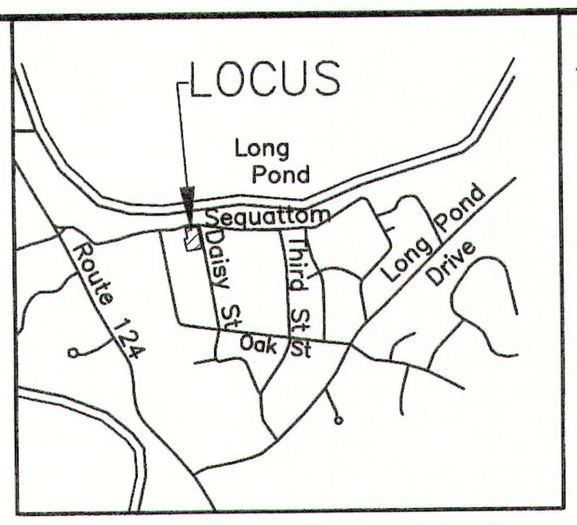
Zoning Compliance

Zone: R-L	Zoning	Existing
Min Front Setback	25'	28.7'/23.3'
Min Side Setback	20'	9.7'
Min Rear Setback	20'	106.3'
Building Coverage	(3,224 sf) 15% max	1,712 sf 8.0%
Site Coverage	(6,449 sf) 30% max	2,232 sf 10.4%

SEQUATTOM ROAD
30' Wide Layout
DAISY STREET
Variable Width
50' Buffer
100' Buffer
Limit Flood Zone A
Top of Bank
guy
CB/DH FND
A=81.55'
R=405.00'
19.13'
S 80°14'50" W
N 80°14'50" E
R=375.00'
A=82.08'
Utility Pole
OHU
W
PAVED DRIVEWAY
Threshhold EL=46.18
18.71'
29.2'
28.7'
23.3'
Step
gm
10.1'
Threshhold EL=47.12
Top of Fnd EL=46.61
EXISTING DWELLING
Ch
BH
Conc & Slate Patio
em
23.6'
9.7'
N 10°33'00" W
85.14'
S 10°33'00" E
181.16'
SHED
guy
swale
N 79°27'00" E
25.00'
N 10°33'00" W
106.36'
106.3'
125.00'
S 79°27'00" W
Parcel S5-2
Area = 21,498 SF±
or 0.49 Ac±
Iron Pipe Found
Utility Pole
guy
SCALE: 1"=20'
0 20 40 60

LOCUS



Assessors' ID: 101-S5-2
Deed: Book 32,963, Page 326
Plan: Book 550, Page 75, Lot 61

NOTE:
* This property is not located within a Special Flood Hazard Area.
** This property is not located within a Zone II, Drinking Water Protection District.
*** This area is located with a Natural Resource Area Nitrogen Sensitive Area.

LEGEND

50	Existing Contour
OHU	Overhead Utility Lines
W	Existing Water Line
X	Existing Fence Line
	Existing Cesspool

COMMONWEALTH of MASSACHUSETTS
MICHAEL S. LADUE
No. 37560
PROFESSIONAL LAND SURVEYOR
22-270
8/14/23

MORAN ENGINEERING ASSOCIATES
508-432-2878 941 ROUTE 28, HARWICH, MA

EXISTING CONDITIONS PLAN IN HARWICH
Prepared For: Mariner Kemper
41 SEQUATTOM ROAD HARWICH, MA

PROJECT: 22-270 | SHEET 1 of 1 | DATE: 01/16/23

Wells not shown exceed 150' from the proposed SAS

Zoning Compliance

Zone: R-L	Zoning	Existing	Proposed
Min Front Setback	25'	28.7'/23.3'	28.7'/21.7'
Min Side Setback	20'	9.7'	9.7'
Min Rear Setback	20'	106.3'	110.8'
Building Coverage	(3,224 sf) 15% max	1,712 sf 8.0%	2,836 sf 13.2%
Site Coverage	(6,449 sf) 30% max	2,232 sf 10.4%	3,644 sf 17.0%

