Howard County Health Department

Bureau of Environmental Health
7178 Gateway Drive Columbia, MD 21046
(410) 313-2640 Fax (410) 313-2648
TDD (410) 313-2323 Toll Free 1-866-313-6300
website: www.hchealth.org

Maura J. Rossman, M.D., Health Officer

RECEIPT DATE: 7/28/14

INSTALLATION APPROVAL DATE: 8/20/14 (KMW)

ONSITE SEWAGE DISPOSAL SYSTEM

PERMIT

REPAIR

P 554560

A

PROPERTY ADDRESS: **13942 Clarksville Pike**

SUBDIVISION: LOT: TAX ID: **05-363373**

CONTRACTOR: **Hatfield's Equipment** EMAIL:

CONTRACTOR ADDRESS: **P.O. Box 519, Annapolis Junction, MD 20701** PHONE: **301-490-4289**

PROPERTY OWNER: EMAIL:

OWNER ADDRESS: **13942 Clarksville Pike** PHONE:

SEPTIC TANK SIZE (GALLONS): **Norweco** Static Head: aprx 80'

PUMP CHAMBER CAPACITY (GALLONS): **1250g (MIN)** PUMP SIZE: **Myers 1 ½ hp J-BE 35gpm**

NUMBER OF BEDROOMS: **3** HOUSE SQ. FT. **n/a** APPLICATION RATE: **1.2**

DISTRIBUTION SYSTEM: GRAVITY FED ☐ LOW PRESSURE DOSED ☒

TRENCHES:	LINEAR FEET REQUIRED: 130	INLET DEPTH: **At grade**
	TRENCH WIDTH: 3'	MAXIMUM BOTTOM DEPTH: **12"**
	MINIMUM SPACE BETWEEN TRENCHES: n/a	EFFECTIVE AREA BEGINNING DEPTH: **12"**
LOCATION:	**TO BE STAKED BY SANITARIAN AND SEPTIC CONTRACTOR DURING PRE-CONSTRUCTION INSPECTION.**	
NOTES:	Install system per LPD design package. Pump required to put out min 100 ft of total head @ 30gm.	

ISSUED BY: **K. Wolf** ISSUE DATE: 28JK **7/[redacted]/2014** EXPIRATION DATE: 28JK **7/[redacted]/2015**

NOTE: CONTRACTOR MUST SCHEDULE A PRE-CONSTRUCTION INSPECTION PRIOR TO BEGINNING ANY INSTALLATION

NOTE: CONTRACTOR MUST SCHEDULE AN INSPECTION AND GAIN APPROVAL OF ALL COMPONENTS PRIOR TO COVERING

NOTE: STONE MUST BE APPROVED BY HEALTH DEPARTMENT AND GRAVEL TICKET MUST BE AVAILABLE FOR REVIEW.

NOTE: WATERTIGHT SEPTIC TANKS REQUIRED

NOTE: ALL PARTS OF SEPTIC SYSTEM SHALL BE AT LEAST 100 FEET DOWNGRADIENT FROM ANY WATER WELL

NOTE: MANHOLE RISERS REQUIRED ON ALL SEPTIC TANKS AND PUMP CHAMBERS

NOTE: AN ELECTRICAL PERMIT IS REQUIRED FOR INSTALLATION OF ANY ELECTRICAL COMPONENTS OF THE SYSTEM

NEITHER THE HOWARD COUNTY COUNCIL NOR THE HEALTH DEPARTMENT IS RESPONSIBLE FOR THE SUCCESSFUL OPERATION OF ANY SYSTEM.

PERMITTEE RESPONSIBLE FOR OBTAINING FINAL APPROVAL ON THIS PERMIT.

CALL 410-313-1771 TO SCHEDULE INSPECTIONS.

