

Subsurface Sewage Treatment System Management Plan

Property Owner: Cole Hoover & Paige Stenson Phone: 218-839-4737 Date: 10-10-22
Mailing Address: 20636 St. Hwy. 210 City: McGregor, MN Zip: 55760
Site Address: 20636 St. Hwy 210 City: McGregor, MN Zip: 55760

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 _____ months.
Local Government: check every _____ months.
State Requirement: check every 36 months.

My System needs to be checked every 36 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.
- 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: Cole Hoover Date: 10-10-22

Designer Signature: [Signature] Date: 10-10-22

See Reverse Side for Management Log

Maintenance Log

Activity	Date Accomplished
Check frequently:	
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 _____)	
Check annually:	
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: _____

Mitigation/corrective action plan: _____

University of Minnesota Site Evaluation Form 5/16/2005



Property Owner(s) Cole Hoover & Paige Stenson

Phone Number 218-839-8319

Address 20636 State Hwy. 210, McGregor, Mn. 55760

3 bedroom 20" sand base mound design.

P.I.D. 22-0-046000

Section _____

Township 50 N

Range 23

Date 10/7/2022

Time 2:00 PM

Weather conditions sunny and clear

Location Information

(check all that apply)

new system

dwelling

replacement system

Holding tank

other establishment

new home construction

Homeowner Information

No. of bedrooms (if applicable) 3 bedrooms (includes possible additions)

No. of residents in home 2 adults children

Estimated flow 450 gpd

Well casing depth shallow feet

Discharge location if checked

Water using devices (check) Garbage disposal

Water softener

Dishwasher

Sump pump

Large bathtub

High eff. furnace

Laundry/large tub on 2nd floor

Jucuzzi/hottub

Water use concerns (check)

Toilet/faucet leaks Max load laundry/day

Long term prescription medications

Home business Lint screen Antibact. soap

Frequent parties or out of town guests

Soil Data

Soil texture classification: loamy sand

Unnatural soil (check) Yes No

Type of observation (check) Probe Pit Boring

Parent material (check) Till Outwash Loess Bedrock Alluvium

Vegetation type (check) Wet Dry Unknown

Slope form (check) Summit Shoulder Back Foot Toe

Drainage (check) Good Fair Poor Ponding Flooding

Located in floodplain (check) Yes No

Site Summary Data

Standing water: n/a inches

Bedrock: n/a inches

Saturated soil: 16" inches

Maximum depth of system: plus 20" inches

Max elevation at system bottom: 100.4 feet

Soil sizing factor (SSF): 1.27 gpd/ft²

Linear loading rate (LLR): 0.79 gpd/ft

Was a perc test done? Yes _____ mpi

No

Soil Survey Data	Soil #1	Soil #2
Map unit sym & name	B39A	
Landscape position		
Flooding	none	
Slope	0-3%	
Watertable depth		
Bedrock depth		
Possible system depth		
Texture at depth	Loamy sand	
Permeability (P)		
Perc(MPI) = 60 / P		
NRCS onsite suitability		

Soil Boring Data

Boring 1		Elevation:	Location:		
Soil Horizons Depth (inches)	Texture		Color	Structure	Consistence
0-3"	top soil		10 yr 3/2	granular	very friabl
3-16"	Loamy Sand		7.5 yr 4/4	granular	very friabl
16-24"	loamy sand		5yr 4/6	granular	very friabl

Boring 2		Elevation:	Location:		
Soil Horizons Depth (inches)	Texture		Color	Structure	Consistence
0-10"	top soil-loamy sand		10 yr 3/3	granular	very Friable
10-16"	Loamy sand		7.5 yr 4/4	granular	very friable
16-24"	Loamy sand		5 yr 4/6	granular	very Friable

