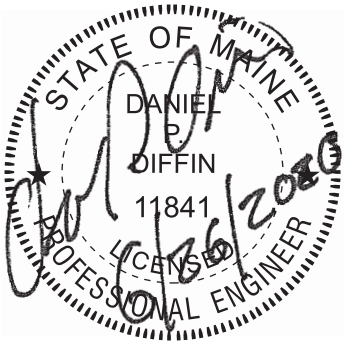
TOWN OF NORTH YARMOUTH PLANNING BOARD
MAJOR SUBDIVISION APPLICATION
CROSSROAD APARTMENTS

Prepared for

WALNUT HILL INVESTMENTS
82 Doughty Road
North Yarmouth, Maine



May 2020
Revised June 2020

4 Blanchard Road
P.O. Box 85A
Cumberland, Maine 04021
Phone: 207.829.5016 smemaine.com

ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

SME
SEVEE & MAHER
ENGINEERS

TOWN OF NORTH YARMOUTH
PLANNING BOARD
MAJOR SUBDIVISION APPLICATION

(See Article 5 pages 38 through 59 of the North Yarmouth Land Use Ordinance)

NAME OF APPLICANT: Walnut Hill Investments PHONE #: 207-829-3373
EMAIL: ben@ahgrover.com ALT. PHONE#:
FULL ADDRESS: 82 Doughty Road, North Yarmouth, Maine 04097
PROPERTY ADDRESS: 352 Walnut Hill Road, North Yarmouth, Maine 04097
MAP: 4 LOT: 18

AGENT/REPRESENTATIVE (if other): Jeffrey Read, SME INC. PHONE #: 207-829-5016
EMAIL: jtr@smemaine.com
FULL ADDRESS: 4 Blanchard Road, Cumberland, ME 04021

1. Names and Addresses of ALL property owners within 500' of any and all property boundaries **(use a separate sheet).**

2. Plan preparer information if other than property owner:
   Name: Jeffrey Read, SME INC.
   Address: 4 Blanchard Road, Cumberland, ME 04021
   Phone Number: 207-829-5016 Professional Lic. # 9119
   Email: jtr@smemaine.com

3. Zoning Classification of the Property

☑ Village Center	☐ Village Residential	☐ Farm and Forest
☐ Shoreland Residential	☐ Resource Protection	☐ Royal River Overlay
☑ Groundwater Protection Overlay		

4. Provide a General Description of the proposed use or activity, including but not limited to the type of use, square footage involved, hours of operation, types and amount of traffic to be generated **(use separate sheet)**.

5. Historic Structures: Are there any historic structures or areas of historical importance on the property? ☐ YES ☑ NO

6. Complete List of all chemicals, pesticides, fuels, nutrients and other potentially toxic or hazardous materials to be used or stored on the premises, and the quantities of these materials **(use a separate sheet).**

7. List of Equipment to be used, parked or stored **(use a separate sheet).**

8. To the best of my knowledge, all the above-stated information, and all prepared submissions in this application are correct.

Marion Grover Lambert — 5 / 26 / 2020
Signature of Applicant/Owner — Date

TOWN OF NORTH YARMOUTH
PLANNING BOARD
REQUEST FOR HEARING

NAME OF APPLICANT: Walnut Hill Investments PHONE #: 207-829-3373
EMAIL: ben@ahgrover.com ALT. PHONE#:
FULL ADDRESS: 82 Doughty Road, North Yarmouth, ME 04097
PROPERTY ADDRESS: 352 Walnut Hill Road, North Yarmouth, ME 04097
MAP: 4 LOT: 18 ZONE: Village Center

AGENT/REPRESENTATIVE (if other): Jeffrey Read, SME INC. PHONE #: 207-829-5016
EMAIL: jtr@smemaine.com
FULL ADDRESS: 4 Blanchard Road, Cumberland, ME 04021

The undersigned requests the North Yarmouth Planning Board consider the following application for:

_____ Pre-application Sketch Plan Review
_____ Minor Subdivision
_____ Contract Zoning
_____ Other (Specify): _____

X Major Subdivision
_____ Site Plan Review

NOTE TO APPLICANT:

1. This form and appropriate materials must be filed at the Code Enforcement Office no later than (fourteen) 14 days prior to the regular meeting of the Board (2nd Tuesday monthly). Applications shall be accompanied by all applications fee and materials required by the applicable ordinance(s), checklists and fee schedule.
2. All applications shall include all materials and copies as specified on the submittal requirements form.
3. All materials in color shall be copied in color.

Application Authorization

I hereby make application to the Town of North Yarmouth for the above-referenced property(ies) and the development as described. To the best of my knowledge, the information provided herein is accurate and is in accordance with the Zoning and Subdivision Ordinances of the Town, except where waivers are requested. The Town of North Yarmouth Planning Board and/or town employees are authorized to enter the property(ies) for purposes of reviewing this proposal and for inspecting improvements as a result of an approval of this proposal. I understand that I am responsible for appearing, or having someone appear on my behalf, at all meetings before the Planning Board.

Signature: Martha Grover Lambert Date: 05/20/2020
Printed Name: Martha Grover Lambert

Please identify yourself (check one): Agent*: ☑ Property Owner: ☐

TOWN OF NORTH YARMOUTH
PLANNING BOARD
MAJOR SUBDIVISION REVIEW CHECKLIST

NAME OF APPLICANT: Walnut Hill Investments DATE: 6/30/2020

This checklist has been prepared to assist applicants in developing their applications. It should be used as a guide in assembling the information necessary for a complete application. However, the checklist does not substitute for the statutory criteria or the requirements of Article V. Subdivision Review Procedures & Criteria or Article X. Performance and Design Standards for Site Plan Review and Subdivision Review of the Land Use Ordinance. The Planning Board will use the checklist to make sure that your application is complete. The application need not contain separate plans as implied below. The perimeter survey, subdivision plan and engineering plans may be contained on the same drawing. However, detailed engineering drawings such as road profiles, drainage swales and erosion/sedimentation plans may best be presented on a separate sheet or sheets.

SUBDIVISION REGULATIONS		Received by Planning Board	Applicant Requests to be Waived	Waiver Approved by Planning Board	Not Applicable
GENERAL REQUIREMENTS					
1. Request for Hearing Form		☒	☐	☐	☐
2. Fee Calculation Sheet		☒	☐	☐	☐
3. Waiver or N/A Request Form, if required		☒	☐	☐	☐
4. Abutter List & Notification Statement		☒	☐	☐	☐
5. DEP Approval, if required (Article 3 - 3.9b)		☒	☐	☐	☐
6. Board of Zoning Appeal Approval, if required (Article 6 - 6.2)		☐	☐	☐	☒
7. MDOT Approval, if required (Article 8 – 4.J.2)		☒	☐	☐	☐
10-1 APPLICABILITY		☒	☐	☐	☐
10-2 GENERAL LAYOUT OF DEVELOPMENT					
A. Utilization of the Site		☒	☐	☐	☐
B. Lots					
B.1	Dimensional Requirements	☒	☐	☐	☐
B.2	Right of Way not included in Lot Area	☒	☐	☐	☐
B.3	Side Lot Lines perpendicular to Street	☒	☐	☐	☐
B.4	Lots Divided by Streams	☐	☐	☐	☒
B.5	Ratio of Lot Length to Lot Width	☐	☐	☐	☒
B.6	Provision or Preclusion of Future Subdivision	☒	☐	☐	☐

TOWN OF NORTH YARMOUTH

PLANNING BOARD

MAJOR SUBDIVISION REVIEW CHECKLIST

SUBDIVISION REGULATIONS		Received by Planning Board	Applicant Requests to be Waived	Waiver Approved by Planning Board	Not Applicable
B.7	Interconnected Development	☒	☐	☐	☐
C. Blocks - Utility/Pedestrian Easement		☐	☐	☐	☒
D. Utilities - Underground		☒	☐	☐	☐
E. Monuments					
E.1	Stone Monuments at Intersections	☒	☐	☐	☐
E.2	Stone Monuments or Capped Iron Pipe at Corners	☒	☐	☐	☐
E.3	Stone Monuments Minimum 4 inch square	☒	☐	☐	☐
E.4	All Others Marked by Suitable Monumentation	☒	☐	☐	☐
10-3 BROOK, POND, VERNAL POOL AND WETLAND BUFFERS					
A. <u>Purpose and Applicability</u>					
A.1	Protect Areas not covered in Section 9-1	☐	☐	☐	☒
A.2	Distinguish between High and Low Value Wetlands	☐	☐	☐	☒
A.3	More Restrictive Requirements Apply	☐	☐	☐	☒
B. <u>Protected Resources</u>					
B.1	Stream	☐	☐	☐	☒
B.2	Pond	☐	☐	☐	☒
B.3	Vernal Pool	☐	☐	☐	☒
B.4	High Value Wetlands	☐	☐	☐	☒
B.4.a	Contain Pond or Vernal Pool	☐	☐	☐	☒
B.4.b	Within Floodplain of Stream or Pond	☐	☐	☐	☒
B.4.c	Wetland Plant Species	☐	☐	☐	☒
B.5	Low Value Wetland	☐	☐	☐	☒
C. <u>Standards</u>					
C.1	Vegetative Buffers	☐	☐	☐	☒
C.2	Location, Species, Height, Canopy	☐	☐	☐	☒

TOWN OF NORTH YARMOUTH

PLANNING BOARD

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SUBDIVISION REGULATIONS		Received by Planning Board	Applicant Requests to be Waived	Waiver Approved by Planning Board	Not Applicable
C.3	Buffer Width Related to Slope	❑	❑	❑	☒
C.4	Natural State to Greatest Extent Practical	❑	❑	❑	☒
C.5	Maintained in Natural State	❑	❑	❑	☒
C.5.a	Clearing of Dead and Diseased Trees	❑	❑	❑	☒
C.5.b	Underlying vegetation	❑	❑	❑	☒
C.6	Building and structure setback	❑	❑	❑	☒
C.7	Setback from low value wetland	❑	❑	❑	☒
C.8	Permanent markers	❑	❑	❑	☒
D. Plan Submittals					
D.1	Site plan	❑	❑	❑	☒
D.2	Existing vegetation	❑	❑	❑	☒
D.3	Buffer	❑	❑	❑	☒
D.4	Maintenance and restrictions	❑	❑	❑	☒
D.5	Deed restrictions and covenants	❑	❑	❑	☒
D.6	Plat	❑	❑	❑	☒
E. Exemptions					
E.1	Buffer and setbacks not required adjacent to	❑	❑	❑	☒
E.1.a	Swales and ditches	❑	❑	❑	☒
E.1.b	Artificial impoundments	❑	❑	❑	☒
E.1.c	Low value wetlands	❑	❑	❑	☒
E.2	Buffers and setbacks do not apply to	❑	❑	❑	☒
E.2.a	Storm water management facilities	❑	❑	❑	☒
E.2.b	Road crossings, bridges, culverts, utilities	❑	❑	❑	☒
E.2.c	Docks, boat ramps, direct access	❑	❑	❑	☒

TOWN OF NORTH YARMOUTH
PLANNING BOARD
MAJOR SUBDIVISION REVIEW CHECKLIST

SUBDIVISION REGULATIONS		Received by Planning Board	Applicant Requests to be Waived	Waiver Approved by Planning Board	Not Applicable
10-4 BUILDING DESIGN STANDARDS					
A. Applicability		☐	☐	☐	☒
B. Standards					
B.1	Visibly integrated	☐	☐	☐	☒
B.2	Window area	☐	☐	☐	☒
B.3	Minimum front yard building setback	☒	☐	☐	☐
B.4	Parking to side and rear of buildings	☒	☐	☐	☐
B.5	Drive-Through Facilities	☐	☐	☐	☒
10-5 COMMUNITY FACILITIES IMPACT ANALYSIS AND MITIGATION		☐	☐	☐	☒
10-6 EROSION AND SEDIMENTATION CONTROL					
A. Topography and Natural Surroundings		☒	☐	☐	☐
B. Best Management Practices					
B.1	Stripping, Removal, Re-Grading	☒	☐	☐	☐
B.2	Exposure to a Minimum	☒	☐	☐	☐
B.3	Temporary Measures	☒	☐	☐	☐
B.4	Permanent Measures	☒	☐	☐	☐
B.5	Sediment Basins or Silt Traps	☒	☐	☐	☐
B.6	Adjoining property and slope	☒	☐	☐	☐
B.7	Dust control	☒	☐	☐	☐
B.8	No grading or filling near water body	☒	☐	☐	☐
B.9	Measures monitored periodically	☒	☐	☐	☐
C. Soil Erosion and Control Plan		☒	☐	☐	☐
10-7 EMISSIONS		☒	☐	☐	☐
10-8 EXTERIOR LIGHTING					
A.	**Adequate for nighttime hours**	☐	☐	☐	☒
B.	**Street lighting**	☐	☐	☐	☒

10 VILLAGE SQUARE ROAD, NORTH YARMOUTH, MAINE 04097
PHONE: (207) 829-3705 * FAX: (207) 829-3743

TOWN OF NORTH YARMOUTH
PLANNING BOARD
MAJOR SUBDIVISION REVIEW CHECKLIST

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C.	Lighting not produce deleterious effects	❑	❑	❑	☒
D.	Fixtures shielded or hooded	❑	❑	❑	☒
E.	Blinking lights prohibited	❑	❑	❑	☒
F.	Maximum height	❑	❑	❑	☒
G.	Spot lights prohibited	❑	❑	❑	☒
10-9 FINANCIAL AND TECHNICAL CAPACITY					
A.	Adequate financial resources	☒	❑	❑	❑
B.	Qualified contractors and consultants	☒	❑	❑	❑
10-10 FLOODPLAIN MANAGEMENT					
A. Consistent with Floodplain Ordinance		❑	❑	❑	☒
B. Development/Subdivision Requirement		❑	❑	❑	☒
C. Building Prohibited on Floodplains					
C.1	Building prohibited in floodplain	❑	❑	❑	☒
C.2	Statement and restriction	❑	❑	❑	☒
C.3	Woodlands, grassland, pastureland, recreation	❑	❑	❑	☒
C.4	Piers, docks, wharves, bridges and boat ramps	❑	❑	❑	☒
10-11 HAZARDOUS, SPECIAL AND RADIOACTIVE MATERIALS					
A.	Handling, storage and use per standards	❑	❑	❑	☒
B.	Reporting Requirement	❑	❑	❑	☒
10-12 HISTORIC AND ARCHAEOLOGICAL SITES					
A.	Protect resources	❑	❑	❑	☒
B.	Maine Historic Preservation Commission review	☒	❑	❑	❑
10-13 LANDSCAPING, BUFFERS AND SCREENING					
A. Purpose		☒	❑	❑	❑
B. Standards					
B.1	Landscaping	☒	❑	❑	❑

TOWN OF NORTH YARMOUTH

PLANNING BOARD

MAJOR SUBDIVISION REVIEW CHECKLIST

SUBDIVISION REGULATIONS		Received by Planning Board	Applicant Requests to be Waived	Waiver Approved by Planning Board	Not Applicable
B.1.a	Natural state	☒	☐	☐	☐
B.1.b	Public roads, areas, recreation sites, buildings	☒	☐	☐	☐
B.1.c	Deciduous trees	☒	☐	☐	☐
B.1.d	Part of overall plan	☒	☐	☐	☐
B.2	Buffers and Screening	☒	☐	☐	☐
B.2.a	Adjacent uses and screening	☒	☐	☐	☐
B.2.b	Year-round visual screen	☒	☐	☐	☐
B.2.c	Parking lots and areas	☒	☐	☐	☐
B.2.d	Garbage collection areas	☒	☐	☐	☐
B.2.e	Sufficient buffering	☒	☐	☐	☐
B.2.f	Width of buffer	☒	☐	☐	☐
10-14 NATURAL BEAUTY AND AESTHETICS IN THE FARM AND FOREST DISTRICT, RESIDENTIAL SHORELAND DISTRICT AND RESOURCE PROTECTION DISTRICT		☐	☐	☐	☒
10-15 NOISE					
A.	**Control Levels for Neighboring Properties**	☐	☐	☐	☒
B.	**Sound Pressure Level Limits**	☐	☐	☐	☒
C.	**Measured by a Meter**	☐	☐	☐	☒
10-16 SEWAGE DISPOSAL					
A. <u>Subsurface Sewage Disposal</u>					
A.1	State of Maine Rules	☒	☐	☐	☐
A.2	Hydrogeologic assessment	☒	☐	☐	☐
A.2.a	Suitable soils	☒	☐	☐	☐
A.2.b	Water supplies	☒	☐	☐	☐
A.2.c	Groundwater quality	☒	☐	☐	☐
A.2.d	Monitoring wells	☐	☐	☐	☒
A.2.e	Operation and maintenance manual	☒	☐	☐	☐

TOWN OF NORTH YARMOUTH

PLANNING BOARD

MAJOR SUBDIVISION REVIEW CHECKLIST

SUBDIVISION REGULATIONS		Received by Planning Board	Applicant Requests to be Waived	Waiver Approved by Planning Board	Not Applicable
B. Public Sewer System Disposal					
B.1	Not allowed in Farm and Forest District, Residential Shoreland District or Resource Protection District	❑	❑	❑	☒
B.2	Sewer District statement of capacity	❑	❑	❑	☒
10-17 SIGNS					
A.	General Requirements	❑	❑	❑	☒
B.	Village Center District	❑	❑	❑	☒
C.	Identify or Advertise Premises	❑	❑	❑	☒
D.	Sign Area	❑	❑	❑	☒
E.	Installation and Height	❑	❑	❑	☒
F.	Height and Location by Roads	❑	❑	❑	☒
G.	Attached to Structure	❑	❑	❑	☒
H.	Maintenance and Removal	❑	❑	❑	☒
I.	Illumination	❑	❑	❑	☒
J.	Nonconforming Signs	❑	❑	❑	☒
K.	Special Event Signs	❑	❑	❑	☒
L.	Home Occupation Signs	❑	❑	❑	☒
M.	Signs in the Resource Protection District and the Residential Shoreland District	❑	❑	❑	☒
10-18 SOIL SUITABILITY		☒	❑	❑	❑
10-19 SOLID WASTE DISPOSAL					
A.	Disposal at Licensed Facility	☒	❑	❑	❑
B.	Alternative Arrangements	☒	❑	❑	❑
10-20 STORAGE OF MATERIALS					
A.	Sufficient Setbacks and Screening	❑	❑	❑	☒
B.	Dumpsters	❑	❑	❑	☒
C.	Physical Screening	❑	❑	❑	☒

TOWN OF NORTH YARMOUTH

PLANNING BOARD

MAJOR SUBDIVISION REVIEW CHECKLIST

SUBDIVISION REGULATIONS		Received by Planning Board	Applicant Requests to be Waived	Waiver Approved by Planning Board	Not Applicable
D.	**Buffers and Screening**	☐	☐	☐	☒
10-21 STORM WATER CONTROL					
A. Designed to Minimize Runoff		☒	☐	☐	☐
B. Requirements					
B.1	Design by Maine engineer	☒	☐	☐	☐
B.2	Easement width	☒	☐	☐	☐
B.3	Oil and grease traps	☐	☐	☐	☒
B.4	Designing engineer statement	☒	☐	☐	☐
B.5	Designed to Town Roadway Criteria	☒	☐	☐	☐
B.6	Maintenance Plan	☒	☐	☐	☐
10-22 RECREATION AND OPEN SPACE LAND IN DEVELOPMENTS					
A. Applicability and Purpose		☐	☐	☐	☒
B. Retention of Useable Open Space and Recreation Land in Residential Developments					
B.1	Reservation of land	☐	☐	☐	☒
B.2	Identified needs	☐	☐	☐	☒
C. Waivers for Minor Subdivisions		☐	☐	☐	☒
D. Ownership and Maintenance of Common Open Space and/or Recreation Land					
D.1	Owned by	☐	☐	☐	☒
D.1.a	Lot owners' association	☐	☐	☐	☒
D.1.b	Conservation association	☐	☐	☐	☒
D.1.c	Town	☐	☐	☐	☒
D.2	Further subdivision prohibited	☐	☐	☐	☒
D.3	Monitoring Fee	☐	☐	☐	☒
E. Homeowners Association Requirements		☐	☐	☐	☒
10-23 WATER SUPPLY					
A. Public Water Supply					
A.1	Written statement from Yarmouth Water District	☐	☐	☐	☒

TOWN OF NORTH YARMOUTH
PLANNING BOARD
MAJOR SUBDIVISION REVIEW CHECKLIST

SUBDIVISION REGULATIONS		Received by Planning Board	Applicant Requests to be Waived	Waiver Approved by Planning Board	Not Applicable
A.2	System approve by Yarmouth Water District and North Yarmouth Fire Chief	☒	☐	☐	☐
B. Required Connection to Public Water Supply		☒	☐	☐	☐
C. Individual Wells		☐	☐	☐	☒
D. Fire Protection					
D.1	Hydrant locations	☒	☐	☐	☐
D.2	Storage capacity	☐	☐	☐	☒
D.3	Hydrant specifications	☒	☐	☐	☐
D.4	Easement	☐	☐	☐	☒
10-24 WATER QUALITY					
A. Water Quality					
A.1	No discharge in surface or groundwater	☐	☐	☐	☒
A.2	Maine DEP and Fire Marshal's Office standards	☒	☐	☐	☐
A.3	License from Maine DEP	☐	☐	☐	☒
A.4	Discharge treated	☐	☐	☐	☒
B. Groundwater		☒	☐	☐	☐
C. Wellhead Protection		☒	☐	☐	☐
D. Requirements for Hydrogeologic Assessments					
D.1	Class A (high intensity) Soil Survey	☒	☐	☐	☐
D.2	Water table	☒	☐	☐	☐
D.3	Drainage conditions	☒	☐	☐	☐
D.4	Existing groundwater quality	☒	☐	☐	☐
D.5	Analysis and evaluation	☒	☐	☐	☐
D.6	Map of wastewater systems and wells	☒	☐	☐	☐
E. Projections of Groundwater Quality		☐	☐	☐	☒
F. Drinking Water Standards		☐	☐	☐	☒
G. Demonstrate Treatment		☐	☐	☐	☒

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H. Contaminants		☐	☐	☐	☒
I. Construction Standards		☐	☐	☐	☒
J. System and Well Zones		☐	☐	☐	☒
10-25 PROTECTION OF SIGNIFICANT WILDLIFE HABITAT					
A. Designed to Protect		☐	☐	☐	☒
B. Identify and Map Wildlife Habitats		☐	☐	☐	☒
C. Consult and Obtain Written Report		☐	☐	☐	☒
D. Deer Wintering Areas		☐	☐	☐	☒
E. Deed Restrictions		☐	☐	☐	☒
10-26 PUBLIC ACCESS TO THE SHORELINE		☐	☐	☐	☒
10-27 BACK LOTS AND ACCESS					
A. Right-of-Way					
A.1	Width and frontage	☒	☐	☐	☐
A.2	Emergency vehicles	☒	☐	☐	☐
A.3	Existing lot and right-of-way	☒	☐	☐	☐
A.4	Backlots prohibited in subdivisions	☐	☐	☐	☒
A.5	Private Roads Serving Three or More Residential Units and/or Non-residential Uses	☒	☐	☐	☐
A.6	In the Farm and Forest District, Residential Shoreland District and Resource Protection District – lot size and width	☐	☐	☐	☒
A.7	In the Village Center District and Village Residential District – dimensional requirements	☒	☐	☐	☐
10-28 ACCESS MANAGEMENT STANDARDS					
A. Applicability		☒	☐	☐	☐
B. Adequacy of the Public Road System		☒	☐	☐	☐
C. Safe Sight Distances					
C.1.	Designed	☒	☐	☐	☐
C.2	Measurements	☒	☐	☐	☐

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C.2.a	Sight distance	☒	☐	☐	☐
C.2.b	Height	☒	☐	☐	☐
C.2.c	Truck traffic	☒	☐	☐	☐
C.2.d	Recreational vehicle traffic	☒	☐	☐	☐
C.4	Placement	☒	☐	☐	☐
C.5	Site triangle	☒	☐	☐	☐
D. Access Management and Safety Standards					
D.1	Hazardous conflicts	☐	☐	☐	☒
D.2	Residential Lots	☒	☐	☐	☐
D.2.i	Farm and Forest District, Residential Shoreland District and Resource Protection District	☐	☐	☐	☒
D.2.ii	Village Center District and Village Residential District	☒	☐	☐	☐
D.3	Commercial and Other Non-Residential Lots	☐	☐	☐	☒
D.3.i	Farm and Forest District, Residential Shoreland District and Resource Protection District	☐	☐	☐	☒
D.3.ii	Village Center District and Village Residential District	☒	☐	☐	☐
D.4	Shared Driveways	☐	☐	☐	☒
D.5	Road, Pedestrian and Bicycle Connections Between Developments	☒	☐	☐	☐
D.6	Subdivisions	☒	☐	☐	☐
D.7	Corner Lot Access	☐	☐	☐	☒
D.8	Access Ways to Non-Residential Developments or to Multiplex Developments	☒	☐	☐	☐
D.9	Driveway Turn-Around Area	☒	☐	☐	☐
D.10	Driveway Grades	☒	☐	☐	☐
D.11	Access Way Location and Spacing	☒	☐	☐	☐
D.11.a	Location from intersection	☒	☐	☐	☐
D.11.b	Existing private roads	☒	☐	☐	☐

TOWN OF NORTH YARMOUTH

PLANNING BOARD

MAJOR SUBDIVISION REVIEW CHECKLIST

SUBDIVISION REGULATIONS		Received by Planning Board	Applicant Requests to be Waived	Waiver Approved by Planning Board	Not Applicable
D.11.c	Demonstration of No Alternative	☒	☐	☐	☐
10-29 SUBDIVISION STREET CONNECTIVITY REQUIRED IN THE VILLAGE CENTER AND VILLAGE RESIDENTIAL DISTRICT					
A. Purpose		☒	☐	☐	☐
B. Applicability		☒	☐	☐	☐
C. Requirements					
C.1	Designed as public through roads	☒	☐	☐	☐
C.2	Adjacent uses	☒	☐	☐	☐
C.3	Continue to boundary	☒	☐	☐	☐
C.4	Provide increased connectivity	☒	☐	☐	☐
C.5	Temporary dead end road	☐	☐	☐	☒
C.6	Reserved streets	☐	☐	☐	☒
C.7	Waivers	☐	☐	☐	☒
C.7.a	Length	☐	☐	☐	☒
C.7.b	Hammerhead	☐	☐	☐	☒
C.7.c	No driveway off turn-around	☐	☐	☐	☒
C.7.d	Adequate emergency access	☒	☐	☐	☐
10-30 SUBDIVISION STREET LENGTH AND CONNECTION REQUIREMENTS IN THE FARM AND FOREST DISTRICT AND RESIDENTIAL SHORELAND DISTRICT					
A. Purpose		☒	☐	☐	☐
B. Standards		☐			
B.1	Emergency second access street	☐	☐	☐	☒
B.2	Length	☐	☐	☐	☒
B.3	Connectivity Requirements	☒	☐	☐	☐
10-31 PEDESTRIAN WAYS AND BICYCLE ACCESS, CIRCULATION AND FACILITIES					
A. Applicability and Purpose		☒	☐	☐	☐
B. Standards					

TOWN OF NORTH YARMOUTH

PLANNING BOARD

MAJOR SUBDIVISION REVIEW CHECKLIST

SUBDIVISION REGULATIONS		Received by Planning Board	Applicant Requests to be Waived	Waiver Approved by Planning Board	Not Applicable
B.1	Village Center District and Village Residential District	☒	☐	☐	☐
B.2	Farm and Forest District and Residential Shoreland District, Resource Protection District	☐	☐	☐	☒
B.3	Sidewalks	☒	☐	☐	☐
B.4	Connect to existing	☒	☐	☐	☐
B.5	Site Plan	☒	☐	☐	☐
B.6	Parking Plans	☒	☐	☐	☐
B.6.a	Bicycle parking	☐	☐	☐	☒
B.6.b	Pedestrian ways	☒	☐	☐	☐
B.6.c	Village Center District and Village Residential District sidewalks on frontage	☒	☐	☐	☐
10-32 INTERNAL VEHICULAR CIRCULATION					
A. Safe Movement					
A.1	Clear route	☒	☐	☐	☐
A.2	Emergency vehicles	☒	☐	☐	☐
A.3	Layout and design	☒	☐	☐	☐
A.4	Designed to harmonize with site	☒	☐	☐	☐
10-33 OFF STREET PARKING					
A. Applicability		☒	☐	☐	☐
B. General Requirements		☒	☐	☐	☐
C. Parking Layout and Design					
C.1	On lot or adjacent lot	☒	☐	☐	☐
C.2	Arranged so not necessary to back out on road	☒	☐	☐	☐
C.3	Located behind or to side of building	☒	☐	☐	☐
C.4	Landscaping plan	☐	☐	☐	☒
C.5	Joint use of parking area	☒	☐	☐	☐
C.6	Durable surface	☒	☐	☐	☐

TOWN OF NORTH YARMOUTH
PLANNING BOARD
MAJOR SUBDIVISION REVIEW CHECKLIST

SUBDIVISION REGULATIONS		Submitted by Applicant	Not Applicable	Applicant Requests to be Waived	Received by Planning Board
C.7	Parking space size	☒	☐	☐	☐
C.8	Diagonal parking	☐	☐	☐	☒
D. Parking Space Requirements					
D.1	Sufficient to accommodate	☒	☐	☐	☐
D.2	Size of structure	☒	☐	☐	☐
D.3	Reduce structure for sufficient parking	☐	☐	☐	☒
D.4	On-street parking	☐	☐	☐	☒
D.5	Availability of parking	☒	☐	☐	☐
D.6	Pedestrian and bicycle safety	☒	☐	☐	☐
D.7	Other standards	☒	☐	☐	☐
E. Waivers		☐	☐	☐	☒
10-34 OFF STREET LOADING REQUIREMENTS					
A. Specific Uses					
A.1	Maximum number of trucks	☐	☐	☐	☒
A.2	Type of business	☐	☐	☐	☒
A.3	Location of loading facility	☐	☐	☐	☒
A.4	Screening	☐	☐	☐	☒
A.5	Desirability of service roads or alleys	☐	☐	☐	☒
A.6	Other characteristics	☐	☐	☐	☒
A.7	Traditional layout and historical character	☐	☐	☐	☒
A.8	Minimize noise impacts	☐	☐	☐	☒

TABLE OF CONTENTS

Section No.	Title	Page No.
1.0	**PROJECT DESCRIPTION**	**1-1**
ARTICLE 10:	**PERFORMANCE AND DESIGN STANDARDS FOR SITE PLAN REVIEW AND SUBDIVISION REVIEW**	**1-4**
Section 10-2	General Layout of Development	1-4
A.	Utilization of the Site	1-4
B.	Lots 1-4	
C.	Blocks – Not Applicable	1-4
D.	Utilities	1-4
E.	Monuments	1-4
Section 10-3	Brook, Pond, Vernal Pool and Wetland Buffers	1-4
Section10-4	Building Design Standards	1-5
Section 10-5	Community Facilities Impact Analysis and Mitigation	1-5
Section 10-6	Erosion and Sedimentation Control	1-5
Section 10-7	Emissions	1-5
Section 10-8	Exterior Lighting	1-5
Section 10-9	Financial and Technical Capacity	1-5
Section 10-10	Floodplain Management	1-6
Section 10-11	Hazardous, Special, and Radioactive Materials	1-6
Section 10-12	Historic and Archaeological Sites	1-6
Section 10-13	Landscaping, Buffers and Screening,	1-6
Section 10-14	Natural Beauty and Aesthetics in Farm and Forest District, Residential Shoreland District and Resource Protection District	1-6
Section 10-15	Noise	1-6
Section 10-16	Sewage Disposal	1-6
Section 10-17	Signs	1-7
Section 10-18	Soil Suitability	1-7
Section 10-19	Solid Waste Disposal	1-7
Section 10-20	Storage of Materials	1-7
Section 10-21	Stormwater Control	1-7
Section 10-22	Recreation and Open Space Land in Development	1-7
A.	Applicability and Purpose	1-7
B.	Retention and Useable Space and Recreation Land in Residential Developments	1-7
C.	Waiver for Minor Subdivision – Not Applicable	1-8
D.	Ownership and Maintenance of Open Space	1-8
E.	Homeowners Association Requirements	1-8
Section 10-23	Water Supply	1-8
A.	Public Water Supply	1-8
B.	Fire Protection	1-8

TABLE OF CONTENTS (cont'd)

Section No.	Title	Page No.
Section 10-24	Water Quality	1-8
	A. Water Quality	1-8
	B. Groundwater	1-8
	C. Wellhead Protection	1-8
	D. Requirements for Hydrogeologic Assessments	1-8
Section 10-25	Protection of Significant Wildlife Habitat	1-9
Section 10-26 and Section 10-27		1-9
Section 10-28	Access Management Standards	1-9
Section 10-29	Subdivision Street Connectivity Required in Village Center and Village	1-9
Section 10-30	Subdivision Street Length and Connectivity Required in the Farm and Forest District and Residential Shoreland District	1-9
Section 10-31	Pedestrian Ways and Bicycle Access, Circulation and Facilities	1-9
Section 10-32	Internal Vehicular Circulation	1-10
Section 10-33	Off Street Parking	1-10
Section 10-34	Off Street Loading Requirements	1-10

LIST OF APPENDICES

APPENDIX A	TITLE, RIGHT OR INTEREST
APPENDIX B	FEMA FLOODPLAIN MAP
APPENDIX C	AGENCY REVIEW LETTERS
APPENDIX D	FINANCIAL AND TECHNICAL CAPACITY
APPENDIX E	FUJI SYSTEM CERTIFICATION AND CUT SHEETS
APPENDIX F	STORMWATER MANAGEMENT REPORT
APPENDIX G	HOMEOWNERS ASSOCIATION DOCUMENTS
APPENDIX H	MEDOT DRIVEWAY ENTRANCE PERMIT
APPENDIX I	WETLANDS REPORT AND HIGH INTENSITY SOIL SURVEY
APPENDIX J	NOTICE TO ABUTTERS
APPENDIX K	BUILDING DESIGN PLANS
APPENDIX L	HYDROGEOLOGIC ASSESSMENT

LIST OF FIGURES (END OF DOCUMENT)

Figure No.	Title	Page No.
1	SITE LOCATION MAP	1-2

TOWN OF NORTH YARMOUTH
PLANNING BOARD
MAJOR SUBDIVISION APPLICATION
CROSSROAD APARTMENTS
NORTH YARMOUTH, MAINE

1.0 PROJECT DESCRIPTION

On behalf of Walnut Hill Investments. (Applicant), Sevee & Maher Engineers (SME) is pleased to submit the enclosed Planning Board Major Subdivision Application for a twenty-two (22) apartment unit development off Walnut Hill Road in North Yarmouth, Maine, see Figure 1 - Site Location Map. The property is a 3.29-acre parcel identified as Lot 18 on the Town of North Yarmouth Tax Map No. 4.

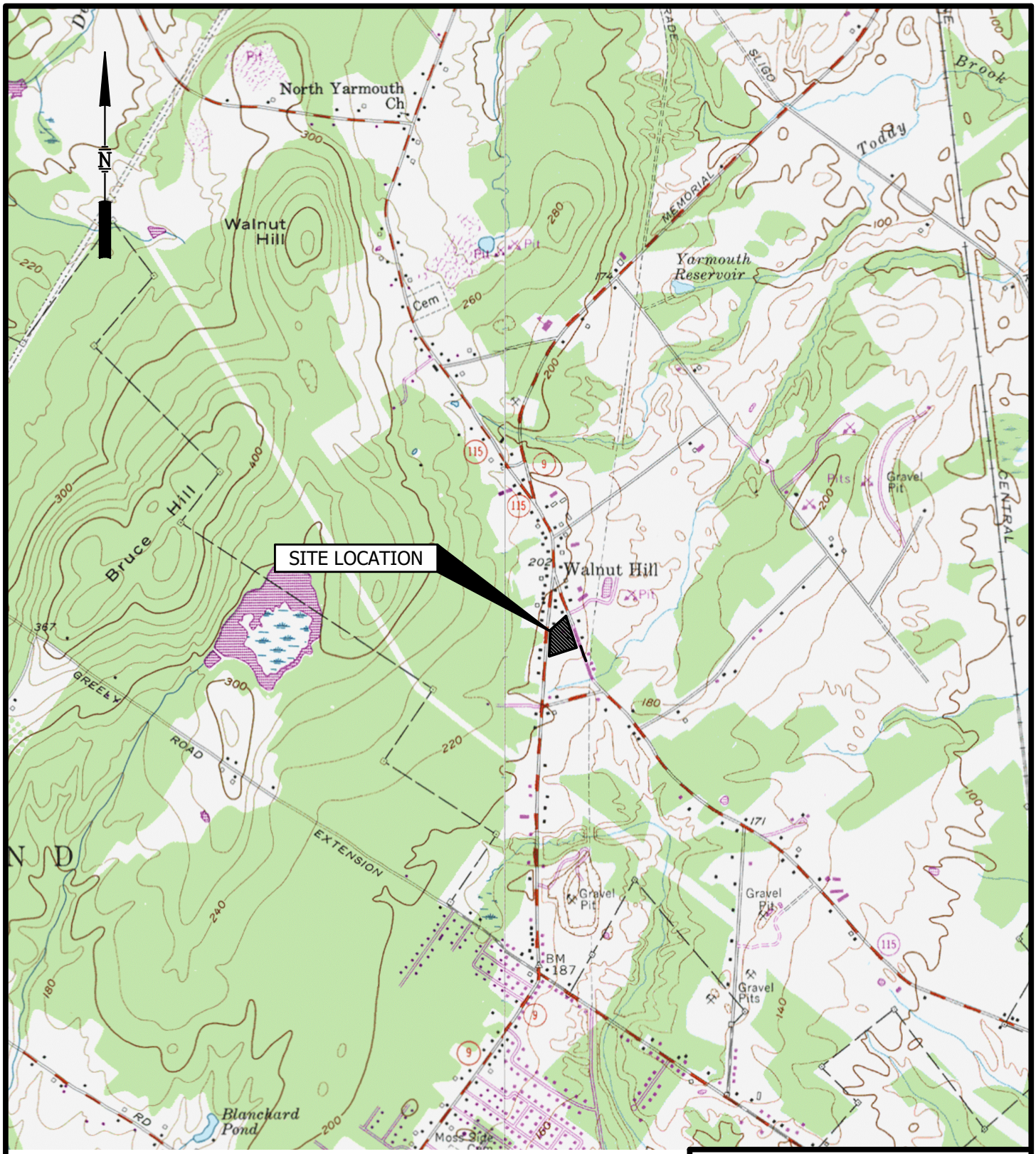
The parcel is located between Cumberland Road and Walnut Hill Road approximate 500 feet from the intersection. The property is bordered to the north and south by existing residential properties, to the east by Walnut Hill Road (Route 115), and to the west by a Cumberland Road (ME 9).

The parcel is in the Town's Village Center Zoning District, Groundwater Protection Overlay District, and Watershed Protection District. The existing property includes approximately 384 linear feet (lf) of frontage on Cumberland Road and approximately 480 lf of frontage on Walnut Hill Road. The Applicant's interest in the property is demonstrated through the deed in Appendix A.

The development will include seven new two-story buildings in two- and four-unit arrangements. The development will be accessed from Route 9 and Route 115 by an approximately 350-lf private road. The road will include 24 feet of paved travelled way and shoulders, curbed with a 4-foot esplanade and 4-foot paved sidewalk on the northern side. The drive will connect Walnut Hill Road (Route 115) to Cumberland Road (Route 9). Additional site improvements will include 36 paved parking spaces and 24-foot aisles accessing each apartment building. The units will be served by public water provided by the Yarmouth Water District, individual septic systems throughout the site, and underground electric and communications services.

The development will feature a closed stormwater management system, including catch basins and underground storm drain piping for the roadway and parking lots. Surface flow will be controlled to drain to existing conditions.

Construction of the roadway is expected to result in approximately 39,400 square feet of developed area and approximately 73,200 square feet of new impervious surface. Based on preliminary review of the Maine Department of Environmental Protection (MEDEP) requirements, this project will require a MEDEP Stormwater Management Permit-by-Rule (PBR) prior to the start of construction. Stormwater quality



BASE MAP ADAPTED FROM 7.5 MIN
USGS TOPOGRAPHIC QUADRANGLES
CUMBERLAND CENTER, ME - 1975
YARMOUTH, ME - 1975

1000 0 2000 FEET

DWG: SITELOC LMN: NONE CTB: SME-STD REV: 5/20/2020

FIGURE 1
SITE LOCATION MAP
WALNUT HILL INVESTMENTS
CROSSROAD APARTMENTS
352 WALNUT HILL ROAD
NORTH YARMOUTH, MAINE

SME
SEVEE & MAHER
ENGINEERS

\\nserver\cfs\Ben Grover\Hazelton Property\Acad\Figures\SITELOC.dwg, 5/21/2020 7:05:33 AM, sjm

treatment will not be required based on MEDEP Chapter 500 standards. The Stormwater PBR will be submitted and a copy provided to the Town prior to the Planning Board meeting.

This project will require a Driveway Entrance Permit from the Maine Department of Transportation (MEDOT) at the intersections with Cumberland Road and Walnut Hill Road. A copy of the MEDOT Driveway Entrance Permit issued by the Region 5 office is included in Appendix H.

The following describes how the project complies with the applicable Chapters of the Town of North Yarmouth Land Use Ordinance.

ARTICLE 10: PERFORMANCE AND DESIGN STANDARDS FOR SITE PLAN REVIEW AND SUBDIVISION REVIEW

Section 10-2 General Layout of Development

The layout of the site has been optimized to accommodate the required building, parking, and utility infrastructure to serve the twenty-two-unit apartment building development.

A. Utilization of the Site

The existing parcel is developed with a single-family home, two garages, and gravel driveway space. The building and road layout were designed to protect the wooded drainage easement to the north and open green space south of the proposed roadway.

The property is not within a 100-year floodplain as shown in the FEMA Firmette map in Appendix B. The on-site drainage will be maintained post-construction and erosion and sedimentation will be provided in accordance with the details on the submitted drawing set and the latest edition of the Maine Department of Environmental Protection (MEDEP) Erosion Control BMP Manual.

A wetland evaluation completed by Sweet Associates in 2017 is included in the attached plan set and an additional review was completed by Mark Hampton in May 2020 to confirm that no wetlands were present. The two reports are included in Appendix I. A project review letter has also been forwarded to the Maine Department of Inland Fisheries & Wildlife as included in Appendix C.

B. Lots

The lot layout and details are shown on Drawing C-102, Subdivision Plan. Lot dimensions have been sized to comply with the new requirements for the Village Center Zoning District.

C. Blocks – Not applicable.

D. Utilities

The utilities into the property have been designed as underground from the existing utility pole directly east of the proposed Cumberland Road entrance. Final design of the utility entrance to the site will be coordinated with Central Maine Power.

E. Monuments

Stone monument and iron pin locations are shown on Drawing C-102, Subdivision Plan.

Section 10-3 Brook, Pond, Vernal Pool and Wetland Buffers

Wetland areas identified by Sweet Associates and associated buffers are shown on Drawing C-102, Subdivision Plan. There are no brooks, ponds, or vernal pools identified on the property.

Section 10-4 Building Design Standards

The buildings proposed for the property have been designed within the general requirements of the Town Ordinances. Drafts of the building design plans are included in Appendix K.

Section 10-5 Community Facilities Impact Analysis and Mitigation

The proposed 22-unit multiplex development will have minimal impact to community services. The units will not be served by municipal sewer, and construction of the access drives. parking lots, walks, and the installation of stormwater management devices and site utilities will be completed by the developer prior to the sale of units. Initial impacts to the Town include costs associated with schools, busing, police, fire protection, and recreation facilities. We do not anticipate the proposed twenty-two multiplex development will impose an unreasonable burden on the school district, the County Sheriff's office, or any other Town services.

The roadway will be constructed to municipal residential access road standards and maintained as a private street. The cost for long-term maintenance items will be addressed by the property owners through a Homeowners Association, including road maintenance, snow removal, solid waste disposal, and maintenance of runoff drainageways and/or stormwater management devices.

Section 10-6 Erosion and Sedimentation Control

The project has been designed to comply with the MEDEP Erosion Control BMP Manual. The location and details for the proposed erosion control measures are include in the submitted plan set.

Section 10-7 Emissions

The project has no emissions that will harm human or animal health, vegetation, or property.

Section 10-8 Exterior Lighting

There is no exterior lighting proposed for this project. Each apartment building will be lit with private lighting mounted on the building to meet the security, safety, and operational needs of the new development.

Section 10-9 Financial and Technical Capacity

The Applicant has provided a letter in Attachment D to prove financial capacity to complete the project.

The Applicant has qualified professionals to design the proposed multiplex including Owen Haskell, Inc. to complete the existing conditions and boundary survey. SME has prepared the engineering design of the utilities, roadway, and stormwater.

Section 10-10 Floodplain Management

The property is not within a 100-year floodplain as shown in the FEMA Firmette map in Appendix B.

Section 10-11 Hazardous, Special, and Radioactive Materials

There is no storage of hazardous, special, or radioactive material proposed as part of this project.

Section 10-12 Historic and Archaeological Sites

There are no identified historic or archaeological sites anticipated on this property. A copy of the project review letter from the Maine Historic Preservation Commission is included in Appendix C.

Section 10-13 Landscaping, Buffers and Screening,

The proposed development will maintain the existing buffer within the drainage easement on the north portion of the property and the trees on the east side of the site. The roadway will be planted with pear trees to provide a defined streetscape and break up the 350-foot roadway. The remaining areas of the site will generally match the existing conditions with the open concept. The southeast quadrant of the site will be left as undeveloped open green space for use by the residents of the apartment buildings.

Section 10-14 Natural Beauty and Aesthetics in Farm and Forest District, Residential Shoreland District and Resource Protection District

The site is not in Farm and Forest District, Residential Shoreland District, or Resource Protection District, so this section is not applicable for this site.

Section 10-15 Noise

The proposed site improvements will not generate noise that will be objectionable to surrounding land uses. The proposed residential development is consistent with adjacent properties; therefore, noise levels will not differ noticeably from existing noise levels.

Section 10-16 Sewage Disposal

The sewage disposal will be provided with individual or combined septic systems for the apartment buildings. The disposal systems will be designed for less than 2,000-gallon-per-day capacity with pre-treatment systems for each. The pretreatment will be provided by Fuji Systems as shown in Appendix E.

A hydrogeologic assessment has been prepared for the project by Mark Cenci Geologic, Inc., and is included in Appendix L. SME is working with Mark Hampton for design and the test pits. The HHE-200s will be submitted to the Town for review prior to the Planning Board meeting.

Section 10-17 Signs

There is no proposed signage for this development other than road signs required for traffic control. If future signage is proposed, the Applicant will submit a signage plan for the Planning Board review.

Section 10-18 Soil Suitability

The soils in the site area are generally suitable for development of two-story apartment buildings. The High Intensity Soil Survey prepared for the property is included in Appendix I.

Section 10-19 Solid Waste Disposal

Solid waste disposal will be the responsibility of the individual residents. Curbside pick-up will be provided by the developer on an as-needed basis. There are no dumpsters planned for this project.

Section 10-20 Storage of Materials – Not applicable for this type of development.

Section 10-21 Stormwater Control

The stormwater management design is detailed in the Stormwater Management Report included as Appendix F.

