GEOPHYTA

Home Septic System Site Evaluation And Replacement System Design

For:

Earl Peters (WPCLF)

5271 E. S.R. 18
Republic, OH 44867

Property Location:

5271 E. S.R. 18
Republic, OH 44867

Scipio Township, Seneca County

SYSTEM TYPE:

Elevated Gravity ATL (Advanced Treatment Leachfield) With Interceptor Drain

Nathan Wright (Soil Scientist)
Seth V. Layne (Designer)

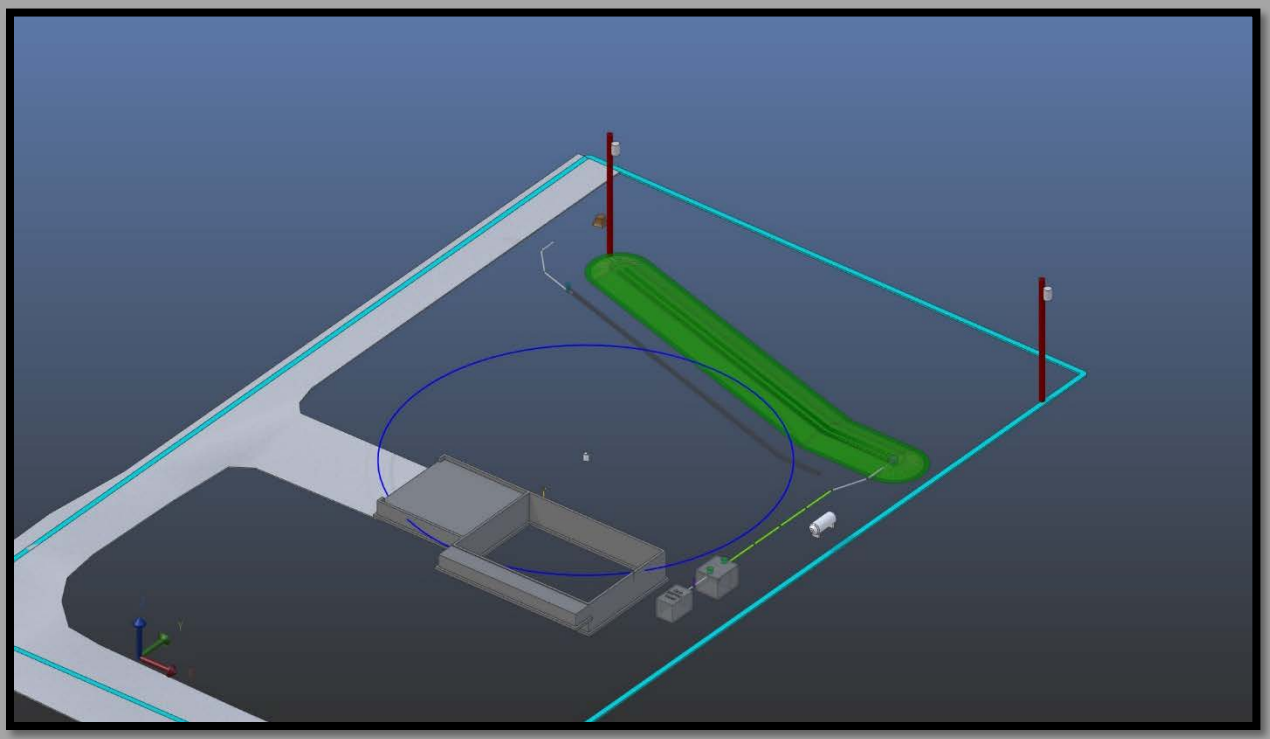
Geophyta, Inc.
2685 C.R. 254
Vickery, OH 43464

419-547-8538

March 9th, 2023

APPROVED
By SCGHD at 10:47 am, Mar 14, 2023

◊ The Peters Residence ◊



1. Disclaimer
2. Layout Map
3. Soil Report (3X Total)
4. Calculation Sheet
5. 3D CAD Layout
6. Top CAD Layout
7. ATL Detail Print
8. Elevation CAD Layout
9. Bill of Materials
10. Component Detail Prints (14X Total)

To The Homeowner:

A septic system is designed based on all the information you provide and Geophyta Inc collects at the site. It must be accurate. This information includes local soil limits and topography, plus existing and future locations of your home, number of bedrooms, out buildings, driveways, drinking water wells, ponds, septic systems, and property lines. Geophyta Inc. relies on this information to construct detailed design drawings that must meet local health department regulations before installation.

Any design changes required by the local health department to meet existing regulations are the responsibility of Geophyta Inc.

Any information changes made by you after the initial site inspection are your responsibility and will result in additional charges to you above the original quote for services. These charges may include additional site inspection work, system redesign, and resubmitted drawings.

To The Installer:

The registered installer of this septic system design is responsible for preparing an "as-built" record, as stated in the Ohio Administrative Code Chapter 3701-29-09, Par. F (p.32) of the "Sewage Treatment System Rules," Ohio Department of Health, January 1, 2015. Additionally, the installer is responsible for measuring and recording distal pressure head and float switch settings as baseline measures for future operation and maintenance of any pressure distribution system (3701-29-15, Appendix B, Par. VI(p.93) of above referenced rules.

If the installer requests "as-built" record creation from Geophyta Inc., additional charges will be billed to the installer by Geophyta Inc. and must be arranged prior to installation.

Geophyta Inc. must assume that any registered installer has the knowledge, equipment, ability, and experience to properly layout, install, and create as-built drawings for any septic system design approved by a local board of health. This includes the ability to read detailed design prints with an associated bill of materials. For this reason, any Geophyta Inc project supervision prior to or during installation will be billed to the installer.

Any product substitution made by the installer that is not specifically permitted in the design prints may result in Health Dept. disapproval and will result in additional re-design costs billed to the installer.

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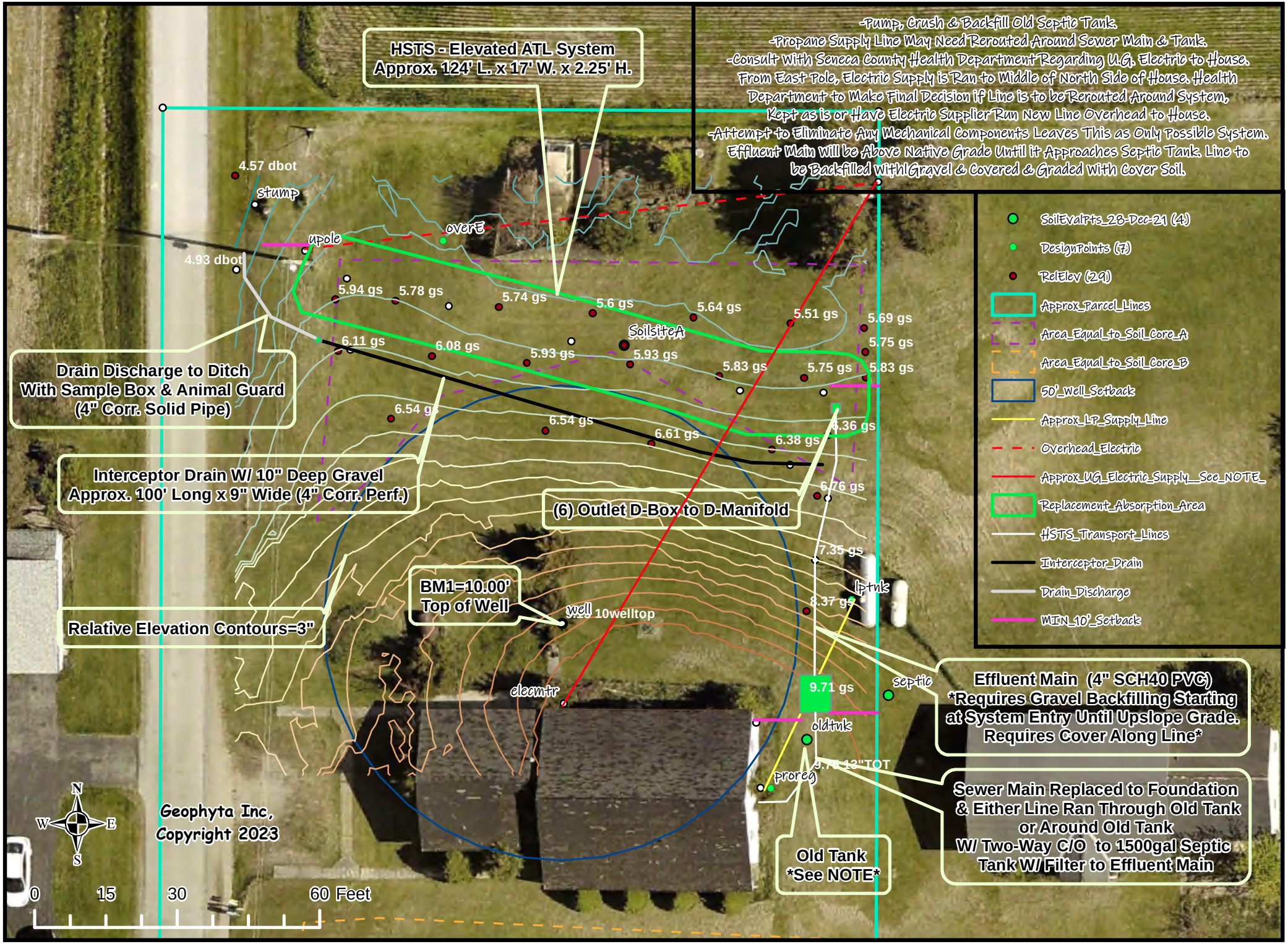
HSTS Replacement Layout - 5271 E. S.R. 18



APPROVED
By SCGHD at 10:48 am, Mar 14, 2023

Site and Soil Evaluation for Sewage Treatment and Dispersal

County: **Seneca**
Township / Sec.: **Scipio**
Property Address: **5271 E SR 18**
OR Location: **Republic, OH 44867**
Applicant Name: **A & D Excavating**
Address: **5872 S. R. 587**
New Riegel, OH 44853
Phone #: **419.934.2220**
Lot #:
Test Hole #: **A**
Latitude/Longitude: **83°4'5.884"W 41°7'28.758"N**
Method: ____ Pit ___ Auger **X** Probe; 1 1/4" dia.

