ USE 1 3/8" hole @ EL 279.50

Stage-Area-Storage for Pond 1P: SF Pond 1A

REQUIRED = 2371 SF

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
282.00	2,965	0
282.02	2,981	59
282.04	2,996	119
282.06	3,012	179
282.08	3,028	240
282.10	3,044	300
282.12	3,059	361
282.14	3,075	423
282.16	3,091	484
282.18	3,106	546
282.20	3,122	609
282.22	3,138	671
282.24	3,153	734
282.26	3,169	797
282.28	3,185	861
282.30	3,201	925
282.32	3,216	989
282.34	3,232	1,053
282.36	3,248	1,118
282.38	3,263	1,183
282.40	3,279	1,249
282.42	3,295	1,315
282.44	3,310	1,381
282.46	3,326	1,447
282.48	3,342	1,514
282.50	3,358	1,581
282.52	3,373	1,648
282.54	3,389	1,716
282.56	3,405	1,783
282.58	3,420	1,852
282.60	3,436	1,920
282.62	3,452	1,989
282.64	3,467	2,058
282.66	3,483	2,128
282.68	3,499	2,198
282.70	3,514	2,268
282.72	3,530	2,338
282.74	3,546	2,409
282.76	3,562	2,480
282.78	3,577	2,551
282.80	3,593	2,623
282.82	3,609	2,695
282.84	3,624	2,768
282.86	3,640	2,840
282.88	3,656	2,913
282.90	3,671	2,986
282.92	3,687	3,060
282.94	3,703	3,134
282.96	3,719	3,208
282.98	3,734	3,283
283.00	3,750	3,358
283.02	3,766	3,433
283.04	3,781	3,508
283.06	3,797	3,584
283.08	3,813	3,660
283.10	3,829	3,736
283.12	3,844	3,813
283.14	3,860	3,890
283.16	3,876	3,968
283.18	3,891	4,045
283.20	3,907	4,123
283.22	3,923	4,201
283.24	3,938	4,280
283.26	3,954	4,359
283.28	3,970	4,438
283.30	3,986	4,518
283.32	4,001	4,598
283.34	4,017	4,678
283.36	4,033	4,758
283.38	4,048	4,839
283.40	4,064	4,920
283.42	4,080	5,002
283.44	4,095	5,083
283.46	4,111	5,166
283.48	4,127	5,248
283.50	4,143	5,331
283.52	4,158	5,414
283.54	4,174	5,497
283.56	4,190	5,581
283.58	4,205	5,665
283.60	4,221	5,749
283.62	4,237	5,833
283.64	4,252	5,918
283.66	4,268	6,003
283.68	4,284	6,089
283.70	4,299	6,175
283.72	4,315	6,261
283.74	4,331	6,347
283.76	4,347	6,434
283.78	4,362	6,521
283.80	4,378	6,609
283.82	4,394	6,696
283.84	4,409	6,784
283.86	4,425	6,873
283.88	4,441	6,961
283.90	4,456	7,050
283.92	4,472	7,140
283.94	4,488	7,229
283.96	4,504	7,319
283.98	4,519	7,409
284.00	**4,535**	**7,500**

← REQUIRED 3952 CF

Project: SPENCER MANKS LANE Date: _____ Sheet: 2 of 2

ENGINEERING BACKUP SHEET

SJR ENGINEERING
16 Thurston Drive
Monmouth, Maine 04259
Tel: (207) 242-6248

Subject: ROAD DESIGN

Job #: _____

SOIL FILTER DESIGN

WATERSHED 1B

TOTAL TREATED = 20983

IMPERVIOUS = 13065 SF
LAWN = 7918 SF

① REQUIRED SIZING SURFACE

13065 (.05) + 7918 (.02) = 812 SF REQUIRED (OK)

862 SF PROVIDED @ EL 282.0

② REQUIRED TREATMENT VOLUME

13065 (1"/12) + 7918 (.4"/12) = REQUIRED VOLUME (OK)

1089 + 264 = 1354 CF REQUIRED

1359 CF PROVIDED EL 283.0

Stage-Area-Storage for Pond 2P: SF Pond 1B

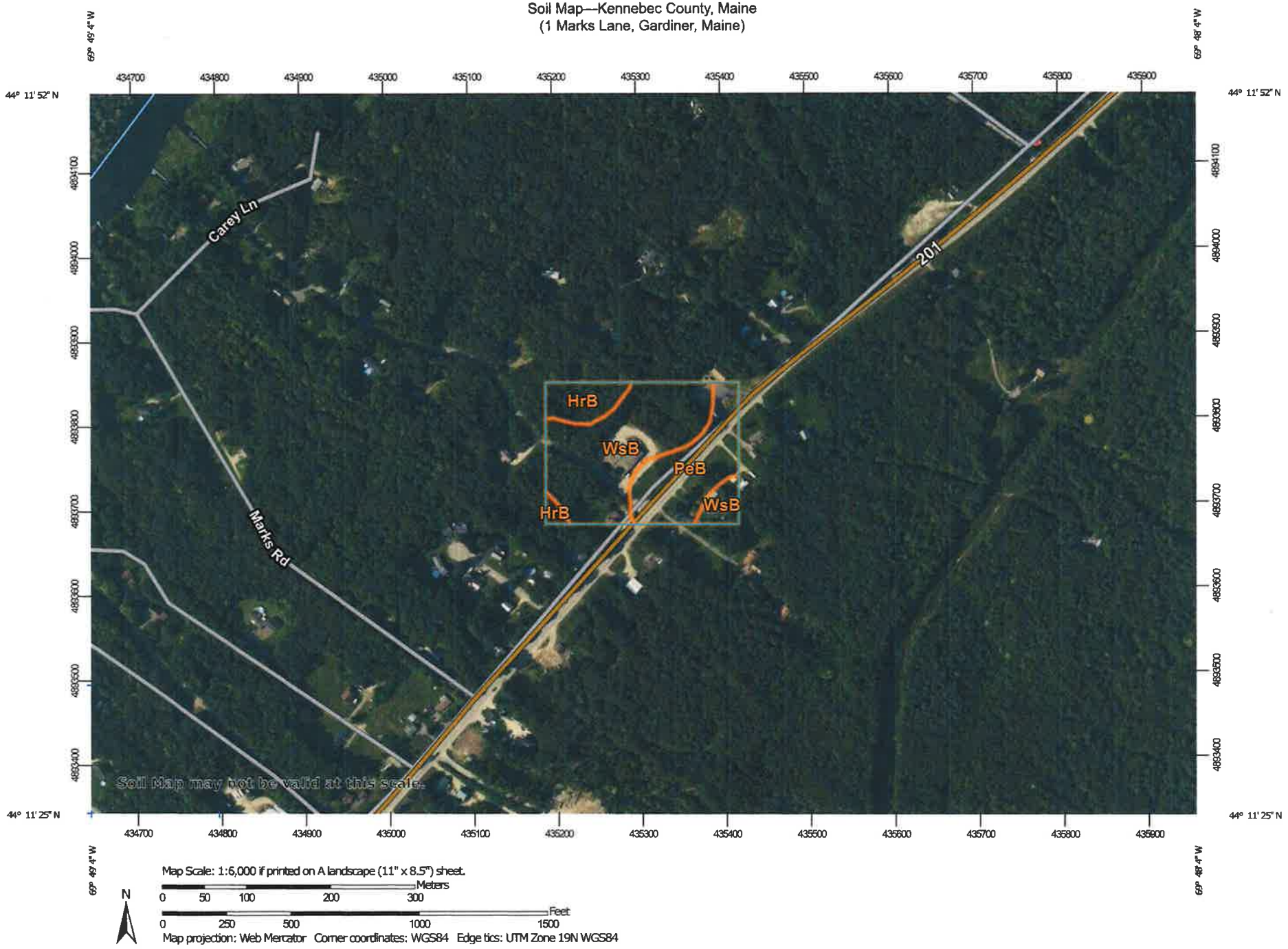
REQUIRED 812 SF

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
282.00	862	0
282.02	882	17
282.04	902	35
282.06	922	54
282.08	942	72
282.10	961	91
282.12	981	111
282.14	1,001	130
282.16	1,021	151
282.18	1,041	171
282.20	1,061	192
282.22	1,081	214
282.24	1,101	236
282.26	1,120	258
282.28	1,140	280
282.30	1,160	303
282.32	1,180	327
282.34	1,200	351
282.36	1,220	375
282.38	1,240	399
282.40	1,260	424
282.42	1,279	450
282.44	1,299	475
282.46	1,319	502
282.48	1,339	528
282.50	1,359	555
282.52	1,379	583
282.54	1,399	610
282.56	1,419	639
282.58	1,439	667
282.60	1,458	696
282.62	1,478	725
282.64	1,498	755
282.66	1,518	785
282.68	1,538	816
282.70	1,558	847
282.72	1,578	878
282.74	1,598	910
282.76	1,617	942
282.78	1,637	975
282.80	1,657	1,008
282.82	1,677	1,041
282.84	1,697	1,075
282.86	1,717	1,109
282.88	1,737	1,143
282.90	1,757	1,178
282.92	1,776	1,214
282.94	1,796	1,249
282.96	1,816	1,286
282.98	1,836	1,322
283.00	1,856	1,359
283.02	1,876	1,396
283.04	1,896	1,434
283.06	1,916	1,472
283.08	1,936	1,511
283.10	1,955	1,550
283.12	1,975	1,589
283.14	1,995	1,629
283.16	2,015	1,669
283.18	2,035	1,709
283.20	2,055	1,750
283.22	2,075	1,791
283.24	2,095	1,833
283.26	2,114	1,875
283.28	2,134	1,918
283.30	2,154	1,961
283.32	2,174	2,004
283.34	2,194	2,047
283.36	2,214	2,092
283.38	2,234	2,136
283.40	2,254	2,181
283.42	2,273	2,226
283.44	2,293	2,272
283.46	2,313	2,318
283.48	2,333	2,364
283.50	2,353	2,411
283.52	2,373	2,459
283.54	2,393	2,506
283.56	2,413	2,554
283.58	2,433	2,603
283.60	2,452	2,652
283.62	2,472	2,701
283.64	2,492	2,750
283.66	2,512	2,800
283.68	2,532	2,851
283.70	2,552	2,902
283.72	2,572	2,953
283.74	2,592	3,005
283.76	2,611	3,057
283.78	2,631	3,109
283.80	2,651	3,162
283.82	2,671	3,215
283.84	2,691	3,269
283.86	2,711	3,323
283.88	2,731	3,377
283.90	2,751	3,432
283.92	2,770	3,487
283.94	2,790	3,543
283.96	2,810	3,599
283.98	2,830	3,655
284.00	**2,850**	**3,712**

REQUIRED 1354 CF

Medium [redacted] Intensity Soil Survey

Soil Map—Kennebec County, Maine
(1 Marks Lane, Gardiner, Maine)



Map Scale: 1:6,000 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Kennebec County, Maine
Survey Area Data: Version 21, Aug 30, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 11, 2021—Oct 29, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HrB	Lyman-Tunbridge complex, 0 to 8 percent slopes, rocky	1.1	12.0%
PeB	Paxton-Charlton very stony fine sandy loams, 3 to 8 percent slopes	2.9	30.2%
WsB	Woodbridge very stony fine sandy loam, 3 to 8 percent slopes	5.5	57.7%
Totals for Area of Interest		**9.5**	**100.0%**

Wetland/Environmental

Flycatcher
LAND + SCIENCE + PEOPLE

Wetland Delineation Memo

Site: 1 Marks Lane, Gardiner, ME

Report Date: July 6, 2023

To: Steve Roberge, P.E. (SJR Engineering – *via email*)

From: David Brenneman (Flycatcher LLC)

Cc: Rich Jordan (Flycatcher LLC)

Purpose

As requested by SJR Engineering (SJR), Flycatcher LLC (Flycatcher) conducted a wetland delineation of Lot 016-005 in Gardiner, ME. The purpose of the field review was to identify and map wetlands, streams, and potential vernal pools to inform avoidance and minimization of impacts during design of additional development on the parcel. This memo provides a summary of the methods and findings of our field studies.

Survey Area

The Survey Area included the entirety of Lot 016-005 which encompasses a roughly 2.6-acre area. The Survey Area is shown on the attached resource map (Attachment A) outlined in yellow.