Section 10-22 Recreation and Open Space Land in Development

A. Applicability and Purpose

The project is located within the Village Center District. Project plans include approximately 350 lineal feet of paved walk for pedestrian access to and from the apartment buildings and recreation. The proposed pathway will be 4 feet wide and extend from the property entrance at Walnut Hill Road to the public sidewalk along Cumberland Road.

B. Retention and Useable Space and Recreation Land in Residential Developments

This project will include twenty-two apartment units in the Village Center (VC) Zone. For multi-family units, the Ordinance outlines 1,300 square feet per unit reserved for recreation or common open space. This equates to approximately 28,600 square feet for the units in the VC Zone. The southwest portion of the site will remain undeveloped in this development stage. The area will remain common for the use of the residents and is approximately 53,000 square feet.

C. Waiver for Minor Subdivision – Not applicable.

D. Ownership and Maintenance of Open Space

The common open space will be owned by the developer and, in the event of a sale, by a Homeowner's Association formed to oversee the maintenance and use of the area.

E. Homeowners Association Requirements

Homeowners Association Documents are being developed for the ongoing maintenance of the common roadway and utilities for the development. A copy of the draft is included in the Appendix G.

Section 10-23 Water Supply

A. Public Water Supply

The subdivision will include a new 8-inch water main connecting to the existing 8-inch water main in the Cumberland Road right-of-way. The Applicant is coordinating with the YWD to confirm the capacity to serve the project. A copy of the letter will be provided once received.

B. Fire Protection

The development will be served by public water and each building will be sprinklered. In addition, a new fire hydrant will be provided off the new 8-inch water main in the private roadway.

Section 10-24 Water Quality

A. Water Quality

This project will not include storage of any hazardous materials; therefore, there are not anticipated impacts to the quality of water.

B. Groundwater

A significant portion of the property is located within the Groundwater Protection Overlay outlined on the Town Zoning Map updated in June 2012. On-site sewage disposal systems for each building are not anticipated to exceed a capacity of 2,000 gallons per day and the proposed residential density is substantially less than the current Zoning ordinance allows. The proposed subdivision is not anticipated to adversely affect the quality or quantity of groundwater.

C. Wellhead Protection

Proposed development will comply with the requirements of Ordinance Section 9.2 – Groundwater Protection Overlay District: Best Management Practices.

D. Requirements for Hydrogeologic Assessments

A hydrogeologic assessment has been prepared for the proposed development by Mark Cenci Geologic, Inc., and included in Appendix L.

Section 10-25 Protection of Significant Wildlife Habitat

A wetlands evaluation was completed by Sweet Associates in 2016, the results of which are included in the attached plan set. A project review letter has also been forwarded to the Maine Department of Inland Fisheries & Wildlife as included in Appendix D.

Section 10-26 and Section 10-27 - Not applicable.

Section 10-28 Access Management Standards

The anticipated number of daily vehicle trips generated are estimated from the Trip Generation Manual published by the Institute of Transportation Engineers. At full build out, the total anticipated weekday trips from the 22-units will be approximate 220 trips per day. The project will generate approximately 25 trips per peak hour and is much less than 100 passenger car equivalent (PCE) trips during the peak hour of traffic generation and will not require review by the MEDOT for a Traffic Movement Permit.

The Cumberland Road (Route 9) entrance is greater than 85 feet from Colonial Drive/Route 9 intersection to the north and more than 900 feet to the Route 9/Pea Lane intersection to the south. The Walnut Hill Road (Route 115) entrance is greater than 250 feet from Spilt Rock Road /Route 115 intersection to the north and more than 730 feet to the Route 115/Country Lane intersection to the south. At the Cumberland Road (Route 9) entrance, sight distance will exceed 305 feet in both directions as required for a 35-mph zone. At the Walnut Hill Road (Route 115) entrance, sight distance will exceed 250 feet in both directions as required for a 30-mph zone.

Section 10-29 Subdivision Street Connectivity Required in Village Center and Village Residential District

The common space area abutting the property to the southeast will be retained by the Owner and is not planned for development at this time. Existing residential development to the north, east, and west is composed of individual lots with existing driveway access to the public roadway. The property is bound by Cumberland Road to the west and Walnut Hill Road to the east. Available opportunities to connect to existing or future streets from the Crossroad Apartment offer poor connection potential for future development.

Section 10-30 Subdivision Street Length and Connectivity Required in the Farm and Forest District and Residential Shoreland District – Not applicable.

Section 10-31 Pedestrian Ways and Bicycle Access, Circulation and Facilities

The road has been designed to comply with the Town Roadway Criteria and Specifications for a roadway within the Town Growth District. The road will be a throughway between Cumberland Road and Walnut Hill Road to permit traffic and emergency vehicle access. The street is intended to remain private and will

be maintained in accordance with the Homeowners Association documents to be prepared. The sidewalk on the left side of the road will provide safe passage for vehicles and pedestrians within the subdivision as shown on C-102.

Section 10-32 Internal Vehicular Circulation

The roadway and parking lots have been designed to accommodate for safe passage of passenger, service, and emergency vehicles through the site.

Section 10-33 Off Street Parking

Off-street parking will be provided in front of the for multiplex buildings. There are three common parking areas proposed for this subdivision for the multiplex. Off-street parking space requirements for multiplex housing are outlined in Section 10.33.C. of the Town of North Yarmouth Land Use Ordinance. The ordinance outlines 1.5 spaces per a dwelling unit with 2 bedrooms. The common parking areas are for 22 two-bedroom multiplex dwelling units, resulting in a minimum of 33 parking spaces. The project proposed construction of 36 parking spaces.

Section 10-34 Off Street Loading Requirements – Not applicable.

APPENDIX A

TITLE, RIGHT OR INTEREST

SME
SEVEE & MAHER
ENGINEERS

DLN#1002040092156

QUITCLAIM DEED WITH COVENANT

(Maine Statutory Short Form)

KNOW ALL BY THESE PRESENTS, that **Construction Aggregate, Inc.**, a Maine corporation, with a principal place of business at 82 Doughty Road, in Town of North Yarmouth, County of Cumberland and State of Maine, (hereinafter referred to as "Grantor"), for consideration paid, grants to **Walnut Hill Investments, LLC**, a Maine limited liability company, with a principal place of business at 82 Doughty Road, in Town of North Yarmouth, County of Cumberland and State of Maine (hereinafter referred to as "Grantee"), with quitclaim covenants, the land located in North Yarmouth, Cumberland County, Maine, described in EXHIBIT A annexed hereto and made a part hereof.

IN WITNESS WHEREOF, the said Construction Aggregate, Inc., has caused this deed to be executed in its name by Benjamin C. Grover, its President, thereunto duly authorized this 7 day of April, 2020.

WITNESS:

Martha Grover Lambert

Construction Aggregate, Inc.

By: Benjamin C. Grover
Benjamin C. Grover, its President

STATE OF MAINE
CUMBERLAND, ss.

Date: April 7, 2020

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

Before me,

Notary Public/Attorney at Law
Printed Name: MARY P. SEWALL
COMM EXP. 5/19/22

EXHIBIT A

A certain lot or parcel of land with the buildings thereon, situated in the Town of North Yarmouth, County of Cumberland and State of Maine, bounded and described as follows:

Bounded easterly by the road leading from Walnut Hill to Yarmouth; southerly by land now or formerly of Seavey; northerly by land now or formerly of Jordan; and westerly by the road leading to Portland by the Cumberland Center Meeting House; containing ten (10) acres, more or less.

EXCEPTING AND RESERVING from the above described premises three (3) certain parcels of land described in the following four (4) deeds, to which reference may be made for a more particular description of the out conveyances:

1. Warranty Deed from Bruce W. Hazelton and Avalon C. Hazelton to Janet E. Stoddard, dated June 15, 1984, and recorded in the Cumberland County Registry of Deeds in Book 6481, Page 64.

2. Warranty Deed from Bruce W. Hazelton and Avalon C. Hazelton to Robert C. Hazelton, dated June February 1, 1995, and recorded in the Cumberland County Registry of Deeds in Book 11809, Page 253 (conveying a one half interest).

3. Warranty Deed from Bruce W. Hazelton and Avalon C. Hazelton to Robert C. Hazelton, dated January 25, 1996, and recorded in the Cumberland County Registry of Deeds in Book 12328, Page 98 (conveyed a one half interest).

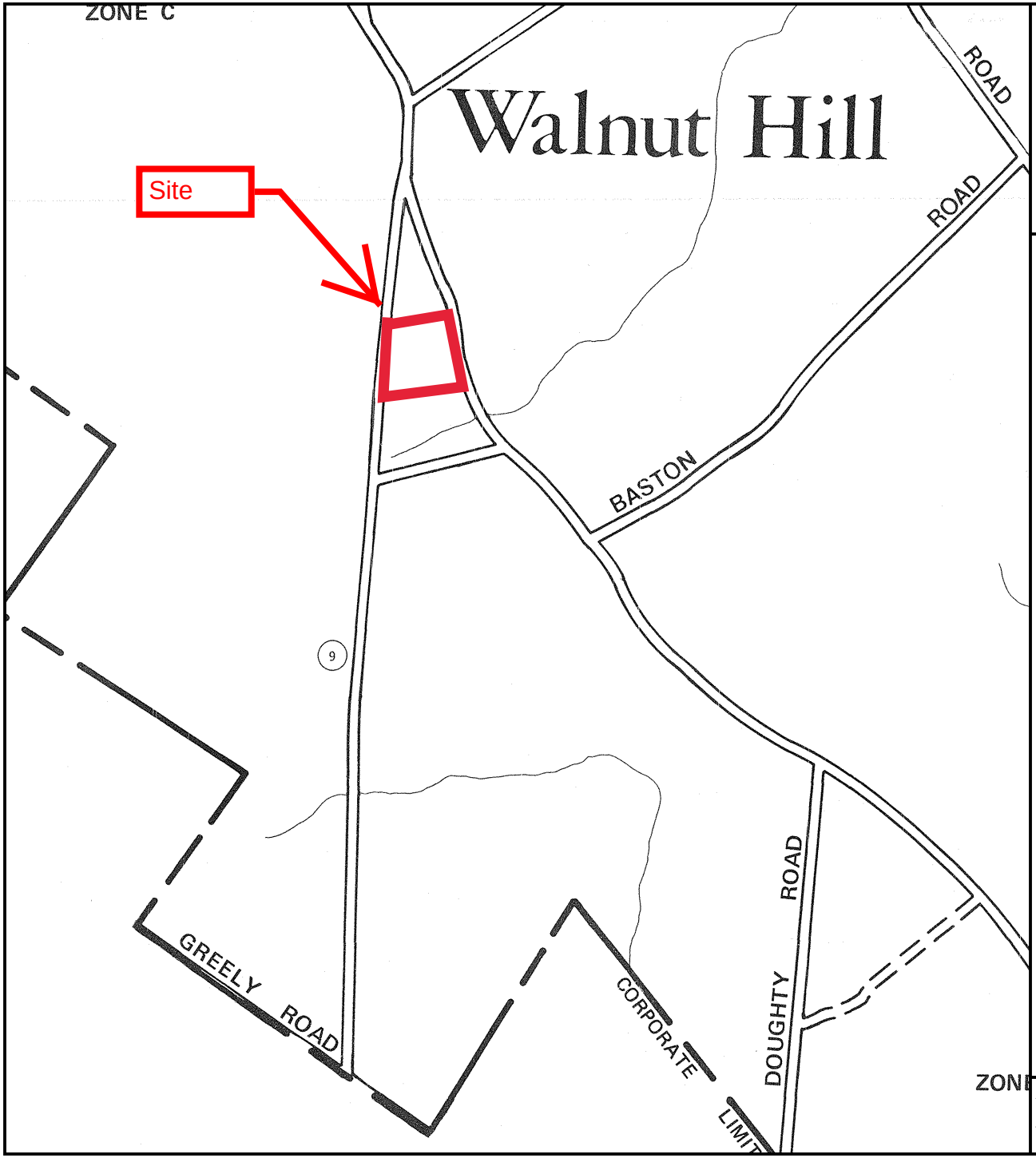
4. Warranty Deed from Bruce W. Hazelton and Avalon C. Hazelton to John W. Trainor and Lisa H. Trainor, dated November 30, 1998, and recorded in the Cumberland County Registry of Deeds in Book 14373, Page 169.

As affected by the Notice of Layout and Taking from the State of Maine Department of Transportation, dated June 23, 2004, and recorded in the Cumberland County Registry of Deeds in Book 22509, Page 31.

APPENDIX B

FEMA FLOODPLAIN MAP

SME
SEVEE & MAHER
ENGINEERS



APPROXIMATE SCALE

1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

230202

TOWN OF
NORTH YARMOUTH,
MAINE
CUMBERLAND COUNTY

PANEL 10 OF 10
(SEE MAP INDEX FOR PANELS NOT PRINTED)

P.10

E
1,555

COMMUNITY-PANEL NUMBER
230202 0010 B

EFFECTIVE DATE:
JULY 16, 1981

N90

federal emergency management agency
federal insurance administration

APPENDIX C

AGENCY REVIEW LETTERS

SME
SEVEE & MAHER
ENGINEERS

SME
SEVEE & MAHER
ENGINEERS

4 Blanchard Road, P.O. Box 85A
Cumberland, ME 04021
Tel: 207.829.5016 • Fax: 207.829.5692
info@smemaine.com
smemaine.com

May 26. 2020

Mr. John Perry
Maine Department of Inland Fisheries and Wildlife
284 State Street, 41 SHS
Augusta, Maine 04333-0041

Subject: Site Plan
Crossroads Apartments
North Yarmouth, Maine

Dear John:

Walnut Hill Investments. is seeking approval for construction of a twenty-two multiplex apartments under a Town of North Yarmouth Major Subdivision Permit. The subdivision location is outlined in the attached Figure 1 - Site Location Map.

We would appreciate receiving any information relative to rare, threatened, or endangered species or the presence of important wildlife or fisheries habitat at or in the immediate vicinity of our project.

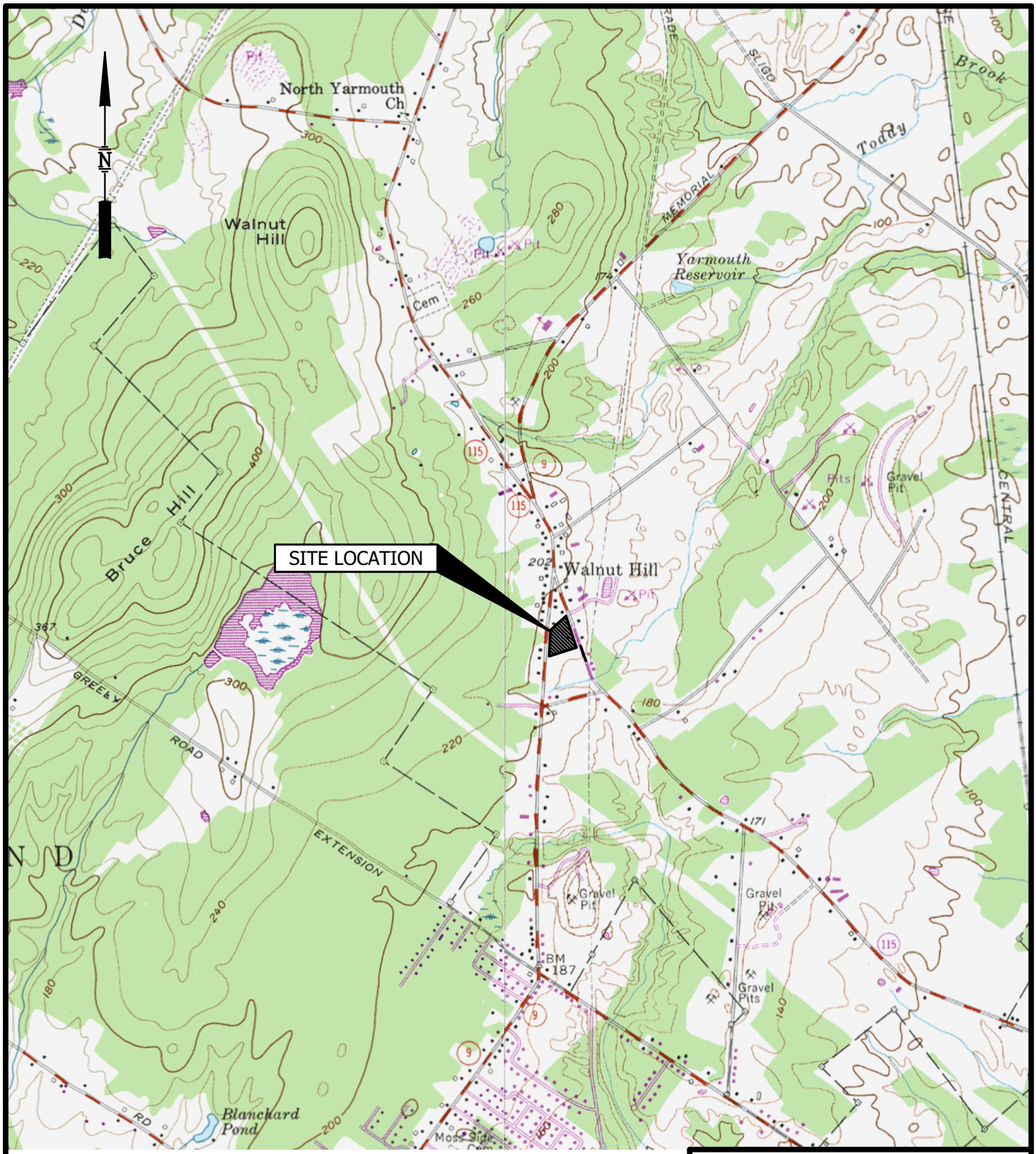
Please contact me if you have any questions or require additional information. Thank you in advance for your consideration.

Sincerely,

SEVEE & MAHER ENGINEERS, INC.

Daniel P. Diffin, P.E., LEED AP BD+C
Vice President/ Project Manager

Attachments: Figure 1- Site Location Map



BASE MAP ADAPTED FROM 7.5 MIN
USGS TOPOGRAPHIC QUADRANGLES
CUMBERLAND CENTER, ME - 1975
YARMOUTH, ME - 1975

1000 0 2000 FEET

DWG: SITELOC LMN: NONE CTB: SME-STD REV: 5/20/2020

FIGURE 1
SITE LOCATION MAP
WALNUT HILL INVESTMENTS
CROSSROAD APARTMENTS
352 WALNUT HILL ROAD
NORTH YARMOUTH, MAINE

SME
SEVEE & MAHER
ENGINEERS

\\nserver\cfs\Ben Grover\Hazelton Property\Acad\Figures\SITELOC.dwg, 5/21/2020 7:05:33 AM, sjm

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

JANET T. MILLS
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

June 9, 2020

Mr. Jeffery T. Read
Sevee & Maher Engineers
PO Box 85A
Cumberland, ME 04021

Project: MHPC# 0801-20 Walnut Hill Investments; Crossroad Apartments
Construction of a Multi-Family Residential Development
Town: North Yarmouth, ME

Dear Mr. Read:

In response to your recent request, I have reviewed the information received June 1, 2020 to initiate consultation on the above referenced project.

Based on the information provided, I have concluded that there are no National Register eligible properties on or adjacent to the parcels. In addition, the project area is not considered sensitive for archaeological resources.

Please contact Megan M. Rideout of our staff, at megan.m.rideout@maine.gov or 207-287-2992, if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

APPENDIX D

FINANCIAL AND TECHNICAL CAPACITY

SME
SEVEE & MAHER
ENGINEERS

Norway Savings Bank

May 27, 2020

Board of Selectmen and Planning Board
Town of North Yarmouth
10 Village Square Road
North Yarmouth, ME 04097

RE: Walnut Hill Investments LLC / Financial Capacity – Crosswood Apartments

Ladies and Gentlemen,

At the request of Ben Grover, I write this letter to provide to you my opinion on the financial capacity of Walnut Hill Investments LLC and Ben Grover to undertake the construction of the Crosswood Apartment project consisting of infrastructure and the initial four units.

I spoke with Ben about the plans and scope of the project in some detail recently. Walnut Hill Investments LLC maintains its banking relationship with Norway Savings Bank so I am familiar with company's background and finances.

Based on my banking relationship with the company and the information discussed with Ben, about the proposal and plans for Crosswood Apartments, it is my opinion that Ben Grover and Walnut hill Investments LLC have the financial capacity to support this project.

Although this letter is not a commitment to lend, Norway Savings Bank looks forward to consideration of any financing needs of Walnut Hill Investments LLC.

Sincerely,

Brian C. Desjardins
Regional Vice President
Commercial Lending

BCD/tbm

APPENDIX E

FUJI SYSTEM CERTIFICATION AND CUT SHEETS

SME
SEVEE & MAHER
ENGINEERS

Maine Center for Disease Control and Prevention
An Office of the Department of Health and Human Services
Paul R. LePage, Governor Mary C. Mayhew, Commissioner

Department of Health and Human Services
Maine Center for Disease Control and Prevention
286 Water Street
11 State House Station
Augusta, Maine 04333-0011
Tel.: (207) 287-8016; Fax: (207) 287-9058
TTY Users: Dial 711 (Maine Relay)

Tel. (207) 287-5672 Subsurface Wastewater Unit Fax (207) 287-4172

December 2, 2014

Fuji Clean USA, LLC
Attn.: Scott Samuelson
41-2 Greenwood Road
Brunswick, ME 04011

Subject: Product Registration, Fuji Clean CE5, CE7, CE10, CE21, CE 30 and PCN100

Dear Mr. Samuelson:

The Division of Environmental Health has completed a review of a registration application for the subject products. This information was submitted pursuant to Section 6.HH of the Subsurface Wastewater Disposal Rules for registration for use in Maine.

The Fuji Clean CE5, CE7, CE10, CE21, CE 30 and PCN100 consist of multiple compartment fiber reinforced plastic tanks. The first compartment provides primary solids settling and separation. The second chamber provides anaerobic contact and treatment. The third chamber provides aerobic contact and treatment utilizing a blower(s) integral to the devices. Air lift pumps circulate process wastewater and solids back to the first chamber for further treatment.

According to the information you provided, the Fuji Clean CE5, CE7, CE10, CE21, CE 30 and PCN100 have been certified by the National Sanitation Foundation (NSF) pursuant to ANSI/NSF Standard 40 for residential wastewater treatment systems, achieving combined BOD5 and TSS levels below 30 mg/l.

On the basis of the information, the Division has determined that the Fuji Clean CE5, CE7, CE10, CE21, CE 30 and PCN100 is acceptable for use in the State of Maine, provided that it is installed, operated, and maintained in conformance with the manufacturer's directions.

Disposal fields installed in association with the Fuji Clean CE5, CE7, CE10, CE21, CE 30 and PCN100 may be sized in accordance with Table 4B of the Maine Subsurface Wastewater Disposal Rules:

TABLE 4B
ADJUSTMENT FACTOR FOR WASTEWATER STRENGTHS DIFFERENT FROM TYPICAL DOMESTIC WASTEWATER

Strength of wastewater entering the disposal field (BOD5 plus TSS)	Adjustment factor (AF)
30 or less milligrams/liter	0.5
52	0.6
82	0.7
122	0.8
175	0.9
240	1.0
320	1.1
420	1.2
530	1.3
660	1.4
810	1.5
985	1.6
1180	1.7
1400	1.8
1645	1.9
2000	2.0

Because installation and owner maintenance has a significant effect on the working order of onsite sewage disposal systems, including their components, the Division makes no representation or guarantee as to the efficiency and/or operation of the Fuji Clean CE5, CE7, CE10, CE21, CE 30 and PCN100. Further, registration of these products for use in the State of Maine does not represent Division preference or recommendation for this product over similar or competing products.

If you have any questions please feel free to contact me at (207) 287-5695.

Sincerely,

James A. Jacobsen
Project Manager, Webmaster
Division of Environmental Health
Drinking Water Program
Subsurface Wastewater Unit
e-mail: james.jacobsen@maine.gov

/jaj

xc: File

FujiClean USA LLC DESIGN SPECIFICATION TABLE	CE Series BOD, TSS, TN				CEN Series BOD, TSS, Enhanced TN		
Model	CE5	CE7	CE10	CE14	CEN5	CEN7	CEN10
Load (Bedrooms)	4	6	8	12	4	6	8
Effluent (assumes domestic strength influent)							
BOD – Effluent (mg/L)	10-20	10-20	10-20	10-20	10	10	10
BOD (removal pounds/day)	.52	.73	1.04	1.46	.69	.97	1.38
TSS (mg/L)	10-20	10-20	10-20	10-20	10	10	10
TN (mg/L)	10-20	10-20	10-20	10-20	10	10	10
Tank Detail:							
Material	Fibre-Reinforced Plastic						
Height (inches)	61.8	65.7	73.6	77.4	65.7	73.6	77.4
Length (inches)	85	95.7	98.8	118.9	95.7	98.8	118.9
Width (inches)	43.7	49.2	56.7	68.9	49.2	56.7	68.9
Weight (lbs.)	397	463	705	926	463	705	926
Power Use (kWh/day)	1.27	1.27	1.92	1.92	1.27	1.92	1.92

Please consult with distributor or Fuji Clean USA for commercial models designed to treat hydraulic flows above those listed in this table.

Exceptionally Easy Installation

Elegantly Simple Process

Fuji Clean's "contact filtration" treatment is a simple, well engineered process that consists of a controlled flow train through aerobic and anaerobic chambers in direct contact with three types of proprietary fixed film media on which biological digestion & mechanical filtration occurs.

An external, continuously operating air pump introduces oxygen into the aerobic chambers and powers two internal air lift pumps. One carries process water and solids back to the primary chambers for solids management and denitrification activity. The other regulates flow equalization and controls metered outflow of treated effluent. Enhanced nitrogen models are available in all sizes.

Phosphorus removal (optional) is accomplished through a proprietary electrolysis system. An integrated discharge pump(s) is available as an option. Please contact us for additional technical information, design materials and to discuss how we can help you.

Compact, rugged system fits onto the tightest, toughest sites.

Simple And Easy For Everyone

Wastewater treatment systems should be boring. They should just work as specified. No drama. No excuses. Our mission is to make certain that world class Fuji Clean technology makes life easy and simple for everyone...

- **Engineers/Designers:** Prompt technical and design assistance. Easy access technical information. Model selection breadth to meet regulatory requirements.
- **Installers:** On-time delivery for easy plug & play installation. Comprehensive onsite installation guidance.
- **O&M Providers:** Simple and straightforward. 24/7 support. No outside washdown.
- **Regulators:** Customizable systems allow adherence to local regulations.
- **Owners:** Low O&M cost. Low power cost. Quiet. Aesthetically pleasing. No hassle system. Rock solid warranty.

FujiClean USA™
Toward Clean Water...

41-2 Greenwood Road, Brunswick, Maine USA 04011
T-207-406-2927 • F-207-406-2929
info@fujicleanusa.com • www.fujicleanusa.com

Ver 5

FujiClean USA™
Toward Clean Water...

RESIDENTIAL

Intelligently Engineered Residential Treatment Systems

NSF®
Certified to NSF/ANSI Standards 40 & 245

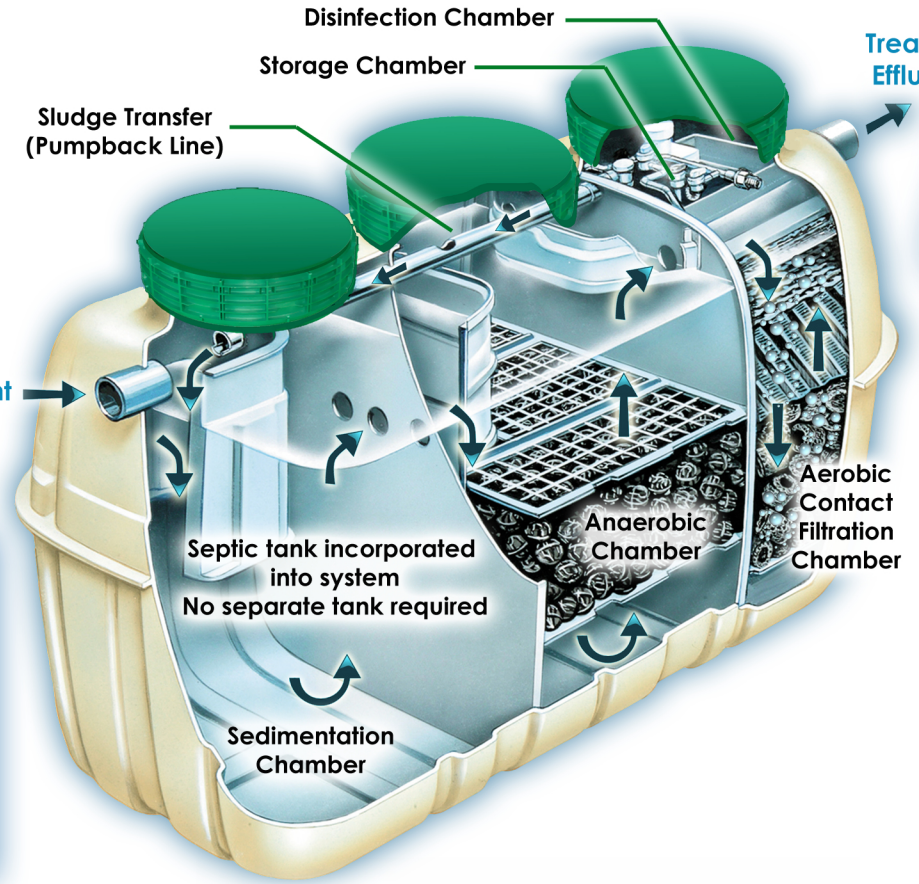
Simple Reliable Elegant Technology

Size doesn't always matter. Like many Japanese cars, Fuji Clean systems may be smaller in footprint and physical stature than comparable systems, but they are elegantly engineered to provide you optimal and reliable treatment at a remarkably low initial and ongoing operating cost.

NEMA 4X Rated

Hassle-Free Controls
Versatile, field-tested and proven control/alarm designed for functionality, regulatory approval and long term reliability.

Optional upgrades:
- Telecommunication
- Flow Monitoring
- Dosing Management
- Data Logging



Powered by Best-In-Class "R" Series Fuji Clean MAC Linear Diaphragm Air Blowers.
- Most efficient
- Longest lasting
- Quietest

Excellent Treatment With Minimal Power Use
Power cost example: Model CE5 or CEN5 treating 450-gpd (at U.S. residential avg. rate of $0.12 per kWh) is 15.6 cents per day or $56.80 per year.

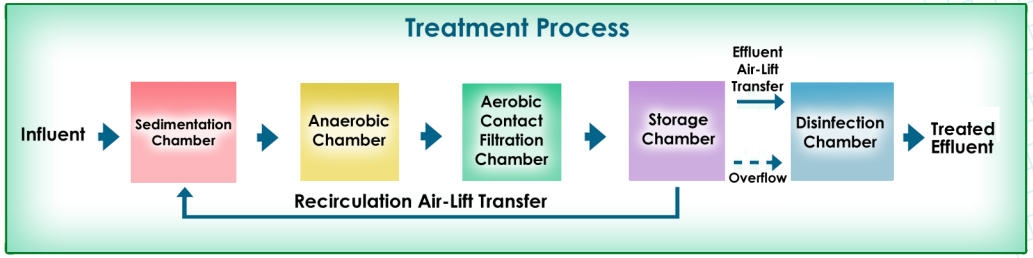
Plug & Play Technology
Delivered to site fully built-out & ready to operate. No on-site assembly.

Flow Equalization With Fail-Safe Overflow

World Class Experience
2+ million systems installed and operating worldwide.

FujiClean USA™
Toward Clean Water...

Treatment Process



Portable, maneuverable and versatile.
CE30 system on trailer capable of treating 2,700-gpd.

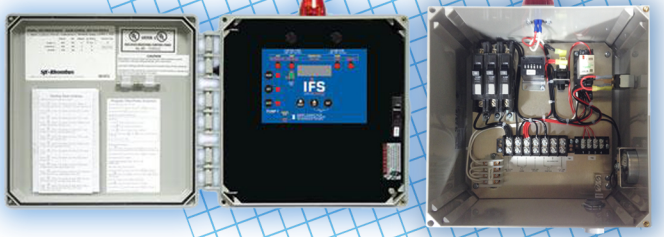
Clean Effective Robust Process

Fuji Clean's "contact filtration" treatment is a simple, well-engineered process that consists of a controlled flow train through aerobic and anaerobic chambers in direct contact with three types of proprietary fixed film media on which biological digestion and mechanical filtration occurs.

An external, continuously operating air pump introduces oxygen into compartments within aerobic chambers and powers two airlift pumps within the treatment system. One airlift pump carries process water and solids back to the primary chambers for solids management and denitrification activity. The other regulates flow equalization meters outflow of treated effluent. Modifications for enhanced nitrogen reduction models (CEN series) include larger tank capacity, media design and adjusted recirculation rate.

Phosphorus removal (optional) is accomplished through a proprietary electrolysis system.

Please contact us for additional technical information, design materials and assistance to discuss how we can help you.



Fuji Clean offers a spectrum of monitor/controllers to meet all site specified requirements from simple high water and blower monitors to more complex panels with telecommunication and data logging capabilities.

Powered by FujiMAC Blowers – the most efficient, longest-lasting linear diaphragm air pumps in the world. Rebuild diaphragms ensure longest-lasting service.

Simple And Easy For Everyone

Wastewater treatment systems should be boring. They should just work as specified. No drama. No excuses. Our mission is to make certain that world class Fuji Clean environmental technology makes life easy and simple for everyone.

- **Engineers/Designers:** Prompt, professional technical and design assistance. Easy access technical information. Model selection breadth to meet regulatory requirements.
- **Installers:** On-time delivery for easy plug & play installation. Comprehensive onsite installation guidance.
- **O&M Providers:** Simple and straightforward. 24/7 support. No outside washdown.
- **Regulators:** Customizable systems assure adherence to local regulations, and treatment standards
- **Owners:** Low O&M cost. Low power cost. Quiet. Aesthetically pleasing. No hassle system. Rock solid warranty.

FujiClean USA™
Toward Clean Water...

41-2 Greenwood Road, Brunswick, Maine USA 04011
T-207-406-2927 F-207-406-2929
info@fujicleanusa.com www.fujicleanusa.com

Ver. 3

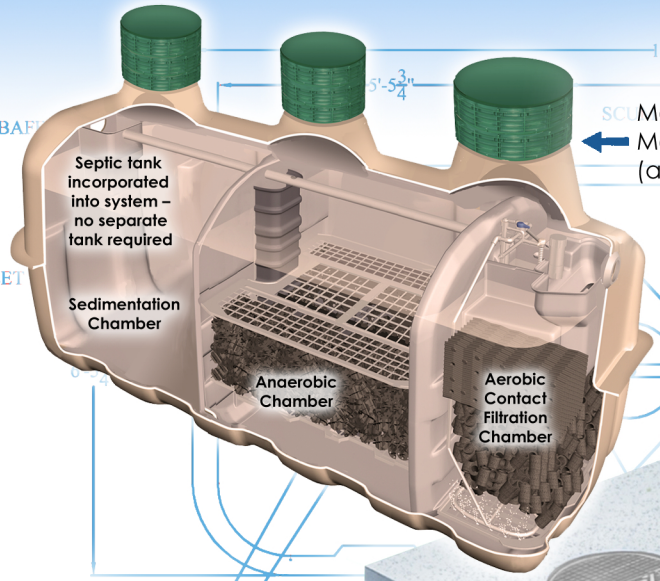
FujiClean USA™
Toward Clean Water...

COMMERCIAL
(flows greater than 1,000-gpd)

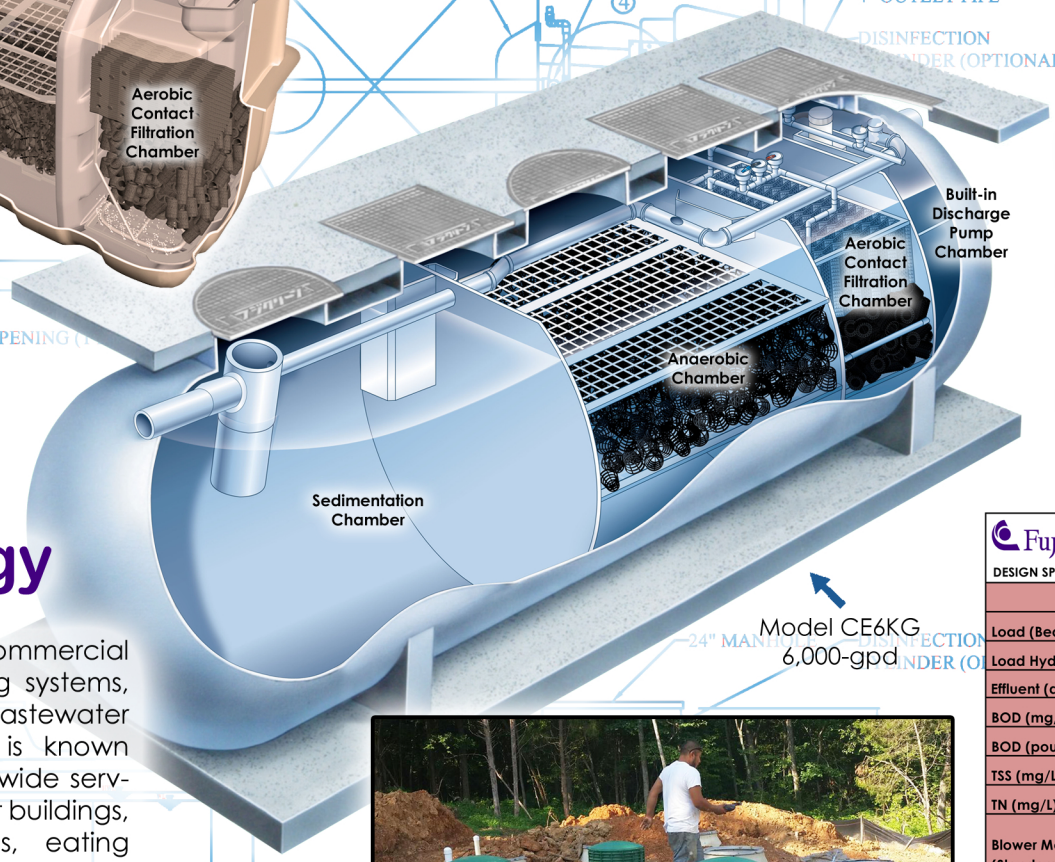
Model CE6KG

Model CE30

Intelligently Engineered Commercial Treatment Systems



Models CE10 - CE30 900-2,700-gpd
Models CEN10 - CEN21 900 to 1,900-gpd
(advanced nitrogen removal)



Model CE6KG
6,000-gpd

Clean Reliable Versatile Technology

With over 100,000 commercial sized installed operating systems, Fuji Clean's onsite wastewater treatment technology is known and appreciated worldwide servicing schools, apartment buildings, subdivisions, strip malls, eating establishments and other commercial buildings. Typically much more compact and consumer-friendly than comparable systems, Fuji Clean prides itself on providing robust and reliable treatment at a remarkably low initial and ongoing operating cost.

FujiClean USA™
Toward Clean Water...

Fuji Clean systems may be cluster-configured to treat hydraulic flows of up to 100,000-gpd and organic loads of up to 3,000 mg/L BOD

Professional engineering & design assistance always available

Excellent Treatment with Minimal Power Use
Power cost example: Model CE30 treating 2,700-gpd (at U.S. commercial avg. rate of $0.0944 per kWh) is 38.3 cents per day or $140 per year

Plug & Play Technology
Delivered to site fully built-out & ready to operate

Controls/Communications
Multiple options to meet all customer requirements and state regulations

World Class Experience
100,000+ commercial (i.e. over 1,000-gpd) systems in operation

Compact System
Small footprint, highly maneuverable – provides ideal solution for difficult site accessibility

FujiClean USA DESIGN SPECIFICATION TABLE	CE Series BOD, TSS, TN					CEN Series BOD, TSS, Enhanced TN	
Model	CE10	CE14	CE21	CE30	CE6KG	CEN10	CEN21
Load (Bedrooms)	8	N/A	N/A	N/A	N/A	8	N/A
Load Hydraulic (GPD)	900	1,000	1,800	2,700	6,000	900	1,900
Effluent (assumes domestic strength influent)							
BOD (mg/L)	10-20	10-20	10-20	10-20	10-20	10	10
BOD (pounds/day)	1.04	1.46	2.08	3.12	6.93	1.38	2.9
TSS (mg/L)	10-20	10-20	10-20	10-20	10-20	10	10
TN (mg/L)	10-20	10-20	10-20	10-20	10-20	10	10
Blower Model / CFM (Standard)	MAC100R 3.5 CFM	MAC100R 3.5 CFM	MAC150R 5.3 CFM	MAC200R 7.0 CFM	MAC200R (x3) 21 CFM	MAC100R 3.5 CFM	MAC200R 7.0 CFM
Power Use (kWh/day)	1.92	1.92	2.9	4.1	12.3	1.92	4.1
Tank Detail:							
Material	Fibre-reinforced plastic					Fibre-reinforced plastic	
Height (inches)	73.6	77.4	81.3	87.2	87.2	77.4	87.2
Length (inches)	98.8	118.9	152.8	183.7	434.7	118.9	183.7
Width (inches)	56.7	68.9	72.4	78.3	115.3	68.9	78.3
Weight (lbs.)	705	926	1,168	1,543	2,900	926	1,543
Inlet Invert	61	62	65.1	71	67	62	71
Outlet Invert	59	59.5	63.1	69	64	59.5	69
Access Ports (number)	3	3	3	3	7	3	3
Access Port Diameter (inches)	2@20" 1@24"	2@20" 1@24"	2@20" 1@24"	2@20" 1@24"	4@24"x24" 3@24"x48"	2@20" 1@24"	2@20" 1@24"
Volume Total (gallons)	1,069	1,498	2,252	3,199	7,267	1,498	3,199

6/20

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services
Div. Environmental Health, 11SHS
(207) 287-2070 Fax: (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	North Yarmouth
Street or Road	352 Walnut Hill Road
Subdivision, Lot #	Unit 1

OWNER/APPLICANT INFORMATION

Name (last, first, MI)	Walnut Hill Investment — Owner [ ] Applicant [✓]
Mailing Address of Owner/Applicant	82 Doughty Road
	North Yarmouth 04097
Daytime Tel. #	233-6463

OWNER OR APPLICANT STATEMENT
I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.

Signature of Owner or Applicant _____ Date _____

>> CAUTION: LPI APPROVAL REQUIRED <<

Town/City _____ Permit # _____

Date Permit Issued ___/___/___ Fee: $_____ Double Fee Charged [ ]

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

Fee: $_____ state min fee $_____ Locally adopted fee

Copy: [ ] Owner [ ] Town [ ] State

The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

Municipal Tax Map # _____ Lot # _____

CAUTION: INSPECTION REQUIRED
I have inspected the installation authoirzed above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application. _____ (1st) date approved

Local Plumbing Inspector Signature _____ _____ (2nd) date approved

PERMIT INFORMATION

TYPE OF APPLICATION
1. First Time System
2. Replacement System
Type replaced: _____
Year installed: _____
3. Expanded System
a. <25% Expansion
b. ≥25% Expansion
4. Experimental System
5. Seasonal Conversion

THIS APPLICATION REQUIRES
1. No Rule Variance
2. First Time System Variance
a. Local Plumbing Inspector Approval
b. State & Local Plumbing Inspector Approval
3. Replacement System Variance
a. Local Plumbing Inspector Approval
b. State & Local Plumbing Inspector Approval
4. Minimum Lot Size Variance
5. Seasonal Conversion Permit

DISPOSAL SYSTEM COMPONENTS
1. Complete Non-engineered System
2. Primitive System (graywater & alt. toilet)
3. Alternative Toilet, specify: _____
4. Non-engineered Treatment Tank (only)
5. Holding Tank, _____ gallons
6. Non-engineered Disposal Field (only)
7. Separated Laundry System
8. Complete Engineered System (2000 gpd or more)
9. Engineered Treatment Tank (only)
10. Engineered Disposal Field (only)
11. Pre-treatment, specify: _____
12. Miscellaneous Components

SIZE OF PROPERTY
3.5 SQ. FT. / ACRES

SHORELAND ZONING
Yes (No)

DISPOSAL SYSTEM TO SERVE
1. Single Family Dwelling Unit, No. of Bedrooms: ___
2. Multiple Family Dwelling, No. of Units: 2-2Bdrm
3. Other: _____ (specify)
Current Use Seasonal Year Round (Undeveloped)

TYPE OF WATER SUPPLY
2. Dug Well 3. Private
(4. Public) 5. Other

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK
(1. Concrete)
(a. Regular)
b. Low Profile
2. Plastic
3. Other: _____
CAPACITY: 1,000 GAL.

DISPOSAL FIELD TYPE & SIZE
Trench 2. Stone Trench
...y Device
a. cluster array (c. Linear)
(b. regular load) d. H-20 load
4. Other: _____
SIZE: 1200 (sq. ft.) lin. ft.

GARBAGE DISPOSAL UNIT
(1. No) 2. Yes 3. Maybe
If Yes or Maybe, specify one below:
a. multi-compartment tank
b. ___ tanks in series
c. increase in tank capacity
d. Filter on Tank Outlet

DESIGN FLOW
360 gallons per day
BASED ON:
1. Table 4A (dwelling unit(s))
2. Table 4C(other facilities)
SHOW CALCULATIONS for other facilites
3. Section 4G (meter readings)
ATTACH WATER METER DATA

SOIL DATA & DESIGN CLASS
PROFILE CONDITION
T / C
at Observation Hole # TP-1
Depth 30 "
of Most Limiting Soil Factor

DISPOSAL FIELD SIZING
1. Medium---2.6 sq. ft. / gpd
(2. Medium---Large 3.3 sq. f.t / gpd)
3. Large---4.1 sq. ft. / gpd
4. Extra Large---5.0 sq. ft. / gpd

EFFLUENT/EJECTOR PUMP
(1. Not Required)
2. May Be Required
3. Required
Specify only for engineered systems:
DOSE: _____ gallons

LATITUDE AND LONGITUDE
at center of disposal area
Lat. 43 d 49 m 21 s
Lon. 70 d 14 m 46 s
if g.p.s, state margin of error: 20

SITE EVALUATOR STATEMENT

I certify that on 5/22/20 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).

Site Evaluator Signature _____ 263 SE # 5/22/20 Date

Mark J Hampton
Site Evaluator Name Printed

207-756-2900
Telephone Number

E-mail Address

Note : Changes to or deviations from the n should be confirmed with the Site Evaluator.

