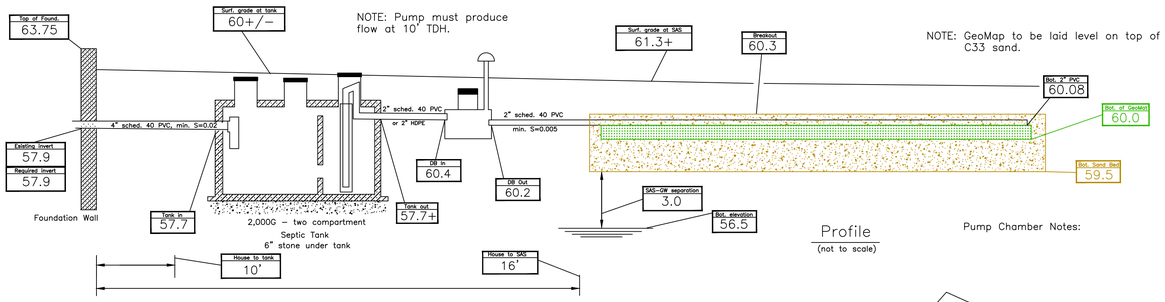


NOTE: Pump must produce flow at 10' TDH.

NOTE: GeoMap to be laid level on top of C33 sand.

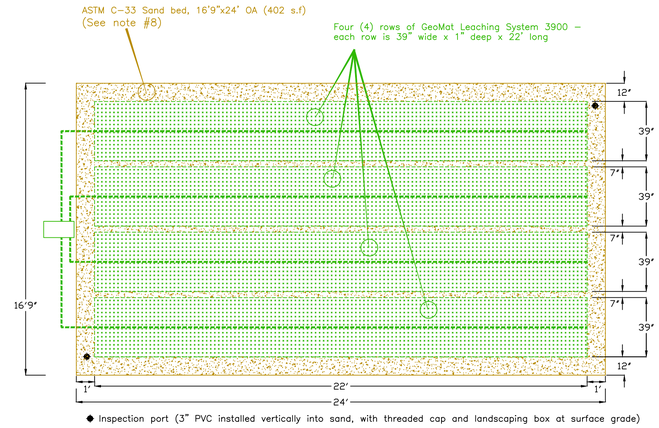
Profile
(not to scale)

Pump Chamber Notes:

NOTE: All elevations referenced to 61.10' BENCH at catch basin frame and grate, Autumn Circle (NAVD)

VARIANCES/DIVERGENCES REQUESTED:

1. Town of Hingham, Section VII.E., SDS to wetland setback
   Proposed: 72' Required: 100'
2. Town of Hingham, Section VII.J., Thickness of naturally occuring soils under SAS
   Proposed: 0.5' Required: 6.0'
3. Town of Hingham, Section VII.M., Construction in fill thickness of naturally occuring, unsaturated, soils under SAS
   Proposed: 0.5' Required: 6.0'



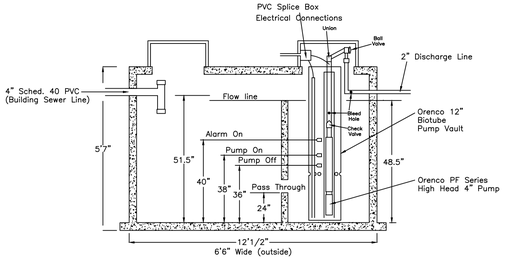
◆ Inspection port (3" PVC installed vertically into sand, with threaded cap and landscaping box at surface grade)

Soil Logs

Elevation (Feet)	Observation Hole #1 Perk Rate =				
	Depth (inches)	Soil Horizon	Soil Texture	Soil Color	Soil Mottling
58.4					
55.9	0-30	Fill			
55.4 Mottle	30-96	C	V. Grav. Sand	2.5 Y 5/3	36" 10YR 5/8
54.7 Water					
50.4					