SEQUATTOM ROAD
30' Wide Layout
50' Buffer
Flood Zone A
Top of Bank
CB/DH FND
Utility Pole
Pine
R=375.00'
N 80°14'50" E
A=82.08'
18.71'
29.2'
28.7'
15' Holly
Existing Septic
Existing Septic
PAVED DRIVEWAY
30.3'
CB/DH FND
20" Pine
26" Oak
21.7'
23.3'
BENCHMARK: EL 48.1
– DATUM NAVD 88 –
T.O.CB/DH FND
DAISY STREET
100' Buffer
Variable Width
Step
10.1'
gm
Top of Fnd
EL=46.61
"EXISTING DWELLING
BH
Conc & Slate Patio
em
23.6'
Oak
Pine
N 10°33'00" W
85.14'
Ch
9.7'
PROPOSED ADDITION
ToF EL=51.0
PROPOSED STONE PATIO
Patio EL=50.4
PROPOSED ADDITION
ToF EL=51.0
22.4'
guy
9.7'
10'
PROPOSED. RETAIN WALL
Top of Wall EL=50.4
20'
14.7'
PROPOSED H-20 SEPTIC SYSTEM
N 79°27'00" E
25.00'
PROP. SHED 18'x12'
TH#1
TH#2
RESERVE SAS
TH#3
TH#4
swale
swale
110.8'
106.36'
N 10°33'00" W
181.16'
S 10°33'00" E
Parcel
S5-2
Area = 21,498 SF±
or 0.49 Ac±
PROPOSED CONTOURS
Iron Pipe Found
125.00'
S 79°27'00" W
Utility Pole
guy
40
42
43
44
45
46
48
49
50
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67

MICHAEL S LADUE No. 37560 PROFESSIONAL LAND SURVEYOR
22-270
8/14/23

RICHARD J. JUDD, JR. No. 9175 REGISTERED SANITARIAN
22-270
8/14/23

LEGEND

50	Existing Contour
52.7	Existing Spot Elevation
- —— OHU --	Overhead Utility Lines
—— W ——	Existing Water Line
—— X ——	Existing Fence Line
em	Electric Meter
gm	Gas Meter

SCALE: 1"=20'
0 20 40 60

LOCUS
Long Pond
Sequattom
Daisy St
Third St
Long Pond Drive
Route 124
Oak St

Assessors' ID: 101-S5-2
Deed: Book 32,963, Page 326
Plan: Book 550, Page 75, Lot 61

NOTE:
1. This property is not located within a Special Flood Hazard Area.
2. This property is not located within a Zone II, Drinking Water Protection District.
3. This property is located in a Nitrogen Sensitive Area.
4. House roof storm-water runoff is to be directed to drywells and drip stone trenches.
5. Site grading is to contain storm-water runoff & prevent against storm-water flowing onto adjacent properties.

MORAN ENGINEERING ASSOCIATES
508-432-2878 941 ROUTE 28, HARWICH, MA

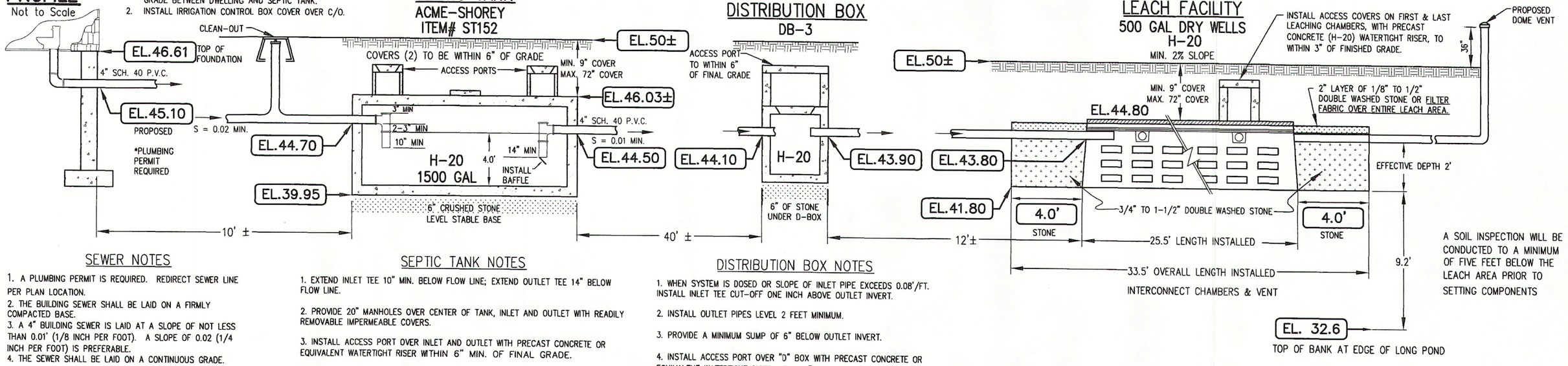
SITE & SEPTIC DESIGN PLAN IN HARWICH
Prepared For: Mariner Kemper
41 SEQUATTOM ROAD HARWICH, MA

