

# Preliminary & Field Evaluation Form

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| Owner Information   |  |                               |                         |
|---------------------|--|-------------------------------|-------------------------|
| Date                | <u>9/18/2018</u>                       | Sec / Twp / Rng               | <u>S-11, T-47, R-27</u> |
| Parcel ID           | <u>01-0-015600</u>                     | LUG (county, city, township)  | <u>Aitkin Co.</u>       |
| Property Owner:     | <u>Peter Brown</u>                     | Owners address (if different) |                         |
| Property Address:   | <u>41427 390th St. Aitkin MN 56431</u> |                               |                         |
| City / State / Zip: |  |                               |                         |

| Flow Information and Waste Type / Strength                       |            |                             |   |
|--|------------|-----------------------------|---|
| Estimated Design flow  | <u>300</u> | Anticipated Waste strength  | <input type="checkbox"/> Hi Strength <input checked="" type="checkbox"/> Domestic |
| Comments: Type III Mound<br>Requires Aitkin Co. Operating Permit |            | Any Non-Domestic Waste      | <input type="checkbox"/> Yes (class V) <input checked="" type="checkbox"/> No     |
|  |            | Sewage ejector/grinder pump | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No               |
|  |            | Water softener              | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No               |
|  |            | Garbage Disposal            | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No               |
|  |            | Daycare / In home business  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No               |

| Site Information  |   |  |   |   |  |
|---|---|--|---|---|--|
| Existing & proposed lot improvements located (see site map) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Well casing depth   | Owner Stated Deep Well                  |  |
| Easements on lot located (see site map)                     | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Drainfield w/in 100' of residential well                      | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |
| Property lines determined (see site map) By Others          | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Site w/in 200' of transient noncommunity water supply (TNCWS) | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |
| Req'd setbacks determined (see site map)                    | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Site w/in an inner wellhead mgmt zone (CWS/NTNCWS)            | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |
| Utilities located & identified (gopher state one call)      | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Buried water supply pipe w/in 50' of system                   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Access for system maintenance (shown on site map)           | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Site located in Shoreland (w/in 1000' of lake, 300' of river) | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No |
| Soil treatment area protected                               | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Site map prepared with previous items included                | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            |
| Construction related issues                                 | <hr/> <hr/>                             |  |   |   |  |

### Soil Information

|  |   |                             |  |
|--|---|-----------------------------|--|
|  |   | Evidence of site:           |  |
|  |   | Cut                         | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  |
|  |   | Filled                      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  |
|  |   | Compacted                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  |
|  |   | Disturbed                   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No  |
| Original soils   | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |  |
| Soil logs completed and attached                                     | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | Perk test completed and attached (if applicable) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| Soil loading rate (gpd/ft <sup>2</sup> )                             | <u>0.60</u>                             |                             | Percolation rate (if applicable) _____   |
| Depth/elev to SHWT   | <u>7"</u>                               |                             | Flooding or run-on potential (comments) <input type="checkbox"/> Yes <input type="checkbox"/> No                     |
| Depth to system bottom maximum (or elev minimum)                     | <u>(+ 36")</u>                          |                             | Flood elevation (if applicable) <u>1202.7</u>  |
| Depth/elev to standing water (if applicable)                         | _____                                   |                             | Elevation of ordinary high water level (if applicable) _____   |
| Depth/elev to bedrock (if applicable)                                | _____                                   |                             | Floodplain designation and elev - 100 yr/10 yr (if applicable) <u>1202.7 - 100 yr</u><br><u>1199.8 - 10 yr</u>       |
| Soil Survey information determined (see attachment)                  | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No |  |
| Differences between soil survey and field evaluation (if applicable) | _____<br>_____                          |                             |  |

*I hereby certify this evaluation was completed in accordance with MN 7080 and any local req's.*

  
Designer Signature

Brummer Septic LLC.  
Company

L-1347  
License #

# Soil Observation Log

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| Owner Information  |                       |
|--|-----------------------|
| Property Owner / project: <u>Peter Brown</u>                   | Date <u>9/18/2018</u> |
| Property Address / PID: <u>41427 390th St. Aitkin MN 56431</u> |                       |

| Soil Survey Information                                |   |
|--|---|
| <input type="checkbox"/> refer to attached soil survey |   |
| Parent mat'l's:  | <input type="checkbox"/> Till <input type="checkbox"/> Outwash <input checked="" type="checkbox"/> Lacustrine <input type="checkbox"/> Alluvium <input type="checkbox"/> Organic <input type="checkbox"/> Bedrock |
| landscape position:                                    | <input type="checkbox"/> Summit <input type="checkbox"/> Shoulder <input type="checkbox"/> Side slope <input type="checkbox"/> Toe slope                    Flat  |
| soil survey map units:                                 | <u>147 &amp; 1154</u> slope <u>4</u> % direction- <u>South</u>  |

| Soil Log #1   |           |                         |              |                         |             |       |          |
|---|-----------|-------------------------|--------------|-------------------------|-------------|-------|----------|
| <input checked="" type="checkbox"/> Boring <input type="checkbox"/> Pit |           | Elevation <u>1200.4</u> |              | Depth to SHWT <u>7"</u> |             |       |          |
| Depth (in)  | Texture   | fragment %              | matrix color | redox color             | consistence | grade | shape    |
| 0 - 7   | Topsoil   | <35                     | 10YR3/2      |                         | Friable     | Weak  | Blocky   |
| 7 - 13  | Clay Loam | <35                     | 2.5Y5/2      | 7.5YR5/6                | Friable     | Weak  | Blocky   |
|   |           | <35                     |              |                         | Loose       | Loose | Granular |
|   |           | <35                     |              |                         | Loose       | Loose | Granular |
|   |           | <35                     |              |                         | Loose       | Loose | Granular |

