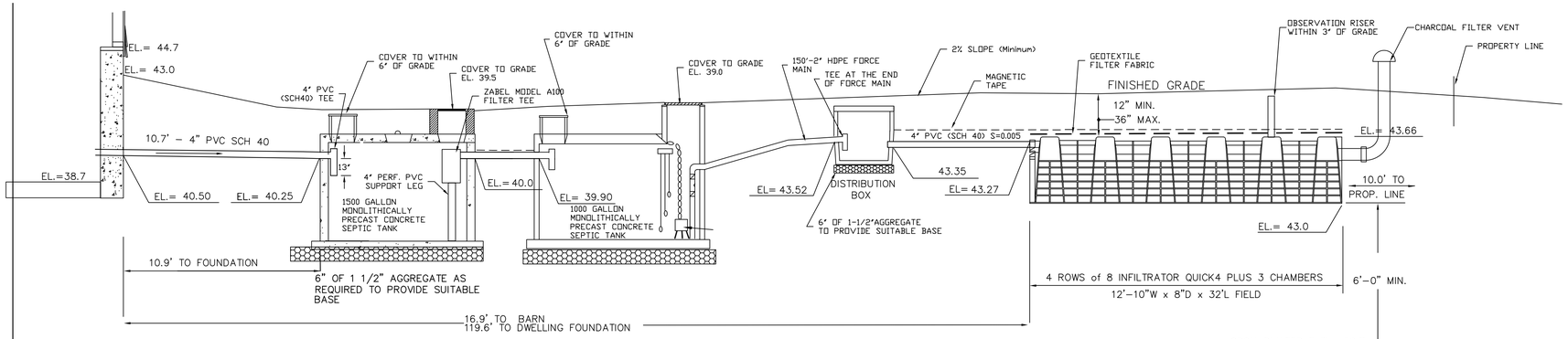
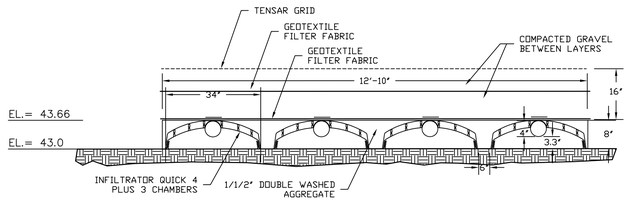
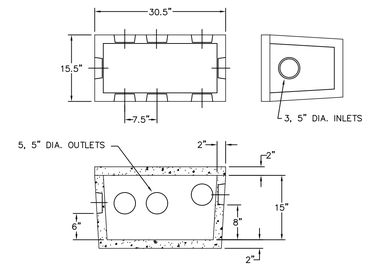


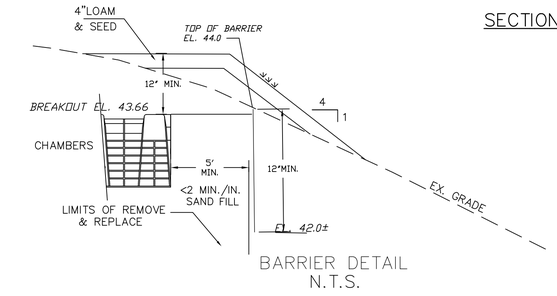
SEPTIC SYSTEM PROFILE



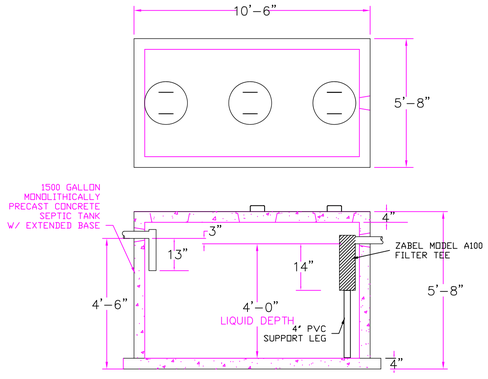
SECTION THRU LEACHING (H-20)



DISTRIBUTION BOX



BARRIER DETAIL N.T.S.



1500 GAL. SEPTIC TANK

BUOYANCY CALCULATIONS

DETERMINE Weight of Tank

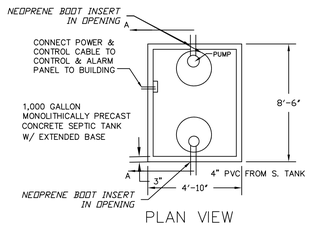
Walls
= 2(0.25x 5)(4.83 + 8.0)150 lbs/c.f.
= 32.075 c.f. (150 lbs/ c.f.)
= 4,811.25 lbs.

Top & Bottom Slab
= (4.83(8.5)0.5) 2 (150 lbs/c.f.)
= 27.0963 c.f. (150 lbs/c.f.)
= 6,158.25 lbs.