NOT TO SCALE

See Seperate Sheet for As-Built

Lateral Info:
Lateral Dia = 1½"
Hole Spac = 5'3"
# of Perf = 24
Hole Dia = 1/4"
Lateral length =

TRENCH/DRAINFIELD DATA

WIDTH	INLET	BOTTOM
3'	6"	12"-14"

NUMBER OF TRENCHES 2
TOTAL LENGTH 63 x2
ABSORPTION AREA 378ft² (Bottom)
DISTRIBUTION BOX LEVEL N/A
DISTRIBUTION BOX BAFFLE N/A
DISTRIBUTION BOX PORT N/A

SEPTIC TANK DATA

SEPTIC TANK 1 LEVEL Yes
MANUFACTURER Backhus
CAPACITY Singulor TNT GAL
SEAM LOC Top
TANK LID DEPTH 8"
BAFFLES no
BAFFLE FILTER Yes (1000 mic)
MANHOLE LOC Front/Center/Rear
6" PORT LOC none
WATERTIGHT TEST N/A
SLOTTED Yes
DATE ON LID N/A

PUMP/SEPTIC TANK LEVEL Yes
MANUFACTURER Babylon
CAPACITY 1500 GAL
SEAM LOC Top
TANK LID DEPTH 3"
BAFFLES Front
BAFFLE FILTER no
MANHOLE LOC Front
6" PORT LOC none
WATERTIGHT TEST —
SLOTTED no
DATE ON LID N/A

✱ Ball Valve added to Pump discharge line. Valve turned ½ turn! slowed run time down some. Aprx 6" (aprx. 190 g). (KW)

8/20/14 BAT unit and Pump wired. BAT unit running. Alarm placed along side of house. Pump set inside 6" pvc w/ holes drilled thru 6" pipe. Test of alarm, functional. Test of pump up to laterals successful. Results:
✱ T 1 = 40" Distal Head > Pumped Valved back ½ turn.
T 2 = 42" Distal Head

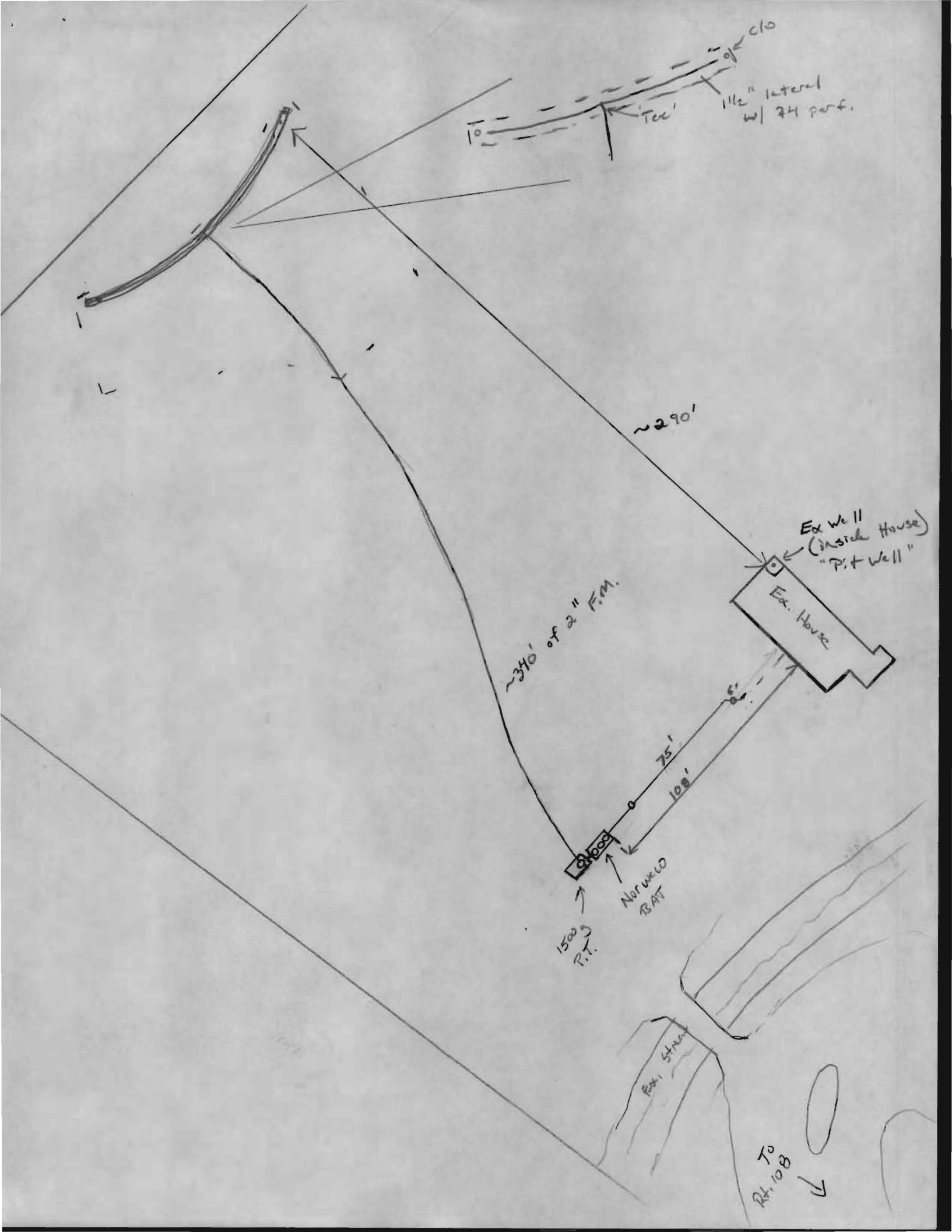
System Complete (KW)