Comments:

41427 390th St. Aitkin MN 56431

**Soil Log #2**

| <input checked="" type="checkbox"/> Boring <input type="checkbox"/> Pit |           | Elevation <u>1200.7'</u> |              | Depth to SHWT <u>7"</u> |             |       |          |
|---|-----------|--------------------------|--------------|-------------------------|-------------|-------|----------|
| Depth (in)  | Texture   | fragment %               | matrix color | redox color             | consistence | grade | shape    |
| 0 - 7   | Topsoil   | <35                      | 10YR3/2      |                         | Friable     | Weak  | Blocky   |
| 7 - 13  | Clay Loam | <35                      | 2.5Y5/2      | 7.5YR5/6                | Friable     | Weak  | Blocky   |
|   |           | <35                      |              |                         | Loose       | Loose | Granular |
|   |           | <35                      |              |                         | Loose       | Loose | Granular |
|   |           | <35                      |              |                         | Loose       | Loose | Granular |

41427 390th St. Aitkin MN 56431

**Soil Log #3**

| <input type="checkbox"/> Boring <input type="checkbox"/> Pit |         | Elevation _____       |              | Depth to SHWT _____ |                                   |                                     |   |
|--|---------|-----------------------|--------------|---------------------|-----------------------------------|-------------------------------------|---|
| Depth (in)   | Texture | fragment %            | matrix color | redox color         | consistence                       | grade                               | shape   |
|  |         | <35<br>35 - 50<br>>50 |              |                     | loose<br>friable<br>firm<br>rigid | loose<br>weak<br>moderate<br>strong | single grain<br>granular<br>blocky<br>prismatic<br>platy<br>massive |
|  |         | <35<br>35 - 50<br>>50 |              |                     | loose<br>friable<br>firm<br>rigid | loose<br>weak<br>moderate<br>strong | single grain<br>granular<br>blocky<br>prismatic<br>platy<br>massive |
|  |         | <35<br>35 - 50<br>>50 |              |                     | loose<br>friable<br>firm<br>rigid | loose<br>weak<br>moderate<br>strong | single grain<br>granular<br>blocky<br>prismatic<br>platy<br>massive |
|  |         | <35<br>35 - 50<br>>50 |              |                     | loose<br>friable<br>firm<br>rigid | loose<br>weak<br>moderate<br>strong | single grain<br>granular<br>blocky<br>prismatic<br>platy<br>massive |
|  |         | <35<br>35 - 50<br>>50 |              |                     | loose<br>friable<br>firm<br>rigid | loose<br>weak<br>moderate<br>strong | single grain<br>granular<br>blocky<br>prismatic<br>platy<br>massive |

I hereby certify this work was completed in accordance with MN 7080 and any local req's.

