

SP TESTING INC.

Steven B. Schirmers – 951 Katydid Lane NE – St. Michael, MN 55376
Cert. No 627 – State License #394 – Phone 763-497-3566 – Fax 763-497-5011
www.sptestesting.wastewater@comcast.net – schirmerswastewater.com

June 29, 2017

**Jodi Wilson
13025 Arthur St.
Rogers, MN**

A Compliance inspection was completed for the existing on-site sewage treatment system for the sale of the home. The system consists of 2 – 1000 gallon septic tanks, 1-1000 pumping chamber & 4 trenches. The 4th trench (north) shows signs of hydraulic overloading with black soil above the rock & very green grass, wet area downslope of the 4th trench. The system is classified as an imminent threat to public health & safety & will be repaired or disconnected within 10 months or as determined by the local unit of Government.

The tanks were inspected by Duane's Septic Service & can be used. The electrical for the pump tank is non-compliant & will need to be repaired.

Soil boring #1 found mottled soil at 3.7' & the bottom of the rock trench at 4' leaving no separation between the bottom of the trench & mottled soil (redox features). Soil boring #2 found mottled soil at 4.5' & the bottom of the trench at 3.5' leaving a 1' separation. The system is classified as non-compliant, failing to protect the ground water.

This onsite sewage treatment system is designed for a Type 1 system, Type 1, 4 bedroom home in accordance with the Minnesota Pollution Control Agency chapter 7080 & local ordinances.

The soils on this site are a loam. The seasonally saturated soil, mottled soil (redox features) were present at a depth of 22" & 26". A pressurized mound system will be installed. The bottom of the treatment area must be located at least 3' above mottled soil.

A pumping chamber will need to be installed to lift the effluent to the treatment area. The power supply & switches must be located outside the manhole & pumping chamber in a weather proof enclosure. A warning device must be installed with a light & sound device, this is in case of a pump failure.

The manifold & supply line must have back drainage to the pumping chamber. Be sure the rock & sand fill material are clean. The sod layer below the entire mounded area must be turned over, just break up the sod.

All property lines must be located prior to installation.

If the tanks have less than 2' of cover, the lids, risers & maintenance hole covers must be insulated to a value of R10.

Cleanouts for each lateral with a sleeve must be insulated & be accessible from finished grade in an irrigation box with a ball valve.

All neighboring wells are located greater than 100' away from the proposed treatment area.

Keep all heavy equipment off of the proposed treatment area before and after construction. The treatment area should be marked off before construction. This design is not valid & the system will need to be relocated if failure to protect the sites for new on-site sewage systems.

MANAGEMENT PLAN:

The tanks need to be maintained at a minimum of 1 time every 2 years, check with your pumper to set up a schedule.

System inspected for areas by owner & or Inspector as determined by the local unit of Government.

Any other requirements as determined by the local unit of Government.

With proper installation & maintenance, this system should have no problem in treating septic effluent effectively.

Nothing other than human waste, toilet tissue, laundry, showers, water softners etc. should be disposed of into the system. Recommend iron filters be diverted out of the system. Garbage disposals are not recommended. Excessive amounts of soaps, antibacterial soaps, cleaning agents, shower cleaners used every shower & chlorine agents may kill the bacteria needed to treat septic effluent. Additives are not recommended. Recommend laundering be limited to 3 to 4 loads per day.

A handwritten signature in black ink, appearing to read "S.B. Schirmers", with a long horizontal flourish extending to the right.

Steven B. Schirmers



Minnesota Pollution Control Agency

520 Lafayette Road North
St. Paul, MN 55155-4194

Compliance Inspection Form
Existing Subsurface Sewage Treatment Systems (SSTS)

Doc Type: Compliance and Enforcement

Instructions: Inspection results based on Minnesota Pollution Control Agency (MPCA) requirements and attached forms - additional local requirements may also apply.

For local tracking purposes:

Submit completed form to Local Unit of Government (LUG) and system owner within 15 days

System Status

System status on date (mm/dd/yyyy): 6-19-17

[] Compliant - Certificate of Compliance

(Valid for 3 years from report date, unless shorter time frame outlined in Local Ordinance.)

