TOWN OF DURHAM
ZONING BOARD OF ADJUSTMENT
8 NEWMARKET RD
DURHAM, NH 03824
PHONE: 603/868-8064
www.ci.durham.nh.us

VARIANCE

Prior to seeking a variance, the property owner must have been denied a building permit by the Building Inspector or denied an approval by the Planning Board.

Name of Applicant IAGO HALE AND ERIN HALE

Address: 74 MILL ROAD; DURHAM, NH 03824

Phone # 603-767-2249 Email: IAGOHALE@GMAIL.COM

Owner of Property Concerned SAME
(If same as above, write "Same")

Address: SAME
(If same as above, write "Same")

Location of Property: 74 MILL ROAD
(Street & Number)

Tax Map & Lot number 006-001-004

A Variance is requested from Article(s) XII.1 Section(s) 175-53 of the Zoning Ordinance to permit:

An accessory apartment in the RB Zone. Please see Addendum for details.

All applications must include a statement explaining how the applicant meets each of the five (5) statutory requirements for granting a variance, (A) through (E), which are found on page 2. The Zoning Board of Adjustment may consider the variance application incomplete if these five statements have not been addressed. In addition all applications must be accompanied by adequate plans and exhibits.

Owner Authorization and Signature:

1. I/we do hereby authorize Iago Hale to file this application with the Zoning Board of Adjustment, to appear before the Board and to act on my/our behalf.
2. I/we do hereby authorize members of the Zoning Board of Adjustment and/or staff to enter upon the property on the afternoon prior to the Zoning Board meeting for purposes of reviewing this application.
3. To the best of my/our knowledge the information contained in this application is complete and accurate.

Owner's Signature(s): See signed original in Zoning Office Date:

Date:

RSA 674:33 Powers of the Zoning Board of Adjustment:

I(a)The zoning board of adjustment shall have the power to:

(1) Hear and decide appeals if it is alleged there is error in any order, requirement, decision or determination made by an administrative official in the enforcement of any zoning ordinance adopted pursuant to RSA 674:16; and

(2) Authorize, upon appeal in specific cases, a **variance** from the terms of the zoning ordinance if:
(A) The variance will not be contrary to the public interest;
(B) The spirit of the ordinance is observed;
(C) Substantial justice is done;
(D) The values of surrounding properties are not diminished; and
(E) Literal enforcement of the provisions of the ordinance would result in an unnecessary hardship.

(b)(1) For purposes of this subparagraph I(a)(2)(E), "**unnecessary hardship**" means that, owing to special conditions of the property that distinguish it from other properties in the area:
(A) No fair and substantial relationship exists between the general public purposes of the ordinance provision and the specific application of that provision to the property; and
(B) The proposed use is a reasonable one.

(2) If the criteria in subparagraph (1) are not established, an unnecessary hardship will be deemed to exist if, and only if, owing to special conditions of the property that distinguish it from other properties in the area, the property cannot be reasonably used in strict conformance with the ordinance, and a variance is therefore necessary to enable a reasonable use of it.

(3)The definition of "unnecessary hardship" set forth in subparagraphs (1) and (2) shall apply whether the provision of the ordinance from which a variance is sought is a restriction on use, a dimensional or other limitation on a permitted use, or any other requirement of the ordinance.

EXPIRATION PERIOD FOR VARIANCES

Any Variances granted shall be valid if exercised within **2 years** from the date of final approval, or as further extended by local ordinance or by the zoning board of adjustment for good cause, provided that no such variance shall expire within 6 months after the resolution of a planning application filed in reliance upon the variance.

ADDENDUM TO

request for variance to allow an accessory apartment at 74 Mill Road

Table of Contents

Introduction and background

1. Rationale for the variance request

We are requesting this variance in order to rebuild the outbuilding on our property, honoring its same basic elevations and current footprint as closely as allowed, as an accessory apartment to serve as an aging-in-place residence for Iago's mother. The current outbuilding is failing and in need of re-construction. As part of our work to rebuild the structure on the property and upgrade its use to an accessory apartment, we seek to address the longstanding erosion and stormwater management issues on this end of our property. Also through this work, we intend to upgrade the septic system on the property as a whole, resulting in an overall reduction of our shoreland impact.

2. Existing site conditions

As shown in **Appendix A** (*Current Structure*), the existing single-story outbuilding sits atop an open, walk-in basement area with an unfinished earth floor. The walls of the basement are stacked rock, with the northwest wall (farthest from Mill Road) being the stone abutment of the old Mill Road, before the road was moved downstream to its current location. As shown in **Appendix B** (*Existing Conditions Site Plan - Ross Engineering, LLC*), the nearest point of the footprint of the current building to the center of the Oyster River is approximately 40'. The current outbuilding has 20A electrical service via underground connection to the panel located in the basement of the primary structure on the property (main house).

3. Summary of previous approval

The original intention with the proposed project was to reconstruct the outbuilding in its exact current location with the same type of foundation, ideally shoring up the existing foundation walls to the extent possible to minimize impact to the riparian site. This approach would have resulted in a ground-level apartment with walk-in storage below, all with minimal impact to the site. On August 14, 2020, the Zoning Board of Adjustment (ZBA) approved our petition for the required variance, with the condition that the new building "maintain the approximate location and massing as the existing structure" (**Appendix H**).

Following this variance approval by the ZBA, we learned we needed to secure approval by the New Hampshire Department of Environmental Services (NHDES) for this project, under the state's Shoreland Water Protection Act (483-B). The need for NHDES approval contradicted information we had been provided previously, a confusion that appears to be due to a minor change in definitions enacted by NHDES in 2019. Prior to 2019, our proposed accessory apartment qualified as an "accessory structure" according to NHDES definitions. Under that definition, our project was in compliance with 483-B. Effective December 15, 2019, however, the definition of an "Accessory Structure" in Env-Wq 1405.03 was updated with the following language:

> (i) No accessory structure shall be modified or constructed so as to be serviced by piped water.

Despite the clear accessory use of the proposed building on the property, this change in the State's definition meant our project was no longer in compliance with 483-B, which states that no Primary Structure can be built within 50' of the reference line (i.e. the Primary Structure setback), full stop. Despite help from the Durham Town Planner, NHDES authorities were uninterested in the specifics of the site conditions and were unmoving on this point. The result is that we have had to shift the footprint of the proposed structure approximately 20' away from the river to obtain the necessary NHDES approval, which was finally secured on July 9, 2021 (**Appendix F**). Because the location of the proposed structure has shifted relative to our initial proposal to the ZBA in August 2020, we are re-applying for the variance that was obtained at that time.

4. Description of planned work

To preserve as much as possible the historic look and site functions of the current outbuilding, the proposed replacement structure will strive to honor its design, as shown in **Appendix C** (*Site Plan - Ross Engineering, LLC*) and **Appendix D** (*Proposed Elevations and Floorplan*). Specifically, in addition to matching the height, approximate footprint size, and style of the current outbuilding, the elevation of the proposed structure will be as similar as possible to that of the current structure on the side visible from Mill Road (southeast elevation). Because the State requires moving the building from its current location, we have had to abandon our hope for a ground-level apartment with walk-in storage below. To maintain our needed storage space, which is the main use of the current outbuilding, and to compensate for the loss of driveway area due to shifting the location of the building, we have had to move the apartment above a ground-level garage area.

As detailed in **Appendix C** (*Site Plan – Ross Engineering, LLC*) and **Appendix E** (*Stormwater Management and Erosion Control Plans – Ross Engineering, LLC*), the replacement of the current outbuilding with an accessory apartment over a garage would involve multiple site improvements, including:

1) Replacing our main house's 30-year-old traditional septic system (4 bedroom) with an increased capacity Advanced Onsite Solutions system with secondary treatment (see **Appendix G** for details), resulting in significantly cleaner effluent;
2) Substantially reducing the effluent disposal area on the property, minimizing site impact; and
3) Moving our current effluent disposal area 11.7' further away from the stream on the north side of the property and 7.1' further away from hydric B soils.

In addition to these septic-related improvements, this project will provide an opportunity to address the stormwater management issues we currently have in the area of our driveway and existing outbuilding, issues which have contributed to the erosion of the current outbuilding's foundation (see **Appendix A**). Town Engineer April Talon visited the site on July 1, 2020, at which time she said she was initiating a process to mitigate the disproportionate volume of stormwater entering our property from Mill Road, a first step toward developing an appropriate stormwater management plan as part of this project.

II. Addressing the five statutory requirements (RSA 674:33, I(b))

1. The variance is not contrary to the public interest

Replacing our failing outbuilding with a garage and accessory apartment of similar style and mass for one of our parents is an active step toward preserving the essential character of the property and the neighborhood. The current outbuilding, sited near the likely location of the 18-19th century Chesley Mill on the Oyster River, contributes to the historic feel of the property and the neighborhood. It is only through the requested change of use that it is possible for us to undertake the investment needed for its replacement. Built as near as possible to the current outbuilding's approximate footprint and reproducing its basic elevation visible from Mill Road, the proposed change of use in no way injures public rights or threatens public health, safety, or welfare.

2. The spirit of the ordinance is observed

Our understanding of the spirit of the ordinance in question is that it is intended to preserve the open, low-density character of Residential Zones A and B. Compared to properties in Residential Zone C, where accessory apartments are permitted, the lot sizes in Zones RA and RB are generally smaller, thereby presenting the real risk of accessory buildings impacting the overall proportion of non-built space and negatively impacting abutters (e.g. disrupting views, blocking sunlight, etc.). The following unique attributes of our property, however, make it so that the requested variance can be granted while upholding the spirit of the ordinance:

a. *A building of the same massing, height, and basic elevations already exists*

A variance is being requested to essentially shift the position and change the use of an existing building rather than construct an altogether new building on a property where one does not already exist. Because the number, location, and sizes of the structures on the property would not change as a result of this variance (see page 8), there will be no impact on the overall density of structures on the property nor on the welfare of our abutters.

b. The property has no immediate residential abutters

Although our property is zoned RB, it is unlike typical RB properties in terms of its layout, namely shallow with long road frontage and no immediate residential abutters. The old part of our main residence, known as the "Chesley Mill House," is one of the very first houses built on Mill Road that stands today; and this long history of the original structure likely lies at the root of our atypical property siting.

As shown in **Figure 1** on the next page, the only immediate abutter is the University of New Hampshire (B), in the form of an unmanaged forest lot cut off from the main campus by the Oyster River and from College Woods by the railroad track. Another abutter is the Town of Durham, in the form of a small conservation wetland forest lot separated from our property by a dirt access road to the adjacent power substation (A) as well as another small triangular lot directly across Mill Road (E). On the other side of the Oyster River is 70 Mill Road, whose residence is substantially higher in elevation than our outbuilding, in addition to being separated from it by substantial vegetation and the river itself. Finally, on the other side of Mill Road, diagonally across the other the end of the property, is 2 Foss Farm Road, whose residence is also substantially higher in elevation than our outbuilding, in addition to being separated from it by substantial vegetation and the road itself.

Figure 1 Tax parcel map showing abutters surrounding the central property in question, 74 Mill Road. The only immediate abutter is UNH (parcel 006-001-019UNH). There are two abutters on the other side of the Oyster River (UNH and 006-003-001), two on the other side of Mill Road (Town of Durham and 006-001-014), and one on the other side of the dirt access road to the power substation (Town of Durham). The approximate location of the current outbuilding is indicated by the grey rectangle. Source: Strafford Regional Planning Tax Parcels Map Viewer, accessed July 17, 2020.

Because of the unique characteristics of the property and nature of the proposed work, essentially pivoting the position and converting the use of an existing structure, the requested variance can be granted while upholding the spirit of the ordinance.

3. Substantial justice is done

A structure of the same dimensions and style already exists on the property, in essentially the same location, so the continued existence of such a structure perpetuates the *status quo* and poses no harm to the general public. If anything, by moving the building ~20' away from the river, as per NHDES requirements, the intended project brings our property more into compliance with shoreland protection aims.

One could argue that the introduction of another resident onto the property potentially harms the public good in terms of increased general activity on the site (e.g. another car using the driveway); but such an increase in activity would also occur in the case of an attached accessory dwelling unit, for which no variance is required. Therefore, assuming the necessary building permits are obtained, in compliance with local and state regulations regarding construction on the current site, the proposed change in use poses no harm to the general public. The tremendous benefit of this variance to our family will not come at the expense of the public good.