  
Designer Signature

Brummer Septic LLC.  
Company

L-1347  
License #

# Mound Design - Aitkin county

Property Owner: Peter Brown

Date: 9/18/2018

Site Address: 41427 390th St. Aitkin MN 56431

PID: 01-0-015600

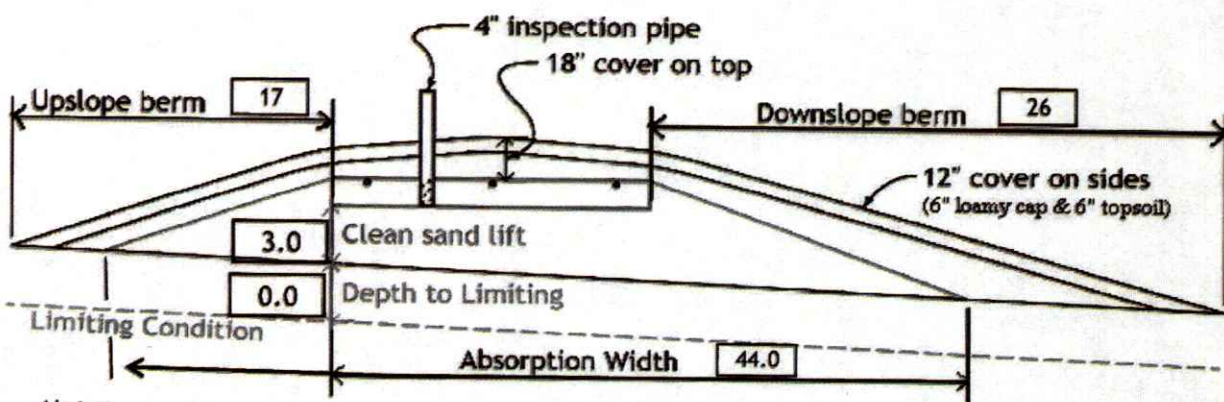
Comments: Type III Mound

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

- 1)  2 bedroom    Type  1 Residential System
- 2)  300 GPD design flow
- 3)  No Garbage disposal or pumped to septic    Install 1650 Jacobson Compartment tank
- 4)  1000 Gal Septic tank (code minimum)     1120 Gal Septic tank (design size / LUG req'd)  
Tank options: Effluent filter & alarm req'd
- 5)  1.2 GPD/ft<sup>2</sup> mound sand loading rate    contour loading rate of  12 req's a min     25 ft. long rockbed
- 6)  10.0 ft rockbed width     25.0 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     23.0 feet long     8.0 perfs / lateral     24 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 =  16, line #8 must be less --> OK
- 10)  7.0 doses per day    ( 4 minimum)
- 11)  43 gallons per dose (treatment volume)
- 12)  1.50 inch diameter laterals must be used to meet "4x pipe volume" requirement    1.50 5x
- 13)  60 feet of  2.0 inch supply line    leads to  10 gallons of drainback volume    2.00 3x  
(Tip: "top feed" manifold to control the drainback)
- 14)  53 gallons TOTAL pump out volume (treatment + drainback)
- 15)  13 feet vertical lift from pump to mound laterals, leads to a:
- 16)  18 GPM @  19 feet of head, Pump requirement (note: >50gpm may require an extra 3-6' of head)
- 17)  500 gal Dose tank (code minimum)     522 gal Dose tank (design size / LUG req'd)    at  12.69 gpi  
leads to a
- 18)  4.2 inch swing on Demand float,    or timed dosing of  2.9 min ON (confirm pump rate with drawdown  
(this delivers Average flow, =70% of Peak design flow)     5.1 hrs OFF    test and adjust as necessary)
- 19)  12 inches from bottom of tank to "Pump OFF" float
- 20)  16 inches from bottom of tank to "Pump ON" float, or  12 inches to "Timer ON" float if time dosed
- 21)  19 inches from bottom of tank to "Hi Level" float, or  29 inches to "Hi Level" float if time dosed
- 22)  281 gallons reserve capacity (after High Level Alarm is activated)

- 23)  $0.60$  gpd/ft<sup>2</sup> Absorption area Soil Loading Rate, which gives a mound ratio of  $2$  (minimum)  
 (this must match the soil boring log) desired mound ratio  $2.0$
- 24)  $4$  percent site slope (0-20% range)  $4$  (% downslope site slope, if different than upslope)
- 25)  $0$  inches, or  $0.0$  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)  $36$  inch, or  $3.0$  ft. Sand Lift Mound **CRITICAL FOR FUTURE CERTIFICATIONS!!!**
- 27)  $20.0$  ft. base absorption width (with sand beyond rockbed as follows):  
 $44.0$  greater of: absorption width OR sand slope
- 28)  $0.0$  ft. upslope and sideslope sand upslope  $13.0$   
 $10.0$  ft. Downslope sand down slope  $21.0$
- Individual slope ratios give BERM widths (topsoil beyond rockbed) of:
- 29)  $4:1$  upslope ratio  $17$  ft. upslope berm
- 30)  $4:1$  sideslope  $22$  ft. sideslope berms
- 31)  $4:1$  downslope  $26$  ft. downslope berm

32) Overall Dimensions:  $10.0$  ft. wide by  $25.0$  ft. long Rock bed  
 $53$  ft. wide by  $69$  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  $25.0$  ft. by  $9$  inches under pipe, plus 20% gives  $12$  yd<sup>3</sup> or \*1.4=  $17$  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)  
 $62.4$  up +  $104.1$  downslope +  $28.7$  ends +  $29.6$  under rock =  $270$  yd<sup>3</sup> or \*1.4=  $378$  ton  
 plus 20%
- 35) Loamy Cap:  $49$  ft. by  $65$  ft. 6" deep, plus 20% gives  $71$  yd<sup>3</sup> or \*1.4=  $99$  ton
- 36) Topsoil:  $53$  ft. by  $69$  ft. 6" deep, plus 20% gives  $82$  yd<sup>3</sup> or \*1.4=  $115$  ton

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

Jeff Brummer Brummer Septic LLC. L-1347 9/18/2018  
 Designer Signature Company License# Date



## INSPECTOR CHECKLIST - mound

4142/ 390th St. Aitkin MN 56431

- 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, else ok w/pvc)
  
- 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 \_\_\_\_\_ 1120 gallons Effluent filter & alarm req'd \_\_\_\_\_
  
- Riser over outlet, riser over inlet or center, and 6"+ inspection pipe over any remaining baffles.  
yes \_\_\_\_\_ effluent filter & alarm
- Dose tank risers and piping (water tight, insulated, proper depth, drainback)  
mfg \_\_\_\_\_ 522 gallons
- dose pump \_\_\_\_\_ 18 gpm 19 head VERIFY PUMP CURVE 2.9 min ON 5.1 hr OFF
- float setting drop 4.2 inches at 12.7 gpi "DESIGNED" 3.1 inches approx float tether length  
53.0 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 25.0
- Sand lift depth 36 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)
  
- Absorption Sand beyond rock 13.0 upslope 21.0 downslope
- Bermed topsoil beyond rockbed 17 upslope 22 sideslope 26 downslope
  
- cover depth of 12-18"+ VERIFY
- 3 laterals (1-2' from edge of rock)
- 1.50 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 \_\_\_\_\_