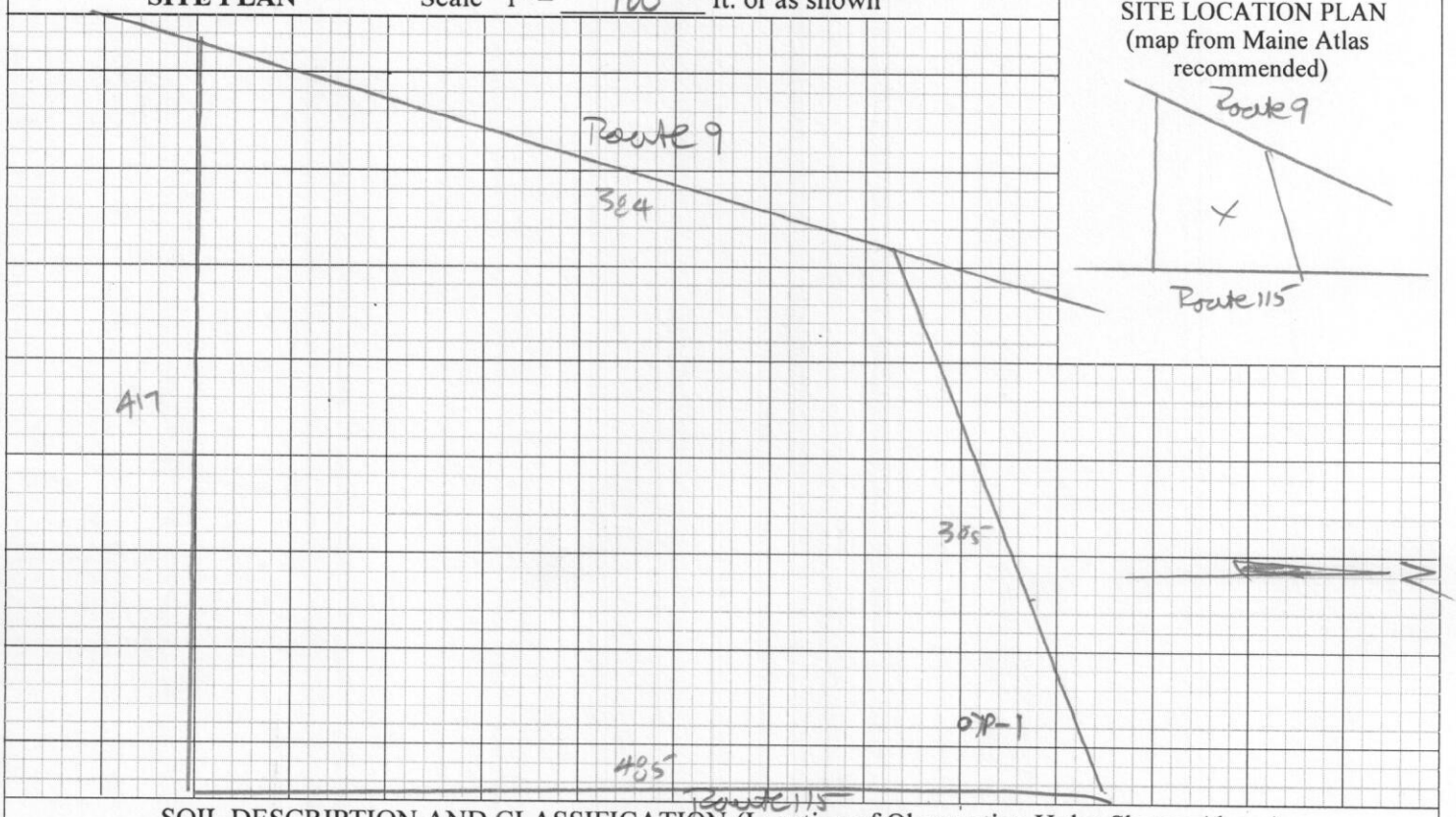
6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road Unit 1	Walnut Hill Investment

SITE PLAN Scale 1" = 100 ft. or as shown



SITE LOCATION PLAN
(map from Maine Atlas recommended)

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

Observation Hole TP- 1 ☑ Test Pit ☐ Boring
_____ " Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–10	Sand	Friable	Dark Brown	
10–30	Sand	Friable	Red Brown	
30–40	Very fine loamy sand	Firm	olive	Common Distinct
40–50				

Soil Classification	Slope	Limiting Factor	
7 / C (Profile / Condition)	2 %	30 "	☑ Ground Water ☑ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole _____ ☐ Test Pit ☐ Boring
_____ " Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–50				

Soil Classification	Slope	Limiting Factor	
_____ / _____ (Profile / Condition)	_____ %	_____ "	☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Site Evaluator Signature: [signature] | 263 (SE #) | 5/22/20 (Date)

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

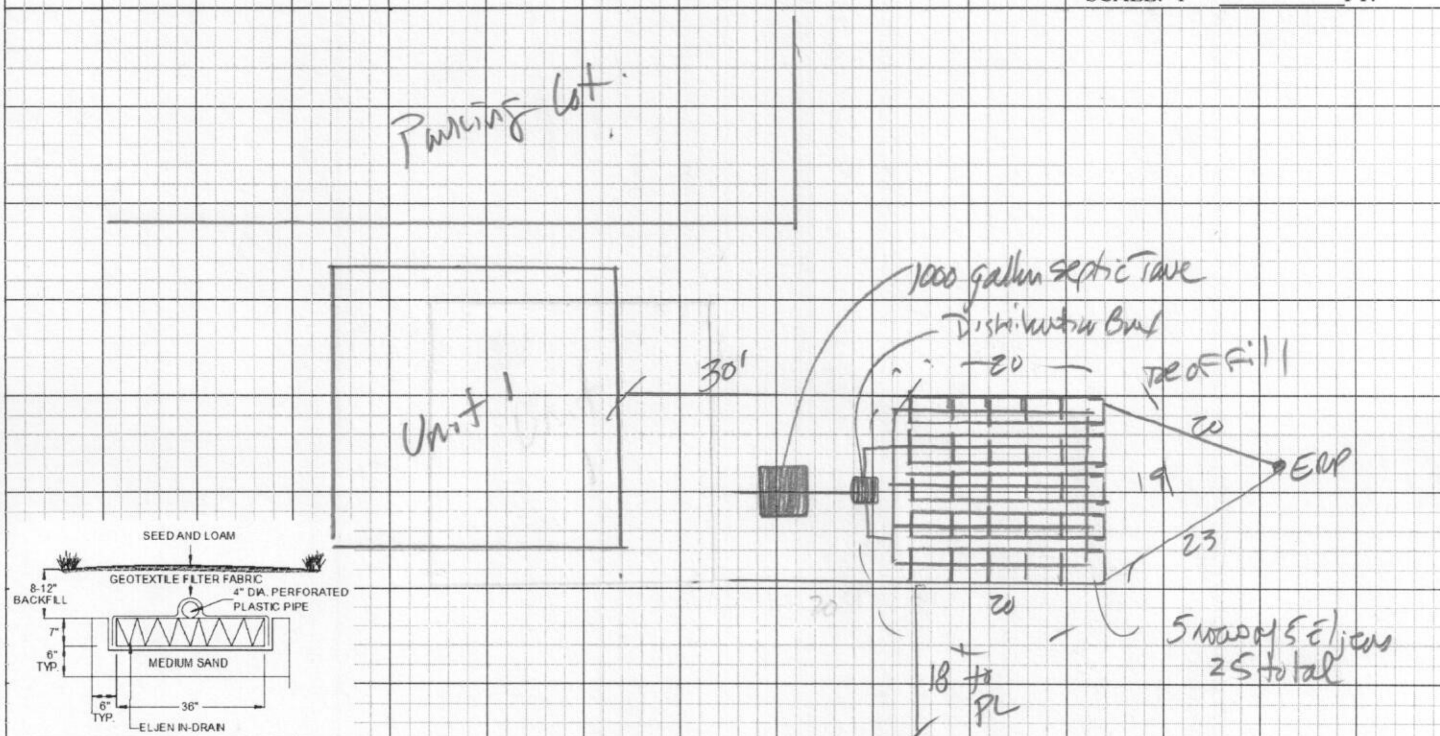
Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road Unit 1	Walnut Hill Investments

SUBSURFACE WASTEWATER DISPOSAL PLAN

0

SCALE: 1" = 20 FT.



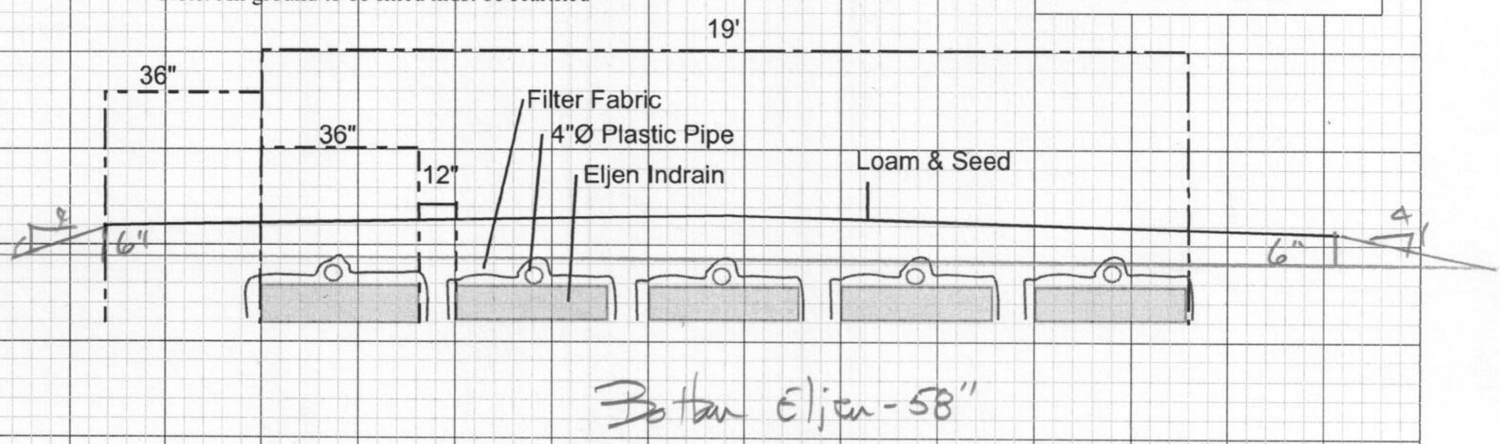
FILL REQUIREMENTS		CONSTRUCTION ELEVATIONS		ELEVATION REFERENCE POINT
Depth of Fill (Upslope)	6	Finished Grade Elevation	-37	Location & Description: Top of grade stake 40 inches above grade
Depth of Fill (Downslope)	6	Top of Distribution Pipe or Proprietary Device	-47	Reference Elevation: 0
		Bottom of Disposal Area	-58	

Note: Materials and installation shall be in accordance with Maine Subsurface Wastewater Disposal Rules dated 08/15 as amended.

DISPOSAL AREA CROSS SECTION

Scale
Horizontal 1" = 4 ft.
Vertical 1" = 4 ft.

Note: All ground to be filled must be scarified



Site Evaluator Signature	263	5/22/20
	SE #	Date

6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services
Div. Environmental Health, 11SHS
(207) 287-2070 Fax: (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	North Yarmouth
Street or Road	352 Walnut Hill Road
Subdivision, Lot #	Unit 2

OWNER/APPLICANT INFORMATION

Name (last, first, MI)	Walnut Hill Investment — Owner [ ] Applicant [✓]
Mailing Address of Owner/Applicant	82 Doughty Road North Yarmouth 04097
Daytime Tel. #	233-6463

OWNER OR APPLICANT STATEMENT
I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.

Signature of Owner or Applicant _____ Date _____

>> CAUTION: LPI APPROVAL REQUIRED <<

Town/City _____ Permit # _____

Date Permit Issued ___/___/___ Fee: $_____ Double Fee Charged [ ]

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

Fee: $_____ state min fee $_____ Locally adopted fee

Copy: [ ] Owner [ ] Town [ ] State

The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

Municipal Tax Map # _____ Lot # _____

CAUTION: INSPECTION REQUIRED
I have inspected the installation authoirzed above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application.

Local Plumbing Inspector Signature _____ (1st) date approved _____ (2nd) date approved _____

PERMIT INFORMATION

TYPE OF APPLICATION
1. First Time System
2. Replacement System
Type replaced: _____
Year installed: _____
3. Expanded System
a. <25% Expansion
b. >25% Expansion
4. Experimental System
5. Seasonal Conversion

THIS APPLICATION REQUIRES
1. No Rule Variance
2. First Time System Variance
a. Local Plumbing Inspector Approval
b. State & Local Plumbing Inspector Approval
3. Replacement System Variance
a. Local Plumbing Inspector Approval
b. State & Local Plumbing Inspector Approval
4. Minimum Lot Size Variance
5. Seasonal Conversion Permit

DISPOSAL SYSTEM COMPONENTS
1. Complete Non-engineered System
2. Primitive System (graywater & alt. toilet)
3. Alternative Toilet, specify: _____
4. Non-engineered Treatment Tank (only)
5. Holding Tank, _____ gallons
6. Non-engineered Disposal Field (only)
7. Separated Laundry System
8. Complete Engineered System (2000 gpd or more)
9. Engineered Treatment Tank (only)
10. Engineered Disposal Field (only)
11. Pre-treatment, specify: Fuji Clean CE10
12. Miscellaneous Components

SIZE OF PROPERTY
3.5 SQ. FT. / ACRES

SHORELAND ZONING
Yes No

DISPOSAL SYSTEM TO SERVE
1. Single Family Dwelling Unit, No. of Bedrooms: ____
2. Multiple Family Dwelling, No. of Units: 4-2Bdrm
3. Other: _____ (specify)
Current Use Seasonal Year Round Undeveloped

TYPE OF WATER SUPPLY
1. Drilled Well 2. Dug Well 3. Private
4. Public 5. Other

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK
1. Concrete
a. Regular
b. Low Profile none
2. Plastic
3. Other: _____
CAPACITY: _____ GAL.

DISPOSAL FIELD TYPE & SIZE
1. Stone Bed 2. Stone Trench
3. Proprietary Device
a. cluster array c. Linear
b. regular load d. H-20 load
4. Other: _____
SIZE: 640 sq. ft. lin. ft.

GARBAGE DISPOSAL UNIT
1. No 2. Yes 3. Maybe
If Yes or Maybe, specify one below:
a. multi-compartment tank
b. ___ tanks in series
c. increase in tank capacity
d. Filter on Tank Outlet

DESIGN FLOW
720 gallons per day
BASED ON:
1. Table 4A (dwelling unit(s))
2. Table 4C(other facilities)
SHOW CALCULATIONS for other facilites
3. Section 4G (meter readings)
ATTACH WATER METER DATA

SOIL DATA & DESIGN CLASS
PROFILE CONDITION
7 / C
at Observation Hole # TP2
Depth 30 "
of Most Limiting Soil Factor

DISPOSAL FIELD SIZING
1. Medium---2.6 sq. ft. / gpd
2. Medium---Large 3.3 sq. f.t / gpd
3. Large---4.1 sq. ft. / gpd
4. Extra Large---5.0 sq. ft. / gpd

EFFLUENT/EJECTOR PUMP
2. May Be Required
3. Required
Specify only for engineered systems:
DOSE: _____ gallons

LATITUDE AND LONGITUDE
at center of disposal area
Lat. 43 d 49 m 19 s
Lon. 70 d 17 m 45 s
if g.p.s, state margin of error: 15

SITE EVALUATOR STATEMENT

I certify that on 5/22/20 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).

Site Evaluator Signature _____ SE # 263 Date 5/22/20

Site Evaluator Name Printed: Mark J Hampton

Telephone Number: 207-756-2900

E-mail Address: _____

Note : Changes to or deviations from the n should be confirmed with the Site Evaluator.

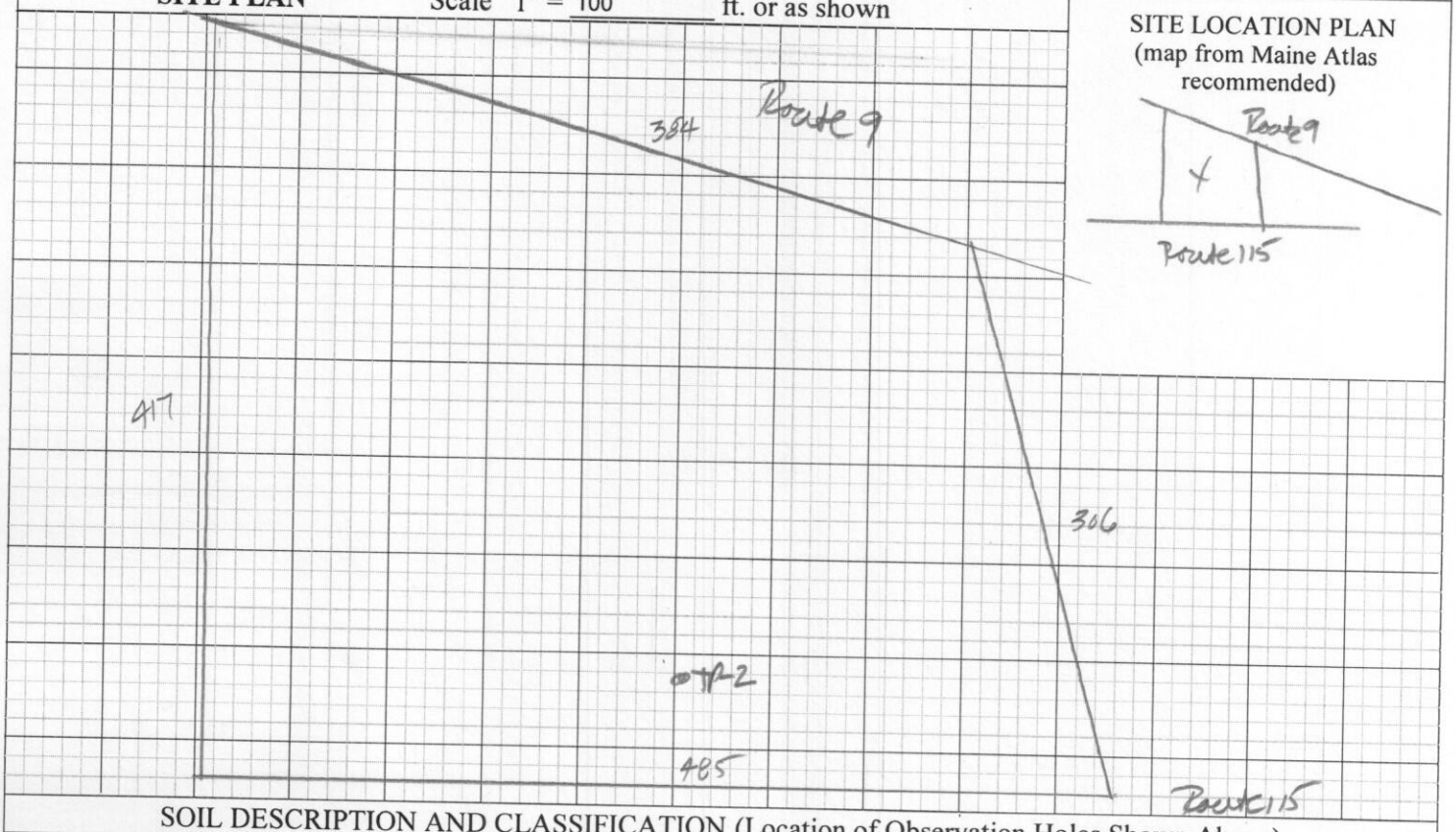
6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road Unit 2	Walnut Hill Investment

SITE PLAN Scale 1" = 100 ft. or as shown



SITE LOCATION PLAN
(map from Maine Atlas recommended)

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

Observation Hole TP2 ☑ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–10	sand	Friable	Dark Brown	
10–30	sand	Friable	Red Brown	
30–50	very fine loamy sand	Firm	olive	common & distinct

Soil Classification	Slope	Limiting Factor	
Profile: 7 Condition: C	2 %	30 "	☒ Ground Water ☒ Restrictive Layer [ ] Bedrock [ ] Pit Depth

Observation Hole _____ ☐ Test Pit ☐ Boring
" Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–50				

Soil Classification	Slope	Limiting Factor	
Profile: _____ Condition: _____	_____ %	_____ "	[ ] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth

Site Evaluator Signature: [signature] SE #: 263 Date: 5/22/20

Unit 2 6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

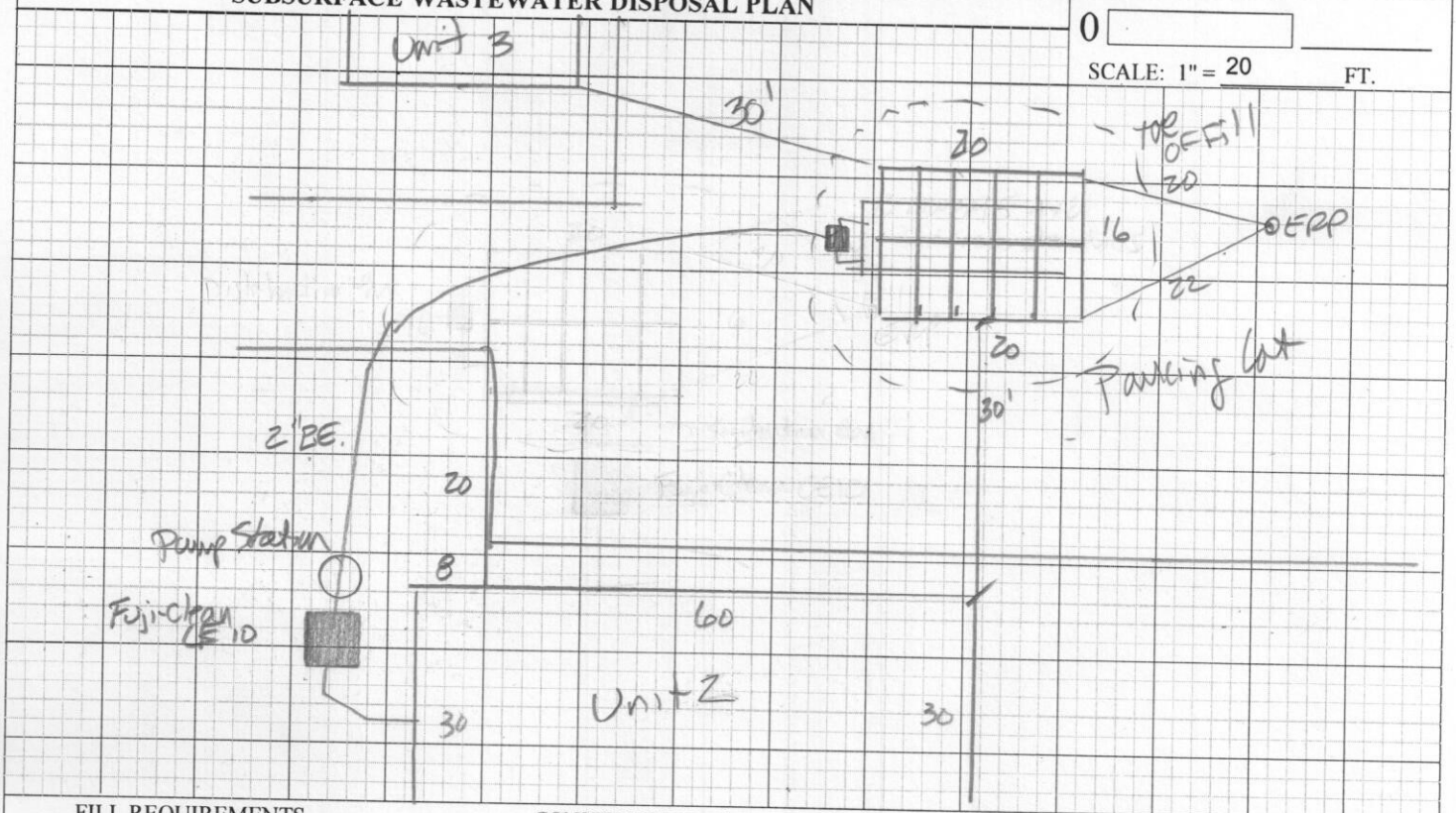
Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road	Walnut Hill Investment

SUBSURFACE WASTEWATER DISPOSAL PLAN

0

SCALE: 1" = 20 FT.

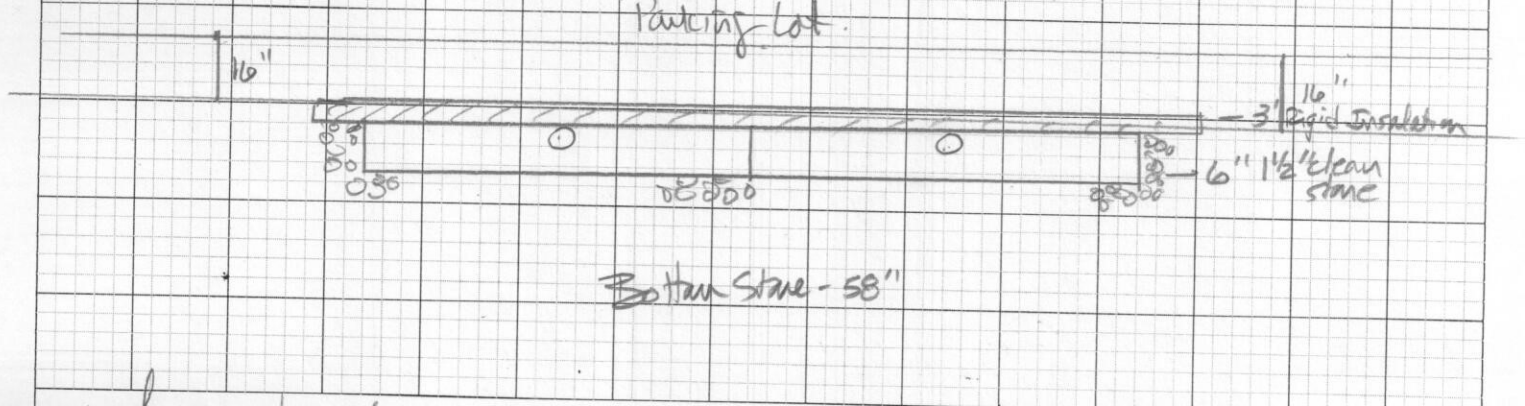


FILL REQUIREMENTS		CONSTRUCTION ELEVATIONS		ELEVATION REFERENCE POINT
Depth of Fill (Upslope)	16	Finished Grade Elevation	-24	Location & Description: Top of grade stake 40" above ground
Depth of Fill (Downslope)	16	Top of Distribution Pipe or Proprietary Device	-39	Reference Elevation: 0"
		Bottom of Disposal Area	-58	

Note: Materials and installation shall be in accordance with Maine Subsurface Wastewater Disposal Rules dated 08/15 as amended.

DISPOSAL AREA CROSS SECTION

Scale
Horizontal 1" = 4 ft.
Vertical 1" = 4 ft.



Site Evaluator Signature | 263 SE # | 5/22/20 Date

6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services
Div. Environmental Health, 11SHS
(207) 287-2070 Fax: (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	North Yarmouth
Street or Road	352 Walnut Hill Road
Subdivision, Lot #	unit 3

OWNER/APPLICANT INFORMATION

Name (last, first, MI) Walnut Hill Investment — Owner [ ] Applicant [✓]

Mailing Address of Owner/Applicant: 82 Doughty Road, North Yarmouth 04097

Daytime Tel. # 233-6463

OWNER OR APPLICANT STATEMENT

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

Signature of Owner or Applicant _____ Date _____

>> CAUTION: LPI APPROVAL REQUIRED <<

Town/City _____ Permit # _____

Date Permit Issued ___/___/___ Fee: $_____ Double Fee Charged [ ]

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

Fee: $_____ state min fee $_____ Locally adopted fee

Copy: [ ] Owner [ ] Town [ ] State

The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

Municipal Tax Map # _____ Lot # _____

CAUTION: INSPECTION REQUIRED

I have inspected the installation authoirzed above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application. _____ (1st) date approved

Local Plumbing Inspector Signature _____ (2nd) date approved

PERMIT INFORMATION

TYPE OF APPLICATION

1. First Time System
2. Replacement System

Type replaced: _____

Year installed: _____

3. Expanded System
   a. <25% Expansion
   b. >25% Expansion
4. Experimental System
5. Seasonal Conversion

THIS APPLICATION REQUIRES

1. No Rule Variance
2. First Time System Variance
   a. Local Plumbing Inspector Approval
   b. State & Local Plumbing Inspector Approval
3. Replacement System Variance
   a. Local Plumbing Inspector Approval
   b. State & Local Plumbing Inspector Approval
4. Minimum Lot Size Variance
5. Seasonal Conversion Permit

DISPOSAL SYSTEM COMPONENTS

1. Complete Non-engineered System
2. Primitive System (graywater & alt. toilet)
3. Alternative Toilet, specify: _____
4. Non-engineered Treatment Tank (only)
5. Holding Tank, _____ gallons
6. Non-engineered Disposal Field (only)
7. Separated Laundry System
8. Complete Engineered System (2000 gpd or more)
9. Engineered Treatment Tank (only)
10. Engineered Disposal Field (only)
11. Pre-treatment, specify: Fuji Clean CEID
12. Miscellaneous Components

SIZE OF PROPERTY

3.5 SQ. FT. / ACRES

SHORELAND ZONING

Yes (No)

DISPOSAL SYSTEM TO SERVE

1. Single Family Dwelling Unit, No. of Bedrooms: ____
2. Multiple Family Dwelling, No. of Units: 4-2Bdrm
3. Other: _____ (specify)

Current Use Seasonal Year Round Undeveloped

TYPE OF WATER SUPPLY

1. Drilled Well 2. Dug Well 3. Private
4. Public 5. Other

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK

1. Concrete
   a. Regular
   b. Low Profile — none
2. Plastic
3. Other: _____

CAPACITY: _____ GAL.

DISPOSAL FIELD TYPE & SIZE

1. Stone Bed 2. Stone Trench
3. Proprietary Device
   a. cluster array c. Linear
   b. regular load d. H-20 load
4. Other: _____

SIZE: 600 (sq. ft.) lin. ft.

GARBAGE DISPOSAL UNIT

1. No 2. Yes 3. Maybe

If Yes or Maybe, specify one below:

a. multi-compartment tank
b. ___ tanks in series
c. increase in tank capacity
d. Filter on Tank Outlet

DESIGN FLOW

720 gallons per day

BASED ON:

1. Table 4A (dwelling unit(s))
2. Table 4C(other facilities)

SHOW CALCULATIONS for other facilites

3. Section 4G (meter readings)
ATTACH WATER METER DATA

SOIL DATA & DESIGN CLASS

PROFILE CONDITION

7 / C

at Observation Hole # #3

Depth 42"

of Most Limiting Soil Factor

DISPOSAL FIELD SIZING

1. Medium---2.6 sq. ft. / gpd
2. Medium---Large 3.3 sq. f.t / gpd
3. Large---4.1 sq. ft. / gpd
4. Extra Large---5.0 sq. ft. / gpd

EFFLUENT/EJECTOR PUMP

2. May Be Required
3. Required

Specify only for engineered systems:

DOSE: _____ gallons

LATITUDE AND LONGITUDE

at center of disposal area

Lat. 43 d 49 m 18 s

Lon. 70 d 14 m 47 s

if g.p.s, state margin of error: 15

SITE EVALUATOR STATEMENT

I certify that on 5/22/20 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).

Site Evaluator Signature _____ SE # 263 Date 5/22/20

Mark J Hampton

Site Evaluator Name Printed

207-756-2900

Telephone Number

E-mail Address

Note : Changes to or deviations from the n should be confirmed with the Site Evaluator.

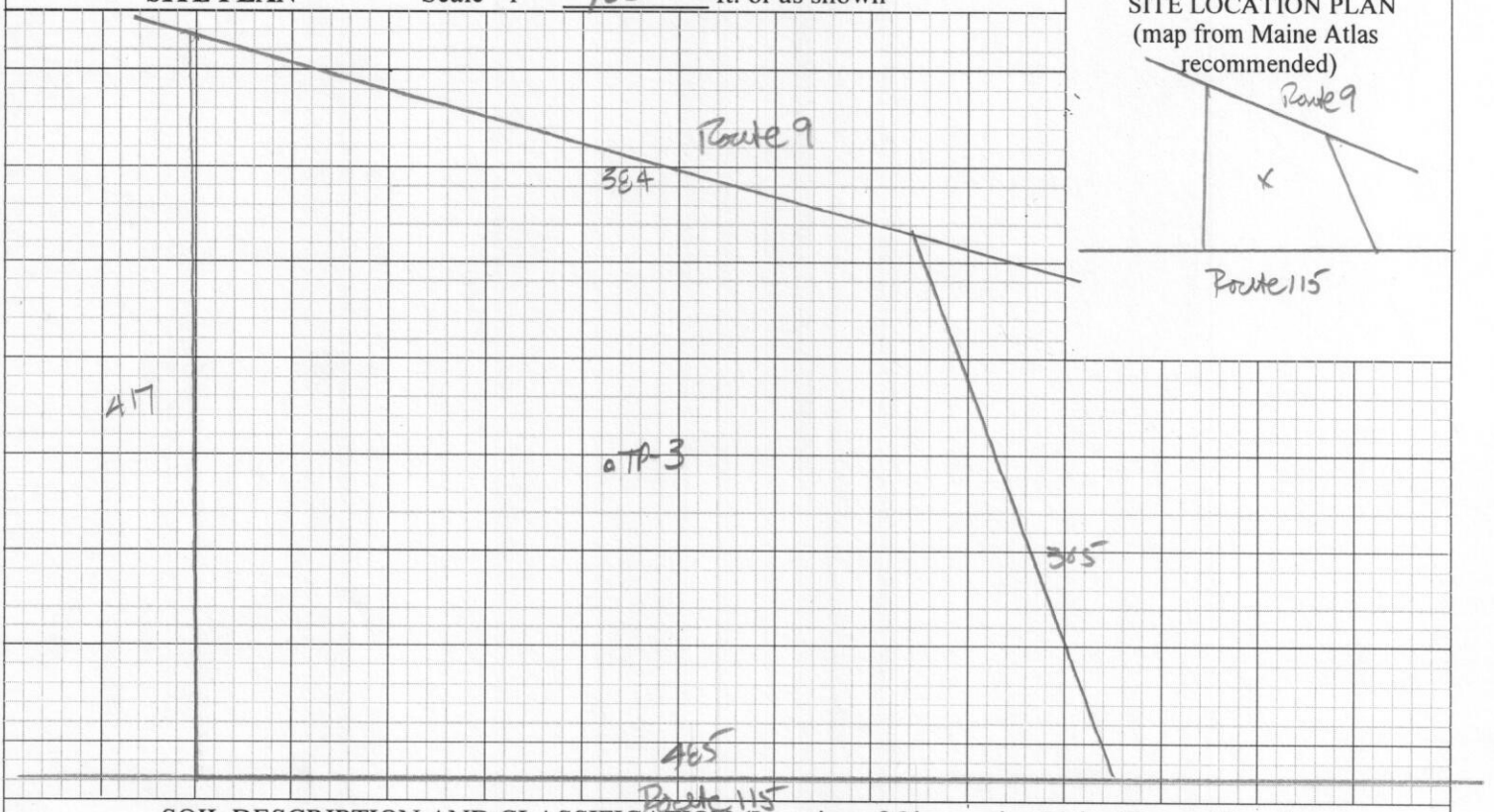
6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road Unit 3	Walnut Hill Investment

SITE PLAN Scale 1" = 100 ft. or as shown



SITE LOCATION PLAN
(map from Maine Atlas recommended)

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

Observation Hole TP- 3 ☑ Test Pit ☐ Boring
_____ " Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–10	Sandy	Friable	Dark Brown	
10–20	Sand	Friable	Red	
20–30			Brown	
30–40	V.F. Loamy Sand	Firm	Olive	Common Distinct
40–50				

Soil Classification	Slope	Limiting Factor	
7 / C (Profile / Condition)	2 %	42"	■ Ground Water ■ Restrictive Layer [ ] Bedrock [ ] Pit Depth

Observation Hole _____ ☐ Test Pit ☐ Boring
_____ " Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–10				
10–20				
20–30				
30–40				
40–50				

Soil Classification	Slope	Limiting Factor	
_____ / _____ (Profile / Condition)	_____ %	_____"	[ ] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth

Mary J. Humphrey — Site Evaluator Signature
263 — SE #
5/22/20 — Date

Unit 3 6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

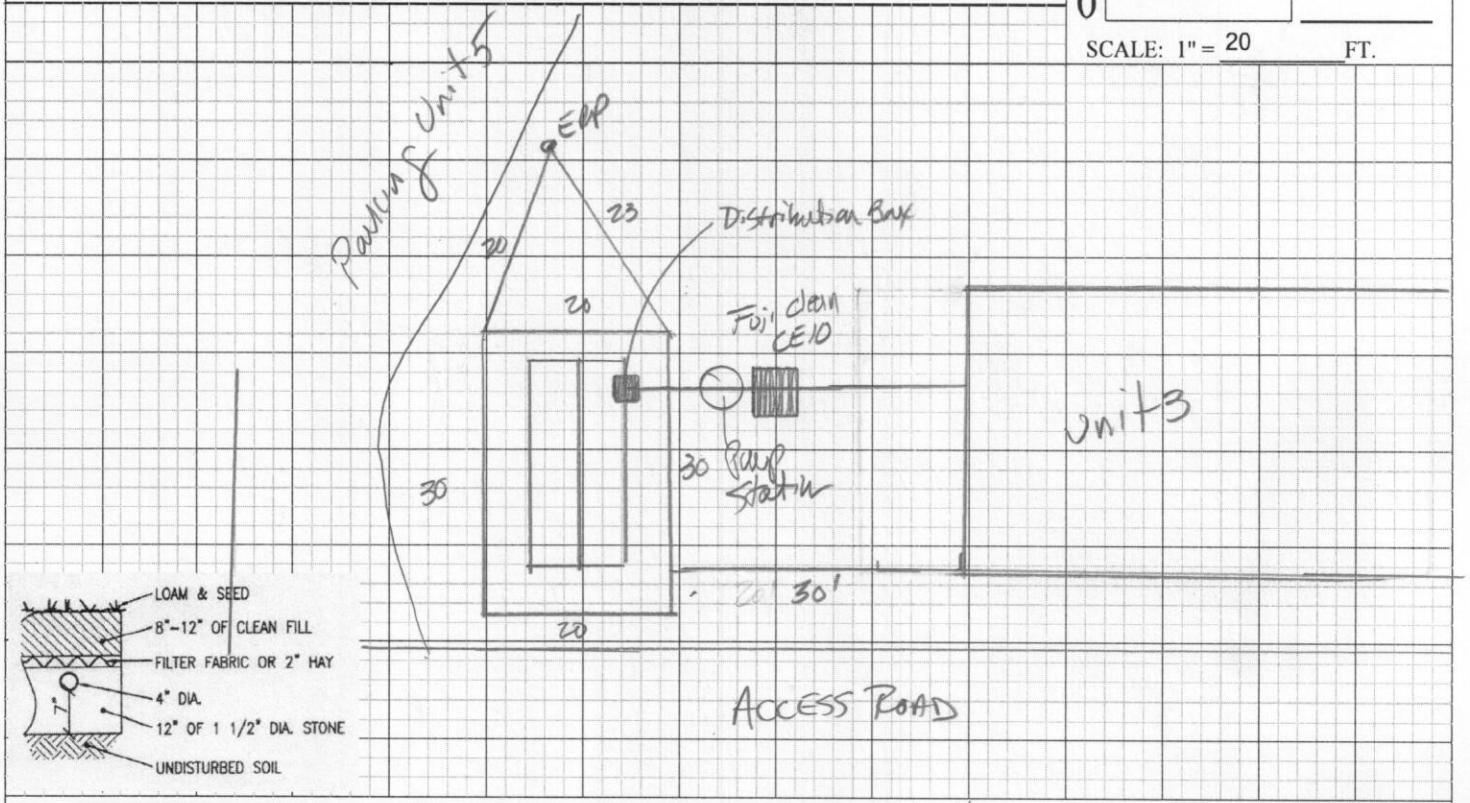
Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road	Walnut Hill Investment

SUBSURFACE WASTEWATER DISPOSAL PLAN

0 ____ ____

SCALE: 1" = 20 FT.



FILL REQUIREMENTS

Depth of Fill (Upslope) 0

Depth of Fill (Downslope) 0

CONSTRUCTION ELEVATIONS

Finished Grade Elevation	-49
Top of Distribution Pipe or Proprietary Device	-59
Bottom of Disposal Area	-70

ELEVATION REFERENCE POINT

Location & Description: Top of grade stake 40 inches above grade

Reference Elevation: 0

Note: Materials and installation shall be in accordance with Maine Subsurface Wastewater Disposal Rules dated 08/15 as amended.

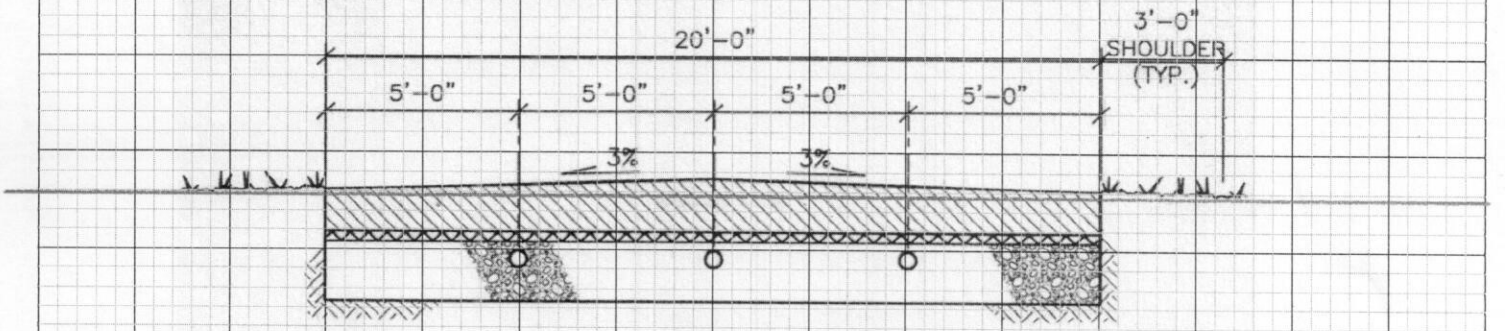
DISPOSAL AREA CROSS SECTION

Scale

Horizontal 1" = 5 ft.

Vertical 1" = 3 ft.

Note: All ground to be filled must be scarified



Bottom of Bed: -70"

Site Evaluator Signature | 263 SE # | 5/22/20 Date

6/80

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services
Div. Environmental Health, 11SHS
(207) 287-2070 Fax: (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	North Yarmouth
Street or Road	352 Walnut Hill Road
Subdivision, Lot #	Unit 4

OWNER/APPLICANT INFORMATION

Name (last, first, MI) Walnut Hill Investment — Owner [ ] Applicant [✓]

Mailing Address of Owner/Applicant: 82 Doughty Road, North Yarmouth 04097

Daytime Tel. # 233-6463

OWNER OR APPLICANT STATEMENT
I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.

Signature of Owner or Applicant _____ Date _____

>> CAUTION: LPI APPROVAL REQUIRED <<

Town/City _____ Permit # _____

Date Permit Issued ___/___/___ Fee: $_____ Double Fee Charged [ ]

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

Fee: $_____ state min fee $_____ Locally adopted fee

Copy: [ ] Owner [ ] Town [ ] State

The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

Municipal Tax Map # _____ Lot # _____

CAUTION: INSPECTION REQUIRED
I have inspected the installation authoirzed above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application. _____ (1st) date approved

Local Plumbing Inspector Signature _____ (2nd) date approved _____

PERMIT INFORMATION

TYPE OF APPLICATION
1. First Time System
2. Replacement System
Type replaced: _____
Year installed: _____
3. Expanded System
a. <25% Expansion
b. ≥25% Expansion
4. Experimental System
5. Seasonal Conversion

THIS APPLICATION REQUIRES
1. No Rule Variance
2. First Time System Variance
a. Local Plumbing Inspector Approval
b. State & Local Plumbing Inspector Approval
3. Replacement System Variance
a. Local Plumbing Inspector Approval
b. State & Local Plumbing Inspector Approval
4. Minimum Lot Size Variance
5. Seasonal Conversion Permit

DISPOSAL SYSTEM COMPONENTS
1. Complete Non-engineered System
2. Primitive System (graywater & alt. toilet)
3. Alternative Toilet, specify: _____
4. Non-engineered Treatment Tank (only)
5. Holding Tank, _____ gallons
6. Non-engineered Disposal Field (only)
7. Separated Laundry System
8. Complete Engineered System (2000 gpd or more)
9. Engineered Treatment Tank (only)
10. Engineered Disposal Field (only)
11. Pre-treatment, specify: Fuji Clean CE10
12. Miscellaneous Components

SIZE OF PROPERTY
3.5 SQ. FT. ACRES

SHORELAND ZONING
Yes (No)

DISPOSAL SYSTEM TO SERVE
1. Single Family Dwelling Unit, No. of Bedrooms: ___
2. Multiple Family Dwelling, No. of Units: 4-2Bdrm
3. Other: _____ (specify)
Current Use Seasonal Year Round (Undeveloped)

TYPE OF WATER SUPPLY
1. Drilled Well 2. Dug Well 3. Private
(4. Public) 5. Other

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK
1. Concrete
a. Regular none
b. Low Profile
2. Plastic
3. Other: _____
CAPACITY _____ GAL.

DISPOSAL FIELD TYPE & SIZE
(1. Stone Bed) 2. Stone Trench
3. Proprietary Device
a. cluster array c. Linear
b. regular load d. H-20 load
4. Other: _____
SIZE: _____ sq. ft. lin. ft.

GARBAGE DISPOSAL UNIT
(1. No) 2. Yes 3. Maybe
If Yes or Maybe, specify one below:
a. multi-compartment tank
b. ___ tanks in series
c. increase in tank capacity
d. Filter on Tank Outlet

DESIGN FLOW
720 gallons per day
BASED ON:
1. Table 4A (dwelling unit(s))
2. Table 4C(other facilities)
SHOW CALCULATIONS for other facilites
3. Section 4G (meter readings)
ATTACH WATER METER DATA

SOIL DATA & DESIGN CLASS
PROFILE CONDITION
___/___
at Observation Hole # _____
Depth _____"
of Most Limiting Soil Factor

DISPOSAL FIELD SIZING
(1. Medium---2.6 sq. ft. / gpd)
2. Medium---Large 3.3 sq. f.t / gpd
3. Large---4.1 sq. ft. / gpd
4. Extra Large---5.0 sq. ft. / gpd

EFFLUENT/SEPTIC TANK PUMP
2. May Be Required
(3. Required)
Specify only for engineered systems:
DOSE: _____ gallons

LATITUDE AND LONGITUDE
at center of disposal area
Lat. 43 d 49 m 19 s
Lon. 70 d 14 m 40 s
if g.p.s, state margin of error: 15

SITE EVALUATOR STATEMENT

I certify that on 5/22/20 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).

Site Evaluator Signature _____ SE # 263 Date 5/22/20

Mark J Hampton
Site Evaluator Name Printed

207-756-2900
Telephone Number

E-mail Address

Note : Changes to or deviations from the n should be confirmed with the Site Evaluator.