PROJECT: 22-270 | SHEET 1 of 2 | DATE: 08/14/23

PROFILE

Not to Scale

1. PROVIDE A 4" PVC CLEAN-OUT CAP (C/O) TO GRADE BETWEEN DWELLING AND SEPTIC TANK.
2. INSTALL IRRIGATION CONTROL BOX COVER OVER C/O.



SEWER NOTES

1. A PLUMBING PERMIT IS REQUIRED. REDIRECT SEWER LINE PER PLAN LOCATION.
2. THE BUILDING SEWER SHALL BE LAID ON A FIRMLY COMPACTED BASE.
3. A 4" BUILDING SEWER IS LAID AT A SLOPE OF NOT LESS THAN 0.01' (1/8 INCH PER FOOT). A SLOPE OF 0.02 (1/4 INCH PER FOOT) IS PREFERABLE.
4. THE SEWER SHALL BE LAID ON A CONTINUOUS GRADE.

SEPTIC TANK NOTES

1. EXTEND INLET TEE 10" MIN. BELOW FLOW LINE; EXTEND OUTLET TEE 14" BELOW FLOW LINE.
2. PROVIDE 20" MANHOLES OVER CENTER OF TANK, INLET AND OUTLET WITH READILY REMOVABLE IMPERMEABLE COVERS.
3. INSTALL ACCESS PORT OVER INLET AND OUTLET WITH PRECAST CONCRETE OR EQUIVALENT WATERTIGHT RISER WITHIN 6" MIN. OF FINAL GRADE.

DISTRIBUTION BOX NOTES

1. WHEN SYSTEM IS DOSED OR SLOPE OF INLET PIPE EXCEEDS 0.08'/FT. INSTALL INLET TEE CUT-OFF ONE INCH ABOVE OUTLET INVERT.
2. INSTALL OUTLET PIPES LEVEL 2 FEET MINIMUM.
3. PROVIDE A MINIMUM SUMP OF 6" BELOW OUTLET INVERT.
4. INSTALL ACCESS PORT OVER "D" BOX WITH PRECAST CONCRETE OR EQUIVALENT WATERTIGHT RISER WITHIN 6" MINIMUM OF FINAL GRADE.

A SOIL INSPECTION WILL BE CONDUCTED TO A MINIMUM OF FIVE FEET BELOW THE LEACH AREA PRIOR TO SETTING COMPONENTS

DEEP OBSERVATION HOLE # 1 TEST BY: RICK JUDD. WITNESS: C SCHOENER, HHD DATE: 1/19/23

ELEV. 59.0	From Surface	HOR.	TEXTURE	COLOR (MUNSELL)	REDOX. FEATURES	STRUCTURE CONSISTENCY, OTHER
...58.7...	4"	O	Organic	N/A	NO	
...58.4...	7"	A/E	Loamy Sand	10YR 3/2	NO	Granular
...56.0...	36"	Bw	Loamy Medium Sand	7.5YR 4/6	NO	Very Friable
48.4	127"	C	Medium - Coarse Sand	10YR 6/6	NO	Loose, Single Grain, Varigated Color