[x] Noncompliant - Notice of Noncompliance

(See Upgrade Requirements on page 3)

Reason(s) for noncompliance (check all applicable)

- [x] Impact on Public Health (Compliance Component #1) - Imminent threat to public health and safety
[x] Other Compliance Conditions (Compliance Component #3) - Imminent threat to public health and safety
[] Tank Integrity (Compliance Component #2) - Failing to protect groundwater
[x] Other Compliance Conditions (Compliance Component #3) - Failing to protect groundwater
[x] Soil Separation (Compliance Component #4) - Failing to protect groundwater
[] Operating permit/monitoring plan requirements (Compliance Component #5) - Noncompliant

Property Information

Parcel ID# or Sec/Twp/Range: HENNERIN CO.

Property address: 13025 ARTHUR ST, ROVERS

Reason for inspection: PROPERTY TRANSFER

Property owner: JUDI WILSON

Owner's phone: 763-300-2008

Owner's representative:

Representative phone:

Local regulatory authority: HENNERIN CO.

Regulatory authority phone:

Brief system description: 2-1000 gal SSSIC TANKS, 1000 gal RIMP TANK AND TRENCH

Comments or recommendations: SYSTEM

Certification

I hereby certify that all the necessary information has been gathered to determine the compliance status of this system. No determination of future system performance has been nor can be made due to unknown conditions during system construction, possible abuse of the system, inadequate maintenance, or future water usage.

Inspector name: STEVEN B. SCHIRMERS

Certification number: 627

Business name: S-P TESTING INC.

License number: 394

Inspector signature: [Signature]

Phone number: 763-497-3566

Necessary or Locally Required Attachments

- [x] Soil boring logs [x] System/As-built drawing [] Forms per local ordinance

[] Other information (list):

1. Impact on Public Health – Compliance component #1 of 5

Compliance criteria:

System discharge sewage to the ground surface.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
System discharge sewage to drain tile or surface waters.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
System cause sewage backup into dwelling or establishment.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Any "yes" answer above indicates the system is an Imminent Threat to Public Health and Safety.

Comments/Explanation:

Verification method(s):

- Searched for surface outlet
- Searched for seeping in yard/backup in home
- Excessive ponding in soil system/D-boxes *YES*
- Homeowner testimony (See Comments/Explanation)
- "Black soil" above soil dispersal system *YES LOWEST TRENCH*
- System requires "emergency" pumping
- Performed dye test
- Unable to verify (See Comments/Explanation)
- Other methods not listed (See Comments/Explanation)

2. Tank Integrity – Compliance component #2 of 5

Compliance criteria:

System consists of a seepage pit, cesspool, drywell, or leaching pit. <i>Seepage pits meeting 7080.2550 may be compliant if allowed in local ordinance.</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Sewage tank(s) leak below their designed operating depth.	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, which sewage tank(s) leaks:	

Any "yes" answer above indicates the system is Failing to Protect Groundwater.

Comments/Explanation:

SEE ATTACHED TANK INTEGRITY REPORT - DWALE'S.

Verification method(s):

- Probed tank(s) bottom
- Examined construction records
- Examined Tank Integrity Form (Attach)
- Observed liquid level below operating depth
- Examined empty (pumped) tanks(s)
- Probed outside tank(s) for "black soil"
- Unable to verify (See Comments/Explanation)
- Other methods not listed (See Comments/Explanation)

3. Other Compliance Conditions – Compliance component #3 of 5

- a. Maintenance hole covers are damaged, cracked, unsecured, or appear to structurally unsound. Yes* No Unknown
- b. Other issues (electrical hazards, etc.) to immediately and adversely impact public health or safety. Yes* No Unknown
***System is an imminent threat to public health and safety**

Explain:

- c. System is non-protective of ground water for other conditions as determined by inspector Yes* No
***System is falling to protect groundwater**

Explain: *SYSTEM SHOWS SIGNS OF BEING OVERLOADED.*

Property address: 13025 Arthur St.
City: Royers State: MN

Parcel ID: _____
Zip code: _____

Optional section: Sewage Tank Compliance Certification

This form does not represent a complete system inspection report and only certifies sewage tank compliance status.