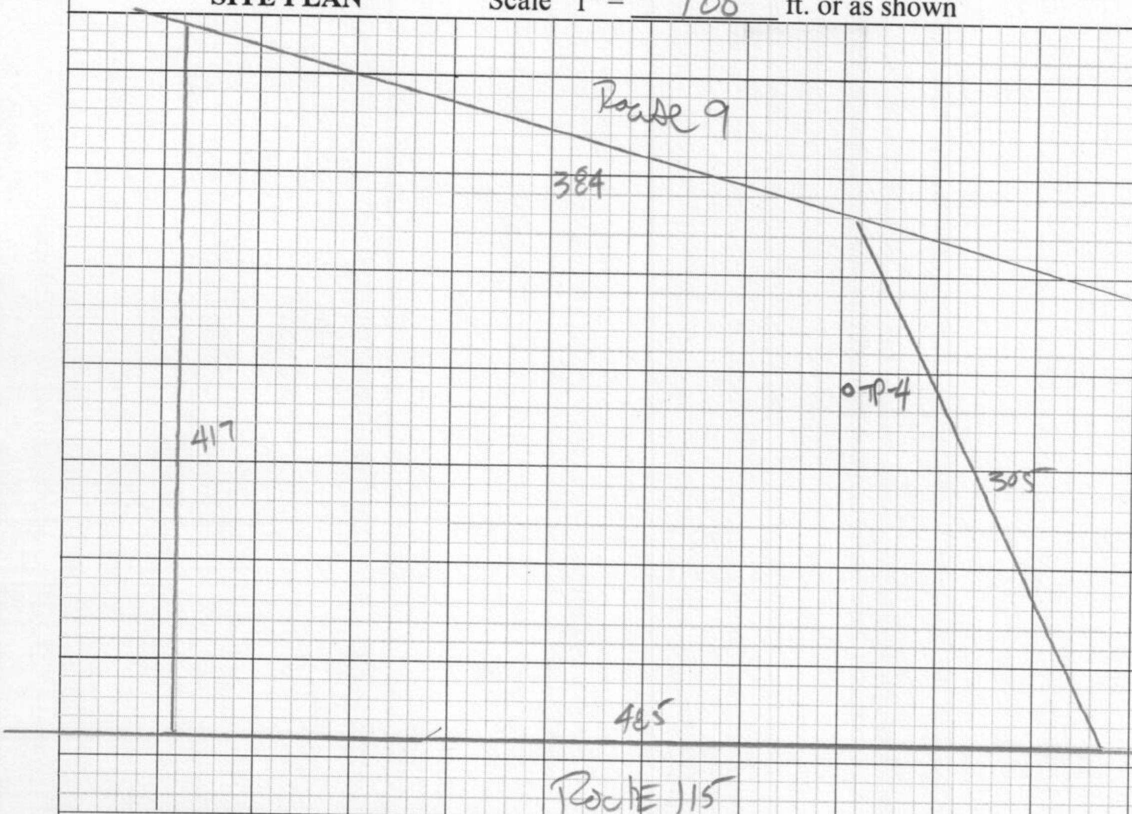
Unit 4 6/100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

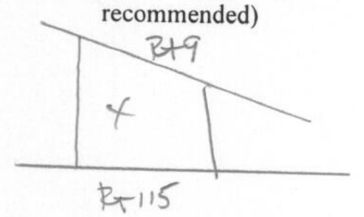
Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road Unit 4	Walnut Hill Investment

SITE PLAN Scale 1" = 100 ft. or as shown



SITE LOCATION PLAN
(map from Maine Atlas recommended)



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

Observation Hole TP- 4 [✓] Test Pit [ ] Boring
________ " Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–~7	sand	Friable	Dark Brown	
~7–~27	sand	Friable	Red Brown	none noted
~27–50	sand	Friable	Tan	

Soil Classification	Slope	Limiting Factor	
5 Profile, B Condition	2 %	>48"	[ ] Ground Water [ ] Restrictive Layer [ ] Bedrock [■] Pit Depth

Observation Hole _______ [ ] Test Pit [ ] Boring
________ " Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–50				

Soil Classification	Slope	Limiting Factor	
____ Profile ____ Condition	____ %	____ "	[ ] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth

[signature]	263	5/22/20
Site Evaluator Signature	SE #	Date

unit 4 6100

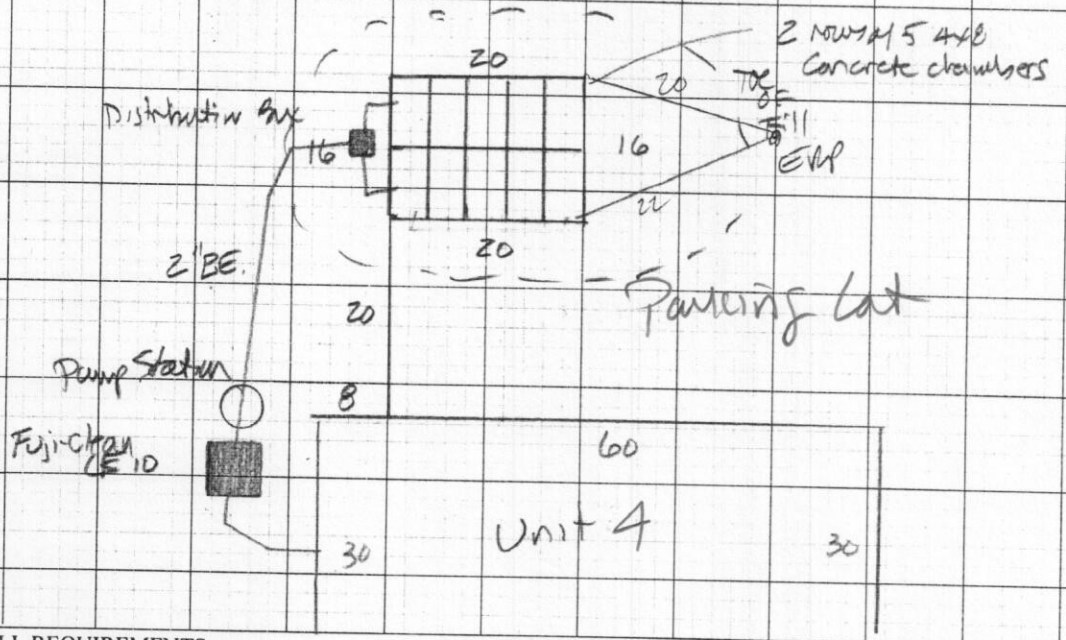
SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road	Walnut Hill Investment

SUBSURFACE WASTEWATER DISPOSAL PLAN

SCALE: 1" = 20 FT.

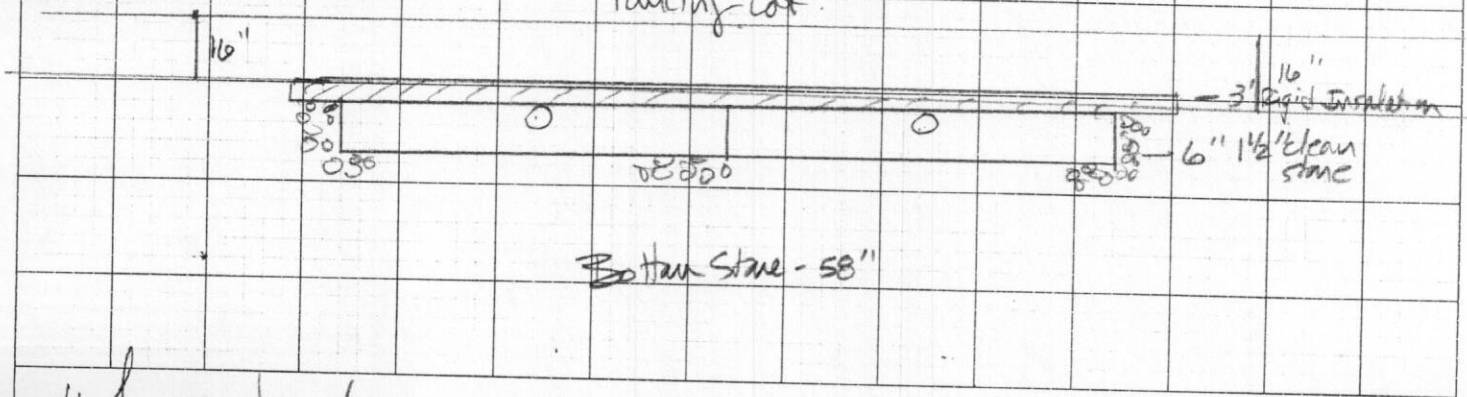


FILL REQUIREMENTS		CONSTRUCTION ELEVATIONS		ELEVATION REFERENCE POINT
Depth of Fill (Upslope)	16	Finished Grade Elevation	-24	Location & Description: Top of grade stake 40" above ground
Depth of Fill (Downslope)	16	Top of Distribution Pipe or Proprietary Device	-39	Reference Elevation: 0"
		Bottom of Disposal Area	-58	

Note: Materials and installation shall be in accordance with Maine Subsurface Wastewater Disposal Rules dated 08/15 as amended.

DISPOSAL AREA CROSS SECTION

Scale
Horizontal 1" = 4 ft.
Vertical 1" = 4 ft.



Site Evaluator Signature | 263 SE # | 5/22/20 Date

6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services
Div. Environmental Health, 11SHS
(207) 287-2070 Fax: (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	North Yarmouth
Street or Road	352 Walnut Hill Road
Subdivision, Lot #	Unit 5

OWNER/APPLICANT INFORMATION

Name (last, first, MI) Walnut Hill Investment — Owner [ ] Applicant [✓]

Mailing Address of Owner/Applicant	82 Doughty Road North Yarmouth 04097
Daytime Tel. #	233-6463

OWNER OR APPLICANT STATEMENT
I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.

Signature of Owner or Applicant ____ Date ____

>> CAUTION: LPI APPROVAL REQUIRED <<

Town/City ____ Permit # ____

Date Permit Issued ___/___/___ Fee: $____ Double Fee Charged [ ]

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

Fee: $____ state min fee $____ Locally adopted fee

Copy: [ ] Owner [ ] Town [ ] State

The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

Municipal Tax Map # ____ Lot # ____

CAUTION: INSPECTION REQUIRED
I have inspected the installation authoirzed above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application. ____ (1st) date approved

Local Plumbing Inspector Signature ____ (2nd) date approved

PERMIT INFORMATION

TYPE OF APPLICATION
1. First Time System
2. Replacement System
Type replaced: ____
Year installed: ____
3. Expanded System
a. <25% Expansion
b. >25% Expansion
4. Experimental System
5. Seasonal Conversion

THIS APPLICATION REQUIRES
1. No Rule Variance
2. First Time System Variance
a. Local Plumbing Inspector Approval
b. State & Local Plumbing Inspector Approval
3. Replacement System Variance
a. Local Plumbing Inspector Approval
b. State & Local Plumbing Inspector Approval
4. Minimum Lot Size Variance
5. Seasonal Conversion Permit

DISPOSAL SYSTEM COMPONENTS
1. Complete Non-engineered System
2. Primitive System (graywater & alt. toilet)
3. Alternative Toilet, specify: ____
4. Non-engineered Treatment Tank (only)
5. Holding Tank, ____ gallons
6. Non-engineered Disposal Field (only)
7. Separated Laundry System
8. Complete Engineered System (2000 gpd or more)
9. Engineered Treatment Tank (only)
10. Engineered Disposal Field (only)
11. Pre-treatment, specify: ____
12. Miscellaneous Components

SIZE OF PROPERTY
3.5 SQ. FT. / ACRES

SHORELAND ZONING
Yes (No)

DISPOSAL SYSTEM TO SERVE
1. Single Family Dwelling Unit, No. of Bedrooms: ____
2. Multiple Family Dwelling, No. of Units: 2-2BdRm
3. Other: ____ (specify)
Current Use Seasonal Year Round (Undeveloped)

TYPE OF WATER SUPPLY
1. Drilled Well 2. Dug Well 3. Private
(4. Public) 5. Other

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK
(1. Concrete)
(a. Regular)
b. Low Profile
2. Plastic
3. Other: ____
CAPACITY: 1,000 GAL.

DISPOSAL FIELD TYPE & SIZE
1. Stone Bed 2. Stone Trench
(3. Proprietary Device)
(a. cluster array) c. Linear
b. regular load (d. H-20 load)
4. Other: ____
SIZE: 960 (sq. ft.) lin. ft.

GARBAGE DISPOSAL UNIT
(1. No) 2. Yes 3. Maybe
If Yes or Maybe, specify one below:
a. multi-compartment tank
b. ___ tanks in series
c. increase in tank capacity
d. Filter on Tank Outlet

DESIGN FLOW
360 gallons per day
BASED ON:
1. Table 4A (dwelling unit(s))
2. Table 4C(other facilities)
SHOW CALCULATIONS for other facilites
3. Section 4G (meter readings)
ATTACH WATER METER DATA

SOIL DATA & DESIGN CLASS
PROFILE CONDITION
5 / B
at Observation Hole # TP-5
Depth >48 "
of Most Limiting Soil Factor

DISPOSAL FIELD SIZING
(1. Medium---2.6 sq. ft. / gpd)
2. Medium---Large 3.3 sq. f.t / gpd
3. Large---4.1 sq. ft. / gpd
4. Extra Large---5.0 sq. ft. / gpd

EFFLUENT/EJECTOR PUMP
(1. Not Required)
2. May Be Required
3. Required
Specify only for engineered systems:
DOSE: ____ gallons

LATITUDE AND LONGITUDE
at center of disposal area
Lat. 43 d 49 m 18 s
Lon. 70 d 14 m 49 s
if g.p.s, state margin of error: 15

SITE EVALUATOR STATEMENT

I certify that on 5/22/20 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).

Site Evaluator Signature ____ 263 SE # ____ 5/22/20 Date

Mark J Hampton
Site Evaluator Name Printed

207-756-2900
Telephone Number

E-mail Address

Note : Changes to or deviations from the n should be confirmed with the Site Evaluator.

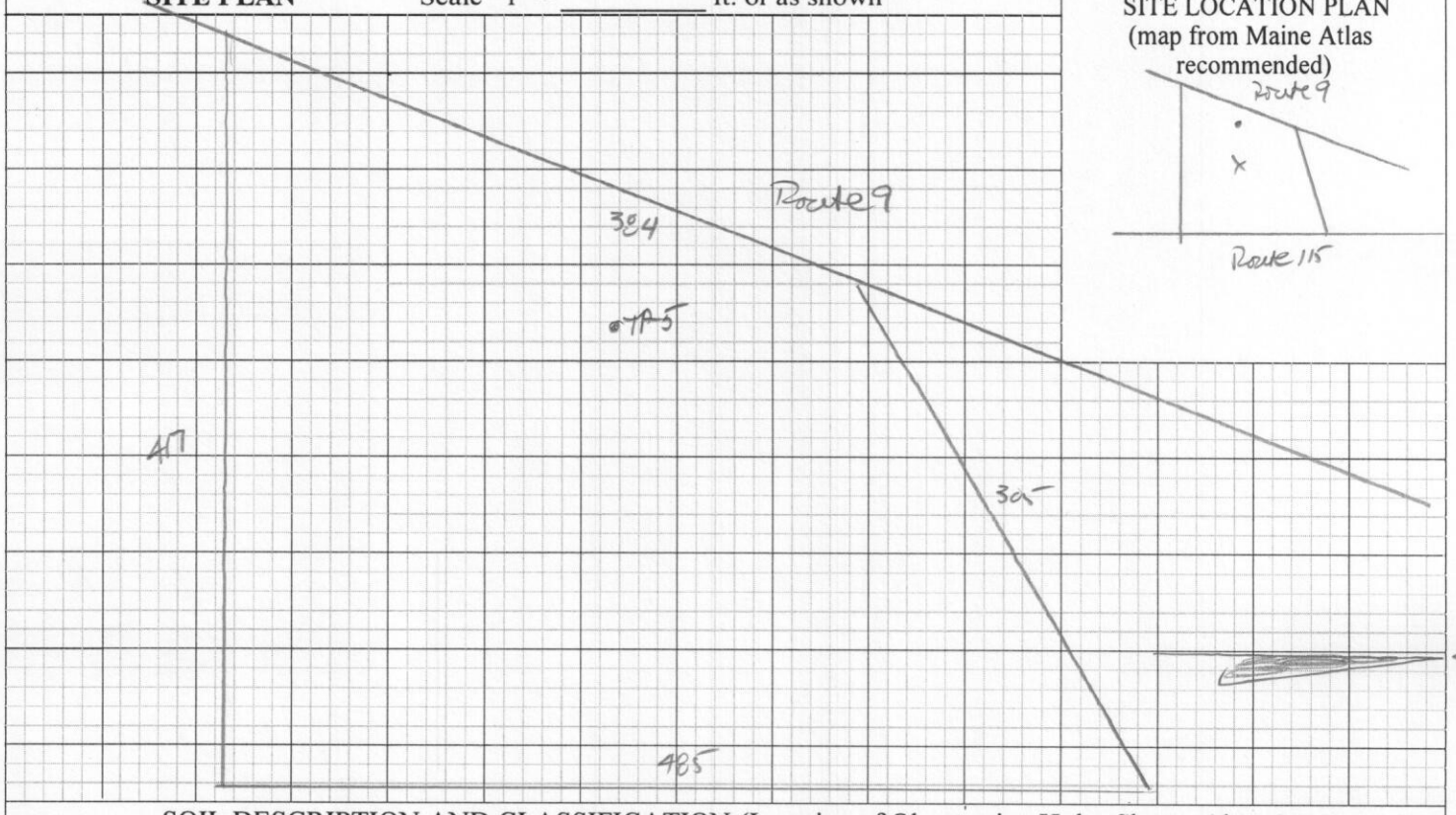
6/80

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road Unit 5	Walnut Hill Investment

SITE PLAN Scale 1" = _____ ft. or as shown



SITE LOCATION PLAN
(map from Maine Atlas recommended)

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

Observation Hole TP- 5 ☑ Test Pit ☐ Boring
_____" Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–10	Sand	Friable	Pale Brown	
10–20	Sand	Friable	Red Brown	None Noted
20–30				
30–40	Sand	Friable	Tan	
40–50				

Soil Classification	Slope	Limiting Factor	
5 / B (Profile / Condition)	2 %	748"	[ ] Ground Water [ ] Restrictive Layer [ ] Bedrock [■] Pit Depth

Observation Hole _____ ☐ Test Pit ☐ Boring
_____" Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–10				
10–20				
20–30				
30–40				
40–50				

Soil Classification	Slope	Limiting Factor	
_____ / _____ (Profile / Condition)	_____ %	_____"	[ ] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth

Mary Thompson
Site Evaluator Signature

263
SE #

5/22/20
Date

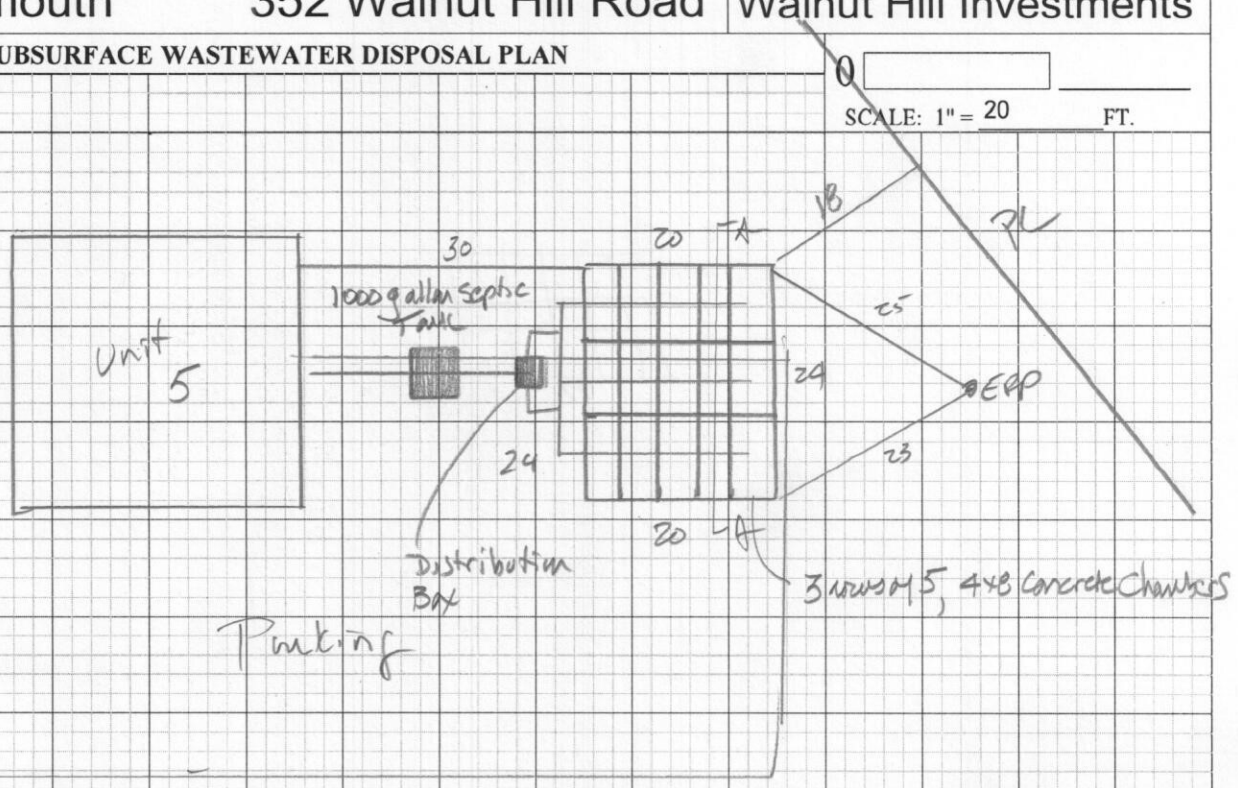
SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road	Walnut Hill Investments

SUBSURFACE WASTEWATER DISPOSAL PLAN

SCALE: 1" = 20 FT.

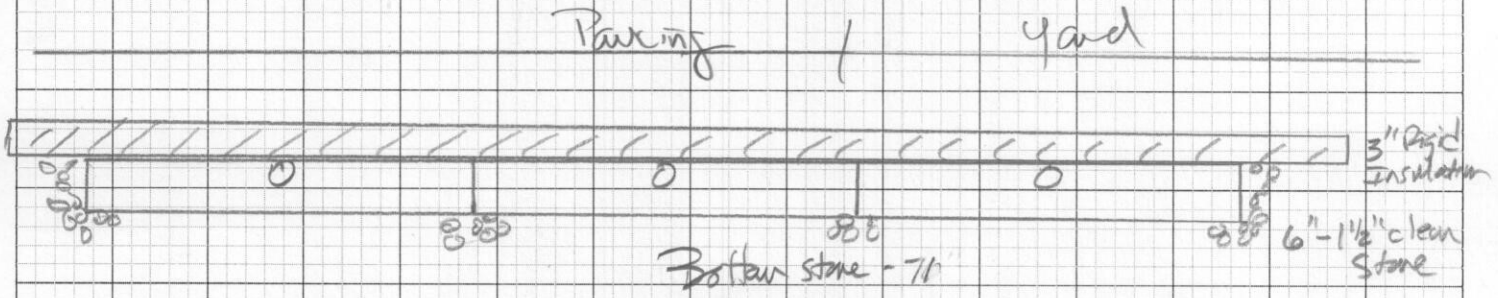


FILL REQUIREMENTS		CONSTRUCTION ELEVATIONS		ELEVATION REFERENCE POINT
Depth of Fill (Upslope)	0	Finished Grade Elevation	-40	Location & Description: Top of grade Stake 40" above grade
Depth of Fill (Downslope)	0	Top of Distribution Pipe or Proprietary Device	-52	Reference Elevation: 0"
		Bottom of Disposal Area	-76	

DISPOSAL AREA CROSS SECTION

A-A

Scale
Horizontal 1" = 4 ft.
Vertical 1" = 4 ft.



Mary J. Haugh — Site Evaluator Signature
263 — SE #
5/22/20 — Date

6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services
Div. Environmental Health, 11SHS
(207) 287-2070 Fax: (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	North Yarmouth
Street or Road	352 Walnut Hill Road
Subdivision, Lot #	Unit 6

OWNER/APPLICANT INFORMATION

Name (last, first, MI) Walnut Hill Investment — Owner [ ] Applicant [✓]

Mailing Address of Owner/Applicant: 82 Doughty Road, North Yarmouth 04097

Daytime Tel. # 233-6463

OWNER OR APPLICANT STATEMENT
I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.

Signature of Owner or Applicant _____ Date _____

>> CAUTION: LPI APPROVAL REQUIRED <<

Town/City _____ Permit # _____

Date Permit Issued ___/___/___ Fee: $_____ Double Fee Charged [ ]

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

Fee: $_____ state min fee $_____ Locally adopted fee
Copy: [ ] Owner [ ] Town [ ] State

The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

Municipal Tax Map # _____ Lot # _____

CAUTION: INSPECTION REQUIRED
I have inspected the installation authoirzed above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application. _____ (1st) date approved

_____ _____ (2nd) date approved
Local Plumbing Inspector Signature

PERMIT INFORMATION

TYPE OF APPLICATION
1. First Time System
2. Replacement System
Type replaced: _____
Year installed: _____
3. Expanded System
a. <25% Expansion
b. ≥25% Expansion
4. Experimental System
5. Seasonal Conversion

THIS APPLICATION REQUIRES
1. No Rule Variance
2. First Time System Variance
a. Local Plumbing Inspector Approval
b. State & Local Plumbing Inspector Approval
3. Replacement System Variance
a. Local Plumbing Inspector Approval
b. State & Local Plumbing Inspector Approval
4. Minimum Lot Size Variance
5. Seasonal Conversion Permit

DISPOSAL SYSTEM COMPONENTS
1. Complete Non-engineered System
2. Primitive System (graywater & alt. toilet)
3. Alternative Toilet, specify: _____
4. Non-engineered Treatment Tank (only)
5. Holding Tank, _____ gallons
6. Non-engineered Disposal Field (only)
7. Separated Laundry System
8. Complete Engineered System (2000 gpd or more)
9. Engineered Treatment Tank (only)
10. Engineered Disposal Field (only)
11. Pre-treatment, specify: Fuji Clean CE10
12. Miscellaneous Components

SIZE OF PROPERTY
3.5 SQ. FT. / ACRES

SHORELAND ZONING
Yes (No)

DISPOSAL SYSTEM TO SERVE
1. Single Family Dwelling Unit, No. of Bedrooms: ___
2. Multiple Family Dwelling, No. of Units: 4 - 2 Bdrm
3. Other: _____ (specify)
Current Use Seasonal Year Round (Undeveloped)

TYPE OF WATER SUPPLY
1. Drilled Well 2. Dug Well 3. Private
(4. Public) 5. Other

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK
1. Concrete
a. Regular none
b. Low Profile
2. Plastic
3. Other: _____
CAPACITY: _____ GAL.

DISPOSAL FIELD TYPE & SIZE
(1. Stone Bed) 2. Stone Trench
3. Proprietary Device
a. cluster array c. Linear
b. regular load d. H-20 load
4. Other: _____
SIZE: 600 sq. ft. lin. ft.

GARBAGE DISPOSAL UNIT
(1. No) 2. Yes 3. Maybe
If Yes or Maybe, specify one below:
a. multi-compartment tank
b. ___ tanks in series
c. increase in tank capacity
d. Filter on Tank Outlet

DESIGN FLOW
720 gallons per day
BASED ON:
1. Table 4A (dwelling unit(s))
2. Table 4C(other facilities)
SHOW CALCULATIONS for other facilites
3. Section 4G (meter readings)
ATTACH WATER METER DATA

SOIL DATA & DESIGN CLASS
PROFILE CONDITION
5 / B
at Observation Hole # TP6
Depth ≥ 48"
of Most Limiting Soil Factor

DISPOSAL FIELD SIZING
(1. Medium---2.6 sq. ft. / gpd)
2. Medium---Large 3.3 sq. f.t / gpd
3. Large---4.1 sq. ft. / gpd
4. Extra Large---5.0 sq. ft. / gpd

EFFLUENT/EJECTOR PUMP
(1. Not Required)
2. May Be Required
3. Required
Specify only for engineered systems:
DOSE: _____ gallons

LATITUDE AND LONGITUDE
at center of disposal area
Lat. 43 d 49 m 18 s
Lon. 70 d 14 m 48 s
if g.p.s, state margin of error: 15

SITE EVALUATOR STATEMENT

I certify that on 5/22/20 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).

Site Evaluator Signature | 263 SE # | 5/22/20 Date

Mark J Hampton
Site Evaluator Name Printed

207-756-2900
Telephone Number

E-mail Address

Note : Changes to or deviations from the n should be confirmed with the Site Evaluator.

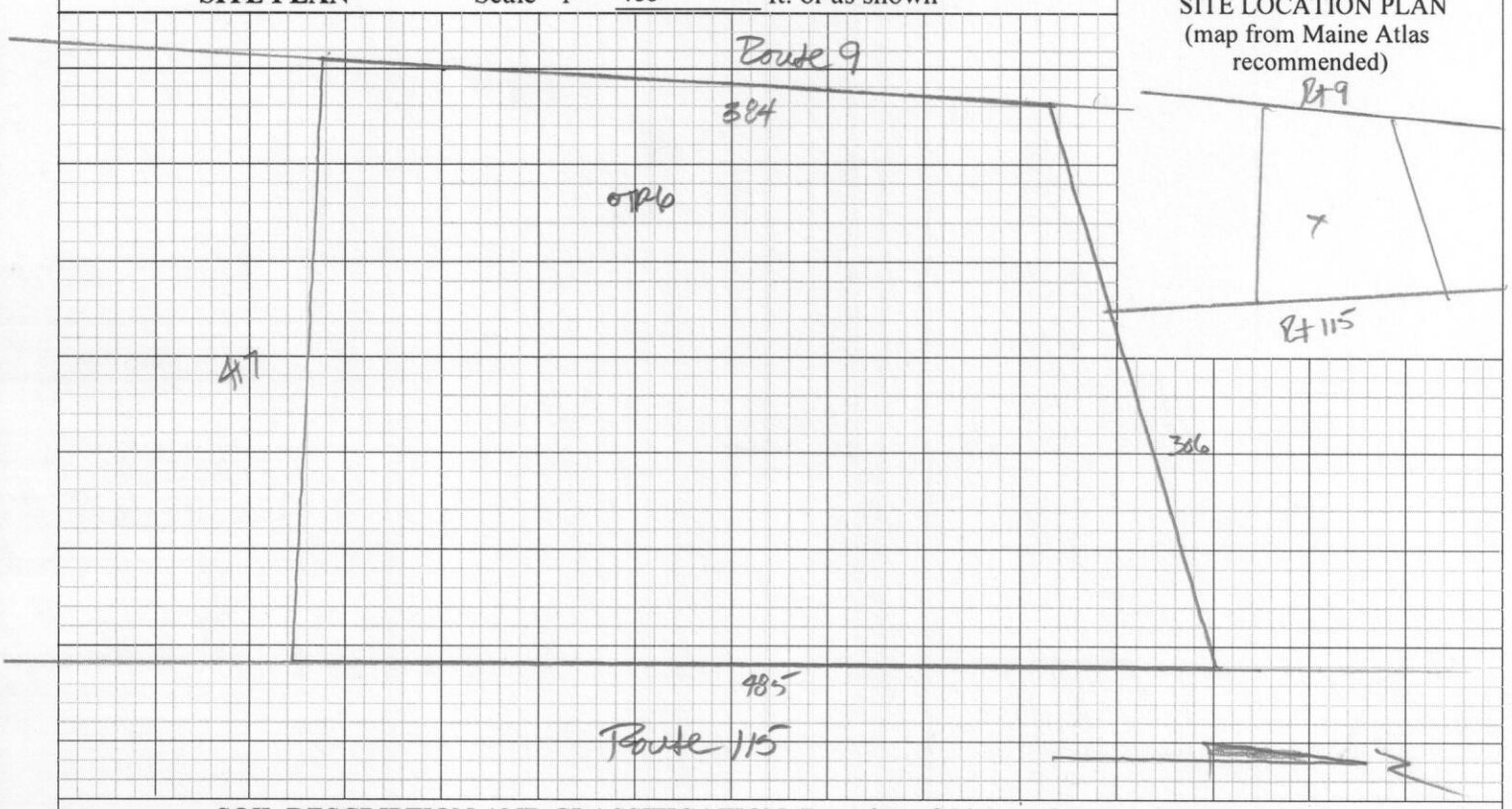
6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road unit 6	Walnut Hill Investment

SITE PLAN Scale 1" = 100 ft. or as shown



SITE LOCATION PLAN
(map from Maine Atlas recommended)

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

Observation Hole TP6 ☑ Test Pit ☐ Boring
_____" Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–10	Sand	Friable	Dark Brown	
10–30	Sand	Friable	Red Brown	none noted
30–50	Sand	Friable	Tan	

Soil Classification	Slope	Limiting Factor	
5 B (Profile / Condition)	2 %	>48"	[ ] Ground Water [ ] Restrictive Layer [ ] Bedrock [x] Pit Depth

Observation Hole _____ ☐ Test Pit ☐ Boring
_____" Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–50				

Soil Classification	Slope	Limiting Factor	
_____ / _____ (Profile / Condition)	_____ %	_____"	[ ] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth

Site Evaluator Signature: [signature] | SE #: 263 | Date: 5/22/20

Unit 6 6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

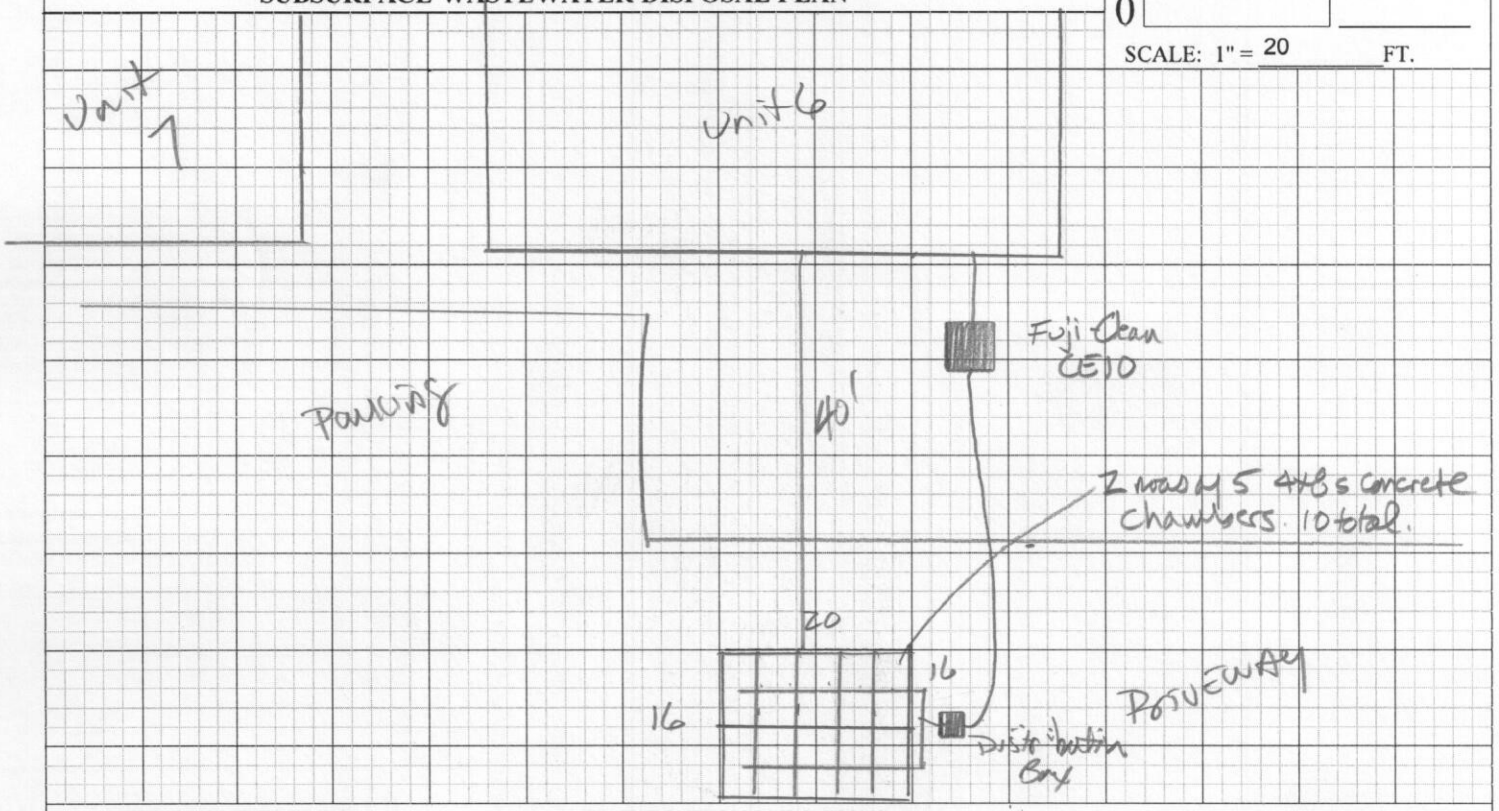
Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	Walnut Hill Road	Walnut Hill Investments

SUBSURFACE WASTEWATER DISPOSAL PLAN

0 _____

SCALE: 1" = 20 FT.



FILL REQUIREMENTS

Depth of Fill (Upslope) 0

Depth of Fill (Downslope) 0

CONSTRUCTION ELEVATIONS

Finished Grade Elevation	-40
Top of Distribution Pipe or Proprietary Device	-58
Bottom of Disposal Area	-77

ELEVATION REFERENCE POINT

Location & Description: Top of grade stake 40" above road

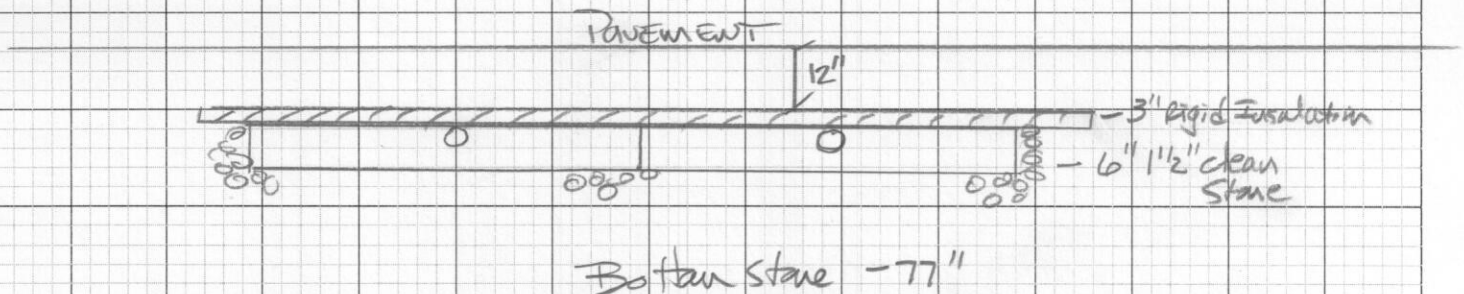
Reference Elevation: 0"

DISPOSAL AREA CROSS SECTION

Scale

Horizontal 1" = 4 ft.

Vertical 1" = 4 ft.



Site Evaluator Signature | 263 SE # | 5/22/20 Date

6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Maine Dept. Health & Human Services
Div. Environmental Health, 11SHS
(207) 287-2070 Fax: (207) 287-4172

PROPERTY LOCATION

City, Town, or Plantation	North Yarmouth
Street or Road	352 Walnut Hill Road
Subdivision, Lot #	Unit 7

OWNER/APPLICANT INFORMATION

Name (last, first, MI): Walnut Hill Investment — Owner [ ] Applicant [✓]

Mailing Address of Owner/Applicant: 82 Doughty Road, North Yarmouth 04097

Daytime Tel. #: 233-6463

OWNER OR APPLICANT STATEMENT
I state and acknowledge that the information submitted is correct to the best of my knowledge and understand that any falsification is reason for the Department and/or Local Plumbing Inspector to deny a Permit.

Signature of Owner or Applicant _____ Date _____

>> CAUTION: LPI APPROVAL REQUIRED <<

Town/City _____ Permit # _____

Date Permit Issued ___/___/___ Fee: $_____ Double Fee Charged [ ]

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

Fee: $_____ state min fee $_____ Locally adopted fee

Copy: [ ] Owner [ ] Town [ ] State

The Subsurface Wastewater Disposal System shall not be installed until a Permit is issued by the Local Plumbing Inspector. The Permit shall authorize the owner or installer to install the disposal system in accordance with this application and the Maine Subsurface Wastewater Disposal Rules.

Municipal Tax Map # _____ Lot # _____

CAUTION: INSPECTION REQUIRED
I have inspected the installation authoirzed above and found it to be in compliance with the Subsurface Wastewater Disposal Rules Application. _____ (1st) date approved

Local Plumbing Inspector Signature _____ (2nd) date approved _____

PERMIT INFORMATION

TYPE OF APPLICATION
1. First Time System
2. Replacement System
Type replaced: _____
Year installed: _____
3. Expanded System
a. <25% Expansion
b. ≥25% Expansion
4. Experimental System
5. Seasonal Conversion

THIS APPLICATION REQUIRES
1. No Rule Variance
2. First Time System Variance
a. Local Plumbing Inspector Approval
b. State & Local Plumbing Inspector Approval
3. Replacement System Variance
a. Local Plumbing Inspector Approval
b. State & Local Plumbing Inspector Approval
4. Minimum Lot Size Variance
5. Seasonal Conversion Permit

DISPOSAL SYSTEM COMPONENTS
1. Complete Non-engineered System
2. Primitive System (graywater & alt. toilet)
3. Alternative Toilet, specify: _____
4. Non-engineered Treatment Tank (only)
5. Holding Tank, _____ gallons
6. Non-engineered Disposal Field (only)
7. Separated Laundry System
8. Complete Engineered System (2000 gpd or more)
9. Engineered Treatment Tank (only)
10. Engineered Disposal Field (only)
11. Pre-treatment, specify: _____
12. Miscellaneous Components

SIZE OF PROPERTY
3.5 SQ. FT. / ACRES

SHORELAND ZONING
Yes / No

DISPOSAL SYSTEM TO SERVE
1. Single Family Dwelling Unit, No. of Bedrooms: ___
2. Multiple Family Dwelling, No. of Units: 2-2Bdrm
3. Other: _____ (specify)
Current Use Seasonal Year Round Undeveloped

TYPE OF WATER SUPPLY
1. Drilled Well 2. Dug Well 3. Private
4. Public 5. Other

DESIGN DETAILS (SYSTEM LAYOUT SHOWN ON PAGE 3)

TREATMENT TANK
1. Concrete
a. Regular
b. Low Profile
2. Plastic
3. Other: _____
CAPACITY: 1,000 GAL.

DISPOSAL FIELD TYPE & SIZE
1. Stone Bed 2. Stone Trench
3. Proprietary Device
a. cluster array c. Linear
b. regular load d. H-20 load
4. Other: _____
SIZE: 960 sq. ft. / lin. ft.

GARBAGE DISPOSAL UNIT
1. No 2. Yes 3. Maybe
If Yes or Maybe, specify one below:
a. multi-compartment tank
b. ___ tanks in series
c. increase in tank capacity
d. Filter on Tank Outlet

DESIGN FLOW
360 gallons per day
BASED ON:
1. Table 4A (dwelling unit(s))
2. Table 4C(other facilities)
SHOW CALCULATIONS for other facilites
3. Section 4G (meter readings)
ATTACH WATER METER DATA

SOIL DATA & DESIGN CLASS
PROFILE CONDITION
5 / B
at Observation Hole # TP-7
Depth >48 "
of Most Limiting Soil Factor

DISPOSAL FIELD SIZING
1. Medium---2.6 sq. ft. / gpd
2. Medium---Large 3.3 sq. f.t / gpd
3. Large---4.1 sq. ft. / gpd
4. Extra Large---5.0 sq. ft. / gpd

EFFLUENT/EJECTOR PUMP
1. Not Required
2. May Be Required
3. Required
Specify only for engineered systems:
DOSE: _____ gallons

LATITUDE AND LONGITUDE
at center of disposal area
Lat. 43 d 49 m 17 s
Lon. 70 d 14 m 49 s
if g.p.s, state margin of error: 15

SITE EVALUATOR STATEMENT

I certify that on 5/22/20 (date) I completed a site evaluation on this property and state that the data reported are accurate and that the proposed system is in compliance with the State of Maine Subsurface Wastewater Disposal Rules (10-144A CMR 241).

Site Evaluator Signature _____ SE # 263 Date 5/22/20

Mark J Hampton
Site Evaluator Name Printed

207-756-2900
Telephone Number

E-mail Address

Note : Changes to or deviations from the n should be confirmed with the Site Evaluator.