Land Use / Vegetation: **Residential Turf**
Landform: **Glacial Till Plain**
Position on Landform: **Hillslope**
Percent Slope: **1-2**
Shape of Slope: **Linear - Linear**
Approximate Soil Type: **Blount SiL**

Date: **5-Oct-21**
Evaluator: **Nathan Wright**
Geophyta, Inc.
2685 C.R. 254
Vickery, OH 43464
Phone#: **419-547-8538**

Control #: **21 - SEN - 54A - 319**

CPSS Certified Professional Soil Scientist
Certification #: **19395**

Signature: Nathan Wright

Soil Profile		Estimating Soil Saturation			Estimating Soil Permeability							
		Munsell Color (hue, value, chroma)										
			Redoximorphic Features		Texture			Structure				
Horizon	Depth (inches)	Matrix Color	Concentrations	Depletions	Class	Approx. % Clay	Approx. % Fragments	Grade	Size	Type (shape)	Consistence	Other Soil Features
A	**0.0 - 11.5**	**10YR 4/3**	**none**	**none**	**SiL**	**20**	**0**	**2 - mod**	**coarse**	**gr**	**friable**	
Bt	**11.5 - 27.0**	**10YR 5/6**	**none**	**40% 10YR 5/2**	**SiCL**	**30**	**0**	**2 - mod**	**coarse**	**sbk**	**firm**	
C	**27.0 - 48.0**	**10YR 5/4**	**15% 10YR 5/6**	**25% 10YR 5/2**	**SiCL**	**35**	**5**	**1 - weak**	**med**	**sbk**	**firm**	

Limiting Conditions	Depth to (in.)	Descriptive Notes
Perched Seasonal Water Table	**11.5**	Restricted in Bt & C
Apparent Water Table	**> 48**	
Highly Permeable Material	**> 48**	
Bedrock	**> 60**	By Tile Probe
Other Restrictive Layer	**> 48**	

Remarks / Risk Factors: Values For Shallow Leach Trenches with Pretreatment

Tyler Table: A horizon (4.5 - 11.5) ILR: SiL , HLLR: SiL

ILR(>30mg/L) = XXX gal/day/ft^2, ILR(<30mg/L) = 0.8 gal/day/ft^2

HLLR = 2.7 gal/day/ft

3 bedroom min. required absorption area = 450 sq.ft.

5xW Soil Absorption Box: 17' W x 134' L

Note : The evaluation shall include a complete site plan or site drawing including all requirements in paragraphs (B)(1) through (B)(4) of OAC 3701-29-08.

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OR Location: **Republic, OH 44867**
Applicant Name: **A & D Excavating**
Address: **5872 S. R. 587**
New Riegel, OH 44853
Phone #: **419.934.2220**
Lot #:
Test Hole #: **B**
Latitude/Longitude: **83°4'6.006"W 41°7'27.323"N**
Method: ___ Pit ___ Auger **X** Probe; 1 1/4" dia.

Land Use / Vegetation: **Residential Turf**
Landform: **Glacial Till Plain**
Position on Landform: **Flat**
Percent Slope: **0-1**
Shape of Slope: **Linear - Linear**
Approximate Soil Type: **Blount SiL**

Date: **28-Dec-21**
Evaluator: **Nathan Wright**
Geophyta, Inc.
2685 C.R. 254
Vickery, OH 43464
Phone#: **419-547-8538**

Control #: **21 - SEN - 54B - 319**

CPSS Certified Professional Soil Scientist
Certification #: **19395**

Signature: Nathan Wright

Soil Profile		Estimating Soil Saturation			Estimating Soil Permeability							
		Munsell Color (hue, value, chroma)										
			Redoximorphic Features		Texture			Structure				
Horizon	Depth (inches)	Matrix Color	Concentrations	Depletions	Class	Approx. % Clay	Approx. % Fragments	Grade	Size	Type (shape)	Consistence	Other Soil Features
A1	**0.0 - 5.0**	**10YR 3/2**	**none**	**none**	**SiL**	**20**	**0**	**2 - mod**	**med**	**sbk**	**friable**	
A2	**5.0 - 7.5**	**10YR 3/2**	**5% 10YR 4/6**	**10% 10YR 4/1**	**SiL**	**20**	**0**	**2 - mod**	**med**	**sbk**	**friable**	
Bt	**7.5 - 16.0**	**10YR 4/3**	**10% 10YR 4/6**	**20% 10YR 5/2**	**SiL**	**25**	**0**	**2 - mod**	**coarse**	**sbk**	**firm**	
BC	**16.0 - 22.0**	**10YR 5/6**	**none**	**35% 10YR 5/2**	**SiCL**	**30**	**5**	**1 - weak**	**coarse**	**sbk**	**firm**	
C	**22.0 - 48.0**	**10YR 4/4**	**30% 10YR 5/6**	**15% 10YR 5/2**	**SiCL**	**35**	**5**	**1 - weak**	**coarse**	**sbk**	**firm**	

Limiting Conditions	Depth to (in.)	Descriptive Notes	Remarks / Risk Factors: No Tyler Values; PSWT < 8 Inches
Perched Seasonal Water Table	**5.0**	Restricted in A2, Bt, BC, C	
Apparent Water Table	**> 48**		
Highly Permeable Material	**> 48**		
Bedrock	**> 60**	By Tile Probe	
Other Restrictive Layer	**> 48**		

Note : The evaluation shall include a complete site plan or site drawing including all requirements in paragraphs (B)(1) through (B)(4) of OAC 3701-29-08.

Upland*
Terrace
Flood Plain
Lake Pain
Beach Ridge
*Includes glacial till plain and end moraine

Depression
Flat
Knoll
Crest
Hillslope
Footslope

Shape of Slope
Convex
Concave
Linear
Complex

Horizon Nomenclature

Master Horizons

O	Predominantly organic matter (litter & humus)
A	Mineral, organic matter (humus) accumulation, loss of Fe, Al, clay
E	Mineral, loss of Si, Fe, Al, clay, organic matter
B	Subsurface accumulation of clay, Fe, Al, Si, humus; sesquioxides; loss of $CaCo_3$; subsurface soil structure
C	Little or no pedogenic alteration, unconsoilidated earthy material, soft bedrock
R	Hard bedrock

Horizon Suffixes

a	Highly decomposed organic matter
b	Buried genetic horizon
d	Densic layer (physically root restrictive)
e	Moderately decomposed organic matter
g	Strong gley
i	Slightly decomposed organic matter
p	Plow layer or artificial disturbance
r	Weathered or soft bedrock
t	Illuvial accumulation of silicate clay
w	Weak color or structure within B
x	Fragipan characteristics

Horizon Modifiers

Numerical Prefixes: Used to denote lithologic discontinuities.

Numerical Suffixes: Used to denote subdivisions within a master horizon.

Soil Texture

Texture Class Abbreviations		Textural Class Modifiers	
Course Sand	cos	Gravelly	GR
Sand	s	Fine Gravelly	FGR
Fine Sand	fs	Medium Gravelly	MGR
Very Fine Sand	vfs	Coarse Gravelly	CGR
Loamy Coarse Sand	lcos	Very Gravelly	VGR
Loamy Sand	ls	Extremely Gravelly	XGR
Loamy Fine Sand	lfs	Cobbly	CB
Loamy Very Fine Sand	lvfs	Very Cobbly	VCB
Coarse Sandy Loam	cosl	Extremely Cobbly	XCB
Sandy Loam	sl	Stony	ST
Fine Sandy Loam	fsl	Very Stony	VST
Very Fine Sandy Loam	vfsl	Extremely Stony	XST
Loam	l	Bouldery	BY
Silt Loam	sil	Very Bouldery	VBY
Silt	si	Extremely Bouldery	XBY
Sandy Clay Loam	scl	Channery	CN
Clay Loam	cl	Very Channery	VCN
Silty Clay Loam	sicl	Extremely Channery	XCN
Sandy Clay	sc	Flaggy	FL
Silty Clay	sic	Very Flaggy	VFL
Clay	c	Extremely Flaggy	XFL

*Estimate approximate clay percentage within 5 percent

Soil Structure

Grade		Size		Type (Shape)	
Structureless	0	Very Fine	vf	Granular	gr
Weak	1	Fine	f	Angular Blocky	abk
Moderate	2	Medium	m	Subangular Blocky	sbk
Strong	3	Coarse	co	Platy	pl
		Very Coarse	vc	Prismatic	pr
		Extr. Coarse	ec	Columnar	cpr
		Very Thin*	vn	Single Grain	sg
		Thin*	tn	Massive	m
		Thick*	tk	Cloddy	CDY
		Very Thick*	vk		

* The sizes Very Thin, Thin, Thick, and Very Thick, are used when describing platy structure only. Substitute thin for fine, and thick for coarse when describing platy structure.

Moist Consistence

Loose	l
Very Friable	vfr
Friable	fr
Firm	fi
Very Firm	vfi
Extremely Firm	efi

For a more detailed explanation on describing and sampling soils, please refer to the "Field Book for Describing and Sampling Soils" Schoeneberger, P.J., Wysocki, D.A., Benham, E.C., and Broderson, W.D. (editors) 2002. Field book for describing and sampling soils, version 2.0. Natural Resources Conservation Service, USDA, National Soil Survey Center, Lincoln, NE.

ATL Calculations			
Owner: Peters: Site A	Min. Required	Actual	Comment
Home Size (bedrooms)	3		
Water Use (120 gal/day/bedroom)	360		
Limiting Condition	PSWT		
Depth To Limiting Condition (inches)	11.5		
Depth to Bottom of System Sand (inches)	-0.5		Min. Separation = 12"
Depth to Bottom of ATL Pipe (inches)	-6.5		6.5" Above Native Grade
Most Limiting Soil Texture	SiL		If < 5% (Design as Level), if > 5% 3 foot Downslope Sand Extension Needed
Site Slope % (Perpendicular To Contour)	(2-3)		
ATL Design Requirements			
Step 1: Minimum Infiltrator ATL Conduit Length (FT) 70 Feet Per Bedroom	210	210	70 Feet Per Bedroom
Step 2: Determine the Appropriate hydraulic linear loading rate (gal/Day/ft.)	2.7		Using 19.75% Length Reduction to Fit System Within Property Boundaries
Step 3: Calculate the minimum conduit length per conduit row (GPD/HLLR) (FT)	133.3	107	
Step 4: Design the system sand configuration	3 Bedroom Min. Length of ATL Conduit (ft)	1 Conduit Row = 3' x 212' @ 636 ft.^2	
		2 Conduit Row = 5' x 107' @ 535 ft.^2	
		3 Conduit Row = 7' x 72' @ 504 ft.^2	
		4 Conduit Row = 9' x 55' @ 495 ft.^2	
Step 5: Determine the appropriate soil infiltration loading rate	0.8		
Step 6: Determine the minimum basal area (GPD/ILR) (ft^2)	450	1727	
Step 7: Make area and length adjustments, as necessary	See Below		
Is Step 3 greater than individual row length?	no		Adjustments are Necessary and Shown Below
Final system sand configuration	2 Conduit Row = 5' x 107' @ 535 ft.^2		
Final Sand Basal Width (ft)	14.25		
Final Sand Basal Length (ft)	121.25		
Final System Size	Approx. 124.0' L. x 17.0' W. x 2.25' H.		