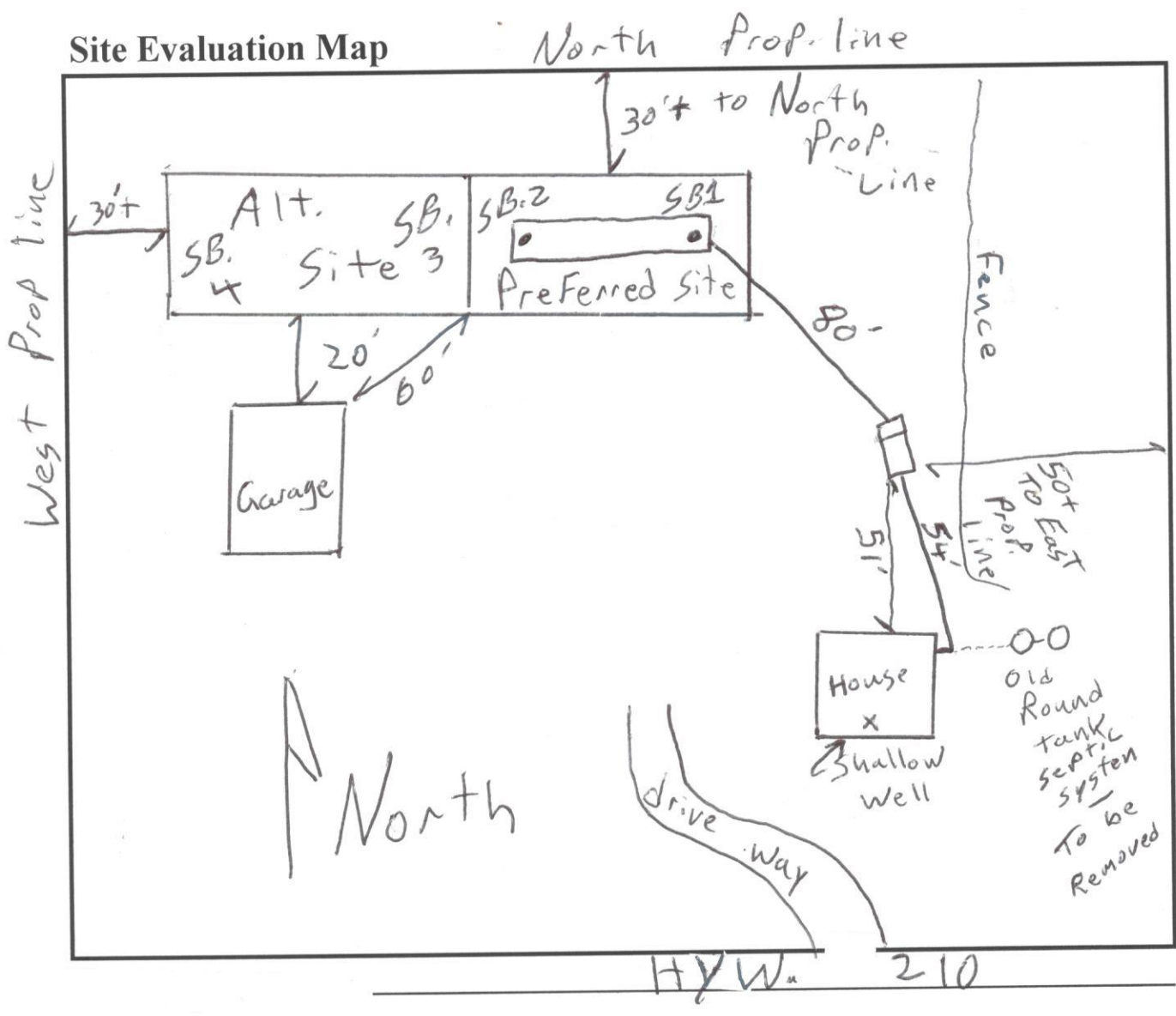
Boring 3 Elevation: _____ Location: _____				
Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence
0-5"	top soil	10 yr 3/2		
5-18"	loamy sand	7.5 yr 4/6		

Boring 4 Elevation: _____ Location: _____				
Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence
0-4"	top soil	10 yr 3/3		
4-16"	loamy sand	7.5 yr 4/6		
	redox @ 16"			

Boring 5 Elevation: _____ Location: _____				
Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence

Boring 6 Elevation: _____ Location: _____				
Soil Horizons Depth (inches)	Texture	Color	Structure	Consistence