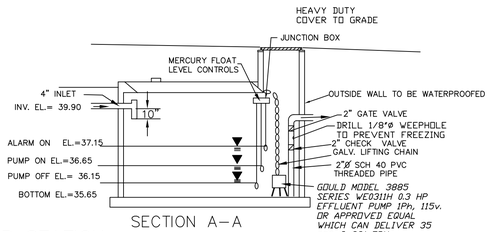
TOTAL WEIGHT = 10,969.5 lbs.

BUOYANCY FORCE
Depth = 38.1-35.15 =2.95'
Force = 4.83(8.5)2.95(62.4 lbs/c.f.)
= 7,557.4 lbs.

FACTOR OF SAFETY
F.S.= WEIGHT / BUOYANCY
= 10,969.5/7,557.4
= 145 ok



PLAN VIEW



SECTION A-A

PUMP STATION

NOTES:

1. ALARM & POWER SUPPLY CABLES SHALL BE CONNECTED TO SEPERATE POWER SUPPLY CIRCUITS
2. ALARM PANEL SHALL BE EQUIPPED WITH BOTH VISIBLE AND AUDIBLE ALARMS WITH INDICATOR LIGHT WHICH ILLUMINATES TO SHOW WHN PUMP OIS OPERATING
3. ALARM PANEL SHALL BE EQUIPPED WITH HOUR METER
4. OUTSIDE OF TANK AND ALL JOINTS AND CONNECTIONS SHALL BE MADE WATER TIGHT

5. DOSING QUANTITY
= 4.17' (8.0) 0.45' (7.48 GALLONS/ CU. FT.)
= 112.3 GALLONS
6. EMERGENCY STORAGE
= 4.17(8.0)2.80(7.48 GALLONS/CU. FT.)
= 698.7 GALLONS

PUMP CALCULATIONS

FLOW RATE	35 gpm (0.078 cfs)
Velocity in Force Main	3.58 Ft/sec
Velocity Head	0.20'
Friction Loss Rate in Main	0.09' per linear foot of main
Length of Main	82'
Fittings	
2-90° Bends	
Gate Valve	
Check Valve	

TOTAL LOSSES

FRICTION LOSS	7.38'
MINOR LOSSES	1.0'
TOTAL LIFT = 43.52-36.15 =	7.37'
TOTAL Head	= 15.65'

PUMP SHOULD DELIVER 35 GPM AT 20'
USE GOULD MODEL 3885 WE0311H 0.3 HP EFFLUENT PUMP OR APPROVED EQUIVALENT

NOTES CONTINUED:

13. SEPTIC SYSTEM OWNER SHALL HAVE TANK INSPECTED AT LEAST ONCE A YEAR & PUMPED AS DEEMED NECESSARY BY THE INSPECTOR NOT LESS THAN ONNCE EVERY THREE YEARS.

14. UNLESS OTHERWISE NOTED, ALL PIPING SHALL BE SCHEDULE 40 PVC AND SHALL BE COVERED BY A MAGNETIC TAPE TO ASSIST WITH LOCATING THE PIPE.

15. IN ACCORDANCE WITH THE GENERAL USE PERMIT, WITHIN THE LIMITS OF THE SYSTEM ONLY, ALL TOPSOIL, PEAT AND OTHER IMPERVIOUS MATERIAL SHALL BE REMOVED AND REPLACED WITH A CLEAN GRANULAR SAND FREE FROM ORGANIC MATTER AND OTHER DELETERIOUS SUBSTANCES, WHICH SHALL BE GRADED SUCH THAT;

1. NO MATERIAL IS LARGER THAN 2 INCHES.
2. NOT MORE THAN 45% IS RETAINED ON THE #4SIEVE;
3. OF THE FRACTION PASSING THE #4 SIEVE, THE MATERIAL SHALL FALL WITHIN THE GRADATION LIMITS AS FOLLOWS;

SIEVE SIZE	PERCENT PASSING
#50	10-100%
#100	0-20%
#200	0-5%

16. A SIEVE ANALYSIS OF THE MATERIAL SHALL BE PERFORMED TO DETERMINE THAT IT MEETS THE GRADATION REQUIREMENTS AS NOTED ABOVE.

17. REMOVE AND REPLACE SHALL EXTEND TO A DEPTH OF 7' OR UNTIL B HORIZON IS ENCOUNTERED;

EXCAVATION QUANTITY= 12 CU. YDS.
REPLACEMENT QUANTITY= 8* CU. YDS.
* INCLUDES 20% COMPACTION ALLOWANCE

18. UNLESS OTHERWISE NOTED, THERE ARE NO KNOWN WELLS WITHIN 500' OF THE PROPOSED LEACHING FACILITIES.

19. ALL SYSTEM COMPONENTS SHALL BE COVERED WITH A MAGNETIC TAPE TO HELP IDENTIFY LOCATION AFTER INSTALLATION.

20. DESIGN ENGINEER SHALL BE CONTACTED TO INSPECT THE CONSTRUCTION PROGRESS OF THE SYSTEM ;

1. WHEN ALL MATERIAL HAS BEEN REMOVED TO INSPECT THE MATERIAL AT THE BOTTOM OF THE HOLE;
2. WHEN THE SYSTEM COMPONENTS HAVE BEEN INSTALLED PRIOR TO BACKFILLING; AND
3. WHEN THE SYSTEM FINAL GRADING HAS BEEN COMPLETED.