6100

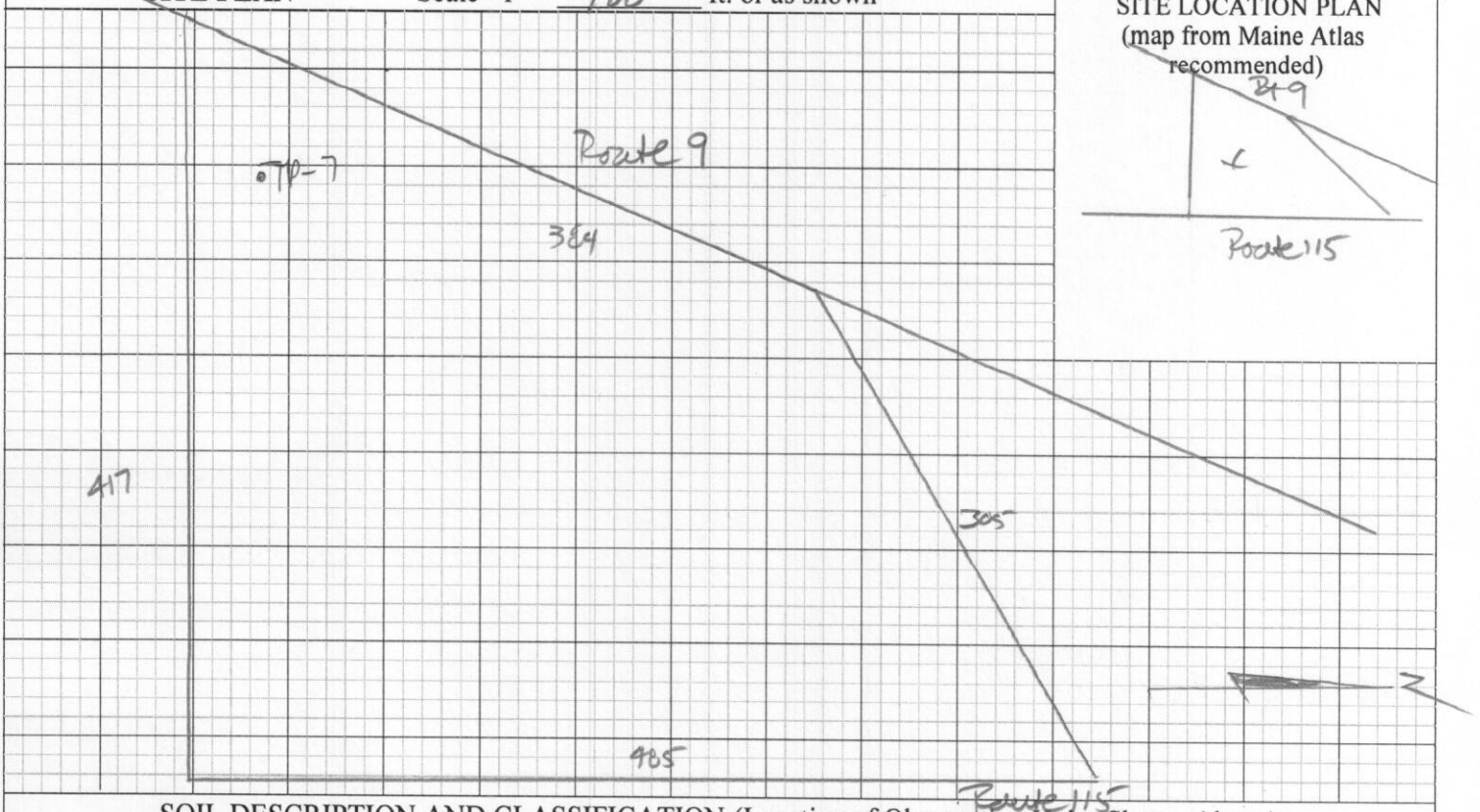
SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road Unit 7	Walnut Hill Investment

SITE PLAN

Scale 1" = 100 ft. or as shown



SITE LOCATION PLAN
(map from Maine Atlas recommended)

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

Observation Hole TP-7 ☑ Test Pit ☐ Boring
_____" Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–10	Sand	Friable	Dark Brown	
10–30	Sand	Friable	Red Brown	None Noted
30–50	Sand	Friable	Tan	

Soil Classification	Slope	Limiting Factor	
5 / B (Profile / Condition)	2 %	>48"	[ ] Ground Water [ ] Restrictive Layer [ ] Bedrock [X] Pit Depth

Observation Hole _____ ☐ Test Pit ☐ Boring
_____" Depth of Organic Horizon Above Mineral Soil

Depth Below Mineral Soil Surface (inches)	Texture	Consistency	Color	Mottling
0–50				

Soil Classification	Slope	Limiting Factor	
Profile / Condition	%	"	[ ] Ground Water [ ] Restrictive Layer [ ] Bedrock [ ] Pit Depth

Site Evaluator Signature | 263 SE # | 5/22/20 Date

6100

SUBSURFACE WASTEWATER DISPOSAL SYSTEM APPLICATION

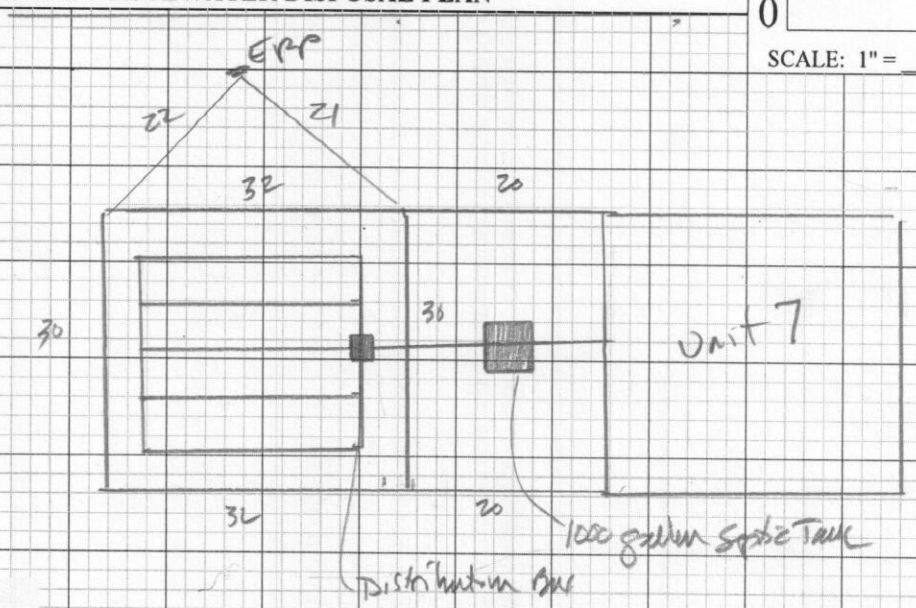
Department of Health & Human Services
Division of Environmental Health
(207) 287-5672 Fax: (207) 287-3165

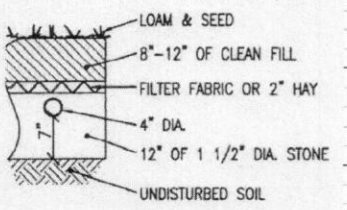
Town, City, Plantation	Street, Road, Subdivision	Owner's Name
North Yarmouth	352 Walnut Hill Road Unit 7	Walnut Hill Investment

SUBSURFACE WASTEWATER DISPOSAL PLAN

0 ____ ____

SCALE: 1" = 20 FT.





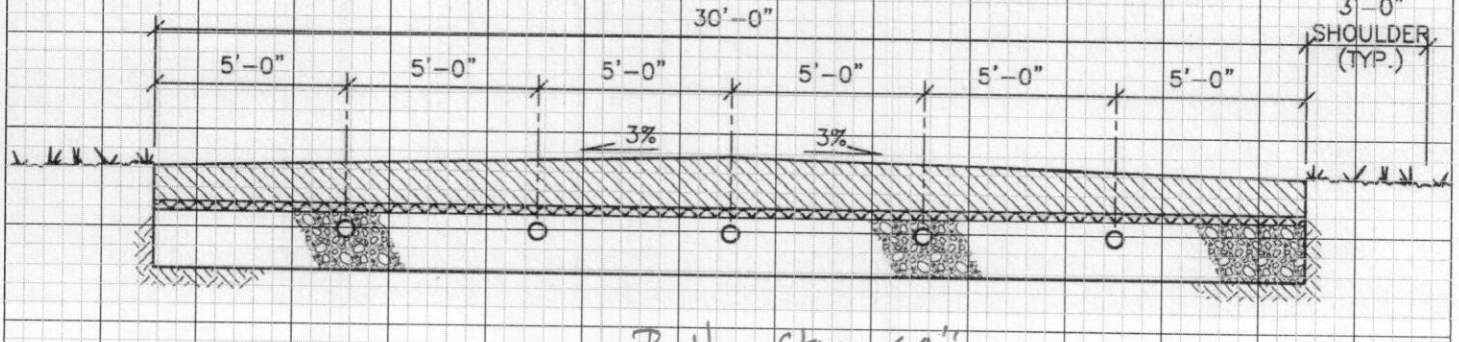
FILL REQUIREMENTS		CONSTRUCTION ELEVATIONS		ELEVATION REFERENCE POINT
Depth of Fill (Upslope)	0	Finished Grade Elevation	-43	Location & Description: top of grade stake 40" above grade
		Top of Distribution Pipe or Proprietary Device	-53	
Depth of Fill (Downslope)	0	Bottom of Disposal Area	-64	Reference Elevation: 0

Note: Materials and installation shall be in accordance with Maine Subsurface Wastewater Disposal Rules dated 08/15 as amended.

DISPOSAL AREA CROSS SECTION

Scale
Horizontal 1" = 5 ft.
Vertical 1" = 3 ft.

Note: All ground to be filled must be scarified



Bottom Stone - 64"

Mark Hampton — 263 — 5/22/20

Site Evaluator Signature — SE # — Date

APPENDIX F

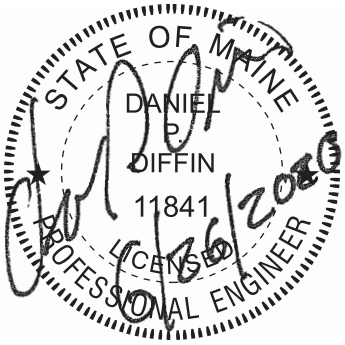
STORMWATER MANAGEMENT REPORT

SME
SEVEE & MAHER
ENGINEERS

STORMWATER MANAGEMENT REPORT
CROSSROADS APARTMENT
NORTH YARMOUTH, MAINE

Prepared for

WALNUT HILL INVESTMENTS
NORTH YARMOUTH, MAINE



May 2020
Revised June 2020

4 Blanchard Road
P.O. Box 85A
Cumberland, Maine 04021
Phone: 207.829.5016 smemaine.com

ENVIRONMENTAL • CIVIL • GEOTECHNICAL • WATER • COMPLIANCE

SME
SEVEE & MAHER
ENGINEERS

TABLE OF CONTENTS

Section No.	Title	Page No.
1.0	**INTRODUCTION**	**1**
2.0	**PROJECT DESCRIPTION**	**1**
3.0	**SITE WATERSHED**	**1**
4.0	**STORMWATER QUALITY ANALYSIS**	**2**
5.0	**STORMWATER QUANTITY ANALYSIS**	**2**
6.0	**SUMMARY**	**3**

LIST OF APPENDICES

APPENDIX A CLASS A HIGH INTENSITY SOIL SURVEY
APPENDIX B PRE-DEVELOPMENT HYDROCAD CALCULATIONS
APPENDIX C POST-DEVELOPMENT HYDROCAD CALCULATIONS

LIST OF TABLES

Table No.	Title	Page No.
1	STORMWATER QUANTITY SUMMARY	3

STORMWATER MANAGEMENT REPORT
CROSSROAD APARTMENTS
NORTH YARMOUTH, MAINE

1.0 INTRODUCTION

This stormwater management report has been prepared by Sevee & Maher Engineers, Inc. (SME) to assess stormwater management design for the proposed Crossroad Apartments located off Walnut Hill Road in North Yarmouth, Maine. Stormwater design is based on the water quantity objectives identified in the Town of North Yarmouth (Town) Land Use Ordinance.

2.0 PROJECT DESCRIPTION

Construction Aggregate Inc. proposes to subdivide a 3.29-acre property to create 22 multiplex apartments in seven two-story buildings off Walnut Hill Road. The property is bordered to the north and south by existing residential properties, to the east by Walnut Hill Road (Route 115), and to the west by Cumberland Road (ME 9). There are no wetlands mapped on the parcel.

The development will include seven new two-story buildings in two- and four-unit arrangements. The development will be accessed from Route 9 and Route 115 by an approximately 350 linear foot private road. The road will include 24-feet of paved travelled way and shoulders, curbed with a 4-foot esplanade and 4-foot paved sidewalk on the southern side. The drive will connect Walnut Hill Road (Route 115) to Cumberland Road (Route 9). Additional site improvements will include 36 paved parking spaces and 24-foot aisles accessing each apartment building.

The development will feature a closed stormwater management system, including catch basins, and underground storm drain piping for the roadway and parking lots. Surface flow will be controlled to drain to existing conditions.

Construction of the roadway is expected to result in approximately 39,400 square feet of developed area and approximately 73,200 square feet of new impervious surface. Based on preliminary review of the Maine Department of Environmental Protection (MEDEP) requirements, this project will require a MEDEP Stormwater Management Permit-by-Rule (PBR) prior to the start of construction. Stormwater quality treatment will not be required based on MEDEP Chapter 500 standards. The Stormwater PBR will be submitted and a copy provided to the Town prior to the Planning Board meeting.

3.0 SITE WATERSHED

On-site soils were identified in the High Intensity Soil Survey (HISS) included in Appendix A prepared by Mark Hampton in May 2020. The soil within the area of work consists of Adams Loamy Sand on the

northwestern portion of the property and Elmwood Loamy Sand over the rest of the parcel. Adams soils are classified as "well drained" and are within Hydrologic Soil Group (HSG) A. Elmwood is classified as "moderately well drained" and is within HSG C. Hydrologic soil group boundaries and designations are outlined in the Stormwater Management Plan Pre- and Post-Development Conditions Drawings, D-100 and D-101, included in the project plan set.

The ground surface on the property generally slopes from north to south with grades ranging from less than 5 percent to 10 percent. The site is characterized by a single-family home with two garages and a gravel driveway along the central portion of parcel. Vegetation in the southern portion of the property exists as a grass field. The northern and southern edges of the property are wooded. The existing site includes approximately 20,000 square feet of impervious area.

The southwestern portion of property drains off the property to the south and then combines with the flows from the ditch along Route 115. The point where the flow exits the property was identified as Analysis Point 1 (AP-1).

Under existing conditions, stormwater runoff generally travels across the parcel from northwest to southeast. Stormwater runoff on the northwest portion of the property flows to the southeast towards an offsite ditch line along Route 115. The ditch was selected as AP-1 for the purposes of this report.

Pre-development and post-development stormwater management plans identify the on-site drainage patterns before and after development (See Drawings D-100 and D-101). Appendices B and C provide pre- and post-development calculations, respectively, using TR-20 methodologies prepared with the HydroCAD Version 10.0 computer stormwater modeling system by Applied Microcomputer Systems of Chocorua, New Hampshire.

4.0 STORMWATER QUALITY ANALYSIS

As previously outlined, proposed development will disturb less than one acre and result in approximately 39,400 square feet of new impervious surface. A Stormwater Permit-by-Rule application will be required by MEDEP to address the Basic Standards of MEDEP's Chapter 500 prior to the start of construction.

5.0 STORMWATER QUANTITY ANALYSIS

Stormwater quantity is managed to the maximum extent practicable through minimizing the amount of impervious area on the site and utilizing natural drainage to convey new flows. Surface runoff from the proposed subdivision is minor due to the size of the property, the land cover, and the soils. Table 1 below demonstrates peak flow rates from the subwatershed areas to the analysis point shown on Drawings D-100 and D-101.

TABLE 1

STORMWATER QUANTITY SUMMARY

	2-Year Storm		10-Year Storm		25-Year Storm	
	Existing	**Proposed**	**Existing**	**Proposed**	**Existing**	**Proposed**
Analysis Point 1 (cfs)	0.59	0.87	1.60	1.95	2.54	2.89
Analysis Point 2 (cfs)	1.79	2.10	4.09	4.58	6.15	6.74

As indicated, project impacts will result in minor increases in peak flow of 0.35 cubic feet per second (cfs) at AP-1 and an increase of 0.59 cfs at AP-2.

6.0 SUMMARY

Increases in peak flows for the proposed site in the 2-, 10- and 25-year events when compared to the existing conditions are insignificant. Given the size of the proposed development, the location of the new impervious surface in the overall watershed, and the direct discharge to existing watercourses, this project is not anticipated to have any adverse impact to the downstream drainage or abutting properties.

APPENDIX A

CLASS A HIGH INTENSITY SOIL SURVEY

SME
SEVEE & MAHER
ENGINEERS

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6100

Crossroad Apartments
352 Walnut Hill Road
North Yarmouth, ME
Walnut Hill Investments

Soil Narrative Report

DATE:	Soil Profiles observed on April, 9, 2020
BASE MAP:	Base plan provided by Sevee & Maher Engineers, Inc. scale 1 inch equals 30 feet and two foot contours.
GROUND CONTROL:	Soil survey boundaries located by Mark Hampton Associates, Inc. for Class B Soil Survey

Class B-High Intensity Soil Survey (Minimum Standards)

Mapping units of 1 acre or larger.
Scale of 1"= 200 feet or larger.
Up to 25% inclusions in mapping units of which no more than 15% may be dissimilar soils.
Ground Control – test pits located by means of compass by chaining, pacing or taping from known control points.
Base Map –5 foot contour intervals

Provided:

Mapping units of 1/2 acre or larger
Base map scale of 1"= 30 feet.
Up to 25 percent inclusions in mapping units of which no more than 15 percent is dissimilar soils.
Baseline information and test pits located by gps equipment with accuracy to 3 feet.
Ground topographic survey with one foot contours and ground control provided.

The accompanying soil profile descriptions, soil map, and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

Mark J. Hampton C.S.S. #216, L.S.E. #263 May 23, 2020

Mark J. Hampton

Date

STATE OF MAINE
MARK J.
HAMPTON
#216
CERTIFIED
SOIL SCIENTIST

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6100

Crossroad Apartments
352 Walnut Hill Road
North Yarmouth. ME
Walnut Hill Investments

Adams
(Typic Haplorthods)

SETTING

PARENT MATERIAL:	Derived from glacial-fluvial, glacio-lacustrine sand.
LANDFORM:	Outwash plains, deltas, and terraces
POSITION IN LANDSCAPE:	Sidehill, shoulders and plains
SLOPE GRADIENT RANGES:	(A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Well drained. Depth to seasonal high watertable greater than 4 feet throughout the year.

TYPICAL PROFILE:

Surface Layer:	Dark Brown loamy sand, 0-8"
Subsurface Layer:	Red Brown loamy sand, 8-20"
Subsoil Layer:	Yellow-brown loamy sand, 20-30"
Substratum:	Gray-brown sand, 30-72"

HYDROLOGIC GROUP:	Group A
SURFACE RUNOFF:	Very slow to medium
PERMEABILITY:	Rapid or very rapid
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

INCLUSIONS

(Within Mapping Unit)

CONTRASTING: Croghan, Elmwood

USE AND MANAGEMENT

DEVELOPEMENT: There are no limiting factors for building site development.

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

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Crossroad Apartments
352 Walnut Hill Road
North Yarmouth, ME
Walnut Hill Investments

Elmwood
(Dystric Eutrochrepts)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Intermediate positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Moderately well drained with a perched watertable from 1.5 to 3.0 feet below the surface at some time from November to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark Brown, fine loamy sand 0-9"
Subsurface Layer:	Olive brown loamy sand, 8-22"
Subsoil Layer:	Olive silty clay loam, 22-65"

HYDROLOGIC GROUP:	Group C
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Slow to very slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

INCLUSIONS

(Within Mapping Unit)

CONTRASTING: Croghan, Scantic

USE AND MANAGEMENT

DEVELOPMENT: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

PAGE ___ OF ___

6100

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Crossroad Apartments	Walnut Hill Investments	North Yarmouth

Exploration Symbol # SS-1 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–30	Sand	Friable	Red Brown	
30–40	Very fine Loamy Sand	Firm	olive	Common distinct
40–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater	Restrictive Layer	Bedrock
7 Profile	C Condition	2 Percent	30 Depth	"	☒	☒	☐

Soil Series/Phase Name: Elmwood MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # SS-2 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–30	Sand	Friable	Red Brown	
30–40	Very fine Loamy Sand	Firm	olive	Common distinct
40–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater	Restrictive Layer	Bedrock
7 Profile	C Condition	2 Percent	24 Depth	"	☒	☒	☐

Soil Series/Phase Name: Elmwood MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # SS-3 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–30	Sand	Friable	Red Brown	
30–40	Very fine Loamy Sand	Firm	olive	Common distinct
40–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater	Restrictive Layer	Bedrock
7 Profile	C Condition	2 Percent	36 Depth	"	☒	☒	☐

Soil Series/Phase Name: Elmwood MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # SS-4 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–30	Sand	Friable	Red Brown	none noted
30–40				
40–60	Sand	Friable	Tan	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater	Restrictive Layer	Bedrock
5 Profile	B Condition	2 Percent	>48 Depth	"	☐	☐	☐

Soil Series/Phase Name: Adams WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Mark J. Hampton	May 22, 2020
Name Printed	**Cert/Lic/Reg. #**
Mark J. Hampton	263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

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PAGE ___ OF ___

6100

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Crossroad Apartments	Walnut Hill Investments	North Yarmouth

Exploration Symbol # SS-5 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–20	Sand	Friable	Red Brown	none noted
20–30				
30–40	Sand	Friable	Tan	
40–50				
50–60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
5 Profile / B Condition	2 Percent	>48 " Depth	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Adams WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # SS-6 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–20	Sand	Friable	Red Brown	
20–30				
30–40				
40–50	very fine loamy Sand	Firm	olive	common distinct
50–60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
7 Profile / C Condition	2 Percent	36 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Elmwood MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # SS-7 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–20	Sand	Friable	Red Brown	
20–30				
30–40				
40–50	very fine loamy Sand	Firm	olive	common distinct
50–60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
7 Profile / C Condition	2 Percent	40 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Elmwood MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # SS-8 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–20	Sand	Friable	Red Brown	
20–30				
30–40				
40–50	very fine loamy Sand	Firm	Olive	Common distinct
50–60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
7 Profile / C Condition	2 Percent	38 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Elmwood MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
	May 22, 2020
Name Printed: Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

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FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Crossroad Apartments	Walnut Hill Investments	North Yarmouth

Exploration Symbol # SS-9 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Sandy	Friable	Dark Brown	
10–20	Sandy	Friable	Reddish Brown	
20–30				
30–40	Very fine sandy loam	Firm	Olive	Common distinct
40–50	Sand			
50–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth		Soil Series/Phase Name:		Hydrologic Soil Group
7	C	2	30 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Elmwood MWD	☐ Hydric ☒ Non-hydric	

Exploration Symbol # SS-10 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Sandy	Friable	Dark Brown	
10–20			Reddish	
20–30	Sandy	Friable	Brown	None noted
30–40				
40–50	Sand	Friable	Tan	
50–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth		Soil Series/Phase Name:		Hydrologic Soil Group
5	B	2	>48 "	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock	Adams WD	☐ Hydric ☒ Non-hydric	

Exploration Symbol # _____ ☐ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10				
10–20				
20–30				
30–40				
40–50				
50–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth		Soil Series/Phase Name:		Hydrologic Soil Group
			"	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock		☐ Hydric ☐ Non-hydric	

Exploration Symbol # _____ ☐ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10				
10–20				
20–30				
30–40				
40–50				
50–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth		Soil Series/Phase Name:		Hydrologic Soil Group
			"	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock		☐ Hydric ☐ Non-hydric	

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Mark J. Hampton	May 22, 2020
Name Printed	**Cert/Lic/Reg. #**
Mark J. Hampton	263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

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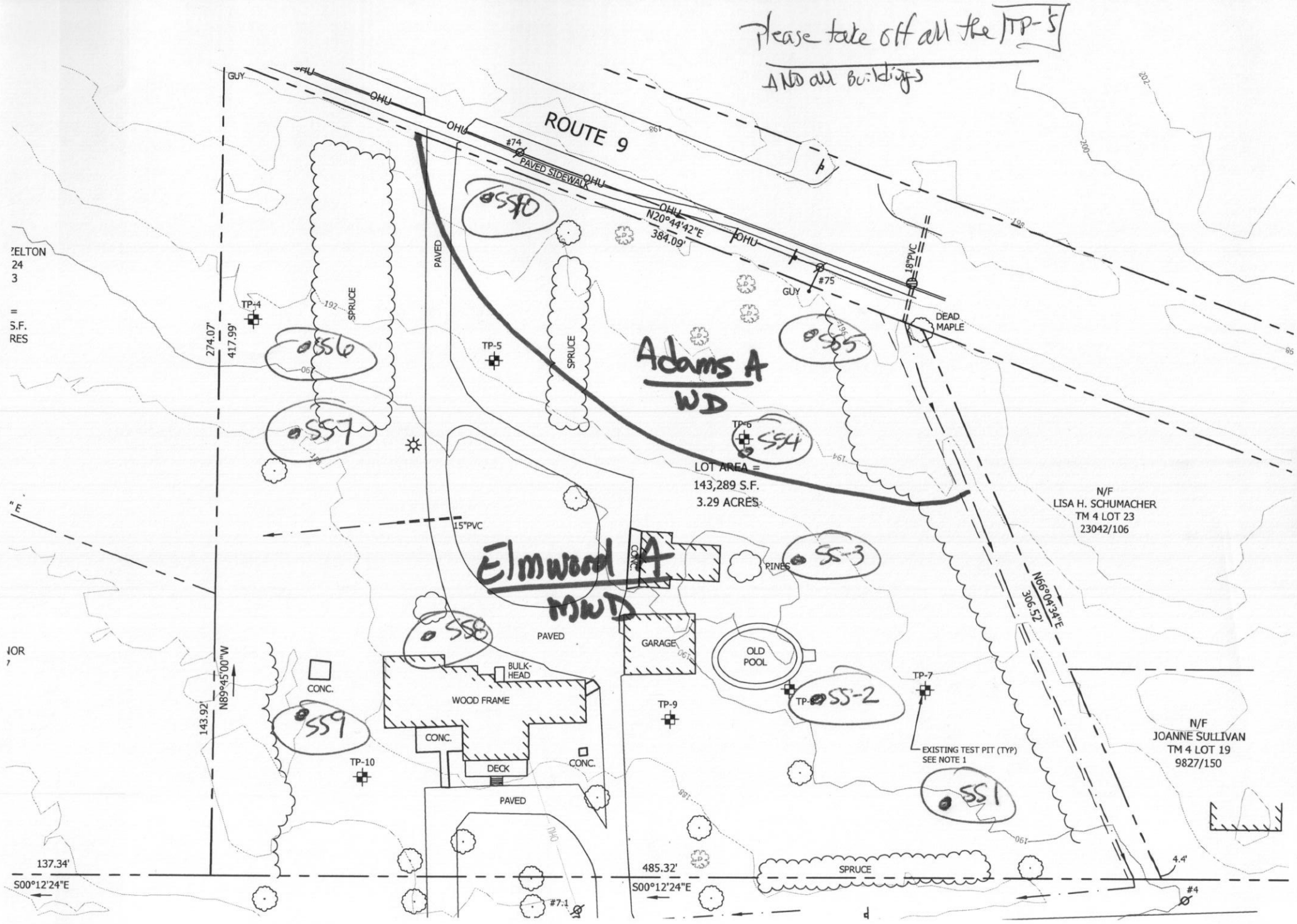
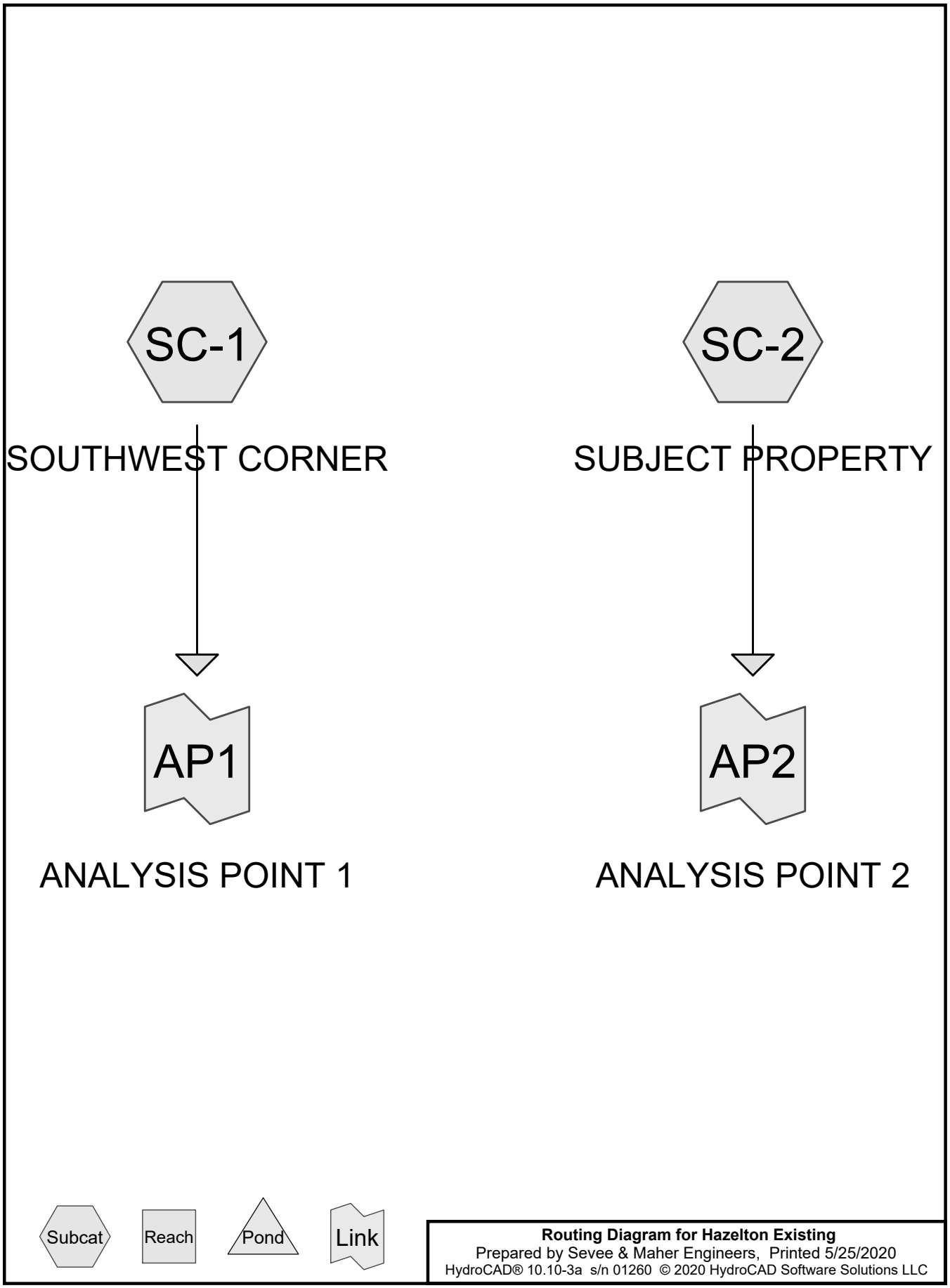

Please take off all the TP-5
AND all buildings
ROUTE 9
GUY
OHU
#74
PAVED SIDEWALK
N20°44'42"E
384.09'
#75
18"PVC
DEAD MAPLE
PAVED
SPRUCE
TP-4
TP-5
TP-6
TP-7
TP-9
TP-10
SS-1
SS-2
SS-3
SS-4
SS-5
SS-6
SS-7
SS-8
SS-9
Adams A
WD
Elmwood A
MWD
LOT AREA =
143,289 S.F.
3.29 ACRES
15"PVC
PINES
GARAGE
OLD POOL
BULK-HEAD
WOOD FRAME
CONC.
DECK
PAVED
EXISTING TEST PIT (TYP)
SEE NOTE 1
N/F
LISA H. SCHUMACHER
TM 4 LOT 23
23042/106
N/F
JOANNE SULLIVAN
TM 4 LOT 19
9827/150
N66°04'34"E
306.52'
274.07'
417.99'
N89°45'00"W
143.92'
137.34'
S00°12'24"E
485.32'
S00°12'24"E
4.4'
#4
#7-1

APPENDIX B

PRE-DEVELOPMENT HYDROCAD CALCULATIONS

SME
SEVEE & MAHER
ENGINEERS



Routing Diagram for Hazelton Existing
Prepared by Sevee & Maher Engineers, Printed 5/25/2020

Summary for Subcatchment SC-1: SOUTHWEST CORNER

Runoff = 0.59 cfs @ 12.15 hrs, Volume= 0.056 af, Depth= 0.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
572	98	Paved parking, HSG A
9,331	39	>75% Grass cover, Good, HSG A
30,399	74	>75% Grass cover, Good, HSG C
2,918	98	Paved parking, HSG C
43,220	68	Weighted Average
39,730		91.93% Pervious Area
3,490		8.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0585	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.00"
2.5	172	0.0270	1.15		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.1	272	Total			

Summary for Subcatchment SC-2: SUBJECT PROPERTY

Runoff = 1.79 cfs @ 12.34 hrs, Volume= 0.213 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
11,905	39	>75% Grass cover, Good, HSG A
4,700	32	Woods/grass comb., Good, HSG A
83,980	74	>75% Grass cover, Good, HSG C
20,683	98	Paved parking, HSG C
121,268	73	Weighted Average
100,585		82.94% Pervious Area
20,683		17.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0350	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
4.1	455	0.0150	1.84		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.2	60	0.0200	4.37	7.72	**Pipe Channel, C-D** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
0.2	105	0.0200	7.97	106.30	**Parabolic Channel, D-E** W=10.00' D=2.00' Area=13.3 sf Perim=11.0' n= 0.030 Earth, grassed & winding
22.2	720	Total			

Summary for Link AP1: ANALYSIS POINT 1

Inflow Area = 0.992 ac, 8.07% Impervious, Inflow Depth = 0.68" for 2-Year event
Inflow = 0.59 cfs @ 12.15 hrs, Volume= 0.056 af
Primary = 0.59 cfs @ 12.15 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Link AP2: ANALYSIS POINT 2

Inflow Area = 2.784 ac, 17.06% Impervious, Inflow Depth = 0.92" for 2-Year event
Inflow = 1.79 cfs @ 12.34 hrs, Volume= 0.213 af
Primary = 1.79 cfs @ 12.34 hrs, Volume= 0.213 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Subcatchment SC-1: SOUTHWEST CORNER

Runoff = 1.60 cfs @ 12.14 hrs, Volume= 0.132 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
572	98	Paved parking, HSG A
9,331	39	>75% Grass cover, Good, HSG A
30,399	74	>75% Grass cover, Good, HSG C
2,918	98	Paved parking, HSG C
43,220	68	Weighted Average
39,730		91.93% Pervious Area
3,490		8.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0585	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.00"
2.5	172	0.0270	1.15		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.1	272	Total			

Summary for Subcatchment SC-2: SUBJECT PROPERTY

Runoff = 4.09 cfs @ 12.31 hrs, Volume= 0.457 af, Depth= 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
11,905	39	>75% Grass cover, Good, HSG A
4,700	32	Woods/grass comb., Good, HSG A
83,980	74	>75% Grass cover, Good, HSG C
20,683	98	Paved parking, HSG C
121,268	73	Weighted Average
100,585		82.94% Pervious Area
20,683		17.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0350	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
4.1	455	0.0150	1.84		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.2	60	0.0200	4.37	7.72	**Pipe Channel, C-D** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
0.2	105	0.0200	7.97	106.30	**Parabolic Channel, D-E** W=10.00' D=2.00' Area=13.3 sf Perim=11.0' n= 0.030 Earth, grassed & winding
22.2	720	Total			

Summary for Link AP1: ANALYSIS POINT 1

Inflow Area = 0.992 ac, 8.07% Impervious, Inflow Depth = 1.60" for 10-Year event
Inflow = 1.60 cfs @ 12.14 hrs, Volume= 0.132 af
Primary = 1.60 cfs @ 12.14 hrs, Volume= 0.132 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Link AP2: ANALYSIS POINT 2

Inflow Area = 2.784 ac, 17.06% Impervious, Inflow Depth = 1.97" for 10-Year event
Inflow = 4.09 cfs @ 12.31 hrs, Volume= 0.457 af
Primary = 4.09 cfs @ 12.31 hrs, Volume= 0.457 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Subcatchment SC-1: SOUTHWEST CORNER

Runoff = 2.54 cfs @ 12.13 hrs, Volume= 0.204 af, Depth= 2.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
572	98	Paved parking, HSG A
9,331	39	>75% Grass cover, Good, HSG A
30,399	74	>75% Grass cover, Good, HSG C
2,918	98	Paved parking, HSG C
43,220	68	Weighted Average
39,730		91.93% Pervious Area
3,490		8.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.6	100	0.0585	0.25		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.00"
2.5	172	0.0270	1.15		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
9.1	272	Total			

Summary for Subcatchment SC-2: SUBJECT PROPERTY

Runoff = 6.15 cfs @ 12.31 hrs, Volume= 0.678 af, Depth= 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
0	98	Paved parking, HSG A
11,905	39	>75% Grass cover, Good, HSG A
4,700	32	Woods/grass comb., Good, HSG A
83,980	74	>75% Grass cover, Good, HSG C
20,683	98	Paved parking, HSG C
121,268	73	Weighted Average
100,585		82.94% Pervious Area
20,683		17.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0350	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
4.1	455	0.0150	1.84		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
0.2	60	0.0200	4.37	7.72	**Pipe Channel, C-D** 18.0" Round Area= 1.8 sf Perim= 4.7' r= 0.38' n= 0.025 Corrugated metal
0.2	105	0.0200	7.97	106.30	**Parabolic Channel, D-E** W=10.00' D=2.00' Area=13.3 sf Perim=11.0' n= 0.030 Earth, grassed & winding
22.2	720	Total			

Summary for Link AP1: ANALYSIS POINT 1

Inflow Area = 0.992 ac, 8.07% Impervious, Inflow Depth = 2.47" for 25-Year event
Inflow = 2.54 cfs @ 12.13 hrs, Volume= 0.204 af
Primary = 2.54 cfs @ 12.13 hrs, Volume= 0.204 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Link AP2: ANALYSIS POINT 2

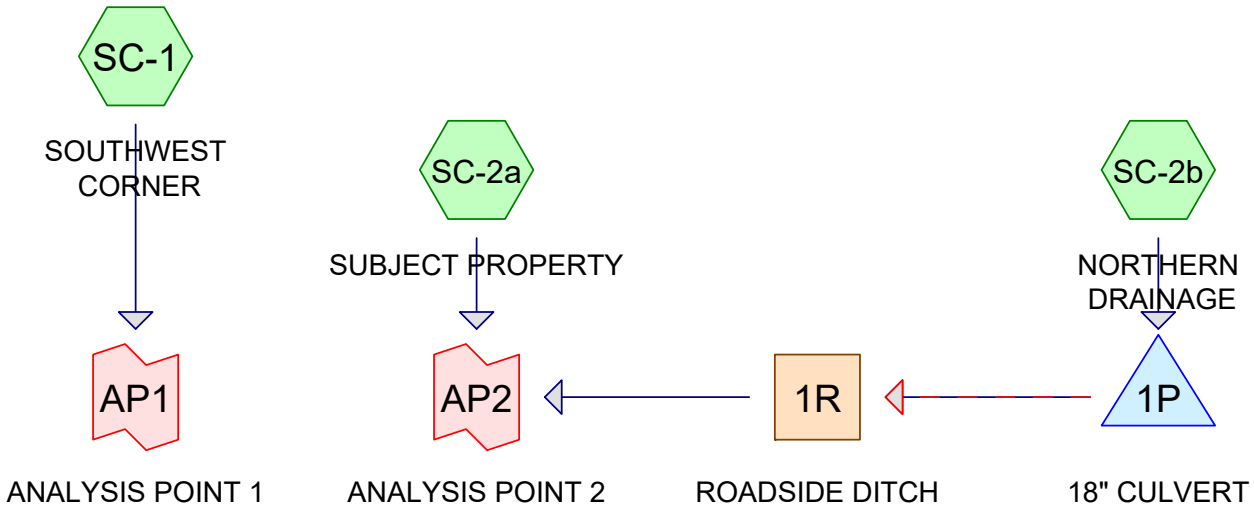
Inflow Area = 2.784 ac, 17.06% Impervious, Inflow Depth = 2.92" for 25-Year event
Inflow = 6.15 cfs @ 12.31 hrs, Volume= 0.678 af
Primary = 6.15 cfs @ 12.31 hrs, Volume= 0.678 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

APPENDIX C

POST-DEVELOPMENT HYDROCAD CALCULATIONS

SME
SEVEE & MAHER
ENGINEERS



Subcat Reach Pond Link

Routing Diagram for Hazelton Proposed 06262020
Prepared by Sevee & Maher Engineers, Inc., Printed 6/26/2020

Summary for Subcatchment SC-1: SOUTHWEST CORNER

Runoff = 0.87 cfs @ 12.18 hrs, Volume= 0.081 af, Depth= 0.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
2,787	98	Paved parking, HSG A
6,643	39	>75% Grass cover, Good, HSG A
27,632	74	>75% Grass cover, Good, HSG C
6,356	98	Paved parking, HSG C
43,418	74	Weighted Average
34,275		78.94% Pervious Area
9,143		21.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.9	256	0.0230	2.27		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
12.0	356	Total			

Summary for Subcatchment SC-2a: SUBJECT PROPERTY

Runoff = 1.96 cfs @ 12.26 hrs, Volume= 0.206 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
3,703	98	Paved parking, HSG A
3,902	39	>75% Grass cover, Good, HSG A
4,700	32	Woods/grass comb., Good, HSG A
52,612	74	>75% Grass cover, Good, HSG C
24,974	98	Paved parking, HSG C
89,891	78	Weighted Average
61,214		68.10% Pervious Area
28,677		31.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	100	0.0420	0.15		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.00"
7.6	454	0.0200	0.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
18.6	554	Total			

Summary for Subcatchment SC-2b: NORTHERN DRAINAGE

Runoff = 0.40 cfs @ 12.34 hrs, Volume= 0.049 af, Depth= 0.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
90	98	Paved parking, HSG A
1,234	39	>75% Grass cover, Good, HSG A
4,600	32	Woods/grass comb., Good, HSG A
19,951	74	>75% Grass cover, Good, HSG C
5,303	98	Paved parking, HSG C
31,178	71	Weighted Average
25,785		82.70% Pervious Area
5,393		17.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0350	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
4.0	442	0.0150	1.84		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
21.7	542	Total			

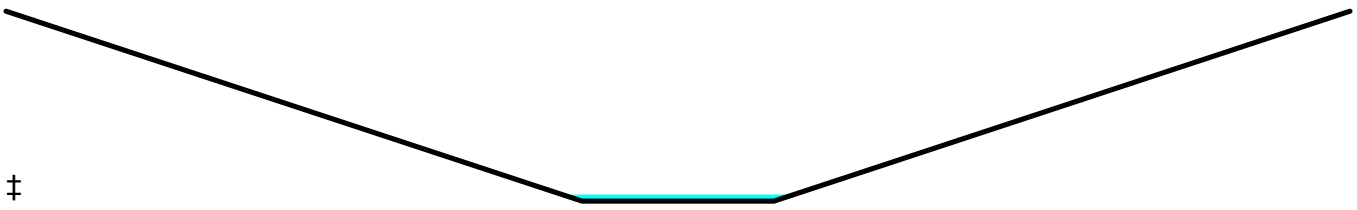
Summary for Reach 1R: ROADSIDE DITCH

Inflow Area = 0.716 ac, 17.30% Impervious, Inflow Depth = 0.82" for 2-Year event
Inflow = 0.40 cfs @ 12.33 hrs, Volume= 0.049 af
Outflow = 0.38 cfs @ 12.53 hrs, Volume= 0.049 af, Atten= 5%, Lag= 11.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.66 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 0.32 fps, Avg. Travel Time= 12.9 min

Peak Storage= 144 cf @ 12.42 hrs
Average Depth at Peak Storage= 0.10' , Surface Width= 6.04'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 266.23 cfs

5.00' x 3.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 5.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0040 '/'
Inlet Invert= 184.00', Outlet Invert= 183.00'



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Summary for Pond 1P: 18" CULVERT

Inflow Area = 0.716 ac, 17.30% Impervious, Inflow Depth = 0.82" for 2-Year event
Inflow = 0.40 cfs @ 12.34 hrs, Volume= 0.049 af
Outflow = 0.40 cfs @ 12.33 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min
Primary = 0.40 cfs @ 12.33 hrs, Volume= 0.049 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 185.31' @ 12.33 hrs Surf.Area= 12 sf Storage= 2 cf

Plug-Flow detention time= 0.1 min calculated for 0.049 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (889.2 - 889.1)

Volume	Invert	Avail.Storage	Storage Description
#1	185.00'	3,160 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
185.00	0	0	0
186.00	40	20	20
188.00	3,100	3,140	3,160

Device	Routing	Invert	Outlet Devices
#1	Primary	185.00'	**18.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 185.00' / 184.20' S= 0.0400 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Secondary	186.80'	**5.0' 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=0.40 cfs @ 12.33 hrs HW=185.31' (Free Discharge)
↑**1=Culvert** (Inlet Controls 0.40 cfs @ 1.50 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=185.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link AP1: ANALYSIS POINT 1

Inflow Area = 0.997 ac, 21.06% Impervious, Inflow Depth = 0.97" for 2-Year event
Inflow = 0.87 cfs @ 12.18 hrs, Volume= 0.081 af
Primary = 0.87 cfs @ 12.18 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Link AP2: ANALYSIS POINT 2

Inflow Area = 2.779 ac, 28.14% Impervious, Inflow Depth = 1.10" for 2-Year event
Inflow = 2.10 cfs @ 12.30 hrs, Volume= 0.255 af
Primary = 2.10 cfs @ 12.30 hrs, Volume= 0.255 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Subcatchment SC-1: SOUTHWEST CORNER

Runoff = 1.95 cfs @ 12.17 hrs, Volume= 0.170 af, Depth= 2.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
2,787	98	Paved parking, HSG A
6,643	39	>75% Grass cover, Good, HSG A
27,632	74	>75% Grass cover, Good, HSG C
6,356	98	Paved parking, HSG C
43,418	74	Weighted Average
34,275		78.94% Pervious Area
9,143		21.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.9	256	0.0230	2.27		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
12.0	356	Total			

Summary for Subcatchment SC-2a: SUBJECT PROPERTY

Runoff = 3.99 cfs @ 12.26 hrs, Volume= 0.409 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
3,703	98	Paved parking, HSG A
3,902	39	>75% Grass cover, Good, HSG A
4,700	32	Woods/grass comb., Good, HSG A
52,612	74	>75% Grass cover, Good, HSG C
24,974	98	Paved parking, HSG C
89,891	78	Weighted Average
61,214		68.10% Pervious Area
28,677		31.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	100	0.0420	0.15		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.00"
7.6	454	0.0200	0.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
18.6	554	Total			

Summary for Subcatchment SC-2b: NORTHERN DRAINAGE

Runoff = 0.97 cfs @ 12.32 hrs, Volume= 0.109 af, Depth= 1.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
90	98	Paved parking, HSG A
1,234	39	>75% Grass cover, Good, HSG A
4,600	32	Woods/grass comb., Good, HSG A
19,951	74	>75% Grass cover, Good, HSG C
5,303	98	Paved parking, HSG C
31,178	71	Weighted Average
25,785		82.70% Pervious Area
5,393		17.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0350	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
4.0	442	0.0150	1.84		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
21.7	542	Total			

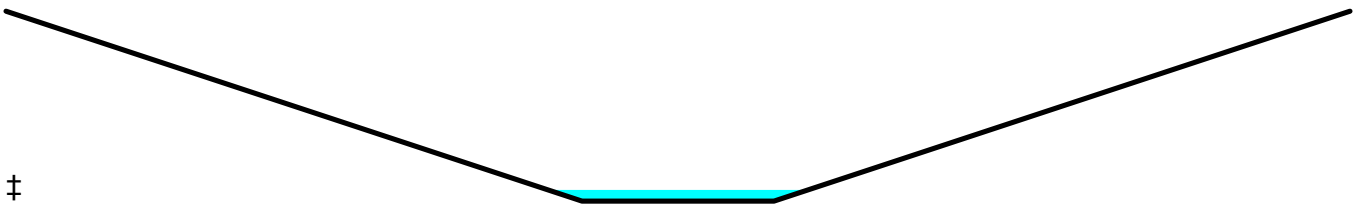
Summary for Reach 1R: ROADSIDE DITCH

Inflow Area = 0.716 ac, 17.30% Impervious, Inflow Depth = 1.82" for 10-Year event
Inflow = 0.97 cfs @ 12.32 hrs, Volume= 0.109 af
Outflow = 0.94 cfs @ 12.45 hrs, Volume= 0.109 af, Atten= 3%, Lag= 8.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.90 fps, Min. Travel Time= 4.6 min
Avg. Velocity = 0.36 fps, Avg. Travel Time= 11.7 min

Peak Storage= 261 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.18' , Surface Width= 6.77'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 266.23 cfs

5.00' x 3.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 5.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0040 '/'
Inlet Invert= 184.00', Outlet Invert= 183.00'



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Summary for Pond 1P: 18" CULVERT

Inflow Area = 0.716 ac, 17.30% Impervious, Inflow Depth = 1.82" for 10-Year event
Inflow = 0.97 cfs @ 12.32 hrs, Volume= 0.109 af
Outflow = 0.97 cfs @ 12.32 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.1 min
Primary = 0.97 cfs @ 12.32 hrs, Volume= 0.109 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 185.50' @ 12.32 hrs Surf.Area= 20 sf Storage= 5 cf

Plug-Flow detention time= 0.1 min calculated for 0.108 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (864.2 - 864.1)

Volume	Invert	Avail.Storage	Storage Description
#1	185.00'	3,160 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
185.00	0	0	0
186.00	40	20	20
188.00	3,100	3,140	3,160

Device	Routing	Invert	Outlet Devices
#1	Primary	185.00'	**18.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 185.00' / 184.20' S= 0.0400 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Secondary	186.80'	**5.0' 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=0.97 cfs @ 12.32 hrs HW=185.50' (Free Discharge)
↑**1=Culvert** (Inlet Controls 0.97 cfs @ 1.89 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=185.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link AP1: ANALYSIS POINT 1

Inflow Area = 0.997 ac, 21.06% Impervious, Inflow Depth = 2.05" for 10-Year event
Inflow = 1.95 cfs @ 12.17 hrs, Volume= 0.170 af
Primary = 1.95 cfs @ 12.17 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Link AP2: ANALYSIS POINT 2