Instructions: This section of the form may be completed and signed by a Designated Certified Individual (DCI) of a licensed SSTS Maintenance Business who personally conducts the necessary procedures to assess the compliance status of each sewage tank in the system.

When this section of the form is signed by a qualified certified professional, it becomes *necessary supporting documentation* to an Existing System Compliance Inspection Report: Compliance inspection form - Existing system (wq-wwists4-31b). This form can be found on the MPCA website at <https://www.pca.state.mn.us/water/ssts-and-msts-technical-and-compliance-criteria>.

The information and certified statement on this form is **required** when existing septic tank compliance status is determined by an individual other than the SSTS Inspector that submits the inspection report. It represents a third party assessment of SSTS component compliance and is allowable under Minn. R. 7082.0700, subp. 4 Item (B) subitem (1). This form is valid for a period of three years beyond the signature date on this form unless a new evaluation is requested by the owner or owner's agent or is required according to local regulations. Additional Administrative Rule references for this activity can be found at Minn. R. 7082.0700, subp. 4 Items B, C, and D; 7083.0730 Item C.

Certificate of sewage tank compliance

Affirm all three statements:

- The SSTS does not contain a seepage pit, cesspool, drywell, leaching pit, or other pit.
- It does not contain a sewage tank that was designed to be watertight, but subsequently leaks below the designed operating depth.
- It does not represent an imminent safety threat by reason of unsecured, damaged, or weak maintenance hole cover(s) or other unsafe condition.

Notice of sewage tank non-compliance

Select all that apply:

- The SSTS has a seepage pit, cesspool, drywell, leaching pit, or other pit.
- It has a sewage tank that was designed to be watertight, but subsequently leaks below the designed operating depth.
- It presents a threat to public safety by reason of unsecured, damaged, or weak maintenance hole cover(s) or other unsafe condition.

Company information

Company name: Duane's Septic Service
Business license number: 654

Designated Certified Individual (DCI) information

Print name: Jim Eicher
Certification number: C2084

I personally conducted the work described above as a Designated Certified Individual, Minnesota-licensed SSTS Maintenance Business. I personally conducted the necessary procedures to assess the compliance status of each sewage tank in this SSTS:

Designated Certified Individual's signature:  Date (mm/dd/yyyy): 06/06/2017

1989
2 - 1000 gal
1000 gal pump tank

4. Soil Separation – Compliance component #4 of 5

Date of installation: 1989 Unknown
 Shoreland/Wellhead protection/Food Beverage Lodging? Yes No

Compliance criteria:

For systems built prior to April 1, 1996, and not located in Shoreland or Wellhead Protection Area or not serving a food, beverage or lodging establishment: Drainfield has at least a two-foot vertical separation distance from periodically saturated soil or bedrock.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Non-performance systems built April 1, 1996, or later or for non-performance systems located in Shoreland or Wellhead Protection Areas or serving a food, beverage, or lodging establishment: Drainfield has a three-foot vertical separation distance from periodically saturated soil or bedrock.*	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
"Experimental", "Other", or "Performance" systems built under pre-2008 Rules; Type IV or V systems built under 2008 Rules (7080.2350 or 7080.2400 (Advanced Inspector License required) Drainfield meets the designed vertical separation distance from periodically saturated soil or bedrock.	<input type="checkbox"/> Yes <input type="checkbox"/> No

Any "no" answer above indicates the system is Failing to Protect Groundwater.

Verification method(s):
 Soil observation does not expire. Previous soil observations by two independent parties are sufficient, unless site conditions have been altered or local requirements differ.