APPROVED
By SCGHD at 10:48 am, Mar 14, 2023

NOTES

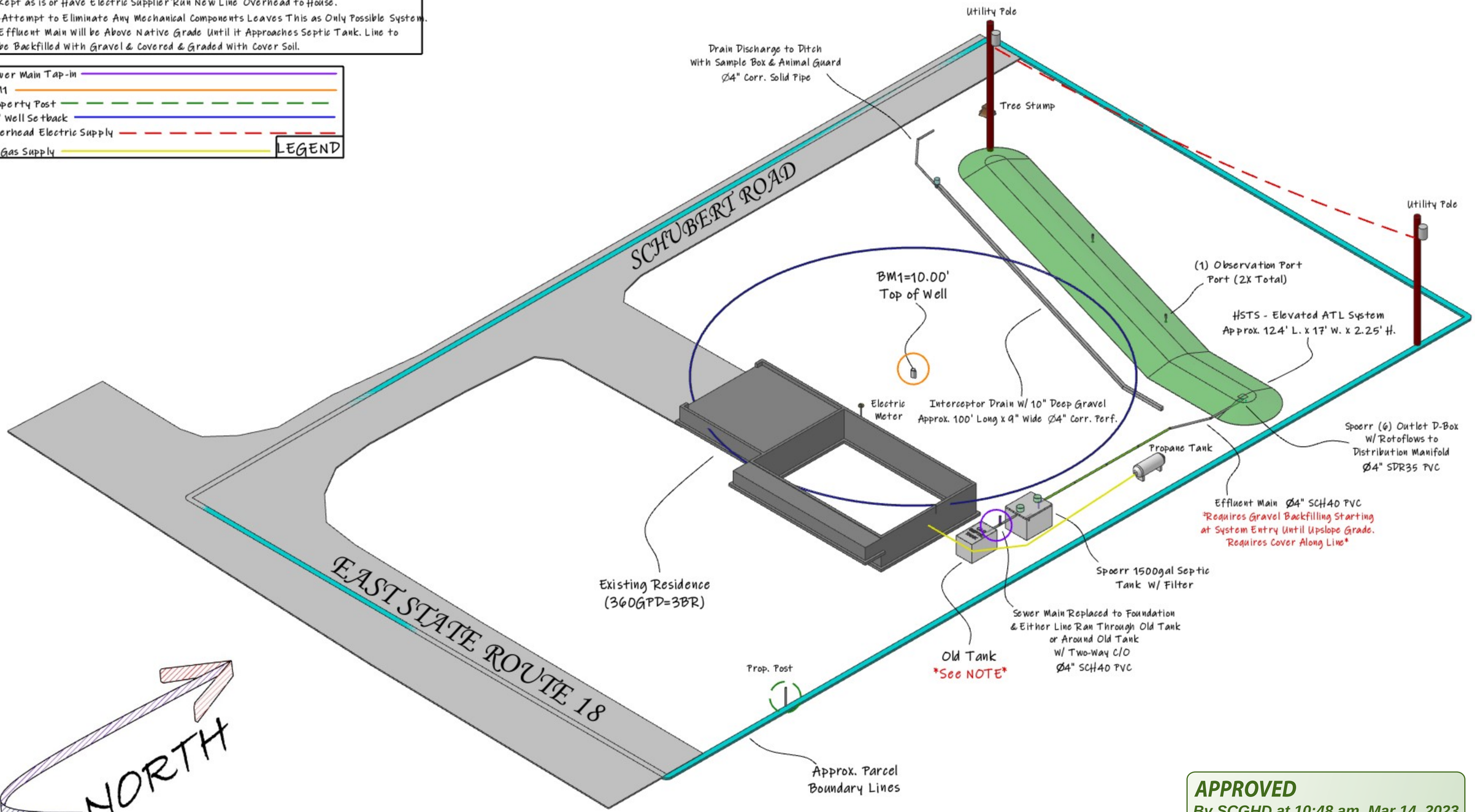
- Pump, Crush & Backfill Old Septic Tank.
- Propane Supply Line May Need Rerouted Around Sewer Main & Tank.
- Consult With Seneca County Health Department Regarding U.G. Electric to House. From East Pole, Electric Supply is Ran to Middle of North Side of House. Health Department to Make Final Decision if Line is to be Rerouted Around System, Kept as is or Have Electric Supplier Run New Line Overhead to House.
- Attempt to Eliminate Any Mechanical Components Leaves This as Only Possible System. Effluent Main Will be Above Native Grade Until it Approaches Septic Tank. Line to be Backfilled With Gravel & Covered & Graded With Cover Soil.

LEGEND

- Sewer Main Tap-in
- BM1
- Property Post
- 50' Well Setback
- Overhead Electric Supply
- LP Gas Supply

DESIGNER: SETH V. LAYNE, GEOPHYTA INC.

08.MAR.23



SCALE 1:250

APPROVED
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PETERS - HSTS_3D_LAYOUT

DESIGNER: SETH V. LAYNE, GEOPHYTA INC.

09.MAR.23

Schubert Road

Tree Stump

Installer Can Add Steeper Slope Here on Toe When Grading to Pole

Animal Guard

3' 0" Centerline

Utility Pole

5'

10'

10'

Sample Box

21' Ran West Then Rest of 86' is to Follow Contours (Roughly in Direction of Utility Pole

Utility Pole

44' 6" to Centerline

East Parcel Line *Can be Sightlined/Strung*

SEE ATL DETAIL PRINT FOR ALL SPECIFIC DIMENSIONS

Drain Width = 0' 9"

MIN Separation = 6' 0"

Overall Width = 17' 0"

11'

10'

10' MIN

10'

40'

Propane Tank

Well

Electric Meter

10' MIN

8'

10' MIN

Garage

Basement

Two-Way C/O

LP Regulator

OLD SEPTIC TANK

East Parcel Line *Can be Sightlined/Strung*

A

SCALE 1:2000

- System Layout by: Sightlining/Stringing East Property Line to Locate Starting Centerline From N.E. Utility Post.
- System to Follow Elevation Contours in ± 3" Tolerance.

NOTES

Sewer Main Tap-in

BM1

50' Well Setback

Overhead Electric Supply

Direction of UG Electric Supply

LP Gas Supply if Rerouted

LEGEND

N

W

E

S

APPROVED

By SCGHD at 10:48 am, Mar 14, 2023

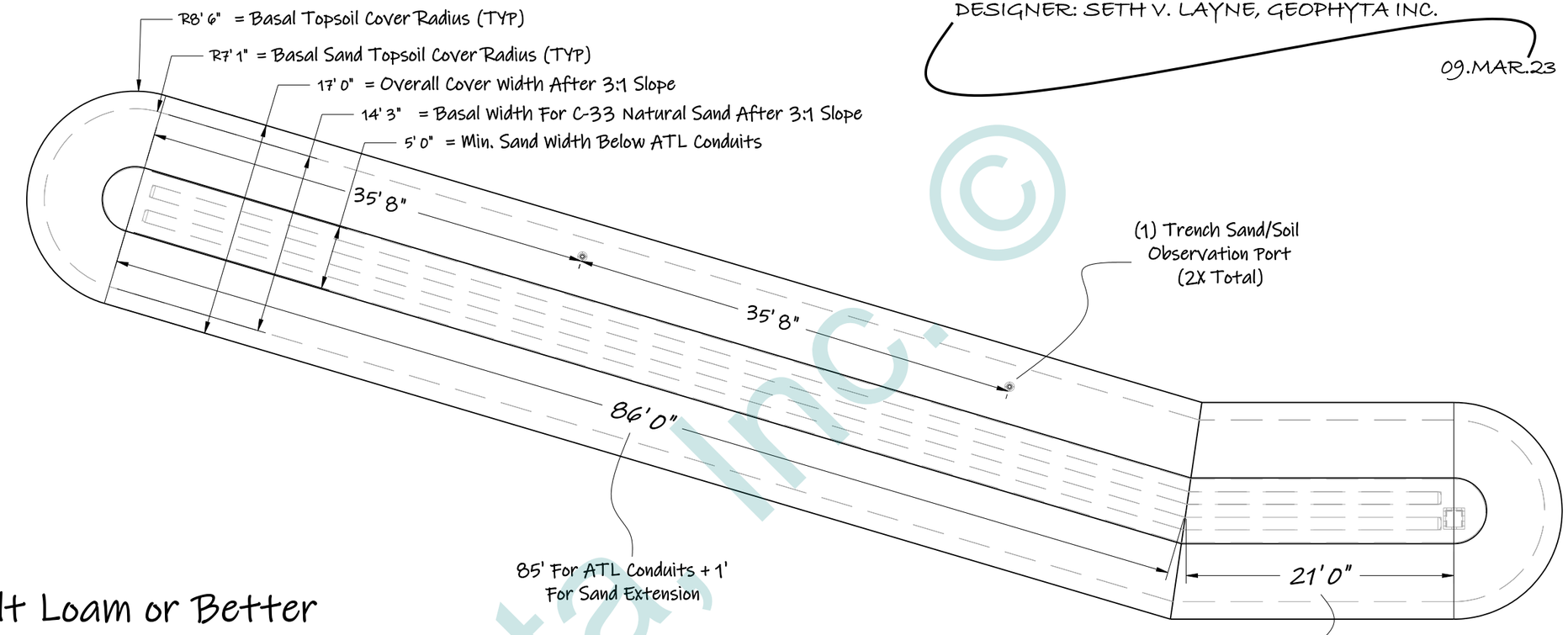
Detail A SCALE 1:160

PETERS - HSTS_TOP

APPROVED
By SCGHD at 10:48 am, Mar 14, 2023

DESIGNER: SETH V. LAYNE, GEOPHYTA INC.

09.MAR.23



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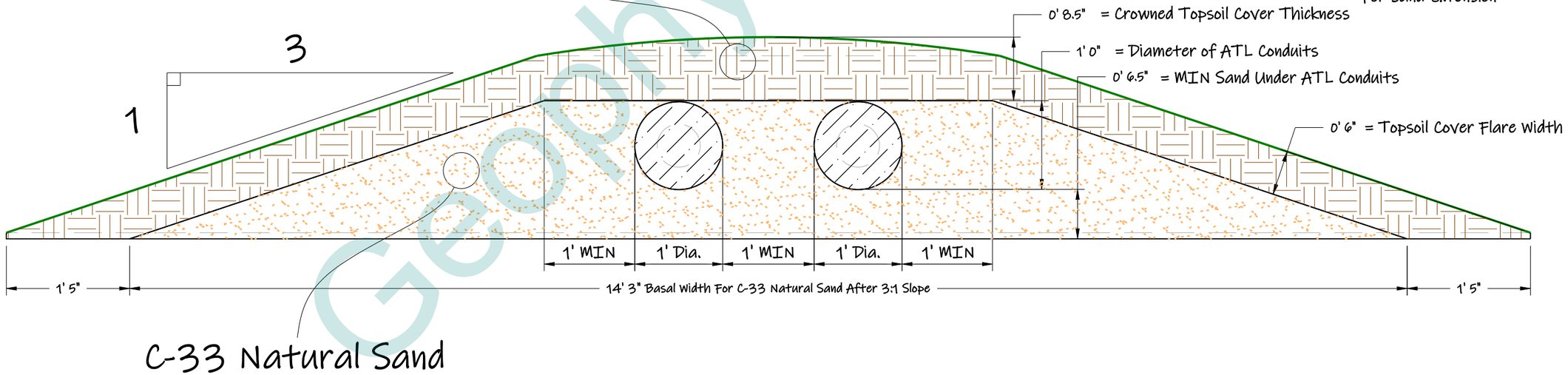
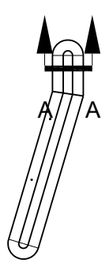




Section A-A

SCALE 1:15

ATL DETAIL PRINT

NOTES

- Sand Depth Below ATL Conduits Due To Soil Unevenness: Avg. = 6.8" Range = 6.5" - 7.2"
- Effluent Main Requires #57 Gravel Backfill to Bottom of Pipe From System to Upgradient End. Effluent Main Will Require Sloped Cover For Freeze Protection. (MIN 12" Cover Along Path.
- Installer Please Confirm Sewer Main Bottom of Pipe & Tap-in is 28" Below BM1 or Shallower Before Setting Tank.
- Tank Will Require 18" Risers.