ROAD NAME

PRE-CONSTRUCTION:
6/6/14 BAT unit and Pump tank location given and verified. Tanks to be placed aprx. 100' off of ex. house where shown on site plan. Trench elevations shot w/in upper area of prop. SRA. Install 2 x 63' trenches w/ 1½" lpd laterals per approved set of plans. Manifold to be center feed w/ "Tee" installed in upward direction. Call when starting laterals. Will be onsite during install.

INSTALLATION: 8/11/14 BAT unit and pump tank set per plan. New sch 40 plumbing installed from house to BAT unit. Ex. tank (metal) pumped and collapsed. (KW)
8/13/14 Force main installed thru center of proposed SRA. Not as indicated in approved plans. Will have about 200' of equivalent length of pipe friction. Set transit up @ top of hill, started to dig trenches as planned w/ 12"-14" deep. Double washed ¾" stone used. 1½" sch 40 laterals set @ ~ 6" below grade. Elevations held throughout. Stayed on site during entire trench install. Holes drilled per plan. laterals left @ 4' above invert. obs. ports added @ trench ends 4" sch 40 port added @ manifold. Need P/A test for approvals. (KW)

FINAL INSPECTOR K. Wall. DATE OF APPROVAL 8/20/14


c/o
10
Tee
1 1/2" lateral
w/ 24 perf.
~290'
Ex Well
(inside House)
"Pit Well"
Ex. House
~340' of 2" F.M.
6'
75'
108'
Wood
Norweld
BAT
1500 g
P.T.
Ext. Street
To
Rt. 108