Methods

Wetlands

Wetland delineations were conducted in accordance with the USACE 1987 Wetland Delineation Manual and the Northcentral and Northeast Regional Supplement (Version 2.0). This manual and supplement provide a repeatable methodology to identify wetlands and is the accepted wetland delineation methodology of the Maine Department of Environmental Protection (MDEP) and the United States Army Corps of Engineers (USACE).

The Survey Area was investigated by a wetland scientist meandering across the site. When a location appeared to have the requisite three factors that constitute a wetland (i.e., hydrophytic vegetation, indicators of hydrology, and the presence of hydric soils) an investigation was undertaken to determine if the area met the criteria to be considered a wetland.

When wetlands were identified, the boundaries were marked with glo-pink survey flagging emblazoned with the words "Wetland Delineation" and numbered in sequential order. Each flag was geo-located with a GPS unit capable of submeter accuracy.

Freshwater Wetlands of Special Significance (WoSS)

Chapter 310 of the Maine Natural Resources Protection Act (NRPA) defines a subset of wetlands that provide a high level of functions and/or values to the surrounding and regional environment. These WoSS are afforded additional protections and generally more rigorous permitting oversight if a permittee's project will result in unavoidable impacts to WoSS. WoSS were identified based on on-site resources noted

during the delineation. Outreach to the Maine Natural Areas Program (MNAP) and the Maine Department of Inland Fisheries (MDIFW) for known or potential occurrences of rare, flora, fauna and habitats was not conducted as part of the wetland delineation effort.

Streams

Stream identification followed the Maine NRPA definition of a "river, stream or brook" (Section 480-B). If a watercourse meeting the above definition was observed, blue survey flagging was hung along the centerline (for streams less than six feet in width) or along the top of the bank (for streams six feet or wider). The locations of each flag were geolocated by a GPS unit capable of submeter accuracy.

Potential Vernal Pools

To survey for vernal pools, the definitions provided in Chapter 335 of the NRPA[1] and the USACE Maine General Permit (MGP)[2] were used. Vernal pools are temporarily/seasonally flooded wetlands that provide the primary breeding habitat for vernal pool indicator species, and a host of secondary faunal species. Wood frogs (*Lithobates sylvaticus*) spotted salamanders (*Ambystoma maculatum*), blue spotted salamanders (*Ambystoma laterale*), and fairy shrimp (*Eubranchipus spp.*) are vernal pool indicator species that depend on vernal pools to complete their life cycle. Productivity of breeding vernal pool species is the primary metric used by regulatory authorities to assess vernal pool quality; thus, vernal pool habitat must be surveyed during the breeding season (generally mid-April to late-May).

In Maine, a subset of vernal pools of natural origin that exhibit a high level of breeding productivity are regulated as "Significant Vernal Pools" and are afforded protection under the Natural Resource Protection Act (NRPA). If a project triggers United States Army Corps of Engineers (USACE) jurisdiction, the USACE regulates vernal pool habitats under the MGP.

Since the on-site mapping was conducted outside the vernal pool breeding season, the Maine Association of Wetland Scientists (MAWS) Vernal Pool Technical Committee Vernal Pool Survey Protocol methods for performing non-breeding season potential vernal pool (PVP) surveys were followed.[3] Using this method, the wetland scientist relies on topography, best professional judgement, evidence of inundation (e.g., water-stained leaves, sparsely vegetated concave surfaces, moss trim lines, etc.) and signs of certain invertebrates, such as caddisfly larvae cases (Order Trichoptera), shells of freshwater clams (Family Sphaeriidae or Pisidiidae) or shed exoskeletons of dragonfly or damselfly larvae. In addition, wetland scientists carefully reviewed each potential habitat to determine if the pool origin is natural or manmade.

Findings

General Description: A wetland scientist from Flycatcher conducted field surveys to map wetlands, stream and potential vernal pool habitat on July 6, 2023. There is an existing commercial building and gravel parking area surrounding the building. Land northeast of the building was recently cleared of trees. Most of the site has been graded flat, except along the northerly property line where topography is sloping from southeast to northwest along a wetland and stream drainage.

A map depicting the locations of resources within the Survey Area is provided in Attachment A. Photographs of the site are provided in Attachment B.

Wetlands: One wetland was observed in the northeasterly portion of the Survey Area. Wetland W-GBH-

[1] MEDEP. *Significant Wildlife Habitat*. Chapter 335, Section 9.
[2] USACE (2020). *Department of the Army General Permits for the State of Maine*. Section IV. 20.
[3] MAWS (2014). *Vernal Pool Technical Committee Vernal Pool Survey Protocol*. April 2014.

1 is primarily dominated by herbaceous plants with small inclusions of shrubs cover. The wetland was recently cleared of trees and ruts were observed from forestry equipment within the wetland. Common flora within the wetland includes: red-osier dogwood (*Cornus sericea*), red maple (*Acer rubrum*), green ash (*Fraxnius pennsylvanica*), sensitive fern (*Onoclea sensibilis*), jewelweed (*Impatiens capensis*), needle spikesedge (*Eleocharis acicularis*), interrupted fern (*Osmunda claytonia*), and multiflora rose (*Rosa multiflora*).

At the time of the survey, evidence of hydrology included saturated pockets of standing water, a high-water table, saturated soil conditions, water-stained leaves, and drainage patterns. Hydrology within the wetland flows northeast to northwest along the northwesterly property line. Evidence of hydric soils within the wetland included a dark surface layer with redoximorphic features over a layer with a depleted matrix.

Under Chapter 310 of the NRPA, all portions of the wetland W-GBH-1 within 25 feet of stream S-DRB-1 would be considered WoSS. Note that additional qualifiers may be met following outreach to MNAP and MDIFW.

Streams: One intermittent stream, S_DRB-1, was delineated within wetland W-GBH-1. The stream width varies from 24 inches to 36 inches. Flow is from southeast to northwest beginning at a culvert under State Route 201. The substrate varies along the delineated length but is predominately comprised of gravel, sand and mud. A few cobbles and boulders were along observed.

Vernal Pools: Several pooled areas were observed within wetland W-GBH-1 due to ruts created by forestry equipment traversing the wetland during clearing. The ruts were shallow, containing at most 2-4 inches of water and were visually inspected for evidence of vernal pool habitat indicators. No evidence of primary (e.g., obligate species tadpoles) or secondary indicator (e.g., caddisfly larvae) species were observed. Due to their manmade origin, the ruts do not meet the definition of a Significant Vernal Pool under the NRPA.

Permitting Discussion

Our memo provides a summary of the natural resources identified within the Survey Area. Alteration of protected natural resources (e.g., freshwater wetlands) are regulated by the MDEP under the NRPA. Dredge and fill in wetlands are regulated by the USACE under Section 404 of the Clean Water Act through the Maine General Permit. During the planning process, a project should be designed to achieve the Least Damaging Practicable Alternative (LEDPA), thereby avoiding natural resource impacts, and where avoidance is not possible attempting to minimize impacts. If impacts (e.g., vegetation removal, filling, matting, etc.) to these resources are required for project development, you may need to acquire a permit from MDEP and/or the USACE prior to initiating site improvements. If development proceeds at the site, it would also be prudent diligence to review the local ordinance and consult with the municipality to see if the town has setbacks from freshwater wetlands or streams.

This permitting discussion provides a broad overview of potential permitting requirements to impact protected natural resources at the site. It is not a comprehensive review of all the permits necessary to develop your project, nor does it cover all potential buffers and restrictions in and around protected natural resources. If you provide more details of the proposed development, Flycatcher can provide specific guidance on your permitting needs.

I appreciate the opportunity to support SJR and your client with natural resources identification. If you have any questions regarding this report, please do not hesitate to contact me. We look forward to

working with you again in the future.

Sincerely,

David Brenneman
Senior Project Lead
C: (207) 751-3053
dave@flycatcherllc.com

Attachments: A – Resource Mapping
B – Photographs

Attachment A

Resource Map

NOTES:

1 BASEM
2 RESOL

PROJECT:

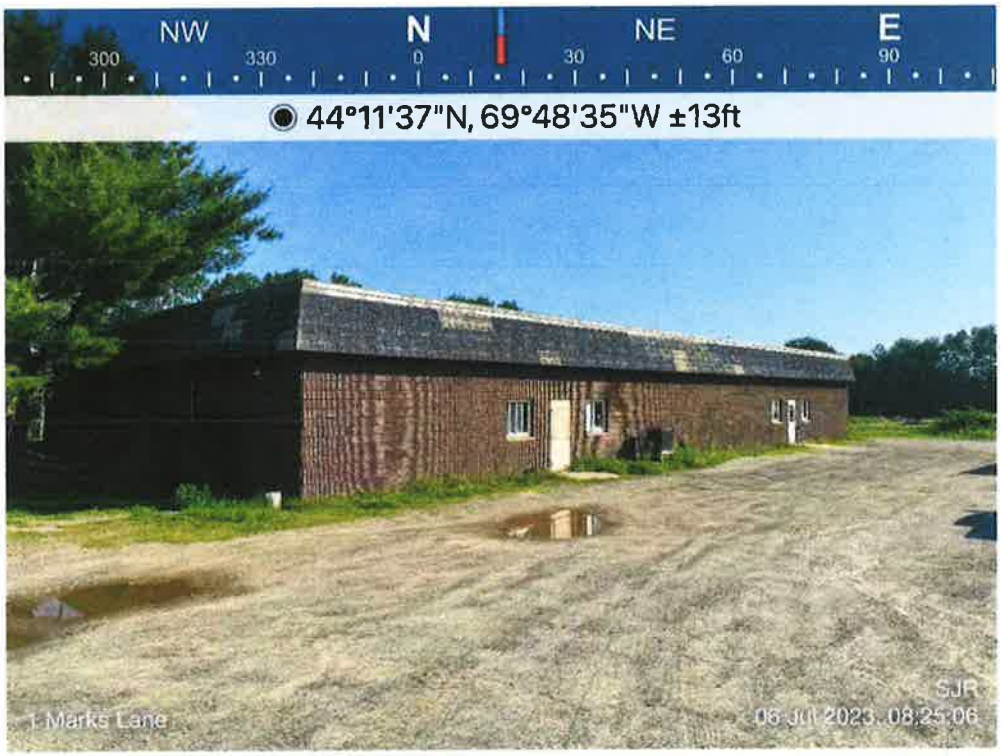
TITLE:

DRAWN BY:

Attachment B

Site Photographs

Small field along the Route 201 property frontage

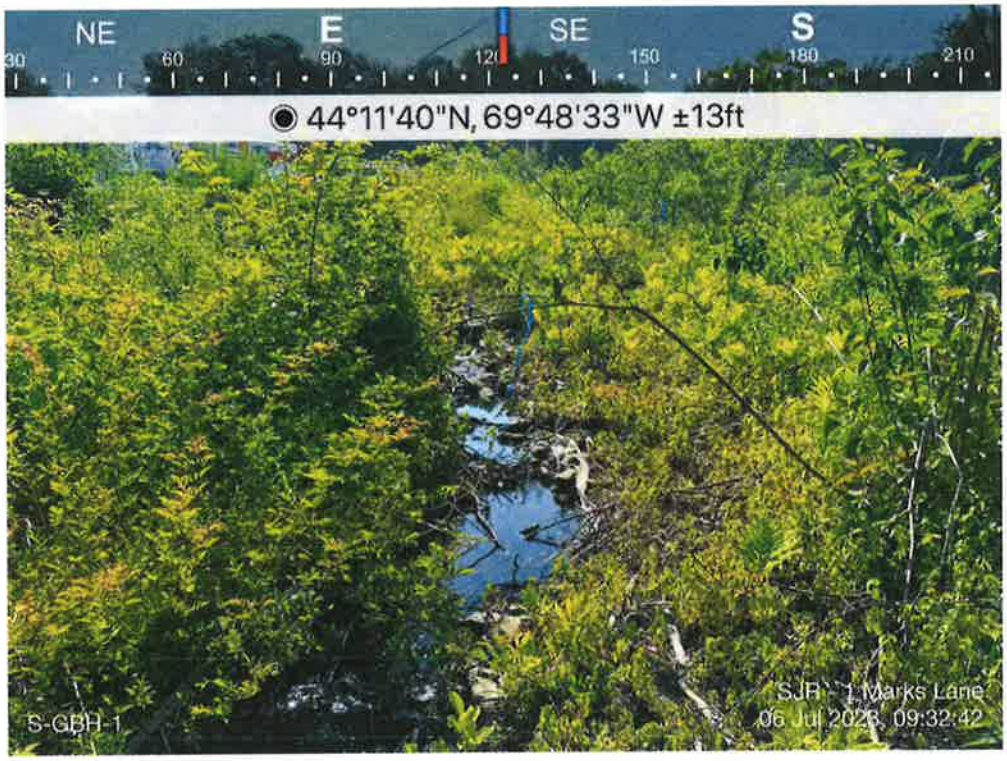


Existing site improvements include a commercial building and gravel parking lot

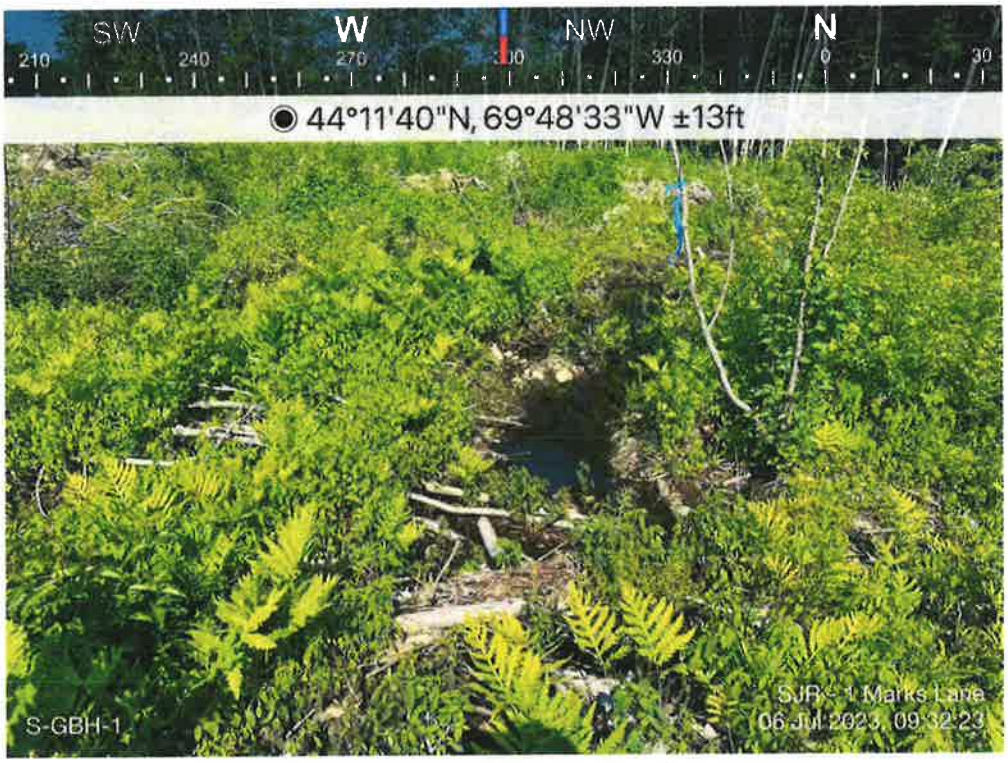
Upland area along the westerly property line

Looking northeast along the northerly property line at wetlands W-GBH-1

Ponded ruts within wetland presumably from recent clearing



Intermittent stream S-GBH-1, looking upstream



Intermittent stream S-GBH-1, looking downstream

Erosion Control Narrative

August 11, 2023

Gardiner Planning Board
6 Church St.
Gardiner, ME 04345

Re: Proposed Warehouse, Marks Lane, Gardiner, Maine
Erosion and Sediment Control Narrative

Dear Planning Board Members,

G Town 2, LLC owns a parcel of land at the intersection of Brunswick Avenue and Marks lane in Gardiner, Maine. The proposed design is to construct a new 15,000 sf building (2 Unit Warehouse facility) with associated parking, laydown, and load/unloading areas. The building will utilize underground electricity, telephone/communications, private existing sewer disposal, and public water supply. It is anticipated that this projects site infrastructure will be started in 2023.

The site is identified as Tax Map 16 Lot 5 of the City's Tax Map. The parcel has 2.68 acres of land and lies within the Planned Development zone. The original parcel was subdivided Thayer Engineering. It is our understanding this proposed development expansion needs Planning Board approval for site development.

Existing Site Conditions

The existing site consists of an existing warehouse building with a drive-around traffic maneuvering area. A portion of the remaining area has been recently cleared and is scrub brush at this time. The property parcel has been previously surveyed by Thayer Engineering and Surveying. Topographic information has been taken from 2020 LIDAR resources and shown at a 2' contour interval. The parcel does not lie within the 100-year floodplain, however wetlands and a stream has been identified along the sideline of the property. The slope of the property varies from 2% along the flatter areas to 25% along the banks of the steeper slopes of the property. Runoff water eventually flows to Cobbossee Stream and the Kennebec River..

Soils

Soils delineation was taken from the medium intensity soils maps of the Kennebec County Soil Survey. I have overlaid the proposed developed site onto

SJR ENGINEERING, INC.
STEVE@SJRENG.COM. 16 THURSTON DRIVE, MONMOUTH, ME. TEL: (207) 242-6248

this map. Soils are identified as being Woodbridge very stony fine sandy loam (hydro group "C/D", K= 0.24 - 0.37), Paxton-Charlton very stony fine sandy loam (hydro group "C/D", K= 0.24 - 0.32), and Lyman-Tunbridge Complex (hydro group "C", K= 0.32 - 0.20).

Erosion and Sediment Control Practices

This plan has been developed to provide a strategy for dealing with soil erosion during and after the construction of the project. This plan is based on the standards and specifications for erosion prevention as contained in the "2016 Best Management Practices Manual for Designers and Engineers" by the Soil and Water Conservation District and Maine DEP.

The Contractor shall limit construction disturbance to (ie disturbed unstable ground surface) to no more than 10 acres at any one time. An area considered "opened" includes any area not stabilized with pavement, vegetation, mulch, mats, riprap, or gravel base on road/pavement locations. Open areas must have temporary erosion control installed within 14 days of disturbance (and prior to a $\frac{1}{2}$" or more rain event). Areas opened within 100' of environmental resources (wetlands, stream) must have temporary erosion controls installed within 7 days. While the erosion control plan is comprehensive, additional measures may be necessary to control erosion from the site.

It shall be the Contractors responsibility to be aware of weather conditions at any time during the construction of the project, and to make appropriate erosion control decisions regarding the current condition of the site for the anticipated rainfall event. The site erosion controls must be able to prevent significant erosion during the expected event.

A pre-construction meeting with the Town, Owner, and Contractor shall be required to specifically discuss how the erosion control plan will be constructed and monitored.

Construction is expected to begin following obtaining permits for approval. It is expected that construction activities will be started in the Fall of 2023. Special attention should be given to the sections pertaining to Fall and Winter seeding, as the project will overlap into the winter construction season.

The principal erosion control devices will be silt fences (or erosion control mulch berms), hay mulch, stabilized construction entrance (eventually pavement), and seed to protect existing trees and drainage paths from the regions undergoing construction. Features such as vegetated ditches and erosion control material will be constructed as permanent erosion controls.

Prior to construction, the Contractor will install the stabilized construction entrance to minimize potential tracking of soils from the project construction onto paved public roads.

Structural Measures

1. Silt fencing/erosion control mix berm shall be installed along the contour and perpendicular to the predominant slope of the land just beyond the downslope limits of clearing and grubbing and/or just above any adjacent property line and streams where indicated on the plan to protect against construction related erosion. Installation shall be as shown on the plans or approved equal.

2. Riprap materials shall be placed in all inlets/outlets of pipe culverts. These aprons will prevent scour at stormwater outlets and minimize the potential for downstream erosion by reducing the velocity of concentrated stormwater flows. Average design size stone, D50, shall be as called out in the detail on the plans. Largest size of stone in the riprap is to be 1.5 times the D50 size.

3. Protective mats on steep slopes will aid in controlling erosion on critical areas during the establishment period of vegetation.

4. Naturally vegetated buffers and grass filter strips remove sediment and other pollutants from runoff by infiltration, deposition, absorption and decomposition. Filters are effective only if used to remove sediment

from sheet (overland) flow.

5. Stabilized construction entrance is to be placed during construction, where traffic is entering or leaving construction site. This will reduce or eliminate the tracking or flowing of sediment onto public rights of way. An 8" thick layer of 3"-4" crushed stone 50' in length has been designed and shown on the plan. If soil tracking does occur, the Contractor shall vacuum sweep the paved surface of the roadway by the close of business that day.

6. A stone check dam is a filtering and energy dissipation device that limits the erosion process. These dams are 2"-3" crushed stone, 24" in height and are placed in drainage ditches as a temporary erosion control measure. The dams are to be removed prior to final acceptance of the project and riprap installed in its' place.

7. Soil stockpiles shall be hay mulched within 24 hours of stockpiling. The downslope side of the stockpile shall have a ring of erosion control barrier placed (silt fence, erosion control berm mix, waddles). Stockpiles are not to be located within 100' of environmental resources where possible.

8. Trench dewatering shall be pumped to filter bags prior to discharge from the site. They shall be located in upland areas greater than 100' from environmental resources.

9. Dust control will be addressed through the use of water trucks spraying the ground with water and/or applying calcium chloride to the surface to minimize dust creation.

Vegetative Measures

1. Topsoil on site shall be stockpiled at a stable location on site and covered with anchored mulch for temporary erosion control.

2. If any disturbed area of soil will be left bare for more than two weeks, or if construction is to be completed in phases over an extended duration, temporary seeding and mulching shall commence immediately following initial fine grading of site. **In sensitive areas (within 100' of wetlands) temporary mulch must applied within 7 days or prior to any storm event on all disturbed surfaces.** It shall be maintained and reseeded as necessary to insure good vegetative cover for the entire duration of construction. Seed will be selected from the following table, according to the time of the year.

Temporary Seed Mixture

Seed Type	lbs acre	lbs 1000 sf	Seeding Depth	Recommended Seeding Date
Winter Rye	112	2.6	1"-1.5"	8/15 - 10/1
Oats	80	1.8	1"-1.5"	4/1 - 7/1
or				and
Annual Ryegrass	40	0.9	.25"	8/15 - 9/15
Sudangrass	40	0.9	.5"-1"	5/15 - 8/15
Perennial Ryegrass	40	0.9	.25"	8/15 - 9/15
Temporary Mulch				10/1 - 4/1

Mulch will be applied with seeding according to mulch table. If it is not possible to seed 45 days or more prior to frost, than dormant seeding and anchored mulch shall be applied. The application of mulch shall be such that the bare ground is barely visible.

3. Permanent seedings of grass cover shall be applied to all

disturbed areas. All surface water control measures and final land grading in the vicinity should be completed. Ground preparation shall include tilling to a minimum 3" depth of fine but friable soil free of clods or stones. Permanent seed shall be selected according to its final destination. (See permanent seed mixture table)

4. All seeding will require mulch. Mulch provides several benefits: conserves moisture, prevents surface compaction, improves water quality, reduces runoff and erosion, controls weeds, and helps establish plant cover. Mulch shall be applied according to the following tables:

Permanent Seed Mix	Application Rate	
	Parks & Lawns lbs/1000 sf	Roadside Areas ditches, basins lbs/1000 sf
Kentucky Bluegrass	.46	
Creeping Red Fescue	.46	.46
Perennial Ryegrass	.11	
Redtop		.05
Tall Fescue		.46
Total Seed Rate	1.03	0.97

Note:

1. The contractor may wish to final seed from 10/1 to 11/1 with the same soil preparations, seeding mixes (doubling the seed rate) and mulching, but it may result in winter kill. Vegetation must be inspected and reseeded as necessary in the following spring to assure good vegetative cover.

2. No seeding shall be permitted on the snow.

3. Mulch shall be applied after all seed applications (see mulch) and in enough quantity to cover all bare spots such that bare ground is not visible. Any site grading performed in winter conditions shall be covered with mulch on a daily basis. Mulch rate shall be twice the normal rate.

4. Permanent seedings should be made 45 days or more prior to the first killing frost (Seed by September 15th) or as a temporary and dormant seeding after the first killing frost.

Maintenance

During the period of construction and/or until long term vegetation is established:

1. Seeded areas will be fertilized and reseeded as necessary to insure 90% vegetative establishment.

2. At a minimum, the hay bale/silt fence barriers shall be inspected and repaired once a week and immediately following all significant rainfall or snow melt. Sediment trapped behind these barriers shall be excavated when it reaches a depth of 6 six inches and regraded onto the site.

3. Diversion ditches and swales will be checked weekly and repaired, when necessary, until adequate vegetation is established.