LEGEND

Native Soil Surface
Cover Soil Over Piping
Zero Elevation Reference

DESIGNER: SETH V. LAYNE, GEOPHYTA INC.

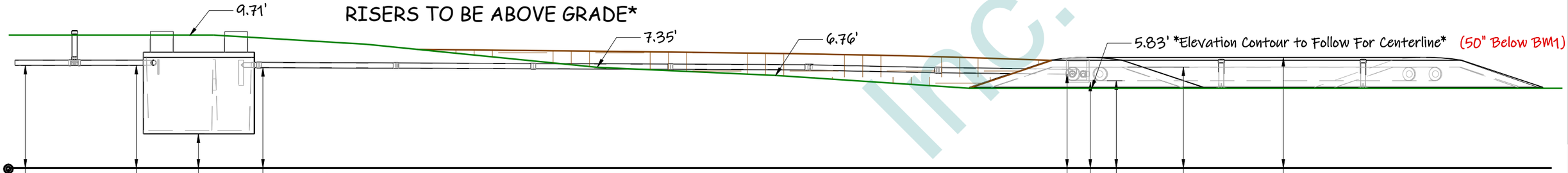
09.MAR.23

ELEVATION VIEW - EAST TO WEST

N

ALL INSPECTION PORTS/ RISERS TO BE ABOVE GRADE

ALL ELEVATION VALUES POINTING TO SURFACE ARE OF NATIVE SOIL GRADE UNLESS OTHERWISE STATED



7.33' = BOP Septic Into Effluent Main (2" Internal Tank Fall)

2.50' = Bottom of Spoerr 1500gal Septic Tank

7.50' = BOP Sewer Main Into Septic Tank (2" Fall)

7.67' = Approx. BOP Tap-in to Sewer Main (Flowline Approx. 28" Below BM1)

BOP Effluent Main Into D-Box (~5.8" Fall) = 6.85'

Bottom of Spoerr (6) Outlet D-Box = 6.27'

Bottom of ATL Conduits (43.5" Below BM1) = 6.38'

Top of ATL Conduits & Finish Grade of C-33 Sand (31.5" Below BM1) = 7.38'

Peak Soil Cover (23" Below BM1) = 8.08'

Bottom of Pipe Start of Interceptor Drain *East Side* (52" Below BM1) = 5.67'

Starting Elevation of Gravel *East Side* (42" Below BM1) = 6.50'

Bottom of Sample Box *Includes 3" Drain Fall + 4" Sample Drop* (59" Below BM1) = 5.08'

ZERO ELEVATION REFERENCE
BM1 = 10.00' Top of Well (SEE LAYOUT MAP)

SCALE 1:85

APPROVED
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PETERS - HSTS_ELEVATION

Bill of Materials - 5271 E. S.R. 18, HSTS Replacement - Elevated Gravity ATL (Advanced Treatment Leachfield) With Interceptor Drain

Quantity	Part Name	Section	Comment
1	SCH40 PVC Ø4 inch Two-Way Cleanout Tee	Sewer Main Tap-in Total Length of Pipe = ~20' MUST BE SCH40 PVC	Two-Way Cleanout (Tee)
1	SCH40 PVC Ø4 inch pipe 2 ft. Long		Two-Way Cleanout (Tee to Cap)
1	SCH40 PVC Ø4 inch Cap		Two-Way Cleanout (Cap)
2	SCH40 PVC Ø4 inch pipe 10 ft. Long		See Design
1	*Septic Tank*	Septic Tank	Spoerr 1500gal Septic Tank or Equiv. W/ 18" Risers
1	*Septic Tank Filter*		Polylok PL-122 Effluent Filter
4	SDR35 PVC Ø4 inch Coupler	Effluent Main Total Length of Pipe = ~60' MUST BE SCH40 PVC	See Design
2	SDR35 PVC Ø4 inch 22.5 Degree Elbow		
6	SDR35 PVC Ø4 inch pipe 10 ft. Long		
1	*6 Outlet D-Box*	(6) Outlet D-Box W/ Rotoflows	Spoerr (6) Outlet D-Box or Equiv.
2	*Rotoflows*		PolyLok Rotoflows or Equiv.
1	SDR35 PVC Ø4 inch 90 Degree Elbow	Distribution Manifold	Config. By Installer
~	SDR35 PVC Ø4 inch pipe 3 ft. Total		
20	*Infiltrator ATL Coupler*	ATL Sand Mound	See Detail Print
2	*Infiltrator ATL End Cap*		
2	*Infiltrator ATL PVC to Corr. Adapters*		
2	*Infiltrator ATL System Conduit Rows 10 ft. Sections (2 Rows @ 105')*		(21) - Infiltrator ATL System Conduits
-	Sand Section 5.0 ft. W. x 107.0 ft. L. x 6.5" H.		~58 yd.³ @ 101.5 Tons (ASTM C-33 Natural Sand)
-	Topsoil Cap 124.0 ft. L. x 17.0 ft. W. x 2.25 ft. H.		~40.0 yd.³ @ 70.0 Tons (Silt Loam Or Better)
2	SCH40 PVC Ø4 inch Toilet Flange Socket	Observation Port	See Infiltrator ATL Installation Instructions Page 26 Inside Design Package
2	SCH40 PVC Ø4 inch pipe 2 ft. Long		
2	SCH40 PVC Ø4 inch Cap		
-	Corrugated Perforated Ø4". Pipe 100 ft. Long	Interceptor Drain	See Detail Print
-	Trench Drain 100' L. x 9" W. x 10" Deep Gravel		~2.0 yd.^3 @ 2.6 Tons #57 Washed Stone
-	Corrugated Solid Ø4" Pipe 25 ft. Long	Interceptor Drain Discharge	Break Surface Downslope
1	Ø4" Animal Guard		Choice by Installer
1	Ø12" PolyLok D-Box Used as Sample Box With Riser		

Additional Notes

Pump, Crush & Backfill Old Septic Tank.

Propane Supply Line May Need Rerouted Around Sewer Main & Tank.

Consult With Seneca County Health Department Regarding U.G. Electric to House. From East Pole, Electric Supply is Ran to Middle of North Side of House. Health Department to Make Final Decision if Line is to be Rerouted Around System, Kept as is or Have Electric Supplier Run New Line Overhead to House.

Attempt to Eliminate Any Mechanical Components Leaves This as Only Possible System. Effluent Main Will be Above Native Grade Until it Approaches Septic Tank. Line to be Backfilled With Gravel & Covered & Graded With Cover Soil.

-	Grass Seed	2 lbs./1000 ft.^2 K. Bluegrass	~2250 ft.^2 @ 4.5 lbs.
-	Straw Mulch For Grass Establishment	Homeowner's Choice	~2250 ft.^2
-	Grass Establishment Fertilizer	10 lbs. 20-10-10/1000 ft.^2	~2250 ft.^2 @ 22.5 lbs.

Call OUPS before you dig.

Installer substitution of materials not specified in this Bill Of Materials may void Health Dept. approval of this design and will result in a re-design fee and is the sole responsibility of the installer.

Design Prints Take Precedence Over This Bill of Materials. This is a best estimate of materials required and is provided as a convenience to installers. This BOM is not required for design approval.

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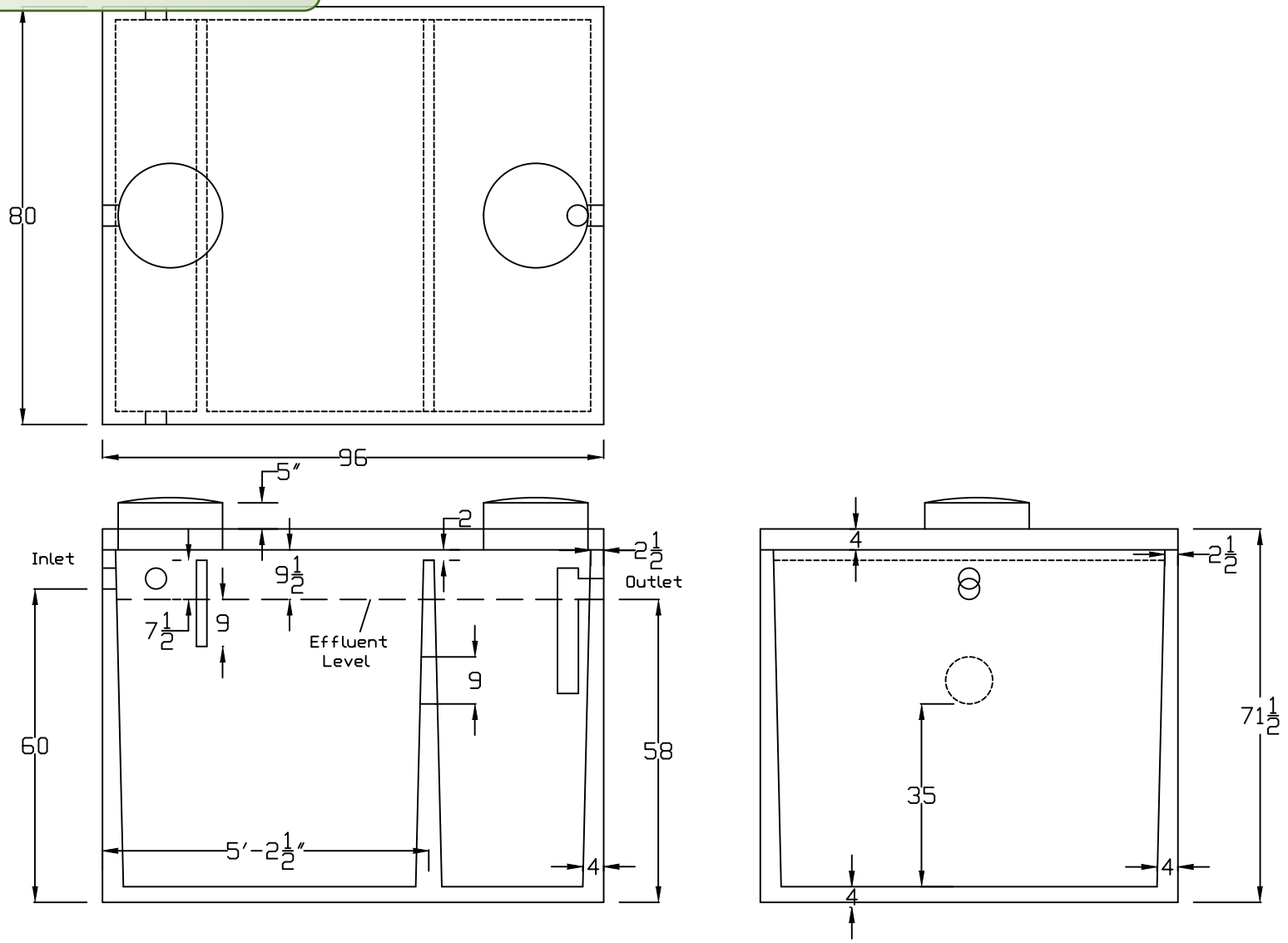


