YORK RIDGE SUBDIVISION

TOWN OF NORTH YARMOUTH, MAINE
SUBDIVISION APPLICATION

Prepared For:

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Atlantic Resource Consultants
Engineering Strategies and Solutions

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PROJECT DESCRIPTION

The following package is to satisfy the conditions of completeness determined by the North Yarmouth Planning Board during the meeting of May 12th, 2021. In addition, the applicant is hoping the attached information will address any remaining concerns and allow for Final Approval to be given during the next scheduled Planning Board meeting.

The following package includes the recorded Deed proving ownership of the property; the updated HOA documents with the modified definition of "Road"; the entire Stormwater Report including the missing maintenance document; the updated Site Plan showing additional buffering along Route 115; the Stormwater Plans; and the updated Subdivision Plat showing the Connectivity Easement, Meadow Buffer, updated monumentation/ legend, and the removal of "Open Space" from the area along 115.

ATTACHMENT A
(PENDING)

ATTACHMENT B

DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS
York Ridge Neighborhood Subdivision, North Yarmouth

This DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS, is made as of May ___, 2021 by CONSTRUCTION AGGREGATE, INC., a Maine Corporation, whose mailing address is P.O. Box 307, Cumberland, Maine 04021, hereinafter referred to as the "Declarant."

WITNESSETH:

WHEREAS, Declarant is the owner of certain property in the Town of North Yarmouth, County of Cumberland, and State of Maine, consisting of Lots 1 through 13, York Ridge Lane, so- called, and the Open Space/No-Lot Buffer, all being more particularly shown on the plan entitled, "York Ridge Neighborhood Subdivision, North Yarmouth, Maine," dated _____, approved by the Town of North Yarmouth Planning Board on _____, 2021, and recorded in the Cumberland County Registry of Deeds in Plan Book ___, Page ___ (the "Plan");

WHEREAS, the Declarant desires to allow for the use, benefit and enjoyment of Lots 1 through 13 as shown on the Plan, and the Road, as defined below (collectively, the "Property") in accordance with a harmonious plan, consistent with the approvals, land use and zoning ordinances of the Town of North Yarmouth and the requirements of the State of Maine, and to this end desires that the Property shall be subjected to certain restrictions, reservations, covenants and easements as hereinafter set forth.

NOW THEREFORE, the Declarant HEREBY COVENANTS AND AGREES that the Property and rights appurtenant thereto are and shall be held subject to the restrictions, reservations, covenants and easements set forth in this Declaration which Declaration shall inure to the benefit of and be binding upon the Declarant, its successors, and assigns, and the owners ofthe Property, their respective heirs, successors and assigns and which shall run with the title to the Property and be binding on all parties having any right, title or interest in the Property or any part thereof, their heirs, successors and assigns, and shall inure to the benefit of each owner thereof.

ARTICLE I
Definitions

l. Owner. "Owner" shall mean and refer to the record owner, whether one or more persons or entities, of the fee simple title to any and all lots which are part of the property for thepurposes of this Declaration. "Owner" shall include contract sellers but shall excluded those having such interest merely as security for the performance of an obligation.

2. Building. "Building" shall mean and refer to any residential structure or similar improvement.

3. Common Expenses. "Common Expenses" shall mean and refer to expenditures made by, or financial liabilities of, the Association, together with any allocations to reserves.

4. Association. "Association" shall mean and refer to York Ridge Neighborhood Subdivision Homeowners Association, a Maine non-profit corporation, its successors and assigns.

5. Lot. "Lot" shall mean and refer to each of the thirteen (13) numbered residential lot shown upon the Plan.

6. Declarant. "Declarant" shall mean and refer to Construction Aggregate, Inc., and shall also include its successors and assigns, if such successors and assigns should acquire more than one undeveloped lot from the Declarant for the purpose of development,and (b) an assignment or partial assignment of Declarant's rights hereunder.

7. Declaration. "Declaration" shall mean and refer to this Declaration of Covenants,Conditions and Restrictions.

8. Road. "Road" shall mean and refer to the subdivision road referenced as "York Ridge Lane" on the Plan, the abutting sidewalks and related utility and drainage easement areas designated on the Plan. Including all storm drainage pipe, appurtenances and soil filter drainage ponds.

ARTICLE II.
Protective Covenants and Restrictions

Each Lot is hereby made subject to the following protective covenants and restrictions:

1. Residential use. Each Lot shall be used for single family residential purposes only. No Lot owner shall reside in any trailer, mobile home, or other temporary structure on suchland, or allow others to do so. No trade business, or commercial activity of any nature shall be conducted on such lot except those permitted by the Town of North Yarmouth, "Home Occupation" Zoning Ordinance.

2. Building. All buildings must be a single story minimum size of 1400 square feet of living space or a two story minimum size of 1800 square feet of living space. All buildings or other structures shall have the roof and outside finish completed within one (1) year after construction has begun. All landscaping and driveway surfacing shall be completed within one (1) year after occupancy of the dwelling. All driveways must have one (1) layer of hot bituminous asphalt.

3. Easements. The property is subject to all easements shown on the Plan and the Open Space is subject to a 50'x 50' Fire Protection Easement to the Town of North Yarmouth, said easements being for the benefit of the Declarant, its successorsand assigns, the Association, and third party public utilities to construct, maintain, alter and repair any culverts, swales, pipes, or other facilities necessary for adequate drainage.

4. Exterior Features. Each home located on a Lot shall be required to have one granite yard light post with matching light fixture. Each home located on a Lot shall be required tohave granite steps to the front door or front porch area.

5. Septic System. Lot owners with under 1 acre shall install a Fuji Clean CEN 5 unit to treat water before itis discharged into a drain field. The Association shall be responsible for Fuji septic system bi-annual maintenance. Such expenses shall be included and allocated to Lot owners through the periodic Association assessments. The Town of North Yarmouth and/or its agent shall have the right to periodically inspect said systems.

ARTICLE III
Subdivision Road

Declarant shall construct the Road, the abutting sidewalks, and the related storm water and erosion control facilities, all in compliance with applicable law s and regulations. Each and every Lot shall have as an appurtenance to such Lot a right and easement to use the Road for vehicular and pedestrian ingress and egress.

The Association shall be responsible for the maintenance, upkeep, repair and replacement of the Road, regardless of whether ownership of the Road is transferred to the Association. The Road shall be maintained by the Association in a safe and passable condition, at all times. The Road shall be plowed free of snow within a reasonable amount of time after each snowfall. The Road shall be paved and maintained in that condition, provided the initial paving of the Road shall be at the Declarant's sole expense.

Upon completion of construction of the Road and related stormwater and erosion control facilities, Declarant shall have no further liability for the maintenance, upkeep, repair and replacement of the Road. By acceptance of a deed to a Lot, each owner agrees to pay its share of the costs of such maintenance, upkeep, repair and replacement of the Road, as further set forth herein and in the Bylaws.

The Declarant reserves the fee title to the Road as shown on the Plan and reserves the right to convey utility and other sewer easements and associated easements to public utilities, and the right to convey the fee title to the Road to the Association, or the Town of North Yarmouth upon acceptance as a public street. The Association shall accept ownership of the Road if requested to do so by Declarant, and recording of the deed conveying the Road shall be deemed conclusive evidence of acceptance by the Association.

ARTICLE IV
Common Space

The Common Space, which is to be owned by the Homeowners Association, is identified on Sheet C-100 with a dotted line, (hereinafter referred to as the "Common Space"), shall be protected, preserved and maintained in an open, natural and substantially undeveloped state. The "Common Space" shall not be used as the location for dwelling units or other nonresidential buildings or parking except as provided for below and shall only be used for the conservation and protection of natural resource areas, wildlife habitats, scenic features or views, streets and trails to be constructed, as shown on the Plan.

No unreasonably noisy behavior shall be permitted in the Common Space. Public access to the Common Space shall not be permitted, without the prior consent of the Homeowners Association.

The destruction or removal of standing timber, plants, shrubs or other vegetation shall not be permitted in the Common Space, as shown on the Plan, except however, the following:

i. The right to clear and restore forest cover and other vegetation that is damaged or disturbed by the forces of nature, such as fire or disease, when necessary to prevent the spread of disease;

ii. The right to clear and restore forest cover and other vegetation, in the event of an emergency, when necessary to prevent the spread of fire

The Association shall be responsible for the administration, management and maintenance of the Common Space designated as Common Space on the Plan.

ARTICLE V
Enforcement Association

1. The Association, as agent for the Lot owners under an irrevocable agency coupled with aninterest, as beneficiary of all covenants and provisions herein contained and as assignee ofthe Declarant, is vested with the right and duty, in its own behalf and in behalf of all Lot owners, to enforce all the covenants, liens, restrictions, and provisions herein contained; except for any specifically reserved to the Declarant under Articles II and III, and otherwise assigned or transferred.

2. Each and every owner or owners of a Lot shall be a Member of the Association, with membership therein being an appurtenant obligation of each Lot owner(s). Subject to the provisions in Article V concerning Declarant's voting rights, all Lot owners shall be entitled to one (I) vote for each Lot owned. A simple majority of the members (based on votes per Lot) of the Association shall constitute a quorum for any meeting of the Association, and a simple majority of the members (based on votes per Lot) present at a meeting may take any action. Other Provisions for the operations of the Association may be set forth in the Bylaws to be adopted by the Association. Any conflict between this Declaration and the Bylaw, other than Declarant's voting rights set forth in Article V, shall be controlled by the Bylaws. Any transfer of title to a Lot automatically transfers theregular membership appurtenant to that Lot to the transferee(s). A transfer in mortgage, how eve r, shall not transfer membership until a foreclosure sale or sale in lieu of foreclosure is effectuated. For purposes of this Declaration, the effective date of transfer under the foregoing sentence shall be the earliest of (i) the expiration of the applicable period of redemption under the foreclosure laws of the State of Maine, or (ii) the date of execution of any deed-in-lieu of foreclosure.

3. The provisions of this Declaration have been adopted for the benefit of the owners of the Lots. Therefore, the violations or attempted violations of any covenant or restriction in this Declaration is hereby declared a nuisance, which may be remedied by any appropriate legal or equitable proceeding. If any owner shall attempt, violate or permit any violations of any of the covenants, restrictions or reservations described herein, the Declarant or the Association may commence proceedings at law or in equity to recover damages or other awards for such attempts, violations or pem1itting of the same, or to enjoin the furtherance or continuations of such attempts or violations, or both.

4. A Lot owner who is found by a court of competent jurisdiction to have violated any of the covenants, restrictions or reservations described herein, that decision shall constitute a lien on the Lot in the same manner and priority as the Assessments (as hereinafter defined). Proceedings may be maintained irrespective of the waiver of any prior violation or attempt by the same or other owners, and the failure to enforce on any one (1) occasion shall in no event be deemed to be a waiver of the right to do so thereafter as to the original breach or as to any breach subsequent thereto.