- Conducted soil observation(s) (Attach boring logs)
- Two previous verifications (Attach boring logs)
- Not applicable (Holding tank(s), no drainfield)
- Unable to verify (See Comments/Explanation)
- Other (See Comments/Explanation)

Comments/Explanation:

Indicate depths of elevations

A. Bottom of distribution media	SSB #1 - 4.0' SSB #2 - 3.5'
B. Periodically saturated soil/bedrock	SSB #1 3.7' SSB #2 4.5'
C. System separation	SSB #1 NONE SSB #2 1.5'
D. Required compliance separation*	3.0'

*May be reduced up to 15 percent if allowed by Local Ordinance.

5. Operating Permit and Nitrogen BMP* – Compliance component #5 of 5 Not applicable

Is the system operated under an Operating Permit? Yes No If "yes", A below is required
 Is the system required to employ a Nitrogen BMP? Yes No If "yes", B below is required

BMP=Best Management Practice(s) specified in the system design

If the answer to both questions is "no", this section does not need to be completed.

Compliance criteria

a. Operating Permit number: _____ Have the Operating Permit requirements been met?	<input type="checkbox"/> Yes <input type="checkbox"/> No
b. Is the required nitrogen BMP in place and properly functioning?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Any "no" answer indicates Noncompliance.

Upgrade Requirements (Minn. Stat. § 115.55) An imminent threat to public health and safety (ITPHS) must be upgraded, replaced, or its use discontinued within ten months of receipt of this notice or within a shorter period if required by local ordinance. If the system is failing to protect ground water, the system must be upgraded, replaced, or its use discontinued within the time required by local ordinance. If an existing system is not failing as defined in law, and has at least two feet of design soil separation, then the system need not be upgraded, repaired, replaced, or its use discontinued, notwithstanding any local ordinance that is more strict. This provision does not apply to systems in shoreland areas, Wellhead Protection Areas, or those used in connection with food, beverage, and lodging establishments as defined in law.

Mound Design

Property Owner: Jodi WilsonDate: 6/24/2017Site Address: 13025 Arthur St., Rogers

PID: _____

Comments: _____

Instructions: = enter data = adjust if desired = computer calculated - DO NOT CHANGE!

- 1) 4 bedroom Type I Residential System
- 2) 600 GPD design flow
- 3) No Garbage disposal or pumped to septic
- 4) 2000 Gal Septic tank (code minimum) 2000 Gal Septic tank (design size / LUG req'd)
Tank options: none
- 5) 1.2 GPD/ft² mound sand loading rate contour loading rate of 12 req's a min 50 ft. long rockbed
- 6) 10.0 ft rockbed width 50.0 ft rockbed length
- 7) 3.0 ft lateral spacing 3.0 ft perforation spacing (maximum of 3 for both)
end feed manifold connection
- 8) 3 laterals 48.0 feet long 17.0 perfs / lateral 51 perfs total
(1/2 a perf means the first perf starts at the middle feed manifold)
- 9) 1/4" inch perfs at 1 feet residual head gives 0.74 gpm flow rate per perforation
for this perf size & spacing, & pipe size on line 12, max perfs/lateral = 25, line #8 must be less --> OK
- 10) 4.0 doses per day (4 minimum)
- 11) 150 gallons per dose (treatment volume)
- 12) 2.00 inch diameter laterals must be used to meet "4x pipe volume" requirement 2.00 5x
- 13) 155 feet of 2.0 inch supply line leads to 26 gallons of drainback volume 2.00 3x
(Tip: "top feed" manifold to control the drainback)
- 14) 176 gallons TOTAL pump out volume (treatment + drainback)
- 15) 12 feet vertical lift from pump to mound laterals, leads to a:
- 16) 38 GPM @ 25 feet of head, Pump requirement (note: >50gpm may require an extra 3-6' of head)
- 17) 1000 gal Dose tank (code minimum) 1000 gal Dose tank (design size / LUG req'd) at 24.00 gpi
leads to a
- 18) 7.3 inch swing on Demand float, or timed dosing of 4.6 min ON (confirm pump rate with drawdown
(this delivers Average flow, =70% of Peak design flow) 9 hrs OFF test and adjust as necessary)
- 19) 12 inches from bottom of tank to "Pump OFF" float
- 20) 19 inches from bottom of tank to "Pump ON" float, or 12 inches to "Timer ON" float if time dosed
- 21) 22 inches from bottom of tank to "Hi Level" float, or 32 inches to "Hi Level" float if time dosed
- 22) 472 gallons reserve capacity (after High Level Alarm is activated)