Spoerr Precast
Concrete Inc.
2020 Caldwell St
Sandusky, OH 44870
800-252-5205

Concrete 5000 PSI @ 28 Days
All Dimensions in Inches
Max cover on top of tank 48″
Minimum cover 6″
Inlet/Outlet boots for 4″ pipe
Boots: Meet ASTM C923
Sealant: Meets ASTM C990
Outlet Filter: Meets
ANSI/NSF 46

1500 Gallon Septic
Excavation: 7′9″ x 9′

11/26/15

PL-122 Filter

The PL-122 was the original Polylok filter. It was the first filter on the market with an automatic shut-off ball installed with every filter. When the filter is removed for regular servicing, the ball will float up and prevent any solids from leaving the tank. Our patented design cannot be duplicated.

Features:

- Offers 122 linear feet of 1/16" filter slots, which significantly extends time between cleaning.
- Has a flow control ball that shuts off the flow of effluent when the filter is removed for cleaning.
- Has its own gas deflector ball which deflects solids away.
- Installs easily in new tanks, or retrofits in existing systems.
- Comes complete with its own housing. No gluing of tees or pipe, no extra parts to buy.
- Has a modular design, allowing for increased filtration.

PL-122 Installation:

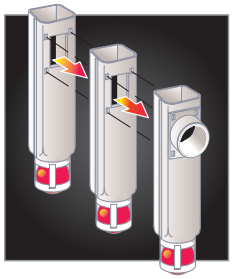
Ideal for residential waste flows up to 1,500 gallons per day (GPD). Easily installs in any new or existing 4" outlet tee.

1. Locate the outlet of the septic tank.
2. Remove the tank cover and pump tank if necessary.
3. Glue the filter housing to the outlet pipe, or use a Polylok Extend & Lok if not enough pipe exists.
4. Insert the PL-122 filter into tee.
5. Replace and secure the septic tank cover.

PL-122 Maintenance:

The PL-122 Effluent Filter will operate efficiently for several years under normal conditions before requiring cleaning. It is recommended that the filter be cleaned every time the tank is pumped, or at least every three years.

1. Do not use plumbing when filter is removed.
2. Pull PL-122 cartridge out of the tee.
3. Hose off filter over the septic tank. Make sure all solids fall back into septic tank.
4. Insert filter back into tee/housing.



Polylok offers the only filter on the market where you can get more GPD by simply snapping our filters together!

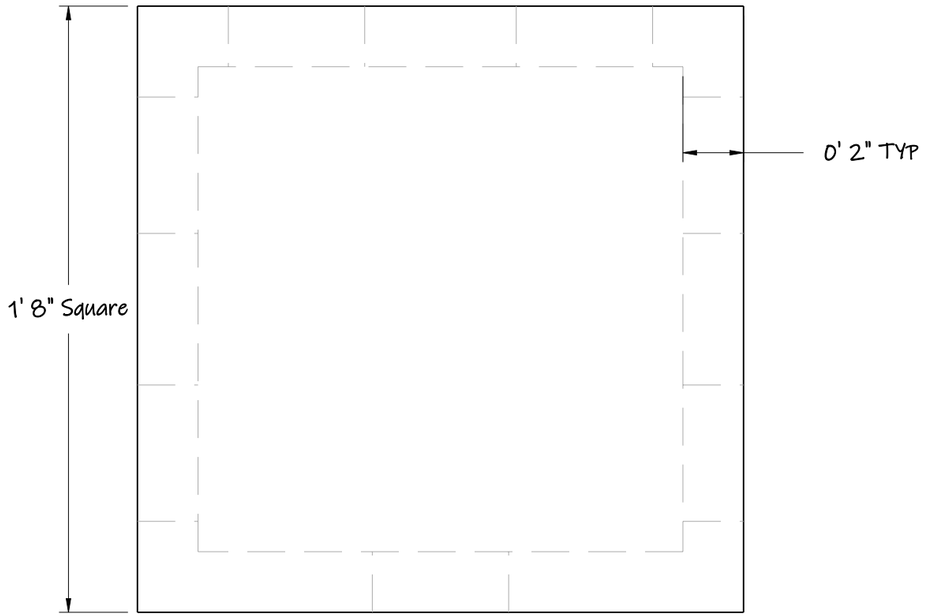
1 Filter = 1500 GPD
2 Filters = 3000 GPD
3 Filters = 4500 GPD

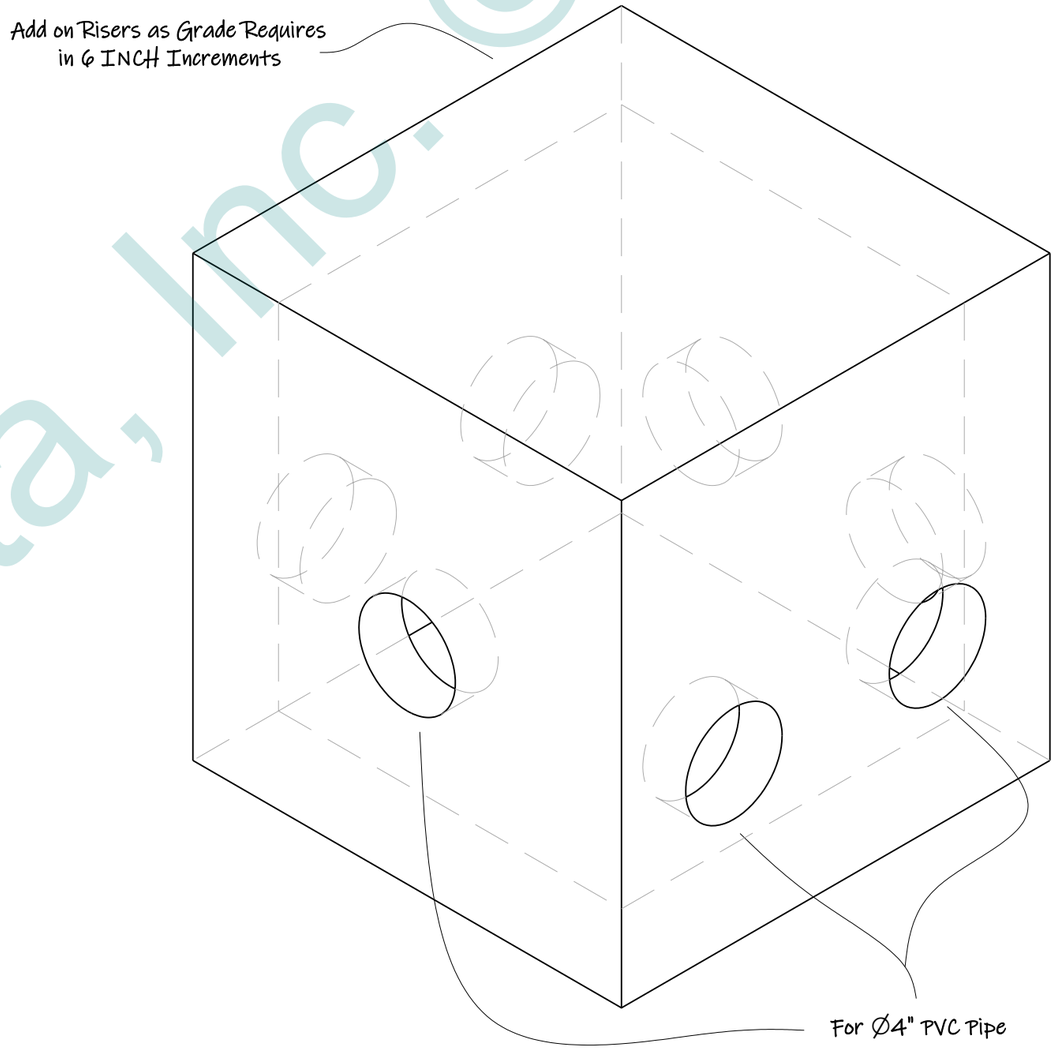
Patent Numbers
6,015,488 & 5,871,640

Filter Ready Adapter
Connects to Septic Tank Wall

Outdoor SmartFilter® Alarm
Polylok, Zabel & Best filters accept the SmartFilter® switch and alarm.