4. The values of surrounding properties are not diminished

As alluded to in the previous point, it is possible for an accessory apartment to diminish the values of abutting properties in two distinct ways, namely via the existence of the structure itself and via its intended use. In this case, because an outbuilding already exists and the proposed accessory apartment aligns with its basic position and massing, the variance would essentially allow the preservation of the *status quo* with regard to the structure itself. In other words, the requested variance cannot diminish the value of abutting properties due to obstructed views, blocked sunlight,

etc. because, in the end, it is the basic form and location of the current structure that will be maintained.

5. Literal enforcement of the ordinance would result in unnecessary hardship

Given our desire to provide an aging-in-place residence for Iago's mother, literal enforcement of the variance would require attaching an accessory dwelling unit (ADU) to our current home, "swapping" the footprint of our current outbuilding to enable construction within the shoreland buffer. Before outlining the unnecessary hardships such a course of action would involve, it is important to note two fundamental design constraints we are facing. Perhaps the most important consideration for an aging-in-place residence is *access*. Specifically, in order to ensure the long-term safety of an aging resident and promote activity for as long as possible, it is essential that the residence be located as close as possible to the driveway, for ease of getting to and from vehicles. The critical need for proximity to the driveway constrains us to the eastern end of our property, as opposed to attempting attachment of an ADU on the northern or western sides of our home.

Constrained to the eastern end of the property, literal enforcement of the ordinance (i.e. building an attached ADU) would result in unnecessary hardship in the form of *Loss of Value*. Specifically, construction of an attached ADU, as compared to shifting the location and changing the use of our current outbuilding, will negatively impact our family and our property in the following ways:

1. *Loss of view and light* With a central woodstove bookended by picture windows all along the eastern wall, our first-floor eastern living room is the heart of our home and the center of our family life. Construction of an attached ADU will unavoidably compromise the view of the river from this room, not to mention block sunlight from entering what is already a shaded end of the house (the so-called "eastern wall" really points northeast, as shown in the site plan). One of the primary selling features of the house is its living room with the expansive view of the river; an attached ADU would greatly diminish this.
2. *Harm to and/or loss of the sentinel sugar maple* With a 42" diameter trunk, crown exceeding 50' in diameter, and a height of more than 70', the large sugar maple tree growing just off the north corner of the house (see **Appendix B**) is an historic sentinel tree of incalculable value. Depending on its final footprint, an attached ADU resulting from literal enforcement of the ordinance would result, at minimum, in substantial damage to the root system of that tree.
3. *Reduced visual appeal of the home* Literal enforcement of the ordinance would result in the addition of a unit to the eastern end of what is already a long, somewhat monolithic structure running along Mill Road. As it is, the southeast elevation of our home (facing the road) already pushes the upper limits of the scale of the site. Further expansion will, in our opinion, turn the property into an eyesore, especially as it would come with the added loss of the current outbuilding, with the historic charm it provides with its small carriage-house look amidst mature landscaping.
4. *Loss of ready access to the backyard* To maintain the valued use of the current outbuilding as vehicle-related storage, literal enforcement of the ordinance would necessitate a much larger building footprint in the shoreland zone, encompassing not only the structure itself but a nearly 20' connecting structure to the main house. This would exacerbate the issue flagged in the previous point, in addition to cutting off ready outdoor access to the backyard due to the sloped topography between the driveway and the river.

For the reasons listed above, we contend that literal enforcement of the ordinance would result in unnecessary hardship, to no obvious benefit to the general public.

III. Additional information

1. Denied building permit

TOWN OF DURHAM
8 NEWMARKET RD
DURHAM, NH 03824-2898

AUDREY CLINE
Zoning Administrator
Code Enforcement Officer
Health Officer

TEL: *(603) 868-8064*
acline@ci.durham.nh.us

Decision or Order of the Building Inspector/Code Enforcement Officer

175-12. Administrative Appeals.
Any person who believes that the Zoning Administrator has made an error in the interpretation or application of the provisions of this Ordinance, may appeal such determination to the Zoning Board of Adjustment as an administrative appeal under the provisions of Section 175-19. If the Board finds that the Zoning Administrator erred in his/her interpretation of the Ordinance, it shall modify or reverse the decision accordingly.

175.19. Powers and Duties
B. In exercising the above-mentioned powers, the Board may, in conformity with the provisions hereof, reverse or affirm, wholly or partly, or may modify the order, requirements, decision or determination appealed from and may make such order or decision as ought to be made and to that end shall have all the powers of the officer from whom the appeal is taken.

Applicant: Iago Hale, 74 Mill Road, Durham
Date of order: March 23, 2022
Deadline for application for appeal: April 25, 2022
Decision or Order of the Building Inspector/Code Enforcement Officer:

Building Permit Application number 22-99 dated March 20, 2022, for property located at 74 Mill Road, is *DENIED* as the proposal does not meet the requirements of 175-53. Table of Land Uses of the Durham Zoning Ordinances below:

175-53. Table of Land Uses.
Accessory apartments are not permitted in the RB Zone.

175-7 Definitions.
ACCESSORY APARTMENT – A dwelling unit located in an accessory structure in conjunction with a single-family residence as an accessory use. A single-family residence with an accessory apartment is considered a single-family residence (not a duplex residence).
See Article XX

By Durham's Building Inspector/Code Enforcement Officer:

Audrey Cline CEO

2. List of property abutters

The following table contains information about the six properties that abut 74 Mill Road. Property labels (A-F) refer to the labels in the annotated Tax Parcels map below.

Property	Parcel ID	Owner Information	Address	Zoning District
A	006-001-002	Town of Durham	*unknown (see map above)*	Conservation Land
B	006-001-019UNH	University of New Hampshire	*unknown (see map above)*	*unknown*
C	*unknown*	University of New Hampshire	*unknown (see map above)*	Conservation Land
D	006-003-001	M Brown, V Jeffers	70 Mill Road	RA
E	006-001-005	Town of Durham	73 Mill Road	RB
F	006-001-014	C Gruden, L Mockeridge	2 Foss Farm Road	RB

Source: Strafford Regional Planning Tax Parcels Map Viewer, accessed March 13, 2022.

Please note that, although six separate parcels abut the property, collectively they implicate only four unique owners in need of notification, namely:

1. The University of New Hampshire
2. The Town of Durham
3. M Brown and V Jeffers
4. C Gruden and L Mockeridge

3. Detailed square footage and footprints of existing structures

The proposed building project will have essentially no effect on the total footprint of structures on the property. It essence, it changes the current 530 ft^2 of non-living area in the outbuilding to 600 ft^2 of living area over a garage. Below is a full accounting of the areas on the property:

Existing Structures
TOTAL FOOTPRINT: 2,415 sf

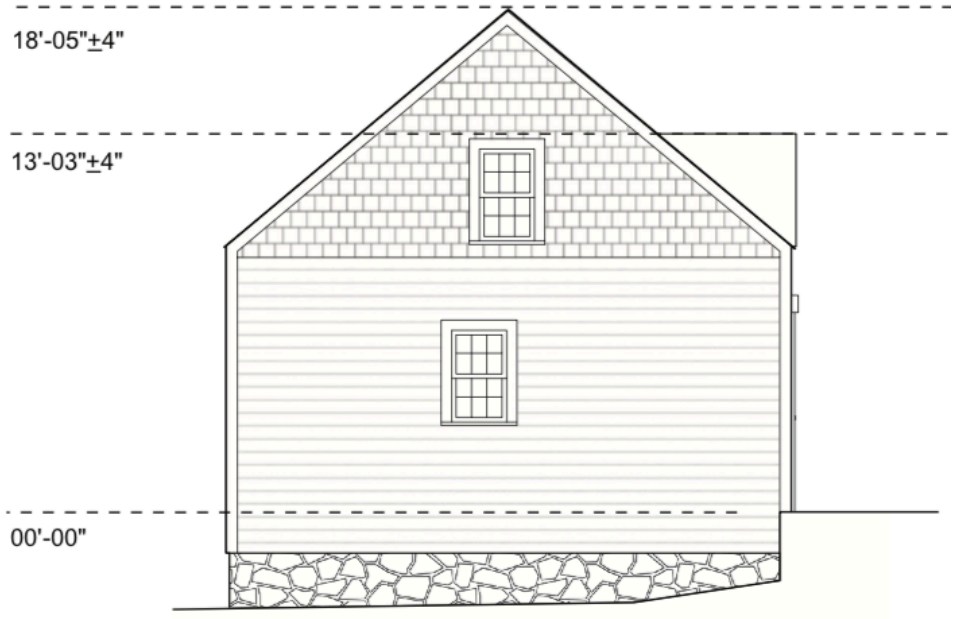
Main House	Total Area (sf)	Living Area (sf)
First Floor	1,535	1,535
Upper Story, Finished	896	896
Three Quarter Story	527	395
Porch, Open Framed	64	0
Attic, Unfinished	896	0
Basement, Unfinished	1,348	0
Deck, Wood	286	0
	5,552	2,826
Outbuilding (storage)	530	0
TOTAL	**6,082**	**2,826**

Proposed Structures
TOTAL FOOTPRINT: 2,485 sf

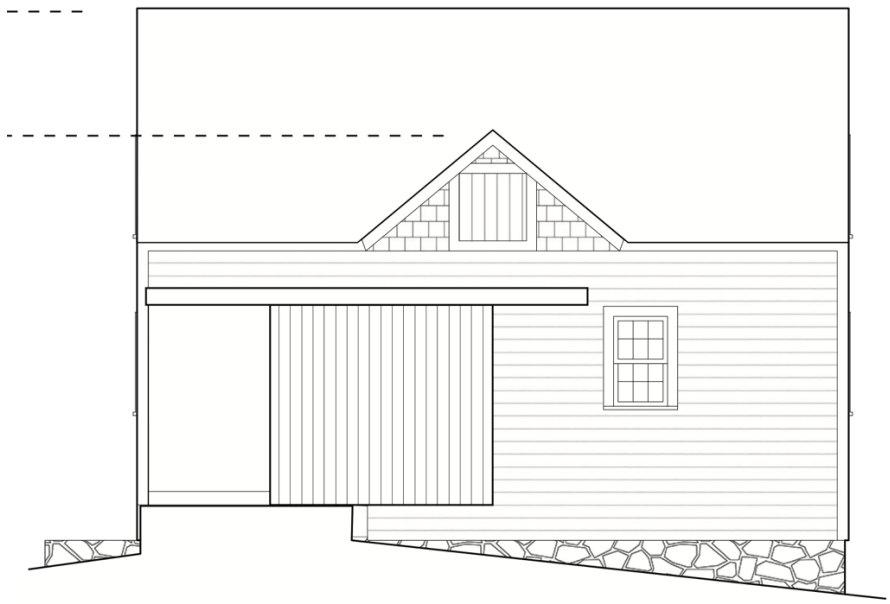
Main House	Total Area (sf)	Living Area (sf)
First Floor	1,535	1,535
Upper Story, Finished	896	896
Three Quarter Story	527	395
Porch, Open Framed	64	0
Attic, Unfinished	896	0
Basement, Unfinished	1,348	0
Deck, Wood	286	0
	5,552	2,826
Outbuilding (garage + ADU)	1,200	600
TOTAL	**6,752**	**3,426**

Appendix A – *Current Structure*

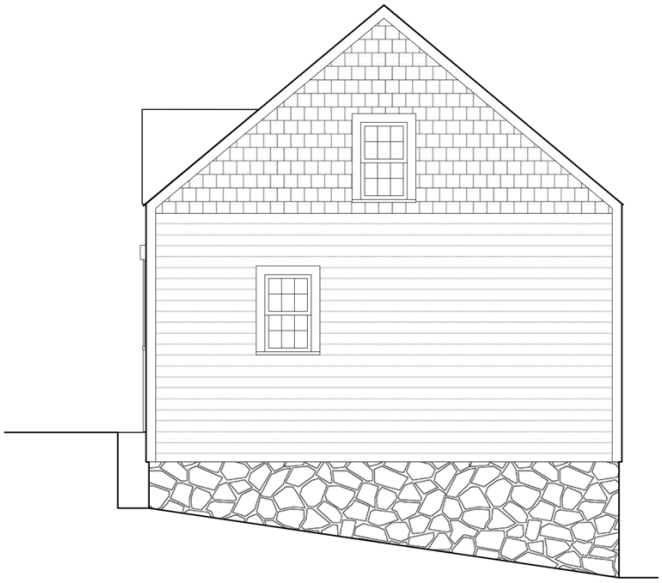
Elevation – Northwest (facing away from Mill Road)