4. The Owner and contractor shall be responsible for the construction and maintenance of all proposed temporary and permanent erosion control measures including vegetation. The contractor must install or construct all required improvements shown on the plans. The contractor must incorporate all other site improvements, restrictions, construction limits, drainage improvements, natural vegetated buffers, proposed landscaping, etc. The contractor must obtain a complete set of plans, reports,

permit approvals, and documents pertaining to the project before beginning construction.

5. The contractor shall remove all temporary erosion control devices from the site after construction is complete and the site is permanently stabilized.

WINTER CONSTRUCTION (as applicable)

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, 75 % mature vegetation cover or riprap by November 15, then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mats, riprap or gravel base on a road. Winter excavation and earthwork shall be completed such that no more than 1 acres of the site is without stabilization at any one time. Limit the exposed area to those areas in which work is expected to be undertaken during the proceeding 15 days and that can be mulched in one day prior to any snow event.

All areas shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor must install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions.

Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

SOIL STOCKPILES

Stockpiles of soil or subsoil will be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs/1,000 s.f. (3 tons per acre) or with a four-inch (4") layer of erosion control mix. This will be done

within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with hay or straw) within 100 feet from any natural resources.

NATURAL RESOURCES PROTECTION

Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75 % mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats. During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area.

Projects crossing a natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

SEDIMENT BARRIERS

During frozen conditions, sediment barriers shall consist of erosion control filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

MULCHING

All area shall be considered to be denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1.000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored.

Mulch shall not be spread on top of snow. The snow will be removed down to a one-inch depth or less prior to application.

After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.

An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1.000

square feet (3 tons/acre) and adequately anchored so that the ground surface is not visible through the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by either peg line, mulch netting, asphalt emulsion chemical, tracking into the surface or wood cellulose fiber. The mulch cover is sufficient when the ground surface is not visible. After November 1, mulch and anchoring of all bare soil shall occur at the end of each final grading workday.

MULCHING ON SLOPES AND DITCHES

Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets. Mulching shall be applied at a rate of 230 lbs/1,000 sf on all slopes greater than 8%.

Mulch netting shall be used to anchor mulch in all drainage ways with a slope greater than 3 % for slopes exposed to direct winds and for all other slopes greater that 8%.

Erosion control blankets shall be used in lieu of mulch in all drainage ways with slopes 8% or greater. Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

SEEDING

Between the dates of October 15 and April 1, loam or seed will not be required. During periods of above freezing temperatures, finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1 and the exposed area has been loamed and final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5lbs/1000 s.f. All areas seeded during the winter will be

inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75 % catch) shall be revegetated by removing the mulch and reseeding and remulching.

If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

TRENCH DEWATERING AND TEMPORARY STREAM DIVERSION

Water from construction trench dewatering or temporary stream diversion will pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 100 feet of a protected natural resource.

INSPECTION AND MONITORING

Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function. Following the temporary and/or final seeding and mulching, the contractor shall inspect and repair any damages and unvegetated spots. Established vegetative cover means a minimum of 85 to 90 % of areas vegetated with vigorous growth.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1.Standard for the timely stabilization of ditches and channels: The contractor will construct and stabilize all stone-lined ditches and channels on the site by November 15. The contractor will construct and stabilize all grass-lined ditches and channels on the site by September 15. If the contractor fails to stabilize a ditch or channel to be grass-lined by September 15, then the contractor will take one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch: The contractor will line the ditch with properly installed sod by October 1. Proper installation includes the contractor pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

Install a stone lining in the ditch: The contractor will line the ditch with stone riprap by November 15. The contractor will hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the contractor will regrade the ditch prior to placing the stone lining so to prevent the stone lining, from reducing the ditch's cross-sectional area.

2. **Standard for the timely stabilization of disturbed slopes:** The contractor will construct and stabilize stone-covered slopes by November 15. The contractor will seed and mulch all slopes to be vegetated by September 15. The department will consider any area having a grade greater than 15% to be a slope. If the contractor fails to stabilize any slope to be vegetated by September 15, then the contractor will take one of the following actions to stabilize the slope for late fall and winter.

Stabilize the soil with temporary vegetation and erosion control mats: By October 1, the contractor will seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1000 square feet and apply erosion control mats (or mulch with jute netting) over the mulched slope. The contractor will monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the contractor will cover the slope with an additional layer of winter mulch application, stone riprap, or erosion control mix as described below.

Stabilize the slope with sod: The contractor will stabilize the disturbed slope with properly installed sod by October 1. Proper

installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor will not use late-season sod installation to stabilize slopes having a grade greater than 33%.

Stabilize the slope with erosion control mix: The contractor will place a six-inch layer of erosion control mix on the slope by November 15. Prior to placing the erosion control mix, the contractor will remove any snow accumulation on the disturbed slope. The contractor will not use erosion control mix to stabilize slopes having grades greater than 50% or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap: The contractor will place a layer of stone riprap on the slope by November 15. The contractor will hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

3. **Standard for the timely stabilization of disturbed soils:** By September 15 the contractor will seed and mulch all disturbed soils on areas having a slope less than 15%. If the contractor fails to stabilize these soils by this date, then the contractor will take one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation: By October 1, the contractor will seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic or jute netting. The contractor will monitor growth of the rye over the next 30 days. If the rye fails grow at least three inches or cover at least 75% of the disturbed soil before November 15, then the contractor will mulch the area for over-winter protection as described in one of the items below of this standard.

Stabilize the soil with sod: The contractor will stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes the contractor pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

Stabilize the soil with mulch: By November 15, the contractor will mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the contractor will remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the contractor will anchor the mulch with plastic or jute netting to prevent wind from moving the mulch off the disturbed soil.

Please feel free to contact me if you have any questions concerning the use of these measures. We feel that these measures if properly constructed and maintained will be sufficient to control erosion on your project without any adverse impact to the area. Thank you for involving this firm on your project.

Sincerely yours,

Stephen Roberge

Stephen Roberge, PE
for SJR Engineering Inc.

Housekeeping/Maintenance

G Town 2 Warehouse

Inspection and Maintenance Plan
Date: August 2023

The Earthwork Contractor will be responsible for inspection, maintenance, and operations of the stormwater system during construction. Upon approval of the final construction by the Owner, the Owner will be responsible for the inspection, maintenance, and operation of the stormwater system. We have attached the "Maine ESC BMPs (10/2016)" at the end of the narrative that more fully identifies the Party's E+S responsibilities.

INSPECTIONS - Contractor During Construction

Areas of proposed construction that will require inspections/maintenance of the stormwater system include the following:

- **Detention/Retention/Infiltration Facilities**

  Soil Filter media inspection and maintenance

  Outlet Control Structure inspection and maintenance

  Sediment removal and disposal

- **Ditches, Swales, or other open stormwater channels**

  Embankment inspection and maintenance

  Channel inspection

  Sediment removal and disposal

- **Culverts, catch basins, stormwater control structures**

  Structure inspection and maintenance

  Inlet and Outlet inspection

  Debris removal and disposal

- **Buffers/Landscaping**

  Landscaping inspection and maintenance

  Landscaping turf inspection and maintenance

  Debris removal and disposal

- **General Site Erosion Controls**

  Sediment barriers (silt fence, erosion control berm material)

  Stabilized Construction Exit

  Riprap slopes

  Level Lip Spreaders

  Erosion Control Blankets

  Temporary/Permanent Seed and Mulch

  Hay mulch

There may be other areas of inspection/maintenance specific to the project during construction that may not be identified above. The Contractor is directed to utilize the 2014 Revision to the Maine Erosion and Sediment Control Field Guide for Contractors.

The Contractors representative will inspect the general erosion control items identified above including the drainage system, swales, channels, and stormwater structures to determine if a soil blockage or impaired capacity to pass flow exists. During construction, the inspection will be done prior to and within 24 hours after a storm event greater than ½" in 24 hours. A record of inspections and maintenance or corrective measures shall be kept by the Contractor.

MAINTENANCE AND CLEANING

The earthwork contractor will regularly inspect for sediment accumulation, obstructions, debris, and other potential causes for operational difficulty in the conveyance of stormwater including the detention system. Immediate action shall be taken to remedy detrimental obstructions.

The Contractor will regularly inspect the infiltration rate of the soil filter ponds after every major storm event (1/2" rain event in 24 hours) in the first few months to ensure proper function. Sediment shall be removed from the sediment forebay when sediment is greater than 12" from the forebay bottom. The removed sediment shall be hauled off site and disposed in an approved location. Ongoing maintenance will be required as necessary.

All sand, salt, etc. accumulated when sweeping the paved parking, access road, and snow stockpile areas, shall be trucked off-site for disposal.

RECORD KEEPING

The Contractor will maintain inspection records, with recordings of condition of items identified above and annotation of substantial precipitation events or mitigating circumstances in the intervening time for trends to develop for anticipated future preventive maintenance schedule.

INSPECTIONS - *Owner Post-Construction*

Areas of the completed construction that will require ongoing inspections and maintenance of the stormwater system include the following:

- **Detention/Retention/Infiltration Facilities**

  Soil Filter media inspection and maintenance

  Outlet Control Structure inspection and maintenance

  Sediment removal and disposal

- **Ditches, Swales, or other open stormwater channels**

  Embankment inspection and maintenance

  Channel inspection

  Sediment removal and disposal

- **Culverts, catch basins, stormwater control structures**

  Structure inspection and maintenance

  Inlet and Outlet inspection

  Debris removal and disposal

- **Buffers/Landscaping**

  Landscaping inspection and maintenance

  Landscaping turf inspection and maintenance

  Debris removal and disposal

- **General Site Erosion Controls**

  Riprap slopes

  Level Lip Spreaders

  Permanent Seed and Mulch

There may be other areas of inspection/maintenance specific to the project identified after construction that may not be identified above. The Owner is directed to utilize the 2014 Revision to the Maine Erosion and Sediment Control Field Guide for Contractors for these situations.

The Owners representative will inspect the general erosion control items identified above including the drainage system, swales, channels, and stormwater structures to determine if a soil blockage or impaired capacity to pass flow exists. Post construction, the inspection will be done within 24 hours after a storm event greater than ½" in 24 hours. General post-construction inspections will be performed on a monthly basis from March to November, and quarterly during the remainder of the year. A record of inspections and maintenance or corrective measures shall be kept by the owner.

MAINTENANCE AND CLEANING

The Owner will regularly inspect for sediment accumulation, obstructions, debris, and other potential causes for operational difficulty in the conveyance and detention system. Immediate action shall be taken to remedy detrimental obstructions.

The Owner will regularly inspect the infiltration rate of the soil filter ponds after every major storm event (1/2" rain event in 24 hours) in the first few months to ensure proper function. Thereafter, the soil filter basin should be inspected bi-annually to ensure that they draining within 24-48 hours. Sediment shall be removed from the sediment forebay when sediment is greater than 12" within the forebay. The removed sediment shall be hauled off site and disposed in an approved location.

A mandatory scheduled maintenance will be performed every four weeks for a period of one hundred and twenty (120) days and will begin after satisfactory completion and acceptance of project construction. Ongoing maintenance may be required as necessary.

All sand, salt, etc. accumulated when vacuuming the paved parking, access road, and snow stockpile areas, shall be trucked off-site for disposal.

RECORD KEEPING

The Owner will maintain inspection records, with recordings of condition of items identified above and annotation of substantial precipitation events or mitigating circumstances in the intervening time for trends to develop the future preventive maintenance schedule.

RE-CERTIFICATION

The Owner shall submit a certification to the Maine DEP within three months of the expiration of each five year interval from the date of issuance of the permit. The owner shall submit the maintenance log which identifies inspections completed, erosion problems found, when corrective action was taken, and who completed the work. The certification will include a statement indicating that the stormwater system is working and is being maintained in working condition in accordance with the permit requirements. Specific requirements for the recertification can be found on the Maine DEP website:

https://www.maine.gov/dep/land/stormwater/stormwaterbmps/five-year-recertification.html

Maintenance Log Sheet

Inspector Name	Date	Maintenance Task Completed
Soil Filter Pond 1		
Pond Embankment		
Pond Vegetation		
Pond Inlet		
Pond Outlet		
Pond Outlet Control Structure		
Underdrained Gravel Bench		
Emergency Spillway		
Pond Volume		
Soil Filter Media		
Other		
Pond 2		
Pond Embankment		
Pond Vegetation		
Pond Inlet		
Pond Outlet		
Pond Outlet Control Structure		
Underdrained Gravel Bench		
Emergency Spillway		
Pond Volume		
Soil Filter Media		
Other		
Pavement/Grass interface		
Pavement debris/sand		
Stabilized Construction Exit		
Landscaping Buffers		
Level Spreaders		
Stone Check Dams		
ESC devices installed/removed		
Winter Construction ESC		
Mulch		
90% Vegetation		
Plunge Pools		
Roof Drip Edge		

Snowplow sand/ground surface		

Housekeeping

These performance standards apply to all projects.