Inflow Area = 2.779 ac, 28.14% Impervious, Inflow Depth = 2.23" for 10-Year event
Inflow = 4.58 cfs @ 12.29 hrs, Volume= 0.517 af
Primary = 4.58 cfs @ 12.29 hrs, Volume= 0.517 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Subcatchment SC-1: SOUTHWEST CORNER

Runoff = 2.89 cfs @ 12.17 hrs, Volume= 0.251 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
2,787	98	Paved parking, HSG A
6,643	39	>75% Grass cover, Good, HSG A
27,632	74	>75% Grass cover, Good, HSG C
6,356	98	Paved parking, HSG C
43,418	74	Weighted Average
34,275		78.94% Pervious Area
9,143		21.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.1	100	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.00"
1.9	256	0.0230	2.27		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
12.0	356	Total			

Summary for Subcatchment SC-2a: SUBJECT PROPERTY

Runoff = 5.73 cfs @ 12.26 hrs, Volume= 0.585 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
3,703	98	Paved parking, HSG A
3,902	39	>75% Grass cover, Good, HSG A
4,700	32	Woods/grass comb., Good, HSG A
52,612	74	>75% Grass cover, Good, HSG C
24,974	98	Paved parking, HSG C
89,891	78	Weighted Average
61,214		68.10% Pervious Area
28,677		31.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.0	100	0.0420	0.15		**Sheet Flow, A-B** Grass: Dense n= 0.240 P2= 3.00"
7.6	454	0.0200	0.99		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
18.6	554	Total			

Summary for Subcatchment SC-2b: NORTHERN DRAINAGE

Runoff = 1.49 cfs @ 12.31 hrs, Volume= 0.163 af, Depth= 2.74"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
90	98	Paved parking, HSG A
1,234	39	>75% Grass cover, Good, HSG A
4,600	32	Woods/grass comb., Good, HSG A
19,951	74	>75% Grass cover, Good, HSG C
5,303	98	Paved parking, HSG C
31,178	71	Weighted Average
25,785		82.70% Pervious Area
5,393		17.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.7	100	0.0350	0.09		**Sheet Flow, A-B** Woods: Light underbrush n= 0.400 P2= 3.00"
4.0	442	0.0150	1.84		**Shallow Concentrated Flow, B-C** Grassed Waterway Kv= 15.0 fps
21.7	542	Total			

Summary for Reach 1R: ROADSIDE DITCH

Inflow Area = 0.716 ac, 17.30% Impervious, Inflow Depth = 2.74" for 25-Year event
Inflow = 1.49 cfs @ 12.31 hrs, Volume= 0.163 af
Outflow = 1.45 cfs @ 12.42 hrs, Volume= 0.163 af, Atten= 3%, Lag= 6.6 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.04 fps, Min. Travel Time= 4.0 min
Avg. Velocity = 0.38 fps, Avg. Travel Time= 10.9 min

Peak Storage= 348 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.23' , Surface Width= 7.27'
Bank-Full Depth= 3.00' Flow Area= 60.0 sf, Capacity= 266.23 cfs

5.00' x 3.00' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 5.0 '/' Top Width= 35.00'
Length= 250.0' Slope= 0.0040 '/'
Inlet Invert= 184.00', Outlet Invert= 183.00'

‡

Summary for Pond 1P: 18" CULVERT

Inflow Area = 0.716 ac, 17.30% Impervious, Inflow Depth = 2.74" for 25-Year event
Inflow = 1.49 cfs @ 12.31 hrs, Volume= 0.163 af
Outflow = 1.49 cfs @ 12.31 hrs, Volume= 0.163 af, Atten= 0%, Lag= 0.0 min
Primary = 1.49 cfs @ 12.31 hrs, Volume= 0.163 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 185.63' @ 12.31 hrs Surf.Area= 25 sf Storage= 8 cf

Plug-Flow detention time= 0.1 min calculated for 0.163 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (852.2 - 852.1)

Volume	Invert	Avail.Storage	Storage Description
#1	185.00'	3,160 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
185.00	0	0	0
186.00	40	20	20
188.00	3,100	3,140	3,160

Device	Routing	Invert	Outlet Devices
#1	Primary	185.00'	**18.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 185.00' / 184.20' S= 0.0400 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#2	Secondary	186.80'	**5.0' 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=1.48 cfs @ 12.31 hrs HW=185.63' (Free Discharge)
↑**1=Culvert** (Inlet Controls 1.48 cfs @ 2.13 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=185.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link AP1: ANALYSIS POINT 1

Inflow Area = 0.997 ac, 21.06% Impervious, Inflow Depth = 3.02" for 25-Year event
Inflow = 2.89 cfs @ 12.17 hrs, Volume= 0.251 af
Primary = 2.89 cfs @ 12.17 hrs, Volume= 0.251 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Summary for Link AP2: ANALYSIS POINT 2

Inflow Area = 2.779 ac, 28.14% Impervious, Inflow Depth = 3.23" for 25-Year event
Inflow = 6.74 cfs @ 12.28 hrs, Volume= 0.749 af
Primary = 6.74 cfs @ 12.28 hrs, Volume= 0.749 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

TABLE OF CONTENTS

Project Reports
1 Routing Diagram

2-Year Event
2 Subcat SC-1: SOUTHWEST CORNER
3 Subcat SC-2a: SUBJECT PROPERTY
3 Subcat SC-2b: NORTHERN DRAINAGE
4 Reach 1R: ROADSIDE DITCH
4 Pond 1P: 18" CULVERT
5 Link AP1: ANALYSIS POINT 1
5 Link AP2: ANALYSIS POINT 2

10-Year Event
6 Subcat SC-1: SOUTHWEST CORNER
7 Subcat SC-2a: SUBJECT PROPERTY
7 Subcat SC-2b: NORTHERN DRAINAGE
8 Reach 1R: ROADSIDE DITCH
8 Pond 1P: 18" CULVERT
9 Link AP1: ANALYSIS POINT 1
9 Link AP2: ANALYSIS POINT 2

25-Year Event
10 Subcat SC-1: SOUTHWEST CORNER
11 Subcat SC-2a: SUBJECT PROPERTY
11 Subcat SC-2b: NORTHERN DRAINAGE
12 Reach 1R: ROADSIDE DITCH
12 Pond 1P: 18" CULVERT
13 Link AP1: ANALYSIS POINT 1
13 Link AP2: ANALYSIS POINT 2

APPENDIX G

HOMEOWNERS ASSOCIATION DOCUMENTS

SME
SEVEE & MAHER
ENGINEERS

TO BE SUBMITTED

SME
SEVEE & MAHER
ENGINEERS

APPENDIX H

MEDOT DRIVEWAY ENTRANCE PERMIT

SME
SEVEE & MAHER
ENGINEERS

Maine Department of Transportation

Janet T. Mills
Governor

Driveway/Entrance Permit

Bruce A. Van Note
Commissioner

Permit Number: 27753 - **Entrance ID:** 1

OWNER

Name: **Construction Aggregate, Inc.**
Address: **P.O. Box 307**
Cumberland, ME 04021
Telephone: **(207)829-3373**

Date Printed: **February 20, 2020**

LOCATION

Route: **0115X, Walnut Hill Road**
Municipality: **North Yarmouth**
County: **Cumberland**
Tax Map: **4** Lot Number: **18**
Culvert Size: **inches**
Culvert Type: **N/R**
Culvert Length: **feet**
Date of Permit: **February 20, 2020**
Approved Entrance Width: **24 feet**

In accordance with rules promulgated under 23 M.R.S.A., Chapter 13, Subchapter I, Section 704, the Maine Department of Transportation (MaineDOT) approves a permit and grants permission to perform the necessary grading to construct, in accordance with sketch or attached plan, **an Entrance** to **Subdivision/Development** at a point **728** feet **South** from **Cumberland Road**, subject to the Chapter 299 Highway Driveway and Entrance Rules, standard conditions and special conditions (if any) listed below.

Conditions of Approval:

This Permittee acknowledges and agrees to comply with the Standard Conditions and Approval attached hereto and to any Specific Conditions of Approval shown here.

(G = GPS Location; W = Waiver; S = Special Condition)

G - THE ENTRANCE SHALL BE LOCATED AT GPS COORDINATES: 43.822210N, -70.245780W.

S - In the town of North Yarmouth on the westerly side of Route 115 / Walnut Hill Road, the centerline being approximately 728 feet southerly of the centerline of Route 9 / Cumberland Road and approximately 54 feet northerly of utility pole 7.

Approved by: Anthony Fontaine Date: 2-20-2020

STANDARD CONDITIONS AND APPROVAL

1. Provide, erect and maintain all necessary barricades, lights, warning signs and other devices as directed by MaineDOT to properly safeguard traffic while the construction is in progress.

2. At no time cause the highway to be closed to traffic

3. Where the driveway is located within a curb, curb and gutter, and/or sidewalk section, completely remove the existing curb, curb and gutter, and/or sidewalk as may be required to create the driveway and restore drainage. All driveways abutting sidewalk sections shall meet the requirements set forth in the Americans with Disabilities Act of 1990, 42 U.S.C. Sec. 12131 et seq.

4. Obtain, have delivered to the site, and install any culverts and/or drainage structures which may be necessary for drainage, the size, type and length as called for in the permit pursuant to 23 M.R.S.A. Sec. 705. All culverts and/or drainage structures shall be new.

5. Start construction of the proposed driveway within twenty-four (24) months of the date of permit issuance and substantially complete construction of the proposed driveway within twelve months of commencement of construction.

6. Comply with all applicable federal, state and municipal regulations and ordinances.

7. Do not alter, without the express written consent of the MaineDOT, any culverts or drainage swales within the MaineDOT right of way.

8. File a copy of the approved driveway permit with the affected municipality or LURC, as appropriate within 5 business days of receiving the MaineDOT approval.

9. Construct and maintain the driveway side slopes to be no steeper than the adjacent roadway side slopes, but in no case to be steeper than 3 horizontal to 1 vertical, unless the side slope is behind existing roadway guardrail, in which case it shall be no steeper than 2 horizontal to 1 vertical.

10. Notify the MaineDOT of a proposed change of use served by the driveway when increase in traffic flow is expected to occur. This does not exempt the need for obtaining a Traffic Movement Permit (TMP) if trip generation meets or exceeds 100 passenger car equivalents (PCE) during the peak hour of the day.

11. Construct or implement and maintain erosion and sedimentation measures sufficient to protect MaineDOT facilities.

12. Driveways shall be designed such that all maneuvering and parking of any vehicles will take place outside the highway right-of-way and where vehicles will exit the premises without backing onto the highway traveled way or shoulders. All driveways will have a turnaround area to accomodate vehicles using the premises.

13. Closing any portion of a highway or roadway including lanes, shoulders, sidewalks, bike lanes, or ATV access routes is not permitted without MaineDOT approval.

FURTHER CONDITION OF THE PERMIT

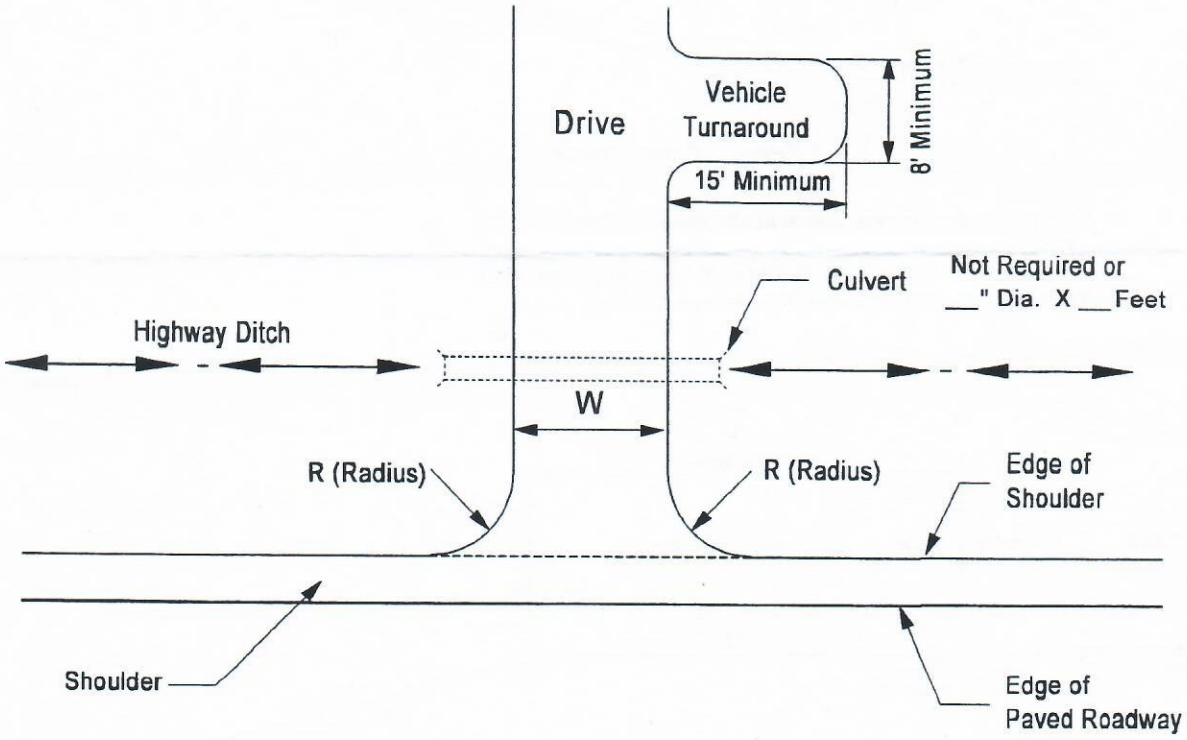
The owner shall assume, the defense of, and pay all damages, fines, and penalties for which he/she shall become liable, and shall indemnify and safe harmless said Department, its representatives, agents and employees from liability, actions against all suits, claims, damages for wrongful death, personal injuries or property damage suffered by any person or association which results from the willful or negligent action or inaction of the owner/applicant (agent) and in proceedings of every kind arising out of the construction and maintenance of said entrance(s), including snow removal.

Nothing herein shall, nor is intended to, waive any defense, immunity or limitation of liability which may be available to the MaineDOT, their officers, agents or employees under the Maine Tort Claims Act or any other privileges and/or immunities provided by law. It is a further condition that the owner will agree to keep the right of way inviolate for public highway purposes and no signs (other than traffic signs and signals), posters, billboards, roadside stands, culvert end walls or private installations shall be permitted within Right of Way limits.

State of Maine
Department of Transportation

Entrance / Driveway Details

PLAN

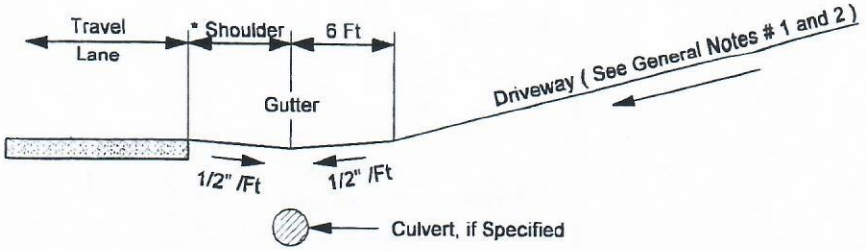


GENERAL NOTES -

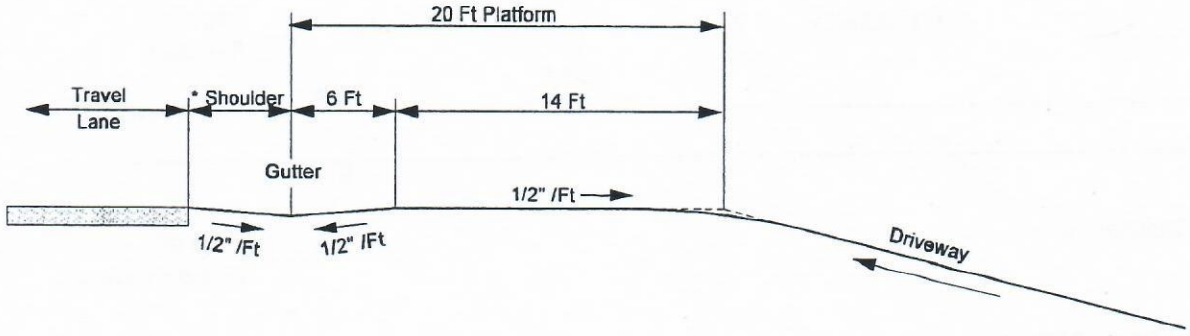
1. ALL RESIDENTAL OR COMMERCIAL DRIVES WITH 10% GRADE OR MORE SLOPING DOWN TOWARDS THE HIGHWAY SHALL BE PAVED TO THE RIGHT OF WAY LINE, AS A MINIMUM, INCUDING SHOULDER, IF GRAVEL AND HAVE DITCHES TO CONTROL RUNOFF.
2. DRIVES SLOPING TO THE HIGHWAY SHALL BE CROWNED (1/2" PER FT. MINIMUM).
3. TO THE MAXIMUM EXTENT PRACTICAL, THE ENTRANCE MUST BE CONSTRUCTED PERPENDICULAR TO THE HIGHWAY AT THE POINT OF ACCESS. EXCEPT WHERE CURBING EXISTS OR IS PROPOSED, THE MINIMUM RADIUS ON THE EDGES OF THE ENTRANCE MUST BE 10 FEET OR AS OTHERWISE REQUIRED AS SHOWN.
4. ENTRANCES/DRIVEWAYS WILL BE BUILT WITH AN ADEQUATE TURN-AROUND AREA ON SITE TO ALLOW ALL VEHICLES TO MANUVER AND PARK WITHOUT BACKING ONTO THE HIGHWAY. THIS TURN-AROUND SHALL BE AT LEAST 8 FEET WIDE BY 15 FEET LONG.
5. ENTRANCES/DRIVEWAYS AND OTHER ASSOCIATED SITE WORK WHICH DIRECTS WATER (RUNOFF) TOWARD THE HIGHWAY MUST BE CONSTRUCTED, CROWNED STABILIZED AND MAINTAINED WITH MATERIALS AND APPROPRIATE TEMPORARY/PERMANENT EROSION CONTROL MATERIALS IN ACCORDANCE WITH MDOT BEST MANAGEMENT PRACTICES.
6. THE PROFILE OF THE ENTRANCES MUST COMPLY WITH THE DETAILS SHOWN ON PAGE 2.

MDOT Entrance / Driveway Details, Continued

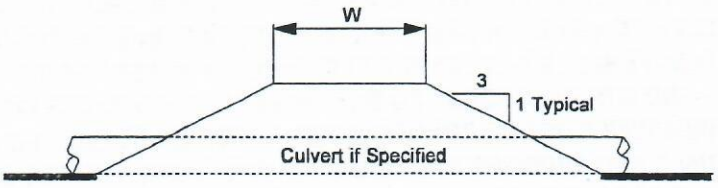
PROFILE
Details



NOTE :
Grade of Existing Shoulder Should Be Maintained To Create A Gutter With a Minimum Of Three Inches Below The Edge Of Traveled Way.
* Distance Of The Gutter From The Edge Of Traveled Way Should Be The Same As Existing Shoulder Or A Minimum Of 4 Feet.



Driveway Cross Section



Maine Department of Transportation

Janet T. Mills
Governor

Driveway/Entrance Permit

Bruce A. Van Note
Commissioner

Permit Number: 27752 - **Entrance ID:** 1

OWNER

Name: **Construction Aggregate, Inc.**
Address: **P.O. Box 307**
Cumberland, ME 04021
Telephone: **(207)829-3373**

Date Printed: **February 20, 2020**

LOCATION

Route: **0009X, Cumberland Road**
Municipality: **North Yarmouth**
County: **Cumberland**
Tax Map: **4** Lot Number: **18**
Culvert Size: **inches**
Culvert Type: **N/R**
Culvert Length: **feet**
Date of Permit: **February 20, 2020**
Approved Entrance Width: **24 feet**

In accordance with rules promulgated under 23 M.R.S.A., Chapter 13, Subchapter I, Section 704, the Maine Department of Transportation (MaineDOT) approves a permit and grants permission to perform the necessary grading to construct, in accordance with sketch or attached plan, **an Entrance** to **Subdivision/Development** at a point **841** feet **South** from **Walnut Hill Road**, subject to the Chapter 299 Highway Driveway and Entrance Rules, standard conditions and special conditions (if any) listed below.

Conditions of Approval:

This Permittee acknowledges and agrees to comply with the Standard Conditions and Approval attached hereto and to any Specific Conditions of Approval shown here.

(G = GPS Location; W = Waiver; S = Special Condition)

G - THE ENTRANCE SHALL BE LOCATED AT GPS COORDINATES: 43.821900N, -70.247150W.

S - In the town of North Yarmouth on the easterly side of Route 9 / Cumberland Road, the centerline being approximately 841 feet southerly of Walnut Hill Road and approximately 90 feet northerly of utility pole 74.

Approved by: Anthony Fontaine Date: 2-20-2020

STANDARD CONDITIONS AND APPROVAL

1. Provide, erect and maintain all necessary barricades, lights, warning signs and other devices as directed by MaineDOT to properly safeguard traffic while the construction is in progress.

2. At no time cause the highway to be closed to traffic

3. Where the driveway is located within a curb, curb and gutter, and/or sidewalk section, completely remove the existing curb, curb and gutter, and/or sidewalk as may be required to create the driveway and restore drainage. All driveways abutting sidewalk sections shall meet the requirements set forth in the Americans with Disabilities Act of 1990, 42 U.S.C. Sec. 12131 et seq.

4. Obtain, have delivered to the site, and install any culverts and/or drainage structures which may be necessary for drainage, the size, type and length as called for in the permit pursuant to 23 M.R.S.A. Sec. 705. All culverts and/or drainage structures shall be new.

5. Start construction of the proposed driveway within twenty-four (24) months of the date of permit issuance and substantially complete construction of the proposed driveway within twelve months of commencement of construction.

6. Comply with all applicable federal, state and municipal regulations and ordinances.

7. Do not alter, without the express written consent of the MaineDOT, any culverts or drainage swales within the MaineDOT right of way.

8. File a copy of the approved driveway permit with the affected municipality or LURC, as appropriate within 5 business days of receiving the MaineDOT approval.

9. Construct and maintain the driveway side slopes to be no steeper than the adjacent roadway side slopes, but in no case to be steeper than 3 horizontal to 1 vertical, unless the side slope is behind existing roadway guardrail, in which case it shall be no steeper than 2 horizontal to 1 vertical.

10. Notify the MaineDOT of a proposed change of use served by the driveway when increase in traffic flow is expected to occur. This does not exempt the need for obtaining a Traffic Movement Permit (TMP) if trip generation meets or exceeds 100 passenger car equivalents (PCE) during the peak hour of the day.

11. Construct or implement and maintain erosion and sedimentation measures sufficient to protect MaineDOT facilities.

12. Driveways shall be designed such that all maneuvering and parking of any vehicles will take place outside the highway right-of-way and where vehicles will exit the premises without backing onto the highway traveled way or shoulders. All driveways will have a turnaround area to accomodate vehicles using the premises.

13. Closing any portion of a highway or roadway including lanes, shoulders, sidewalks, bike lanes, or ATV access routes is not permitted without MaineDOT approval.

FURTHER CONDITION OF THE PERMIT

The owner shall assume, the defense of, and pay all damages, fines, and penalties for which he/she shall become liable, and shall indemnify and safe harmless said Department, its representatives, agents and employees from liability, actions against all suits, claims, damages for wrongful death, personal injuries or property damage suffered by any person or association which results from the willful or negligent action or inaction of the owner/applicant (agent) and in proceedings of every kind arising out of the construction and maintenance of said entrance(s), including snow removal.

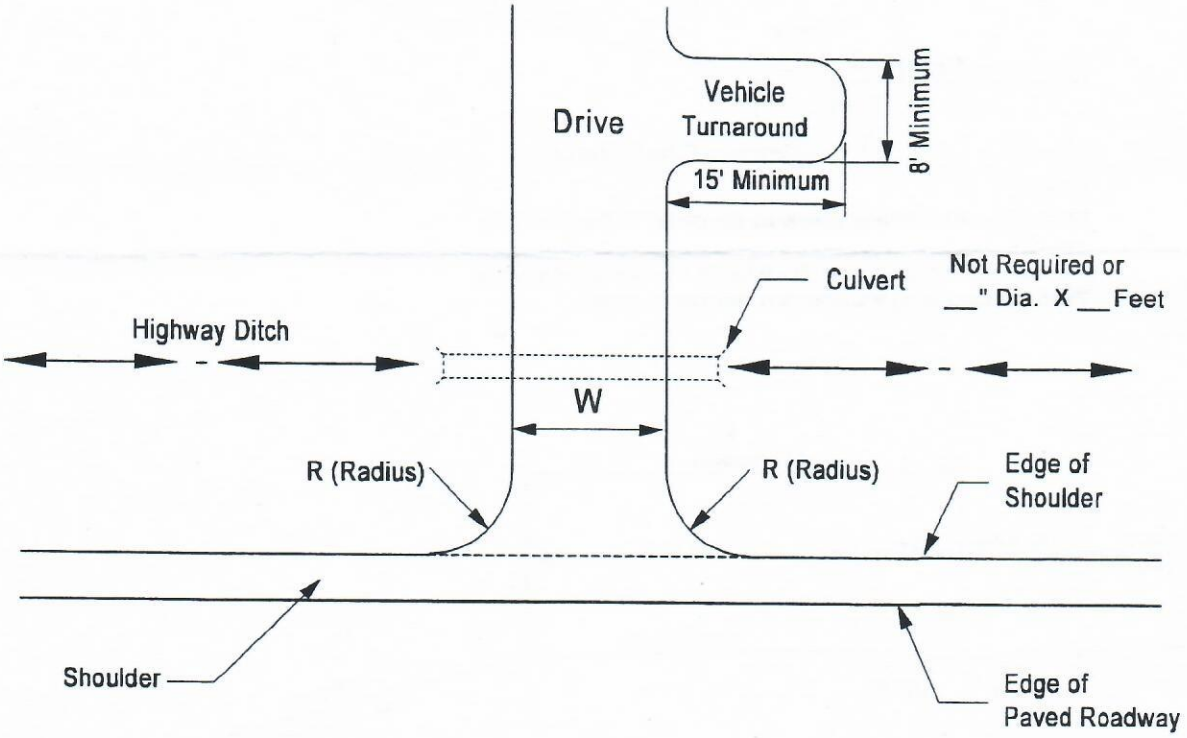
Nothing herein shall, nor is intended to, waive any defense, immunity or limitation of liability which may be available to the MaineDOT, their officers, agents or employees under the Maine Tort Claims Act or any other privileges and/or immunities provided by law. It is a further condition that the owner will agree to keep the right of way inviolate for public highway purposes and no signs (other than traffic signs and signals), posters, billboards, roadside stands, culvert end walls or private installations shall be permitted within Right of Way limits.

State of Maine

Department of Transportation

Entrance / Driveway Details

PLAN

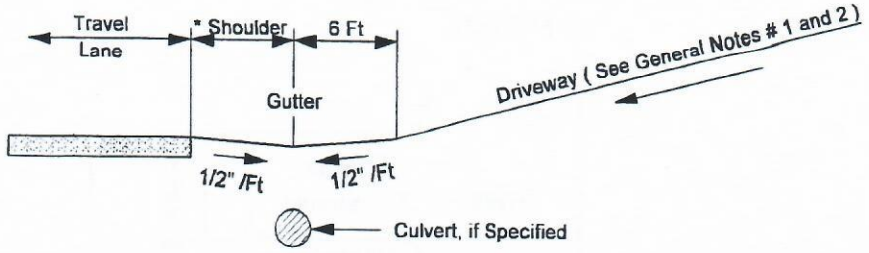


GENERAL NOTES -

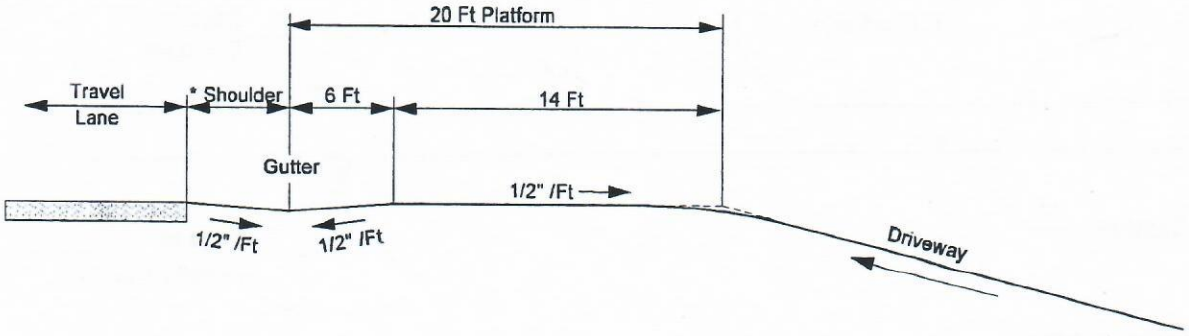
1. ALL RESIDENTAL OR COMMERCIAL DRIVES WITH 10% GRADE OR MORE SLOPING DOWN TOWARDS THE HIGHWAY SHALL BE PAVED TO THE RIGHT OF WAY LINE, AS A MINIMUM, INCUDING SHOULDER, IF GRAVEL AND HAVE DITCHES TO CONTROL RUNOFF.
2. DRIVES SLOPING TO THE HIGHWAY SHALL BE CROWNED (1/2" PER FT. MINIMUM).
3. TO THE MAXIMUM EXTENT PRACTICAL, THE ENTRANCE MUST BE CONSTRUCTED PERPENDICULAR TO THE HIGHWAY AT THE POINT OF ACCESS. EXCEPT WHERE CURBING EXISTS OR IS PROPOSED, THE MINIMUM RADIUS ON THE EDGES OF THE ENTRANCE MUST BE 10 FEET OR AS OTHERWISE REQUIRED AS SHOWN.
4. ENTRANCES/DRIVEWAYS WILL BE BUILT WITH AN ADEQUATE TURN-AROUND AREA ON SITE TO ALLOW ALL VEHICLES TO MANUVER AND PARK WITHOUT BACKING ONTO THE HIGHWAY. THIS TURN-AROUND SHALL BE AT LEAST 8 FEET WIDE BY 15 FEET LONG.
5. ENTRANCES/DRIVEWAYS AND OTHER ASSOCIATED SITE WORK WHICH DIRECTS WATER (RUNOFF) TOWARD THE HIGHWAY MUST BE CONSTRUCTED, CROWNED STABILIZED AND MAINTAINED WITH MATERIALS AND APPROPRIATE TEMPORARY/PERMANENT EROSION CONTROL MATERIALS IN ACCORDANCE WITH MDOT BEST MANAGEMENT PRACTICES.
6. THE PROFILE OF THE ENTRANCES MUST COMPLY WITH THE DETAILS SHOWN ON PAGE 2.

MDOT Entrance / Driveway Details, Continued

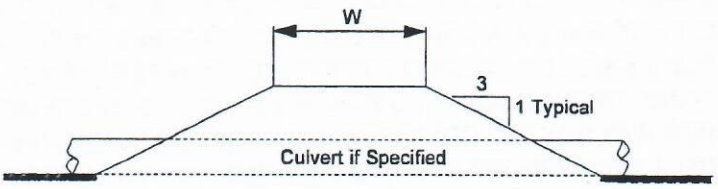
PROFILE
Details



NOTE :
Grade of Existing Shoulder Should Be Maintained To Create A Gutter With a Minimum Of Three Inches Below The Edge Of Traveled Way.
* Distance Of The Gutter From The Edge Of Traveled Way Should Be The Same As Existing Shoulder Or A Minimum Of 4 Feet.



Driveway Cross Section



APPENDIX I

WETLANDS REPORT AND HIGH INTENSITY SOIL SURVEY

SME
SEVEE & MAHER
ENGINEERS

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6100
May 18, 2020

Mr. Ben Grover
82 Doughty Road
North Yarmouth, ME 04097

Re: Wetland Delineation, 3.5+ acre parcel, 352 Walnut Hill Road North Yarmouth, ME

Dear Ben,

I recently completed a wetland delineation on 3.5 +/- acre parcel located at 352 Walnut Hill Road North Yarmouth, ME. The wetland delineation was completed in accordance with the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Northcentral and Northeast Regions dated January 2012. These manuals require the presence of three parameters for a wetland to be present, wetland hydrology, hydrophytic vegetation, and hydric soils.

I found no wetlands on the parcel.

If you have any questions or require additional information, please contact me.

Sincerely,

Mark J. Hampton C.S.S., L.S.E.
Certified Soil Scientist #216
Licensed Site Evaluator #263

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mhampto1@maine.rr.com

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6100
May 18, 2020

Mr. Ben Grover
82 Doughty Road
North Yarmouth, ME 04097

Re: Vernal Pool Assessment, Crossroad Apartments 352 Walnut Hill Road North Yarmouth, ME

Dear Ben,

I have completed a vernal pool assessment on a 3.5+/- acre parcel located at 352 Walnut Hill Road North Yarmouth, ME. The vernal pool assessment was conducted in accordance with Chapter 335 Significant Wildlife Habitat, Section 9 Significant Vernal Pools for the Maine Department of Environmental Protection. This section outlines the definition of a vernal pool as well as the requirements of a vernal pool to meet the definition of significance as related to the number of amphibian egg masses counted during the breeding season.

Two site visits were made to the property over the course of six weeks beginning the first week in April. I found no vernal pools on the property.

If you have any questions or require additional information, please contact me.

Sincerely,

Mark J. Hampton C.S.S., L.S.E.
Certified Soil Scientist #216
Licensed Site Evaluator #263

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mhampto1@maine.rr.com

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6100

Crossroad Apartments
352 Walnut Hill Road
North Yarmouth, ME
Walnut Hill Investments

Soil Narrative Report

DATE:	Soil Profiles observed on April, 9, 2020
BASE MAP:	Base plan provided by Sevee & Maher Engineers, Inc. scale 1 inch equals 30 feet and two foot contours.
GROUND CONTROL:	Soil survey boundaries located by Mark Hampton Associates, Inc. for Class B Soil Survey

Class B-High Intensity Soil Survey (Minimum Standards)

Mapping units of 1 acre or larger.
Scale of 1"= 200 feet or larger.
Up to 25% inclusions in mapping units of which no more than 15% may be dissimilar soils.
Ground Control – test pits located by means of compass by chaining, pacing or taping from known control points.
Base Map –5 foot contour intervals

Provided:

Mapping units of 1/2 acre or larger
Base map scale of 1"= 30 feet.
Up to 25 percent inclusions in mapping units of which no more than 15 percent is dissimilar soils.
Baseline information and test pits located by gps equipment with accuracy to 3 feet.
Ground topographic survey with one foot contours and ground control provided.

The accompanying soil profile descriptions, soil map, and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

Mark J. Hampton C.S.S. #216, L.S.E. #263 May 23, 2020

Mark J. Hampton

Date

STATE OF MAINE
MARK J.
HAMPTON
#216
CERTIFIED
SOIL SCIENTIST

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6100

Crossroad Apartments
352 Walnut Hill Road
North Yarmouth. ME
Walnut Hill Investments

Adams
(Typic Haplorthods)

SETTING

PARENT MATERIAL:	Derived from glacial-fluvial, glacio-lacustrine sand.
LANDFORM:	Outwash plains, deltas, and terraces
POSITION IN LANDSCAPE:	Sidehill, shoulders and plains
SLOPE GRADIENT RANGES:	(A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Well drained. Depth to seasonal high watertable greater than 4 feet throughout the year.

TYPICAL PROFILE:

Surface Layer:	Dark Brown loamy sand, 0-8"
Subsurface Layer:	Red Brown loamy sand, 8-20"
Subsoil Layer:	Yellow-brown loamy sand, 20-30"
Substratum:	Gray-brown sand, 30-72"

HYDROLOGIC GROUP:	Group A
SURFACE RUNOFF:	Very slow to medium
PERMEABILITY:	Rapid or very rapid
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

INCLUSIONS

(Within Mapping Unit)

CONTRASTING: Croghan, Elmwood

USE AND MANAGEMENT

DEVELOPEMENT: There are no limiting factors for building site development.

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

6100

Crossroad Apartments
352 Walnut Hill Road
North Yarmouth, ME
Walnut Hill Investments

Elmwood
(Dystric Eutrochrepts)

SETTING

PARENT MATERIAL:	Derived from glaciomarine or glaciolaucustrine sediments
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Intermediate positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Moderately well drained with a perched watertable from 1.5 to 3.0 feet below the surface at some time from November to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark Brown, fine loamy sand 0-9"
Subsurface Layer:	Olive brown loamy sand, 8-22"
Subsoil Layer:	Olive silty clay loam, 22-65"

HYDROLOGIC GROUP:	Group C
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Slow to very slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

INCLUSIONS

(Within Mapping Unit)

CONTRASTING: Croghan, Scantic

USE AND MANAGEMENT

DEVELOPMENT: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

PAGE ___ OF ___

6100

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Crossroad Apartments	Walnut Hill Investments	North Yarmouth

Exploration Symbol # SS-1 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–30	Sand	Friable	Red Brown	
30–40	Very fine Loamy Sand	Firm	olive	Common distinct
40–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater	Restrictive Layer	Bedrock
7 Profile	C Condition	2 Percent	30 Depth	"	☒	☒	☐

Soil Series/Phase Name: Elmwood MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # SS-2 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–30	Sand	Friable	Red Brown	
30–40	Very fine Loamy Sand	Firm	olive	Common distinct
40–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater	Restrictive Layer	Bedrock
7 Profile	C Condition	2 Percent	24 Depth	"	☒	☒	☐

Soil Series/Phase Name: Elmwood MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # SS-3 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–30	Sand	Friable	Red Brown	
30–40	Very fine Loamy Sand	Firm	olive	Common distinct
40–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater	Restrictive Layer	Bedrock
7 Profile	C Condition	2 Percent	36 Depth	"	☒	☒	☐

Soil Series/Phase Name: Elmwood MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # SS-4 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–30	Sand	Friable	Red Brown	none noted
30–40				
40–60	Sand	Friable	Tan	

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor		Groundwater	Restrictive Layer	Bedrock
5 Profile	B Condition	2 Percent	>48 Depth	"	☐	☐	☐

Soil Series/Phase Name: Adams WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Mark J. Hampton	May 22, 2020
Name Printed	**Cert/Lic/Reg. #**
Mark J. Hampton	263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

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PAGE ___ OF ___

6100

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Crossroad Apartments	Walnut Hill Investments	North Yarmouth

Exploration Symbol # SS-5 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–20	Sand	Friable	Red Brown	none noted
20–30				
30–40	Sand	Friable	Tan	
40–50				
50–60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
5 Profile / B Condition	2 Percent	>48 " Depth	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Adams WD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # SS-6 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–20	Sand	Friable	Red Brown	
20–30				
30–40				
40–50	very fine loamy Sand	Firm	olive	common distinct
50–60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
7 Profile / C Condition	2 Percent	36 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Elmwood MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # SS-7 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–20	Sand	Friable	Red Brown	
20–30				
30–40				
40–50	very fine loamy Sand	Firm	olive	common distinct
50–60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
7 Profile / C Condition	2 Percent	40 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Elmwood MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

Exploration Symbol # SS-8 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

	Texture	Consistency	Color	Redox Features
0–10	Sand	Friable	Dark Brown	
10–20	Sand	Friable	Red Brown	
20–30				
30–40				
40–50	very fine loamy Sand	Firm	Olive	Common distinct
50–60				

Soil Details by S.E. ▸▸ S.S. ▸▸

Soil Classification	Slope	Limiting Factor	
7 Profile / C Condition	2 Percent	38 " Depth	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Elmwood MWD ☐ Hydric ☒ Non-hydric Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
	May 22, 2020
Name Printed: Mark J. Hampton	Cert/Lic/Reg. # 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

affix professional seal

PAGE ___ OF ___

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Crossroad Apartments	Walnut Hill Investments	North Yarmouth

Exploration Symbol # SS-9 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Sandy	Friable	Dark Brown	
10–20	Sandy	Friable	Reddish Brown	
20–30				
30–40	Very fine sandy loam	Firm	Olive	Common distinct
40–50	Sand			
50–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth		Soil Series/Phase Name:		Hydrologic Soil Group
7	C	2	30 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock	Elmwood MWD	☐ Hydric ☒ Non-hydric	

Exploration Symbol # SS-10 ☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10	Sandy	Friable	Dark Brown	
10–20			Reddish	
20–30	Sandy	Friable	Brown	None noted
30–40				
40–50	Sand	Friable	Tan	
50–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth		Soil Series/Phase Name:		Hydrologic Soil Group
5	B	2	>48 "	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock	Adams WD	☐ Hydric ☒ Non-hydric	

Exploration Symbol # _____ ☐ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10				
10–20				
20–30				
30–40				
40–50				
50–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth		Soil Series/Phase Name:		Hydrologic Soil Group
			"	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock		☐ Hydric ☐ Non-hydric	

Exploration Symbol # _____ ☐ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)	Texture	Consistency	Color	Redox Features
0–10				
10–20				
20–30				
30–40				
40–50				
50–60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth		Soil Series/Phase Name:		Hydrologic Soil Group
			"	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock		☐ Hydric ☐ Non-hydric	

INVESTIGATOR INFORMATION AND SIGNATURE

Signature	Date
Mark J. Hampton	May 22, 2020
Name Printed	**Cert/Lic/Reg. #**
Mark J. Hampton	263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE MARK J. HAMPTON #216 CERTIFIED SOIL SCIENTIST

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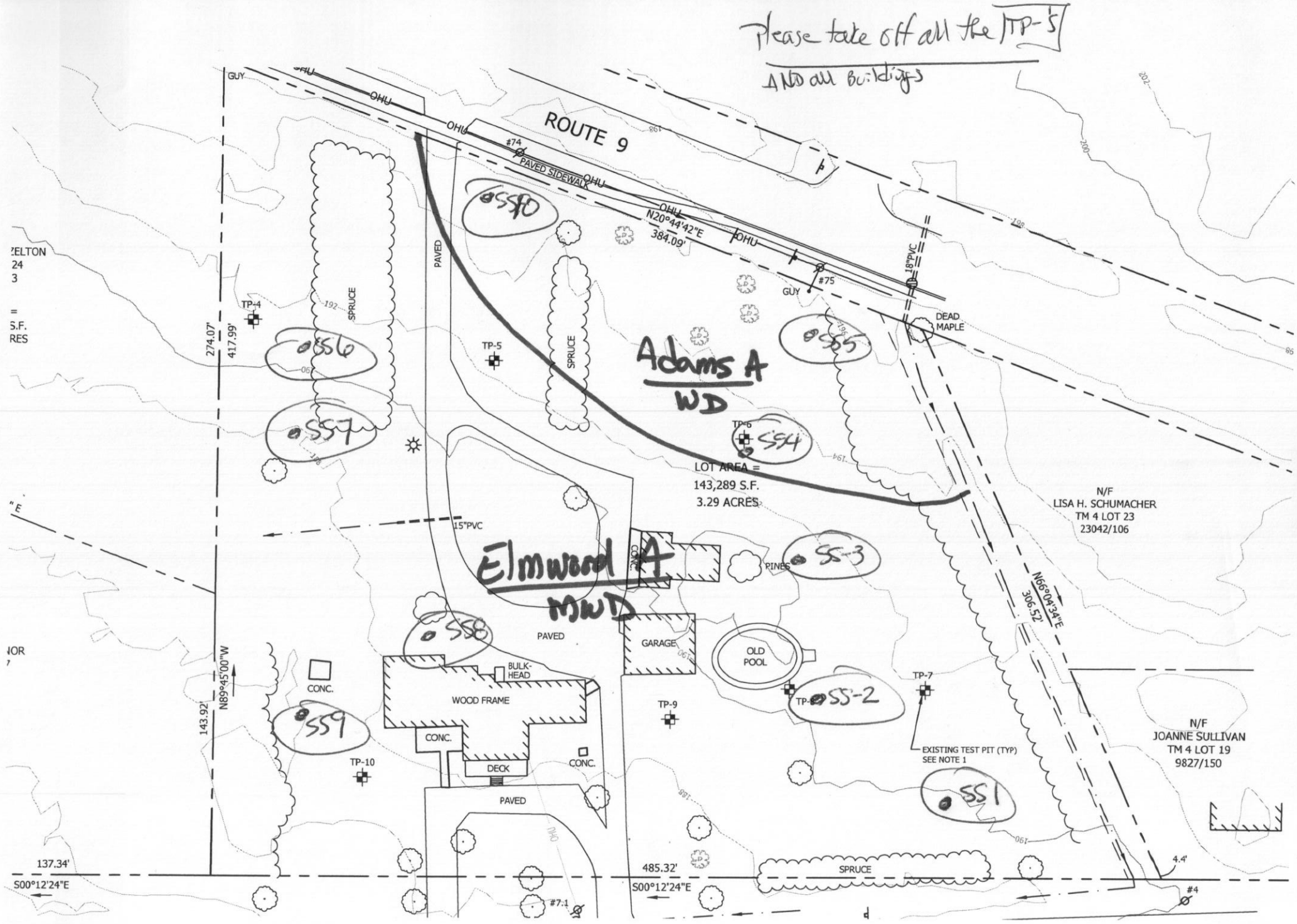

Please take off all the TP-5
AND all buildings
ROUTE 9
GUY
OHU
#74
PAVED SIDEWALK
N20°44'42"E
384.09'
#75
18"PVC
DEAD MAPLE
PAVED
SPRUCE
TP-4
TP-5
TP-6
TP-7
TP-9
TP-10
SS-1
SS-2
SS-3
SS-4
SS-5
SS-6
SS-7
SS-8
SS-9
Adams A
WD
Elmwood A
MWD
LOT AREA =
143,289 S.F.
3.29 ACRES
15"PVC
PINES
GARAGE
OLD POOL
BULK-HEAD
WOOD FRAME
CONC.
DECK
PAVED
EXISTING TEST PIT (TYP)
SEE NOTE 1
N/F
LISA H. SCHUMACHER
TM 4 LOT 23
23042/106
N/F
JOANNE SULLIVAN
TM 4 LOT 19
9827/150
N66°04'34"E
306.52'
274.07'
417.99'
N89°45'00"W
143.92'
137.34'
S00°12'24"E
485.32'
S00°12'24"E
4.4'
#4
#7-1

APPENDIX J

NOTICE TO ABUTTERS

SME
SEVEE & MAHER
ENGINEERS

Town of North Yarmouth

The Town Where Others Began.

RE: Crossroads Apartment Project (Old Hazelton Property) Lot 004 Map 018

Dear Abutter:

Our records indicate you are the owner of a property that is within 500 sq. ft. of the referenced property above that has submitted a proposed Site Plan Review to the Planning Board. We will be reviewing this proposed application at our remote meeting on **Tuesday, June 9, 2020 at 7:00 PM.**

In accordance with Public Law Chapter 617 adopted as emergency legislation by the Maine State Legislature on March 17, 2020 and signed into effect by Governor Mills, 1 MRSA § 403-A permits public proceedings through remote access during the declaration of state of emergency due to COVID-19.

At this time, Planning Board meetings through June will be conducted remotely using Zoom. If you wish to participate in the Zoom meeting, please find the following login information.