Back River Pre-Cast, LLC

PO BOX 329
Glyndon, MD 21071
Phone # 410-833-3394
Fax # 410-833-4116

Letter of Certification

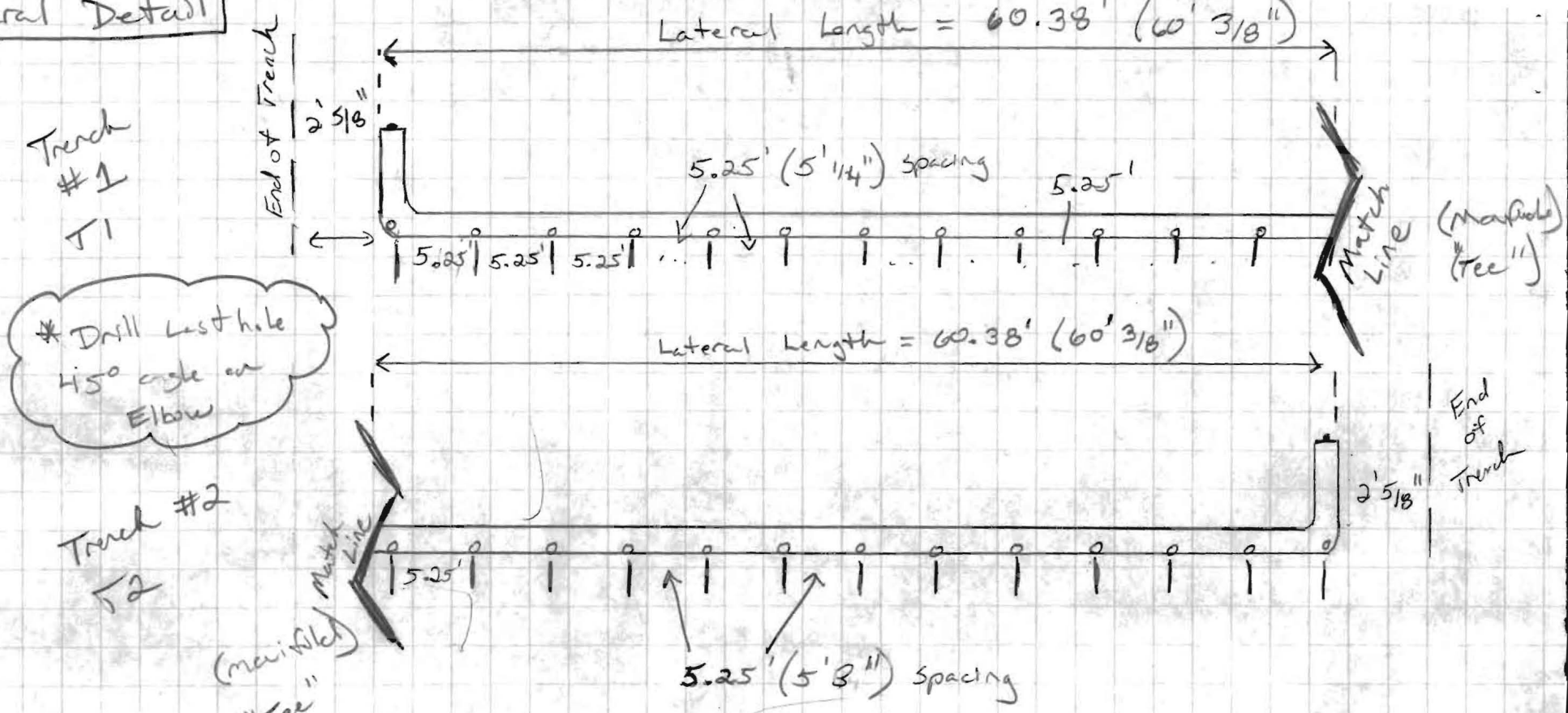
This is to certify that the Norweco Singulair TNT 600 GPD Septic Tank installed at 13942 Clarksville Pike, Highland, MD 20777 August 11, 2014 was installed according to the manufacture's specifications.

Installer: Jeff Reiter

MATTHEW GECKLE

Vice-President

Lateral Detail



Trench & Lateral Data:

Trench Length's = 63' x2
Lateral Length's = 60' 3/8"
Lateral Diameter = 1 1/2"
Hole Diameter = 1/4"
Hole Spacing = 5' 3"
# of Perf / Lateral = 12 x2
Manifold Diameter = 2"

Force Main Dia = 2"
Force Main Length = 440'
Distal Head = 3'

Dose Volume for Pump Tank:

1250g Pump Chamber = L x W x h x 7.42g. = volume needed
- Minus 12" for pump + pump 4"-6" block.
- 6" between "On" Float and "Alarm" Float
- 450g for 24 hr. storage based on design flow.
- 143.5g Dose to laterals.