5. The Association shall make such assessments to the members as it may deem necessary tocarry out the functions and fulfill the obligations of the Association as herein described oras described in the Bylaws of the Association. Each Lot owner(s) shall apply to the Association annually, or in such periodic installments as the Association may determine, his/her proportionate share shall be one (1) share for each Lot, so that all lot owners share equally, whether or not a lot has a residence thereon. Assessments and other proper chargesauthorized and billed by the Association shall be a charge on the Lot and shall be a

continuing lien upon the lot upon which such assessment is made. If the Assessment to a lot owner shall not be paid within thirty (30) days after the date when due, then said Assessment shall be delinquent and shall, together with interest at the rate of eighteen percent (18%) per annum or any portion thereof, costs of collection and reasonable attorneys' fees, become a continuing lien on the Lot owned by the delinquent Lot owner which lien shall bind the Lot, with the buildings and improvements thereon as well as the delinquent Lot owner, his or her heirs, successors, personal representatives and assigns. Said lien may be enforced in the same manner as the lien for assessments against condominium units provided in the Maine Statutes, as the same may be amended. Said lien for unpaid assessments shall be prior to all liens for real estate taxes and other governmental, municipal assessment s or similar charges against the Lot. All such charges,in addition to being a lien shall also constitute the personal liability of the owner of the lot so assessed at the time of the Assessment.

ARTICLE VI
Amendment; Special Voting Rights

This Declaration may be amended by a vote or by written approval of the Lot owners towhom at least fifty-one (51%) percent of the votes are allocated. Each Lot owner, other than the Declarant, shall be entitled to one vote for each Lot owned by that Lot owner, but in no event shall more than one vote be cast with respect to any Lot other than those, if any, owned by the Declarant. The Declarant (or any successor Declarant) shall be entitled to three (3) votes for each Lot owned by Declarant the expiration of five (5) years from the date of conveyance of the first Lot by Declarant to a purchaser. Thereafter, the Declarant shall be entitled to one (1) vote for each lot owned by the Declarant.

So long as the Declarant owns any portion of the Property, any amendments of this Declaration shall be effective only if approved in a written instrument or instruments executedby the Declarant.

ARTICLE VII
General Provisions

If a court of competent jurisdiction shall hold invalid or unenforceable any part of any provision contained in this Declaration, such holding shall not impair, invalidate or otherwise affect the remainder of this Declaration, which shall remain in full force and effect.

Declarant hereby retains the right to assign to a successor in title all or any of the rights,privileges, easements, powers and duties herein retained or reserved by the Declarant or its successors and assigns, by written instrument or instruments in the nature of an assignment which shall be effective when recorded in the Registry of Deeds, and Declarant, shall then be relieved and discharged from every duty and obligation so assigned.

Declarant hereby reserves the right to specifically assign to any other person or entity all or any portion its rights and powers established hereunder in connection with its conveyance of the remaining land owned by the assignor in the Property or its mortgage of land in the Property,and such assignment, other than an assignment as security, if accompanied by an assumption of Declarant's obligations hereunder by the assignee, shall when recorded in the Registry of Deeds for Cumberland County, Maine, relieve Declarant, its successors and assigns from its or their obligations hereunder as to the Property or portion thereof so conveyed.

IN WITNESS WHEREOF, Construction Aggregate, Inc. has caused this instrument to be signed and sealed in its corporate name by Benjamin C. Grover, its President, thereunto duly authorized this ____ day of _____, 2021.

CONSTRUCTION AGGREGATE, INC.,
a Maine corporation

_____
Witness

_____
Benjamin C. Grover
Title: President

STATE OF MAINE
Cumberland, SS. _____, 2021

Then personally appeared the above-named Benjamin C. Grover, President of Construction Aggregate, Inc., and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of Construction Aggregate, Inc.

_____
Notary Public/Attorney at Law

_____
Commission Expiration

YORK RIDGE NEIGHBORHOOD SUBDIVISION
HOMEOWNERS ASSOCIATION
BYLAWS

ARTICLE I
Name, Offices, and Purpose

Section 1. Name. The name of the Association is the **"York Ridge Neighborhood Subdivision Homeowners Association**."

Section 2. The purposes of the Association are:

a. To establish a non-profit association of residential Lot owners for the fulfillment and enforcement of the Lot owners' responsibilities as described in a Declarationof Covenants, Conditions and Restrictions for York Ridge Neighborhood Subdivision dated _____, 2021, and to be recorded in the Cumberland County Registry of Deeds. The effectiveness of this Association depends upon the cooperation and participation of the members.

b. In addition to all of the powers, authority and responsibilities granted to or imposed upon this Association as a nonprofit corporation by the laws of the State of Maine,all of which this Association shall have, this Association shall have the following specific powers to the fullest extent permitted by law:

To levy and collect regular and special assessments and other charges against members as Lot owners; to appoint agents, to hire employees, and to make contracts; to promulgate rides andregulations as may be permitted by the Declaration, for the members of the Association; and generally to do any and all lawful acts necessary or convenient for the fulfillment of the foregoing purposes permitted under Title 13-B of the Maine Revised Statutes, as amended.

ARTICLE II
Definitions

Section 1. "Association" shall mean and refer to the nonprofit corporation, York Ridge Neighborhood Subdivision Homeowners Association, its successors and assigns.

Section 2. "Property" shall mean and refer to that certain real property in North Yarmouth, Maine, shown as "Lots 1 through 13, inclusive," York Ridge Lane, so- called, and the Open Space/No-Lot Buffer, all being more particularly shown on the plan entitled, "York Ridge Neighborhood Subdivision, North Yarmouth, Maine," dated _____, approved by the Town of North Yarmouth Planning Board on ____, and recorded in the Cumberland County Registry of Deeds in Plan Book ___, Page ___ (the "Plan"); and such additions thereto as may hereafter be brought within the jurisdiction of the Association.

Section 3. "Lot" shall mean and refer to any of the residential building lots of 1 through 13 inclusive, as shown on the Plan.

Section 4. "Owner" shall mean and refer to the record owner, whether one or more persons or entities, of the fee simple title to any Lot that is a part of the Properties, including contract sellers, but excluding

those having such interest merely as security for the performance of an obligation,

Section 5. "Declarant" shall mean and refer to Construction Aggregate, Inc. its successors or assignee.

Section 6. "Declaration" shall mean and refer to the "Declaration of Restrictions, York Ridge Neighborhood Subdivision," applicable to the Property, dated _____, to be recorded in the Cumberland County Registry of Deeds.

Section 7. "Member" shall mean and refer to those persons entitled to membership asprovided in the Declaration,

ARTICLE III
Meetings of Members

Section 1. Place of Meetings.
Meetings of members may be held at the offices of the Association or at any other place within or without the State of Maine, as determined by the officers. It is permissible to hold meetings wherein one or two of the members to be present may be present by means of a conference call amplified to be heard by all those present in the meeting room.

Section 2. Annual Meeting.
The first annual meeting of the members shall be held within one year from the date of incorporation of the Association, and each subsequent regular annual meeting of the members shall be held on the same day of the same month of each year thereafter, at the hour of six o'clock, p.m., unless otherwise mutually agreed. If the day for the annual meeting is a legal holiday, the meeting will be held at the same hour on thefirst day following which is not a legal holiday at the offices of the Association or at such other time and place as the members may determine. At the annual meeting, directors for the upcoming year shall be elected and other business shall be conducted. If a quorum shall not be present, such meeting may be adjourned by the members present for a period not exceeding sixty (60) days.

In case it shall happen at any time that an election shall not be held on the day herein before designated , such election may by be held at any subsequent meeting of the members atwhich a quorum may be present, such meeting to he called by the Board of Director s or any member or members holding not less than a majority of the number of voting rights, or by the Registered Agent, upon written request of such directors or members, by giving notice of the time and the place of holding such meeting in the manner provided by these Bylaws for giving notice of meetings.

Section 3. Special Meetings.
Special meetings of the members, except as otherwise expressly provided, may be called by any of the following:

A. The President of the Association;
B. Written request of not less than thirty-three percent (33%) of the members; or
C. The Board of Directors.

Section 4. Notice of Meetings.

A. Except when notice is waived, as hereinafter provided, written or printed notice of each annual or

special meeting of members shall be sent by the Registered Agent to all members entitled to vote at the meeting, by mailing the same, postage prepaid, not less than fifteen (15) days and not more than fifty (50) days prior to the meeting, addressed to such members at their respective addresses as recorded upon the books of the Association. Such notice shall state the place, day and hour of the meeting, and the purpose or purposes for which it is called. An affidavit of the mailing of such notice with a copy of the notice attached made by the person depositing the notices in the post office shall be sufficient proofof compliance with this requirement. No notice of any regular or special meeting of membersis required, if all members entitled to vote or their respective attorneys thereunto duly authorized file with the records of the meeting a written waiver of such notice.

Section 5. Waiver of Notice and Call.

A. Notice of a meeting of members need not be given to any member who signs awaiver of notice in person or by proxy, either before or after the meeting.

B. Such signed waiver of notice shall also constitute a waiver of formal call of the meeting.

C. Attendance of a member at a meeting, in person or by proxy, shall of itselfconstitute waiver of notice and call, and of any defects therein, except when the member attends a meeting solely for the purpose of stating his objection, at the beginning of the meeting, to the transaction of any business on the ground that the meeting is not lawfully called or convened, or that insufficient notice thereof was given.

Section 6. Record Date for Determining Members.

Members of record at the close of business, two business days prior to the date noticeof meeting is mailed or given, shall be the members entitled to notice and have voting rights.

Section 7. Quorum of Members.
The presence at the beginning of any meeting of theAssociation, in person or by proxy, of more than fifty percent (50%) of the members of the Association shall constitute a quorum for the transaction of all business.

Section 8. Proxies.
At all meetings of members, each member may vote in person or by proxy. All proxies shall be in writing and filed with the secretary. Every proxy shall berevocable and shall automatically cease upon conveyance by the member of his Lot.

Section 9. Unanimous Consent.
Any action required or permitted to be taken at a meeting of the members, including annual meetings, may be taken without a meeting, if a consent in writing, setting forth the actions so taken, is signed by all of the members entitledto vote thereon.

Section 10. Order of Business.
The order of business at all meetings shall be generallyas follows, if applicable:

A. Roll Call.
B. Proof of Notice of Meeting or Waiver of Notice.

C. Reading of Minutes of preceding meeting.
D. Reports of Officers.
E. Report of Board of Directors.
F. Report of Committees.
G. Election of the Board of Directors.
H. Unfinished Business.
I. New Business.
J. Adjournment.

ARTICLE IV
Membership in the Association

Section 1. Membership.
The members of the Association shall consist of each Ownerof a Lot.

Section 2. Election.
Each Owner of the Lots shall become a member upon ownershipof a Lot. Such membership shall be thereafter effective until each such Owner shall convey each Lot or residence, whether or not for value, by gift, devise or otherwise. Where propertyis owned by more than one Owner, such Owners shall be considered one member.