Site Evaluation Map



Mapping Checklist

Map scale: _____ indicate north _____ show slope _____ % direction _____

Locate

- ___ lot dimensions/property lines
- ___ dwellings and other improvements
- ___ existing and/or proposed system(s)
- ___ replacement area
- ___ unsuitable area(s)
- ___ public water supply wells
- ___ pumping access
- ___ inner wellhead zone

Easements

- ___ phone
- ___ electric
- ___ gas

Elevations

- ___ borings
- ___ benchmark
- ___ perc tests
- ___ horiz&vert reference pts

Setbacks

- ___ building
- ___ all water wells within 100ft
- ___ pressure pipe
- ___ water suction pipe
- ___ streams, lakes, rivers
- ___ floodway and fringe

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

John R. Seay

(signature)

10/7/2022 (date)

L-1919

(license #)

218-839-4737

(phone number)

Map Unit Symbol: B39A

Meehan Loamy Sand

Map Unit Key: 3026494

Type: Consociation

Farmland Class: Not prime farmland

Available Water Storage (0-100cm): 8.22 cm

Flood Frequency (Dominant Condition): None

Flood Frequency (Maximum): None

Ponding Frequency: 8

Drainage Class (Dominant Condition): Somewhat
poorly drained

Drainage Class (Wettest Component): Somewhat
poorly drained

Proportion of Hydric Soils: 8%

Min. Water Table Depth (Annual): 50

Min. Water Table Depth (April-June): 50

Mound Design

Property Owner: Cole Hoover&Paige Stenson

Date: 10/7/2022

Site Address: 20636 St. Hwy. 210,McGregor,mn.