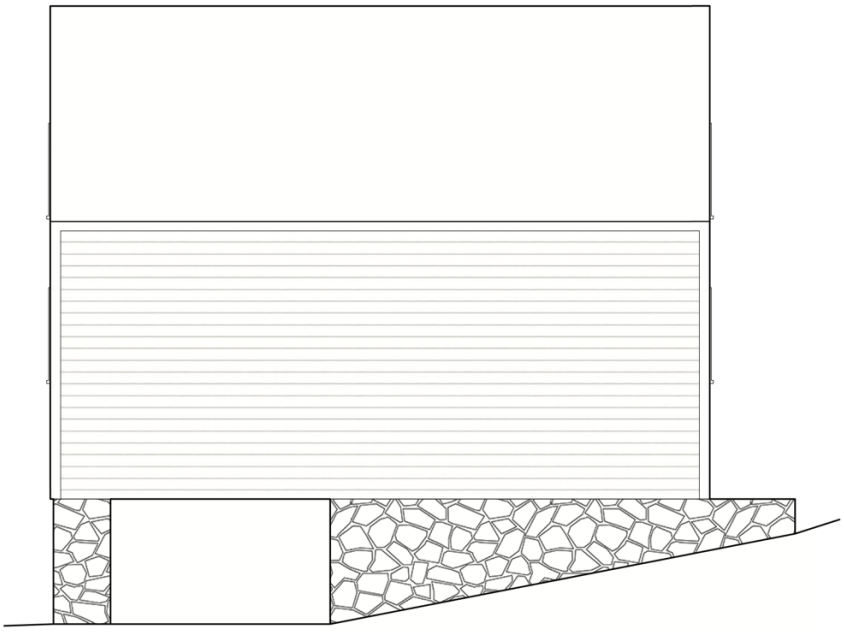
Elevation – Southwest (Front)



Elevation – Southeast

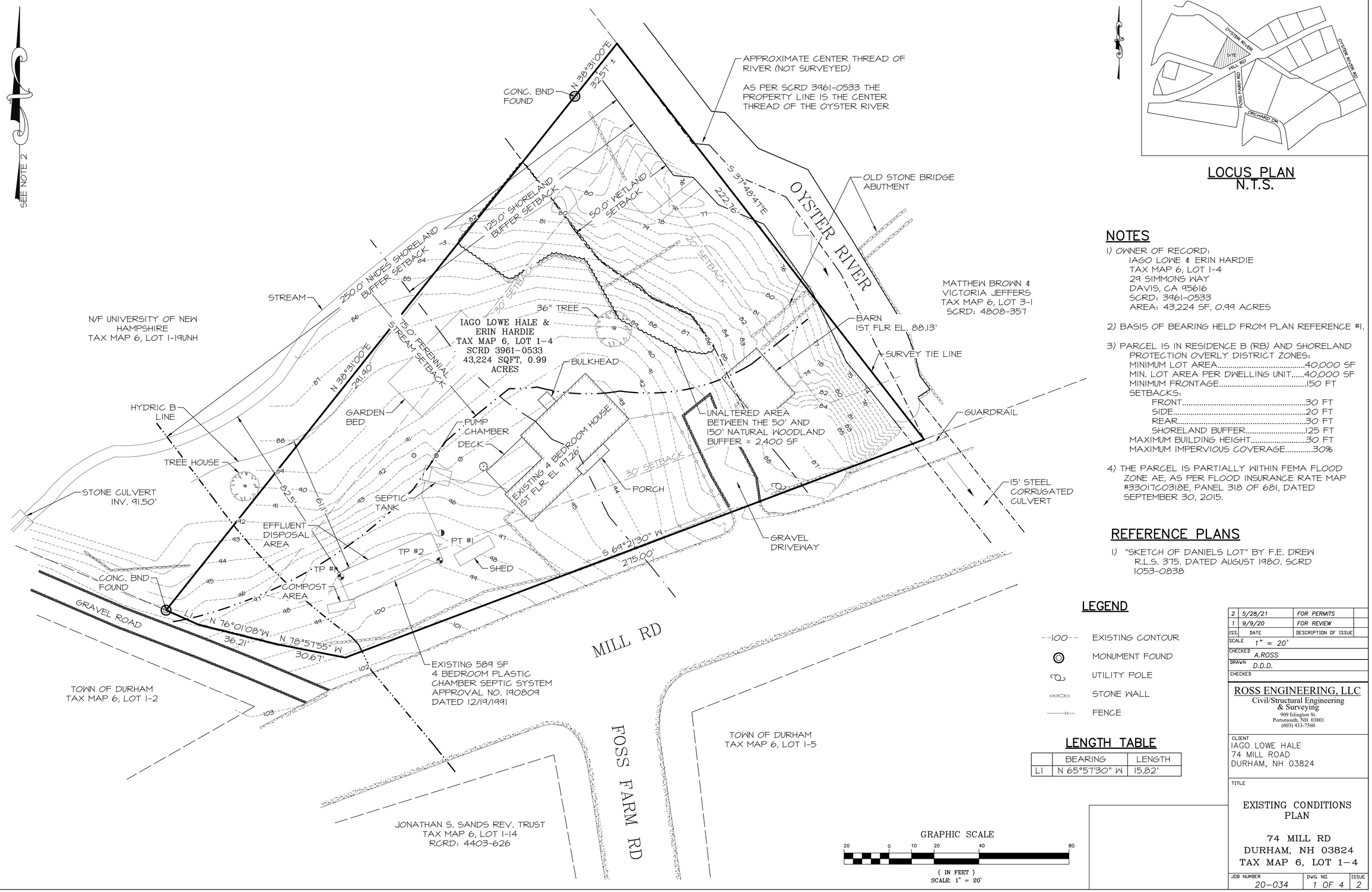


Elevation – Northeast (facing Oyster River)



Erosion of the southwest foundation wall by stormwater runoff from Mill Road
(photo taken from under the structure)

Appendix B – *Existing Conditions Site Plan*
Ross Engineering, LLC



LOCUS PLAN
N.T.S.

NOTES

1) OWNER OF RECORD:
IAGO LOWE & ERIN HARDIE
TAX MAP 6, LOT 1-4
29 SIMMONS WAY
DAVIS, CA 95616
SCRD: 3961-0533
AREA: 43,224 SF, 0.99 ACRES

2) BASIS OF BEARING HELD FROM PLAN REFERENCE #1.

3) PARCEL IS IN RESIDENCE B (RB) AND SHORELAND PROTECTION OVERLY DISTRICT ZONES:
MINIMUM LOT AREA.....40,000 SF
MIN. LOT AREA PER DWELLING UNIT.....40,000 SF
MINIMUM FRONTAGE.....150 FT
SETBACKS:
FRONT.....30 FT
SIDE.....20 FT
REAR.....30 FT
SHORELAND BUFFER.....125 FT
MAXIMUM BUILDING HEIGHT.....30 FT
MAXIMUM IMPERVIOUS COVERAGE.....30%

4) THE PARCEL IS PARTIALLY WITHIN FEMA FLOOD ZONE AE, AS PER FLOOD INSURANCE RATE MAP #33017C0318E, PANEL 318 OF 681, DATED SEPTEMBER 30, 2015.

REFERENCE PLANS

1) "SKETCH OF DANIELS LOT" BY F.E. DREW R.L.S. 375. DATED AUGUST 1980. SCRD 1053-0838

LEGEND

--100--	EXISTING CONTOUR
◎	MONUMENT FOUND
	UTILITY POLE
	STONE WALL
—o—	FENCE

LENGTH TABLE

	BEARING	LENGTH
L1	N 65°57'30" W	15.82'

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
SCALE: 1" = 20'

ISS	DATE	DESCRIPTION OF ISSUE
2	5/28/21	FOR PERMITS
1	9/9/20	FOR REVIEW
SCALE	1" = 20'	
CHECKED	A.ROSS	
DRAWN	D.D.D.	
CHECKED		

ROSS ENGINEERING, LLC
Civil/Structural Engineering & Surveying
909 Islington St.
Portsmouth, NH 03801
(603) 433-7560

CLIENT
IAGO LOWE HALE
74 MILL ROAD
DURHAM, NH 03824

TITLE

EXISTING CONDITIONS PLAN

74 MILL RD
DURHAM, NH 03824
TAX MAP 6, LOT 1-4

JOB NUMBER	DWG. NO.	ISSUE
20-034	1 OF 4	2

Appendix C – *Site Plan*
Ross Engineering, LLC

SHORELAND NOTES

1) AREA WITHIN 250' OF THE REFERENCE LINE = 41,049 SF

2) COVERAGES INSIDE THE 250' SETBACK

LOT COVERAGE

EXISTING IMPERVIOUS COVERAGE

HOUSE	1535 SF
DECK	286 SF
PORCH	64 SF
BULKHEAD	33 SF
SHED	102 SF
BARN	539 SF
GRAVEL	848 SF
TOTAL LOT COVERAGE	3,407 SF
EXISTING LOT COVERAGE	8.3%

PROPOSED LOT COVERAGE

HOUSE	1535 SF
DECK	286 SF
PORCH	64 SF
BULKHEAD	33 SF
SHED	102 SF
ADU	600 SF
GRAVEL	762 SF
TOTAL LOT COVERAGE	3,382 SF
PROPOSED LOT COVERAGE	8.2%

REFERENCE PLANS

1) "SKETCH OF DANIELS LOT" BY F.E. DREW R.L.S. 375. DATED AUGUST 1980. SCRD 1053-0838

NOTES

1) OWNER OF RECORD:
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MINIMUM FRONTAGE	150 FT
SETBACKS:	
FRONT	30 FT
SIDE	20 FT
REAR	30 FT
SHORELAND BUFFER	125 FT
MAXIMUM BUILDING HEIGHT	30 FT
MAXIMUM IMPERVIOUS COVERAGE	30%

4) COVERAGES:

LOT COVERAGE

EXISTING LOT COVERAGE

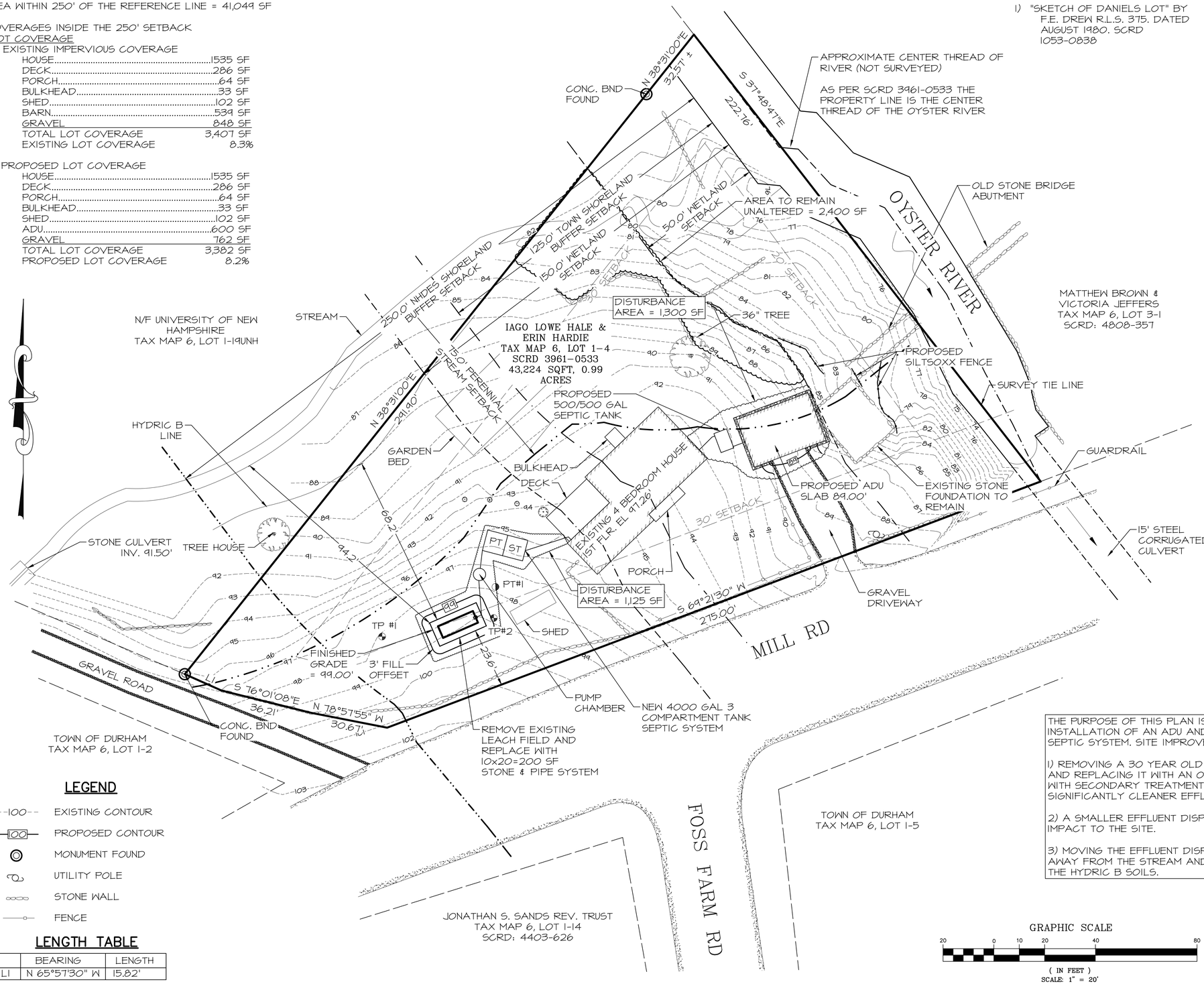
HOUSE	1535 SF
DECK	286 SF
PORCH	64 SF
BULKHEAD	33 SF
SHED	102 SF
BARN	539 SF
GRAVEL	848 SF
TOTAL LOT COVERAGE	3,407 SF
EXISTING LOT COVERAGE	7.9%