DESIGNER: SETH V. LAYNE, GEOPHYTA INC. 22.JUL.22





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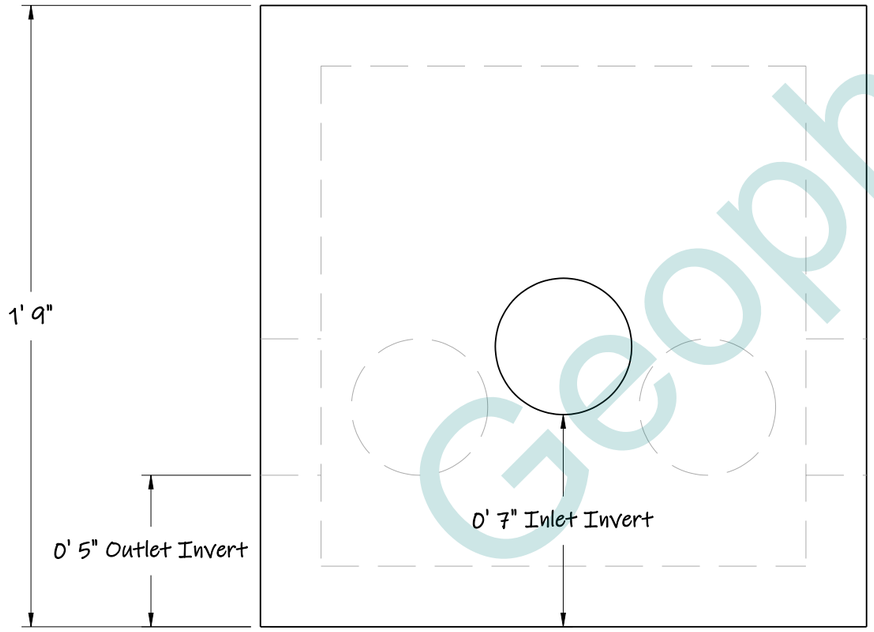

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Spoerr (6) Outlet Distribution Box

ATL™ by INFILTRATOR

ADVANCED TREATMENT LEACHFIELD

INFILTRATOR® water technologies

Sand-Lined Wastewater Treatment and Dispersal

BENEFITS

- **Produces Class 1 (EPA Secondary) Treated Effluent**
- **A Passive Advanced Treatment Leachfield – No Moving Parts or Power Required**
- **Modules are Quick and Easy to Install**
- **Shallow System Maximizes Site Suitability and Reduces Amount of Sand Fill Requirements**

Proprietary Geotextile/Media Multi-Layer Treatment System

Protecting the Environment with **Innovative Wastewater Treatment Solutions**

Infiltrator Water Technologies
4 Business Park Road, Old Saybrook CT 06475
1-800-221-4436 • www.infiltratorwater.com

ATL by INFILTRATOR

GENERAL INFORMATION

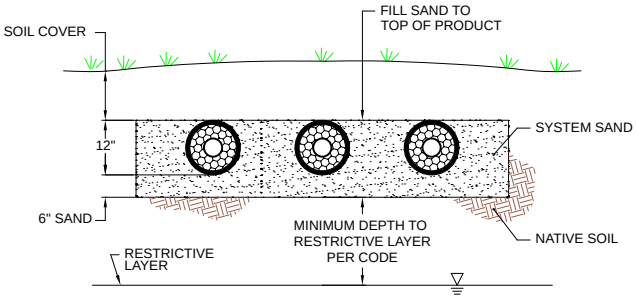
The Infiltrator ATL is a patent-pending, proprietary system consisting of six components. Upon entering the Infiltrator ATL, septic tank effluent progresses through each component as follows:

- 4-inch-diameter pipe
- Large-diameter synthetic aggregate;
- Coarse geotextile;
- Small-diameter synthetic aggregate;
- Fine geotextile; and
- 6-inch depth of specified system sand.

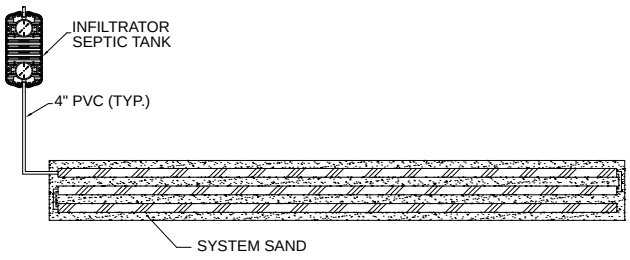
Upon exiting the specified system sand, effluent is dispersed in the native soil.

Level Subsurface Systems

Cross-Section View (not to scale)



Plan View (not to scale)



NOTES:
1. Number and length of conduit rows per design.
2. Serial distribution shown, but system may be served by distribution box or manifold to provide parallel distribution.
3. Pumping is not required unless gravity flow cannot be achieved.

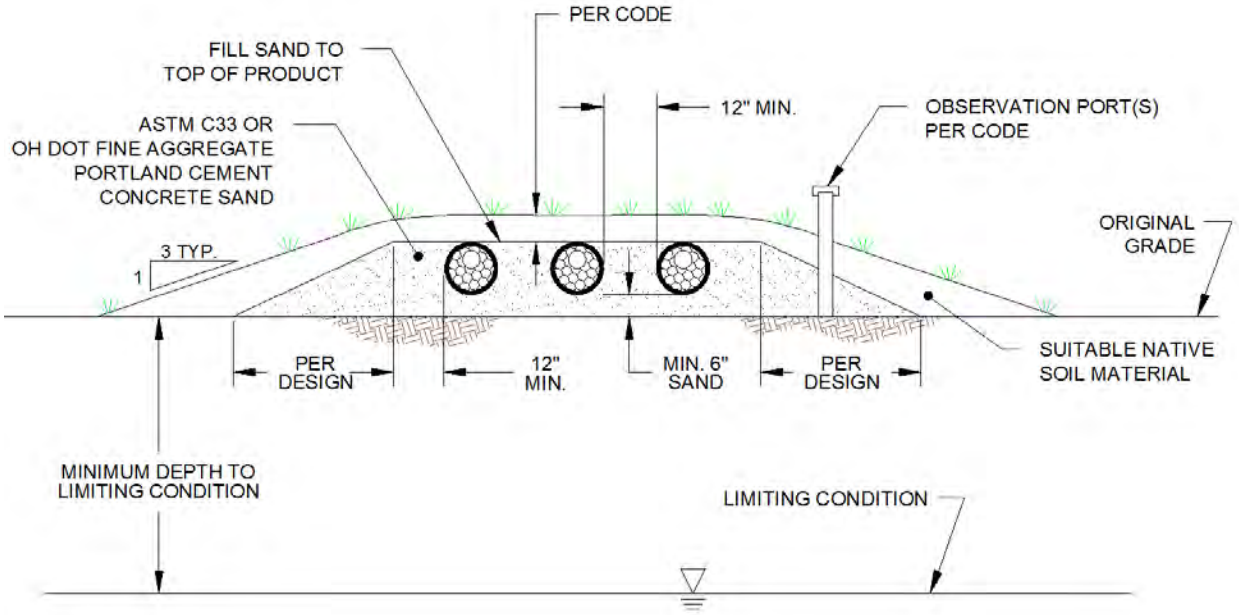
INFILTRATOR® water technologies

4 Business Park Road
P.O. Box 768
Old Saybrook, CT 06475
860-577-7000 • Fax 860-577-7001
1-800-221-4436
www.infiltratorwater.com

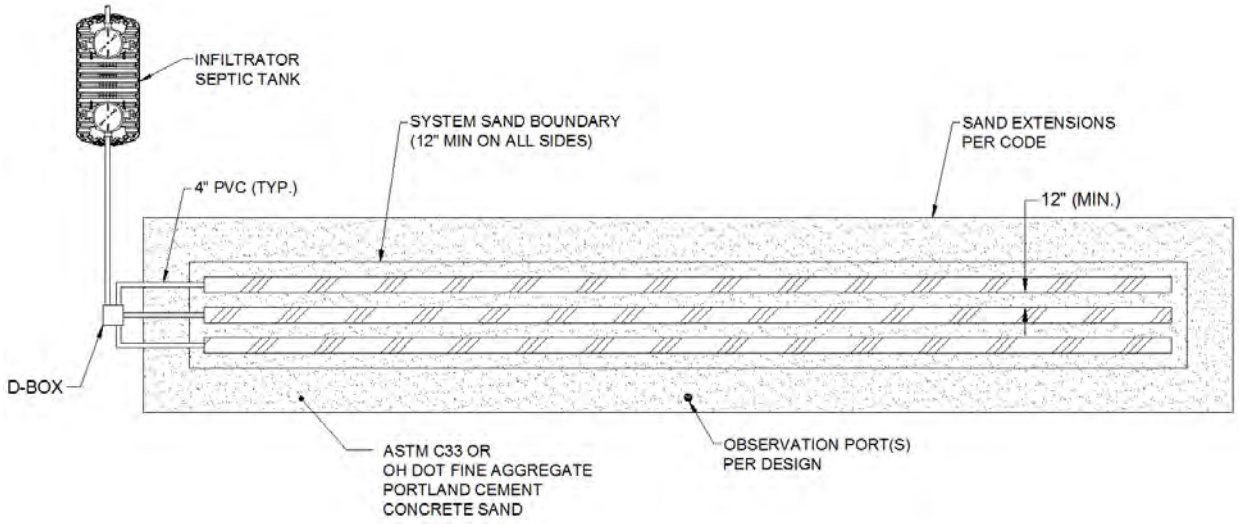
ATL01 0315

Level Elevated Systems

Cross-Section View



Plan View



NOTES:

1. An ATL System is elevated if any part of the system, including soil cover, is above existing grade.
2. Number and length of conduits per design.
3. Venting is not required but is optional at the discretion of the designer.
4. Pumping is not required unless gravity flow cannot be achieved.
5. If the infiltrative surface of the Infiltrator ATL System bed must be elevated to achieve minimum vertical separation requirements, the area between the original grade and the Infiltrator ATL system sand shall be comprised of additional system sand.
6. Observation ports are required.
7. The ATL System is intended for use in non-traffic applications.

Information for System Owners

Basic rules of onsite sewage treatment system use and care apply to the ATL System. System owners shall operate the system in accordance with Ohio Administrative Code (OAC) 3701-29 and/or the Ohio Revised Code (ORC) 3718, and the following:

System Use and Abuse

Your Infiltrator ATL System is intended for use with residential-strength wastewater within the design daily flow volume. To ensure long-term function of your system:

- Keep daily wastewater flow within design parameters
  - Do not connect the rainwater management system to the Infiltrator ATL System.
  - Direct water from the rainwater management system away from the Infiltrator ATL System.
- Introduce only normal residential wastewater into the system
  - Solvents, paint, pharmaceuticals, aggressive cleaning products, and non-biodegradable items should not enter the Infiltrator ATL system.
  - Solids, such as but not limited to, cigarette butts, diapers, feminine hygiene products, cat litter, and paper towels should not be introduced into the Infiltrator ATL system.
- Maintain leak-free household plumbing fixtures, such as faucets and toilets.
- Do not utilize a garbage grinder.
- The ATL System is intended for use in non-traffic applications. Therefore,
  - Do not allow heavy equipment or vehicles to drive over the system;
  - Install protections to prevent exposure of the system to inadvertent heavy equipment or vehicular loading; and
  - Do not build structures on top of the system

Operation and Maintenance

Your Infiltrator ATL System has no specific operating instructions. Proper use of the system as noted above is the primary operating concern.

Maintenance of the Infiltrator ATL System includes the following:

- If the septic tank has an effluent filter, it should be cleaned by a maintenance provider on an annual basis.
- The septic tank should be pumped on a regular basis and, if concrete, checked for leaks and cracks. The interval for septic tank pumping varies depending upon use. Check with a qualified onsite wastewater system professional or your local health department for the appropriate pumping interval.
- If present, the alarm system should be tested annually by the homeowner to ensure that it is functional if one is included in the system.

If at any time you have concerns about the use, operation, or maintenance of your Infiltrator ATL System, contact the Infiltrator Systems, Inc. Technical Department at 1-800-221-4436.

System Start-up

There are no specific requirements for placing the Infiltrator ATL System into service. If the system has an alarm, the property owner should, after system use has been initiated, test the alarm to ensure it is functional.