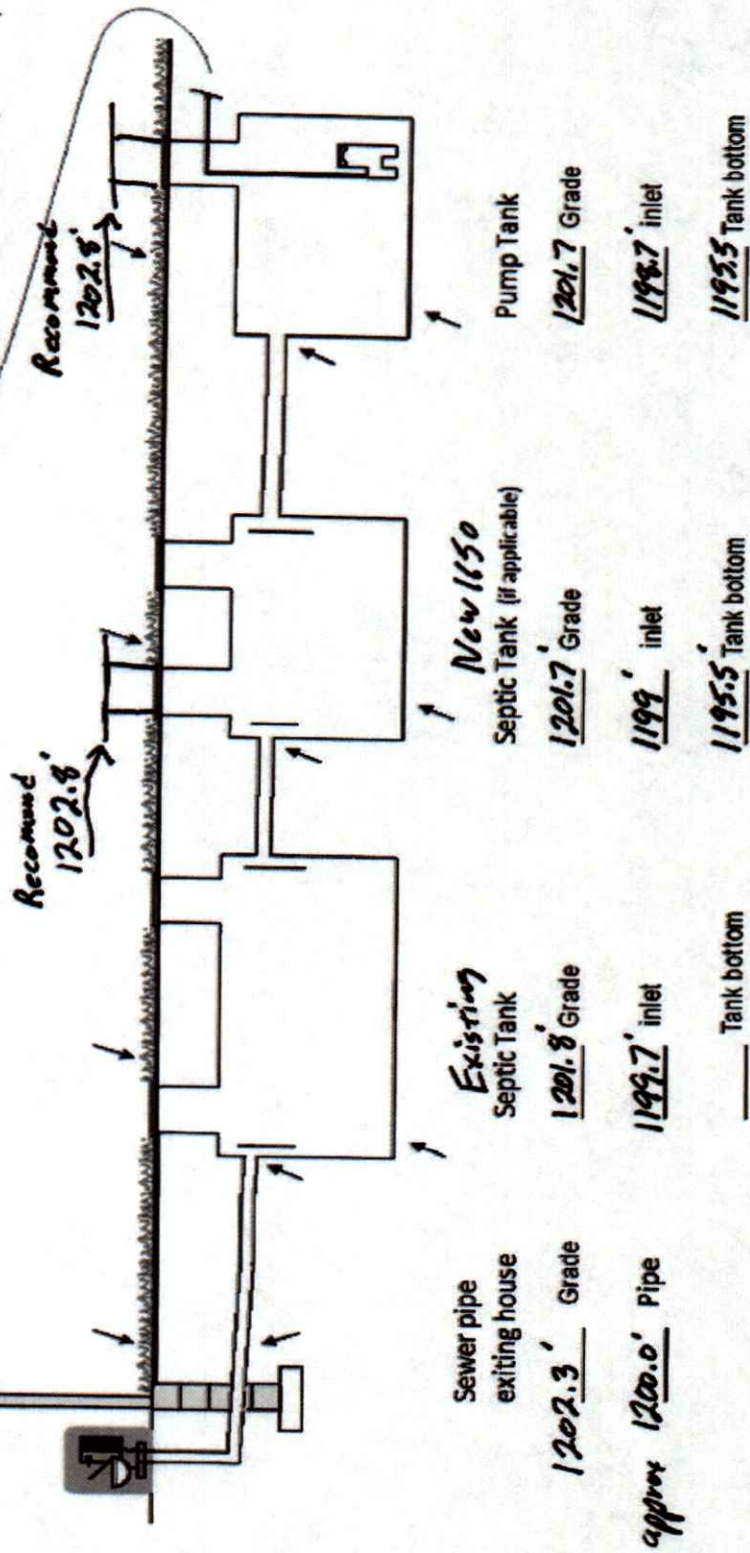
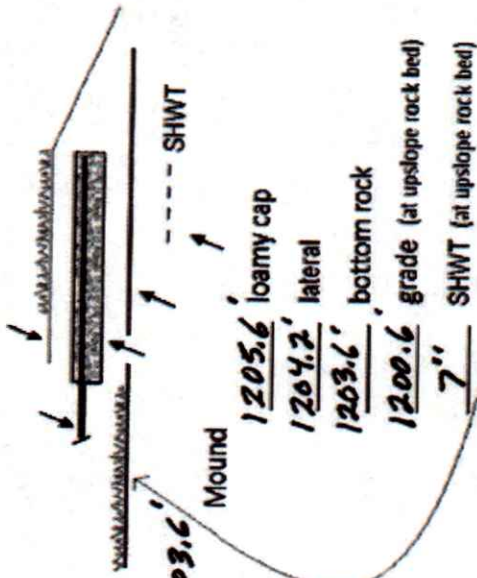


# System Elevations

Elv = 1202.8' benchmark Spike on Power pole

Nail on Tree South of Garage Elv = 1203.6'