Remote Zoom Meeting - https://zoom.us/join
Meeting ID: 822 2824 8832 / Password: 036783

Dial-in Number (Audio only) – 1-646-558-8656
Meeting ID: 822 2824 8832 / Password: 036783

Materials for this meeting can be found on the Town's website under the Planning Board calendar event for June 9, 2020. We have enclosed the Remote Planning Board Meetings Public Participation/Public Hearing Process for you to review.

If you have any questions, please do not hesitate to contact the Code Enforcement office.

Thank you and be safe.

Sincerely,

Audrey Lones (TJC)

Audrey Lones, Planning Board Chairperson

AL/tjc

Enclosure (1)

10 Village Square Road • North Yarmouth, Maine 04097
tel. 207.829.3705 • fax 207.829.3743 • www.northyarmouth.org

TOWN OF NORTH YARMOUTH
REMOTE PLANNING BOARD MEETINGS
PUBLIC PARTICIPATION/PUBLIC HEARING PROCESS

Members of the public may be afforded the opportunity to view the meetings live online or cable tv. Due to the constraints of the virtual environment, the public comment portion of Planning Board meetings, where live comments must be considered for inclusion in the public record, the following procedures shall apply:

- Application files will be posted online under the Planning Board Calendar Event with all public comments that have been received to date so that people can receive them that way.

- Written comments submitted prior to the meeting for inclusion in the record must be submitted to the Town's Code Enforcement office codeoffice@northyarmouth.org or 829-3705 option 1 and must be received by noon of the Monday before the scheduled Planning Board Meeting to guarantee inclusion in the record. Such comments will be read by the Chairperson and must be limited to 3 minutes in length. (Name and address must be included with comment.)

Instructions for meeting participants:

The Planning Board will conduct remote access meetings using the Zoom Application. To learn more about Zoom, find tutorials and sign up for a free account, please go to https://zoom.us/.

To view a Planning Board meeting you have the following options:

1) You can watch the live meeting via Town Hall Streams, please to go to town website click meetings on demand button on the left side of the screen and select Town Hall Steam then enter North Yarmouth, ME in the drop down.

2) Channel 1301 on Spectrum cable is now available for live viewing.

3) The Zoom meeting link will be provided 1 hour prior to the start of the meeting in the calendar information accessed on the Planning Board page of the town website. Enter first name, last name and address when joining

To comment in the meeting:

- Live comments by attendees will be accepted during the public hearing time designated by the Chair. All comments will be limited to 3 minutes.
    - If you are participating by video, please enter "I have a comment" into chat box and you will be called upon by the Chair.
    - If you are participating by phone, you can let us know you have a comment by pressing *9.

We still highly suggest that advanced written comments are the best way to provide feedback to the Planning Board on applications.

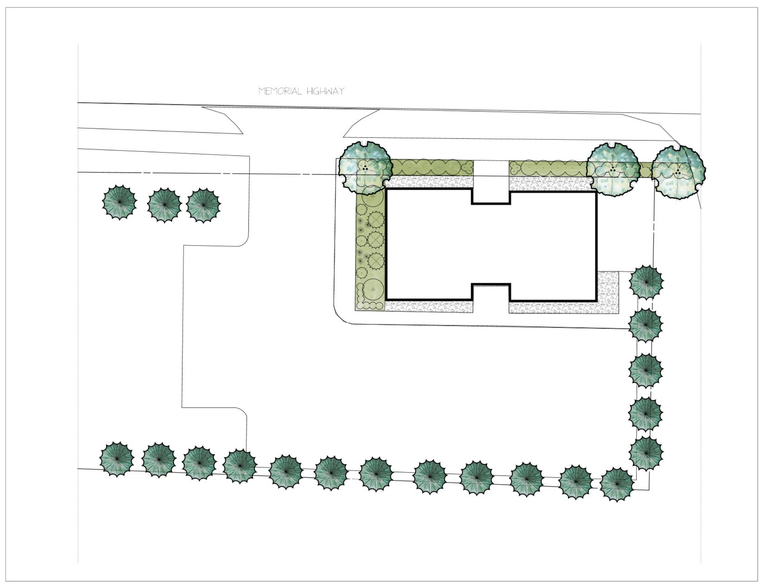
Parcel Number	Property Address	Owner Name	Owner Address	Owner City	Owner State	Owner Zip
004-016	7 PEA LANE	SAMSON-RICKERT, KELLY	7 PEA LANE	NORTH YARMOUTH	ME	04097
004-017	0 WALNUT HILL RD	TRAINOR, JOHN W.	61 ADAMS POND RD	DERRY	NH	03038
004-019	368 WALNUT HILL RD	SULLIVAN, JOANNE	368 WALNUT HILL RD.	NORTH YARMOUTH	ME	04097
004-020	219 CUMBERLAND RD	HOWARD, LAURYN A	219 CUMBERLAND RD	N YARMOUTH	ME	04097
004-021	378 WALNUT HILL RD	PURPLE HOUSE, LLC	356 INTERVALE RD	NEW GLOUCESTER	ME	04260
004-022	215 CUMBERLAND RD	MACDONALD, TERRI ANN	215 CUMBERLAND ROAD	NORTH YARMOUTH	ME	04096
004-023	205 CUMBERLAND RD	SCHUMACHER, LISA H.	205 CUMBERLAND RD	NORTH YARMOUTH	ME	04097
004-024	0 CUMBERLAND RD	HAZELTON, ROBERT C.	188 CUMBERLAND RD	NORTH YARMOUTH	ME	04097
004-025	173 CUMBERLAND RD	ARSENAULT, JOSEPH A.	173 CUMBERLAND ROAD	NORTH YARMOUTH	ME	04097
004-026	27 PEA LANE	BUTLER, GLEN	27 PEA LANE	NORTH YARMOUTH	ME	04097
004-027	19 PEA LANE	CAMPBELL, KENNETH L.	19 PEA LN	NORTH YARMOUTH	ME	04097
004-107	172 CUMBERLAND RD	BRIMIGION, DANE S. & NANCY	172 CUMBERLAND RD	NORTH YARMOUTH	ME	04097
004-108	Same as 004-107					
004-109	184 CUMBERLAND RD	MAYNARD, CATHERINE M	184 CUMBERLAND RD	NORTH YARMOUTH	ME	04097
004-110	14 LINE DR	REINFRIED, MARGARET C & ERIK P, JT	14 LINE DR	NORTH YARMOUTH	ME	04097
004-111	23 LINE DR	LAFLAMME, SCOTT D & SCHAUWECKER, LISA M	23 LINE DR	NO YARMOUTH	ME	04097
004-112	188 CUMBERLAND RD	WOOTEN, BRIDGETT	196 CUMBERLAND RD	NORTH YARMOUTH	ME	04097
004-113	196 CUMBERLAND RD	WOOTEN, ELIAS	196 CUMBERLAND RD	NORTH YARMOUTH	ME	04097
004-119	383 WALNUT HILL RD	VERRILL, MARK W.	383 WALNUT HILL RD	NORTH YARMOUTH	ME	04097
004-120	Same as 004-119					
004-121	373 WALNUT HILL RD	ICE FUTURES, LLC	373 WALNUT HILL RD	NORTH YARMOUTH	ME	04097
004-122	0 GRAVEL PIT OFF RT115	BURNELL, KERRY D.	27 SPLIT ROCK RD	NORTH YARMOUTH	ME	04097
004-124	26 SPLIT ROCK RD	BURNELL, DALE L.	26 SPLIT ROCK RD	NORTH YARMOUTH	ME	04097
004-125	0 WALNUT HILL RD	JRV HOLDINGS LLC	63 COUNTRY LANE	NORTH YARMOUTH	ME	04097
004-126	Same as 004-125					
004-127	345 WALNUT HILL RD	GOULETTE, ELIZABETH E.	345 WALNUT HILL RD	NORTH YARMOUTH	ME	04097
004-128	335 WALNUT HILL RD	VERRILL, RANDALL B FAMILY TRUST	339 SHAKER RD	GRAY	ME	04039
004-129	Same as 004-128					
004-130	Same as 004-128					
004-131	30 COUNTRY LANE	PETERSONS, KURTIS J	30 COUNTRY LANE	NORTH YARMOUTH	ME	04097
007-006	32 COLONIAL DR	RAY, KENNETH N.	32 COLONIAL DR	NORTH YARMOUTH	ME	04097
007-007	24 COLONIAL DR	COLAVOLPE, CHRISTINE A.	24 COLONIAL DR	NORTH YARMOUTH	ME	04097
007-008	6 COLONIAL DR	ADAMS, ANN E.	6 COLONIAL DRIVE	NORTH YARMOUTH	ME	04097
007-009	19 COLONIAL DR	KYLE, BETSY	19 COLONIAL DR	NORTH YARMOUTH	ME	04097
007-015	15 HEMLOCK RIDGE RD	DELGRECO, PETER & SALLY	15 HEMLOCK RIDGE RD	NORTH YARMOUTH	ME	04097
007-016	206 CUMBERLAND RD	SWANSON, CHARLES ALAN	206 CUMBERLAND RD	NORTH YARMOUTH	ME	04097
007-017	214 CUMBERLAND RD	GROSSO, VINCENT	214 CUMBERLAND RD	NORTH YARMOUTH	ME	04097
007-018	220 CUMBERLAND RD	GAMAGE, CYNTHIA A.	220 CUMBERLAND RD	NORTH YARMOUTH	ME	04097
007-019	Same as 007-018					
007-020	226 CUMBERLAND RD	ST. PIERRE, KAREN L.	226 CUMBERLAND RD	NORTH YARMOUTH	ME	04097

APPENDIX K

BUILDING DESIGN PLANS

SME
SEVEE & MAHER
ENGINEERS


11



LOW MAINTENANCE PLANT PALETTE

SHRUBS


RED TWIG DOGWOOD


HYDRANGEA


LILAC


DWARF MUGO PINE


VIBURNUM

TREES


HEMLOCK


HAWTHORN


SPRUCE


LINDEN

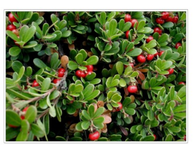
PERENNIALS & GROUNDCOVERS


SWITCH GRASS


VINCA


DAYLILLY


COREOPSIS


BEARBERRY


BARREN STRAWBERRY


NEPETA

ANDERSON LANDSCAPE
352 MEMORIAL HIGHWAY
NORTH YARMOUTH, ME 04097
207-829-3989

N

NORTH

MEADOW BROOK APARTMENTS

SCALE 1" = 20'

DATE 2-10-2020

DRAWING #

APPENDIX L

HYDROGEOLOGIC ASSESSMENT

SME
SEVEE & MAHER
ENGINEERS

Mark Cenci
Geologic, Inc.

CERTIFIED GEOLOGIST/LICENSED SITE EVALUATOR

93 Mill Road • North Yarmouth, Maine 04097
Cell: 207.329.3524 • mark@markcenci.com
www.markcenci.com

Hydrogeologic Assessment of the Crossroads Apartments 352 Walnut Hill Road, North Yarmouth

Date: June 29, 2020

Purpose of the Assessment:

The purpose of this assessment is to predict the location and possible effects of wastewater plumes on ground water from proposed residential subsurface wastewater disposal systems, in order to meet the Subdivision Ordinance of the Town of North Yarmouth regarding the Groundwater Overlay Protection District.

Information used:

Information used in this study includes library research of published literature, a plan of the project, which includes topographic data by Sevee and Maher Engineers and soil test pit information by Mark Hampton, SS, SE.

Project summary:

The project is a proposed residential complex comprised of seven multifamily buildings. Wastewater disposal will be by individual on-site subsurface wastewater disposal systems. There is one disposal system for each of the seven buildings. There are three 4-bedroom sized disposal systems and four 8-bedroom sized disposal systems proposed. Water will be provided by individual on-site, drilled bedrock wells until the Yarmouth Water District can supply the needs.

Summary of geology:

The site is located on the valley floor easterly of the ridges forming Bruce Hill and Walnut Hill (see Figure 1). Surface slopes on the property are gentle. Drainage is southeasterly to an unnamed tributary stream of Royal River

Michael J. Ratelle depicts the surficial geology of the area as a marine near-shore sand sequence (Pmn) on the *Surficial Geology of the Yarmouth 7.5 Minute Quadrangle, Maine* (see Figure 2). Ratelle describes a marine near shore deposit as: *Pleistocene gravel, sand, and mud deposited as a result of wave activity in nearshore or shallow marine environments; not associated with beach morphology.*

This deposit is located between the glacial tills covering the hills to the west and the silts and clays of the lower ground to the east. It is generally conceived that the silts and clay are beneath the sands of the near-shore deposit.

The site is depicted as an association of Windsor loamy sand, Deerfield loamy fine sand and Walpole fine sandy loam on the *National Cooperative Soil Survey* (see attached photomap). This is consistent with the surficial mapping and the test pit logs of Hampton.

Bedrock beneath the site is mapped as quartzites and granofels of the Hutchins Corner Formation (more recently undifferentiated Vassalboro Formation) by the Maine Geological Survey (see Figure 4). Depth to bedrock is not reported in the soil test pit logs of Hampton. Bedrock is reported to be 20 to 80 feet below the ground surface in the area (Maine Geological Survey).

The site is mapped as a significant surficial aquifer by Craig D. Neil on the *Significant Sand and Gravel Aquifers of the Yarmouth 7.5 Minute Quadrangle, Maine*, (see Figure 5),

Hydrogeology:

The source of ground water on this site is precipitation. Precipitation falling on this site seeps into the soil and descends until restrictive soil layers or the water table is encountered. Thereupon, the flow of ground water is down gradient to areas of discharge.

Slopes are gentle and soil textures are medium. Recharge is above average on this site. The ground water flow directions on this property can be discerned from topography.

The hydraulic conductivity of the soil is estimated to be 10 feet per day, based on soil test pits and published geologic information. The hydraulic gradient is assumed to 0.02 (2%) based on the surface slopes and the soil types. The background concentration of NO3-N on this site is assumed to be minimal, as the site is undeveloped.

Impact on groundwater quality:

Secondary Drinking Water Standards are not an issue with this project. Nitrate-nitrogen is the chemical to assess for impact on ground water. Nitrate-nitrogen is generated by subsurface wastewater disposal systems. It is a conservative contaminant, meaning it does not readily degrade in ground water, nor does it attenuate or attach itself to soil particles. Nitrate-nitrogen is limited to 10 mg/liter in public drinking water supplies by the Primary

Drinking Water Standard. The Subdivision Ordinance of the Town of North Yarmouth limits the concentration to 5 mg/liter at the project boundary.

On this project the Norweco Singulair TNT aerating advanced treatment units are specified because of their NSF 245 Certification and proven nitrogen reducing capability. The TNT model has a nitrate-nitrogen output of 7 mg/liter and a total nitrogen output of 12 mg/liter. Product cut sheets and an Owner's Manual are attached to this report.

The analysis of nitrate-nitrogen impacts was calculated by SOLUTRANS, a 32-bit Windows program for modeling three-dimensional solute transport written by Dr. Charles R. Fitts of Fitts Geosolutions and the University of Southern Maine. The program is based on the analytical solutions of Liej *et. al.* (1991 and 1993). The solutions in SOLUTRANS all assume a uniform one-dimensional flow field, and allow three-dimensional dispersion, retardation and first-order decay. The model is not a dilution/mass balance model, so the requirement that drought conditions be assumed is met.

Variables entered into the calculations that are site specific include an estimated seepage velocity of 0.67 feet per day, and hydraulic gradient of 0.02. Other assumed variables include a porosity of 30%, a conservative initial wastewater concentration of 12 mg/liter NO3-N, retardation of 1, a decay constant of zero and longitudinal, lateral and vertical dispersivities of 19, 6.3 and 0.6 feet respectively. The program also allows for a depth corrector, to simulate three-dimensional conditions, which is based on the gallons per day disposed, the hydraulic conditions of the site and the width of each disposal area.

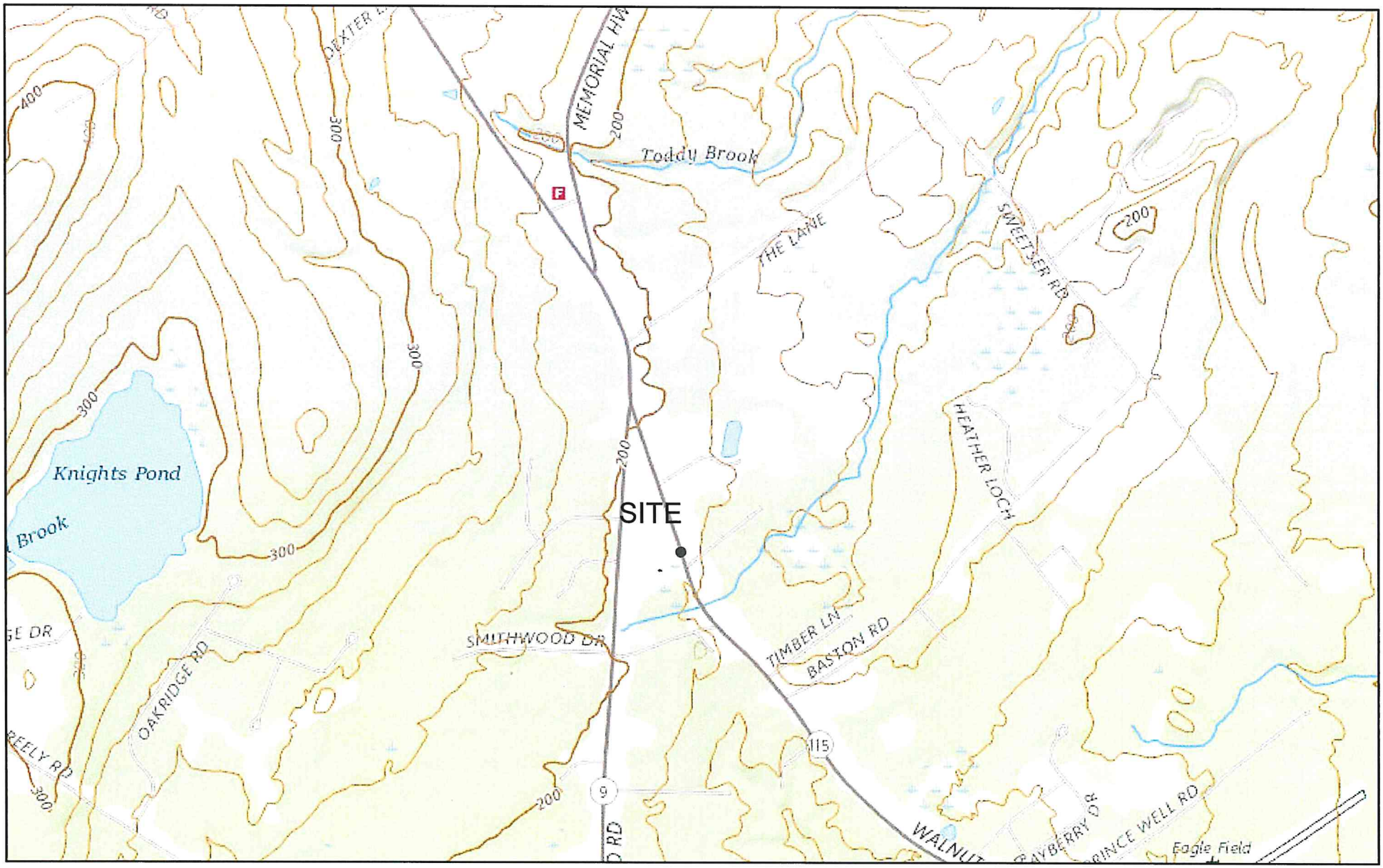
Calculations were made and reveal the 5 mg/liter NO3-N plumes will be 60 feet in length. A copy of the curve is attached. Using the inferred ground water flow directions, the calculated 5 mg/liter NO3-N isocons were evaluated with respect to the boundary of the property. All 5 mg/liter plumes will remain on the subdivision property.

Conclusions:

The proposed development of apartments on this parcel meets the standards of the Town of North Yarmouth Subdivision Ordinance with regard to groundwater quality in the Groundwater Protection District. Favorable factors on this site include the soils and slopes, the array of disposal area locations and the use of aerating pre-treatment systems.

Mark Cenci, Certified Maine Geologist #467

Figure 1, Area of 352 Walnut Hill Road, North Yarmouth



6/26/2020 9:12:25 AM

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0 0.1 0.2 0.4 mi

0 0.17 0.35 0.7 km

Normal Intermediate Contours

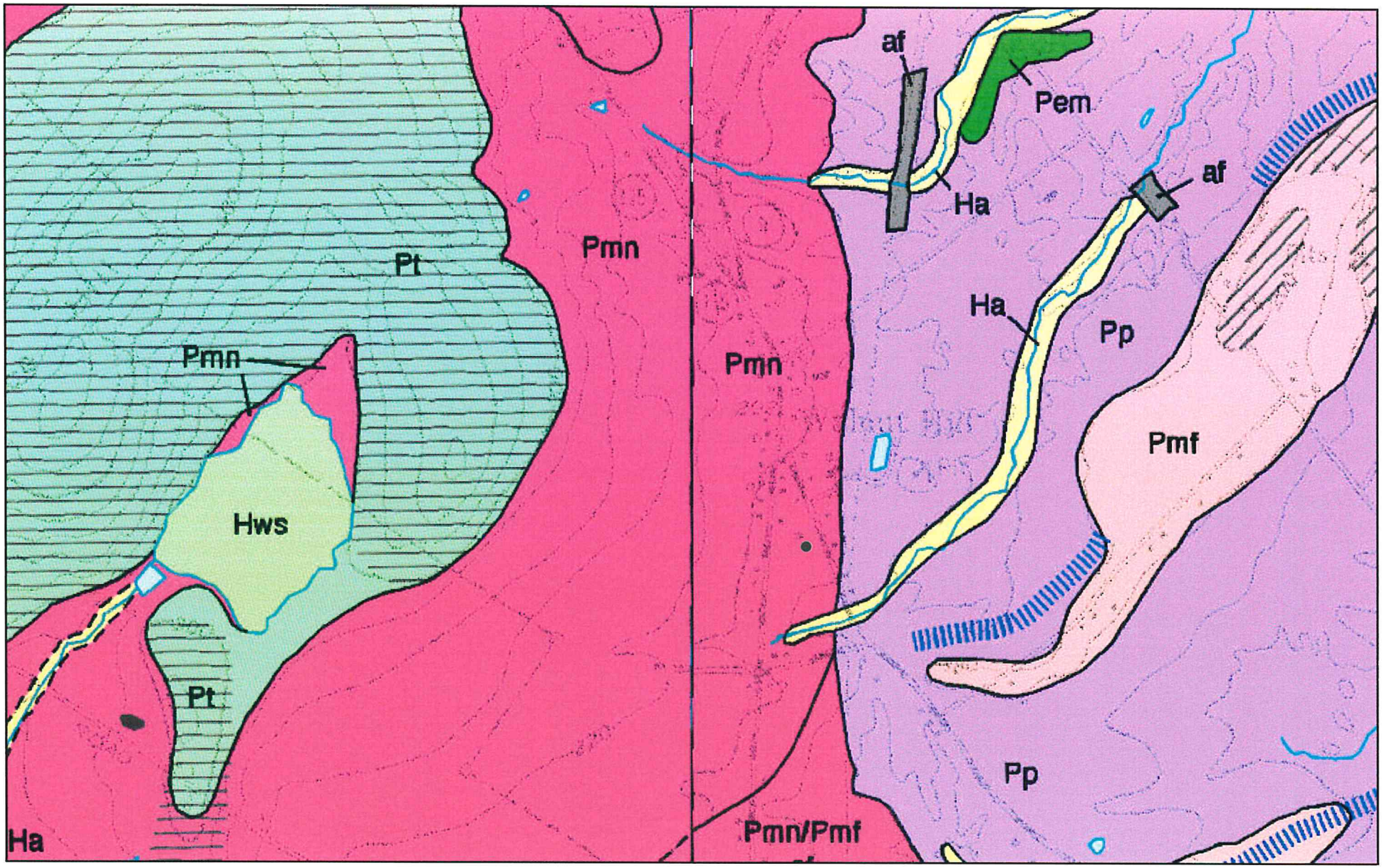
Normal Index Contours

USGS The National Map: 3D Elevation Program. Data Refreshed April,

USGS

USGS The National Map: Orthoimagery | Garrity, C.P., Soller, D.R. | USGS National Map 3D Elevation Program (3DEP) | USGS TNM - 3D Elevation Program (3DEP). Data Refreshed Weekly. | USGS The National Map: 3D Elevation Program. Data Refreshed April

Figure 2, Surficial Geology 1:24,000



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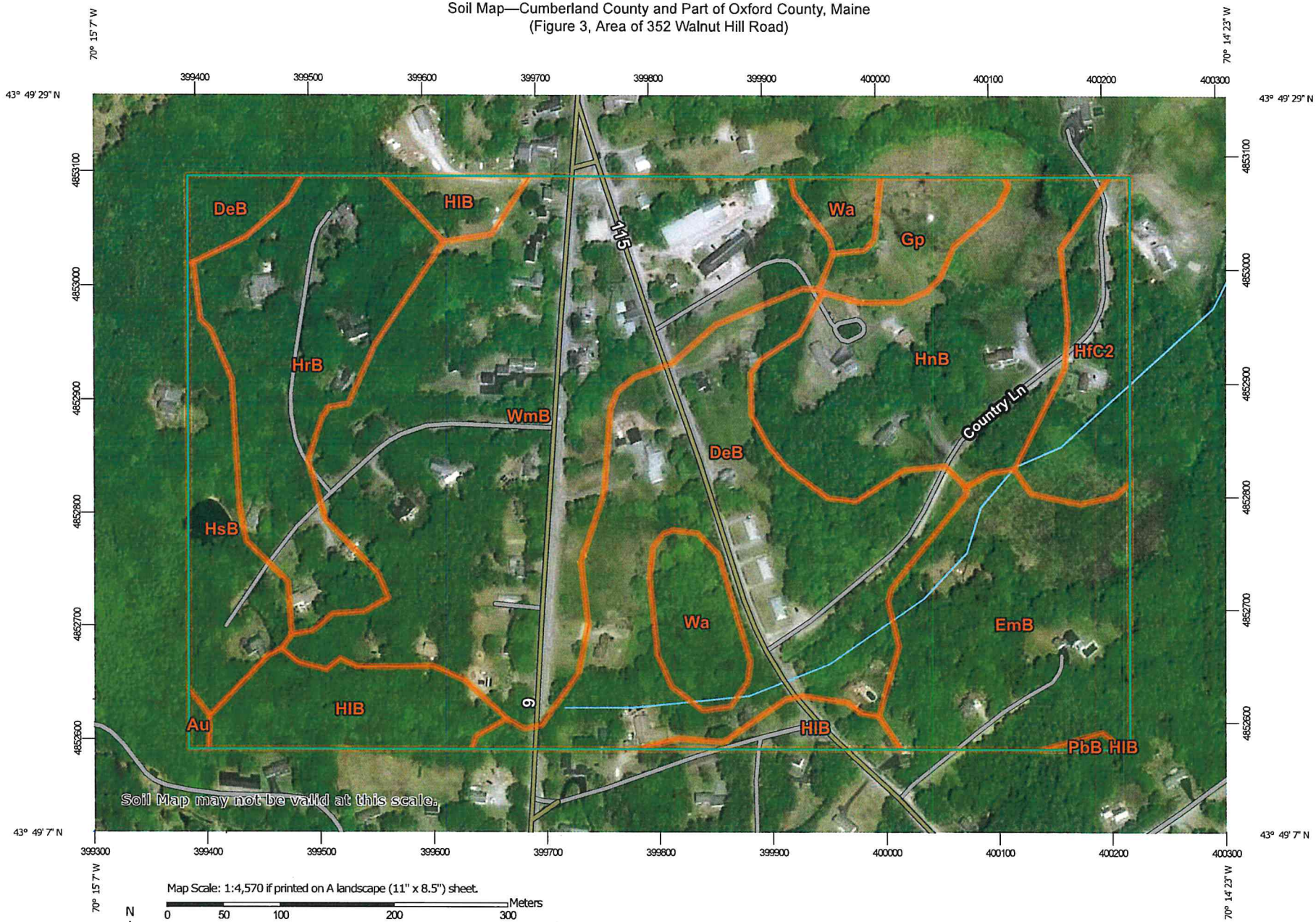
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

Maine Geological Survey

Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA | Maine Geological Survey |

Soil Map—Cumberland County and Part of Oxford County, Maine
(Figure 3, Area of 352 Walnut Hill Road)



Map Scale: 1:4,570 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 200 400 800 1200

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

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

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

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

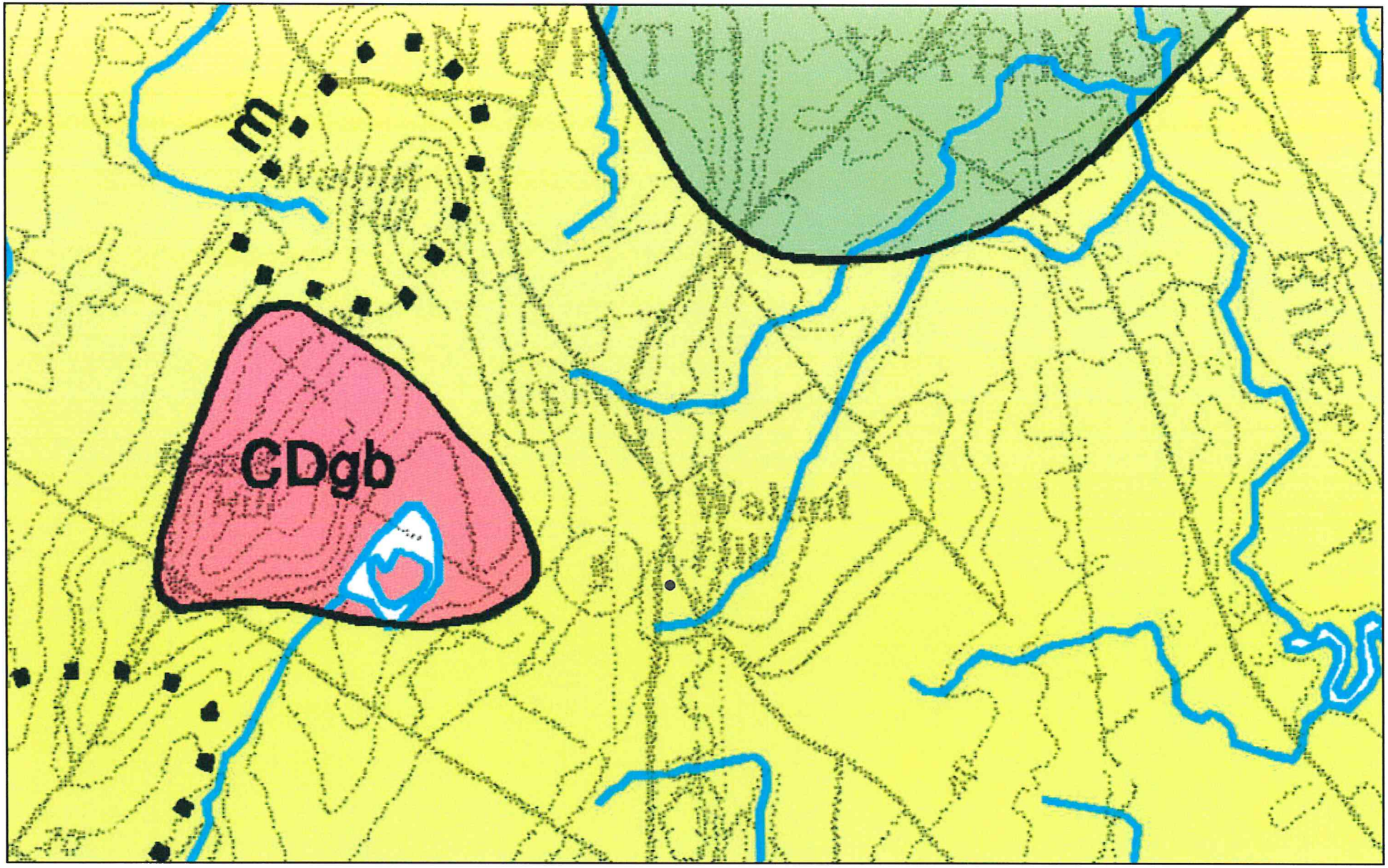
Date(s) aerial images were photographed: Jun 7, 2019—Jul 2, 2019

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Au	Au Gres loamy sand	0.2	0.2%
DeB	Deerfield loamy fine sand, 3 to 8 percent slopes	19.1	18.3%
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	11.2	10.7%
Gp	Gravel pits	2.6	2.5%
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	4.5	4.3%
HlB	Hinckley loamy sand, 3 to 8 percent slopes	6.7	6.4%
HnB	Hinckley-Suffield complex, 3 to 8 percent slopes	12.1	11.6%
HrB	Lyman-Tunbridge complex, 0 to 8 percent slopes, rocky	10.9	10.5%
HsB	Lyman-Abram complex, 0 to 8 percent slopes, very rocky	4.6	4.4%
PbB	Paxton fine sandy loam, 3 to 8 percent slopes	0.1	0.1%
Wa	Walpole fine sandy loam	3.5	3.3%
WmB	Windsor loamy sand, 0 to 8 percent slopes	28.7	27.6%
Totals for Area of Interest		**104.1**	**100.0%**

Figure 4, Bedrock Geology 100K



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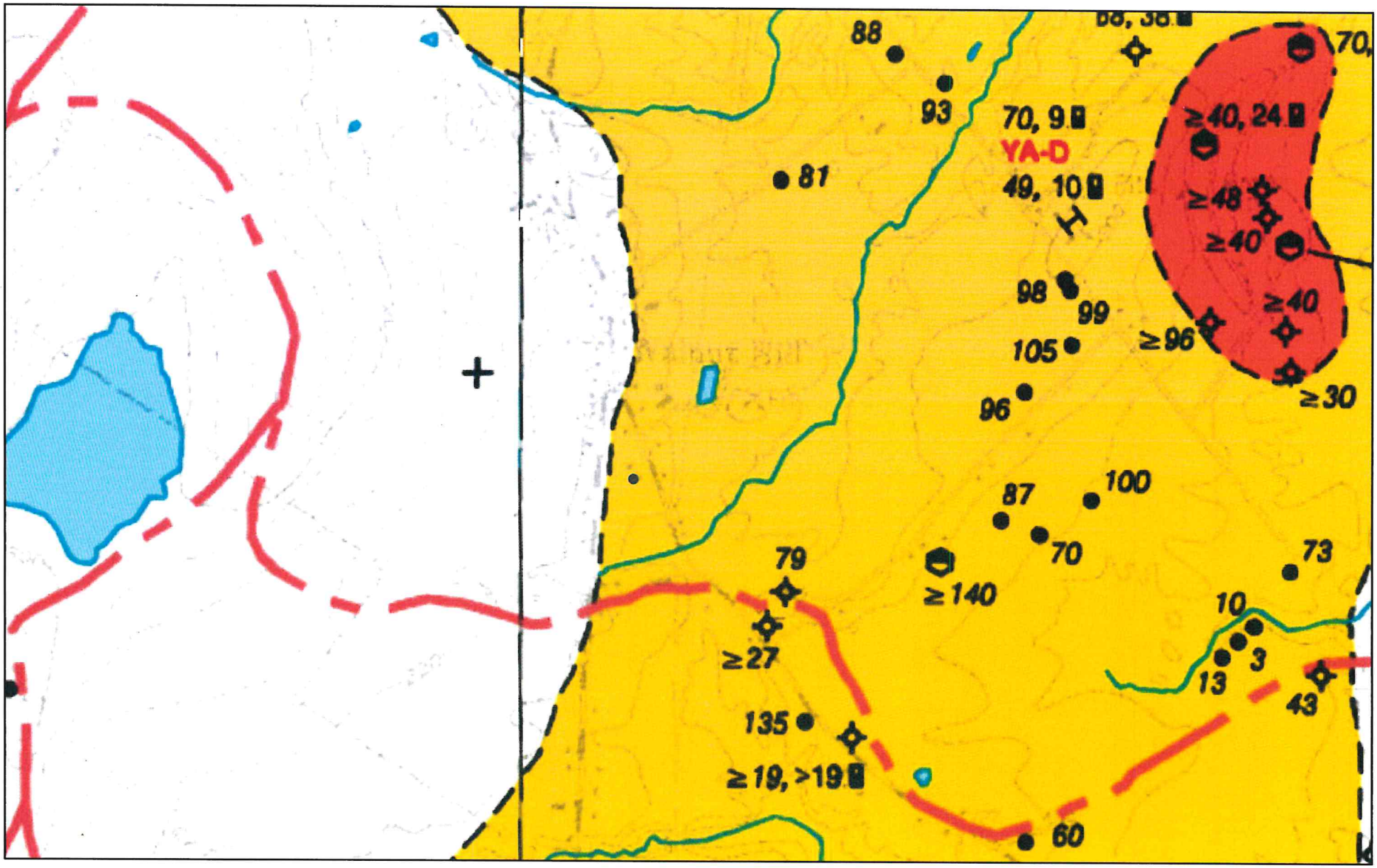
0 0.35 0.7 1.4 km

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

Maine Geological Survey

Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, FPA, USDA | Maine Geological Survey |

Figure 5, Aquifers 24K



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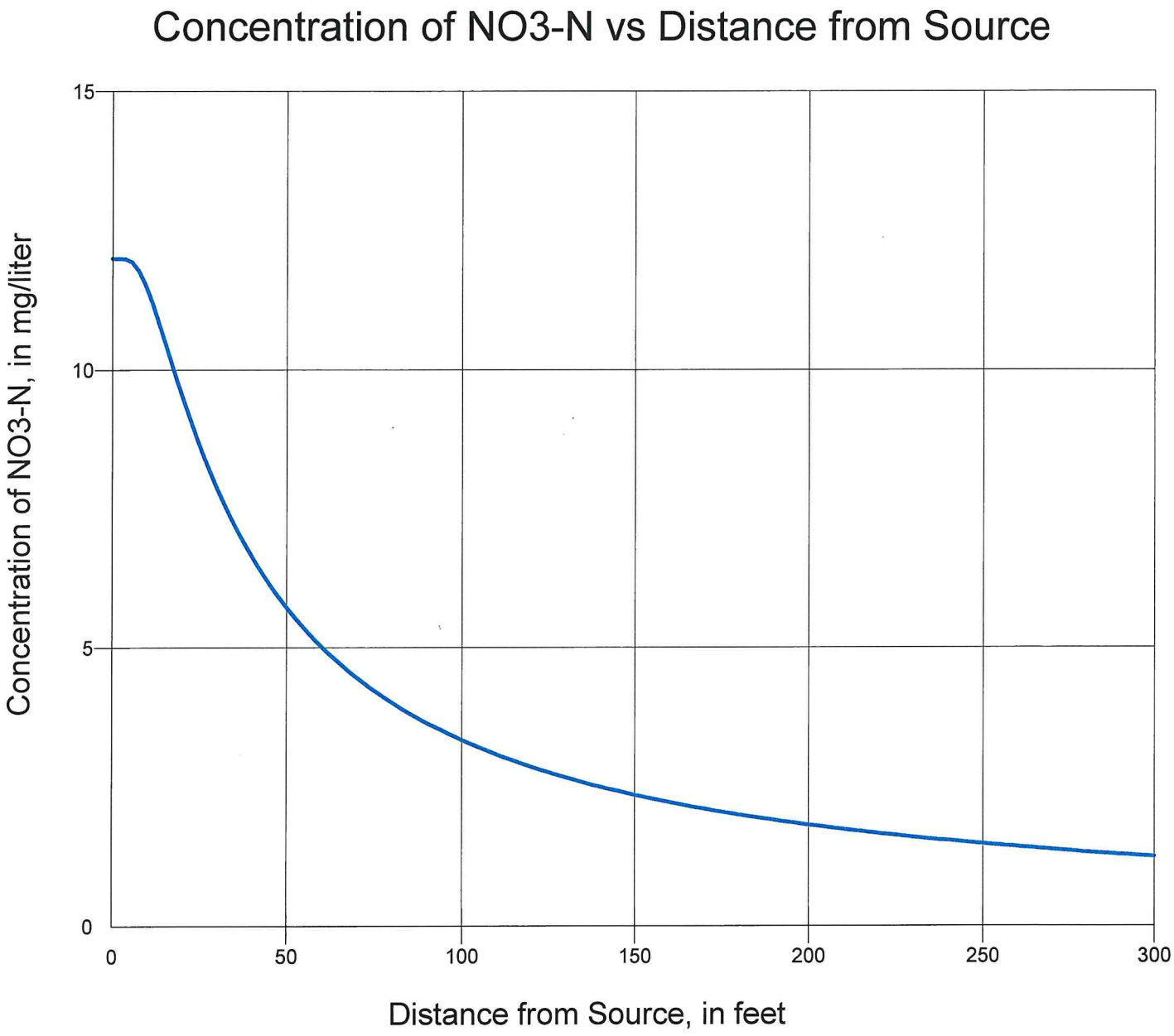
Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS,

Maine Geological Survey

Esri Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA | Maine Geological Survey |


Concentration of NO3-N vs Distance from Source
Concentration of NO3-N, in mg/liter
15
10
5
0
0
50
100
150
200
250
300
Distance from Source, in feet

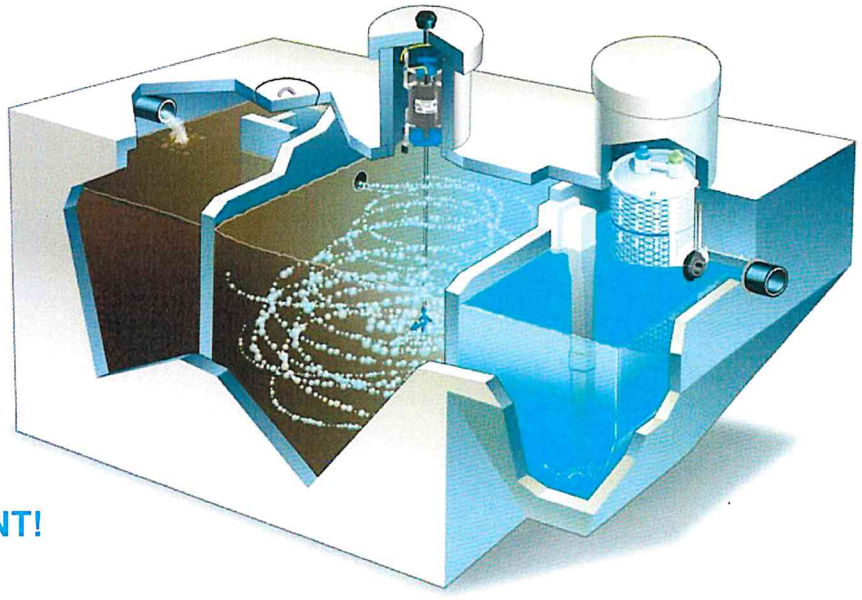
SINGULAIR® TNT®
THE PRECAST CONCRETE ADVANCED TREATMENT UNIT

NITROGEN REDUCING WASTEWATER TREATMENT SYSTEM ACCOMPLISHES NITRIFICATION AND DENITRIFICATION GREATER THAN 68% REDUCTION IN TOTAL NITROGEN

If regulations in your area are demanding nutrient reduction for onsite treatment and disposal systems, install a Singulair Model TNT! Total Nitrogen Treatment you can rely on from the leader in advanced treatment unit technology.

NSF STANDARD 245 CERTIFIED PERFORMANCE AFFORDABLE DOMESTIC WASTEWATER TREATMENT COMPLIES WITH THE MOST STRINGENT EFFLUENT CRITERIA

The Singulair Model TNT system biologically oxidizes nitrogen compounds without requiring complicated and expensive equipment. Designed to be easily operated and maintained, the TNT system does not require the addition of chemicals or the recirculation of effluent. The Singulair TNT blows away the competition!



PERFORMANCE THAT PROTECTS THE ENVIRONMENT!

7 mg/L NITRATE
12 mg/L TOTAL NITROGEN
4 mg/L $CBOD_5$
9 mg/L TSS

SINGULAIR® TNT FEATURES

- Precast concrete tank
- Lowest electrical usage
- Surge flows equalized
- No chemicals to add
- Lifetime warranty and exchange
- Sold and serviced by local distributors
- Made in the U.S.A.

norweco®

Engineering the future of water and wastewater treatment

220 REPUBLIC STREET
NORWALK, OHIO, USA 44857-1156
TELEPHONE (419) 668-4471
FAX (419) 663-5440
www.norweco.com

norweco®

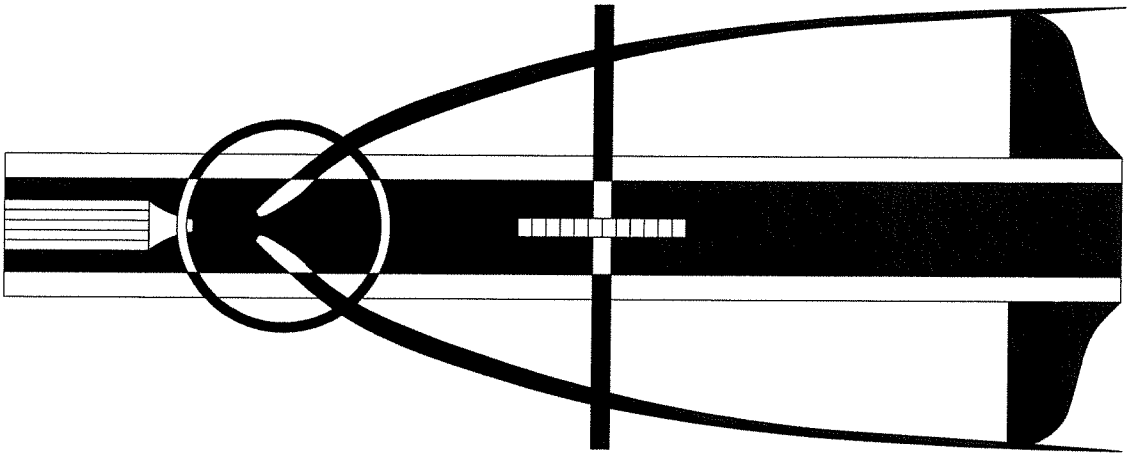
SINGULAIR® BIO-KINETIC®

WASTEWATER TREATMENT SYSTEM MODEL TNT®

SPECIFICATIONS

GENERAL SPECIFICATIONS

The contractor shall furnish and install one complete Singulair Bio-Kinetic Model TNT system for Total Nitrogen Treatment with all necessary parts and equipment as described in the following specifications. Treatment of the domestic wastewater shall be accomplished by the extended aeration process with non-mechanical flow equalization, pretreatment of the influent and filtration of the final effluent. In addition to primary, secondary and tertiary treatment of the wastewater flow, the treatment system shall provide nitrification, denitrification, and if required, chlorination and dechlorination of the effluent prior to discharge. All treatment processes shall be contained within reinforced precast concrete tankage meeting the requirements of ACI Standard 318. The wastewater treatment system shall be a Singulair Model TNT as manufactured by Norweco, Inc., Norwalk, Ohio, USA. Systems utilizing fiberglass, steel, or plastic tankage are subject to flotation when dewatered and shall not be considered for this application.



The wastewater treatment system shall be capable of reducing Total Nitrogen without the addition of chemicals, specialized add-on processes or additional components. Nitrification and denitrification shall be accomplished within the chambers of the treatment system prior to effluent disposal. Biological reduction of nitrogen shall occur naturally by autotrophic bacteria, capable of converting ammonium nitrogen to nitrate and heterotrophic bacteria, capable of transforming nitrate to harmless gas. The treatment system shall include precast concrete tankage providing separate pretreatment, aeration and clarification chambers. Principal items of electro-mechanical equipment shall be a 1725 RPM mechanical aerator, UL listed Service Pro control center with MCD technology, Bio-Static sludge return and Bio-Kinetic tertiary treatment device for flow equalization and final filtration of system effluent.