Section 3. Voting.
Voting of members shall be in accordance with the provisions of the Declaration and the Articles of Incorporation for the Association. Votes allocated to a member may be cast pursuant to a proxy duly executed in writing by a member. A proxy is void if it is not dated or purports to be revocable without notice. A proxy shall automaticallyterminate ten (10) months after its date, unless it specifies a shorter time.

At any meeting at which a quorum is present, the affirmative vote of a majority of themembers present shall determine any question except the election of the Directors, unless a greater percentage vote is required by Law or by these Bylaws. In the election of Directors, those receiving the greatest number of votes, though less than a majority shall be elected.

The Board of Directors of the Association shall manage the Association and exercisesuch powers on behalf of the Association, subject to the terms of these Bylaws.

Section 4. Non Profit.
The Association is a corporation that is not organized for profit and no property or profit thereof shall inure to the benefit of any person except in furtherance of the non-profit making purposes of the Association.

ARTICLE V
Board of Directors

Section 1. General.
The business and affairs of the Association shall be managed by a Board of Directors, which shall exercise such powers on behalf of the Association, subject to the terms of these Bylaws. The initial Board

of Directors shall consist of three (3) persons to be appointed by the Declarant. The members so appointed may be removed and replaced by Declarant at Declarant's sole discretion. No later than sixty (60) days after the Declarant's completion of the construction, marketing and sale of all Lots, the Members shall elect a Board of Directors consisting of at least three (3) and no more than ten (10) individuals. Each director shall hold office for a one (1) year term and until his successor shall have been elected and qualified.

Section 2. Election.
Within the sixty (60) day period immediately preceding the date by which directors appointed by the Declarant must resign pursuant to the Declaration and these Bylaws, a Special Meeting of the Association shall be held at which the Members shall vote for the election of at least three (3) and no more than ten (10) directors, which directors shall replace the prior directors appointed by the Declarant upon their mandatory resignation.All successor directors elected at said Special Meeting shall take office upon the resignations of the directors called for under the Declaration and these Bylaws and shall serve until the Annual Meeting next following their election. Thereafter, the Board of Directors shall he elected by the members at the Annual Meeting.

Section 3. Meeting.
The Board of Directors may provide, by resolution, for regularmeetings at a time and place, within or without the State designated in such resolution. Annual meetings shall usually follow the annual meetings of the members, Special meetingsof the Board of Directors may be called by or at the request of the President or any two directors at a time and place designated by the Board of Directors.

Section 4. Notice.
Regular meetings of the Board of Directors may be held without notice if the time and place of the meetings are fixed by the Board. If a time and place has not been fixed, regular meetings and special meetings shall be held upon written notice sent by mail not less than three (3) business days before the meeting. Any director may waive notice in writing either before or after the meeting. Notice of adjournment of a meeting need not be given if the time and place to which it is adjourned is fixed and announced at such meeting.
Neither the business to be transacted at, nor the purpose for which any Board meeting iscalled need be specified in the notice or waiver of notice. Attendance of a director at a meeting shall constitute a waiver of any notice and any defect in such notice.

Section 5. Quorum.
A majority of directors then in office shall constitute a quorum for the transaction of business. If there are less than a majority at any meeting, a majority ofthe directors present may adjourn the meeting from time to time without further notice. The vote of a majority of the directors present at a meeting at which a quorum is present shall be the act of the Board of Directors. The Directors present at a duly called or held meeting at which a quorum was once present may continue to do business notwithstanding the withdrawal of enough directors to leave less than a quorum.

Section 6. Action.
Action taken by the Board of Directors shall be by majority vote.

Section 7. Compensation.
The Board of Directors shall receive no compensation fortheir services as Directors; however, the members may by vote at any meeting reimburse Directors for out of pocket expenses incurred in such

capacity.

Section 8. Members.
All members of the Board of Directors shall be members of the Association , except those appointed by Declarant as permitted herein.

Section 9. Committees.
The Board of Directors may, by resolution, designate an executive committee and other committees consisting of two (2) or more directors and suchcommittees may exercise all the power of the Board except those prohibited by law.

Section 10. Unanimous Consent.
Any action required or permitted to be taken at ameeting of the Board of Directors, including annual meetings, may be taken without a meeting, if a consent in writing, setting forth the actions so taken, is signed by all of the directors entitled to vote thereon.

Section 11. Vacancies.
Any vacancy in the Board of Directors may be filled for theunexpired term by a majority of the remaining directors though less than a quorum of the Board.

Section 12. Powers.
In addition to all the powers, authority and responsibilities granted to or imposed upon this Association by the Laws of the State of Maine, the Association shall have the specific powers to:

A. Adopt and amend Bylaws;

B. Prepare a proposed budget for presentation to the annual meeting of members;

C. Adopt and amend Rules and Regulations regarding the use, repair, maintenance and replacement of any property owned or managed by the Association;

D. Hire and terminate employees, agents and independent contractors;

E. Pay taxes and assessments which may be levied against any part of the Association property and provide for the payment of the same by the members throughbudget approval;

F. Determine the appropriate annual pro-ration and apportionment of dues amongmembers, and the timely due date for payment thereof;

G. Take such action against such members as may be appropriate and lawful tocollect unpaid dues or assessments;

H. Institute, defend, or intervene in litigation or administrative proceedings in itsown name on behalf of itself or members of the Board of Directors on matters affecting the Association;

I. Maintain and provide long-term funding for the inspection and maintenance of the grassed underdrained soil filters on the Association property. The filters shall be maintained semi-annually as set forth pursuant to Chapter 7.1 of the Maine DEP BMP Technical Design

Manual; and

J. Maintain York Ridge Lane, the abutting sidewalks and related utility and drainage easement areas designated on the Plan, all in accordance with the Declaration.

K. Maintain each Fuji Clean CEN unit located on each Lot, which maintenanceshall be conducted on a bi-annual basis, all in accordance with the Declaration; and

L. Exercise any other powers conferred by the Declaration or these Bylaws.

ARTICLE VI
Officers and Term of Office

Section 1. Reservation of Authority.
Until the members specifically- vote to elect directors, or the same shall come into existence by operation of law, all authorities, privileges and rights ordinarily delegated to directors are vested in the Registered Agent of the Corporation. Meetings of the members may be represented to be meetings of directors ifthe nomenclature used by others demands it.

Section 2. Officers, Powers and Duties.
The Association shall have as officers, a President, Treasurer and Registered Agent and such other officers, which may included one or more Vice Presidents, one or more Assistant Treasurers, a Secretary and one or more Assistant Secretaries, as the members may from time to time determine. The officers of the Association shall be the same as the officers of the Board of Directors. The several officers shall have such powers and duties not inconsistent with these Bylaws, as the Board of Directors may from time to time determine. The same person may occupy one or more offices. Officers shall be chosen annually, may be removed at any time with or without causeby the Board of Directors and subject to such removal shall continue in office until their successors are chosen and qualified. The Board of Directors may establish an Executive Committee to act between the directors' meetings with such authorities as the Board of Directors may from time to time determine.

Section 3. Election of Officers.
All officers shall be elected by ballot of the directors, except that in the first instance all such officers may be elected at the first meeting of incorporation to serve until their successors are duly chosen and qualified. The Treasurer and Assistant Treasurer shall give bond for the faithful performance of their duties, if the directors shall so require, in such form and for such sum as the directors shall determine the Registered Agent shall be a resident of the State of Maine and shall be sworn to the faithful performance of his duties.

Section 4. Vacancies.
In case of a vacancy in any office for any cause, the directors may elect a successor to the vacant office, and any successor so elected shall hold office until the next annual meeting of the directors and until his successor shall be duly elected and qualified.

Section 5. President.
The President shall be the chief executive officer of the Association, shall preside at all meetings of the members and directors and shall also havesuch powers and duties as the Board of Directors shall from time to time determine.

Section 6. Vice Presidents.
Vice Presidents, if and when elected, shall have suchpowers and duties as the Board of Directors and the President shall designate.

Section 7. Treasurer.
The Treasurer shall be the general financial agent of the Association. Subject to the direction of the directors, he shall have custody of the monies and securities of the Association, except his own bond, and shall keep in books of the Association which shall be in his custody accurate records of all transactions of the office, which shall be open at all reasonable times to the inspection of any director. Ile shall have the authority to sign and endorse all checks and notes received by the Association, draw and accept all bills and drafts and also receive and give proper receipts and discharges for all monies due the Association from whatever source, unless otherwise restricted, He shall perform such other duties as the Board of Directors may prescribe.

Section 8. Assistants.
Assistant Secretaries and Assistant Treasurers shall assist the Secretary or Treasurer, as the case may be, in the performance of his duties and at the requestof such officers or of the President, shall perform the duties of such officers in the event of the absence or inability to act of such officers. They shall also perform such duties as the Board of Directors may from time to time prescribe for them or as the President may from time to time direct. Each Assistant Treasurer shall, ii requested to do so by the Board of Directors, furnish bond in such amount as may be determined by the Board of Directors.

Section 9. Registered Agent.
The Registered Agent shall be sworn to the faithful discharge of his duties and shall record in books kept for that purpose all the votes and proceedings of the Board of Directors at their meetings. He shall also perform such otherduties as shall be prescribed by the Board of Directors.

Section 10. Salaries.
The several officers of the Association shall not receive salariesfor their services.

Section 11. Indemnification.

A. Each person who shall be or shall have been an officer of this Association shall be indemnified by this Association against all liabilities and expenses at any time imposed upon or reasonably incurred by him in connection with, arising out of or resulting from any action, suit or proceeding in which he may be involved or with which he may be threatened, by reason of his then serving or theretofore having served as an officer of this Association, or of any other corporation, of which he shall at the request of this Association then be serving or theretofore have served as an officer or director or by reason of any allegedact or omission by him in any such capacity, whether or not he shall be serving as an officer or director of this or such other corporation at the time any or all of such liabilities or expenses shall be imposed upon or incurred by him.

B. The matters covered by the foregoing indemnity shall include any amounts paid by any such person in compromise or settlement if such compromise or settlement shallbe approved as in the best interests of the Corporation by vote of a majority of disinterested Board of Directors and member s present or represented at a meeting called for that purpose; but such matters shall not include liabilities or expenses imposed or incurred in connection with any matters as to which such person shall be finally adjudged in

such action, suit or proceeding to be liable to this or such other corporation by reason of dereliction in the performance of his duty as such officer.

C. Each person who shall become an officer of this Association or of any such other corporation as aforesaid shall be deemed to have accepted and to have continued to serve in reliance in such office in reliance upon the indemnity herein provided. These indemnity provisions shall be separable, and if any portion thereof shall be adjudged to be invalid, such invalidity shall not affect any other portion which can be given effect withoutthe invalid portion.

ARTICLE VII
Checks, Notes, Drafts and Other Instruments

Section 1. Checks, notes, drafts and other instruments for the payment of money drawn or endorsed in the name of the Association may be signed by any officer or officers orperson or persons authorized by the Board of Directors to sign the same. No officer or personshall sign any such instrument as aforesaid unless authorized by the Board of Directors to do so.