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



Sewer pipe exiting house  
1202.3' Grade  
approx 1200.0' Pipe

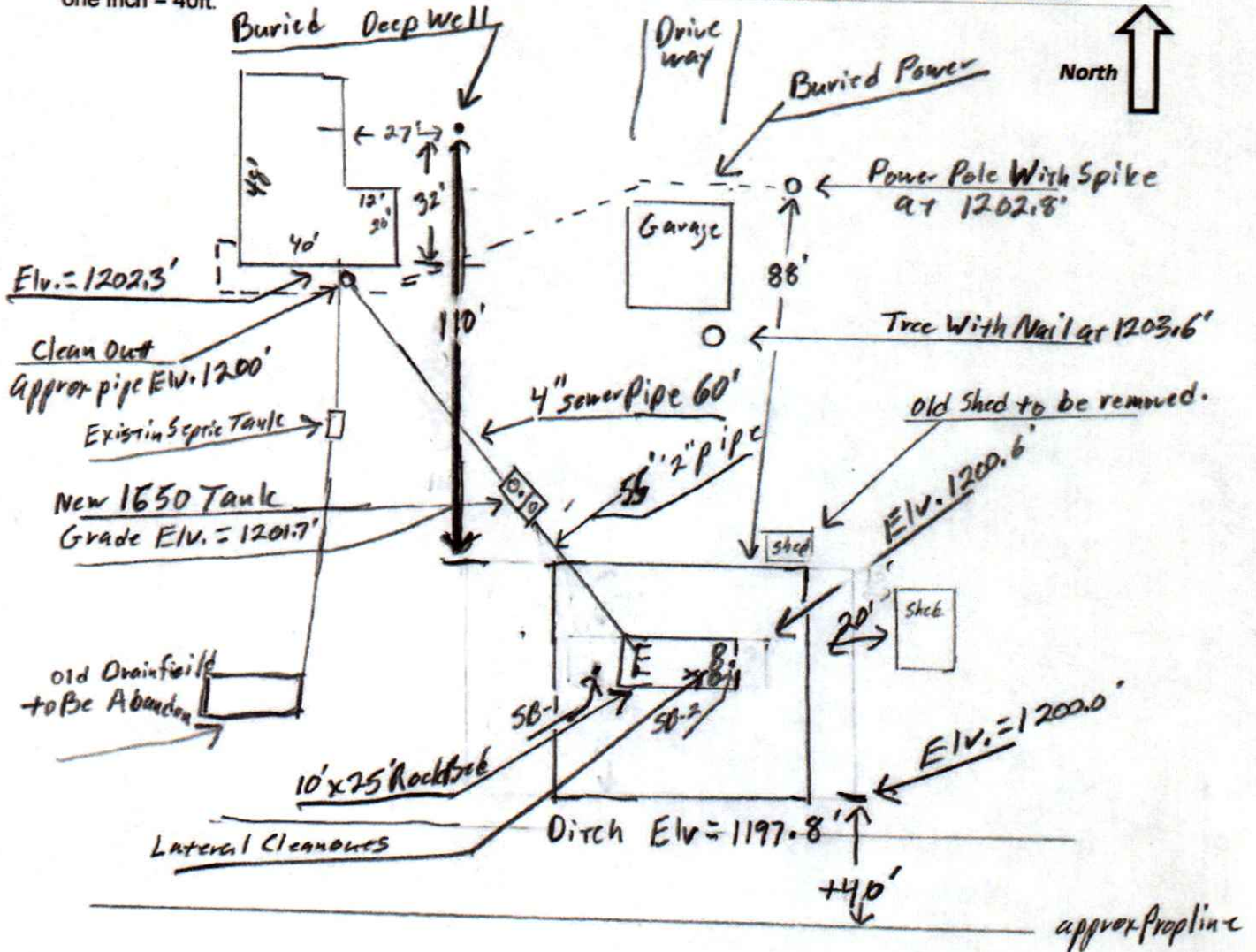
Existing Septic Tank  
1201.8' Grade  
1199.7' inlet  
\_\_\_\_ Tank bottom

New 1650 Septic Tank (if applicable)  
1201.7' Grade  
1199' inlet  
1195.5' Tank bottom

Pump Tank  
1201.7' Grade  
1198.7' inlet  
1193.5' Tank bottom

# { Design Drawing }

Property Owner: Peter Brown      Date: 9/18/18      Designer's Initials: JB  
 Parcel ID. Number: 01-0-015600      Address: 41427 390th St. Aitkin MN 56431  
 one inch = 40ft.



|             | Surface/ SHWT | Spike on power pole= Bench Mark 1202.8' |         | Existing Grade                        |                                      |
|-------------|---------------|---|---------|---------------------------------------|--------------------------------------|
| Soil Bore 1 | 1200.47"      | Nail on Tree                            | 1203.6' | Upslope Edge Rockbed E.L.V. = 1200.6' |                                      |
| Soil Bore 2 | 1200.77"      | Grade at nail tree                      | 1202.4' | Bottom of Rockbed E.L.V. = 1203.6'    |                                      |
| Soil Bore 3 |               | Ground E.L.V. Tank                      | 1201.7' | New                                   | Top of Washed Sand E.L.V. = 1203.6'  |
|             | Ground at     | Existing house                          | 1202.3' | South side                            | Existing tank inlet E.L.V. = 1199.7' |

Please show all that apply ( Existing )  
 Wells within 100ft. Of Drain field.  
 Water lines within 10 ft. of Drain field.  
 Drain field Areas:

Please Draw to Scale with North to Top or Left Side of Page:

|                           |                                   |
|---------------------------|-----------------------------------|
| Disturbed/Compacted Areas | Access Route for Tank Maintenance |
| Component Location        | Property Lines                    |
| OHW ordinary high water   | Structures                        |
| Lot Easements             | Setbacks                          |

## Mound Design Notes - Aitkin county

Property Owner: Peter Brown Date: 9/18/18  
Site Address: 41427 390th St. Aitkin MN 56431 PID: 01-0-015600

Comments: **Mound design may not follow Aitkin co. Auto fill form for mound design.**