1. Spill prevention. Controls must be used to prevent pollutants from being discharged from materials on site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.

2. Groundwater protection. During construction, liquid petroleum products and other hazardous materials with the potential to contaminate groundwater may not be stored or handled in areas of the site draining to an infiltration area. An "infiltration area" is any area of the site that by design or as a result of soils, topography and other relevant factors accumulates runoff that infiltrates into the soil. Dikes, berms, sumps, and other forms of secondary containment that prevent discharge to groundwater may be used to isolate portions of the site for the purposes of storage and handling of these materials.

NOTE: Lack of appropriate pollutant removal best management practices (BMPs) may result in violations of the groundwater quality standard established by 38 M.R.S.A. §465-C(1).

3. Fugitive sediment and dust. Actions must be taken to ensure that activities do not result in noticeable erosion of soils or fugitive dust emissions during or after construction. Oil may not be used for dust control.

NOTE: An example of the use of BMPs to control fugitive sediment and dust is as follows: Operations during wet months that experience tracking of mud off the site onto public roads should provide for sweeping of road areas at least once a week and prior to significant storm events. Where chronic mud tracking occurs, a stabilized construction entrance should be provided. Operations during dry months, that experience fugitive dust problems, should wet down the access roads once a week or more frequently as needed.

NOTE: Dewatering a stream without a permit from the department violates state water quality standards and the Natural Resources Protection Act.

4. Debris and other materials. Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

NOTE: To prevent these materials from becoming a source of pollutants, construction and post-construction activities related to a project may be required to comply with applicable provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. Trench or foundation de-watering. Trench de-watering is the removal of water from trenches, foundations, coffer dams, ponds, and other areas within the construction area that retain water after excavation. In most cases the collected water is heavily silted and hinders correct and safe construction practices. The collected water must be removed from the ponded area, either through gravity or pumping, and must be spread through natural wooded buffers or removed to areas that are specifically designed to collect the maximum amount of sediment possible, like a cofferdam sedimentation basin (or pumping water through a sediment dirtbag). Avoid allowing the water to flow over disturbed areas of the site. Equivalent measures may be taken if approved by the department.

NOTE: For guidance on de-watering controls, consult the latest edition of the Maine Erosion and Sediment Control BMPs", Maine Department of Environmental Protection."

6. Non-stormwater discharges. Identify and prevent contamination by non-stormwater discharges.

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

Maintenance Plan & Best Management Practices

Site Inspection & Maintenance During Construction: Weekly inspections, as well as routine inspections following rainfalls, shall be conducted by the General Site Contractor of all temporary and permanent erosion control devices until final acceptance of the project (90% grass catch) by the Owner. Necessary repairs shall be made to correct undermining or deterioration. Final acceptance shall include a site inspection to verify the stability of all disturbed areas and slopes. Until final inspection, all erosion and sedimentation control measures shall immediately be cleaned, and repaired by the General Contractor as required. Disposal of all temporary erosion control devices shall be the responsibility of the General Contractor.

It is recommended that the Owner hire the services of the design engineer, or other qualified individual, to provide compliance inspections (during active construction) relative to implementation of the Stormwater and Erosion Control Plans. Such inspections should be limited to once a week or as necessary based on weather patterns, and be reportable to the Owner for record keeping purposes.

Maintenance Agreement: Short-term sedimentation maintenance shall be the responsibility of the Contractor to clean out all swales, structures, and soil filter basins prior to turning project over to the Owners. After project turnover, the Owner shall be the responsible party for inspecting and maintaining proper functioning of all stormwater conveyance practices and measures. The Owner may assign an environmental manager to carry out specific tasks identified below.

Structures and Other Measures

Stabilized Construction Entrance: A stabilized construction entrance is required at all locations that utilize vehicle access points from the project onto public or private paved roadways during construction operations. Tracked sediment onto public road systems shall be vacuum swept prior to the next significant rain event (1/2" rain/24 hours). Sweeping of sediment into ditches, storm drains or waterways is not acceptable

Winter Sanding/Sweeping: Post construction, paved parking lots, streets, and access driveways shall be vacuum swept a minimum of twice per year. The first shall take place in the Fall. The second vacuum sweeping shall take place after winter sanding operations terminate, prior to May 1.

Ditches/Swales: Open swales and ditches need to be inspected on a monthly basis and after a major rainfall event to assure that debris or sediments do not reduce the

effectiveness of the system. Debris needs to be removed at that time. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth to vegetation for the stability of the structure and proper functioning.

Vegetated Ditches: Vegetative should be mowed at least monthly during the growing season to a height of not less than 3 inches. Larger brush or trees must not be allowed to become established in the channel. Unless finely mulched, clippings should be removed to minimize the amount of organic material accumulating in the swales. Any areas where the vegetation fails will be subject to erosion and should be repaired and revegetated. Sediment should be removed when the ditch cross section is 33% full of sediment.

Stone Lined Channels: Where stone is displaced from constructed riprap areas, it should be replaced and chinked to assure stability. With time, riprap may need to be added. Vegetation growing through riprap should be removed on a yearly schedule.

Stone Check Dams: Observe the center of the check dam to make sure it is lower that the edges. Sediment trapped behind the dams should be removed once it reaches half the height of the dam. Check to insure erosion around the sides of the dam has not occurred.

Level Lip Spreaders: Sediment/debris buildup should be removed when the pool volume is reduced by 33%. Observation of the front side of the level spreader is neessary to determine erosion along the existing vegetation/spreader interface.

Culverts: If sediment in culverts or piped drainage systems exceeds 20% of the diameter of the pipe, it should be removed. This may be accomplished by mechanical means or hydraulic flushing. Care should be taken to prevent the release of the sediments into the downstream receiving areas. All. pipes should be inspected on an annual basis.

Trench Dewatering: Water is to be pumped to a soil filter bag prior to discharge from the area. Placement of the filter bag is to be greater than 100' from an environmental resource. Careful monitoring of the discharge water must be taken to insure sediment laden water does not enter downslope resources.

Catch Basin/Field Inlets: All catch basins, and any other field inlets throughout the collection system, need to be inspected on a monthly basis to assure that the inlet entry point is clear of debris and will allow the intended water entry. In many cases, a silt sack has been installed within the rim of the CB and should be emptied/replaced after each storm event in a disturbed soil area as necessary. On a yearly basis, or when sediment reaches two thirds of the total sump volume, catch basins will be vacuumed and cleaned of all accumulated sediment. Work must be done by a vacuum truck. The removed material must be disposed of in accordance with State of Maine Solid Waste Disposal Rules.

Soil Filter, Infiltration, and Wet Ponds

Clearing Inlets and Outlets of Ponds (where applicable): The inlet and outlet of a pond shall be checked periodically to ensure that flow structures are not blocked by debris. All ditches and pipes connecting ponds in series shall be checked for debris that may obstruct flow. Inspections shall be conducted monthly during wet weather conditions from March to November.

Basin Inspections: Ponds shall be inspected on an annual basis for erosion, destabilization of side slopes, embankment settling, and other signs of structural failure. Brief inspections shall be conducted following major storms. Corrective action shall be taken immediately upon identification of problem area. Records shall be kept of all maintenance operations at jobsite to help plan future work and identify problem areas.

Maintenance Dredging: Wet ponds typically lose 1% of their volume annually due to sediment accumulation. Dredging is required when accumulated volume loss reaches 15% or approximately every 15-20 years.

Drainage Area Inspections: The owners' environmental manager shall inspect the basin's drainage area semi-annually for eroding soil and other sediment sources. Repair eroding areas using appropriate erosion control BMP's immediately. Control sediment sources, such as stockpiles of winter sand, by removing them from the basin's drainage area or surrounding them with sediment control BMP's.

Mowing: A basin with a turf lining shall have its side-slopes and top of berm mowed at least twice a year to prevent woody growth. Clippings shall be removed to minimize the amount of organic material accumulating in the basin.

Sediment Removal: Remove accumulated debris and sediments from the sediment forebays, inlet plunge pools, and pre-treatment BMP's at least annually.

Snow Storage: The ponds are not to be used for snow storage. Snow storage shall be sited so that snowmelt flows to a pre-treatment BMP before reaching the infiltration basin.

Pedestrian Access: Limit access to ponds to passive recreational use.

Vehicle Access: Prohibit vehicle access to all ponds, except that authorized for maintenance.

Municipal Department Heads Request Letter

SJR ENGINEERING, INC.
STEVE@SJRENG.COM. 16 THURSTON DRIVE, MONMOUTH, ME. TEL: (207) 242-6248

March 12, 2024

Gardiner Maine Department Heads

Re: Site Plan for G Town 2 LLC, Marks Lane, Gardiner

Dear Gardiner Department Heads,

As part of the Planning Board permitting process, we request comments from you pertaining to a proposed new warehouse storage facility at the intersection of Marks Land and Brunswick Avenue. I am asking that you review the plan and send a memo to me (and Town) indicating the proposed improvements will **not** have a negative effect on municipal services.

This application pertains to Tax Map 16, Lot 5. The parcel has 2.68 acres of land and lies within the Planned Development zoning district. The original parcel was subdivided by Thayer Engineering in 1994.

An existing warehouse/storage building has been previously constructed on the parcel. The proposed development is to add another single-story building to the site to be used for warehousing/storage needs that will complement the existing warehouse/storage building. Access into the lot is provided from the two existing driveways to Marks Lane. The two driveway connections will be utilized to maneuver a large truck with trailer through the site without any required backing movement.

The property does not lie within the 100-year floodplain. However, a stream and associated wetland have been located along the eastern sideline of the site. The new building has been setback at least 25' from the stream and will require a DEP NRPA waiver from 75' to 25' for construction within this buffer area. Approximately 3,556 sf of wetland area will be impacted. This will also need additional DEP and ACOE permit approvals. The parcel has access to public water within Marks Lane and existing private sewer disposal located under the existing parking area. The disposal area has been previously designed to accommodate up to 38 employees. (The current use for the existing building has only 7 employees.) A fire hydrant is located across Route 201 from the site.

Front building setbacks of 50' from Brunswick Avenue ROW and 25' side/rear building setbacks are called out on the plan. A dumpster area behind the building has been shown for trash handling purposes. Zoning requirements allow for up to 50% maximum lot coverage. This proposed expansion including building/gravel areas is 49.5% lot coverage.

The existing building is heated using natural gas. The new building will be supplied with the same heating system. There will be new downcast building area lighting along the proposed building. An updated sign (listing of tenants) will be displayed on the existing sign post although the actual sign design hasn't been selected at this time.

Stormwater flows from the project construction are directed into two soil filter ponds. The pond is created to limit stormwater flows to pre-existing conditions as well as provide water quality treatment. The proposed building roof water will enter into building roof area drip strips that will infiltrate runoff water into the ground.

An immediate construction startup date is planned once approvals for the project have been obtained. We look forward to presenting this project to the Planning Board and answering any questions you may have concerning the design of the project.

Sincerely yours,

Stephen Roberge

Stephen Roberge, PE
SJR Engineering Inc.

6 Church Street, Gardiner, Maine 04345 207-582-4535 Fax 207-582-1079 E-mail Fire@gardinermaine.com

CITY OF GARDINER
FIRE & RESCUE DEPARTMENT

Chief Richard Sieberg

March 13, 2024

Dear Mr. Roberge,

I have received your proposal to add an additional warehouse/storage building at 1 Marks Lane in Gardiner under the name G Town 2 LLC.

After reviewing the documents and discussing this concept with Code Enforcement I don't believe this will create a negative impact on the Fire Department.

As always, we look forward to working with all of the businesses in the City. Please feel free to reach out to the Fire Department if you have questions or concerns.

Sincerely,

Richard Sieberg
Gardiner Fire Department
Fire Chief

CITY OF Gardiner
Moving Forward

CEO Kris McNeill
Gardiner Planning Board
Office of Economic and Community Development

March 21, 2024

Subject: G Town 2 LLC
1 Marks lane
Gardiner, Maine 04345
Attn: Steve Roberge, PE

Based upon information provided and based upon information now known, this business appears to have appropriate operational safety measures in place to open and operate in the City of Gardiner. With the appropriate systems in place, it is my belief that the Gardiner Police Department will have the ability to respond safely and effectively to any emergency or criminal activity that may occur there. It is not anticipated that these calls will have an impact on the overall services that the Gardiner Police Department delivers.