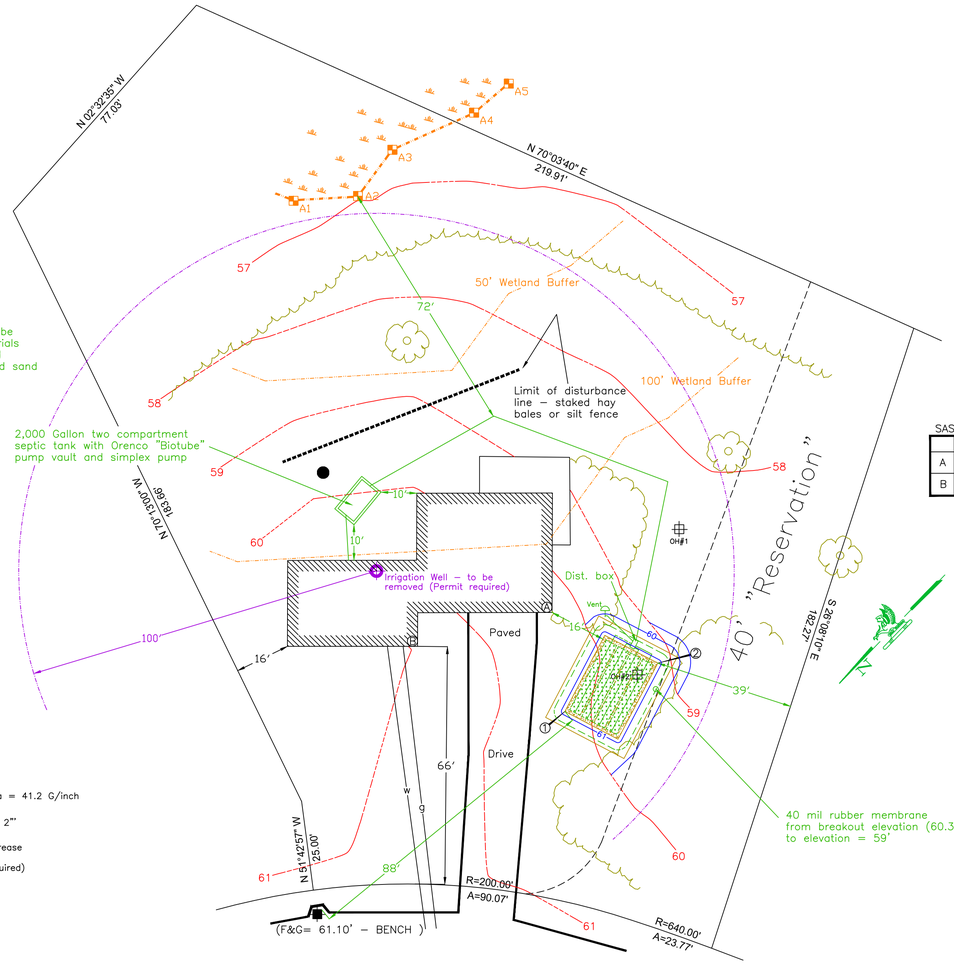
Elevation (Feet)	Observation Hole #2 Perk Rate = <2 mpi @ 16"-34"				
	Depth (inches)	Soil Horizon	Soil Texture	Soil Color	Soil Mottling
59.3					
58.6	0-9	A	Loamy Sand	10 YR 3/2	None
58.0	9-16	B	Loamy Sand	10 YR 5/8	None
56.5 Mottle	16-90	C	V. Grav. Sand	2.5 Y 5/4	34" 7.5YR 5/6
54.0 Water					
51.8					

Perc



2,000 Gallon two chamber tank (extended base)

Pembroke Concrete Products, Inc.
Pembroke, MA (or approved equal)

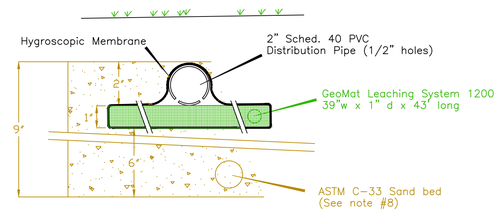


NOTE: No overdig excavation will be required. All fill/B horizon materials in SAS location must be removed and filled with ASTM C33 specified sand (see note #8)

SAS Tie-in Data

	1	2
A	28'	32'9"
B	45'	67'4"

SAS Detail
(not to scale)



Notes:

1. On 1/19/2021 soil tests were made, as shown here, by Terence McSweeney, a Massachusetts Department of Environmental Protection (DEP) approved Soils Evaluator, with B. Nee observing for the Board of Health. The logs of these tests are as follows, with location as #1 and #2 on this plan.
2. All stone to be washed free of iron, fines, and dust. All "structures" to be precast concrete. All pipes to be P.V.C. Schedule 40, laid true to line and grade. All "structures" under pavement to be H-20 loading with cast iron covers and frames, set to grade, on all manholes.
3. The existing SAS is to be abandoned and disposed of to the satisfaction of the health authority.
4. It is the responsibility of the home owner to advise the site engineer of the location of all house plumbing prior to construction of the system.
5. No part of the proposed system shall be buried greater than 3' below the surface of the ground.
6. All work to conform to these plans, Title 5 of the Environmental Code (310 CMR 15.00 et. seq.) and supplementary regulations of the Hingham Board of Health.
7. House plumbing to be set to the grades specified on this plan, as necessary, with a pipe slope minimum of 0.01.
8. Geomat Leaching System to be placed on 6" bed of ASTM C-33 sand. These materials must meet the following sieve specifications:
   1. 3/8" sieve 100% passing
      #4 sieve 95 - 100% passing
      #8 sieve 85 - 100% passing
      #16 sieve 50 - 85% passing
      #30 sieve 25 - 60% passing
      #50 sieve 10-30% passing
      #100 sieve 2-10% passing
   2. Results of sieve analysis submitted to Board of Health for approval prior to instalation.
9. Property line information as depicted on this plan is to be used for Title V purposes only.