Volume = (7.5')(5.5') x (x) x 7.48

Off Float + Pump Block } = 7.5' x 5.5' x (10") x 7.48 = 270 g

On Float + Off Float Dose } = 7.5' x 5.5' x 7" x 7.48 = ~160 g

On Float to Alarm Float } = 7.5' x 5.5' x 6" x 7.48 = 155 g

Above Alarm Alarm 24 hr. Storage 450g } = 7.5' x 5.5' x 2.1' x 7.48 = 645 g OK

Total = 1250 g MIN

Trenches: T1 (Left) = 3' wide, Bottom @ 12"-
T2 (Right) = 3' wide, Bottom @ 12"

Septic Tank / BAT Tank =

Pump Tank = - 1250 g one compartment (Baby Lon Vault)
- Ground Elevation, over P.T. = 308.0' (actual 307.1)
- w/ 3' of cover to Lid = 305'
- Bottom elevation of Pump tank = 301'
- Pump off elevation = 301.5'

* Laterals: (T1) - Ground elevation shot in field = 45" (~390')
- Spot elevation + invert (aprx At grade) = ~390'
(T2) - Ground elevation shot in field = 48" (~390)
- Spot elevation + invert (aprx @ grade) = ~390'

* Note Invert elevations shot to call by in field. Elevations taken from Ho Co GIS.

- Hole Diameter = 5/16"

Static Head: (T1, T2, Elevs) - (Pump off elevation) = Δ Head
390' - 301.5' = 88.5'

Manifold: length = 1'
Diameter = 2"

Force Main: length = 440'
Diameter = 2"

Friction Head:

4 90° bend x2" = 28'
4 45° bend x2" = 16'
1 check Valve = 0
1 Gate Valve = 1.3'
440' of 2" = 440'
Total = 485.3' total Equivalent.

@ 35 gpm per 100' of 2" = 2.05
- 485.3' ÷ 100 = 4.853
- 100 ft length = 2.05 ft friction loss
- 4.853 x 100 ft. length = 4.853 x 3.98
485.3' length = 10.0 ft. friction loss

485.3' @ 61.92 gpm

Flow: 1/4" holes $Q = 11.82 \times (d)^2 \propto \sqrt{h}$

D = Diameter of hole

h = Distal head

Total perforations = 24

D = 1/4" @ .25

h = 3

$= 11.82 (0.25)^2 \times \sqrt{3}$

$= 11.82 (.0625) \times \sqrt{3}$

$= 11.82 \times .1082531755$

$= 1.28$

24 perforations × 1.28 = **30.0 gpm**

Dose: length of F.M. + manifold = (440' + 1' = 441')

$(441\text{ ft})(17.4\text{ ft}/100\text{ ft}) \div 100 = 76.74\text{ g}$

length of laterals (63 × 2 = 126')

$(126\text{ ft})(10.6\text{ g}/\text{ft}_{100}) \div 100 = 13.36\text{ g}$

* (volume of 1 1/2" per 100' = 10.6 g/100ft)

* (volume of 2" per 100' = 17.4)

Dose = Volume of FM + manifold + (5 × Volume of laterals)

$= (76.74\text{g}) + (5 \times 13.36\text{g})$

$= (76.74\text{g}) + (66.8\text{g}) =$ **143.5 g**

1/6 (Design Flow) = 1/6 (450) = 75g < 143.5g

Design Head: Static Head + Friction Head + Distal Head

Static Head = 88.5'

Friction Head = 10.0'

Distal Head = 3'

88.5' + 10.2' + 3'

TDH = 101.5'