23) 0.45 gpd/ft² Absorption area Soil Loading Rate, which gives a mound ratio of 2.7 (minimum)
 (this must match the soil boring log) desired mound ratio 2.7

24) 5 percent site slope (0-20% range) 5 (% downslope site slope, if different than upslope)

25) 22 inches, or 1.8 ft. to Redox or other limiting condition (need at least 12" to be a Type I)

Treatment zone contains 0 inches of 0% soil credit, and 0 inches of 50% soil credit. Giving a:

26) 14 inch, or 1.2 ft. Sand Lift Mound **CRITICAL FOR FUTURE CERTIFICATIONS!!!**

27) 27.0 ft. Total ABSORPTION width (with sand beyond rockbed as follows:)

28) 0.0 ft. upslope and sideslope
 17.0 ft. Downslope

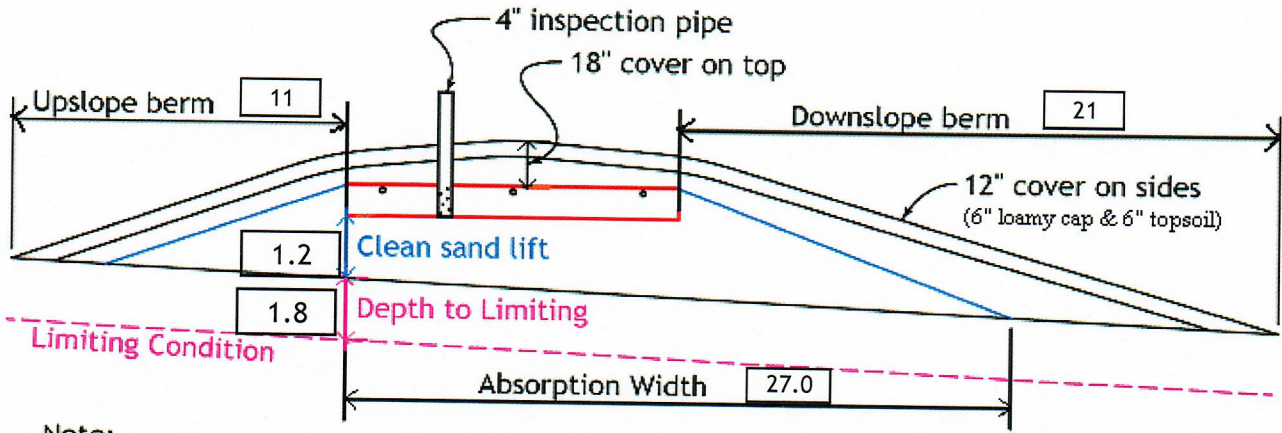
Individual slope ratios give BERM widths (topsoil beyond rockbed) of:

29) 4:1 upslope ratio 11 ft. upslope berm

30) 4:1 sideslope 15 ft. sideslope berms

31) 4:1 downslope 21 ft. downslope berm

32) Overall Dimensions: 10.0 ft. wide by 50.0 ft. long Rock bed
 42 ft. wide by 80 ft. long Mound footprint



Note:
 For 0 to 1% slopes, *Absorption Width* is measured from the *Bed* equally in both directions.
 For slopes >1%, *Absorption Width* is measured downhill from the upslope edge of the *Bed*.

33) Rock Bed: 10.0 ft. by 50.0 ft. by 9 inches under pipe, plus 20% gives 23 yd³ or *1.4= 32 ton

34) Mound Sand: (note: volume is based on 3:1/4:1 slope from top of rockbed, Exchange sand for loamy cap if desired)
 20.8 up + 47.4 downslope + 10.5 ends + 26.2 under rock = 126 yd³ or *1.4= 176 ton
 plus 20%

35) Loamy Cap: 38 ft. by 76 ft. 6" deep, plus 20% gives 65 yd³ or *1.4= 91 ton

36) Topsoil: 42 ft. by 80 ft. 6" deep, plus 20% gives 75 yd³ or *1.4= 105 ton

I hereby certify that I have completed this work in accordance with all applicable ordinances, rules and laws.

