



SURVEYING ENGINEERING LAND PLANNING

Northeast Civil Solutions

INCORPORATED

www.northeastcivilsolutions.com

December 21, 2020

Amanda Lessard, Planning Director
Town of Windham
8 School Street
Windham, Maine 04062
allessard@windhammaine.us
(207)894-5960, ext. 2

**RE: Site Plan – Final Plan Submission, Fielding Condos
Fielding's Oil Co., Inc. (Bill Fielding)**

Dear Ms. Lessard:

Northeast Civil Solutions, Inc. (NCS) is pleased to present the attached preliminary plan submission for Site Plan review by the Planning Board on behalf of the property owner, Fielding's Oil Co., Inc, a Maine corporation owned and operated by Bill Fielding. The property is located on U.S. Route 302 (Roosevelt Trail) and is identified on the Town of Windham Tax Map 51 as Lot 4 is in the Commercial 1 (C1) Zoning District. The property has been surveyed and is not in the Shoreland or Resource Protection zones.

The existing lot is vacant land, partially cleared of trees and has no current use or existing developed area.

The proposed developed consists of a 24-unit multi-family condominium building, accessory storage buildings along with parking and stormwater facilities. Water will be provided by a connection into the public line from Rt. 302, similarly the electrical and gas services will come from Rt. 302. Sanitary drainage systems will be provided onsite through a series of septic tanks and leach fields. Ability to serve letters for each public utility will be forwarded to the planning department when they are received.

The number of units proposed for this development exceeds the typical maximum density for a project that involves underground leach fields and a waiver from the Division of Environmental Health (DEH) will be required in order for this proposal to move forward. While the waiver has not been approved as of this submission, it has been designed and submitted for review. Based on preliminary soil testing, groundwater data and initial talks with the DEH the waiver has a great chance of being approved. Longview Partners will be coordinating the waiver and providing HHE-200 design for the development. They also have also assessed the site for potential wetlands and environmentally sensitive areas and have found none.

Traffic and stormwater reports are included in this submission package and there are no anticipated performance standard or submission requirement waivers anticipated at this time.

The layout of the building and parking allow for the maximum use of the property while also retaining the opportunity for a future connection with neighboring properties. More than two spaces are provided per unit which has been clustered along the driveway and rear of the building to help buffer parking lot from Rt. 302. Accessible and temporary parking spots are included in the layout.

We are also proposing to construct the building in two phases, the front portion, containing 12 units, will be built first. Then once up and operating the second half of the building will be constructed. The full parking and stormwater components along with the road extension will be fully constructed as part of phase one of construction.

Landscaping is proposed throughout the development and designed with the assistance of a Landscape Architect. Mainly focused around the proposed parking landscaping will also help buffer the property from neighbors and passing vehicles.

Stormwater will be handled through a series of underground detention and infiltration systems with an overflow that discharges into the adjacent drainage system within Rt. 302. Please see the stormwater management report for more details. A Maine Department of Environmental Protection (DEP) Stormwater Permit by Rule (PBR) has been submitted to the state for review.

If you have any additional questions or comments regarding this Site Plan or Use Permit, please feel free to contact me at any time. We look forward to reviewing this project with the Board at the earliest opportunity. Thank you.

Sincerely,
Northeast Civil Solutions, Inc.

A handwritten signature in black ink, appearing to read 'Travis Letellier', written over a circular stamp or seal.

Travis Letellier, P.E.
Director of Engineering

CC: Jim Fisher, NCS President
Bill Fielding, Owner

TOWN OF WINDHAM MAJOR SITE PLAN APPLICATION

Final Plan

(Section 811 – Site Plan Review, Submission Requirements)

The original signed copy of this application must be accompanied by:

- The required application and review escrow fees,
- Five (5) collated submission packets, which must include
 - Full size paper copies of each plan, map, or drawing, and
 - A bound copy of the required information found in Section 811 of the Land Use Ordinance.
 - The checklist below offers a brief description of these requirements for the purpose of determining the completeness of a submission. Please use the Ordinance for assembling the submission packets.
 - Only two (2) full copies of Stormwater Management Plan and Traffic Impact Study are required. Summaries and conclusions of the Stormwater Management Plan and Traffic Impact Study are adequate for the remaining three (3) submission packets.
- Electronic submission in PDF format of:
 - All plans, maps, and drawings.
 - These may be submitted as a single PDF file or a PDF for each sheet in the plan set.
 - A PDF of the required information found in Section 811 of the Land Use Ordinance

The submission deadline for Final plans is three (3) weeks before the Planning Board meeting for which it will be scheduled.

Applicants are strongly encouraged to schedule a brief submission meeting with Planning Staff, to walk through the application checklist at the time a Planning Board submission is made. This will allow applicants to receive a determination of completeness, or a punch list of outstanding items, at the time a submission is made.

If you have questions about the submission requirements, please contact:

Windham Planning Department	(207) 894-5960, ext. 2
Jenn Curtis, Planner	jcurtis@windhammaine.us
Amanda Lessard, Planning Director	allessard@windhammaine.us

Final Plan - Major Site Plan

Project Name: Fielding Apartments

Tax Map: 51 **Lot:** 4-1

Estimated square footage of building(s): 34,600 gfa

If no buildings proposed, estimated square footage of total development: n/a

Is the total disturbance proposed > 1 acre? ☒ **Yes** ☐ **No**

Contact Information

1. Applicant

Name: Fielding's Oil Co., Inc. (Bill Fielding)

Mailing Address: 420 U.S. Route 1, Scarborough, ME 04074

Telephone: 207-318-4020 **Fax:** _____ **E-mail:** bill@fieldingsoil.com

2. Record owner of property

☒ (Check here if same as applicant)

Name: _____

Mailing Address: _____

Telephone: _____ **Fax:** _____ **E-mail:** _____

3. Contact Person/Agent (if completed and signed by applicant's agent, provide written documentation of authority to act on behalf of applicant)

Name: Brandon Binette

Company Name: Northeast Civil Solutions Inc.

Mailing Address: _____

Telephone: 207-883-1000 **Fax:** 207-883-1001 **E-mail:** brandon.binette@northeastcivilsolutions.com

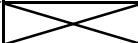

I certify all the information in this application form and accompanying materials is true and accurate to the best of my knowledge.

Signature

Date

Final Plan - Major Site Plan: Submission Requirements		Applicant	Staff
a.	Complete Sketch Plan Application form	✓	
b.	Evidence of payment of application and escrow fees	✓	
c.	Written information - submitted in bound report		
1	A narrative describing the proposed use or activity	✓	
2	Name, address, & phone number of record owner, and applicant if different	✓	
3	Names and addresses of all abutting property owners	✓	
4	Documentation demonstrating right, title, or interest in property	✓	
5	Copies of existing proposed covenants or deed restrictions	✓	
6	Copies of existing or proposed easements on the property	✓	
7	Name, registration number, and seal of the licensed professional who prepared the plan, if applicable	✓	
8	Evidence of applicant's technical capability to carry out the project	✓	
9	Assessment of the adequacy of any existing sewer and water mains, culverts and drains, on-site sewage disposal systems, wells, underground tanks or installations, and power and telephone lines and poles on the property	✓	
10	Estimated demand for water supply and sewage disposal	✓	
11	Provisions for handling all solid wastes, including hazardous and special wastes	✓	
12	Detail sheets of proposed light fixtures	✓	
13	Listing of proposed trees or shrubs to be used for landscaping	✓	
14	Estimate weekday AM and PM and Saturday peak hour and daily traffic to be generated by the project	✓	
15	Description of important or unique natural areas and site features, including floodplains, deer wintering areas, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, sand and gravel aquifers, and historic and/or archeological resources	✓	
16	If the project requires a stormwater permit from MaineDEP or if the Planning Board or if the Staff Review Committee determines that such information is required, submit the following:		
	stormwater calculations	✓	
	erosion and sedimentation control measures	✓	
	water quality and/or phosphorous export management provisions		
17	If public water or sewerage will be utilized, provide statement from utility district regarding the adequacy of water supply in terms of quantity and pressure for both domestic and fire flows, and the capacity of the sewer system to accommodate additional wastewater.	✓	
18	Financial Capacity		
	i. Estimated costs of development and itemize estimated major expenses	✓	
	ii. Financing (submit one of the following)		
	a. Letter of commitment to fund	✓	

	b. Self-financing		
	1. Annual corporate report		
	2. Bank Statement		
	c. Other		
	1. Cash equity commitment of 20% of total cost of development		
	2. Financial plan for remaining financing		
	3. Letter from institution indicating intent to finance	✓	
	iii. If a registered corporation a Certificate of Good Standing from:	X	X
	Secretary of State, or	✓	
	statement signed by corporate officer		
19	Technical Capacity (address both)	X	X
	i. Prior experience	✓	
	ii. Personnel	✓	
d.	Plan Requirements - Existing Conditions		
i.	Location Map adequate to locate project within the municipality	✓	
ii.	Vicinity Plan. Drawn to scale of not over 400 feet to the inch, and showing area within 250 feet of the property line, and shall show the following:	✓	
	a. Approximate location of all property lines and acreage of parcels	✓	
	b. Locations, widths and names of existing, filed or proposed streets, easements or building footprints	✓	
	c. Location and designations of any public spaces	✓	
	d. Outline of proposed subdivision, together with its street system and an indication of the future probable street system of the remaining portion of the tract	✓	
iii.	North Arrow identifying Grid North; Magnetic North with the declination between Grid and Magnetic; and whether Magnetic or Grid bearings were used	✓	
iv.	Location of all required building setbacks, yards, and buffers	✓	
v.	Boundaries of all contiguous property under the total or partial control of the owner or applicant	✓	
vi.	Tax map and lot number of the parcel or parcels on which the project is located	✓	
vii.	Zoning classification(s), including overlay and/or subdistricts, of the property and the location of zoning district boundaries if the property is located in 2 or more districts or abuts a different district.	✓	
viii.	Bearings and lengths of all property lines of the property to be developed, and the stamp of the surveyor that performed the survey.	✓	
ix.	Existing topography of the site at 2-foot contour intervals	✓	
x.	Location and size of any existing sewer and water mains, culvers and drains, on-site sewage disposal systems, wells, underground tanks or installations, and power and telephone lines and poles on the property and on abutting streets or land that may serve the development.	✓	
xi.	Location, names, and present widths of existing public and/or private streets and rights-of way within or adjacent to the proposed development	✓	
xii.	Location, dimensions, and ground floor elevation of all existing buildings	✓	

xiii.	Location and dimensions of existing driveways, parking and loading areas, walkways, and sidewalks on or adjacent to the site.	✓	
xiv.	Location of intersecting roads or driveways within 200 feet of the site.	✓	
xv.	Location of the following:		
	a. Open drainage courses	✓	
	b. Wetlands	✓	
	c. Stone walls	✓	
	d. Graveyards		
	e. Fences	✓	
	f. Stands of trees or treeline, and	✓	
	g. Other important or unique natural areas and site features, including but not limited to, floodplains, deer wintering areas, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural communities and natural areas, sand and gravel aquifers, and historic and/or archaeological resources	✓	
xvi.	Direction of existing surface water drainage across the site	✓	
xvii.	Location, front view, dimensions, and lighting of existing signs	✓	
xviii.	Location & dimensions of existing easements that encumber or benefit the site	✓	
xix.	Location of the nearest fire hydrant, dry hydrant, or other water supply	✓	
Plan Requirements - Proposed Development Activity			
i.	Location and dimensions of all provisions for water supply and wastewater disposal, and evidence of their adequacy for the proposed use, including soils test pit data if on-site sewage disposal is proposed	✓	
ii.	Grading plan showing the proposed topography of the site at 2-foot contour intervals	✓	
iii.	Direction of proposed surface water drainage across the site and from the site, with an assessment of impacts on downstream properties.	✓	
iv.	Location and proposed screening of any on-site collection or storage facilities	✓	
v.	Location, dimensions, and materials to be used in the construction of proposed driveways, parking and loading areas, and walkways, and any changes in traffic flow onto or off-site	✓	
vi.	Proposed landscaping and buffering	✓	
vii.	Location, dimensions, and ground floor elevation of all buildings or expansions	✓	
viii.	Location, front view, materials and dimensions of proposed signs together with method for securing sign	✓	
ix.	Location and type of exterior lighting. Photometric plan to demonstrate coverage area of all lighting may be required by Planning Board.	✓	
x.	Location of all utilities, including fire protection systems	✓	
xi.	Approval block: Provide space on the plan drawing for the following words, "Approved: Town of Windham Planning Board" along with space for signatures and date	✓	

2. Major Final Site Plan Requirements		
a.	Narrative and/or plan describing how the proposed development plan relates to the sketch plan	✓
b.	Stormwater drainage and erosion control program showing:	✗
	1. Existing and proposed method of handling stormwater runoff	✓
	2. Direction of the flow of the runoff, through the use of arrows and a description of the type of flow (e.g. sheet flow, concentrated flow, etc.)	✓
	3. Location, elevation, and size of all catch basins, dry wells, drainage ditches, swales, retention basins, and storm sewers	✓
	4. Engineering calculations used to determine drainage requirements based on the 25-year, 24-hour storm frequency.	✓
	5. Methods of minimizing erosion and controlling sedimentation during and after construction.	✓
c.	A groundwater impact analysis prepared by a groundwater hydrologist for projects involving on-site water supply or sewage disposal facilities with a capacity of 2,000 gallons or more per day	N/A
d.	Name, registration number, and seal of the Maine Licensed Professional Architect, Engineer, Surveyor, Landscape Architect and/or similar professional who prepared the plan	✓
e.	A utility plan showing, in addition to provisions for water supply and wastewater disposal, the location and nature of electrical, telephone, cable TV, and any other utility services to be installed on the site	✓
f.	A planting schedule keyed to the site plan indicating the general varieties and sizes of trees, shrubs, and other vegetation to be planted on the site, as well as information pertaining to provisions that will be made to retain and protect existing trees, shrubs, and other vegetation	✓
g.	Digital transfer of any site plan data to the town (GIS format)	
h.	A traffic impact study if the project expansion will generate 50 or more trips during the AM or PM peak hour, or if required by the Planning Board	✓
Electronic Submission		



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Northeast Civil Solutions

INCORPORATED

www.northeastcivilsolutions.com

October 5, 2020

Whom It May Concern:

I, Bill Fielding, Principal of Fielding Oil Company, Inc., authorize Northeast Civil Solutions, Inc. to sign any and all applications, permit requests, and other paperwork in conjunction with obtaining final municipal and/or state approvals, as applicable, for my project located on Route 302 (Roosevelt Trail), Windham. This authorization is not a contract for any work to be performed; contracts or other correspondence are separate documents.

Signature

Date

10-5-2020

**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: Fri Nov 13 2020 13:19:43. Please print or save for your records.

Legal Name	Charter Number	Filing Type	Status
FIELDINGS OIL CO., INC.	19800285 D	BUSINESS CORPORATION	GOOD STANDING

Filing Date	Expiration Date	Jurisdiction
09/04/1979	N/A	MAINE

Other Names (A=Assumed ; F=Former)

ONLINE FUEL	A
CASH OIL	A
DISCOUNT FUEL	A
FIELDINGS OIL & PROPANE	A
OUR OIL FUEL	A
GOWELLS FUEL	A
PATRIOTS CASH FUEL	A
DISCOUNT ENERGY	A
FIELDING'S OIL, INC.	F

Clerk/Registered Agent

U. CHARLES REMMEL, II
KELLY, REMMEL & ZIMMERMAN
P.O. BOX 597
PORTLAND, ME 04101

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\(\\$30.00\)](#)

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amendments
\(\\$30.00\)](#)

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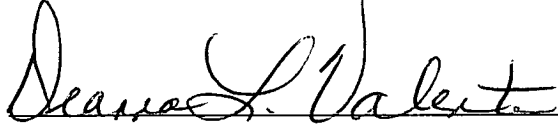
© Department of the Secretary of State

**DEED OF SALE BY PERSONAL REPRESENTATIVE
(TESTATE)
Maine Statutory Short Form**

KNOW ALL MEN BY THESE PRESENTS, THAT DEANNA L. VALENTE of Scarborough, County of Cumberland, and State of Maine, duly appointed and acting Personal Representative of the **ESTATE OF HENRY B. VALENTE**, deceased (testate), as shown by the probate records of Cumberland County, Maine, and having given notice to each person succeeding to an interest in the real property described below at least ten (10) days prior to the sale, by the power conferred by the Probate Code, and every other power, for consideration paid, grants to **FIELDING'S OIL CO., INC.**, a Maine corporation with a place of business in Scarborough, County of Cumberland, State of Maine, whose mailing address is U.S. Route 1, Scarborough, Maine 04074, the real estate situated in Windham, in the County of Cumberland, and State of Maine, more particularly bounded and described on Exhibit A attached hereto and incorporated herein by reference.

WITNESS my hand and seal this 1st day of August, 2016.

ESTATE OF HENRY B. VALENTE



**Deanna L. Valente
Personal Representative**

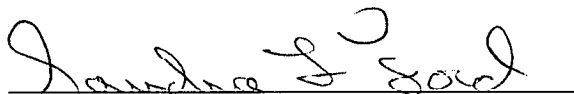
State of Maine
County of Cumberland

August 1, 2016

Before me personally appeared the above-named **Deanna L. Valente**, **Personal Representative of the Estate of Henry B. Valente**, and acknowledged the foregoing to be her free act and deed in her said capacity.

Sandra L. Ford
Notary Public, Maine
My Commission Expires September 4, 2022

Before me,



Notary Public

MAINE REAL ESTATE TAX PAID

EXHIBIT A

A certain lot or parcel of land, with no buildings thereon, situated on the westerly side of U.S. Route 302, (aka Roosevelt Trail), in the Town of Windham, County of Cumberland, and State of Maine, being more particularly bounded and described as follows:

BEGINNING at a found #5 steel rebar with survey cap #2124 on the apparent westerly sideline of said Route 302, being the northeasterly corner of the herein described lot and the southeasterly corner of land conveyed to Gary A. Pitt, Sr., (as described in a deed dated September 18, 2002 and recorded at the Cumberland County Registry of Deeds in Book 18105, Page 190);

THENCE, S 00° 03' 59" E, along said apparent sideline of U.S. Route 302, a distance of one hundred eighty and nine hundredths (180.09) feet to a set #5 steel rebar with survey cap #2389 at remaining land of Ernest P. Valente (Grantor);

THENCE N 89° 06' 29" W, along remaining land now or formerly of Ernest P. Valente a distance of one hundred twenty and no hundredths (120.00) feet set #5 steel rebar with survey cap #2389;

THENCE, N 46° 11' 15" W, along remaining land now or formerly of Ernest P. Valente, a distance of thirty-two and no hundredths (32.00) feet to a set #5 steel rebar with survey cap #2389;

THENCE, N 87° 19' 40" W, along remaining land now or formerly of Ernest P. Valente, a distance of seventy-three and six hundredths (73.06) feet to a set #5 steel rebar with survey cap #2389;

THENCE, S 85° 53' 57" W, along remaining land now or formerly of Ernest P. Valente, a distance of two hundred fifty-one and seventy-three hundredths (251.73) feet to a found #5 steel rebar with survey cap #2124 marking the northerly corner of land described in the deed to Charles R. Durost, II and Kathleen A. Durost, dated July 18, 2000, and recorded at said registry in Book 15607, Page 307, said rebar also marking the easterly corner of land now or formerly of Hill, (as described in Book 2176, Page 319);

THENCE, N 50° 03' 34" W, along said land now or formerly of Hill, a distance of two hundred and no hundredths (200.00) feet to a found #5 steel rebar with survey cap #51 marking the southeasterly sideline of land now or formerly of the Trailwood Village Condominium Association, (as recorded at said registry of deeds in Book 6904, Page 15);

THENCE, N 30° 03' 24" E, along said land now or formerly of Trailwood Village Condominium Association, a distance of forty-eight and three hundredths (48.03) feet to said land now or formerly of Pitt;

THENCE, N 89° 56' 01" E, along said land now or formerly of Pitt, a distance of five hundred ninety-six and twenty-two hundredths (596.22) feet to the point of beginning.

The herein described parcel is part of the same parcel of land which Henry B. Valente conveyed to Ernest P. Valente by deed dated December 27, 1996, and recorded at the Cumberland County Registry of Deeds in Book 12879, Page 199.