- 1 This is a type III mound , ( Soil Separation 7" ) sized for a 2 bedroom house.
- 2 Existing deep well location is 32ft. North and 13ft. East of SE corner of house, buried in yard.  
Owner stated it is a deep well that is a flowing well.
- 3 **There is a buried power lines to cross approx. 6 ft. South of house all the way along South side of house.**
- 4 Existing septic tank to be pumped, collapsed, filled, or removed. Existing drainfield to be Abandon.
- 5 Install clean-out near house, install 1650 tank for gravity flow from house, must meet well setback.  
Lot is Flat, install 1650 Jacobson compartment tank low enough for drainback from mound.  
Install effluent filter in septic tank outlet. Install alarm on Effluent filter. Insulate tank tops.
- 6 The shed on East end of mound will meet the 20ft. Setback to the absorption area.  
The old chicken coop /shed is to be removed. Mound berm slopes at 4:1.
- 7 Elevation contour of rock bed upslope edge is Elv.=1200.6'. South berm is approx. 40 ft. from property line.  
The area size of the rock bed is 10' x 25' . Absorption area is 25' x 44'.  
Sand absorption area is 13 ft. up slope + 10 ft. rockbed + 21 downslope = approx. 44 ft. wide sand base.  
Berms are 17ft. Upslope, 26ft. Down slope, 10ft. Rock bed = approx. 53ft. Wide. End Berms are 22 ft.  
Overall mound size is approx. 53' wide x 69' long and approx. 5' high.
- 8 The bench mark is the spike on the power pole near garage BM = Elv. 1202.8'. 100 year flood is 1202.7'
- 9 The 10 year is at 1199.8' . The nail on the tree South of the garage is at Elv.= 1203.6'  
Installer to double check bench mark. Installer should confirm bench mark and sand height Elv. with inspector.  
Installer should record bench mark Elv. and sand height on installation inspection form.
- 10 The top of the sand and bottom of rock bed is Elv. 1203.6'.
- 11 It is important that the soils do not get compacted, and that clean Washed Sand is used.
- 12 The Jacobson 1650 tank will be gravity flow from dwelling. Install the pump for 7 demand doses per day. approx. 53 gallons per dose, 4.2 inches of tank level. Install alarm at 3 inches from pump on level.  
Install all manholes, inspection pipes and clean-outs to grade or above. ( Recommend 1202.8' )  
Install a 2" supply pipe from tank to end manifold in rock bed, install so pipe drains back to tank.  
Install 1.5" laterals with 9" of rock under them. Install clean-outs at far end of laterals.  
**Drill 1/4" perf holes spaced 3 ft. on center.**  
Install inspection pipe to bottom of rock bed, secure in rock bed and raise to above final grade.
- 13 Installer will pressure test and squirt height laterals when finished.
- 14 **Install Event counter on Effluent pump, calibrate pump and give gallons per event to Owner.**
- 15 Designer does not guarantee or warranty any Type III systems.  
Designed to Aitkin Co. and MPCA recommendations and requirements.

  
Designer Signature

Brummer Septic LLC.  
Design Company

L-1347  
License#

# AITKIN COUNTY ENVIRONMENTAL SERVICES

## APPLICATION for an OPERATING PERMIT FOR WASTEWATER TREATMENT AND DISPERSAL

PERMITTEE \_\_\_\_\_ PARCEL NUMBER 01-0-015600

ADDRESS 41427 390th St. Aitkin MN 56431

LEGAL DESCRIPTION \_\_\_\_\_

TELEPHONE # \_\_\_\_\_ GIS LOCATION \_\_\_\_\_

**A. DESCRIPTION OF WASTEWATER TREATMENT AND DISPERSAL SYSTEM:  
(Attach ISTS site evaluation and design; estimated cost of system  
construction, operation, monitoring, service, component replacement, and  
management; anticipated system life, hydraulic and organic loading rates)**

Type III mound because of soil separation, ( 7" ) . Gravity flow from house to septic tank. Pumped to mound.

Mound has 3 ft. washed sand under rockbed. 10 year flood Elv.= 1199.8' 100 year flood Elv.= 1202.7'

Spike on Power Pole at Elv.= 1202.8'

**B. MONITORING PLAN AND REPORTING FREQUENCY:**

| PARAMETER            | COMPLIANCE LIMIT              | SAMPLE LOCATION | SAMPLE FREQUENCY                | SAMPLE TYPE | REPORTING FREQUENCY                         |
|----------------------|-------------------------------|-----------------|---------------------------------|-------------|---|
| FLOW                 | 300 GPD<br><del>600 GPD</del> | Event counter   | Once a Month<br>or when present |             | Send Report to<br>Aitkin Co.<br>Once a year |
| 5-DAY BOD            |                               |                 |                                 |             |   |
| TOTAL NITROGEN       |                               |                 |                                 |             |   |
| TOTAL PHOSPHORUS     |                               |                 |                                 |             |   |
| TSS                  |                               |                 |                                 |             |   |
| FATS,OILS AND GREASE |                               |                 |                                 |             |   |
| FECAL COLIFORM       |                               |                 |                                 |             |   |
| SEPARATION DISTANCE  |                               |                 |                                 |             |   |

Owner will read event counter once a month or when present. Owner will send monthly readings report to Aitkin co. or the inspector ONCE A YEAR.

\_\_\_\_\_ will perform the monitoring of this septic system.

**C. MAINTENANCE PLANS**

| PARAMETER   | LOCATION   | FREQUENCY   |
|---|--|---|
| 300 GPD<br><del>600 GPD</del>                                       | Read Event Counter   | Once a month or when present  |
| Calibrate pump out gallons  | Measure pump tank and calculate gallons pumped out per event | Calibrate system when installed and in operation. Check calibration number at 1st year inspection and every one after |
| Report monthly readings to Aitkin Co.<br>Or inspector (once a year) | Keep records of monthly readings                             | Once a year submit report to Aitkin Co.   |
|   |  |   |

**D. MITIGATION PLAN:**

Have system Inspected

**I hereby certify with my signature as the designer, that all data for the operating permit application is true and correct to the best of my knowledge. I agree to indemnify and hold Aitkin County harmless from loses, damages, costs and charges that may be incurred by the County because of the information submitted with this application.**

Jeff Brummer  
**Signature**

L-1347  
**License Number**

9/18/2018  
**Date**

Jeff Brummer  
**Name (please print)**

7540 Burr Ln. Brainerd MN 56401  
**Address**

(218) 821-0704  
**Telephone #**

**MAINTENANCE SERVICE, MONITORING AND INSPECTION  
CONTRACT  
FOR INDIVIDUAL SEWAGE TREATMENT SYSTEM**

It is hereby agreed this 7 day of April, 2020 by and between  
Mark J. Ritter (Inspector) and Peter Brown (client)

(Client) Name & Address

Peter Brown

Street Address

41427 390th St.