Section 2. Any loans from members to the Association shall be memorialized bypromissory notes from the Association.

ARTICLE VIII
Assessments

If any Lot owner shall fail or refuse to pay to the Association when due his or her share of the assessments, user fees and penalties, thereafter the amount thereof shall bear interest at the rate of eighteen percent (18%) per annum or such other rate as may be set by vote of the Board of Directors prior to the date on which the payment came due. Such Assessments with such late charges as may be determined by the Board of Directors, interest and all costs of collection, including reasonable attorneys' fees, shall constitute a lien on the Lot of such owner. Recording of the Declaration constitutes record notice and perfection of the lien for Assessments, including penalties, late charges, interest and costs of collection.

The Association may record a notice from time to time stating the amount and nature of the lien signed by an officer or director of the Association or by an agent authorized by the Boardof Directors but such recorded notice is not necessary to establish or perfect the lien.

If such payments are not received within thirty (30) days after they become due, the Board shall exercise and enforce any and all rights and remedies provided in the Declaration or these Bylaws or otherwise available at law or in equity for the collection of all unpaid amounts. In any action to foreclose the lien for Assessments, late charges, penalties, interest,and costs of collection including reasonable attorneys' fees against any owner of a Lot, the Association may act through its manager or Board of Directors in the same manner as any mortgagee of real property. The manager or Board of Directors acting on behalf of the Lot owners shall have the power to bid and acquire such Lot at a foreclosure sale and to lease, mortgage, convey, or otherwise deal with the Lot. Suit to recover a money judgment for unpaid Assessments and penalties due to the Association, with interest and all costs and reasonable attorneys' fees, may be maintained without foreclosing upon or waiving the lien securing the same.

The lien is extinguished unless action to enforce the lien is started within Six (6) yearsafter the full

amount of the Assessment becomes due.

If at any time the Board shall determine the amount of the Assessments to be inadequate, whether by reason of a revision in its estimate of expenses or income, the Board may adopt and deliver to the members at least thirty (30) days prior to the date on which it becomes effective, a revised estimated annual budget for the balance of such fiscal year and thereafter monthly Assessments shall be determined and paid on the basis of such revision, subject to the rights of the members to reject such amendment by not less than eighty-five percent (85%) of the votes of the members at a meeting of the members called within such thirty (30) day period at the request of not less than twenty percent (20%) of the Lot owners.

The Board of Directors may, upon determining that circumstances exist which requires immediate assessment of the Lot owners, make special assessments, not to exceed anamount equal to one current monthly Assessment for each Lot unless approved by the Lot owners, which shall be due and payable when delivered to the Lot owners.

ARTICLE IX
Corporate Seal

The Association shall have a seal in circular form having within its circumference the words: York Ridge Neighborhood Subdivision Homeowners' Association.

ARTICLE X
Amendments

Section 1. These Bylaws may be amended at a regular or special meeting of the members, by a vote of a majority of a quorum of members present in person or by proxy,along with the written approval of Declarant.

Section 2. In the case of any conflict between the Articles of Incorporation and these Bylaws, the Articles shall control; and in the case of any conflict between the Declaration andthese Bylaws, the Declaration shall control.

ARTICLE XI
Miscellaneous

The fiscal year of the Association shall begin on the first day of January and end onthe 31st day of December of every year, except that the first fiscal year shall begin on the date of incorporation.

CERTIFICATION

I, the undersigned, do hereby certify:

THAT the foregoing Bylaws constitute the original Bylaws of said York Ridge Neighborhood Subdivision Homeowners Association.

IN WITNESS WHEREOF, Benjamin C. Grover of Construction Aggregate Inc., incorporator of York Ridge Neighborhood Subdivision Homeowners Association, has executed this document this ____ day of _____, 2021.

ATTACHMENT C

Atlantic Resource Cons
Engineering Strategies and

STORMWATER MANAGEMENT REPORT
YORK RIDGE SUBDIVISION
NORTH YARMOUTH, MAINE
MAY 2021

INTRODUCTION

The project is a 13-lot open space residential subdivision. The project is located off 115 in North Yarmouth, Maine. The property is approximately 92 acres, with a few patches of forested wetlands and a stream that runs along the northeastern corner.

This report discusses the Site's hydrological conditions and quantifies the stormwater runoff generated in the existing and proposed conditions.

DATA COLLECTION AND ASSUMPTIONS

Site Data was gathered from field observations as well as AutoCAD files and drawings. Site contour information was provided by a combination of field survey in the project area and GIS contours outside of the project area. Soils information, vernal pool assessment, BMP test pits and wetlands delineation was provided by Mark Hampton. Calculations were performed to create a HydroCAD stormwater model, which is based on the United States Department of Agriculture's (USDA) Technical Release 20 (TR-20) and Technical Release 55 (TR-55) hydraulic programs.

Curve numbers (CN's) assigned to differing land cover and soil types were taken from tables within the HydroCAD software, which are from the SCS TR-55 manual, revised 1986. 24-hour rainfall depths were taken from the 'Stormwater Management for Maine: Volume III BMP's Technical Design Manual, January 2006". Time of concentrations were calculated with the HydroCAD software using the TR-55 methodologies including direct entry.

EXISTING SITE CONDITIONS

The existing site is nearly half wooded and half open field. The High Intensity Soil Survey (see Attachment G), and test pits were performed on-site by Mark Hampton, which revealed well-draining sandy soils in all locations (see Attachment G).

The site generally drains to the southwest where there is an existing pond on the abutting parcel. This area is considered Point of Analysis #1 for the purposes of this report. The north eastern corner of the property drains to the east where it begins to channelize. The beginning of this channel is called Point of Analysis #2.

541 US Route One, Suite 21
Freeport, Maine 04032
207-266-5618

PROPOSED SITE CONDITIONS

The proposed improvements will include building approximately 1,200 feet of new road. The road will be 22 feet wide with a 5 foot paved sidewalk on one side.

The improvements don't trigger any Maine Department of Environmental Protection permits, but the project is still being designed to Chapter 500 standards.

All points of analysis have been retained from the pre development conditions.

In order to achieve stormwater quantity and quality mitigation, an Underdrained Soil Filters (UDSF) has been designed to both attenuate and treat stormwater run-off flows. A level spreader ahead of a meadow buffer will be used to treat a portion of the new road.

WATER QUANTITY & QUALITY

Water Quality and Quantity mitigation will be achieved through the installation of the aforementioned stormwater BMP. The soil filters intercepts the vast majority of stormwater from the developed areas. A summary comparison of stormwater peak flows can be found below:

POA	2 YR -PRE (cfs)	2 YR - POST (cfs)	10 YR - PRE (cfs)	10 YR – POST (cfs)	25 YR – PRE (cfs)	25 YR – POST (cfs)
#1	9.17	9.16	36.26	35.98	65.63	65.06
#2	4.52	4.52	12.04	12.04	19.09	19.09

The peak flows are decreased for the 2 year and 10-year storms. During a 25-year storm the peak runoff increases 0.5 cfs, which we would consider negligible for a watershed of this size.

Stormwater quality mitigation is achieved through the use of the underdrained soil filter and a meadow buffer BMP. A summary of stormwater treatment percentages can be found as Attachment D. **Total project treatment results in the treatment 98% of impervious area and 97% of total developed area.**

All construction will be in accordance with the most current Maine Erosion and Sedimentation Control Best Management Practices. These measures include temporary and permanent seeding, sediment barriers, and stabilized construction entrance. These measures are described on the enclosed Drawing C-300, "Erosion & Sedimentation Control Notes & Details."

CONCLUSIONS

This project will use long-term and short-term erosion control measures that will mitigate environmental impacts from stormwater. This project will not have any significant adverse impacts on downstream properties as a result of stormwater.

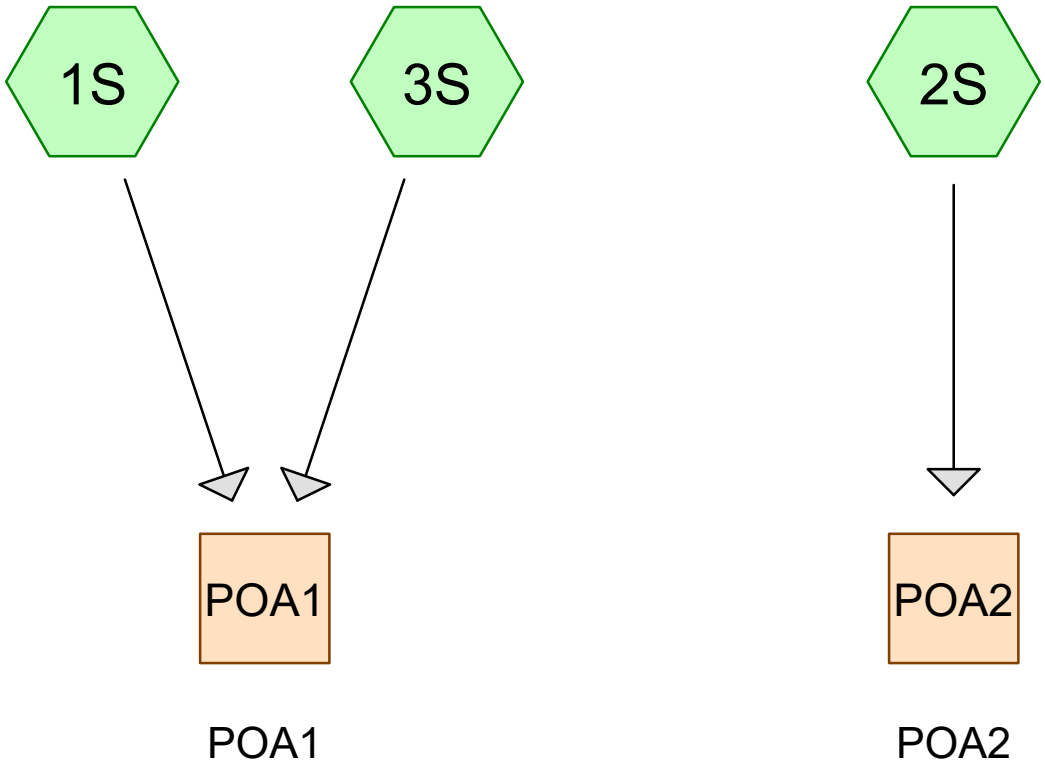
ATTACHMENTS

Attachment A – Pre and Post Development Hydrologic Calculations
Attachment B – Stormwater Quality Sizing Calculations
Attachment C - Stormwater Treatment Summary
Attachment D – Stormwater Maintenance Plan
Attachment E – Pre and Post Development Watershed Maps