Bearings used in this description are referenced to Magnetic North 1997 as depicted on a plan entitled "Final Site Plan, Plan Showing A Standard Boundary Survey And Topographic Survey Made For Pinelyne Furniture Company, Inc., U.S. Route 302 And Page Road, Windham, Maine" by Middle Branch Professional Land Surveyors, dated April 24, 1997, last revised June 21, 1997 and recorded at the Cumberland County Registry of Deeds in Plan Book 197, Page 534.

Meaning and intending to convey and hereby conveying the same premises conveyed to Henry B. Valente by Warranty Deed of Ernest P. Valente, dated December 22, 2010, and recorded in the Cumberland County Registry of Deeds in Book 28390, Page 284. The said Henry B. Valente deceased August 19, 2014 (Cumberland County Probate Court Docket No. 2014-1235).

Received
Recorded Register of Deeds
Aug 05, 2016 11:15:33A
Cumberland County
Nancy A. Lane

Easement Deed

Deanna L. Valente, duly appointed and acting Personal Representative of the **Estate of Henry B. Valente**, of the Town of Scarborough, County of Cumberland and State of Maine, with a mailing address of 7 Edgewater Drive, Scarborough ME 04074, Docket No. 2014-1235, for consideration paid, grants to **Ernest P. Valente**, of the Town of Windham, County of Cumberland and State of Maine, with a mailing address of P. O. Box 1963, Windham ME 04062, an easement on the land situated in the Town of **Windham**, County of Cumberland and State of Maine, bounded and described as follows:

An easement for purposes of ingress and/or egress by foot or vehicle, as well as the installation and maintenance of utilities over, under and/or along the southeasterly corner of land now or formerly of Henry B. Valente as described in a deed recorded in Cumberland County Registry of Deeds in Book 28390, Page 284, and to benefit land now or formerly of Ernest P. Valente as described in deed recorded in said Registry in Book 12879, Page 199. Said easement shall run with the land and enure to the benefit of Grantees' heirs, successors and/or assigns. Said easement shall be used in common with the Grantor, or Grantor's successors and/or assigns. Until such time as said easement area shall be used in common by both parties, the Grantee shall be solely responsible for all costs of plowing, maintenance and/or repair of said easement area. At such time as the Grantor, or Grantor's successors and/or assigns, shall make use of the easement area, all costs shall be equally shared.

Said easement area being identified with hash marks on the attached Exhibit A sketch and being particularly described as follows: Beginning at a found 5/8 inch rebar with survey cap #2389 marking the apparent westerly sideline of United States Route 302, also known as Roosevelt Trail, at the southeasterly corner of said parcel of land conveyed by Ernest P. Valente to Henry B. Valente in deed dated August 19, 2014 and recorded in Cumberland County Registry of Deeds in Book 28390, Page 284, said rebar also marking the northeasterly corner of land said Ernest P. Valente (12879/199); thence North 00° 03' 59" West, along said Route 302 (Roosevelt Trail), a distance of thirty and zero hundredths (30.00') feet to a point; thence South 87° 36' 25" West, across said land of Henry B. Valente (28390/284), a distance of one hundred forty-three and seventeen hundredths feet (143.17') to a found 5/8 inch steel rebar with survey cap #2389 marking the sideline of said land of Ernest P. Valente; thence South 46° 11' 15" East, along said land of Ernest P. Valente, a distance of thirty-two and zero hundredths feet (32.00') to a found 5/8 inch steel rebar with survey cap #2389; thence South 89° 06' 29" East, along said land of Ernest P. Valente, a distance of one hundred twenty and zero hundredths feet (120.00') to the point of beginning.

The easement encompasses 3,453 square feet, or 0.08 acres, more or less. Bearings used are referenced to Magnetic North 1997 as depicted on a plan entitled "Final Site Plan, Plan Showing A Standard Boundary Survey And Topographic Survey Made For Pinelyne Furniture Company, Inc., U.S. Route 302 And Page Road, Windham, Maine" by Middle Branch Professional Land Surveyors, dated April 24, 1997, last revised June 21, 1997 and recorded at the Cumberland County Registry of Deeds in Plan Book 197, Page 534.

Reference is made to Exhibit A attached for reference purposes only.0

Witness the hand and seal of Deanna L. Valente, in her capacity as Personal Representative of the Estate of Henry B. Valente, this date: April 28, 2016.

ESTATE OF HENRY B. VALENTE

By: Deanna L. Valente
Deanna L. Valente
Personal Representative

State of Maine
Cumberland, ss.

Date: April 28, 2016

Personally appeared the above-named DEANNA L. VALENTE in her capacity as Personal Representative of the Estate of Henry B. Valente and acknowledged the foregoing instrument to be her free act and deed in said capacity and individually. Before me,

Sydney T. Gagnon

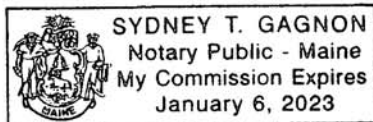
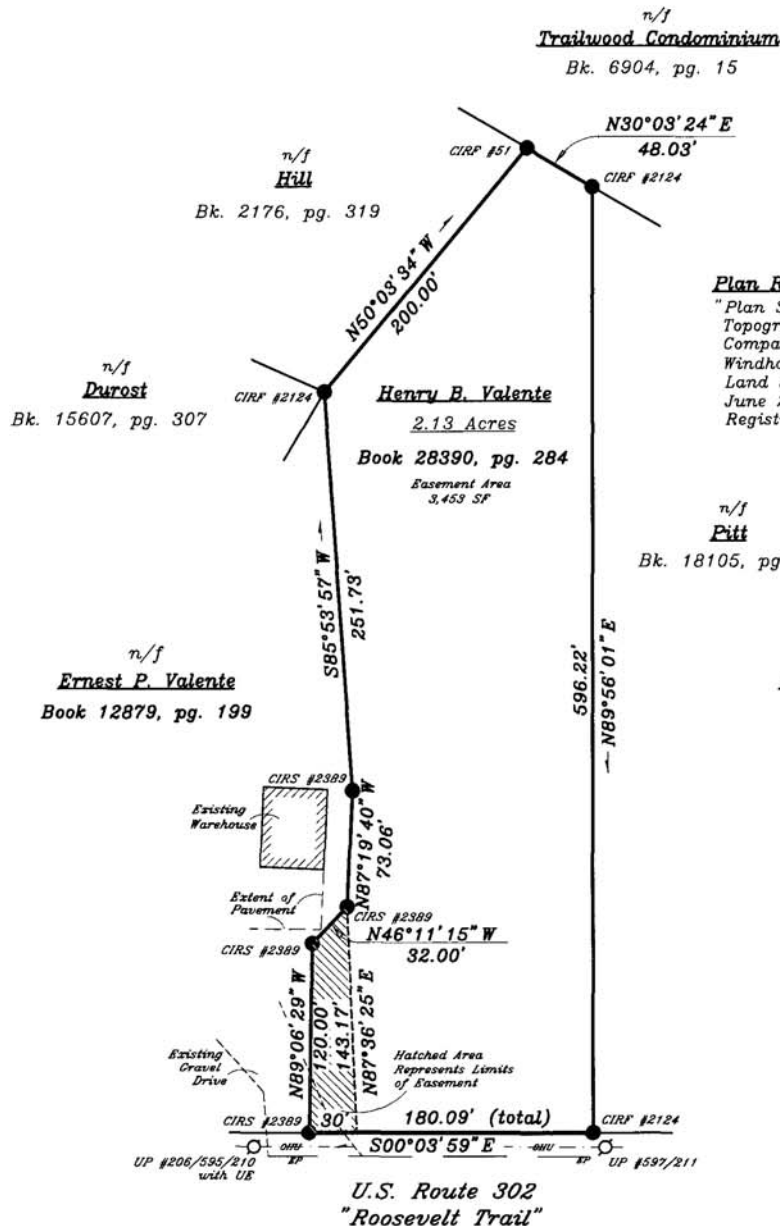


EXHIBIT A

Reference
Purposes
Only



Magnetic North 1997

Plan Reference:

"Plan Showing A Standard Boundary Survey And Topographic Survey Made For Pinelyne Furniture Company, Inc., U.S. Route 302 and Page Road, Windham, Maine." by Middle Branch Professional Land Surveyors, dated April 24, 1997, last revised June 21, 1997 and recorded at the Cumberland County Registry of Deeds in Plan Book 197, page 534.

n/f
Pitt
Bk. 18105, pg. 190

*Sketch Plan of Land of
Heirs Of Henry B. Valente
Located on U.S. Route 302
Windham, Maine*

Date: February 23, 2016 1" = 100'
Job #10562 EASE

Prepared by:

Steven C. Horne, LLC
Professional Land Surveyor
849 Main Street, Suite 400
P.O. Box 1544 Sanford, Maine 04073
207-651-1149
shorne@metrocast.net

Received
Recorded Register of Deeds
Jul 07, 2016 09:22:47A
Cumberland County
Nancy A. Lane


RELEASE & CONFIRMATORY DEED

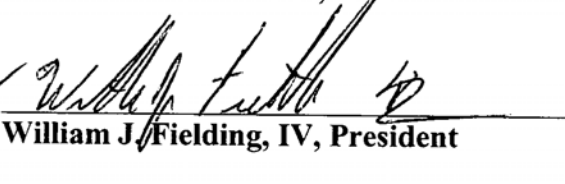
KNOW ALL MEN BY THESE PRESENTS THAT **Fielding's Oil Co., Inc.**, a Maine corporation with a principal place of business in Scarborough in the County of Cumberland and State of Maine, does hereby **RELEASES** to **Ernest P. Valente**, his heirs and assigns, all interest in and to the property described in Exhibit A attached hereto and incorporated herein by reference.

The purpose of this deed is to clarify the boundary between property of the Grantor (as described in a deed from Deanna L. Valente, Personal Representative of the Estate of Henry B. Valente, dated August 1, 2016 to be recorded herewith) and property of Ernest P. Valente (described in a deed dated December 22, 2010 recorded in said Registry of Deeds in Book 12879, Page 199).

IN WITNESS WHEREOF, **William J. Fielding, IV**, duly authorized President of **Fielding's Oil Co., Inc.** has executed this instrument this 4th day of August, 2016. t our hands and seals this 4th day of August, 2016.

FIELDING'S OIL CO., INC.


Witness


William J. Fielding, IV, President

STATE OF MAINE
Cumberland, ss.

August 4, 2016

Personally appeared the above named **William J. Fielding, IV**, President of **Fielding's Oil Co., Inc.**, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act Fielding's Oil Co., Inc.

Before me,


Notary Public

SUSAN GAGE KNEDLER
Notary Public, Maine
My Commission Expires November 22, 2018

EXHIBIT A

A certain parcel of land with no buildings thereon, in Windham, County of ^{Cumberland} ~~York~~, State of Maine, said land being situated on the westerly side of U.S. Route 302 (aka Roosevelt Trail), and being more particularly described as follows:

BEGINNING at a found #5 steel rebar with survey cap #2389 on the apparent westerly sideline of said Route 302 being the southeasterly corner of the herein described lot and being located S00°03'59"E a distance of one hundred eighty and nine hundredths feet (180.09') from a #5 steel rebar with survey cap #2124 marking the southeasterly corner of land conveyed to Gary A. Pitt, Sr. as described in a deed dated September 18, 2002 and recorded in the Cumberland County Registry of Deeds in Book 18105, Page 190;

THENCE N00°03'59"W along the apparent sideline of U.S. Route 302 a distance of twenty-five and no hundredths feet (25.00') to a #5 steel rebar to be set;

THENCE S58°27'38"W along remaining land of grantor a distance of eighteen and 64 hundredths feet (18.64') to a #5 steel rebar to be set;

THENCE S88°51'29"W continuing along remaining land of grantor a distance of one hundred fifteen and 64 hundredths feet (115.64') to a #5 steel rebar to be set on the westerly sideline of grantee land;

THENCE S46°11'15"E along land of grantee a distance of sixteen and no hundredths feet (16.00') to a #5 steel rebar with survey cap #2389;

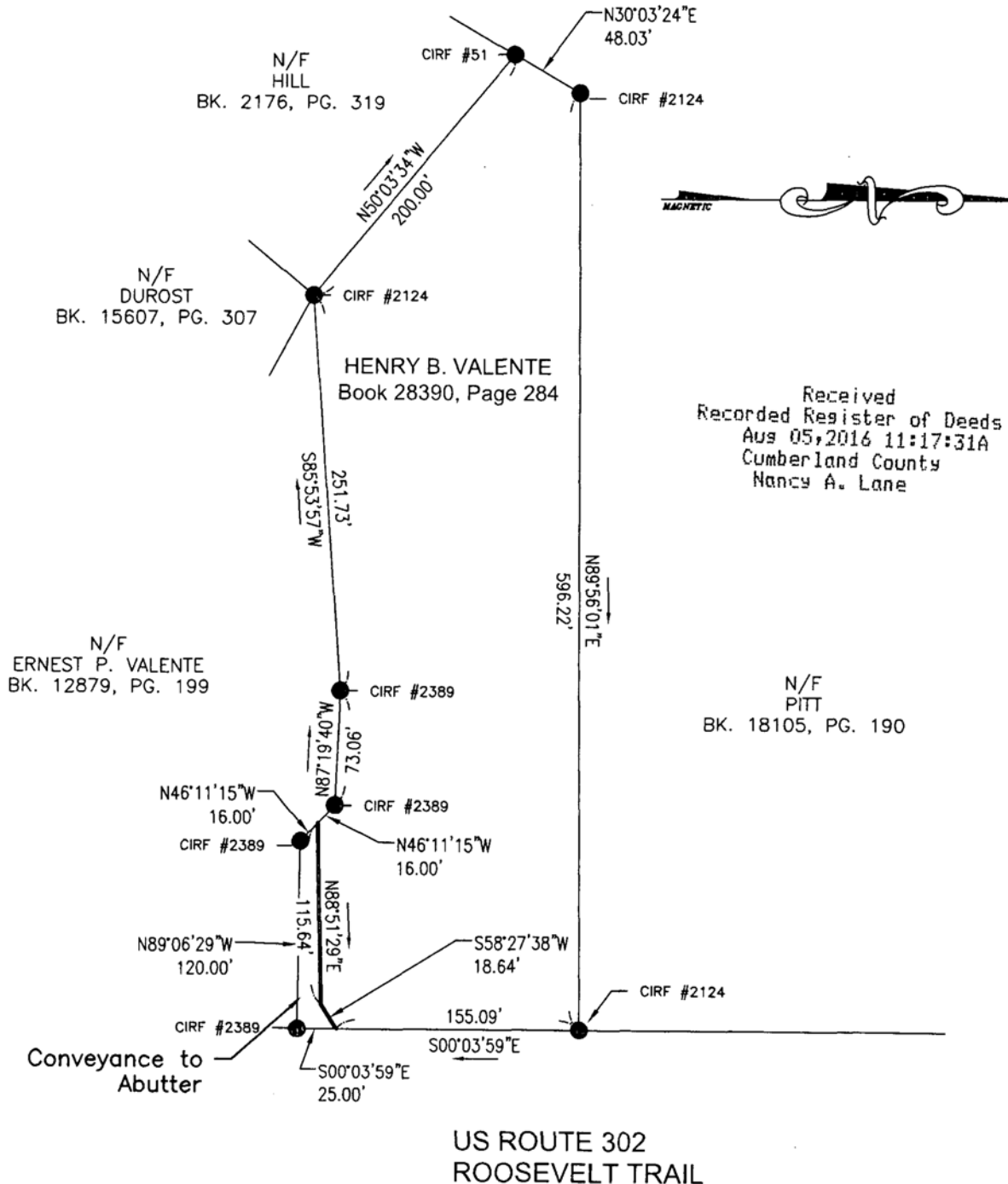
THENCE S89°06'29"E continuing along land of grantee a distance of one hundred twenty and no hundredths feet (120.00') to a #5 steel rebar with survey cap #2389 and the point of beginning.

The herein described parcel containing 1,752 square feet, more or less. The bearings used in this description are referenced to Magnetic North 1997 as depicted on a site plan entitled "Pinelyne Furniture Company, Inc.", prepared by Middle Branch Professional Land Surveyors, dated April 24, 1997 with latest revised date of June 21, 1997 and recorded at the Cumberland County Registry of Deeds in Plan Book 197, Page 534. Reference is made to Exhibit B attached hereto, Plan showing "Conveyance to Abutter" prepared by Paul P. Gadbois, Engineer, dated July 28, 2016.

WJF

EXHIBIT B

The bearings used in this description are referenced to Magnetic North 1997 as depicted on a site plan entitled "Pinelyne Furniture Company, Inc.", prepared by Middle Branch Professional Land Surveyors, dated April 24, 1997 with latest revised date of June 21, 1997 and recorded at the Cumberland County Registry of Deeds in Plan Book 197, Page 534.



"CIRF" CAPPED IRON ROD FOUND

CUSTOMER: FIELDING OIL COMPANY

LOCATION: ROOSEVELT TRAIL

TOWN: WINDHAM COUNTY: YORK STATE: MAINE

PAUL P. GADBOIS

ENGINEERING SURVEYING
LAND PLANNING

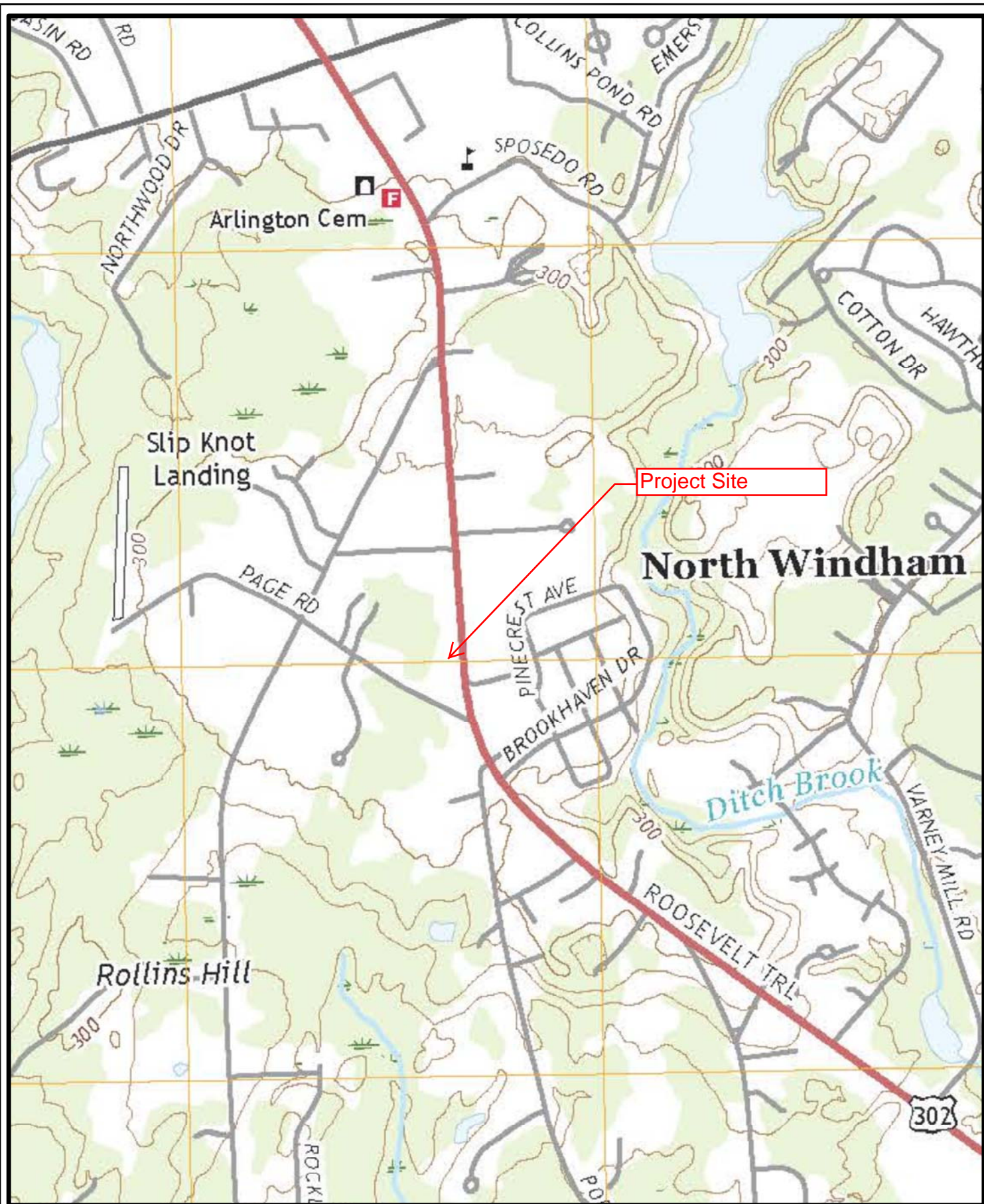
P.O. BOX 327, SAGO, MAINE 04072
(207) 283-3680

SHEET TITLE:
PROPOSED CONVEYANCE

SCALE: 1" = 100'

DATE: 8-09-16

SP 1



HORIZONTAL SCALE 1" = 1000'

0 1000' 2000'

USGS TOPO MAP

Project Name and Location:
Route 302 (Roosevelt Trail)
Windham, Maine, 04062

DATE: April 11, 2019

SHEET: 1 OF 1



SURVEYING ENGINEERING LAND PLANNING
Northeast Civil Solutions
INCORPORATED

381 PAYNE ROAD, SCARBOROUGH, MAINE 04074

tel 207.883.1000 fax 207.883.1001 e-mail info@northeastcivilsolutions.com

Zoning Summary:

Zone:	Commercial C-1
Use:	Dwelling, Multifamily (permitted use)
Lot Size:	2.09 ac – No Minimum
Net Residential Density:	No zone requirement, State of Maine minimum lot size applies

Section 400: District Standards – Commercial C1

In addition to Section 500, Performance Standards, these standards shall apply to the following uses in the Commercial District I:

A response, as to how this development meets each standard is provided in Bold below each item.