[Signature]
 Designer Signature

S-P PROFESSIONAL INC
 Company

394
 License#

6/24/2017
 Date

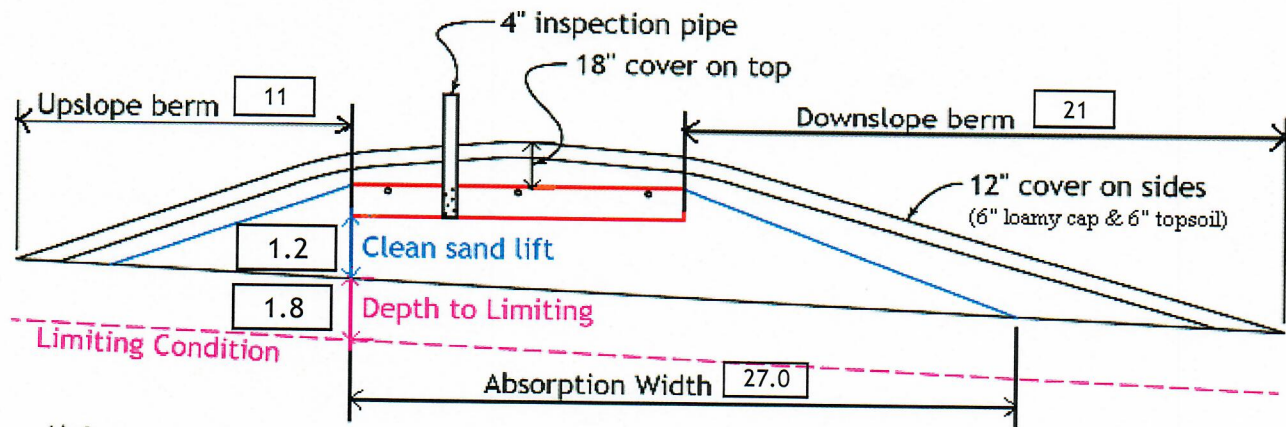
Installer Summary

2000 gallon Septic tank (minimum) Tank options: none
 1000 gallon Dose tank (minimum) at 24.00 gpi
 38 GPM @ 25 ft. of head, Pump required
 7.3 inch swing on Demand float which translates to roughly 4.7 inches of float tether length
 if time dosing is required --> 4.6 minutes ON time & 9 hours OFF time
 19 inches from bottom of tank to "pump ON" float, or 12 inches to "timer ON" float
 22 inches from bottom of tank to "Hi Level Alarm" or 32 inches to "Hi level alarm" if time dosed
 155 ft. of 2.0 inch supply line with end feed manifold connection
 (Tip: "top feed" manifold to control drainback)
 14 inch, or 1.2 ft. Sand Lift Mound
 10.0 ft. wide by 50.0 ft. long Rock bed
 3 laterals 2.00 inch diameter 48.0 ft. long 3.0 ft. lateral spacing
 1/4" inch perfs 3.0 ft. perforation spacing
 No Effluent filter & alarm
 3 clean out & valve box assemblies

27.0 ft. Total sand ABSORPTION width (minimum)
 0.0 ft. upslope and sideslope (sand beyond rockbed, minimum)
 17.0 ft. Downslope (sand beyond rockbed, minimum)

Specific slope ratios give BERM widths (topsoil beyond rockbed) of:

4:1 upslope ratio	11 ft. upslope berm
4:1 sideslope	15 ft. sideslope berms
4:1 downslope	21 ft. downslope berm



Note:
 For 0 to 1% slopes, *Absorption Width* is measured from the *Bed* equally in both directions.
 For slopes >1%, *Absorption Width* is measured downhill from the upslope edge of the *Bed*.