City, State, Zip

Aitkin MN 56431

That in consideration of the payments provided herein, the Inspector shall provide services to perform Preventative Maintenance, Monitoring and Inspection of the Individual Sewage Treatment System (ISTS) located at the property described in the Aitkin County Operating Permit.

Each inspection includes an examination of the ISTS followed by a written report to the client. This inspection report shall contain recommendations for operation and maintenance for failure-preventative measures, if any are deemed appropriate by the inspector and a list of recommended corrective measures or replacement parts. The Inspector is authorized to submit a copy of the report to the Aitkin County Environmental Services Department.

This contract does not assume any responsibilities or obligations, which are normally the responsibilities of the Client, as related to parts or labor and does not extend to cover any costs that may be associated with any recommendations made under this contract.

The Inspector can only contract or subcontract for parts or labor after authorization. Billings for service calls shall be made on a case by case basis. This contract only covers maintenance, monitoring and inspection services per current Aitkin County Operating Permit and does not cover alarm calls of any kind.

The Inspector shall be provided access to the site and the system in order to perform the following services:

**SEPTIC TANK AND LIFT STATIONS INSPECTION**

(check the boxes needed to fill the requirements of the Operating Permit)

Check septic tank and compartments for solids buildup and general appearance. If necessary, have tanks pumped (cost of pumping is the responsibility of the client).

Check effluent filter for buildup and clean, if applicable.

Check pumping system, including control panel and floats.

Record and date the readings of the elapsed time meter and cycle counter(s), if applicable.

Check dosing settings (in the control panel, if applicable).

Other: \_\_\_\_\_  
\_\_\_\_\_

**\*\*If the septic tank or lift stations need pumping to be in compliance with the operating permit the cost of the pumping is the responsibility of the Client.**

### **TREATMENT DEVICE**

\_\_\_\_\_ Inspect pretreatment unit (aerobic tank, sand filter, etc.) per manufacturer's recommendations, if applicable.

\_\_\_\_\_ Inspect and clean any parts per manufacturer's recommendations.

\_\_\_\_\_ Inspect and clean laterals, if applicable.

\_\_\_\_\_ Inspect the appearance of the wastewater inside the unit for color, turbidity and examination of odors.

\_\_\_\_\_ Sample effluent per Operating Permit monitoring requirements.

**(Cost of sampling and analysis is the responsibility of the Client)**

Other: \_\_\_\_\_  
\_\_\_\_\_

### **DISPERSAL FIELD**

Inspect for visible signs of failure (surface discharge, soggy ground, wet spots, settling, etc.)

If liquid level monitors are installed, levels will be observed and recorded.

\_\_\_\_\_ Flush filters and clean cartridges, if applicable.

\_\_\_\_\_ Check field control unit solenoid operations or manual control, if applicable.

Other: \_\_\_\_\_  
\_\_\_\_\_

In no event shall the Inspector be responsible for special or consequential damages, including but not limited to, loss of time, injury to personal property or any other consequential damages or incidental or economic loss due to equipment failure or for any other reason. This contract does not assume any responsibilities or obligations, which are normally, the responsibility of the Client or as, related to parts or labor and does not extend to cover any costs that may be associated with any recommendations made under this contract.

This contract shall be effective: Beginning April 7, 2020  
and Ending April 7, 2020

**Cost for Maintenance Service, Monitoring and Inspection Contract is:**

\$ 0 /yr. For 2 years totaling \$ 0

The Inspector agrees to provide inspection, monitoring and routine maintenance service only under this contract. The Client remedies for breach of this contract shall be limited to refund of any of the amounts paid in advance for service. This contract may be renewed 30 days from the ending date.

Payment for all services shall be paid None

|                |                              |
|----------------|------------------------------|
| <b>Client:</b> | <b>Inspector:</b>            |
| Sign: _____    | Sign: <u>Mark P. Ritter</u>  |
| Print: _____   | Print: <u>Mark P. Ritter</u> |
| Date: _____    | Date: <u>April 7, 2020</u>   |

- System should have pump dose calibrated at start-up, record gallons pumped out per dose.
- Owner should understand where to read the event counter, and know how many gallons per event.
- Owner must know where Effluent filter is and which alarm is for IT.
- Owner must know where alarm is for the pump tank and why it is going off.
- Owner should Know the basic systems operation.



### { Type III Design Notes for Owner and Installer }

Property Owner: Peter Brown Date: \_\_\_\_\_ Installer's Initials : \_\_\_\_\_  
 PIN : 01-0-015600 Site Address: 41427 390th St. Aitkin MN 56431

This is a TYPE III Septic System, Operating Permit Required of Owner. Permit # \_\_\_\_\_

Reason for Type III Soil Separation

Description of System Gravity flow from house to septic tank pumped to mound.  
~~10' x 25'~~  
Rockbed with 36" of Washed Sand under Rockbed