- (a) Parking. No parking shall be located within a structure's front setback area. When parking is located at the side of a building, the parking area shall not extend closer to the street than the front façade of the building. The space between the parking lot and the street shall be landscaped according to an overall plan for the property.
Parking is located to the side and rear of the property. 50 parking spaces are provided with this site, 2 per residential unit along with 2 temporary parking spots.
- (b) Aquifer Protection Overlay District. (See Subsec. 407.A or 407.B) – Aquifer Protection Overlay District and the Town's Official Map.
The property is not located within the Aquifer Protection Overlay District per the Town's official zoning map.
- (c) Building Orientation. The façade of all buildings must be oriented parallel to a front lot line.
The front façade of the building will face Rt. 302 and will provide a main entrance on this face. Please see the architectural plans for more details on the building design.
 - 1) In cases where a property has more than one front lot line is, a single building development will orient to the front lot line on the street with the higher traffic volume.
Multi-building development may orient individual buildings to different front lot lines. Only one front lot line is provided with this design.
- (d) Pedestrian Access. At least one primary entrance must be located on the building's front façade. Primary entrances must provide ingress and egress and be operable at all times the building is occupied.
The front façade will provide an entrance that will operate at all times. It will be connected to the rest of the site with a pedestrian sidewalk system and will allow for future connections to adjacent properties.
- (e) Buffer Requirement. All properties in the C1 district that abut a residential zoning district shall provide a fifty (50) foot buffer along the zoning district boundary line.
The property does not abut a residential zoning district in any direction.

- (f) Controlled Access Street. For standards pertaining to controlled access streets in the C1 District see Section 300 Definitions and Section 500 Performance Standards.
The site will be accessed by a driveway connected to Rt. 302, along with a ROW and public road that will connect to the neighboring development.
- (g) Curb Cuts. See “Curb Cuts and Driveway Openings” in Section 500 Performance Standards for additional standards applicable to the C1 District
- 1) New, enlarged or rebuilt uses on an arterial road, as defined in Section 300, shall be limited to one (1) curb cut. In addition, the following standards shall apply to these curb cuts:
 - i. A minimum centerline turning radius of 25’ must be provided.
All centerline radii are a minimum of 25’.
 - ii. A larger turning radius shall be provided if the curb cut will be used by vehicles with a wheel base of 35.8 feet or larger. In this case, the latest American Association of State Highway and Transportation Officials (AASHTO) standard shall apply.
There are no vehicles of this size anticipated to access this site.
- (h) Industry, Heavy. In the C1 district, this use shall not involve any activity defined in Section 300 as “Manufacturing, Hazardous.” (See Sec. 300 Definitions)
The proposed use is Dwelling, Multifamily, no industrial or manufacturing will occur at this site.
- (i) Minimum Lot Size. The State of Maine minimum lot size, and minimum lot size waiver, standards apply in the C1 district when the Town’s minimum lot size requirements are less restrictive than those of the State of Maine.
The site will be subject to the states minimum lot size due to its ability to dispose of wastewater. A waiver is being requested to allow the number of units proposed on this site. The septic approval will be forwarded to the Town upon receipt.
- (j) Retail Sales, Outdoor. The display or sale of products outside of a building shall meet the standards of Section 500. (See Sec. 500 Performance Standards)
No retail sales are proposed.
- (k) All new and reconstructed Streets must be built to Public Street, Commercial Street, Curbed Lane or Residential Street standards. No new Private Streets are allowed.
A public ROW and road is proposed through the back half of the property, extended the public road as approved on the neighboring lot. The proposed road will meet the same width characteristics as the neighboring lot to ensue a seamless interaction between developments.
- (l) Block Standards.
- 1) Land must be divided with Streets to create Blocks conforming with Block perimeter, below.
See response to (k) above.

- 2) Blocks should be generally rectangular in shape, but are expected to respond to natural features and the block pattern of the surrounding street network.
The proposed ROW will cut through the property at a 90-degree angle, creating a rectangular division.
 - 3) Blocks should be a minimum width so as to provide two rows of developable lots.
The proposed ROW matches the alignment of the approved road on the neighboring lot.
 - 4) Portions of development sites abutting areas of undeveloped land, areas unsuitable for development, or pre-existing incomplete blocks may be granted a waiver from the block size requirements in accordance with the provisions of Section 800 if part of a site plan or Section 900 if part of a subdivision plan.
Not applicable.
 - 5) Block perimeter. No block shall have a perimeter of more than 1,600 feet.
The block that is created with this development and the neighboring lot is currently only 1,250 feet.
- (m) Sidewalks. The following commercial development activities shall pay the North Windham Sidewalk Impact Fee in Section 1201(l) to provide safe pedestrian conditions in the Commercial 1 District:
Noted

Section 812: Performance Standards and Approval Criteria

The following criteria shall be used by the Planning Board or Site Plan Review Committee in reviewing applications for site plan review and shall serve as minimum requirements for approval of the application. The application shall be approved unless the Planning Board or Site Plan Review Committee determines that the applicant has failed to meet one or more of these standards. In all instances, the burden of proof shall be on the applicant who shall produce evidence sufficient to warrant a finding that all applicable criteria have been met.

A response, as to how this development meets each standard is provided in Bold below each item.

- A. Utilization of the Site
The existing property is very flat and about half wooded. The proposed layout takes advantage of the portion of the property that is already cleared and keeps as many trees as possible. Very little grading is necessary to develop the site and the stormwater treatment system takes advantage of very well-draining soils with a deep groundwater table.
- B. Vehicular Traffic
The site will be accessed by a driveway from Rt. 302 along with access at the rear from an extension of the neighboring public ROW through the property. 24-foot-wide drive aisles will provide access to all parking spots and access points.
- C. Parking and Loading Requirements

The site provides 2 parking stalls for each apartment along with 2 temporary parking spots, for a total of 50.

A total of 17 spaces will be provided with a dimension of 10x20 or greater, representing 34 percent of the total.

No diagonal parking or automobile storage is proposed.

D. Pedestrian Traffic

Sidewalks around the site connect building entrances to parking to the adjacent ROW's.

E. Stormwater Management

Stormwater will be controlled and treated to meet chapter 500 general standards along with retaining, on site, the 2-, 20-, and 25-year storm events. This will be achieved with a series of underground detention and infiltration systems. Within the ROW, permeable pavement will be provided withing the parking area to allow for the storage and infiltration of stormwater. Drip Edge BMP will collect an infiltrate stormwater from the roof and an underground detention system will collect and infiltrate stormwater from the parking area and drive aisle. There is no anticipated detrimental downstream effects as a result of this development.

F. Erosion Control

Erosion and sedimentation control measures are designed to meet the DEP's basic standards and are outlined on the plans and within the Stormwater PBR obtained for this project.

G. Water Supply Provisions

A connection to the public water supply is anticipated. An ability to serve letter is attached.

H. Sewage Disposal Provisions

Sewerage will be handled by an onsite septic system designed by Longview Partners, LLC. it will utilize storage tanks, distribution boxes and drainage fields that will be designed to each take less than 2,000 gallons per day. Please see the attached outline provide by Longview Partners, LLC describing the system in more detail.

I. Utilities

The development will connect to the available public utilities within Rt. 302.

J. Groundwater Protection

All septic designs are provided with this application and aim to protect groundwater in the area.

K. Water Quality Protection

There is no anticipated storage of materials on site that would cause issues with the groundwater.

L. Hazardous, Special, and Radioactive Materials

No Hazardous or otherwise toxic materials are proposed to be stored on site.

M. Shoreland Relationship

The property is not located within a shoreland zone, or near a waterbody.

N. Technical and Financial Capacity

Civil Engineer/Surveyor: Northeast Civil Solutions, Inc. (NCS) is providing site survey and site design for this project. NCS has completed numerous projects of this type and scale over the past 20 years.

Wetland and Septic: Longview Partners, LLC is providing septic designs and completing test pit and wetland investigations for the property and have also done numerous projects of this type and scale in the area over the past number of years.

Landscape Design: Barry Hosmer, PLA, ASLA, is providing the landscape designs for this project. He is located out of Portland Maine and has an extensive knowledge of native plants that are expected to thrive at this location. He has completed a number of projects in conjunction with NCS over the years.

O. Solid Waste Management

A dumpster is provided on site. The dumpster will be buffered by a stockade style fence along with landscaping. The owners within the condo development will be required to contract with a local waste hauling company.

P. Historic and Archaeological Resources

There is no indication of any historical or archaeological resources on this site. It is currently very flat and undeveloped.

Q. Floodplain Management

The property is not within a floodplain.

R. Exterior Lighting

A lighting plan is provided with this application.

S. Noise

There is no anticipated use on site that would cause noise levels to be above the limits provided in this standard.

T. Storage of Materials

There is no proposed exposed storage of any materials on site. The dumpster will be located on a level concrete slab and no hazardous or toxic materials are proposed to be stored on site. Two private storage buildings will be located on the property to be solely used by residents of the development.

Section 813: Commercial District Design Standards

The following Design Standards are hereby established for development within Windham's Commercial 1, Commercial 2, Commercial 3, and Village Commercial districts. Where there is a conflict between a provision of the Design Standards and any other provision of this Ordinance, the more restrictive provision shall apply. In addition to meeting all Design Standards required in the applicable zoning district, development must comply with a minimum of eight (8) other Design Standards. For purposes of this section, "development" shall mean that portion of the project that:

- a. is subject to site plan review under Section 800; or
This project is subject to the site plan review.
- b. will renovate twenty percent or more of the entire wall area of a structure on the site. For this type of renovation, the renovation will be subject to the required Design Standards in Section A below, but will not be subject to other required Design Standards.

Required Site Standards to be met:

- **Screening – utilities and service areas/structures**
- **Lighting/Photometric Plan**
- **Lighting coordinated with architecture**
- **Lighting coordinated with landscape**
- **Snow storage areas designated**
- **Internal walkways**
- **Links to community**
- **Sidewalks**
- **Crosswalks**
- **Bike parking/racks**

The eight (8) (minimum) additional standards that we will meet:

1. **Parking Location**
2. **Internal Traffic Flow**
3. **Orientation of Building**
4. **Screening – Utilities**
5. **Parking lot landscaping**
6. **Planting Variety**
7. **Planting Suitability**
8. **Mass Planting**
9. **Illumination levels**

A. Architecture/Building

Standards to be addressed under separate cover by Architect.

B. Site/Parking

1. **Parking Location: (optional requirement)**

All parking is located to the side and rear of the building.

***Meets Optional Standard (1)**

2. Internal traffic flow: (optional requirement)
The site plan provides for drive aisles and main driveway with a width of 24 feet. This will allow for adequate room to maneuver around the site. Loop is also created in conjunction with the public road accessed at the rear of the parking lot.
***Meets Optional Standard (2)**
 3. Interconnected parking lots: (optional standard)
There are no adjacent parking lots to connect to.
***Standard not met**
 4. Orientation of Building: (optional standard)
The proposed building is within 20 feet of the front property line with Rt. 302 and the front face of the building is pointed to the front of the lot. All parking is located to the side and rear of the proposed building
***Meets Optional Standard (3)**
 5. Screening – parking: (optional standard)
While there are no residential uses or zoned properties adjacent to our development, buffering is proposed along the boundary lines where parking is located to soften the appearance.
***Meets Optional Standard (4)**
 6. Screening – utilities and service areas/structure: (C-1 Zone Required)
The dumpster will be screened by a stockade style fence along with additional landscaping.
***Meets Required Standard**
 7. Parking Lot Landscaping: (optional standard)
While there are more than 40 parking spots on the property, the main parking area has fewer than 40 in one section. The main parking area provides 35 total spots and has landscaping islands with the equivalent to 9 parking stalls. This equals just over 20% more than meeting the design standard of 15% for a lot containing more than 40 spots.
***Meets Optional Standard (5)**
 8. Low-impact Design Stormwater: (optional standard)
The site will utilize underground detention and infiltration for stormwater treatment along with drip edges and permeable pavement, the site will not meet the standard under this section.
***Standard not met**
 9. Shared Stormwater Treatment: (optional standard)
No opportunity is available to share stormwater treatment with a neighbor.
***Standard not met**
- C. Landscaping/Lighting
1. Lighting/Photometric Plan: (C-1 Zone Required)

A lighting plan is provided from Swaney Lighting for the property

***Meets Required Standard**

2. Lighting coordinated with architecture: (C-1 Zone Required)
Site lighting works harmoniously with the proposed building to ensure pedestrian walk ways and drive aisles are property lit.
***Meets Required Standard**
3. Lighting coordinated with landscaping: (C-1 Zone Required)
Light Poles have been coordinated with proposed tree locations to ensure the parking area will be properly illuminated when the trees and other plantings reach rull maturity.
***Meets Required Standard**
4. Existing trees preserved: (C-1 Zone Required)
The back half of the property is mainly forested. The main area of development associated with this proposal is in the front portion of the property. While we will be taking down trees it will be minimized to the greatest extent possible.
***Meets Required Standard**
5. Snow storage areas designated: (C-1 Zone Required)
Snow storage areas are designated on the site plan.
***Meets Required Standard**
6. Planting variety: (optional standard)
The project has utilized a variety of shade and ornamental tree species chosen for their size, shape and growth rate specifically for their particular locations. These trees exhibit, each to varying degrees; flowers, differing foliage, fall color and berries/ seeds, producing an attractive year-round appeal and interest. Native and adapted shrubs are also utilized which, again, exhibit flowers, foliage, fall color and in some cases berries, also producing year-round interest. These plantings are also complemented with an ornamental grass species and a perennial groundcover.
***Meets Optional Standard (6)**
7. Planting suitability: (optional standard)
All of the species chosen are hardy to at least zone 5. They are adapted to the locations on site chosen based on their size, shape, urban and drought tolerance and resistance to known insects and diseases. Because of these factors they should be lower in yearly maintenance.
***Meets Optional Standard (7)**
8. Mass Plantings: (optional standard)
A larger mass planting of trees and shrubs is proposed for the area between Route 302 and the proposed condominium buildings. This planting forms a visual separation and buffer to the building creating a sense of privacy and personal space. Other areas where plantings are massed for visual effect are within the parking lot on end islands and a screening planting around the dumpster enclosure.
***Meets Optional Standard (8)**

9. Illumination levels: (optional standard)
Pole heights and illumination levels are indicated on the lighting plan provided.
***Meets Optional Standard (9)**
- D. Bike/Ped
1. Internal walkways: (C-1 Zone Required)
Walkways are provided around the entire site connection entrance locations to parking to the public walkway along the ROW.
***Meets Required Standard**
 2. Links to community: (C-1 Zone Required)
Walkways are provided around the entire site connection entrance locations to parking to the public walkway along the ROW. The ROW access will provide
***Meets Required Standard**
 3. Outdoor activity area: (optional standard)
The site is not large enough to provide an area for activity as described in the standard.
***Standard not met**
 4. Sidewalks: (C-1 Zone Required)
A sidewalk is provided within the ROW to connect the site to the adjacent development. An esplanade is also provided with the same width as the approved neighboring development.
***Meets Required Standard**
 5. Crosswalks: (C-1 Zone Required)
Crosswalks are provided at appropriate locations around the site to provide save pedestrian access to the property and adjacent ROW's
***Meets Required Standard**
 6. Bike parking/racks: (C-1 Zone Required)
A rack with parking available for four bikes is provided within the parking lot.
***Meets Required Standard**



December 28, 2020

Town of Windham, Maine
Planning Department

RE: Fieldings Apartment Submission

I am writing to explain our approach to satisfy the Commercial District Design Standards.

I will attempt to respond to Standards in Section 813 that seem to relate to the project.

A.1 - Architecture / Building

This building is not part of a larger franchise. In fact, it has been custom designed to fit the needs of the project, fulfill the Design Standards and fit the property. We have tried to utilize different elements such as multiple gable ends, hipped roofs, cupolas, various types of siding treatments and exposed wood beams to break up the scale of the buildings and create attractive buildings to fit into the community. We focused a lot on the scale of these various elements and feel they are a good fit of residential units within a Commercial District.

A.2 - Materials

We plan to utilize various types of materials to add visual interest to the exterior. The bottom floor would have vertical boards, somewhat in a board and baton type of manner, made of a good quality vinyl or composite product. The siding above will be clapboard style and also consist of a vinyl or composite product. We will pay close attention to the details of all the exterior trim and make a real effort to minimize J-channel and have the siding tuck behind trim wherever possible.

A.3 – Color

We are still working with the Owner on color options but can state that the overall color palette will be a non-glare grey siding with white trim, or a mix of tan siding with darker tan/brown trim. We want the colors to be subtle, non-reflective and be gentle on the eyes.

A4.a – Rooflines

The primary roof pitch shown are 6/12 pitches that will terminate with overhangs approximately 21” in depth. These large overhangs on the eaves and rakes will create nice patterns of shades and shadows and give the structures a traditional feel.

A4.e – Roofing

The majority of the roof will be covered with architectural roofing shingles in a dark grey/black or brown/black color depending on the final selection of siding and trim colors. We are looking into possible low-reflective metal roofs on the entry roofs and the connecting roofs as well. If this comes to reality, we would choose a color that blends with the final color of the dark roofing material.

A4.f – Mechanical equipment

We do not plan to have any mechanical equipment mounted to the outside of the exterior walls and/or on the roof, other than the typical and necessary electrical meters, gas meters etc. We will make efforts to have any typical roof penetrations / pipes located on the rear of each structure to keep them out of the public view as much as possible.

A5.a – Façades – **Waiver Requested**

We are aware of the standard requiring that 40% of the horizontal length of the ground floor consist of transparent openings. We worked on this a lot and simply found that while this requirement would fit well for a typical commercial building, it is hard to visualize with apartments. We discussed having a few “trick panels” that looked like transparent panels but in fact were not transparent, but decided that it may be better to request a Waiver for this standard than to try to force it and create an odd, or confusing, condition. Our current design shows approximately 32% of the ground floor as transparent openings and **we request a Waiver for this particular Standard.**

A5.d – Trim

We plan to install trim on all exterior doors and windows facing the public way. The sizes of this trim will be carefully selected to work with the scale of the building.

A6.b – Freestanding Structures

The two separate storage buildings will be treated with the same level of design intent and details as the main buildings. Although the trim elements will be much smaller than similar trim on the main building, they will be in scale with the size of the structure they will be attached to.

A7.a – Entrances

To comply with the standard, we have created an entrance facing Route 302 as well as other entrances to other sides of the building. Each entry will be defined by a separate roof creating a large overhang, columns, and details to add visual interest to the building and to clearly identify the points of entry.

A8.a – Architectural Details

We plan to use various types and sizes of exterior trim to create the vision shown on the plans submitted. Some of this trim will be large, in reality, yet be in scale when seen in combination with the rest of the building. We plan to work with the Builder on the details of this trim to ensure it has a nice traditional feeling when completed.