ATLANTIC RESOURCE CONSULTANTS

Charles E. Burnham, PE

Attachment A – Pre and Post Development Hydrologic Calculations



Subcat Reach Pond Link

Routing Diagram for 20-049 Pre-Development
Prepared by Full Version, Printed 3/30/2021
HydroCAD® 10.00-24 s/n 08018 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
37.167	39	>75% Grass cover, Good, HSG A (1S, 2S, 3S)
19.927	74	>75% Grass cover, Good, HSG C (1S, 3S)
0.121	98	Impervious (1S)
37.450	73	Woods, Fair, HSG C (1S, 2S)
10.129	70	Woods, Good, HSG C (1S, 2S)
104.794	**61**	**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
37.167	0.000	19.927	0.000	0.000	57.094	>75% Grass cover, Good	1S, 2S, 3S
0.000	0.000	0.000	0.000	0.121	0.121	Impervious	1S
0.000	0.000	37.450	0.000	0.000	37.450	Woods, Fair	1S, 2S
0.000	0.000	10.129	0.000	0.000	10.129	Woods, Good	1S, 2S
37.167	**0.000**	**67.506**	**0.000**	**0.121**	**104.794**	**TOTAL AREA**	

Summary for Subcatchment 1S:

Runoff = 8.62 cfs @ 13.13 hrs, Volume= 2.571 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
	1,342,242	73	Woods, Fair, HSG C
	644,441	74	>75% Grass cover, Good, HSG C
	1,356,531	39	>75% Grass cover, Good, HSG A
*	5,289	98	Impervious
	283,453	70	Woods, Good, HSG C
	3,631,956	60	Weighted Average
	3,626,667		99.85% Pervious Area
	5,289		0.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	100	0.0050	0.07		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
19.5	859	0.0110	0.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.0	468	0.0120	7.53	271.25	**Channel Flow, C-D** Area= 36.0 sf Perim= 22.0' r= 1.64' n= 0.030 Earth, grassed & winding
18.2	905	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
63.9	2,332	Total			

Summary for Subcatchment 2S:

Runoff = 4.52 cfs @ 12.46 hrs, Volume= 0.653 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
289,071	73	Woods, Fair, HSG C
55,920	39	>75% Grass cover, Good, HSG A
157,767	70	Woods, Good, HSG C
502,758	68	Weighted Average
502,758		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0800	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
15.7	1,361	0.0840	1.45		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
28.2	1,461	Total			

Summary for Subcatchment 3S:

Runoff = 0.97 cfs @ 12.60 hrs, Volume= 0.228 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
206,523	39	>75% Grass cover, Good, HSG A
223,580	74	>75% Grass cover, Good, HSG C
430,103	57	Weighted Average
430,103		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
10.6	797	0.0630	1.25		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.5	443	0.0430	14.44	866.33	**Channel Flow, C-D** Area= 60.0 sf Perim= 36.0' r= 1.67' n= 0.030 Earth, grassed & winding
26.2	1,340	Total			

Summary for Reach POA1: POA1

Inflow Area = 93.252 ac, 0.13% Impervious, Inflow Depth = 0.36" for 2-Yr Storm event
Inflow = 9.17 cfs @ 13.12 hrs, Volume= 2.800 af
Outflow = 9.17 cfs @ 13.12 hrs, Volume= 2.800 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Summary for Reach POA2: POA2

Inflow Area = 11.542 ac, 0.00% Impervious, Inflow Depth = 0.68" for 2-Yr Storm event
Inflow = 4.52 cfs @ 12.46 hrs, Volume= 0.653 af
Outflow = 4.52 cfs @ 12.46 hrs, Volume= 0.653 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Summary for Subcatchment 1S:

Runoff = 34.09 cfs @ 12.99 hrs, Volume= 7.464 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
	1,342,242	73	Woods, Fair, HSG C
	644,441	74	>75% Grass cover, Good, HSG C
	1,356,531	39	>75% Grass cover, Good, HSG A
*	5,289	98	Impervious
	283,453	70	Woods, Good, HSG C
	3,631,956	60	Weighted Average
	3,626,667		99.85% Pervious Area
	5,289		0.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	100	0.0050	0.07		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
19.5	859	0.0110	0.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.0	468	0.0120	7.53	271.25	**Channel Flow, C-D** Area= 36.0 sf Perim= 22.0' r= 1.64' n= 0.030 Earth, grassed & winding
18.2	905	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
63.9	2,332	Total			

Summary for Subcatchment 2S:

Runoff = 12.04 cfs @ 12.43 hrs, Volume= 1.539 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
289,071	73	Woods, Fair, HSG C
55,920	39	>75% Grass cover, Good, HSG A
157,767	70	Woods, Good, HSG C
502,758	68	Weighted Average
502,758		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0800	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
15.7	1,361	0.0840	1.45		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
28.2	1,461	Total			

Summary for Subcatchment 3S:

Runoff = 5.04 cfs @ 12.45 hrs, Volume= 0.739 af, Depth= 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
206,523	39	>75% Grass cover, Good, HSG A
223,580	74	>75% Grass cover, Good, HSG C
430,103	57	Weighted Average
430,103		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
10.6	797	0.0630	1.25		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.5	443	0.0430	14.44	866.33	**Channel Flow, C-D** Area= 60.0 sf Perim= 36.0' r= 1.67' n= 0.030 Earth, grassed & winding
26.2	1,340	Total			

Summary for Reach POA1: POA1

Inflow Area = 93.252 ac, 0.13% Impervious, Inflow Depth = 1.06" for 10-Yr Storm event
Inflow = 36.26 cfs @ 12.94 hrs, Volume= 8.204 af
Outflow = 36.26 cfs @ 12.94 hrs, Volume= 8.204 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Summary for Reach POA2: POA2

Inflow Area = 11.542 ac, 0.00% Impervious, Inflow Depth = 1.60" for 10-Yr Storm event
Inflow = 12.04 cfs @ 12.43 hrs, Volume= 1.539 af
Outflow = 12.04 cfs @ 12.43 hrs, Volume= 1.539 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Summary for Subcatchment 1S:

Runoff = 61.49 cfs @ 12.92 hrs, Volume= 12.451 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
	1,342,242	73	Woods, Fair, HSG C
	644,441	74	>75% Grass cover, Good, HSG C
	1,356,531	39	>75% Grass cover, Good, HSG A
*	5,289	98	Impervious
	283,453	70	Woods, Good, HSG C
	3,631,956	60	Weighted Average
	3,626,667		99.85% Pervious Area
	5,289		0.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	100	0.0050	0.07		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
19.5	859	0.0110	0.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.0	468	0.0120	7.53	271.25	**Channel Flow, C-D** Area= 36.0 sf Perim= 22.0' r= 1.64' n= 0.030 Earth, grassed & winding
18.2	905	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
63.9	2,332	Total			

Summary for Subcatchment 2S:

Runoff = 19.09 cfs @ 12.41 hrs, Volume= 2.374 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
289,071	73	Woods, Fair, HSG C
55,920	39	>75% Grass cover, Good, HSG A
157,767	70	Woods, Good, HSG C
502,758	68	Weighted Average
502,758		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0800	0.13		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
15.7	1,361	0.0840	1.45		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
28.2	1,461	Total			

Summary for Subcatchment 3S:

Runoff = 9.76 cfs @ 12.41 hrs, Volume= 1.280 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
206,523	39	>75% Grass cover, Good, HSG A
223,580	74	>75% Grass cover, Good, HSG C
430,103	57	Weighted Average
430,103		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
10.6	797	0.0630	1.25		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.5	443	0.0430	14.44	866.33	**Channel Flow, C-D** Area= 60.0 sf Perim= 36.0' r= 1.67' n= 0.030 Earth, grassed & winding
26.2	1,340	Total			

Summary for Reach POA1: POA1

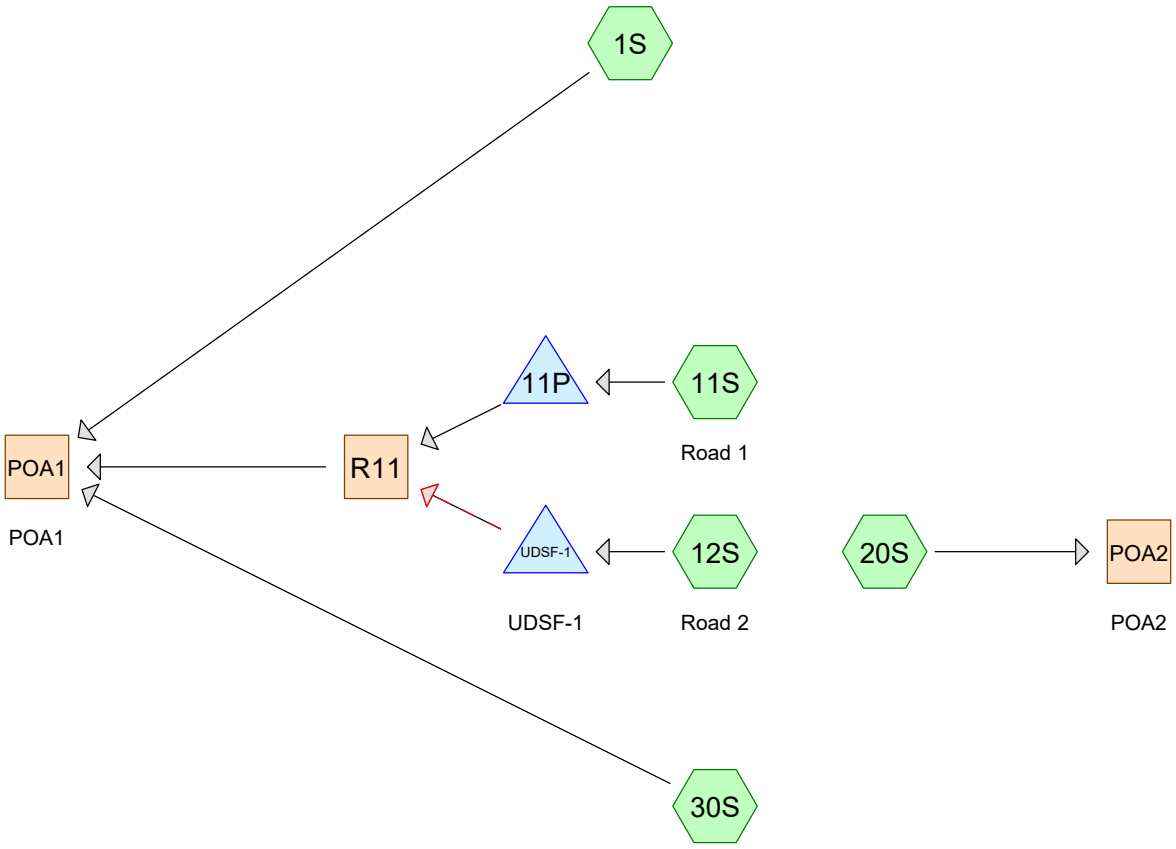
Inflow Area = 93.252 ac, 0.13% Impervious, Inflow Depth = 1.77" for 25-Yr Storm event
Inflow = 65.63 cfs @ 12.86 hrs, Volume= 13.732 af
Outflow = 65.63 cfs @ 12.86 hrs, Volume= 13.732 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Summary for Reach POA2: POA2