21. THE SITE IS NOT LOCATED IN A FEMA FLOOD HAZARD AREA.

22. THE SITE IS NOT LOCATED IN A ZONE II OF A PUBLIC WATER SUPPLY WELL

23. ALL ELECTRICAL WORK MUST BE DONE BY A LICENSED ELECTRICIAN, WHO MUST RECIEVE A PERMIT AND HAVE WORK INSPECTED AND APPROVED BY THE TOWN WIRING INSPECTOR.

24. INFILTRATOR QUICK4 PLUS 3 CHAMBERS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF THE GENERAL USE PERMIT ISSUED BY DEP REV JUNE 12,2015.

25.CONVENTIONAL SYSTEM
SIZE REQUIRED = 594.6 SQ. FT.
USE 3-24' x 24' TRENCHES 35' LONG
AREA = 6 x 35 x 3 = 630 SQ. FT.
= 14' x 35'

1. ELEVATIONS REFER TO NGVD
2. BENCH MARK CATCH BASIN RIM EL. 41.90
3. ESTIMATED DAILY FLOW
4 BEDROOMS X 110 GALLONS PER BEDROOM PER DAY= 440 GALLONS PER DAY.
4. SEPTIC TANK REQ'D CAPACITY = 1500 GALLONS
5. LEACHING AREA REQUIREMENTS; CLASS I SOIL PERC RATE < 5 MIN/IN
APPLICATION RATE = 0.74 G/SF
USE INFILTRATOR CHAMBER PRO ARC 36 STANDARD
AREA =4.73 S.F. / L.F.
AREA REQ. =440.0 ÷ 0.74 GAL/S.F. =594.6 S.F.
LNGTH REQ. = 594.6 S.F. ÷ 4.73 S.F./L.F. =125.7 L.F.
6. LEACHING AREA PROVIDED
USE CHAMBER BED 32'L X 12'-10" W
4 ROWS OF CHAMBERS 32'L = 128'
EQUIV. AREA PROV. = 128 x 4.73 = 605.4 S.F.
CAP. PROV=605.4 X 0.74 G/S.F.= 448.0 G.P.D.
7. HEAVY GRADING MACHINERY SHALL NOT BE PERMITTED TO PASS OVER LEACHING AREAS.
8. ALL CONSTRUCTION TO CONFORM TO THE REQUIREMENTS OF THE MASSACHUSETTS DEPARTMENT OF ENV. PROTECTION SANITARY CODE, TITLE 5, AND THE TOWN OF HINGHAM BOARD OF HEALTH.
9. PERCOLATION DATA

	PERC RATE	DEPTH OF TEST	DATE
10-1.	< 2 MIN/IN	16'	01/17/19
10-2.	< 2 MIN/IN	17'	061/17/19
10-3.	3 MIN/IN	17'	01/17/19

10. THIS SYSTEM IS NOT DESIGNED TO ACCOMMODATE A GARBAGE GRINDER. REMOVAL OF EXISTING GARBAGE GRINDE. SHALL BE VERIFIED PRIOR TO CERTIFICATE OF COMPLETION.
11. THE FIRST TWO FEET OF EACH LINE EXITING FROM THE "D-BOX" SHALL BE LEVEL.
12. DESIGN ENGINEER TO BE NOTIFIED AT LEAST 48 HOURS PRIOR TO REQUIRED INSPECTIONS.

OWNER & APPLICANT

RYAN P. SILLERY
CITY POINT CAPITAL
300 A STREET
BOSTON , MA 02210
ASSESS PARCEL No. 64-0-14
DEED REFERENCE BK 48257, PG 341

APPROVED BY THE PLANNING BOARD

DATE APPROVED;

NO.	DATE	DESCRIPTION	BY

SEPTIC DETAILS

SITE PLAN
PROPOSED DWELLING
220 Summer Street
HINGHAM, MA 02043

JAMES ENGINEERING, Inc.
125 GREAT ROCK ROAD
HANOVER, MASS. 02339
TEL:1-(781) 878-1795

FEET 20 0 20 40 60

SHEET NUMBER 4 OF 5
SCALE: 1"=20'
DATE: 3/15/21
EAST-SEPTIC.dwg
DRAWN: NLJ/ACAD
CHECKED: G.D.J.