In conclusion I feel that this project, although generous in scale, has been designed to fit within the Design Standards and is a good solution to a building to provide for residents within a Commercial District.

If you have any questions or need any further information please call me at 207-883-0083.

Thank you,



Michael E. Richman - Custom Concepts Inc. Architecture

Technical Ability

Overview

Northeast Civil Solutions, Inc. is the primary consultant involved with the civil/site design and site permitting of the project and has assembled the materials in this application. The following firms are acting as consultants to Bill Fielding or as subconsultants for the project:

Firm	Services	Contact	Address
Northeast Civil Solutions, Inc.	Civil Engineering	Travis Letellier, P.E. Travis.letellier@northeastcivilsolutions.com	381 Payne Road, Scarborough, ME 04074
Northeast Civil Solutions, Inc.	Land Surveying	Troy McDonald, P.L.S. Troy.mcdonald@northeastcivilsolutions.com	381 Payne Road, Scarborough, ME 04074
Longview Partners, LLC	Soil Consultant Septic Design	James Logan Longviewpartners213@gmail.com	6 Second Street, Buxton, ME 04093
Traffic Solutions	Traffic Engineer	Bill Bray, P.E. trafficsolutions@maine.rr.com	17 Mountview Drive, Gorham , ME 04038
Custom Concepts	Architect	Mike Richman mike@customconceptsinc.com	383 U.S. Route 1, Suite 1A Scarborough, ME 04074

Wastewater Disposal Design Memo
N/F Fielding's Oil Co. Property
Proposed 24-Unit Housing Development
Roosevelt Trail (Map 51, Lot 40-1)
Windham, Maine

Treatment Strategy for Wastewater Disposal

- Soils within the proposed disposal field are 5 B profiles which require *medium* size rating (2.6 sq. ft./gpd disposal area).
- Wastewater generated by the Development will be disposed of in three wastewater disposal fields (each sized to accommodate up to 1,440 gpd), separated by 100' or more from one another.
- One of the proposed disposal fields is to be located underneath a proposed parking area. This disposal field will be comprised of H-20 rated concrete chambers to allow for parking on top of the leach bed. The other two disposal fields will utilize Eljen GSF units to maximize setbacks to property lines and other disposal fields.
- The *State of Maine Subsurface Wastewater Disposal Rules* (the *Rules*) requires 24" separation between soil limiting factors and bottom of disposal fields. 24" separation has been incorporated into the designs and all disposal fields will have finished grades at or below the existing ground surface.
- Each proposed disposal field meets minimum setbacks to property boundaries (18'), proposed buildings (30'), and from other disposal fields as stated above.
- A waiver to the State of Maine Minimum Lot Size requirements (12 MRSA §4807-B, 4807-C) has been prepared, and based on previous conversations with State of Maine Subsurface Wastewater Unit staff, will be accepted and approved upon receipt (see attached letter dated September 20, 2019).



ENVIRONMENTAL PERMITTING SPECIALISTS

6 Second Street Buxton, ME 04093 207-693-8799

September 20, 2019

Mr. David Braley, C.G.
Mr. James Jacobsen
Mr. Brent Lawson, State Site Evaluator
Dept. of Health & Human Services
Division of Environmental Health
11 State House Station
Augusta, ME 04333-0011

Re: Fielding property, Roosevelt Trail, Windham

Gentlemen,

I am writing to you on behalf of Fielding's Oil Company, Inc., the owners of the above-referenced property. The subject property is 93,915+/- sq. ft. (2.155+/- acres) which is sufficient to dispose of a maximum of 1,408+/- gallons per day of wastewater per the State of Maine Minimum Lot Size requirements (12 MRSA §4807-B, 4807-C).

The site and surrounding properties are served by public water (Portland Water District) and is located outside the watershed limits of the Portland Water District. As such, I am requesting preliminary review of a waiver to the Minimum Lot Size law to allow for additional wastewater flows at the site. We have commissioned a hydrogeologic review of the property and have confirmed that the groundwater table is around 26' beneath the soil surface and thus contamination risk to groundwater is minimized. Enclosed is a composite site plan of the property that shows 24 units of residential housing. Each unit will have 2 bedrooms (180 gpd/unit) for a total proposed design flow of 4,320 gallons per day.

I will provide completed HHE-200 forms for review once the proposal has been reviewed and authorized (at least conceptually) by the Division. No other waivers or variances are required for plan approval.

I trust you will find this and the enclosed sufficient for your review and I look forward to a favorable response. Please feel free to call should you have additional questions or matters for discussion regarding the site. Thanks for your time and attention to this matter.

Sincerely,

James Logan
Longview Partners, LLC
Certified Soil Scientist # 213
Licensed Site Evaluator # 237
USACE Certified Wetland Delineator

cc. Travis LeTellier, P.E.



December 15, 2020

Town of Windham
Planning Department
8 School Rd.
Windham, ME 04062

To Whom it May Concern

Fielding's Oil Co. Inc has a long-standing commercial banking relationship with this institution. We have discussed their plans for a 24-unit residential complex at 610 Roosevelt Trail. They are financially capable of developing the property and we look forward to providing financing subject to normal and routine conditions.

Sincerely

Aaron Cannan

Sr. Vice President

144 US Route One • Scarborough, ME 04074 • Telephone (207) 510-7017 • Fax (207) 883-1205

www.katahdintrust.com

Member
FDIC



Abutting Properties for
ROOSEVELT TR WINDHAM, ME 04062
51/ 4/ 1/ /
(10 Feet)

Location:
51/ 4/ / /
608 ROOSEVELT TR
Owner:
VALENTE ERNEST P
PO BOX 1963
WINDHAM, ME 04062

Location:
52/ 20/ U03/ /
5 SETTLERS COURT
Owner:
PEWITT KEVIN R
PEWITT KATHLEEN E
5 SETTLERS COURT
WINDHAM, ME 04062

Location:
52/ 20/ U06/ /
6 SETTLERS COURT
Owner:
BOOTH ELISA
6 SETTLERS COURT
WINDHAM, ME 04062

Location:
52/ 20/ U09/ /
9 SETTLERS COURT
Owner:
AREND PAMELA B
9 SETTLERS COURT
WINDHAM, ME 04062

Location:
52/ 20/ U12/ /
15 SETTLERS COURT
Owner:
GREENLAW JOANNE L
15 SETTLERS COURT
WINDHAM, ME 04062

Location:
52/ 24/ / /
626 ROOSEVELT TR
Owner:
PTG PROPERTIES INC
75 LOCKLAND DRIVE
WINDHAM, ME 04062

Location:
52/ 20/ U01/ /
1 SETTLERS COURT
Owner:
MAXFIELD HAROLD E & FRANCES M
VERRILL FAMILY LLC
135 LAKE HAZEL DRIVE
WINTER HAVEN , FL 33884

Location:
52/ 20/ U04/ /
7 SETTLERS COURT
Owner:
RICHARD SARAH
7 SETTLERS COURT
WINDHAM, ME 04062

Location:
52/ 20/ U07/ /
4 SETTLERS COURT
Owner:
HIGGINS JENNIFER M
4 SETTLERS COURT
WINDHAM, ME 04062

Location:
52/ 20/ U10/ /
11 SETTLERS COURT
Owner:
MCKILLOP MARY E
11 SETTLERS COURT
WINDHAM, ME 04062

Location:
52/ 21/ / /
31 PAGE RD
Owner:
HILL JOANNE
31 PAGE ROAD
WINDHAM, ME 04062

Location:
52/ 20/ U02/ /
3 SETTLERS COURT
Owner:
JACCODINE KRISTEN R
20 DEERFIELD DRIVE
FRANKLIN, NJ 07416

Location:
52/ 20/ U05/ /
8 SETTLERS COURT
Owner:
REEVES ROGER C & JEAN K
IRREVOC ASSET PROT TRUST
384 GRAY ROAD
WINDHAM, ME 04062

Location:
52/ 20/ U08/ /
2 SETTLERS COURT
Owner:
SMALL DOROTHEA
2 SETTLERS COURT
WINDHAM, ME 04062

Location:
52/ 20/ U11/ /
13 SETTLERS COURT
Owner:
COTE JOSEPH P
13 SETTLERS COURT
WINDHAM, ME 04062

Location:
52/ 22/ / /
21 PAGE RD
Owner:
DUROST KATHLEEN A
21 PAGE RD
WINDHAM, ME 04062



December 15, 2020

Travis Letellier, P.E.
Northeast Civil Solutions, Inc.
381 Payne Road
Scarborough, ME 04074

Re: ~618 Roosevelt Trail, WI
Ability to Serve with PWD Water

Dear Mr. Letellier:

The Portland Water District has received your request for an Ability to Serve Determination for the noted site submitted on December 3, 2020. Based on the information provided dated December 15, 2020, we can confirm that the District will be able to serve the proposed project as further described in this letter. **Please note that this letter constitutes approval of the water system as currently designed and is valid for eighteen (18) months after the date of issue. Any changes affecting the approved water system will require further review and approval by PWD.**

Conditions of Service

The following conditions of service apply:

- A new 6-inch fire service may be installed from the water main in Roosevelt Trail. The service should enter through the properties frontage on Roosevelt Trail at least 10-feet from any side property lines.
- Two new 2-inch domestic services with 1.5-inch meters may be installed from the water main in Roosevelt Trail. The service should enter through the properties frontage on Roosevelt Trail at least 10-feet from any side property lines. An approved backflow prevention device must be installed on each service line directly after the meter prior to service activation.
- Please note that only one meter and one bill will be associated to each domestic service line. This one master meter would be located in a common space that all tenants could gain access to if necessary.
- The Portland Water District does not have record of any other existing infrastructure in public roads and recommends a survey and test pitting be performed by the development team prior to construction. Any conflicts that arise during construction are at the risk of the developer and may result in job shutdown until new plans are submitted by the developer and reviewed and approved by PWD.

Prior to construction, the owner or contractor will need to make an appointment to complete a service application form and pay all necessary fees. The appointment shall be requested through MEANS@pwd.org or by calling 207-774-5961 ext. 3199. Please allow (3) business days to process the service application paperwork. PWD will guide the applicant through the new development process during the appointment.



Existing Site Service

According to District records, the project site does not currently have existing water service.

Water System Characteristics

According to District records, there is a 12-inch diameter ductile iron water main in Roosevelt Trail and a public fire hydrant located approximately 350 feet from the site. The most recent static pressure reading was 92 psi on May 6, 2020.

Public Fire Protection

The installation of new public hydrants to be accepted into the District water system will most likely not be required. It is your responsibility to contact the Windham Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project. Based on the high water pressure in this area, we recommend that you consider the installation of pressure reducing devices that comply with state plumbing codes.

Private Fire Protection Water Needs

You have indicated that this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service. Please share these results with your sprinkler system designer so that they can design the fire protection system to best fit the noted conditions. If the data is out of date or insufficient for their needs, please contact MEANS to request a hydrant flow test and we will work with you to get more complete data.

Should you disagree with this determination, you may request a review by the District's Internal Review Team. Your request for review must be in writing and state the reason for your disagreement with the determination. The request must be sent to MEANS@PWD.org or mailed to 225 Douglass Street, Portland Maine, 04104 c/o MEANS. The Internal Review Team will undertake review as requested within 2 weeks of receipt of a request for review.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District



Robert A. Bartels, P.E.
Senior Project Engineer



Jeremy Hawkins
Sales & Marketing Analyst

December 16, 2020

Brandon Binette
Northeast Civil Solutions
381 Payne Road
Scarborough, ME 04074

Dear Brandon Binette:

Maine Natural Gas has the ability to serve 618 Roosevelt Trail, Windham ME 04062. Existing gas mains present will be sufficient to provide service at any desired connected load for the upcoming apartment building.

Timing of service installation is dependent upon our construction schedule, permitting, application for service and crew availability.

Please have the owner reach out to Maine Natural Gas to complete the required paperwork to initiate service installation.

Sincerely,

Jeremy Hawkins
Sales & Marketing Analyst
207-729-0420 Ext 126
JHawkins@mainenaturalgas.com



Traffic Solutions
William J. Bray, P.E.
17 Mountview Drive
Gorham, ME 04038
(207) 400-6890
trafficsolutions@maine.rr.com

December 17, 2020

Traffic Assessment

For Proposed

“Fielding Condos”

Windham, Maine

INTRODUCTION

Fielding’s Oil Co., Inc is proposing a 24-unit residential apartment building on a 2.09-acre parcel of land located on U.S. Route 302 (a.k.a. Roosevelt Trail) in the Town of Windham. The proposed development site is located on the west side of U.S. Route 302, approximately 650-feet northerly of the Page Road intersection.

The project site will be accessed through a driveway entrance located on the easterly property line of the proposed site connecting directly to Roosevelt Trail.

This document determines daily and peak hour trip generation of the proposed project for both peak commuter time periods, examines current roadway safety trends in the general vicinity of the proposed project, and reviews vehicle sight distance.

SITE TRAFFIC

Site Trip Generation: Daily and peak hour trip generation was determined for the proposed project based upon trip tables presented in the tenth edition of the Institute of Transportation Engineers (ITE) “**TRIP GENERATION**” handbook. The ITE publication provides numerous land use categories and the average volume of trips generated by each category.

The following trip rates were used to calculate trip generation for the proposed project:

Land Use #221 – Multifamily Housing (Mid-Rise)

Weekday	= 5.44 trips per dwelling unit
AM Peak Hour	= 0.36 trips per dwelling unit
PM Peak Hour	= 0.44 trips per dwelling unit

Accordingly, the proposed 24 apartment units can be expected to generate a total of 131 trips during a typical weekday; nine trips in the morning peak hour and 11 trips in the evening peak hour.

Site Trip Distribution: The Institute of Transportation Engineers handbook also provides the following directional distribution rates for an apartment unit:

AM Peak Hour = 26% enter site and 74% exit site
PM Peak Hour = 61% enter site and 39% exit site

Based upon the noted directional distribution patterns, seven trips during the morning peak hour and four trips in the evening peak hour will exit the site and the remaining trips (two AM trip and seven PM trips) will enter the site.

EXISTING SAFETY CONDITIONS

The Maine Department of Transportation's (MaineDOT) Accident Records Section provided the latest three-year (2017 through 2019) crash data for the section of U.S. Route 302 between River Road and Page Road, a distance of approximately 0.56 miles. Their report is presented as follows:

2017 -2019 Traffic Accident Summary

<u>Location</u>	<u>Total Crashes</u>	<u>Critical Rate Factor</u>
1. Roosevelt Trail @ River Road	20	0.68
2. Roosevelt Trail @ Drive-in Lane	1	0.27
3. Roosevelt Trail @ Commons Avenue	3	0.50
4. Roosevelt Trail btw. River Road and Drive-in Lane	7	0.58
5. Roosevelt Trail btw. Drive-in Lane and Commons Avenue	2	0.28
6. Roosevelt Trail btw. Commons Avenue and Page Road	4	0.23

The MaineDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:

- ***8 or more accidents***
- ***A Critical Rate Factor greater than 1.00***

As the data presented in the chart shows, there are no reported high crash locations within the defined study area.

SIGHT DISTANCE

The Maine Department of Transportation's Highway Entrance and Driveway Rules require the following sight distances for a non-mobility roadway:

Sight Distance Standards

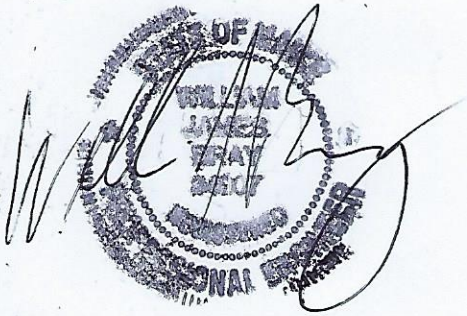
Speed Limit	Sight Distance
25 mph	200 feet
30	250
35	305
40	360
45	425
50	495
55	570

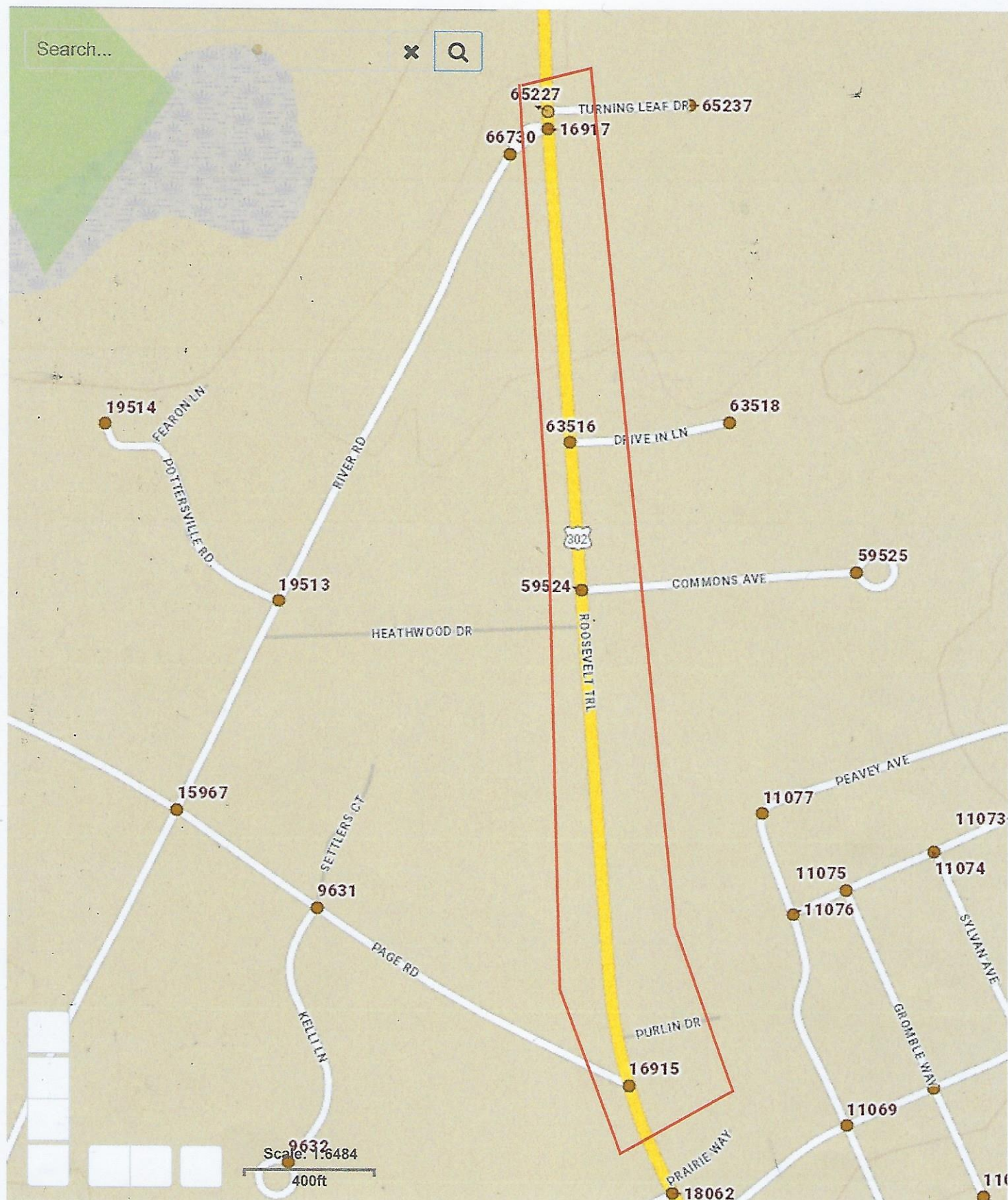
The section of Roosevelt Trail fronting the proposed residential apartment project is presently posted at 35mph, which requires an unobstructed sight distance of 305-feet. MaineDOT's Rules and Regulations require sight distance to be measured in accordance with the following procedures: *"Sight distance is measured to and from the point on the centerline of the proposed access that is located 10-feet from the edge of traveled way. The height of the hypothetical person's view is considered to be 3½ feet above the pavement and the height of the object being viewed is considered to be 4¼ feet above the pavement."*

Field measurements recorded at the proposed site driveway intersection with Roosevelt Trail exceed 600-feet right and over 1,000-feet left; both measurements exceed by a considerable margin the minimum sight distance standard for a posted speed limit of 35mph.