Inflow Area = 11.542 ac, 0.00% Impervious, Inflow Depth = 2.47" for 25-Yr Storm event
Inflow = 19.09 cfs @ 12.41 hrs, Volume= 2.374 af
Outflow = 19.09 cfs @ 12.41 hrs, Volume= 2.374 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs



Subcat Reach Pond Link

Routing Diagram for 20-049 Post-Development
Prepared by Full Version, Printed 3/30/2021
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
37.260	39	>75% Grass cover, Good, HSG A (1S, 11S, 12S, 20S, 30S)
19.021	74	>75% Grass cover, Good, HSG C (1S, 11S, 12S, 30S)
0.067	98	Curb (11S, 12S)
0.121	98	Impervious (1S)
0.608	98	Road (11S, 12S)
0.137	98	Sidewalk (11S, 12S)
37.450	73	Woods, Fair, HSG C (1S, 20S)
10.129	70	Woods, Good, HSG C (1S, 20S)
104.794	**61**	**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
37.260	0.000	19.021	0.000	0.000	56.281	>75% Grass cover, Good	1S, 11S, 12S, 20S, 30S
0.000	0.000	0.000	0.000	0.067	0.067	Curb	11S, 12S
0.000	0.000	0.000	0.000	0.121	0.121	Impervious	1S
0.000	0.000	0.000	0.000	0.608	0.608	Road	11S, 12S
0.000	0.000	0.000	0.000	0.137	0.137	Sidewalk	11S, 12S
0.000	0.000	37.450	0.000	0.000	37.450	Woods, Fair	1S, 20S
0.000	0.000	10.129	0.000	0.000	10.129	Woods, Good	1S, 20S
37.260	**0.000**	**66.600**	**0.000**	**0.934**	**104.794**	**TOTAL AREA**	

Summary for Subcatchment 1S:

Runoff = 8.52 cfs @ 13.13 hrs, Volume= 2.542 af, Depth= 0.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
	1,342,242	73	Woods, Fair, HSG C
	602,580	74	>75% Grass cover, Good, HSG C
	1,356,531	39	>75% Grass cover, Good, HSG A
*	5,289	98	Impervious
	283,453	70	Woods, Good, HSG C
	3,590,095	60	Weighted Average
	3,584,806		99.85% Pervious Area
	5,289		0.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	100	0.0050	0.07		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
19.5	859	0.0110	0.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.0	468	0.0120	7.53	271.25	**Channel Flow, C-D** Area= 36.0 sf Perim= 22.0' r= 1.64' n= 0.030 Earth, grassed & winding
18.2	905	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
63.9	2,332	Total			

Summary for Subcatchment 11S: Road 1

Runoff = 0.66 cfs @ 12.41 hrs, Volume= 0.084 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	3,133	98	Sidewalk
*	950	98	Curb
*	13,954	98	Road
	997	74	>75% Grass cover, Good, HSG C
	3,013	39	>75% Grass cover, Good, HSG A
	22,047	89	Weighted Average
	4,010		18.19% Pervious Area
	18,037		81.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, 5 Minute Min**
25.2	100	0.0050	0.07		**Sheet Flow, Sheet Flow From Level Spreader**
					Grass: Dense n= 0.240 P2= 3.10"
30.2	100	Total			

Summary for Subcatchment 12S: Road 2

Runoff = 1.26 cfs @ 12.07 hrs, Volume= 0.089 af, Depth= 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	2,819	98	Sidewalk
*	1,976	98	Curb
*	12,549	98	Road
	1,390	74	>75% Grass cover, Good, HSG C
	1,076	39	>75% Grass cover, Good, HSG A
	19,810	93	Weighted Average
	2,466		12.45% Pervious Area
	17,344		87.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, 5 Minute Min**

Summary for Subcatchment 20S:

Runoff = 4.52 cfs @ 12.46 hrs, Volume= 0.653 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
289,071	73	Woods, Fair, HSG C
55,920	39	>75% Grass cover, Good, HSG A
157,767	70	Woods, Good, HSG C
502,758	68	Weighted Average
502,758		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0800	0.13		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.10"
15.7	1,361	0.0840	1.45		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
28.2	1,461	Total			

Summary for Subcatchment 30S:

Runoff = 0.97 cfs @ 12.60 hrs, Volume= 0.228 af, Depth= 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 2-Yr Storm Rainfall=3.10"

Area (sf)	CN	Description
206,523	39	>75% Grass cover, Good, HSG A
223,580	74	>75% Grass cover, Good, HSG C
430,103	57	Weighted Average
430,103		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
10.6	797	0.0630	1.25		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.5	443	0.0430	14.44	866.33	**Channel Flow, C-D** Area= 60.0 sf Perim= 36.0' r= 1.67' n= 0.030 Earth, grassed & winding
26.2	1,340	Total			

Summary for Reach POA1: POA1

Inflow Area = 93.252 ac, 1.00% Impervious, Inflow Depth = 0.37" for 2-Yr Storm event
Inflow = 9.16 cfs @ 13.12 hrs, Volume= 2.855 af
Outflow = 9.16 cfs @ 13.12 hrs, Volume= 2.855 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Summary for Reach POA2: POA2

Inflow Area = 11.542 ac, 0.00% Impervious, Inflow Depth = 0.68" for 2-Yr Storm event
Inflow = 4.52 cfs @ 12.46 hrs, Volume= 0.653 af
Outflow = 4.52 cfs @ 12.46 hrs, Volume= 0.653 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

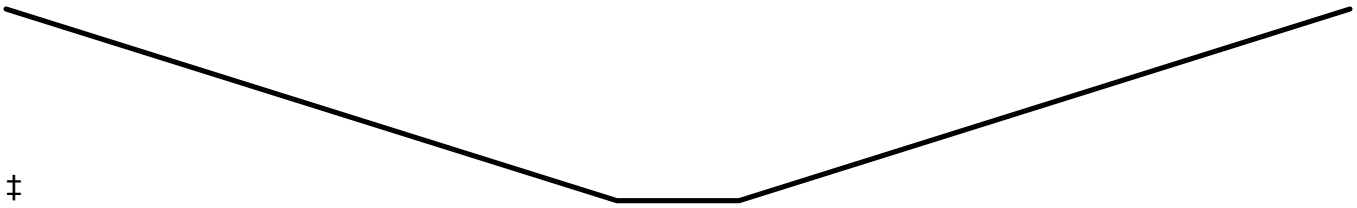
Summary for Reach R11:

Inflow Area = 0.961 ac, 84.53% Impervious, Inflow Depth = 1.07" for 2-Yr Storm event
Inflow = 0.24 cfs @ 12.51 hrs, Volume= 0.085 af
Outflow = 0.20 cfs @ 15.06 hrs, Volume= 0.085 af, Atten= 16%, Lag= 153.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Max. Velocity= 0.52 fps, Min. Travel Time= 61.4 min
Avg. Velocity = 0.52 fps, Avg. Travel Time= 61.4 min

Peak Storage= 728 cf @ 14.04 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 2.00' Flow Area= 240.0 sf, Capacity= 1,860.62 cfs

20.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 50.0 '/' Top Width= 220.00'
Length= 1,925.0' Slope= 0.0218 '/'
Inlet Invert= 280.00', Outlet Invert= 238.00'



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Summary for Pond 11P:

Inflow Area = 0.506 ac, 81.81% Impervious, Inflow Depth = 1.99" for 2-Yr Storm event
Inflow = 0.66 cfs @ 12.41 hrs, Volume= 0.084 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Peak Elev= 293.00' @ 25.70 hrs Surf.Area= 15,415.740 ac Storage= 0.084 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	293.00'	18,565.706 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
293.00	15,415.706	0.000	0.000
294.00	21,715.706	18,565.706	18,565.706

Device	Routing	Invert	Outlet Devices
#1	Primary	293.75'	**100.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=293.00' (Free Discharge)
↑—1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond UDSF-1: UDSF-1

Inflow Area = 0.455 ac, 87.55% Impervious, Inflow Depth = 2.35" for 2-Yr Storm event
Inflow = 1.26 cfs @ 12.07 hrs, Volume= 0.089 af
Outflow = 0.24 cfs @ 12.51 hrs, Volume= 0.085 af, Atten= 81%, Lag= 26.2 min
Primary = 0.24 cfs @ 12.51 hrs, Volume= 0.085 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Peak Elev= 282.98' @ 12.51 hrs Surf.Area= 1,256 sf Storage= 1,486 cf
Flood Elev= 123.00' Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= 96.9 min calculated for 0.085 af (96% of inflow)
Center-of-Mass det. time= 73.0 min (865.9 - 792.8)

Volume	Invert	Avail.Storage	Storage Description
#1	280.50'	6,786 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	1,256	0.0	0	0
280.82	1,256	40.0	161	161
281.50	1,256	40.0	342	502
282.00	1,256	30.0	188	691
282.50	1,256	30.0	188	879
283.00	1,256	100.0	628	1,507
284.00	1,575	100.0	1,416	2,923
286.00	2,288	100.0	3,863	6,786

Device	Routing	Invert	Outlet Devices
#1	Primary	280.82'	**12.0" Round Culvert** L= 106.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 280.82' / 280.27' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	280.82'	**2.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	284.50'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	285.50'	**9.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.24 cfs @ 12.51 hrs HW=282.98' (Free Discharge)
└**1=Culvert** (Passes 0.24 cfs of 3.79 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.24 cfs @ 6.91 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=280.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1S:

Runoff = 33.70 cfs @ 12.99 hrs, Volume= 7.378 af, Depth= 1.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
	1,342,242	73	Woods, Fair, HSG C
	602,580	74	>75% Grass cover, Good, HSG C
	1,356,531	39	>75% Grass cover, Good, HSG A
*	5,289	98	Impervious
	283,453	70	Woods, Good, HSG C
	3,590,095	60	Weighted Average
	3,584,806		99.85% Pervious Area
	5,289		0.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	100	0.0050	0.07		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
19.5	859	0.0110	0.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.0	468	0.0120	7.53	271.25	**Channel Flow, C-D** Area= 36.0 sf Perim= 22.0' r= 1.64' n= 0.030 Earth, grassed & winding
18.2	905	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
63.9	2,332	Total			

Summary for Subcatchment 11S: Road 1

Runoff = 1.11 cfs @ 12.40 hrs, Volume= 0.143 af, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	3,133	98	Sidewalk
*	950	98	Curb
*	13,954	98	Road
	997	74	>75% Grass cover, Good, HSG C
	3,013	39	>75% Grass cover, Good, HSG A
	22,047	89	Weighted Average
	4,010		18.19% Pervious Area
	18,037		81.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, 5 Minute Min**
25.2	100	0.0050	0.07		**Sheet Flow, Sheet Flow From Level Spreader**
					Grass: Dense n= 0.240 P2= 3.10"
30.2	100	Total			