Pump Chamber Calculations:

1. 2,000 gallon tank with 48.5 working area = 41.2 G/inch
2. Dose volume:
   Pump-on to pump-off elevation drop = 2"
   at 41.2 G/inch, 2" = 82 G
4. Alarm-on to tank-in invert elevation increase equals 11.5". At 41.2 G/inch
   11.5" = 474 G (minimum of 440 G required)

Calculations:

1. 4 bedrooms, disposal to be removed
2. Est. Day Flow (EDF) = # B.R. x 110 G/Day
   EDF = 440 Gallons per day
3. Perk rate = <2 min/inch, Class I soil (see soil logs)
   GeoMat loading rate with 6" ASTM C33 sand under, Class I soil, <2 m.p.i. perc rate = 1.50 G/D/SF
4. Septic Tank - 2 X EDF with 1,500 G minimum
   440 X 2 = 880 Gallons - 1,500 Gallon (minimum allowable)
5. Soil Absorption System (SAS)
   GeoMat size required = EDF/Loading rate
   (440 G)/(1.50 G/s.f.) = 293 s.f.
   GeoMat Leaching System 3900 (1'Dx39"W) = 3.42 s.f./.l.f
   293 s.f./3.42 s.f/lf = 86 l.f (required)
   use four (4) rows 22' long = 88 l.f. (provided)
   Minimum sand bed - 440 G/D, with perc rate of <2 m.p.i, Class I soils = 400 s.f. (required)
   Use sand bed 16'9" W x 24' L = 402 s.f. (provided)

Proposed:

1. 2,000 gallon, two compartment tank (waterproofed, extended base)
2. Orenco Biotube pump vault system (including Biotube filter) and simplex effluent pump package
3. Distribution box
4. 402 s.f. sand bed (ASTM C-33 sand) - 16'9"W x 24'L x 9" D
   GeoMat Leaching System 3900, four (4) rows each 39"W x 1"D x 22'L (88 lf total)

Autumn Circle

Site Detail Plan
(1" = 20')

98 ——— = Proposed topographic line, with elevation
93 - - - - - - = Existing topographic line, with elevation
OH #1 ⊕ = Observation hole, location and designation
● = Existing disposal system
A1 ■ = Wetland flag, McSweeney Associates, Inc., 1/2021
WA = Wetland Resource Area (IVW)
■ = Surface drainage structure

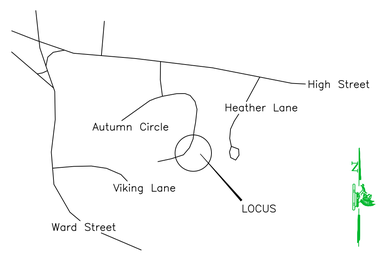
I certify that in the fall of 1997 I was approved by the Mass. Department of Environmental Protection as a Soils Evaluator and that the soils analysis contained herein was preformed by me consistent with the training, expertise, and experience described in 310 CMR 15.018(2).

Terence McSweeney — Date

I certify that there are no wells known to me, or reported to be within 500 feet of this proposed SAS, other than those shown on this plan. Public water supply wells in the area, location and distance from locus, are shown herein.

Terence McSweeney, R.S.

Locus Map



Lot Data:
Deed: 34,097/340 - 2/9/2007
Hingham Assessors Map 124/16 - 39,418 s.f.
Reference Plan:
L.W. Perkins and Sons, 6/23/1961

Revisions:

McSweeney Associates, Inc.
Environmental Engineering
745 Winter Street, Hanson, MA 02341
Thomas F. McSweeney 1898-1977
Brian McSweeney 1923-2015
Terence K. McSweeney 781-826-4571
Colin T. McSweeney 781-570-9381

Proposed Septic System
14 Autumn Circle
Hingham, Massachusetts

Job Reference:	Lundgren
Scale:	As Noted
Date:	1/19/2021
Drawn By:	T McS
Checked By:	C McS