CONCLUSIONS

- The proposed 24-unit residential apartment development can be expected to generate **131** daily trips; **9** trips in the morning peak hour and **11** trips during the afternoon peak commuter hour.
- The Maine Department of Transportation's most recent three-year (2017 to 2019) accident safety audit shows there are no high crash locations identified for the section of Roosevelt Trail (a.k.a. U.S. Route 302) between the signalized intersection at River Road and Page Road, a distance of approximately 0.56 miles.
- Vehicle sightlines measured in both directions from the proposed apartment driveway entrance at U.S. Route 302 meet and exceed, by a considerable distance, the non-mobility highway sight distance standard (305-feet) for a posted speed limit of 35mph.





Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☒ Crash Summary I ☐ Section Detail ☒ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Windham
Rte. 302/Roosevelt Trl. from Page Rd. to Turning Leaf Dr.

REPORT PARAMETERS

Year 2017, Start Month 1 through Year 2019 End Month: 12

Route: 0302X

Start Node: 16915
End Node: 65227

Start Offset: 0
End Offset: 0

☐ Exclude First Node
☐ Exclude Last Node

Crash Summary I

Notes													
Node	Route - MP	Node Description	U/R	Total Crashes	K	Injury Crashes			A	B	C	PD	Percent Annual M Injury Ent-Veh
													Crash Rate
													Critical Rate
													CRF
16915	0302X - 14.12	Int of PAGE RD, ROOSEVELT TRL	2	0	0	0	0	0	0	0	0	0	0.00
													Statewide Crash Rate: 0.14
P16917	0302X - 14.67	Int of RIVER RD ROOSEVELT TRL	9	20	0	0	0	0	0	0	6	14	0.80
													Statewide Crash Rate: 0.75
63516	0302X - 14.49	Int of DRIVE IN LN ROOSEVELT TRL	2	1	0	0	0	0	0	0	0	1	0.11
													Statewide Crash Rate: 0.14
59524	0302X - 14.40	Int of COMMONS AV ROOSEVELT TRL	2	3	0	0	0	0	0	0	2	1	0.17
													Statewide Crash Rate: 0.14
A65227	0302X - 14.68	Int of ROOSEVELT TRL TURNING LEAF DR	2	0	0	0	0	0	0	0	0	0	0.00
													Statewide Crash Rate: 0.14
Study Years: 3.00				NODE TOTALS:									
				24	0	0	0	0	0	0	8	16	33.3
													23.288
													0.34
													0.54
													0.64

Crash Summary I

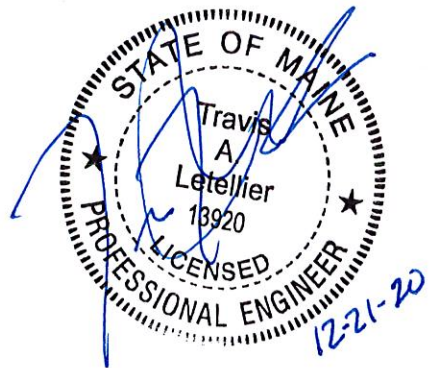
Sections													
Start Node	End Node	Element	Offset Begin-End	Route - MP	Section U/R Length	Total Crashes	K	A	B	C	PD	Percent Injury	Annual HMV/M
16915	59524	3115032	0 - 0.28	0302X - 14.12 US 302	0.28	2	4	0	0	0	4	0.0	0.01669
		Int of PAGE RD, ROOSEVELT TRL											79.87
59524	63516	3116129	0 - 0.09	0302X - 14.40 US 302	0.09	2	2	0	0	1	1	50.0	0.00520
		Int of COMMONS AV, ROOSEVELT TRL											Statewide Crash Rate: 197.90
63516	16917	3139589	0 - 0.18	0302X - 14.49 US 302	0.18	2	7	0	0	0	7	0.0	0.01041
		Int of DRIVE IN LN, ROOSEVELT TRL											Statewide Crash Rate: 197.90
16917	65227	3154071	0 - 0.01	0302X - 14.67 US 302	0.01	2	0	0	0	0	0	0.0	0.00075
		Int of RIVER RD, ROOSEVELT TRL											Statewide Crash Rate: 197.90
Study Years:		3.00		Section Totals:	0.56	13	13	0	0	0	1	12	7.7
				Grand Totals:	0.56	37	37	0	0	0	9	28	24.3
													0.03305
													373.15
													436.70
													0.85
													0.43
													0.85

FIELDING CONDOS
Rt. 302
WINDHAM, MAINE

STORMWATER MANAGEMENT
REPORT
December 2020

Prepared for:

Fielding's Oil Co., Inc
U.S. Route 1
Scarborough, Maine 04074



Northeast Civil Solutions, Inc.
381 Payne Road
Scarborough, ME 04074

Project # 41878

TABLE OF CONTENTS

SECTION	PAGE
1 PROJECT DESCRIPTION	2
2 STORMWATER NARRATIVE	2
2.1 Site Location	2
2.2 Receiving Waters	2
2.3 Historic Flooding	2
2.4 Methodology and Modeling Assumptions	2
2.5 Soils	3
2.6 Permitting Requirements	3
2.7 Proposed BMPs	4
2.8 Project Impacts	5
3 STORMWATER QUANTITY ANALYSIS	5
3.1 Pre-Development Conditions	5
3.2 Post- Development Conditions	5
3.3 Stormwater Quantity Summary	6
4 STORMWATER QUALITY ANALYSIS	6
5 CONCLUSIONS	6

APPENDICES

Appendix A	HydroCAD Output: Pre-Development Condition
Appendix B	HydroCAD Output: Post-Development Condition
Appendix C	Stormwater Quality Calculations
Appendix D	FEMA Firm Map

1) PROJECT DESCRIPTION

This Stormwater Management Report has been prepared for Mr. Bill Fielding to present the stormwater runoff results for a proposed 24-unit condo development. The property is identified as parcel 4-1 on Tax Map 51 and occupies approximately 2.09 acres.

The majority of the site drains southeasterly across flat well-draining soils to a collection area and catch basin just off the Rt. 302 right-of-way that connects to the public drainage system.

The development of the site will result in the following:

Proposed impervious area (on previously vegetated surface)	= 0.96 acres
Proposed disturbed/developed area	= 1.40 acres

2) STORMWATER NARRATIVE

2.1 SITE LOCATION

The project site is located on Roosevelt Trail (Route 302) on a vacant lot in Windham, Maine. The property is currently partially lawn area and cleared with woodland in the rear of the lot.

2.2 RECEIVING WATERS

The majority of runoff from the project drains southeasterly to a drainage catch basin that connects to the public drainage system that eventually discharges to Ditch Brook to Pleasant River.

2.3 HISTORIC FLOODING

The project site is not located with a floodplain as indicated on the Flood Insurance Rate Map for Town of Windham Maine, Panel 15 of 35. Community panel number 230189 0015 B dated September 2, 1981.

2.4 METHODOLOGY AND MODELING ASSUMPTIONS

Runoff and routing calculations have been performed for the watershed areas affected by the proposed development. Times of concentration and runoff curve number calculations have been determined using the method described in the Natural Resource Conservation Service (NRCS) Technical Release 55, (TR-55). Time of concentration calculations have been amended where the values given by the TR-55 method is less than five minutes. In these cases a standard minimum value of five minutes has been used to keep this parameter within the acceptable working range of the model. Each Tc path and corresponding length and slope is identified in the pre and post development drainage area plan. The TR-20

based HydroCAD (version 10.0) modeling software has been utilized to perform the complex runoff and routing calculations.

Design rainfall has been modeled using the SCS Type III hydrograph for 24-hour duration storm events. The rainfall depth for each return period is taken from the Stormwater Management for Maine: Best Management Practices, Appendix H. The rainfall depth values utilized in the stormwater model are indicated in the table below.

24-Hour Rainfall Depths for Cumberland County			
Stormwater Management for Maine: Best Management Practices Appendix H			
Frequency	2-Year	10-Year	25-Year
Rainfall Depth	3.19	4.77	6.01

2.5 SOILS

Soil types in the area of the project were identified using the NRCS Web Soil Survey. The curve numbers (CN) utilized in this analysis relate to the ground cover that was observed on the site. Soils identified on the site (or within close proximity) are identified in the Table below. These soil boundaries have been identified on the Pre and Post Development Watershed Maps.

Soil Types	Symbol	HSG
Hinkley loamy Sand	HIB	A

2.6 PERMITTING REQUIREMENTS

The Town of Windham, section 812.E, Stormwater Management states”

“Adequate provisions shall be made for the collection and disposal of all stormwater that runs off proposed streets, parking areas, roofs, and other surfaces, through a stormwater management plan, which shall not have adverse impacts on abutting or downstream properties.”

And,

‘Major site plans, regardless of size, shall submit a stormwater management plan that complies with Section 4C(2) and Section 4C(3) of the General Standards of the DEP Chapter 500 Stormwater Management, as amended.’

As this project is defined as a Major Site Plan it will be required to meet the Maine DEP Chapter 500 standards.

The project will not require a NRPA wetland fill permit for wetland impacts in the amount of zero square feet.

MDEP Permitting Requirements:

Basic Standards: The basic standards require that grading and other construction activities on the site do not impede or otherwise alter drainage ways to create an unreasonable adverse impact on a protected natural resource. The basic standards will be met by the implementation of an Erosion and Sedimentation Control Plan addressing erosion and sediment control during construction and post-construction stabilization of the site and through the implementation of Stormwater Management Facilities Maintenance Plan identifying various inspection, maintenance and general housekeeping procedures. A copy of the Stormwater Management Facilities Maintenance Plan is attached to this report.

The Erosion and Sedimentation Control Plan was developed following Best Management Practice (BMP) guidelines and has been placed directly on the design plans for reference during construction.

General Standards: The general standards consist of Best Management Practice (BMP) standards. The BMP standards require a project's stormwater management system to include treatment measures that will mitigate the increased frequency and duration of channel erosive flows due to runoff from smaller storms, provide for effective treatment of pollutants in stormwater, and mitigate potential temperature impacts. This must be achieved by using one or more MDEP approved methods to control runoff from no less than 95% of the proposed impervious area and no less than 80% of the proposed developed area associated with a project. As this project will not create one acre or more of new impervious surface area it is not subject to the MDEP General Standards. It will meet the MDEP General standards based on the requirements of section 812.E in the Town of Windham Land Use Ordinance.

Flooding Standard: MDEP requires that projects which create 3 acres or more of impervious area and 20 acres or more of developed area or otherwise require review pursuant to the Site Location of Development Law must control the peak flow of runoff from the site to pre-development rates during the 2-year, 10-year and 25-year, 24-hour storms. As this project does not meet the above criteria the MDEP Flooding Standard does not apply. It will meet the MDEP Flooding standards based on the requirements of section 812.E in the Town of Windham Land Use Ordinance.

2.7 PROPOSED BMPs

The development will utilize a series of infiltration measures and underground detention to capture and treat stormwater derived from the developed areas of the site. The system has been sized to treat a minimum of 1" of runoff from the tributary impervious areas and 0.4" of runoff from the tributary landscaped areas.

2.8 PROJECT IMPACTS

The total developed area proposed is 1.40 acres which includes 0.96 acres of impervious cover (roof/pavement).

Additionally, there is no impact to wetlands with this development. No wetlands were identified on the property.

3) STORMWATER QUANTITY ANALYSIS

3.1 PRE-DEVELOPMENT CONDITIONS

Under pre-development conditions the site is modeled with two Subcatchment areas (See Plan Set for Pre-Development Drainage Area Plan) draining to two points of analysis, Study Point 1 and 2.

3.2 POST- DEVELOPMENT CONDITIONS

Under the post-development condition, the site area is divided further into twelve subcatchment areas to allow for the effects of localized storage to be calculated. The runoff for the individual subcatchments drain to the same two points of analysis. As such, a direct comparison can be made of the pre-development and post-development runoff values at each Study Point.

The watershed areas and times of concentration of the post-development watersheds vary from the existing conditions based on the proposed site development and grading. The Table below summarizes the results of the hydrologic analysis of the project under pre-development and post-development conditions.

3.3 STORMWATER QUANTITY SUMMARY

Stormwater Runoff Summary Table Pre-Development vs. Post-Development								
<u>Study Point</u>	Total Watershed Area (Ac)		Peak Rates of Runoff (cfs)					
			2-Year		10-Year		25-Year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
SP-1	0.93	0.87	0.0	0.0	0.0	0.1	0.1	0.1
SP-2	1.16	1.17	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	2.09	2.05	0.0	0.0	0.0	0.1	0.1	0.1

4) STORMWATER QUALITY ANALYSIS

Water quality treatment is provided for runoff from the majority of the new developed areas associated with the project. The underdrained sand filter provides treatment for 95.4% of the impervious area and 71.1% of the developed area associated with the linear portion of the project. Chapter 500 stipulates treating 95% of the impervious area and 80% of the total developed area: the proposed pond meets these criteria.

5) CONCLUSIONS

The runoff and routing calculations demonstrate that the development will result in no total increase in the peak rate during the 2-year, 10-year or 25-year storm events.

Stormwater runoff from this site has been designed to meet the MDEP Basic and General Standards for stormwater quality treatment for the project site.

The proposed project is designed to fit into the topography and natural features of the site to the maximum extent practical. Stormwater runoff from the development will be captured, detained and treated in a series of BMPs and discharged to the same locations as under the pre-development conditions.

An Erosion and Sedimentation Control Plan will be implemented to address erosion and sediment control during construction and the post-construction stabilization of the site. These construction requirements have been developed following BMP guidelines and have been placed directly on the design plans for construction reference.

APPENDIX A

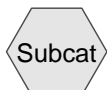
PRE-DEVELOPMENT HYDROCAD OUTPUT



Trees



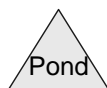
Trees, Grass



Subcat



Reach



Pond



Link

Routing Diagram for 41878 PRE-BAB 10-6-2020

Prepared by Microsoft, Printed 12/16/2020

HydroCAD® 10.00-20 s/n 02173 © 2017 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.033	39	>75% Grass cover, Good, HSG A (S1)
1.057	30	Woods, Good, HSG A (S1, S2)
2.089	34	TOTAL AREA

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.089	HSG A	S1, S2
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.089		TOTAL AREA

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Page 4

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.033	0.000	0.000	0.000	0.000	1.033	>75% Grass cover, Good	S1
1.057	0.000	0.000	0.000	0.000	1.057	Woods, Good	S1, S2
2.089	0.000	0.000	0.000	0.000	2.089	TOTAL AREA	

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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 S1: Trees, Grass

Runoff Area=50,392 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=260' Slope=0.0100 '/' Tc=30.6 min CN=38 Runoff=0.0 cfs 0.000 af

Subcatchment S2: Trees

Runoff Area=40,623 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=269' Tc=43.6 min CN=30 Runoff=0.0 cfs 0.000 af

Link SP-1:

Inflow=0.0 cfs 0.000 af
Primary=0.0 cfs 0.000 af

Link SP-2:

Inflow=0.0 cfs 0.000 af
Primary=0.0 cfs 0.000 af

Total Runoff Area = 2.089 ac Runoff Volume = 0.000 af Average Runoff Depth = 0.00"
100.00% Pervious = 2.089 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1: Trees, Grass

Runoff = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
44,981	39	>75% Grass cover, Good, HSG A
5,411	30	Woods, Good, HSG A
50,392	38	Weighted Average
50,392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	160	0.0100	1.50		Shallow Concentrated Flow, B-C
					Grassed Waterway Kv= 15.0 fps
30.6	260	Total			

Summary for Subcatchment S2: Trees

Runoff = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
40,623	30	Woods, Good, HSG A
40,623		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.0	100	0.0050	0.04		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
5.6	169	0.0100	0.50		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
43.6	269	Total			

Summary for Link SP-1:

Inflow Area = 1.157 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event

Inflow = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-2:

Inflow Area = 0.933 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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 S1: Trees, Grass

Runoff Area=50,392 sf 0.00% Impervious Runoff Depth=0.13"
Flow Length=260' Slope=0.0100 '/' Tc=30.6 min CN=38 Runoff=0.0 cfs 0.012 af

Subcatchment S2: Trees

Runoff Area=40,623 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=269' Tc=43.6 min CN=30 Runoff=0.0 cfs 0.000 af

Link SP-1:

Inflow=0.0 cfs 0.012 af
Primary=0.0 cfs 0.012 af

Link SP-2:

Inflow=0.0 cfs 0.000 af
Primary=0.0 cfs 0.000 af

Total Runoff Area = 2.089 ac Runoff Volume = 0.012 af Average Runoff Depth = 0.07"
100.00% Pervious = 2.089 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1: Trees, Grass

Runoff = 0.0 cfs @ 16.72 hrs, Volume= 0.012 af, Depth= 0.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
44,981	39	>75% Grass cover, Good, HSG A
5,411	30	Woods, Good, HSG A
50,392	38	Weighted Average
50,392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	160	0.0100	1.50		Shallow Concentrated Flow, B-C
					Grassed Waterway Kv= 15.0 fps
30.6	260	Total			

Summary for Subcatchment S2: Trees

Runoff = 0.0 cfs @ 24.26 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
40,623	30	Woods, Good, HSG A
40,623		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.0	100	0.0050	0.04		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
5.6	169	0.0100	0.50		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
43.6	269	Total			

Summary for Link SP-1:

Inflow Area = 1.157 ac, 0.00% Impervious, Inflow Depth = 0.13" for 10-Year event
Inflow = 0.0 cfs @ 16.72 hrs, Volume= 0.012 af
Primary = 0.0 cfs @ 16.72 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-2:

Inflow Area = 0.933 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-Year event
Inflow = 0.0 cfs @ 24.26 hrs, Volume= 0.000 af
Primary = 0.0 cfs @ 24.26 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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 S1: Trees, Grass

Runoff Area=50,392 sf 0.00% Impervious Runoff Depth=0.40"
Flow Length=260' Slope=0.0100 '/' Tc=30.6 min CN=38 Runoff=0.1 cfs 0.038 af

Subcatchment S2: Trees

Runoff Area=40,623 sf 0.00% Impervious Runoff Depth=0.07"
Flow Length=269' Tc=43.6 min CN=30 Runoff=0.0 cfs 0.006 af

Link SP-1:

Inflow=0.1 cfs 0.038 af
Primary=0.1 cfs 0.038 af

Link SP-2:

Inflow=0.0 cfs 0.006 af
Primary=0.0 cfs 0.006 af

Total Runoff Area = 2.089 ac Runoff Volume = 0.044 af Average Runoff Depth = 0.25"
100.00% Pervious = 2.089 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment S1: Trees, Grass

Runoff = 0.1 cfs @ 12.96 hrs, Volume= 0.038 af, Depth= 0.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
44,981	39	>75% Grass cover, Good, HSG A
5,411	30	Woods, Good, HSG A
50,392	38	Weighted Average
50,392		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	100	0.0100	0.06		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
1.8	160	0.0100	1.50		Shallow Concentrated Flow, B-C
					Grassed Waterway Kv= 15.0 fps
30.6	260	Total			

Summary for Subcatchment S2: Trees

Runoff = 0.0 cfs @ 23.30 hrs, Volume= 0.006 af, Depth= 0.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
40,623	30	Woods, Good, HSG A
40,623		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.0	100	0.0050	0.04		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
5.6	169	0.0100	0.50		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
43.6	269	Total			

Summary for Link SP-1:

Inflow Area = 1.157 ac, 0.00% Impervious, Inflow Depth = 0.40" for 25-Year event
Inflow = 0.1 cfs @ 12.96 hrs, Volume= 0.038 af
Primary = 0.1 cfs @ 12.96 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