Summary for Subcatchment 12S: Road 2

Runoff = 1.98 cfs @ 12.07 hrs, Volume= 0.144 af, Depth= 3.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	2,819	98	Sidewalk
*	1,976	98	Curb
*	12,549	98	Road
	1,390	74	>75% Grass cover, Good, HSG C
	1,076	39	>75% Grass cover, Good, HSG A
	19,810	93	Weighted Average
	2,466		12.45% Pervious Area
	17,344		87.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, 5 Minute Min**

Summary for Subcatchment 20S:

Runoff = 12.04 cfs @ 12.43 hrs, Volume= 1.539 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
289,071	73	Woods, Fair, HSG C
55,920	39	>75% Grass cover, Good, HSG A
157,767	70	Woods, Good, HSG C
502,758	68	Weighted Average
502,758		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0800	0.13		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.10"
15.7	1,361	0.0840	1.45		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
28.2	1,461	Total			

Summary for Subcatchment 30S:

Runoff = 5.04 cfs @ 12.45 hrs, Volume= 0.739 af, Depth= 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 10-Yr Storm Rainfall=4.60"

Area (sf)	CN	Description
206,523	39	>75% Grass cover, Good, HSG A
223,580	74	>75% Grass cover, Good, HSG C
430,103	57	Weighted Average
430,103		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
10.6	797	0.0630	1.25		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.5	443	0.0430	14.44	866.33	**Channel Flow, C-D** Area= 60.0 sf Perim= 36.0' r= 1.67' n= 0.030 Earth, grassed & winding
26.2	1,340	Total			

Summary for Reach POA1: POA1

Inflow Area = 93.252 ac, 1.00% Impervious, Inflow Depth = 1.06" for 10-Yr Storm event
Inflow = 35.98 cfs @ 12.94 hrs, Volume= 8.258 af
Outflow = 35.98 cfs @ 12.94 hrs, Volume= 8.258 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Summary for Reach POA2: POA2

Inflow Area = 11.542 ac, 0.00% Impervious, Inflow Depth = 1.60" for 10-Yr Storm event
Inflow = 12.04 cfs @ 12.43 hrs, Volume= 1.539 af
Outflow = 12.04 cfs @ 12.43 hrs, Volume= 1.539 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

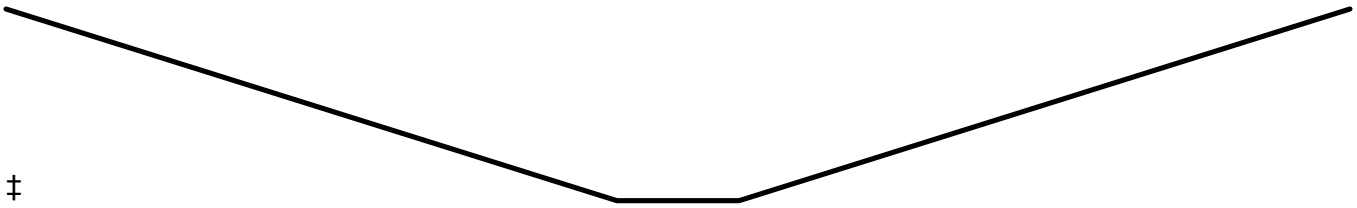
Summary for Reach R11:

Inflow Area = 0.961 ac, 84.53% Impervious, Inflow Depth = 1.75" for 10-Yr Storm event
Inflow = 0.28 cfs @ 12.57 hrs, Volume= 0.141 af
Outflow = 0.25 cfs @ 15.04 hrs, Volume= 0.141 af, Atten= 8%, Lag= 148.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Max. Velocity= 0.56 fps, Min. Travel Time= 57.3 min
Avg. Velocity = 0.52 fps, Avg. Travel Time= 61.1 min

Peak Storage= 868 cf @ 14.08 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 2.00' Flow Area= 240.0 sf, Capacity= 1,860.62 cfs

20.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 50.0 '/' Top Width= 220.00'
Length= 1,925.0' Slope= 0.0218 '/'
Inlet Invert= 280.00', Outlet Invert= 238.00'



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Summary for Pond 11P:

Inflow Area = 0.506 ac, 81.81% Impervious, Inflow Depth = 3.39" for 10-Yr Storm event
Inflow = 1.11 cfs @ 12.40 hrs, Volume= 0.143 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Peak Elev= 293.00' @ 25.70 hrs Surf.Area= 15,415.764 ac Storage= 0.143 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	293.00'	18,565.706 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
293.00	15,415.706	0.000	0.000
294.00	21,715.706	18,565.706	18,565.706

Device	Routing	Invert	Outlet Devices
#1	Primary	293.75'	**100.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=293.00' (Free Discharge)
↑—1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond UDSF-1: UDSF-1

Inflow Area = 0.455 ac, 87.55% Impervious, Inflow Depth = 3.81" for 10-Yr Storm event
Inflow = 1.98 cfs @ 12.07 hrs, Volume= 0.144 af
Outflow = 0.28 cfs @ 12.57 hrs, Volume= 0.141 af, Atten= 86%, Lag= 29.7 min
Primary = 0.28 cfs @ 12.57 hrs, Volume= 0.141 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Peak Elev= 283.74' @ 12.57 hrs Surf.Area= 1,492 sf Storage= 2,522 cf
Flood Elev= 123.00' Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= 108.6 min calculated for 0.140 af (97% of inflow)
Center-of-Mass det. time= 93.3 min (873.2 - 779.9)

Volume	Invert	Avail.Storage	Storage Description
#1	280.50'	6,786 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	1,256	0.0	0	0
280.82	1,256	40.0	161	161
281.50	1,256	40.0	342	502
282.00	1,256	30.0	188	691
282.50	1,256	30.0	188	879
283.00	1,256	100.0	628	1,507
284.00	1,575	100.0	1,416	2,923
286.00	2,288	100.0	3,863	6,786

Device	Routing	Invert	Outlet Devices
#1	Primary	280.82'	**12.0" Round Culvert** L= 106.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 280.82' / 280.27' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	280.82'	**2.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	284.50'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	285.50'	**9.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.28 cfs @ 12.57 hrs HW=283.74' (Free Discharge)
└**1=Culvert** (Passes 0.28 cfs of 4.55 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.28 cfs @ 8.08 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=280.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1S:

Runoff = 60.79 cfs @ 12.92 hrs, Volume= 12.308 af, Depth= 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
	1,342,242	73	Woods, Fair, HSG C
	602,580	74	>75% Grass cover, Good, HSG C
	1,356,531	39	>75% Grass cover, Good, HSG A
*	5,289	98	Impervious
	283,453	70	Woods, Good, HSG C
	3,590,095	60	Weighted Average
	3,584,806		99.85% Pervious Area
	5,289		0.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
25.2	100	0.0050	0.07		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.10"
19.5	859	0.0110	0.73		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
1.0	468	0.0120	7.53	271.25	**Channel Flow, C-D** Area= 36.0 sf Perim= 22.0' r= 1.64' n= 0.030 Earth, grassed & winding
18.2	905	0.0140	0.83		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
63.9	2,332	Total			

Summary for Subcatchment 11S: Road 1

Runoff = 1.47 cfs @ 12.40 hrs, Volume= 0.192 af, Depth= 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	3,133	98	Sidewalk
*	950	98	Curb
*	13,954	98	Road
	997	74	>75% Grass cover, Good, HSG C
	3,013	39	>75% Grass cover, Good, HSG A
	22,047	89	Weighted Average
	4,010		18.19% Pervious Area
	18,037		81.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, 5 Minute Min**
25.2	100	0.0050	0.07		**Sheet Flow, Sheet Flow From Level Spreader**
					Grass: Dense n= 0.240 P2= 3.10"
30.2	100	Total			

Summary for Subcatchment 12S: Road 2

Runoff = 2.55 cfs @ 12.07 hrs, Volume= 0.189 af, Depth= 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	2,819	98	Sidewalk
*	1,976	98	Curb
*	12,549	98	Road
	1,390	74	>75% Grass cover, Good, HSG C
	1,076	39	>75% Grass cover, Good, HSG A
	19,810	93	Weighted Average
	2,466		12.45% Pervious Area
	17,344		87.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, 5 Minute Min**

Summary for Subcatchment 20S:

Runoff = 19.09 cfs @ 12.41 hrs, Volume= 2.374 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
289,071	73	Woods, Fair, HSG C
55,920	39	>75% Grass cover, Good, HSG A
157,767	70	Woods, Good, HSG C
502,758	68	Weighted Average
502,758		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.5	100	0.0800	0.13		**Sheet Flow, A-B**
					Woods: Light underbrush n= 0.400 P2= 3.10"
15.7	1,361	0.0840	1.45		**Shallow Concentrated Flow, B-C**
					Woodland Kv= 5.0 fps
28.2	1,461	Total			

Summary for Subcatchment 30S:

Runoff = 9.76 cfs @ 12.41 hrs, Volume= 1.280 af, Depth= 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Type III 24-hr 25-Yr Storm Rainfall=5.80"

Area (sf)	CN	Description
206,523	39	>75% Grass cover, Good, HSG A
223,580	74	>75% Grass cover, Good, HSG C
430,103	57	Weighted Average
430,103		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.1	100	0.0500	0.11		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.10"
10.6	797	0.0630	1.25		**Shallow Concentrated Flow, B-C** Woodland Kv= 5.0 fps
0.5	443	0.0430	14.44	866.33	**Channel Flow, C-D** Area= 60.0 sf Perim= 36.0' r= 1.67' n= 0.030 Earth, grassed & winding
26.2	1,340	Total			

Summary for Reach POA1: POA1

Inflow Area = 93.252 ac, 1.00% Impervious, Inflow Depth = 1.77" for 25-Yr Storm event
Inflow = 65.06 cfs @ 12.86 hrs, Volume= 13.773 af
Outflow = 65.06 cfs @ 12.86 hrs, Volume= 13.773 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

Summary for Reach POA2: POA2

Inflow Area = 11.542 ac, 0.00% Impervious, Inflow Depth = 2.47" for 25-Yr Storm event
Inflow = 19.09 cfs @ 12.41 hrs, Volume= 2.374 af
Outflow = 19.09 cfs @ 12.41 hrs, Volume= 2.374 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs

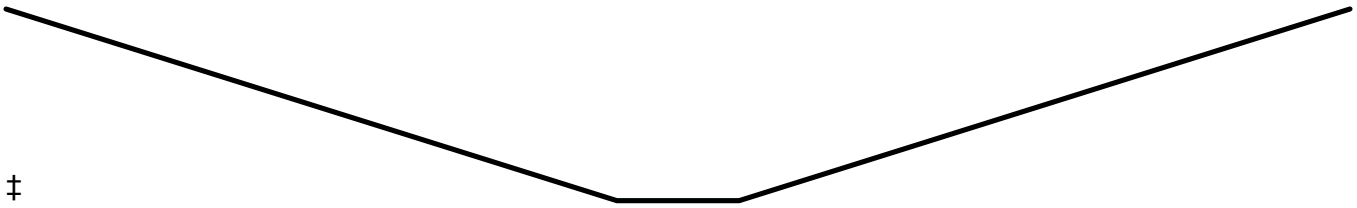
Summary for Reach R11:

Inflow Area = 0.961 ac, 84.53% Impervious, Inflow Depth = 2.31" for 25-Yr Storm event
Inflow = 0.30 cfs @ 12.63 hrs, Volume= 0.185 af
Outflow = 0.29 cfs @ 14.94 hrs, Volume= 0.185 af, Atten= 5%, Lag= 138.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Max. Velocity= 0.59 fps, Min. Travel Time= 54.1 min
Avg. Velocity = 0.53 fps, Avg. Travel Time= 60.6 min

Peak Storage= 928 cf @ 14.04 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 2.00' Flow Area= 240.0 sf, Capacity= 1,860.62 cfs

20.00' x 2.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 50.0 '/' Top Width= 220.00'
Length= 1,925.0' Slope= 0.0218 '/'
Inlet Invert= 280.00', Outlet Invert= 238.00'



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Summary for Pond 11P:

Inflow Area = 0.506 ac, 81.81% Impervious, Inflow Depth = 4.54" for 25-Yr Storm event
Inflow = 1.47 cfs @ 12.40 hrs, Volume= 0.192 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Peak Elev= 293.00' @ 25.70 hrs Surf.Area= 15,415.784 ac Storage= 0.191 af

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	293.00'	18,565.706 af	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
293.00	15,415.706	0.000	0.000
294.00	21,715.706	18,565.706	18,565.706

Device	Routing	Invert	Outlet Devices
#1	Primary	293.75'	**100.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=293.00' (Free Discharge)
↑—1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond UDSF-1: UDSF-1

Inflow Area = 0.455 ac, 87.55% Impervious, Inflow Depth = 4.99" for 25-Yr Storm event
Inflow = 2.55 cfs @ 12.07 hrs, Volume= 0.189 af
Outflow = 0.30 cfs @ 12.63 hrs, Volume= 0.185 af, Atten= 88%, Lag= 33.6 min
Primary = 0.30 cfs @ 12.63 hrs, Volume= 0.185 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.02 hrs
Peak Elev= 284.30' @ 12.63 hrs Surf.Area= 1,681 sf Storage= 3,405 cf
Flood Elev= 123.00' Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= 124.2 min calculated for 0.185 af (98% of inflow)
Center-of-Mass det. time= 111.8 min (884.9 - 773.0)

Volume	Invert	Avail.Storage	Storage Description
#1	280.50'	6,786 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
280.50	1,256	0.0	0	0
280.82	1,256	40.0	161	161
281.50	1,256	40.0	342	502
282.00	1,256	30.0	188	691
282.50	1,256	30.0	188	879
283.00	1,256	100.0	628	1,507
284.00	1,575	100.0	1,416	2,923
286.00	2,288	100.0	3,863	6,786

Device	Routing	Invert	Outlet Devices
#1	Primary	280.82'	**12.0" Round Culvert** L= 106.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 280.82' / 280.27' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	280.82'	**2.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	284.50'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	285.50'	**9.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.30 cfs @ 12.63 hrs HW=284.30' (Free Discharge)
└**1=Culvert** (Passes 0.30 cfs of 5.04 cfs potential flow)
  └**2=Orifice/Grate** (Orifice Controls 0.30 cfs @ 8.84 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=280.50' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Attachment B – Stormwater Quality Sizing Calculations

Infiltration Basin #1 Sizing		
		Units
Impervious Area	16,107	Square Feet
Landscaped Area	2,707	Square Feet
Storage Volume Required	1,432	Cubic Feet
Surface Area Required	859	Square Feet
Ponding Depth for Water Quality Volume	~18	Inches
Filter Media Thickness	18	Inches
Filter Media Void Ratio	30%	
Bed Surface Area	1,215	Square Feet
Storage in Filter Media	547	Cubic Feet
Total Water Quality Storage Volume	2,369	Cubic Feet

Meadow Buffer 1

Impervious Area Captured 0.39 acres

Flow Path Inside Buffer 150 feet

Table 5.5
Berm and Flow Path Length per Acre of Impervious area

Hydrologic Soil Group	Length of Flow Path in Buffer (feet)	Berm Length (feet)							
		0-8% Slope				9-15% Slope			
		Per Acre of Impervious Area		Per Acre of Lawn		Per Acre of Impervious Area		Per Acre of Lawn	
		FB	MB	FB	MB	FB	MB	FB	MB
A	75	75	125	25	35	90	150	30	42
	100	65	75	20	25	78	90	24	30
	150	50	60	15	20	60	72	18	24
B	75	100	150	30	45	120	180	36	54
	100	80	100	25	30	96	120	30	36
	150	65	75	20	25	78	90	24	30
C Loamy Sand or Sandy Loam	75	125	150	35	45	150	180	42	54
	100	100	125	30	35	120	150	36	42
	150	75	100	25	30	90	120	30	36
C Silty Loam, Clay Loam or Silty Clay Loam	100	150	200	45	60	180	240	54	72
	150	100	150	30	45	120	180	36	54
D Non-Wetland	150	150	200	45	60	180	240	54	72

FB = Forest Buffer **MB** = Meadow Buffer

NOTE: *These tables were developed using a 1.25 inch, 24 hour storm of type III distribution, giving a maximum unit flow rate of less than 0.009 cfs per foot.*

Berm Length 23.4 feet

A 24-foot level spreader will be built upgradient of Meadow Buffer 1.

Attachment C - Stormwater Treatment Summary

STORMWATER TREATMENT SUMMARY

	Square Feet	Acres
Total Area	3,960,492	90.9

Predeveloped Site Summary

	Square Feet	Acres
Developed Area	0	0.00
Impervious Area	0	0.00
Farm/Forrest Area	3,960,492	90.9

Proposed Site Summary

	Square Feet	Acres	Percentage of Total Area
Developed Area	48,000	1.1	1.2%
Impervious Area	33,600	0.8	0.8%
Farm/Forrest Area	3,912,492	89.8	98.8%

Required Treatment

Linear Portion of a Project: For a linear portion of a project, treatment may be reduced to no less than 75% of the linear portion's impervious area and no less than 50% of the linear portion's developed area. This exception does not apply to a linear portion of a project subject to the urban impaired stream standard.

Proposed Treatment Summary

	Impervious Area Treated		Developed Area Treated	
	Square Feet	Percent of Total Impervious	Square Feet	Percent of Total Developed
Underdrained Soil Filter	16,107	48%	18,814	39%
Meadow Buffer	16,988	51%	19,582	58%
TOTAL	**33,095**	**98%**	**19,582**	**97%**

Attachment D– Stormwater Maintenance Plan

YORK RIDGE SUBDIVISION
STORMWATER MAINTENANCE PLAN

Maintenance Responsibilities

During construction activities, the maintenance of all stormwater measures will be the direct responsibility of the Contractor. After acceptance by the Owner, the maintenance of all stormwater management facilities, the establishment of any contract services required to implement the program, and the keeping of records and maintenance will be the responsibility of Ben Grover. The current contact for facilities maintenance is:

A.H. Grover (Ben Grover)
82 Doughty Road
North Yarmouth, Maine 04097

Regular inspection and maintenance of stormwater management BMPs shall be undertaken as follows:

Underdrained Soil Filters

Inspections of the underdrained filter shall be conducted on a semi-annual basis and following significant rainfall events. Delayed or poor maintenance practices can result in loss of treatment capacity. Records should be kept of all maintenance operations to help plan future work and identify problem areas.
The basin embankments should be maintained to preserve their integrity including, but not limited to, vegetation maintenance (mowing, control of woody vegetation), rodent control, erosion control and repair, and outlet control structure maintenance and repair. The embankment should be inspected annually for erosion or destabilization of side slopes, embankment settling and other signs of overtop structural failure.
Basin plantings, and vegetation should be maintained on a quarterly basis. Regular maintenance activities should include mowing twice a year. Shrub or grass clippings should be removed to minimize the amount of organic material accumulation in the basin.
Sediment and debris should be removed from the sediment forebay at least annually, where applicable.
Underdrained soil filters shall not be used for snow storage area. Snow storage should be sited so that snow melt flows to a pretreatment BMP before reaching the infiltration area.
Vehicular equipment used to maintain or rehabilitate the basins should work from the cell perimeter and not enter the basin floor area, as this would compact the soil surface and reduce infiltration.
The surface of the basins may clog with fine sediments over time. Maintenance of good plant or grass cover should minimize this; however, if ponded runoff does not infiltrate within 48 hours, rototilling the top of the soil bed may be required to reestablish the soils infiltration capacity.

Stormdrain System

Piped drainage systems shall be inspected on an annual basis to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the pipe inlet and outlet. Sediment should be removed when its level exceeds 20% of the pipe diameter. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken to contain the sediment at the pipe outlet, and not flush the sediments into the detention/infiltration pond areas as this will reduce the ponds capacity and ability to infiltrate runoff, and will hasten the time when the pond must be cleaned/rehabilitated.

Level Spreader

Long term maintenance of the level spreader is essential to ensure its effectiveness. Spreaders constructed of wood, asphalt, stone or concrete curbing also require inspection and maintenance.
Inspections: At least once a year and following major storms, the level spreader pool should be inspected for sand accumulation and debris that may reduce its capacity.

- Sediment Removal: Sediment build-up within the swale should be removed when it has accumulated to approximately 25% of design volume or channel capacity. Dispose of the sediments appropriately.
- Debris: Remove debris such as leaf litter, branches and tree growth from the spreader.
- Mowing: Vegetated spreaders may require mowing.
- Snow Storage: Do not store snow within the area of the level spreader.
- Level Spreader Replacement: The reconstruction of the level spreader may be necessary when sheet flow from the spreader channelize into the buffer.

Culverts and Storm Drain Services for Lots

Culverts and shall be inspected on an annual basis to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the pipe inlet and outlet. Sediment should be removed when its level exceeds 20% of the pipe diameter. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken to contain the sediment at the pipe outlet, and not flush the sediments into the natural drainageways.

Meadow Buffers (Limited Disturbance)

Buffers should be inspected annually for evidence of erosion or concentrated flows through or around the buffer. All eroded areas should be repaired, seeded and mulched. Buffers should not be traversed by all-terrain vehicles or other vehicles. Activities within buffers should be conducted so as not to damage vegetation, disturb any organic duff layer, or expose soil. The buffer shall be walked on an annual basis to assess condition and identify areas to be maintained by clearing dead fall and replanting thin areas with appropriate trees and shrubs. Limit disturbance during replanting process.

Attachment E – Pre and Post Development Watershed Maps (see project plan set)

ATTACHMENT D