PROPOSED LOT COVERAGE

HOUSE	1535 SF
DECK	286 SF
PORCH	64 SF
BULKHEAD	33 SF
SHED	102 SF
ADU	600 SF
GRAVEL	762 SF
TOTAL LOT COVERAGE	3,382 SF
PROPOSED LOT COVERAGE	7.8%

5) THE PARCEL IS PARTIALLY WITHIN FEMA FLOOD ZONE AE, AS PER FLOOD INSURANCE RATE MAP #33017C0318E, PANEL 318 OF 681, DATED SEPTEMBER 30, 2015.

6) TOTAL AREA OF DISTURBANCE = 1300 + 1125 = 2425 SF



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- MONUMENT FOUND
- UTILITY POLE
- STONE WALL
- FENCE

LENGTH TABLE

	BEARING	LENGTH
L1	N 65°57'30" W	15.82'

THE PURPOSE OF THIS PLAN IS TO DEPICT THE INSTALLATION OF AN ADU AND CONNECTING IT TO A NEW SEPTIC SYSTEM. SITE IMPROVEMENTS INCLUDE

1) REMOVING A 30 YEAR OLD TRADITIONAL SEPTIC SYSTEM AND REPLACING IT WITH AN ON SITE SOLUTIONS SYSTEM WITH SECONDARY TREATMENT WHICH WILL RESULT IN SIGNIFICANTLY CLEANER EFFLUENT.

2) A SMALLER EFFLUENT DISPOSAL AREA, MINIMIZING THE IMPACT TO THE SITE.

3) MOVING THE EFFLUENT DISPOSAL AREA 11.7' FURTHER AWAY FROM THE STREAM AND 7.1' FURTHER AWAY FROM THE HYDRIC B SOILS.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
SCALE: 1" = 20'

ISS.	DATE	DESCRIPTION OF ISSUE	
2	5/28/21	FOR PERMITS	
1	9/9/20	FOR REVIEW	

SCALE 1" = 20'
CHECKED A.ROSS
DRAWN D.D.D.
CHECKED

ROSS ENGINEERING, LLC
Civil/Structural Engineering & Surveying
909 Islington St.
Portsmouth, NH 03801
(603) 433-7560

CLIENT
IAGO LOWE HALE
74 MILL ROAD
DURHAM, NH 03824

TITLE

SITE PLAN

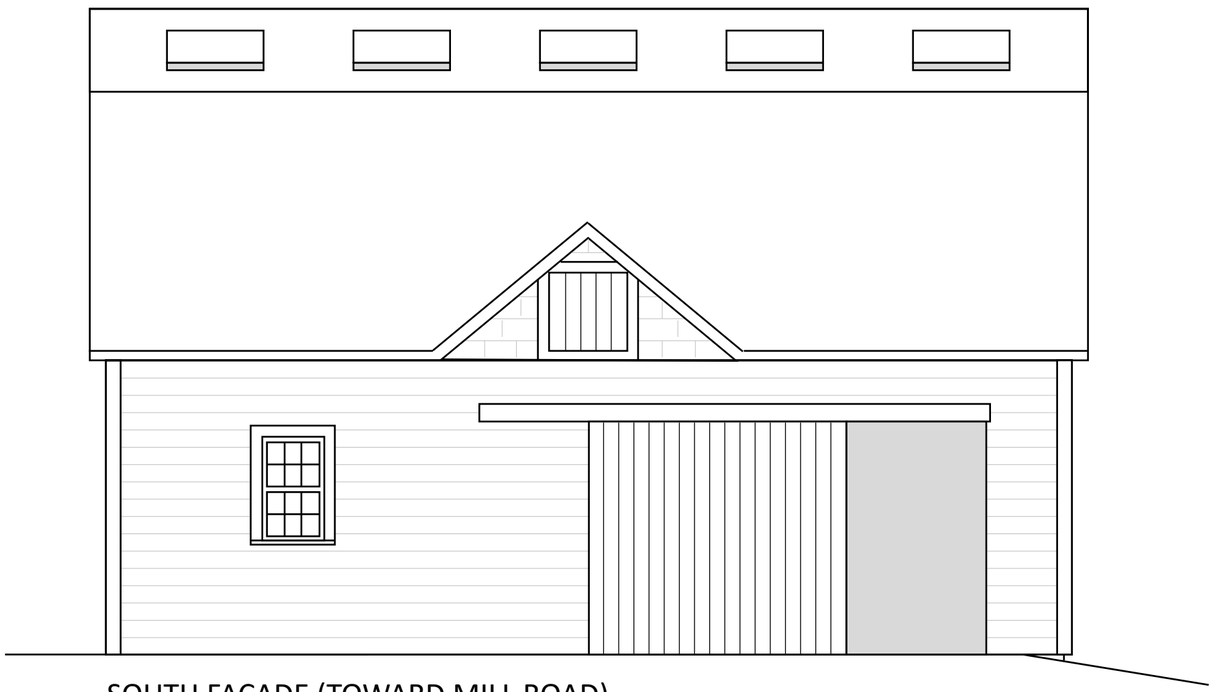
74 MILL RD
DURHAM, NH 03824
TAX MAP 6, LOT 1-4

JOB NUMBER	DWG. NO.	ISSUE
20-034	2 OF 4	2

Appendix D – *Proposed Elevations and Floorplan*

Elevations

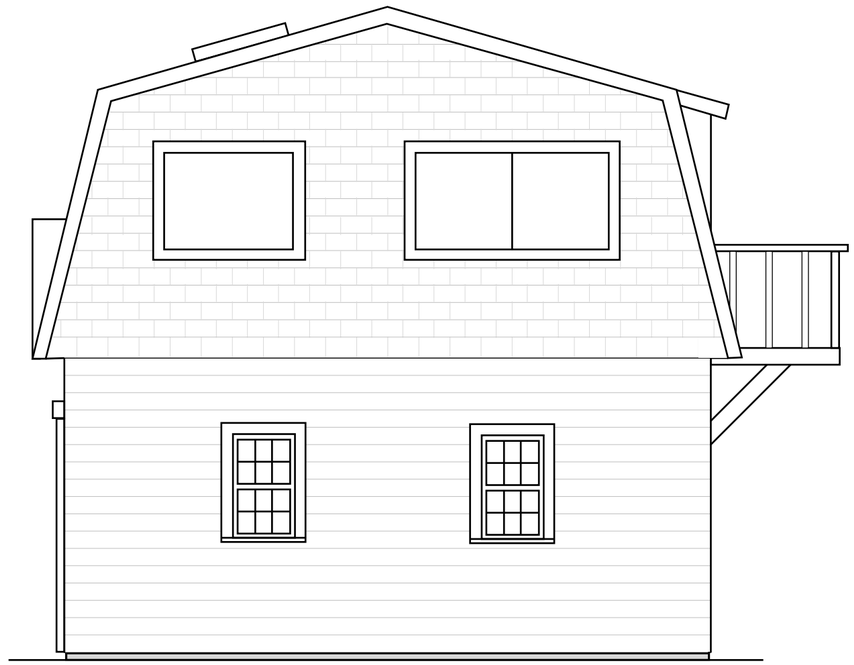
0 1 2 4 8'



SOUTH FACADE (TOWARD MILL ROAD)

WEST FACADE

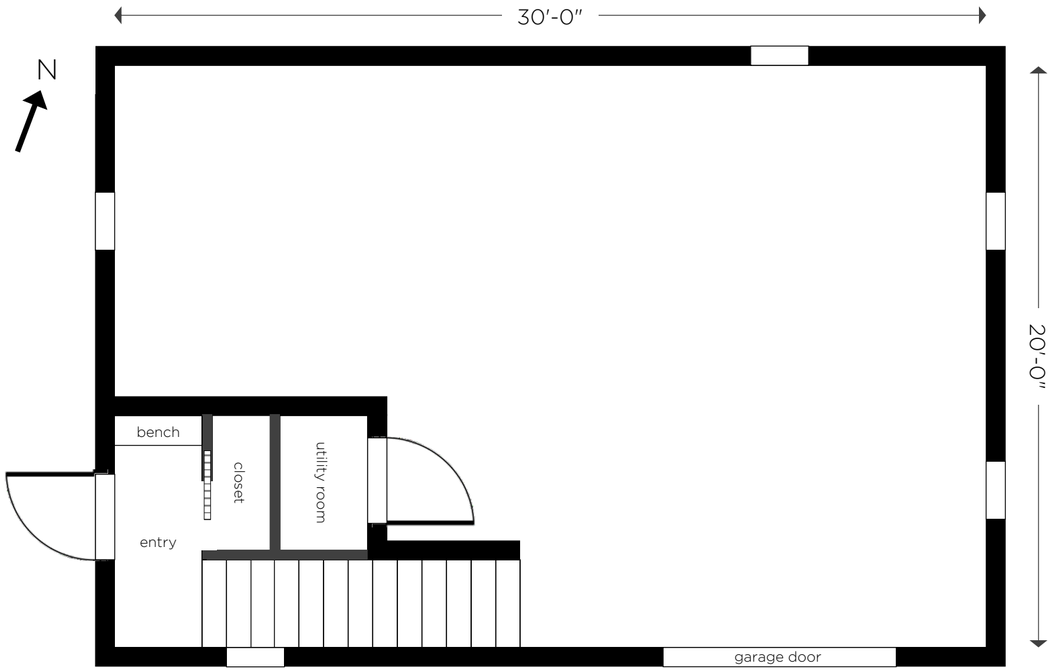
NORTH FACADE



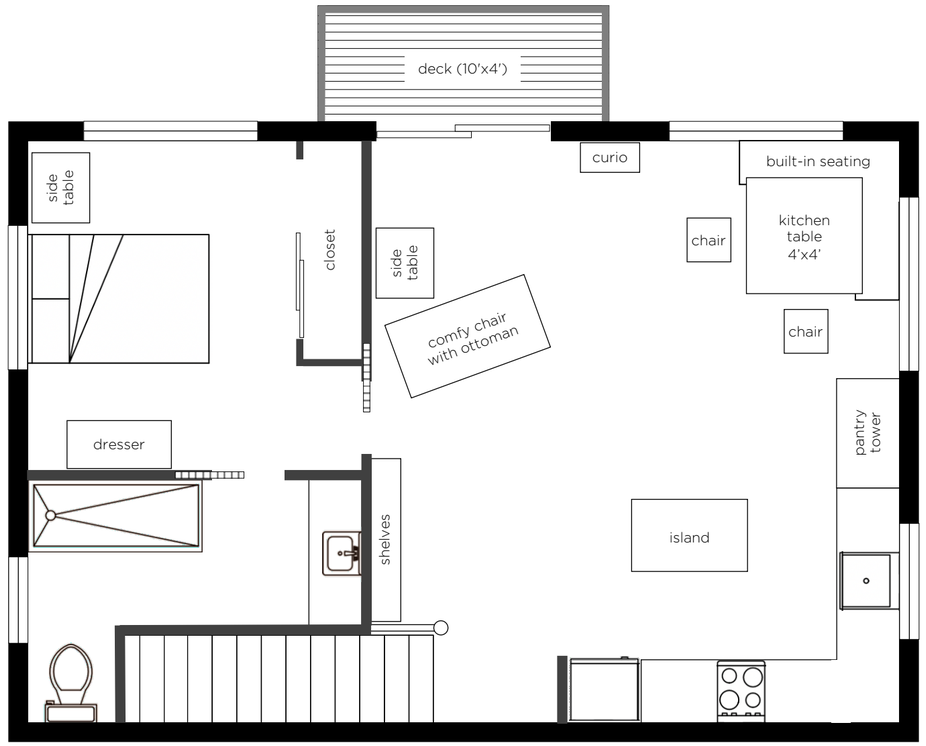
EAST FACADE

74 MILL ROAD, DURHAM, NH

Floorplans



GROUND LEVEL (GARAGE)