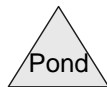
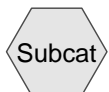
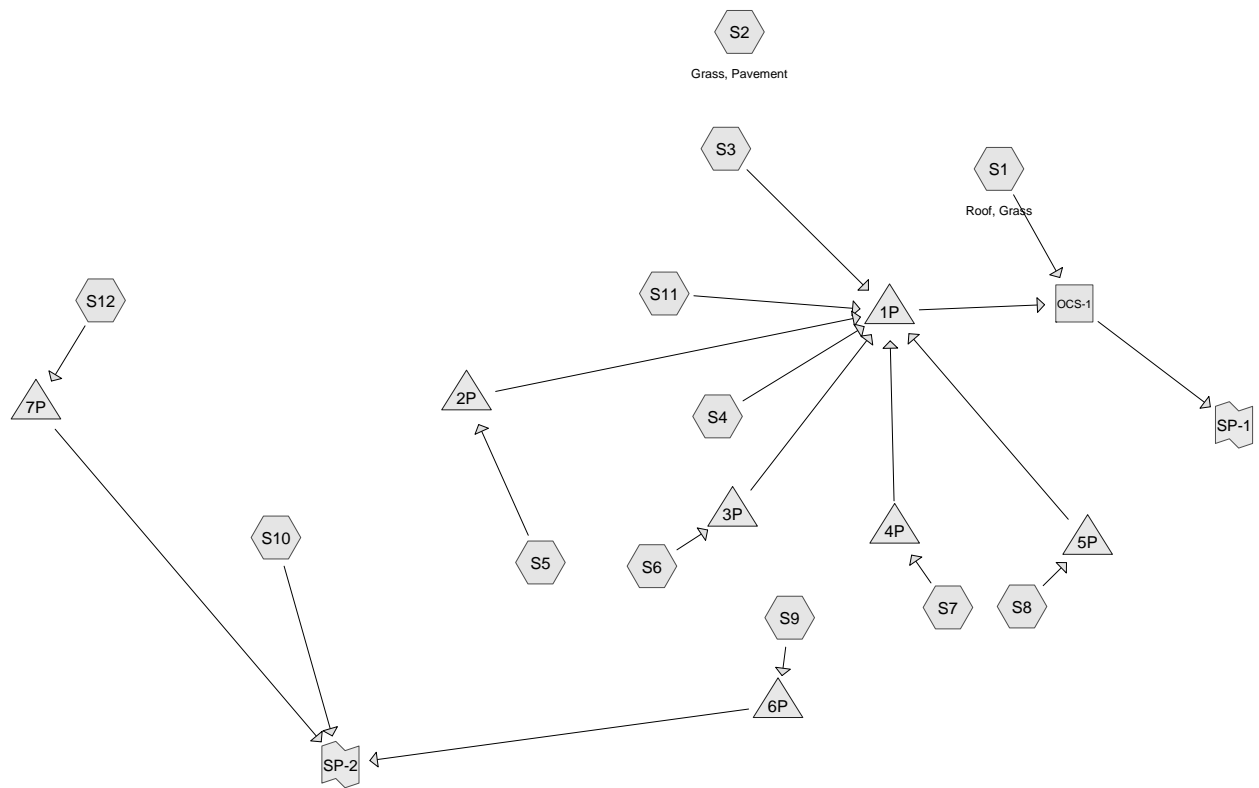
Summary for Link SP-2:

Inflow Area = 0.933 ac, 0.00% Impervious, Inflow Depth = 0.07" for 25-Year event
Inflow = 0.0 cfs @ 23.30 hrs, Volume= 0.006 af
Primary = 0.0 cfs @ 23.30 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

APPENDIX B

POST DEVELOPMENT HYDROCAD OUTPUT



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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.688	39	>75% Grass cover, Good, HSG A (S1, S10, S11, S2, S4)
0.649	98	Paved parking, HSG A (S10, S11, S12, S2, S3, S4)
0.336	98	Roofs, HSG A (S1, S4, S5, S6, S7, S8, S9)
0.401	30	Woods, Good, HSG A (S10)
0.018	40	pond? (S9)
2.092	65	TOTAL AREA

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.074	HSG A	S1, S10, S11, S12, S2, S3, S4, S5, S6, S7, S8, S9
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.018	Other	S9
2.092		TOTAL AREA

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Page 4

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.688	0.000	0.000	0.000	0.000	0.688	>75% Grass cover, Good	S1, S10, S11, S2, S4
0.649	0.000	0.000	0.000	0.000	0.649	Paved parking	S10, S11, S12, S2, S3, S4
0.336	0.000	0.000	0.000	0.000	0.336	Roofs	S1, S4, S5, S6, S7, S8, S9
0.401	0.000	0.000	0.000	0.000	0.401	Woods, Good	S10
0.000	0.000	0.000	0.000	0.018	0.018	pond?	S9
2.074	0.000	0.000	0.000	0.018	2.092	TOTAL AREA	

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Page 5

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	OCS-1	308.40	307.90	250.0	0.0020	0.012	15.0	0.0	0.0

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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 S1: Roof, Grass	Runoff Area=4,182 sf 28.69% Impervious Runoff Depth=0.28" Tc=6.0 min CN=56 Runoff=0.0 cfs 0.002 af
Subcatchment S10:	Runoff Area=41,325 sf 2.73% Impervious Runoff Depth=0.00" Flow Length=262' Tc=42.6 min CN=37 Runoff=0.0 cfs 0.000 af
Subcatchment S11:	Runoff Area=16,957 sf 91.11% Impervious Runoff Depth=2.44" Tc=6.0 min CN=93 Runoff=1.0 cfs 0.079 af
Subcatchment S12:	Runoff Area=2,328 sf 100.00% Impervious Runoff Depth=2.96" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.013 af
Subcatchment S2: Grass, Pavement	Runoff Area=2,287 sf 12.46% Impervious Runoff Depth=0.06" Flow Length=269' Tc=43.6 min CN=46 Runoff=0.0 cfs 0.000 af
Subcatchment S3:	Runoff Area=4,776 sf 100.00% Impervious Runoff Depth=2.96" Tc=6.0 min CN=98 Runoff=0.3 cfs 0.027 af
Subcatchment S4:	Runoff Area=7,927 sf 90.46% Impervious Runoff Depth=2.34" Tc=6.0 min CN=92 Runoff=0.4 cfs 0.036 af
Subcatchment S5:	Runoff Area=1,008 sf 100.00% Impervious Runoff Depth=2.96" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.006 af
Subcatchment S6:	Runoff Area=979 sf 100.00% Impervious Runoff Depth=2.96" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.006 af
Subcatchment S7:	Runoff Area=979 sf 100.00% Impervious Runoff Depth=2.96" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.006 af
Subcatchment S8:	Runoff Area=1,026 sf 100.00% Impervious Runoff Depth=2.96" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.006 af
Subcatchment S9:	Runoff Area=7,346 sf 89.60% Impervious Runoff Depth=2.34" Tc=6.0 min CN=92 Runoff=0.4 cfs 0.033 af
Reach OCS-1:	Avg. Flow Depth=0.04' Max Vel=0.52 fps Inflow=0.0 cfs 0.002 af 15.0" Round Pipe n=0.012 L=250.0' S=0.0020 '/' Capacity=3.1 cfs Outflow=0.0 cfs 0.002 af
Pond 1P:	Peak Elev=306.33' Storage=871 cf Inflow=1.7 cfs 0.142 af Discarded=0.5 cfs 0.142 af Primary=0.0 cfs 0.000 af Outflow=0.5 cfs 0.142 af
Pond 2P:	Peak Elev=311.10' Storage=35 cf Inflow=0.1 cfs 0.006 af Discarded=0.0 cfs 0.006 af Primary=0.0 cfs 0.000 af Outflow=0.0 cfs 0.006 af
Pond 3P:	Peak Elev=311.04' Storage=33 cf Inflow=0.1 cfs 0.006 af Discarded=0.0 cfs 0.006 af Primary=0.0 cfs 0.000 af Outflow=0.0 cfs 0.006 af

Pond 4P: Peak Elev=311.04' Storage=33 cf Inflow=0.1 cfs 0.006 af
Discarded=0.0 cfs 0.006 af Primary=0.0 cfs 0.000 af Outflow=0.0 cfs 0.006 af

Pond 5P: Peak Elev=311.15' Storage=36 cf Inflow=0.1 cfs 0.006 af
Discarded=0.0 cfs 0.006 af Primary=0.0 cfs 0.000 af Outflow=0.0 cfs 0.006 af

Pond 6P: Peak Elev=310.30' Storage=123 cf Inflow=0.4 cfs 0.033 af
Discarded=0.2 cfs 0.033 af Primary=0.0 cfs 0.000 af Outflow=0.2 cfs 0.033 af

Pond 7P: Peak Elev=309.91' Storage=5 cf Inflow=0.1 cfs 0.013 af
Discarded=0.1 cfs 0.013 af Primary=0.0 cfs 0.000 af Outflow=0.1 cfs 0.013 af

Link SP-1: Inflow=0.0 cfs 0.002 af
Primary=0.0 cfs 0.002 af

Link SP-2: Inflow=0.0 cfs 0.000 af
Primary=0.0 cfs 0.000 af

Total Runoff Area = 2.092 ac Runoff Volume = 0.213 af Average Runoff Depth = 1.22"
52.90% Pervious = 1.107 ac 47.10% Impervious = 0.985 ac

Summary for Subcatchment S1: Roof, Grass

Runoff = 0.0 cfs @ 12.18 hrs, Volume= 0.002 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
2,982	39	>75% Grass cover, Good, HSG A
1,200	98	Roofs, HSG A
4,182	56	Weighted Average
2,982		71.31% Pervious Area
1,200		28.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Underground Storage
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S10:

Runoff = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
22,743	39	>75% Grass cover, Good, HSG A
17,452	30	Woods, Good, HSG A
1,130	98	Paved parking, HSG A
41,325	37	Weighted Average
40,195		97.27% Pervious Area
1,130		2.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.0	100	0.0050	0.04		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
4.6	162	0.0070	0.59		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
42.6	262	Total			

Summary for Subcatchment S11:

Runoff = 1.0 cfs @ 12.13 hrs, Volume= 0.079 af, Depth= 2.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
15,450	98	Paved parking, HSG A
1,507	39	>75% Grass cover, Good, HSG A
16,957	93	Weighted Average
1,507		8.89% Pervious Area
15,450		91.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Underground Storage
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S12:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.013 af, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
2,328	98	Paved parking, HSG A
2,328		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, imper Pavers
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S2: Grass, Pavement

Runoff = 0.0 cfs @ 22.46 hrs, Volume= 0.000 af, Depth= 0.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
285	98	Paved parking, HSG A
2,002	39	>75% Grass cover, Good, HSG A
2,287	46	Weighted Average
2,002		87.54% Pervious Area
285		12.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.0	100	0.0050	0.04		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
5.6	169	0.0100	0.50		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
43.6	269	Total			

Summary for Subcatchment S3:

Runoff = 0.3 cfs @ 12.13 hrs, Volume= 0.027 af, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
4,776	98	Paved parking, HSG A
4,776		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Underground Storage
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S4:

Runoff = 0.4 cfs @ 12.13 hrs, Volume= 0.036 af, Depth= 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
2,852	98	Roofs, HSG A
4,319	98	Paved parking, HSG A
756	39	>75% Grass cover, Good, HSG A
7,927	92	Weighted Average
756		9.54% Pervious Area
7,171		90.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Underground Storage
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S5:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.006 af, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
1,008	98	Roofs, HSG A
1,008		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S6:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.006 af, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
979	98	Roofs, HSG A
979		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S7:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.006 af, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
979	98	Roofs, HSG A
979		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S8:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.006 af, Depth= 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
1,026	98	Roofs, HSG A
1,026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S9:

Runoff = 0.4 cfs @ 12.13 hrs, Volume= 0.033 af, Depth= 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 2-Year Rainfall=3.19"

Area (sf)	CN	Description
6,582	98	Roofs, HSG A
764	40	pond?
7,346	92	Weighted Average
764		10.40% Pervious Area
6,582		89.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

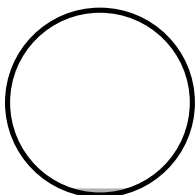
Summary for Reach OCS-1:

Inflow Area = 0.869 ac, 86.14% Impervious, Inflow Depth = 0.03" for 2-Year event
Inflow = 0.0 cfs @ 12.18 hrs, Volume= 0.002 af
Outflow = 0.0 cfs @ 12.48 hrs, Volume= 0.002 af, Atten= 26%, Lag= 18.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.52 fps, Min. Travel Time= 8.0 min
Avg. Velocity = 0.35 fps, Avg. Travel Time= 11.8 min

Peak Storage= 3 cf @ 12.35 hrs
Average Depth at Peak Storage= 0.04'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 3.1 cfs

15.0" Round Pipe
n= 0.012
Length= 250.0' Slope= 0.0020 '/'
Inlet Invert= 308.40', Outlet Invert= 307.90'



Summary for Pond 1P:

Inflow Area = 0.773 ac, 93.28% Impervious, Inflow Depth = 2.20" for 2-Year event
 Inflow = 1.7 cfs @ 12.13 hrs, Volume= 0.142 af
 Outflow = 0.5 cfs @ 11.90 hrs, Volume= 0.142 af, Atten= 72%, Lag= 0.0 min
 Discarded = 0.5 cfs @ 11.90 hrs, Volume= 0.142 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 306.33' @ 12.35 hrs Surf.Area= 2,075 sf Storage= 871 cf

Plug-Flow detention time= 7.6 min calculated for 0.141 af (100% of inflow)
 Center-of-Mass det. time= 7.6 min (806.5 - 798.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	305.56'	2,328 cf	15.75'W x 131.78'L x 4.00'H Field A 8,302 cf Overall - 2,481 cf Embedded = 5,821 cf x 40.0% Voids
#2A	306.06'	2,481 cf	ADS StormTech SC-740 +Cap x 54 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 18 Chambers
		4,809 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	305.56'	10.000 in/hr Exfiltration over Surface area
#2	Primary	308.56'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=0.5 cfs @ 11.90 hrs HW=305.60' (Free Discharge)
 ↑ **1=Exfiltration** (Exfiltration Controls 0.5 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=305.56' (Free Discharge)
 ↑ **2=Sharp-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond 2P:

Inflow Area = 0.023 ac, 100.00% Impervious, Inflow Depth = 2.96" for 2-Year event
 Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.006 af
 Outflow = 0.0 cfs @ 11.90 hrs, Volume= 0.006 af, Atten= 74%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.90 hrs, Volume= 0.006 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 311.10' @ 12.36 hrs Surf.Area= 72 sf Storage= 35 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 7.9 min (768.4 - 760.5)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	58 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 144 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	72	0	0
311.90	72	144	144

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	24.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.0 cfs @ 11.90 hrs HW=309.93' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=309.90' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond 3P:

Inflow Area = 0.022 ac, 100.00% Impervious, Inflow Depth = 2.96" for 2-Year event
 Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.006 af
 Outflow = 0.0 cfs @ 11.90 hrs, Volume= 0.006 af, Atten= 73%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.90 hrs, Volume= 0.006 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 311.04' @ 12.35 hrs Surf.Area= 72 sf Storage= 33 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 7.3 min (767.9 - 760.5)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	58 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 144 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	72	0	0
311.90	72	144	144

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	24.0' long x 3.0' 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

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.0 cfs @ 11.90 hrs HW=309.93' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=309.90' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond 4P:

Inflow Area = 0.022 ac, 100.00% Impervious, Inflow Depth = 2.96" for 2-Year event
Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.006 af
Outflow = 0.0 cfs @ 11.90 hrs, Volume= 0.006 af, Atten= 73%, Lag= 0.0 min
Discarded = 0.0 cfs @ 11.90 hrs, Volume= 0.006 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 311.04' @ 12.35 hrs Surf.Area= 72 sf Storage= 33 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 7.3 min (767.9 - 760.5)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	58 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 144 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	72	0	0
311.90	72	144	144

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	24.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.0 cfs @ 11.90 hrs HW=309.93' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=309.90' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond 5P:

Inflow Area = 0.024 ac, 100.00% Impervious, Inflow Depth = 2.96" for 2-Year event
 Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.006 af
 Outflow = 0.0 cfs @ 11.85 hrs, Volume= 0.006 af, Atten= 74%, Lag= 0.0 min
 Discarded = 0.0 cfs @ 11.85 hrs, Volume= 0.006 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 311.15' @ 12.36 hrs Surf.Area= 72 sf Storage= 36 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 8.2 min (768.7 - 760.5)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	58 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 144 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	72	0	0
311.90	72	144	144

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	24.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.0 cfs @ 11.85 hrs HW=309.92' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=309.90' (Free Discharge)
 ↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond 6P:

Inflow Area = 0.169 ac, 89.60% Impervious, Inflow Depth = 2.34" for 2-Year event
 Inflow = 0.4 cfs @ 12.13 hrs, Volume= 0.033 af
 Outflow = 0.2 cfs @ 12.00 hrs, Volume= 0.033 af, Atten= 56%, Lag= 0.0 min
 Discarded = 0.2 cfs @ 12.00 hrs, Volume= 0.033 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 310.30' @ 12.26 hrs Surf.Area= 771 sf Storage= 123 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 2.4 min (814.9 - 812.5)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	617 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,542 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	771	0	0
311.90	771	1,542	1,542

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	257.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.2 cfs @ 12.00 hrs HW=309.93' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.2 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=309.90' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond 7P:

Inflow Area = 0.053 ac, 100.00% Impervious, Inflow Depth = 2.96" for 2-Year event
 Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.013 af
 Outflow = 0.1 cfs @ 12.14 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.7 min
 Discarded = 0.1 cfs @ 12.14 hrs, Volume= 0.013 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 309.91' @ 12.14 hrs Surf.Area= 1,100 sf Storage= 5 cf

Plug-Flow detention time= 0.6 min calculated for 0.013 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (761.1 - 760.5)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	924 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,310 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	1,100	0	0
312.00	1,100	2,310	2,310

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.90'	110.0' long x 3.0' 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

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.3 cfs @ 12.14 hrs HW=309.91' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=309.90' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Link SP-1:

Inflow Area = 0.869 ac, 86.14% Impervious, Inflow Depth = 0.03" for 2-Year event
Inflow = 0.0 cfs @ 12.48 hrs, Volume= 0.002 af
Primary = 0.0 cfs @ 12.48 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-2:

Inflow Area = 1.171 ac, 19.69% Impervious, Inflow Depth = 0.00" for 2-Year event
Inflow = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af
Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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 S1: Roof, Grass	Runoff Area=4,182 sf 28.69% Impervious Runoff Depth=0.93" Tc=6.0 min CN=56 Runoff=0.1 cfs 0.007 af
Subcatchment S10:	Runoff Area=41,325 sf 2.73% Impervious Runoff Depth=0.10" Flow Length=262' Tc=42.6 min CN=37 Runoff=0.0 cfs 0.008 af
Subcatchment S11:	Runoff Area=16,957 sf 91.11% Impervious Runoff Depth=3.97" Tc=6.0 min CN=93 Runoff=1.5 cfs 0.129 af
Subcatchment S12:	Runoff Area=2,328 sf 100.00% Impervious Runoff Depth=4.53" Tc=6.0 min CN=98 Runoff=0.2 cfs 0.020 af
Subcatchment S2: Grass, Pavement	Runoff Area=2,287 sf 12.46% Impervious Runoff Depth=0.41" Flow Length=269' Tc=43.6 min CN=46 Runoff=0.0 cfs 0.002 af
Subcatchment S3:	Runoff Area=4,776 sf 100.00% Impervious Runoff Depth=4.53" Tc=6.0 min CN=98 Runoff=0.5 cfs 0.041 af
Subcatchment S4:	Runoff Area=7,927 sf 90.46% Impervious Runoff Depth=3.86" Tc=6.0 min CN=92 Runoff=0.7 cfs 0.059 af
Subcatchment S5:	Runoff Area=1,008 sf 100.00% Impervious Runoff Depth=4.53" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.009 af
Subcatchment S6:	Runoff Area=979 sf 100.00% Impervious Runoff Depth=4.53" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.008 af
Subcatchment S7:	Runoff Area=979 sf 100.00% Impervious Runoff Depth=4.53" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.008 af
Subcatchment S8:	Runoff Area=1,026 sf 100.00% Impervious Runoff Depth=4.53" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.009 af
Subcatchment S9:	Runoff Area=7,346 sf 89.60% Impervious Runoff Depth=3.86" Tc=6.0 min CN=92 Runoff=0.7 cfs 0.054 af
Reach OCS-1:	Avg. Flow Depth=0.13' Max Vel=1.04 fps Inflow=0.1 cfs 0.007 af 15.0" Round Pipe n=0.012 L=250.0' S=0.0020 '/' Capacity=3.1 cfs Outflow=0.1 cfs 0.007 af
Pond 1P:	Peak Elev=307.04' Storage=2,019 cf Inflow=2.7 cfs 0.230 af Discarded=0.5 cfs 0.230 af Primary=0.0 cfs 0.000 af Outflow=0.5 cfs 0.230 af
Pond 2P:	Peak Elev=311.80' Storage=55 cf Inflow=0.1 cfs 0.009 af Discarded=0.0 cfs 0.008 af Primary=0.0 cfs 0.000 af Outflow=0.1 cfs 0.009 af
Pond 3P:	Peak Elev=311.81' Storage=55 cf Inflow=0.1 cfs 0.008 af Discarded=0.0 cfs 0.008 af Primary=0.1 cfs 0.000 af Outflow=0.1 cfs 0.008 af