Intermittent Use

The Infiltrator ATL System is designed for intermittent use, and requires no special attention if it is to be placed out of use for extended periods of time.

Trouble Shooting

In the event that any of the following indicators arise, contact a qualified onsite wastewater system professional.

- Wastewater back-up into the dwelling
- Persistent septic odor
- Unusually wet area atop and/or around the system
- "Ponding" of effluent on the lawn
- "Breakout" of effluent along the side of a slope or other landscape feature

Repair

A qualified onsite wastewater system professional shall be contacted when there are indications of malfunction with the Infiltrator ATL System. When visiting the site, the qualified onsite wastewater system professional should, at a minimum, do the following:

- Assess the present condition of the Infiltrator ATL System and the surrounding area
- Research the history of use, including:
    - water volume use
    - contaminants
- Evaluate the site for groundwater intrusion
- Inspect the septic tank
- Inspect the Infiltrator ATL System conduit lines
- Check faucet and toilet function

Upon completion of the site visit, the qualified onsite wastewater system professional should contact the Infiltrator Systems, Inc. Technical Department with his or her report.

Before You Begin

These installation instructions are for the Infiltrator ATL System in Ohio. Infiltrator ATL Systems may only be installed according to this manual, the latest versions of Ohio Administrative Code (OAC) 3701-29 and the Ohio Revised Code (ORC) 3718, and local health department requirements.

If unsure of the installation requirements for a site, contact your local health department. If unsure of the use of the Infiltrator ATL System, contact Infiltrator Systems, Inc. The soil and site evaluation and the design of the onsite system must be reviewed, and a construction permit obtained from the local health department before installation.

Materials and Equipment Needed

- ☐ Infiltrator ATL System conduits
- ☐ System sand
- ☐ PVC pipe and couplings
- ☐ Backhoe
- ☐ Laser, transit or level
- ☐ Shovel and rake
- ☐ 4-inch inspection port and cap
- ☐ Endcaps
- ☐ Infiltrator ATL System conduit internal pipe couplers
- ☐ Tape measure

Common practices shall apply to the installation of the Infiltrator ATL System. These include, but are not limited to:

- ☐ avoid soil compaction on the infiltrative surface area, including all areas downslope of a sloped system;
- ☐ use a tracked vehicle for material installation;
- ☐ avoid installation during wet periods; and
- ☐ install the Infiltrator ATL System conduit and system sand on the same day that the system footprint is excavated/exposed.

Excavating and Preparing the Site

NOTE: *The Infiltrator ATL System may not be installed during periods when the soil is sufficiently wet to exceed its plastic limit, as this causes machinery to smear the soil.*

1. Stake out the locations of tank(s), pipes, conduit rows, and corners of the system to be tilled/excavated, per engineer design. Set the elevations as shown on the approved plan. [Note: The proper elevation of solid PVC header line going to each Infiltrator ATL conduit row should be determined to ensure compliance with the required system bottom depth as shown on the approved permit. This height may vary dependent on system height and configuration used.]
2. Install sedimentation and erosion control measures.

   NOTE: *The installation of temporary drainage swales/berms (surface diversions) may be necessary to protect the site during rainfall events.*
3. For subsurface system applications:

   (a) Excavate the bed area or till the ground as per the design.

(b) Rake the bed bottom and sides (when applicable) if smearing has occurred during excavation. Remove large stones and protruding roots.

***NOTE**: Smearing does not occur in sandy soils, so raking is not necessary. In fine textured soils (silts and clays), avoid walking on the excavation bottom to prevent compaction and loss of soil structure.*

4. For elevated system applications:
   (a) All vegetation shall be cut close to the ground and removed from the site. Stumps, roots, sod, topsoil and boulders shall not be removed.
   (b) Installation shall take place from the upslope side, and contact with the basal infiltrative surface area and downslope side of the system should be avoided, where applicable.
   (c) The basal infiltrative surface of the system shall be prepared according to site conditions to maximize the infiltrative capacity of the soil surface.
   (d) Any scarification of the basal infiltrative surface shall be conducted along the contour, where applicable.
   (e) Sand may be incorporated into the basal infiltrative area during the preparation process, and may be placed along the entire basal infiltrative surface area to prevent damage from precipitation or foot traffic.
5. Verify that the bed area is at the proper slope from side-to-side and from end-to-end using a level, transit, or laser.

Installing the System

1. Install the system sand basal layer over the entire Infiltrator ATL System area as per design. System sand should be leveled and stabilized prior to introduction of the Infiltrator ATL conduit. Installer should retain records verifying that system sand meets ASTM C-33 or Ohio Department of Transportation (DOT) Fine Aggregate Portland Cement Concrete sand (703.02) requirements.
2. Remove plastic stretch wrap from Infiltrator ATL conduits.
3. Place Infiltrator ATL conduits on the surface of the system sand in the configuration shown on the system design. Using the provided 4-inch-diameter internal pipe couplings, connect the Infiltrator ATL conduits end-to-end to create rows of the required length.
4. Infiltrator ATL conduit shall be installed level. A laser level or transit is recommended to ensure proper alignment.
5. Infiltrator ATL conduit rows shall be:
   - installed level end-to-end;
   - be installed parallel to any contours; and
   - be separated by a minimum of 12 inches of system sand.
6. Install a cap on the end of each Infiltrator ATL conduit row that is not connected with piping.
7. Once the Infiltrator ATL conduit is placed on the surface of the system sand and distribution piping is connected to the conduits per design, additional system sand shall be ladled between and to the top of each of the Infiltrator ATL conduit rows. System sand shall also be installed on each side and

at each end of the backfilled Infiltrator ATL conduit rows, per the design. This additional system sand shall be stabilized.

Installing Observation/Monitoring Ports

Observation or monitoring ports are required in each ATL System design.

1. Cut a 6-inch PVC pipe to the desired length, ensuring the pipe will extend a minimum of 6 inches above final grade.
2. Drill a minimum of ten ¼" to ½" holes within ½ to 6 inches of the bottom of the pipe, and wrap the bottom end of the pipe in filter fabric..
3. Install the monitoring pipe at the appropriate location, based on site conditions, and ensure the bottom of the pipe is at the bottom of the system sand footprint (at the system sand/native soil interface).
4. Install a removable, water-tight, secure cover cap.

Covering the System

NOTE: *Before backfilling, the system shall be inspected and approved by a representative of the local health department, as required by OAC 3701-29 and/or ORC 3718 and in compliance with local ordinances and procedures.*

1. The ATL System was tested, and is approved for use in Ohio, with a minimum of 6 inches of cover material after settling.
2. Material placed around the system sand and atop the Infiltrator ATL conduit may be additional system sand or material which meets OAC 3701-29 and/or ORC 3718 requirements. However, the final 6 inches placed atop or adjacent to the Infiltrator ATL System shall be comprised of material that will sustain plant growth.
3. Backfill the bed by pushing material over the Infiltrator ATL System. It is best to mound several extra inches of soil over the finish grade to allow for settling. This also ensures that runoff is diverted away from the system. Keep a minimum of 12 inches of consolidated cover over the Infiltrator ATL conduits before driving over the system.
4. After the system is covered, the site should be seeded or sodded to prevent erosion. The maximum depth of cover over the Infiltrator ATL system is 4 feet.

NOTE: *If the system is for new home construction, it is important to leave marking stakes along the boundary of the system. This will notify contractors of the system location so they will not cross it with equipment or vehicles.*

INFILTRATOR SYSTEMS, INC., ("Infiltrator")
ATL SYSTEM STANDARD LIMITED WARRANTY

(a) The structural integrity of the Infiltrator ATL System conduits manufactured by Infiltrator (collectively referred to as "Units"), when installed and operated in a leachfield of an onsite septic system in accordance with Infiltrator's installation instructions, is warranted to the original purchaser ("Holder") against defective materials and workmanship for one year from the date upon which a septic permit is issued for the septic system containing the Units; provided, however, that if a septic permit is not required for the septic system by applicable law, the one (1) year warranty period will begin upon the date that installation of the septic system commences. In order to exercise its warranty rights, Holder must notify Infiltrator in writing at its corporate headquarters in Old Saybrook, Connecticut within fifteen (15) days of the alleged defect. Infiltrator will supply replacement Units for those Units determined by Infiltrator to be defective and covered by this Limited Warranty. Infiltrator's liability specifically excludes the cost of removal and/or installation of the Units.

(b) THE LIMITED WARRANTY AND REMEDIES IN SUBPARAGRAPH (a) ARE EXCLUSIVE. THERE ARE NO OTHER WARRANTIES WITH RESPECT TO THE UNITS, INCLUDING NO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

(c) This Limited Warranty shall be void if any part of the ATL System components is manufactured by anyone other than Infiltrator. The Limited Warranty does not extend to incidental, consequential, special or indirect damages. Infiltrator shall not be liable for penalties or liquidated damages, including loss of production and profits, labor and materials, overhead costs, or other losses or expenses incurred by the Holder or any third party. Specifically excluded from Limited Warranty coverage are damage to the Units due to ordinary wear and tear, alteration, accident, misuse, abuse or neglect of the Units; the Units being subjected to vehicle traffic or other conditions which are not permitted by the installation instructions; failure to maintain the minimum ground covers set forth in the installation instructions; the placement of improper materials into the system containing the Units; failure of the Units or the septic system due to improper siting or improper sizing, excessive water usage, improper grease disposal, or improper operation; or any other event not caused by Infiltrator. This Limited Warranty shall be void if the Holder fails to comply with all of the terms set forth in this Limited Warranty.

Further, in no event shall Infiltrator be responsible for any loss or damage to the Holder, the Units, or any third party resulting from installation or shipment, or from any product liability claims of Holder or any third party. For this Limited Warranty to apply, the Units must be installed in accordance with all site conditions required by state and local codes; all other applicable laws; and Infiltrator's installation instructions.

(d) No representative of Infiltrator has the authority to change this Limited Warranty in any manner whatsoever, or to extend this Limited Warranty. No warranty applies to any party other than the original Holder.

* * * * * * *

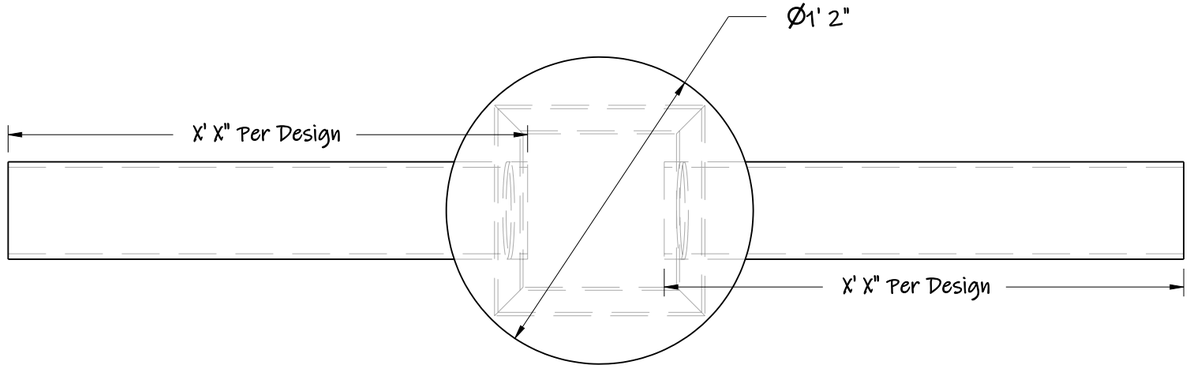
The above represents the standard Limited Warranty offered by Infiltrator. A limited number of states and counties have different warranty requirements. Any purchaser of Units should contact Infiltrator's corporate headquarters in Old Saybrook, Connecticut, prior to such purchase, to obtain a copy of the applicable warranty, and should carefully read that warranty prior to the purchase of Units.