UPPER LEVEL (APARTMENT)

74 MILL ROAD, DURHAM, NH

Appendix E – *Stormwater Management and Erosion Control Plans*
Ross Engineering, LLC

NOTES

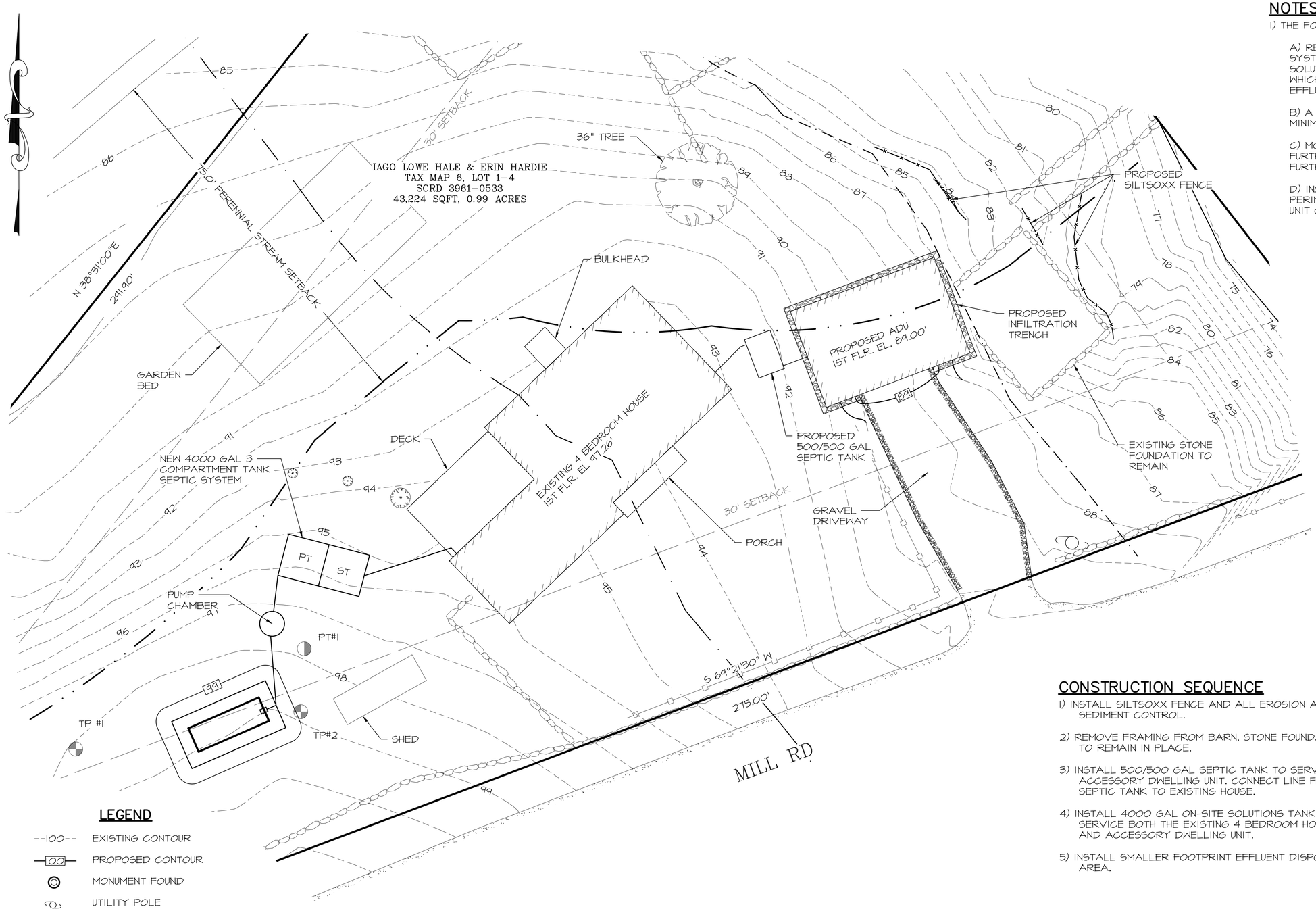
1) THE FOLLOWING SITE IMPROVEMENTS ARE PROPOSED

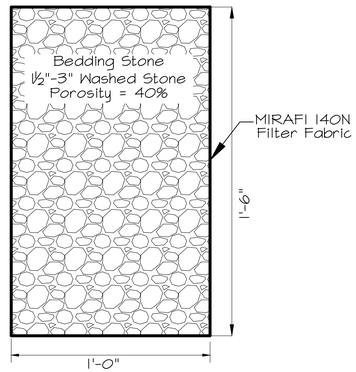
A) REMOVING A 30 YEAR OLD TRADITIONAL SEPTIC SYSTEM AND REPLACING IT WITH AN ON-SITE SOLUTIONS SYSTEM WITH SECONDARY TREATMENT WHICH WILL RESULT IN SIGNIFICANTLY CLEANER EFFLUENT.

B) A SMALLER EFFLUENT DISPOSAL AREA, MINIMIZING THE IMPACT TO THE SITE.

C) MOVING THE EFFLUENT DISPOSAL AREA 11.7' FURTHER AWAY FROM THE STREAM AND 7.1' FURTHER AWAY FROM THE HYDRIC B SOILS.

D) INSTALL INFILTRATION TRENCHES AROUND PERIMETER OF PROPOSED ACCESSORY DWELLING UNIT COLLECTING RUNOFF FROM THE ROOF.





LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- MONUMENT FOUND
- UTILITY POLE
- STONE WALL
- FENCE

LENGTH TABLE

	BEARING	LENGTH
L1	N 65°57'30" W	15.82'

CONSTRUCTION SEQUENCE

1) INSTALL SILTSOXX FENCE AND ALL EROSION AND SEDIMENT CONTROL.

2) REMOVE FRAMING FROM BARN. STONE FOUNDATION TO REMAIN IN PLACE.

3) INSTALL 500/500 GAL SEPTIC TANK TO SERVE ACCESSORY DWELLING UNIT. CONNECT LINE FROM SEPTIC TANK TO EXISTING HOUSE.

4) INSTALL 4000 GAL ON-SITE SOLUTIONS TANK TO SERVICE BOTH THE EXISTING 4 BEDROOM HOUSE AND ACCESSORY DWELLING UNIT.

5) INSTALL SMALLER FOOTPRINT EFFLUENT DISPOSAL AREA.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
SCALE: 1" = 20'

ISS.	DATE	DESCRIPTION OF ISSUE
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TITLE
STORMWATER MANAGEMENT PLAN
74 MILL RD
DURHAM, NH 03824
TAX MAP 6, LOT 1-4

JOB NUMBER	DWG. NO.	ISSUE
20-034	3 OF 4	2

EROSION AND SEDIMENTATION CONTROL CONSTRICTION PHASING AND SEQUENCING

1. SEE "EROSION AND SEDIMENTATION CONTROL GENERAL NOTES" WHICH ARE TO BE AN INTEGRAL PART OF THIS PROCESS.
2. INSTALL SILTSOXX FENCING AS PER DETAILS AND AT SEDIMENT MIGRATION.
3. CONSTRUCT TREATMENT SWALES , LEVEL SPREADERS AND DETENTION STRUCTURES AS DEPICTED ON DRAWINGS.
4. INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCE(S) AS PER DETAIL AND AT LOCATIONS SHOWN ON THE DRAWINGS. MAINTAIN (TOP DRESS) REGULARLY TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC STREETS.
5. STRIP AND STOCKPILE TOPSOIL. STABILIZE PILES OF SOIL CONSTRUCTION MATERIAL & COVER WHERE PRACTICABLE.
6. MINIMIZE DUST THROUGH APPROPRIATE APPLICATION OF WATER OR OTHER DUST SUPPRESSION TECHNIQUES ON SITE.
7. ROUGH GRADE SITE. INSTALL CULVERTS AND ROAD DITCHES.
8. FINISH GRADE AND COMPACT SITE.
9. RE-SPREAD AND ADD TOPSOIL TO ALL ROADSIDE SLOPES. TOTAL TOPSOIL THICKNESS TO BE A MINIMUM OF FOUR TO SIX INCHES.
10. STABILIZE ALL AREAS OF BARE SOIL WITH MULCH AND SEEDING.
11. RE-SEED PER EROSION AND SEDIMENTATION CONTROL GENERAL NOTES.
12. SILT SOXX FENCING TO REMAIN AND BE MAINTAINED FOR TWENTY FOUR MONTHS AFTER CONSTRUCTION TO ENSURE ESTABLISHMENT OF ADEQUATE SOIL STABILIZATION AND VEGETATIVE COVER. ALL SILT SOXX FENCING ARE THEN TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF.
13. PERIMETER CONTROLS SHALL BE INSTALLED PRIOR TO EARTH MOVING OPERATIONS.
14. ALL TEMPORARY WATER DIVERSION (SWALES, BASINS, ETC. MUST BE USED AS NECESSARY UNTIL AREAS ARE STABILIZED.
15. PONDS AND SWALES SHALL BE INSTALLED EARLY ON IN THE CONSTRUCTION SEQUENCE - BEFORE ROUGH GRADING THE SITE.
16. ALL DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM
17. ALL ROADWAYS AND PARKING LOTS SHALL BE STABILIZED WITHIN 72 HOURS OF ACHIEVING FINISHED GRADE.
18. ALL CUT AND FILL SLOPES SHALL BE SEEDED/LOAMED WITHIN 72 HOURS OF ACHIEVING FINISH GRADE.
19. ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER EVERY HALF-INCH OF RAINFALL.
20. THE SMALLEST PRACTICAL AREA SHALL BE DISTURBED DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
21. LOT DISTURBANCE, OTHER THAN THAT SHOWN ON THE APPROVED PLANS, SHALL NOT COMMENCE UNTIL AFTER THE ROADWAY HAS THE BASE COURSE TO DESIGN ELEVATION AND THE ASSOCIATED DRAINAGE IS COMPLETE AND STABLE.

PLANTING NOTES:

1. ALL PLANT MATERIALS SHALL BE FIRST QUALITY NURSERY GROWN STOCK.
2. ALL PLANTS SHALL BE PLANTED IN ACCORDANCE WITH NEW HAMPSHIRE LANDSCAPE ASSOCIATION STANDARDS AND GUARANTEED FOR ONE YEAR BY THE LANDSCAPE CONTRACTOR.
3. ALL TREES AND SHRUBS SHALL HAVE WATER SAUCERS BUILT AROUND THEIR BASES AND THESE SHALL BE MULCHED WITH 4" OF DARK BROWN AGED BARK MULCH. MULCH MUST BE KEPT 2" AWAY FROM THEIR TRUNKS.
4. ALL TREES AND SHRUBS SHALL BE PLANTED AND MULCHED BEFORE LAWN IS SEEDED.

MAINTENANCE REQUIREMENTS:

1. ALL TREES, SHRUBS, AND PERENNIALS WILL NEED TO BE WATERED THROUGH THANKSGIVING DURING THE FIRST SEASON IN WHICH THEY ARE INSTALLED.
2. AN UNDERGROUND DRIP IRRIGATION SYSTEM IS RECOMMENDED. IF AN UNDERGROUND DRIP IRRIGATION SYSTEM IS NOT INSTALLED, SOAKER HOSES WOUND THROUGHOUT PLANTING BEDS ARE ACCEPTABLE. ALTHOUGH OVERHEAD SPRINKLERS ARE RECOMMENDED FOR LAWN AREAS, THEY ARE NOT ACCEPTABLE FOR IRRIGATING TREES AND SHRUBS.