Pond 4P: Peak Elev=311.81' Storage=55 cf Inflow=0.1 cfs 0.008 af
Discarded=0.0 cfs 0.008 af Primary=0.1 cfs 0.000 af Outflow=0.1 cfs 0.008 af

Pond 5P: Peak Elev=311.81' Storage=55 cf Inflow=0.1 cfs 0.009 af
Discarded=0.0 cfs 0.008 af Primary=0.0 cfs 0.000 af Outflow=0.1 cfs 0.009 af

Pond 6P: Peak Elev=310.99' Storage=336 cf Inflow=0.7 cfs 0.054 af
Discarded=0.2 cfs 0.054 af Primary=0.0 cfs 0.000 af Outflow=0.2 cfs 0.054 af

Pond 7P: Peak Elev=309.92' Storage=8 cf Inflow=0.2 cfs 0.020 af
Discarded=0.2 cfs 0.020 af Primary=0.0 cfs 0.000 af Outflow=0.2 cfs 0.020 af

Link SP-1: Inflow=0.1 cfs 0.007 af
Primary=0.1 cfs 0.007 af

Link SP-2: Inflow=0.0 cfs 0.008 af
Primary=0.0 cfs 0.008 af

Total Runoff Area = 2.092 ac Runoff Volume = 0.355 af Average Runoff Depth = 2.04"
52.90% Pervious = 1.107 ac 47.10% Impervious = 0.985 ac

Summary for Subcatchment S1: Roof, Grass

Runoff = 0.1 cfs @ 12.14 hrs, Volume= 0.007 af, Depth= 0.93"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
2,982	39	>75% Grass cover, Good, HSG A
1,200	98	Roofs, HSG A
4,182	56	Weighted Average
2,982		71.31% Pervious Area
1,200		28.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Underground Storage
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S10:

Runoff = 0.0 cfs @ 21.90 hrs, Volume= 0.008 af, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
22,743	39	>75% Grass cover, Good, HSG A
17,452	30	Woods, Good, HSG A
1,130	98	Paved parking, HSG A
41,325	37	Weighted Average
40,195		97.27% Pervious Area
1,130		2.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.0	100	0.0050	0.04		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
4.6	162	0.0070	0.59		Shallow Concentrated Flow, B-C
					Short Grass Pasture Kv= 7.0 fps
42.6	262	Total			

Summary for Subcatchment S11:

Runoff = 1.5 cfs @ 12.13 hrs, Volume= 0.129 af, Depth= 3.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
15,450	98	Paved parking, HSG A
1,507	39	>75% Grass cover, Good, HSG A
16,957	93	Weighted Average
1,507		8.89% Pervious Area
15,450		91.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Underground Storage
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S12:

Runoff = 0.2 cfs @ 12.13 hrs, Volume= 0.020 af, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
2,328	98	Paved parking, HSG A
2,328		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, imper Pavers
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S2: Grass, Pavement

Runoff = 0.0 cfs @ 12.92 hrs, Volume= 0.002 af, Depth= 0.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
285	98	Paved parking, HSG A
2,002	39	>75% Grass cover, Good, HSG A
2,287	46	Weighted Average
2,002		87.54% Pervious Area
285		12.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.0	100	0.0050	0.04		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
5.6	169	0.0100	0.50		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
43.6	269	Total			

Summary for Subcatchment S3:

Runoff = 0.5 cfs @ 12.13 hrs, Volume= 0.041 af, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
4,776	98	Paved parking, HSG A
4,776		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Underground Storage
5.0	0				Total, Increased to minimum Tc = 6.0 min

Summary for Subcatchment S4:

Runoff = 0.7 cfs @ 12.13 hrs, Volume= 0.059 af, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
2,852	98	Roofs, HSG A
4,319	98	Paved parking, HSG A
756	39	>75% Grass cover, Good, HSG A
7,927	92	Weighted Average
756		9.54% Pervious Area
7,171		90.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Underground Storage
5.0	0				Total, Increased to minimum Tc = 6.0 min

Summary for Subcatchment S5:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.009 af, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
1,008	98	Roofs, HSG A
1,008		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S6:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.008 af, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
979	98	Roofs, HSG A
979		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S7:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.008 af, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
979	98	Roofs, HSG A
979		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S8:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.009 af, Depth= 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
1,026	98	Roofs, HSG A
1,026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S9:

Runoff = 0.7 cfs @ 12.13 hrs, Volume= 0.054 af, Depth= 3.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
6,582	98	Roofs, HSG A
764	40	pond?
7,346	92	Weighted Average
764		10.40% Pervious Area
6,582		89.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

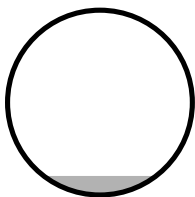
Summary for Reach OCS-1:

Inflow Area = 0.869 ac, 86.14% Impervious, Inflow Depth = 0.10" for 10-Year event
Inflow = 0.1 cfs @ 12.14 hrs, Volume= 0.007 af
Outflow = 0.1 cfs @ 12.26 hrs, Volume= 0.007 af, Atten= 18%, Lag= 6.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.04 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 0.47 fps, Avg. Travel Time= 8.8 min

Peak Storage= 16 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.13'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 3.1 cfs

15.0" Round Pipe
n= 0.012
Length= 250.0' Slope= 0.0020 '/'
Inlet Invert= 308.40', Outlet Invert= 307.90'



Summary for Pond 1P:

Inflow Area = 0.773 ac, 93.28% Impervious, Inflow Depth = 3.58" for 10-Year event
 Inflow = 2.7 cfs @ 12.13 hrs, Volume= 0.230 af
 Outflow = 0.5 cfs @ 11.75 hrs, Volume= 0.230 af, Atten= 82%, Lag= 0.0 min
 Discarded = 0.5 cfs @ 11.75 hrs, Volume= 0.230 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 307.04' @ 12.53 hrs Surf.Area= 2,075 sf Storage= 2,019 cf

Plug-Flow detention time= 20.7 min calculated for 0.230 af (100% of inflow)
 Center-of-Mass det. time= 20.7 min (804.3 - 783.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	305.56'	2,328 cf	15.75'W x 131.78'L x 4.00'H Field A 8,302 cf Overall - 2,481 cf Embedded = 5,821 cf x 40.0% Voids
#2A	306.06'	2,481 cf	ADS StormTech SC-740 +Cap x 54 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 18 Chambers
		4,809 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	305.56'	10.000 in/hr Exfiltration over Surface area
#2	Primary	308.56'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=0.5 cfs @ 11.75 hrs HW=305.60' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.5 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=305.56' (Free Discharge)
 ↑2=Sharp-Crested Rectangular Weir (Controls 0.0 cfs)

Summary for Pond 2P:

Inflow Area = 0.023 ac, 100.00% Impervious, Inflow Depth = 4.53" for 10-Year event
 Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.009 af
 Outflow = 0.1 cfs @ 12.24 hrs, Volume= 0.009 af, Atten= 39%, Lag= 6.5 min
 Discarded = 0.0 cfs @ 11.70 hrs, Volume= 0.008 af
 Primary = 0.0 cfs @ 12.24 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 311.80' @ 12.25 hrs Surf.Area= 72 sf Storage= 55 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 13.5 min (765.0 - 751.4)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	58 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 144 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	72	0	0
311.90	72	144	144

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	24.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.0 cfs @ 11.70 hrs HW=309.92' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 12.24 hrs HW=311.80' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.0 cfs @ 0.16 fps)

Summary for Pond 3P:

Inflow Area = 0.022 ac, 100.00% Impervious, Inflow Depth = 4.53" for 10-Year event
 Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.008 af
 Outflow = 0.1 cfs @ 12.25 hrs, Volume= 0.008 af, Atten= 16%, Lag= 7.4 min
 Discarded = 0.0 cfs @ 11.70 hrs, Volume= 0.008 af
 Primary = 0.1 cfs @ 12.25 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 311.81' @ 12.25 hrs Surf.Area= 72 sf Storage= 55 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 13.5 min (765.0 - 751.4)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	58 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 144 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	72	0	0
311.90	72	144	144

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	24.0' long x 3.0' 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

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.0 cfs @ 11.70 hrs HW=309.92' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 12.25 hrs HW=311.81' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.0 cfs @ 0.21 fps)

Summary for Pond 4P:

Inflow Area = 0.022 ac, 100.00% Impervious, Inflow Depth = 4.53" for 10-Year event
Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.008 af
Outflow = 0.1 cfs @ 12.25 hrs, Volume= 0.008 af, Atten= 16%, Lag= 7.4 min
Discarded = 0.0 cfs @ 11.70 hrs, Volume= 0.008 af
Primary = 0.1 cfs @ 12.25 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 311.81' @ 12.25 hrs Surf.Area= 72 sf Storage= 55 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)

Center-of-Mass det. time= 13.5 min (765.0 - 751.4)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	58 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 144 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	72	0	0
311.90	72	144	144

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	24.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.0 cfs @ 11.70 hrs HW=309.92' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 12.25 hrs HW=311.81' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.0 cfs @ 0.21 fps)

Summary for Pond 5P:

Inflow Area = 0.024 ac, 100.00% Impervious, Inflow Depth = 4.53" for 10-Year event
 Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.009 af
 Outflow = 0.1 cfs @ 12.21 hrs, Volume= 0.009 af, Atten= 34%, Lag= 5.0 min
 Discarded = 0.0 cfs @ 11.65 hrs, Volume= 0.008 af
 Primary = 0.0 cfs @ 12.21 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 311.81' @ 12.20 hrs Surf.Area= 72 sf Storage= 55 cf

Plug-Flow detention time= 13.5 min calculated for 0.009 af (100% of inflow)
 Center-of-Mass det. time= 13.5 min (765.0 - 751.4)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	58 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 144 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	72	0	0
311.90	72	144	144

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	24.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.0 cfs @ 11.65 hrs HW=309.92' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.0 cfs @ 12.21 hrs HW=311.81' (Free Discharge)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.0 cfs @ 0.18 fps)

Summary for Pond 6P:

Inflow Area = 0.169 ac, 89.60% Impervious, Inflow Depth = 3.86" for 10-Year event
 Inflow = 0.7 cfs @ 12.13 hrs, Volume= 0.054 af
 Outflow = 0.2 cfs @ 11.90 hrs, Volume= 0.054 af, Atten= 73%, Lag= 0.0 min
 Discarded = 0.2 cfs @ 11.90 hrs, Volume= 0.054 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 310.99' @ 12.35 hrs Surf.Area= 771 sf Storage= 336 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 7.4 min (802.4 - 795.0)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	617 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,542 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	771	0	0
311.90	771	1,542	1,542

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	257.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.2 cfs @ 11.90 hrs HW=309.93' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.2 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=309.90' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond 7P:

Inflow Area = 0.053 ac, 100.00% Impervious, Inflow Depth = 4.53" for 10-Year event
 Inflow = 0.2 cfs @ 12.13 hrs, Volume= 0.020 af
 Outflow = 0.2 cfs @ 12.14 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.7 min
 Discarded = 0.2 cfs @ 12.14 hrs, Volume= 0.020 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 309.92' @ 12.14 hrs Surf.Area= 1,100 sf Storage= 8 cf

Plug-Flow detention time= 0.6 min calculated for 0.020 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (752.0 - 751.4)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	924 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,310 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	1,100	0	0
312.00	1,100	2,310	2,310

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.90'	110.0' long x 3.0' 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

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.3 cfs @ 12.14 hrs HW=309.92' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=309.90' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Link SP-1:

Inflow Area = 0.869 ac, 86.14% Impervious, Inflow Depth = 0.10" for 10-Year event
Inflow = 0.1 cfs @ 12.26 hrs, Volume= 0.007 af
Primary = 0.1 cfs @ 12.26 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-2:

Inflow Area = 1.171 ac, 19.69% Impervious, Inflow Depth = 0.08" for 10-Year event
Inflow = 0.0 cfs @ 21.90 hrs, Volume= 0.008 af
Primary = 0.0 cfs @ 21.90 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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 S1: Roof, Grass	Runoff Area=4,182 sf 28.69% Impervious Runoff Depth=1.60" Tc=6.0 min CN=56 Runoff=0.2 cfs 0.013 af
Subcatchment S10:	Runoff Area=41,325 sf 2.73% Impervious Runoff Depth=0.35" Flow Length=262' Tc=42.6 min CN=37 Runoff=0.0 cfs 0.027 af
Subcatchment S11:	Runoff Area=16,957 sf 91.11% Impervious Runoff Depth=5.19" Tc=6.0 min CN=93 Runoff=2.0 cfs 0.168 af
Subcatchment S12:	Runoff Area=2,328 sf 100.00% Impervious Runoff Depth=5.77" Tc=6.0 min CN=98 Runoff=0.3 cfs 0.026 af
Subcatchment S2: Grass, Pavement	Runoff Area=2,287 sf 12.46% Impervious Runoff Depth=0.87" Flow Length=269' Tc=43.6 min CN=46 Runoff=0.0 cfs 0.004 af
Subcatchment S3:	Runoff Area=4,776 sf 100.00% Impervious Runoff Depth=5.77" Tc=6.0 min CN=98 Runoff=0.6 cfs 0.053 af
Subcatchment S4:	Runoff Area=7,927 sf 90.46% Impervious Runoff Depth=5.08" Tc=6.0 min CN=92 Runoff=0.9 cfs 0.077 af
Subcatchment S5:	Runoff Area=1,008 sf 100.00% Impervious Runoff Depth=5.77" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.011 af
Subcatchment S6:	Runoff Area=979 sf 100.00% Impervious Runoff Depth=5.77" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.011 af
Subcatchment S7:	Runoff Area=979 sf 100.00% Impervious Runoff Depth=5.77" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.011 af
Subcatchment S8:	Runoff Area=1,026 sf 100.00% Impervious Runoff Depth=5.77" Tc=6.0 min CN=98 Runoff=0.1 cfs 0.011 af
Subcatchment S9:	Runoff Area=7,346 sf 89.60% Impervious Runoff Depth=5.08" Tc=6.0 min CN=92 Runoff=0.8 cfs 0.071 af
Reach OCS-1:	Avg. Flow Depth=0.18' Max Vel=1.27 fps Inflow=0.2 cfs 0.013 af 15.0" Round Pipe n=0.012 L=250.0' S=0.0020 '/' Capacity=3.1 cfs Outflow=0.1 cfs 0.013 af
Pond 1P:	Peak Elev=307.83' Storage=3,180 cf Inflow=3.9 cfs 0.303 af Discarded=0.5 cfs 0.303 af Primary=0.0 cfs 0.000 af Outflow=0.5 cfs 0.303 af
Pond 2P:	Peak Elev=311.82' Storage=55 cf Inflow=0.1 cfs 0.011 af Discarded=0.0 cfs 0.010 af Primary=0.1 cfs 0.001 af Outflow=0.2 cfs 0.011 af
Pond 3P:	Peak Elev=311.81' Storage=55 cf Inflow=0.1 cfs 0.011 af Discarded=0.0 cfs 0.010 af Primary=0.1 cfs 0.001 af Outflow=0.1 cfs 0.011 af

Pond 4P: Peak Elev=311.81' Storage=55 cf Inflow=0.1 cfs 0.011 af
Discarded=0.0 cfs 0.010 af Primary=0.1 cfs 0.001 af Outflow=0.1 cfs 0.011 af

Pond 5P: Peak Elev=311.82' Storage=55 cf Inflow=0.1 cfs 0.011 af
Discarded=0.0 cfs 0.010 af Primary=0.2 cfs 0.001 af Outflow=0.2 cfs 0.011 af

Pond 6P: Peak Elev=311.64' Storage=537 cf Inflow=0.8 cfs 0.071 af
Discarded=0.2 cfs 0.071 af Primary=0.0 cfs 0.000 af Outflow=0.2 cfs 0.071 af

Pond 7P: Peak Elev=309.93' Storage=12 cf Inflow=0.3 cfs 0.026 af
Discarded=0.3 cfs 0.026 af Primary=0.0 cfs 0.000 af Outflow=0.3 cfs 0.026 af

Link SP-1: Inflow=0.1 cfs 0.013 af
Primary=0.1 cfs 0.013 af

Link SP-2: Inflow=0.0 cfs 0.027 af
Primary=0.0 cfs 0.027 af

Total Runoff Area = 2.092 ac Runoff Volume = 0.483 af Average Runoff Depth = 2.77"
52.90% Pervious = 1.107 ac 47.10% Impervious = 0.985 ac

Summary for Subcatchment S1: Roof, Grass

Runoff = 0.2 cfs @ 12.14 hrs, Volume= 0.013 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
2,982	39	>75% Grass cover, Good, HSG A
1,200	98	Roofs, HSG A
4,182	56	Weighted Average
2,982		71.31% Pervious Area
1,200		28.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Underground Storage
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S10:

Runoff = 0.0 cfs @ 13.42 hrs, Volume= 0.027 af, Depth= 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
22,743	39	>75% Grass cover, Good, HSG A
17,452	30	Woods, Good, HSG A
1,130	98	Paved parking, HSG A
41,325	37	Weighted Average
40,195		97.27% Pervious Area
1,130		2.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.0	100	0.0050	0.04		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.10"
4.6	162	0.0070	0.59		Shallow Concentrated Flow, B-C Short Grass Pasture Kv= 7.0 fps
42.6	262	Total			

Summary for Subcatchment S11:

Runoff = 2.0 cfs @ 12.13 hrs, Volume= 0.168 af, Depth= 5.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
15,450	98	Paved parking, HSG A
1,507	39	>75% Grass cover, Good, HSG A
16,957	93	Weighted Average
1,507		8.89% Pervious Area
15,450		91.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Underground Storage
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S12:

Runoff = 0.3 cfs @ 12.13 hrs, Volume= 0.026 af, Depth= 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
2,328	98	Paved parking, HSG A
2,328		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, imper Pavers
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S2: Grass, Pavement

Runoff = 0.0 cfs @ 12.74 hrs, Volume= 0.004 af, Depth= 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
285	98	Paved parking, HSG A
2,002	39	>75% Grass cover, Good, HSG A
2,287	46	Weighted Average
2,002		87.54% Pervious Area
285		12.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.0	100	0.0050	0.04		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.10"
5.6	169	0.0100	0.50		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
43.6	269	Total			

Summary for Subcatchment S3:

Runoff = 0.6 cfs @ 12.13 hrs, Volume= 0.053 af, Depth= 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
4,776	98	Paved parking, HSG A
4,776		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Underground Storage
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S4:

Runoff = 0.9 cfs @ 12.13 hrs, Volume= 0.077 af, Depth= 5.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
2,852	98	Roofs, HSG A
4,319	98	Paved parking, HSG A
756	39	>75% Grass cover, Good, HSG A
7,927	92	Weighted Average
756		9.54% Pervious Area
7,171		90.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Underground Storage
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S5:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.011 af, Depth= 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
1,008	98	Roofs, HSG A
1,008		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S6:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.011 af, Depth= 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
979	98	Roofs, HSG A
979		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S7:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.011 af, Depth= 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
979	98	Roofs, HSG A
979		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S8:

Runoff = 0.1 cfs @ 12.13 hrs, Volume= 0.011 af, Depth= 5.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
1,026	98	Roofs, HSG A
1,026		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Summary for Subcatchment S9:

Runoff = 0.8 cfs @ 12.13 hrs, Volume= 0.071 af, Depth= 5.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
NRCC 24-hr D 25-Year Rainfall=6.01"

Area (sf)	CN	Description
6,582	98	Roofs, HSG A
* 764	40	pond?
7,346	92	Weighted Average
764		10.40% Pervious Area
6,582		89.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Drip Edge
5.0	0	Total, Increased to minimum Tc = 6.0 min			

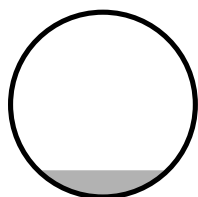
Summary for Reach OCS-1:

Inflow Area = 0.869 ac, 86.14% Impervious, Inflow Depth = 0.18" for 25-Year event
Inflow = 0.2 cfs @ 12.14 hrs, Volume= 0.013 af
Outflow = 0.1 cfs @ 12.23 hrs, Volume= 0.013 af, Atten= 13%, Lag= 5.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.27 fps, Min. Travel Time= 3.3 min
Avg. Velocity = 0.53 fps, Avg. Travel Time= 7.8 min

Peak Storage= 27 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.18'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 3.1 cfs

15.0" Round Pipe
n= 0.012
Length= 250.0' Slope= 0.0020 '/'
Inlet Invert= 308.40', Outlet Invert= 307.90'



Summary for Pond 1P:

Inflow Area = 0.773 ac, 93.28% Impervious, Inflow Depth = 4.70" for 25-Year event
 Inflow = 3.9 cfs @ 12.14 hrs, Volume= 0.303 af
 Outflow = 0.5 cfs @ 11.60 hrs, Volume= 0.303 af, Atten= 88%, Lag= 0.0 min
 Discarded = 0.5 cfs @ 11.60 hrs, Volume= 0.303 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 307.83' @ 12.66 hrs Surf.Area= 2,075 sf Storage= 3,180 cf

Plug-Flow detention time= 36.3 min calculated for 0.302 af (100% of inflow)
 Center-of-Mass det. time= 36.3 min (811.8 - 775.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	305.56'	2,328 cf	15.75'W x 131.78'L x 4.00'H Field A 8,302 cf Overall - 2,481 cf Embedded = 5,821 cf x 40.0% Voids
#2A	306.06'	2,481 cf	ADS StormTech SC-740 +Cap x 54 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap 3 Rows of 18 Chambers
		4,809 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	305.56'	10.000 in/hr Exfiltration over Surface area
#2	Primary	308.56'	4.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)

Discarded OutFlow Max=0.5 cfs @ 11.60 hrs HW=305.60' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.5 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=305.56' (Free Discharge)
 ↑2=Sharp-Crested Rectangular Weir (Controls 0.0 cfs)

Summary for Pond 2P:

Inflow Area = 0.023 ac, 100.00% Impervious, Inflow Depth = 5.77" for 25-Year event
 Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.011 af
 Outflow = 0.2 cfs @ 12.15 hrs, Volume= 0.011 af, Atten= 0%, Lag= 1.6 min
 Discarded = 0.0 cfs @ 11.55 hrs, Volume= 0.010 af
 Primary = 0.1 cfs @ 12.15 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 311.82' @ 12.15 hrs Surf.Area= 72 sf Storage= 55 cf

Plug-Flow detention time= 13.0 min calculated for 0.011 af (100% of inflow)
 Center-of-Mass det. time= 13.0 min (760.2 - 747.1)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	58 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 144 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	72	0	0
311.90	72	144	144

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	24.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.0 cfs @ 11.55 hrs HW=309.92' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.1 cfs @ 12.15 hrs HW=311.82' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.1 cfs @ 0.31 fps)

Summary for Pond 3P:

Inflow Area = 0.022 ac, 100.00% Impervious, Inflow Depth = 5.77" for 25-Year event
 Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.011 af
 Outflow = 0.1 cfs @ 12.16 hrs, Volume= 0.011 af, Atten= 0%, Lag= 1.9 min
 Discarded = 0.0 cfs @ 11.60 hrs, Volume= 0.010 af
 Primary = 0.1 cfs @ 12.16 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 311.81' @ 12.15 hrs Surf.Area= 72 sf Storage= 55 cf

Plug-Flow detention time= 13.0 min calculated for 0.011 af (100% of inflow)

Center-of-Mass det. time= 13.0 min (760.2 - 747.1)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	58 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 144 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	72	0	0
311.90	72	144	144

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	24.0' long x 3.0' 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

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.0 cfs @ 11.60 hrs HW=309.93' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.1 cfs @ 12.16 hrs HW=311.81' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.1 cfs @ 0.26 fps)

Summary for Pond 4P:

Inflow Area = 0.022 ac, 100.00% Impervious, Inflow Depth = 5.77" for 25-Year event
Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.011 af
Outflow = 0.1 cfs @ 12.16 hrs, Volume= 0.011 af, Atten= 0%, Lag= 1.9 min
Discarded = 0.0 cfs @ 11.60 hrs, Volume= 0.010 af
Primary = 0.1 cfs @ 12.16 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 311.81' @ 12.15 hrs Surf.Area= 72 sf Storage= 55 cf

Plug-Flow detention time= 13.0 min calculated for 0.011 af (100% of inflow)

Center-of-Mass det. time= 13.0 min (760.2 - 747.1)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	58 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 144 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	72	0	0
311.90	72	144	144

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	24.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.0 cfs @ 11.60 hrs HW=309.93' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.1 cfs @ 12.16 hrs HW=311.81' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.1 cfs @ 0.26 fps)

Summary for Pond 5P:

Inflow Area = 0.024 ac, 100.00% Impervious, Inflow Depth = 5.77" for 25-Year event
 Inflow = 0.1 cfs @ 12.13 hrs, Volume= 0.011 af
 Outflow = 0.2 cfs @ 12.15 hrs, Volume= 0.011 af, Atten= 0%, Lag= 1.5 min
 Discarded = 0.0 cfs @ 11.55 hrs, Volume= 0.010 af
 Primary = 0.2 cfs @ 12.15 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 311.82' @ 12.15 hrs Surf.Area= 72 sf Storage= 55 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 13.0 min (760.1 - 747.1)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	58 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 144 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	72	0	0
311.90	72	144	144

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	24.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.0 cfs @ 11.55 hrs HW=309.92' (Free Discharge)
 ↑**1=Exfiltration** (Exfiltration Controls 0.0 cfs)

Primary OutFlow Max=0.1 cfs @ 12.15 hrs HW=311.82' (Free Discharge)
 ↑**2=Broad-Crested Rectangular Weir** (Weir Controls 0.1 cfs @ 0.33 fps)

Summary for Pond 6P:

Inflow Area = 0.169 ac, 89.60% Impervious, Inflow Depth = 5.08" for 25-Year event
 Inflow = 0.8 cfs @ 12.13 hrs, Volume= 0.071 af
 Outflow = 0.2 cfs @ 11.80 hrs, Volume= 0.071 af, Atten= 79%, Lag= 0.0 min
 Discarded = 0.2 cfs @ 11.80 hrs, Volume= 0.071 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 311.64' @ 12.42 hrs Surf.Area= 771 sf Storage= 537 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 13.3 min (799.3 - 786.0)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	617 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 1,542 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	771	0	0
311.90	771	1,542	1,542

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.80'	257.0' long x 3.0' 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 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.2 cfs @ 11.80 hrs HW=309.92' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.2 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=309.90' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Pond 7P:

Inflow Area = 0.053 ac, 100.00% Impervious, Inflow Depth = 5.77" for 25-Year event
 Inflow = 0.3 cfs @ 12.13 hrs, Volume= 0.026 af
 Outflow = 0.3 cfs @ 12.13 hrs, Volume= 0.026 af, Atten= 9%, Lag= 0.3 min
 Discarded = 0.3 cfs @ 12.13 hrs, Volume= 0.026 af
 Primary = 0.0 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 309.93' @ 12.15 hrs Surf.Area= 1,100 sf Storage= 12 cf

Plug-Flow detention time= 0.6 min calculated for 0.026 af (100% of inflow)
 Center-of-Mass det. time= 0.6 min (747.8 - 747.1)

Volume	Invert	Avail.Storage	Storage Description
#1	309.90'	924 cf	Custom Stage Data (Prismatic) Listed below (Recalc) 2,310 cf Overall x 40.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
309.90	1,100	0	0
312.00	1,100	2,310	2,310

Device	Routing	Invert	Outlet Devices
#1	Discarded	309.90'	10.000 in/hr Exfiltration over Surface area
#2	Primary	311.90'	110.0' long x 3.0' 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

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Discarded OutFlow Max=0.3 cfs @ 12.13 hrs HW=309.93' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.3 cfs)

Primary OutFlow Max=0.0 cfs @ 0.00 hrs HW=309.90' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.0 cfs)

Summary for Link SP-1:

Inflow Area = 0.869 ac, 86.14% Impervious, Inflow Depth = 0.18" for 25-Year event
Inflow = 0.1 cfs @ 12.23 hrs, Volume= 0.013 af
Primary = 0.1 cfs @ 12.23 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Summary for Link SP-2:

Inflow Area = 1.171 ac, 19.69% Impervious, Inflow Depth = 0.28" for 25-Year event
Inflow = 0.0 cfs @ 13.42 hrs, Volume= 0.027 af
Primary = 0.0 cfs @ 13.42 hrs, Volume= 0.027 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

APPENDIX C

STORMWATER QUALITY CALCULATIONS

NORTHEAST CIVIL SOLUTIONS, INC.

Surveying - Engineering - Land Planning
381 Payne Road, Scarborough, Maine 04074
Tel: 207-883-1000 Fax: 207-883-1001

Project: 41878 Fielding Condos
Sheet No. 1 Of 1
Calc by: TAL Date: .12-16-20
Check by: _____ Date: _____
Scale: _____

Underground Infiltration #1

Impervious Area: 31409 sf

Landscaped Area: 2262 sf

Filter Area: A = (5% impervious area) + (2% landscaped area)

A = 1570 sf + 45.2 sf

A = 1616 sf

Area Provided = 2042 ✓

Volume: V = (1" x impervious area) + (0.4" x landscaped area)

V = 2617.416667 cf 75 cf

V = 2693 cf

Volume Provided = 4809 ✓

in a 25 year storm the pond detains 4809 cf of water

Given: 1.0 in/hr, infiltration rate

2042 sf, filter area

4809 cf, detention volume

Time = volume / rate

Rate = area x infiltratio rate

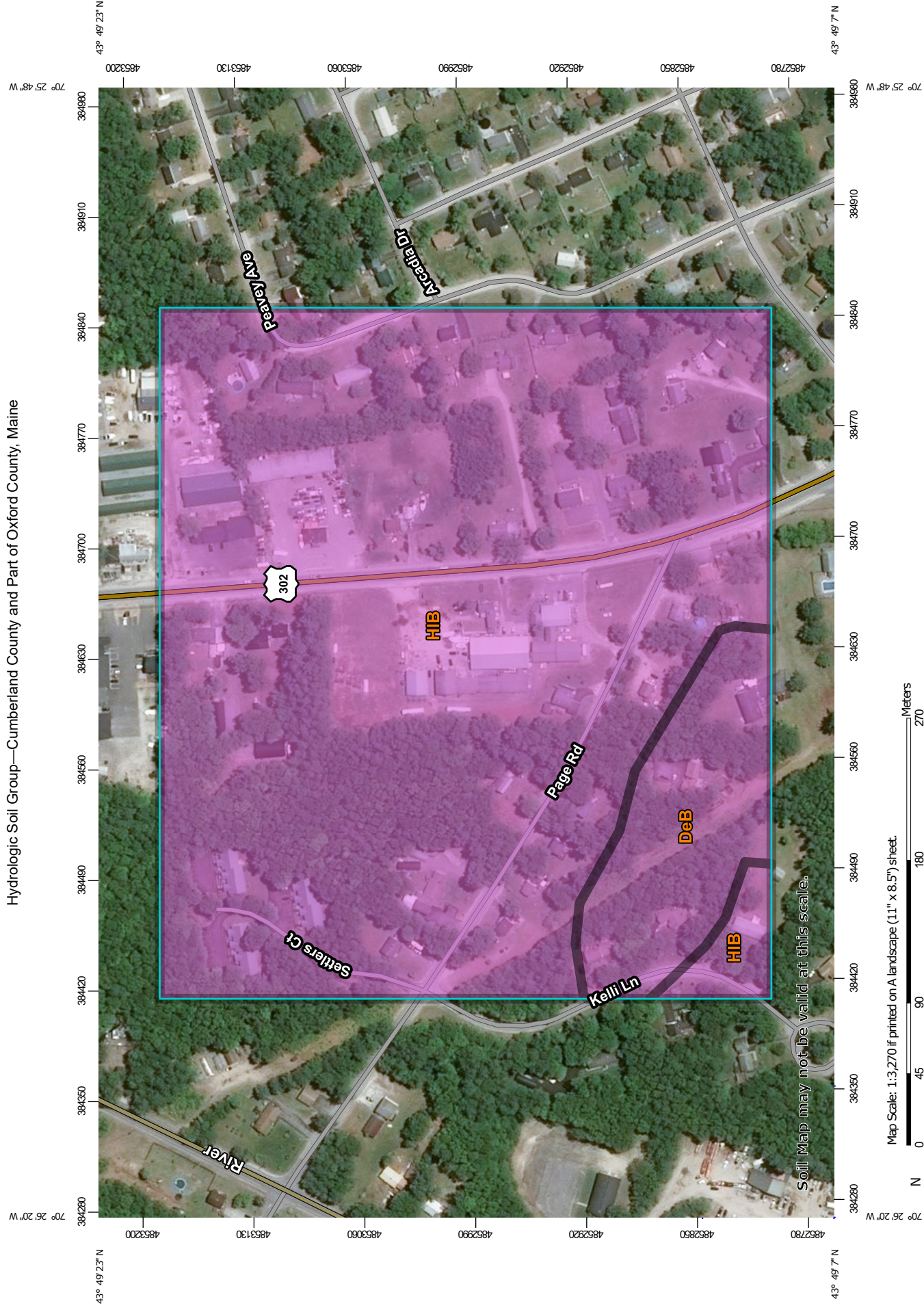
Rate = 2042 x 1.0 = 0.05 cfs

Time = 4809 / 0.05

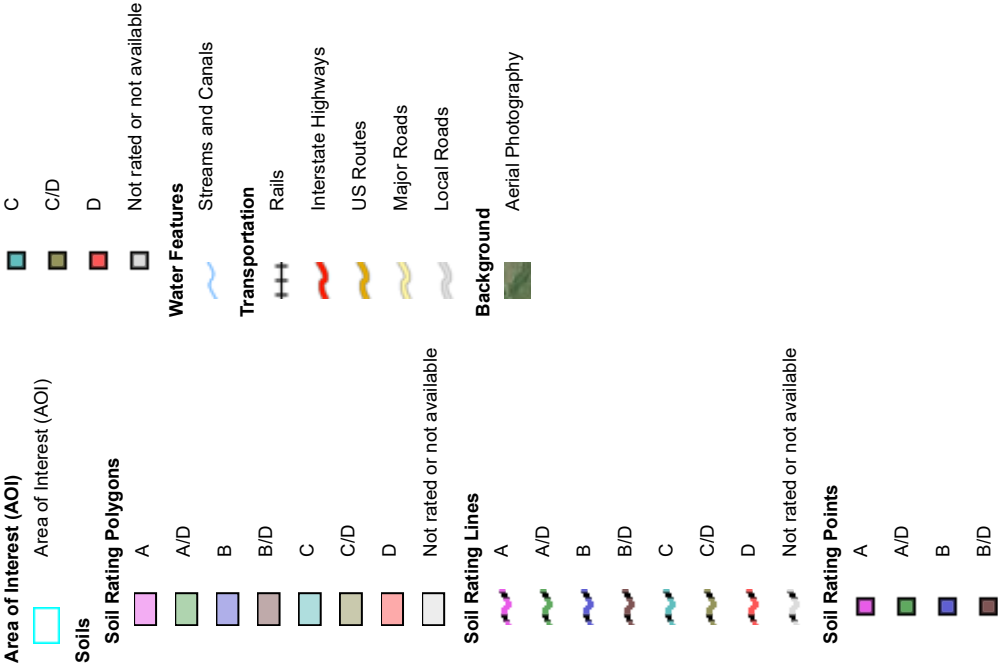
Time = **28.3 hr** ✓ Drains within 24-48 Hours

APPENDIX D

FEMA Firm Map



MAP LEGEND



MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 16, Sep 16, 2019

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

Date(s) aerial images were photographed: Jun 7, 2019—Jul 2, 2019

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
DeB	Deerfield loamy fine sand, 3 to 8 percent slopes	A	4.4	10.5%
HIB	Hinckley loamy sand, 3 to 8 percent slopes	A	37.5	89.5%
Totals for Area of Interest			41.9	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

ADAMS (Typic Haplorthods)

SETTING

Parent Material:	Derived from outwash, stratified drift material.
Landform:	Occupy outwash terraces and sand plains, deltas, lake plains, moraines, terraces and eskers.
Position in Landscape:	Usually occupies the upper positions of landform.
Slope Gradient Ranges:	(A) 0-3% (B) 3-8% (C) 8-20% (D) 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class:	Somewhat excessively to excessively well drained, with no evidence of high groundwater table within 3.5 feet of the soil surface.		
Typical Profile Description:	Surface layer:	Pinkish gray sand, 0-4"	
	Subsurface layer:	Dark brown loamy sand, 4-10"	
	Subsoil layer:	Brown & yellowish brown sand,10-26"	
	Substratum:	Grayish brown sand, 26-70"	
Hydrologic Group:	Group A		
Surface Run Off:	Very slow to medium		
Permeability:	Rapid or very rapid		
Depth to Bedrock:	Very deep, greater than sixty inches		
Hazard to Flooding:	None		

INCLUSIONS (Within Mapping Unit)

Similar:	Soils that are fine sandy loam to very fine sandy loam to a depth of 20 inches, Colton.
Dissimilar:	Croghan soils that are moderately well drained and occur in shallow depressions.

USE AND MANAGEMENT

Development with subsurface wastewater disposal: Adams soil is suitable for subsurface wastewater disposal in accordance with State of Maine Rules for Subsurface Wastewater Disposal. This soil requires a 24-inch separation distance from the bottom of the disposal area and the seasonal high groundwater table. This soil requires a minimum hydraulic loading rate of 2.6 square feet/gpd for disposal system design. Adams soil is suited for building site development.

Development with public sewer and water: Adams soil is suited for building site development. Proper foundation drainage is recommended.

Stormwater Design: The Adams soil is well drained to excessively well drained. The groundwater table is typically below 4.0'. The groundwater table in this particular setting within the study area is greater than 8.0'. This soil is well suited for subsurface stormwater treatments. The expected soil permeability is 6.0 to 20.0 inches/hour in the upper horizon approximately 0-2', and 20.0 inches/hour in the lower horizons.

COLTON (Typic Haplorthods)

SETTING

Parent Material:	Glacio-fluvial deposits.
Landform:	Terraces, kames, eskers, and outwash plains.
Position in Landscape:	Upper portions of landforms.
Slope Gradient Ranges:	(B) 3-8% (C) 8-20% (D) 20%+

COMPOSITION AND SOIL CHARACTERISTICS

Drainage Class:	Excessively drained, with no observed water table within 6 feet of the soil surface.		
Typical Profile Description:	Surface layer:	Grayish brown gravelly loamy sand, 0-7"	
	Subsurface layer:	Dark reddish brown gravelly loamy sand, 7-11"	
	Subsoil layer:	Reddish brown gravelly loamy sand, 11-16"	
	Substratum:	Yellowish brown and pale brown very gravelly sand, 16-70"	
Hydrologic Group:	Group A		
Surface Run Off:	Slow		
Permeability:	Rapid or very rapid in the solum, very rapid in the substratum.		
Depth to Bedrock:	Very deep, greater than 60".		
Hazard to Flooding:	None		

INCLUSIONS (Within Mapping Unit)

Similar:	Hermon, Adams, Stetson
Dissimilar:	Duane, Croghan, Hermon, Waumbek

USE AND MANAGEMENT

Development with subsurface wastewater disposal: Colton soil is suitable for development. In addition, Colton soil meets the minimum requirements for subsurface wastewater disposal, in accordance with the State of Maine Rules for Subsurface Wastewater Disposal. Colton soil requires a 24" separation distance between the seasonal high groundwater table and the bottom of any disposal area, and also requires a minimum of 2.6 and 1.3 sq.ft/gpd for disposal beds and chamber area, respectively.

Soil Limitations for Proposed Use: The soil limiting factor for proposed development is large stones, which offer 'moderate' limitation. Typically, larger excavators and associated heavy machinery easily overcome limitations:

For stormwater design: Colton soils are excessively drained, generally with no water table within 6' of the soil surface. Permeabilities are greater than 6 inches per hour from 0-22", and greater than 20 inches per hour in the coarse textured subsoils (22"-65").