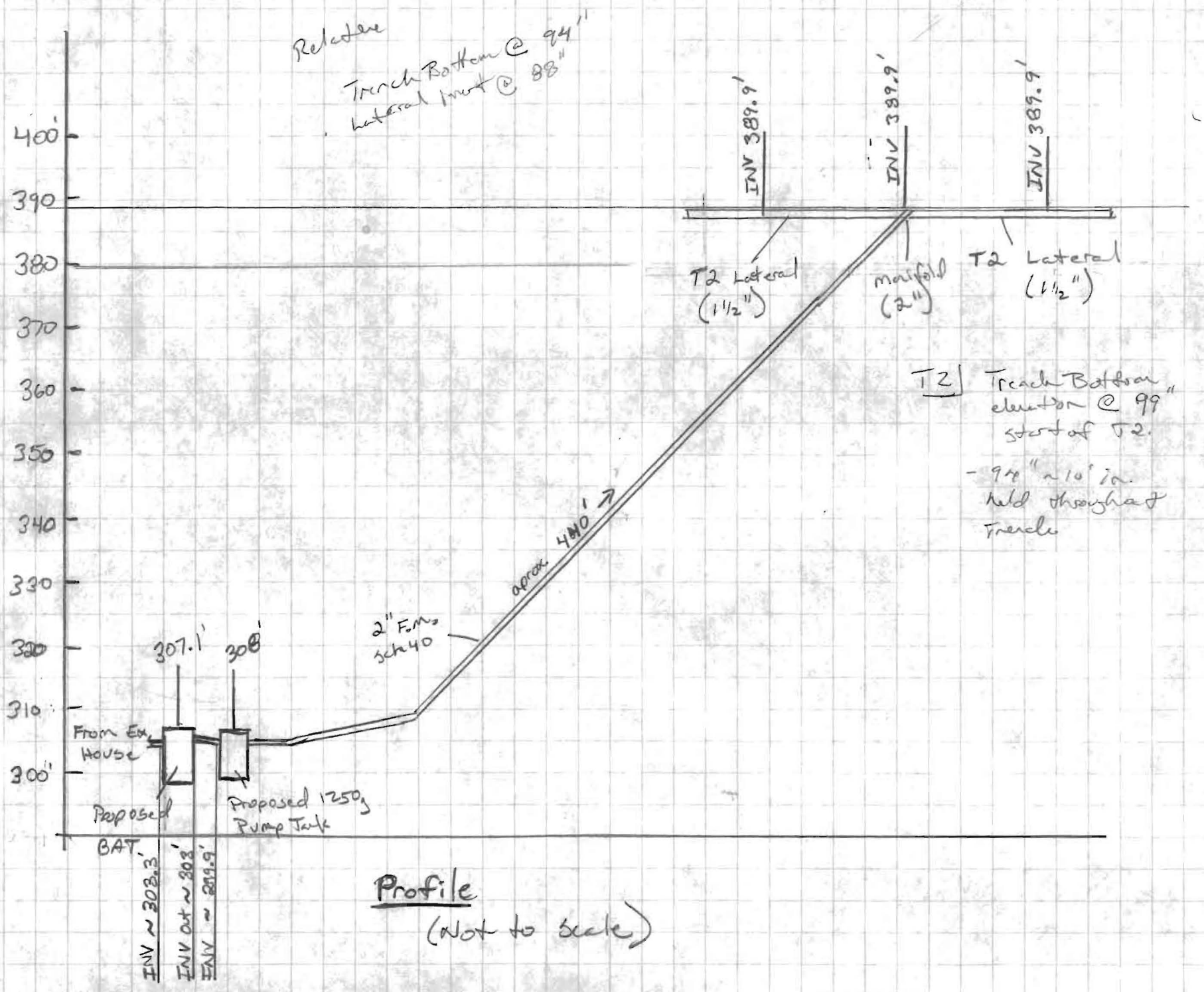
Design Flow: 3 Bedrooms = 450 gpd

150 gpd / bedroom

$\frac{3(150)}{1.2} = \frac{375}{3} =$ **125 LF**

Inlet @ grade (~370')

Bottom @ ~12" on contour



Profile
(Not to Scale)