SEEDING AND STABILIZATION FOR LOAMED SITE:

FOR TEMPORARY & LONG TERM SEEDINGS USE AGWAY'S SOIL CONSERVATION GRASS SEED OR EQUAL
COMPONENTS: ANNUAL RYE GRASS, PERENNIAL RYE GRASS, WHITE CLOVER, 2 FESCUES, SEED AT A RATE OF 100 POUNDS PER ACRE,
FERTILIZER & LIME:
NITROGEN (N) 50 LBS/ACRE, PHOSPHATE (P205) 100 LBS/ACRE, POTASH (K20) 100 LBS/ACRE, LIME 2000 LBS/ACRE
MULCH:
HAY OR STRAW 1.5-2 TONS/ACRE

A) GRADING AND SHAPING
1) SLOPES SHALL NOT BE STEEPER THAN 2:1; 3:1 SLOPES OR FLATTER ARE PREFERRED. WHERE MOWING WILL BE DONE, 3:1 SLOPES OR FLATTER ARE RECOMMENDED.

B) SEED BED PREPARATION
1) SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS.
2) STONES LARGER THAN 4 INCHES AND TRASH SHOULD BE REMOVED BECAUSE THEY INTERFERE WITH SEEDING AND FUTURE MAINTENANCE OF THE AREA. WHERE FEASIBLE, THE SOIL SHOULD BE TILLED TO A DEPTH OF ABOUT 4 INCHES TO PREPARE A SEEDBED AND MIX FERTILIZER AND LIME INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

EROSION AND SEDIMENTATION CONTROL GENERAL NOTES

1. CONDUCT ALL CONSTRUCTION IN A MANNER AND SEQUENCE THAT CAUSES THE LEAST PRACTICAL DISTURBANCE OF THE PHYSICAL ENVIRONMENT, BUT IN NO CASE SHALL EXCEED 2 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
2. ALL AREAS SHALL BE STABILIZED WITHIN 45 DAYS OF INITIAL DISTURBANCE.
3. ALL DITCHES, SWALES AND PONDS MUST BE STABILIZED PRIOR TO DIRECTING FLOW TO THEM.
4. ALL GROUND AREAS OPENED UP FOR CONSTRUCTION WILL BE STABILIZED WITHIN 24 HOURS OF EARTH-DISTURBING ACTIVITIES BEING CEASED, AND WILL BE FULLY STABILIZED NO LONGER THAN 14 DAYS AFTER INITIATION, (SEE NOTE 11 FOR DEFINITION OF STABLE). ALL SOILS FINISH GRADED MUST BE STABILIZED WITHIN SEVENTY TWO HOURS OF DISTURBANCE. ALL TEMPORARY OR LONG TERM SEEDING MUST BE APPLIED TO COMPLY WITH "WINTER CONSTRUCTION NOTES" (SEE WINTER CONSTRUCTION NOTES). EMPLOY TEMPORARY EROSION AND SEDIMENTATION CONTROL DEVICES AS DETAILED ON THIS PLAN AS NECESSARY UNTIL ADEQUATE STABILIZATION HAS BEEN ASSURED (SEE NOTE 11 FOR DEFINITION OF STABLE).
5. TEMPORARY & LONG TERM SEEDING: USE SEED MIXTURES, FERTILIZER, LIME AND MULCHING AS RECOMMENDED (SEE SEEDING AND STABILIZATION NOTES).
6. SILTSOXX FENCING TO BE SECURELY EMBEDDED AND STAKED AS DETAILED. WHEREVER POSSIBLE A VEGETATED STRIP OF AT LEAST TWENTY FIVE FEET IS TO BE KEPT BETWEEN SILTSOXX AND ANY EDGE OF WET AREA.
7. SEEDED AREAS WILL BE FERTILIZED AND RE-SEEDED AS NECESSARY TO ENSURE VEGETATIVE ESTABLISHMENT.
8. SEDIMENT BASIN(S), IF REQUIRED, TO BE CHECKED AFTER EACH SIGNIFICANT RAINFALL AND CLEANED AS NEEDED TO RETAIN DESIGN CAPACITY.
9. SILTSOXX FENCING WILL BE CHECKED REGULARLY AND AFTER EACH SIGNIFICANT RAINFALL. NECESSARY REPAIRS WILL BE MADE TO CORRECT UNDERMINING OR DETERIORATION OF THE BARRIER AS WELL AS CLEANING, REMOVAL AND PROPER DISPOSAL OF TRAPPED SEDIMENT.
10. TREATMENT SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY UNTIL ADEQUATE VEGETATIVE COVER HAS BEEN ESTABLISHED.
11. AN AREA SHALL BE CONSIDERED FULLY STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
- BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED
- A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED
- A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIP RAP HAS BEEN INSTALLED.
- EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.

11. ALL EROSION AND SEDIMENTATION CONTROL MEASURES IN THE PLAN SHALL MEET THE DESIGN BASED ON STANDARDS AND SPECIFICATIONS SET FORTH IN THE STORM WATER MANAGEMENT AND EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE (DECEMBER 2008 OR LATEST) PREPARED BY ROCKINGHAM COUNTY CONSERVATION DISTRICT, N.H. DES AND NRCS.

WINTER CONSTRUCTION NOTES

1. ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPETED IN ADVANCE OF THAW OR SPRING MELT EVENT.;
2. ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS;
3. AFTER OCTOBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL PER NHDOT ITEM 304.3.

OUTLET PROTECTION

THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIP RAP HAS BEEN DISPLACED, UNDERMINED, OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS; FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAIL WATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

LONG TERM SEEDING

*WELL TO MODERATELY WELL DRAINED SOILS

FOR CUT AND FILL AREA AND FOR WATERWAYS AND CHANNELS

SEEDING MIXTURE C

	lb/ACRE	lb/1000SF
TALL FESCUE	20	0.45
CREEPING RED FESCUE	20	0.45
RED CLOVER (ALSIKE)	20	0.45
TOTAL	48	1.35

LIME: AT 2 TONS PER ACRE OR 100 LBS PER 1,000 S.F.
FERTILIZER: 10 20 20 (NITROGEN, PHOSPHATE, POTASH AT 500# PER ACRE.
MULCH: HAY OR CLEAN STRAW; 2 TONS/ACRE OR 2 BALES/1000 S.F.

GRADING AND SHAPING:
SLOPES SHALL NOT BE STEEPER THAN 2 TO 1. 3 TO 1 OR FLATTER SLOPES ARE PREFERRED.
SEEDBED PREPARATION:
SURFACE AND SEEPAGE WATER SHOULD BE DRAINED OR DIVERTED FROM THE SITE TO PREVENT DROWNING OR WINTER KILLING OF THE PLANTS. STONES LARGER THAN FOUR INCHES AND TRASH SHOULD BE REMOVED. SOD SHOULD BE TILLED TO A DEPTH OF FOUR INCHES TO PREPARE SEEDBED. FERTILIZER & LIME SHOULD BE MIXED INTO THE SOIL. THE SEEDBED SHOULD BE LEFT IN A REASONABLY FIRM AND SMOOTH CONDITION. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHEREVER PRACTICAL.

* FROM: STORMWATER MANAGEMENT AND EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE, DECEMBER 2008.

SHORT TERM SEEDING

*WELL TO MODERATELY WELL DRAINED SOILS

FOR CUT AND FILL AREA AND FOR WATERWAYS AND CHANNELS

SEEDING MIXTURE C

	#/ACRE	#/1000SF
FOR APRIL 1 - AUGUST 15		
ANNUAL RYE GRASS	40	1
FOR FALL SEEDING		
WINTER RYE	112	2.5

LIME: AT 1 TON PER ACRE OR 100 LBS PER 1,000 S.F.
FERTILIZER: 10 10 10 (NITROGEN, PHOSPHATE, POTASH AT 500# PER ACRE.
MULCH: HAY OR CLEAN STRAW; 2 TONS/ACRE OR 2 BALES/1000 S.F.

GRADING AND SHAPING:
SLOPES SHALL NOT BE STEEPER THAN 2 TO 1. 3 TO 1 OR FLATTER SLOPES ARE PREFERRED.
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* FROM: STORMWATER MANAGEMENT AND EROSION AND SEDIMENTATION CONTROL HANDBOOK FOR URBAN AND DEVELOPING AREAS IN NEW HAMPSHIRE, DECEMBER 2008.

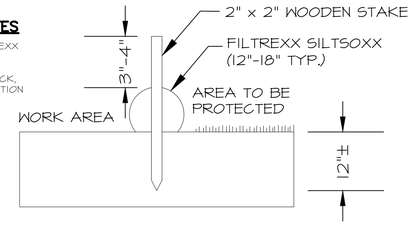
WHEN PROPOSED FOR ALTERATION DURING CONSTRUCTION AS BEING INFESTED WITH INVASIVE SPECIES SHALL BE MANAGED APPROPRIATELY USING THE DISPOSAL PRACTICES IDENTIFIED IN "NHDOT - BEST MANAGEMENT PRACTICES FOR ROADSIDE INVASIVE PLANTS -2008" AND "METHODS FOR DISPOSING NON-NATIVE INVASIVE PLANTS - UNH COOPERATIVE EXTENSION - 2010"

SEED MIXES SHALL NOT CONTAIN ANY SPECIES IDENTIFIED BY THE NEW HAMPSHIRE PROHIBITED INVASIVE PLANT SPECIES LIST.

FILTREXX SILTSOXX NOTES

1) ALL MAERTIAL TO MEET FILTREXX SPECIFICATIONS

2) SILTSOXX COMPOST, SOIL, ROCK, SEED FILL TO MEET APPLICATION REQUIREMENTS



Filtrexx SiltSoxx Section
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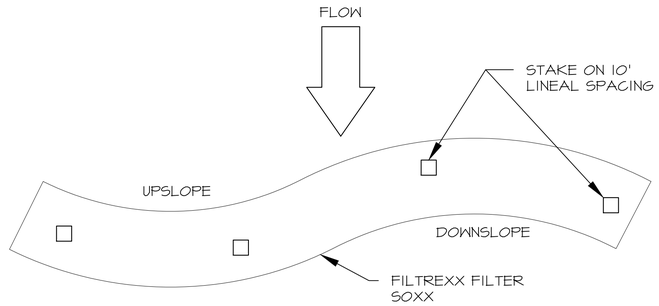
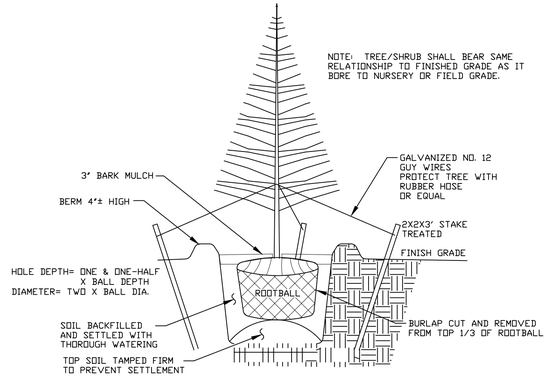


Filtrexx SiltSoxx Plan View
N.T.S.



PLANTING DETAIL
N.T.S.

ISS.	DATE	DESCRIPTION OF ISSUE	
2	5/28/21	FOR PERMITS	
1	9/9/20	FOR REVIEW	

SCALE 1" = 20'
CHECKED A.ROSS
DRAWN D.D.D.
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CLIENT
IAGO LOWE HALE
74 MILL ROAD
DURHAM, NH 03824

TITLE

EROSION CONTROL PLAN

74 MILL RD
DURHAM, NH 03824
TAX MAP 6, LOT 1-4

JOB NUMBER	DWG. NO.	ISSUE
20-034	4 OF 4	2

Appendix F – *NHDES Shoreland Impact Permit*

The State of New Hampshire

Department of Environmental Services

Robert R. Scott, Commissioner

SHORELAND IMPACT PERMIT 2021-01825

NOTE CONDITIONS

PERMITTEE:	**ERIN H/IAGO L HALE** **74 MILL RD** **DURHAM NH 03824**
PROJECT LOCATION	**74 MILL RD, DURHAM** **TAX MAP #6, LOT #4**
WATERBODY:	**OYSTER RIVER**
APPROVAL DATE:	**JULY 09, 2021**

EXPIRATION DATE: JULY 09, 2026

Shoreland Permit Application 2021-01825 has been found to meet or exceed the requirements of RSA 483-B as required per RSA 483-B:6, II. The New Hampshire Department of Environmental Services (NHDES) hereby issues this Shoreland Impact Permit with conditions pursuant to RSA 483-B:6, II.