DEEP OBSERVATION HOLE # 2 TEST BY: RICK JUDD. WITNESS: C SCHOENER, HHD DATE: 1/19/23

ELEV. 60.1	From Surface	HOR.	TEXTURE	COLOR (MUNSELL)	REDOX. FEATURES	STRUCTURE CONSISTENCY, OTHER
...59.9...	2"	O	Organic	N/A	NO	
...59.6...	6"	A/E	Loamy Sand	10YR 3/3	NO	Granular
...57.6...	30"	Bw	Loamy Medium Sand	7.5YR 4/6	NO	Very Friable
51.1	108"	C1	Medium - Coarse Sand	10YR6/6	NO	Loose, Single Grain
49.9	123"	C2	Fine-Medium Sand	2.5Y 7/2	NO	Loose, Single Grain, Varigated Color

DEEP OBSERVATION HOLE # 3 TEST BY: RICK JUDD. WITNESS: C SCHOENER, HHD DATE: 1/19/23

ELEV. 61.3	From Surface	HOR.	TEXTURE	COLOR (MUNSELL)	REDOX. FEATURES	STRUCTURE CONSISTENCY, OTHER
...61.0...	4"	O	Organic	N/A		
...60.6...	9"	A/E	Loamy Sand	10YR 3/3	NO	Granular
...58.8...	30"	Bw	Loamy Medium Sand	5YR 4/4	NO	Massive, Very Friable
55.6	69"	C1	Fine Sand	10YR6/4	NO	Loose, Single Grain
50.8	126"	C2	Medium - Coarse Sand	10YR 6/3	NO	Loose, Single Grain, Varigated Color

Bottom of perc. 60" (Bw). 24-Gallons, < 6" at 15:00. < 2 Min / Inch. Loading Rate: 0.74 GPD/SF

DEEP OBSERVATION HOLE # 2 TEST BY: RICK JUDD. WITNESS: C SCHOENER, HHD DATE: 1/19/23

ELEV. 62.0	From Surface	HOR.	TEXTURE	COLOR (MUNSELL)	REDOX. FEATURES	STRUCTURE CONSISTENCY, OTHER
...61.6...	5"	O	Organic	N/A		
...61.3...	8"	A/E	Loamy Sand	10YR 3/3	NO	Granular
...59.2...	34"	Bw	Loamy Medium Sand	7.5YR 5/4	NO	Massive, Very Friable
57.8	50"	C1	Fine Sand	10YR6/4	NO	Loose, Single Grain, Varigated Color
51.5	126	C2	Medium - Coarse Sand	10YR6/6	NO	Loose, Single Grain, Varigated Color

Bottom of perc. 68" (Bw). 24-Gallons in 8:45. < 2 Min / Inch. Loading Rate: 0.74 GPD/SF

VARIANCE REQUEST:

310 CMR 15.405 (1) (B): VARIANCE OF 3' (MAXIMUM) REQUESTED TO INCREASE THE MAXIMUM ALLOWABLE DEPTH OF SYSTEM COMPONENTS REQUIRED, PROVIDED THAT ADEQUATE VENTING AND ADEQUATE ACCESS ARE PROVIDED AND H-20 LOADING IS PROVIDED FOR ALL SYSTEM COMPONENTS.

DESIGN

1. REQUIRED FLOW: 4 BEDROOMS X 110 GPD/B.R.= 440-GPD

2. SEPTIC TANK CAPACITY: 440-GPD X 2 = 880-GPD
USE 1500-GALLON (H-20) SEPTIC TANK

3. LEACH FACILITY DESIGN: 33.5' X 12.8' X 2.0' (H-20)
SIDE WALL AREA: 2 (33.5 + 12.8) X 2.0 X 0.74 GPD/SF = 137.04
BOTTOM AREA: 33.5 X 12.8 X 0.74 GPD/SF = 317.31
TOTAL: = 454.35 GALLON PER DAY

454-GPD PROVIDED > 440-GPD REQUIRED

USE: (3) 8.5' L X 4.8' W X 2.0' D CHAMBERS (H-20) WITH 4.0' OF DOUBLE WASHED STONE ALONG SIDES AND ENDS.