Sincerely,

Chief Todd H. Pilsbury
Gardiner Police Department
City of Gardiner

Maine Historic Preservation Commission

SJR ENGINEERING, INC.
STEVE@SJRENG.COM. 16 THURSTON DRIVE, MONMOUTH, ME. TEL: (207) 242-6248

August 17, 202

Re: Proposed Warehouse building along Marks Lane in Manchester, Me.

Dear Sir/Madam,

This letter concerns my application to the Maine DEP for a permit for wetland impacts and building construction along a stream/wetland at 1 Marks Lane in Gardiner. SJR Engineering Inc has been retained by G Town 2, LLC to prepare Federal, State, and local permit applications. Per Section 106 of the Historic Preservation Act, and as a condition of our pending DEP application, we are requesting a determination of effect for this project.

I have enclosed photographs, a site location map as well as the proposed design details for your review. Please feel free to contact me with any questions or comments at 207-242-6248 or via email at Steve@sjreng.com.

Sincerely yours,

Stephen Roberge

Stephen Roberge, PE
for SJR Engineering Inc.

Attachments: Location map, plan, photos

Distribution list - Tribal Historic Preservation Officers:
Aroostook Band of Micmacs (jdennis@micmac-nsn.gov)
Houlton Band of Maliseet Indians (istjohn@maliseets.com)
Passamaquoddy Tribe of Indians-Indian Township (soctomah@gmail.com)
Reservation Passamaquoddy Tribe of Indians-Pleasant Point (soctomah@gmail.com)
Reservation Penobscot Nation (Chris.Sockalexis@penobscotnation.org)
Maine Historic Preservation Commission (email)

Other Required Permits

1. DEP Stormwater Permit
2. NRPA Wetland Alteration Permit
3. NRPA 75'to 25' Stream Buffer

DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF LAND RESOURCES

FOR DEP USE
L-_____
ATS# _____
FEES PAID _____
DATE RECEIVED _____

Stormwater Application Form

PLEASE TYPE OR PRINT IN INK

This application is for (Check the one that applies):	☑ **New application** ☐ **Amendment**		
1. Name of Applicant:	G Town 2, LLC	**5. Name of Agent:**	Steve Roberge, SJR Engineering
2. Applicant's Mailing Address:	48 Pine Knoll Road Winthrop, ME 04345	**6. Agent's Mailing Address:**	16 Thurston Drive Monmouth, ME 04259
3. Applicant's Phone #:	Robin Spencer - 207-242-0030	**7. Agent's Phone #:**	207-242-6248
4. Email address (REQUIRED-license will be sent via email:		**8.E-mail address (REQUIRED-license will be sent via email**	steve@sjreng.com
9. Location of Project: (Road, Street, Rt.#)	1 Marks Lane	**10. Town:**	Gardiner
		11. County:	Kennebec
12. Type of Direct Watershed: (Check all that apply)	☐ Lake not most at risk ☐ Lake most at risk ☐ Lake most at risk, severely blooming ☑ River, stream or brook ☐ Urban impaired stream ☑ Freshwater wetland ☐ Coastal wetland ☐ Wellhead of public water supply	**13. Amount of Disturbed Area:**	Total Amt.= 1.72 acres
		14. Amount of Developed Area:	☑ 1 or more acres, but less than 5 acres ☐ 5 acres or more Total Amt.= 1.72 acres
		15. Amount of Impervious Area:	☐ less than 20,000 sq. ft. ☐ 20,000 sq. ft. to 1 acre ☑ 1 to 3 acres ☐ 3 or more acres 1.56 acres Total Amount of Impervious Acres =
16. Applicable Standards: (Check all that apply)	☐ Stormwater PBR ☑ Basic standards ☑ General standards: BMP ☐ General standards: phosphorus ☐ Flooding standard ☐ Urban impaired stream standards ☐ Other:_____	**17. Type of Stormwater Control:**	☐ Vegetative (e.g. buffers) ☑ Structural (e.g. underdrained filters, ponds, infiltration structures)

18. Exceptions &/or Waivers Requested:	**BMP Standards ▼**	**Urban impaired stream standard ▼**	**Flooding Standard ▼**
	☐ Pretreatment measures ☐ Discharge to ocean/major river segment ☐ Linear portion of project ☐ Utility corridor ☐ Redevelopment	☐ Developed area not landscaped or impervious ☐ Redevelopment	☐ Discharge to ocean/major river segment ☐ Insignificant increase in peak flow

19. Proposed Start Date and Brief Project Description:	See Application project narrative				
20. Size of Lot or Parcel:	☐ ____ sq. ft., or ☑ 2.68 acres	**UTM Easting:**		**UTM Northing:**	
21. Title, Right or Interest:	☑ own ☐ lease ☐ purchase option ☐ written agreement				
22. Deed Reference Numbers:	Book#: 14619 Page: 46	**24. Map and Lot Numbers:**		Map #: 16	Lot #: 5
23. DEP Staff Previously Contacted:	Cameron Dufour	**25. Project started prior to application?**	☐ Yes ☑ No	**Completed?**	☐ Yes ☑ No

SIGNATURES / CERTIFICATIONS ON PAGE 2

26. Resubmission of Application?	☐ Yes➔ ☑ No	**If yes, previous application #**		**Previous project manager:**	
27. Written Notice of Violation?	☐ Yes➔ ☑ No	**If yes, name of DEP enforcement staff involved:**			
28. Detailed Directions to the Project Site:	From intown Gardiner, take Brunswick Avenue southwesterly to Marks Lane. The site is on the right at this intersection.				
29. Stormwater Permit by Rule Submissions ▼		**30. Stormwater Application Submissions ▼**			
☐ *This form (including signature page)* ☐ *Fee* ☐ *Topographic Map* ☐ *Plan or Drawing* ☐ *Photos of Area*		☐ This form (including signature page) ☐ Fee ☐ Proof of title, right or interest ☐ Certificate of good standing (if applicable) ☐ Photos of Area ☐ Copy of Public Notice		☐ Professional & Notice Certification ☐ Basic standards submissions ☐ General standards submissions ☐ Flooding standard submissions ☐ Other standard submissions ☐ Compensation Fee (if required)	
31. FEES, Amount Enclosed:		$ 719.00			
Does the agent have an interest in the project? If yes, what is the interest?: ☐ *Yes* ➔ ☑ *No*					

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following:

CERTIFICATIONS/ SIGNATURES

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by
E-mailing the decision to the electronic address located on the front page of this application (see #4 for the applicant and #9 for the agent."

Signed:_____ **Title**_____ **Date:**_____

Notice of Intent to Comply with Maine Construction General Permit	**With this Stormwater Law application form and my signature below, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit (MCGP). I have read and will comply with all of the MCGP standards.** **Signed**_____ **Date:**_____

NOTE: If a Notice of Intent is required, you must file a Notice of Termination (attached as Form G) within 20 days of completing permanent stabilization of the project site.

ADDITIONAL SIGNATURES/CERTIFICATIONS

The person responsible for preparing this application and/or attaching pertinent site and design information hereto, by signing below, certifies that the application for stormwater approval is complete and accurate to the best of his/her knowledge.

Signature: 

Name (print): Steve Roberge

Date: 08-16-2023

Re/Cert/Lic No: _____

Engineer ME 4835

Geologist _____

Soil Scientist _____

Land Surveyor _____

Site Evaluator _____

Active Member of the Maine Bar _____

Professional Landscape Architect _____

FORM B 05/06

Public Notice: Notice of Intent to File

Please take notice that G Town 2 LLC, 48 Pine Knoll Road, Winthrop, ME 04346 (Tel: 207-242-0030) is intending to file a Stormwater Law permit application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. § 420-D on or about September 1, 2023.

This application is for storm water controls associated with the construction of a new 15,000 sf warehouse building at 1 Marks Lane. A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the Department of Environmental Protection's office in Augusta during normal working hours. A copy of the application may also be seen at the municipal offices in Gardiner, Maine. Written public comments may be sent to the regional office in Augusta where the application is filed for public inspection. MDEP, Central Maine Regional Office, 17 State House Station, Augusta, Maine 04333

FORM C 05/06

Public Notice Filing and Certification

The DEP Rules, Chapter 2, require an applicant to provide public notice for all Stormwater Law projects with the exception of minor revisions and condition compliance applications. In the notice, the applicant must describe the proposed activity and where it is located. **"Abutter"** for the purposes of the notice provision means any person who owns property that is BOTH (1) adjoining and (2) within one mile of the delineated project boundary, including owners of property directly across a public or private right of way.

1. **Newspaper:** You must publish the Notice of Intent to File in a newspaper circulated in the area where the activity is located. The notice must appear in the newspaper within 30 days prior to the filing of the application with the Department. You may use the attached Notice of Intent to File form, or one containing identical information, for newspaper publication and certified mailing.

2. **Abutting Property Owners:** You must send a copy of the Notice of Intent to File by certified mail to the owners of the property abutting the activity. Their names and addresses can be obtained from the town tax maps or local officials. They must receive notice within 30 days prior to the filing of the application with the Department.

3. **Municipal Office:** You must send a copy of the Notice of Intent to File and a **duplicate of the entire application** to the Municipal Office.

   ATTACH a list of then names and addresses of the owners of abutting property.

CERTIFICATION

By signing below, the applicant or authorized agent certifies that:

1. A notice of Intent to File was published in a newspaper circulated in the area where the project site is located within 30 days prior to filing the application;
2. A certified mailing of the Notice of Intent to File was sent to all abutters within 30 days of the filing of the application.
3. A certified mailing of the Notice of Intent to File, and a duplicate copy of the application was sent to the town office of the municipality in which the project is located; and
4. Provided notice of, if required, and held a public informational meeting in accordance with Chapter 2. Rules Concerning the Processing of Applications, Section 14, prior to filing the application. Notice of the meeting was sent by certified mail to abutters and to the town office of the municipality in which the project is located at least ten days prior to the meeting. Notice of the meeting was also published once in a newspaper circulated in the area where the project site is located at least seven days prior to the meeting.

The Public Informational Meeting was held on N/A.
Date

Approximately N/A members of the public attended the Public Informational Meeting.

Signature of Applicant or authorized agent

Date

FORM D 5/2017

Fee Worksheet

Use this form to help determine the permit fee. The fee is based upon the amount of disturbed area associated with the project. THE EXAMPLE BELOW IS NOT BASED ON CURRENT FEES. To determine current stormwater licensing fees, please visit the Department's website at: http://www.maine.gov/dep/permits/

NOTE: Ditches, swales, ditch turn-outs, level spreaders, and similar Best Management Practices (BMPs) used solely to convey or discharge water to a vegetated buffer are not considered, by themselves, to constitute structural BMPs, provided that the applicant assumes that all water quality treatment takes place in the buffer. If any treatment is assumed within the BMPs used to convey water to the buffer, they are treated as structural BMPs for the purposes of determining the applicable fee (and review period). "Disturbed area" and "impervious area" are defined in Chapter 500, Section 2(F) and (L).

Example (a): If solely vegetative control measures are used (e.g. buffers), using an example fee of $250.00* for up to one acre of disturbed area, plus $125.00† for each additional whole acre of disturbed area, the total fee is calculated as shown below.

Project will create 2.34 acres of disturbed area.
Fee = $250.00+ [$125.00 x (1)] = $375.00

Your fee:

Current fee from fee schedule plus [1/2 current fee times # additional whole acres] equals application fee
$_____ + [$_____ X (____)] = $_____

Example (b): If any structural control measures are used (e.g. underdrained filters, ponds, infiltration systems), using an example fee of $500.00 for up to one acre of disturbed area, plus $250.00 for each additional whole acre of disturbed area, the total fee is calculated as shown below.

Project will create 2.34 acres of disturbed area. 1.72 ac
Fee = $500.00 + [$250.00 x (1)]. Fee = $750.00.

Your fee:

Current fee from fee schedule plus [1/2 current fee times # additional whole acres] equals application fee
1.72 acres $719 + [$359 X (0)] = $719

* The total fee for the first acre of disturbed area is obtained by combining the processing and licensing fees contained in the current fee schedule.