PERMIT DESCRIPTION:
Impact 2,425 square feet of protected shoreland in order to remove an existing accessory structure with the exception of its stone foundation, construct a second conforming primary structure on the property, and complete septic system upgrades.

Impervious Surface Percentage Approved: 8.2 %

Natural Woodland Area Required per RSA 483-B:9, V, (b): 2,400 square feet

THE FOLLOWING PROJECT-SPECIFIC CONDITIONS HAVE BEEN APPLIED TO THE PERMIT PURSUANT TO ENV-WQ 1406.15(c):

1. All work shall be in accordance with plans by Ross Engineering, LLC, revision date of May 28, 2021 and received by the NH Department of Environmental Services (NHDES) on June 9, 2021 pursuant to 483-B:5-b Permit Required; Exemption, I, (a).
2. Neither the new primary structure nor the proposed septic system may be constructed until the system is approved by the NHDES Subsurface Systems Bureau as required pursuant to RSA 483-B:6, I, (c).
3. This permit shall not be interpreted as acceptance or approval of any impact that will occur within wetlands jurisdiction regulated under RSA 482-A including all wetlands, surface waters and their banks, and the tidal-buffer zone. The owner is responsible for maintaining compliance with RSA 482-A and Administrative Rules Env-Wt 100 - 900 and obtaining any Wetland Impact Permit that may be required prior to construction, excavation or fill that will occur within Wetlands jurisdiction as required pursuant to RSA 483-B:6, I, (c).
4. This permit shall not preclude NHDES from taking any enforcement or revocation action as authorized pursuant to 483-B:5, I. If NHDES later determines that any of the structures depicted as "existing" on the plans submitted by the applicant were not previously permitted or grandfathered.

THE FOLLOWING STANDARD PROJECT CONDITIONS SHALL BE MET PURSUANT TO ENV-WQ 1406.20:

1. Erosion and siltation control measures shall be installed prior to the start of work, be maintained throughout the project, and remain in place until all disturbed surfaces are stabilized.
2. Erosion and siltation controls shall be appropriate to the size and nature of the project and to the physical characteristics of the site, including slope, soil type, vegetative cover, and proximity to wetlands or surface waters.
3. No person undertaking any activity in the protected shoreland shall cause or contribute to, or allow the activity to cause or contribute to, any violations of the surface water quality standards established in Env-Wq 1700.
4. Any fill used shall be clean sand, gravel, rock, or other suitable material.
5. For any project where mechanized equipment will be used, orange construction fence shall be installed prior to the start of work at the limits of the temporary impact area as shown on the approved plans; be maintained throughout the project; and remain in place until all mechanized equipment has been removed from the site.

ANY INDIVIDUAL CONDUCTING WORK UNDER THIS PERMIT IS ADVISED OF THE FOLLOWING:

1. During construction, a copy of this permit should be posted on site in a prominent location visible to inspecting personnel.
2. This permit does not convey a property right, nor authorize any injury to property of others, nor invasion of rights of others.
3. Pursuant to Env-Wq 1406.21, transfer of this permit to a new owner requires notification to, and approval of, the NHDES.
4. This project has been screened for potential impact to **known** occurrences of protected species and exemplary natural communities in the immediate area. Since many areas have never been surveyed, or only cursory surveys have been performed, unidentified sensitive species or communities may be present. This permit does not absolve the permittee from due diligence in regard to state, local or federal laws regarding such communities or species. This permit does not authorize in any way the take of threatened or endangered species, as defined by RSA 212-A:2, or of any protected species or exemplary natural communities, as defined in RSA 217-A:3.

APPROVED:

D Forst

Darlene Forst
Shoreland Section Supervisor, Shoreland Program
Wetlands Bureau, Land Resources Management
Water Division

Appendix G – *Information about Advanced Onsite Solutions*

ADVANCED ONSITE SOLUTIONS LLC
PO Box 248
Canterbury, NH 03224
(603)-783-8042
Toll Free: (866) 900-2415

CONVENTIONAL SUBSURFACE DISPOSAL SYSTEMS
vs.
THE CLEAN SOLUTION

In a subsurface disposal system there are basically two processes that break down and treat wastewater. The first process is Anaerobic (without oxygen) in the septic tank, and the second process is Aerobic (with oxygen), which often occurs in the leach field of a conventional subsurface disposal system.

Function of a Septic Tank

The first component of the subsurface disposal system is the septic tank. The septic tank inlet receives black and gray water from the structure (i.e. house) and allows solids to settle out while lighter matter – like oil and grease – rises to the top. The septic tank is the anaerobic component of a conventional subsurface disposal system, allowing the biological process of breaking down solids into dissolved solids - a necessary step for final aerobic treatment. The septic tank then outlets effluent that has gone through the anaerobic process to a leach field.

Function of a Leach Field

Since an anaerobic septic tank provides only partial treatment, further aerobic activity is required for complete treatment. The leach field is the component of the subsurface disposal system that provides this aerobic treatment. There are three major types of leach fields currently being used; Pipe and Stone systems, Chamber Systems, and Fabric Based Systems. All three types require airflow through the system to begin the aerobic treatment process. Air is introduced into the leach field either by airflow through the soil or by adding vents. Aerobic treatment creates a biomat /clogging layer (sludge) within the leach field. The biomat is a biological growth which filters out solid particles and dissolved pollutants not processed within the septic tank. As the biomat forms, a clogging layer forms on the soil interface between the stone and the sand blanket. On fabric based systems the clogging layer forms on the fabric as well as the soil interface between the fabric material and soil surface. The development of biomat /clogging layer is a function of the organic loading as well as the loading rate (gallons per day). High strength effluent from restaurants is typically 5 to 10 times stronger than residential effluent and will result in the biomat / clogging layer forming at a faster rate. As the biomat / clogging layer becomes thicker the infiltration rate of the system decreases. As the infiltration rate decreases over time the leach field becomes overloaded (flooded). Once overloaded, the leach field converts from aerobic treatment to anaerobic treatment. At this point the leach field no longer is able to effectively treat the wastewater, which results in polluting groundwater and nearby surface water. Onsite septic systems are a major concern for property owners in sensitive environmental areas.

Function of *THE CLEAN SOLUTION*

THE CLEAN SOLUTION utilizes a septic tank to perform the same function as the septic tank in a conventional subsurface disposal system. ***THE CLEAN SOLUTION*** system differs from a conventional septic system, however, in that the aerobic treatment process occurs within the BioCon™ chamber, instead of in a leach field.

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In the BioCon chamber, air is introduced into the effluent stream. The air (oxygen) and effluent stream (food) then prompts the growth of a biofilm (bacteria) on the media stored in the BioCon chamber. The biofilm breaks down the wastewater, reducing BOD_5 and TSS levels, as well as nitrogen and phosphorus. The biofilm in the BioCon chamber is equivalent to the biomat in the leach field, creating sludge as a byproduct of the treatment process. The treated effluent from the BioCon chamber then flows into a settling chamber. The settling chamber allows excess sludge to settle out of the effluent.

From the settling chamber, clear treated effluent is dispersed into the ground through a dispersal field. The advantage of ***THE CLEAN SOLUTION*** system is the "Biomat" has been trapped in the settling chamber and is pumped out when the septic tank is serviced. ***THE CLEAN SOLUTION*** system has provided the aerobic treatment, allowing clear treated effluent to be dispersed into the ground in a much smaller area called a “dispersal field”. Because of ***THE CLEAN SOLUTION*** treatment process, the dispersal field does not suffer the same clogging fate as a conventional leach field. The size of the dispersal field varies from State to State and is typically set by a State's Environmental Department. Call AOS for the appropriate sizing information of the dispersal field.

With a conventional soil based septic system, homeowners are not typically aware of problems lurking in the leach field below the lawn. Owners only become aware that the leach field has reached its effective life span - when the sewer line backs up into the house or the lawn becomes too "soggy" to mow. Remote leach fields go years in failure without anyone noticing the problem. Long before the "soggy" areas are noticed or the sewer backs up into the house, untreated wastewater has entered the groundwater and nearby surface water. When the homeowner reaches the "soggy" lawn point the system needs to be replaced, which is very costly and disruptive. Often the replacement of the leach field results in a major impact to the property’s existing landscaping.

With ***THE CLEAN SOLUTION***, the system is typically inspected when the septic tank is serviced. The technician inspecting the system is trained in its proper operation and determines if the system is functioning properly. If a problem is encountered, it can often be corrected during the inspection process and long before the "soggy lawn" symptom occurs.

When to Use *THE CLEAN SOLUTION*

THE CLEAN SOLUTION system is well suited for use in any septic system application where the installation of a standard leach field would be expensive or difficult – whether it’s a single-family house, multi unit development, or a commercial development. Examples include homes on bodies of water, high water tables, ledge, small lots, housing developments, condo units, restaurants, shopping centers and office complexes. ***THE CLEAN SOLUTION*** unit is an affordable, completely in-ground system that is ideal for all new installations or failed system replacements.

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ADVANTAGES OF USING *THE CLEAN SOLUTION*

Environmentally Friendly

- ***THE CLEAN SOLUTION*** system, a tank that is installed in line after the septic tank, provides the same aerobic treatment that a leach field is designed to provide. As a result, a smaller field is required to disperse the treated effluent into the ground.
- ***THE CLEAN SOLUTION*** system helps prevent ground water pollution and protects our natural streams, lakes and wetlands.
- Adaptable for sensitive sites.
- Tests show that ***THE CLEAN SOLUTION*** is more environmentally safe.
- Recharges groundwater with a higher level of treatment than conventional systems.

User Friendly

- Accommodates vacations, low flows and peak loads.
- Landscape friendly - tanks in ground, no raised covers above ground.
- Low operating cost.
- Does not require a pump for gravity systems.
- Reduces costly repairs in the future.

Low Maintenance

- In residential applications, pumping required only every 2 to 3 years depending upon use.
- There are no mechanical or electrical components within the BioCon treatment chamber.
- **Does not require remote operating via phone modem to maintain treatment.**

Technical and Installation Support

- AOS provides one-on-one support throughout the design, installation and startup process.
- AOS staff has experience in designing all types of subsurface disposal systems.
- AOS has on-staff Licensed Designers, Installers, Certified Septic System Evaluators and Wetland Scientists trained in wastewater sampling.
- AOS staff has been involved in onsite wastewater disposal system designs since 1986.
- AOS can provide you value engineering services on projects for cost comparisons.

Community Developments

- Grouping homes together to utilize larger ***CLEAN SOLUTION*** systems, in conjunction with the smaller dispersal field, can substantially reduce cost. The larger systems also permit better land use and can result in maximizing the number of units allowed on a piece of land.

Restaurants

- ***THE CLEAN SOLUTION*** system can be used to treat high strength wastewater.
- Improves efficiency of the subsurface disposal system dispersal field.
- Reduces costly repairs in the future.