|                                    |                                      |                                     |           |
|------------------------------------|--------------------------------------|-------------------------------------|-----------|
| 1st Tank Gal. _____                | 1st compartment gal. _____           | 2nd Comp _____                      | 3rd _____ |
| 2nd Tank Gal. _____                | 1st compartment gal. _____           | 2nd Comp _____                      | 3rd _____ |
| 3rd Tank Gal. _____                | 1st compartment gal. _____           | 2nd Comp _____                      | 3rd _____ |
| 1st Pump tank Gal. _____           | 1st Pump Brand and model # _____     |                                     |           |
| 1st Pump GPM _____                 | 1st Pump Ft. of Head _____           | 1st Pump Gal. per Dose _____        |           |
| 1st Pump tank Gal. per inch. _____ | 1st Pump Inches per Dose _____       | 1st Pump Doses per Day _____        |           |
| 1st Pump Design GPD _____          | 1st Pump Measured dose per day _____ | Timed or demand Dose _____          |           |
| Time Settings: Minutes ON _____    | Minutes OFF _____                    | Inches Pumped after drainback _____ |           |
| Notes : _____                      |                                      |                                     |           |
| 2nd Pump tank Gal. _____           | 2nd Pump Brand and model # _____     |                                     |           |
| 2nd Pump GPM _____                 | 2nd Pump Ft. of Head _____           | 2nd Pump Gal. per Dose _____        |           |
| 2nd Pump tank Gal. per inch. _____ | 2nd Pump Inches per Dose _____       | 2nd Pump Doses per Day _____        |           |
| 2nd Pump Design GPD _____          | 2nd Pump Measured dose per day _____ | Timed or demand Dose _____          |           |
| Time Settings: Minutes ON _____    | Minutes OFF _____                    | Inches Pumped after drainback _____ |           |
| Notes : _____                      |                                      |                                     |           |

1st Alarm: Tank \_\_\_\_\_ Reason: \_\_\_\_\_  
 2nd Alarm: Tank \_\_\_\_\_ Reason: \_\_\_\_\_  
 3rd Alarm: Tank \_\_\_\_\_ Reason: \_\_\_\_\_

Water Meter Installed on house hold water: \_\_\_\_\_ Where is it located : \_\_\_\_\_  
 Event counter Installed on pump: \_\_\_\_\_ Which Pump: \_\_\_\_\_ Gal. Per Event \_\_\_\_\_  
 Where is Event Counter Located: \_\_\_\_\_

Requirement of Operating Permit  
 Owner to UNDERSTAND System Operation: Required to do monthly readings of water meter or event counter.  
 Owner to record readings every month that system is being used, should know calculations for Gal. per day.  
 Owner to REPORT to Aitkin Co. once a year with log of monthly readings and annual Inspection Report  
 Owner to Hire an Inspector for a Once a year Inspection of the system's, Operation, Mechanical functions,  
 and Compliance with Operating Permit.

# Subsurface Sewage Treatment System Management Plan

Property Owner: Peter Brown Phone: \_\_\_\_\_ Date: 9/18/2018  
Mailing Address: 41427 390th St. City: Aitkin MN Zip: 56431  
Site Address: 41427 390th St. City: Aitkin MN Zip: 56431

This management plan will identify the operation and maintenance activities necessary to ensure long-term performance of your septic system. Some of these activities must be performed by you, the homeowner. Other tasks must be performed by a licensed septic service provider.

System Designer: check every 12 months.  
Local Government: check every \_\_\_\_\_ months.  
State Requirement: check every 36 months.

**My System needs to be checked every 12 months.**

*(State requirements are based on MN Rules Chapter 7080.2450, Subp. 2 & 3)*

### Homeowner Management Tasks

*Leaks* – Check (look, listen) for leaks in toilets and dripping faucets. Repair leaks promptly.

*Surfacing sewage* – Regularly check for wet or spongy soil around your soil treatment area.

*Effluent filter* – *Inspect and clean twice a year or more.*

*Alarms* – Alarm signals when there is a problem. Contact a service provider any time an alarm signals.

Owner ----> *Event counter or water meter* – Record your water use.

-recommend meter readings be conducted (circle one: DAILY WEEKLY **MONTHLY**)

### Professional Management Tasks

- Check to make sure tank is not leaking
- Check and clean the in-tank effluent filter
- Check the sludge/scum layer levels in all septic tanks
- Recommend if tank should be pumped
- Check inlet and outlet baffles
- Check the drainfield effluent levels in the rock layer
- Check the pump and alarm system functions
- Check wiring for corrosion and function
- Check dissolved oxygen and effluent temperature in tank
- Provide homeowner with list of results and any action to be taken
- Flush and clean laterals if cleanouts exist

"I understand it is my responsibility to properly operate and maintain the sewage treatment system on this property, utilizing the Management Plan. If requirements in the Management Plan are not met, I will promptly notify the permitting authority and take necessary corrective actions. If I have a new system, I agree to adequately protect the reserve area for future use as a soil treatment system."

Property Owner Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Designer Signature: Jeff Brummer Date: 9/18/2018

See Reverse Side for Management Log

## Maintenance Log

| Activity                                   | Date Accomplished |
|--|-------------------|
| <b>Check frequently:</b>                   |                   |
| Leaks: check for plumbing leaks            |                   |
| Soil treatment area check for surfacing    |                   |
| Lint filter: check, clean if needed        |                   |
| Effluent screen: if owner-maintained       |                   |
| Water usage rate (monitor frequency _____) |                   |
| <b>Check annually:</b>                     |                   |
| Caps: inspect, replace if needed           |                   |
| Sludge & Scum/Pump                         |                   |
| Inlet & Outlet baffles                     |                   |
| Drainfield effluent leaks                  |                   |
| Pump, alarm, wiring                        |                   |
| Flush & clean laterals if cleanouts exists |                   |
| Other: _____                               |                   |
| Other: _____                               |                   |

**Notes:** \_\_\_\_\_ Follow Operating permit requirements. Check Pump and Alarms at least once a year.  
 \_\_\_\_\_ Clean Effluent filter at least twice a year. Mow mound area at least once a year to keep trees and brush from growing.  
 \_\_\_\_\_ No traffic on mound area, No Snowmobiles, No ATV's, No Parking.  
 \_\_\_\_\_

**Mitigation/corrective action plan:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_