† The fee for each additional whole acre of disturbed area is one-half the combined processing and licensing fee.

Submittal Checklist

Submissions for all stormwater projects, as applicable, except stormwater PBR:

- ☑ Completed application form with signatures
- ☑ Fee worksheet & fee
- ☑ Professional & notice certification
- ☑ Notice of intent to file
- ☑ Proof of title, right, or interest
- ☑ Certificate of Good Standing (corporations only)
- ☑ Photos of the project site

Basic standards submissions:

- ☑ Erosion and sedimentation control plan
  - ☑ Location plan
  - ☑ Site details
- ☑ Inspection and maintenance plan
  - ☑ List of measures
  - ☑ Inspection & maintenance tasks
  - ☑ Task frequency
  - ☑ Responsible parties
  - ☑ Maintenance plans
- ☑ Housekeeping plan

General standards submissions:

- ☑ Narrative
- ☑ Drainage plans
- ☑ Calculations
  - ☑ Water volume
  - o Buffer sizing
- ☑ Details, designs, and specification
  - ☑ Ponds
  - o Underdrained vegetated filters
  - o Infiltration systems
  - o Buffers
- ☐ Phosphorus export calculations
- ☐ Maintenance contract

Flooding standard submissions:

- ☑ Control of peak flows
- ☑ Details, designs, and specifications

Form F 05/06

Certification-Stormwater Management Law

(To be completed and sent to the DEP after the contractor and any subcontractors have been shown a copy of the approval with conditions by the developer, and the owner and each contractor and subcontractor have certified, on this form provided by the department, that the approval and conditions have been received and read, and the work will be carried out in accordance with the approval and conditions.)

Name of Applicant: _____

Town where project located: _____ **Type of Project:** _____

Permit Number _____

Work done by a contractor or subcontractor pursuant to an approval under the Stormwater Management Law may not begin before the contractor and any subcontractors have been shown a copy of the approval with conditions by the developer, and the owner and each contractor and subcontractor have certified, on this form provided by the department, that the approval and conditions have been received and read, and the work will be carried out in accordance with the approval and conditions. Completed certifications forms must be forwarded to the department. See 06-096 CMR 500(9)(A)(7).

This certification form must be completed and mailed to the Regional Licensing Manager at the appropriate regional office prior to start of construction. Separate forms may be submitted for each person, or persons may be listed on a single form. List the name, address, phone number, of each person signing the form.

I certify that I have personally received and read the approval and conditions described below, and that the work will be carried out in accordance with the approval and conditions.

Owner (Applicant) Name (typed or printed), address, and phone number:	
Signature:	

Contractor Name (typed or printed), address, and phone number:	
Signature:	

Subcontractor Name (typed or printed), address, and phone number:	
Signature:	

DEPARTMENT OF ENVIRONMENTAL PROTECTION
STORMWATER APPLICATION CHECKLIST

Applicant: G Town 2 LLC			
Project Name: G Town 2 LLC Warehouse			
Town: Gardiner			
Application Type:		☑ Stormwater	☐ Site Law
Watershed Name: Cobbossee Stream			
Watershed Type:	☐ UIS	☐ Phosphorus	☑ Neither

Project Area Information

	Existing to Remain[1]	New / Proposed	Total
Impervious (Im)	37904	19921	57825
Landscaped (Land)	44780	14136	58916
Developed (Dev)[2]	82684	34057	116741

1- If area is not subject to treatment, provide reason and show in a separate column in the Water Quality Calc table.
2- Developed area = Impervious Area + Landscaped Area

A. BASIC STANDARD

1. **Erosion and Sedimentation Controls** (Appendix A, page 32 of Chapter 500: https://www.maine.gov/sos/cec/rules/06/096/096c500.docx:)
   - Guidance in Department ESC BMP Manuals

2. **Inspection & Maintenance** (Appendix B, page 37 of Chapter 500)

   Construction Phase: Show on Plans the following:
   - Responsibility for inspection and maintenance
   - Construction schedule (how long will it take and in what sequence/critical path to build)
   - Inspection frequency
   - Scope of inspection
   - Inspector qualifications
   - Define storm event that triggers a wet weather inspection (0.5" of rain in 24 hours)
   - Documentation (3 years minimum)

   Post-Construction: Include in written I&M Plan the following:
   - Responsibility for inspection and maintenance
   - Inspection frequency for each BMP
   - Inspection form for each BMP
   - Inspector qualifications
   - Define storm event that triggers a wet weather inspection (1" of rain in 24 hours)
   - Documentation (5 years, minimum)
   - Project is subject to Department 5-Year Recertification

3. **Good Housekeeping** (Appendix C, page 41 of Chapter 500)
   - Show all seven elements on Plans.

B. GENERAL STANDARD

Must provide the following on WQ Treatment Plan: All BMPs with subcatchments including time of concentration (Tc) lines, flow lengths and flow types.

1. **Soil Explorations** (test pit completed by a certified soil scientist) at each proposed BMP
   - Include test pit summary table on detail plan.
   - If there is potential ledge, address in design.
   - If shallow groundwater, address in design.

2. **Treatment Standards** (modify to fit project): Fill out the following table for the applicable standards that apply.

Applicable Standard	Section in Ch. 500	Required Treatment (Im / Dev)	Area Eligible		Area Treated		Provided Treatment %	
			Im	Dev	Im	Dev	Im	Dev
General Standard	4(C)(2(a)(i)	95% / 80%	64587	74798	67805	68005	95.3	90.9
Increased Runoff Treated[1]	4(C)(2)(a)(ii)	90% / 80% min						
% Parcel Developed[2]	4(C)(2)(a)(iii)	90% / 75% min						
Redevelopment[3] (Dev Area)	4(C)(2)(d)	0% min (SW) 50% min (Site)						
Linear	4(C)(5)(c)	75% / 50% min						
Other: Offsite Treatment/Mitigation								
Project Total Area =			64587	74798	67805	68005	95.3	90.9

1- If proposing to treat more than the first flush, state why meeting Ch. 500, § 4(C)(2(a)(i) is not practicable.
2- Reduced % based on portion of parcel developed.
3- Include pollutant impact ranking calculations (current and proposed) and a figure showing the Redevelopment window.

3. **Proposed BMPs:** Please provide the following information on the Table below for EACH BMP.

BMPs Proposed	#	Pretreatment	Sizing calcs	Detail on Plans[1]	CPV Draindown Time	HydroCAD
Soil Filter Pond	1	ditching	attached	included	Regression	attached

1- BMP details (cross sections, elevation sections, plan view)

Link to Stormwater Design BMP Volumes I, II, III
https://www.maine.gov/dep/land/stormwater/stormwaterbmps/index.html

- Provide Construction Oversight Notes.
- If BMP is unlined, review and satisfy (Appendix E Sections 4(b) and 4(c), page 50 of Chapter 500).
- Treatment buffers (Appendix F, page 56 of Chapter 500): must provide sample deed restriction (Appendix G, page 64 of Chapter 500).
- Infiltration must satisfy Appendix D, page 44 of Chapter 500.
- Is conveyance designed to a 10-year, 24-hour storm?
- Is a drainage easement required for any areas to be flooded?
- Discharge to a public storm sewer system: Must provide authorization from the authority.

If proposing Proprietary BMPs, provide:

- Letter from vendor approving sizing and siting https://www.maine.gov/dep/land/stormwater/stormwaterbmps/index.html.
- Executed 5-Year I&M Agreement with a provider approved by vendor.
- Narrative section and specific inspection forms in the written I&M Plan.
- Pervious pavement: Must provide Executed 5-Year I&M Agreement and vacuum equipment used.

C. PHOSPHORUS STANDARD

MUST provide on the WQ Treatment Plan: BMPs with subcatchments including time of concentration (Tc) lines, flow lengths and flow types;

Provide export calculations clearly showing distinct BMPs: Phosphorus Table Calculations Worksheet 4 july 2015.xlsx.

D. FLOODING STANDARD

1. Add pre- and post- peak flow rates table to post development plan for storms (2-, 10-, 25-year).
2. Is primary access road passable up to a 25-year, 24-hour storm?
3. If requesting a waiver of the Flooding Standard, must state justification for the waiver.
4. HydroCad or other runoff model
   - If post peak flow rate is > pre-peak flow, a waiver request will be needed with justification Ch. 500, § 4(F)(3)(a) or (b),
   - If discharging to wetland see Chap. 500, § 4(I).

This checklist has been designed by DEP stormwater engineers as a guidance tool to assist applicants and their consultants when preparing stormwater applications. Completing the checklist is recommended and valuable, but it is not a substitute for reviewing Ch. 500, and completing all the items on the checklist does not automatically mean all the Ch. 500 requirements have been satisfied. The contents of Ch. 500 should be reviewed carefully for the applicable requirements that apply to your proposed project.

I have reviewed this checklist and included in my submission all the required elements of this checklist that apply to the proposed project.

Maine Engineer of Record:

Stephen Roberge 08-16-2023

Signature **Date**

Stephen Roberge

Name (print)

MAINE
Department of the Secretary of State
Bureau of Corporations, Elections and Commissions

Corporate Name Search

Information Summary

Subscriber activity report

This record contains information from the CEC database and is accurate as of: Wed Aug 16 2023 10:13:38. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
G TOWN 2 LLC	20237502DC	LIMITED LIABILITY COMPANY (DOMESTIC)	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
09/16/2022	N/A	MAINE

Other Names **(A=Assumed ; F=Former)**

NONE

Clerk/Registered Agent

EVAN SPENCER
130 TURKEY LN
WINTHROP, ME 04364

New Search

Click on a link to obtain additional information.

List of Filings	View list of filings	
Obtain additional information:		
Certificate of Existence (more info)	Short Form without amendments ($30.00)	Long Form with amendments ($30.00)

You will need Adobe Acrobat version 3.0 or higher in order to view PDF files.
If you encounter problems, visit the troubleshooting page.

Get Acrobat Reader

If you encounter technical difficulties while using these services, please contact the Webmaster. If you are unable to find the information you need through the resources provided on this web site, please contact the Division of Corporations, UCC & Commissions Reporting and Information

Department of Environmental Protection
Bureau of Land Resources
17 State House Station
Augusta, Maine 04333
Telephone: 207-287-7688

FOR DEP USE
ATS #_____
L-_____
Total Fees: _____
Date Received: _____

APPLICATION FOR A NATURAL RESOURCES PROTECTION ACT PERMIT

[1] **Name of Applicant:** G Town 2 LLC	[5] **Name of Agent:** Steve Roberge, SJR Engineering Inc.
[2] **Applicant's Mailing Address:** 43 Black Point Lane, Manchester, Me 04351	[6] **Agent's Mailing Address:** 16 Thurston Drive Monmouth, ME 04259
[3] **Applicant's Daytime Phone:** Robin Spencer: 207-242-0300	[7] **Agent's Daytime Phone:** 207-242-6248
[4] **Applicant's Email Address:** robinspencermaine@gmail.com	[8] **Agent's Email Address:** steve@sjreng.com

[9] **Location of Activity (nearest Road, Street, Rt.#):** Marks Lane	[10] **Town:** Gardiner	[11] **County:** Kennebec

[12] Type of Resource: (Check all that apply)
- ☐ River, stream or brook
- ☐ Great Pond
- ☐ Coastal Wetland
- ☑ Freshwater Wetland
- ☐ Wetland Special Significance
- ☐ Significant Wildlife Habitat
- ☐ Fragile Mountain

[13] Name of Resource: No name

[14] Amount of Impact (sq. ft.):
Fill: 3556 sf
Dredging/Veg Removal/Other:

[15] Type of Wetland: (Check all that apply)
- ☐ Forested
- ☑ Scrub Shrub
- ☐ Emergent
- ☐ Wet Meadow
- ☐ Peatland
- ☐ Open Water
- ☐ Other_____

FOR FRESHWATER WETLANDS

Tier 1	*Tier 2*	*Tier 3*
☑ 0 – 4,999 sq. ft. ☐ 5,000 – 9,999 sq. ft. ☐ 10,000 – 14,999 sq. ft.	☐ 15,000 – 43,560 sq. ft.	☐ > 43,560 sq. ft. or ☐ Smaller than 43,560 sq. ft., not eligible for Tier 1

[16] Proposed Start Date and Brief Activity Description:
The project will start construction once all permits have been obtained. The project will be to construct a new 15,000 sf warehouse with associated paving/grading for vehicular movement.