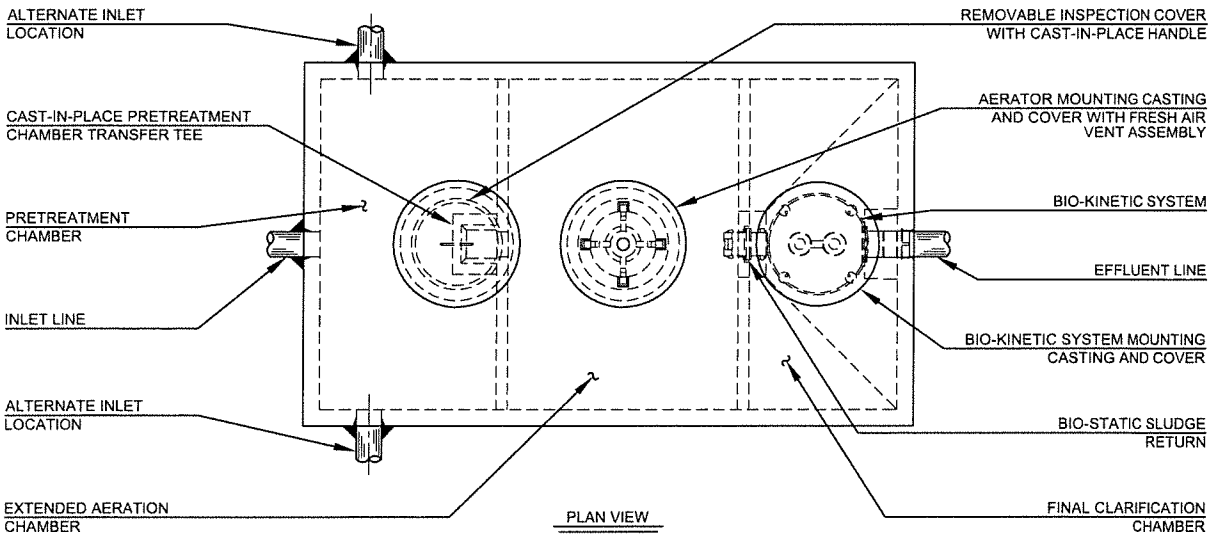
SINGULAIR®

OPERATING CONDITIONS

Total holding capacity of the system shall provide a minimum of 48 hour retention of the daily flow. The pretreatment chamber shall provide at least 18 hour retention, the extended aeration chamber shall provide at least 24 hour retention and the clarification chamber shall provide at least 6 hour retention. The non-mechanical flow equalization device shall increase each individual chamber and total system retention time in direct proportion to loading. Design of the system shall include a compartmented tank and non-mechanical flow equalization device to insure successful treatment performance without upset even when the significant runoff period is six hours. Hydraulic design considerations of the system and flow equalization device shall be such that intermittent peak flow factors as high as four shall not upset hydraulic reliability within the system. System performance in compliance with the requirements of NSF Standard 245 shall be recognized by an ANSI accredited third-party laboratory and be approved for use by the local governing regulatory agency.

PRETREATMENT CHAMBER

The pretreatment chamber shall be an integral part of the wastewater treatment system. All domestic wastewater shall be preconditioned and flow equalized while passing through the pretreatment chamber prior to being introduced to the extended aeration chamber. The outlet of the pretreatment chamber shall be equipped with a discharge tee that extends vertically into the liquid so that only the preconditioned equalized flow from the center area of the chamber is displaced to the extended aeration chamber. The discharge tee and transfer port shall be of adequate size to handle a peak flow factor of four without restricting the outlet and disturbing hydraulic displacement to the extended aeration chamber. A removable inspection cover shall be cast into the top of the pretreatment chamber to allow tank and transfer tee inspection. As a safety measure, the uncovered opening shall be small enough to insure that the tank cannot be entered for inspection or service.



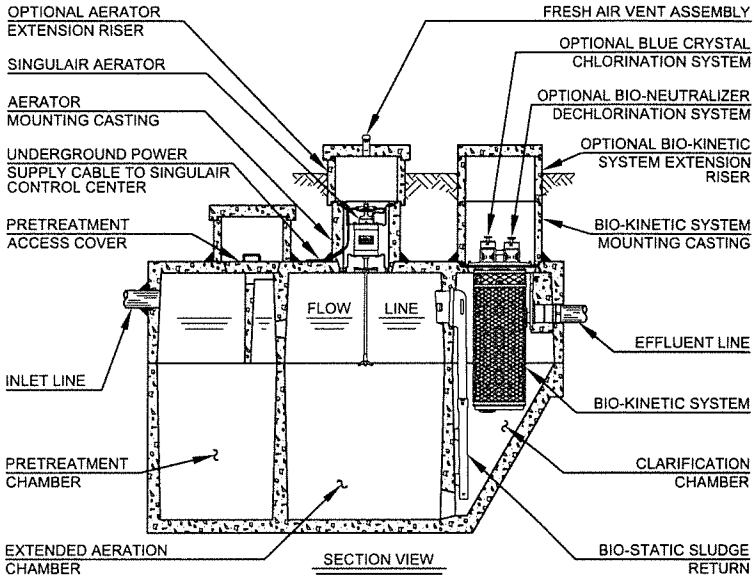
PLAN VIEW

AERATION CHAMBER

The extended aeration chamber shall provide in excess of 24 hour retention of the equalized daily flow. The chamber shall be of sufficient size to provide a minimum of 80 cubic feet of tank capacity per pound of applied BOD. The aeration chamber length-width-depth ratio shall be designed to insure uniform tank mixing and provide optimum treatment. The aeration chamber(s) shall be an integral part of the system flow path and constructed of properly reinforced 5,000 PSI, 28 day compression strength precast concrete. All castings used to construct the precast concrete tankage shall be monolithic units with external and internal walls incorporated into each section.

FINAL CLARIFICATION CHAMBER

The final clarification chamber shall consist of 5 functionally independent zones operating together to provide satisfactory settling and clarification of the equalized flow. An inlet zone shall be provided and shall dissipate transfer turbulence at the flow inlet of the clarification chamber. Its performance shall also eliminate turbulence in other zones of the clarifier. Liquid shall be hydraulically displaced from the inlet zone to the sludge return zone. Hydraulic currents shall sweep settled sludge from the hoppered walls and return these solids via the inlet zone to the aeration chamber. As solids are removed, liquid is displaced to the hopper zone of the clarifier. In this zone, settling by gravity takes place. Three of the four sidewalls are slanted to form a hopper which directs all settled material back to the sludge return zone. Clarified liquid from the hopper zone shall be displaced into the final settling zone to provide additional clarification of the liquid. The liquid is finally displaced to the outlet zone for final filtration and discharge from the system. Non-mechanical equalization of the flow, through all 5 independent zones, shall provide optimal settling and clarification.

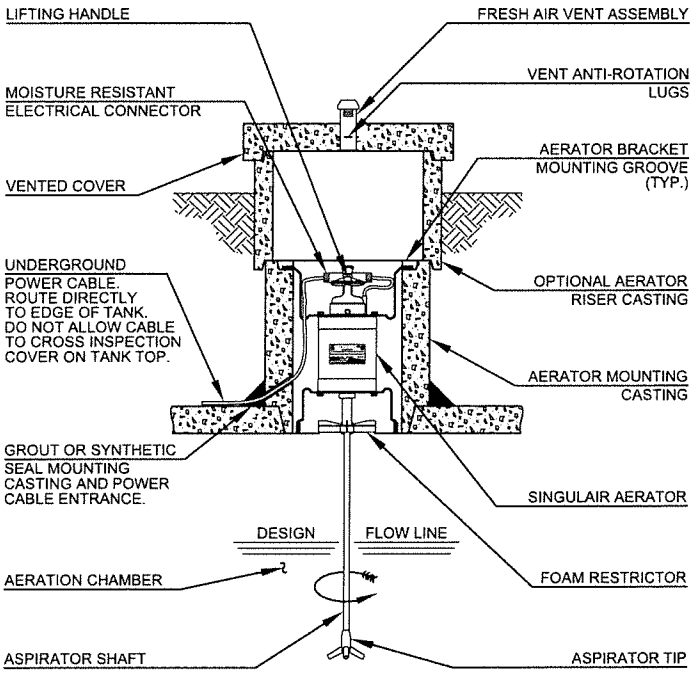


BIO-STATIC® SLUDGE RETURN

A Bio-Static sludge return shall be installed into the cast-in-place opening(s) in the aeration/clarification chamber wall to provide positive return of settled solids. Aeration chamber hydraulic currents shall enter the sludge return(s) and be directed into the sludge return zone of the clarification chamber. The Bio-Static sludge return shall accomplish resuspension and return of settled solids without disturbing the clarified liquid in the final settling zone and outlet zone.

MECHANICAL AERATOR

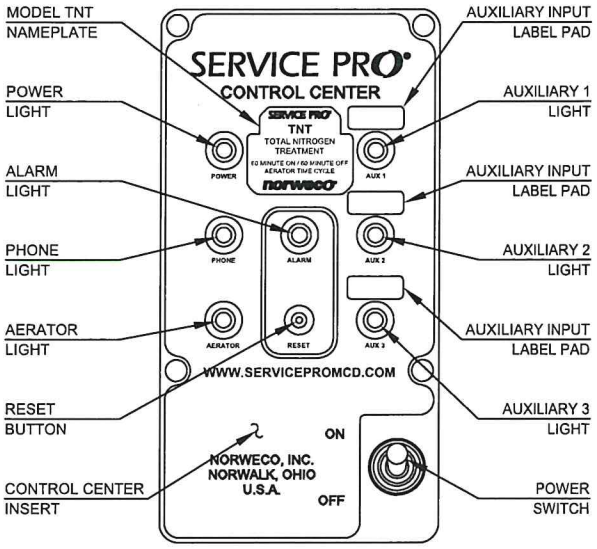
Each Singulair aerator shall be installed in a concrete aerator mounting casting above the aeration chamber. Fresh air shall be supplied through a molded plastic vent assembly cast into the concrete access cover above the aerator. The Singulair aerator shall include plated mounting brackets, NEMA 6 rated electrical connector, UL recognized fractional horsepower motor, molded plastic lifting handle, molded plastic air intake screens, molded plastic foam restrictor, stainless steel aspirator shaft and molded glass-filled nylon aspirator tip. The motor shall contain precision manufactured o-ring type seals installed between the motor shell and the machined aluminum endbells to insure watertight integrity is maintained. Molded Viton elastomer shaft seals shall be utilized to protect the bearings from contamination. Only the stainless steel aspirator shaft and glass-filled nylon aspirator tip shall be installed in contact with the liquid. There shall be no submerged electrical motors, bearings or fixed air piping in the aeration system. Singulair aerator motors shall be designed not to exceed the motor nameplate rating when installed and operated as recommended for the system. The fractional horsepower aerator motor shall be equipped with a foam restrictor to protect the motor against high water and foam. The motor shall be 4 pole, 1725 RPM, 115 volt, 60 Hertz, single phase, ball bearing constructed with a 1.0 service factor. It shall draw less than 4.0 amps when operating at the rated nameplate voltage. Aerator motors without UL recognition have not demonstrated compliance with international electrical standards for safety and reliability and shall not be considered for this application.



BIO-KINETIC®

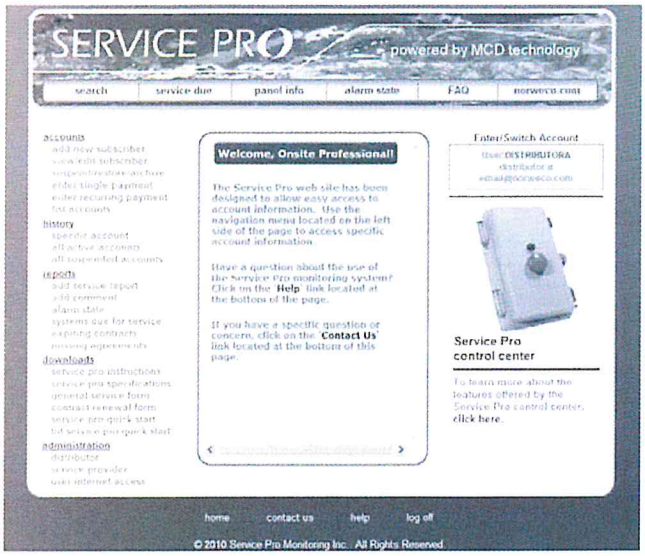
SERVICE PRO® CONTROL CENTER

The Service Pro electrical control center with MCD technology shall provide Monitoring, Compliance and Diagnostic functions for the Singulair treatment plant using a microprocessor based platform. The Service Pro control center shall contain nonvolatile memory to prevent loss of programming in the event of a power failure. The pre-wired controls shall be mounted in a lockable NEMA rated enclosure designed specifically for outdoor use. Each Service Pro control center shall be a UL listed assembly and shall include a factory-programmed timer, alarm light, reset button, power switch, power light, phone light, aerator alarm light and three auxiliary alarm lights. The control center shall monitor all treatment system operating conditions including aerator over current, aerator under current and open motor circuit. In the event the control center detects one of these conditions, power to the aerator shall be interrupted, a diagnostic sequence shall begin and the visual alarm shall activate. After a programmed recovery interval, an automatic restart attempt shall be initiated. If normal aerator operation does not resume during 24 programmed recovery and restart cycles, the audible alarm shall activate and the telemetry system shall report the specific condition to the Service Pro monitoring center. In the event that any of the auxiliary inputs detect abnormal operation of the treatment system auxiliary equipment, the audible and visual alarms shall immediately activate and the telemetry system shall report the alarm condition to the monitoring center. The service provider shall automatically be notified by the Service Pro monitoring center of the specific alarm condition using phone, fax or email.



AERATOR TIME CYCLE

A factory-programmed timer built into the Service Pro control center shall provide a total of twelve hours of aerator operation per day. The non-adjustable timer shall create a 60 minute aeration cycle followed by a 60 minute anoxic cycle during which the aerator shall be off. Use of an aerator timer can seriously affect system performance and operating cost. Systems that have not been performance certified, at a timed aeration cycle, by an independent ANSI accredited testing laboratory shall not be considered for this application.



www.servicepromcd.com

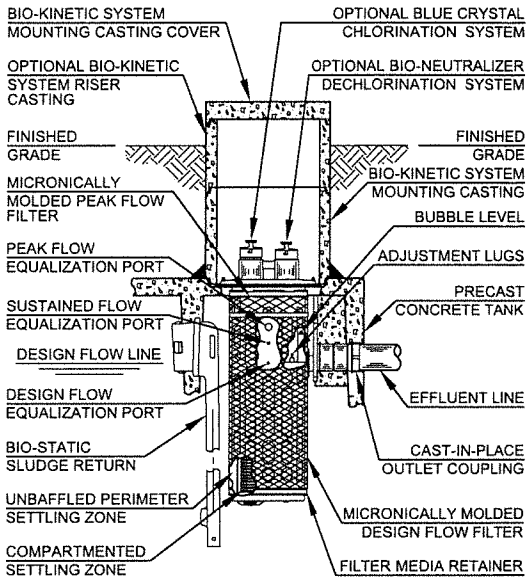
SERVICE PRO® MONITORING CENTER

The Service Pro monitoring center shall include a 128 bit encrypted password protected website for interface with the monitoring center database. Access to the secure website shall be obtained through a unique user name and password that provides tiered access to data from monitored treatment systems. Access level tiers shall include distributors, service providers, regulatory agencies and individual system owners. Distributors and service providers shall be able to create accounts, maintain service records and grant regulatory agencies access to the information. Individual system owners shall be able to view information regarding their own wastewater treatment systems, as well as download and print instructional information. Integrity of stored data shall be maintained through the use of multiple servers operating in geographically isolated locations.

SPECIFICATIONS

BIO-KINETIC® SYSTEM

A Bio-Kinetic system shall be installed in the mounting casting(s) above the clarification chamber. Each Bio-Kinetic system shall provide non-mechanical flow equalization through all plant processes including pretreatment, aeration, clarification, tertiary filtration, chlorination and dechlorination. The assembly shall be supplied with locking lugs and removable moisture/vapor shield and shall consist of a design flow and peak flow micronically molded filter, baffled perimeter settling zone, flow distribution deck, lifting handles, level indicator, adjustment lugs, optional chlorination feed tube, unbaffled perimeter settling zone, solids contact zone, vertical inlet zone, compartmented settling zone consisting of 42 baffled chamber plates, effluent stilling well, final discharge zone, adjustable outlet weir, optional dechlorination feed tube, outlet zone and gasketed discharge flange. All components shall be manufactured from inert synthetic materials or rubber, assembled in circular fashion and connected to a plastic outlet coupling. The outlet coupling shall accept a 4" diameter, Schedule 40, PVC pipe. Each Bio-Kinetic system shall be installed with the inverts of the design flow equalization ports located at the normal liquid level of the clarifier. If intermittent flow rates exceed the capacity of the design flow ports, flow shall be held upstream until the intermittent flow dissipates. If the intermittent flow continues to increase, the liquid level may reach a pair of sustained flow equalization ports. With four ports in use, flow through the system increases while continuing to provide flow equalization to all upstream and downstream processes. Peak flow equalization ports are supplied but should not be required in a properly sized system. Optional Blue Crystal and Bio-Neutralizer tablet feed tubes shall be positioned such that the flow-activated chemical cannot make contact with the liquid upstream of the feed tubes.



FLOW EQUALIZATION

The wastewater treatment system shall include a non-mechanical, demand use, flow equalization device. The device shall control normal residential flow rates and reduce typical residential flow surges. The flow equalization rate shall be dependent upon the specific loading pattern and the duration of flow surges. At the 600 gallon per day design loading schedule of NSF Standard 40 and NSF Standard 245, minimum performance of the device shall equalize daily flow an average of 50%.

BLUE CRYSTAL® CHLORINATION SYSTEM (Optional)

The Singulair system shall be furnished complete with a tablet feeder and a six month supply of Blue Crystal disinfecting tablets. Blue Crystal tablets shall be specifically formulated for consistent chlorine dosage and effluent disinfection to the sustained, variable and intermittent flows that are typical of domestic wastewater treatment systems. The tablets shall be manufactured from pure calcium hypochlorite and contain a minimum of 70% available chlorine. Each tablet shall be $2\frac{5}{8}$" diameter, compressed to a 1" thickness, weigh approximately 5 ounces and be white in color with blue crystals for easy identification. The tablets shall dissolve in direct proportion to the flow rate, releasing controlled amounts of chlorine.

BIO-NEUTRALIZER® DECHLORINATION SYSTEM (Optional)

The Singulair system shall be furnished complete with a tablet feeder and a six month supply of Bio-Neutralizer dechlorination tablets. The dechlorination tablets shall contain active ingredients specially formulated to chemically neutralize both free and combined chlorine. Each tablet shall be $2\frac{5}{8}$" diameter, compressed to a $\frac{13}{16}$" thickness, weigh approximately 5 ounces and be green in color for easy identification. The tablets shall dissolve slowly, releasing controlled amounts of chemical for the instantaneous removal of residual chlorine from the system effluent.

WARRANTY AND EXCHANGE PROGRAM

The manufacturer shall provide a three year limited warranty for each Singulair aerator, Service Pro control center and Bio-Kinetic system purchased from the manufacturer. A comprehensive exchange program offers Singulair owners a lifetime of equipment protection. The distributor shall provide warranty and exchange program details to the regulatory agency, contractor and customer as required.

EQUIPMENT MANUFACTURER

The equipment specified herein shall be the product of a manufacturer having a minimum of seven years experience in the construction of prefabricated wastewater treatment equipment and systems. Bids shall be prepared on the basis of the equipment and material specified herein for purposes of determining the low bid. This is not done, however, to eliminate other products or equipment of equal quality and efficiency. If equipment is to be substituted, approval of such substitution must be made prior to execution of any order. It is assumed that substitution will result in a reduction of cost to the contractor and that if accepted, these savings will be passed along by a reduction in the base bid.

SINGULAIR® MODEL TNT® DATA CHART

Designation: Model TNT	500 GPD	750 GPD	1000 GPD	1250 GPD	1500 GPD
Daily Treatment Capacity (Gallons Per Day)	500/600	750/800	1000	1250	1500
Total System Capacity (Gallons)	1300	1600	2300	2850	3400
Number of Singulair Aerators	1	1	2	2	2
Number of Bio-Kinetic Systems	1	2	2	3	3
Number of Bio-Static Sludge Returns	1	1	1	2	2
Drawing Number (PC-5-)	7103	7065	7067	7068	7069

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SINGULAIR® BIO-KINETIC®

WASTEWATER TREATMENT SYSTEM WITH SERVICE PRO® CONTROL CENTER

MODELS 960 AND TNT® OWNER'S MANUAL

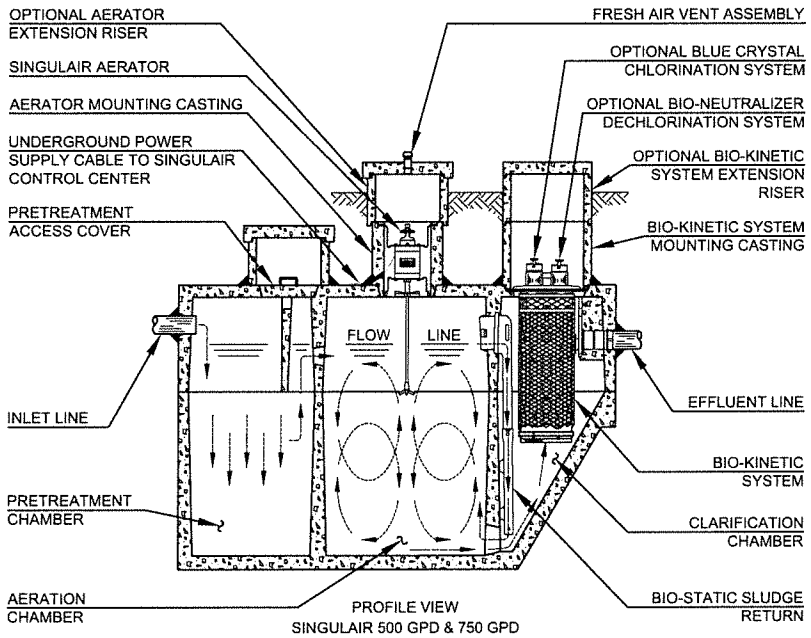
INTRODUCTION

The Singulair system is the finest equipment available and utilizes the most up-to-date wastewater treatment technology. It is a sound investment that protects you and the environment. Please take the time to familiarize yourself with the contents of this manual.

HOW THE SINGULAIR® SYSTEM WORKS

Developed to serve homes and small businesses beyond the reach of city sewers, the Singulair system employs the extended aeration process. Similar to the treatment method used by most municipal wastewater treatment facilities, this process involves a natural, biological breakdown of the organic matter in wastewater.

Wastewater enters the pretreatment chamber where anaerobic bacterial action combines with the effects of gravity to precondition the waste before it flows into the aeration chamber. Once in the aeration chamber, aerobic bacteria utilize the organic matter in the wastewater to biologically convert the waste into stable substances. Following aeration, flow is transferred to the clarification chamber where the effects of gravity settle out biologically active material. The Bio-Static sludge return, located in the clarification chamber, creates hydraulic currents that gently transfer settled particles back to the aeration chamber. As clarified liquids pass through the Bio-Kinetic system, they are filtered, settled and flow equalized. As a result, complete pretreatment, aeration, clarification and final filtration are assured. The Singulair system reliably protects you, your property and the environment.



PROFILE VIEW
SINGULAIR 500 GPD & 750 GPD

FEATURES AND ADVANTAGES

Singulair tanks are reinforced precast concrete, manufactured by the licensed Norweco distributor. Internal walls and baffles are cast-in-place to insure uniformity and maximum strength. Risers and access covers are either heavy duty plastic or concrete construction. All components within the system that will contact the wastewater are constructed entirely of molded plastic, stainless steel or rubber.

The Singulair aerator is powered by a 1725 RPM, 115 volt, 60 hertz, single-phase, fractional horsepower motor. It is the only electrically powered component in the Singulair system. The aerator has been designed specifically for use in the Singulair system. It costs less to operate and consumes fewer kilowatt hours of electricity than most major appliances.

Singulair aerators are supplied with a Service Pro control center with MCD technology. The NEMA rated control center contains a power switch and time clock that control aerator operation. The local distributor's name, address and telephone number are displayed on the control center cover. All system controls and necessary owner information are conveniently located at your fingertips.

Non-mechanical flow equalization and final filtration are accomplished within the Singulair tank by the Bio-Kinetic system. This revolutionary device is installed in the clarification chamber and connected to the system outlet. Optional chlorination and dechlorination may be included in the Bio-Kinetic system if required. All Singulair components work together to assure complete pretreatment, aeration, clarification and final filtration.

SINGULAIR® SYSTEM PERFORMANCE

Rivaling the performance of the most advanced wastewater treatment plants in the world, the Singulair system complies with USEPA wastewater treatment guidelines for secondary treatment systems and meets all requirements of NSF/ANSI Standard 40. In ecologically sensitive areas, the most stringent effluent standards are 10 mg/L CBOD and 10 mg/L TSS. Rated Class I after successfully completing the 6 month Standard 40 test protocol, the Model 960 system averaged effluent of 6 mg/L CBOD and 10 mg/L TSS. The Model TNT system averaged effluent of 4 mg/L CBOD, 9 mg/L TSS and 12 mg/L Total Nitrogen and met all requirements of NSF/ANSI Standard 245.

OPERATIONAL REQUIREMENTS

The Singulair system is designed to treat only domestic wastewater. Domestic wastewater is defined as the waste generated from a typical residence. This includes flows originating from: bathtubs, clothes washers, dishwashers, drinking fountains, water coolers, food grinders, kitchen sinks, lavatories, mop basins, service sinks, shower stalls, sinks, wash sinks, water closets and whirlpool baths. While the use of bio-degradable detergents is recommended, the Singulair system has been designed to handle any reasonable amount of bathroom, kitchen or laundry waste. However, some care should be exercised to insure that non-biodegradable and/or toxic materials are not disposed of via the domestic wastewater plumbing. Do not use the plumbing system for disposal of lint, cooking grease, scouring pads, diapers, sanitary napkins, cotton balls, cotton swabs, cleaning rags, dental floss, strings, cigarette filters, rubber or plastic products, paints and thinning agents, gasoline, motor oil, drain cleaners or other harsh chemicals. These items could plug portions of the plumbing and/or adversely affect system performance. Never connect roofing down spouts, footer drains, sump pump piping, garage and basement floor drains or water softener backwash to the domestic wastewater plumbing or the treatment system. Water softener backwash will interfere with biological treatment and must be disposed of separately.

ELECTRICAL REQUIREMENTS

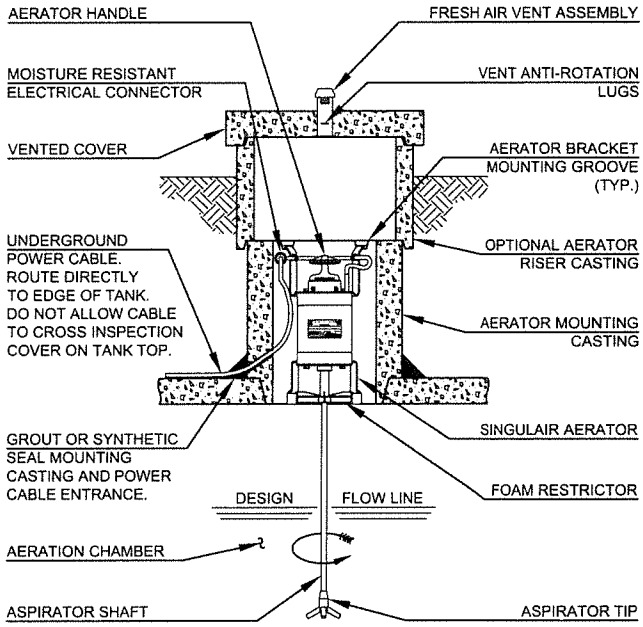
Each Singulair control center must be wired to a dedicated 115 VAC, single-phase circuit at the main electrical service panel. A 15 amp circuit is recommended (10 amp minimum). A pictorial wiring diagram is provided inside the control center enclosure. All electrical work must be performed in accordance with the requirements of the National Electrical Code and all applicable local codes. Electrical connections should be made only by a qualified electrician following proper procedures and using safe tools.

CAUTION: Any time service is required, first shut off the dedicated circuit breaker in the main electrical service panel. Next, shut off the power switch in the Singulair control center. Failure to do so could result in personal injury or equipment damage.

SINGULAIR® AERATOR

The aerator has been specifically designed for use in the Singulair system and includes special alloy and molded plastic parts to prolong aerator life. Aerator bearings are pre-lubricated and sealed. Singulair aerators are installed in a concrete mounting casting above the aeration chamber. Fresh air enters the aerator through four intake ports located under the aerator handle. The air is drawn down the hollow aspirator shaft where it is introduced below the liquid surface. Only the molded plastic aspirator and the lower portion of the stainless steel aspirator shaft are submerged.

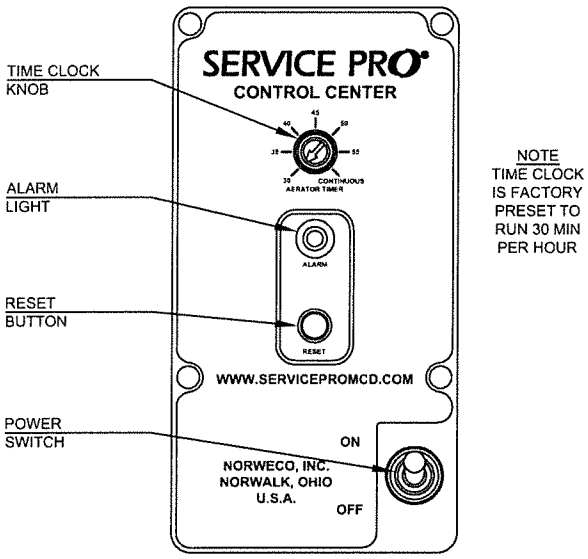
The aerator is not designed to run under water and will automatically shut off if a high water condition occurs. If the liquid rises to the level of the foam restrictor, the control center will shut off power to the aerator. Next, an automatic diagnostic sequence begins, as outlined in the section titled "Service Pro Control Center".



Each Singulair aerator is a precision engineered electro-mechanical device. Do not remove it from its installed position. Do not attempt any type of repair. Contact your Singulair service provider if service is needed. Unauthorized tampering or repair will void important provisions of the limited warranty and exchange program.

FRESH AIR VENTING SYSTEM

An aerator vent assembly is cast into the concrete access cover above each aerator. The vent assembly supplies fresh air to the aerator, which is drawn through the aspirator and into the wastewater. Finished landscaping should be maintained six inches below the top of the vented access cover and graded to drain runoff away from the cover. Do not allow plants, shrubbery, mulch or landscaping of any type to restrict the flow of air to the vent assembly or obstruct the access cover.



SERVICE PRO® CONTROL CENTER

Prewired controls are supplied in a sealed NEMA rated enclosure for your safety and the protection of components and wiring. The controls should be located so the alarm light can be seen and the audible alarm heard, while minimizing exposure to harsh weather or conditions that might prevent routine access. If an issue with the aerator is detected, the red alarm light will flash and the control center will attempt to restart the aerator every five minutes for two hours. For an open motor or under current condition, the alarm light will display two short flashes followed by a pause. For an over current condition, the alarm light will flash evenly. If the aerator does not restart after two hours, the audible alarm will sound. To silence the audible alarm and attempt to restart the aerator, push the reset button. If the alarm condition is not resolved, the audible alarm will be silenced for 48 hours, but the alarm light will continue to flash. In this case, contact your service provider. Model 960 systems are supplied with a time clock adjustable in five minute increments up to continuous run. This clock is factory preset to run 30 minutes per hour and should only be adjusted by an authorized Singulair service provider. Model TNT systems are supplied with a non-adjustable time clock.

SERVICE PRO® MONITORING CENTER

An optional Service Pro MCD control center is available for use with the Singulair system. Designed to connect to a standard telephone line or internet connection, this control center provides MONITORING, COMPLIANCE and DIAGNOSTIC functions complete with telemetry for communication with the Service Pro monitoring center. Once your Service Pro MCD control center is connected to a telephone line or internet connection, commissioned, and covered by a remote monitoring agreement, your service provider will be immediately notified of any alarm condition. The Service Pro monitoring center will automatically log the time and date of alarm conditions, as well as service performed, and store them in your system history record for viewing at **www.servicepromcd.com**.

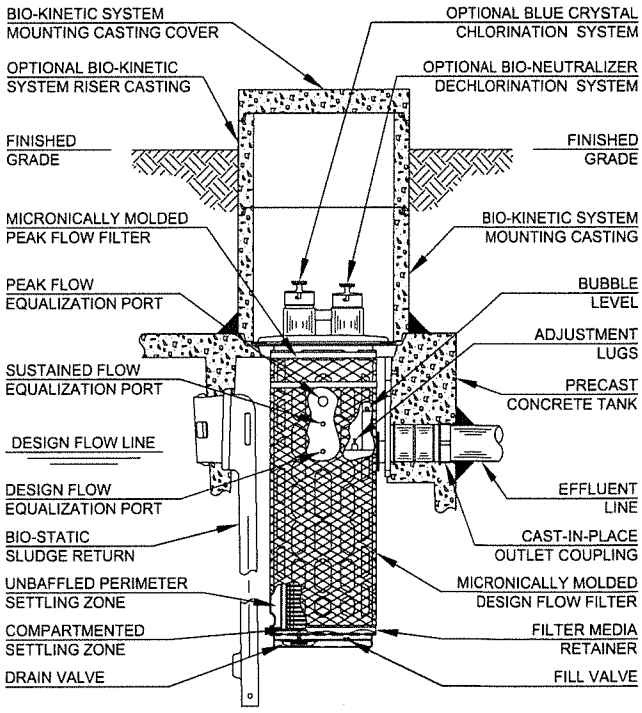
NOTE: The control center regularly communicates with the Service Pro monitoring center using your telephone line or an internet connection. If the control center is using the telephone line when you attempt to place a call, a high pitched digital communication signal will be heard. Hang up all telephones sharing the line and wait a few seconds. This will automatically disconnect the control center and make the line available for use.

BIO-STATIC® SLUDGE RETURN

Each Bio-Static sludge return is installed in the aeration/ clarification chamber wall. Aeration chamber hydraulic currents enter the sludge return(s) and transfer solids from the clarification chamber back to the aeration chamber for additional treatment. The Bio-Static sludge return accomplishes resuspension and return of settled solids without disturbing the contents of the clarification chamber.

BIO-KINETIC® SYSTEM

Bio-Kinetic systems provide non-mechanical flow equalization through all plant processes. The Bio-Kinetic system contains 3 separate filtration zones, 8 independent settling zones, optional chlorination and dechlorination tablet feed systems and serves as its own chlorine contact chamber. When used with Blue Crystal disinfecting tablets, the performance of the Bio-Kinetic system as a disinfection device is certified to NSF/ANSI Standard 46, Section 11. All components are manufactured from plastic or rubber. Your service provider has the necessary training, tools and equipment for removal and cleaning. If your Bio-Kinetic system is in need of service, contact your service provider. During each semi-annual service inspection, your service provider will remove and clean the Bio-Kinetic system or replace it with a unit from their service stock.



NON-MECHANICAL FLOW EQUALIZATION

The patented design of the Bio-Kinetic system provides non-mechanical flow equalization for the Singulair wastewater treatment plant. Equalization reduces incoming hydraulic surges (e.g. typical shower of 10 minutes duration, bathtub discharge of 5 minutes duration, clothes washer discharge of 2 minutes duration and dishwasher discharge of 2 minutes duration) throughout the system. The flow equalization provided by the Bio-Kinetic system causes wastewater to be held upstream of the final outlet during hydraulic surges, which preserves treatment integrity and enhances system operation. The actual rate of equalization varies and depends upon specific loading patterns and the duration of each flow surge. At the design loading pattern used during the NSF/ANSI Standard 40 performance evaluation, the Singulair system equalizes all flow an average of 50%. As a result, hydraulic surges and periods of high wastewater flow are automatically reduced to protect the environment and all treatment plant processes on a demand use, as needed, basis.

BLUE CRYSTAL® RESIDENTIAL DISINFECTING TABLETS

If local regulations require, an initial supply of Blue Crystal disinfecting tablets will be placed in the Bio-Kinetic system chlorine feed tube(s) at system start-up. Manufactured from calcium hypochlorite, Blue Crystal disinfecting tablets provide effective, economical bacteria killing power. Liquid entering the Bio-Kinetic system contacts the installed Blue Crystal disinfecting tablets, just downstream of the equalization ports. A fully charged feed tube will last an average of six months. During each semi-annual inspection, your Singulair service provider will check system operation and install tablets as needed.

NOTE: USEPA guidelines state "On the average, satisfactory disinfection of secondary wastewater effluent can be obtained when the chlorine residual is 0.5 ppm after 15 minutes contact." Retention time must comply with the controlling regulatory jurisdiction.

BIO-NEUTRALIZER® DECHLORINATION TABLETS

In environmentally sensitive areas, regulations may require the use of Bio-Neutralizer dechlorination tablets. Manufactured to chemically neutralize both free and combined chlorine, Bio-Neutralizer dechlorination tablets provide consistent reduction or elimination of chlorine residual without unnecessarily reducing the level of dissolved oxygen in the treatment system effluent. As liquid passes through the final discharge zone of the Bio-Kinetic system, the flow contacts the tablets and residual chlorine is removed from the system effluent. A fully charged feed tube will last an average of six months. During each semi-annual inspection, your Singulair service provider will check system operation and install tablets as needed.

CAUTION: The improper handling of Blue Crystal and Bio-Neutralizer tablets may cause personal injury or property damage. Keep out of the reach of children and do not allow the tablets or feed tubes to contact skin, eyes, or clothing. Blue Crystal tablets may be fatal if swallowed and tablet dust is irritating to the eyes, nose and throat. Do not handle the tablets or feed tubes without first carefully reading the product container label, MSDS information and the handling and storage instructions. Mixing of chemicals may cause a violent reaction leading to fire or explosion. For additional information about Blue Crystal and Bio-Neutralizer tablets contact your Singulair service provider.

ACCESS RISERS AND COVERS

Concrete access covers are recommended and must be secured after each service visit. A concrete plug should be installed in the access openings of the tank to prevent accidental entry. Access covers should be inspected during service visits and replaced as necessary. If plastic risers and/or covers are utilized, they must be approved for your application and secured as instructed by the manufacturer. Refer to state and local regulations for applicable codes that may apply to your installation.

DANGER: Make sure your service provider does not leave access risers uncovered or partially covered. Failure to properly secure access covers and safety nets could result in bodily injury, illness or death. Do not allow children to play on or around the treatment system. Riser safety nets are available from Norweco for concrete or plastic risers.

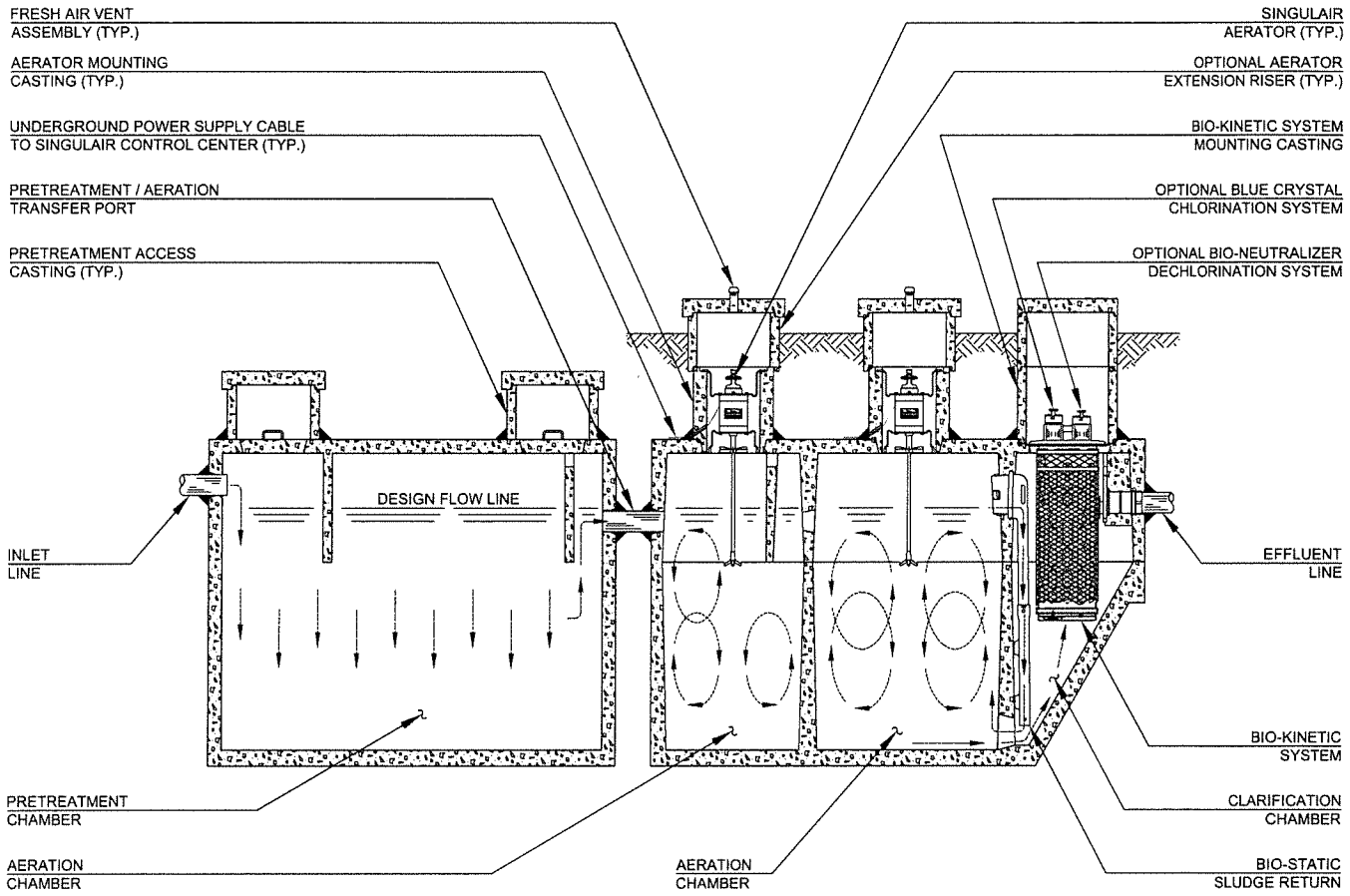
NO OWNER MAINTENANCE

The Singulair system is inspected and serviced by a local, factory-trained service provider, therefore, no owner maintenance is required during the warranty period. The Singulair system does not require pumping as often as a septic tank. Under normal use only the pretreatment chamber should be pumped. How often pumping is necessary depends on system use. The local Singulair service provider will inspect the aeration chamber contents and plant effluent at six month intervals to determine if the pretreatment chamber is discharging excessive solids. Every three years, the pretreatment chamber should be inspected. The pretreatment chamber will normally require pumping at three to five year intervals. Contact your local service provider prior to tank pumping for complete information on removal of equipment, access to individual chambers, coordination of services and proper disposal of tank contents.

If a period of intermittent use, or an extended period of non-use of the system is anticipated, contact your service provider for instructions. Your service provider has detailed service instructions and has been factory-trained in troubleshooting procedures. Contact your service provider if you require service or tank pumping information.

SINGULAIR® SERVICE PROGRAM

Semi-annual service inspections, at six month intervals for the first two years of system operation, are provided by your local Norweco distributor and are included in the original purchase price of the Singulair system. Costs for travel and labor are not charged to the owner. During an inspection, each mechanical aerator, Bio-Kinetic system and other plant components are serviced as outlined in the Singulair Product Manual and effluent quality is evaluated for color, turbidity, scum overflow and odor. After the initial two year service program is completed, the local service provider will provide continued service at the owner's option. The service program should be renewed by the owner to insure maximum system performance.



PROFILE VIEW
SINGULAIR 1000 GPD, 1250 GPD & 1500 GPD

Ask your Singulair service provider about a renewable service contract. If you allow service coverage to expire, you can still obtain the professional assistance of a factory-trained technician. However, these special service calls will be performed on a time and materials basis. Professional service is important to proper system operation and should not be allowed to lapse. Be sure to consider the advantages of a renewable service contract.

The Singulair service provider will perform the following services during each service inspection:

- ✓ Check aerator operation
- ✓ Check aerator power consumption
- ✓ Check aerator air delivery
- ✓ Clean stainless steel aspirator shaft
- ✓ Clean aspirator tip
- ✓ Clean fresh air vent in concrete cover
- ✓ Inspect aeration chamber contents
- ✓ Check operation of control center
- ✓ Adjust time clock when required
- ✓ Remove the Bio-Kinetic system
- ✓ Scrape the clarification chamber
- ✓ Inspect the Bio-Static sludge return
- ✓ Inspect outlet coupling
- ✓ Install a clean Bio-Kinetic system
- ✓ Fill Blue Crystal feed tube
- ✓ Fill Bio-Neutralizer feed tube
- ✓ Inspect effluent quality
- ✓ Inspect outlet line
- ✓ Inspect ground water relief point
- ✓ Inspect effluent disposal system
- ✓ Complete 3-part service record
- ✓ Hang owner's record on front door
- ✓ Enter record into **www.servicepromcd.com**
- ✓ Mail health department notification

WARRANTY REGISTRATION

A Warranty Registration Card was included with the Model 206C aerator before it was shipped from the factory. If this card has not been returned to Norweco, complete and mail it immediately. If it is not returned within thirty days of the installation date, the three year limited warranty and lifetime aerator exchange program will begin on the date of component shipment from the factory.

Remove the aerator model number and serial number record card and store it in a safe location with this Owner's Manual for future reference. If it is necessary to call your service provider for service, make note of the information on the control center data plate and the aerator serial number before calling. Warranty and service records are cross-indexed by owner name, aerator serial number or control center serial number. Supplying the aerator serial number and control center serial number with the service request will give the service provider a ready reference so that changes in system ownership will not delay service.

SINGULAIR® LIMITED WARRANTY

The Singulair aerator enjoys the distinction of being the only aerator on the market today backed by a lifetime warranty and exchange program. Each Singulair aerator, Service Pro control center, Bio-Kinetic system and any other components manufactured by Norweco, are warranted to be free from defects in material and workmanship, under normal use and service, for a period of three years from the date of purchase. The three year limited warranty is included in the original purchase price of every Singulair system. The comprehensive aerator exchange program offers Singulair owners a lifetime of protection. Owners with a Singulair system may exchange any aerator of any age for a replacement unit at a prorated cost. If the Singulair aerator or Service Pro control center fails, do not use or dismantle the unit. The local, licensed distributor has detailed warranty and exchange information and should be contacted for service or replacement instructions.

SERVICE PRO® SECURITY LOG IN

For your convenience, record your **www.servicepromcd.com** access information here:

User name:	**Password:**

SUPPLEMENTAL SERVICE RECORD

For your reference, please document service performed on the following chart:

DATE	DESCRIPTION

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