Rock Bed:	23.0 yd ³ or *1.4=	32 ton	9 inches under pipe
Mound Sand:	126 yd ³ or *1.4=	176 ton	calculation based on 3:1/4:1 slope from top of rockbed
Loamy Cap:	65 yd ³ or *1.4=	91 ton	6" deep
Topsoil:	75 yd ³ or *1.4=	105 ton	6" deep

INSPECTOR CHECKLIST - mound

13025 Arthur St., Rogers

- WELL setbacks: 20' to pressure tested sewer line (5 psi for 15 min)
50' to everything 100' to dispersal area with shallow well
- PROPERTY LINES setback: 10' to everything
- Road setback: platted: 10' prop line. Metes & bounds: out of road easement, or outer ditch.
- LAKE / BLUFF setback: 20' for bluff. Lakes: GD ____, RD ____, NE _____. Protected wetland ____.
- Building setbacks: 10' for everything, 20' for dispersal area.
- WATER LINE under pressure set 10' to bed, tank & sewer line. (else sewer line > 12" below)

- Sewer line & baffle connection (no 90's, 3' between 45's, slope min 1" in 8', max 2" in 8')
(no depth req's, clean out every 100', Sch 40 pipe)

- Septic tank and risers (water tight, insulated, proper depth, existing verified by pumping)
mfg _____ 2000 gallons none _____

- Riser over outlet, riser over inlet or center, and 6"+ inspection pipe over any remaining baffles.
- No effluent filter & alarm
- Dose tank risers and piping (water tight, insulated, proper depth, drainback)
mfg _____ 1000 gallons

- dose pump _____ 38 gpm 25 head VERIFY PUMP CURVE 4.6 min ON 9 hr OFF

- float setting drop 7.3 inches at 24.0 gpi "DESIGNED" 4.7 inches approx float tether length
176.0 gal dose divided by _____ gpi "INSTALLED" = _____ inches float drop (field corrected)
LABEL pump requirements and drawdown on riser or panel

- Cam lock reachable from grade - 30" max. J-hook weep hole. Supply line access (no hard 90's)
2.0 inch supply pipe: Sch40, sloped 1/8"+, supported by 4" sch40 sleeve or compacted, and buried 6"+.
- splice box / control panel / electrical connections
- flow measurement: CT, ETM, time dosed, home water meter
- mound absorption area rough up
- mound rock dimensions 10.0 X 50.0
- Sand lift depth 14 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)

- Absorption Sand beyond rock 0.0 upslope 17.0 downslope

- Bermed topsoil beyond rockbed 11 upslope 15 sideslope 21 downslope

- cover depth of 12-18"+ VERIFY
- 3 laterals (1-2' from edge of rock)
- 2.00 inch pipe size (Sch40 pipe & fittings)
- 3.0 ft lateral spacing