[17] Size of Lot or Parcel & UTM Locations: ☐ _____ square feet, or 2.68 acres UTM Northing:_____UTM Easting:_____

[18] Title, Right or Interest:
☑ Own ☐ Lease ☐ Purchase Option ☐ Written Agreement

[19] **Deed Reference Numbers:** Book: 14619 Page: 46	[20] **Map and Lot Numbers:** Map: 16 Lot: 5
[21] **DEP Staff Previously Contacted:** Cameron Dufour, site visit	[22] **Part of a larger project:** ☐ Yes ☑ No **After-the-Fact:** ☐ Yes ☑ No

[23] **Resubmission of Application?** ☐ Yes ☑ No	**If yes, previous application #:**	**Previous project manager:** None
[24] **Written Notice of Violation?** ☐ Yes ☑ No	**If yes, name of DEP enforcement staff involved:**	[25] **Previous Wetland Alteration:** ☐ Yes ☑ No

[26] Detailed Directions to the Project Site:
The parcel is located at the intersection of Brunswick Avenue and Marks Lane.

[27] TIER 1
- ☑ Title, right or interest documentation
- ☑ Topographic Map
- ☑ Narrative Project Description
- ☑ Plan or Drawing (8 1/2" x 11")
- ☑ Photos of Area
- ☑ Statement of Avoidance & Minimization
- ☑ Statement/Copy of cover letter to MHPC

TIER 2/3 AND INDIVIDUAL PERMITS
- ☐ Title, right or interest documentation
- ☐ Topographic Map
- ☐ Copy of Public Notice/Public Information Meeting Documentation
- ☐ Wetlands Delineation Report (Attachment 1) that contains the Information listed under Site Conditions
- ☐ Alternatives Analysis (Attachment 2) including description of how wetland impacts were Avoided/Minimized
- ☐ Erosion Control/Construction Plan
- ☐ Functional Assessment (Attachment 3), if required
- ☐ Compensation Plan (Attachment 4), if required
- ☐ Appendix A and others, if required
- ☐ Statement/Copy of cover letter to MHPC
- ☐ Description of Previously Mined Peatland, if required

FEES, CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2

[28] FEES

FEE: I will pay the Natural Resources Protection Act Permit fee (https://www.maine.gov/dep/feeschedule.pdf) by:

☒ **Credit Card** – Pay online through the **Payment Portal.** **(Attach payment confirmation when filing this application form.)**

☐ **Check** – Fill in all the information below and mail a copy of this form (without attachments) and a check made payable to "Treasurer, State of Maine," to: Maine DEP, 17 State House Station, Augusta, ME 04333-0017.

Name: Stephen Roberge **Phone:**(207) 242-624{ **Ext.** **Check #:** **Email Filing Date:**

IMPORTANT
IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following:

DEP SIGNATORY REQUIREMENT

PRIVACY ACT STATEMENT

Authority: 33 USC 401, Section 10; 1413, Section 404. Principal Purpose: These laws require permits authorizing activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Disclosure: Disclosure of requested information is voluntary. If information is not provided, however, the permit application cannot be processed nor a permit be issued.

CORPS SIGNATORY REQUIREMENT

USC Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry shall be fines not more than $10,000 or imprisoned not more than five years or both. I authorize the Corps to enter the property that is subject to this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

DEP SIGNATORY REQUIREMENT

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the address located on the front page of this application (see #4 for the applicant and #8 for the agent)."

_____ Date: _____
SIGNATURE OF AGENT/APPLICANT

Signature of Agent: _____ Date: _____

NOTE: Any changes in activity plans must be submitted to the DEP and the Corps in writing and must be approved by both agencies prior to implementation. Failure to do so may result in enforcement action and/or the removal of the unapproved changes to the activity.

DEPARTMENT OF ENVIRONMENTAL PROTECTION
PERMIT BY RULE NOTIFICATION FORM

(For use with DEP Regulation, Natural Resources Protection Act - Permit by Rule Standards, Chapter 305)

APPLICANT INFORMATION (Owner)		AGENT INFORMATION (If Applying on Behalf of Owner)	
Name:	G Town 2 LLC (Robin Spencer)	Name:	SJR Engineering (Steve Roberge)
Mailing Address:	43 Black Point Lane	Mailing Address:	16 Thurston Drive
Mailing Address:		Mailing Address:	
Town/State/Zip:	Manchester, Me 04351	Town/State/Zip:	Monmouth, Maine 04259
Daytime Phone #:	(207) 242-0030 Ext:	Daytime Phone #:	207-242-6248 Ext:
Email Address:	robinspencermaine@gmail.com	Email Address:	steve@sjreng.com

PROJECT INFORMATION

Part of a larger project? (check 1):	☐ Yes ☑ No	After the Fact? (check 1):	☐ Yes ☑ No	Project involves work below mean low water? (check 1):	☐ Yes ☑ No	Name of waterbody:	NA
Project Town:	Gardiner	Town Email Address:				Map and Lot Number:	Map 16, Lot 5
Brief Project Description:	We are proposing adding another warehouse building and grading within the 75-25' setback from a stream. This area is already disturbed and is in a brush condition from previous disturbance.						
Project Location & Brief Directions to Site:	Project is located at the intersection of Marks Lane and Brunswick Avenue in Gardiner.						

PERMIT BY RULE (PBR) SECTIONS (Check at least one): I am filing notice of my intent to carry out work that meets the requirements for Permit-by-Rule (PBR) under DEP Rules, Chapter 305. I and my agent(s), if any, have read and will comply with all of the standards in the Sections checked below.

- ☑ **Sec. (2) Act. Adj. to Prot. Natural Res.**
- ☐ **Sec. (3) Intake Pipes**
- ☐ **Sec. (4) Replacement of Structures**
- ☐ **Sec. (6) Movement of Rocks or Veg.**
- ☐ **Sec. (7) Outfall Pipes**
- ☐ **Sec. (8) Shoreline Stabilization**
- ☐ **Sec. (9) Utility Crossing**
- ☐ **Sec. (10) Stream Crossing**
- ☐ **Sec. (11) State Transportation Facilities**
- ☐ **Sec. (12) Restoration of Natural Areas**
- ☐ **Sec. (13) F&W Creat./Water Qual. Improv.**
- ☐ **Sec. (15) Public Boat Ramps**
- ☐ **Sec. (16) Coastal Sand Dune Projects**
- ☐ **Sec. (17) Transfer/Permit Extension**
- ☐ **Sec. (18) Maintenance Dredging**
- ☐ **Sec. (19) Act. Near SVP Habitat**
- ☐ **Sec. (20) Act. Near Waterfowl/Bird Habitat**

NOTE: Municipal permits also *may* be required. Contact your local code enforcement office for information. Federal permits may be required for stream crossings and for projects involving wetland fill. Contact the Army Corps of Engineers at the Maine Project Office for information.

NOTIFICATION FORMS CANNOT BE ACCEPTED WITHOUT THE NECESSARY ATTACHMENTS AND FEE

- ☑ ***Attach*** **all required submissions for the PBR Section(s) checked above. The required submissions for each PBR Section are outlined in Chapter 305 and may differ depending on the Section you are submitting under.**
- ☑ ***Attach*** a location map that clearly identifies the site (U.S.G.S. topo map, Maine Atlas & Gazetteer, or similar).
- ☑ ***Attach*** *Proof of Legal Name* if applicant is a corporation, LLC, or other legal entity. Provide a copy of Secretary of State's *registration information* (available at http://icrs.informe.org/nei-sos-icrs/ICRS?MainPage=x). Individuals and municipalities are not required to provide any proof of identity.

FEE: Pay by credit card at the Payment Portal. The Permit-by-Rule fee may be found here https://www.maine.gov/dep/feeschedule.pdf and is currently $266.

- ☑ ***Attach*** **payment confirmation from the Payment Portal when filing this notification form.**

Signature & Certification:

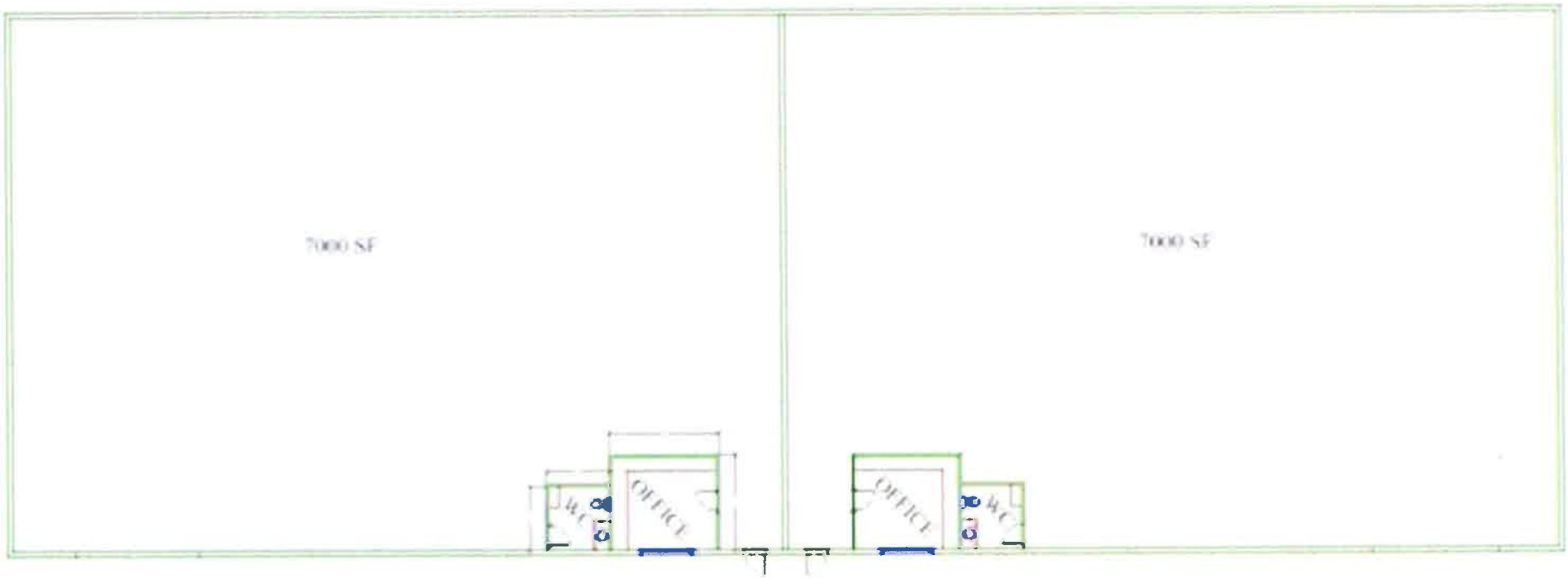
- I authorize staff of the Departments of Environmental Protection, Inland Fisheries & Wildlife, and Marine Resources to access the project site for the purpose of determining compliance with the rules.
- I understand that this PBR becomes effective 14 calendar days after receipt by the Department of this completed form, the required submissions, and fee, *unless the Department approves or denies the PBR prior to that date.*

By signing this Notification Form, I represent that the project meets all applicability requirements and standards in Chapter 305 rule and that the applicant has sufficient title, right, or interest in the property where the activity takes place.

Signature of Agent or Applicant (may be typed):	Stephen Roberge, Agent for Owner	Date:	

Keep a copy as a record of permit. Email this completed form with attachments to DEP at: DEP.PBRNotification@maine.gov. DEP will send a copy to the Town Office as evidence of DEP's receipt of notification. No further authorization will be issued by DEP after receipt of notice. A PBR is valid for two years, except Section 4, "Replacement of Structures," are valid for three years. **Work carried out in violation of the Natural Resources Protection Act or any provision in Chapter 305 is subject to enforcement.**

Building Construction Plans


7000 SF
7000 SF
OFFICE
WC
OFFICE
WC

1 Marks lane Construction estimates:

- Spray Foam: $130,880.00 (Seal It insulation. Building comes with insulation will likely not need this)
- Building: $215,000.00 (Country wide Steal)
- Labor: 50,000
- Site work: $100,000.00 - Cody Lyons
- Concrete: $142,000.00 LAjoie's
- Pavement: 100,000 Commercial paving- Lushie
- Doors: 25,000 Lee's Garage doors- Gardiner
- Electrical: 40,000 Boivin
- Plumbing: 40,000 Lee Buzzel
- HVAC 125,0000 Lee Buzzel

Total: $837,000.00

Soft Costs Paid for: Engineering $30,00.00 Steve Roberge
Renderings: $1,000.00
Floor Plans: $1,000.00

Site Construction Plans