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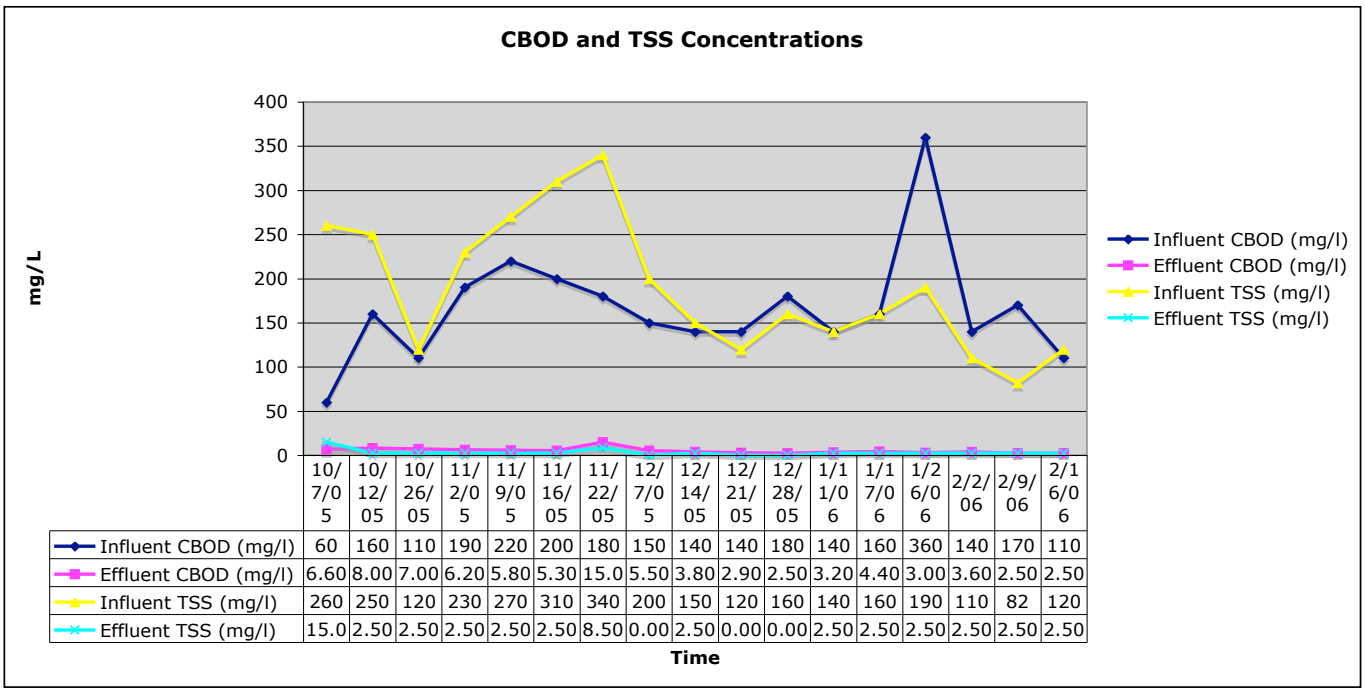
INDEPENDENT TEST RESULTS

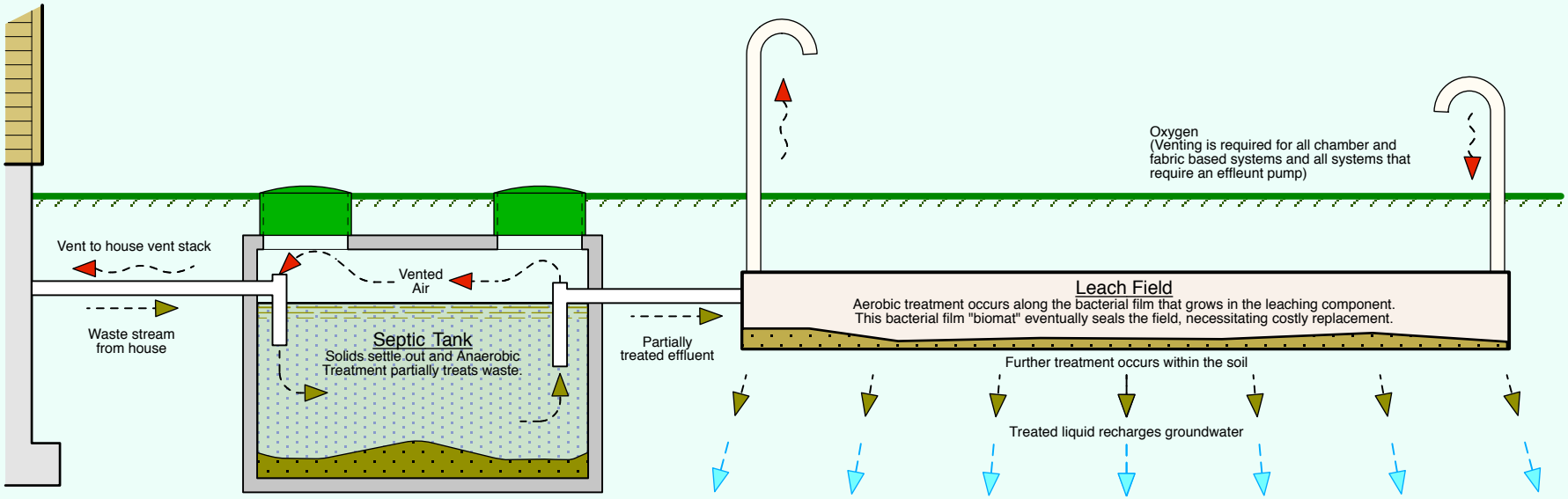
In addition to the creativity and flexibility that it gives designers to fit systems into a natural setting while reducing impact to natural buffers, *THE CLEAN SOLUTION* reduces BOD_5 and TSS below 30 mg/l, and in most residential projects the results are in the single digits. The system has been tested at the Massachusetts Alternative Septic Testing Center located at Otis Air National Guard Base on Cape Cod. A measured 550 gal/day from the base facilities are metered into the system each day. Test results average 5.2 mg/l BOD_5, 3.1.mg/l TSS, levels far superior to municipal plants, typically operating at 30mg/l for both BOD and TSS.



	10/7/05	10/12/05	10/26/05	11/2/05	11/9/05	11/16/05	11/22/05	12/7/05	12/14/05	12/21/05	12/28/05	1/1/06	1/7/06	1/26/06	2/2/06	2/9/06	2/16/06
Influent CBOD (mg/l)	60	160	110	190	220	200	180	150	140	140	180	140	160	360	140	170	110
Effluent CBOD (mg/l)	6.60	8.00	7.00	6.20	5.80	5.30	15.0	5.50	3.80	2.90	2.50	3.20	4.40	3.00	3.60	2.50	2.50
Influent TSS (mg/l)	260	250	120	230	270	310	340	200	150	120	160	140	160	190	110	82	120
Effluent TSS (mg/l)	15.0	2.50	2.50	2.50	2.50	2.50	8.50	0.00	2.50	0.00	0.00	2.50	2.50	2.50	2.50	2.50	2.50

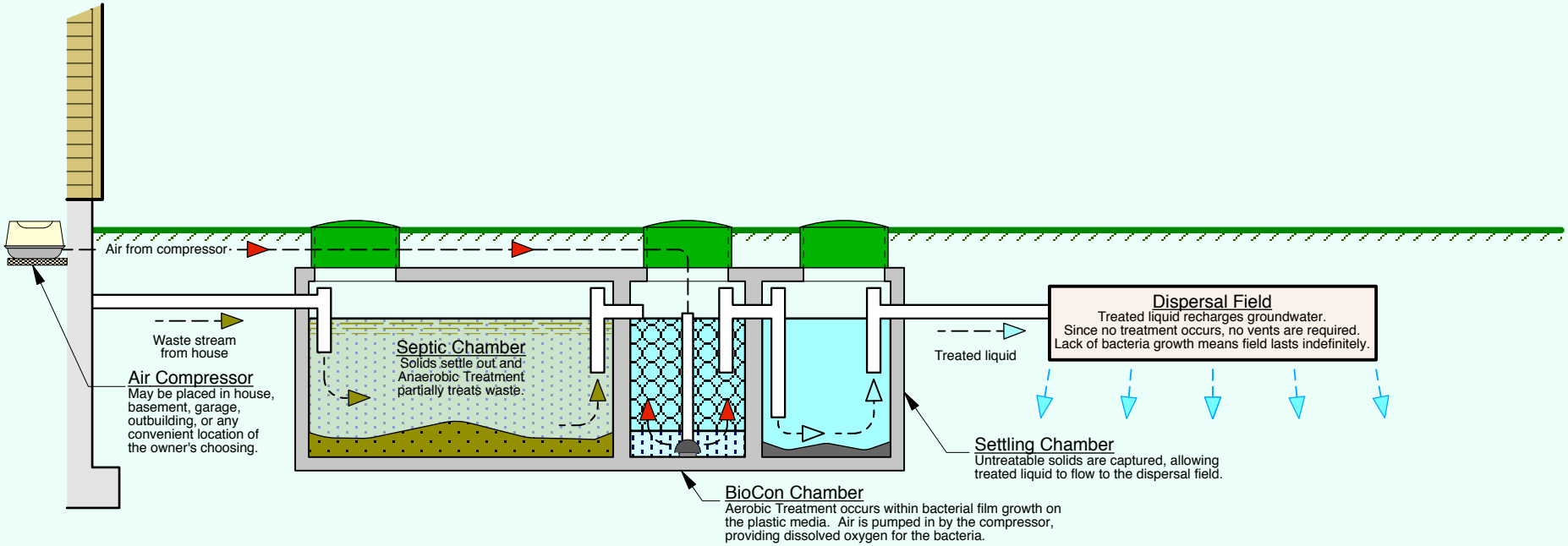
It is important to note the difference between the influent and effluent CBOD, which is a measure of the strength of the wastewater. The influent test BOD is very typical of that from the septic tank in a residential dwelling.

High strength wastewater from a restaurant typically has BOD and TSS levels four to ten times higher then residential wastewater. In wastewater sampling completed by AOS, we have seen wastewater strength as high as 4900 mg/l for BOD, 4000 mg/l for TSS and FOG (Fats-oil-grease) at 930 mg/l. Conventional leach field sizing is based on residential strength wastewater. The organic loading on a conventional soil or fabric based leach field from high strength wastewater increases the rate that the Biomat forms resulting in early failures. ***THE CLEAN SOLUTION*** system reduces high strength wastewater down to levels typical of treated residential wastewater.



CONVENTIONAL LEACH FIELD SEPTIC SYSTEM

Treatment occurs within the leach field components, whether fabric wrapped pipes or mats, concrete or plastic chambers or traditional pipe & stone.



THE CLEAN SOLUTION™ ALTERNATIVE SEPTIC SYSTEM

Treatment occurs within the BioCon™ Aerobic treatment chamber, allowing for a dispersal area smaller than a leach field.

Advanced **O**nsite **S**olutions LLC
innovative wastewater solutions with sustainable results
P.O. Box 248
Canterbury, NH 03224
Phone 603.783-8042
www.thecleansolution.com

Appendix H – *ZBA Decision from August 14, 2020*

TOWN OF DURHAM
8 NEWMARKET ROAD
DURHAM, NH 03824
Tel: 603/868-8064
www.ci.durham.nh.us

Property Referenced:
Tax Map 6, Lot 1-4

ZONING BOARD OF ADJUSTMENT

RE: PUBLIC HEARING on a petition submitted by Iago & Erin Hale, Durham, New Hampshire for an APPLICATION FOR VARIANCE from Article XXII.1, Section 175-153 of the Durham Zoning Ordinance to change the use of an existing outbuilding to an accessory apartment. The property involved is shown on Tax Map 6, Lot 1-4, is located at 74 Mill Road, and is in the Residence B Zoning District.

DECISION OF THE BOARD

After review of the pertinent sections of the Zoning Ordinance of the Town of Durham, and after full consideration of the evidence submitted by Iago & Erin Hale and testimony given at a Public Hearing on August 11, 2020, a motion was made and seconded:

that the Zoning Board of Adjustment approve a petition submitted by Iago & Erin Hale, Durham, New Hampshire for an APPLICATION FOR VARIANCE from Article XXII.1, Section 175-153 of the Durham Zoning Ordinance to change the use of an existing outbuilding to an accessory apartment with reference to the provided Appendix C, elevations and floor plans. The replacement structure shall maintain the approximate location and massing as the existing structure.

The motion PASSED on a vote of 5-0-0 and the application for variance was approved.

14 Aug 20
Date

Chris Sterndale, Chair
Durham Zoning Board of Adjustment

NOTE: Any person affected by this decision has the right to appeal this decision. If you wish to appeal, you must act within thirty (30) calendar days from the date of the hearing. The necessary first step before any appeal may be taken to the courts is to apply to the Zoning Board of Adjustment for a rehearing. The motion for rehearing must set forth all the grounds upon which you will base your appeal. See New Hampshire Statutes, RSA Chapter 677, for details.

As per RSA 674:33 Variances and Special Exceptions shall be valid if exercised within 2 years from the date of final approval, or as further extended by local ordinance or by the zoning board of adjustment for good cause, provided that no such variance shall expire within 6 months after the resolution of a planning application filed in reliance upon the variance.

Any questions should be directed to Audrey Cline, Zoning Administrator/Code Enforcement Officer.