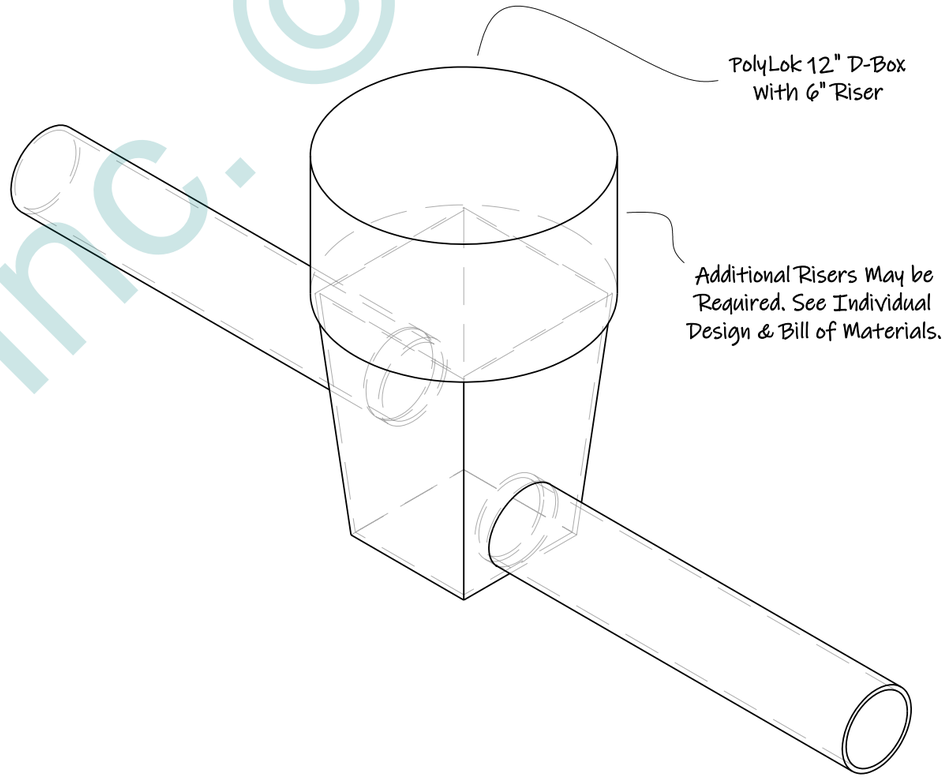
INFILTRATOR®
systems inc.

P.O. Box 768 • Old Saybrook, CT 06475
800-221-4436

April 2014

DESIGNER: SETH V. LAYNE, GEOPHYTA INC. 18.MAY.22





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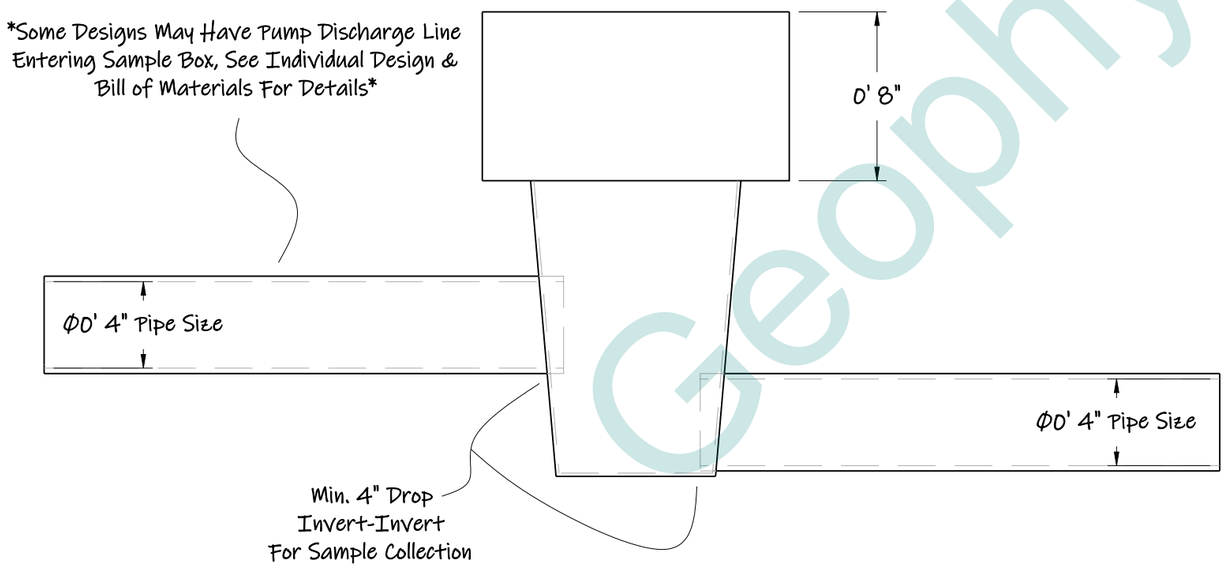
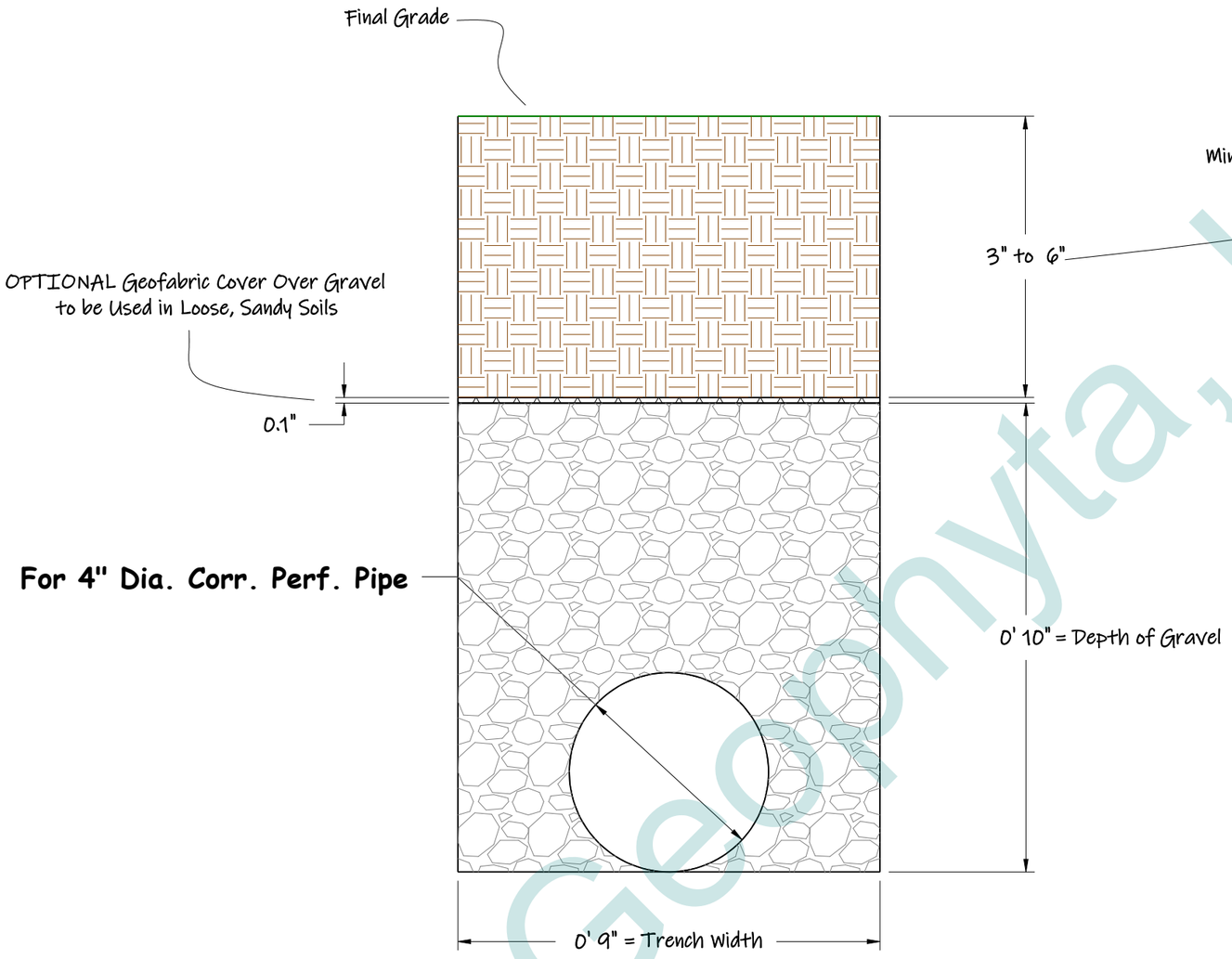


Free-Falling Sample Port/Box

DESIGNER: SETH V. LAYNE, GEOPHYTA INC. 23.MAY.22



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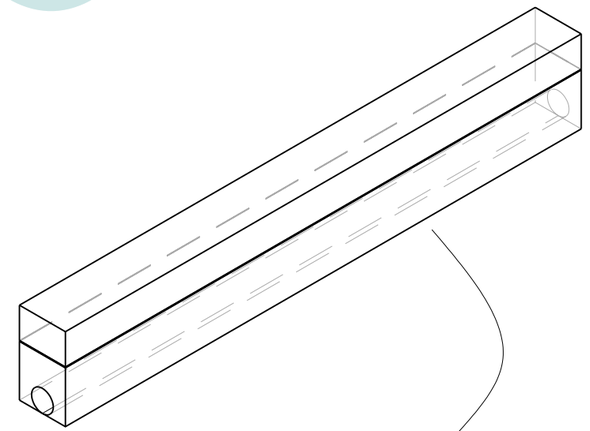

Trench Bottom Minimum Slope =
1.2" Per 100' or 0.1%

INSTALLER MUST RECORD ACTUAL TRENCH DIMENSIONS & COMPONENTS ON AS-BUILT DRAWINGS SUBMITTED TO HEALTH DEPARTMENT

Trencher Dug Interceptor, Perimeter &
Engineered Drain With 10 Inch Deep Gravel