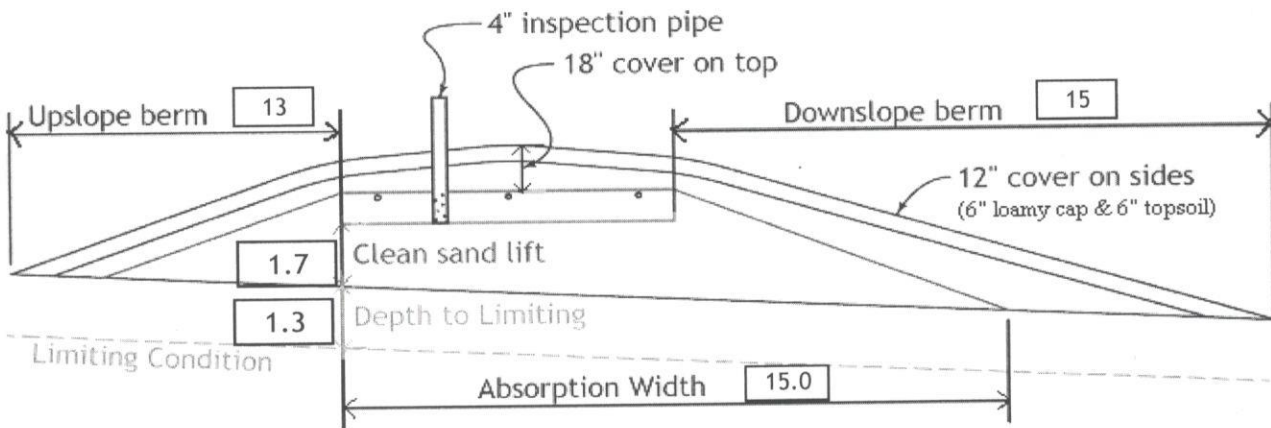
PID: 22-0-046000

Comments: _____

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

- 1) bedroom Type Residential System
- 2) GPD design flow
- 3) Garbage disposal or pumped to septic
- 4) Gal Septic tank (code minimum) Gal Septic tank (design size / LUG req'd)
Tank options: none
- 5) GPD/ft² mound sand loading rate contour loading rate of req's a min ft. long rockbed
- 6) ft rockbed width ft rockbed length
- 7) ft lateral spacing ft perforation spacing (maximum of 3 for both)
 manifold connection
- 8) laterals feet long perfs / lateral perfs total
(1/2 a perf means the first perf starts at the middle feed manifold)
- 9) inch perfs at feet residual head gives gpm flow rate per perforation
for this perf size & spacing, & pipe size on line 12, max perfs/lateral = , line #8 must be less --> OK
- 10) doses per day (4 minimum)
- 11) gallons per dose (treatment volume)
- 12) inch diameter laterals must be used to meet "4x pipe volume" requirement
- 13) feet of inch supply line leads to gallons of drainback volume
(Tip: "top feed" manifold to control the drainback)
- 14) gallons TOTAL pump out volume (treatment + drainback)
- 15) feet vertical lift from pump to mound laterals, leads to a:
- 16) GPM @ feet of head, Pump requirement (note: >50gpm may require an extra 3-6' of head)
- 17) gal Dose tank (code minimum) gal Dose tank (design size / LUG req'd) at gpi
leads to a:
(this delivers Average flow, =70% of Peak design flow)
- 18) inch swing on Demand float, min ON
- 19) inches from bottom of tank to "Pump OFF" float hrs OFF
- 20) inches from bottom of tank to "Pump ON" float inches to "Timer ON" float
- 21) inches from bottom of tank to "Hi Level" float inches to "Hi Level" float
- 22) gallons reserve capacity (after High Level Alarm is activated-demand dosed)

- 23) 0.78 gpd/ft² Absorption area Soil Loading Rate, which gives a mound ratio of 1.5 (minimum)
 (this must match the soil boring log) desired mound ratio 1.5
- 24) 1 percent site slope (0-20% range) 1 (% downslope site slope, if different than upslope)
- 25) 16 inches, or 1.3 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) 20 inch, or 1.7 ft. Sand Lift Mound **CRITICAL FOR FUTURE CERTIFICATIONS!!!**
- 27) 15.0 ft. Total ABSORPTION width (with sand beyond rockbed as follows:)
- 28) 2.5 ft. upslope and sideslope
 2.5 ft. Downslope
- Individual slope ratios give BERM widths (topsoil beyond rockbed) of:
- 29) $4:1$ upslope ratio 13 ft. upslope berm
- 30) $4:1$ sideslope 14 ft. sideslope berms
- 31) $4:1$ downslope 15 ft. downslope berm
- 32) Overall Dimensions: 10.0 ft. wide by 37.5 ft. long Rock bed
 38 ft. wide by 66 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 37.5 ft. by 6 inches under pipe, plus 20% gives 13 yd³ or *1.4= 18 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)
 29.2 up + 34.0 downslope + 11.3 ends + 23.8 under rock = 118 yd³ or *1.4= 165 ton
 plus 20%
- 35) Loamy Cap: 34 ft. by 62 ft. 6" deep, plus 20% gives 47 yd³ or *1.4= 66 ton
- 36) Topsoil: 38 ft. by 66 ft. 6" deep, plus 20% gives 56 yd³ or *1.4= 78 ton