- 1/4" inch perforations
- 3.0 ft perforation spacing

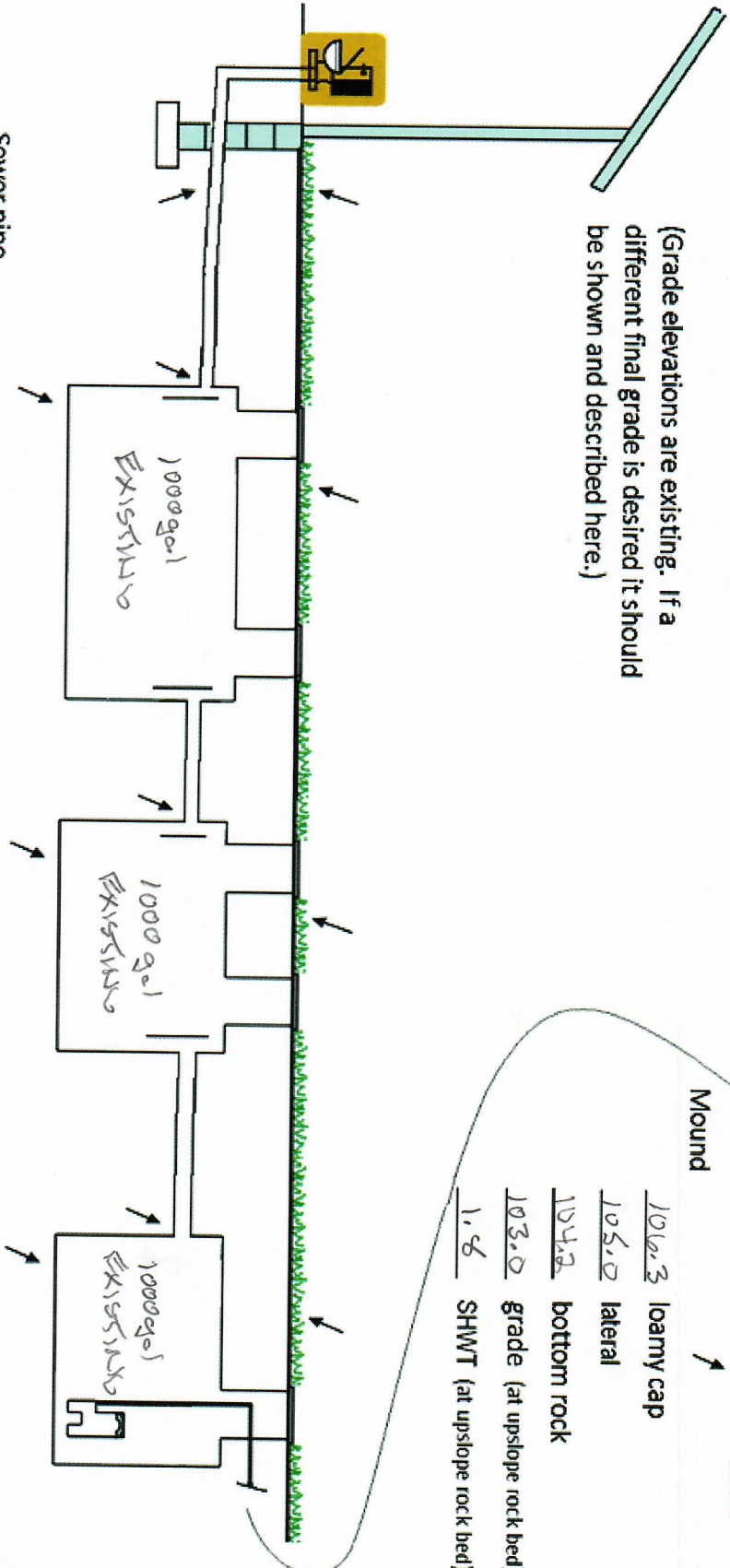
- Air inlet at end of laterals, and at top feed manifold if necessary. VERIFY
- clean outs (no hard 90's)
- 4" inspection pipe to bottom of rock, anchored VERIFY

- Abandon existing system - if necessary Re-use existing tank certification
- monitoring plan and type _____
- well abandonment form - if necessary _____

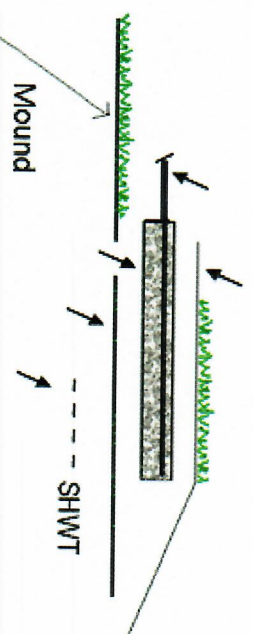
System Elevations

100.0 benchmark MIY PUMP TANK

(Grade elevations are existing. If a different final grade is desired it should be shown and described here.)



Sewer pipe exiting house	Septic Tank	Septic Tank (if applicable)	Pump Tank
100.5 Grade	99.7 Grade	99.7 Grade	100.0 Grade
98.5 Pipe	99.8 inlet	99.4 inlet	99.9 inlet
	94.0 Tank bottom	93.6 Tank bottom	92.9 Tank bottom



106.3 loamy cap
 105.0 lateral
 104.2 bottom rock
 103.0 grade (at upslope rock bed)
 1.8 SHWT (at upslope rock bed)