RESERVE SAS: 33.5' X 12.8' X 2.0' = 100%

CONSTRUCTION NOTES

1. CONTACT OFFICE (508-432-2878) A MINIMUM OF 48-HOURS PRIOR TO START OF PROJECT TO SCHEDULE INSPECTIONS..
2. EXISTING CESSPOOL(S) ARE TO BE LOCATED, PUMPED AND FILLED, OR REMOVED..
3. A SOIL ASSESSMENT IS REQUIRED PRIOR TO THE PLACEMENT OF LEACHING AREA. DESIGNER IS TO VERIFY SOIL CONDITIONS TO A MINIMUM OF FIVE FEET BELOW SAS. INSTALLER & DESIGNER ARE REQUIRED TO COORDINATE A DATE & TIME WITH THE HARWICH HEALTH DEPARTMENT.
4. RAISE SEPTIC TANK COVERS (2) AND DISTRIBUTION BOX COVER TO WITHIN 6" OF FINISH GRADE. LEACHING REQUIRES INSPECTION PORTS ON FIRST & LAST CHAMBERS; COVERS TO WITHIN 3" OF FINISHED GRADE..
5. DESIGNER IS TO VERIFY SYSTEM INSTALLATION PRIOR TO BACKFILLING.
6. ALL POST CONSTRUCTION LANDSCAPING DETAILS ARE TO BE BETWEEN INSTALLER AND PROPERTY OWNER OR AGENT.

GENERAL NOTES

1. ALL SYSTEM COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH TITLE 5 OF THE SANITARY CODE AND ANY APPLICABLE REGULATIONS.
2. PRIOR TO BACK FILLING THE INSTALLATION, THE DESIGNER AND HEALTH AGENT SHALL BE NOTIFIED FOR INSPECTION.
3. ANY ALTERATIONS OF THIS DESIGN MUST BE APPROVED BY THE DESIGNER AND BOARD OF HEALTH, IN WRITING.
4. THIS SYSTEM IS NOT DESIGNED FOR A GARBAGE GRINDER.
5. THE INSTALLER IS TO VERIFY THE LOCATION(S) OF UTILITIES, CESSPOOL(S) AND SEWER INVERTS PRIOR TO CONSTRUCTION.
6. ALL UNSUITABLE MATERIAL WITHIN 5 FEET IN ALL DIRECTIONS FROM THE SOIL ABSORPTION SYSTEM SHALL BE REMOVED AND REPLACED WITH CLEAN, COARSE SAND.
7. ALL FILL MATERIAL UTILIZED FOR THE SOIL ABSORPTION SYSTEM SHALL BE CLEAN, COARSE SAND FREE FROM DELETERIOUS MATERIAL AND SHALL HAVE A PERCOLATION RATE OF LESS THAT 2 MINUTES PER INCH BEFORE AND AFTER PLACEMENT.
8. EXISTING CESSPOOL(S) TO BE PUMPED AND BACK FILLED PER TITLE 5 ABANDONMENT PROCEDURES.
9. DURING INSTALLATION, THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING A SAFE EXCAVATION AREA.
10. THE GROUND COVER OVER SEPTIC SYSTEM COMPONENTS SHALL NOT EXCEED 36".
11. ALL GRAVITY SEWER PIPE SHALL BE 4" DIAMETER SCHEDULE 40 PVC UNLESS OTHERWISE NOTED. THE MINIMUM SLOPE OF 4" DIAMETER SCHEDULE 40 PVC SHALL NOT BE LESS THEN 0.01' PER FOOT.
12. WHEREVER SEPTIC LINES CROSS WATER SERVICE LINES OR WHEN WATER SERVICE LINES COME WITHIN 10' OF THE PROPOSED SOIL ABSORPTION SYSTEM, PIPES SHALL BE CLASS 150 PRESSURE PIPE AND SHOULD BE PRESSURE TESTED TO ASSURE WATER TIGHTNESS. COORDINATE WITH LOCAL WATER DEPARTMENT.
13. PLACE MAGNETIC MARKING TAPE OVER ALL COMPONENTS.

MORAN ENGINEERING ASSOCIATES
508-432-2878

SITE & SEPTIC SYSTEM DESIGN PLAN
Prepared For: Mariner Kemper
41 SEQUATTOM ROAD HARWICH, MA

PROJECT: 22-270 | SHEET 2 of 2 | DATE: 08/14/23