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

Jerry Gary
 Designer Signature

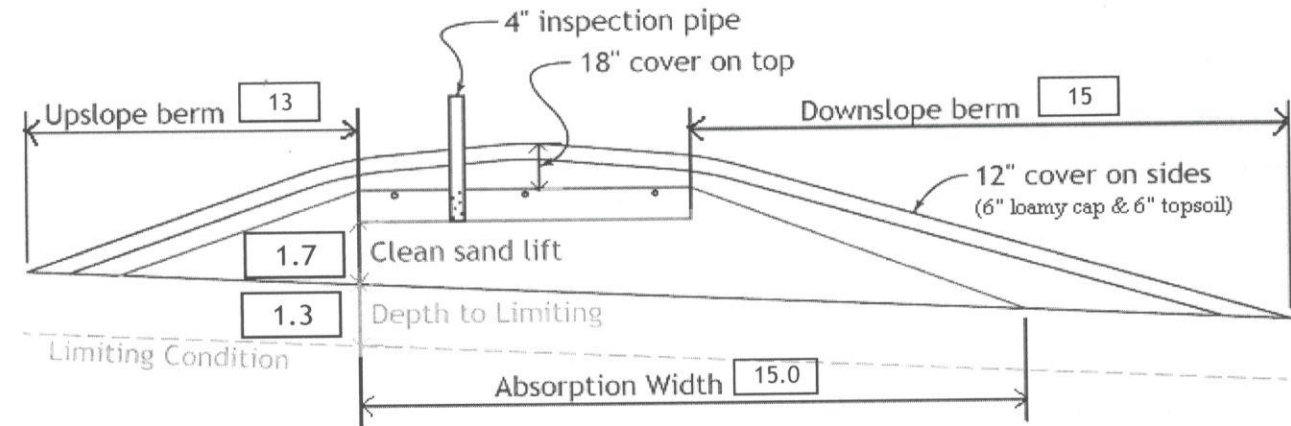
Farley Sewer Systems
 Company

L-1919
 License#

10/7/2022
 Date

Installer Summary

- 1000 gallon Septic tank (minimum) Tank options: none
- 500 gallon Dose tank (minimum) at 14.10 gpi
- 27 GPM @ 16 ft. of head, Pump required
- 9.0 inch swing on Demand float which translates to roughly 5.5 inches of float tether length
- Optional Time dosing of:
- 4.7 minutes ON
 - 8.5 hours OFF
 - 12 inches to "timer ON" float
 - 34 inches to "Hi level" float
- 21 inches from bottom of tank to "pump ON" float, or
- 24 inches from bottom of tank to "Hi Level Alarm" or
- 80 ft. of 2.0 inch supply line with end feed manifold connection
(Tip: "top feed" manifold to control drainback)
- 20 inch, or 1.7 ft. Sand Lift Mound
- 10.0 ft. wide by 37.5 ft. long Rock bed
- 3 laterals 2.00 inch diameter 35.5 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
- 15.0 ft. Total sand ABSORPTION width (minimum)
- 2.5 ft. upslope and sideslope (sand beyond rockbed, minimum)
 - 2.5 ft. Downslope (sand beyond rockbed, minimum)
- Specific slope ratios give BERM widths (topsoil beyond rockbed) of:
- | | |
|-------------------|------------------------|
| 4:1 upslope ratio | 13 ft. upslope berm |
| 4:1 sideslope | 14 ft. sideslope berms |
| 4:1 downslope | 15 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:	13.0 yd ³ or *1.4=	18 ton	6 inches under pipe
Mound Sand:	118 yd ³ or *1.4=	165 ton	calculation based on 3:1/4:1 slope from top of rockbed
Loamy Cap:	47 yd ³ or *1.4=	66 ton	6" deep
Topsoil:	56 yd ³ or *1.4=	78 ton	6" deep

INSPECTOR CHECKLIST - mound

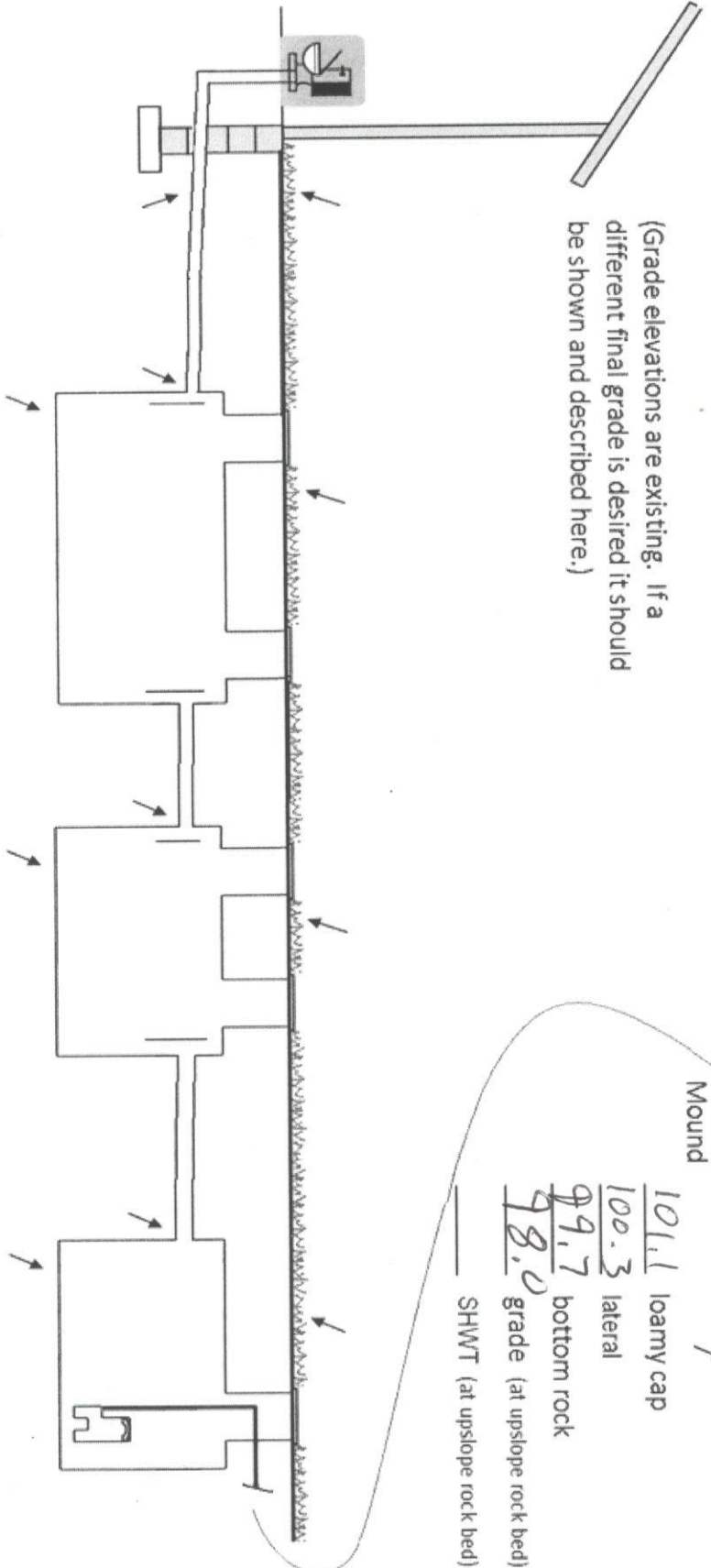
20636 St. Hwy. 210, McGregor, mn.

- WELL setbacks: 20'- 50' to sewer line req's MDH pressure test form (5 psi for 15 min)
50' to everything 100' to drainfield 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 10' to bed, tank & sewer line. (else sewer line > 12" below)
- Sewer line & tank connection (no hard 90's, long sweep 90 or 2-45's, slope minimum 1" in 8' = 1%)
(no depth req's, clean out every 100', Sch 40 pipe)
- Septic tank and risers (water tight risers, baffles, insulated, proper depth, existing verified by pumping)
mfg _____ 1000 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 risers, insulated, proper depth, drainback)
mfg _____ 500 gallons
- Optional Time dosing of:
4.7 min ON 8.5 hr OFF
- dose pump _____ 27 gpm 16 head VERIFY PUMP CURVE
- verify that installed "vertical lift from pump to laterals" is no more than design value of 9 feet
- float setting drop 9.0 inches at 14.1 gpi "DESIGNED" 5.5 inches approx float tether length
127.0 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 / Hi Level Alarm
- flow measurement: CT, ETM, time dosed, home water meter
- mound absorption area rough up
- mound rock dimensions 10.0 X 37.5
- Sand lift depth 20 inches. (Jar test : 2" sand leaves < 1/8" silt after 30 min)
- Absorption Sand beyond rock 2.5 upslope 2.5 downslope
- Bermed topsoil beyond rockbed 13 upslope 14 sideslope 15 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' benchmark Bottom of step

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



Sewer pipe exiting house
97.6 Grade
93.8 pipe

Septic Tank
98 Grade
96.4 inlet
92.4 Tank bottom

Septic Tank (if applicable)
 _____ Grade
 _____ inlet
 _____ Tank bottom

Pump Tank
 _____ Grade
 _____ inlet
 _____ Tank bottom

Mound
101.1 loamy cap
100.3 lateral
99.7 bottom rock
98.0 grade (at upslope rock bed)
 _____ SHWT (at upslope rock bed)

